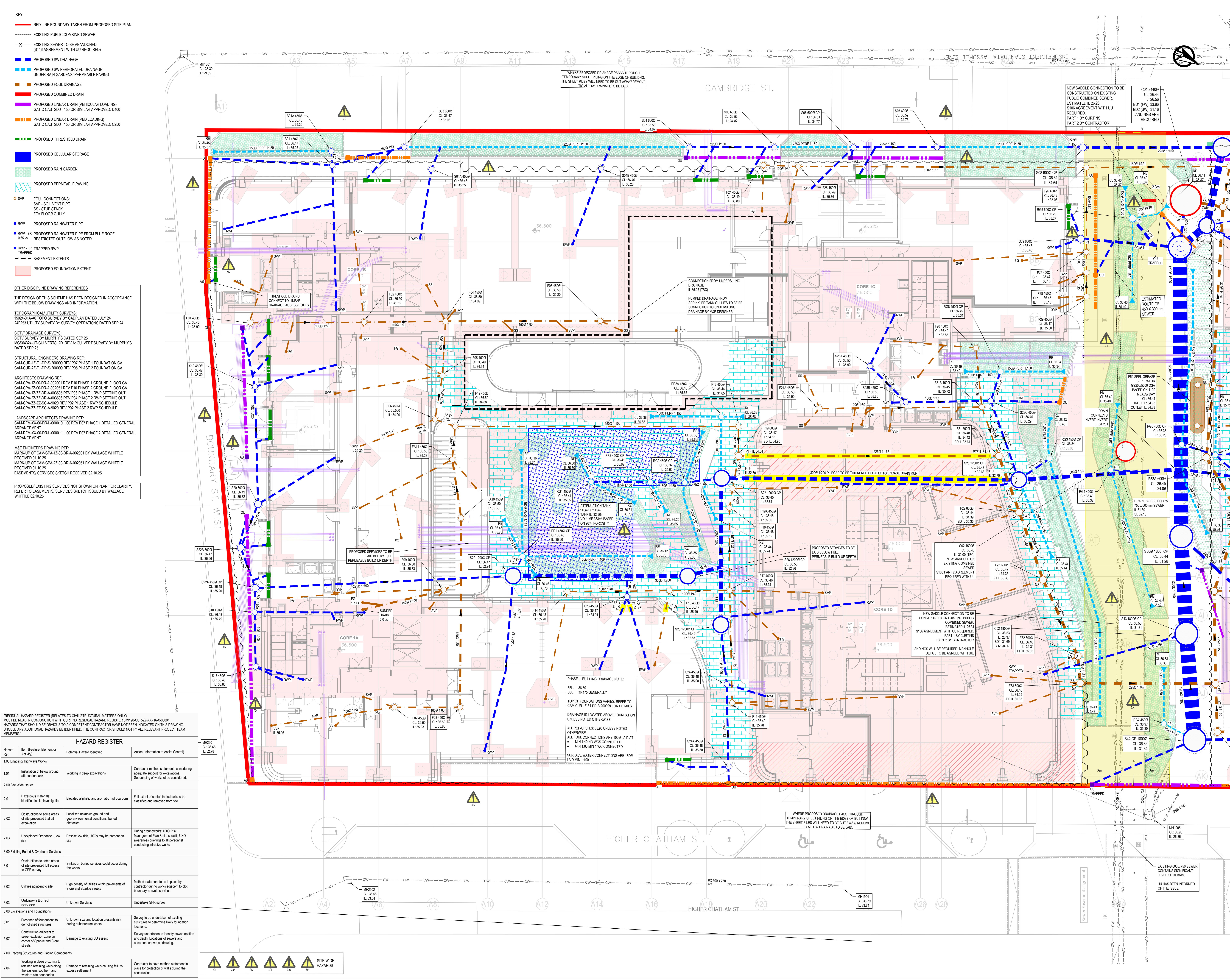




- KEY**
- RED LINE BOUNDARY TAKEN FROM PROPOSED SITE PLAN
 - EXISTING PUBLIC COMBINED SEWER
 - EXISTING SEWER TO BE ABANDONED (SEE AGREEMENT WITH UI REQUIRED)
 - PROPOSED SW DRAINAGE
 - PROPOSED SW PERFORATED DRAINAGE UNDER RAIN GARDENS PERMEABLE PAVING
 - PROPOSED FOUL DRAINAGE
 - PROPOSED COMBINED DRAIN
 - PROPOSED LINEAR DRAIN (VEHICULAR LOADING) GATIC CAST/LOT 150 OR SIMILAR APPROVED: D400
 - PROPOSED LINEAR DRAIN (PED LOADING) GATIC CAST/LOT 150 OR SIMILAR APPROVED: C250
 - PROPOSED THRESHOLD DRAIN
 - PROPOSED CELLULAR STORAGE
 - PROPOSED RAIN GARDEN
 - PROPOSED PERMEABLE PAVING
 - SVP FOUL CONNECTIONS: SVP - SOIL VENT PIPE SS - STUB STACK FG - FLOOR GULLY
 - RWP PROPOSED RAINWATER PIPE
 - RWP - BE PROPOSED RAINWATER PIPE FROM BLUE ROOF RESTRICTED OUTFLOW AS NOTED
 - RWP - RP TRAPPED RWP
 - BASEMENT EXTENTS
 - PROPOSED FOUNDATION EXTENT

OTHER DISCIPLINE DRAWING REFERENCES

THE DESIGN OF THIS SCHEME HAS BEEN DESIGNED IN ACCORDANCE WITH THE BELOW DRAWINGS AND INFORMATION.

TOPOGRAPHICAL/UTILITY SURVEYS:
15024-01A-01 TOPO SURVEY BY CADPLAN DATED JULY 24
247253 UTILITY SURVEY BY SURVEY OPERATIONS DATED SEP 24

CCTV DRAINAGE SURVEYS:
CCTV SURVEY BY MURPHY'S DATED SEP 25
MGS64324-UT-CULVERTS, 2D REV A: CULVERT SURVEY BY MURPHY'S DATED SEP 25

STRUCTURAL ENGINEERS DRAWING REF:
CAM-CUR-12-F1-DR-S-20099 REV P07 PHASE 1 FOUNDATION GA
CAM-CUR-12-F1-DR-S-20099 REV P05 PHASE 2 FOUNDATION GA

ARCHITECTS DRAWING REF:
CAM-CPA-12-00-DR-A-00001 REV P10 PHASE 1 GROUND FLOOR GA
CAM-CPA-12-00-DR-A-00001 REV P10 PHASE 2 GROUND FLOOR GA
CAM-CPA-12-00-DR-A-00001 REV P03 PHASE 1 RWP SETTING OUT
CAM-CPA-12-00-DR-A-00001 REV P04 PHASE 2 RWP SETTING OUT
CAM-CPA-12-00-DR-A-00001 REV P02 PHASE 1 RWP SCHEDULE
CAM-CPA-12-00-DR-A-00001 REV P02 PHASE 2 RWP SCHEDULE

LANDSCAPE ARCHITECTS DRAWING REF:
CAM-CPA-12-00-DR-L-00001 L00 REV P07 PHASE 1 DETAILED GENERAL ARRANGEMENT
CAM-CPA-12-00-DR-L-00001 L00 REV P07 PHASE 2 DETAILED GENERAL ARRANGEMENT

M&E ENGINEERS DRAWING REF:
MARK-UP OF CAM-CPA-12-00-DR-A-00001 BY WALLACE WHITTLE RECEIVED 01.10.25
MARK-UP OF CAM-CPA-12-00-DR-A-00001 BY WALLACE WHITTLE RECEIVED 01.10.25
EASMENTS SERVICES SKETCH RECEIVED 02.10.25

PROPOSED EXISTING SERVICES NOT SHOWN ON PLAN FOR CLARITY. REFER TO EASMENTS SERVICES SKETCH ISSUED BY WALLACE WHITTLE 02.10.25

HAZARD REGISTER			
Hazard Ref	Item (Feature, Element or Activity)	Potential Hazard Identified	Action (Information to Assist Control)
1.00 Enabling/Highways Works			
1.01	Installation of below ground attenuation tank	Working in deep excavations	Contractor method statements considering adequate support for excavations. Sequencing of works to be considered.
2.00 Site Wide Issues			
2.01	Hazardous materials identified in site investigation	Elevated aliphatic and aromatic hydrocarbons	Full extent of contaminated soils to be classified and removed from site
2.02	Obstructions to some areas of site prevented trial pit excavation	Localised unknown ground and geo-environmental conditions buried obstacles	During groundworks UXO Risk Management Plan & site specific UXO awareness briefings to all personnel conducting intrusive works
2.03	Unexploded Ordnance - Low risk	Despite low risk, UXOs may be present on site	
3.00 Existing Buried & Overhead Services			
3.01	Obstructions to some areas of site prevented full access to GPR survey	Strikes on buried services could occur during the works	
3.02	Utilities adjacent to site	High density of utilities within pavements of Store and Sparkle streets	Method statement to be in place by contractor during works adjacent to plot boundary to avoid services
3.03	Unknown Buried Services	Unknown Services	Undertake GPR survey
5.00 Excavations and Foundations			
5.01	Presence of foundations to demolished structures	Unknown size and location presents risk during substructure works	Survey to be undertaken of existing structures to determine likely foundation locations
5.07	Construction adjacent to sewer exclusion zone on corner of Sparkle and Store streets	Damage to existing UI asset	Survey undertaken to identify sewer location and depth. Locations of sewers and easement shown on drawing
7.00 Erection Structures and Placing Components			
7.04	Working in close proximity to retained retaining walls along the eastern, southern and western site boundaries	Damage to retaining walls causing failure/ excess settlement	Contractor to have method statement in place for protection of walls during the construction



- GENERAL NOTES:**
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
 - DESIGN BASED ON TOPOGRAPHICAL SURVEY INFORMATION AVAILABLE AT THE TIME OF DESIGN.
 - DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
 - ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.
 - FOR DRAINAGE NOTES, REFER TO DRAWING CAM-CUR-XX-XX-D-C-925030.
 - FOR MANHOLE SCHEDULES, REFER TO DRAWING CAM-CUR-XX-XX-D-C-925011 & 925011

P06	OUTFALL LOCATION & DETAILS AMENDED	26.02.26	ATL	MM
P05	CONNECTION TO PUBLIC SEWER AMENDED	08.10.25	ATL	MM
P04	GULLY ADDED FOR BIN STORE NEAR CORE 1B	30.10.25	MM	MM
P03	STAGE 4 ISSUE	17.10.25	AL	MM
P02	SPRINKLER TANK DRAINS ADDED	16.10.25	ATL	MM
P01	DRAFT STAGE 4 ISSUE FOR COMMENT	12.09.25	ATL	MM
Rev	Description	Date	By	Chkd

Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
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Chris Stoddart - Project Manager, Estimation & Information, Design & Construction & Project Design
Benjamin Stoddart - Cambridge, Cardiff, Dublin, Edinburgh, Glasgow, London, Leeds, Liverpool, Manchester, Nottingham
Status: Preliminary

