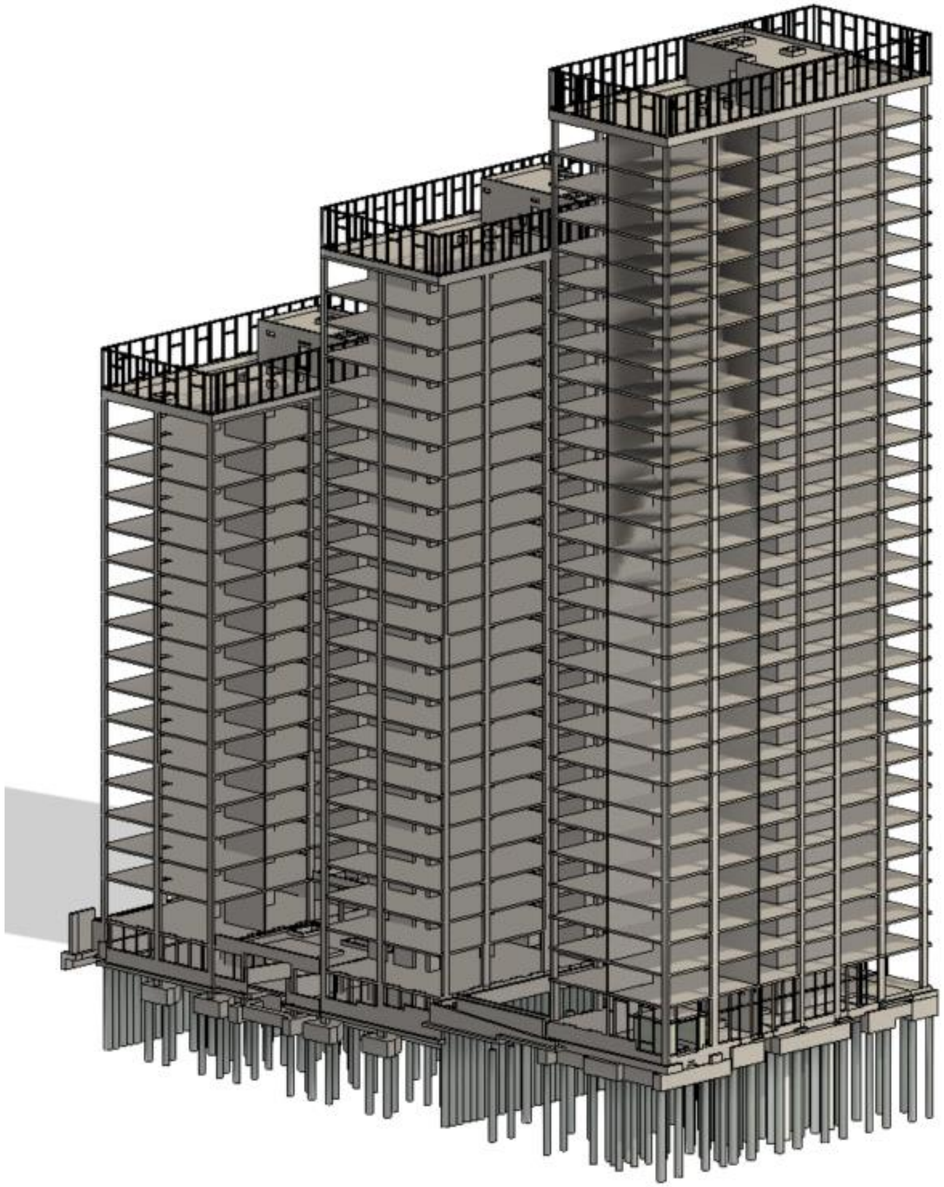

CIVIC

Tall Buildings Conference – iQ Chandos House

March 2026

thriving together

About Us

Civic is a team of system thinkers in the built environment.

We’re creating positive impact for people, place and the planet.

Given the climate and societal change we must respond to and recognising that the environment functions as a single system, we’ve carefully curated a team centred around built environment engineering, alongside transport, heritage, archaeology, sustainability, and place-based consultancy.

Team Civic is united by its creative belief, bringing art and science together to solve problems. Together we’re thoughtful, considerate disruptors with a clear mission - to care for and protect our climate and communities.

We are passionate about our responsibility to leave a positive legacy through our work, for neighbourhoods now and the next generation. This is reflected in the vision we have set ourselves of having a positive impact on the environment and enabling people to lead healthier and happier lives.

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Our Locations

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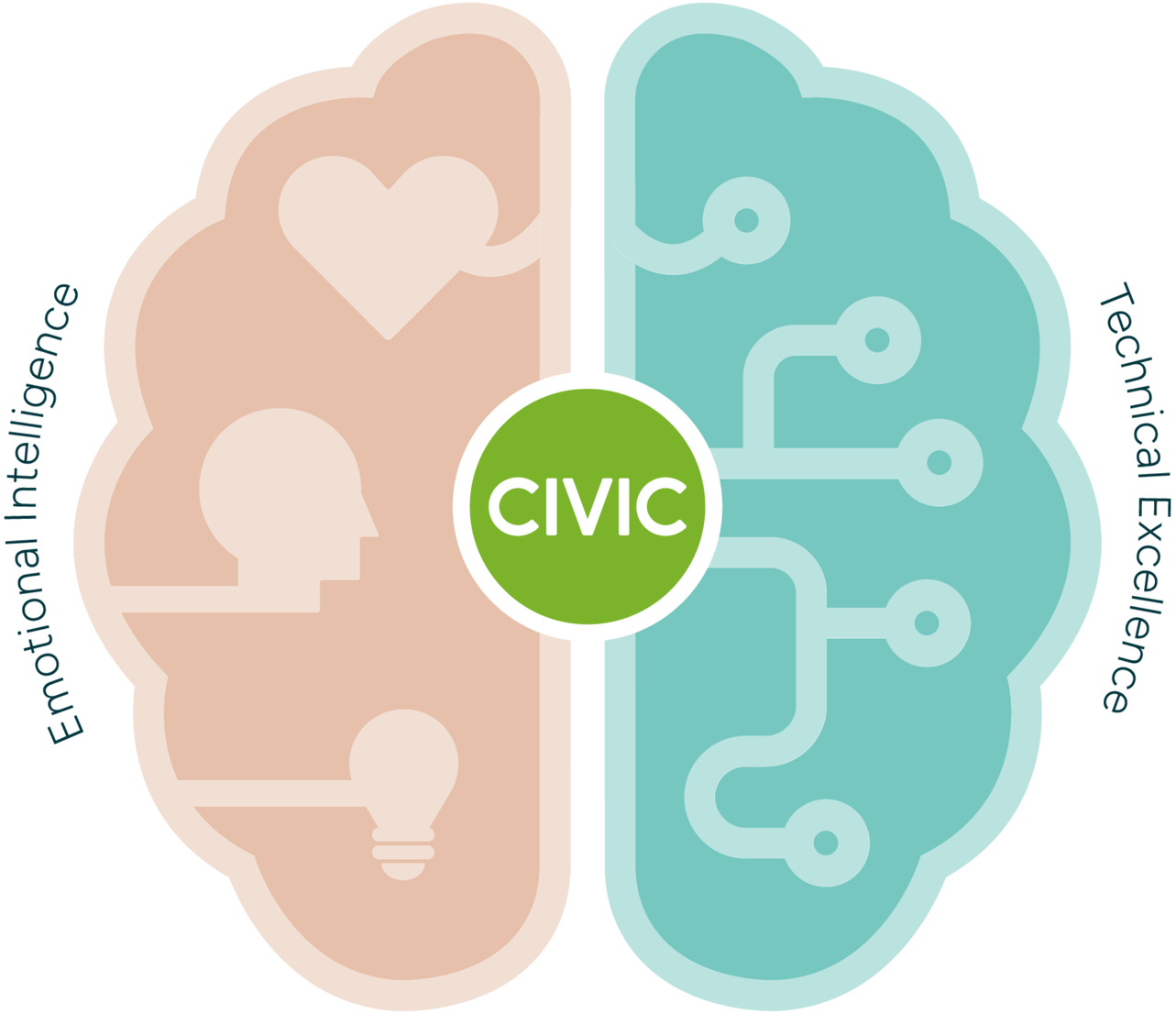
Our Space

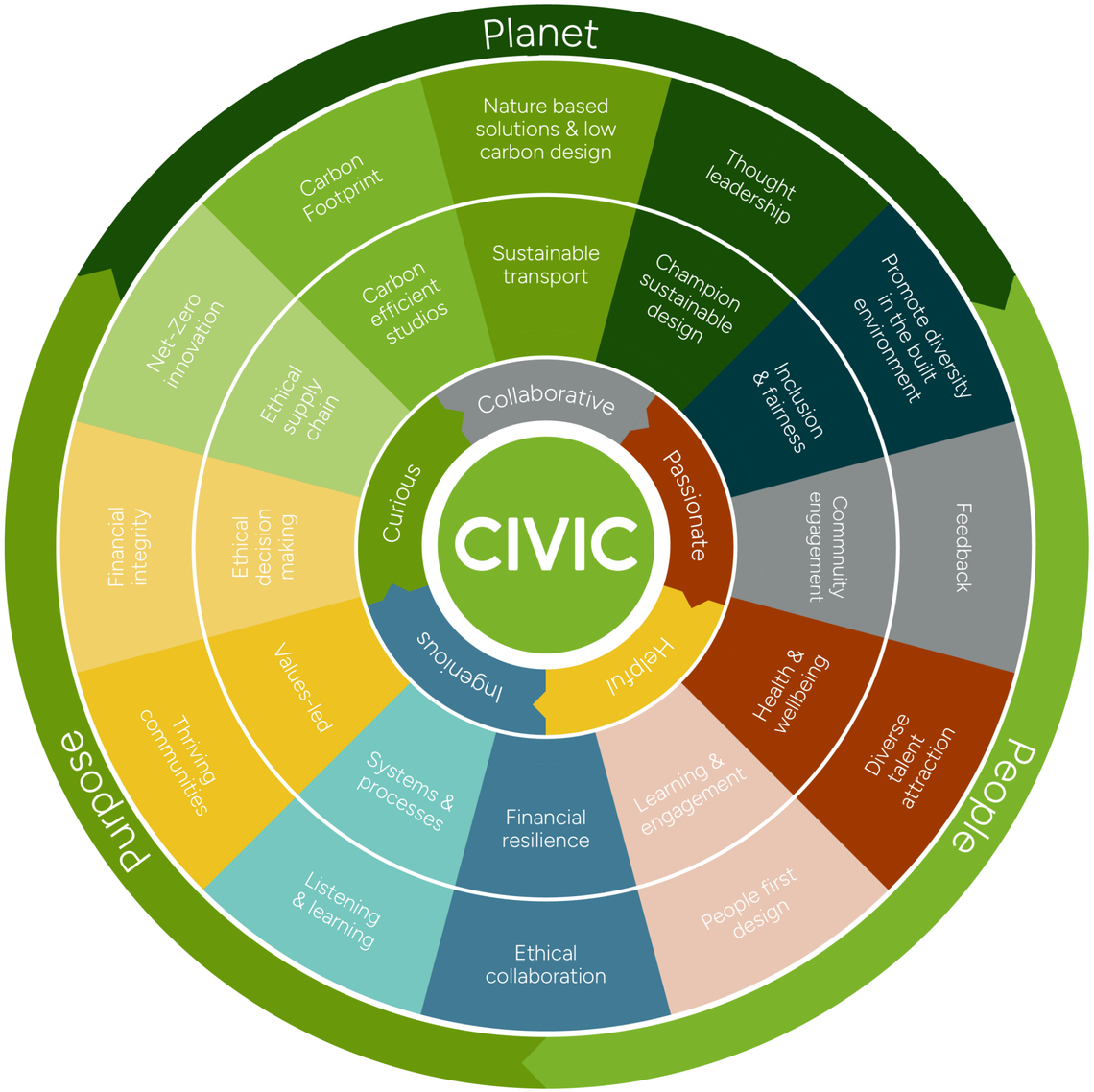
CIVIC

Emotional Intelligence



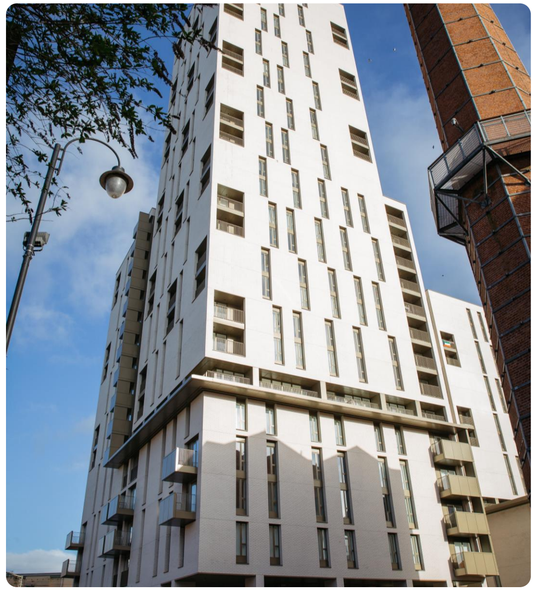
CIVIC

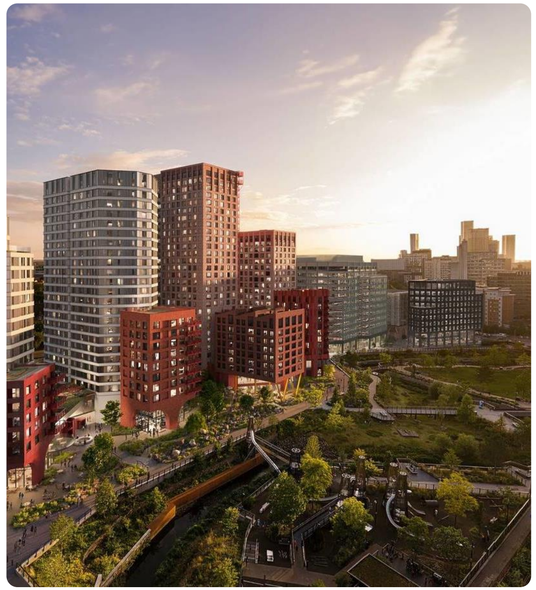
Our Conscience

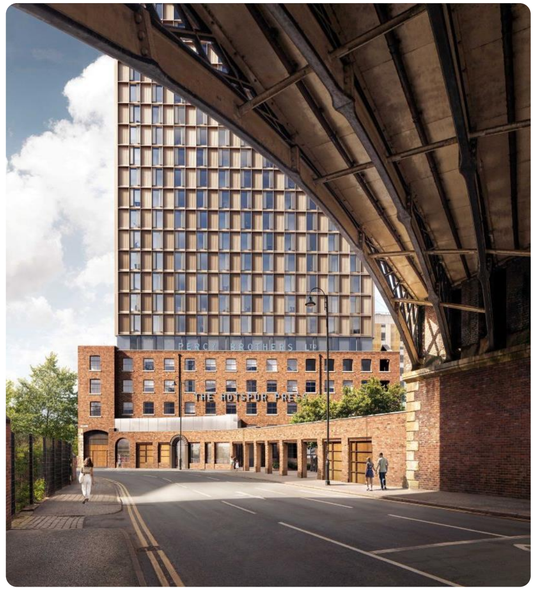


- We have always pursued a sustainable design agenda, prioritised nature-based solutions & made well-informed decisions guided by our vision and values
- Initially, we set this out as our ‘Climate Charter’
- Over time, we realised this wasn’t an accurate reflection of our responsibilities and our impact
- This inspired us to develop ‘our conscience’
- It’s our response to the ESG agenda & is a ‘living’ framework designed to reflect the people we are, how we behave, feel, collaborate and act

CIVIC







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iQ Chandos House

Manchester

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iQ Chandos House,

Manchester

Client: iQ Student Accommodation

Architect: Shepperd Robson

Contractor: Bowmer and Kirkland

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Existing Site (Civic) Day 0

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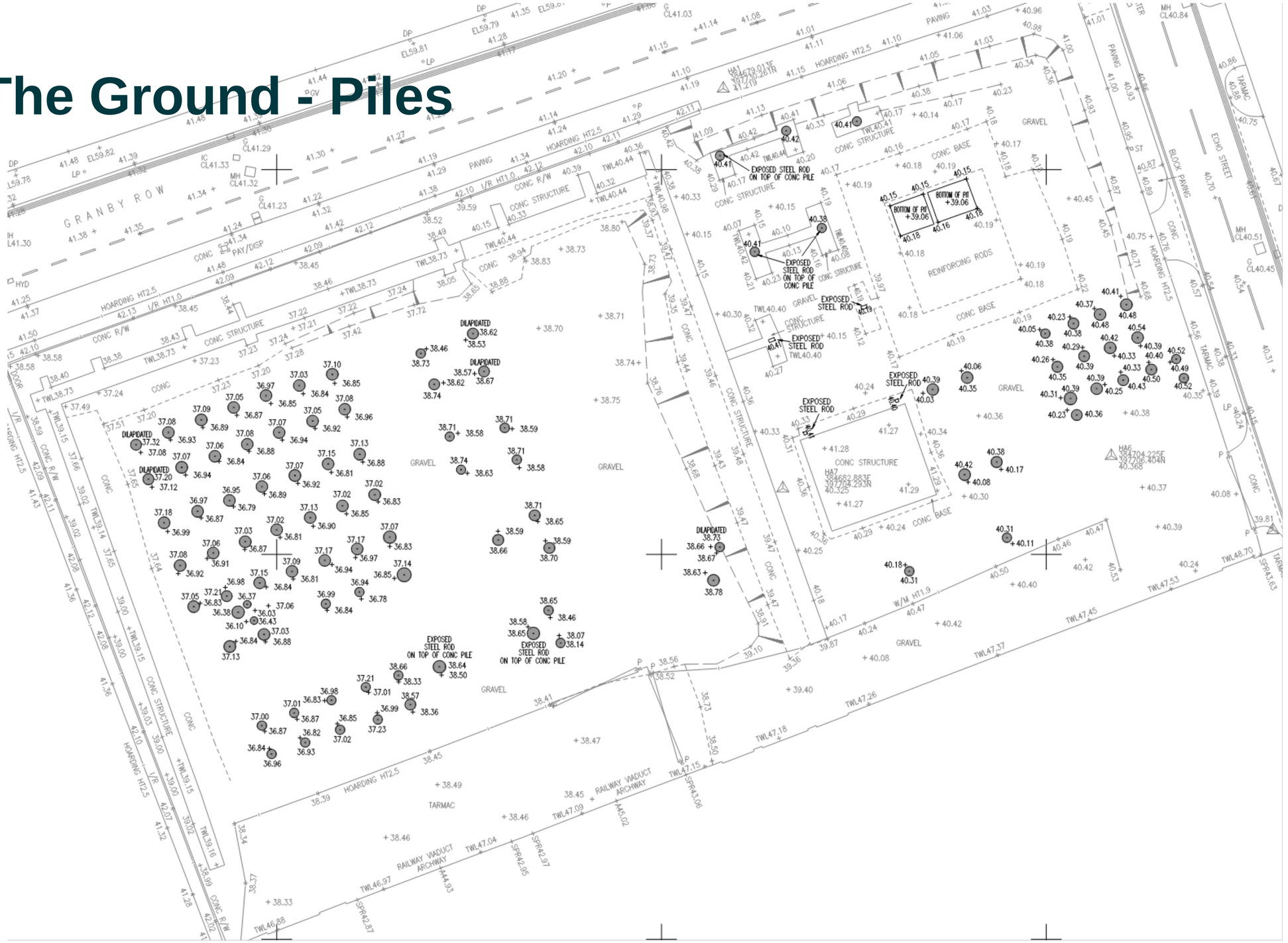
iQ Chandos House,

