

AMBIENTAL

ENVIRONMENTAL ASSESSMENT

Discharge of Condition Package

The Green House Sussex Ltd, Lake Lane, Barnham,
West Sussex, PO22 0AD

Our Ref: 5877_DowsettMayhew_Lake Lane

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Document Issue Record

Project type: Discharge of conditions Package

Prepared for: The Green House Sussex Ltd,

Reference: 5877_DowsettMayhew_Lake Lane

Site Location: The Green House Sussex Ltd, Lake Lane, Barnham, West Sussex, PO22 0AD

Proposed Development: It is understood that the application is for temporary rural workers accommodation and to secure up to 11 mobile home units and service room on land at The Green House Sussex Ltd, Pollards House, Lake Lane, Barnham, West Sussex, PO22 0AD

Consultant		Date	Signature
Author	Mark Naumann	21.12.2020	
Document Check			
Authorisation			

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www.ambiental.co.uk

1. Introduction

- 1.1 Ambiental have been appointed by The Green House Sussex Ltd to produce discharge of condition information to support the proposed development of Permanent siting of temporary seasonal horticultural worker accommodation (8 mobile homes & 3 retrospective mobile homes), hardstanding & service building.

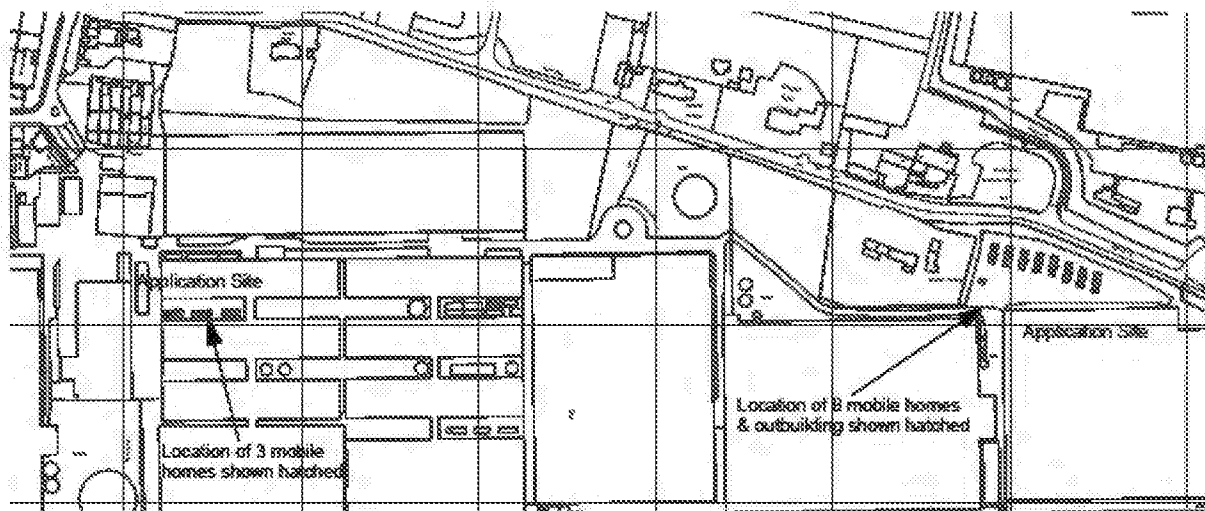


Figure 1: Site location plan extract showing location of 8 new units

- 1.2 The redline boundary for the 8 unit site totals approximately 0.3 ha. The site is shown to be largely soft landscaped as can be seen in Figure 3. The site borders large nursery buildings to the south and a residential building to the east. Directly north of the site is Lake Lane.
- 1.3 The redline boundary for the 3 unit site totals approximately 0.058 ha. The site is shown to be largely soft landscaped. The site is situated between large nursery buildings to the north and south.
- 1.4 The purpose of this information pack is to provide detailed information to allow discharge of planning conditions 5 and 6 below.

- 5 Development shall not commence, other than works of site survey and investigation, until full details of the proposed surface water drainage scheme have been submitted to and approved in writing by the Local Planning Authority. The design should follow the hierarchy of preference for different types of surface water drainage disposal systems as set out in Approved Document H of the Building Regulations, and the recommendations of the SuDS Manual produced by CIRIA. Winter groundwater monitoring to establish highest annual ground water levels and winter Percolation testing to BRE 365, or similar approved, will be required to support the design of any infiltration drainage. No building / No part of the extended building shall be occupied until the complete surface water drainage system serving the property has been implemented in accordance with the agreed details and the details so agreed shall be maintained in good working order in perpetuity.
- 6 The development shall not proceed until details have been submitted to and approved in writing by the Local Planning Authority for any proposals: to discharge flows to watercourses; or for the culverting, diversion, infilling or obstruction of any watercourse on or adjacent to the site. Any discharge to a watercourse must be at a rate no greater than the pre-development run-off values. No construction is permitted, which will restrict current and future land owners from undertaking their riparian maintenance responsibilities in respect to any watercourse or culvert on or adjacent to the site.

2. Design Philosophy

- 2.1 The proposed design has been developed in line with the Ambiental drainage strategy submitted at planning Document Ref: 5877 SWDS. These drawings should be read in conjunction with this report.
- 2.2 Shallow infiltration testing undertaken by Your Environment June 2021 show negligible infiltration at a depth of 600mm.
- 2.3 For the proposed new 8 units given the tested low infiltration for the storm runoff the paving is proposed to be used as a storage medium but unlined to promote infiltration for very low rainfall events. Runoff from higher rainfall events is to be drained to a pump station and pumped to the existing rainwater system provided to the greenhouses on the wider site. No storm water is proposed to be drained offsite.
- 2.4 The 3 unit area drains to ground. The units have been in place for some time already and the client has reported no flooding issues as a result. The units are bounded on 3 sides by large glasshouses.
- 2.5 The existing greenhouse storm system drains runoff via gravity to the reservoir located at the eastern end of the clients land. this water is then re-used as irrigation water inside the greenhouses.
- 2.6 To reduce un-restricted pumped flow to the existing drainage system causing problems the flow to the pump chamber is proposed to be limited by a 25mm orifice plate. the pump should ideally be a low flow as practical to avoid blockage and surcharge in the existing storm drainage. If the pump causes issues with the existing drainage the rising main may need to be laid to outfall directly to the reservoir.
- 2.7 For foul water from the 8 unit scheme the client has opted for an offsite connection to the nearest Southern Water gravity manhole. EA 2m LiDAR levels have been used to show this connection is feasible.
- 2.8 Any offsite connection should be agreed with Southern Water prior to commencing construction.
- 2.9 A private, on site, foul pump station is needed to lift foul drainage from the units over the culverted watercourse on the north boundary. The pump station will need to provide adequate 48hr storage to comply with Building Regulations.
- 2.10 For the foul for the existing 3 units the client has confirmed that foul drainage from these units is directed to the existing foul underground drainage present in that area of the existing development.
- 2.11 The proposed design can be seen to be in line with the strategy as outlined within Ambiental Report 5877 SWDS.
- 2.12 Maintenance of all on site drainage and SUDS features will be the landowners and operators of the greenhouse site - British Tomato Growers' Association.

3. Adoption and Maintenance

- 3.1 All onsite SuDS and drainage systems will be privately maintained. A long-term maintenance regime should be agreed with the site owners before adoption. In addition to a long-term maintenance regime, it is recommended that all drainage elements implemented on site should be inspected following the first rainfall event post-construction and monthly for the first quarter following construction.
- 3.2 General maintenance of key SuDS components are provided below.
- 3.3 The property owner will be responsible for the management and maintenance of SuDS devices.

Proposed Schedule of Maintenance for Below Ground Drainage

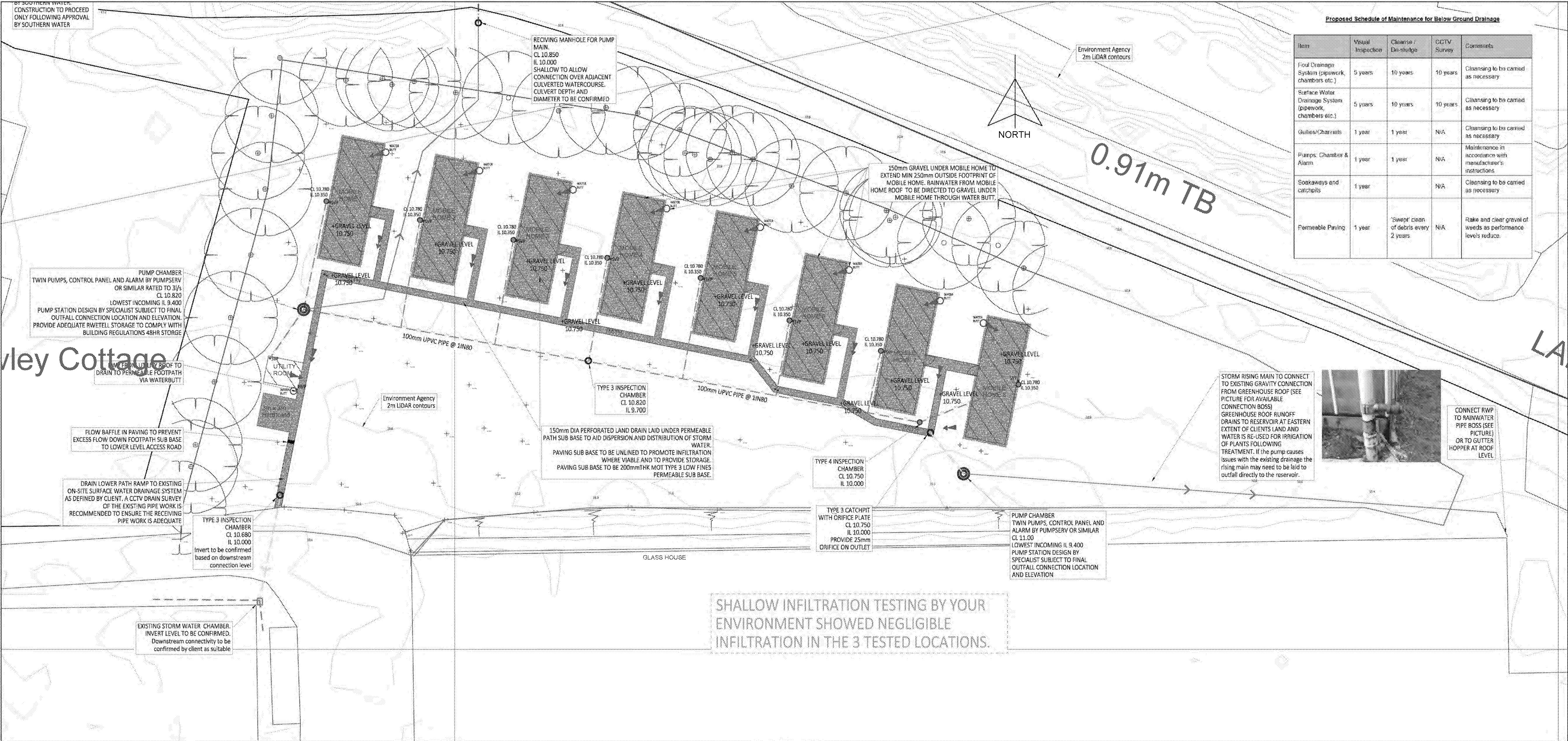
Item	Visual Inspection	Cleanse / De-sludge	CCTV Survey	Comments
Foul Drainage System (pipework, chambers etc.)	5 years	10 years	10 years	Cleansing to be carried as necessary
Surface Water Drainage System (pipework, chambers etc.)	5 years	10 years	10 years	Cleansing to be carried as necessary
Gullies/Channels	1 year	1 year	N/A	Cleansing to be carried as necessary
Pumps: Chamber & Alarm	1 year	1 year	N/A	Maintenance in accordance with manufacturer's instructions.
Soakaways and catchpits	1 year		N/A	Cleansing to be carried as necessary
Permeable Paving	1 year	'Swept' clean of debris every 2 years.	N/A	Rake and clear gravel of weeds as performance levels reduce.

4. Conclusions

- 4.1 Ambiental have been appointed by The Green House Sussex Ltd, to undertake a Surface Water Drainage Strategy to advise on the proposed development of up to 8 temporary rural worker accommodation mobile home units and service room on land at The Green House Sussex Ltd, Lake Lane, Barnham, West Sussex, PO22 0AD (Figure 1).
- 4.2 The purpose of this information pack is to provide detailed information to allow discharge of planning conditions 5 and 6 below.
 - 5 Development shall not commence, other than works of site survey and investigation, until full details of the proposed surface water drainage scheme have been submitted to and approved in writing by the Local Planning Authority. The design should follow the hierarchy of preference for different types of surface water drainage disposal systems as set out in Approved Document H of the Building Regulations, and the recommendations of the SuDS Manual produced by CIRIA. Winter groundwater monitoring to establish highest annual ground water levels and winter Percolation testing to BRE 365, or similar approved, will be required to support the design of any infiltration drainage. No building / No part of the extended building shall be occupied until the complete surface water drainage system serving the property has been implemented in accordance with the agreed details and the details so agreed shall be maintained in good working order in perpetuity.
 - 6 The development shall not proceed until details have been submitted to and approved in writing by the Local Planning Authority for any proposals: to discharge flows to watercourses; or for the culverting, diversion, infilling or obstruction of any watercourse on or adjacent to the site. Any discharge to a watercourse must be at a rate no greater than the pre-development run-off values. No construction is permitted, which will restrict current and future land owners from undertaking their riparian maintenance responsibilities in respect to any watercourse or culvert on or adjacent to the site.
- 4.3 The redline boundary for the 8 unit site totals approximately 0.3 ha. The site is shown to be largely soft landscaped. The site borders large nursery buildings to the south and a residential building to the east. Directly north of the site is Lake Lane.
- 4.4 The redline boundary for the 3 unit site totals approximately 0.058 ha. The site is shown to be largely soft landscaped. The site is situated between large nursery buildings to the north and south.
- 4.5 Soakaway tests were conducted at three locations by Your Environment and showed negligible infiltration into the shallow subsoils. Therefore surface water is to be pumped to the on-site surface water system that serves the greenhouses and drains, by gravity, to the reservoir at the east of the wider site. Water from the reservoir is treated and used for irrigation in the greenhouses.
- 4.6 For the proposed new 8 units given the tested low infiltration for the storm runoff the paving is proposed to be used as a storage medium but unlined to promote infiltration for very low rainfall events. Runoff from higher rainfall events is to be drained to a pump station and pumped to the existing rainwater system provided to the greenhouses on the wider site. No storm water is proposed to be drained offsite.
- 4.7 To reduce un-restricted pumped flow to the existing drainage system causing problems the flow to the pump chamber is proposed to be limited by a 25mm orifice plate. the pump should ideally be a low flow as practical to avoid blockage and surcharge in the existing storm drainage. If the pump causes issues with the existing drainage the rising main may need to be laid to outfall directly to the reservoir.

