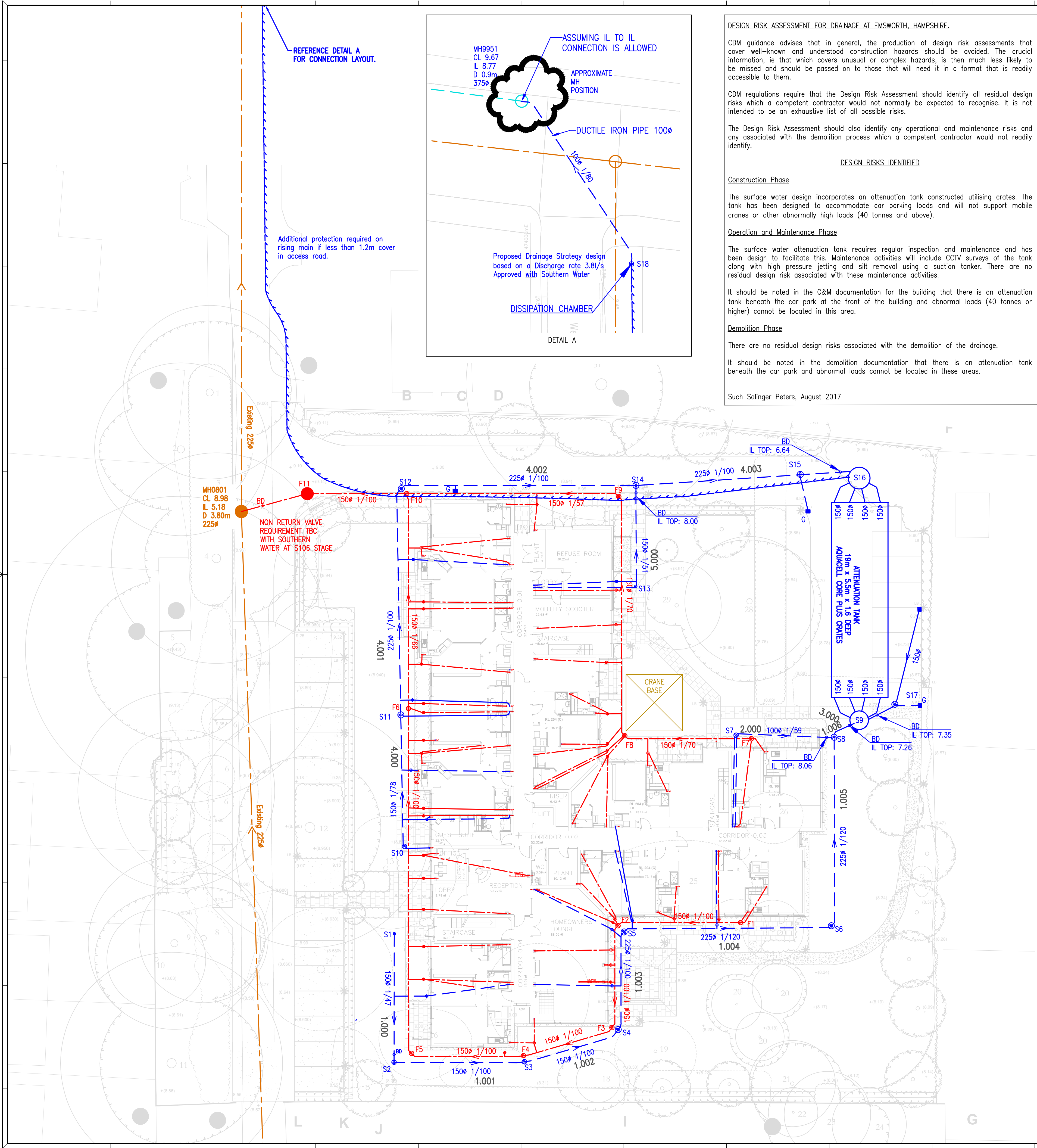




DESIGN RISK ASSESSMENT FOR DRAINAGE AT EMSWORTH, HAMPSHIRE.

CDM guidance advises that in general, the production of design risk assessments that cover well-known and understood construction hazards should be avoided. The crucial information, ie that which covers unusual or complex hazards, is then much less likely to be missed and should be passed on to those that will need it in a format that is readily accessible to them.

CDM regulations require that the Design Risk Assessment should identify all residual design risks which a competent contractor would not normally be expected to recognise. It is not intended to be an exhaustive list of all possible risks.

