MERIDIAN
CIVIL ENGINEERING CONSULTANCY

COPPICE HANGER

PULLBOROUGH

DRAINAGE PACK

NOVEMBER 2024

Revision	Date	Author	Comment
P0	14.07.2023	BB	First issue
P1	31.07.2024	BB	After LLFA comments
P2	06.11.2024	BB	After additional LLFA comments

REFERENCE: MC0259-COPPICE-DRAINAGE PACK

MAINTENANCE AND MANAGEMENT PLAN

ALL SOAKAWAYS AND PLOT DRAINAGE IS TO BE OWNED AND MAINTAINED BY THE OWNER OF EACH PLOT. IN THIS WAY ACCESS TO EACH SOAKAWAY AND PIPES IS NOT AN ISSUE.
THE PERMEABLE DRIVEWAY AND SHARED DRAINS UNDER THE DRIVEWAY ARE TO BE OWNED AND MAINTAINED BY THE SITE OWNER.

THE TABLE BELOW SUGGESTS THE MAINTENANCE FREQUENCY FOR THE PROPOSED DRAINAGE

Item	Visual Inspection	Cleanse / De-sludge	CCTV Survey	Comments
Foul Drainage System (pipework, chambers etc.)	5 years	10 years	10 years	Cleansing to be carried as necessary
Surface Water Drainage System (pipework, chambers etc.)	5 years	10 years	10 years	Cleansing to be carried as necessary
Gullies/Channels	1 year	1 year	N/A	Cleansing to be carried as necessary
Soakaways and catchpits	1 year		N/A	Cleansing to be carried as necessary Geocellular crates forming soakaway to be dug out and replaced at the end of the crate lifetime (refer to specific manufacturer)
Permeable Paving	1 year	'Swept' clean of debris every 2 years.	N/A	Lift blocks and remove sand bedding and replace and re-bed paving currently recommended by manufacturers every 20 years.

DESIGN PHILOSOPHY

PRELIMINARIES
THE PROPOSALS ON SITE INCLUDE THE DEMOLITION OF EXISTING STRUCTURES AND ERECTION OF 4 DETACHED HOUSES.
MERIDIAN CIVILS HAVE BEEN INSTRUCTED TO UNDERTAKE THE DESIGN OF SURFACE AND FOUL WATER DRAINAGE FOR THE SITE.
THERE IS A PRE-COMMENCEMENT PLANNING CONDITION, WHICH STATES:
No development shall commence until a drainage strategy detailing the proposed means of foul and surface water disposal has been submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved details. Reason: As this matter is fundamental to ensure that the development is properly drained and to comply with Policy 38 of the Horsham District Planning Framework (2015).
A DRAINAGE STRATEGY HAS BEEN PRODUCED BY MOTION ON 24.03.2021 (REFERRED AS "THE PLANNING DRAINAGE STRATEGY").

SURFACE WATER
THE PROPOSALS FOLLOW THE PRINCIPLES OF THE PLANNING DRAINAGE STRATEGY TO MANAGE SURFACE WATER RUNOFF VIA INFILTRATION. THE ROOF RUNOFF FROM EACH HOUSE IS PROPOSED TO BE DIRECTED TO PRIVATE SOAKAWAYS LOCATED IN THE BACK GARDEN OF EACH PLOT.

THE HARDSTANDING AREAS ON SITE ARE PROPOSED TO BE OF SELF DRAINING PERMEABLE PAVEMENT. DUE TO THE SLOPE WITHIN THE NEW ACCESS ROAD, BAFFLES ARE REQUIRED TO DIVIDE THE CAR PARK INTO CELLS THAT CAN EFFICIENTLY RETAIN AND INFILTRATE THE RUNOFF FROM THE ACCESS ROAD. PRIVATE PATIOS ARE TO BE OF PERMEABLE CONSTRUCTION. BAFFLE REQUIREMENT FOR PATIOS TO BE CONFIRMED WITH DETAILED LEVEL DESIGN.

DESIGN INFILTRATION RATES HAVE BEEN BASED ON INFILTRATION TESTING CONDUCTED ON SITE. RESULTS AND CALCULATIONS OF THE INFILTRATION TESTING IS PROVIDED IN THE DRAINAGE PACK PRODUCED BY MERIDIAN CIVILS, REF: MC0259-COPPICE-DRAINAGE PACK.

ALL RAINWATER PIPES ARE CURRENTLY SHOWN INDICATIVELY AND ARE TO BE CONFIRMED PRIOR TO FINALISATION OF THE SURFACE WATER DRAINAGE DESIGN.

FOUL WATER
FOUL WATER RUNOFF IS PROPOSED TO DRAIN TO THE PUBLIC FOUL SEWER IN CHURCH HILL VI A NEW FOUL WATER CONNECTION INTO THE EXISTING SOUTHERN WATER FOUL MANHOLE 6602. THE NEW CONNECTION TO BE AGREED WITH SOUTHERN WATER VIA S106 AGREEMENT PRIOR TO CONSTRUCTION.

NO INTERNAL ARRANGEMENT OF THE HOUSES HAS BEEN PROVIDED TO MERIDIAN CIVILS. AS SUCH, THE PRIVATE FOUL DRAINAGE AROUND THE HOUSES HAS BEEN SHOWN ONLY INDICATIVELY. DETAILED DESIGN OF THE FOUL DRAINAGE IS TO BE DEVELOPED WITH SVP CONNECITONS AND DETAILED LEVEL DESIGN.

1. GENERAL
a. THIS DRAWING IS NOT TO BE SCALED, WORK TO FIGURED DIMENSIONS ONLY, CONFIRMED ON SITE.
b. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL DRAWINGS, DETAILED SPECIFICATIONS WHERE APPLICABLE AND ALL ASSOCIATED DRAWINGS IN THIS SERIES.
c. ANY DISCREPANCY ON THIS DRAWING IS TO BE REPORTED IMMEDIATELY TO THE PARTNERSHIP FOR CLARIFICATION.
d. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORKS AND FOR THE STABILITY OF THE WORKS IN PROGRESS.
e. CDM REGULATIONS 2015. ALL CURRENT DRAWINGS AND SPECIFICATIONS MUST BE READ IN CONJUNCTION WITH THE DESIGNER'S HAZARD RISK AND ENVIRONMENT ASSESSMENT RECORD. DESIGN HAS BEEN PRODUCED BASED ON INFORMATION PROVIDED BY THE CLIENT/PRINCIPLE DESIGNER AVAILABLE AT TIME OF ISSUE. CONTRACTOR TO REVIEW DRAWING AND SPECIFICATION IN CONTEXT WITH THE WIDER SITE AND SPECIFIC SITE INVESTIGATION, CONTAMINATION ASSESSMENT, ASBESTOS SURVEY, ENVIRONMENTAL SURVEY, UXO SURVEY AND ANY OTHER RELEVANT INFORMATION AND MANAGE RISKS RELATING TO THE WORKS OUTLINED IN THE DRAWINGS AND SPECIFICATION. PRINCIPLE CONTRACTOR TO MAKE DESIGNER AND CLIENT AWARE OF SITE SPECIFIC RISKS THAT MAY AFFECT THE DRAWING AND SPECIFICATION.
f. CDM REGULATIONS 2015 FOR GENERIC MAINTENANCE AND MANAGEMENT RISKS REFER TO CHAPTER 36 OF CIRIA 752 SUDS MANUAL. FOR PROPRIETARY SYSTEMS SEE MANUFACTURER'S MANAGEMENT AND MAINTENANCE DETAILS AND RISK ASSESSMENT WITH REGARDS TO MAINTENANCE OF PROPRIETARY SYSTEMS.

2. CONSTRUCTION NOTE
a. THE MAIN CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF ALL TEMPORARY WORKS, AND IS ALSO RESPONSIBLE FOR THE SAFE MAINTENANCE AND STABILITY OF EXISTING BUILDINGS AT ALL TIMES.
b. THE MAIN CONTRACTOR IS RESPONSIBLE FOR ALL OCCURRENCES OF GROUND WATER DURING THE CONSTRUCTION PERIOD.
c. ANY INFORMATION GIVEN REGARDING EXISTING UNDERGROUND SERVICES IS GIVEN IN GOOD FAITH AFTER CONSULTATION WITH THE RELEVANT AUTHORITY, HOWEVER ACCURACY IS NOT CERTAIN. THE MAIN CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL INFORMATION ON SITE PRIOR TO WORK COMMENCING AND TAKING DUE CARE AND ATTENTION WHILST UNDERTAKING THE WORKS.
d. THE CONTRACTOR MUST COMPLY WITH ALL CURRENT LEGISLATION RELATING TO HEALTH & SAFETY.
e. ALL PRODUCTS SPECIFIED SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND INSTRUCTIONS. IF THERE ARE DISCREPANCIES BETWEEN THAT INFORMATION AND THE DETAILS ON ANY MERIDIAN DRAWINGS, THE MANUFACTURERS INSTRUCTIONS MUST BE USED

3. BELOW GROUND DRAINAGE
a. UPVC-U PIPES TO BS 4660 : 2000 AND PLASTIC INSPECTION CHAMBERS AND FITTINGS TO BS EN 13598-1:2020. CLAY PIPES TO BS EN 295-1:2013. CONCRETE MANHOLE AND INSPECTION CHAMBERS TO BS EN 1917:2002
b. ALL ADOPTABLE DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH SEWERAGE SECTOR GUIDANCE App C - DESIGN AND CONSTRUCTION GUIDANCE AND THE RELEVANT COUNCIL DESIGN GUIDE.
c. ALL PRIVATE FOUL WATER SEWERS TO BE LAID AT 1 IN 40 AT THE HEAD OF PIPE RUNS AND AT 1 IN 80 ELSEWHERE UNLESS OTHERWISE STATED.
d. ALL PRIVATE FOUL SEWER PIPES TO BE 100mm DIAMETER FROM SOIL STACKS UNLESS OTHERWISE STATED ON THE DRAWING AND 150mm WHERE SERVING MORE THAN 9 PROPERTIES.
e. ALL PRIVATE SURFACE WATER SEWERS TO BE LAID AT 1 IN 80 UNLESS OTHERWISE STATED ON THE DRAWING.
f. ALL PRIVATE SURFACE WATER SEWER PIPES TO BE 100mm DIAMETER FROM DOWNPIPES AND 150mm DIAMETER ELSEWHERE UNLESS OTHERWISE STATED ON THE DRAWING.
g. ALLOW FOR RODDING ACCESS ABOVE GROUND WHERE RAINWATER DOWNPIPES OR SOIL STACKS DO NOT HAVE A DIRECT CONNECTION TO AN INSPECTION CHAMBER.
h. EXISTING SEWER PIPE TO BE RE-USED TO BE SURVEYED AND LEVELED PRIOR TO COMMENCEMENT OF THE DRAINAGE WORKS AND REFURBISHED IF NECESSARY.

4. CONNECTIONS TO AN ADOPTED SEWER ONLY TO BE MADE FOLLOWING APPROVAL FROM THE RELEVANT ADOPTING AUTHORITY.
5. ALL DRAINS, SEWER PIPES AND MANHOLES TO BE CLEANED AND TESTED FOR WATER TIGHTNESS ON COMPLETION OF CONSTRUCTION.

6. MANHOLE COVERS AND FRAMES
a. MANHOLE COVERS TO BE CLASS D400 IN HIGHWAYS, CLASS B125 IN FOOTWAYS AND VERGES, CLASS A15 IN NON-TRAFFICKED AREAS.
b. MANHOLE COVER AND FRAME TO BE BEDDED AND SURROUNDED IN 1:3 MORTAR.

LEGEND

- PROPOSED SW PIPE RUN
- PROPOSED FW PIPE RUN
- PROPOSED TYPE 3 SW INSPECTION CHAMBER
- PROPOSED TYPE 4 SW INSPECTION CHAMBER
- PROPOSED TYPE 3 FW INSPECTION CHAMBER
- PROPOSED TYPE 4 FW INSPECTION CHAMBER
- CATCHPIT CHAMBER/MANHOLE
- PROPOSED SW RODDING EYE
- PROPOSED SW RAINWATER PIPE
- TANK VENT - EXACT LOCATION TBC
- PERMEABLE PAVING - NOT TANKED
- GEOCELLULAR SOAKAWAY
- EXISTING FW PUBLIC INSPECTION CHAMBER / MANHOLE
- PERMEABLE PAVEMENT BAFFLE
- OVERLAND FLOW

REV:	DESCRIPTION:	BY:	DATE:
P2	SOAKAWAY AND SUB-BASE UPDATE	BB	01.11.24
P1	ADDRESSING LLFA COMMENTS	BB	31.07.24

STATUS: PRELIMINARY

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

CLIENT: PURPLE PEPPER PARTNERSHIP

SITE: COPPICE HANGER
PULLBOROUGH RH20 1RL

TITLE: DRAINAGE
DRAINAGE LAYOUT

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1:200	JULY 2023	BB	MN

PROJECT NO:	DRAWING NO:	REVISION:
MC0259	CIV05	P2

1:200 @ A1
0 2m 4m 6m 8m 10m

A Detached House
B Detached House
C Detached House
D Detached House

GEOCELLULAR SOAKAWAY A
CL: 14.0m
IL: 12.0m

PLAN DIMENSIONS: 7m x 3.5m
THICKNESS: 1200mm
COVER DEPTH: 0.4m min

INFILTRATION RATE (SIDES): $2.95x10^{-5}$m/s
INFILTRATION RATE (BASE): 0

PROVIDE TANK VENT AT SUITABLE LOCATION

SOAKAWAY TO BE 5m AWAY FROM BUILDINGS AND 2.5m AWAY FROM PLOT BOUNDARY

GEOCELLULAR SOAKAWAY B
CL: 14.9m
IL: 12.9m

PLAN DIMENSIONS: 6m x 3.5m
THICKNESS: 1200mm
COVER DEPTH: 0.4m min

INFILTRATION RATE (SIDES): $2.95x10^{-5}$m/s
INFILTRATION RATE (BASE): 0

PROVIDE TANK VENT AT SUITABLE LOCATION

SOAKAWAY TO BE 5m AWAY FROM BUILDINGS AND 2.5m AWAY FROM PLOT BOUNDARY

GEOCELLULAR SOAKAWAY C
CL: 10.8m
IL: 9.2m

PLAN DIMENSIONS: 5.5m x 4m
THICKNESS: 1200mm
COVER DEPTH: 0.4m min

INFILTRATION RATE (SIDES): $2.95x10^{-5}$m/s
INFILTRATION RATE (BASE): 0

PROVIDE TANK VENT AT SUITABLE LOCATION

SOAKAWAY TO BE 5m AWAY FROM BUILDINGS AND 2.5m AWAY FROM PLOT BOUNDARY

GEOCELLULAR SOAKAWAY D
CL: 12.0m
IL: 10.0m

PLAN DIMENSIONS: 4m x 5.5m
THICKNESS: 1200mm
COVER DEPTH: 0.4m min

INFILTRATION RATE (SIDES): $2.95x10^{-5}$m/s
INFILTRATION RATE (BASE): 0

PROVIDE TANK VENT AT SUITABLE LOCATION

SOAKAWAY TO BE 5m AWAY FROM BUILDINGS AND 2.5m AWAY FROM PLOT BOUNDARY

HOUSE FOUL DRAINAGE TO BE DESIGNED WITH SVP/SS LOCATIONS AND DETAILED LEVEL DESIGN OF SITE

ASSUMED FFL: 15.00 (TBC AT DETAILED DESIGN)

ASSUMED FFL: 15.15 (TBC AT DETAILED DESIGN)

ASSUMED FFL: 12.30 (TBC AT DETAILED DESIGN)

PATIOS OF SELF-DRAINING PERMEABLE CONSTRUCTION

ENTIRE ROUTE OF FOUL DRAIN IS UNDER ABEYANCE!!