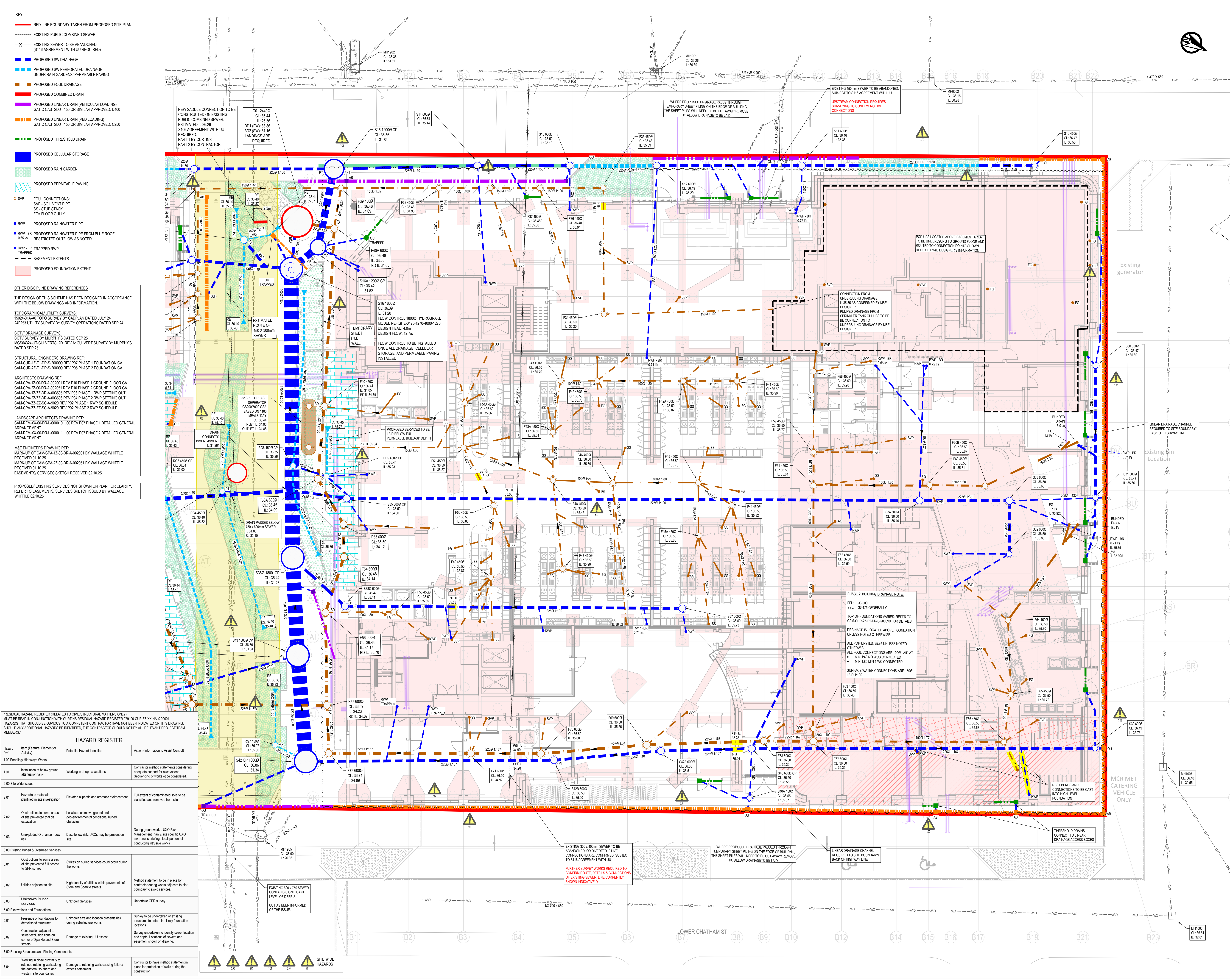
Project: Cambridge Halls Students Residences

Dwg Title: Phase 1 Proposed Drainage

Drawn By: ATL
Designed By: ATL
Checked By: MM

Project No: 087754
Date: 12.09.25
Scales @ A0: 1:100

Project Code - Originator - Spatial - Form - Discipline - Number
CAM - CUR - 12 - 00 - DR - C - 925001 P06



HAZARD REGISTER		
Hazard Ref.	Item (Feature, Element or Activity)	Action (Information to Assist Control)
1.00	Enabling Highways Works	
1.01	Installation of below ground attenuation tank	Contractor method statements considering adequate support for excavations. Sequencing of works to be considered.
2.00	Site Wide Issues	
2.01	Hazardous materials identified in site investigation	Full extent of contaminated soils to be classified and removed from site.
2.02	Obstructions to some areas of site prevented trial pit excavation	Localised unknown ground and geo-environmental conditions buried obstacles.
2.03	Unexploded Ordnance - Low risk	Despite low risk, UXOs may be present on site. During groundworks UXO Risk Management Plan & site specific UXO awareness briefings to all personnel conducting intrusive works.
3.00	Existing Buried & Overhead Services	
3.01	Obstructions to some areas of site prevented full access to GPR survey	Strikes on buried services could occur during the works. Method statement to be in place by contractor during works adjacent to plot boundary to avoid services.
3.02	Utilities adjacent to site	High density of utilities within pavements of Store and Sparkle streets. Undertake GPR survey.
3.03	Unknown Buried services	Unknown Services. Undertake GPR survey.
5.00	Excavations and Foundations	
5.01	Presence of foundations to demolished structures	Unknown size and location presents risk during substructure works. Survey to be undertaken of existing structures to determine likely foundation locations.
5.02	Construction adjacent to sewer exclusion zone on corner of Sparkle and Store streets	Damage to existing UO asset. Survey undertaken to identify sewer location and depth. Locations of sewers and easement shown on drawing.
7.00	Erecting Structures and Planting Components	
7.04	Working in close proximity to retained retaining walls along the eastern, southern and western site boundaries	Damage to retaining walls causing failure/excess settlement. Contractor to have method statement in place for protection of walls during the construction.

GENERAL NOTES:

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- ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.
- FOR DRAINAGE NOTES, REFER TO DRAWING CAM-CUR-XX-XX-D-C-925030.
- FOR MANHOLE SCHEDULES, REFER TO DRAWING CAM-CUR-XX-XX-D-C-925010 & 925011.

HAZARD REGISTER

Rev	Description	Date	By	Chkd
P05	OUTFALL LOCATION & DETAILS AMENDED	25.02.26	ATL	MW
P04	CONNECTION TO PUBLIC SEWER AMENDED	08.12.26	ATL	MW
P03	STAGE 4 ISSUE	17.10.25	AL	MW
P02	SPRINKLER TANK DRAINS ADDED	16.10.25	ATL	MW
P01	DRAFT STAGE 4 ISSUE FOR COMMENT	12.09.25	ATL	MW

Project: Cambridge Halls Students Residences

Phase: Phase 2 Proposed Drainage

Drawn By: ATL
Designed By: ATL
Checked By: MW

Project Code: 087754
Date: 12.09.25
Scales: @ 1:100

Project Code - Originator - Function - Spatial - Form - Discipline - Number
CAM - CUR - ZZ - 00 - DR - C - 925002 P05



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Chris Stobbs - Project Planning - Environmental - Infrastructure - Geotechnical - Construction & Project Design
Benjamin Stobbs - Cambridge - Cardiff - Chester - Edinburgh - Glasgow - Leeds - Liverpool - London - Manchester - Nottingham

KE

-  RED LINE BOUNDARY TAKEN FROM PROPOSED SITE PLAN
 EXISTING PUBLIC COMBINED SEWER SURVEYED
 EXISTING SEWER TO BE ABANDONED
 (S116 AGREEMENT WITH UU REQUIRED)
 PROPOSED FOUNDATION EXTENT
 EXISTING EASEMENT

OTHER DISCIPLINE DRAWING REFERENCES

THE DESIGN OF THIS SCHEME HAS BEEN DESIGNED IN ACCORDANCE WITH THE BELOW DRAWINGS AND INFORMATION.

TOPOGRAPHICAL/ UTILITY SURVEYS:

15024-01A-A0 TOPO SURVEY BY CADPLAN DATED JULY 24
24F253 UTILITY SURVEY BY SURVEY OPERATIONS DATED SEP 24

OCTV/ DRAINAGE SURVEYS:

CCTV SURVEY BY MURPHY'S DATED SEP 25
MGS64324-UT-CULVERTS_2D REV A: CULVERT SURVEY BY MURPHY'S
DATED SEP 25

STRUCTURAL ENGINEERS DRAWING REF:

CAM-CUR-1Z-F1-DR-S-200099 REV P07 PHASE 1 FOUNDATION GA
CAM-CUR-2Z-F1-DR-S-200099 REV P05 PHASE 2 FOUNDATION GA

ARCHITECTS DRAWING REF:

CAM-CPA-1Z-00-DR-A-002001 REV P10 PHASE 1 GROUND FLOOR GA
CAM-CPA-2Z-00-DR-A-002051 REV P10 PHASE 2 GROUND FLOOR GA
CAM-CPA-1Z-ZZ-DR-A-003505 REV P03 PHASE 1 RWP SETTING OUT
CAM-CPA-2Z-ZZ-DR-A-003506 REV P04 PHASE 2 RWP SETTING OUT
CAM-CPA-ZZ-ZZ-SC-A-9020 REV P02 PHASE 1 RWP SCHEDULE
CAM-CPA-ZZ-ZZ-SC-A-9020 REV P02 PHASE 2 RWP SCHEDULE

LANDSCAPE ARCHITECTS DRAWING REF:

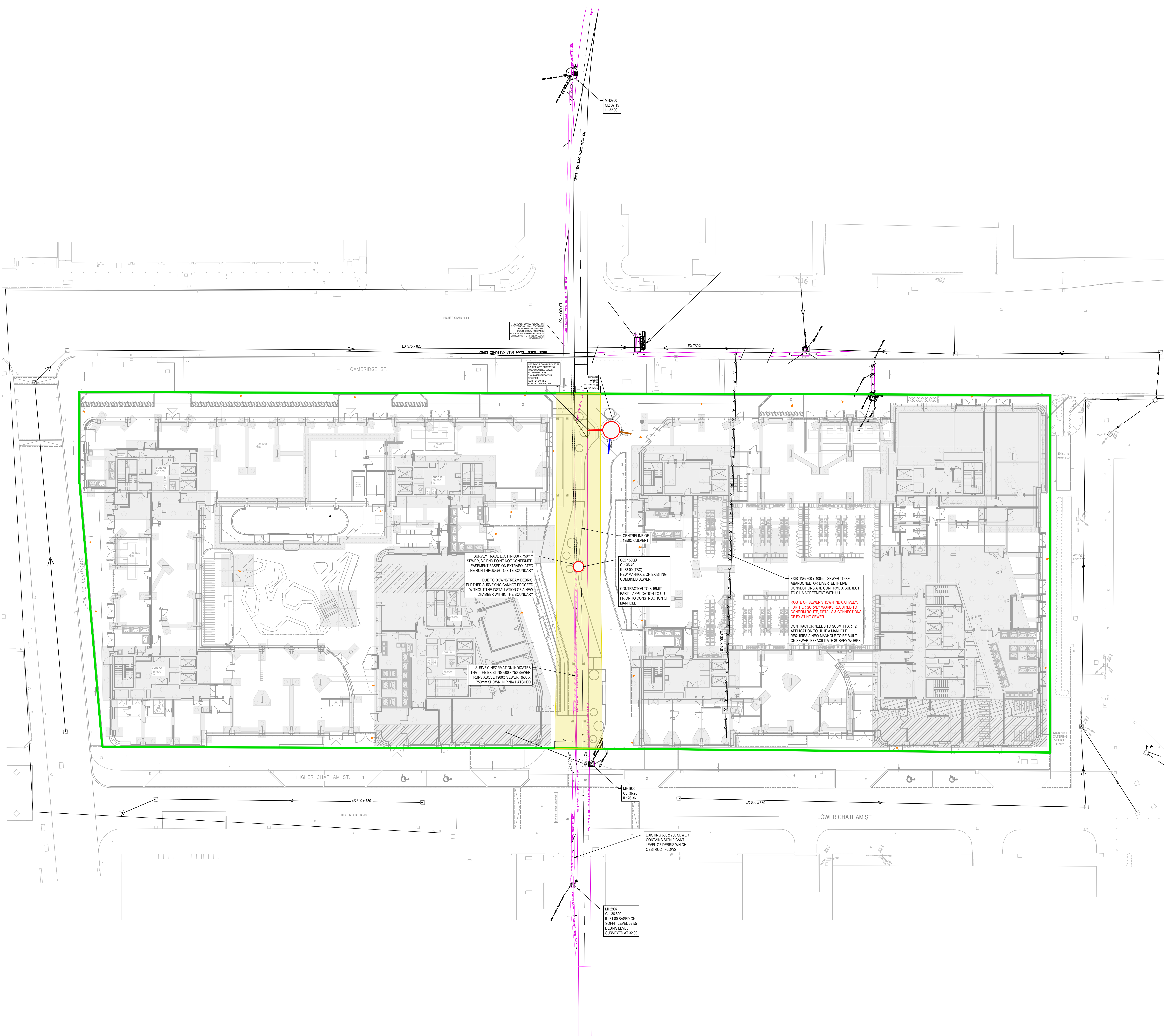
CAM-RFM-XX-00-DR-L-000010_L00 REV P07 PHASE 1 DETAILED GENERAL
ARRANGEMENT
CAM-RFM-XX-00-DR-L-000011_L00 REV P07 PHASE 2 DETAILED GENERAL
ARRANGEMENT

