CONSULTING CIVIL AND STRUCTURAL ENGINEERS

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Dear Richard

AWDM/0831/24 – WORTHING HOSPITAL, LYNDHURST ROAD, WORTHING, WEST SUSSEX

We have provided the below response to address the comments from Louise Tedridge of WSP, in her correspondence of 8th July 2024.

We note the site is indicated on the EA online long-term flood risk mapping as including a small area at high risk of surface water flooding. The site lies within a catchment that currently drains to two 2.8m diameter concrete ring soakaways, approximately 3.9m deep, providing a total capacity of approximately 48m^3. These will be infilled to facilitate the construction of the single storey extension and replaced with a large cellular soakaway in the car park to the south.

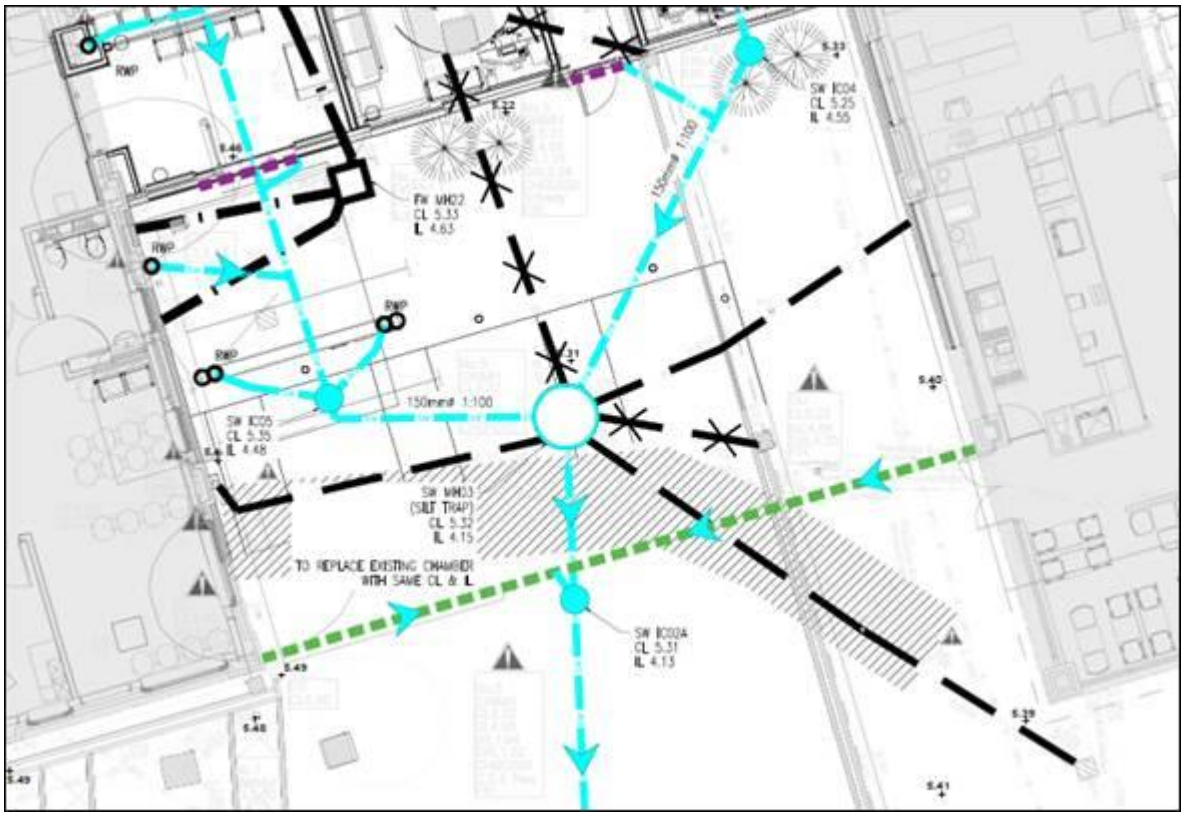
The replacement soakaway has been designed to accommodate two consecutive 100-year storms of 6-hour duration, with a 45% allowance for climate change. This results in a capacity of approximately 240m^3, which is a 5x multiple of the existing. We consider this to be more than sufficient to manage and reduce the potential existing surface water flood risk to an acceptable and reasonable level.

