## TENDER RISKS:

1. SITE HAS BEEN CLASSED AS 'MEDIUM' RISK IN RELATION TO HISTORICAL UNEXPLODED ORDINANCE. CONTRACTOR TO ALLOW FOR UXO RISK MANAGEMENT PLAN, ON-SITE SUPPORT & MAGNETOMETER SURVEY IN PILE LOCATION.
2. GROUNDWATER RESTING LEVELS RECORDED BETWEEN 2.20m & 6.48m BGL. ALLOWANCE TO BE MADE FOR DEWATERING MEASURES.
3. EXISTING FOUNDATIONS / OBSTRUCTIONS. WHERE THESE SHOULD BE GRUBBED OUT PRIOR TO CONSTRUCTION.
4. LOOSE SANDS NOTED (REFER TO TRC SI REPORT). FOR EXCAVATIONS ALLOWANCE TO BE MADE FOR BATTERING BACK FACES TO A SAFE ANGLE OF REPOSE OR PROVIDE SHUTTERING.
5. REMNANTS OF DEEP BURIED STRUCTURES.

## DRAINAGE

1. REFER TO CIVIL AND STRUCTURAL SPECIFICATION REPORT - PART R.
2. CONTRACTOR SHOULD ENSURE THE LOCAL PLANNING AUTHORITY HAVE APPROVED THE DRAINAGE PROPOSALS PRIOR TO ORDERING MATERIAL OR INSTALLATION.

HYDRAULIC DESIGN:

3. THE SURFACE WATER NETWORK, FLOW CONTROL AND ATTENUATION HAS BEEN DESIGNED USING MICRODRAINAGE SOFTWARE WITH FSR RAINFALL DATA.

STRATEGY:

4. DISCHARGE RATE RESTRICTED AT 20.20 l/s SUBJECT TO LLFA APPROVAL.THIS IS BASED ON 50% REDUCTION OF THE EXISTING M1-30 STORM EVENT.
5. TOTAL ATTENUATION FOR 100YR+45% CLIMATE CHANGE BELOW GROUND = 353m³

FINAL DRAINAGE CONNECTIONS:

6. WHERE THIRD PARTY APPROVAL IS REQUIRED THESE ARE NOTED AGAINST EACH DISCHARGE POINT ON THE DRAWING.
7. NO CONNECTION OR DISCHARGE SHOULD BE MADE UNTIL APPROVAL HAS BEEN RECEIVED. CHECK STATUS OF APPLICATION WITH ENGINEER.
8. CONTRACTOR SHOULD INVESTIGATE AND INSTALL FINAL DRAINAGE CONNECTIONS PRIOR TO INSTALLING ANY UPSTREAM DRAINAGE TO AVOID POTENTIAL LEVEL ISSUES.
9. EVERY EFFORT HAS BEEN MADE TO PROVIDE ACCURATE INFORMATION. HOWEVER, THE CONTRACTOR IS ADVISED TO CHECK ACTUAL CONDITIONS. I.E. THE LOCATION, ACCESSIBILITY, UNDERGROUND ROUTE, LEVELS, SIZES, CONDITION OF EXISTING SEWERS TO BE RE-USED AND/OR CONNECTED INTO.

GENERALLY:

10. DO NOT SCALE FROM THIS DRAWING, WORK TO DIMENSIONS OR CO-ORDINATES PROVIDED.
11. REPORT CONFLICTS TO ENGINEER IMMEDIATELY.
12. EVERY EFFORT HAS BEEN MADE TO ASCERTAIN TYPE, LOCATION AND DEPTH OF BURIED SERVICES AND/OR OBSTRUCTIONS. HOWEVER, THE CONTRACTOR IS ADVISED TO CARRY OUT OWN INVESTIGATIONS TO ENSURE THERE ARE NO CLASHES WITH THE PROPOSED WORKS.
13. CONTRACTOR IS RESPONSIBLE FOR PROTECTING RETAINED SERVICES AND MAKING CONTACT WITH OWNERS OF APPARATUS TO OBTAIN NECESSARY CONSENT FOR EXCAVATION, PROTECTION AND/OR DIVERTING.
14. BURIED OBSTRUCTIONS ENCOUNTERED DURING EXCAVATION THAT CONFLICT WITH PROPOSED WORKS SHOULD BE BROKEN OUT AND REMOVED. RESIDUAL VOIDS TO BE BACKFILLED AND COMPACTED AS PER SPECIFICATION.