BAFFLES SPACING: 8m
BASED ON SUB-BASE DEPTH OF 625mm, CAR PARK GRADIENT OF 1:12 AND INFILTRATION RATE OF $4.73x10^{-5}$m/s

FINAL LOCATION AND SPACING OF BAFFLES TO BE CONFIRMED WITH DETAILED LEVEL DESIGN OF SITE

SELF DRAINING PERMEABLE PAVEMENT WITH BAFFLES TO ALLOW RUNOFF TIME FOR INFILTRATION.
ASSUMED AVERAGE GRADIENT: 1 in 12 BASED ON LEVEL IN THE TOP END OF 15.4 AND LEVEL AT LOW END OF 9.2m.
FINAL GRADIENTS TO BE CONFIRMED
SUB-BASE DEPTH: 625mm
INFILTRATION RATE: $4.73x10^{-5}$m/s

CAR PARK OF RANSOM SITE. SEE DRAWING CIV01 FOR DRAINAGE DESIGN OF RANSOM SITE.

EXISTING PIPE DIAMETER TO BE CONFIRMED

SOUTHERN WATER FOUL MANHOLE 6602
CL: 10.72
IL: 9.32

CONFIRM LOCATION OF SOUTHERN WATER FOUL MANHOLE 6602 PRIOR TO CONSTRUCTION

SOUTHERN WATER FOUL MANHOLE 6601
CL: 8.69
IL: 7.13

THE NEW CONNECTION TO BE AGREED WITH SOUTHERN WATER VIA S106 AGREEMENT PRIOR TO CONSTRUCTION.
CONFIRM LOCATION OF SOUTHERN WATER FOUL MANHOLE 6601 PRIOR TO CONSTRUCTION

Highview
Laurel Cottage
Ashley House
Coppice Hanger
Visitors
Refuse
Site Boundary
Pedestrian and Bicycle Site Access
Vehicular Site Access
CHURCH HILL (A29)
Horncroft
Old Timbers
Oaklands Cottage
Swan Court
3
5
480 N
200 E
240 E
280 E

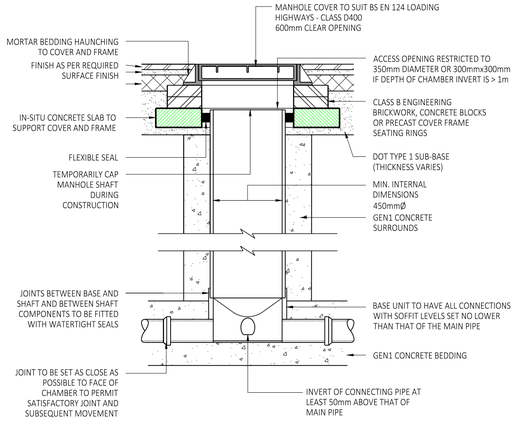
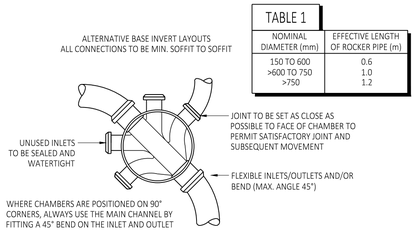


TABLE 1	
NOMINAL DIAMETER (mm)	EFFECTIVE LENGTH OF ROCKER PIPE (m)
150 TO 600	0.6
>600 TO 750	1.0
>750	1.2



TYPE 3 ACCESS CHAMBER - FLEXIBLE MATERIAL.

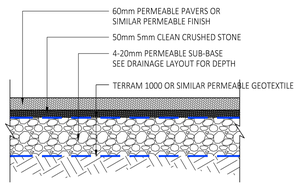
(SUBJECT TO VEHICLE LOADING, MAX. DEPTH 3m, NON-ENTRY)

(1:20)

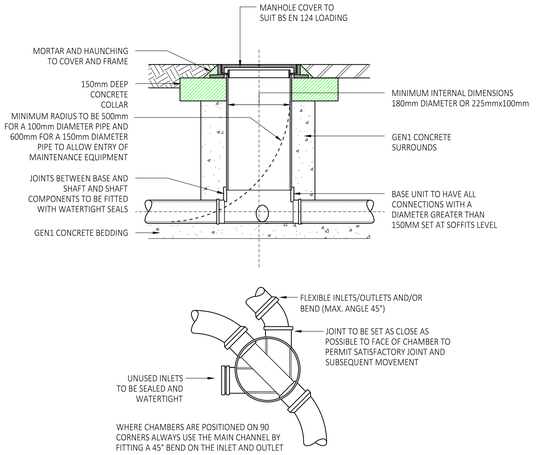
TYPE Z TYPE S

TRENCH AND BEDDING DETAILS

TYPE S WHERE COVER >900mm IN TRAFFICKED AREAS
TYPE Z WHERE COVER <900mm IN TRAFFICKED AREAS
TYPE S WHERE COVER >600mm IN NON-TRAFFICKED AREAS
TYPE Z WHERE COVER <600mm IN NON-TRAFFICKED AREAS



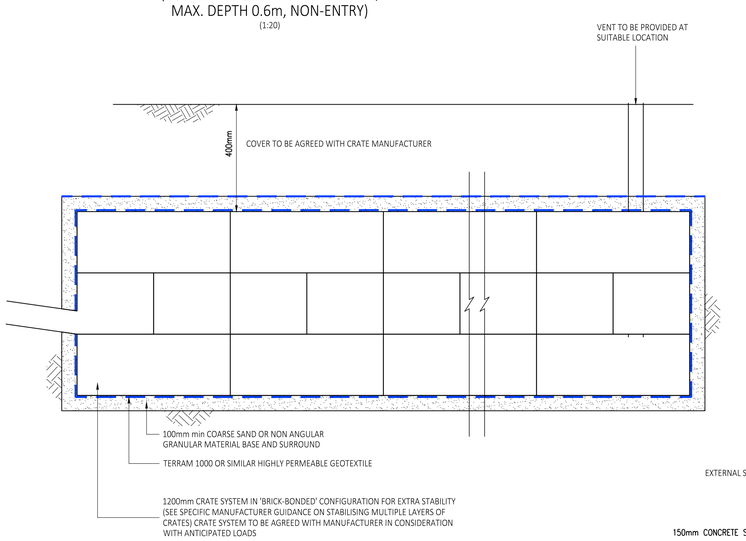
PERMEABLE PAVEMENT PATIOS TYPICAL SECTION



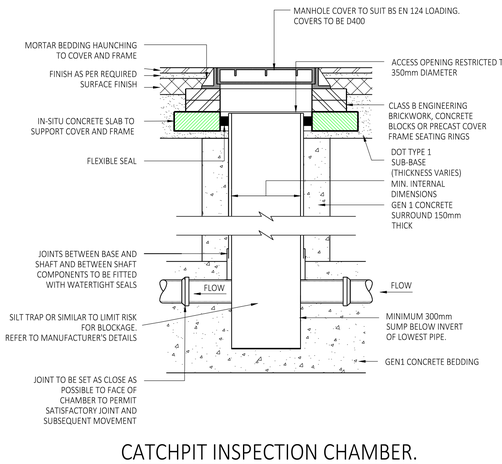
TYPE 4 ACCESS CHAMBER - FLEXIBLE MATERIAL SURFACED AREA.

(SUBJECT TO LIGHT TRAFFIC LOADS, MAX. DEPTH 0.6m, NON-ENTRY)

(1:20)



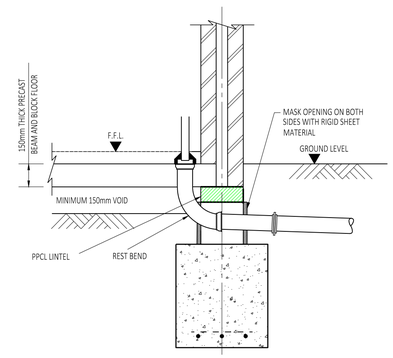
TYPICAL SECTION THROUGH GEOCELLULAR SOAKAWAY



CATCHPIT INSPECTION CHAMBER.

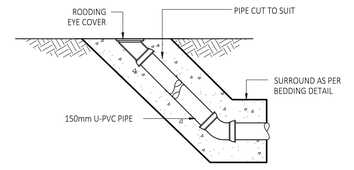
(PREFORMED POLYPIPE RIDGISTORM 450-1500Ø CATCHPIT MANHOLE OR SIMILAR), MAX. DEPTH 3m, NON-ENTRY)

(1:20)



TYPICAL EXTERNAL SECTION.

(1:20)

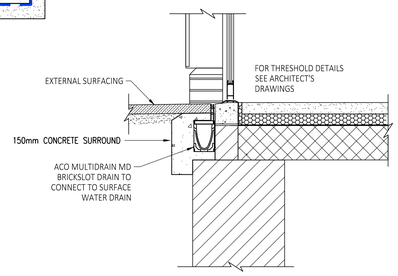


RWP CONNECTION.

(1:20)

RODDING EYE DETAIL.

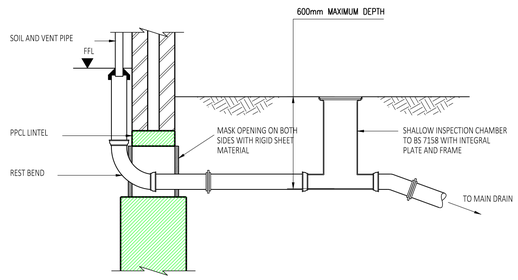
(1:20)



ACO BRICKSLOT DRAIN.

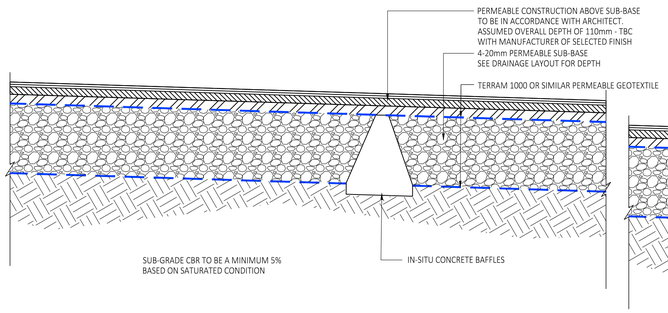
(AT THRESHOLD)

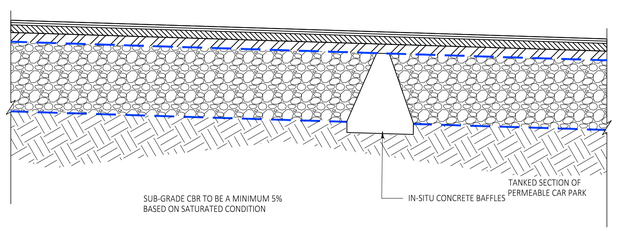
(1:20)



FOUL CONNECTION TO MAIN DRAINAGE.

