SURFACE WATER DRAINAGE STRATEGY

UPON

PROPOSED INDUSTRIAL UNITS

CLAY LAKE, SPALDING, LINCS, PE12 6BL

PROJECT NO: SW25-258

DOCUMENT REF: SW25-258-REP-01



FOR SALTERS LANDSCAPING LTD.

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Revision	Date	Description		
-	July '25	First Issue	Prepared	M. R. Barlow
			Approved	A.Wilson CEng MIStructE

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1. Introduction

Under the instruction of Salters Landscaping Ltd., the following drainage strategy report has been prepared for proposed industrial units at Clay Lake, Spalding.

The object of this report is to clarify the design philosophy followed when preparing the proposed surface drainage arrangements for the site and to outline the proposed solution in sufficient detail for all relevant parties to be able to comment, as well as eliminate and surface water drainage related planning conditions. This assessment also demonstrates that the proposals are within the guidance contained with the National Planning Policy Framework (NPPF).

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2. Existing Site Information

The development site is located to the East of Spalding Drove, West of the Coronation Channel, in Clay Lake, Spalding, with National Grid reference TF254214.

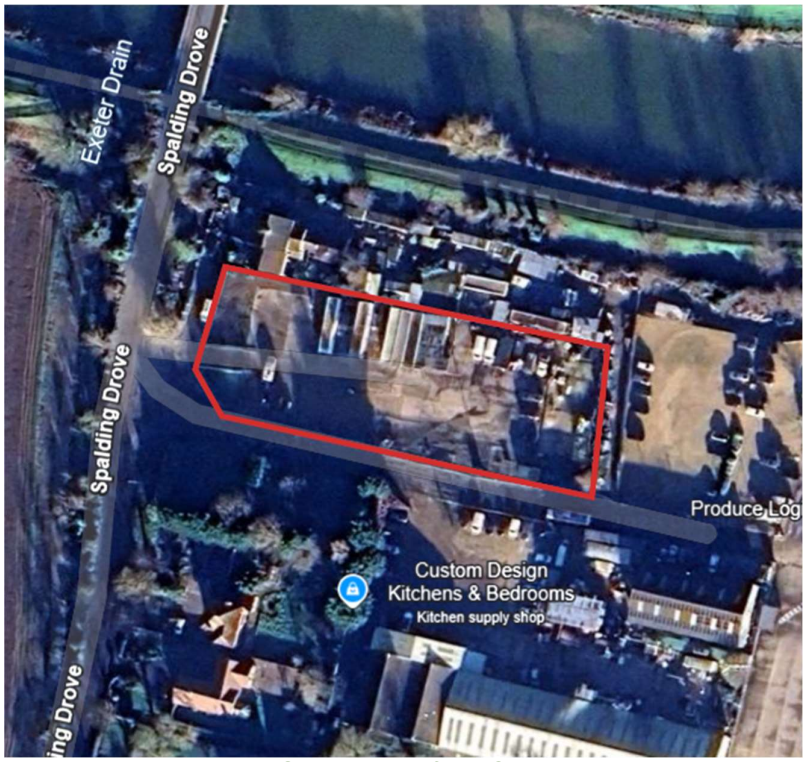


Figure 1: Site Location from Google Earth

The existing site is a Concrete Surfaced Yard with a number of cabins, sheds, containers and tanks to be removed prior to any development.

The existing site has a noticeable fall from the road at the west of the site down to the east boundary of the site, backing on to a private gated access way. LIDAR data indicated the site having levels from +3.0m AOD to the west, falling down to +2.2m AOD to the east, with Spalding Drove to the West of the site sitting higher at approximately +4.1m AOD. Existing overland flood routing follows the gradient of the site from West to East and may marginally pool/infiltrate before running off site.

There is limited existing Surface Water on site, with evidence of a few gullies and geo-cellular infiltration crated beneath the concrete surface, indicating that infiltration has been used in the past and may be a viable method for surface water discharge.

A flood risk assessment had been undertaken in November of 2024 by Ellingham Consulting Ltd outlining the Site is in flood zone 3 and suggesting its vulnerability to flooding in the future, however whilst stating that it is protected by the flood bank. This document suggests that flood resilience measures are adopted before occupation to manage the risk of flood water breaching the units internally.

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3. Ground Investigation

Shields Wilson attended site on the 14/04/25 with the purpose to determine whether infiltration was a viable method of surface water discharge following the discovery of infiltration being used on the site in the past and due to it being the most desirable method of discharge in the SuDS hierarchy. The weather on the day was dry and cloudy, however there had been rain on the days prior to the testing.

Following the results from the testing and subsequent calculations, it was found that a worst case infiltration rate for the site was $1.005x10^{-5}$ m/s, which we would deem as an above average infiltration rate for the area, indicating that infiltration would likely be possible as a method of surface water discharge. During our excavations, no ground water was encountered. Resulting calculations for the infiltration rate following our testing can be found within Appendix A.

Our local experience of undertaking projects on the adjacent industrial sites would confirm we would not anticipate very shallow ground water levels.

To increase our certainty of a low Ground Water level to aid the suitability of Soakaways being used on the site, desktop study of the area has been undertaken using the British Geological Survey Borehole Records Viewer.