Manchester

CIVIC

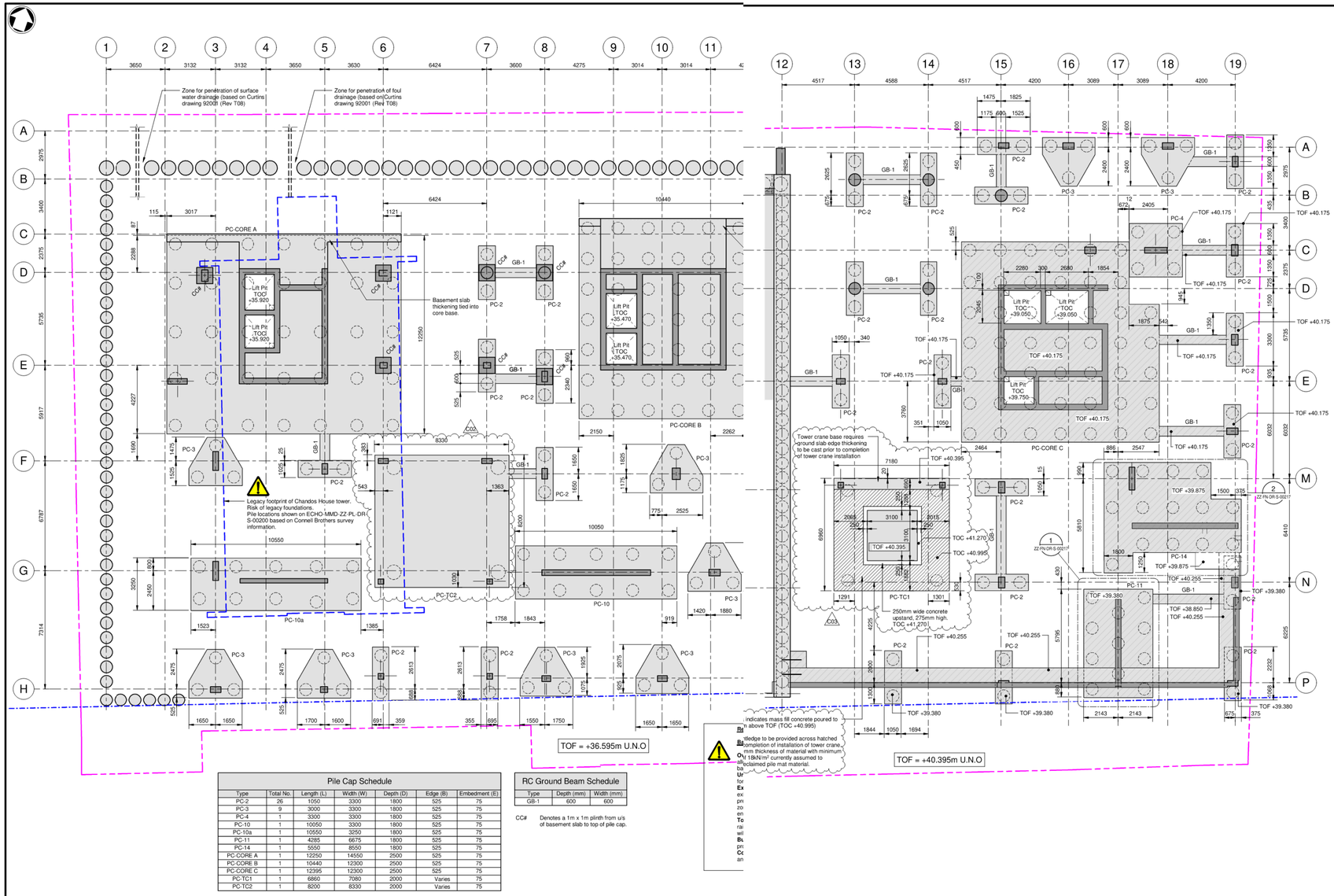
CIVIC

In The Ground - Piles



CIVIC

In The Ground - Piles



Pile Cap Schedule						
Type	Total No.	Length (L)	Width (W)	Depth (D)	Edge (B)	Embedment (E)
PC-2	26	1050	3300	1800	525	75
PC-3	9	3000	3300	1800	525	75
PC-4	1	3300	3300	1800	525	75
PC-10	1	10050	3300	1800	525	75
PC-10a	1	10550	3250	1800	525	75
PC-11	1	4285	6675	1800	525	75
PC-14	1	5550	8550	1800	525	75
PC-CORE A	1	12250	14550	2500	525	75
PC-CORE B	1	10440	12300	2500	525	75
PC-CORE C	1	12395	12300	2500	525	75
PC-TC1	1	6960	7180	2100	Varies	175
PC-TC2	1	8200	8330	2000	Varies	75

RC Ground Beam Schedule		
Type	Depth (mm)	Width (mm)
GB-1	600	600

CC# Denotes a 1m x 1m plinth from u/s of basement slab to top of pile cap.

17/04/2020 14:51:50 BIM 360://Echo Street/ECHO-MMD-ZZ-XX-MS-S-00001.rvt

Pile Cap Schedule						
Type	Total No.	Length (L)	Width (W)	Depth (D)	Edge (B)	Embedment (E)
PC-2	26	1050	3300	1800	525	75
PC-3	9	3000	3300	1800	525	75
PC-4	1	3300	3300	1800	525	75
PC-10	1	10050	3300	1800	525	75
PC-10a	1	10550	3250	1800	525	75
PC-11	1	4285	6675	1800	525	75
PC-14	1	5550	8550	1800	525	75
PC-CORE A	1	12250	14550	2500	525	75
PC-CORE B	1	10440	12300	2500	525	75
PC-CORE C	1	12395	12300	2500	525	75
PC-TC1	1	6960	7180	2100	Varies	175
PC-TC2	1	8200	8330	2000	Varies	75

RC Ground Beam Schedule		
Type	Depth (mm)	Width (mm)
GB-1	600	600

Residual Risk

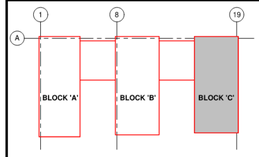
Basement and Foundations

Overloading of Vimto Park retaining wall: Historic record calculations for the Vimto Park wall indicate that the original design did not allow for surcharge loading. Exclusion zone width equal to the retained height of the existing wall to be adopted until the completion of the backfill between the existing and new wall is complete.
Unexploded Ordnance: Site is classified as medium risk of encountering unexploded ordnance. Refer to detailed UXO risk assessment for recommendations.
Existing foundations: It has not currently been possible to obtain through ground investigation the depth, extent and nature of the existing Chandos House foundations. Record drawings have been obtained which identify piled foundations on an irregular grid are present. The Mott MacDonald foundation design has taken cognisance in the existing foundation arrangement and have set an exclusion zone around existing foundations to allow for out of plan position and out of verticality tolerance of the foundations to reduce the risk of encountering existing foundations in the piling works.
Tower crane in close proximity to Network Rail assets: Collapse of tower cranes and/or falling materials from the crane onto the railway viaduct or other adjacent areas. Method statement to consider lifting adjacent to third party properties. Tower crane foundation will need to be CAT3 checked by an appropriately qualified engineer for Network Rail Approval.
Building in close proximity to Network Rail structures: Risk that ground movements occur which are detrimental to Network Rail properties. Monitoring to be carried out and action levels agreed in accordance with Network Rail requirements.
Collapse of contiguous walls: Deep foundations are required, risk of undermining the boundary retaining walls. Construction sequence and maximum depth of excavation to be agreed with the Contractor and designed for by the piling subcontractor.

Notes

1. This drawing is to be read in conjunction with the General Notes drawing: ECHO-MMD-ZZ-XX-DR-S-00001 & Mott MacDonald Design Risk Schedule; ECHO-MMD-ZZ-XX-SH-S-0001.
2. Do not scale from this drawing.
3. All dimensions and in millimetres U.N.O.
4. All levels are in metres U.N.O.
5. All Columns are aligned to the slab edge unless noted otherwise.
6. For reinforcement rates and steelwork allowances refer to report ref: ECHO-MMD-XX-XX-RP-S-0003.

Key to symbols



Reference drawings

Rev	Date	Drawn	Description	Chk'd	App'd
C03	07.05.2020	MES	PC-TC1 Revised	AJS	IMB
C02	17.04.2020	MES	Revised as Clouded. PC-TC1 Abeyance Cloud Removed	AJS	IMB
C01	13.02.2020	AJL	Construction Issue	AJS	IMB

Status Stamp

CONSTRUCTION

Mott MacDonald
4th Floor
Derwent House
150 Arundel Gate
Sheffield
S1 2JY
United Kingdom

Client

iQ Student Accomodation

VINCI CONSTRUCTION UK

Title

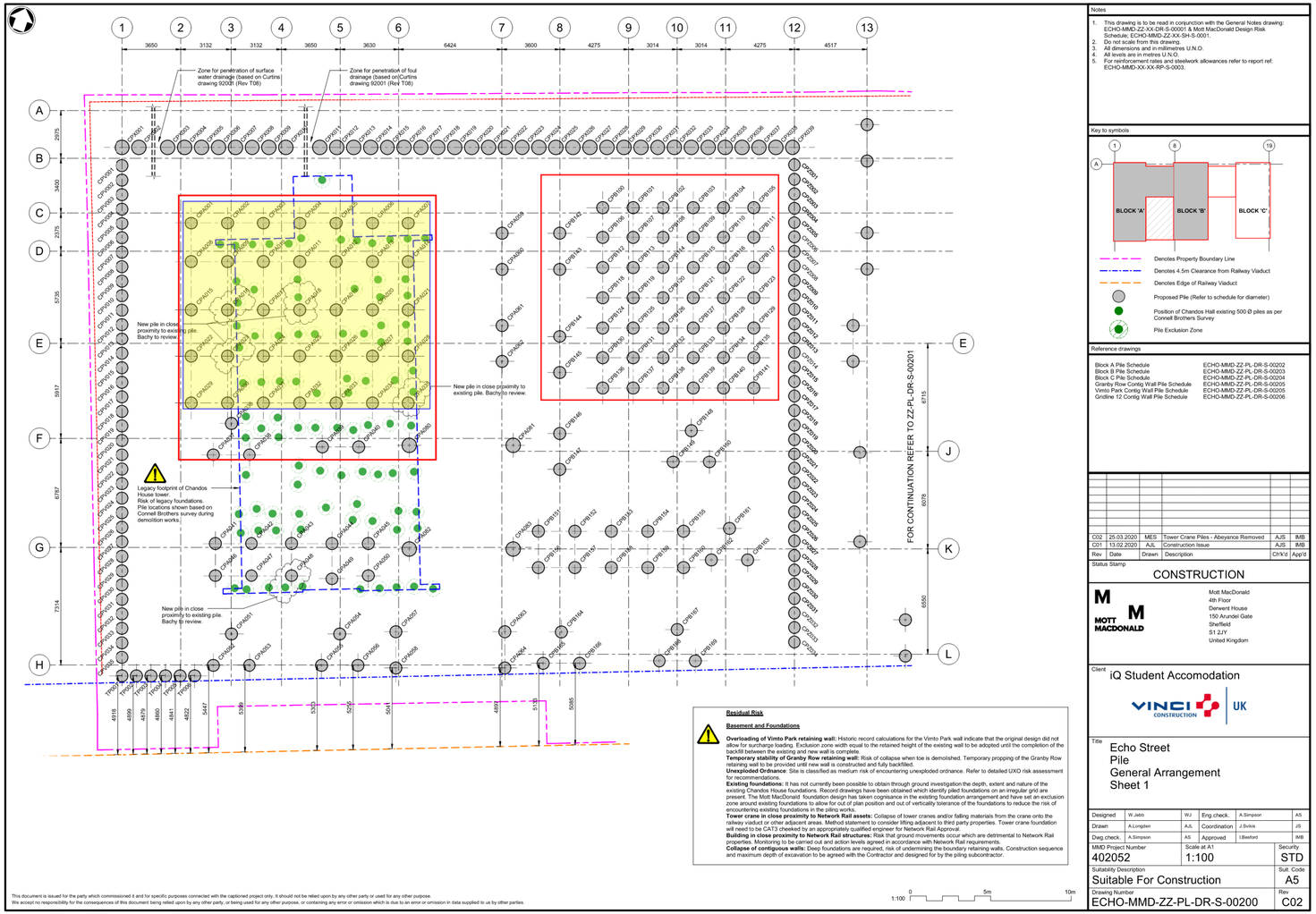
Echo Street
Foundations
General Arrangement
Sheet 2

Designed	W.Jebb	WJ	Eng.check.	A.Simpson	AS
Drawn	A.Longden	AJL	Coordination	J.Sivkis	JS
Dwg.check.	A.Simpson	AS	Approved	I.Besford	IMB

MMD Project Number	Scale at A1	Security
402052	1:100	STD
Suitability Description		Suit. Code
Suitable For Construction		A5
Drawing Number		Rev
ECHO-MMD-ZZ-FN-DR-S-00211		C03

0 5m 10m
1:100

In The Ground - Piles



Residual Risk

Basement and Foundations

Overloading of Vinto Park retaining wall: Historic record calculations for the Vimto Park wall indicate that the original design did not allow for surcharge loading. Exclusion zone width equal to the retained height of the existing wall to be adopted until the completion of the backfill between the existing and new wall is complete.
Temporary stability of Granby Row retaining wall: Risk of collapse when toe is demolished. Temporary propping of the Granby Row retaining wall to be provided until new wall is constructed and fully backfilled.
Unexploded Ordnance: Site is classified as medium risk of encountering unexploded ordnance. Refer to detailed UXO risk assessment for recommendations.
Existing foundations: It has not currently been possible to obtain through ground investigation the depth, extent and nature of the existing Chandos House foundations. Record drawings have been obtained which identify piled foundations on an irregular grid are present. The Mott MacDonald foundation design has taken cognisance in the existing foundation arrangement and have set an exclusion zone around existing foundations to allow for out of plan position and out of verticality tolerance of the foundations to reduce the risk of encountering existing foundations in the piling works.
Tower crane in close proximity to Network Rail assets: Collapse of tower cranes and/or falling materials from the crane onto the railway viaduct or other adjacent areas. Method statement to consider lifting adjacent to third party properties. Tower crane foundation will need to be CAT3 checked by an appropriately qualified engineer for Network Rail Approval.
Building in close proximity to Network Rail structures: Risk that ground movements occur which are detrimental to Network Rail properties. Monitoring to be carried out and action levels agreed in accordance with Network Rail requirements.
Collapse of contiguous walls: Deep foundations are required, risk of undermining the boundary retaining walls. Construction sequence and maximum depth of excavation to be agreed with the Contractor and designed for by the piling subcontractor.

Notes

1. This drawing is to be read in conjunction with the General Notes drawing: ECHO-MMD-ZZ-XX-DR-S-00001 & Mott MacDonald Design Risk Schedule; ECHO-MMD-ZZ-XX-SH-S-0001.
2. Do not scale from this drawing.
3. All dimensions and in millimetres U.N.O.
4. All levels are in metres U.N.O.
5. For reinforcement rates and steelwork allowances refer to report ref: ECHO-MMD-XX-XX-RP-S-0003.

Key to symbols

Denotes Property Boundary Line
Denotes 4.5m Clearance from Railway Viaduct
Denotes Edge of Railway Viaduct
Proposed Pile (Refer to schedule for diameter)
Position of Chandos Hall existing 500 Ø piles as per Connell Brothers Survey
Pile Exclusion Zone

Reference drawings

Block A Pile Schedule	ECHO-MMD-ZZ-PL-DR-S-00202
Block B Pile Schedule	ECHO-MMD-ZZ-PL-DR-S-00203
Block C Pile Schedule	ECHO-MMD-ZZ-PL-DR-S-00204
Granby Row Contig Wall Pile Schedule	ECHO-MMD-ZZ-PL-DR-S-00205
Vimto Park Contig Wall Pile Schedule	ECHO-MMD-ZZ-PL-DR-S-00205
Gridline 12 Contig Wall Pile Schedule	ECHO-MMD-ZZ-PL-DR-S-00206

Rev	Date	Drawn	Description	Ch'k'd	App'd
C02	25.03.2020	MES	Tower Crane Piles - Abeyance Removed	AJS	IMB
C01	13.02.2020	AJL	Construction Issue	AJS	IMB

Status Stamp

CONSTRUCTION

Mott MacDonald
4th Floor
Derwent House
150 Arundel Gate
Sheffield
S1 2JY
United Kingdom

Client: iQ Student Accomodation

VINCI CONSTRUCTION UK

Title: Echo Street
Pile
General Arrangement
Sheet 1

Designed	W.Jabb	W.J	Eng.check.	A.Simpson	AS
Drawn	A.Longden	AJL	Coordination	J.Sirkis	JS
Dwg.check.	A.Simpson	AS	Approved	I.Blesford	IMB

MMD Project Number	Scale at A1	Security
402052	1:100	STD
Suitability Description		Suit. Code
Suitable For Construction		A5
Drawing Number		Rev
ECHO-MMD-ZZ-PL-DR-S-00200		C02

1:100 0 5m 10m

25/03/2020 12:22:27 BIM 360://Echo Street/ECHO-MMD-ZZ-XX-M3-S-00001.rvt

Block A - Pile Schedule

						Vertical Actions						Horizontal Actions	
Pile Ref	Pile Dia Ø (mm)	Pile Cut-Off Level (mAOD)	Minimum Embedment (mm)	Easting (m)	Northing (m)	Ed SLS Comb (Max) (kN)	Ed SLS Comp (Min) (kN)	Ed Set B (A1) ULS Comb (Max) (kN)	Ed Set B (A1) ULS Comb (Min) (kN)	Ed Set C (A2) ULS Comb (Max) (kN)	Ed Set C (A2) ULS Comb (Min) (kN)	Ed Set B (A1) ULS Comb (kN)	Ed Set C (A2) ULS Comb (kN)
CPA001	750	34.170	75	384640.889	397707.206	2500	100	3500	100	2700	100	100	90
CPA002	750	34.170	75	384643.009	397707.960	2500	100	3500	100	2700	100	100	90
CPA003	750	34.170	75	384645.129	397708.715	2500	100	3500	100	2700	100	100	90
CPA004	750	34.170	75	384647.248	397709.469	2500	100	3500	100	2700	100	100	90
CPA005	750	34.170	75	384649.368	397710.224	2500	100	3500	100	2700	100	100	90
CPA006	750	34.170	75	384651.488	397710.978	2500	100	3500	100	2700	100	100	90
CPA007	750	34.170	75	384653.608	397711.732	2500	100	3500	100	2700	100	100	90
CPA008	750	34.170	75	384641.694	397704.945	2500	100	3500	100	2700	100	100	90
CPA009	750	34.170	75	384643.814	397705.699	2500	100	3500	100	2700	100	100	90
CPA010	750	34.170	75	384645.933	397706.454	2500	100	3500	100	2700	100	100	90
CPA011	750	34.170	75	384648.053	397707.208	2500	100	3500	100	2700	100	100	90
CPA012	750	34.170	75	384650.173	397707.962	2500	100	3500	100	2700	100	100	90
CPA013	750	34.170	75	384652.293	397708.717	2500	100	3500	100	2700	100	100	90
CPA014	750	34.170	75	384654.412	397709.471	2500	100	3500	100	2700	100	100	90
CPA015	750	34.170	75	384642.700	397702.119	2500	100	3500	100	2700	100	100	90
CPA016	750	34.170	75	384644.819	397702.873	2500	100	3500	100	2700	100	100	90
CPA017	750	34.170	75	384646.939	397703.627	2500	100	3500	100	2700	100	100	90
CPA018	750	34.170	75	384649.059	397704.382	2500	100	3500	100	2700	100	100	90
CPA019	750	34.170	75	384651.179	397705.136	2500	100	3500	100	2700	100	100	90
CPA020	750	34.170	75	384653.298	397705.890	2500	100	3500	100	2700	100	100	90
CPA021	750	34.170	75	384655.418	397706.645	2500	100	3500	100	2700	100	100	90
CPA022	750	34.170	75	384643.672	397699.386	2500	100	3500	100	2700	100	100	90
CPA023	750	34.170	75	384645.792	397700.141	2500	100	3500	100	2700	100	100	90
CPA024	750	34.170	75	384647.911	397700.895	2500	100	3500	100	2700	100	100	90
CPA025	750	34.170	75	384650.031	397701.650	2500	100	3500	100	2700	100	100	90
CPA026	750	34.170	75	384652.151	397702.404	2500	100	3500	100	2700	100	100	90
CPA027	750	34.170	75	384654.271	397703.158	2500	100	3500	100	2700	100	100	90
CPA028	750	34.170	75	384656.391	397703.913	2500	100	3500	100	2700	100	100	90
CPA029	750	34.170	75	384644.644	397696.654	2500	100	3500	100	2700	100	100	90
CPA030	750	34.170	75	384646.764	397697.409	2500	100	3500	100	2700	100	100	90
CPA031	750	34.170	75	384648.884	397698.163	2500	100	3500	100	2700	100	100	90
CPA032	750	34.170	75	384651.004	397698.917	2500	100	3500	100	2700	100	100	90
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CPA034	750	34.170	75	384655.243	397700.426	2500	100	3500	100	2700	100	100	90
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CPA045	750	34.870	75	384657.928	397692.118	2400	200	3300	100	2500	200	40	40
CPA046	750	34.870	75	384649.648	397687.048	2400	200	3300	100	2500	200	40	40
CPA047	750	34.870	75	384651.768	397687.803	2400	200	3300	100	2500	200	40	40
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CPA050	750	34.870	75	384658.598	397690.234	2400	200	3300	100	2500	200	40	40
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CPA052	750	34.870	75	384651.402	397681.740	2300	1400	3200	1400	2500	1400	0	0
CPA053	750	34.870	75	384653.522	397682.495	2300	1400	3200	1400	2500	1400	0	0
CPA054	750	34.870	75	384658.151	397686.212	1400	900	2000	900	1600	900	0	0
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CPA059	750	34.870	75	384659.312	397713.085	1900	1200	2700	1200	2100	1200	0	0
CPA060	750	34.870	75	384660.066	397710.965	1900	1200	2700	1200	2100	1200	0	0
CPA061	750	34.870	75	384661.235	397707.682	1200	700	1700	700	1300	700	0	0
CPA062	750	34.870	75	384661.989	397705.562	1200	700	1700	700	1300	700	0	0
CPA063	750	34.870	75	384667.784	397689.786	400	200	600	200	500	200	0	0
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CPA081	900	34.670	75	384664.379	397700.899	4150	-550	5500	-1050	4750	-800	90	75
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Block A - Temporary Pile Schedule