NEW DRAINAGE:

15. INTERNAL FOUL POINTS ARE LOCATED AND SET OUT BY THE ARCHITECT.
16. TRADITIONAL RAINWATER DOWNPIPES ARE PROVIDED BY THE CLADDING CONTRACTOR AND COORDINATED WITH THE ARCHITECT.
17. DESIGN ASSUMES THAT ALL WORKS ARE NOT TO BE ADOPTED.
18. GRADIENTS OF PIPES ARE AVERAGED. PIPE CONNECTIONS SHOULD BE INSTALLED TO THE STATED INVERT LEVELS.
19. COVER LEVELS OF THE MANHOLES ARE AVERAGED. COVER AND FRAME SHOULD BE SET TO SUIT FINISHED GROUND LEVELS.
20. ALL PIPEWORK WITHIN MANHOLES ARE TO BE LAID SOFFIT TO SOFFIT (U.N.O), INCLUDING BACKDROP PIPEWORK, WHERE THE RODDING ACCESS LEVEL IS SPECIFIED.
21. FLAT LATERAL CONNECTION TO BE 135° 'Y' JUNCTIONS (IE 45° OBLIQUE JUNCTIONS) RELATIVE TO MAIN RUN. TO BE USED ON FOUL OR SURFACE WATER RUNS. 90° OR 87½° SQUARE JUNCTIONS SUITABLE FOR SURFACE WATER CONNECTIONS ONLY.
22. SADDLE CONNECTIONS TO LARGER PIPES SHOULD BE MADE SO THAT THE INVERT LEVEL OF THE SMALLER PIPE DOES NOT ADJOIN BELOW MID HEIGHT OF THE LARGER PIPE.
23. PIPES CROSSING WITHIN 200MM OF EACH OTHER ARE TO BE ISOLATED BY CONCRETE FOR A MINIMUM DISTANCE OF 1M BEYOND CROSSING POINT IN ALL DIRECTIONS.
24. A CCTV DRAINAGE SURVEY TO BE CARRIED OUT ON COMPLETION TO PROVE THE INTEGRITY OF THE AS-BUILT DRAINAGE SYSTEMS.

ANCILLARY ITEMS:

25. WHERE PROPOSED CONTRACTOR MUST PROVIDE PROPOSALS FOR SUPPLY OF LINEAR DRAINAGE CHANNELS, KERB DRAINS, INTERCEPTORS, ATTENUATION, PUMPS, HYDROBRAKE, FILTER UNITS.
26. WHERE PROPOSED ALLOWANCE SHOULD BE MADE FOR POWER SUPPLY TO INTERCEPTORS AND PUMPS AND FOR INSTALLING CONTROL PANELS.

## LEGEND

- NEW FOUL WATER PIPE
- IC 0.45 — NEW FOUL WATER INSPECTION CHAMBER
- F000 1.20 — NEW FOUL WATER MANHOLE
- EXISTING COMBINED WATER PIPE
- NEW STORM WATER PIPE
- S000 0.45 — NEW STORM WATER INSPECTION CHAMBER
- S000 1.20 — NEW STORM WATER MANHOLE
- S000 1.35 (CP) — NEW STORM WATER CATCHPIT MANHOLE
- (HB) NEW HYDROBRAKE
- (PI) PETROL INTERCEPTOR
- AB/OB — LINEAR DRAINAGE CHANNEL (ACCESS BOX/ OUTLET BOX)
- AB/OB — KERB CHANNEL (ACCESS BOX/ OUTLET BOX)
- LAND DRAIN
- GU — GULLY
- PROPOSED CELLULAR STORAGE
- SITE BOUNDARY

### COMBINED DISCHARGE

- FORM NEW Ø225 CONNECTIONS TO EXISTING PUBLIC MANHOLE.
- LOCATION AND LEVEL OF CONNECTION POINT BASED ON CCTV SURVEY BY LANES GROUP DATED 30/09/2025.
- S106 REQUIRED FOR DIRECT CONNECTION PRIOR TO MAKING CONNECTION.