These records indicate a borehole had been excavated and logged previously on the sites side of the river, roughly 60m from the sites boundary.

This information is based upon publicly available records and can be seen in the figures below, as well as full logs appended within Appendix B.



Figure 2: Location Data from BGS Borehole Records Viewer - Map

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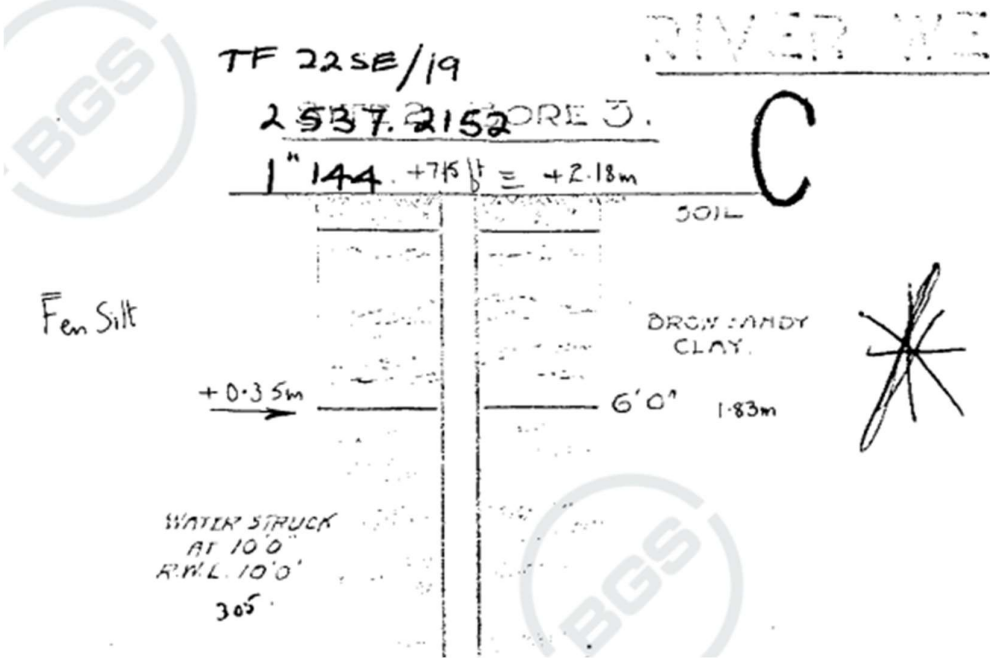


Figure 3: Data from BGS Borehole Records Vewer – TF22SE19 Log

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4. Proposed Surface Water Drainage Strategy

Following our investigations, we have produced a Surface Water Drainage Strategy Drawing to go alongside this report. Surface Water Drainage Strategy Drawing SW25-258-001 can be found within Appendix C.

Following the successful results from the infiltration testing, soakaways have been indicated for infiltrating the sites impermeable areas which are the proposed units roof areas. Due to the density of the site and the restricted room available for soakaways, to keep the Soakaways smaller a permeable tarmac surface construction has been indicated to limit the impermeable area of the site to be infiltrated, utilising the infiltration rate of $1.005x10^{-5}$ m/s. Utilising Soakaways meets the highest level of the SuDS hierarchy, as well as the utilisation of permeable surfacing and infiltration for source control adds extra sustainability to the development.

From the evidence of low ground water levels & good infiltration rates from our desktop studies, on site investigations and knowledge of adjacent sites, we consider that crates 1 deep will provide a crate invert level well above the ground water level, however it is worth noting that Soakaway C may require a cover slab dependent on the crate type used, should the water level on site be high enough that the base is sitting in saturated ground with the depth required without a cover slab. Also, soakaway B is indicated as two crated deep for storage reasons, but ground water should pose no threat as the Soakaway is in the soft landscaping so subject to no vehicle loading and is on the higher elevated side of the site. Due to this water level we are also certain that permeable surfacing is feasible due to the shallow depth of construction, low ground water levels & high infiltration rates.

Proposed Flood Exceedance Routing for the site is to follow the same principles as the existing whilst trying to reduce off site flooding where possible. As shown on Shields Wilson Drawing SW25-258-100, flood routing is to go from West to East as existing, routing around the buildings with a min. 150mm step to get in them to stop any overland flood flows running into/through the buildings. Once at the bottom of the site the surface water will have room to pool to give it some time to infiltrate into the permeable surfacing before overtopping the kerbs to the North East and South East of site before reaching building floor level, and running downhill in the soft to two number secondary raised drainage channels only to be utilized to catch overland flood flows from running off site. All these measures should follow the existing principles, whilst limiting the amount of off-site flooding substantially when compared to the existing scenario.

Soakaways have been modelled using Causeway Flow+ using FSR Rainwater Data for attenuating and infiltrating in storms up to and including a 1 in 100 year storm event with a 40% allowance for climate change. During all storm events, no surface water flooding of the system occurred with the sizes provided on our drawing using our calculated infiltration rate of $1.005x10^{-5}$ m/s. The output from these Flow Calculations can be found within Appendix D at the end of this report.