Since our previous issue, we have added a large channel drain, which will be constructed at the edge of the new surfacing in front of the extension. This has been designed to intercept any overland flows, protecting the hospital extension from surface water flooding and further mitigating overall surface water flood risk. Please see below for a screenshot - the latest amendment of the full drainage layout plan is attached to this letter.

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It should be noted that the EA surface water flood maps are based on large-scale topographic information and do not take into account any positive or engineered drainage management features. While the redevelopment presents an opportunity to improve surface water management at the hospital site, the site does not currently suffer adversely from surface water flooding at this location, being served as it is by drainage infrastructure at the low points in the topography.

Furthermore, the area shown as being in the surface water flood risk extent is currently the A&E Entrance to the Hospital – any obstruction to services in this area caused by standing water would be quickly highlighted and remediated by the Hospital to maintain serviceable operations.

We trust the above and attached provides sufficient information to address your concerns. If you have any further questions, please do not hesitate to ask.

Yours sincerely

[redacted]

ANDREW KEEN BEng (Hons) CEng MICE
For HOP Consulting Limited
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Enc: Drainage Layout Plan: WORUT2-HOP-ZZ-XX-DR-C-0510 P9

Project/Task No. 14100/10 Scale: AS SHOWN ORIGINAL DRAWING SIZE A1

FOUL WATER MANHOLE SCHEDULE							
REF.	CL	IL	DEPTH	PIPE DIA.	TYPE	MH DIA.	COVER
FW MH04	5.36	4.41	0.95	100	EXISTING	1200	B125
FW MH18	5.34	4.22	1.12	100	EXISTING	1350	B125
FW MH22	5.33	4.63	0.70	100	EXISTING	SQUARE	B125
FW MH21	5.34	4.35	0.99	100	EXISTING	1050	B125
SURFACE WATER MANHOLE SCHEDULE							
REF.	CL	IL	DEPTH	PIPE DIA.	TYPE	MH DIA.	COVER
SW IC01	6.45	3.93	2.52	150	TYPE 3	450	D400
SW MH02	6.17	3.93 *	2.24	150	TYPE 2	1200	D400
SW IC02A	5.31	4.13	1.18	150	TYPE 3	450	D400
SW MH03	5.32	4.15 *	1.17	150	TYPE 2	1200	D400
SW IC04	5.25	4.55	0.70	150	TYPE 3	450	B125
SW IC05	5.35	4.48	0.87	150	TYPE 3	450	B125
SW IC06	5.34	4.74	0.60	150	TYPE 3	450	B125
SW IC07	5.34	4.74	0.60	150	TYPE 3	450	B125

*	Manhole to incorporate catch pit.
**	Manhole to be double sealed and bolted with recessed internal covers.
NOTES	Manhole depth indicates distance from cover level to invert level of the lowest outlet pipe.

1. GENERAL

(i) This drawing is not to be scaled, work to figured dimensions only, confirmed on site.

(ii) This drawing is to be read in conjunction with all relevant architectural drawings, detailed specifications where applicable and all associated drawings in this series.

(iii) Any discrepancy on this drawing is to be reported immediately to the partnership for clarification.

(iv) The contractor is responsible for all temporary works and for the stability of the works in progress.

2. DRAINAGE GENERAL

(i) All foul and storm water drains which are not to be adopted as public sewers under a section 104 Agreement must be constructed in accordance with the Building Regulations, BS EN 752 and where appropriate the relevant agreement certificates.

(ii) Manholes, gullies, gully connections, sewers and other sewerage structures intended to convey surface water are to be constructed in accordance with the Water Authorities Association Specification 'Sewers for Adoption' 7th Edition and relevant Council Design Guide.

(iii) All concrete used in drainage works to comply with BRE Digest 363 for Class DS-2 sulphate conditions.

3. BELOW GROUND DRAINAGE

(i) Pipework to be UPVC-U pipes to BS 4660 : 2000 and Inspection Chambers to BS EN 13598.

(ii) All adoptable drainage to be constructed in accordance with 'Sewers for Adoption' 7th Edition and the relevant Council Design Guide.