M&E ENGINEERS DRAWING REF

MARK-UP OF CAM-CPA-1Z-00-DR-A-002001 BY WALLACE WHITTLE
RECEIVED 01.10.25

RECEIVED 01.10.25
MARK-UP OF CAM-CPA-2Z-00-DR-A-002051 BY WALLACE WHITTLE
RECEIVED 01.10.25

EASEMENTS/ SERVICES SKETCH RECEIVED 02.10.25



GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DESIGN BASED ON TOPOGRAPHICAL SURVEY INFORMATION AVAILABLE AT THE TIME OF DESIGN.
3. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
4. ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORIENTED DATUM UNLESS OTHERWISE NOTED.
5. FOR DRAINAGE NOTES, REFER TO DRAWING CAM-CUR-XX-XX-D-C-025030.
6. FOR MANHOLE SCHEDULES, REFER TO DRAWING CAM-CUR-XX-XX-D-C-025010

P06	OUTFALL LOCATION & DETAILS AMENDED	25.02.26	ATL	MW
P05	CONNECTION TO PUBLIC SEWER AMENDED	08.12.25	ATL	MW
P04	PROPOSED CONNECTION AMENDED	06.11.25	ATL	MW
P03	DRAWING TITLE/NUMBER CORRECTION	16.10.25	ATL	MW
P02	DRAFT STAGE 4 ISSUE FOR COMMENT	09.10.25	ATL	MW
P01	ISSUED TO UI for comments	12.09.25	ATL	MW
Rev:	Description:	Date:	By:	Checked:

Curtins

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Civil & Structures • Transport Planning • Environmental • Infrastructure • Geotechnical • Conservation & Heritage

Status:

Preliminary

Project

Project: Cambridge Halls Students Residences

Drug Title

Public Sewer and Easements

Drawn By ATL	Designed By ATL	Checked By MW
Project No 087754	Date 12.09.25	Scales @ A0 1:100

Project Code - Originator - Function - Spatial - Form - Discipline - Number	Revision
---	----------

CAM- CUR- 2Z - 00 -DR - C-925003

PC

Appendix D

Proposed Drainage Model Details & Results

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	18.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.356	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S19	0.022	5.00	36.470	450	384183.355	396902.628	0.670
S20	0.027	5.00	36.490	600	384191.969	396907.497	0.769
22B			36.470	600	384195.873	396907.930	0.809
S17	0.030	5.00	36.480	450	384204.134	396913.741	0.630
S18	0.019	5.00	36.480	450	384200.128	396911.526	0.686
S22A			36.480	600	384198.301	396910.622	1.280
PP1	0.015	5.00	36.430	450	384185.409	396929.213	0.830
S22	0.023	5.00	36.470	1200	384187.223	396929.267	3.535
S23	0.046	5.00	36.470	450	384184.283	396938.563	1.556
S26			36.430	1200	384180.336	396942.242	3.568
S24A	0.002	5.00	36.480	450	384192.879	396952.797	0.980
S24	0.029	5.00	36.480	450	384187.258	396949.287	1.480
S25	0.019	5.00	36.460	1200	384182.640	396946.620	3.595
JUN S27A	0.063	5.00	36.450	450	384178.338	396944.354	3.609
RG1	0.004	5.00	36.410	450	384177.162	396931.351	0.760
PP2	0.015	5.00	36.410	450	384174.861	396935.763	0.793
RG2	0.003	5.00	36.320	450	384173.514	396938.346	0.722
PP2A	0.005	5.00	36.460	450	384167.172	396938.433	0.810
S27			36.450	1200	384171.729	396940.907	3.644
S28A	0.011	5.00	36.500	450	384157.559	396947.467	0.600
S28B	0.018	5.00	36.500	450	384158.812	396951.578	0.644
RG8	0.003	5.00	36.450	450	384152.802	396957.392	1.140
S28C	0.003	5.00	36.450	450	384155.356	396957.837	1.166
RG3	0.015	5.00	36.343	600	384157.340	396964.479	1.343
S28	0.036	5.00	36.470	1200	384160.117	396963.026	3.791
S39	0.036	5.00	36.490	600	384140.362	397044.433	0.765
S40A	0.006	5.00	36.550	450	384157.694	397020.761	0.880
S40	0.058	5.00	36.500	600	384153.956	397018.946	0.950
S42A			36.500	600	384157.721	397012.291	0.996
S42B			36.500	600	384162.614	397004.731	1.500
RG7	0.010	5.00	36.970	600	384172.495	396983.434	1.670
S42			36.860	1800	384172.498	396986.349	5.520
S43	0.017	5.00	36.440	1800	384164.934	396981.554	5.130
BR 202	0.024	5.00	38.000	450	384151.545	397010.131	0.200
S37	0.074	5.00	36.500	600	384146.276	397008.255	0.775
S38			36.440	600	384159.442	396983.125	0.999
S36	0.002	5.00	36.440	1800	384157.900	396977.325	5.157
BR 2N1	0.007	5.00	38.000	450	384111.613	397025.225	0.200
S30			36.470	450	384111.934	397029.360	0.670
S31	0.003	5.00	36.470	600	384121.748	397034.575	0.807
BR 2N2	0.007	5.00	38.000	450	384126.001	397034.987	0.200

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S32	0.026	5.00	36.500	600	384129.325	397030.388	0.700
S33			36.500	600	384125.365	397028.300	0.897
BR 2L2 + 2M1	0.023	5.00	38.000	450	384121.454	397018.370	0.200
S34	0.027	5.00	36.500	600	384128.892	397021.611	1.097
RG6	0.019	5.00	36.350	600	384151.050	396973.723	1.090
PP5	0.030	5.00	36.440	600	384150.515	396976.643	1.210
S35	0.027	5.00	36.500	600	384151.355	396978.988	2.200
RG4	0.005	5.00	36.403	600	384155.751	396969.502	1.083
Jun S16A			36.400		384152.937	396974.656	5.136
S01A	0.004	5.00	36.460	450	384162.866	396898.998	1.160
S01	0.057	5.00	36.470	450	384163.864	396899.629	1.220
S03	0.046	5.00	36.460	600	384159.689	396904.262	1.435
S04			36.400	600	384148.424	396925.450	1.535
S05	0.006	5.00	36.530	600	384145.073	396931.751	1.712
S06	0.016	5.00	36.510	600	384141.952	396937.621	1.736
S07	0.007	5.00	36.590	600	384138.653	396943.827	1.863
S08	0.005	5.00	36.610	600	384132.909	396954.659	1.975
S10	0.004	5.00	36.480	600	384099.469	397016.953	0.980
BR 2L1	0.012	5.00	38.000	450	384113.816	397001.290	0.200
S11	0.034	5.00	36.460	600	384108.666	396999.652	1.096
BR 2O1	0.024	5.00	38.000	450	384127.260	396995.073	0.200
S12	0.002	5.00	36.490	600	384114.405	396988.876	1.207
S13	0.034	5.00	36.500	600	384117.837	396982.421	1.311
S14	0.008	5.00	36.510	600	384121.481	396975.569	1.373
S15			36.560	1500	384127.395	396965.042	4.720
S16A	0.020	5.00	36.420	1200	384133.819	396966.945	4.602
S09	0.031	5.00	36.480	600	384139.770	396958.110	1.080
RG5	0.004	5.00	36.200	600	384136.205	396961.154	0.930
JUN S09			36.310		384137.342	396963.833	1.117
S16	0.007	5.00	36.390	1800	384136.500	396965.818	5.190
C01			36.390	2440	384132.749	396964.389	5.230

Links (Input)

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	S19	S20	9.895	0.600	35.800	35.721	0.079	125.3	150	5.18	50.0
1.001	S20	22B	3.928	0.600	35.721	35.682	0.039	100.0	150	5.25	50.0
1.002	22B	S22A	3.625	0.600	35.661	35.625	0.036	100.0	150	5.31	50.0
2.000	S17	S18	4.578	0.600	35.850	35.804	0.046	100.0	150	5.08	50.0
2.001	S18	S22A	2.038	0.600	35.794	35.774	0.020	100.0	150	5.11	50.0
1.003	S22A	S22	21.688	0.600	35.200	34.983	0.217	100.0	225	5.59	50.0
3.000	PP1	S22	1.815	0.600	35.600	35.582	0.018	100.0	150	5.03	50.0
1.004	S22	S26	14.689	0.600	32.935	32.862	0.073	200.0	300	5.81	50.0
4.000	S23	S26	5.396	0.600	34.914	34.860	0.054	100.0	150	5.09	50.0
1.005	S26	JUN S27A	2.907	0.600	32.864	32.849	0.015	200.0	300	5.85	50.0
5.000	S24A	S24	6.627	0.600	35.500	35.000	0.500	13.3	150	5.04	50.0
5.001	S24	S25	5.333	0.600	35.000	34.947	0.053	100.0	150	5.13	50.0
5.002	S25	JUN S27A	4.862	0.600	32.865	32.841	0.024	200.0	300	5.20	50.0
1.006	JUN S27A	S27	7.454	0.600	32.849	32.812	0.037	200.0	300	5.96	50.0
6.000	RG1	PP2	4.976	0.600	35.650	35.617	0.033	150.0	150	5.10	50.0
6.001	PP2	RG2	2.913	0.600	35.617	35.598	0.019	150.0	150	5.16	50.0

Links (Input)