Final outfall connection updated

DC replaced with Gully

Canopy Rwp Location updated

FFL Raised by 100mm

SSL/FFL = 84.350

Gully added

Canopy Rwp Location updated

Canopy Rwp Location updated

FFL Raised by 100mm

SSL/FFL = 84.700

FFL Raised by 100mm

SSL/FFL = 85.200

NEW LANDRAIN CONNECTION TO EXISTING MH
EX. SWMH CL: 83.35 IL: 80.35
CONTRACTOR TO CONFIRM CONNECTION DOWNSTREAM. REFER TO CCTV SURVEY BY RA UTILITIES APRIL 2024.

EX. MH CL: 84.55 IL: 80.96

EX. PUBLIC MH CL= 83.69 IL = 79.39

EX. PUBLIC MH CL= 83.39 IL = 79.16

EX. PUBLIC MH CL= 83.65 (TBC) IL = 79.090

EXISTING Ø225 PUBLIC COMBINED PIPE

EXISTING Ø300 PUBLIC COMBINED PIPE

EXISTING SS

SS

Crabtree Lane

UNIT 1 | UNIT 2 | UNIT 3 | UNIT 4 | UNIT 5 | UNIT 6 | UNIT 7 | UNIT 8 | UNIT 9

OB1 CL:84.303 IL:83.706 — L2.67m Ø150 @ 1:7 (1.000 )
S102 Ø0.60 CL:84.325 IL:82.725
S101 Ø0.60 CL:84.325 IL:83.225
L75.00m Ø225 @ 1:150 (1.001)
LINEAR DRAINAGE CHANNEL A
L29.97m Ø225 @ 1:111 (1.002)
OB2 CL:84.303 IL:83.706
L5.76m Ø150 @ 1:5 (3.000)
F103A Ø0.45 CL:84.324 IL:83.024 — L6.27m Ø150 @ 1:13
F103 Ø1.20 CL:84.274 IL:82.526
BACKFLOW VALVE
S103 Ø1.20 CL:84.225 IL:82.942
L24.12m Ø150 @ 1:80
F102A Ø0.45 CL:84.310 IL:82.828
L8.65m Ø150 @ 1:80
F102 Ø0.45 CL:84.311 IL:82.936
L21.13m Ø150 @ 1:80
F101 Ø1.20 CL:84.318 IL:83.200
IL 82.454
S104 Ø1.20 CL:84.393 IL:82.379
L73.16m Ø225 @ 1:150 (2.000)
L15.05m Ø150 @ 1:21
1:80
OB6 CL:84.183 IL:83.333 — L4.62m Ø300 @ 1:5 (11.000)
LINEAR DRAINAGE CHANNEL H @ 84.083
L7.38m Ø150 @ 1:12 (9.000)
L15.09m Ø300 @ 1:150 (1.003)
OB4 CL:84.741 IL:83.891
S117 Ø1.20 CL:83.887 IL:82.600
L32.00m Ø225 @ 1:150 (10.001)
L10.04m Ø225 @ 1:105 (10.000)
S120 Ø1.20 CL:84.230 IL:81.485
L12.00m Ø225 @ 1:150 (1.008)
IL 82.387
IL 82.312
L1.95m Ø375 @ 1:127 (8.003)
L2.00m Ø375 @ 1:100 (8.004)
L32.60m Ø300 @ 1:41 (8.002)
S118 Ø1.35 CL:84.225 IL:82.237
PI
CP
S119 Ø1.35 CL:84.308 IL:82.102
1:40
S116 Ø1.20 CL:84.333 IL:83.104
IL 83.254
S109 Ø1.35 CL:84.683 IL:82.204
IL 82.279
IL 82.354
L15.63m Ø225 @ 1:12 (4.002)
OB5 CL:83.446 IL:82.696
BD IL 81.405
1:17
1:27
S121 Ø1.20 CL:83.609 IL:79.558
L7.27m Ø225 @ 1:150 (1.007)
BD IL 82.89
GU
L9.83m Ø225 @ 1:21 (1.009)
L13.27m Ø150 @ 1:79
EXISTING Ø225 PUBLIC COMBINED PIPE (TFR)
HB