(1:20)





PERMEABLE ACCESS ROAD

REV:	DESCRIPTION:	BY:	DATE:
–	–	-	-

STATUS: PRELIMINARY

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

CLIENT: PURPLE PEPPER PARTNERSHIP

SITE: COPPICE HANGER
PULLBOROUGH RH20 1RL

TITLE: DRAINAGE
STORM AND FOUL DRAINAGE STANDARD DETAILS

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1:200	JULY 2023	BB	MN

PROJECT NO:	DRAWING NO:	REVISION:
MC0259	CIV15	P0

1:20 @ A1
0 200 400 600 800 1000mm

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	0.950	Drain Down Time (mins)	240	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Detailed	Additional Storage (m³/ha)	0.0	Check Discharge Volume	x
Summer CV	0.950	Skip Steady State	x	Starting Level (m)			

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	45	10	0

Node Carpark 1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.17020	Porosity	0.30	Width (m)	10.000	Depth (m)	0.625
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	14.245	Length (m)	8.000	Inf Depth (m)	
Safety Factor	10.0	Time to half empty (mins)	227	Slope (1:X)	12.0		

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Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	Carpark 1	188	14.845	0.600	1.6	6.1143	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
240 minute winter	Carpark 1	Infiltration	0.3

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Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	0.950	Drain Down Time (mins)	240	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0	Check Discharge Volume	x
Summer CV	0.950	Skip Steady State	x	Starting Level (m)			

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440	2160	2880	4320

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	45	10	0	100	45	10	0

Node SA A Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Pit Width (m)	3.500	Inf Depth (m)	
Side Inf Coefficient (m/hr)	0.10600	Invert Level (m)	12.000	Pit Length (m)	7.000	Number Required	1
Safety Factor	10.0	Time to half empty (mins)	6274	Depth (m)	1.200		

Node SA B Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Pit Width (m)	3.500	Inf Depth (m)	
Side Inf Coefficient (m/hr)	0.10600	Invert Level (m)	12.900	Pit Length (m)	6.000	Number Required	1
Safety Factor	10.0	Time to half empty (mins)	5943	Depth (m)	1.200		

Node SA C Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Pit Width (m)	5.500	Inf Depth (m)	
Side Inf Coefficient (m/hr)	0.10600	Invert Level (m)	8.800	Pit Length (m)	4.000	Number Required	1
Safety Factor	10.0	Time to half empty (mins)	6226	Depth (m)	1.200		

Node SA D Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Pit Width (m)	5.500	Inf Depth (m)	
Side Inf Coefficient (m/hr)	0.10600	Invert Level (m)	10.000	Pit Length (m)	4.000	Number Required	1
Safety Factor	10.0	Time to half empty (mins)	6226	Depth (m)	1.200		

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Results for 10 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	23	10	14.290	0.040	2.8	0.0000	0.0000	OK
15 minute summer	22	10	14.150	0.061	6.0	0.0097	0.0000	OK
15 minute summer	21	10	14.158	0.058	5.7	0.0000	0.0000	OK
15 minute summer	20	10	13.950	0.050	11.7	0.0080	0.0000	OK
480 minute winter	SA B	472	13.604	-0.096	1.2	14.0356	0.0000	OK
15 minute summer	18	10	11.443	0.043	2.8	0.0000	0.0000	OK
15 minute summer	17	10	11.260	0.025	2.8	0.0040	0.0000	OK
15 minute summer	16	10	11.448	0.048	5.7	0.0000	0.0000	OK
15 minute summer	15	10	11.106	0.056	5.7	0.0089	0.0000	OK
15 minute summer	14	10	10.970	0.070	11.7	0.0111	0.0000	OK
480 minute winter	SA D	472	10.672	-0.128	1.2	14.0539	0.0000	OK
15 minute summer	12	10	11.426	0.026	3.1	0.0000	0.0000	OK
15 minute summer	11	10	10.291	0.041	11.4	0.0065	0.0000	OK
15 minute summer	10	10	11.441	0.041	5.1	0.0000	0.0000	OK
15 minute summer	9	10	10.890	0.040	5.1	0.0064	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	23	5.000	22	2.8	0.536	0.158	0.0850
15 minute summer	22	5.001	20	6.0	1.007	0.316	0.0990
15 minute summer	21	6.000	20	5.7	1.001	0.297	0.0981
15 minute summer	20	5.002	SA B	11.7	2.431	0.195	0.0086
480 minute winter	SA B	Infiltration		0.0			
15 minute summer	18	8.000	17	2.8	0.924	0.158	0.0514
15 minute summer	17	8.001	14	2.8	0.584	0.061	0.0255
15 minute summer	16	7.000	15	5.7	1.068	0.220	0.0895
15 minute summer	15	7.001	14	5.7	0.814	0.281	0.0809
15 minute summer	14	7.002	SA D	11.7	1.529	0.383	0.0262
480 minute winter	SA D	Infiltration		0.0			
15 minute summer	12	4.000	11	3.1	1.063	0.066	0.0497
15 minute summer	11	3.002	SA C	11.4	3.121	0.136	0.0066
15 minute summer	10	3.000	9	5.1	1.337	0.157	0.0633
15 minute summer	9	3.001	11	5.1	1.329	0.150	0.0639

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Results for 10 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	SA C	900	9.469	-0.381	0.7	13.9776	0.0000	OK
15 minute summer	6	10	14.142	0.042	3.0	0.0008	0.0000	OK
15 minute summer	5	10	14.002	0.067	6.2	0.0106	0.0000	OK
15 minute summer	4	10	14.150	0.050	5.3	0.0009	0.0000	OK
15 minute summer	3	10	13.807	0.038	11.5	0.0060	0.0000	OK
960 minute winter	SA A	915	12.614	-0.436	0.7	14.3017	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
960 minute winter	SA C	Infiltration		0.0			
15 minute summer	6	1.000	5	3.0	0.525	0.170	0.0960
15 minute summer	5	1.001	3	6.2	1.138	0.348	0.0915
15 minute summer	4	2.000	3	5.3	1.246	0.211	0.0710
15 minute summer	3	1.002	SA A	11.5	3.523	0.119	0.0081
960 minute winter	SA A	Infiltration		0.0			

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Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	23	10	14.301	0.051	4.5	0.0000	0.0000	OK
15 minute summer	22	10	14.170	0.081	9.8	0.0129	0.0000	OK
15 minute summer	21	10	14.176	0.076	9.3	0.0000	0.0000	OK
720 minute winter	20	720	13.998	0.098	1.3	0.0156	0.0000	OK
720 minute winter	SA B	720	13.998	0.298	1.3	21.9112	0.0000	OK
15 minute summer	18	10	11.456	0.056	4.5	0.0000	0.0000	OK
15 minute summer	17	10	11.267	0.032	4.5	0.0051	0.0000	OK
15 minute summer	16	10	11.462	0.062	9.3	0.0000	0.0000	OK
15 minute summer	15	10	11.125	0.075	9.3	0.0120	0.0000	OK
720 minute winter	14	720	11.049	0.149	1.3	0.0237	0.0000	OK
720 minute winter	SA D	720	11.049	0.249	1.3	21.9313	0.0000	OK
15 minute summer	12	10	11.434	0.034	5.2	0.0000	0.0000	OK
15 minute summer	11	10	10.305	0.055	18.8	0.0087	0.0000	OK
15 minute summer	10	10	11.453	0.053	8.3	0.0000	0.0000	OK
15 minute summer	9	10	10.902	0.052	8.3	0.0082	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	23	5.000	22	4.5	0.600	0.254	0.1217
15 minute summer	22	5.001	20	9.8	1.127	0.517	0.1446
15 minute summer	21	6.000	20	9.3	1.122	0.485	0.1426
720 minute winter	20	5.002	SA B	1.3	1.342	0.022	0.0267
720 minute winter	SA B	Infiltration		0.1			
15 minute summer	18	8.000	17	4.5	1.058	0.255	0.0719
15 minute summer	17	8.001	14	4.5	0.631	0.098	0.0372
15 minute summer	16	7.000	15	9.3	1.195	0.359	0.1306
15 minute summer	15	7.001	14	9.3	0.896	0.459	0.1197
720 minute winter	14	7.002	SA D	1.3	0.845	0.043	0.0603
720 minute winter	SA D	Infiltration		0.1			
15 minute summer	12	4.000	11	5.2	1.211	0.111	0.0729
15 minute summer	11	3.002	SA C	18.8	3.529	0.224	0.0097
15 minute summer	10	3.000	9	8.3	1.529	0.255	0.0901
15 minute summer	9	3.001	11	8.3	1.489	0.245	0.0928

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Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	SA C	945	9.912	0.062	1.1	23.2479	0.0000	OK
15 minute summer	6	10	14.154	0.054	5.0	0.0010	0.0000	OK
15 minute summer	5	10	14.025	0.090	10.3	0.0142	0.0000	OK
15 minute summer	4	10	14.165	0.065	8.7	0.0012	0.0000	OK
15 minute summer	3	10	13.819	0.050	19.0	0.0079	0.0000	OK
960 minute winter	SA A	945	12.964	-0.086	1.1	22.4413	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
960 minute winter	SA C	Infiltration		0.1			
15 minute summer	6	1.000	5	5.0	0.601	0.283	0.1392
15 minute summer	5	1.001	3	10.3	1.287	0.580	0.1335
15 minute summer	4	2.000	3	8.7	1.405	0.346	0.1031
15 minute summer	3	1.002	SA A	19.0	4.009	0.197	0.0118
960 minute winter	SA A	Infiltration		0.1			

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Simulation Settings

Rainfall Methodology	FEH-22	Additional Area (A %)	0	Skip Steady State	x	Starting Level (m)	
Rainfall Events	Consecutive	Additional Flow (Q %)	0	Drain Down Time (mins)	240	Check Discharge Rate(s)	x
Winter CV	0.950	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0	Check Discharge Volume	x

Time Offset (mins)	Duration (mins)	Return Period (years)	Climate Change (CC %)	Time Offset (mins)	Duration (mins)	Return Period (years)	Climate Change (CC %)
0	960	100	45	1440	960	10	45

Node SA A Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Pit Width (m)	3.500	Inf Depth (m)	
Side Inf Coefficient (m/hr)	0.10600	Invert Level (m)	12.000	Pit Length (m)	7.000	Number Required	1
Safety Factor	10.0	Time to half empty (mins)	6274	Depth (m)	1.200		

Node SA B Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Pit Width (m)	3.500	Inf Depth (m)	
Side Inf Coefficient (m/hr)	0.10600	Invert Level (m)	12.900	Pit Length (m)	6.000	Number Required	1
Safety Factor	10.0	Time to half empty (mins)	5943	Depth (m)	1.200		

Node SA C Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Pit Width (m)	5.500	Inf Depth (m)	
Side Inf Coefficient (m/hr)	0.10600	Invert Level (m)	8.800	Pit Length (m)	4.000	Number Required	1
Safety Factor	10.0	Time to half empty (mins)	6226	Depth (m)	1.200		

Node SA D Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Pit Width (m)	5.500	Inf Depth (m)	
Side Inf Coefficient (m/hr)	0.10600	Invert Level (m)	10.000	Pit Length (m)	4.000	Number Required	1
Safety Factor	10.0	Time to half empty (mins)	6226	Depth (m)	1.200		

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Results for Consecutive Rainfall Critical Storm Duration. Lowest mass balance: 99.57%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960-960	23	405	14.261	0.011	0.2	0.0000	0.0000	OK
960-960	22	3285	14.228	0.139	0.5	0.0221	0.0000	OK
960-960	21	3285	14.228	0.128	0.5	0.0000	0.0000	OK
960-960	20	3285	14.228	0.328	1.0	0.0522	0.0000	SURCHARGED
960-960	SA B	3285	14.228	0.528	2.1	23.9500	0.0000	OK
960-960	18	405	11.412	0.012	0.2	0.0000	0.0000	OK
960-960	17	405	11.242	0.007	0.2	0.0012	0.0000	OK
960-960	16	480	11.415	0.015	0.5	0.0000	0.0000	OK
960-960	15	3285	11.193	0.143	0.5	0.0227	0.0000	OK
960-960	14	3285	11.193	0.293	1.0	0.0466	0.0000	SURCHARGED
960-960	SA D	3285	11.193	0.393	1.9	24.9328	0.0000	OK
960-960	12	480	11.409	0.009	0.3	0.0000	0.0000	OK
960-960	11	3180	10.294	0.044	1.0	0.0070	0.0000	OK
960-960	10	480	11.412	0.012	0.4	0.0000	0.0000	OK
960-960	9	435	10.862	0.012	0.4	0.0019	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
960-960	23	5.000	22	0.2	0.257	0.011	0.1379
960-960	22	5.001	20	0.5	0.511	0.026	0.2884
960-960	21	6.000	20	0.5	0.515	0.026	0.2887
960-960	20	5.002	SA B	2.1	1.245	0.036	0.0315
960-960	SA B	Infiltration		0.1			
960-960	18	8.000	17	0.2	0.420	0.011	0.0081
960-960	17	8.001	14	0.2	0.316	0.004	0.0454
960-960	16	7.000	15	0.5	0.528	0.019	0.1460
960-960	15	7.001	14	0.5	0.430	0.025	0.2017
960-960	14	7.002	SA D	1.9	0.782	0.062	0.0604
960-960	SA D	Infiltration		0.1			
960-960	12	4.000	11	0.3	0.579	0.006	0.0355
960-960	11	3.002	SA C	1.0	1.583	0.012	0.0199
960-960	10	3.000	9	0.4	0.634	0.012	0.0106
960-960	9	3.001	11	0.4	0.673	0.012	0.0375

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Results for Consecutive Rainfall Critical Storm Duration. Lowest mass balance: 99.57%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960-960	SA C	3180	10.294	0.444	1.0	25.0905	0.0000	OK
960-960	6	390	14.111	0.011	0.2	0.0002	0.0000	OK
960-960	5	480	13.954	0.019	0.5	0.0030	0.0000	OK
960-960	4	435	14.114	0.014	0.4	0.0003	0.0000	OK
960-960	3	480	13.780	0.011	0.9	0.0017	0.0000	OK
960-960	SA A	3255	13.108	0.058	0.9	25.7903	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
960-960	SA C	Infiltration		0.1			
960-960	6	1.000	5	0.2	0.241	0.011	0.0156
960-960	5	1.001	3	0.5	0.564	0.028	0.0151
960-960	4	2.000	3	0.4	0.609	0.016	0.0112
960-960	3	1.002	SA A	0.9	1.697	0.009	0.0080
960-960	SA A	Infiltration		0.1			

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Simulation Settings

Rainfall Methodology	FEH-22	Additional Area (A %)	0	Skip Steady State	x	Starting Level (m)	
Rainfall Events	Consecutive	Additional Flow (Q %)	0	Drain Down Time (mins)	240	Check Discharge Rate(s)	x
Winter CV	0.950	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0	Check Discharge Volume	x

Time Offset (mins)	Duration (mins)	Return Period (years)	Climate Change (CC %)	Time Offset (mins)	Duration (mins)	Return Period (years)	Climate Change (CC %)
0	720	100	45	1440	480	10	45

Node SA A Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Pit Width (m)	3.500	Inf Depth (m)	
Side Inf Coefficient (m/hr)	0.10600	Invert Level (m)	12.000	Pit Length (m)	7.000	Number Required	1
Safety Factor	10.0	Time to half empty (mins)	6274	Depth (m)	1.200		

Node SA B Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Pit Width (m)	3.500	Inf Depth (m)	
Side Inf Coefficient (m/hr)	0.10600	Invert Level (m)	12.900	Pit Length (m)	6.000	Number Required	1
Safety Factor	10.0	Time to half empty (mins)	5943	Depth (m)	1.200		

Node SA C Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Pit Width (m)	5.500	Inf Depth (m)	
Side Inf Coefficient (m/hr)	0.10600	Invert Level (m)	8.800	Pit Length (m)	4.000	Number Required	1
Safety Factor	10.0	Time to half empty (mins)	6226	Depth (m)	1.200		

Node SA D Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Pit Width (m)	5.500	Inf Depth (m)	
Side Inf Coefficient (m/hr)	0.10600	Invert Level (m)	10.000	Pit Length (m)	4.000	Number Required	1
Safety Factor	10.0	Time to half empty (mins)	6226	Depth (m)	1.200		

