

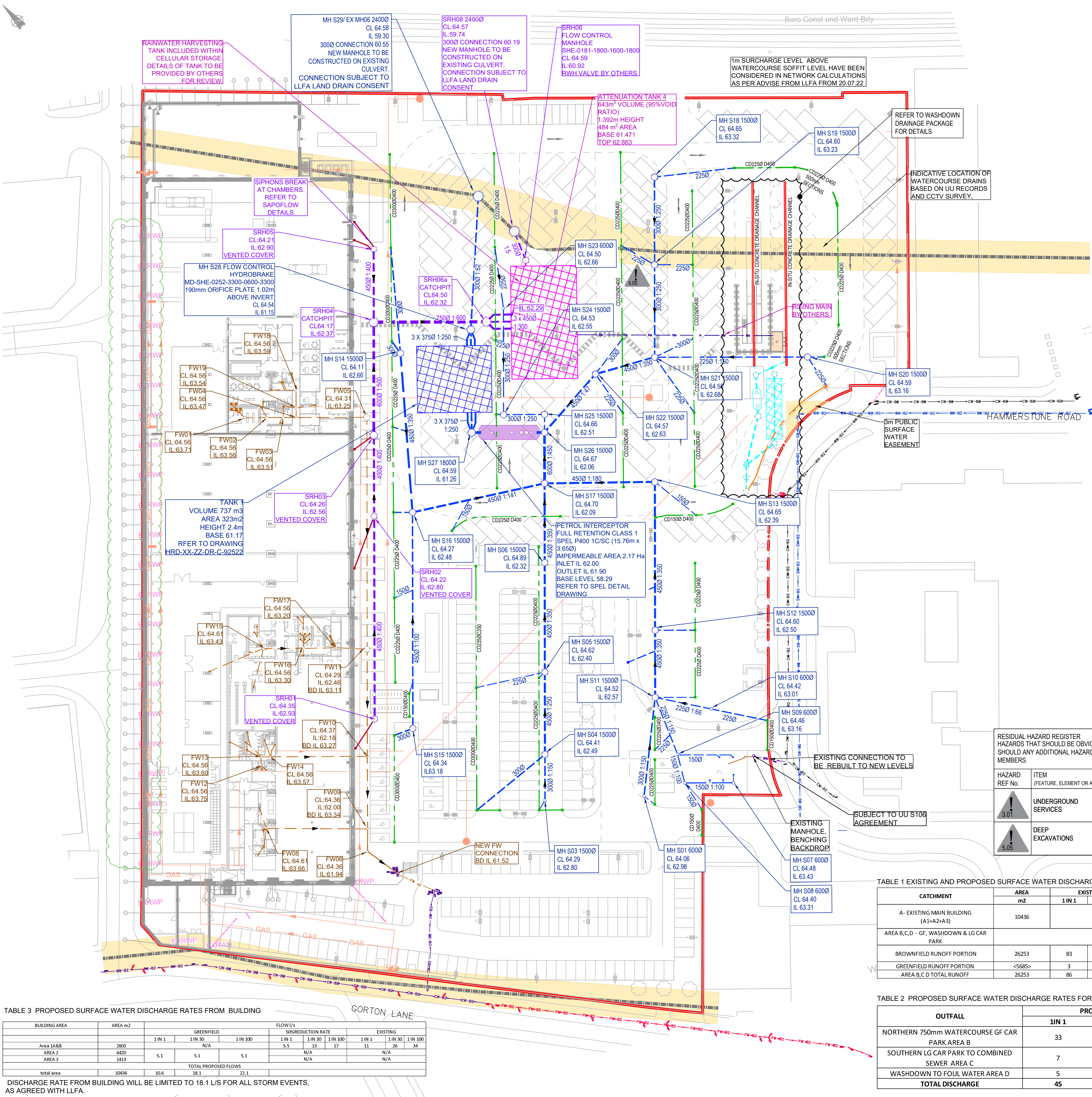


TABLE 3 PROPOSED SURFACE WATER DISCHARGE RATES FROM BUILDING

BUILDING AREA	AREA m2	FLOW L/S								
		GREENFIELD			50%REDUCTION RATE			EXISTING		
		1 IN 1	1 IN 30	1 IN 100	1 IN 1	1 IN 30	1 IN 100	1 IN 1	1 IN 30	1 IN 100
Area 1A&B	2603		N/A		5.5	13	17	11	26	34
Area 2	6420	5.1	5.1	5.1	N/A	N/A	N/A	N/A	N/A	N/A
Area 3	1413									
TOTAL PROPOSED FLOWS										
total area	10436	10.6	18.1	22.1						

DISCHARGE RATE FROM BUILDING WILL BE LIMITED TO 18.1 L/S FOR ALL STORM EVENTS, AS AGREED WITH LLFA.