(iii) All private surface water sewers to be laid at 1 in 80 unless otherwise stated on the drawing.

(iv) All private foul water sewers to be laid at 1 in 40 at the head of pipe runs and 1 in 80 elsewhere unless otherwise stated.

(v) All private foul sewer pipes to be 100mm diameter unless otherwise stated on the drawing. All private surface water sewer pipes to be 100mm diameter from downpipes and 150mm diameter elsewhere unless otherwise stated on the drawing.

(vi) Allow for rodding access above ground where rainwater downpipes do not have a direct connection to an inspection chamber.

(vii) Existing sewer pipe to be re-used to be surveyed and levelled prior to commencement of the drainage works and refurbished if necessary.

(viii) Connections to an adopted sewer only to be made following approval from the relevant adopting Authority.

(ix) All drains, sewer pipes and manholes to be cleaned and tested for water tightness on completion of construction.

4. MANHOLE COVERS & FRAMES

(i) Manhole covers to be class D400 in highways, class B125 in footways and verges, class C250 in external maintenance vehicle access areas and verges, and class A15 in non-trafficked areas.

(ii) Manhole covers and frames to be bedded and surrounded in 1:3 mortar

5. PIPES

(i) Plastic pipes shall be of unplasticised polyvinyl chloride (UPVC) complying with the requirements of BS EN 1401-1:2009.

(ii) Concrete pipes shall be spun by a centrifugal process or be vertically pressed. They shall possess self inverting sockets and shall comply with the requirements of and be tested in accordance with BS 5911:2010.

EXISTING 150mm DIA. OVERFLOW PIPE

ALL FOUL PIPES (B2)

FW MH18 CL 5.34 IL 4.22

SW IC07 CL 5.34 IL 4.74

SW IC06 CL 5.34 IL 4.74

CONNECTION TO BE RODDABLE ABOVE GROUND.

FOUL MANHOLE COVERS LIFTED/RAISED TO SUIT NEW FINISHED FLOOR LEVELS. DOUBLE SEALED AND BOLTED WITH RECESSED COVERS TO ACCEPT SURFACE FINISHES. WHEN NEW CONNECTIONS ARE FORMED MANHOLE BENCHING SHOULD BE REVISED/AMENDED TO SUIT.

FW MH21 CL 5.34 IL 4.35

EXISTING LIVE FOUL WATER SERVICE TO BE MAINTAINED DURING FOUNDATION WORKS. CONTRACTOR TO MANAGE.

FW MH04 CL 5.36 IL 4.41

CONNECTION TO BE RODDABLE ABOVE GROUND. POTENTIAL CLASH WITH EXISTING FW DRAIN. TO BE COORDINATED ON SITE

EXISTING SOAKAWAYS TO BE INFILLED OR REMOVED.

EXISTING RWP TO BE CAPPED OFF AND ABANDONED. TO BE CONFIRMED BY ARCHITECT

CONNECTION TO BE RODDABLE ABOVE GROUND.

5.43 Finished Floor Level

SW IC04 CL 5.25 IL 4.55

FW MH22 CL 5.33 IL 4.63

SW IC05 CL 5.35 IL 4.48

SW MH03 (SILT TRAP) CL 5.32 IL 4.15

TO REPLACE EXISTING CHAMBER WITH SAME CL & IL

SW IC02A CL 5.31 IL 4.13

150mmø 1:100

CL 5.40 IL 4.05 CABLE 4.54(0.86bgl)

CL 5.59 IL 4.03 SW PIPE 4.16(1.43bgl)

CL 5.59 IL 4.03 HV CABLE 4.00(1.59bgl)

CL 5.59 IL 4.01 BT CABLE 4.49(1.00bgl)

CL 5.59 IL 4.00 BT CABLE (DEPTH NOT SPECIFIED)

CL 5.59 IL 4.00 COMM CABLE (DEPTH NOT SPECIFIED)

CL 5.59 IL 3.99 BT CABLE (DEPTH NOT SPECIFIED)

POTENTIAL CLASHES WITH EXISTING HV CABLE AND SW PIPE. ACCURACY OF GPR SURVEY DEPTH INFORMATION TBC BY CONTRACTOR ON SITE- IF CLASHES DO EXIST, RELAY THE DUCTING AT A HIGHER ELEVATION.