						Vertical Actions						Horizontal Actions	
Pile Ref	Pile Dia Ø (mm)	Pile Cut-Off Level (mAOD)	Minimum Embedment (mm)	Easting (m)	Northing (m)	Ed SLS Comb (Max) (kN)	Ed SLS Comp (Min) (kN)	Ed Set B (A1) ULS Comb (Max) (kN)	Ed Set B (A1) ULS Comb (Min) (kN)	Ed Set C (A2) ULS Comb (Max) (kN)	Ed Set C (A2) ULS Comb (Min) (kN)	Ed Set B (A1) ULS Comb (kN)	Ed Set C (A2) ULS Comb (kN)
TP001	750	38.390	0	384646.291	397679.231								
TP002	750	38.390	0	384647.139	397679.533								
TP003	750	38.390	0	384647.987	397679.835								
TP004	750	38.390	0	384648.834	397680.137								
TP005	750	38.390	0	384649.682	397680.438								
TP006	750	38.390	0	384650.530	397680.740								

CIVIC

In The Ground - Piles

ECHO-BSL-ZZ-PL-SH-X-00001 rev C02

BACHY SOLETANCHE

Echo Street - Bearing Piles - NO TESTING
Manchester

Codes:	BS EN 1997-1:2004 & BS EN 1992-1-1:2004
Drawings:	ECHO-MMD-ZZ-PL-DR-S-00202 rev C02 ECHO-MMD-ZZ-PL-DR-S-00203 rev C01 ECHO-MMD-ZZ-PL-DR-S-00204 rev C02

Sheet:	of
Enq. No:	127850
Contr. No:	
Calc by:	LJE
Revision:	C02
Date:	25/03/2020

			COMBINATION 1			COMBINATION 2			REPRESENTATIVE ACTIONS																			
Pile Reference	Location	No of Piles	Vertical Action Max	Vertical Action Min	Horizontal Action	Vertical Action Max	Vertical Action Min	Horizontal Action	Vertical Action Max	Vertical Action Min	Horizontal Action	PPL	COL	Pile Dia	Pile Depth	Rock Socket	Main R/F		Links			Required Anchorage	Rebar Length	Central Bar Type		Central Bar Length	Revision	Comments
																	No	Dia	Dia		Pitch			No	Dia			
												(mOD)	(mOD)	(mm)	(m)	(m)						(m)	(m)			(m)		
CPA001	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA002	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA003	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA004	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA005	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA006	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA007	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA008	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA009	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA010	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA011	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA012	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA013	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA014	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA015	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA016	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA017	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA018	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA019	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA020	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA021	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA022	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA023	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA024	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA025	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA026	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA027	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA028	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA029	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA030	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA031	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA032	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA033	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA034	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA035	West	1	3500	100	100	2700	100	90	2500	100		38.700	34.170	750	11.20	3.50	8	B20	B10	@	275	0.685	9.0					
CPA036	West	1	5000	2300	0	3800	2300	0	3500	2300		38.700	34.870	750	13.20	5.50	8	B20	B8	@	300	0.685	7.0					
CPA037	West	1	1900	800	0	1400	800	0	1300	800		38.700	34.870	750	13.20	5.50	8	B20	B8	@	300	0.685	7.0					
CPA038	West	1	1900	800	0	1400	800	0	1300	800		38.700	34.870	750	13.20	5.50	8	B20	B8	@	300	0.685	7.0					
CPA039	West	1	2700	1100	0	2100	1100	0	1900	1100		38.700	34.870	600	11.20	3.50	6	B20	B8	@	275	0.685	7.0					
CPA040	West	1	2700	1100	0	2100	1100	0	1900	1100		38.700	34.870	600	11.20	3.50	6	B20	B8	@	275	0.685	7.0					
CPA041	West	1	3300	100	40	2500	200	40	2400	200		38.700	34.870	600	12.70	5.00	6	B20	B8	@	275	0.685	7.0					
CPA042	West	1	3300	100	40	2500	200	40	2400	200		38.700	34.870	600	12.70	5.00	6	B20	B8	@	275	0.685	7.0					
CPA043	West	1	3300	100	40	2500	200	40	2400	200		38.700	34.870	600	12.70	5.00	6	B20	B8	@	275	0.685	7.0					
CPA044	West	1	3300	100	40	2500	200	40	2400	200		38.700	34.870	600	12.70	5.00	6	B20	B8	@	275	0.685	7.0					
CPA045	West	1	3300	100	40	2500	200	40	2400	200		38.700	34.870	600	12.70	5.00	6	B20	B8	@	275	0.685	7.0					
CPA046	West	1	3300	100	40	2500	200	40	2400	200		38.700	34.870	600	12.70	5.00	6	B20	B8	@	275	0.685	7.0					
CPA047	West	1	3300	100	40	2500	200	40	2400	200		38.700	34.870	600	12.70	5.00	6	B20	B8	@	275	0.685	7.0					
CPA048	West	1	3300	100	40	2500	200	40	2400	200		38.700	34.870	600	12.70	5.00	6	B20	B8	@	275	0.685	7.0					
CPA049	West	1	3300	100	40	2500	200	40	2400	200		38.700	34.870	600	12.70	5.00	6	B20	B8	@	275	0.685	7.0					
CPA050	West	1	3300	100	40	2500	200	40	2400	200		38.700	34.870	600	12.70	5.00	6	B20	B8	@	275	0.685	7.0					
CPA051	West	1	3200	1400	0	2500	1400	0	2300	1400		38.700	34.870	600	12.70	5.00	6	B20	B8	@	275	0.685	7.0					
CPA052	West	1	3200	1400	0	2500	1400	0	2300	1400		38.700	34.870	600	12.70	5.00	6	B20	B8	@	275	0.685	7.0					
CPA053	West	1	3200	1400	0	2500	1400	0	2300	1400		38.700	34.870	600	12.70	5.00	6	B20	B8	@	275	0.685	7.0					
CPA054	West	1	2000	900	0	1600	900	0	1400	900		38.700	34.870	600	10.70	3.00	6	B20	B8	@	275	0.685	7.0					
CPA055	West	1	2000	900	0	1600	900	0	1400	900		38.700	34.870	600	10.70	3.00	6	B20	B8	@	275	0.685	7.0					
CPA056	West	1	2000	900	0	1600	900	0	1400	900		38.700	34.870	600	10.70	3.00	6	B20	B8	@	275	0.685	7.0					
CPA057	West	1	700	200	0	500	200	0	400	200		38.700	34.870	600	9.20	1.50	6	B20	B8	@	275	0.685	7.0					
CPA058	West	1	900	300	0	700	300	0	500	300		38.700	34.870	600	9.20	1.50	6	B20	B8	@	275	0.685	7.0					
CPA059	West	1	2700	1200	0	2100	1200	0	1900	1200		38.700	34.870	600	11.20	3.50	6	B20	B8	@	275	0.685	7.0					
CPA060	West	1	2700	1200	0	2100	1200	0	1900	1200		38.700	34.870	600	11.20	3.50	6	B20	B8	@	275	0.685	7.0					
CPA061	West	1	1700	700	0	1300	700	0	1200	700		38.700	34.870	600	10.20	2.50	6	B20	B8	@	275	0.685	7.0					
CPA062	West	1	1700	700	0	1300	700	0	1200	700		38.700	34.870	600	10.20	2.50	6	B20	B8	@	275	0.685	7.0					
CPA063	West	1	600	200	0	500	200	0	400	200		38.700	34.870	600	9.20	1.50	6	B20	B8	@	275	0.685	7.0					
CPA064	West	1	800	300	0	600	300	0	500	300		38.700	34.870	600	9.20	1.50	6	B20	B8	@	275	0.685	7.0					
CPA080	West	1	5500	-1050	90	4750	-800	75	4150	-550		38.700	34.670	900	12.70	5.00	10	B25	B10	@	275	0.685	11.0				C02	Abeyance removed
CPA081	West	1	5500	-1050	90	4750	-800	75	4150	-550		38.700	34.670	900	12.70	5.00	10	B25	B10	@	275	0.685	11.0				C02	Abeyance removed
CPA082	West	1	5500	-1050	90	4750	-800	75	4150	-550		38.700	34.670	900	12.70	5.00	10	B25	B10	@	275	0.685	11.0				C02	Abeyance removed
CPA083	West	1	5500	-1050	90	4750	-800	75	4150	-550		38.700	34.670	900	12.70	5.00	10	B25	B10	@	275	0.685	11.0				C02	Abeyance removed
CPB100	West	1	4000	-300	100	3200	-200	80	2800	-100		38.700	34.170	750	11.70	4.00	8	B20	B10	@	275	0.685	9.0					
CPB101	West	1	4000	-300	100	3200	-200	80	2800	-100		38.700	34.170	750	11.70	4.00	8	B20	B10	@	275	0.685	9.0					
CPB102	West	1	4000	-300	100	3200	-200	80	2800	-100		38.700	34.170	750	11.70	4.00	8	B20	B10	@	275	0.685	9.0					

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In The Ground - Piles

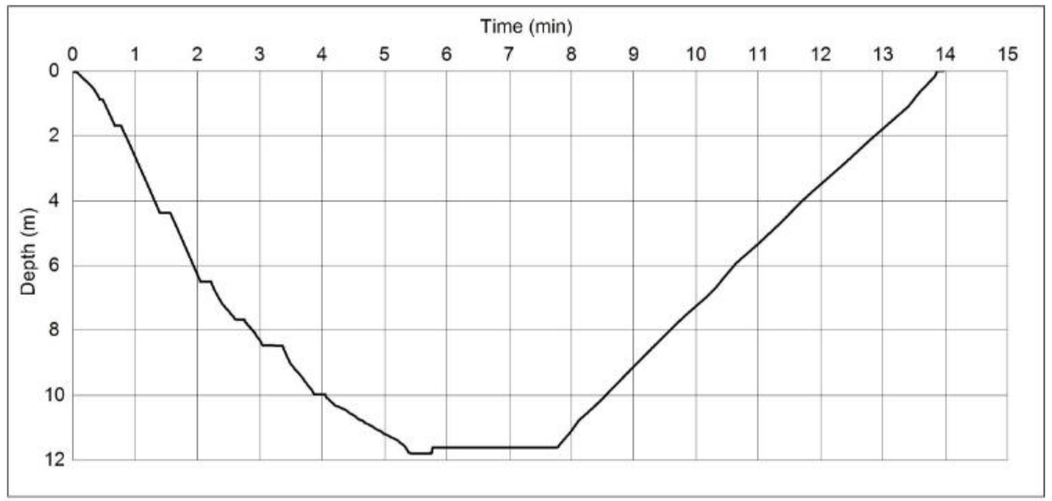
BACHY SOLETANCHE

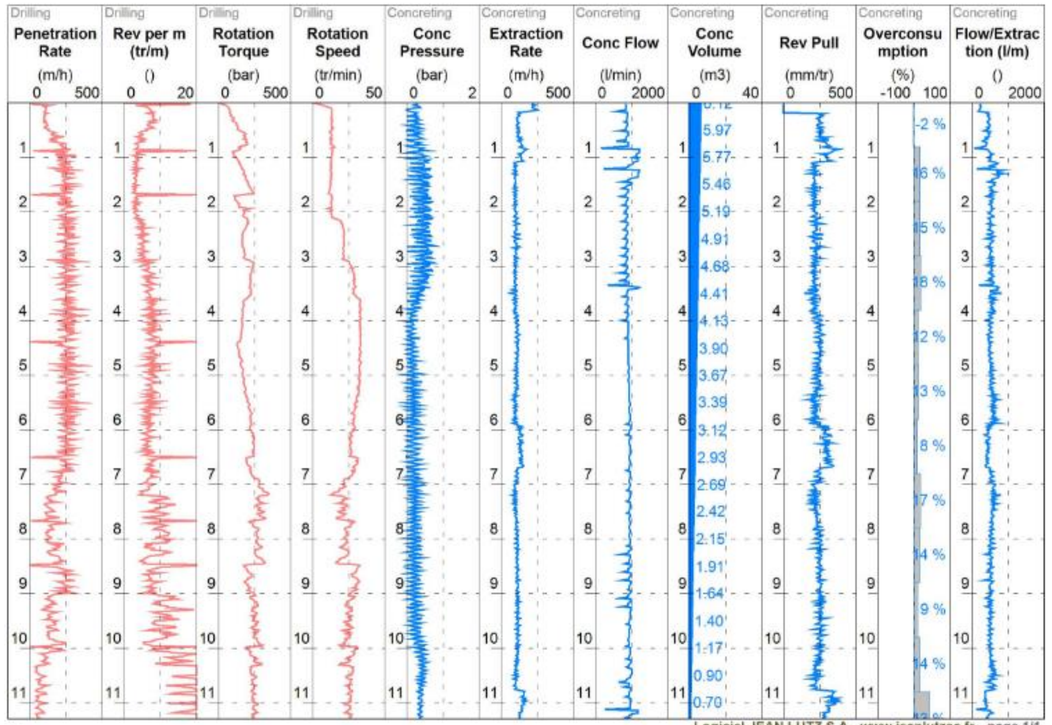
ECHO STREET (Contract: N1425)

TCT (Continuous flight auger)

Date	: 16/04/2020	Length	: 11.80 m
Drilling	: 12:47:58 - 12:53:43	Concrete volume	: 6.279 m³
Concreting	: 12:53:43 - 13:02:26	Pile concrete volume	: 6.027 m³
Pile diameter	: 75 cm	Overconsumption	: 16 %

1/100 CPB103 DXTCT 1.67/dialogmx1783 5.15.21





Logiciel JEAN LUTZ S.A - www.jeanlutzsa.fr page 1/1

BACHY SOLETANCHE

Echo Street, Manchester – Bearing Pile Design

Contract / Enquiry Name	Echo Street, Manchester
Contract / Enquiry No.	N1425 / 127850
Document Reference Number	ECHO-BSL-ZZ-PL-RP-X-0001

Chris WALLBANK..... Date: 26/02/2020.....
(Contract Manager)

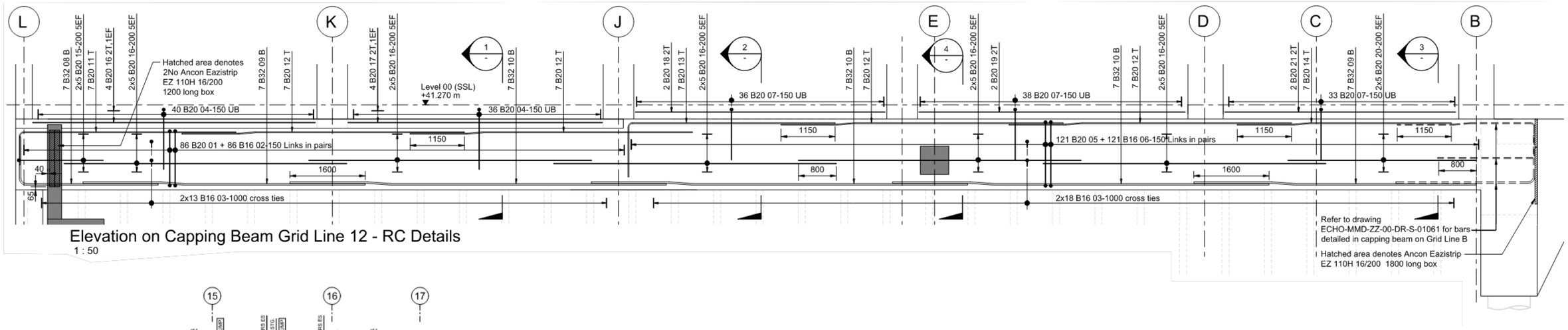
Issue Status			
Revision	**Status**	**Purpose**	**Date**
P01	**S3**	**1st issue (Bearing pile design)**	**30/01/2020**
P02	**S3**	**Revision for changes and following MM comments**	**20/02/2020**
C01	**A5**	**For Construction (no changes from rev P02)**	**26/02/2020**

Review within each individual Entity:

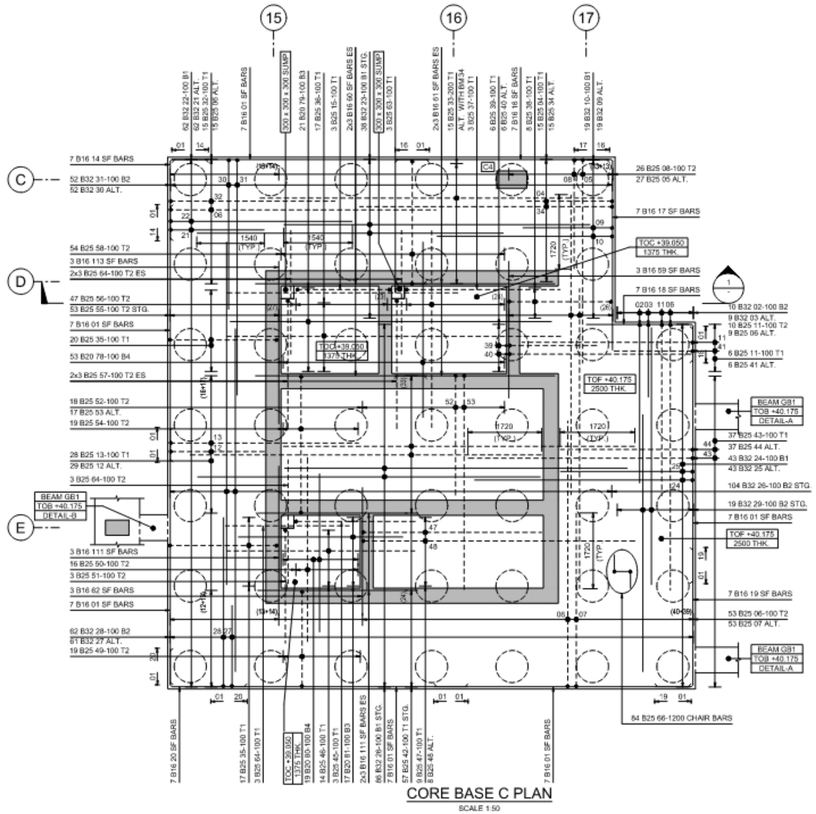
Author	Reviewed by	Approved by
Date: 26/02/20	Date: 26/02/20	Date: 26/02/20
Name: Lisa J Ellis	Name: Ana T Carvalho	Name: David A Hard
Signature:	Signature:	Signature:

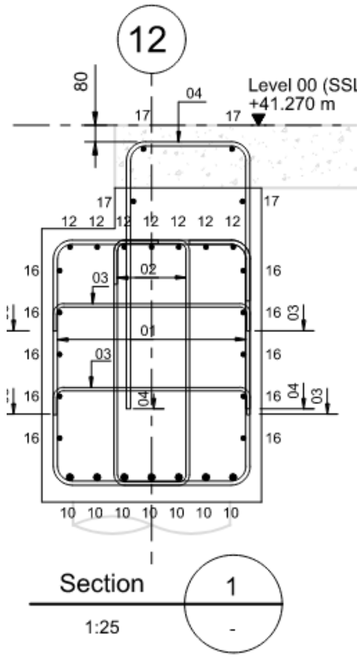
CIVIC

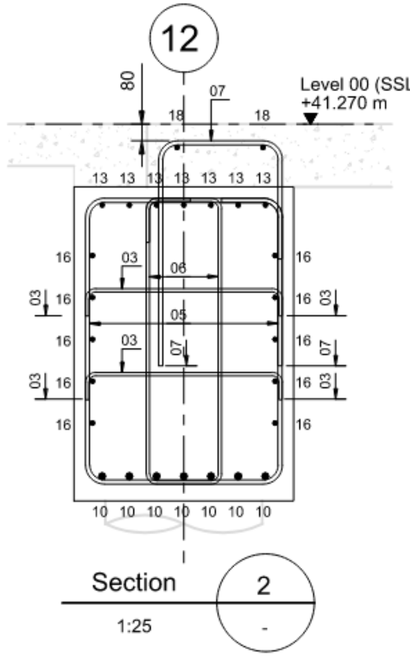
In The Ground - Foundations

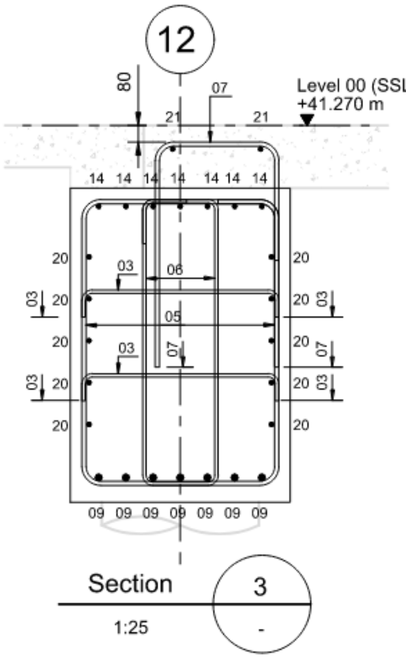


Elevation on Capping Beam Grid Line 12 - RC Details
1 : 50

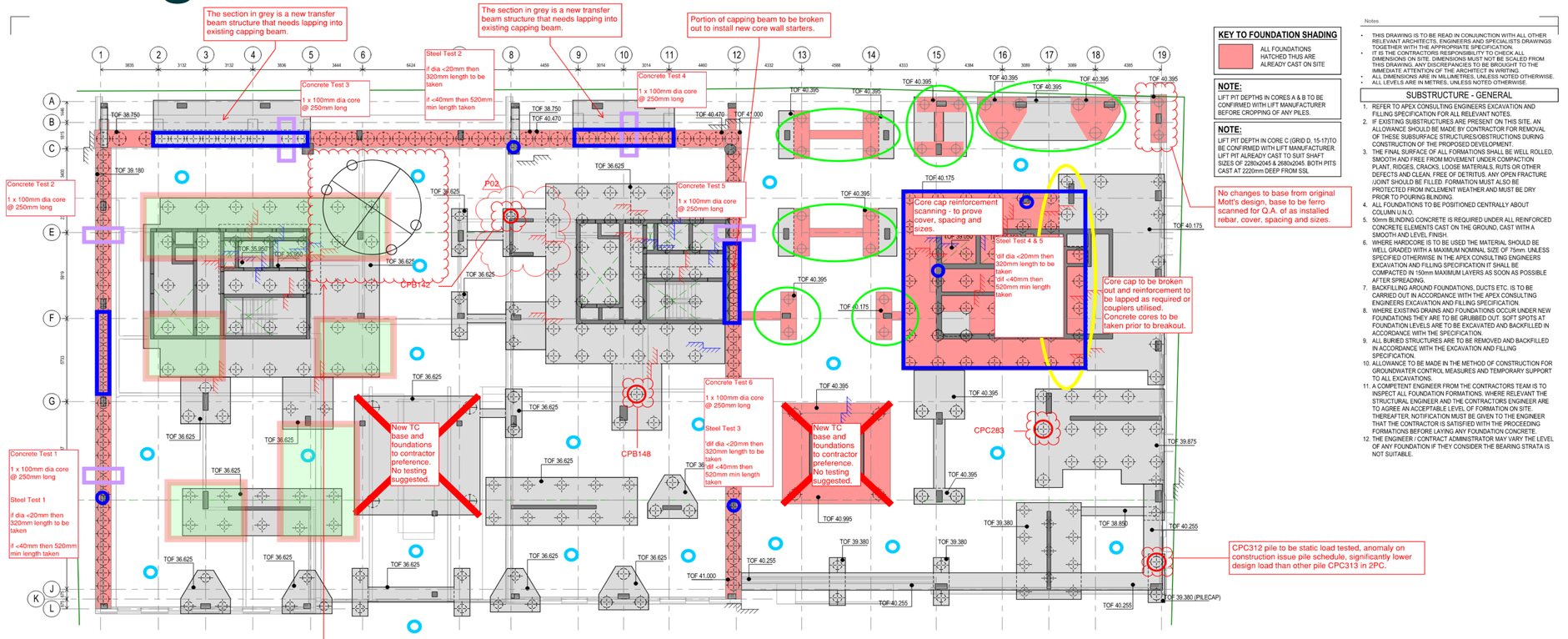








Investigations



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SOCOTEC UK Limited
Wass Way
Durham Lane Industrial Park
Stockton-on-Tees
TS16 0RG

Pile Load Test Report

SOC-FNDS-MLT-23-468.1

Contract Information

SOCOTEC UK Reference	FNDS-23-468	*Contract Reference*	C15436
Client	Volker Ground Engineering	*Client Contact*	Bilal Kothia
Client Address	Preston City Park Bluebell Way Preston PR2 5PE		
Site Address	Echo Street Manchester M1 3AL		

Digitally signed by: Michael Plummer
Date: 2023.08.29 16:37:21 Z

Abstract

This report describes the load testing carried out by SOCOTEC UK at Echo Street - Manchester on CPB148. The data presented in this report represents a summary of the measured readings due to the volume obtained. Full data records can be provided upon request.

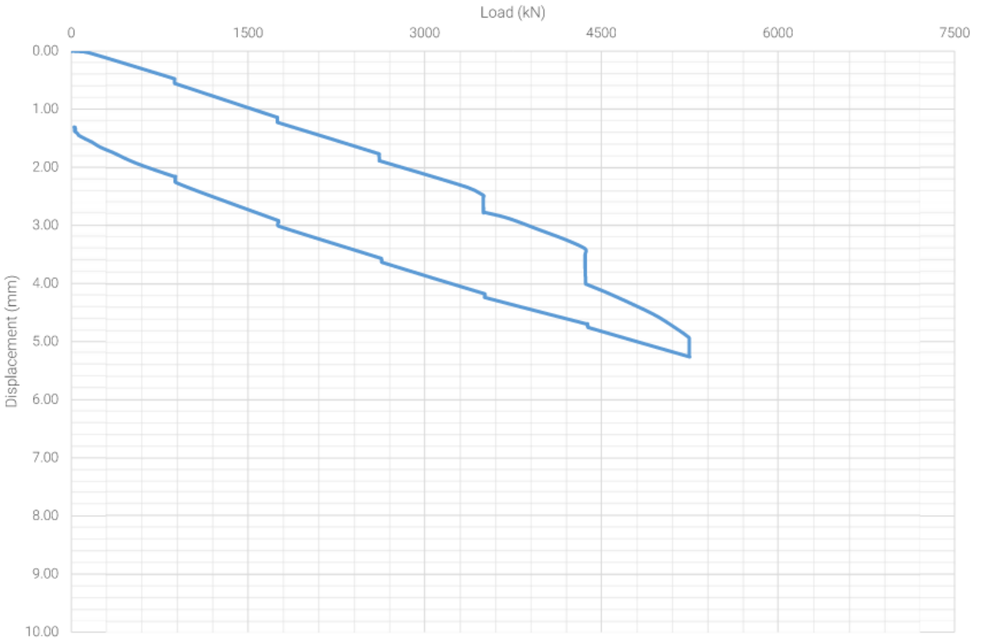
Summary

Increment	Load (kN)	Maximum Disp. (mm)	Residual Disp. (mm)
100% DVL	3500	2.77	
100% DVL + 50% SWL	5250	5.26	1.31

Revision History

Revision	Report Date	Issue Date	Author	Verifier	Revision Details
1	29/08/2023	29/08/2023	JH	MP	Initial Document

Figure 3 – Load vs. Displacement



Title

The Bachy Solentanche Pile Design Report, Appendix C, records a design settlement criteria of 10mm at SLS representative load and 20mm at 1.5 x SLS representative load for a single pile.

The below table presents the results from Socotec status load tests and compares these against the design settlement criteria of Bachy Solentanche design.

Pile	Increment	Legacy Development Pile Schedule Load (SLS) (kN)	Load (kN)	Maximum Recorded Settlement (mm)	Design Settlement Criteria (mm)	Pass/Fail
CPA007	1.0 x SLS	2500	2500	1.56	10.0	
	1.5 x SLS	N/A	3750	2.58	20.0	
CPB142	1.0 x SLS	2400	2400	1.91	10.0	
	1.5 x SLS	N/A	3600	3.07	20.0	
CPB148	1.0 x SLS	3500	3500	2.77	10.0	
	1.5 x SLS	N/A	5250	5.26	20.0	
CPC283	1.0 x SLS	3200	3200	3.20	10.0	
	1.5 x SLS	N/A	4800	6.86	20.0	

Review of the pile loading test results show all piles operate within the allowable displacement limits.

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UKAS TESTING 0262

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Table/Sheet
1/1

Date of Test
18/8/23

CONCRETE TEST RESULTS
COMPRESSIVE STRENGTH AND DENSITY OF CORES
BS EN 12504-1:2019, BS EN 12390-3:2019 and BS EN 12390-7:2019

Sandberg Reference		F27129	F27130
Site Mark/Client Reference		C1	C2
Details: - Location	Echo Street, Granby Row	GL 1H	GL 1D
- Date of coring		ND	ND
- Date received		4/8/23	4/8/23
Presence of abnormalities		None	None
Reinforcement, as received (diameter/distance)[1]	mm	None	None
Reinforcement, prepared (diameter/distance)[1]	mm	None	None
Aggregate, maximum nominal size	mm	18	22
Condition on receipt		Wrapped	Wrapped
Storage conditions		Ambient air	Ambient air
Method of End preparation (Cap/Ground)		Ground	Ground
Actual Core Lengths			
- Core length, as received	mm	302-314	298-304
- Relation to length, as-received	mm	180-285	130-235
Mean Prepared Length	mm	103	104
Mean Core Diameter d_m	mm	99	99
Length/Diameter ratio of prepared specimen	λ	1.04	1.05
Density[2] - As received	kg/m³	2360	2380
Exposure time before Test	16-24h	✓	✓
Estimation of prepared core excess voidage	%	1.5	2.0
Maximum Load at Failure	kN	535	514
Compressive Strength[3] (Measured Core Strength)	MPa (N/mm²)	69.5	66.8
Mode of Failure[4]		Normal	Normal
Deviations from standard		See footnote 2	See footnote 2
Remarks:			

1 Centre of bar to core end, before and after end preparation (eg. 20/100/40 = 20mm diameter bar, 100mm from the core end as-received and 40mm
2 Volume by measurement/water displacement, densities given to nearest 10kg/m³. Balance used complies to BSEN 12504-1:2009. (This will not reduce confidence in the test result.)
3 Compressive strength values given to nearest 0.1 MPa (N/mm²).
4 'Normal' (symmetrical failure) or otherwise as described.
ND = Not determined. NA = Not applicable.

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UKAS TESTING 0262

DRAFT

Table/Sheet
1/2

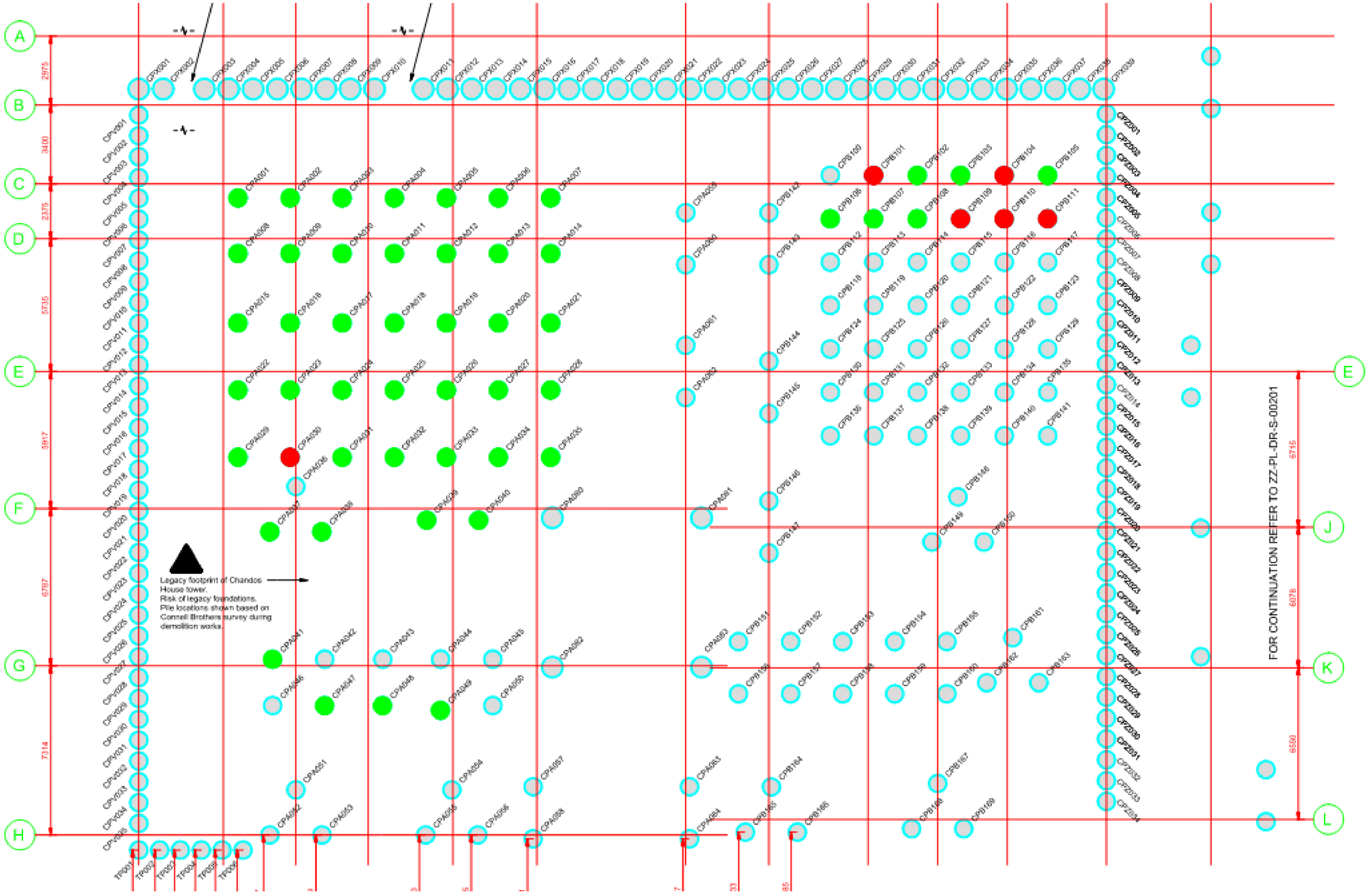
Date of Test
18/8/23

CONCRETE TEST RESULTS
COMPRESSIVE STRENGTH AND DENSITY OF CORES
BS EN 12504-1:2019, BS EN 12390-3:2019 and BS EN 12390-7:2019

Sandberg Reference		F27131	F27132
Site Mark/Client Reference		C3	C4
Details: - Location	Echo Street, Granby Row	GL 4C	GL 10C
- Date of coring		ND	ND
- Date received		4/8/23	4/8/23
Presence of abnormalities		None	None
Reinforcement, as received (diameter/distance)[1]	mm	None	20/56, 25/82, 25/84
Reinforcement, prepared (diameter/distance)[1]	mm	None	None
Aggregate, maximum nominal size	mm	18	24
Condition on receipt		Wrapped	Wrapped
Storage conditions		Ambient air	Ambient air
Method of End preparation (Cap/Ground)		Ground	Ground
Actual Core Lengths			
- Core length, as received	mm	307-310	208-214
- Relation to length, as-received	mm	170-275	100-200
Mean Prepared Length	mm	104	99
Mean Core Diameter d_m	mm	99	99
Length/Diameter ratio of prepared specimen	λ	1..05	1.00
Density[2] - As received	kg/m³	2360	2390
Exposure time before Test	16-24h	✓	✓
Estimation of prepared core excess voidage	%	3.5	2.5
Maximum Load at Failure	kN	569	550
Compressive Strength[3] (Measured Core Strength)	MPa (N/mm²)	73.9	71.4
Mode of Failure[4]		Normal	Normal
Deviations from standard		See footnote 2	See footnote 2
Remarks:			

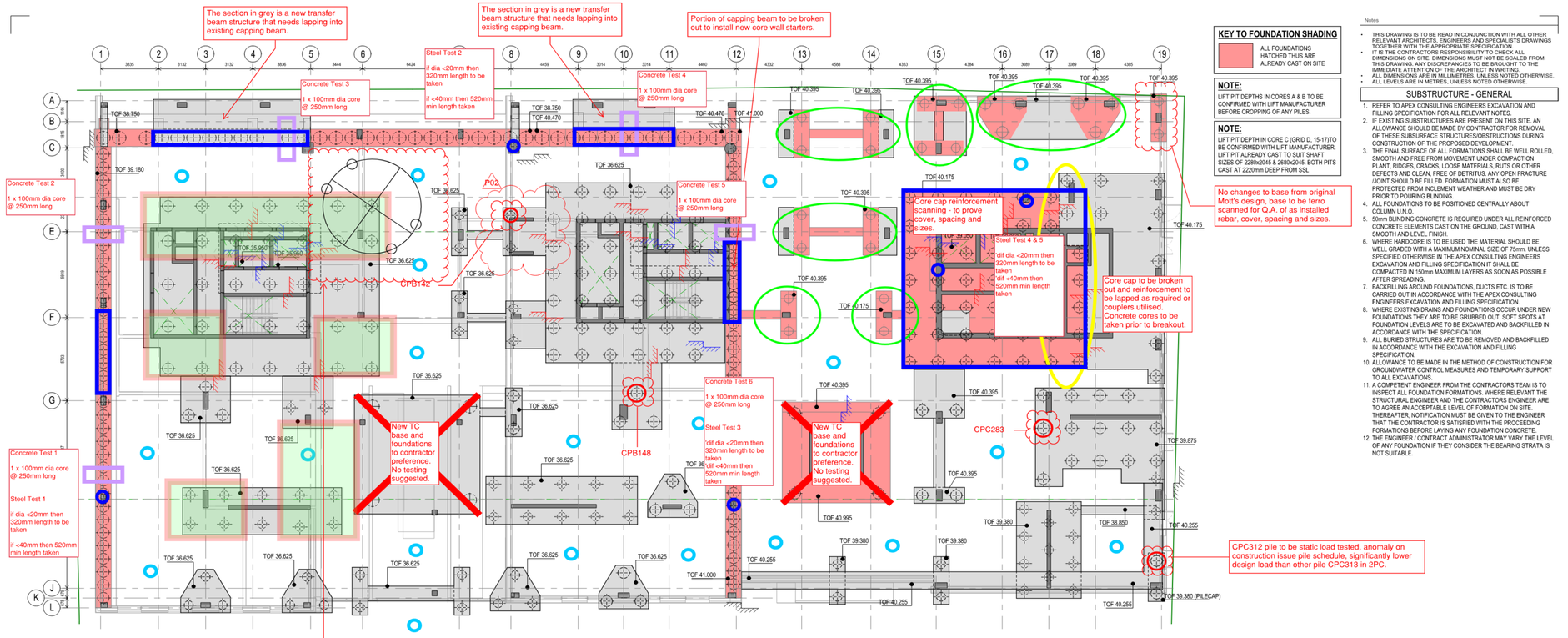
1 Centre of bar to core end, before and after end preparation (eg. 20/100/40 = 20mm diameter bar, 100mm from the core end as-received and 40mm
2 Volume by measurement/water displacement, densities given to nearest 10kg/m³. Balance used complies to BSEN 12504-1:2009. (This will not reduce confidence in the test result.)
3 Compressive strength values given to nearest 0.1 MPa (N/mm²).
4 'Normal' (symmetrical failure) or otherwise as described.
ND = Not determined. NA = Not applicable.