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
6.002	RG2	S27	3.122	0.600	35.598	35.567	0.031	100.0	150	5.21	50.0
7.000	PP2A	S27	5.185	0.600	35.650	35.598	0.052	100.0	150	5.09	50.0
1.007	S27	S28	24.982	0.600	32.806	32.681	0.125	200.0	300	6.34	50.0
8.000	S28A	S28B	4.298	0.600	35.900	35.857	0.043	100.0	150	5.07	50.0
8.001	S28B	S28C	7.150	0.600	35.856	35.290	0.566	12.6	150	5.11	50.0
9.000	RG8	S28C	2.592	0.600	35.310	35.284	0.026	100.0	150	5.04	50.0
8.002	S28C	S28	7.042	0.600	35.290	35.220	0.070	100.0	150	5.23	50.0
10.000	RG3	S28	3.134	0.600	35.000	34.969	0.031	100.0	150	5.05	50.0
1.008	S28	Jun S16A	13.668	0.600	32.679	31.264	1.415	9.7	300	6.38	50.0
11.000	S39	S40	28.886	0.600	35.725	35.552	0.173	167.0	225	5.48	50.0
12.000	S40A	S40	4.155	0.600	35.670	35.642	0.028	150.0	150	5.08	50.0
11.001	S40	S42A	7.646	0.600	35.550	35.504	0.046	167.0	225	5.60	50.0
11.002	S42A	S42B	9.005	0.600	35.506	35.000	0.506	17.8	225	5.65	50.0
11.003	S42B	S42	20.871	0.600	35.000	34.875	0.125	167.0	225	6.00	50.0
13.000	RG7	S42	2.915	0.600	35.300	35.271	0.029	100.0	150	5.05	50.0
11.004	S42	S43	8.956	0.600	31.340	31.310	0.030	300.0	1200	6.07	50.0
11.005	S43	S36	8.207	0.600	31.310	31.283	0.027	300.0	1200	6.13	50.0
14.000	BR 202	S37	5.593	0.600	37.800	35.800	2.000	2.8	100	5.02	50.0
14.001	S37	S38	28.370	0.600	35.725	35.441	0.284	100.0	225	5.38	50.0
14.002	S38	S36	6.001	0.600	35.441	35.401	0.040	150.0	225	5.48	50.0
11.006	S36	Jun S16A	5.635	0.600	31.283	31.264	0.019	300.0	1200	6.17	50.0
15.000	BR 2N1	S30	4.147	0.600	37.800	35.925	1.875	2.2	100	5.01	50.0
15.001	S30	S31	11.114	0.600	35.800	35.689	0.111	100.0	225	5.15	50.0
15.002	S31	S33	7.243	0.600	35.663	35.603	0.060	120.7	225	5.26	50.0
16.000	BR 2N2	S33	6.717	0.600	37.800	35.728	2.072	3.2	100	5.03	50.0
17.000	S32	S33	4.477	0.600	35.800	35.603	0.197	22.7	225	5.03	50.0
15.003	S33	S34	7.562	0.600	35.603	35.403	0.200	37.8	225	5.32	50.0
18.000	BR 2L2 + 2M1	S34	8.113	0.600	37.800	35.527	2.273	3.6	150	5.03	50.0
15.004	S34	S35	48.180	0.600	35.403	34.921	0.482	100.0	225	5.93	50.0
19.000	RG6	PP5	2.969	0.600	35.260	35.230	0.030	100.0	150	5.05	50.0
19.001	PP5	S35	2.491	0.600	35.230	34.997	0.233	10.7	150	5.06	50.0
15.005	S35	Jun S16A	4.612	0.600	34.300	32.239	2.061	2.2	225	5.94	50.0
20.000	RG4	Jun S16A	5.872	0.600	35.320	32.314	3.006	2.0	150	5.01	50.0
1.009	Jun S16A	S16	18.662	0.600	31.264	31.202	0.062	300.0	1200	6.53	50.0
21.000	S01A	S01	1.181	0.600	35.300	35.250	0.050	23.6	150	5.01	50.0
21.001	S01	S03	6.237	0.600	35.250	35.100	0.150	41.6	150	5.08	50.0
21.002	S03	S04	23.996	0.600	35.025	34.865	0.160	150.0	225	5.45	50.0
21.003	S04	S05	7.137	0.600	34.866	34.818	0.048	150.0	225	5.56	50.0
21.004	S05	S06	6.648	0.600	34.818	34.774	0.044	150.0	225	5.67	50.0
21.005	S06	S07	7.028	0.600	34.774	34.727	0.047	150.0	225	5.78	50.0
21.006	S07	S08	12.261	0.600	34.732	34.650	0.082	150.0	225	5.97	50.0
21.007	S08	S15	11.756	0.600	34.635	34.557	0.078	150.0	225	6.15	50.0
22.000	S10	S11	19.594	0.600	35.500	35.369	0.131	150.0	225	5.31	50.0
23.000	BR 2L1	S11	5.404	0.600	37.800	35.500	2.300	2.3	100	5.02	50.0
22.001	S11	S12	12.209	0.600	35.364	35.283	0.081	150.0	225	5.50	50.0
24.000	BR 201	S12	14.271	0.600	37.800	35.414	2.386	6.0	100	5.07	50.0
22.002	S12	S13	7.311	0.600	35.289	35.240	0.049	150.0	225	5.61	50.0
22.003	S13	S14	7.761	0.600	35.189	35.137	0.052	150.0	300	5.71	50.0
22.004	S14	S15	12.074	0.600	35.137	35.057	0.080	150.0	300	5.87	50.0
21.008	S15	S16A	6.700	0.600	31.840	31.818	0.022	300.0	600	6.23	50.0
21.009	S16A	S16	2.908	0.600	31.819	31.804	0.015	200.0	600	6.26	50.0
25.000	S09	JUN S09	6.217	0.600	35.400	35.193	0.207	30.0	225	5.04	50.0
26.000	RG5	JUN S09	2.910	0.600	35.270	35.193	0.077	37.8	225	5.02	50.0

Links (Input)

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
25.001	JUN S09	S16	2.156	0.600	35.193	35.121	0.072	30.0	225	5.06	50.0
1.010	S16	C01	4.014	0.600	31.200	31.160	0.040	100.3	225	6.58	50.0

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Detailed
Rainfall Events	Singular	Skip Steady State	x
FSR Region	England and Wales	Drain Down Time (mins)	1440
M5-60 (mm)	18.000	Additional Storage (m³/ha)	20.0
Ratio-R	0.358	Starting Level (m)	
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
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Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	45	0	0

Node S16 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	31.200	Product Number	CTL-SHE-0125-1270-4000-1270
Design Depth (m)	4.000	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	12.7	Min Node Diameter (mm)	1500

Node BR 2N2 Online Depth/Flow Control

Flap Valve	x	Replaces Downstream Link	✓	Invert Level (m)	37.800
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Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.001	0.000	0.050	0.350	0.100	0.710

Node BR 2L2 + 2M1 Online Depth/Flow Control

Flap Valve	x	Replaces Downstream Link	✓	Invert Level (m)	37.800
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Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.001	0.000	0.050	0.068	0.100	0.136

Node BR 2L1 Online Depth/Flow Control

Flap Valve	x	Replaces Downstream Link	✓	Invert Level (m)	37.800
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Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.001	0.000	0.050	0.355	0.100	0.710

Node BR 2N1 Online Depth/Flow Control

Flap Valve x | Replaces Downstream Link ✓ | Invert Level (m) 37.800

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.001	0.000	0.050	0.355	0.100	0.710

Node BR 2O1 Online Depth/Flow Control

Flap Valve x | Replaces Downstream Link ✓ | Invert Level (m) 37.800

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.001	0.000	0.050	0.710	0.100	1.420

Node BR 2O2 Online Depth/Flow Control

Flap Valve x | Replaces Downstream Link ✓ | Invert Level (m) 37.800

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.001	0.000	0.050	0.710	0.100	1.420

Node S26 Depth/Area Storage Structure

Base Inf Coefficient (m/hr) 0.00000 | Safety Factor 2.0 | Invert Level (m) 32.862
Side Inf Coefficient (m/hr) 0.00000 | Porosity 0.96 | Time to half empty (mins) 320

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	139.0	0.0	2.490	139.0	0.0	2.492	0.0	0.0

Node RG1 Carpark Storage Structure

Base Inf Coefficient (m/hr) 0.00000 | Invert Level (m) 35.650 | Slope (1:X) 1000.0
Side Inf Coefficient (m/hr) 0.00000 | Time to half empty (mins) 56 | Depth (m) 0.750
Safety Factor 2.0 | Width (m) 6.300 | Inf Depth (m)
Porosity 0.20 | Length (m) 10.000

Node RG3 Carpark Storage Structure

Base Inf Coefficient (m/hr) 0.00000 | Invert Level (m) 35.390 | Slope (1:X) 1000.0
Side Inf Coefficient (m/hr) 0.00000 | Time to half empty (mins) 72 | Depth (m) 0.750
Safety Factor 2.0 | Width (m) 17.500 | Inf Depth (m)
Porosity 0.20 | Length (m) 2.000

Node BR 2N2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr) 0.00000 | Safety Factor 2.0 | Invert Level (m) 37.800
Side Inf Coefficient (m/hr) 0.00000 | Porosity 1.00 | Time to half empty (mins)

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	74.0	74.0	0.200	74.0	80.1

Node BR 2L2 + 2M1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	37.800
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	356.0	356.0	0.200	356.0	369.4

Node BR 2L1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	37.800
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	74.0	74.0	0.200	74.0	80.1

Node BR 2N1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	37.800
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	74.0	74.0	0.200	74.0	80.1

Node BR 2O1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	37.800
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	241.0	241.0	0.200	241.0	252.0

Node BR 2O2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	37.800
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	241.0	241.0	0.200	241.0	252.0

Node RG3 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	35.000	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	64	Depth (m)	0.750
Safety Factor	2.0	Width (m)	2.000	Inf Depth (m)	
Porosity	0.20	Length (m)	10.000		

Node PP1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	36.130	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.150
Safety Factor	2.0	Width (m)	2.000	Inf Depth (m)	
Porosity	0.30	Length (m)	75.000		

Node PP2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	36.110	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.150
Safety Factor	2.0	Width (m)	2.000	Inf Depth (m)	
Porosity	0.30	Length (m)	75.000		

Node S28 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	36.150	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	8	Depth (m)	0.150
Safety Factor	2.0	Width (m)	3.000	Inf Depth (m)	
Porosity	0.30	Length (m)	32.000		

Node PP5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	36.140	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.150
Safety Factor	2.0	Width (m)	2.500	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node RG5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	35.270	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	72	Depth (m)	0.750
Safety Factor	2.0	Width (m)	3.000	Inf Depth (m)	
Porosity	0.30	Length (m)	12.000		

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)	Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
2 year 15 minute summer	122.470	34.655	2 year 600 minute winter	7.267	2.909
2 year 15 minute winter	85.944	34.655	2 year 720 minute summer	9.527	2.553
2 year 30 minute summer	80.689	22.832	2 year 720 minute winter	6.402	2.553
2 year 30 minute winter	56.624	22.832	2 year 960 minute summer	7.892	2.078
2 year 60 minute summer	54.898	14.508	2 year 960 minute winter	5.228	2.078
2 year 60 minute winter	36.473	14.508	2 year 1440 minute summer	5.801	1.555
2 year 120 minute summer	34.192	9.036	2 year 1440 minute winter	3.899	1.555
2 year 120 minute winter	22.716	9.036	30 year 15 minute summer	231.479	65.500
2 year 180 minute summer	26.486	6.816	30 year 15 minute winter	162.441	65.500
2 year 180 minute winter	17.217	6.816	30 year 30 minute summer	153.602	43.464
2 year 240 minute summer	21.088	5.573	30 year 30 minute winter	107.791	43.464
2 year 240 minute winter	14.010	5.573	30 year 60 minute summer	104.640	27.653
2 year 360 minute summer	16.284	4.190	30 year 60 minute winter	69.521	27.653
2 year 360 minute winter	10.585	4.190	30 year 120 minute summer	64.725	17.105
2 year 480 minute summer	12.912	3.412	30 year 120 minute winter	43.002	17.105
2 year 480 minute winter	8.578	3.412	30 year 180 minute summer	49.672	12.782
2 year 600 minute summer	10.635	2.909	30 year 180 minute winter	32.288	12.782