- 4.8 For foul water from the 8 unit scheme the client has opted for an offsite connection to the nearest Southern Water gravity manhole. EA 2m LiDAR levels have been used to show this connection is feasible.
- 4.9 Any offsite connection should be agreed with Southern Water prior to commencing construction.
- 4.10 The 3 unit area storm runoff drains to ground. The units have been in place for some time already and the client has reported no flooding issues as a result. The units are bounded on 3 sides by large glasshouses.
- 4.11 For the foul for the existing 3 units the client has confirmed that foul drainage from these units is directed to the existing foul underground drainage present in that area of the existing development.
- 4.12 This information pack demonstrates that the development proposals can accommodate the necessary SuDS systems required in order to meet the WSCC and Adur surface water policy requirements and the requirements of planning conditions 5 and 6 above.
- 4.13 The property owner will be responsible for the management and maintenance of SuDS devices.
- 4.14 We can conclude that providing the development adheres to the conditions advised in this report, the said development proposals can be accommodated without increasing flood risk within the locality in accordance with objectives set by Central Government and the EA.

Appendix I – Proposed Drawings



SITE LAYOUT
(1:200)

OFFSITE SEWER CONNECTION
(1:200)

Design philosophy:

The proposed design has been developed in line with the Ambient drainage strategy submitted at planning Document Ref: 5877 SWDS. These drawings should be read in conjunction with this report.

Shallow infiltration testing undertaken by Your Environment June 2021 show negligible infiltration at a depth of 600mm.

Given the tested low infiltration for the storm runoff the paving is proposed to be used as a storage medium but unlined to promote infiltration for very low rainfall events. runoff from higher rainfall events is to be drained to a pump station and pumped to the existing rainwater system provided to the greenhouses on the wider site. No storm water is proposed to be drained offsite.

The existing greenhouse storm system drains runoff via gravity to the reservoir located at the eastern end of the clients land. this water is then re-used as irrigation water inside the greenhouses.

To reduce un-restricted pumped flow to the existing drainage system causing problems the flow to the pump chamber is proposed to be limited by a 25mm orifice plate. the pump should ideally be a low flow as practical to avoid blockage and surcharge in the existing storm drainage. If the pump causes issues with the existing drainage the rising main may need to be laid to outfall directly to the reservoir.

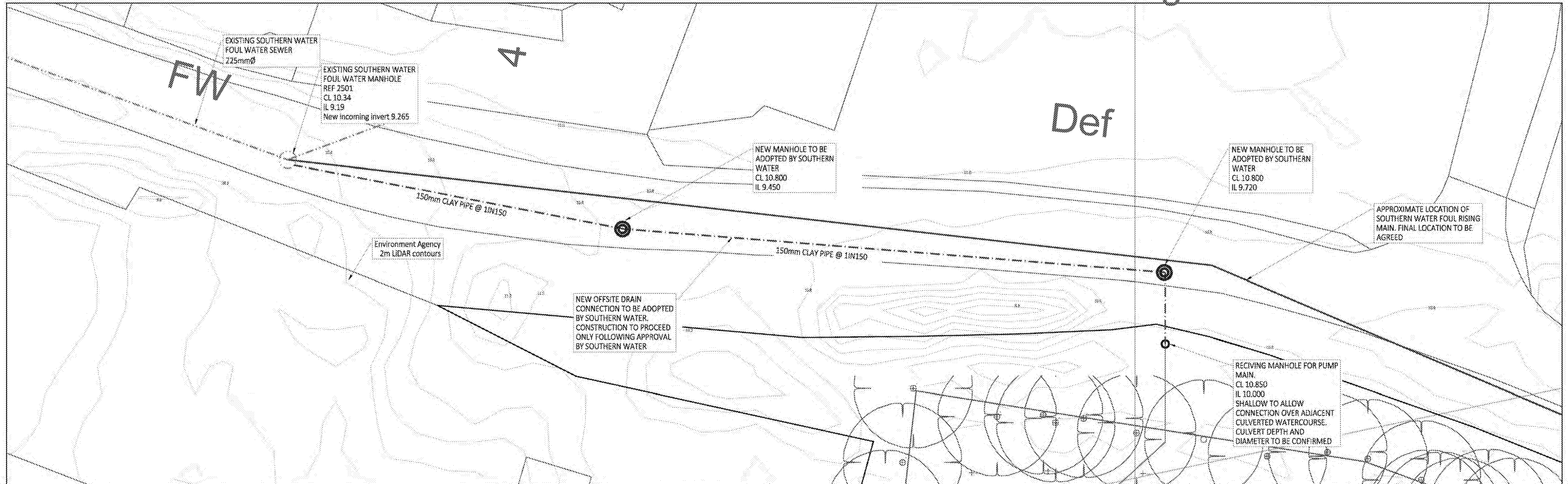
For foul water the client has opted for an offsite connection to the nearest Southern Water gravity manhole. EA 2m LIDAR levels have been used to show this connection is feasible.

Any offsite connection should be agreed with Southern Water prior to commencing construction.

A private, on site, foul pump station is needed to lift foul drainage from the units over the culverted watercourse on the north boundary. The pump station will need to provide adequate 48hr storage to comply with Building Regulations.

The proposed design can be seen to be in line with the strategy as outlined within Ambient Report 5877 SWDS.

Maintenance of all on site drainage and SUDS features will be the landowners and operators of the greenhouse site - British Tomato Growers' Association



Proposed Schedule of Maintenance for Below Ground Drainage

Item	Visual Inspection	Cleanse / Desludge	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
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Pumps: Chamber & Alarm	1 year	1 year	N/A	Maintenance in accordance with manufacturer's instructions
Soakaways and catchpits	1 year		N/A	Cleansing to be carried as necessary
Permeable Paving	1 year	"Sweep" clean of debris every 2 years	N/A	Rake and clear gravel of weeds as performance levels reduce

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 AMBIENTAL DRAWINGS, THE MANUFACTURERS INSTRUCTIONS MUST BE USED.

3. BELOW GROUND DRAINAGE

a. PIPERWORK TO THE UPPER PIPES TO BS 4660 : 2000 AND INSPECTION CHAMBERS TO BS 7158 : 2001.

b. ALL ADAPTABLE DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH SEWERS FOR ADOPTION 7TH EDITION AND THE RELEVANT COUNCIL DESIGN GUIDE.

c. ALL PRIVATE SURFACE WATER SEWERS TO BE LAID AT 1 IN 300 UNLESS OTHERWISE STATED ON THE DRAWING.

d. ALL PRIVATE FOUL WATER SEWERS TO BE LAID AT 1 IN 40 AT THE HEAD OF PIPE RUNS AND 1 IN 80 ELSEWHERE UNLESS OTHERWISE STATED.

e. ALL PRIVATE FOUL SEWER PIPES TO BE 150MM DIAMETER UNLESS OTHERWISE STATED ON THE DRAWING. ALL PRIVATE SURFACE WATER SEWER PIPES TO BE 100MM DIAMETER FROM DOWNPIPES AND 150MM DIAMETER ELSEWHERE UNLESS OTHERWISE STATED ON THE DRAWING.

f. ALLOW FOR RODDING ACCESS ABOVE GROUND WHERE RAINWATER DOWNPIPES DO NOT HAVE A DIRECT CONNECTION TO AN INSPECTION CHAMBER. EXISTING SEWER PIPE TO BE RE-USED TO BE SURVEYED AND LEVELLED PRIOR TO COMMENCEMENT OF THE DRAINAGE WORKS AND REBURIED IF NECESSARY.

g. CONNECTIONS TO AN ADOPTED SEWER ONLY TO BE MADE FOLLOWING APPROVAL FROM THE RELEVANT ADOPTING AUTHORITY.

h. ALL DRAINS, SEWER PIPES AND MANHOLES TO BE CLEANED AND TESTED FOR WATER TIGHTNESS ON COMPLETION OF CONSTRUCTION.

4. 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

- PRIVATE SURFACE WATER DRAIN
- PERFORATED SURFACE WATER DRAIN
- PUMP CHAMBER
- TYPE 3 CATCH PIT
- TYPE 4 INSPECTION CHAMBER
- RODDING EYE
- RAIN WATER PIPE
- PERMEABLE PAVING
- OVERLAND FLOW
- PRIVATE FOUL WATER DRAIN
- EXISTING FOUL WATER DRAIN
- PUBLIC FOUL WATER SEWER
- TYPE 2 MANHOLE
- TYPE 3 INSPECTION CHAMBER
- TYPE 4 INSPECTION CHAMBER
- SOIL & VENT PIPE

PRELIMINARY DRAWING
FOR INFORMATION ONLY - NOT FOR CONSTRUCTION

Client: The Green House Sussex Ltd

AMBIENTAL
ENVIRONMENTAL ASSESSMENT
a company of Royal HaskoningDHV

Project: The Green House Sussex Ltd | Pollards House
Lake Lane | Barnham | PO22 0AD

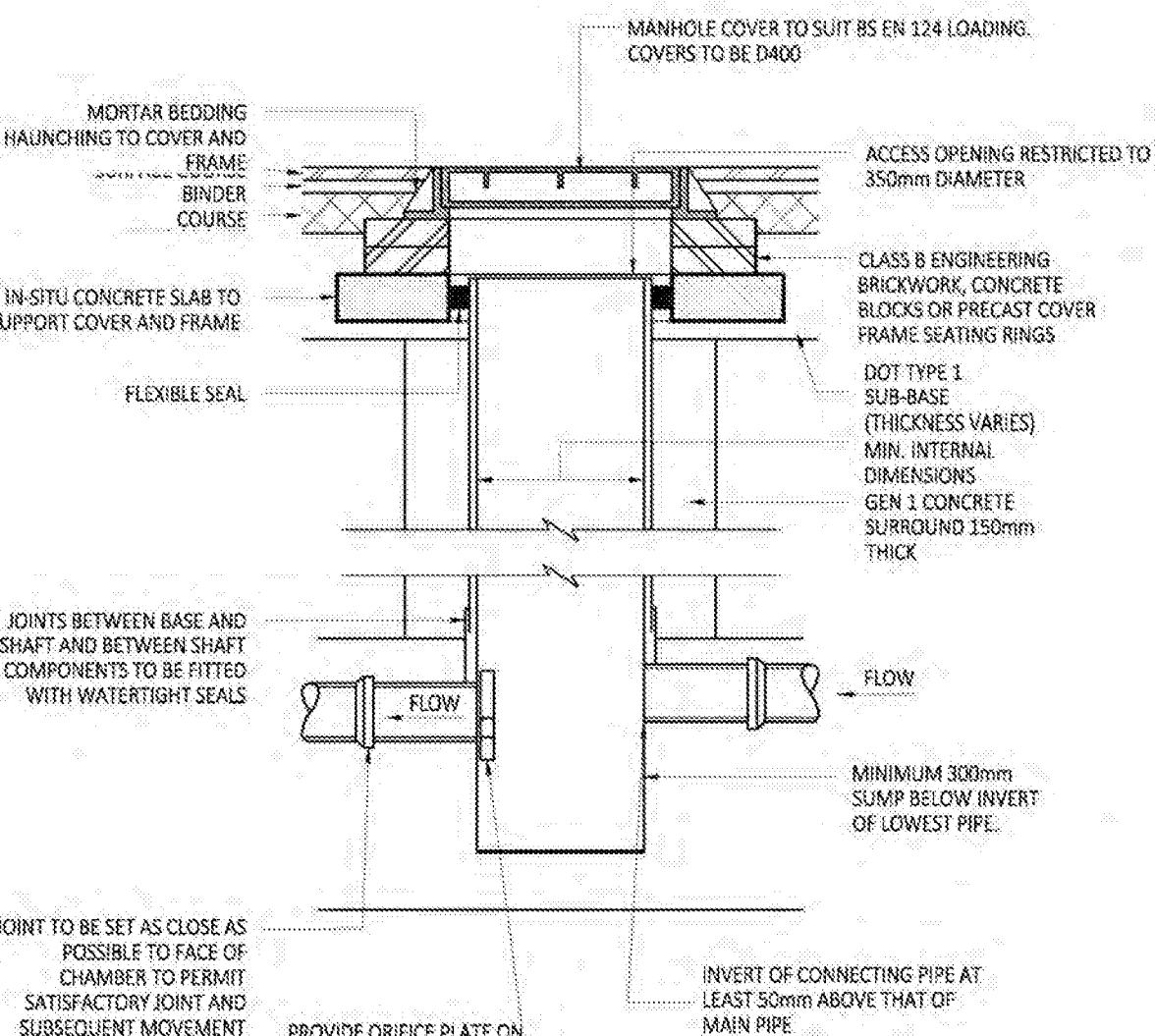
Drawing: SEASONAL WORKERS ACCOMODATION
FOUL AND STORM DRAINAGE