LEGEND

SITE BOUNDARY BASED ON HRD-FRA-00-XX-DR-A-90-0200

EXISTING SERVICES BASED ON CCTV SURVEY AUG 2020

EXISTING SURFACE WATER PIPE

EXISTING COMBINED WATER PIPE

EXISTING UNSURVEYED BUILDING DRAINAGE (ASSUMED ROUTE SHOWN)

UNITED UTILITIES RECORDS UUPS-ORD-76950 ALL UU ASSETS ARE SHOWN INDICATIVELY

UU FOUL WATER SEWER

UU SURFACE WATER SEWER

UU COMBINED WATER SEWER

WATERCOURSE

8M EASEMENT BASED ON SEWER FOR ADOPTION 6TH EDITION

PROPOSED DRAINAGE

PROPOSED FOUL WATER DRAIN

PROPOSED RISING MAIN FROM RH TANK BY OTHERS

PROPOSED SURFACE WATER FOR WASHDOWN

PROPOSED SURFACE WATER FROM SIPHON BY SAPOFLOW

PROPOSED SURFACE WATER GRAVITY DRAINAGE FROM SIPHON

PROPOSED SURFACE WATER BY STORMSAVER

DP

FG

SRWP

PROPOSED SERVICES

GATIC CHANNEL

DESIGN PHILOSOPHY SURFACE WATER

EXISTING BUILDING

SIPHON ROOF SYSTEM WITH RAINWATER HARVESTING TANK AND FLOW RESTRICTION BY STORMSAVER FLOW LIMITED TO 18.1L/S 1 IN 30 YEAR STORM EVENT FOR ALL STORM EVENTS

TABLE 3 EXISTING AND PROPOSED CALCULATIONS

GROUND FLOOR YARD/CAR PARK

TO DISCHARGE TO WATERCOURSE, RESTRICTED RATE COMBINATION OF BROWNFIELD RUNOFF (50% REDUCTION) & GREENFIELD RUNOFF.

SURCHARGE LEVEL FOR 1 IN 100+40 CC ON CULVERTED WATERCOURSE: 61.85 (1m ABOVE SOFFIT LEVEL)

LOWER GROUND CAR PARK

REUSING EXISTING CONNECTION TO COMBINED SEWER GREATER REDUCTION THAN 50%, 7L/S FOR ALL STORM EVENTS

SURCHARGE LEVEL FOR 1 IN 100+40 CC ON PUBLIC SEWER: 59.14 (AS AGREED WITH UU)

WASHDOWN AREA

TO DISCHARGE TO FOUL WATER SEWER FLOW LIMITED TO 5L/S AS REQUESTED BY UU

FOUL WATER

4.9L/S

FOR CLARITY THE EXISTING DRAINAGE WHICH WILL BE REUSED HAS BEEN SHOWN ON THE DRAWING FOR ALL EXISTING DRAINAGE WITHIN BOUNDARY REFER TO HRD-CUR-XX-00-DR-C-92-510- EXISTING DRAINAGE and HRD-CUR-XX-00-DR-C-92-511- RETAINED AND ABANDONED DRAINAGE

RESIDUAL HAZARD REGISTER		
HAZARDS THAT SHOULD BE OBVIOUS TO A COMPETENT CONTRACTOR HAVE NOT BEEN INDICATED ON THIS DRAWING. SHOULD ANY ADDITIONAL HAZARDS BE IDENTIFIED, THE CONTRACTOR SHOULD NOTIFY ALL RELEVANT PROJECT TEAM MEMBERS.		
HAZARD REF No.	ITEM (FEATURE, ELEMENT OR ACTIVITY)	RESIDUAL HAZARD
3.01	UNDERGROUND SERVICES	EXISTING LIVE SERVICES (SIDEWIDE)
5.05	DEEP EXCAVATIONS	DEEP EXCAVATION MORE THEN 3M NEAR EXISTING CULVERT/ NEAR EXISTING FOUNDATION WALL/ ATTENUATION TANK

TABLE 1 EXISTING AND PROPOSED SURFACE WATER DISCHARGE

CATCHMENT	AREA m2	EXISTING SURFACE WATER FLOW L/S			NOTES	PROPOSED SURFACE WATER FLOW L/S		
		1 IN 1	1 IN 30	1 IN 100		1 IN 1	1 IN 30	1 IN 100+40%CC
A- EXISTING MAIN BUILDING (A1+A2+A3)	10436				AS PER TABLE 3			
AREA B,C,D - GF, WASHDOWN & LG CAR PARK								
BROWNFIELD RUNOFF PORTION	26253	83	201	264	50% REDUCTION	42	101	132
GREENFIELD RUNOFF PORTION	<5685>	3	6	8		3	6	8
AREA B,C,D TOTAL RUNOFF	26253	86	207	272		45	107	140

TABLE 2 PROPOSED SURFACE WATER DISCHARGE RATES FOR EACH OUTFALL

OUTFALL	PROPOSED FLOWS L/S			PROPOSED AREA M2
	1 IN 1	1 IN 30	1 IN 100+40%CC	
NORTHERN 750mm WATERCOURSE GF CAR PARK AREA B	33	95	128	21749
SOUTHERN LG CAR PARK TO COMBINED SEWER AREA C	7	7	7	3300
WASHDOWN TO FOUL WATER AREA D	5	5	5	1204
TOTAL DISCHARGE	45	107	140	26253