CIVIC


Legacy footprint of Chandos House tower.
Risk of legacy foundations.
Pile locations shown based on Connell Brothers survey during demolition works.
FOR CONTINUATION REFER TO ZZ-PL-DR-S-00201

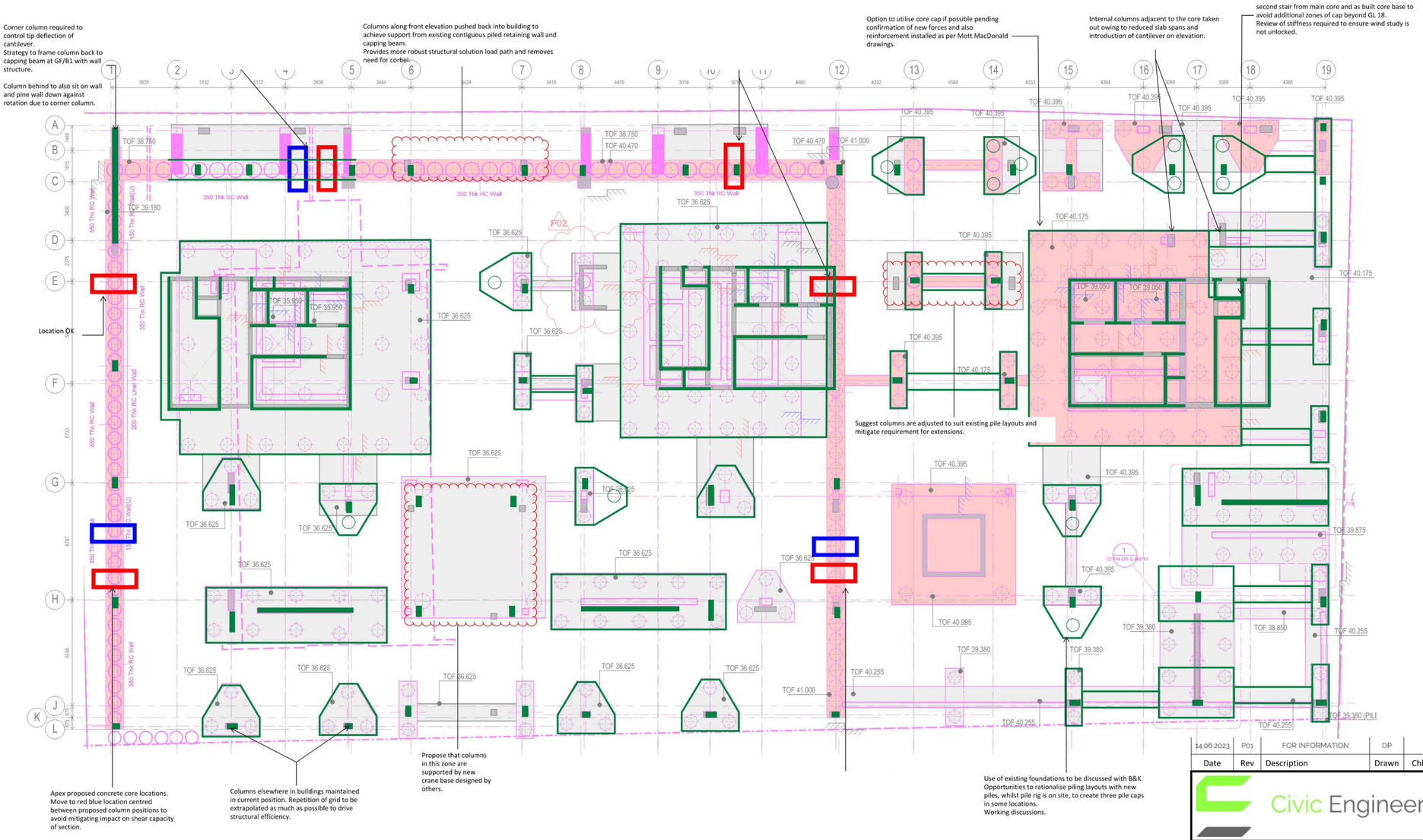
CIVIC

Investigations



CIVIC

Initial Scheme



Date	Rev	Description	Drawn	Chkd
14.06.2023	P01	FOR INFORMATION	DP	

Civic Engineers

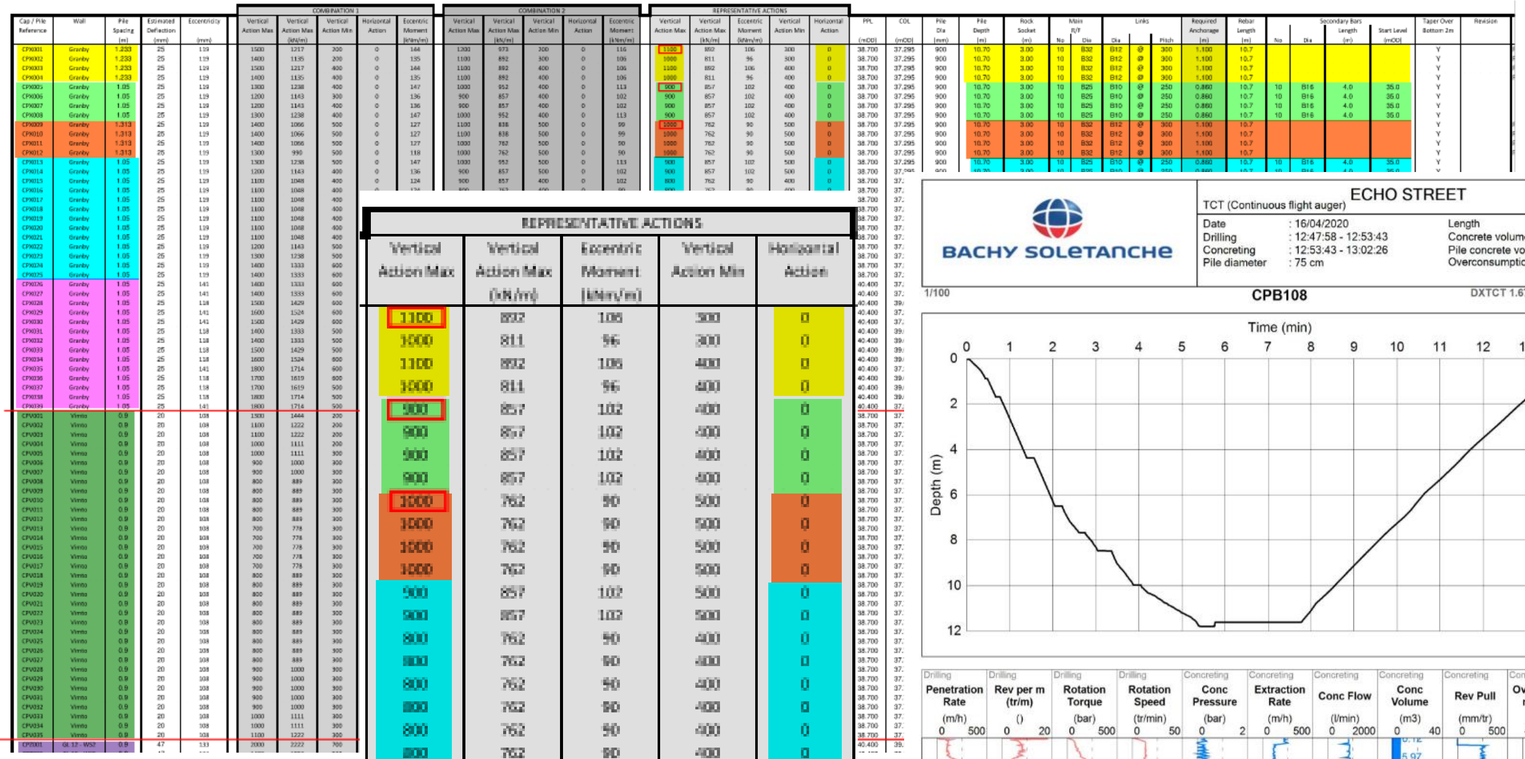
Project
Echo Street, Manchester

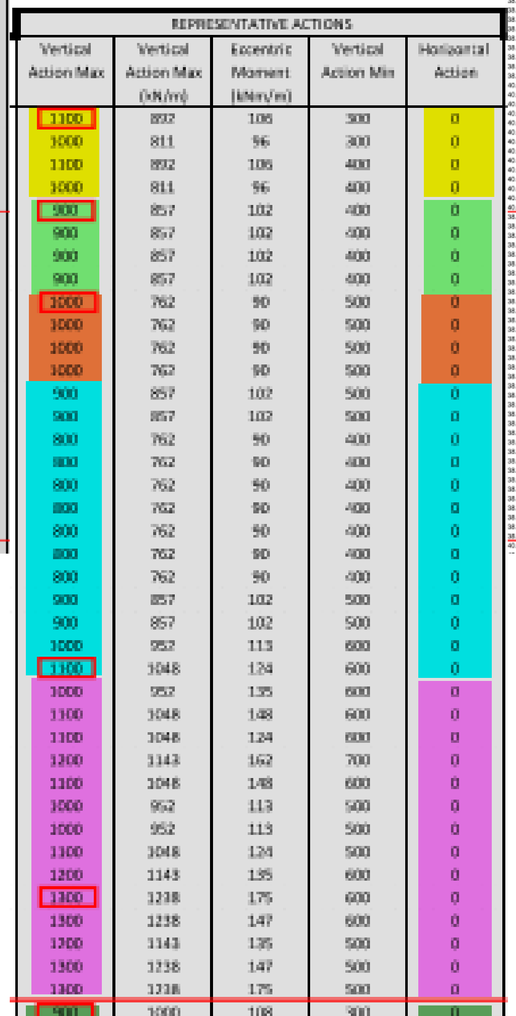
Title
Foundation Level - Concrete Core Location Suggestions

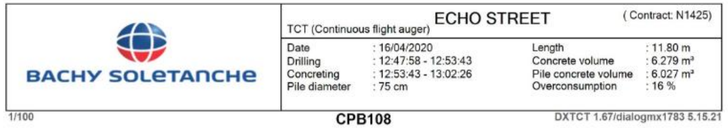
Project Number	Drawing Number	Scale @ A3	Revision
1596-01	SK_008	N.T.S	P01

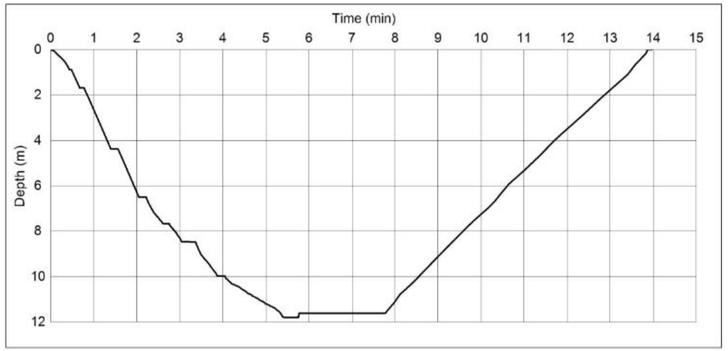
CIVIC

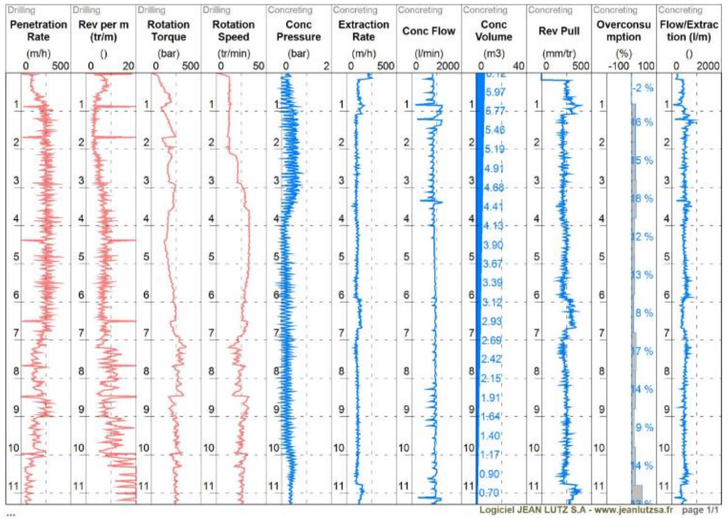
Pile Load Comparison











BACHY SOLETANCHE

Echo Street, Manchester – Bearing Pile Design

Contract / Enquiry Name	Echo Street, Manchester
Contract / Enquiry No.	N1425 / 127850
Document Reference Number	ECHO-BSL-ZZ-PL-RP-X-0001

Chris WALLBANK..... Date: 26/02/2020.....
(Contract Manager)

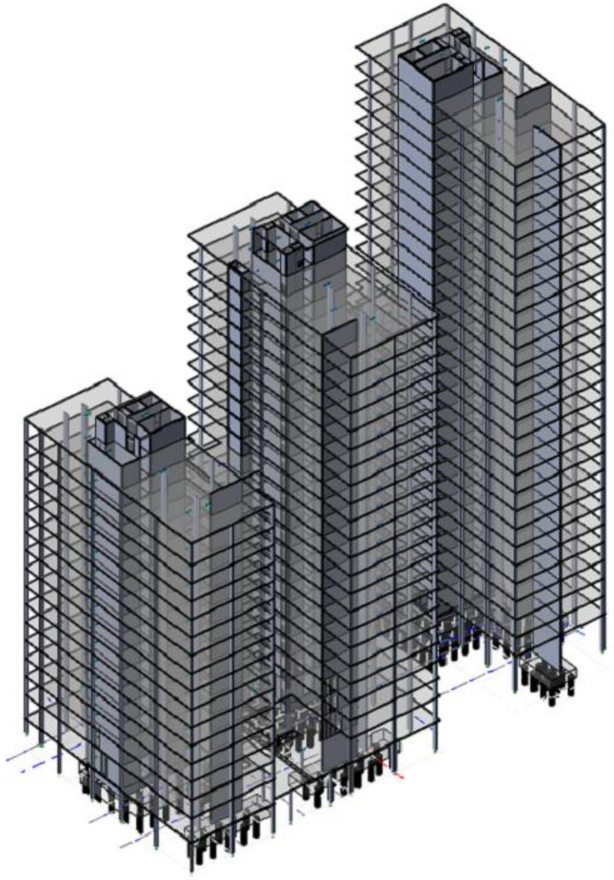
Issue Status			
Revision	**Status**	**Purpose**	**Date**
P01	**S3**	**1st issue (Bearing pile design)**	**30/01/2020**
P02	**S3**	**Revision for changes and following MM comments**	**20/02/2020**
C01	**A5**	**For Construction (no changes from rev P02)**	**26/02/2020**

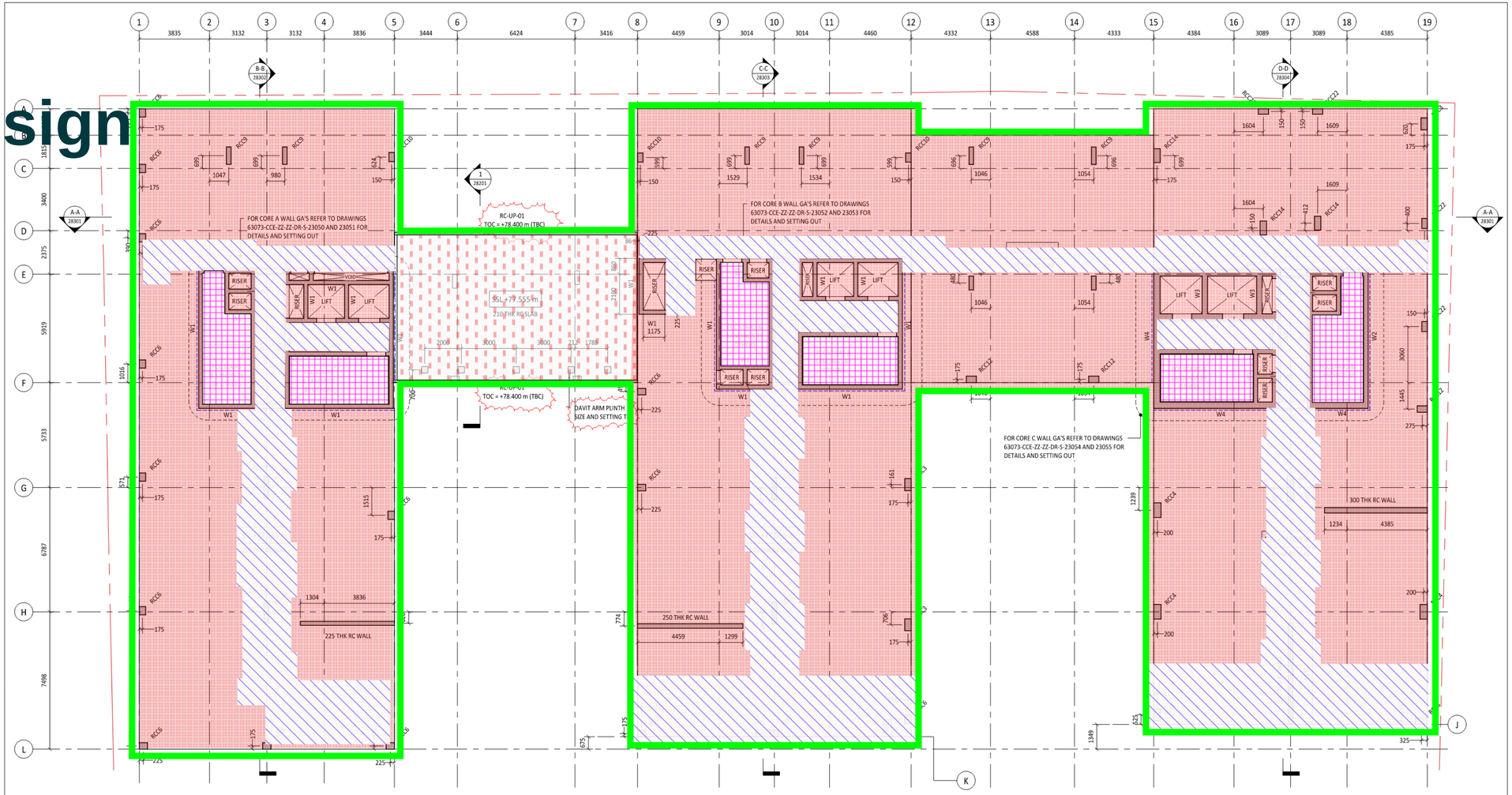
Review within each individual Entity:

Author	Reviewed by	Approved by
Date: 26/02/20	Date: 26/02/20	Date: 26/02/20
Name: Lisa J Ellis	Name: Ana T Carvalho	Name: David A Hard
Signature:	Signature:	Signature:

CIVIC

Structural Design





NOTE:
THIS DRAWING HAS BEEN ISSUED FOR CONSTRUCTION FOR THE PURPOSE OF **COLUMN SETTING OUT ONLY**. ALL BWIC OPENINGS, UPSTANDS SETTING OUT IN ABEYANCE

FACADE — DL = 5 kN/m

TYPICAL FLOOR	DL = 0.9 KPa LL = 1.5 KPa	RESIDENT/AMENITY	DL = 0.5 KPa LL = 4 KPa	ROOF LOADING (GREEN + BLUE)	DL = 1.1 KPa LL = 2.25 KPa	ROOF LOADING (STONE BAL)	DL = 1.15 KPa LL = 0.75 KPa
HALLWAY	DL = 0.5 KPa LL = 3 KPa	EXTERNAL (GROUND)	DL = 3.15 KPa LL = 5 KPa	ROOF LOADING (TYPICAL)	DL = 0.6 KPa LL = 0.75 KPa		
STAIRS	DL = 0.5 KPa LL = 4 KPa	PLANT ROOM 1	DL = 0.6 KPa LL = 5 KPa				
OFFICE LOADING	DL = 0.5 KPa LL = 2.5 KPa	PLANT ROOM 2	DL = 0.6 KPa LL = 7.5 KPa	ROOF LOADING (MID LEVEL)	DL = 2.8 KPa LL = 2.25 KPa	CONSTRUCTION	DL = 1.5 KPa LL = 0.75 KPa

PROJECT
iQ STUDENTS, ECHO STREET

TITLE
L12
LOADING PLAN

Civic Engineers
MANCHESTER Carver's Warehouse, 77 Dale St, Manchester, M1 2HG. Tel 0161 228 6757
LONDON Reeds Wharf, 33 Mill Street, London SE1 2AX. Tel 020 7253 2977
LEEDS 1 Saw Mill Street, Water Lane, Leeds, LS11 5WL. Tel 0113 2455 130
GLASGOW 35 Virginia Street, Glasgow, G1 1TN. Tel 0141 370 1829
www.civicengineers.com

CE PROJECT No.	SCALE @ A1	DATE CREATED	DRAWN	CHECKED
2925	1:100	JAN 05	NDM	DP

DRAWING STATUS: FOR INFORMATION — STATUS CODE: -
DRAWING No.: 63073-CCE-ZZ-ZZ-DR-S-23061 — REV: P01

CIVIC

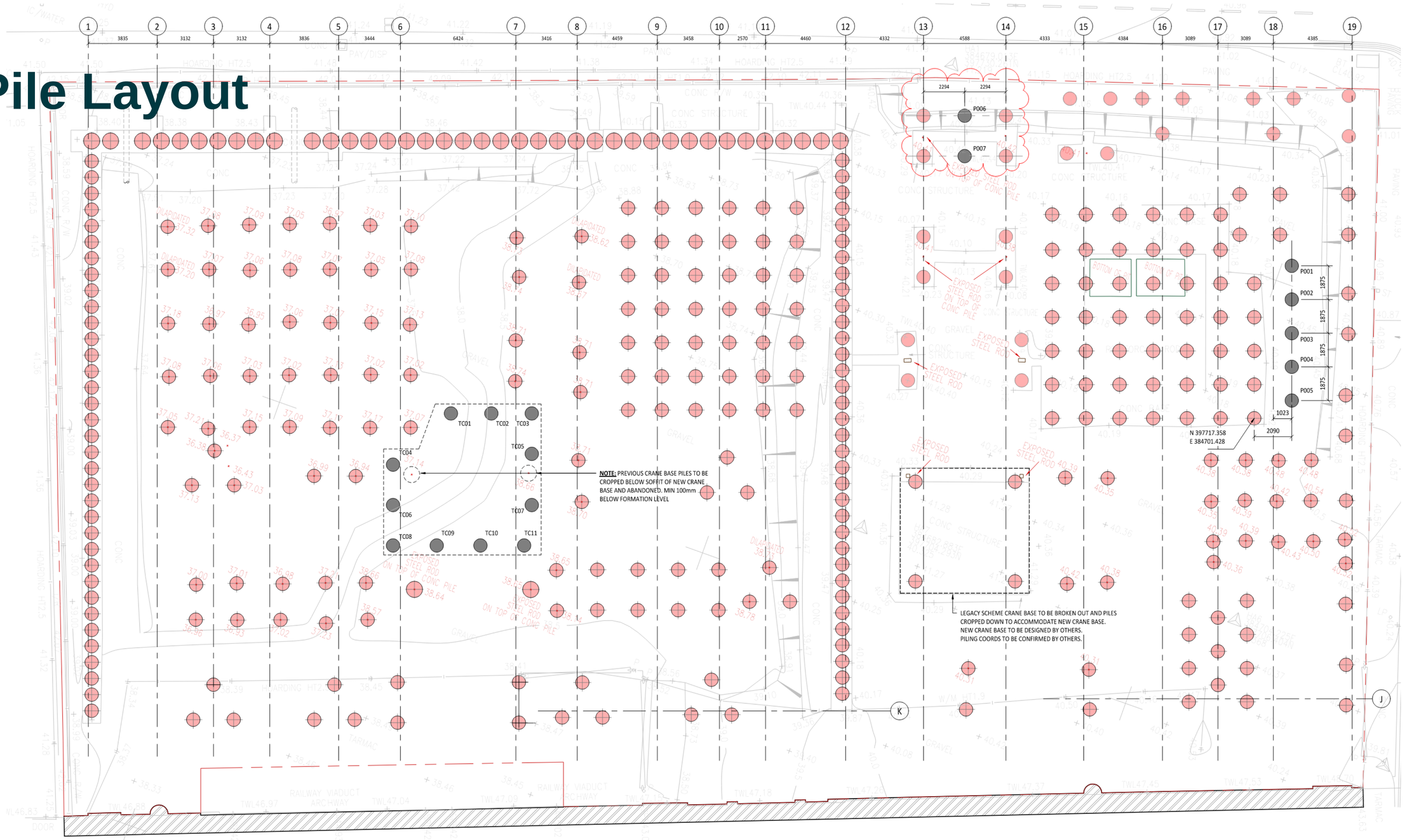
Please note that piles with the same pile diameter, pile depth, rock socket, main reinforcement, links, required anchorage and rebar length have been grouped together. The maximum ULS vertical, SLS vertical and SLS lateral capacities have been taken for all th

Pile testing for x,y,z has been recorded to satifiying that the piles installed are to specification or an enhancement of the specification.