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Results for Consecutive Rainfall Critical Storm Duration. Lowest mass balance: 98.10%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720-480	23	2625	14.461	0.211	0.3	0.0000	0.0000	SURCHARGED
720-480	22	2625	14.461	0.372	0.6	0.0591	0.0000	SURCHARGED
720-480	21	2625	14.460	0.360	0.6	0.0000	0.0000	SURCHARGED
720-480	20	2625	14.460	0.560	1.2	0.0891	0.0000	SURCHARGED
720-480	SA B	2625	14.461	0.761	2.9	23.9500	0.0000	OK
720-480	18	345	11.415	0.015	0.3	0.0000	0.0000	OK
720-480	17	2625	11.405	0.170	0.3	0.0270	0.0000	SURCHARGED
720-480	16	360	11.416	0.016	0.6	0.0000	0.0000	OK
720-480	15	2625	11.405	0.355	0.6	0.0564	0.0000	SURCHARGED
720-480	14	2625	11.405	0.505	1.2	0.0803	0.0000	SURCHARGED
720-480	SA D	2625	11.405	0.605	1.8	25.0905	0.0000	OK
720-480	12	330	11.409	0.009	0.3	0.0000	0.0000	OK
720-480	11	2625	10.799	0.549	1.1	0.0872	0.0000	FLOOD RISK
720-480	10	345	11.413	0.013	0.5	0.0000	0.0000	OK
720-480	9	345	10.863	0.013	0.5	0.0021	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
720-480	23	5.000	22	0.3	0.300	0.017	0.2849
720-480	22	5.001	20	0.6	0.551	0.032	0.2931
720-480	21	6.000	20	0.6	0.544	0.031	0.3023
720-480	20	5.002	SA B	2.9	1.311	0.049	0.0315
720-480	SA B	Infiltration		0.1			
720-480	18	8.000	17	0.3	0.473	0.017	0.1478
720-480	17	8.001	14	0.3	0.349	0.007	0.0897
720-480	16	7.000	15	0.6	0.559	0.023	0.1499
720-480	15	7.001	14	0.6	0.454	0.030	0.2034
720-480	14	7.002	SA D	1.8	0.825	0.058	0.0604
720-480	SA D	Infiltration		0.1			
720-480	12	4.000	11	0.3	0.593	0.006	0.1481
720-480	11	3.002	SA C	1.1	1.630	0.013	0.0320
720-480	10	3.000	9	0.5	0.677	0.015	0.0123
720-480	9	3.001	11	0.5	0.703	0.015	0.1485

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Results for Consecutive Rainfall Critical Storm Duration. Lowest mass balance: 98.10%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720-480	SA C	2625	10.799	0.949	1.1	25.0905	0.0000	OK
720-480	6	330	14.114	0.014	0.3	0.0002	0.0000	OK
720-480	5	330	13.956	0.021	0.6	0.0033	0.0000	OK
720-480	4	375	14.117	0.017	0.6	0.0003	0.0000	OK
720-480	3	375	13.781	0.012	1.2	0.0019	0.0000	OK
720-480	SA A	2625	13.191	0.141	1.2	27.7126	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
720-480	SA C	Infiltration		0.1			
720-480	6	1.000	5	0.3	0.273	0.017	0.0186
720-480	5	1.001	3	0.6	0.595	0.034	0.0175
720-480	4	2.000	3	0.6	0.689	0.024	0.0146
720-480	3	1.002	SA A	1.2	1.853	0.012	0.0215
720-480	SA A	Infiltration		0.1			

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Soakage Test Pit Data — Test 1

Date: 02-Jun-23
Weather Dry
Method Measurement taken from time (min) = 0 when level at 75% of full (150cm for large pits)

SOAKAGE Test PIT INFILTRATION TEST RESULTS													
	water level measurement N °:	Full	1	2	3	4	5	6	7	8	9	10	
Soakage Location 1: TOP (80cm x 100cm x 200cm)	time *[min]* =	- 52	0	10	20	30	40	50	60	70	80		ST1, test 1: 2.95E-5 m/s
	depth to water *[m]* =	0.00	0.80	0.86	0.96	1.10	1.18	1.26	1.34	1.40	1.48		
Soakage Location 2: MIDDLE (80cm x 100cm x 200cm)	time *[min]* =	-38	0	10	20	30	40	50	60	70	80		ST2, test 1: 4.96E-5 m/s
	depth to water *[m]* =	0.00	0.90	1.00	1.18	1.30	1.45	1.57	1.71				
Soakage Location 3: LOWER (80cm x 100cm x 200cm)	time *[min]* =	-34	0	10	20	30	40	50	60	70	80		ST3, test 1: 4.73E-5 m/s
	depth to water *[m]* =	0.00	0.64	0.82	1.01	1.16	1.32	1.42	1.54				
Soakage Location SHALLOW (80cm x 100cm x 60cm)	time *[min]* =	0	0	10	20	30	40	50	60	70	80		Shallow, test 1: 4.73E-5 m/s
	depth to water *[m]* =	0.00	0.20	0.24	0.30	0.38	0.45						
								x.xx	25% reached				

Soakage Test Pit Data — Test 2

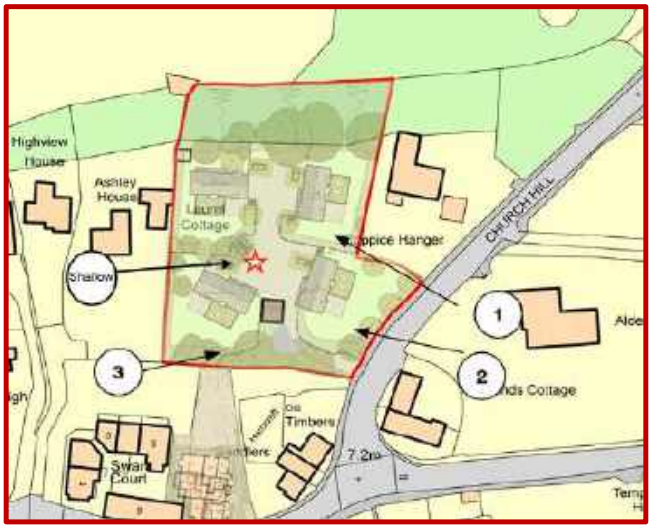
Date: 02-Jun-23
Weather Dry
Method Measurement taken from time (min) = 0 when level at 75% of full (150cm for large pits)

SOAKAGE Test PIT INFILTRATION TEST RESULTS													
	water level measurement N °:	Full	1	2	3	4	5	6	7	8	9	10	
Soakage Location 1: TOP (80cm x 100cm x 200cm)	time *[min]* =	- 52	0	10	20	30	40	50	60	70	80		ST1, test 2: 3.12E-5 m/s
	depth to water *[m]* =		0.81	0.87	0.94	1.11	1.19	1.27	1.31	1.47			
Soakage Location 2: MIDDLE (80cm x 100cm x 200cm)	time *[min]* =	-38	0	10	20	30	40	50	60	70	80		ST2, test 2: 5.19E-5 m/s
	depth to water *[m]* =	0.00	0.93	1.03	1.20	1.34	1.49	1.62	1.74				
Soakage Location 3: LOWER (80cm x 100cm x 200cm)	time *[min]* =	-34	0	10	20	30	40	50	60	70	80		ST3, test 2: 5.08E-5 m/s
	depth to water *[m]* =	0.00	0.67	0.86	0.99	1.22	1.39	1.49					
Soakage Location SHALLOW (80cm x 100cm x 60cm)	time *[min]* =	0	0	10	20	30	40	50	60	70	80		Shallow, test 2: 5.07E-5 m/s
	depth to water *[m]* =	0.00	0.21	0.25	0.29	0.40	0.48						
								x.xx	25% reached				

Soakage Test Pit Data — Test 3

Date: 03-Jun-23
Weather Dry, Cloudy
Method Measurement taken from time (min) = 0 when level at 75% of full (150cm for large pits)

SOAKAGE Test PIT INFILTRATION TEST RESULTS													
	water level measurement N °:	Full	1	2	3	4	5	6	7	8	9	10	
Soakage Location 1: TOP (80cm x 100cm x 200cm)	time *[min]* =	- 52	0	10	20	30	40	50	60	70	80		ST1, test 2: 3.45E-5 m/s
	depth to water *[m]* =		0.83	0.89	0.93	1.14	1.23	1.31	1.30	1.58			
Soakage Location 2: MIDDLE (80cm x 100cm x 200cm)	time *[min]* =	-38	0	10	20	30	40	50	60	70	80		ST2, test 2: 6.43E-5 m/s
	depth to water *[m]* =	0.96	1.07	1.22	1.39	1.55	1.68	1.76	0.00				
Soakage Location 3: LOWER (80cm x 100cm x 200cm)	time *[min]* =	-34	0	10	20	30	40	50	60	70	80		ST3, test 2: 5.49E-5 m/s
	depth to water *[m]* =	0.00	0.70	0.90	0.98	1.27	1.44	1.55	0.00	0.00			
Soakage Location SHALLOW (80cm x 100cm x 60cm)	time *[min]* =	0	0	10	20	30	40	50	60	70	80		Shallow, test 3: 5.30E-5 m/s
	depth to water *[m]* =	0.00	0.22	0.27	0.29	0.42	0.50	0.00					
								x.xx	25% reached				



Test Pit Location 1



Test Pit Location 2



Test Pit Location 3



Test Pit Location SHALLOW



Calculations by: BB
Checked by: MN
Date: 25/10/2024

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

Project:
MC0259 PPP Pulborough

Site Location	Station Road and Church Hill, Pullborou
Pit/Borehole	ST1
Date of test	02.06.2023
Contractor Test	Test 1

Legend: input / calculation / output / explanatory

What type of test is this	Trial pit
How was water depth measured?	Depth from Top of Pit to Water Level (m)
Is time in seconds or min	minutes
pit length (m)	1.000
pit width (m)	0.800
pit depth (m)	2.000
max water level (m)	2.000
25% Max Water Level (m)	0.500
75% Max Water Level (m)	1.500
25% reached?	NO

*If 25% was reached, the test is as per BRE365 procedure. Otherwise, the last entry in the table to the right is a linear extrapolation based on the last 2 readings. The test was terminated **only 2cm** before it reaching 25%.*

Lower limit for measurement	25%	*The standard is to use 25%*
Upper limit for measurement	75%	*The standard is to use 75%*

base (m2)	0.800	
sides (m2)	2.000	*Up to 50% of effective depth*
ends (m2)	1.600	*Up to 50% of effective depth*
a_{p50} (m2)	4.400	*Up to 50% of effective depth*
V_{p75} (m3)	1.200	*The volume at 75% effective depth*
V_{p25} (m3)	0.400	*The volume at 25% effective depth*
V_{p75-25} (m3)	0.800	*Difference in volume*

Time (min)	Depth from Top of Pit to Water Level (m)	Water Level from bottom (m)	Volume
0.0	0.000	2.000	1.600
52.0	0.800	1.200	0.960
62.0	0.860	1.140	0.912
72.0	0.960	1.040	0.832
82.0	1.100	0.900	0.720
92.0	1.180	0.820	0.656
102.0	1.260	0.740	0.592
112.0	1.340	0.660	0.528
122.0	1.400	0.600	0.480
132.0	1.480	0.520	0.416
135.3	1.500	0.500	0.400
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END	END	END	END

Interpolation between	t_{p75}	V_{p75}	
lower	0	1.600	*The reading just before Vp75*
upper	52	0.960	*The reading just after Vp75*
Interpolation between	**t_{p25}**	**V_{p25}**	
lower	132	0.416	*The reading just before Vp25*
upper	135	0.400	*The reading just after Vp25*

t_{p75}(mins)	32.5	*The time reading corresponding to Vp75*
t_{p25}(mins)	135.3	*The time reading corresponding to Vp25*
t_{p75-25}(mins)	102.8	*The time between Vp75 and Vp25*

Soil Infiltration Rate	
m/s	m/h
2.95E-05	*0.106085*

The test failed to reach 25% total depth. The above infiltration rate is not compliant with BRE365. It is based on linear extrapolation of the last reading during the test.

effective area of infiltration	volume between 75% and 25% effective depth	time for water to fall from 75% to 25% effective depth (sec)
ap50	**Vp75-25**	**tp75-25**
4.400 sq m	0.800 cub m	6170 s

Calculations by: BB
Checked by: MN
Date: 25/10/2024

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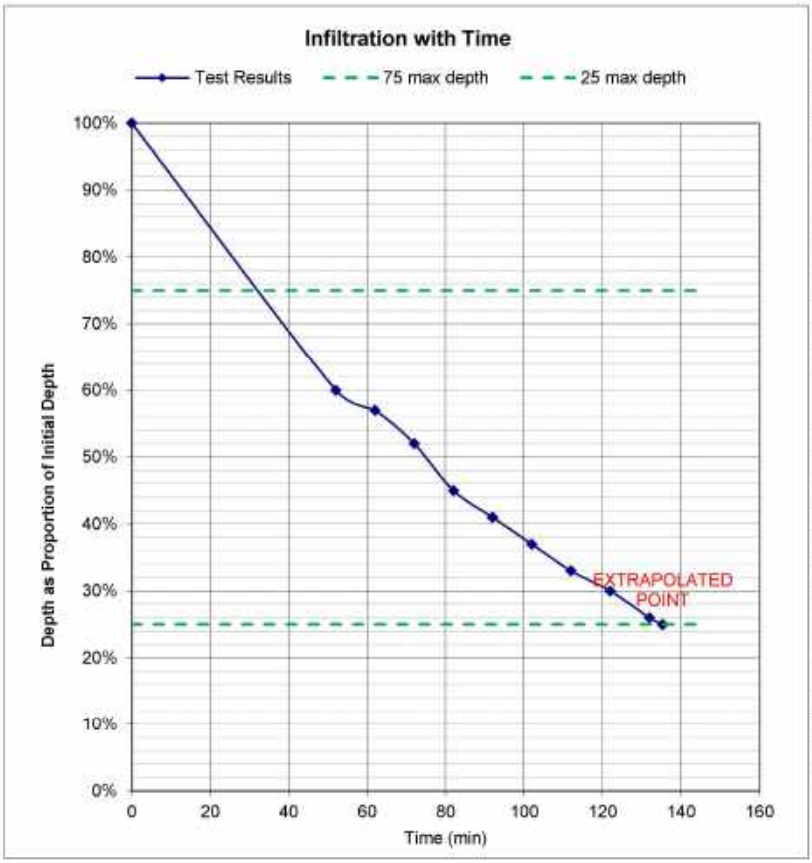
Project:
MC0259 PPP Pulborough



time (min)	Proportion infiltrated	Extrapolation
0	100%	
52	60%	
62	57%	
72	52%	
82	45%	
92	41%	
102	37%	
112	33%	
122	30%	
132	26%	
135	25%	EXTRAPOLATED POINT
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
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#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	