Drawn by: MN Date: MAY 23

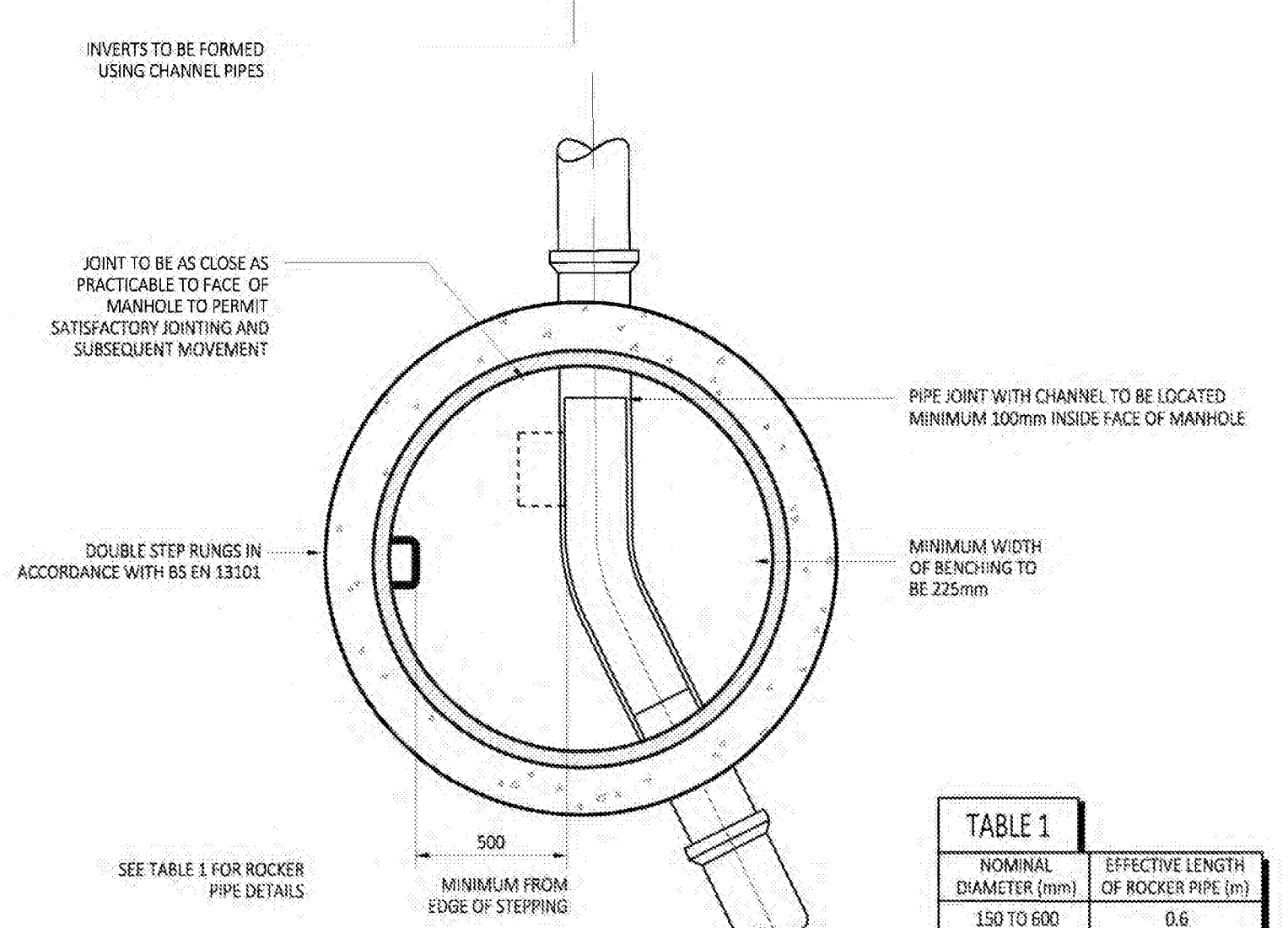
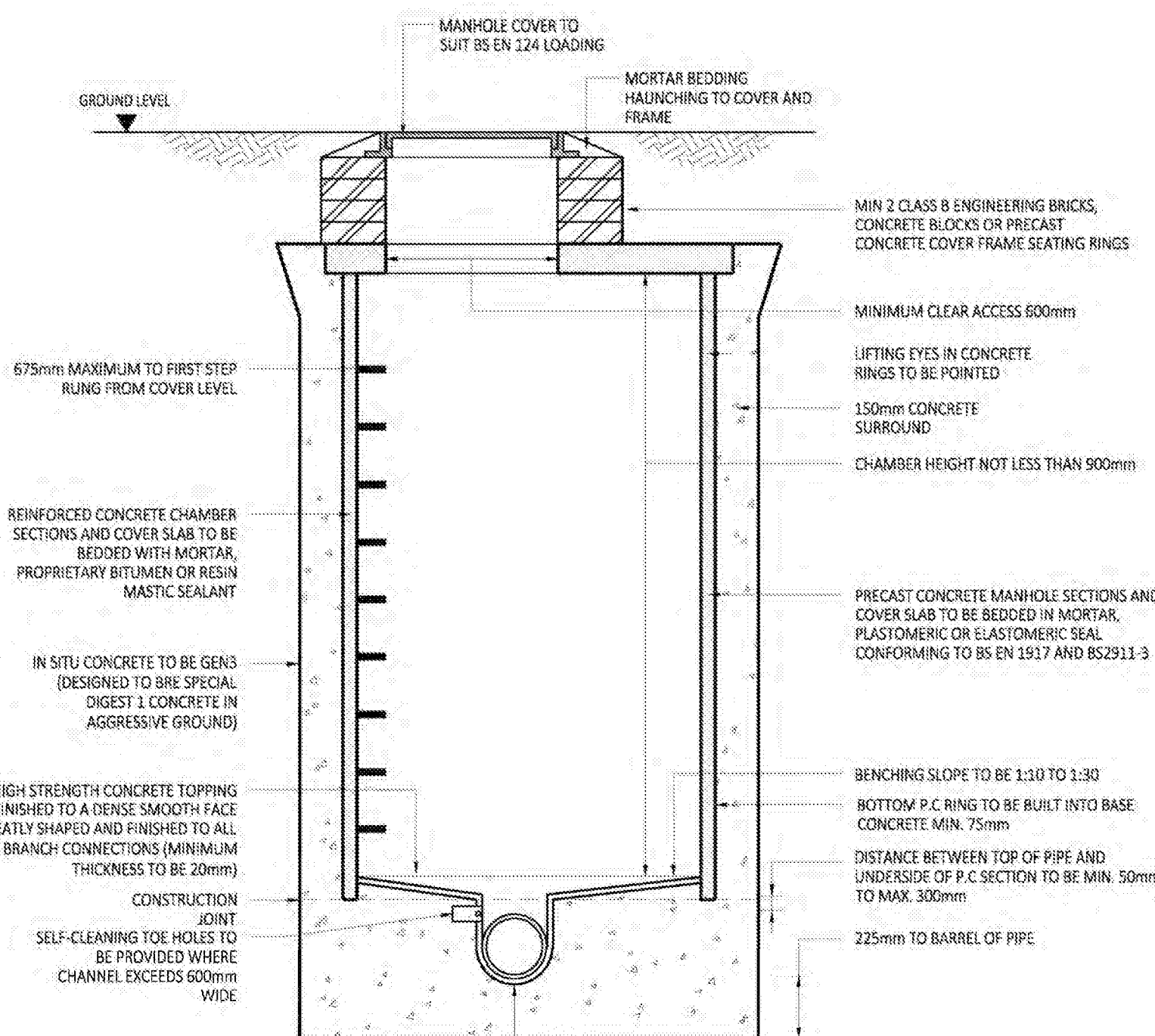
Drawing No. 6215 - DR10 Revision: A

Drawing Scale: 1:200 @ A1 4m 6m 8m 10m

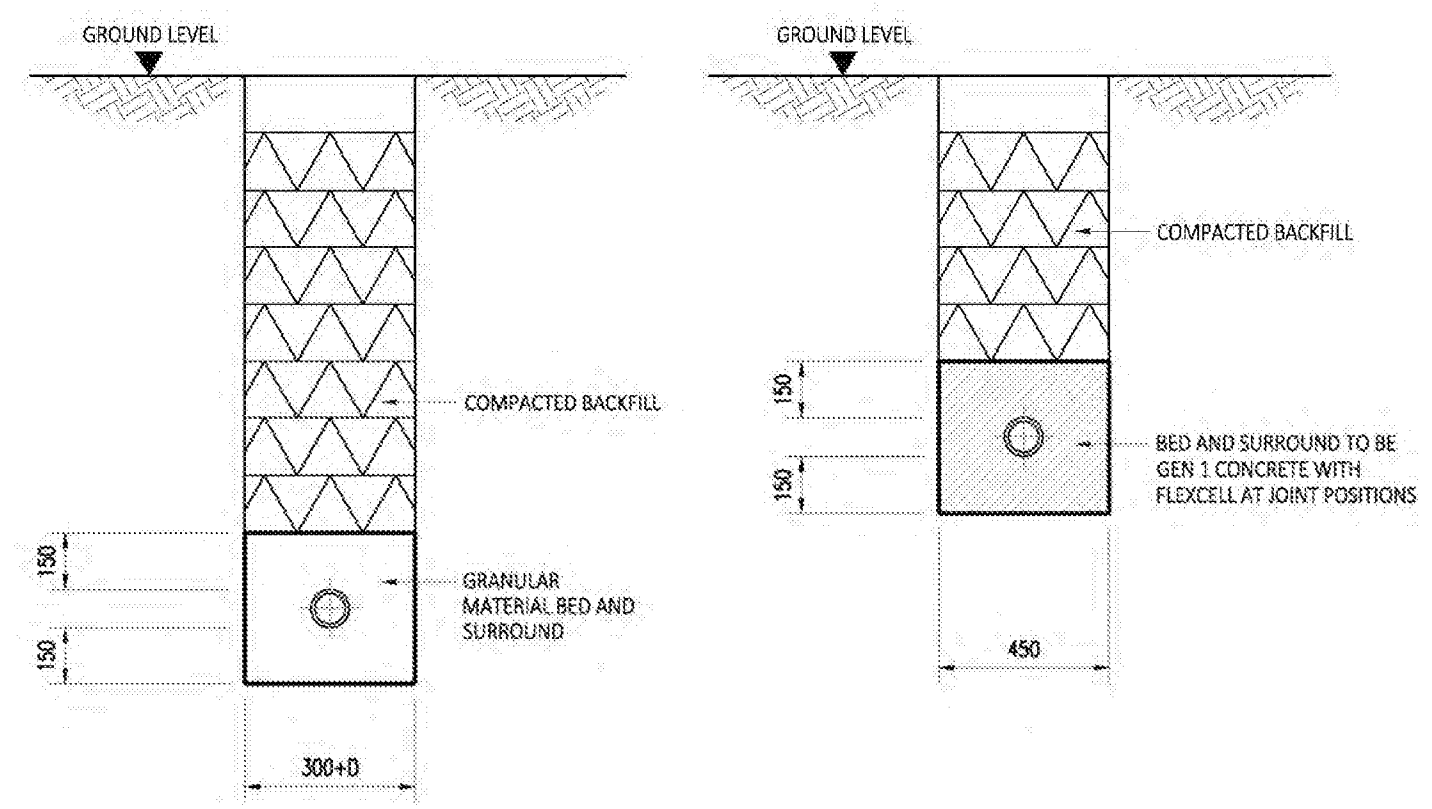
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Drawing Nos. C:\Users\N03123\Documents\PROJECTS\5877_Downsett\Barnham_Lake_Lane\Hatch\Ambiental\5877 Model1.dwg



TYPE 3 CATCHPIT MANHOLE.
(PREFORMED POLYPIPE RIGIDRAIN 600Ø CATCHPIT MANHOLE OR SIMILAR),
MAX. DEPTH 2m, NON-ENTRY
(1:20)



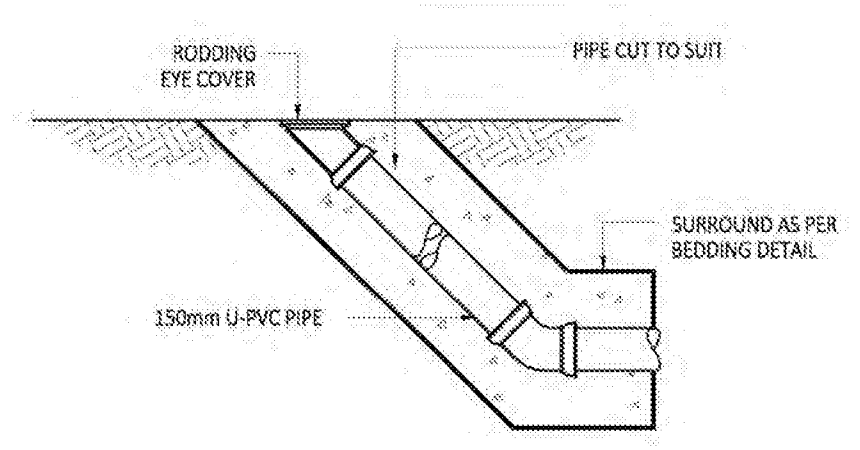
TYPE 2 MANHOLE.
(DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE LESS THAN 3.0m)
(1:20)



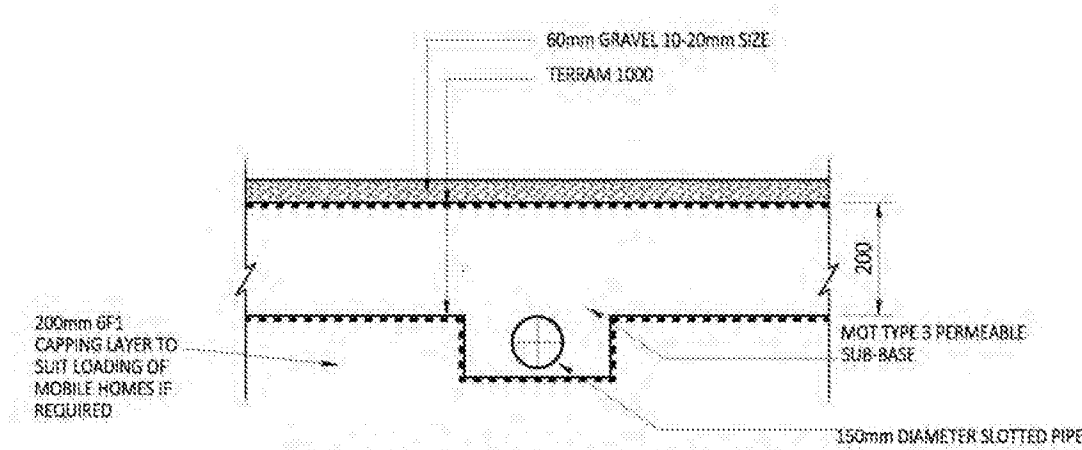
GRANULAR BEDDING DETAIL.
(WHERE COVER >900mm)
(1:20)

CONCRETE BEDDING DETAIL.
(WHERE COVER <900mm)
(1:20)

NOTE
ALL BACKFILLING AND REINSTATEMENT WITHIN ROADS AND STREETS TO BE IN ACCORDANCE WITH THE HIGHWAY AUTHORITY AND HAUC SPECIFICATION.