Values from TSD model: 23-11-02 Foundation master model V64																	
								ULS			ULS			SLS		SLS	
								COMBINATION 1			COMBINATION 2			REPRESENTATIVE ACTIONS			
Comment	ULS Vertical with ILR	SLS Vertical with ILR	SLS Lateral with ILR	LEADING Pile Design	Pile Reference	Location	No of Piles	Vertical Action Max	Vertical Action Min	Horizontal Action	Vertical Action Max	Vertical Action Min	Horizontal Action	Vertical Action Max	Vertical Action Min	Horizontal Action	
	Conditional Formatted																
	3075	2250	30.0	CPA001 ULS 3500kN SLS 2500kN SLS Lat 90kN	CPA001	West	1	3500	100	100	2700	100	90	2500	100	90	
	2850	2100	30.0		CPA002	West	1	3500	100	100	2700	100	90	2500	100	90	
	2625	1950	30.0		CPA003	West	1	3500	100	100	2700	100	90	2500	100	90	
	2450	1825	30.0		CPA004	West	1	3500	100	100	2700	100	90	2500	100	90	
	2300	1700	30.0		CPA005	West	1	3500	100	100	2700	100	90	2500	100	90	
	2050	1525	30.0		CPA006	West	1	3500	100	100	2700	100	90	2500	100	90	
	1750	1300	30.0		CPA007	West	1	3500	100	100	2700	100	90	2500	100	90	
	3350	2475	30.0		CPA008	West	1	3500	100	100	2700	100	90	2500	100	90	
	3025	2250	30.0		CPA009	West	1	3500	100	100	2700	100	90	2500	100	90	
	2800	2050	30.0		CPA010	West	1	3500	100	100	2700	100	90	2500	100	90	
	2625	1950	30.0		CPA011	West	1	3500	100	100	2700	100	90	2500	100	90	
	2475	1825	30.0		CPA012	West	1	3500	100	100	2700	100	90	2500	100	90	
	2225	1625	30.0		CPA013	West	1	3500	100	100	2700	100	90	2500	100	90	
	1975	1425	30.0		CPA014	West	1	3500	100	100	2700	100	90	2500	100	90	
	3425	2500	30.0		CPA015	West	1	3500	100	100	2700	100	90	2500	100	90	
	3100	2300	30.0		CPA016	West	1	3500	100	100	2700	100	90	2500	100	90	
	2800	2075	30.0		CPA017	West	1	3500	100	100	2700	100	90	2500	100	90	
	2625	1900	30.0		CPA018	West	1	3500	100	100	2700	100	90	2500	100	90	
	2500	1850	30.0		CPA019	West	1	3500	100	100	2700	100	90	2500	100	90	
	2275	1675	30.0		CPA020	West	1	3500	100	100	2700	100	90	2500	100	90	
	2000	1475	30.0		CPA021	West	1	3500	100	100	2700	100	90	2500	100	90	
	3475	2500	30.0		CPA022	West	1	3500	100	100	2700	100	90	2500	100	90	
	3125	2300	30.0		CPA023	West	1	3500	100	100	2700	100	90	2500	100	90	
	2875	2100	30.0		CPA024	West	1	3500	100	100	2700	100	90	2500	100	90	
	2700	1950	30.0		CPA025	West	1	3500	100	100	2700	100	90	2500	100	90	
	2525	1850	30.0		CPA026	West	1	3500	100	100	2700	100	90	2500	100	90	
	2225	1625	30.0		CPA027	West	1	3500	100	100	2700	100	90	2500	100	90	
	1925	1400	30.0		CPA028	West	1	3500	100	100	2700	100	90	2500	100	90	
	3250	2350	30.0		CPA029	West	1	3500	100	100	2700	100	90	2500	100	90	
Pile integrity test failure - pile removed from model	~~0~~	~~0~~	~~0.0~~		~~CPA030~~	~~West~~	~~1~~	~~3500~~	~~100~~	~~100~~	~~2700~~	~~100~~	~~90~~	~~2500~~	~~100~~	~~90~~	
	2800	2000	30.0		CPA031	West	1	3500	100	100	2700	100	90	2500	100	90	
	2600	1900	30.0		CPA032	West	1	3500	100	100	2700	100	90	2500	100	90	
	2400	1775	30.0		CPA033	West	1	3500	100	100	2700	100	90	2500	100	90	
	2075	1500	30.0		CPA034	West	1	3500	100	100	2700	100	90	2500	100	90	
	1700	1225	30.0		CPA035	West	1	3500	100	100	2700	100	90	2500	100	90	
	3525	2575	0.8	CPA036	CPA036	West	1	5000	2300	0	3800	2300	0	3500	2300	0	
	2450	1775	0.8	ULS 5000kN SLS 3500kN SLS Lat 0kN	CPA037	West	1	1900	800	0	1400	800	0	1300	800	0	
	2325	1675	0.8		CPA038	West	1	1900	800	0	1400	800	0	1300	800	0	
	2100	1500	0.8	CPB144	CPA039	West	1	2700	1100	0	2100	1100	0	1900	1100	0	

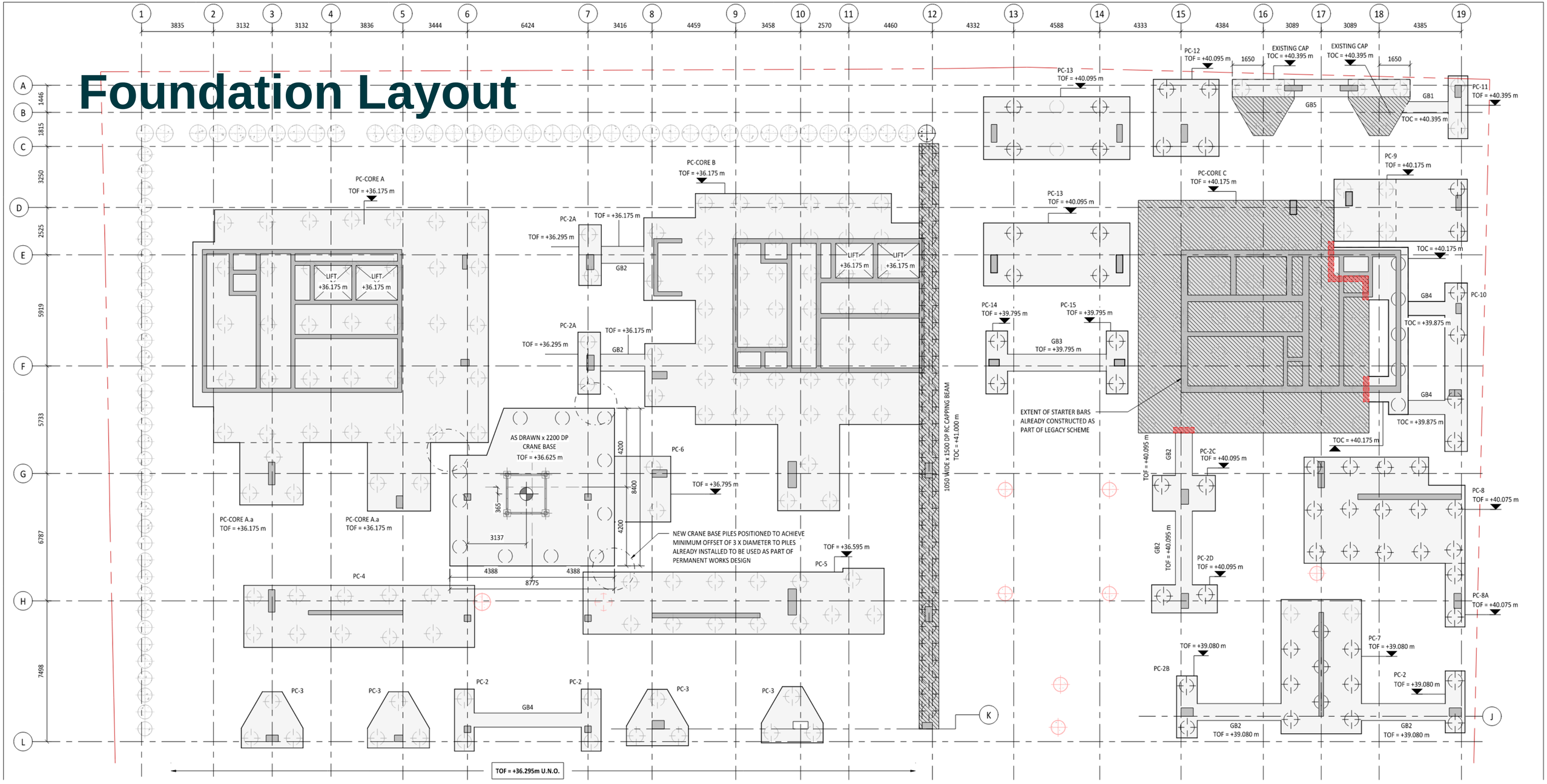
CIVIC

Pile Layout



CIVIC

Foundation Layout



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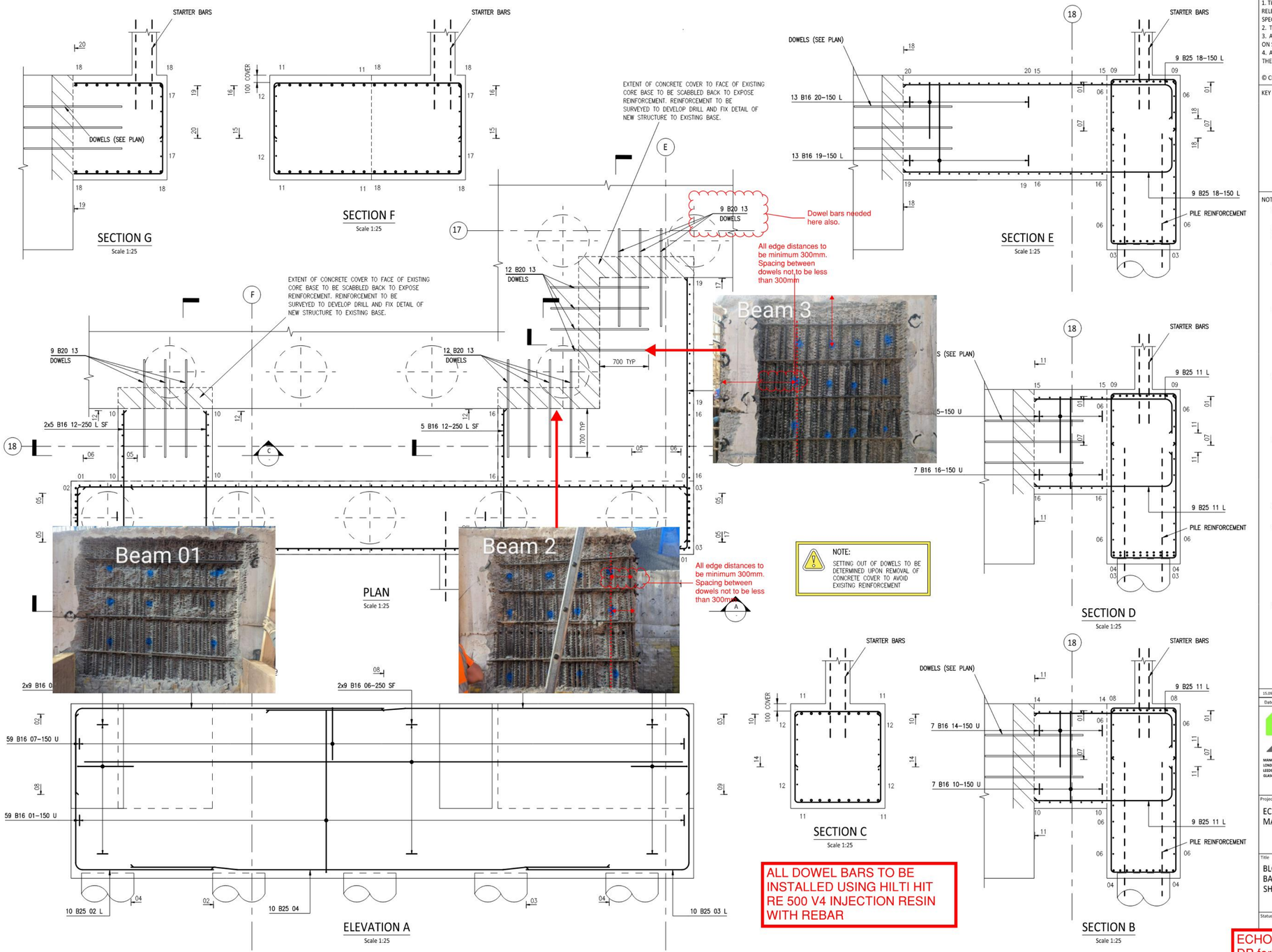


STANDARD NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS AND THE SPECIFICATIONS.
2. THIS DRAWING SHOULD NOT BE SCALED.
3. ALL DIMENSIONS ARE TO BE VERIFIED BY THE CONTRACTOR ON SITE.
4. ALL DISCREPANCIES SHOULD BE REPORTED TO C.E. PRIOR TO THE COMMENCEMENT OF WORKS.

KEY

NOTES

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, M+E AND CIVIL ENGINEERS DRAWINGS.
2. ALL CONCRETE GRADE C40/50 U.N.O.
3. COVER TO REINFORCEMENT TO BE U.N.O.:
   SIDE 50mm
   TOP 50mm
   BOTTOM 75mm
4. REBAR CALL OFF:
   15 H12 201-150 B1
   - BAR LAYER
   - BAR SPACING
   - BAR MARK
   - BAR TYPE AND DIA
   - NUMBER OF BARS
5. MINIMUM LAPS FOR GRADE 500 REINFORCEMENT TO BE U.N.O.:

GOOD BOND		POOR BOND	
H8	290	H8	430
H10	350	H10	500
H12	450	H12	640
H16	650	H16	930
H20	860	H20	1220
H25	1110	H25	1590
H32	1420	H32	2030

6. MINIMUM ANCHORAGE FOR GRADE 500 REINFORCEMENT TO BE U.N.O.:

GOOD BOND		POOR BOND	
H8	270	H8	390
H10	350	H10	490
H12	420	H12	590
H16	550	H16	790
H20	690	H20	980
H25	860	H25	1230
H32	1100	H32	1570

7. LAPS SHOULD BE APPROPRIATE TO THE SMALLER BAR BEING LAPPED AND THE GOOD/POOR BOND CONDITION:
   FOR 250 < h < 600 — FOR h> 600
8. ALL REINFORCEMENT BARS SHALL BE IN ACCORDANCE WITH BS4482:2020 WITH YIELD STRENGTH OF 500MPa
9. ABBREVIATIONS:
   T TOP
   B BOTTOM
   NF NEAR FACE
   FF FAR FACE
   SF SIDE FACE
   AB ALTERNATE BARS
   ABS ALTERNATE BARS STAGGERED
   ABR ALTERNATE BARS REVERSED
   U U BAR
   L L BAR
   LK LINKS
10. BARS DETAILED ON THIS DRAWING ARE LISTED ON THE BAR SCHEDULE: ECHO-CCE-ZZ-FN-SH-S-5011

Date	Rev	Description	Drawn	Chkd
15.09.23	C01	ISSUED FOR CONSTRUCTION	CE	YH

Civic Engineers
MANCHESTER Carver's Warehouse, 77 Dale St, Manchester, M1 2HG. Tel: 0161 228 6757
LONDON Reeds Wharf, 33 Mill Street, London SE1 2AX. Tel: 020 7253 2977
LEEDS Tower Works, Unit G2 01, Globe Rd, Leeds, LS11 5QG. Tel: 0113 2025 130
GLASGOW Gresham Chambers, 45 West Nile St, Glasgow, G1 2PT. Tel: 0141 370 1829
www.civicengineers.com

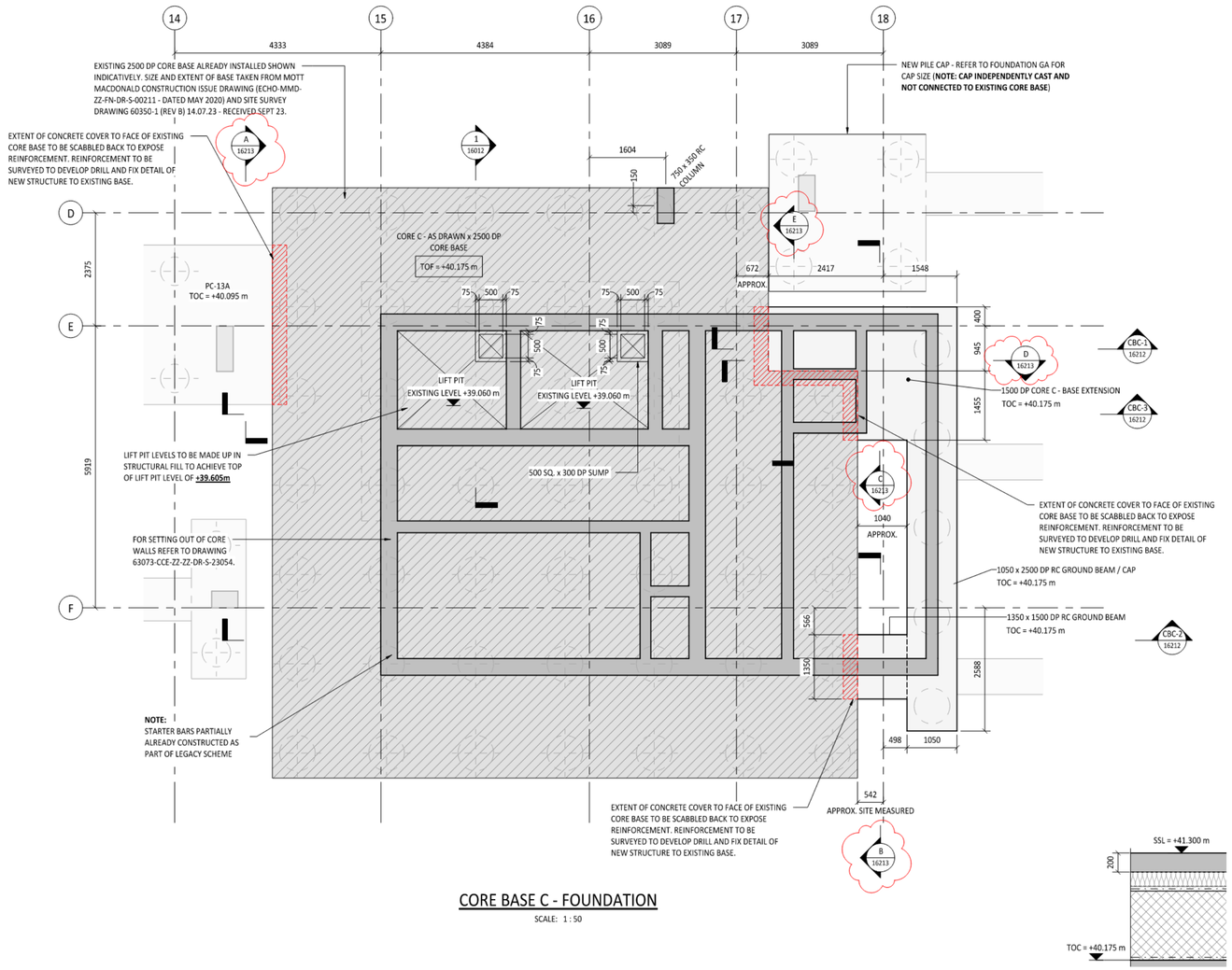
Project
ECHO STREET
MANCHESTER

Title
BLOCK C
BASE REINFORCEMENT
SHEET 1

Status
CONSTRUCTION

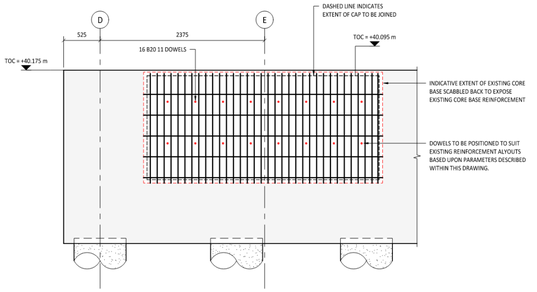
ECHO-CCE-ZZ-FN-SK-S-5011D
DP for Civic Engineers
19.10.23