75% line (of max water depth)

min	proportion
0	0.750
145.3347619	0.750

25% line (of max water depth)

min	proportion
0	0.250
145.3348	0.250

Calculations by: BB
Checked by: MN
Date: 25/10/2024

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

Project:
MC0259 PPP Pulborough

Site Location	Station Road and Church Hill, Pullborou
Pit/Borehole	ST1
Date of test	02.06.2023
Contractor Test	Test 2

Legend: input / calculation / output / explanatory

What type of test is this	Trial pit
How was water depth measured?	Depth from Top of Pit to Water Level (m)
Is time in seconds or min	minutes
pit length (m)	1.000
pit width (m)	0.800
pit depth (m)	2.000
max water level (m)	2.000
25% Max Water Level (m)	0.500
75% Max Water Level (m)	1.500
25% reached?	NO

*If 25% was reached, the test is as per BRE365 procedure. Otherwise, the last entry in the table to the right is a linear extrapolation based on the last 2 readings. The test was terminated **only 2cm** before it reaching 25%.*

Lower limit for measurement	25%	*The standard is to use 25%*
Upper limit for measurement	75%	*The standard is to use 75%*

base (m2)	0.800	
sides (m2)	2.000	*Up to 50% of effective depth*
ends (m2)	1.600	*Up to 50% of effective depth*
a_{p50} (m2)	4.400	*Up to 50% of effective depth*
V_{p75} (m3)	1.200	*The volume at 75% effective depth*
V_{p25} (m3)	0.400	*The volume at 25% effective depth*
V_{p75-25} (m3)	0.800	*Difference in volume*

Time (min)	Depth from Top of Pit to Water Level (m)	Water Level from bottom (m)	Volume
0.0	0.000	2.000	1.600
52.0	0.810	1.190	0.952
62.0	0.870	1.130	0.904
72.0	0.940	1.060	0.848
82.0	1.110	0.890	0.712
92.0	1.190	0.810	0.648
102.0	1.270	0.730	0.584
112.0	1.310	0.690	0.552
122.0	1.470	0.530	0.424
129.4	1.500	0.500	0.400
			END
			END
			END

Calculations by: BB
Checked by: MN
Date: 25/10/2024

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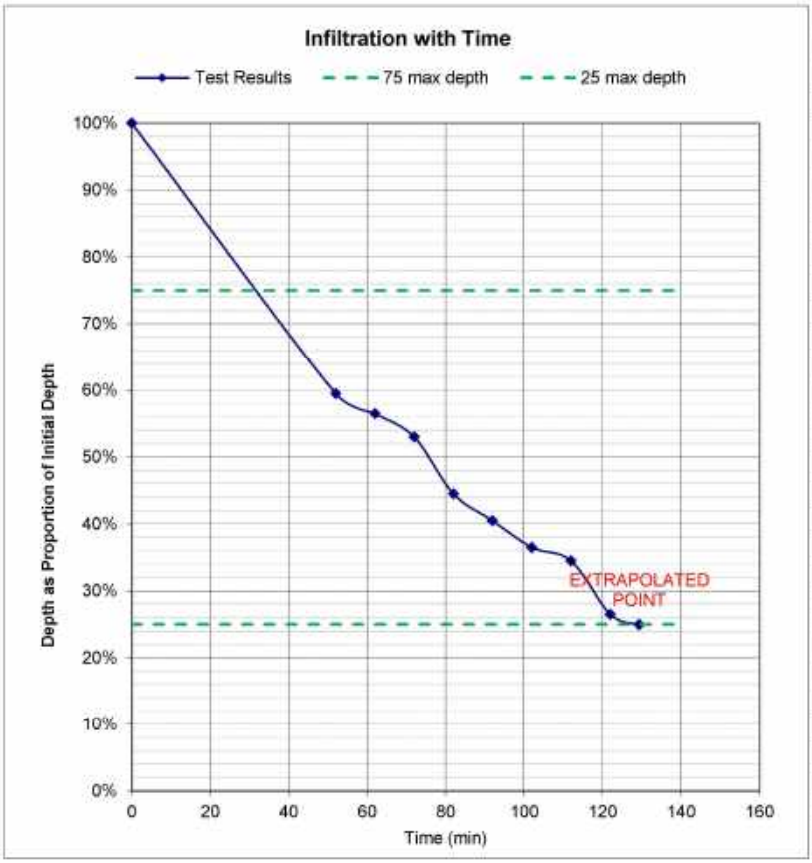
Project:
MC0259 PPP Pulborough



time (min)	Proportion infiltrated	Extrapolation
0	100%	
52	60%	
62	57%	
72	53%	
82	45%	
92	41%	
102	37%	
112	35%	
122	27%	
129	25%	EXTRAPOLATED POINT
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
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#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	

75% line (of max water depth)

min	proportion
0	0.750
139.3821429	0.750

25% line (of max water depth)

min	proportion
0	0.250
139.3821	0.250

Calculations by: BB
Checked by: MN
Date: 25/10/2024

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

Project:
MC0259 PPP Pulborough

Site Location	Station Road and Church Hill, Pullborou
Pit/Borehole	ST1
Date of test	02.06.2023
Contractor Test	Test 3

Legend: input / calculation / output / explanatory

What type of test is this	Trial pit
How was water depth measured?	Depth from Top of Pit to Water Level (m)
Is time in seconds or min	minutes
pit length (m)	1.000
pit width (m)	0.800
pit depth (m)	2.000
max water level (m)	2.000
25% Max Water Level (m)	0.500
75% Max Water Level (m)	1.500
25% reached?	YES

*If 25% was reached, the test is as per BRE365 procedure. Otherwise, the last entry in the table to the right is a linear extrapolation based on the last 2 readings. The test was terminated **only 2cm** before it reaching 25%.*

Lower limit for measurement	25%	*The standard is to use 25%*
Upper limit for measurement	75%	*The standard is to use 75%*

base (m2)	0.800	
sides (m2)	2.000	*Up to 50% of effective depth*
ends (m2)	1.600	*Up to 50% of effective depth*
a_{p50} (m2)	4.400	*Up to 50% of effective depth*
V_{p75} (m3)	1.200	*The volume at 75% effective depth*
V_{p25} (m3)	0.400	*The volume at 25% effective depth*
V_{p75-25} (m3)	0.800	*Difference in volume*

Time (min)	Depth from Top of Pit to Water Level (m)	Water Level from bottom (m)	Volume
0.0	0.000	2.000	1.600
52.0	0.830	1.170	0.936
62.0	0.890	1.110	0.888
72.0	0.930	1.070	0.856
82.0	1.140	0.860	0.688
92.0	1.230	0.770	0.616
102.0	1.310	0.690	0.552
112.0	1.300	0.700	0.560
122.0	1.580	0.420	0.336
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Interpolation between	t_{p75}	V_{p75}	
lower	0	1.600	*The reading just before Vp75*
upper	52	0.936	*The reading just after Vp75*
Interpolation between	**t_{p25}**	**V_{p25}**	
lower	112	0.560	*The reading just before Vp25*
upper	122	0.336	*The reading just after Vp25*

t_{p75}(mins)	31.3	*The time reading corresponding to Vp75*
t_{p25}(mins)	119.1	*The time reading corresponding to Vp25*
t_{p75-25}(mins)	87.8	*The time between Vp75 and Vp25*

Soil Infiltration Rate	
m/s	m/h
3.45E-05	*0.124224*

effective area of infiltration	volume between 75% and 25% effective depth	time for water to fall from 75% to 25% effective depth (sec)
ap50	**Vp75-25**	**tp75-25**
4.400 sq m	0.800 cub m	5269 s

Calculations by: BB
Checked by: MN
Date: 25/10/2024

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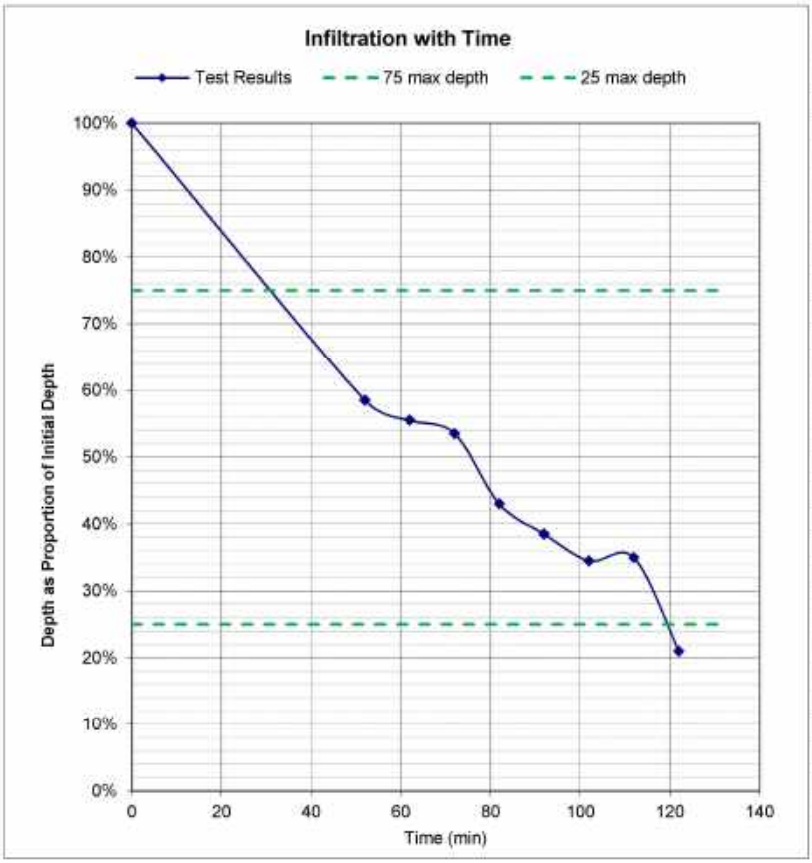
Project:
MC0259 PPP Pulborough



time (min)	Proportion infiltrated
0	100%
52	59%
62	56%
72	54%
82	43%
92	39%
102	35%
112	35%
122	21%
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
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#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A

75% line (of max water depth)

min	proportion
0	0.750
132	0.750

25% line (of max water depth)

min	proportion
0	0.250
132	0.250

Calculations by: BB
Checked by: MN
Date: 25/10/2024

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

Project:
MC0259 PPP Pulborough

Site Location	Station Road and Church Hill, Pullborou
Pit/Borehole	ST2
Date of test	02.06.2023
Contractor Test	Test 1

Legend: input | calculation | output | explanatory

What type of test is this	Trial pit
How was water depth measured?	Depth from Top of Pit to Water Level (m)
Is time in seconds or min	minutes
pit length (m)	1.000
pit width (m)	0.800
pit depth (m)	2.000
max water level (m)	2.000
25% Max Water Level (m)	0.500
75% Max Water Level (m)	1.500
25% reached?	YES

If 25% was reached, the test is as per BRE365 procedure. Otherwise, the last entry in the table to the right is a linear extrapolation based on the last 2 readings.

Time (min)	Depth from Top of Pit to Water Level (m)	Water Level from bottom (m)	Volume
0.0	0.000	2.000	1.600
38.0	0.900	1.100	0.880
48.0	1.000	1.000	0.800
58.0	1.180	0.820	0.656
68.0	1.300	0.700	0.560
78.0	1.450	0.550	0.440
88.0	1.570	0.430	0.344
98.0	1.710	0.290	0.232
			END
			END
			END

Calculations by: BB
Checked by: MN
Date: 25/10/2024

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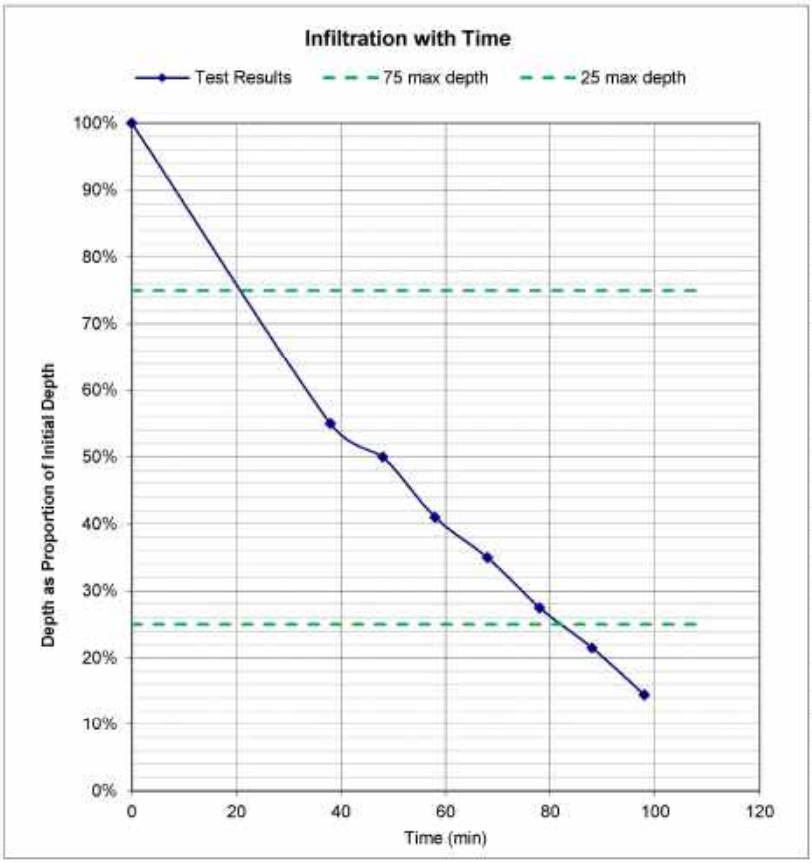
Project:
MC0259 PPP Pulborough



time (min)	Proportion infiltrated
0	100%
38	55%
48	50%
58	41%
68	35%
78	28%
88	22%
98	15%
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
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#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A

75% line (of max water depth)

min	proportion
0	0.750
108	0.750

25% line (of max water depth)

min	proportion
0	0.250
108	0.250

Calculations by: BB
Checked by: MN
Date: 25/10/2024

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

Project:
MC0259 PPP Pulborough

Site Location	Station Road and Church Hill, Pullborou
Pit/Borehole	ST2
Date of test	02.06.2023
Contractor Test	Test 2

Legend: input | calculation | output | explanatory

What type of test is this	Trial pit
How was water depth measured?	Depth from Top of Pit to Water Level (m)
Is time in seconds or min	minutes
pit length (m)	1.000
pit width (m)	0.800
pit depth (m)	2.000
max water level (m)	2.000
25% Max Water Level (m)	0.500
75% Max Water Level (m)	1.500
25% reached?	YES

If 25% was reached, the test is as per BRE365 procedure. Otherwise, the last entry in the table to the right is a linear extrapolation based on the last 2 readings.