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5 Conclusion

In summary:

- Desktop and in-person site investigations have been undertaken to understand the site.
- Existing site features, topography, drainage assets, etc. have been evaluated.
- A Desktop and in-person ground investigation has been conducted.
- An infiltration rate for the site has been calculated.
- A drainage strategy incorporating Soakaways has been detailed.
- Ground Water levels have been identified and considered in the design.
- SuDS hierarchy has been explored;
- The first level of the SuDS hierarchy is achieved for surface water discharge through infiltrating to the ground.
- Permeable surfacing has been used to reduce area to soakaways and increase sustainability.
- Proposed flood exceedance routes have been at the forefront of design, and mimic the existing scenario where possible whilst incorporating ways to further reduce flooding off site.
- Hydraulic design undertaken using Causeway Flow+, modelling and attenuating surface water in a storm event up to a 1:100 Year + CC.

As illustrated by our design proposals on drawing SW25-258-001 and the information outlined within this report, it is demonstrable that a viable and robust surface water scheme that complies with the requirements of National Planning Guidance can be provided for the proposed residential development.

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Appendix A – SW25-258-SA01 - Infiltration Testing Results

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PROPOSED UNITS, CLAY LAKE

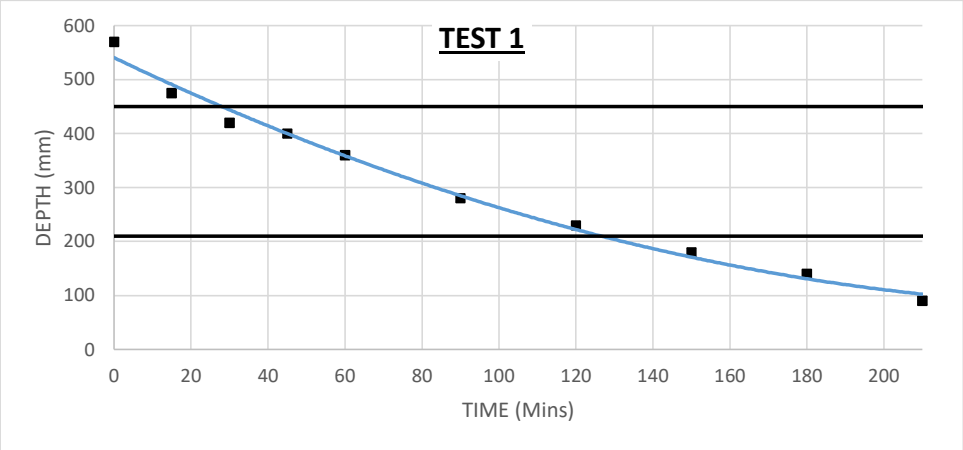
SA01	TEST 1	TEST 2
TIME (Mins)	DEPTH mm (d)	DEPTH mm (d)
0	570	500
15	475	490
30	420	480
45	400	450
60	360	440
90	280	410
120	230	380
150	180	360
180	140	350
210	90	320