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)	Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
30 year 240 minute summer	39.164	10.350	100 year +45% CC 60 minute winter	132.303	52.627
30 year 240 minute winter	26.020	10.350	100 year +45% CC 120 minute summer	123.447	32.623
30 year 360 minute summer	29.696	7.642	100 year +45% CC 120 minute winter	82.015	32.623
30 year 360 minute winter	19.303	7.642	100 year +45% CC 180 minute summer	94.580	24.339
30 year 480 minute summer	23.318	6.162	100 year +45% CC 180 minute winter	61.480	24.339
30 year 480 minute winter	15.492	6.162	100 year +45% CC 240 minute summer	74.355	19.650
30 year 600 minute summer	19.053	5.212	100 year +45% CC 240 minute winter	49.400	19.650
30 year 600 minute winter	13.018	5.212	100 year +45% CC 360 minute summer	55.995	14.410
30 year 720 minute summer	16.951	4.543	100 year +45% CC 360 minute winter	36.399	14.410
30 year 720 minute winter	11.392	4.543	100 year +45% CC 480 minute summer	43.781	11.570
30 year 960 minute summer	13.883	3.656	100 year +45% CC 480 minute winter	29.087	11.570
30 year 960 minute winter	9.197	3.656	100 year +45% CC 600 minute summer	35.650	9.751
30 year 1440 minute summer	10.030	2.688	100 year +45% CC 600 minute winter	24.358	9.751
30 year 1440 minute winter	6.741	2.688	100 year +45% CC 720 minute summer	31.621	8.475
100 year +45% CC 15 minute summer	433.303	122.610	100 year +45% CC 720 minute winter	21.251	8.475
100 year +45% CC 15 minute winter	304.072	122.610	100 year +45% CC 960 minute summer	25.771	6.786
100 year +45% CC 30 minute summer	290.377	82.167	100 year +45% CC 960 minute winter	17.071	6.786
100 year +45% CC 30 minute winter	203.773	82.167	100 year +45% CC 1440 minute summer	18.479	4.953
100 year +45% CC 60 minute summer	199.139	52.627	100 year +45% CC 1440 minute winter	12.419	4.953

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.94%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S19	10	35.848	0.048	3.5	0.0388	0.0000	OK
15 minute winter	S20	10	35.798	0.077	7.8	0.0761	0.0000	OK
15 minute winter	22B	10	35.738	0.077	7.6	0.0219	0.0000	OK
15 minute winter	S17	10	35.909	0.059	4.7	0.0659	0.0000	OK
15 minute winter	S18	10	35.874	0.080	7.7	0.0570	0.0000	OK
15 minute winter	S22A	11	35.286	0.086	15.2	0.0243	0.0000	OK
15 minute winter	PP1	10	35.641	0.041	2.4	0.0216	0.0000	OK
120 minute winter	S22	116	33.068	0.133	7.2	0.1675	0.0000	OK
15 minute winter	S23	10	34.987	0.073	7.3	0.0549	0.0000	OK
120 minute winter	S26	116	33.068	0.206	25.5	27.7053	0.0000	OK
15 minute winter	S24A	11	35.509	0.009	0.3	0.0017	0.0000	OK
15 minute winter	S24	10	35.058	0.058	4.9	0.0320	0.0000	OK
120 minute winter	S25	116	33.068	0.203	2.6	0.2509	0.0000	OK
120 minute winter	JUN S27A	116	33.068	0.227	20.4	0.0792	0.0000	OK
15 minute winter	RG1	13	35.667	0.017	0.6	0.1550	0.0000	OK
15 minute winter	PP2	11	35.664	0.047	2.5	0.0253	0.0000	OK
15 minute winter	RG2	10	35.643	0.045	3.0	0.0110	0.0000	OK
15 minute winter	PP2A	10	35.672	0.022	0.8	0.0062	0.0000	OK
120 minute winter	S27	116	33.068	0.262	15.8	0.2960	0.0000	OK
15 minute winter	S28A	10	35.933	0.033	1.7	0.0174	0.0000	OK
15 minute winter	S28B	10	35.886	0.030	4.5	0.0217	0.0000	OK
15 minute winter	RG8	10	35.351	0.041	0.5	0.0086	0.0000	OK
15 minute winter	S28C	10	35.351	0.067	5.4	0.0141	0.0000	OK
15 minute winter	RG3	11	35.039	0.039	2.4	0.1573	0.0000	OK
120 minute winter	S28	114	33.067	0.388	18.3	0.5131	0.0000	SURCHARGED
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S19	1.000	S20	3.5	0.500	0.219	0.0689	
15 minute winter	S20	1.001	22B	7.6	0.899	0.430	0.0334	
15 minute winter	22B	1.002	S22A	7.6	0.895	0.427	0.0307	
15 minute winter	S17	2.000	S18	4.7	0.643	0.263	0.0332	
15 minute winter	S18	2.001	S22A	7.6	0.874	0.428	0.0177	
15 minute winter	S22A	1.003	S22	15.1	1.117	0.291	0.2939	
15 minute winter	PP1	3.000	S22	2.4	0.646	0.133	0.0067	
15 minute winter	S22	1.004	S26	21.0	1.454	0.268	0.2544	
15 minute winter	S23	4.000	S26	7.2	0.900	0.406	0.0433	
120 minute winter	S26	1.005	JUN S27A	-19.2	-0.723	-0.245	0.1541	
15 minute winter	S24A	5.000	S24	0.3	0.108	0.006	0.0221	
15 minute winter	S24	5.001	S25	4.8	0.812	0.272	0.0318	
15 minute winter	S25	5.002	JUN S27A	7.7	0.478	0.099	0.0889	
30 minute winter	JUN S27A	1.006	S27	18.3	0.855	0.234	0.1842	
15 minute winter	RG1	6.000	PP2	0.4	0.252	0.027	0.0142	
15 minute winter	PP2	6.001	RG2	2.5	0.552	0.176	0.0134	
15 minute winter	RG2	6.002	S27	2.9	0.700	0.166	0.0132	
15 minute winter	PP2A	7.000	S27	0.8	0.494	0.044	0.0081	
30 minute winter	S27	1.007	S28	20.5	0.923	0.262	1.2457	
15 minute winter	S28A	8.000	S28B	1.7	0.611	0.095	0.0118	
15 minute winter	S28B	8.001	S28C	4.5	1.000	0.089	0.0329	
15 minute summer	RG8	9.000	S28C	0.5	0.113	0.027	0.0146	
15 minute winter	S28C	8.002	S28	5.4	0.842	0.302	0.0448	
15 minute winter	RG3	10.000	S28	2.3	0.653	0.127	0.0109	
15 minute winter	S28	1.008	Jun S16A	28.8	1.006	0.080	0.5448	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.94%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S39	10	35.781	0.056	5.7	0.0687	0.0000	OK
15 minute summer	S40A	11	35.696	0.026	0.9	0.0078	0.0000	OK
15 minute winter	S40	10	35.649	0.099	15.5	0.1491	0.0000	OK
15 minute winter	S42A	11	35.559	0.055	15.2	0.0156	0.0000	OK
15 minute winter	S42B	11	35.100	0.100	15.2	0.0284	0.0000	OK
15 minute winter	RG7	10	35.333	0.033	1.6	0.0131	0.0000	OK
120 minute winter	S42	114	33.067	1.727	8.6	4.3961	0.0000	SURCHARGED
120 minute winter	S43	114	33.067	1.757	14.1	4.5884	0.0000	SURCHARGED
360 minute winter	BR 2O2	272	37.814	0.014	0.6	3.4351	0.0000	OK
15 minute winter	S37	10	35.797	0.072	11.7	0.1582	0.0000	OK
15 minute winter	S38	11	35.528	0.087	11.5	0.0246	0.0000	OK
120 minute winter	S36	114	33.067	1.784	20.2	4.5537	0.0000	SURCHARGED
960 minute winter	BR 2N1	615	37.812	0.012	0.1	0.8662	0.0000	OK
960 minute winter	S30	615	35.807	0.007	0.1	0.0011	0.0000	OK
15 minute winter	S31	10	35.679	0.016	0.5	0.0057	0.0000	OK
960 minute winter	BR 2N2	615	37.812	0.012	0.1	0.8724	0.0000	OK
15 minute winter	S32	10	35.831	0.031	4.1	0.0314	0.0000	OK
15 minute winter	S33	10	35.638	0.035	4.6	0.0100	0.0000	OK
960 minute winter	BR 2L2 + 2M1	825	37.817	0.017	0.3	6.0447	0.0000	OK
15 minute winter	S34	11	35.465	0.062	8.8	0.0483	0.0000	OK
15 minute winter	RG6	10	35.306	0.046	3.0	0.0289	0.0000	OK
15 minute winter	PP5	10	35.274	0.044	7.7	0.0340	0.0000	OK
15 minute winter	S35	10	34.338	0.038	20.2	0.0202	0.0000	OK
15 minute winter	RG4	10	35.329	0.009	0.8	0.0033	0.0000	OK
120 minute winter	Jun S16A	114	33.067	1.803	25.5	0.0000	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S39	11.000	S40	5.5	0.465	0.138	0.3481	
15 minute summer	S40A	12.000	S40	0.9	0.447	0.062	0.0084	
15 minute winter	S40	11.001	S42A	15.2	1.270	0.379	0.0930	
15 minute winter	S42A	11.002	S42B	15.2	1.295	0.123	0.1091	
15 minute winter	S42B	11.003	S42	15.4	0.926	0.383	0.3463	
15 minute winter	RG7	13.000	S42	1.6	0.592	0.089	0.0078	
15 minute winter	S42	11.004	S43	26.7	0.380	0.011	8.5520	
15 minute winter	S43	11.005	S36	-22.7	0.173	-0.009	8.0674	
360 minute winter	BR 2O2	Depth/Flow	S37	0.2				
15 minute winter	S37	14.001	S38	11.5	0.924	0.222	0.3548	
15 minute winter	S38	14.002	S36	11.5	0.861	0.271	0.0799	
15 minute winter	S36	11.006	Jun S16A	-42.6	-0.184	-0.017	5.6575	
960 minute winter	BR 2N1	Depth/Flow	S30	0.1				
960 minute winter	S30	15.001	S31	0.1	0.277	0.001	0.0031	
15 minute winter	S31	15.002	S33	0.5	0.191	0.010	0.0188	
960 minute winter	BR 2N2	Depth/Flow	S33	0.1				
15 minute winter	S32	17.000	S33	4.1	1.137	0.037	0.0161	
15 minute winter	S33	15.003	S34	4.5	0.734	0.053	0.0484	
960 minute winter	BR 2L2 + 2M1	Depth/Flow	S34	0.0				
15 minute winter	S34	15.004	S35	8.6	0.969	0.165	0.4265	
15 minute winter	RG6	19.000	PP5	3.0	0.674	0.167	0.0131	
15 minute winter	PP5	19.001	S35	7.6	1.974	0.139	0.0096	
15 minute winter	S35	15.005	Jun S16A	20.1	4.745	0.057	0.0196	
15 minute winter	RG4	20.000	Jun S16A	0.8	2.030	0.006	0.0023	
15 minute winter	Jun S16A	1.009	S16	14.2	0.368	0.006	19.3539	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.94%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S01A	10	35.316	0.016	0.6	0.0035	0.0000	OK
15 minute winter	S01	10	35.317	0.067	9.8	0.0728	0.0000	OK
15 minute winter	S03	10	35.126	0.101	16.7	0.0937	0.0000	OK
15 minute winter	S04	11	34.978	0.113	16.6	0.0321	0.0000	OK
15 minute winter	S05	11	34.937	0.119	17.4	0.0420	0.0000	OK
15 minute winter	S06	11	34.900	0.126	19.9	0.0587	0.0000	OK
15 minute winter	S07	11	34.852	0.125	21.0	0.0448	0.0000	OK
15 minute winter	S08	11	34.758	0.123	21.7	0.0410	0.0000	OK
15 minute winter	S10	11	35.519	0.019	0.6	0.0068	0.0000	OK
360 minute winter	BR 2L1	248	37.820	0.020	0.3	1.5275	0.0000	OK
15 minute winter	S11	10	35.423	0.059	6.0	0.0533	0.0000	OK
360 minute winter	BR 2O1	272	37.814	0.014	0.6	3.4351	0.0000	OK
15 minute winter	S12	11	35.351	0.068	6.2	0.0214	0.0000	OK
15 minute winter	S13	10	35.267	0.078	11.5	0.0627	0.0000	OK
15 minute winter	S14	11	35.217	0.080	12.7	0.0318	0.0000	OK
120 minute winter	S15	114	33.067	1.227	11.9	2.1687	0.0000	SURCHARGED
120 minute winter	S16A	114	33.067	1.249	11.7	1.5217	0.0000	SURCHARGED
15 minute winter	S09	10	35.435	0.035	4.9	0.0299	0.0000	OK
15 minute winter	RG5	11	35.284	0.014	0.6	0.0188	0.0000	OK
15 minute winter	JUN S09	10	35.232	0.039	5.5	0.0000	0.0000	OK
120 minute winter	S16	114	33.067	1.867	17.3	4.8028	0.0000	SURCHARGED
60 minute summer	C01	32	31.222	0.062	8.8	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S01A	21.000	S01	0.8	0.209	0.022	0.0050	
15 minute winter	S01	21.001	S03	9.4	1.329	0.340	0.0442	
15 minute winter	S03	21.002	S04	16.6	0.889	0.391	0.4472	
15 minute winter	S04	21.003	S05	16.5	0.803	0.389	0.1467	
15 minute winter	S05	21.004	S06	17.5	0.793	0.413	0.1465	
15 minute winter	S06	21.005	S07	20.0	0.879	0.471	0.1597	
15 minute winter	S07	21.006	S08	21.0	1.025	0.496	0.2514	
15 minute winter	S08	21.007	S15	21.7	1.028	0.512	0.2480	
15 minute winter	S10	22.000	S11	0.6	0.148	0.014	0.0868	
360 minute winter	BR 2L1	Depth/Flow	S11	0.1				
15 minute winter	S11	22.001	S12	5.9	0.646	0.139	0.1111	
360 minute winter	BR 2O1	Depth/Flow	S12	0.2				
15 minute winter	S12	22.002	S13	6.2	0.739	0.147	0.0615	
15 minute winter	S13	22.003	S14	11.4	0.772	0.125	0.1143	
15 minute winter	S14	22.004	S15	12.7	0.881	0.140	0.1735	
15 minute winter	S15	21.008	S16A	34.3	0.762	0.087	1.4976	
15 minute winter	S16A	21.009	S16	37.3	0.962	0.077	0.6770	
15 minute winter	S09	25.000	JUN S09	4.9	1.141	0.051	0.0265	
15 minute winter	RG5	26.000	JUN S09	0.6	0.238	0.007	0.0082	
15 minute winter	JUN S09	25.001	S16	5.4	1.238	0.057	0.0095	
60 minute summer	S16	1.010	C01	8.8	0.908	0.170	0.0390	119.7