RODDING EYE DETAIL.
(1:20)



GRAVEL SURFACE SECTION
(NTS)

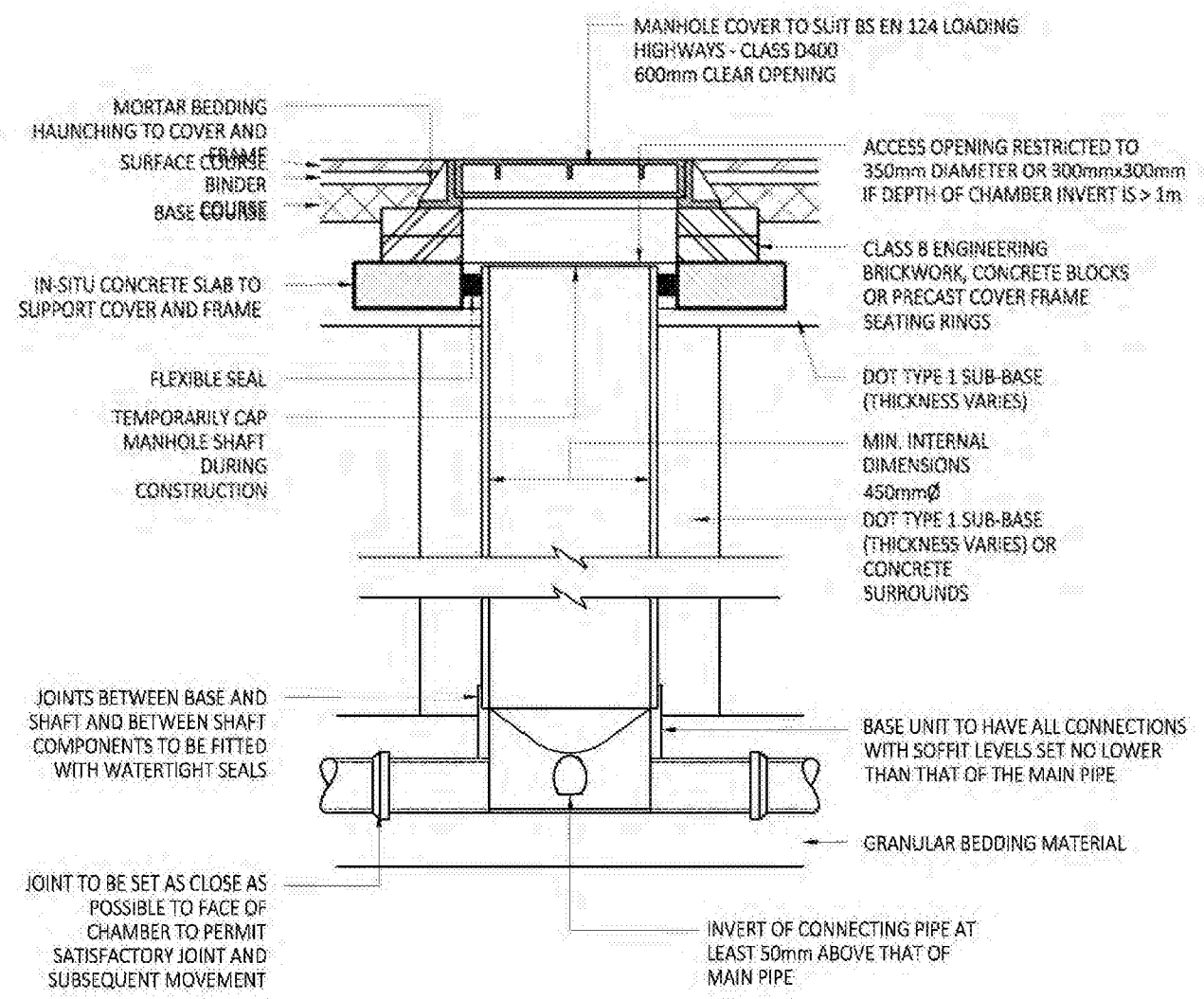
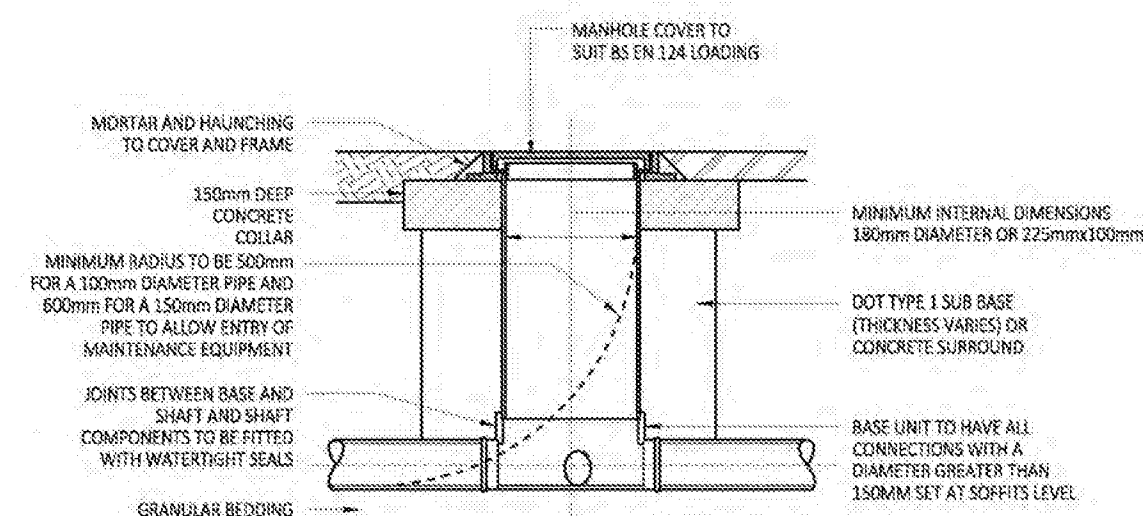


TABLE 1	
NOMINAL DIAMETER (mm)	EFFECTIVE LENGTH OF ROCKER PIPE (m)
150 TO 600	0.6
>600 TO 750	1.0
>750	1.2

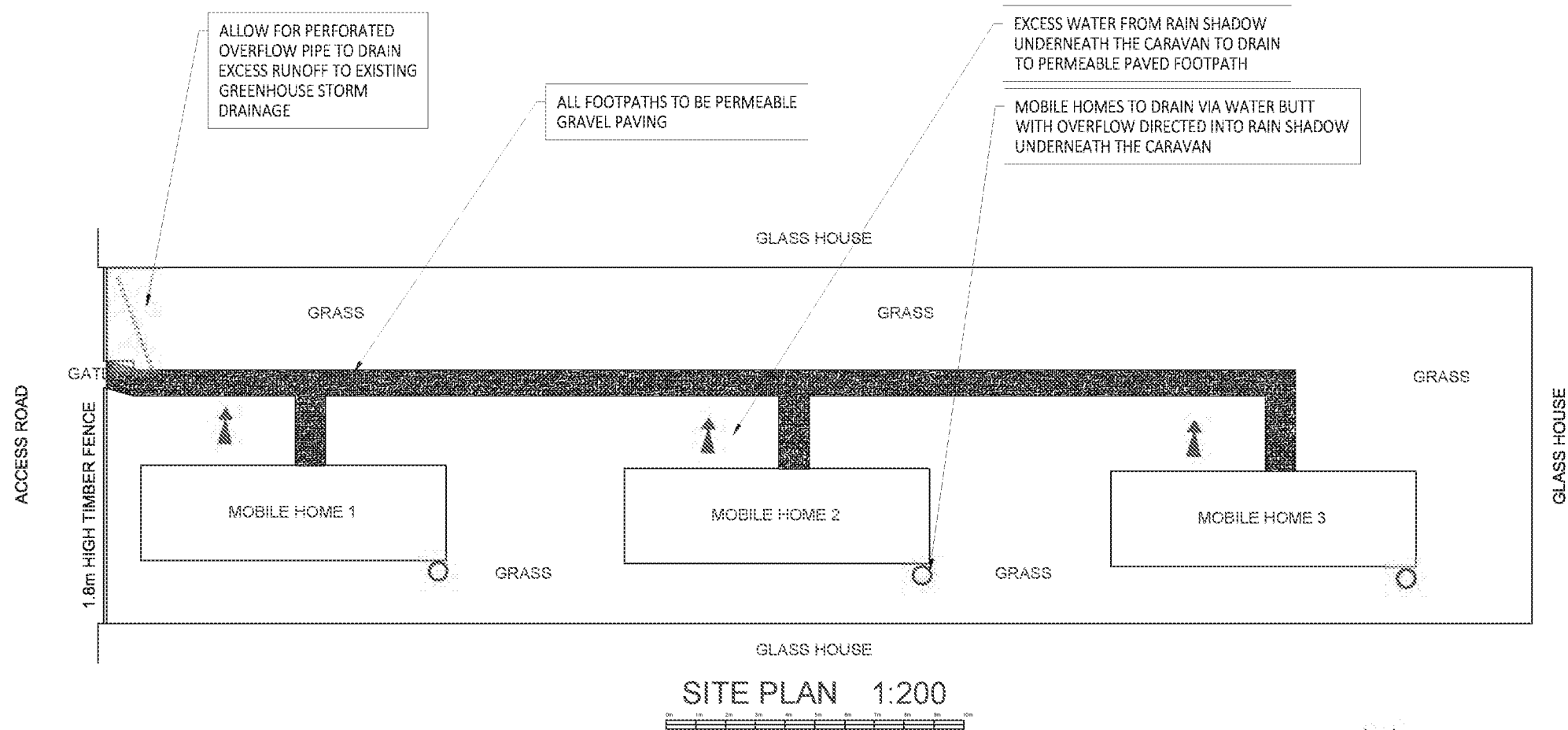
TYPE 3 ACCESS CHAMBER - FLEXIBLE MATERIAL.
(SUBJECT TO VEHICLE LOADING,
MAX. DEPTH 3m, NON-ENTRY)
(1:20)



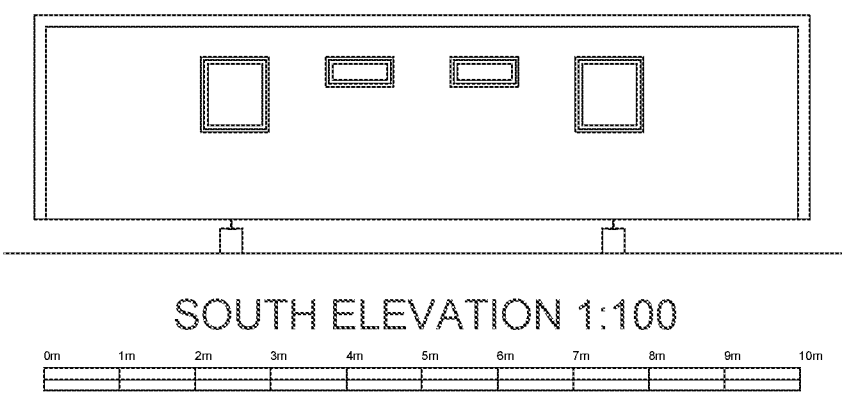
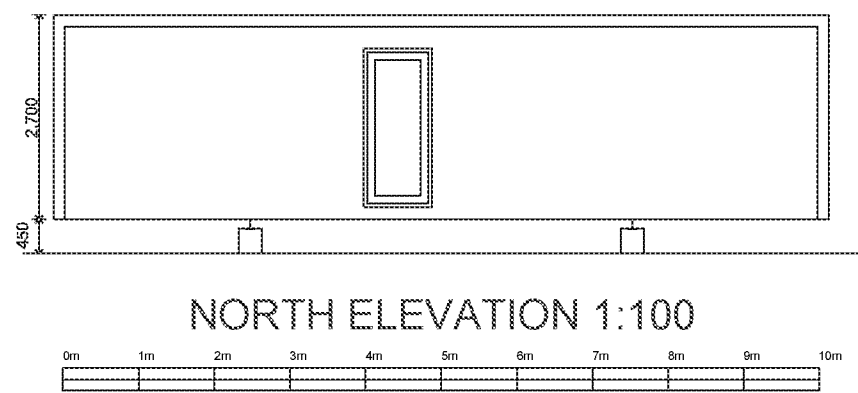
TYPE 4 ACCESS CHAMBER - FLEXIBLE MATERIAL
SURFACED AREA.
(SUBJECT TO LIGHT TRAFFIC LOADS,
MAX. DEPTH 2m, NON-ENTRY)
(NTS)