- GENERAL NOTES:**
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
 - DESIGN BASED ON TOPOGRAPHICAL SURVEY AND CCTV SURVEY INFORMATION AVAILABLE AT THE TIME OF DESIGN. ALL EXISTING SEWERS, CONNECTIONS, PIPE SIZES AND INVERT LEVELS TO BE CONFIRMED BY CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS TO ENSURE CONNECTIVITY. ANY VARIANCE FROM THE INFORMATION SHOWN SHOULD BE REPORTED TO THE ENGINEER FOR REVIEW.
 - DO NOT SCALE THIS DRAWING. ALL DETAILS AND DIMENSIONS ARE TO BE CHECKED BY THE CONTRACTOR. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
 - ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.
 - WHERE EXISTING DRAINAGE IS BEING USED, ALLOWANCES SHOULD BE MADE TO REMEDIATE THIS DRAINAGE IN LINE WITH AVAILABLE CCTV SURVEY INFORMATION. IF NO SURVEY IS AVAILABLE, IT IS ADVISED TO OBTAIN ONE PRIOR TO COMMENCEMENT OF WORKS.
 - ALL EXISTING SERVICES TO BE LOCATED PRIOR TO COMMENCEMENT OF ANY DRAINAGE WORKS, AND WHERE NECESSARY PROTECTION OR DIVERSIONS TO BE UNDERTAKEN TO AVOID CONFLICT WITH THE PROPOSED WORK.
 - ALL PIPE DIAMETERS GIVEN ARE NOMINAL INTERNAL PIPE DIAMETERS. THESE ARE TO BE CONFIRMED ONCE A DETAILED CAPACITY CHECK HAS BEEN UNDERTAKEN AT A LATER DESIGN STAGE.
 - OUTFALL CONNECTION(S) SUBJECT TO AGREEMENT WITH THE APPROVING AUTHORITY.

DRAWING BASED ON:

TOPOGRAPHICAL SURVEY BY SEP S15724-T

GPR SURVEY BY SEP S17480-U DEC 2018 JUNE 2018

CCTV SURVEYS BY SEP/ NRC:

- DEC 2018
- AUG 2020
- MAY, AUG 2021
- JAN 2022
- SEP, NOV 2023

UU RECORDS UUPS-ORD-76950

PROPOSED SITE PLAN HRD-FRA-00-XX-DR-A-90-0200-C07

EXTERNAL SERVICES

HRD-HAN-ZZ-00-DR-M-50-03 C01 External Gas & Water Layout

DISCHARGE UNITS PROVIDED 26.03.21

POPUPS 3654-HRD-HAN-ZZ-00-DR-M-0610

RAINWATER HARVESTING/ STORAGE

HRD-ABE-ZZ-ZZ-DR-M-5032 REV P03 TANK LAYOUT

SIPHONIC DRAINAGE DETAILS

HRD-SAP-01-RL-DR-X-0001 REV C04 SIPHONIC ROOF PLAN

HRD-SAP-01-RL-DR-X-0002 REV C05 SHED E SIPHONIC ROOF PLAN

HRD-SAP-01-RL-DR-X-0003 REV C04 SIPHONIC UGD DETAILS

SITE INVESTIGATIONS

HDR-CUR-00-XX-RP-GE-002-P01 HAMMERSTONE ROAD PHASE 2

SITE INVESTIGATION

HRD-CUR-00-XX-RP-G-004-C01_HAMMERSTONE ROAD DEPOT TRIAL PITS

PROPOSED SERVICES DRAWINGS REQUIRED FOR REVISED SITE LAYOUT

P19	UPDATED IN LINE WITH COMMENTS	13.02.24	ATL	MW
P18	UPDATED FOR NEW TENDER	29.01.24	ATL	MW
C05	CAR PARK DRAINAGE REMOVED	20.04.23	ATL	MW
C04	SIPHONIC DRAINAGE MANHOLE LABELS REINSTATED	16.02.23	ATL	ATL
C03	DRAINAGE FLOWS, COVER LEVELS AND, WASHDOWN OUTFALL ARRANGEMENT AMENDED	25.11.22	ATL	MW
C02	LAYOUT UPDATED, EX1 TO BE REBUILT	24.10.22	MW	MW
C01	ISSUED FOR CONSTRUCTION	23.09.22	MW	MW
P17	UPDATED IN LINE WITH REVISED FOUL POP-UPS. MAIN BUILDING (SIPHONIC DRAINAGE AMENDED).	19.08.22	ATL	MW
Rev:	Description:	Date:	By:	Chkd:

Curtins

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Status: **STAGE 5**

Project: **HAMMERSTONE ROAD**

Orig Title: **PROPOSED GROUND FLOOR DRAINAGE**

Project No:	Size:	Date:	Drawn By:	Designed By:	Checked By:
068065	A1	29.01.19	MW	MW	CG
Scale: 1:500					
Project Code:	Originator:	Zone:	Level:	Type:	Discipline/Category/Number:
HRD	- CUR	- XX	- 00	- DR	- C - 92-500 -P19