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.87%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S19	10	35.867	0.067	6.6	0.0546	0.0000	OK
15 minute winter	S20	10	35.839	0.118	14.5	0.1165	0.0000	OK
15 minute winter	22B	10	35.779	0.118	14.3	0.0334	0.0000	OK
15 minute winter	S17	10	35.942	0.092	8.9	0.1018	0.0000	OK
15 minute winter	S18	10	35.916	0.122	14.5	0.0871	0.0000	OK
15 minute winter	S22A	10	35.325	0.125	28.6	0.0354	0.0000	OK
15 minute winter	PP1	10	35.659	0.059	4.5	0.0306	0.0000	OK
180 minute winter	S22	176	33.974	1.039	10.0	1.3099	0.0000	SURCHARGED
15 minute winter	S23	10	35.025	0.111	13.7	0.0834	0.0000	OK
180 minute winter	S26	176	33.974	1.112	59.3	149.6172	0.0000	SURCHARGED
15 minute winter	S24A	11	35.512	0.012	0.6	0.0023	0.0000	OK
15 minute winter	S24	10	35.085	0.085	9.2	0.0467	0.0000	OK
180 minute winter	S25	176	33.974	1.109	3.7	1.3716	0.0000	SURCHARGED
180 minute winter	JUN S27A	176	33.974	1.133	47.9	0.3953	0.0000	SURCHARGED
15 minute winter	RG1	12	35.686	0.036	1.6	0.3960	0.0000	OK
15 minute winter	PP2	12	35.684	0.067	4.6	0.0360	0.0000	OK
15 minute winter	RG2	12	35.661	0.063	5.4	0.0153	0.0000	OK
15 minute winter	PP2A	10	35.681	0.031	1.5	0.0086	0.0000	OK
240 minute winter	S27	228	33.974	1.168	31.7	1.3206	0.0000	SURCHARGED
15 minute winter	S28A	10	35.947	0.047	3.3	0.0248	0.0000	OK
15 minute winter	S28B	10	35.898	0.042	8.7	0.0302	0.0000	OK
15 minute winter	RG8	10	35.380	0.070	0.9	0.0148	0.0000	OK
15 minute winter	S28C	10	35.380	0.096	10.4	0.0202	0.0000	OK
15 minute winter	RG3	11	35.056	0.056	4.5	0.2324	0.0000	OK
240 minute winter	S28	228	33.973	1.294	30.3	1.7099	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S19	1.000	S20	6.5	0.573	0.413	0.1113	
15 minute winter	S20	1.001	22B	14.3	1.034	0.808	0.0543	
15 minute winter	22B	1.002	S22A	14.3	1.031	0.803	0.0500	
15 minute winter	S17	2.000	S18	8.8	0.690	0.495	0.0582	
15 minute winter	S18	2.001	S22A	14.3	1.013	0.807	0.0287	
15 minute winter	S22A	1.003	S22	28.5	1.304	0.548	0.4736	
15 minute winter	PP1	3.000	S22	4.5	0.762	0.251	0.0106	
15 minute winter	S22	1.004	S26	39.3	1.586	0.502	1.0341	
15 minute winter	S23	4.000	S26	13.6	1.036	0.764	0.0706	
30 minute winter	S26	1.005	JUN S27A	-122.3	-1.740	-1.562	0.2047	
15 minute winter	S24A	5.000	S24	0.6	0.127	0.012	0.0361	
15 minute winter	S24	5.001	S25	9.1	0.948	0.513	0.0512	
30 minute summer	S25	5.002	JUN S27A	29.9	0.513	0.381	0.3424	
30 minute winter	JUN S27A	1.006	S27	-104.8	-1.489	-1.339	0.5249	
15 minute winter	RG1	6.000	PP2	1.5	0.313	0.105	0.0269	
15 minute winter	PP2	6.001	RG2	4.7	0.634	0.322	0.0214	
15 minute winter	RG2	6.002	S27	5.4	0.818	0.303	0.0205	
15 minute winter	PP2A	7.000	S27	1.5	0.594	0.083	0.0129	
30 minute winter	S27	1.007	S28	-101.5	-1.441	-1.296	1.7592	
15 minute winter	S28A	8.000	S28B	3.3	0.730	0.184	0.0193	
15 minute winter	S28B	8.001	S28C	8.6	1.158	0.171	0.0538	
15 minute winter	RG8	9.000	S28C	0.9	0.117	0.049	0.0258	
15 minute winter	S28C	8.002	S28	10.2	0.982	0.574	0.0731	
15 minute winter	RG3	10.000	S28	4.3	0.773	0.243	0.0175	
30 minute winter	S28	1.008	Jun S16A	-89.4	-1.269	-0.249	0.9625	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.87%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S39	10	35.803	0.078	10.7	0.0954	0.0000	OK
15 minute winter	S40A	10	35.708	0.038	1.8	0.0111	0.0000	OK
15 minute winter	S40	10	35.692	0.142	29.6	0.2137	0.0000	OK
15 minute winter	S42A	10	35.580	0.076	29.1	0.0214	0.0000	OK
15 minute winter	S42B	11	35.151	0.151	29.0	0.0427	0.0000	OK
15 minute winter	RG7	10	35.346	0.046	3.0	0.0184	0.0000	OK
240 minute winter	S42	228	33.973	2.633	7.2	6.7016	0.0000	SURCHARGED
240 minute winter	S43	228	33.973	2.663	9.2	6.9537	0.0000	SURCHARGED
240 minute winter	BR 2O2	188	37.825	0.025	1.5	6.0723	0.0000	OK
15 minute winter	S37	10	35.829	0.104	22.2	0.2278	0.0000	OK
15 minute winter	S38	11	35.567	0.126	21.8	0.0357	0.0000	OK
240 minute winter	S36	228	33.973	2.690	15.8	6.8655	0.0000	SURCHARGED
240 minute winter	BR 2N1	176	37.821	0.021	0.4	1.5881	0.0000	OK
240 minute winter	S30	176	35.809	0.009	0.1	0.0014	0.0000	OK
15 minute winter	S31	10	35.684	0.021	0.9	0.0077	0.0000	OK
240 minute winter	BR 2N2	176	37.821	0.021	0.4	1.5949	0.0000	OK
15 minute winter	S32	10	35.843	0.043	7.7	0.0439	0.0000	OK
15 minute winter	S33	10	35.651	0.048	8.6	0.0136	0.0000	OK
1440 minute winter	BR 2L2 + 2M1	1410	37.832	0.032	0.4	11.5095	0.0000	OK
15 minute winter	S34	11	35.490	0.087	16.6	0.0677	0.0000	OK
15 minute winter	RG6	10	35.327	0.067	5.7	0.0423	0.0000	OK
15 minute winter	PP5	10	35.295	0.065	14.5	0.0503	0.0000	OK
15 minute winter	S35	10	34.353	0.053	38.3	0.0282	0.0000	OK
15 minute winter	RG4	10	35.332	0.012	1.5	0.0044	0.0000	OK
240 minute winter	Jun S16A	228	33.973	2.709	25.5	0.0000	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S39	11.000	S40	10.5	0.552	0.262	0.5515	
15 minute winter	S40A	12.000	S40	1.8	0.493	0.123	0.0179	
15 minute winter	S40	11.001	S42A	29.1	1.528	0.725	0.1458	
15 minute winter	S42A	11.002	S42B	29.0	1.486	0.234	0.1780	
15 minute winter	S42B	11.003	S42	29.2	1.074	0.728	0.5677	
15 minute winter	RG7	13.000	S42	3.0	0.700	0.167	0.0124	
30 minute winter	S42	11.004	S43	-48.7	0.383	-0.020	10.0908	
30 minute winter	S43	11.005	S36	-66.8	0.169	-0.027	9.2469	
240 minute winter	BR 2O2	Depth/Flow	S37	0.3				
15 minute winter	S37	14.001	S38	21.8	1.070	0.420	0.5790	
15 minute winter	S38	14.002	S36	21.6	1.010	0.511	0.1285	
30 minute winter	S36	11.006	Jun S16A	-87.0	-0.174	-0.036	6.3490	
240 minute winter	BR 2N1	Depth/Flow	S30	0.1				
240 minute winter	S30	15.001	S31	0.1	0.289	0.003	0.0056	
15 minute winter	S31	15.002	S33	0.9	0.230	0.019	0.0293	
240 minute winter	BR 2N2	Depth/Flow	S33	0.1				
15 minute winter	S32	17.000	S33	7.7	1.344	0.070	0.0256	
15 minute winter	S33	15.003	S34	8.5	0.860	0.101	0.0767	
1440 minute winter	BR 2L2 + 2M1	Depth/Flow	S34	0.0				
15 minute winter	S34	15.004	S35	16.2	1.154	0.312	0.6769	
15 minute winter	RG6	19.000	PP5	5.6	0.760	0.318	0.0221	
15 minute winter	PP5	19.001	S35	14.5	2.274	0.265	0.0159	
15 minute winter	S35	15.005	Jun S16A	38.2	5.663	0.109	0.1048	
15 minute winter	RG4	20.000	Jun S16A	1.5	2.467	0.012	0.0532	
15 minute summer	Jun S16A	1.009	S16	-49.1	0.364	-0.020	21.0266	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.87%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S01A	10	35.351	0.051	1.3	0.0116	0.0000	OK
15 minute winter	S01	10	35.356	0.106	20.6	0.1156	0.0000	OK
15 minute winter	S03	10	35.176	0.151	31.8	0.1400	0.0000	OK
15 minute winter	S04	11	35.061	0.196	31.2	0.0556	0.0000	OK
15 minute winter	S05	11	35.026	0.208	32.6	0.0733	0.0000	OK
15 minute winter	S06	11	34.987	0.213	37.2	0.0993	0.0000	OK
15 minute winter	S07	11	34.930	0.203	39.2	0.0728	0.0000	OK
15 minute winter	S08	11	34.833	0.198	40.6	0.0659	0.0000	OK
15 minute winter	S10	10	35.526	0.026	1.2	0.0093	0.0000	OK
180 minute winter	BR 2L1	136	37.836	0.036	0.9	2.7179	0.0000	OK
15 minute winter	S11	10	35.448	0.084	11.3	0.0761	0.0000	OK
240 minute winter	BR 2O1	188	37.825	0.025	1.5	6.0723	0.0000	OK
15 minute winter	S12	11	35.376	0.093	11.8	0.0295	0.0000	OK
15 minute winter	S13	10	35.302	0.113	21.7	0.0903	0.0000	OK
15 minute winter	S14	10	35.249	0.112	23.9	0.0449	0.0000	OK
240 minute winter	S15	228	33.973	2.133	13.9	3.7694	0.0000	SURCHARGED
240 minute winter	S16A	228	33.973	2.155	14.5	2.6251	0.0000	SURCHARGED
15 minute winter	S09	10	35.448	0.048	9.2	0.0411	0.0000	OK
15 minute winter	RG5	10	35.288	0.018	1.2	0.0314	0.0000	OK
15 minute winter	JUN S09	10	35.248	0.055	10.3	0.0000	0.0000	OK
240 minute winter	S16	228	33.973	2.773	16.5	7.1327	0.0000	SURCHARGED
240 minute winter	C01	228	31.228	0.068	10.5	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S01A	21.000	S01	3.9	0.471	0.106	0.0102	
15 minute winter	S01	21.001	S03	18.1	1.503	0.656	0.0751	
15 minute winter	S03	21.002	S04	31.2	0.980	0.737	0.7701	
15 minute winter	S04	21.003	S05	30.9	0.854	0.730	0.2675	
15 minute winter	S05	21.004	S06	32.7	0.851	0.771	0.2567	
15 minute winter	S06	21.005	S07	37.2	0.973	0.878	0.2694	
15 minute winter	S07	21.006	S08	39.2	1.105	0.925	0.4392	
15 minute winter	S08	21.007	S15	40.4	1.167	0.954	0.4053	
15 minute winter	S10	22.000	S11	1.2	0.166	0.027	0.1465	
180 minute winter	BR 2L1	Depth/Flow	S11	0.3				
15 minute winter	S11	22.001	S12	11.1	0.765	0.262	0.1773	
240 minute winter	BR 2O1	Depth/Flow	S12	0.3				
15 minute winter	S12	22.002	S13	11.8	0.875	0.278	0.0984	
15 minute winter	S13	22.003	S14	21.5	0.893	0.238	0.1874	
15 minute winter	S14	22.004	S15	23.8	1.041	0.263	0.2765	
15 minute summer	S15	21.008	S16A	62.3	0.864	0.157	1.8872	
15 minute summer	S16A	21.009	S16	60.5	1.045	0.125	0.8191	
15 minute winter	S09	25.000	JUN S09	9.2	1.333	0.096	0.0428	
15 minute winter	RG5	26.000	JUN S09	1.2	0.275	0.014	0.0133	
15 minute winter	JUN S09	25.001	S16	10.3	1.461	0.108	0.0152	
240 minute winter	S16	1.010	C01	10.5	0.951	0.203	0.0445	385.8