INFILTRATION TEST - HOLE SA01

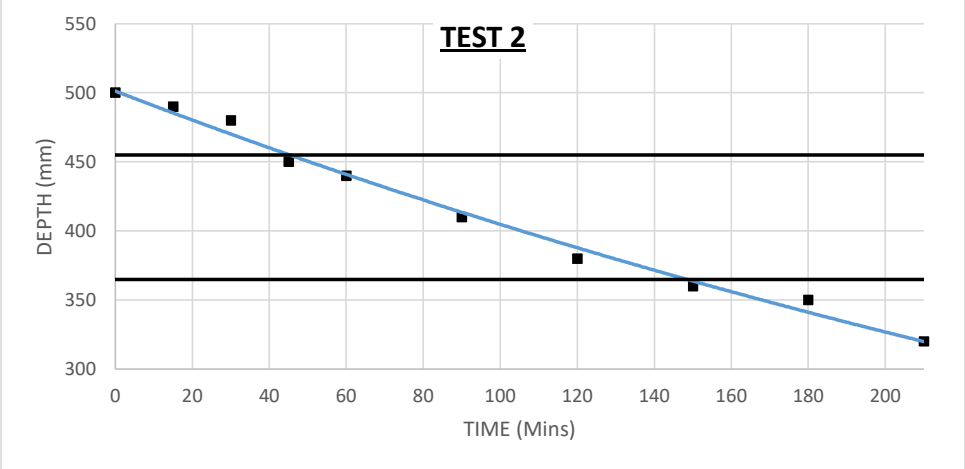
PROJECT NO. **25-258**

SITE VISIT: **14/04/2025**

TRIAL PIT DIMENSIONS (m)	
A [L]	1.10
B [W]	0.70
C [D]	1.10



SOIL INFILTRATION RATE, f
TEST 1
1.98415E-05 m/s
0.071429492 m/h



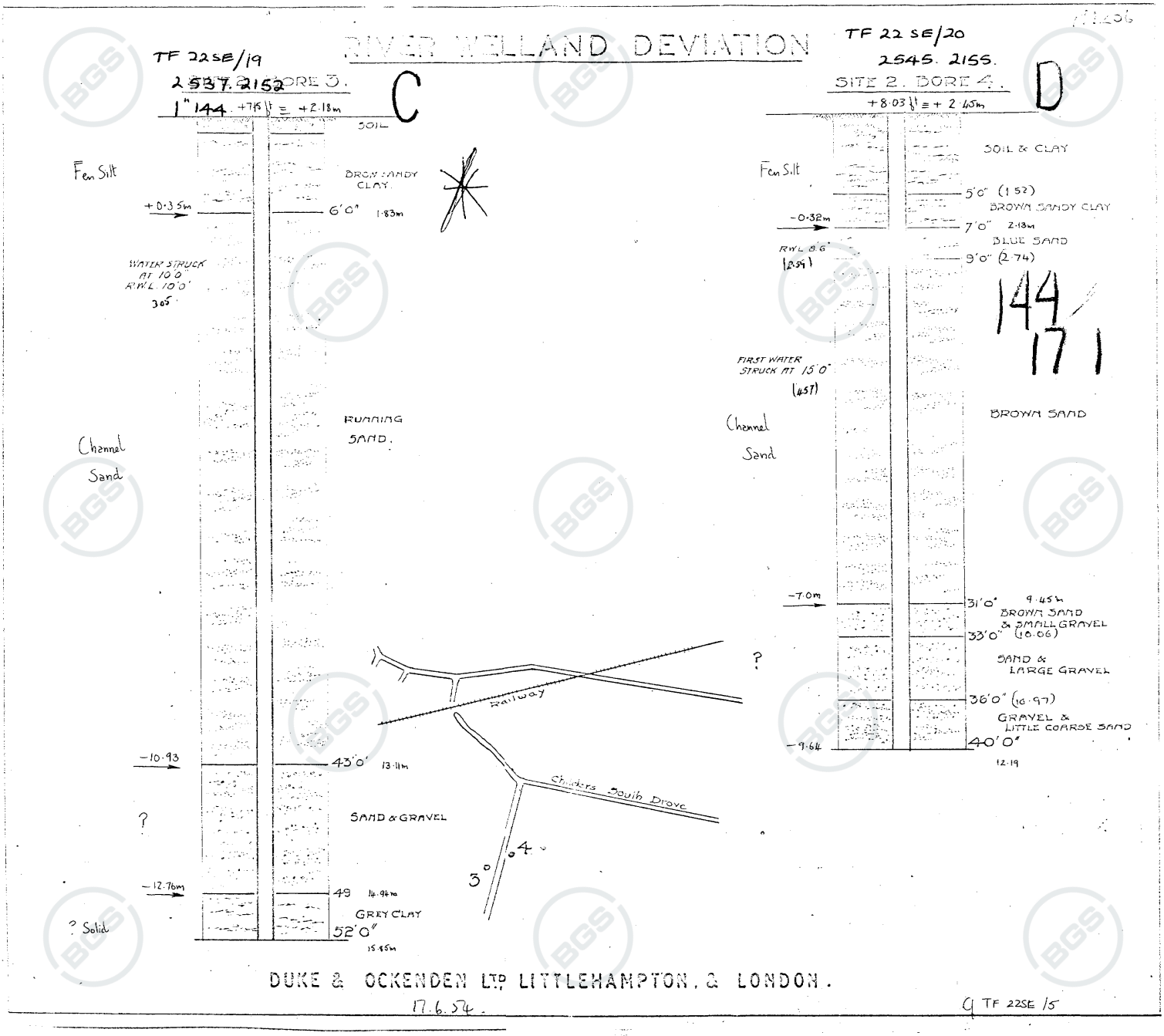
SOIL INFILTRATION RATE, f
TEST 2
1.00548E-05 m/s
0.036197441 m/h

Appendix B – British Geological Survey Borehole Log TF22SE19

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British Geological Survey

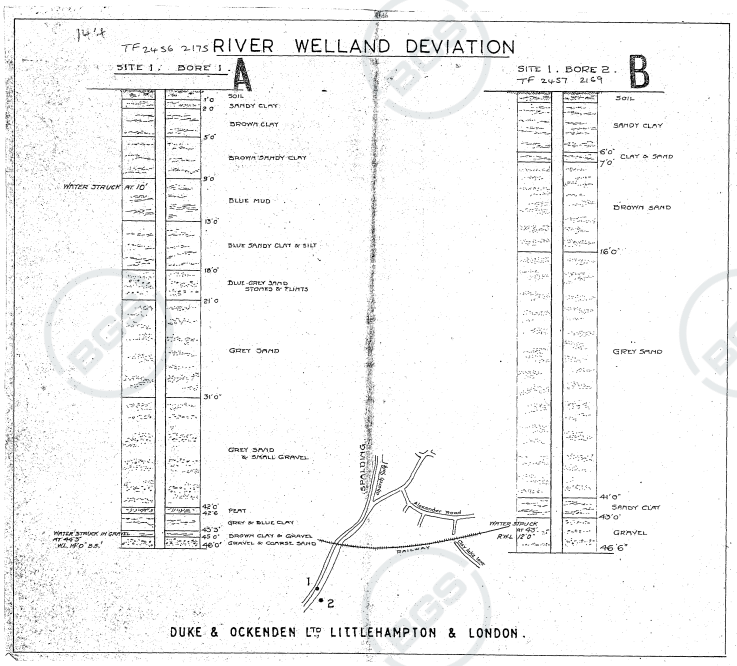
BGS ID: 473710 : BGS Reference: TF22SE19
British National Grid (27700) : 525370,321520