IL 81.550
L2.50m Ø375 @ 1:150 (1.006)
ATTENUATION TANK - 1
1:40
IL 82.085
L2.00m Ø375 @ 1:120 (8.005)
IL 82.056
L12.95m Ø375 @ 1:150 (1.005)
S114 Ø1.35 CL:84.452 IL:82.142
IL 82.142
BD IL 82.899
L8.10m Ø225 @ 1:150 (6.002)
S113 Ø1.20 CL:84.625 IL:82.953
L150m Ø225 @ 1:150 (6.001)
LDC F @ 84.741/84.783
L9.27m Ø375 @ 1:150 (1.004)
S108 Ø1.20 CL:85.122 IL:83.632
L35.37m Ø225 @ 1:147 (4.001)
S106 Ø0.60 CL:85.176 IL:83.872
L26.50m Ø225 @ 1:129 (4.000)
S105 Ø0.60 CL:85.176 IL:84.078
S112 Ø1.20 CL:84.620 IL:83.320
BACKFLOW VALVE
L54.77m Ø225 @ 1:149 (7.000)
F112 Ø1.20 CL:84.639 IL:83.059
L12.02m Ø150 @ 1:81
L13.11m Ø150 @ 1:80
F110 Ø0.45 CL:84.639 IL:83.209
F109 Ø0.45 CL:84.639 IL:83.373
L16.72m Ø150 @ 1:80
F108 Ø0.45 CL:84.639 IL:83.582
L15.15m Ø150 @ 1:80
F107 Ø1.20 CL:84.657 IL:83.772
1:41
S115 Ø1.20 CL:84.617 IL:83.306
L4.53m Ø225 @ 1:12 (8.000)
L21.99m Ø150 @ 1:80
L29.80m Ø225 @ 1:150 (5.000)
F106 Ø0.45 CL:85.161 IL:84.046
OB3 CL:84.545 IL:83.692
L24.50m Ø225 @ 1:142 (6.001)
KERB DRAIN E @ 84.445/84.442
S110 Ø0.60 CL:84.629 IL:83.529
L60.40m Ø225 @ 1:150 (6.000)
LINEAR DRAINAGE CHANNEL D @ 84.527
L103m LAND DRAIN
S111 Ø0.60 CL:84.708 IL:83.126
S107 Ø0.60 CL:85.122 IL:83.831
LINEAR DRAINAGE CHANNEL B @ 85.056/85.020
LINEAR DRAINAGE CHANNEL C @ 84.525

### LINEAR DRAINAGE CHANNEL (LDC) SCHEDULE.

CHANNELS TO BE DESIGNED BY SPECIALIST BASED ON 50mm/hr RAINFALL INTENSITY, A 5yr RETURN PERIOD AND THE FOLLOWING PARAMETERS:

| CHANNEL REFERENCE | LOCATION | AREA DRAINED | LENGTH | GROUND LEVEL BOX | OUTLET | PIPE | DUTY | PREFERENCE |
|---|---|---|---|---|---|---|---|---|
| A | FOOTPATH | 259m² | 130.00m | 84.206 | 2NO. | 150Ø | B125 | NARROW |
| B | FOOTPATH | 214m² | 99.00m | 85.056/85.020 | 1NO. | 150Ø | B125 | NARROW |
| C | FOOTPATH | 43m² | 20.00m | 84.525 | 1NO. | 150Ø | B125 | NARROW |
| D | FOOTPATH | 123m² | 57.00m | 84.527 | 2NO. | 150Ø | B125 | NARROW |
| E | ACCESS ROAD | 712m² | 26.00m | 84.445/84.442 | 2NO. | 225Ø | D400 | KERB DRAIN |
| F | SERVICE YARD | 235m² | 14.00m | 84.741/84.783 | 1NO. END | 150Ø | D400 | SLOT |
| G | ACCESS ROAD | 541m² | 10.00m | 83.517/83.446 | 1NO. END | 225Ø | D400 | SLOT |
| H | ACCESS ROAD | 1,963m² | 49.50m | 83.432 | 2NO. | 300Ø | D400 | SLOT |