- GENERAL
(i) WORK TO FIGURED DIMENSIONS ONLY.
(ii) THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL DRAWINGS, DETAILED SPECIFICATIONS WHERE APPLICABLE AND ALL ASSOCIATED DRAWINGS IN THIS SERIES.
(iii) ANY DISCREPANCY ON THIS DRAWING IS TO BE REPORTED IMMEDIATELY TO THE PARTNERSHIP FOR CLARIFICATION.
(iv) THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORKS AND FOR THE STABILITY OF THE WORKS IN PROGRESS.
- DRAINAGE GENERAL
(i) ALL FOUL AND STORM WATER DRAINS WHICH ARE NOT TO BE ADOPTED AS PUBLIC SEWERS UNDER A SECTION 104 AGREEMENT MUST BE CONSTRUCTED IN ACCORDANCE WITH THE BUILDING REGULATIONS, BS EN 752 AND WHERE APPROPRIATE THE RELEVANT AGREEMENT CERTIFICATES.
(ii) MANHOLES, GULLIES, GULLY CONNECTIONS, SEWERS AND OTHER SEWERAGE STRUCTURES INTENDED TO CONVEY SURFACE WATER ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE WATER AUTHORITIES ASSOCIATION SPECIFICATION 'SEWERS FOR ADOPTION' 6TH EDITION AND RELEVANT COUNCIL DESIGN GUIDE.
(iii) ALL CONCRETE USED IN DRAINAGE WORKS TO COMPLY WITH BRE DIGEST 363 FOR CLASS 2 SULPHATE CONDITIONS.
- MANHOLE COVERS AND FRAMES
(i) MANHOLE COVERS TO BE CLASS D400 IN HIGHWAYS, CLASS B125 IN FOOTWAYS AND VERGES, CLASS A15 IN NON-TRAFFICKED AREAS.
(ii) MANHOLE COVER AND FRAME TO BE BEDDED AND SURROUNDED IN 1:3 MORTAR.
(iii) PRECAST CONCRETE MANHOLE UNITS SHALL COMPLY WITH THE REQUIREMENTS OF BS 5911. THE RELEVANT ABSORPTION TESTS REQUIRED SHALL BE CARRIED OUT ON A SAMPLE OF THOSE RINGS AND SLABS USED UNLESS A CERTIFICATE OF TESTING IS SUPPLIED BY THE MANUFACTURER. COVER SLABS SITUATED UNDER CARRIAGEWAYS OR TRAFFICKED AREAS SHALL BE HEAVY DUTY AND THOSE ELSEWHERE SHALL BE LIGHT DUTY. MANHOLE UNITS SHALL BE COMPLETE WITH STEP IRONS IF REQUIRED.
- PIPES
(i) PLASTIC PIPES SHALL BE OF UNPLASTICISED POLYVINYL CHLORIDE (UPVC) COMPLYING WITH THE REQUIREMENTS OF BS EN 1401.
(ii) CONCRETE PIPES SHALL BE SPUN BY A CENTRIFUGAL PROCESS OR BE VERTICALLY PRESSED. THEY SHALL POSSESS SELF INVERTING SOCKETS AND SHALL COMPLY WITH THE REQUIREMENTS OF AND BE TESTED IN ACCORDANCE WITH BS 5911.
(iii) SOLID WALL CONCENTRIC EXTERNAL RIB-REINFORCED UNPLASTICISED PVC PIPE SHALL COMPLY WITH ASTM A978.
(iv) ALL VITRIFIED CLAY PIPES TO BE IN ACCORDANCE WITH BS EN 295.
(v) ALL PIPE CONNECTIONS TO MHS AND CATCH PITS TO HAVE MIN 600MM ROCKER PIPE AS CLOSE AS PRACTICABLE TO CHAMBER WALL.
- GULLY GRATES & FRAMES
(i) GULLY GRATES AND FRAMES FOR CARRIAGEWAY GULLIES SHALL COMPLY WITH BS EN 142. GULLIES SHALL BE PATTERN GB4-325 FOR ROADS BELOW 50 DV AND PATTERN GA2-450 FOR ROADS ABOVE 50 DV. GULLY GRATES AND FRAMES FOR KERB SIDE GULLIES SHALL BE PATTERN GK-115 FOR ROADS BELOW 50 DV AND GK-185 FOR ROADS ABOVE 50 DV. CURVED BAR GULLY GRATES SHALL BE USED IN ROADS WHERE THE GRADIENT EXCEEDS 4%.

REV	DATE	BY	CHKD	APPROVED	DESCRIPTION
PRELIMINARY DRAWING FOR INFORMATION ONLY - NOT FOR CONSTRUCTION					
Client: The Green House Sussex Ltd					
AMBIENTAL ENVIRONMENTAL ASSESSMENT a company of Royal HaskoningDHV					
Project: The Green House Sussex Ltd Pollards House Lake Lane Barnham PO22 0AD					
Drawing: SEASONAL WORKERS ACCOMODATION DRAINAGE DETAILS					
Drawn by: MN			Date: MAY 21		
Drawing No: 6215 - DR105			Revision		
Drawing Scale: 1:20 @ 400 600 800 1000mm					



All three mobile home units on existing site are the same (as indicated below).

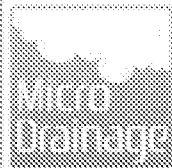


- 1. GENERAL
- a. THIS DRAWING IS NOT TO BE SCALED, WORK TO FIGURED DIMENSIONS ONLY, CONFIRMED ON SITE.
- b. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL DRAWINGS, DETAILED SPECIFICATIONS WHERE APPLICABLE AND ALL ASSOCIATED DRAWINGS IN THIS SERIES.
- c. ANY DISCREPANCY ON 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, LIDAR 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 CIRA 752 SUDS MANUAL. FOR PROPRIETARY SYSTEMS SEE MANUFACTURER'S MAINTENANCE AND MAINTENANCE DETAILS AND RISK ASSESSMENT WITH REGARDS TO MAINTENANCE OF PROPRIETARY SYSTEMS.

REV 001 OF 002 APPROBATION	
PRELIMINARY DRAWING FOR INFORMATION ONLY NOT FOR CONSTRUCTION	
Client: DOWSETT MAYHEW	
AMBIENTAL ENVIRONMENTAL ASSESSMENT a company of Royal HaskoningDHV	
Project: Eric Wail Nurseries, Lake Lane Barnham, West Sussex, PO22 0AD	
Drawing: 3 UNIT SITE LAYOUT PROPOSED DRAINAGE STRATEGY	
Drawn by: GED	Check: DCCG
Drawing No: 5877 DR02	Revision:
Drawing Scale: 1:250	

Appendix II – Calculations

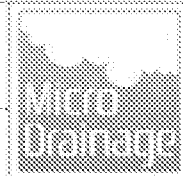
AEA - Ambiental				Page 1			
Science Park Square			Polards Nursery				
Brighton			Lake Lane				
East Sussex			Storm storage calcs				
Date 15/06/2021			Designed by mn				
File 5877 proposed storage.SRCX			Checked by				
XP Solutions			Source Control 2018.1				
<u>Summary of Results for 100 year Return Period (+40%)</u>							
Half Drain Time : 527 minutes.							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	10.360	0.060	0.0	0.3	0.3	9.0	O K
30 min Summer	10.386	0.086	0.0	0.4	0.4	12.9	O K
60 min Summer	10.414	0.114	0.0	0.4	0.4	17.0	O K
120 min Summer	10.440	0.140	0.0	0.5	0.5	21.0	O K
180 min Summer	10.453	0.153	0.0	0.5	0.5	22.9	O K
240 min Summer	10.460	0.160	0.0	0.5	0.5	23.9	O K
360 min Summer	10.466	0.166	0.0	0.5	0.5	24.9	O K
480 min Summer	10.469	0.169	0.0	0.5	0.5	25.4	O K
600 min Summer	10.471	0.171	0.0	0.5	0.5	25.6	O K
720 min Summer	10.472	0.172	0.0	0.5	0.5	25.8	O K
960 min Summer	10.472	0.172	0.0	0.5	0.5	25.8	O K
1440 min Summer	10.468	0.168	0.0	0.5	0.5	25.2	O K
2160 min Summer	10.458	0.158	0.0	0.5	0.5	23.7	O K
2880 min Summer	10.447	0.147	0.0	0.5	0.5	22.0	O K
4320 min Summer	10.426	0.126	0.0	0.4	0.4	18.9	O K
5760 min Summer	10.409	0.109	0.0	0.4	0.4	16.3	O K
7200 min Summer	10.395	0.095	0.0	0.4	0.4	14.3	O K
8640 min Summer	10.384	0.084	0.0	0.3	0.3	12.7	O K
10080 min Summer	10.376	0.076	0.0	0.3	0.3	11.4	O K
15 min Winter	10.369	0.069	0.0	0.3	0.3	10.4	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
15 min Summer	124.544	0.0	8.0	19			
30 min Summer	84.215	0.0	11.9	33			
60 min Summer	54.368	0.0	17.2	64			
120 min Summer	33.870	0.0	22.1	122			
180 min Summer	25.280	0.0	25.0	182			
240 min Summer	20.382	0.0	27.0	240			
360 min Summer	15.043	0.0	30.1	350			
480 min Summer	12.112	0.0	32.4	402			
600 min Summer	10.228	0.0	34.2	464			
720 min Summer	8.904	0.0	35.7	524			
960 min Summer	7.147	0.0	38.2	658			
1440 min Summer	5.233	0.0	41.5	936			
2160 min Summer	3.822	0.0	46.4	1340			
2880 min Summer	3.054	0.0	48.9	1732			
4320 min Summer	2.222	0.0	52.2	2508			
5760 min Summer	1.771	0.0	55.0	3240			
7200 min Summer	1.486	0.0	56.6	3968			
8640 min Summer	1.288	0.0	57.7	4752			
10080 min Summer	1.142	0.0	58.3	5448			
15 min Winter	124.544	0.0	9.3	19			
©1982-2018 Innovyze							

AEA - Ambiental						Page 2	
Science Park Square Brighton East Sussex			Polards Nursery Lake Lane Storm storage calcs				
Date 15/06/2021			Designed by mn				
File 5877 proposed storage.SRCX			Checked by				
XP Solutions			Source Control 2018.1				
<u>Summary of Results for 100 year Return Period (+40%)</u>							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m ³)	Status
30 min Winter	10.399	0.099	0.0	0.4	0.4	14.8	O K
60 min Winter	10.430	0.130	0.0	0.4	0.4	19.4	O K
120 min Winter	10.460	0.160	0.0	0.5	0.5	23.9	O K
180 min Winter	10.474	0.174	0.0	0.5	0.5	26.2	O K
240 min Winter	10.482	0.182	0.0	0.5	0.5	27.3	O K
360 min Winter	10.491	0.191	0.0	0.6	0.6	28.6	O K
480 min Winter	10.493	0.193	0.0	0.6	0.6	29.0	O K
600 min Winter	10.494	0.194	0.0	0.6	0.6	29.1	O K
720 min Winter	10.495	0.195	0.0	0.6	0.6	29.2	O K
960 min Winter	10.493	0.193	0.0	0.6	0.6	29.0	O K
1440 min Winter	10.484	0.184	0.0	0.5	0.5	27.7	O K
2160 min Winter	10.467	0.167	0.0	0.5	0.5	25.1	O K
2880 min Winter	10.450	0.150	0.0	0.5	0.5	22.5	O K
4320 min Winter	10.421	0.121	0.0	0.4	0.4	18.2	O K
5760 min Winter	10.399	0.099	0.0	0.4	0.4	14.8	O K
7200 min Winter	10.382	0.082	0.0	0.3	0.3	12.4	O K
8640 min Winter	10.370	0.070	0.0	0.3	0.3	10.5	O K
10080 min Winter	10.360	0.060	0.0	0.3	0.3	9.1	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)			
30 min Winter	84.215	0.0	13.7	33			
60 min Winter	54.368	0.0	19.6	62			
120 min Winter	33.870	0.0	25.1	120			
180 min Winter	25.280	0.0	28.4	178			
240 min Winter	20.382	0.0	30.6	234			
360 min Winter	15.043	0.0	34.1	346			
480 min Winter	12.112	0.0	36.7	448			
600 min Winter	10.228	0.0	38.7	482			
720 min Winter	8.804	0.0	40.5	556			
960 min Winter	7.147	0.0	43.2	712			
1440 min Winter	5.233	0.0	46.9	1010			
2160 min Winter	3.822	0.0	52.6	1448			
2880 min Winter	3.054	0.0	55.5	1848			
4320 min Winter	2.222	0.0	59.4	2636			
5760 min Winter	1.771	0.0	62.8	3400			
7200 min Winter	1.486	0.0	64.7	4112			
8640 min Winter	1.288	0.0	66.2	4840			
10080 min Winter	1.142	0.0	67.1	5552			
©1982-2018 Innovyze							

Polards Nursery
Lake Lane
Storm storage calcs

Designed by mn

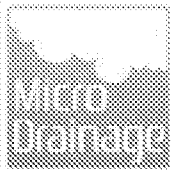
Checked by

Source Control 2018.1

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.200	Shortest Storm (mins)	15
Ratio R	0.338	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Total Area (ha) 0.050

0 4 0.050

AEA - Ambient		Page 4
Science Park Square Brighton East Sussex	Polards Nursery Lake Lane Storm storage calcs	
Date 15/06/2021	Designed by mn	
File 5877 proposed storage.SRCX	Checked by	
XP Solutions		Source Control 2018.1

Model Details

Storage is Online Cover Level (m) 10.750

Porous Car Park Structure

Infiltration Coefficient Base (m/hr) 0.00000	Width (m) 10.0
Membrane Percolation (mm/hr) 1000	Length (m) 50.0
Max Percolation (l/s) 138.9	Slope (1:X) 0.0
Safety Factor 2.0	Depression Storage (mm) 5
Porosity 0.30	Evaporation (mm/day) 3
Invert Level (m) 10.300	Cap Volume Depth (m) 0.400

Orifice Outflow Control

Diameter (m) 0.025 Discharge Coefficient 0.600 Invert Level (m) 10.300

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Appendix IV – Shallow Infiltration test results

Our Ref: YEX2188

04th June 2021

For the attention of Ambiantal, C/O The Green House Sussex Ltd

**Ref: The Green House Sussex Ltd, Pollards Lane, Lake Lane, Barnham, West Sussex,
PO22 0AD**

We thank you for your request to undertake permeability testing at the above mentioned site and take pleasure in enclosing the results of this work. The investigation was undertaken on the 01st June 2021 in accordance with your instruction to proceed. This letter describes the work undertaken, presents the data obtained and discusses the results of the tests.

Geology

An examination of the available British Geological Survey data of the area for the site has been examined and indicates that the site has superficial drift deposits composed of River Terrace Deposits (sand, silt and clay), and bedrock deposits recorded as the London Clay Formation (clay, silt and sand).

Fieldworks

The programme of this investigation included the excavation of three trial pits. The locations of the soakaway tests were selected by YourEnvironment.

During this work, the soils encountered were logged in general accordance with BS 5930: 1990, as amended in 2007, and full descriptions are given on the borehole records, which are also appended to this letter.

Soakaway Tests

During the soakaway tests the water failed to achieve a fall from 75% to 25% of the effective depth of the storage volume in all three trial pits. The results obtained from the soakaway tests are summarised below:

Table 1: Soakaway Test Results

WS	Soakage Area Dimensions (m)	Depth (m)	Soil Description (Base of TP)	Infiltration Rate (m/sec)	Drainage Characteristics
TP01 test 1	0.90 x 0.60	0.60	MADE GROUND. Orangish brown gravelly, clayey SAND. Sand is fine - medium. Gravel is medium - coarse, angular of brick and concrete fragments and mixed lithology.	N/ A	Practically Impermeable
TP02 test 1	1.00 x 0.60	0.60	Orangish brown sandy CLAY. Sand is fine - medium.	N/ A	Practically Impermeable
TP03 test 1	0.80 x 0.60	0.60	Orangish brown sandy CLAY. Sand is fine - medium.	N/ A	Practically Impermeable

Discussion

The soils encountered beneath the site were found to be predominantly CLAY. The soakage rates obtained during the investigation were found to be practically impermeable. Given the data from the test, it is considered that soakaways are not suitable for this site.