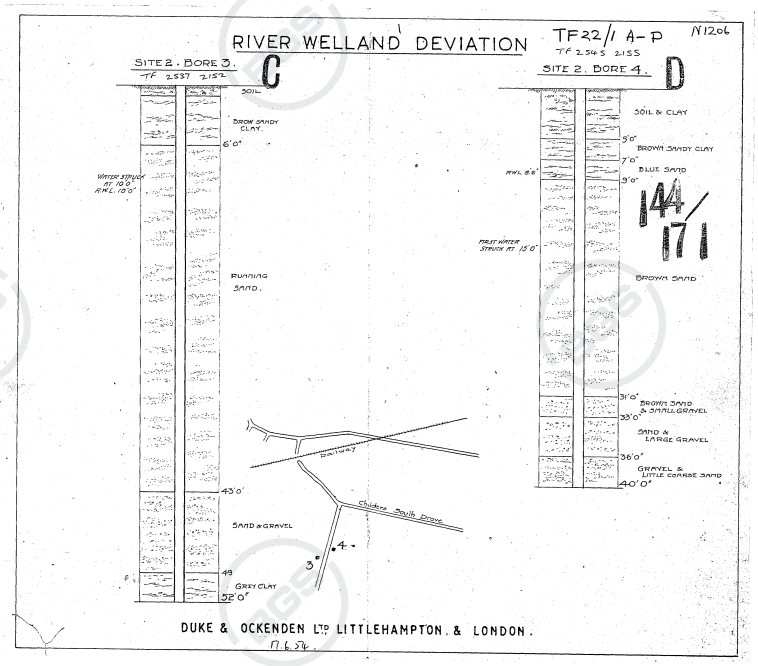


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17.6.54.

TF 22SE /5

Contact BGS: ngdc@bgs.ac.uk


TF 2456 2175 RIVER WELLAND DEVIATION
SITE 1. BORE 1. A
SITE 1. BORE 2. TF 2457 2169 B
SOIL
SANDY CLAY
BROWN CLAY
BROWN SANDY CLAY
BLUE MUD
BLUE SANDY CLAY & SILT
BLUE-GREY SAND STONES & FLINTS
GREY SAND
GREY SAND & SMALL GRAVEL
PEAT
GREY & BLUE CLAY
BROWN CLAY & GRAVEL
GRAVEL & COARSE SAND
CLAY & SAND
BROWN SAND
SANDY CLAY
GRAVEL
WATER STRUCK AT 10'
WATER STRUCK IN GRAVEL AT 44'0" R.L. 19'0" O.D.
WATER STRUCK IN SAND R.L. 12'0"
STAMFORD
Alexander Road
Railway
Welland R.
DUKE & OCKENDEN LTD LITTLEHAMPTON & LONDON.


RIVER WELLAND DEVIATION
TF22/1 A-P
N1206
TF 2545 2155
SITE 2. BORE 3. TF 2537 2152 C
SITE 2. BORE 4. D
SOIL
BROW SANDY CLAY.
RUNNING SAND.
SAND & GRAVEL
GREY CLAY
SOIL & CLAY
BROWN SANDY CLAY
BLUE SAND
BROWN SAND
BROWN SAND & SMALL GRAVEL
SAND & LARGE GRAVEL
GRAVEL & LITTLE COARSE SAND
WATER STRUCK AT 10'0" R.W.L. 12'0"
FIRST WATER STRUCK AT 13'0"
R.W.L. 8'6"
Railway
Chelsea South Drove
144/171
DUKE & OCKENDEN LTD LITTLEHAMPTON & LONDON.

Appendix C – SW25-258-001 – Proposed Surface Water Drainage Strategy

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KEY:

- PROPOSED UNDERGROUND ATTENUATION TANK – MAN. CO.
- 3.67 — EXISTING SITE LEVEL
- 3.0000 — PROPOSED SITE LEVEL
- 1:150 FALL — PROPOSED SURFACE FALL
- PERMEABLE TARMAC SURFACING INFILTRATING TO GROUND AT SOURCE
- IMPERMEABLE ROOF AREAS INFILTRATING TO GROUND THROUGH SOAKAWAYS
- DENOTES ALLOWABLE EXTENTS FOR SOAKAWAYS
- IMPERMEABLE AREA A DISCHARGING TO SURFACE WATER SOAKAWAY A
- IMPERMEABLE AREA B DISCHARGING TO SURFACE WATER SOAKAWAY B
- IMPERMEABLE AREA C DISCHARGING TO SURFACE WATER SOAKAWAY C

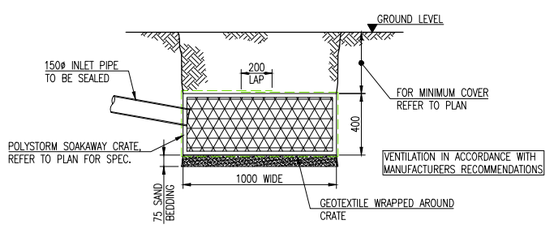
PLEASE REFER TO ARCHITECTS DRAWINGS FOR CONFIRMATION OF ALL WALL/SETTING OUT DIMENSIONS PRIOR TO COMMENCING OF WORKS

THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS & STRUCTURAL CALCULATIONS

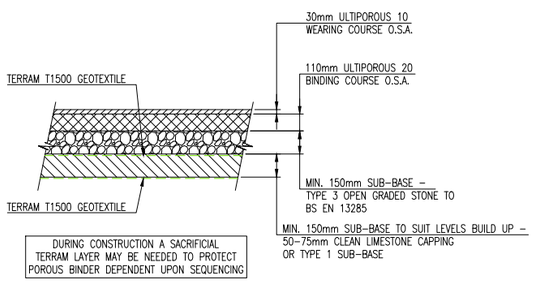
PROPOSED SURFACE WATER DRAINAGE STRATEGY SUMMARY:

- THE SITE IS LOCATED TO THE EAST OF SPALDING DROVE, WEST OF THE CORONATION CHANNEL IN CLAY LAKE, SPALDING.
- THE EXISTING SITE IS A CONCRETE SURFACED YARD WITH A NUMBER OF CABINS, SHEDS, CONTAINERS AND TANKS TO BE REMOVED PRIOR TO ANY DEVELOPMENT.
- THE EXISTING SITE TOPOGRAPHY HAS A NOTICEABLE FALL FROM THE ROAD AT THE WEST OF THE SITE DOWN TO THE EAST BOUNDARY OF THE SITE BACKING ON TO A PRIVATE GATED ACCESS WAY. LIDAR DATA INDICATES THE SITE HAVING LEVELS FROM +3.0m AOD TO THE WEST FALLING DOWN TO +2.2m AOD TO THE EAST, WITH THE ROAD TO THE WEST BEING SITUATED AT APPROXIMATED +4.1m AOD.
- THERE IS LIMITED EXISTING SURFACE WATER DRAINAGE ON SITE, WITH EVIDENCE OF A FEW GULLIES AND POTENTIAL GCOCELLUAR INFILTRATION CRATES BENEATH THE CONCRETE SURFACE. THIS INDICATES THAT INFILTRATION MAY BE POSSIBLE.
- INFILTRATION TESTING WAS UNDERTAKEN BY SHIELDS WILSON ON THE 14/04/25, WITH A WORST CASE INFILTRATION RATE OF 1.005E-05 m/s. NO GROUND WATER WAS ENCOUNTERED DURING OUR INVESTIGATIONS, AND UTILISING BGS PUBLICLY AVAILABLE BOREHOLE RECORDS, THEY INDICATED WATER LEVEL TO BE APPROXIMATELY 3m B.G.L.
- DUE TO THE INFILTRATION RATE WHICH WE WOULD CONSIDER AS BEING ABOVE AVERAGE FOR THE AREA, AS WELL AS THE AVAILABLE ROOM FOR SOAKAWAYS, INFILTRATION WAS PREFERED AS THE INITIAL OPTION FOR DRAINING THE PROPOSED DEVELOPMENT, DUE TO IT MEETING THE HIGHEST LEVEL OF THE SuDS HIERARCHY.
- WHERE POSSIBLE, SOAKAWAYS HAVE BEEN DESIGNED AS 1 CRATE DEEP TO KEEP THE BOTTOM OF THE SOAKAWAYS AS HIGH AS POSSIBLE, AND KEEP THEM OUT OF GROUNDWATER DUE TO THE VICINITY OF THE CORONATION CHANNEL CAUSING VARIATIONS IN THE GROUND WATER LEVEL. HOWEVER SOAKAWAY B TO THE SOUTH-WESTERN BOUNDARY HAS BEEN DESIGNED AS 2 DEEP AS IT IS TOWARDS THE HIGHER SIDE OF SITE AND IS IN THE SOFT SO CAN HAVE MINIMAL COVER. THE DEEPEST BASE OF ANY SOAKAWAY ON SITE IS 1.3m B.G.L. WHICH WE WOULD CONSIDER WELL ABOVE THE POTENTIAL GROUND WATER LEVEL FROM BGS PUBLICLY AVAILABLE BOREHOLE RECORDS.
- PROPOSED UNIT ROOFS HAVE BEEN DESIGNED TO ENTER THE SOAKAWAY SYSTEM BENEATH THE YARD, WHILST THE YARD CONSTRUCTION IS PROPOSED TO BE PERMEABLE TO REDUCE THE AREA NEEDED FOR SOAKAWAYS. THIS PERMEABLE SURFACE HAS BEEN DESIGNED UTILISING AN INFILTRATION RATE OF 1.005E-05 m/s. UTILISATION OF INFILTRATION IS FEASIBLE FOR THE YARD CONSTRUCTION BECAUSE OF THE SHALLOW DEPTH OF CONSTRUCTION & THE CLEARANCE BENEATH THE GROUND WATER LEVELS. YARD LEVELS ARE PROPOSED TO MIMIC THE EXISTING LEVELS/TOPOGRAPHY, WITH THE UNITS FFL SET A MINIMUM OF 150mm ABOVE THESE TO STOP ANY SURFACE WATER RUN OFF FROM BEING ABLE TO ENTER THE UNITS.
- ALL SOAKAWAYS HAVE BEEN MODELED USING CAUSEWAY FLOW+ UTILISING FSR RAINFALL DATA AND BEING MODELED UP TO 1:100 YEAR STORM EVENT PLUS A 40% ALLOWANCE FOR CLIMATE CHANGE. NO FLOODING WAS PRESENT IN ANY STORM EVENTS.
- PROPOSED OVERLAND FLOOD FLOWS HAVE BEEN CONSIDERED THOROUGHLY TO LIMIT ANY OFF SITE FLOOD RISK. THE FLOOD ROUTE IS TO MIMIC THE EXISTING SCENARIO WHERE POSSIBLE. 2 NO. DRAINAGE CHANNELS HAVE BEEN PROPOSED TO BE SITUATED ON THE EASTERN BOUNDARY TO RESTRICT OFF SITE FLOODING IN LARGE STORM EVENTS ONLY WHERE WATER EXCEEDS THE 110mm HB2 UPSTAND KERBS ON SITE.