Time (min)	Depth from Top of Pit to Water Level (m)	Water Level from bottom (m)	Volume
0.0	0.000	2.000	1.600
38.0	0.930	1.070	0.856
48.0	1.030	0.970	0.776
58.0	1.200	0.800	0.640
68.0	1.340	0.660	0.528
78.0	1.490	0.510	0.408
88.0	1.620	0.380	0.304
98.0	1.740	0.260	0.208
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END	END	END	END

Lower limit for measurement 25% *The standard is to use 25%*
Upper limit for measurement 75% *The standard is to use 75%*

base (m2)	0.800	
sides (m2)	2.000	*Up to 50% of effective depth*
ends (m2)	1.600	*Up to 50% of effective depth*
a_{p50} (m2)	4.400	*Up to 50% of effective depth*
V_{p75} (m3)	1.200	*The volume at 75% effective depth*
V_{p25} (m3)	0.400	*The volume at 25% effective depth*
V_{p75-25} (m3)	0.800	*Difference in volume*

Interpolation between	t_{p75}	V_{p75}	
lower	0	1.600	*The reading just before Vp75*
upper	38	0.856	*The reading just after Vp75*
Interpolation between	**t_{p25}**	**V_{p25}**	
lower	78	0.408	*The reading just before Vp25*
upper	88	0.304	*The reading just after Vp25*

t_{p75}(mins)	20.4	*The time reading corresponding to Vp75*
t_{p25}(mins)	78.8	*The time reading corresponding to Vp25*
t_{p75-25}(mins)	58.3	*The time between Vp75 and Vp25*

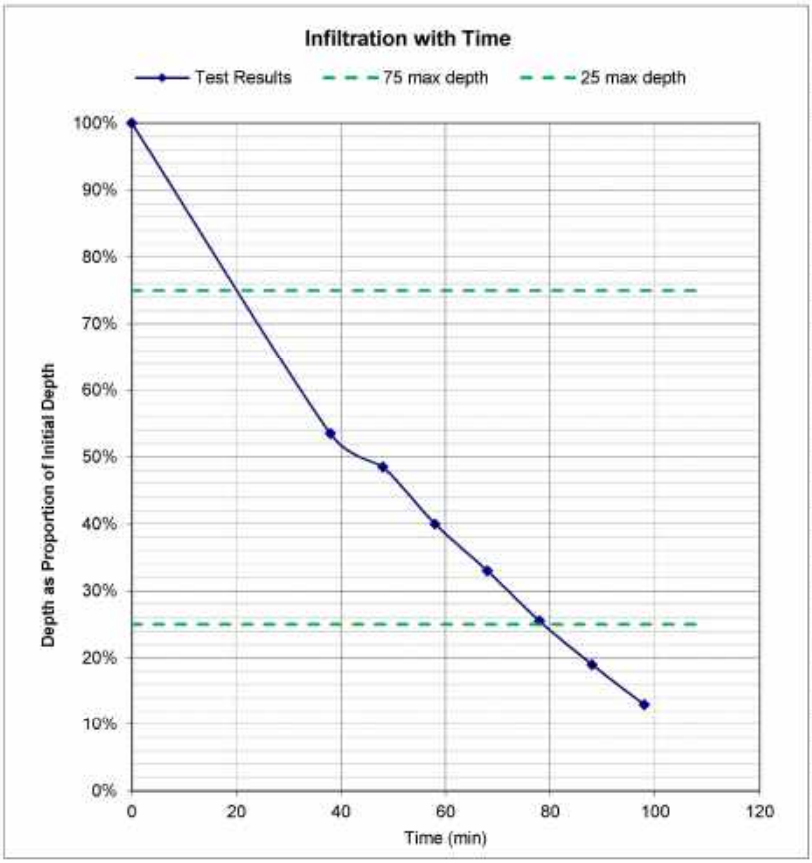
Soil Infiltration Rate	
m/s	m/h
5.19E-05	*0.186994*

effective area of infiltration	volume between 75% and 25% effective depth	time for water to fall from 75% to 25% effective depth (sec)
ap50	**Vp75-25**	**tp75-25**
4.400 sq m	0.800 cub m	3500 s

Calculations by: BB
Checked by: MN
Date: 25/10/2024

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

Project:
MC0259 PPP Pulborough



time (min)	Proportion infiltrated
0	100%
38	54%
48	49%
58	40%
68	33%
78	26%
88	19%
98	13%
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
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#N/A	#N/A
#N/A	#N/A

75% line (of max water depth)

min	proportion
0	0.750
108	0.750

25% line (of max water depth)

min	proportion
0	0.250
108	0.250

Calculations by: BB
Checked by: MN
Date: 25/10/2024

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

Project:
MC0259 PPP Pulborough

Site Location	Station Road and Church Hill, Pullborou
Pit/Borehole	ST2
Date of test	02.06.2023
Contractor Test	Test 3

Legend: input | calculation | output | explanatory

What type of test is this	Trial pit
How was water depth measured?	Depth from Top of Pit to Water Level (m)
Is time in seconds or min	minutes
pit length (m)	1.000
pit width (m)	0.800
pit depth (m)	2.000
max water level (m)	2.000
25% Max Water Level (m)	0.500
75% Max Water Level (m)	1.500
25% reached?	YES

If 25% was reached, the test is as per BRE365 procedure. Otherwise, the last entry in the table to the right is a linear extrapolation based on the last 2 readings.

Time (min)	Depth from Top of Pit to Water Level (m)	Water Level from bottom (m)	Volume
0.0	0.000	2.000	1.600
38.0	1.070	0.930	0.744
48.0	1.220	0.780	0.624
58.0	1.390	0.610	0.488
68.0	1.550	0.450	0.360
78.0	1.680	0.320	0.256
88.0	1.760	0.240	0.192
98.0	2.000	0.000	0.000
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END	END	END	END

Lower limit for measurement 25% *The standard is to use 25%*
Upper limit for measurement 75% *The standard is to use 75%*

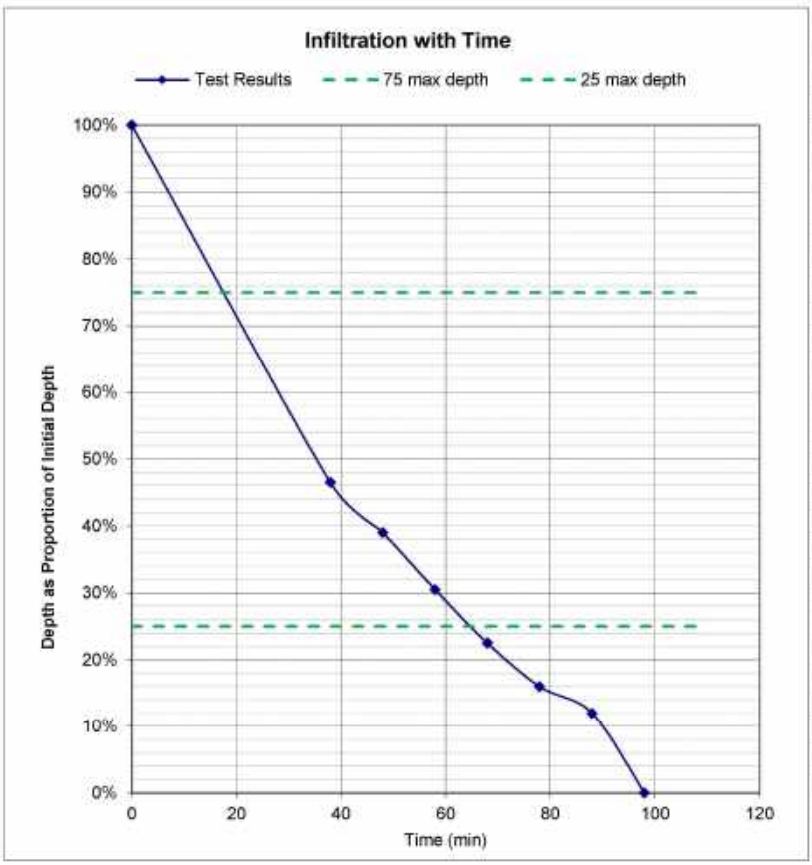
base (m2)	0.800	
sides (m2)	2.000	*Up to 50% of effective depth*
ends (m2)	1.600	*Up to 50% of effective depth*
a_{p50} (m2)	4.400	*Up to 50% of effective depth*
V_{p75} (m3)	1.200	*The volume at 75% effective depth*
V_{p25} (m3)	0.400	*The volume at 25% effective depth*
V_{p75-25} (m3)	0.800	*Difference in volume*

Interpolation between	t_{p75}	V_{p75}	
lower	0	1.600	*The reading just before Vp75*
upper	38	0.744	*The reading just after Vp75*
Interpolation between	**t_{p25}**	**V_{p25}**	
lower	58	0.488	*The reading just before Vp25*
upper	68	0.360	*The reading just after Vp25*

t_{p75}(mins)	17.8	*The time reading corresponding to Vp75*
t_{p25}(mins)	64.9	*The time reading corresponding to Vp25*
t_{p75-25}(mins)	47.1	*The time between Vp75 and Vp25*

Soil Infiltration Rate	
m/s	m/h
6.43E-05	*0.231527*

effective area of infiltration	volume between 75% and 25% effective depth	time for water to fall from 75% to 25% effective depth (sec)
ap50	**Vp75-25**	**tp75-25**
4.400 sq m	0.800 cub m	2827 s



time (min)	Proportion infiltrated
0	100%
38	47%
48	39%
58	31%
68	23%
78	16%
88	12%
98	0%
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#N/A	#N/A

75% line (of max water depth)

min	proportion
0	0.750
108	0.750

25% line (of max water depth)

min	proportion
0	0.250
108	0.250

Calculations by: BB
Checked by: MN
Date: 25/10/2024

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

Project:
MC0259 PPP Pulborough

Site Location	Station Road and Church Hill, Pullborou
Pit/Borehole	ST3
Date of test	03.06.2023
Contractor Test	Test 1

Legend: input | calculation | output | explanatory

What type of test is this	Trial pit
How was water depth measured?	Depth from Top of Pit to Water Level (m)
Is time in seconds or min	minutes
pit length (m)	1.000
pit width (m)	0.800
pit depth (m)	2.000
max water level (m)	2.000
25% Max Water Level (m)	0.500
75% Max Water Level (m)	1.500
25% reached?	YES

If 25% was reached, the test is as per BRE365 procedure. Otherwise, the last entry in the table to the right is a linear extrapolation based on the last 2 readings.

Time (min)	Depth from Top of Pit to Water Level (m)	Water Level from bottom (m)	Volume
0.0	0.000	2.000	1.600
34.0	0.640	1.360	1.088
44.0	0.820	1.180	0.944
54.0	1.010	0.990	0.792
64.0	1.160	0.840	0.672
74.0	1.320	0.680	0.544
84.0	1.420	0.580	0.464
94.0	1.540	0.460	0.368
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END	END	END	END

Lower limit for measurement 25% *The standard is to use 25%*
Upper limit for measurement 75% *The standard is to use 75%*

base (m2)	0.800	
sides (m2)	2.000	*Up to 50% of effective depth*
ends (m2)	1.600	*Up to 50% of effective depth*
a_{p50} (m2)	4.400	*Up to 50% of effective depth*
V_{p75} (m3)	1.200	*The volume at 75% effective depth*
V_{p25} (m3)	0.400	*The volume at 25% effective depth*
V_{p75-25} (m3)	0.800	*Difference in volume*

Interpolation between	t_{p75}	V_{p75}	
lower	0	1.600	*The reading just before Vp75*
upper	34	1.088	*The reading just after Vp75*
Interpolation between	**t_{p25}**	**V_{p25}**	
lower	84	0.464	*The reading just before Vp25*
upper	94	0.368	*The reading just after Vp25*

t_{p75}(mins)	26.6	*The time reading corresponding to Vp75*
t_{p25}(mins)	90.7	*The time reading corresponding to Vp25*
t_{p75-25}(mins)	64.1	*The time between Vp75 and Vp25*

Soil Infiltration Rate	
m/s	m/h
4.73E-05	*0.170178*

effective area of infiltration	volume between 75% and 25% effective depth	time for water to fall from 75% to 25% effective depth (sec)
ap50	**Vp75-25**	**tp75-25**
4.400 sq m	0.800 cub m	3846 s

Calculations by: BB
Checked by: MN
Date: 25/10/2024

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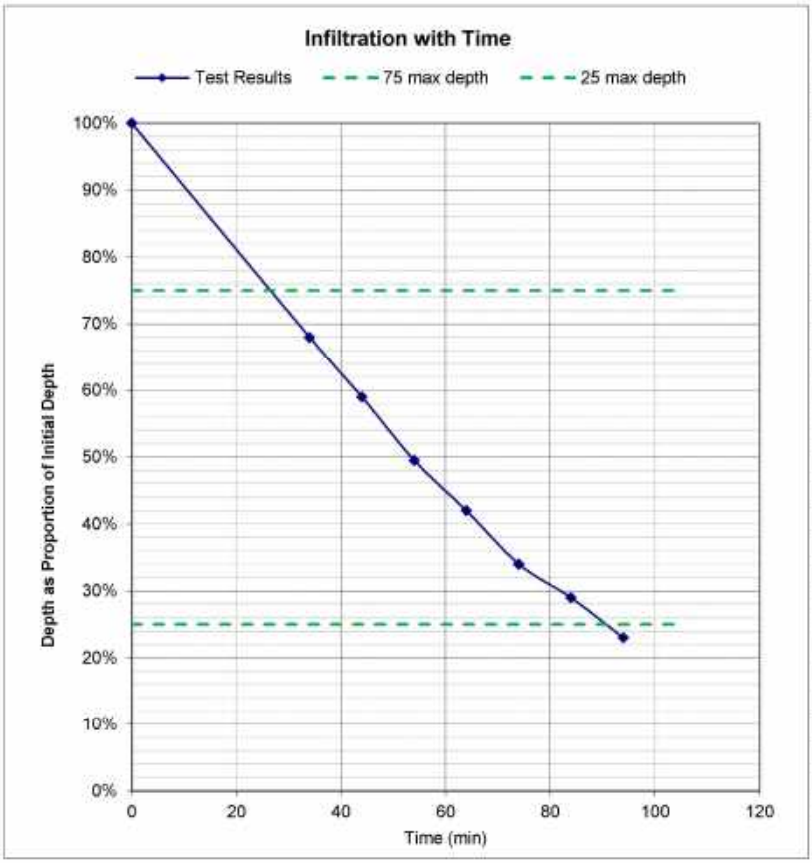
CIVIL ENGINEERING CONSULTANCY