NUMBER & SPACING OF ACCESS BOXES TO BE SPECIFIED BY SUPPLIER OUTLET BOXES TO BE SILT TRAP DEEP HEAVY DUTY. OUTFALL BOXES TO HAVE SUMP AS FIRST STAGE OF TREATMENT

### PETROL INTERCEPTOR 1 (PI)

| | |
|---|---|
| SUPPLIER | SPEL PETROL INTERCEPTOR - 1 |
| SPECIFICATIONS | P065/1CSC |
| AREA DRAINED | 3,398m² |
| MAX FLOW RATE | 45.4 l/s |
| IL IN | Ø375 @ 82.222m |
| IL OUT | Ø375 @ 82.122m |

ALLOW FOR CONCRETE SURROUND, POWER SUPPLY, CONTROL PANEL, VENTING AND HIGH LEVEL ALARM.

### ATTENUATION TANK - 1

Tank size updated

| | |
|---|---|
| PRODUCT | HYDRO TANK - 1 |
| AREA DRAINED | 8,324m² |
| SIZE | 32.0 x 8.0 x 1.44m (368.64m³) |
| WATER VOLUME | 353.89m³ (96% POROSITY) |
| GROUND LEVEL | 84.263m-84.464m |
| TANK TOP | 82.990m |
| TANK BASE | 81.550m |

ALLOW FOR VENTING, BEDDING & SURROUND, MEMBRANE WITH WELDED JOINTS
ALL CONNECTIONS INTO TANKS TO BE VIA MANIFOLD/REDUCERS TO SUIT MIN. 150 PIPE CONNECTION.
HIGH GROUND WATER LEVEL NOTED. DEWATERING MEASURE MAYBE REQUIRED DURING INSTALLATION.
FLOATATION CALCULATIONS FOR PERMANENT CASE CHECKED.

### HYDROBRAKE - 1 (HB)

| | |
|---|---|
| SUPPLIER | HYDRO INT OR SIMILAR APPROVED HB1 |
| CHAMBER DIA | Ø1.50m |
| CHAMBER CL | 84.449m |
| CHAMBER IL | 81.533m |
| DESIGN FLOW | 20.20 l/s |
| DESIGN HEAD | 1.44m |

Design head updated

NOTE: ALL EXTERNAL LEVELS PLUS MH COVER LEVELS ONLY HAVE BEEN LIFTED BY 100mm TO SUIT LIFT IN FFL's

| Rev. | Date | Description | Technician | Reviewer |
|---|---|---|---|---|
| C3 | 21.08.26 | ISSUED FOR LLFA | RM | IL |
| C2 | 25.11.25 | INTERNAL FW POP-UP CONNECTIONS UPDATED | SH | IL |
| C1 | 20.10.25 | ISSUED FOR CONSTRUCTION | NM | IL |
| T4 | 15.05.25 | UPDATED TO SUIT LATEST SITE LAYOUT | NM | IL |
| T3 | 20.09.24 | UPDATED TO SUIT LATEST SITE LAYOUT | SH | IL |
| T2 | 12.06.24 | TENDER ADDENDUM | SH | IL |
| T1 | 28.04.24 | TENDER ISSUE | SH | IL |
| P1 | 05.04.24 | PRE TENDER REVIEW | SH | IL |

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Project: CRABTREE LANE, CLAYTON
Drawing: PROPOSED DRAINAGE PLAN

| Drawing Set | Drawing Status | Scale | Project Number | Drawing Number | Revision |
|---|---|---|---|---|---|
| DRAINAGE | CONSTRUCTION | 1:200 @ A1<br>1:400 @ A3 | 23-026-I&L | D01 | C3 |