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.82%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	S19	344	36.164	0.364	1.9	0.2969	0.0000	SURCHARGED
360 minute winter	S20	344	36.164	0.443	4.2	0.4362	0.0000	SURCHARGED
360 minute winter	22B	344	36.164	0.503	4.2	0.1423	0.0000	SURCHARGED
360 minute winter	S17	344	36.164	0.314	2.5	0.3487	0.0000	SURCHARGED
360 minute winter	S18	344	36.164	0.370	4.1	0.2637	0.0000	SURCHARGED
360 minute winter	S22A	344	36.164	0.964	8.3	0.2727	0.0000	SURCHARGED
360 minute winter	PP1	344	36.164	0.564	1.3	0.2989	0.0000	FLOOD RISK
360 minute winter	S22	344	36.164	3.229	11.6	4.0712	0.0000	SURCHARGED
360 minute winter	S23	344	36.164	1.250	3.9	0.9372	0.0000	SURCHARGED
360 minute winter	S26	344	36.164	3.302	67.6	336.1331	0.0000	FLOOD RISK
360 minute winter	S24A	344	36.164	0.664	0.6	0.1327	0.0000	SURCHARGED
360 minute winter	S24	344	36.164	1.164	2.7	0.6411	0.0000	SURCHARGED
360 minute winter	S25	344	36.164	3.299	4.3	4.0802	0.0000	FLOOD RISK
360 minute winter	JUN S27A	344	36.164	3.323	53.3	1.1596	0.0000	FLOOD RISK
360 minute winter	RG1	344	36.163	0.513	2.5	6.5423	0.0000	FLOOD RISK
360 minute winter	PP2	344	36.163	0.546	2.6	0.3049	0.0000	FLOOD RISK
360 minute winter	RG2	344	36.163	0.565	2.3	0.1368	0.0000	FLOOD RISK
360 minute winter	PP2A	344	36.163	0.513	0.4	0.1448	0.0000	FLOOD RISK
360 minute winter	S27	344	36.163	3.357	44.8	3.7972	0.0000	FLOOD RISK
360 minute winter	S28A	344	36.163	0.263	0.9	0.1383	0.0000	SURCHARGED
360 minute winter	S28B	344	36.163	0.307	2.4	0.2204	0.0000	SURCHARGED
360 minute winter	RG8	344	36.163	0.853	0.3	0.1809	0.0000	FLOOD RISK
360 minute winter	S28C	344	36.163	0.879	3.0	0.1855	0.0000	FLOOD RISK
360 minute winter	RG3	344	36.163	1.163	4.6	8.8176	0.0000	FLOOD RISK
360 minute winter	S28	344	36.163	3.484	43.2	4.6050	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S19	1.000	S20	11.8	0.668	0.742	0.1742	
15 minute winter	S20	1.001	22B	26.1	1.482	1.469	0.0692	
15 minute winter	22B	1.002	S22A	26.1	1.484	1.471	0.0629	
15 minute winter	S17	2.000	S18	16.3	0.926	0.918	0.0806	
15 minute winter	S18	2.001	S22A	26.7	1.515	1.502	0.0354	
15 minute winter	S22A	1.003	S22	52.3	1.445	1.006	0.8138	
15 minute winter	PP1	3.000	S22	8.3	0.894	0.470	0.0169	
15 minute winter	S22	1.004	S26	70.2	1.688	0.896	1.0344	
15 minute winter	S23	4.000	S26	25.3	1.439	1.427	0.0935	
15 minute winter	S26	1.005	JUN S27A	-231.6	-3.290	-2.958	0.2047	
15 minute winter	S24A	5.000	S24	1.1	0.130	0.022	0.0602	
15 minute winter	S24	5.001	S25	17.0	1.058	0.956	0.0852	
60 minute winter	S25	5.002	JUN S27A	31.0	0.496	0.396	0.3424	
15 minute winter	JUN S27A	1.006	S27	-195.2	-2.772	-2.493	0.5249	
240 minute winter	RG1	6.000	PP2	-4.5	-0.355	-0.312	0.0876	
15 minute winter	PP2	6.001	RG2	8.8	0.729	0.612	0.0354	
15 minute winter	RG2	6.002	S27	10.2	0.957	0.576	0.0334	
15 minute winter	PP2A	7.000	S27	2.8	0.704	0.156	0.0204	
15 minute winter	S27	1.007	S28	-186.2	-2.645	-2.378	1.7592	
15 minute winter	S28A	8.000	S28B	6.1	0.855	0.341	0.0305	
15 minute winter	S28B	8.001	S28C	16.0	1.260	0.318	0.0855	
15 minute winter	RG8	9.000	S28C	2.0	0.122	0.114	0.0456	
15 minute winter	S28C	8.002	S28	18.9	1.084	1.066	0.1177	
15 minute winter	RG3	10.000	S28	8.1	0.904	0.456	0.0281	
15 minute winter	S28	1.008	Jun S16A	-159.8	-2.269	-0.444	0.9625	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.82%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	S39	344	36.163	0.438	3.1	0.5360	0.0000	SURCHARGED
360 minute winter	S40A	344	36.163	0.493	0.5	0.1454	0.0000	SURCHARGED
360 minute winter	S40	344	36.163	0.613	8.5	0.9218	0.0000	SURCHARGED
360 minute winter	S42A	344	36.163	0.659	8.5	0.1864	0.0000	SURCHARGED
360 minute winter	S42B	344	36.163	1.163	8.5	0.3291	0.0000	SURCHARGED
360 minute winter	RG7	344	36.163	0.863	0.8	0.3477	0.0000	SURCHARGED
360 minute winter	S42	344	36.163	4.823	9.3	12.2737	0.0000	SURCHARGED
360 minute winter	S43	344	36.163	4.853	9.5	12.6703	0.0000	FLOOD RISK
240 minute winter	BR 2O2	184	37.847	0.047	2.8	11.3525	0.0000	OK
360 minute winter	S37	344	36.163	0.438	6.7	0.9601	0.0000	SURCHARGED
360 minute winter	S38	344	36.163	0.722	6.7	0.2043	0.0000	FLOOD RISK
360 minute winter	S36	344	36.163	4.880	15.1	12.4529	0.0000	FLOOD RISK
180 minute winter	BR 2N1	136	37.839	0.039	1.0	2.9144	0.0000	OK
360 minute winter	S30	344	36.163	0.363	0.3	0.0577	0.0000	SURCHARGED
360 minute winter	S31	344	36.163	0.500	1.1	0.1785	0.0000	SURCHARGED
180 minute winter	BR 2N2	136	37.839	0.039	1.0	2.9249	0.0000	OK
360 minute winter	S32	344	36.163	0.363	2.2	0.3724	0.0000	SURCHARGED
360 minute winter	S33	344	36.163	0.560	2.9	0.1585	0.0000	SURCHARGED
960 minute winter	BR 2L2 + 2M1	945	37.853	0.053	0.9	19.1398	0.0000	OK
360 minute winter	S34	344	36.163	0.760	5.2	0.5890	0.0000	SURCHARGED
360 minute winter	RG6	344	36.163	0.903	1.6	0.5697	0.0000	FLOOD RISK
360 minute winter	PP5	344	36.163	0.933	4.1	0.7342	0.0000	FLOOD RISK
360 minute winter	S35	344	36.163	1.863	11.6	0.9835	0.0000	SURCHARGED
360 minute winter	RG4	344	36.163	0.843	0.4	0.3160	0.0000	FLOOD RISK
360 minute winter	Jun S16A	344	36.163	4.899	36.3	0.0000	0.0000	FLOOD RISK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S39	11.000	S40	19.8	0.632	0.494	0.8543	
15 minute winter	S40A	12.000	S40	3.4	0.482	0.235	0.0677	
15 minute winter	S40	11.001	S42A	53.8	1.689	1.340	0.2378	
15 minute winter	S42A	11.002	S42B	53.8	1.584	0.434	0.2780	
15 minute winter	S42B	11.003	S42	53.9	1.364	1.344	0.8301	
15 minute winter	RG7	13.000	S42	5.6	0.822	0.313	0.0197	
15 minute summer	S42	11.004	S43	55.8	0.403	0.023	10.0908	
15 minute winter	S43	11.005	S36	-95.7	-0.189	-0.039	9.2469	
240 minute winter	BR 2O2	Depth/Flow	S37	0.7				
15 minute winter	S37	14.001	S38	41.0	1.200	0.788	0.9566	
15 minute winter	S38	14.002	S36	40.4	1.153	0.954	0.2091	
15 minute winter	S36	11.006	Jun S16A	-107.6	-0.168	-0.044	6.3490	
180 minute winter	BR 2N1	Depth/Flow	S30	0.3				
180 minute winter	S30	15.001	S31	0.4	0.345	0.007	0.3939	
15 minute winter	S31	15.002	S33	1.7	0.267	0.037	0.0495	
180 minute winter	BR 2N2	Depth/Flow	S33	0.3				
15 minute winter	S32	17.000	S33	14.4	1.507	0.132	0.0430	
15 minute winter	S33	15.003	S34	16.2	0.974	0.190	0.1271	
960 minute winter	BR 2L2 + 2M1	Depth/Flow	S34	0.1				
15 minute winter	S34	15.004	S35	30.6	1.352	0.589	1.3565	
15 minute winter	RG6	19.000	PP5	10.5	0.829	0.592	0.0478	
15 minute winter	PP5	19.001	S35	27.1	2.556	0.495	0.0436	
15 minute winter	S35	15.005	Jun S16A	71.5	6.478	0.204	0.1834	
15 minute winter	RG4	20.000	Jun S16A	2.8	2.911	0.022	0.0543	
30 minute summer	Jun S16A	1.009	S16	-78.2	0.362	-0.032	21.0266	