Project:
MC0259 PPP Pulborough



time (min)	Proportion infiltrated
0	100%
34	68%
44	59%
54	50%
64	42%
74	34%
84	29%
94	23%
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
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#N/A	#N/A
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#N/A	#N/A
#N/A	#N/A

75% line (of max water depth)

min	proportion
0	0.750
104	0.750

25% line (of max water depth)

min	proportion
0	0.250
104	0.250

Calculations by: BB
Checked by: MN
Date: 25/10/2024

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

Project:
MC0259 PPP Pulborough

Site Location	Station Road and Church Hill, Pullborou
Pit/Borehole	ST3
Date of test	03.06.2023
Contractor Test	Test 2

Legend: input | calculation | output | explanatory

What type of test is this	Trial pit
How was water depth measured?	Depth from Top of Pit to Water Level (m)
Is time in seconds or min	minutes
pit length (m)	1.000
pit width (m)	0.800
pit depth (m)	2.000
max water level (m)	2.000
25% Max Water Level (m)	0.500
75% Max Water Level (m)	1.500
25% reached?	NO

If 25% was reached, the test is as per BRE365 procedure. Otherwise, the last entry in the table to the right is a linear extrapolation based on the last 2 readings.

Lower limit for measurement	25%	*The standard is to use 25%*
Upper limit for measurement	75%	*The standard is to use 75%*

base (m2)	0.800	
sides (m2)	2.000	*Up to 50% of effective depth*
ends (m2)	1.600	*Up to 50% of effective depth*
a_{p50} (m2)	4.400	*Up to 50% of effective depth*
V_{p75} (m3)	1.200	*The volume at 75% effective depth*
V_{p25} (m3)	0.400	*The volume at 25% effective depth*
V_{p75-25} (m3)	0.800	*Difference in volume*

Time (min)	Depth from Top of Pit to Water Level (m)	Water Level from bottom (m)	Volume
0.0	0.000	2.000	1.600
34.0	0.670	1.330	1.064
44.0	0.860	1.140	0.912
54.0	0.990	1.010	0.808
64.0	1.220	0.780	0.624
74.0	1.390	0.610	0.488
84.0	1.490	0.510	0.408
85.0	1.500	0.500	0.400
			END
			END
			END

Calculations by: BB
Checked by: MN
Date: 25/10/2024

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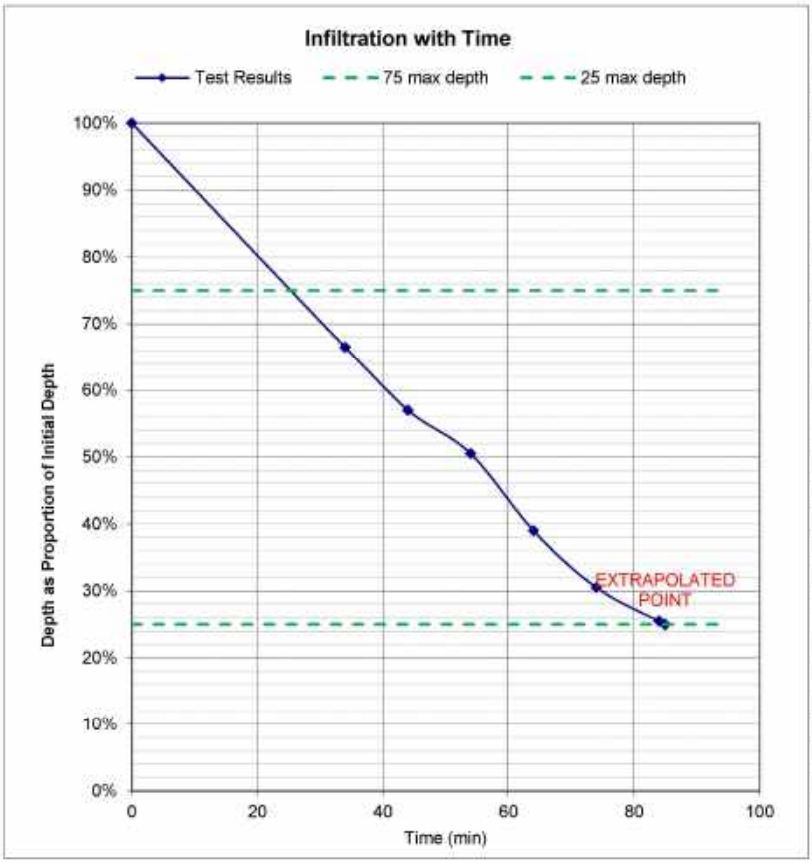
Project:
MC0259 PPP Pulborough



time (min)	Proportion infiltrated	Extrapolation
0	100%	
34	67%	
44	57%	
54	51%	
64	39%	
74	31%	
84	26%	
85	25%	EXTRAPOLATED POINT
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
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#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	

75% line (of max water depth)

min	proportion
0	0.750
95.001	0.750

25% line (of max water depth)

min	proportion
0	0.250
95.001	0.250

Calculations by: BB
Checked by: MN
Date: 25/10/2024

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

Project:
MC0259 PPP Pulborough

Site Location	Station Road and Church Hill, Pullborou
Pit/Borehole	ST3
Date of test	03.06.2023
Contractor Test	Test 3

Legend: input / calculation / output / explanatory

What type of test is this	Trial pit
How was water depth measured?	Depth from Top of Pit to Water Level (m)
Is time in seconds or min	minutes
pit length (m)	1.000
pit width (m)	0.800
pit depth (m)	2.000
max water level (m)	2.000
25% Max Water Level (m)	0.500
75% Max Water Level (m)	1.500
25% reached?	YES

If 25% was reached, the test is as per BRE365 procedure. Otherwise, the last entry in the table to the right is a linear extrapolation based on the last 2 readings.

Time (min)	Depth from Top of Pit to Water Level (m)	Water Level from bottom (m)	Volume
0.0	0.000	2.000	1.600
34.0	0.700	1.300	1.040
44.0	0.900	1.100	0.880
54.0	0.980	1.020	0.816
64.0	1.270	0.730	0.584
74.0	1.440	0.560	0.448
84.0	1.550	0.450	0.360
94.0	2.000	0.000	0.000
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Lower limit for measurement	25%	*The standard is to use 25%*
Upper limit for measurement	75%	*The standard is to use 75%*

base (m2)	0.800	
sides (m2)	2.000	*Up to 50% of effective depth*
ends (m2)	1.600	*Up to 50% of effective depth*
a_{p50} (m2)	4.400	*Up to 50% of effective depth*
V_{p75} (m3)	1.200	*The volume at 75% effective depth*
V_{p25} (m3)	0.400	*The volume at 25% effective depth*
V_{p75-25} (m3)	0.800	*Difference in volume*

Interpolation between	t_{p75}	V_{p75}	
lower	0	1.600	*The reading just before Vp75*
upper	34	1.040	*The reading just after Vp75*
Interpolation between	**t_{p25}**	**V_{p25}**	
lower	74	0.448	*The reading just before Vp25*
upper	84	0.360	*The reading just after Vp25*

t_{p75}(mins)	24.3	*The time reading corresponding to Vp75*
t_{p25}(mins)	79.5	*The time reading corresponding to Vp25*
t_{p75-25}(mins)	55.2	*The time between Vp75 and Vp25*

Soil Infiltration Rate	
m/s	m/h
5.49E-05	*0.197740*

effective area of infiltration	volume between 75% and 25% effective depth	time for water to fall from 75% to 25% effective depth (sec)
ap50	**Vp75-25**	**tp75-25**
4.400 sq m	0.800 cub m	3310 s

Calculations by: BB
Checked by: MN
Date: 25/10/2024

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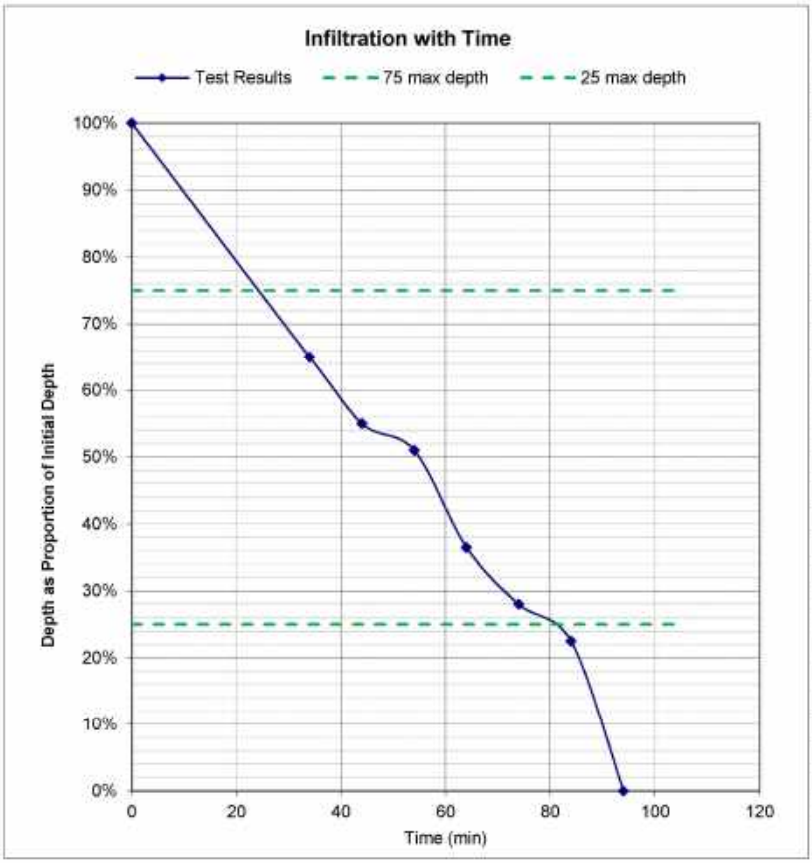
Project:
MC0259 PPP Pulborough



time (min)	Proportion infiltrated
0	100%
34	65%
44	55%
54	51%
64	37%
74	28%
84	23%
94	0%
#N/A	#N/A
#N/A	#N/A
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#N/A	#N/A

75% line (of max water depth)

min	proportion
0	0.750
104	0.750

25% line (of max water depth)

min	proportion
0	0.250
104	0.250

Calculations by: BB
Checked by: MN
Date: 25/10/2024

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

Project:
MC0259 PPP Pulborough

Site Location	Station Road and Church Hill, Pullborou
Pit/Borehole	SHALLOW
Date of test	02.06.2023
Contractor Test	Test 1

Legend: input / calculation / output / explanatory

What type of test is this	Trial pit
How was water depth measured?	Depth from Top of Pit to Water Level (m)
Is time in seconds or min	minutes
pit length (m)	1.000
pit width (m)	0.800
pit depth (m)	0.600
max water level (m)	0.600
25% Max Water Level (m)	0.150
75% Max Water Level (m)	0.450
25% reached?	YES

If 25% was reached, the test is as per BRE365 procedure. Otherwise, the last entry in the table to the right is a linear extrapolation based on the last 2 readings.

Time (min)	Depth from Top of Pit to Water Level (m)	Water Level from bottom (m)	Volume
0.0	0.000	0.600	0.480
20.0	0.200	0.400	0.320
30.0	0.240	0.360	0.288
40.0	0.300	0.300	0.240
50.0	0.380	0.220	0.176
60.0	0.450	0.150	0.120
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Lower limit for measurement	25%	*The standard is to use 25%*
Upper limit for measurement	75%	*The standard is to use 75%*

base (m2)	0.800	
sides (m2)	0.600	*Up to 50% of effective depth*
ends (m2)	0.480	*Up to 50% of effective depth*
a_{p50} (m2)	1.880	*Up to 50% of effective depth*
V_{p75} (m3)	0.360	*The volume at 75% effective depth*
V_{p25} (m3)	0.120	*The volume at 25% effective depth*
V_{p75-25} (m3)	0.240	*Difference in volume*

Interpolation between	t_{p75}	V_{p75}	
lower	0	0.480	*The reading just before Vp75*
upper	20	0.320	*The reading just after Vp75*
Interpolation between	**t_{p25}**	**V_{p25}**	
lower	50	0.176	*The reading just before Vp25*
upper	60	0.120	*The reading just after Vp25*

t_{p75}(mins)	15.0	*The time reading corresponding to Vp75*
t_{p25}(mins)	60.0	*The time reading corresponding to Vp25*
t_{p75-25}(mins)	45.0	*The time between Vp75 and Vp25*

Soil Infiltration Rate	
m/s	m/h
4.73E-05	0.170213

effective area of infiltration	volume between 75% and 25% effective depth	time for water to fall from 75% to 25% effective depth (sec)
ap50	**Vp75-25**	**tp75-25**
1.880 sq m	0.240 cub m	2700 s