References

Building Research Establishment (BRE) Digest 365, *Soakaway Design*, September 1991.

British Standards Institution (1999) BS5930: *Code of practice for site investigations*, B.S.I., London.

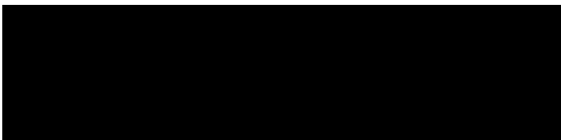
British Standards Institution (2007), Amendment No 1, BS5930: *Code of practice for site investigations*, B.S.I., London.

We trust that this information is of interest and should you have any other requirements do not hesitate to contact us.

For and on behalf of

YourEnvironment

Yours Faithfully,

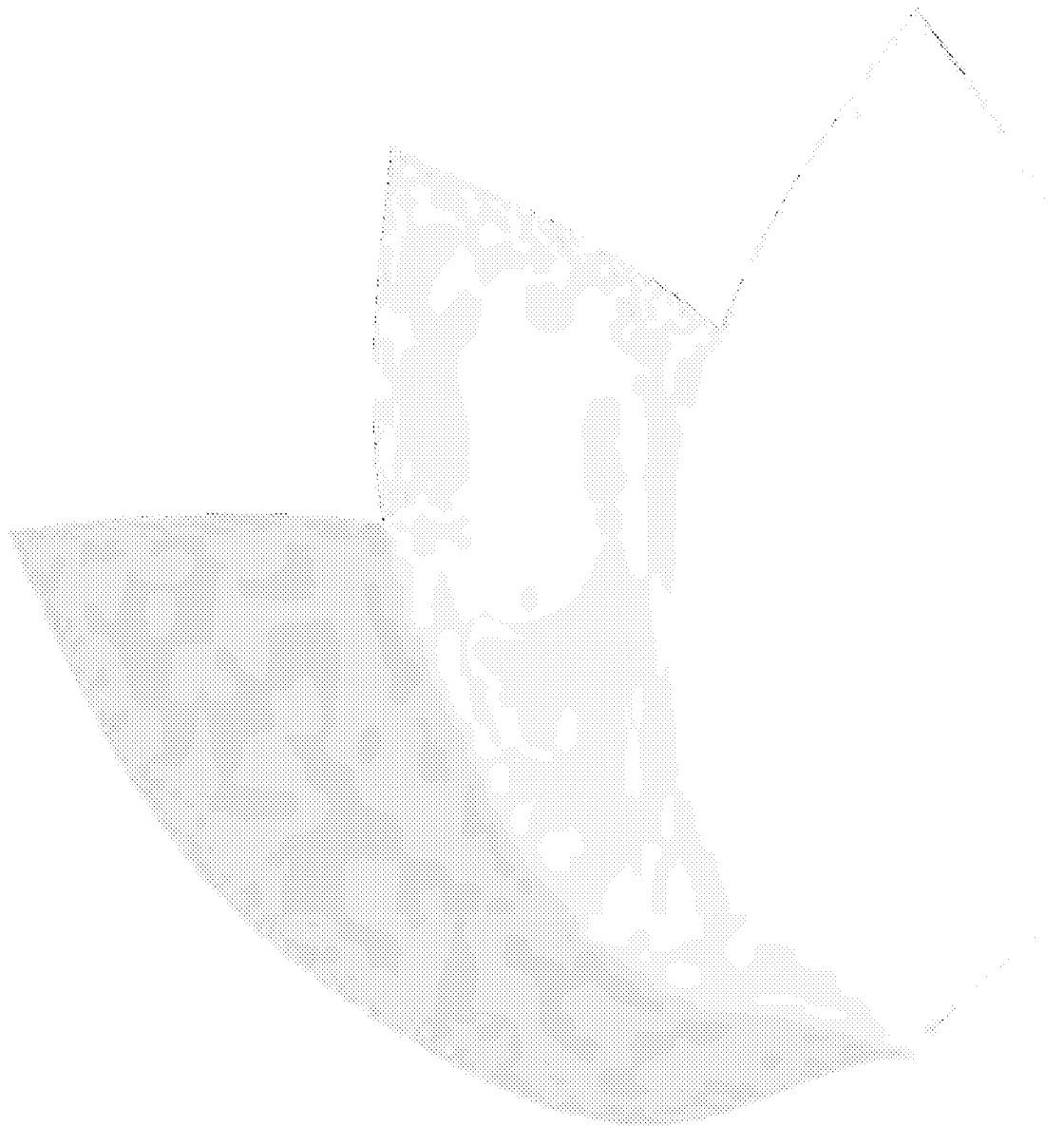


Nick Hammond

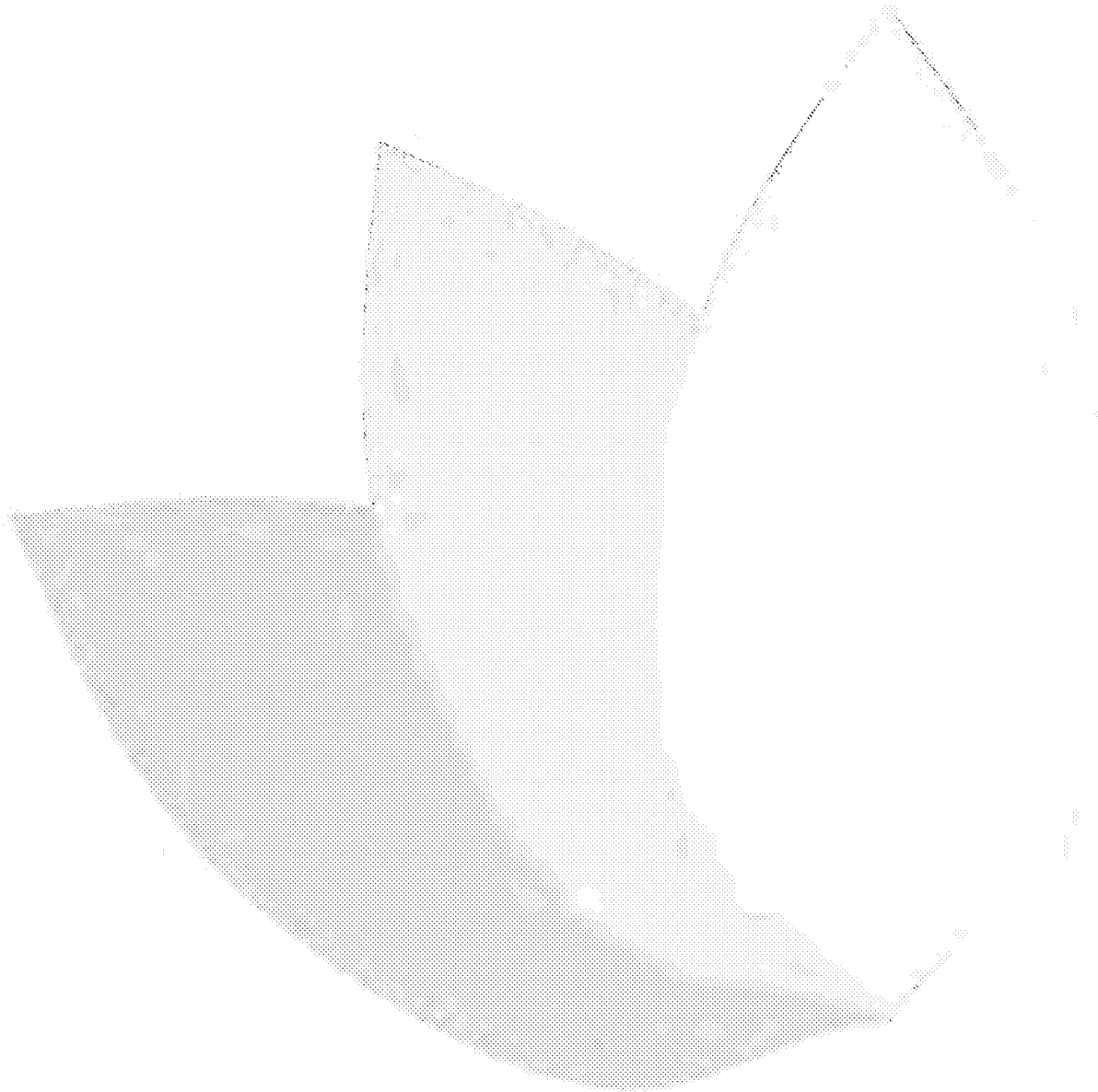
Geo-Environmental Engineer

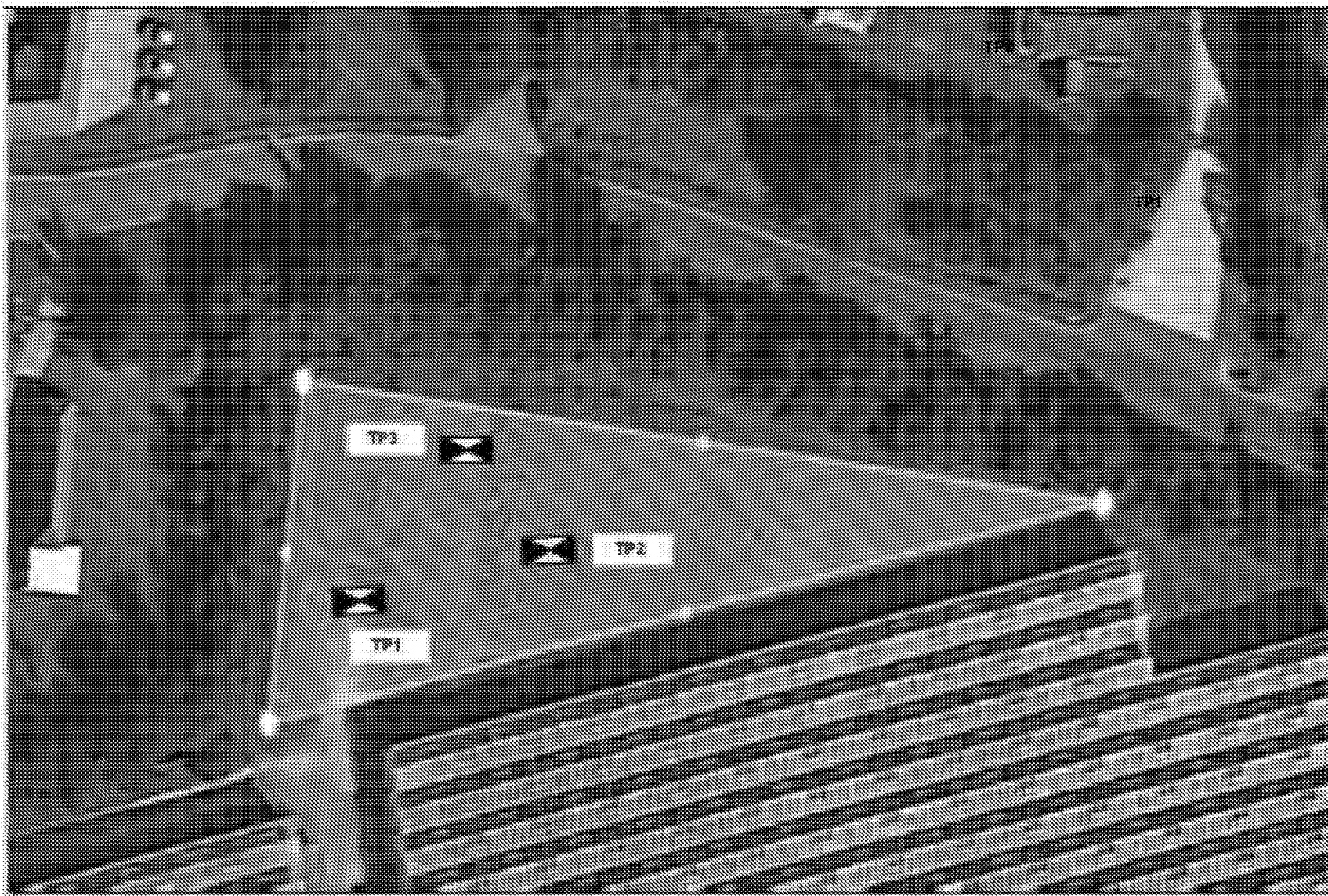
Enc.