0 2 4 6 8 12 16 20m
1:200



TYPICAL SOAKAWAY CRATE DETAIL
SCALE 1:20



PRIVATE PERMEABLE TARMAC SHARED DRIVEWAY CONSTRUCTION DETAIL
SCALE 1:20

REV.	DESCRIPTION	DRN.	APP.	DATE
–	FIRST ISSUE – FOR INFORMATION	MRB	APW	04.07.25

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CLIENT: SALTERS LANDSCAPING

PROJECT: SURFACE WATER SOAKAWAY SIZING
CLAY LAKE, SPALDING, LINCS, PE12 6BL

TITLE: PROPOSED SURFACE WATER DRAINAGE STRATEGY ARRANGEMENT

DATE	JUN. '25	SCALE @A1 1:200	DRAWING NO. SW25-258-001	REV. –
DRAWN	MRB			

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Appendix D – Causeway Flow+ Soakaway Hydraulic Model Output

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Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
SW A	0.026	5.00	10.000	1200	25.488	-18.470	0.980
SOAKAWAY A			10.000	1200	10.001	-13.288	1.050
SW B	0.014	5.00	10.000	1200	12.675	-33.488	0.980
SOAKAWAY B			10.000	1200	6.548	-30.646	1.050
SW C	0.075	5.00	10.000	1200	63.856	-30.203	0.990
SOAKAWAY C			10.000	1200	70.384	-28.065	1.050

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
3.000	SW A	SOAKAWAY A	10.000	0.600	9.020	8.950	0.070	142.9	150	5.20	50.0
2.000	SW B	SOAKAWAY B	10.000	0.600	9.020	8.950	0.070	142.9	150	5.20	50.0
1.000	SW C	SOAKAWAY C	10.000	0.600	9.010	8.950	0.060	166.7	225	5.17	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
3.000	0.839	14.8	3.6	0.830	0.900	0.026	0.0	50	0.691
2.000	0.839	14.8	1.9	0.830	0.900	0.014	0.0	36	0.575
1.000	1.010	40.1	10.2	0.765	0.825	0.075	0.0	77	0.845

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
3.000	10.000	142.9	150	Circular	10.000	9.020	0.830	10.000	8.950	0.900
2.000	10.000	142.9	150	Circular	10.000	9.020	0.830	10.000	8.950	0.900
1.000	10.000	166.7	225	Circular	10.000	9.010	0.765	10.000	8.950	0.825

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
3.000	SW A	1200	Manhole	Adoptable	SOAKAWAY A	1200	Manhole	Adoptable
2.000	SW B	1200	Manhole	Adoptable	SOAKAWAY B	1200	Manhole	Adoptable
1.000	SW C	1200	Manhole	Adoptable	SOAKAWAY C	1200	Manhole	Adoptable

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Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
SW A	25.488	-18.470	10.000	0.980	1200	0	3.000	9.020	150
SOAKAWAY A	10.001	-13.288	10.000	1.050	1200	1	3.000	8.950	150
SW B	12.675	-33.488	10.000	0.980	1200	0	2.000	9.020	150
SOAKAWAY B	6.548	-30.646	10.000	1.050	1200	1	2.000	8.950	150
SW C	63.856	-30.203	10.000	0.990	1200	0	1.000	9.010	225
SOAKAWAY C	70.384	-28.065	10.000	1.050	1200	1	1.000	8.950	225

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	20.000	Drain Down Time (mins)	240
Ratio-R	0.400	Additional Storage (m³/ha)	0.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

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 %)
2	0	0	0
30	0	0	0
100	0	0	0
100	40	0	0

Node SOAKAWAY A Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00360	Invert Level (m)	8.950	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.03619	Time to half empty (mins)	7104	Inf Depth (m)	
Safety Factor	5.0	Pit Width (m)	4.500	Number Required	1
Porosity	0.95	Pit Length (m)	12.000		