LOCATIONS OF EXISTING SERVICES SHOWN INDICATIVELY, BASED ON SUBVISION SURVEY'S DRAWING REF: WORUTC-SUB-XX-XX-SU-YS-0001 (MAY 2024).

CL 6.17 IL 3.94 LV CABLE 5.84(0.33bgl)

WATER MAIN CLASH WITH SOAKAWAY AND CHAMBER. TO BE DIVERTED.

SW MH02 (SILT TRAP) CL 6.17 IL IN 3.93 IL OUT 3.93

PROPOSED CELLULAR SOAKAWAY, DIMENSIONS 210m²x1.2m(d). POLYPIPE POLYSTORM-R MODULAR CELL OR SIMILAR, WITH 5No ROWS OF POLYSTORM INSPECT CRATES OR SIMILAR FOR MAINTENANCE ACCESS.

SIZED BASED ON INFILTRATION RATE OF $1.11x10^{-6}$ms ESTABLISHED ON SITE BY INFILTRATION TESTING TO BRE365.

DESIGNED TO ACCOMMODATE TWO CONSECUTIVE 6-HOUR 1 IN 100 YEAR STORMS (PLUS 45% ALLOWANCE FOR CLIMATE CHANGE), DUE TO NOT MEETING HALF-DRAIN TIME REQUIREMENTS.

SIZE & ARRANGEMENT INDICATIVE PENDING CONFIRMATION OF PROPOSALS BY DRAINAGE OFFICER.

SOAKAWAY CONSTRUCTION PROPOSED INITIALLY AS A STANDALONE ACTIVITY, TO BE CONNECTED AT A LATER DATE WHEN DRAINAGE WORKS ARE UNDERTAKEN.

CL 6.17 TOP 5.13 BASE 3.93

VENT LOCATION PROPOSED ON SIDE OF CYCLE STORE. LOCATION TO BE CONFIRMED BY ARCHITECT.

Bike Shelter No Access

SW IC01 CL 6.45 IL 3.93

12m

19m

RE

AMBULANCES ONLY

MOTORCYCLES ONLY

Survey extents May 2024

LEGEND

- PROPOSED FOUL WATER SEWER
- PROPOSED SURFACE WATER SEWER
- PROPOSED CHANNEL DRAIN
- PROPOSED THRESHOLD DRAIN
- INSPECTION ROUTE FOR SOAKAWAY
- EXISTING SURFACE WATER SEWER
- EXISTING FOUL WATER SEWER
- EXISTING SW SEWER TO BE REMOVED
- EXISTING FW SEWER TO BE REMOVED
- EXISTING SOAKAWAY TO BE REMOVED
- PROPOSED SW CONCRETE MANHOLE
- EXISTING FW CONCRETE MANHOLE
- PROPOSED INSPECTION CHAMBER 450mmø / 600mmø
- ACO YARD GULLY
- RWP RAIN WATER PIPE
- SVP SOIL VENT PIPE
- RE RODDING EYE
- PROPOSED CELLULAR SOAKAWAY

N

INDICATIVE ONLY

1:100

0 1m 2m 3m 4m 5m

ISSUED FOR STAGE 4- UPDATE	OFK	TRB	24.07.24	P9
ISSUED FOR STAGE 4	OFK	TRB	05.07.24	P8
Description	By	Aprvd.	Date	Rev.

ISSUED FOR STAGE 4

Title: PROPOSED DRAINAGE RECONFIGURATION

Project: URGENT TREATMENT CENTRE WORTHING HOSPITAL

Client: MORGAN SINDALL

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Drawing No. WORUT2-HOP-ZZ-XX-DR-C-0510 Status S4 Rev. P9

SITE PLAN
(1:100)

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1:20 0 0.2m 0.4m 0.6m 0.8m 1m

1:50 0 0.5m 1m 1.5m 2m 2.5m

1:100 0 1m 2m 3m 4m 5m

Worthing Hospita

P:\PROJECTS\14100 Worthing Hospitol, Lyngurst Rd\Drawings\HOP\Task 11 UTC Scheme 2\Civils\WORUT2-HOP-ZZ-XX-DR-C-0510 Oliver Finn-Kelcey