CIVIC



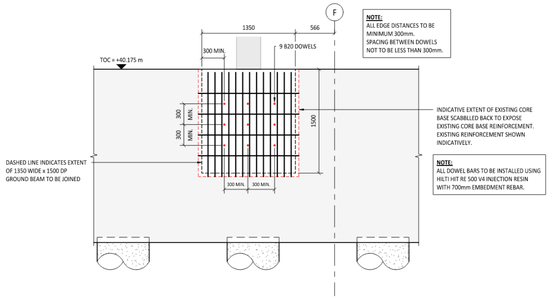
CORE BASE C - FOUNDATION

SCALE: 1 : 50



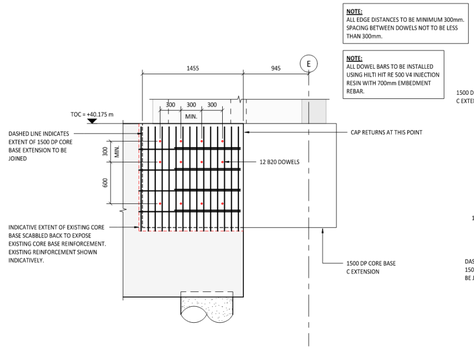
CORE C - DOWEL BAR INSTALLATION DETAIL A

SCALE: 1 : 25



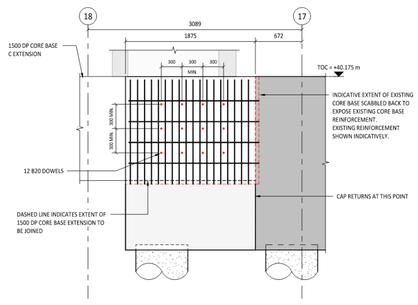
CORE C - DOWEL BAR INSTALLATION DETAIL B

SCALE: 1 : 25



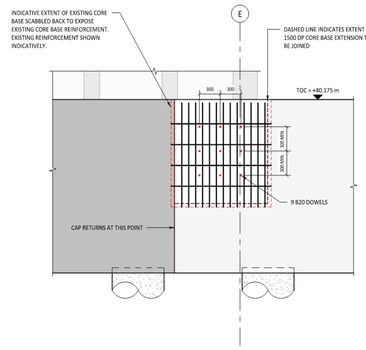
CORE C - DOWEL BAR INSTALLATION DETAIL C

SCALE: 1 : 25



CORE C - DOWEL BAR INSTALLATION DETAIL D

SCALE: 1 : 25

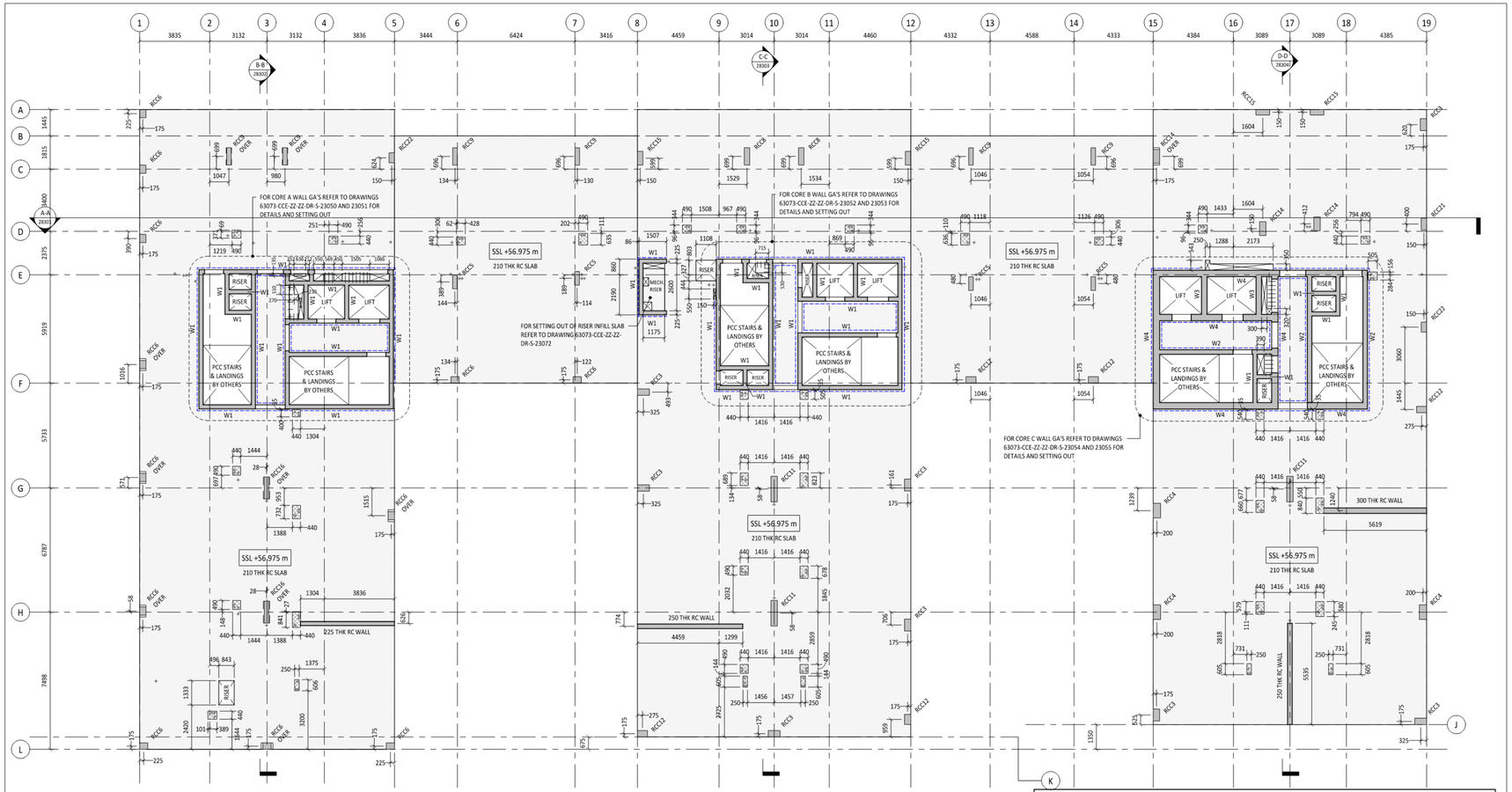


CORE C - DOWEL BAR INSTALLATION DETAIL E

SCALE: 1 : 25

CIVIC

Superstructure



THIS DRAWING REPRESENTS THE LAST VERSION ISSUED FOR CONSTRUCTION. THE DRAWING HAS NOT BEEN VERIFIED BY SITE SURVEY AND ALLOWABLE CONSTRUCTION TOLERANCES MAY HAVE RESULTED IN DIFFERENCES BETWEEN THIS DRAWING AND THE FINISHED BUILDING

LEGEND

DENOTES EXTENT OF CAST-IN CONTINUITY STRIP (ANCON EAZISTRIP - OR SIMILIAR APPROVED) CENTRED ON MID DEPTH OF RC STRUCTURAL SLAB.

DENOTES LOCATION OF BUILDERS WORKS HOLE / SERVICES (**SHOWN INDICATIVELY**) - REFER TO ARCHITECTS DRAWINGS FOR SETTING OUT AND LOCATIONS. NOTE: BUILDERS WORKS HOLES LESS THAN 200mm GENERALLY NOT SET OUT IN DRAWINGS. WHERE BWIC SHOWN REINFORCEMENT TO BE LOCALLY DISPLACED TO ALLOW SERVICES TO PASS THROUGH SLAB.

DENOTES LOCATION OF SERVICE RISERS ASSUMED TO BE CAST IN 'SOFT SPOTS' IN SLAB WITH CAST-IN CORED PENETRATIONS. SOFT SPOTS DO NOT CONSTITUTE VOIDS IN SLAB. REINFORCEMENT TO BE PRESENT WITHIN ZONES AND SETTING OUT OF BWIC IN THESE AREAS TO BE ACCORDANCE WITH GUIDANCE SHOWN ON LCOAL DISPLACEMENT DETAIL ON DRAWING 63073-CCE-ZZ-ZZ-DR-S-21110

STANDARD NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS AND THE SPECIFICATIONS.
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3. ALL DIMENSIONS ARE TO BE VERIFIED BY THE CONTRACTOR ON SITE.
4. ALL DISCREPANCIES SHOULD BE REPORTED TO C.A./E.A. PRIOR TO THE COMMENCEMENT OF WORKS.

RC COLUMN SCHEDULE

REF.	SECTION SIZE (mm)
RCC1	1200 x 350 RC COLUMN
RCC2	1400 x 450 RC COLUMN
RCC3	650 x 350 RC COLUMN
RCC4	800 x 400 RC COLUMN
RCC5	750 x 250 RC COLUMN
RCC6	450 x 350 RC COLUMN
RCC7	650 x 450 RC COLUMN
RCC8	950 x 300 RC COLUMN
RCC9	950 x 250 RC COLUMN

RC COLUMN SCHEDULE

REF.	SECTION SIZE (mm)
RCC10	500 x 300 RC COLUMN
RCC11	1400 x 350 RC COLUMN
RCC12	550 x 350 RC COLUMN
RCC13	950 x 350 RC COLUMN
RCC14	750 x 350 RC COLUMN
RCC15	750 x 300 RC COLUMN
RCC16	1200 x 250 RC COLUMN
RCC17	500 x 350 RC COLUMN
RCC18	600 DIA. RC COL.

RC COLUMN SCHEDULE

REF.	SECTION SIZE (mm)
RCC19	650 DIA. RC COL.
RCC20	800 x 300 RC COLUMN
RCC21	650 x 300 RC COLUMN
RCC22	550 x 300 RC COLUMN
RCC23	350 x 350 RC COLUMN
RCC24	750 x 400 RC COLUMN

RC WALL SCHEDULE

REFERENCE	SIZE (mm)
W1	225 THK RC WALL
W2	250 THK RC WALL
W3	300 THK RC WALL
W4	350 THK RC WALL

DATE	REV	DESCRIPTION	DRAWN	CHKD
14.01.26	C06	AS DESIGNED ISSUE	AS	DP
22.01.24	C05	RISER INFILLS TO CORES A & B	PMe	DP
10.04.24	C04	CORE C SLAB SETTING OUT UPDATED AND REINFORCEMENT ADDED/ADDED	JS	DP
06.02.24	C03	SOFT SPOT SETTING OUT ADDED	PMe	DP
23.01.24	C02	CONSTRUCTION UPDATE	PMe	DP
08.12.23	C01	ISSUED FOR CONSTRUCTION	PMe	DP
07.09.23	P02	STAGE 3 ISSUE	PMe	DP
24.07.23	P01	PRELIMINARY WIP ISSUE	PMe	DP

PROJECT
iQ STUDENTS, ECHO STREET

TITLE
LEVEL 05 - SUPERSTRUCTURE GA

Civic Engineers
MANCHESTER Corner's Warehouse, 77 Dale St, Manchester, M1 3HG. Tel: 0161 359 6757
LONDON Reeds Wharf, 33 Mill Street, London SE1 2AX. Tel: 020 7253 2977
LEEDS 1 Saw Mill Street, Water Lane, Leeds, LS11 5WE. Tel: 0113 2025 130
GLASGOW 35 Virginia Street, Glasgow, G1 1TN. Tel: 0141 370 1829
www.civicengineers.com

CE PROJECT No.	SCALE @ A1	DATE CREATED	DRAWN	CHECKED
2925	1:100	JUL 23	PMe	DP

DRAWING STATUS: AS DESIGNED
STATUS CODE: -
DRAWING No.: 63073-CCE-ZZ-05-DR-S-23005
REV: C06

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Superstructure

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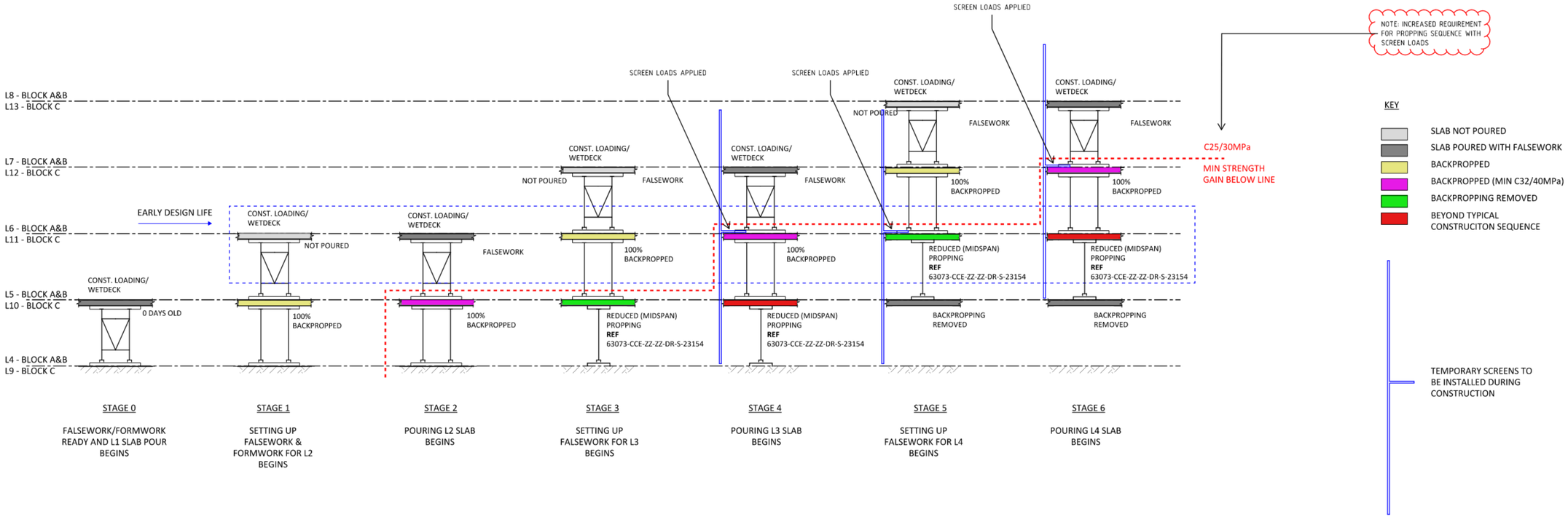
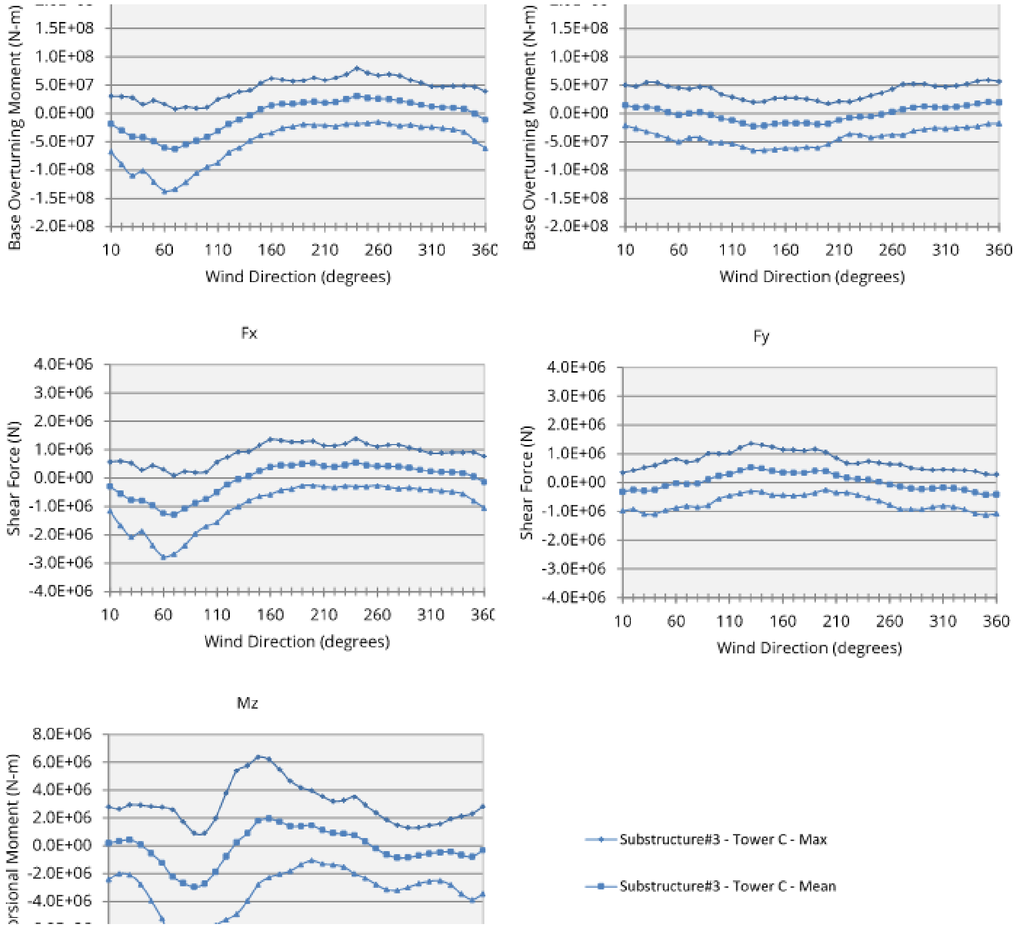
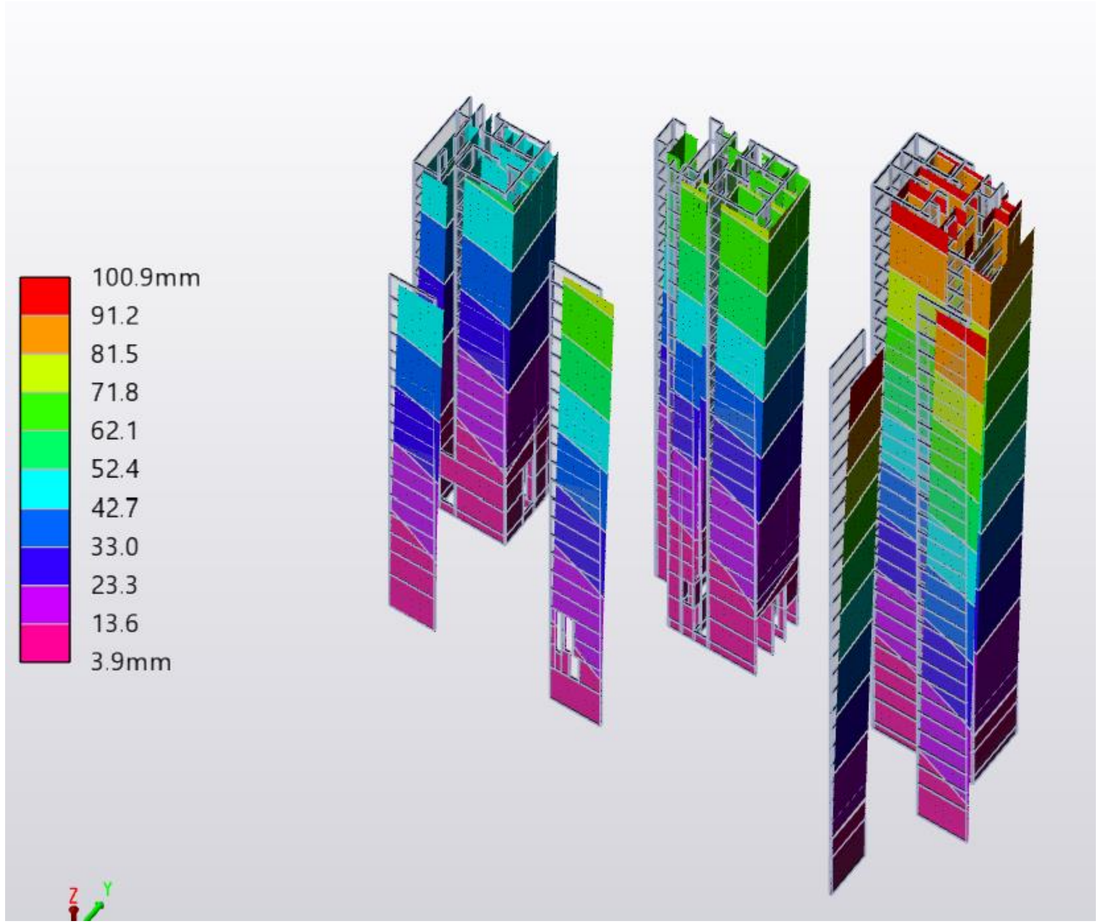
Superstructure