Appendix A: Site Investigation Plan
Appendix B: Trial Pit Logs
Appendix C: Soakaway Test Results
Appendix D: Photographs



APPENDIX A: Site Investigation Plan





Ground Investigation Location Plan - Not to Scale

Your Environment

Chilgrove Business Centre, Chilgrove, Nr Chichester, PO18 9HU

Tel: 01243 787150

Email: info@yourenvironment.org

Site Name:

Eric Wall Nurseries, Barnham

Client:

Ambiental

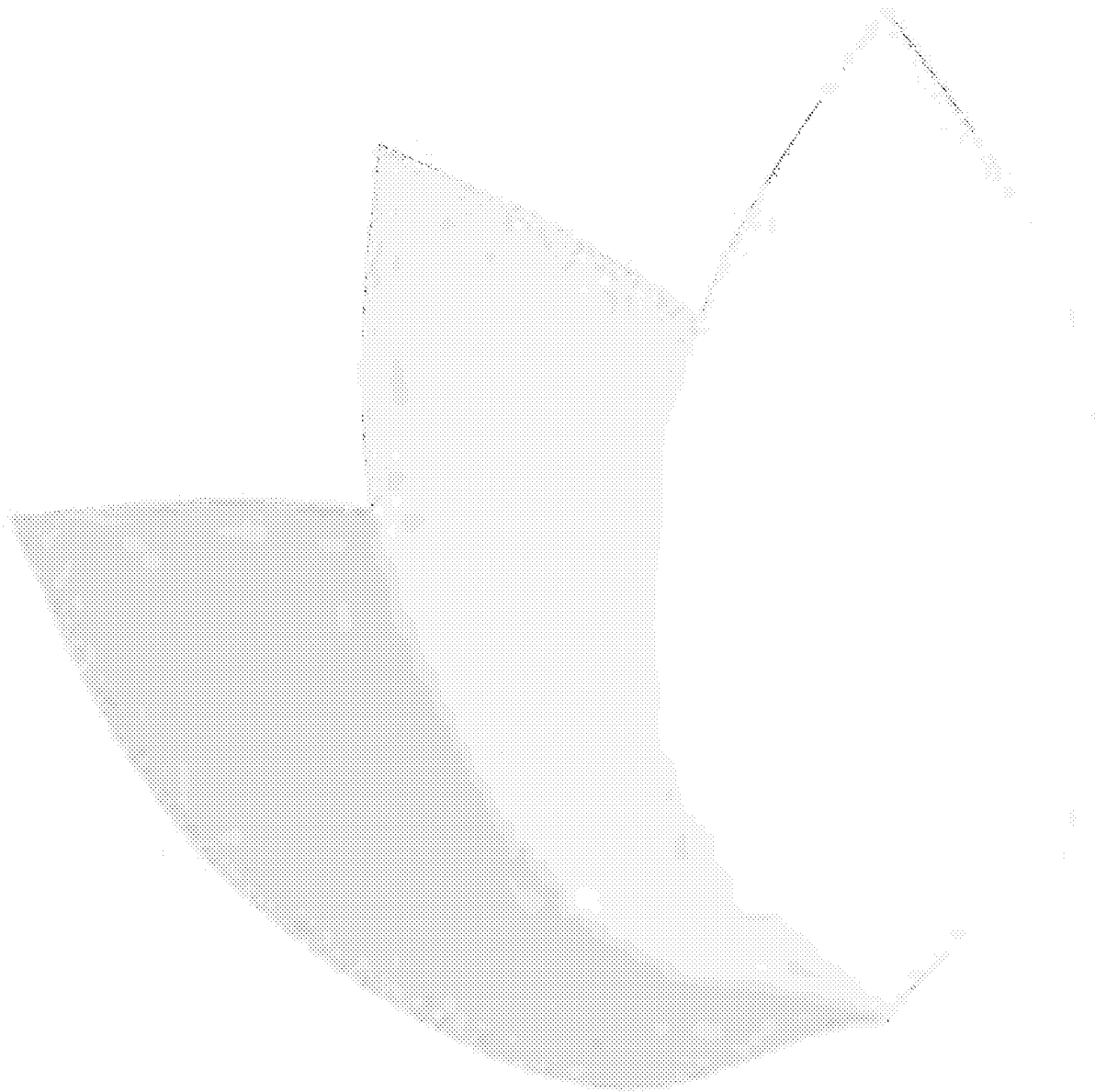
Date:

Jun-21

Job No:

YEX2188

APPENDIX B: Trial Pit Logs





TP1

1

Water level data

Completion: _____ Depth NA m

Elevation NA m

24 hour: Depth m

Elevation _____ m

Abstract

Stratum	Sample Depth		Sample Type	GW	Install Details
depth (m)	From	To			

LITHOLOGY

MADE GROUND. Orangish brown gravelly, clayey SAND. Sand is fine - medium. Gravel is medium - coarse, angular of brick and concrete fragments and mixed lithology.

KLONIX

End of TP1

Remarks:

Location The Green House Sussex Ltd, Pollards House, Barnham, PO22 0AD
 Date June 1, 2021
 Project Reference YEX2188

Water level data

Completion: Depth NA m
 Elevation NA m

Width 0.6 m
 Length 1.0 m
 Depth 0.6 m

24 hour: Depth m
 Elevation m

Method (Trial pit, window etc) Trial Pit - Machine Excavation

Stratum depth (m)		Sample Depth		Sample Type	GW	Install Details	LITHOLOGY
From	To	From	To				
0.00							MADE GROUND. Orangish brown gravelly, clayey SAND. Sand is fine - medium. Gravel is medium - coarse, angular of brick and concret fragments and mixed lithology.
0.50	0.50					NONE	Orangish brown sandy CLAY. Sand is fine - medium.
0.60							End of TP2

Remarks:

Location The Green House Sussex Ltd, Pollards House, Barnham, PO22 0AD
 Date June 1, 2021
 Project Reference YEX2188

Water level data

Completion: Depth NA m
 Elevation NA m

Width 0.6 m
 Length 0.8 m
 Depth 0.6 m

24 hour: Depth m
 Elevation m

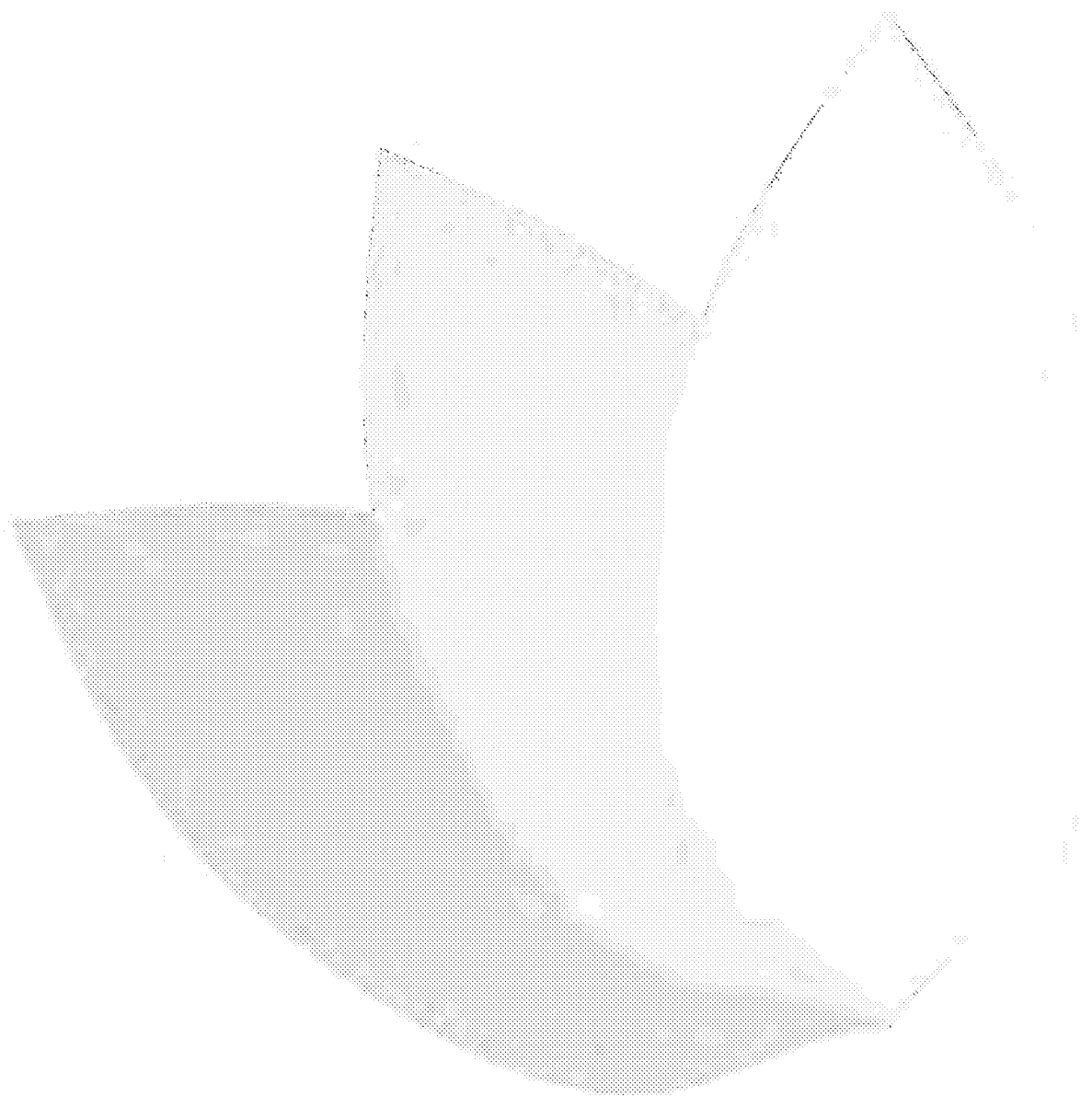
Method (Trial pit, window etc) Trial Pit - Machine Excavation

Stratum depth (m)		Sample Depth		Sample Type	GW	Install Details	LITHOLOGY
From	To	From	To				
0.00							MADE GROUND. Orangish brown gravelly, clayey SAND. Sand is fine - medium. Gravel is medium - coarse, angular of brick and concrete fragments and mixed lithology.
0.2	0.20					NONE	Orangish brown sandy CLAY. Sand is fine - medium.
	0.60						

End of TP3

Remarks:

APPENDIX C: Soakaway Test Results

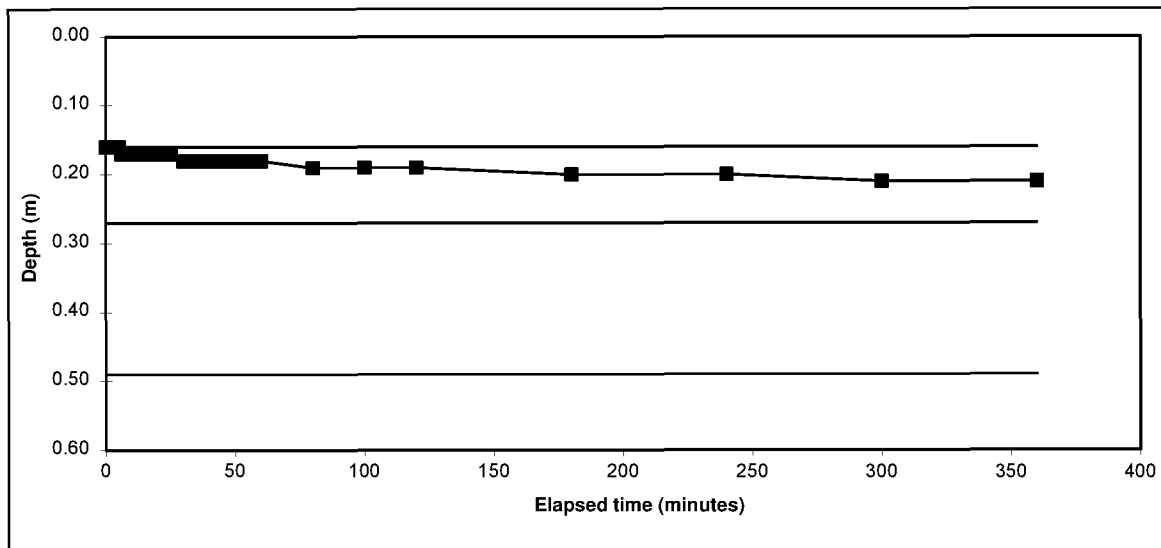


Your Environment

Soakaway Test

Trial Pit No:	TP1	Test No:	1	Date:	01/06/2021
Length (m):	0.900	Datum Height:	0.00 m agl		
Width (m):	0.60	Granular infill:	None		
Depth (m):	0.60	Porosity of infill:	1	(assumed)	

Elapsed time (minutes)	Water Depth (m below datum)	Elapsed time (minutes)	Water Depth (m below datum)
0	0.160	30	0.180
1	0.160	35	0.180
2	0.160	40	0.180
3	0.160	45	0.180
4	0.160	50	0.180
5	0.160	55	0.180
6	0.170	60	0.180
7	0.170	80	0.190
8	0.170	100	0.190
9	0.170	120	0.190
10	0.170	180	0.200
15	0.170	240	0.200
20	0.170	300	0.210
25	0.170	360	0.210



Start water depth for analysis (mbgl)	0.16		
75%effective depth (mbgl):	0.27	Elapsed time (mins):	#N/ A
50%effective depth (mbgl):	0.38		
25%effective depth (mbgl):	0.49	Elapsed time (mins):	#N/ A
Base of soakage zone (mbgl):	0.60		
Volume outflow between 75%and 25%effective depth (m³):			
Mean surface area of outflow (m²):			1.20
(side area at 50%effective depth + base area)			
Time for outflow between 75%and 25%effective depth (mins):			

Soil infiltration rate (m/s):	Test incomplete as 25%effective depth not achieved. Unable to reliably determine soil infiltration rate.
Remarks Results processed following BRE 365 (2007).	

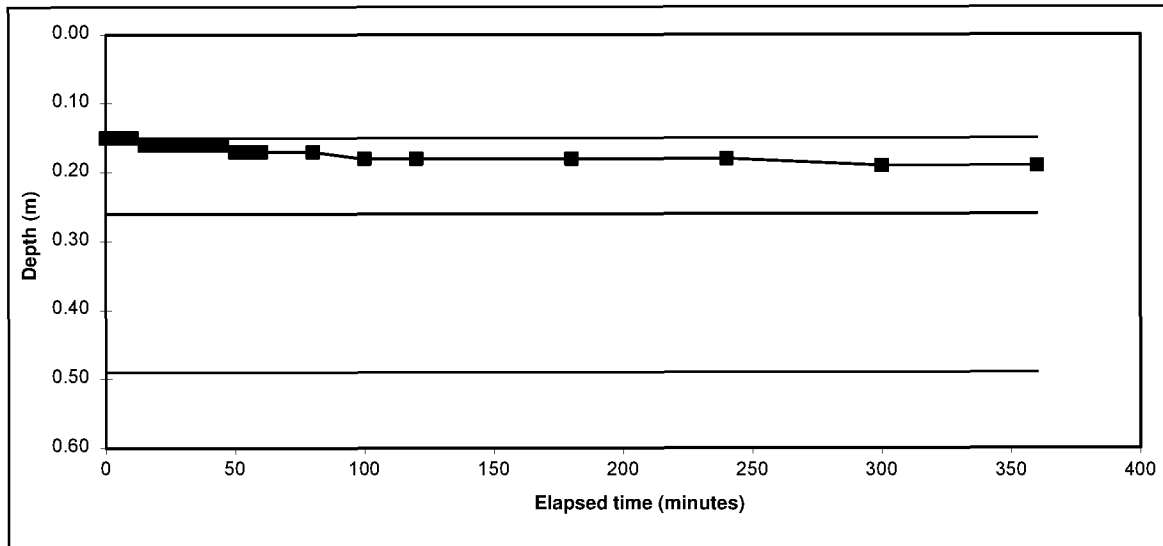
Client:	Ambiental	TP1
Site:	Eric Wall Nuseries	

Your Environment

Soakaway Test

Trial Pit No:	TP2	Test No:	1	Date:	01/06/2021
Length (m):	1.000	Datum Height:		0.00 m agl	
Width (m):	0.60	Granular infill:	None		
Depth (m):	0.60	Porosity of infill:	1	(assumed)	

Elapsed time (minutes)	Water Depth (m below datum)	Elapsed time (minutes)	Water Depth (m below datum)
0	0.150	30	0.160
1	0.150	35	0.160
2	0.150	40	0.160
3	0.150	45	0.160
4	0.150	50	0.170
5	0.150	55	0.170
6	0.150	60	0.170
7	0.150	80	0.170
8	0.150	100	0.180
9	0.150	120	0.180
10	0.150	180	0.180
15	0.160	240	0.180
20	0.160	300	0.190
25	0.160	360	0.190



Start water depth for analysis (mbgl)	0.15		
75%effective depth (mbgl):	0.26	Elapsed time (mins):	#N/ A
50%effective depth (mbgl):	0.38		
25%effective depth (mbgl):	0.49	Elapsed time (mins):	#N/ A
Base of soakage zone (mbgl):	0.60		
Volume outflow between 75%and 25%effective depth (m³):			
Mean surface area of outflow (m²):			1.30
(side area at 50%effective depth + base area)			
Time for outflow between 75%and 25%effective depth (mins):			

Soil infiltration rate (m/s):	Test incomplete as 25%effective depth not achieved. Unable to reliably determine soil infiltration rate.
Remarks Results processed following BRE 365 (2007).	