The Design Risk Assessment should also identify any operational and maintenance risks and any associated with the demolition process which a competent contractor would not readily identify.

DESIGN RISKS IDENTIFIED

Construction Phase

The surface water design incorporates an attenuation tank constructed utilising crates. The tank has been designed to accommodate car parking loads and will not support mobile cranes or other abnormally high loads (40 tonnes and above).

Operation and Maintenance Phase

The surface water attenuation tank requires regular inspection and maintenance and has been design to facilitate this. Maintenance activities will include CCTV surveys of the tank along with high pressure jetting and silt removal using a suction tanker. There are no residual design risk associated with these maintenance activities.

It should be noted in the O&M documentation for the building that there is an attenuation tank beneath the car park at the front of the building and abnormal loads (40 tonnes or higher) cannot be located in this area.

Demolition Phase

There are no residual design risks associated with the demolition of the drainage.

It should be noted in the demolition documentation that there is an attenuation tank beneath the car park and abnormal loads cannot be located in these areas.

Such Salinger Peters, August 2017

KEY

- TYPE 4 INSPECTION CHAMBER – 250 DIA.
- TYPE 3 INSPECTION CHAMBER – 450 DIA.
- TYPE 2 P.C. MANHOLE – MIN 1200ø < 3m DEEP
- TYPE 1 P.C. MANHOLE – MIN 1200ø 3m–6m DEEP
- FOUL WATER SEWER
- SURFACE WATER SEWER
- EXISTING FOUL WATER SEWER
- EXISTING SURFACE WATER SEWER
- SURFACE WATER RISING MAIN
- BOUNDARY

FOUL MANHOLE SCHEDULE

MH No.	COVER	INVERT LEVEL		DEPTH	MAX PIPE	MH	COVER TYPE
		IN	OUT				
F1	8.95	7.84	7.84	1.11	150	3	A15
F2	8.85	7.69	7.69	1.16	150	3	A15
F3	8.87	7.59	7.59	1.28	150	3*	A15
F4	8.75	7.50	7.50	1.25	150	3*	A15
F5	8.85	7.39	7.39	1.46	150	3*	A15
F6	9.00	7.06	7.06	1.94	150	3*	A15
F7	8.90	7.69	7.69	1.21	150	3	A15
F8	8.80	7.50	7.50	1.30	150	3*	A15
F9	9.12	7.17	7.17	1.95	150	3*	D400
F10	9.02	6.75	6.75	2.27	150	3*	D400
F11	9.02	6.65	6.65	2.37	150	2	D400

ALL LEVELS TBC BEFORE WORKS AND REPORTED BACK TO ENGINEER.
ALL PIPEWORK TO BE 100 ø AT MIN. 1/70 UNLESS STATED OTHERWISE.
* RESTRICTED ACCESS.

SURFACE WATER MANHOLE SCHEDULE

MH No.	COVER	INVERT LEVEL		DEPTH	MAX PIPE	MH	COVER TYPE
		IN	OUT				
S1	8.93	–	8.30	0.63	150	4	A15
S2	8.70	8.03	8.03	0.67	150	3	A15
S3	8.70	7.90	7.90	0.80	150	3	A15
S4	8.87	7.81	7.73	1.14	225	3	A15
S5	8.85	7.64	7.64	1.21	225	3*	A15
S6	8.70	7.46	7.46	1.24	225	3*	A15
S7	8.90	–	8.33	0.57	100	3	A15
S8	8.90	7.30	7.30	1.60	225	3*	A15
S9	8.65	6.15	6.15	2.50	225	1200	D400
S10	8.95	7.55	7.55	1.40	150	3*	A15
S11	9.00	7.40	7.32	1.68	225	3*	A15
S12	8.90	7.08	7.08	1.82	225	3*	D400
S13	8.90	–	8.30	0.60	150	3	A15
S14	9.00	6.84	6.84	2.16	225	3*	D400
S15	8.75	6.74	6.74	2.01	225	3*	D400
S16	8.72	6.00	6.00	2.72	225	2100	D400
S17	8.70	7.40	7.40	1.30	150	3*	D400
S18	9.56	9.01	9.01	0.55	100	3	D400
9951	9.67	8.77	8.77	0.90	375	Ex	Ex