Flow+ v10.7 Copyright © 1988-2025 Causeway Technologies Ltd

Node SOAKAWAY B Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00360	Invert Level (m)	8.950	Depth (m)	0.800
Side Inf Coefficient (m/hr)	0.03619	Time to half empty (mins)	5913	Inf Depth (m)	
Safety Factor	5.0	Pit Width (m)	5.000	Number Required	1
Porosity	0.95	Pit Length (m)	3.000		

Node SOAKAWAY C Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00360	Invert Level (m)	8.950	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.03619	Time to half empty (mins)	9702	Inf Depth (m)	
Safety Factor	5.0	Pit Width (m)	10.000	Number Required	1
Porosity	0.95	Pit Length (m)	17.500		

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Results for 2 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	SW A	915	9.088	0.068	0.3	0.0771	0.0000	OK
960 minute winter	SOAKAWAY A	915	9.088	0.138	0.3	7.2449	0.0000	OK
480 minute winter	SW B	448	9.156	0.136	0.3	0.1534	0.0000	OK
480 minute winter	SOAKAWAY B	448	9.156	0.206	0.3	3.1630	0.0000	OK
15 minute summer	SW C	8	9.238	0.228	13.0	0.2581	0.0000	SURCHARGED
1440 minute winter	SOAKAWAY C	1440	9.075	0.125	0.7	20.8562	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	SW A	3.000	SOAKAWAY A	4.8	1.171	0.325	0.0440
960 minute winter	SOAKAWAY A	Infiltration		0.0			
15 minute winter	SW B	2.000	SOAKAWAY B	2.5	0.831	0.169	0.0461
480 minute winter	SOAKAWAY B	Infiltration		0.0			
15 minute summer	SW C	1.000	SOAKAWAY C	17.7	1.473	0.440	0.2000
1440 minute winter	SOAKAWAY C	Infiltration		0.0			

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Results for 30 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	SW A	1410	9.198	0.178	0.4	0.2009	0.0000	SURCHARGED
1440 minute winter	SOAKAWAY A	1410	9.198	0.248	0.4	12.9840	0.0000	OK
960 minute winter	SW B	900	9.372	0.352	0.3	0.3977	0.0000	SURCHARGED
960 minute winter	SOAKAWAY B	900	9.372	0.422	0.3	6.4859	0.0000	OK
15 minute winter	SW C	6	9.281	0.271	26.0	0.3066	0.0000	SURCHARGED
1440 minute winter	SOAKAWAY C	1410	9.168	0.218	1.2	36.4784	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	SW A	3.000	SOAKAWAY A	9.1	1.324	0.612	0.0756
1440 minute winter	SOAKAWAY A	Infiltration		0.0			
15 minute winter	SW B	2.000	SOAKAWAY B	4.7	0.894	0.318	0.1142
960 minute winter	SOAKAWAY B	Infiltration		0.0			
15 minute winter	SW C	1.000	SOAKAWAY C	26.1	1.745	0.651	0.2015
1440 minute winter	SOAKAWAY C	Infiltration		0.1			

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Results for 100 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	SW A	1440	9.260	0.240	0.5	0.2717	0.0000	SURCHARGED
1440 minute winter	SOAKAWAY A	1440	9.260	0.310	0.5	16.2661	0.0000	OK
960 minute winter	SW B	930	9.473	0.453	0.4	0.5125	0.0000	SURCHARGED
960 minute winter	SOAKAWAY B	930	9.473	0.523	0.4	8.0459	0.0000	OK
15 minute winter	SW C	6	9.328	0.318	33.7	0.3594	0.0000	SURCHARGED
1440 minute winter	SOAKAWAY C	1440	9.241	0.291	1.5	48.6538	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	SW A	3.000	SOAKAWAY A	11.7	1.369	0.792	0.0978
1440 minute winter	SOAKAWAY A	Infiltration		0.0			
15 minute winter	SW B	2.000	SOAKAWAY B	6.1	0.913	0.413	0.1487
960 minute winter	SOAKAWAY B	Infiltration		0.0			
15 minute winter	SW C	1.000	SOAKAWAY C	33.8	1.834	0.842	0.2004
1440 minute winter	SOAKAWAY C	Infiltration		0.1			

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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	SW A	1440	9.938	0.918	0.7	1.0384	0.0000	FLOOD RISK
1440 minute winter	SOAKAWAY A	1440	9.938	0.988	0.7	21.6632	0.0000	OK
1440 minute winter	SW B	1410	9.737	0.717	0.4	0.8104	0.0000	FLOOD RISK
1440 minute winter	SOAKAWAY B	1410	9.737	0.787	0.4	12.0974	0.0000	OK
1440 minute winter	SW C	1440	9.793	0.783	2.1	0.8851	0.0000	FLOOD RISK
1440 minute winter	SOAKAWAY C	1440	9.793	0.843	2.1	67.5361	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	SW A	3.000	SOAKAWAY A	16.3	1.423	1.100	0.1369
960 minute winter	SOAKAWAY A	Infiltration		0.0			
15 minute winter	SW B	2.000	SOAKAWAY B	8.6	0.949	0.582	0.1760
1440 minute winter	SOAKAWAY B	Infiltration		0.0			
15 minute winter	SW C	1.000	SOAKAWAY C	47.2	1.876	1.176	0.2421
1440 minute winter	SOAKAWAY C	Infiltration		0.1			

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