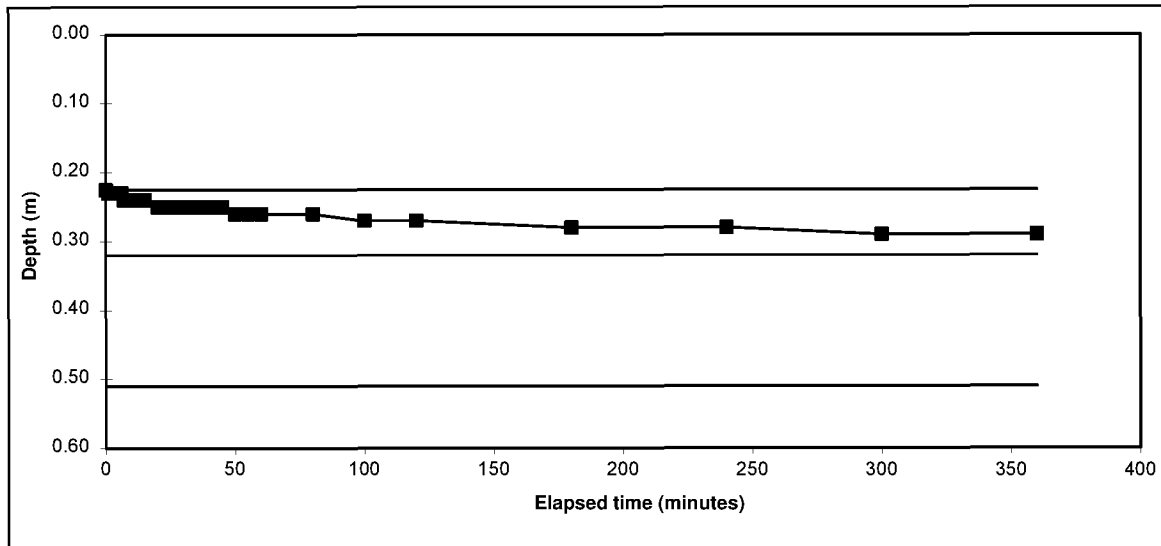
Client: Ambiantal	TP2
Site: Eric Wall Nuseries	

Your Environment

Soakaway Test

Trial Pit No:	TP3	Test No:	1	Date:	01/06/2021
Length (m):	0.800	Datum Height:		0.00 m agl	
Width (m):	0.60	Granular infill:	None		
Depth (m):	0.60	Porosity of infill:	1	(assumed)	

Elapsed time (minutes)	Water Depth (m below datum)	Elapsed time (minutes)	Water Depth (m below datum)
0	0.225	30	0.250
1	0.230	35	0.250
2	0.230	40	0.250
3	0.230	45	0.250
4	0.230	50	0.260
5	0.230	55	0.260
6	0.230	60	0.260
7	0.240	80	0.260
8	0.240	100	0.270
9	0.240	120	0.270
10	0.240	180	0.280
15	0.240	240	0.280
20	0.250	300	0.290
25	0.250	360	0.290

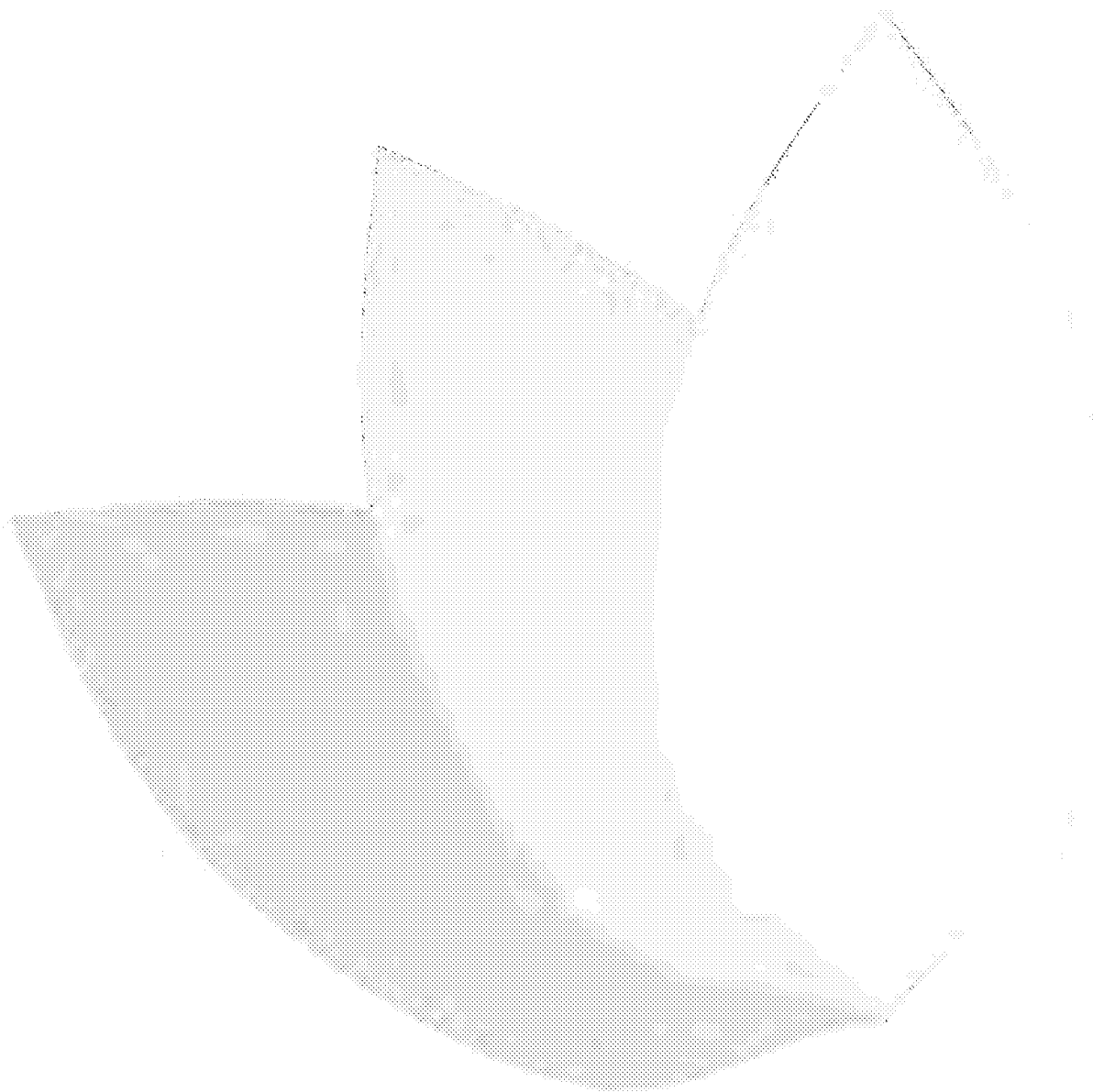


Start water depth for analysis (mbgl)	0.23		
75%effective depth (mbgl):	0.32	Elapsed time (mins):	#N/ A
50%effective depth (mbgl):	0.41		
25%effective depth (mbgl):	0.51	Elapsed time (mins):	#N/ A
Base of soakage zone (mbgl):	0.60		
Volume outflow between 75%and 25%effective depth (m³):			
Mean surface area of outflow (m²):			1.01
(side area at 50%effective depth + base area)			
Time for outflow between 75%and 25%effective depth (mins):			

Soil infiltration rate (m/s):	Test incomplete as 25%effective depth not achieved. Unable to reliably determine soil infiltration rate.
Remarks Results processed following BRE 365 (2007).	

Client: Ambiantal	Site: Eric Wall Nuseries	TP3
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APPENDIX D: Photographs

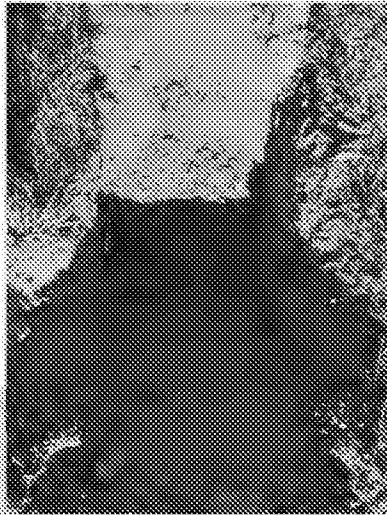


Site: Eric Wall Nurseries

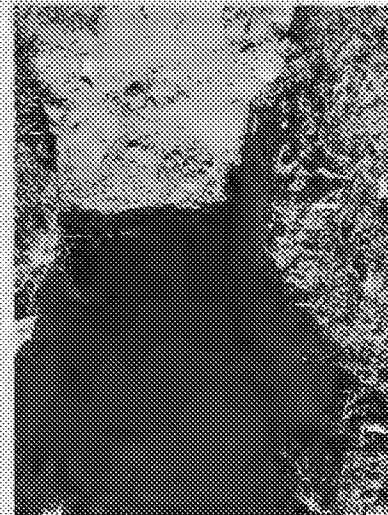
Client: Ambiental

Job Reference: YEX2188, Dated: June 2021

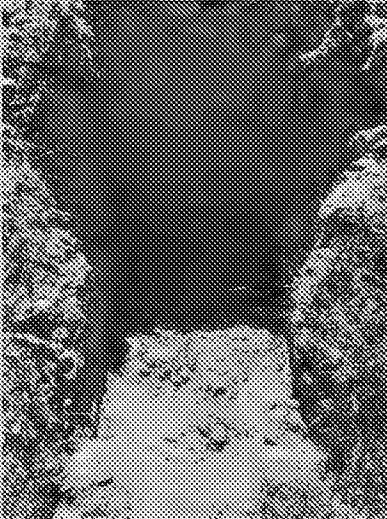
A.



B.



C.



D.



Your Environment

A. TP1

B. TP1

C. TP1

D. TP1



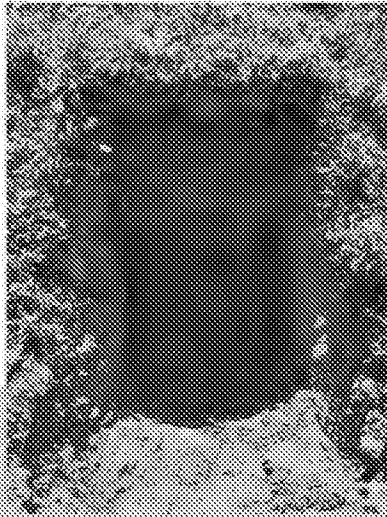
Your Environment

Site: Eric Wall Nurseries

Client: Ambiental

Job Reference: YEX2188, Dated: June 2021

E.



F.



Your Environment

E. TP2

F. TP2

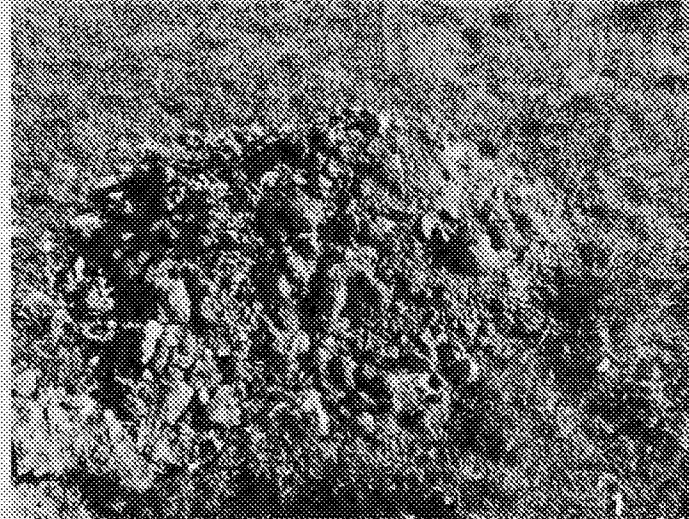
G. TP2

H. TP2

G.



H.



Your Environment

Site: Eric Wall Nurseries

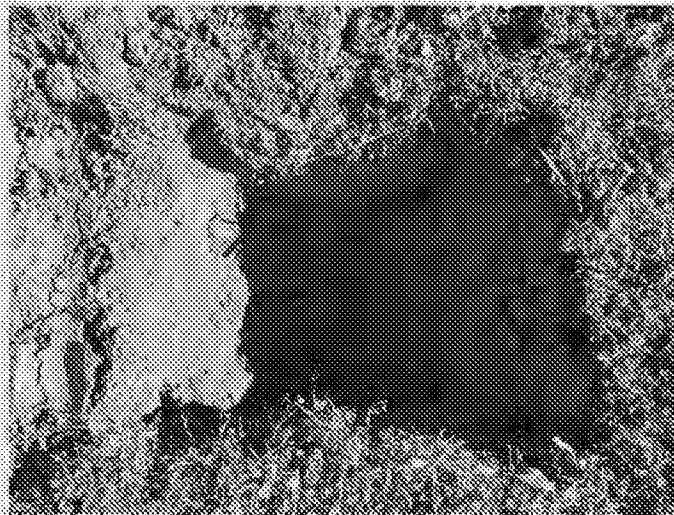
Client: Ambiental

Job Reference: YEX2188, Dated: June 2021

I.



J.



K.



L.



Your Environment

I. TP3

J. TP3

K. TP3

L. TP3