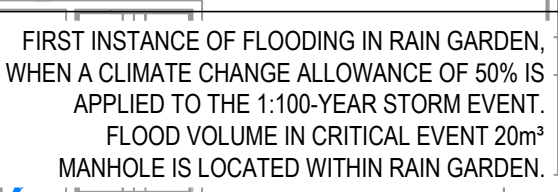
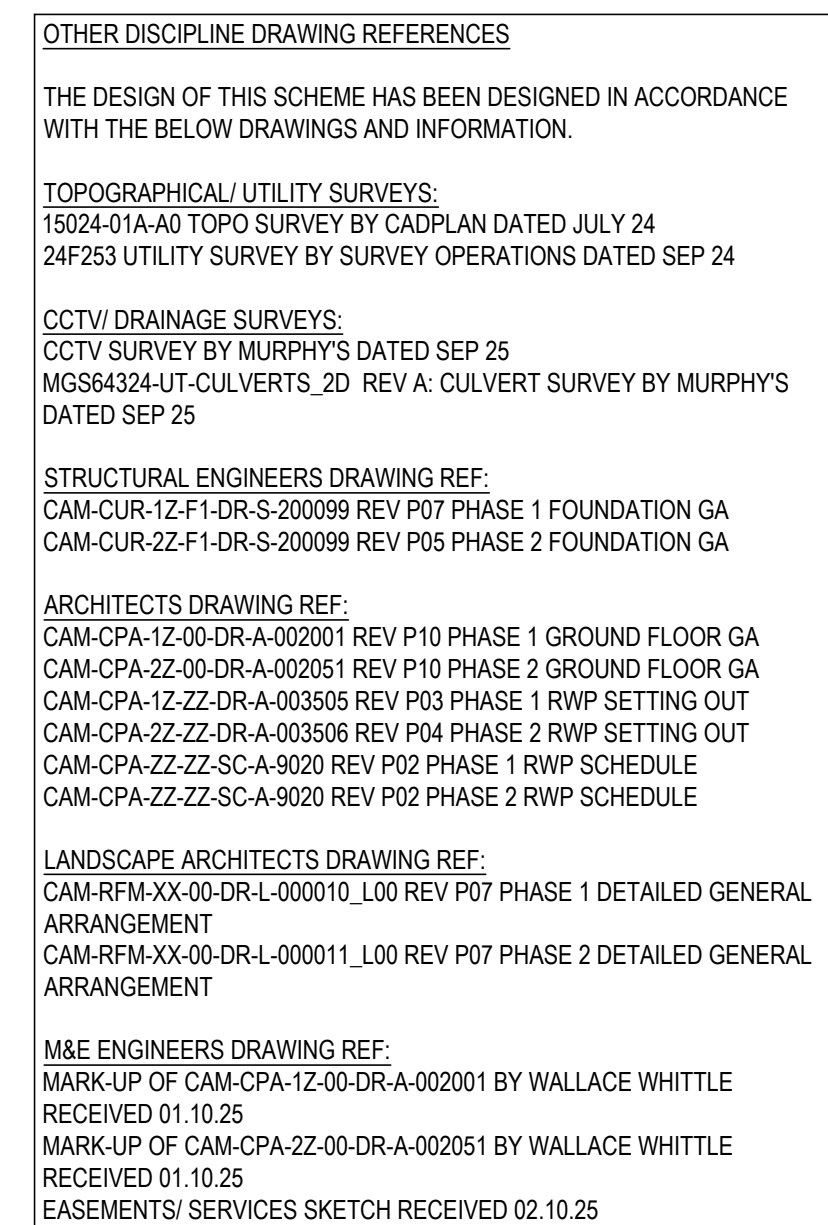
Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.82%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	S01A	344	36.164	0.864	0.4	0.1969	0.0000	FLOOD RISK
360 minute winter	S01	344	36.164	0.914	5.1	0.9986	0.0000	SURCHARGED
360 minute winter	S03	344	36.163	1.138	9.0	1.0519	0.0000	FLOOD RISK
360 minute winter	S04	344	36.163	1.298	9.0	0.3674	0.0000	FLOOD RISK
360 minute winter	S05	344	36.163	1.345	9.5	0.4749	0.0000	SURCHARGED
360 minute winter	S06	344	36.163	1.389	10.9	0.6487	0.0000	SURCHARGED
360 minute winter	S07	344	36.163	1.436	11.5	0.5141	0.0000	SURCHARGED
360 minute winter	S08	344	36.163	1.528	11.9	0.5088	0.0000	SURCHARGED
360 minute winter	S10	344	36.163	0.663	2.3	0.2413	0.0000	SURCHARGED
180 minute winter	BR 2L1	136	37.866	0.066	1.7	4.9554	0.0000	OK
360 minute winter	S11	344	36.163	0.799	3.5	0.7214	0.0000	FLOOD RISK
240 minute winter	BR 2O1	184	37.847	0.047	2.8	11.3525	0.0000	OK
360 minute winter	S12	344	36.163	0.880	4.1	0.2780	0.0000	SURCHARGED
360 minute winter	S13	344	36.163	0.974	7.0	0.7800	0.0000	SURCHARGED
360 minute winter	S14	344	36.163	1.026	7.7	0.4093	0.0000	SURCHARGED
360 minute winter	S15	344	36.163	4.323	19.6	7.6381	0.0000	SURCHARGED
360 minute winter	S16A	344	36.163	4.345	20.4	5.2918	0.0000	FLOOD RISK
360 minute winter	S09	344	36.163	0.763	2.6	0.6536	0.0000	SURCHARGED
360 minute winter	RG5	344	36.163	0.893	3.7	8.0068	0.0000	FLOOD RISK
360 minute winter	JUN S09	344	36.163	0.970	4.3	0.0000	0.0000	FLOOD RISK
360 minute winter	S16	344	36.163	4.963	23.3	12.7639	0.0000	FLOOD RISK
360 minute winter	C01	344	31.239	0.079	14.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S01A	21.000	S01	5.3	0.312	0.143	0.0208	
15 minute winter	S01	21.001	S03	28.2	1.600	1.018	0.1098	
15 minute winter	S03	21.002	S04	50.0	1.258	1.181	0.9543	
15 minute winter	S04	21.003	S05	48.5	1.218	1.144	0.2838	
15 minute winter	S05	21.004	S06	50.2	1.263	1.186	0.2644	
15 minute winter	S06	21.005	S07	57.4	1.443	1.356	0.2795	
15 minute winter	S07	21.006	S08	60.1	1.512	1.420	0.4876	
15 minute winter	S08	21.007	S15	62.2	1.565	1.469	0.4675	
15 minute winter	S10	22.000	S11	2.2	0.182	0.051	0.2469	
180 minute winter	BR 2L1	Depth/Flow	S11	0.5				
15 minute winter	S11	22.001	S12	20.9	0.889	0.494	0.2873	
240 minute winter	BR 2O1	Depth/Flow	S12	0.7				
15 minute winter	S12	22.002	S13	22.1	1.017	0.521	0.1607	
15 minute winter	S13	22.003	S14	40.7	1.020	0.449	0.3220	
15 minute winter	S14	22.004	S15	44.9	1.219	0.496	0.6988	
15 minute summer	S15	21.008	S16A	87.3	0.857	0.220	1.8872	
30 minute winter	S16A	21.009	S16	81.5	0.917	0.168	0.8191	
15 minute winter	S09	25.000	JUN S09	17.2	1.538	0.181	0.0898	
30 minute winter	RG5	26.000	JUN S09	-15.8	0.684	-0.187	0.1046	
30 minute summer	JUN S09	25.001	S16	22.8	1.659	0.239	0.0762	
360 minute winter	S16	1.010	C01	14.0	1.022	0.269	0.0549	808.5

Appendix E

Overland Flow Routes Plan



ROUTE SHOWN BASED ON
ANY FLOODING OVERTOPPING
THE RAIN GARDEN

- | P01 | ISSUED FOR PLANNING CONDITION DISCHARGE | 23.02.26 | ATL | M | | | | | | | | |
|---|---|------------|----------|----------------------|----------|-------------|------------|--|-----|-----|--|----|
| Rev: | Description: | Date: | By: | Ch: | | | | | | | | |
|  | | | | | | | | | | | | |
| Michael Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
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Investigation • Street • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Harrogate • Leeds • London • Leicester • Macclesfield • Nottingham | | | | | | | | | | | | |
| Status: | | | | | | | | | | | | |
| Preliminary | | | | | | | | | | | | |
| Project: | | | | | | | | | | | | |
| Cambridge Halls Students Residences | | | | | | | | | | | | |
| Dwg Title: | | | | | | | | | | | | |
| Overland Flow Route | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Drawn by</th> <th>Designed by</th> <th>Checked by</th> <th></th> </tr> </thead> <tbody> <tr> <td>ATL</td> <td>ATL</td> <td></td> <td>MM</td> </tr> </tbody> </table> | | | | | Drawn by | Designed by | Checked by | | ATL | ATL | | MM |
| Drawn by | Designed by | Checked by | | | | | | | | | | |
| ATL | ATL | | MM | | | | | | | | | |
| Project No | 087754 | Date | 25.02.26 | Scales @ 40
1:500 | | | | | | | | |
| Project Code - Originator - Function - Spatial - Form - Discipline - Number | | | | Revision | | | | | | | | |
| CAM - CUR - XX - XX - DR - C - 925006 | | | | P01 | | | | | | | | |

Appendix F

Flow Control & SuDs Details

Section through Structure and Attenuation Tanks