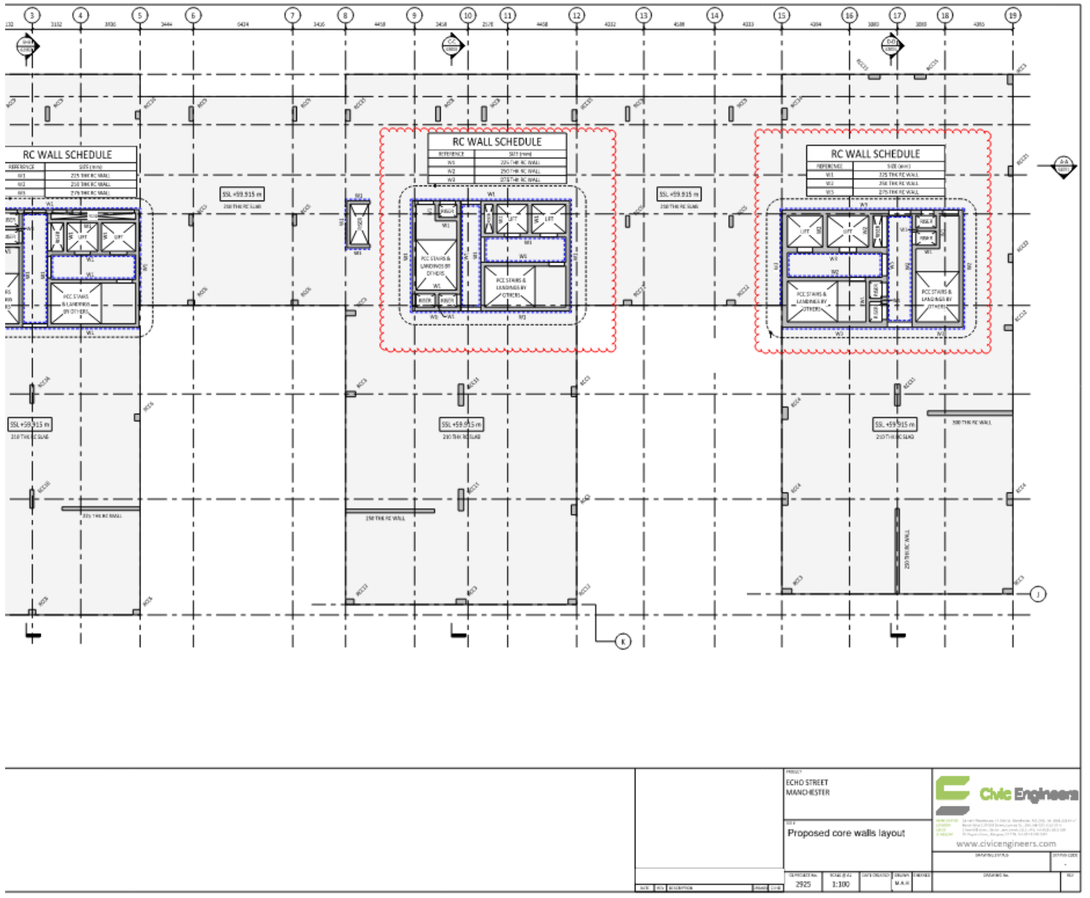


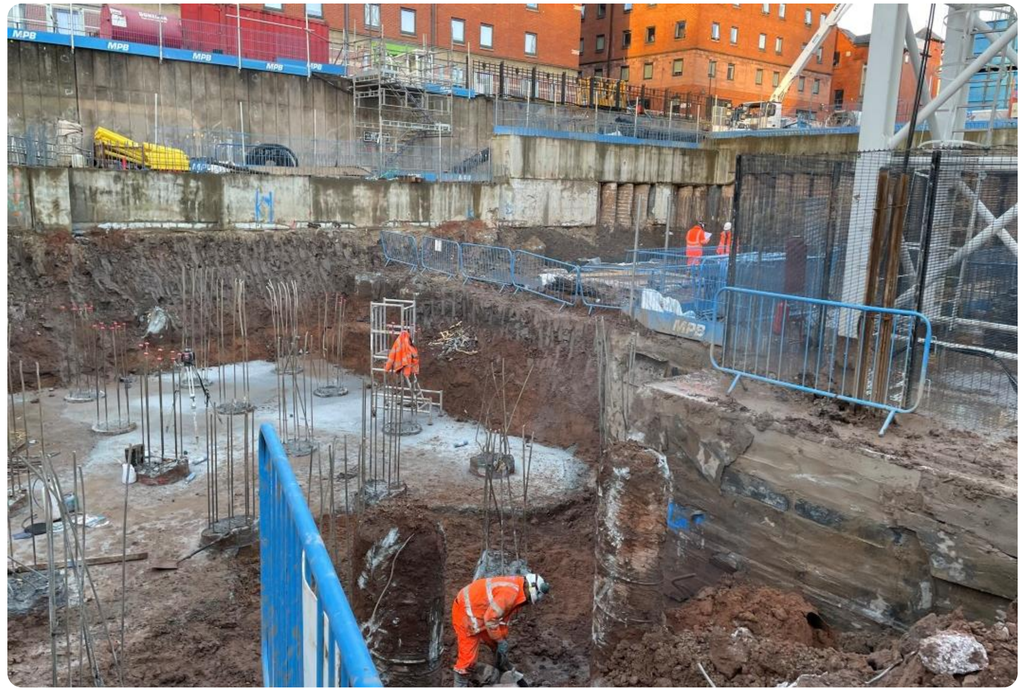
Superstructure



Superstructure







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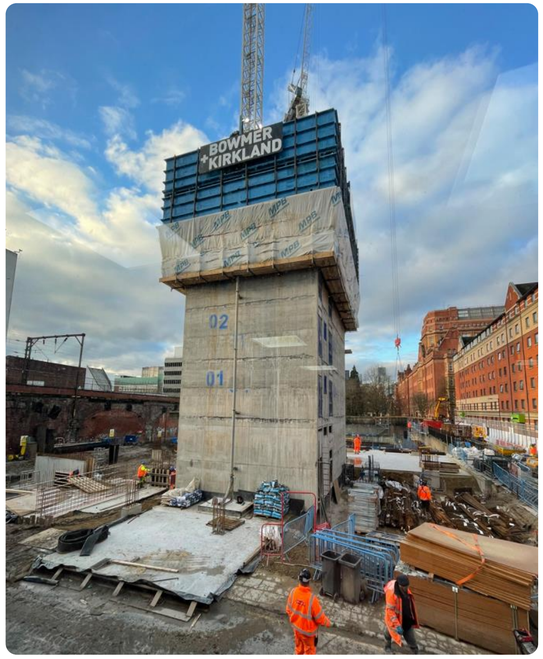
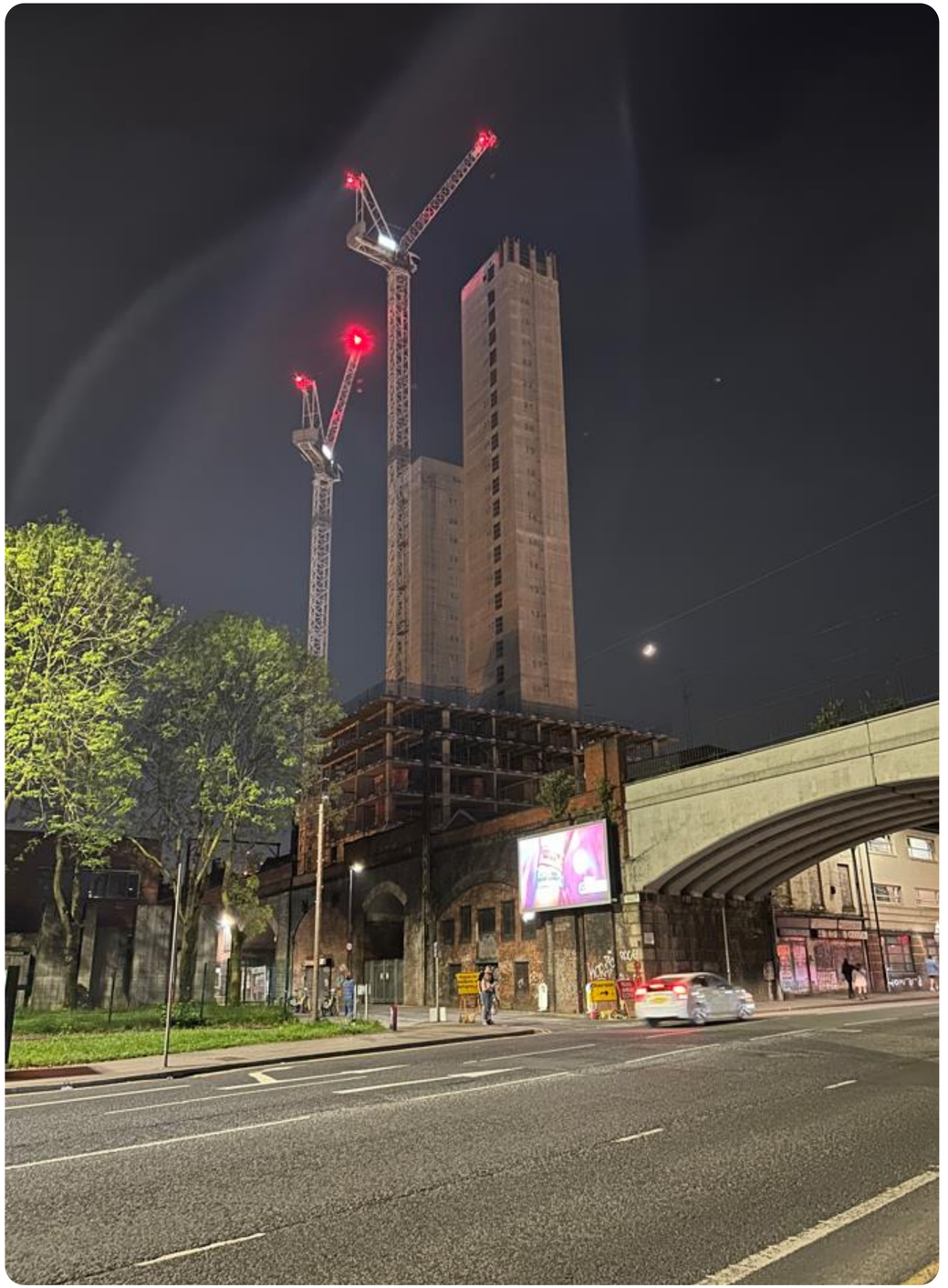
BOWMER KIRKLAND
MPB


03
02
01


MARSTON'S
RAHMAN HOSTEL
SHOP


BOWMER KIRKLAND
02
01

CIVIC



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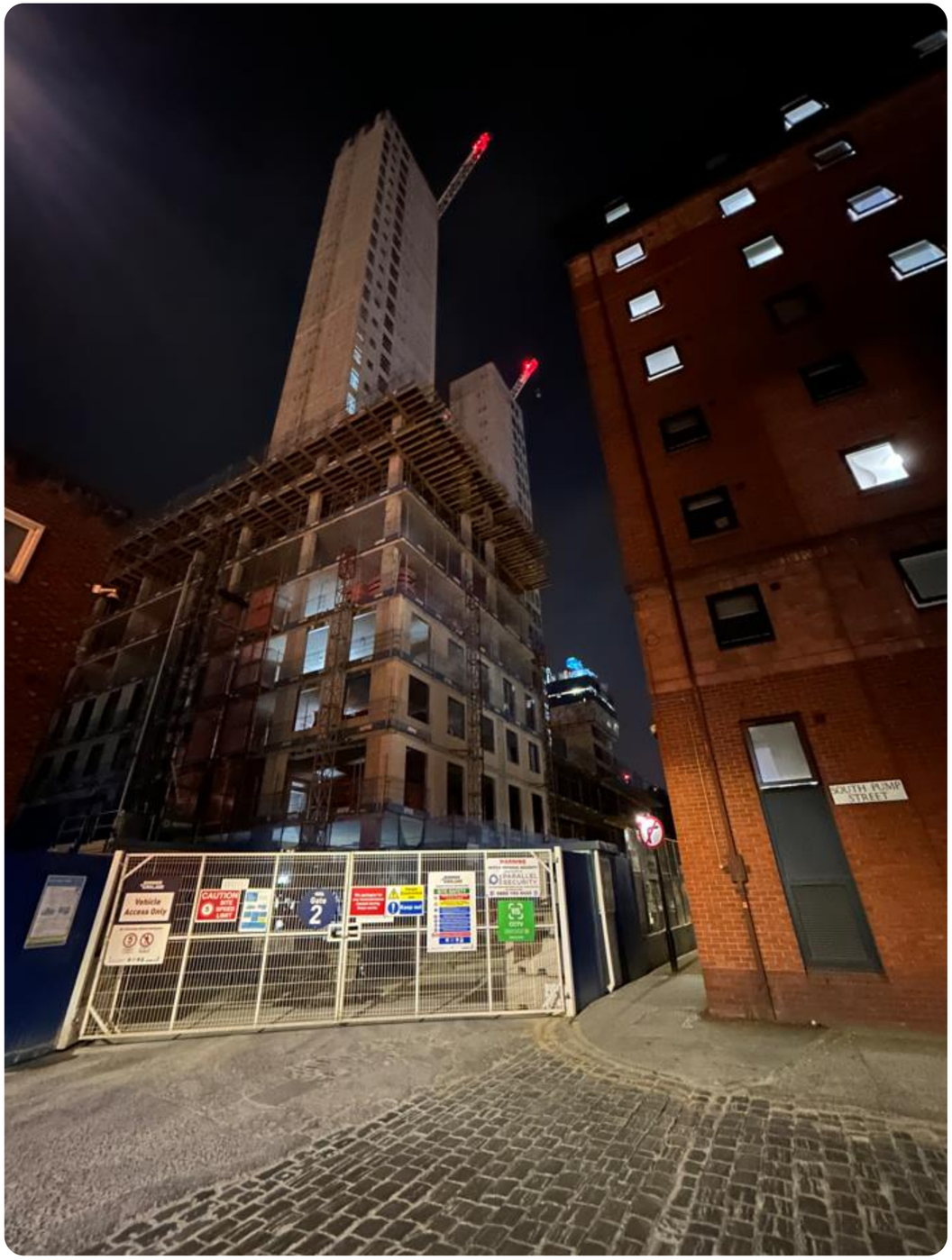
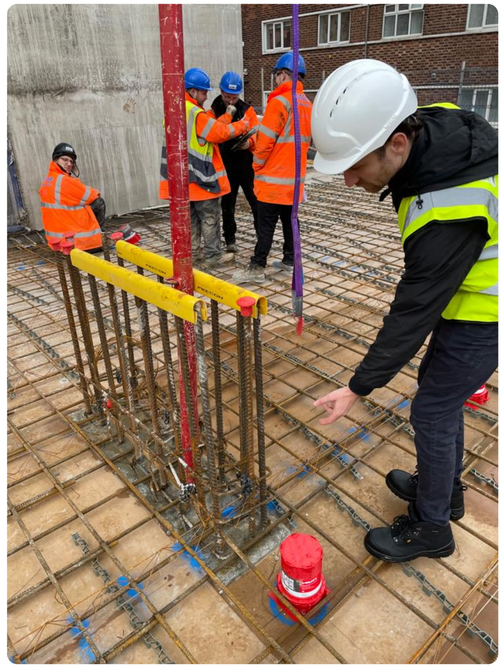
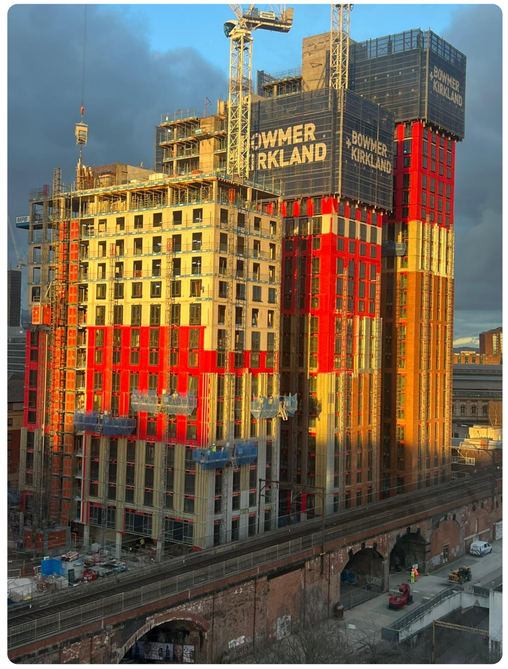

SOUTH PUMP STREET
Vehicle Access Only
CAUTION
PARALLEL SECURITY




BOWMER KIRKLAND

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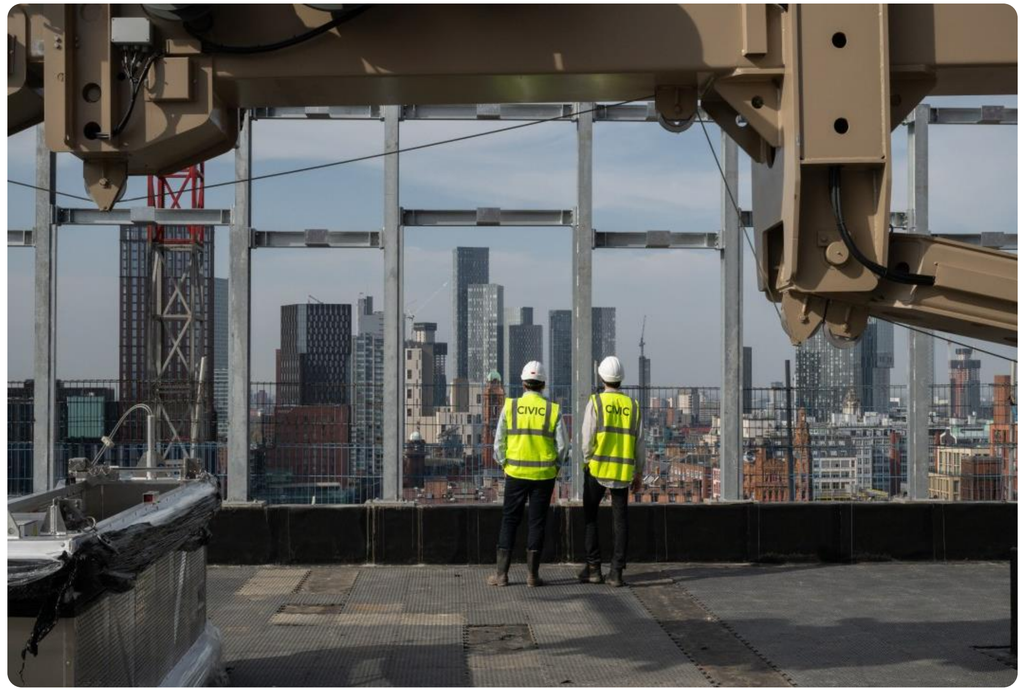
BOWMER KIRKLAND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Sackville Street Coffee
HIRE LTD

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Key Points

- Forensic review of what was already in ground both desk based and insitu to give confidence there were opportunities for reuse.
- Creating a structural grid compatible with the existing foundations while accommodating additional height without exceeding installed pile capacities.
- Use of repetitive grids to eliminate transfer structures and preserve internal layouts.
- Super thin slabs introduced to free up capacity within piles to accommodate additional storeys.
- Structural wind to reduce wind loads and core wall thickness, tracked down to piles.
- Detailed analyses of construction loads and early strength profiles to improve construction programme
- Assessment of slab behaviour under temporarily high loads and alternating load sequences before full concrete strength developed.

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Key Achievements

- Reuse of over 400 piles with only 7 new permanent piles added.
- Elimination of over 350m³ of concrete and 300 tonnes of embodied carbon.
- Demonstration of how structural design can significantly reduce environmental impact without compromising performance

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Key Takeaways

- Innovative and considerate engineering is fundamentally important in all buildings, especially tall buildings.
- Collaboration and engineers' relationship with the Project Team.
- Lock in opportunities
- Building Safety Regulator and pragmatic sensible design
- Compromise without sacrifice

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Thank You

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thriving
together