ALL LEVELS TBC BEFORE WORKS AND REPORTED BACK TO ENGINEER.
ALL PIPEWORK TO BE 100 ø AT MIN. 1/80 UNLESS STATED OTHERWISE.
* RESTRICTED ACCESS.
S15 TO HOUSE PUMPING STATION WITH 2 PUMPS WORKING; ONE DUTY AND ANOTHER STANDBY AT 3.8L/s.
S9, S15, S16, S17 TO HAVE ADDITIONAL 500mm DEEP SILT TRAP

ATTENUATION TANK SCHEDULE

PLAN DIMENSIONS	EFFECTIVE DEPTH	TOP OF TANK	BASE OF TANK	LOWEST COVER LEVEL	LOWEST IL IN	MAX. CONSTRUCTION DEPTH
30 x 7m	1.2	7.20–7.35	6.00–6.15	8.55	6.00	2.55

NOTES:

- ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.
- ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.
- SURFACE WATER DESIGN BASED ON A 1 IN 100 YEAR RAINFALL EVENT (PLUS 40% CLIMATE CHANGE) REMAINING BELOW GROUND WITH NO RISK OF SURFACE FLOODING ON OR OFF THE SITE.
- MANHOLE TYPES ON THE SCHEDULES RELATE TO TYPES AS USED IN SEWERS FOR ADOPTION 7TH EDITION. REFER TO CONSTRUCTION DRAWINGS IN THE SERIES FOR STANDARD DETAILS.
- WHERE A SPECIFIC DIAMETER IS SHOWN IN THE MANHOLE SCHEDULE (EG. 2100), THE MANHOLE SHOULD BE CONSTRUCTED TO THE STANDARDS FOR EITHER A TYPE 1 OR TYPE 2 MANHOLE IN SEWERS FOR ADOPTION 7TH EDITION.
- MANHOLES NOT SCHEDULED ARE TYPE 4 INSPECTION CHAMBERS.
- ALL RWP AND SVP CONNECTING PIPEWORK TO BE 100ø UNLESS NOTED OTHERWISE.
- 100ø FOUL PIPEWORK TO BE LAID NO FLATTER THAN 1 IN 40 INTERNALLY AND 1 IN 70 EXTERNALLY.
- MINIMUM DEPTH AT HEAD OF INTERNAL SURFACE WATER TO BE 450MM AND FOUL WATER RUNS TO BE 750MM BELOW FINISHED FLOOR LEVEL UNLESS OTHERWISE STATED.
- FOUNDATIONS TO BE LOCALLY STEPPED WHERE NECESSARY AS PER STRUCTURAL ENGINEERS DETAILS. WHERE STUB STACKS ARE USED, SPECIAL DETAILS WILL BE PROVIDED.
- PUBLIC MANHOLE DETAILS FROM PUBLIC SEWER RECORDS.
- AREA CONTRIBUTING TO THE SW SYSTEM TAKEN AS 2350 m2.
- THIS DRAWING IS FOR STRATEGY PURPOSES ONLY AND MUST NOT BE USED FOR CONSTRUCTION.
- FORMAL APPLICATION AND APPROVAL FOR CONNECTIONS INTO PUBLIC SYSTEM MUST BE OBTAINED BEFORE WORKS.
- SOIL INVESTIGATION LOOKING @ 500mm INFILTRATION TESTS AFTER PLANNING FOR POSSIBLE PERMEABLE PAVING OPTION.

PRELIMINARY ONLY

G Drainage and levels updated. Landscape updated.	BK	JW	KM	17.11.17
F New RWP locations added into layout. Indicative directional flow of runoff added.	DL	KD	KD	03.08.2017
E Updated drawing with proposed levels. Updated cover levels on manholes.	DL	KD	KD	02.08.2017
D Added the CDM note onto the drawing.	DL	KD	KD	24.07.2017
C Rising main route amended	DL	PP	KD	06.06.2017
B Rising Main route amended	KD	PP	KD	25.05.2017
A Rising main and attenuation tank moved as requested. F11 moved back and RP'Ss added.	KD	DL	KD	25.05.2017
– FIRST ISSUE	DL	KD	KD	19.05.2017
REVISIONS	DRN	CHK	APP	DATE

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CLIENT MCCARTHY AND STONE
SOUTHERN REGION

PROJECT THE ORCHARD HOUSE
EMSWORTH

DRAWING TITLE 'T' BUILDING
DRAINAGE LAYOUT

SCALE 1:200

DATE 17/11/2017

DRAWN BK

CHECKED JW

APPROVED KM

DRAWING No. 64007-03

REVISION G