Calculations by: BB
Checked by: MN
Date: 25/10/2024

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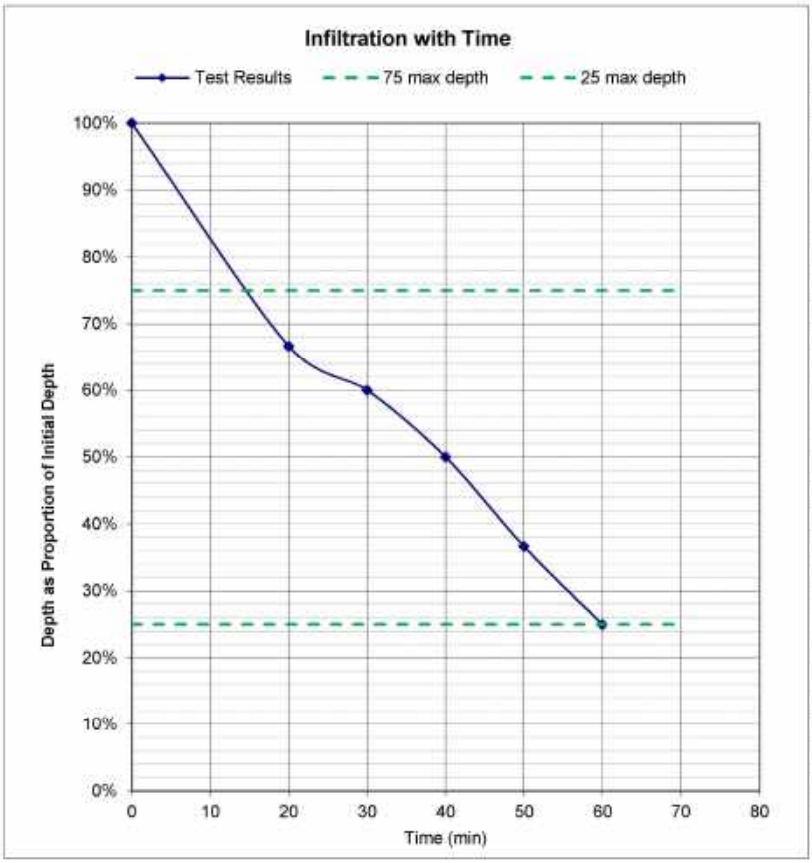
CIVIL ENGINEERING CONSULTANCY

Project:
MC0259 PPP Pulborough



time (min)	Proportion infiltrated
0	100%
20	67%
30	60%
40	50%
50	37%
60	25%
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
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#N/A	#N/A

75% line (of max water depth)

min	proportion
0	0.750
70	0.750

25% line (of max water depth)

min	proportion
0	0.250
70	0.250

Calculations by: BB
Checked by: MN
Date: 25/10/2024

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

Project:
MC0259 PPP Pulborough

Site Location	Station Road and Church Hill, Pullborou
Pit/Borehole	SHALLOW
Date of test	02.06.2023
Contractor Test	Test 2

Legend: input / calculation / output / explanatory

What type of test is this	Trial pit
How was water depth measured?	Depth from Top of Pit to Water Level (m)
Is time in seconds or min	minutes
pit length (m)	1.000
pit width (m)	0.800
pit depth (m)	0.600
max water level (m)	0.600
25% Max Water Level (m)	0.150
75% Max Water Level (m)	0.450
25% reached?	YES

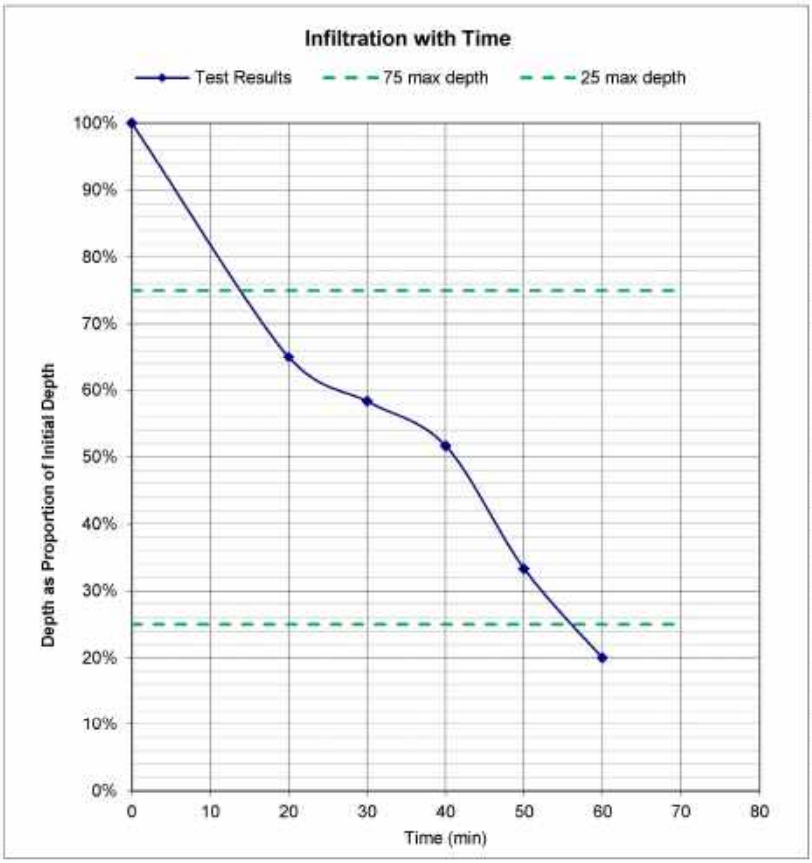
If 25% was reached, the test is as per BRE365 procedure. Otherwise, the last entry in the table to the right is a linear extrapolation based on the last 2 readings.

Time (min)	Depth from Top of Pit to Water Level (m)	Water Level from bottom (m)	Volume
0.0	0.000	0.600	0.480
20.0	0.210	0.390	0.312
30.0	0.250	0.350	0.280
40.0	0.290	0.310	0.248
50.0	0.400	0.200	0.160
60.0	0.480	0.120	0.096
			END
			END
			END

Calculations by: BB
Checked by: MN
Date: 25/10/2024

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

Project:
MC0259 PPP Pulborough



time (min)	Proportion infiltrated
0	100%
20	65%
30	58%
40	52%
50	33%
60	20%
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
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#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A

75% line (of max water depth)

min	proportion
0	0.750
70	0.750

25% line (of max water depth)

min	proportion
0	0.250
70	0.250

Calculations by: BB
Checked by: MN
Date: 25/10/2024

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

Project:
MC0259 PPP Pulborough

Site Location	Station Road and Church Hill, Pullborou
Pit/Borehole	SHALLOW
Date of test	02.06.2023
Contractor Test	Test 3

Legend: input / calculation / output / explanatory

What type of test is this	Trial pit
How was water depth measured?	Depth from Top of Pit to Water Level (m)
Is time in seconds or min	minutes
pit length (m)	1.000
pit width (m)	0.800
pit depth (m)	0.600
max water level (m)	0.600
25% Max Water Level (m)	0.150
75% Max Water Level (m)	0.450
25% reached?	YES

If 25% was reached, the test is as per BRE365 procedure. Otherwise, the last entry in the table to the right is a linear extrapolation based on the last 2 readings.

Time (min)	Depth from Top of Pit to Water Level (m)	Water Level from bottom (m)	Volume
0.0	0.000	0.600	0.480
20.0	0.220	0.380	0.304
30.0	0.270	0.330	0.264
40.0	0.290	0.310	0.248
50.0	0.420	0.180	0.144
60.0	0.500	0.100	0.080
70.0	0.600	0.000	0.000
			END
			END
			END

Calculations by: BB
Checked by: MN
Date: 25/10/2024

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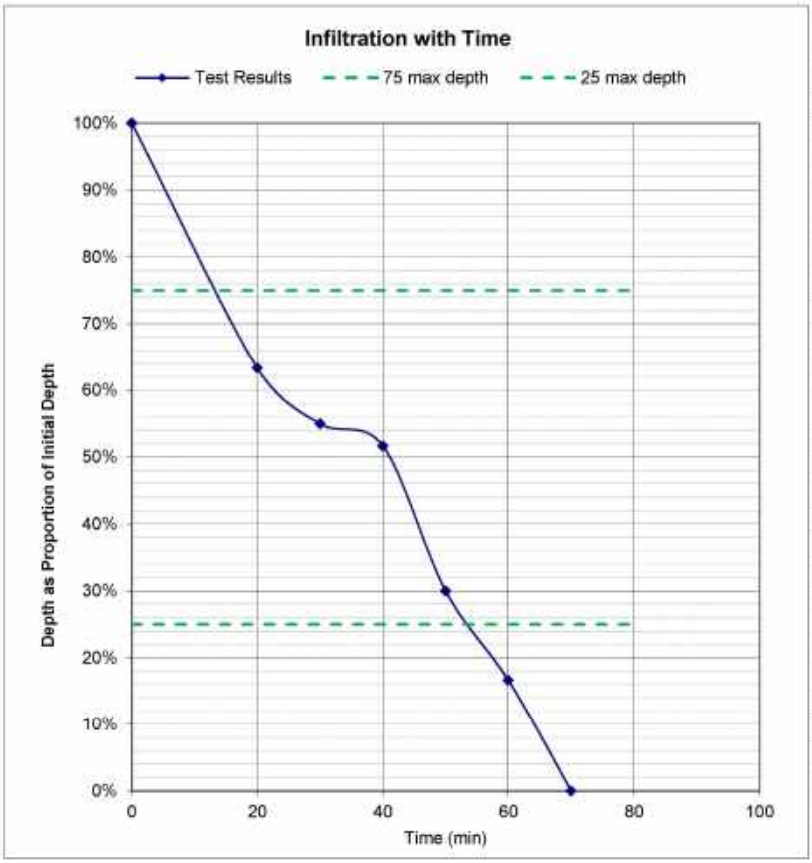
Project:
MC0259 PPP Pulborough



time (min)	Proportion infiltrated
0	100%
20	63%
30	55%
40	52%
50	30%
60	17%
70	0%
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
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#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A

75% line (of max water depth)

min	proportion
0	0.750
80	0.750

25% line (of max water depth)

min	proportion
0	0.250
80	0.250

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Groundwater Monitoring Report

October 2024
Rev 2

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Groundwater Monitoring Report

Ransoms and Land to the South of Coppice Hanger

Introduction

Planning Applications:

DC/21/1931
Coppice Hanger, Church Hill, Pulborough, West Sussex
Erection of 4No. detached dwellings with associated access, parking and landscaping.

Condition Ref: DISC/24/0087 (plus responses)

Incorporating
DC/22/1059
Ransoms, Station Road, Pulborough, West Sussex
Demolition of existing mixed use building and erection of a three storey building to provide 8no flats with associated access, parking, bin store and cycle store.

On 20 May 2024 the Drainage Team of Horsham District Council provided feedback on the condition discharge application reference **DISC/24/0087:**

Any infiltration features should be constructed a minimum of 1.0m above the highest groundwater level. A review of the groundwater level should be provided.

In response a groundwater monitoring test has been conducted on 11 and 12 June 2024. A further response was provided in August 2024 as follows:

> The Groundwater Monitoring Report in the updated Drainage Pack demonstrates that 1m between the base of the proposed infiltration features and the groundwater level can be provided. The test was undertaken on 11 and 12 June 2024, and it states that there was no rain within 48hrs of the test. The SFRA Areas Susceptible to Groundwater Flooding mapping shows the site lies within an area at >50% <75% susceptibility. Groundwater levels at a proposed infiltration device location are required to be proven and monitored as per Section 5.2.3 of the LLFA Policy, whereby any infiltration drainage design must include adequate winter groundwater monitoring data in areas of known groundwater issues, to determine the highest winter groundwater table.

This report details the methodology and findings and further tests conducted in October 2024 following a period of sustained heavy rain.

Groundwater Testing

Methodology

The Environment Agency produced a "Guide to Monitoring Water Levels" which has been approved by the National Groundwater and Contaminated Land Centre. This forms the basis of the testing conducted.

In the section "Monitoring Groundwater Levels and Flows" the following methodologies are proposed:

- Monitoring borehole
- Tubewell
- Monitoring well
- Dip-well
- Piezometer

Any of these methods are deemed acceptable, and the test was conducted by digging a monitoring well.

The number and location of wells was agreed with Meridian Consultants (see site plan elsewhere), and was designed to ensure the soakaways proposed on the development are constructed at least 100cm above the groundwater level. With the soakaways being on three different site levels, **three wells** have been proposed, each in line with the proposed soakaways.
The wells have been dug to a depth of 3.0 meters, as the soakaways will be constructed at 1600mm below ground. With a further 1,000mm clearance needed, the test should confirm that groundwater levels are lower than 2,600mm.

Test Conditions

June 2024: Temperature across both days have been sunny, around 18 degrees Celsius, and with no rain during the 48 hour period of the test.

October 2024: Three tests were conducted, on 1, 7 and 11 October 2024. During this period several days of heavy rain were sustained, following an above average rainfall period as in September (167mm vs average 63mm) and beginning October 2024.

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Borehole Locations:



Photographs of testing





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Test Results

June 2024:

Borehole	1	2	3
Depth	301cm	298cm	312cm
Time Dug	9:10, 11 June 2024	10:02, 11 June 2024	10:30, 11 June 2024
Test 1: 11:00	Dry, no water	Dry, no water	Dry No water
Test 2: 13:00	Dry, no water	Slight moisture	Dry No water
Test 3: 15:00	Dry, no water	10cm	Dry No water
Test 4: 17:00	Dry, no water	10cm	Dry No water
Test 5: 9:00 (12/6)	Dry, no water	9cm	Dry No water
Test 6: 11:00	Dry, no water	10cm	Dry No water
Test 7: 14:00	Dry, no water	10cm	Dry No water
Test 8: 17:00	Dry, no water	11cm	Dry No water
Average depth of groundwater	> 301cm	288cm	> 312cm
Space to bottom of soakaway	>140cm	128cm	>140cm
Result	Pass	Pass	Pass

October 2024:

Borehole	1	2	3
Depth	310cm	295cm	305cm
Time Dug	8:00, 03 Oct 2024	8:10, 07 Oct 2024	8:00, 11 Oct 2024
Test 1: 09:00	Dry, no water	Dry, no water	Dry No water
Test 2: 10:30	Dry, no water	Slight moisture	Dry No water
Test 3: 12:00	Dry, no water	10cm	Slight moisture
Test 4: 13:30	Slight moisture	10cm	5cm
Test 5: 15:00	7cm	9cm	10cm
Test 6: 16:30	10cm	12cm	12cm
Test 7: 18:00	15cm	14cm	12cm
Average depth of groundwater	> 290cm	>280cm	> 295cm
Space to bottom of soakaway	>130cm	>110cm	>120cm
Result	Pass	Pass	Pass

Conclusion

All the proposed soakaways will be constructed at least 100cm above the groundwater level.