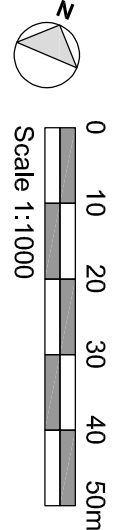


- All dimensions and levels are to be checked on site.
- Any discrepancies are to be reported to the architect before any work commences.
- The drawings shall not be used as a guide for any dimensions, work to be ignored dimensions only.
- This drawing shall not be reproduced without express written permission from AEW.
- Title, covering drawings and ownership boundaries are to be the responsibility of the architect or scale discrepancy of base plans supplied to them.
- All works are to be undertaken in accordance with Building Regulations and the latest British Standards.
- All proprietary materials and products are to be used strictly in accordance with the manufacturers recommendations.

CDM 2015

Client notified of duties: 27/11/20
Principal Designer: Client
Unless noted below, all known hazards have been highlighted on the drawing:



- LEGEND**
- Ownership boundary
 - Red line site boundary
 - Electric Vehicle Charging Bay (1no. point for 2no. spaces)
 - Covered trolley bay
 - Cycle parking
 - Proposed soft landscaping

Schedule of Accommodation					
Unit	Ground Floor GIA	First Floor / Office GIA	Total GIA (Accessible)	Car Parking (Accessible)	Cycle Parking
Unit A1	6,606 m ² / 71,106 ft ²	343 m ² / 3,692 ft ²	6,949 m ² / 74,798 ft ²	76 (7)	8
Unit A2	4,320 m ² / 46,502 ft ²	217m ² / 2,335 ft ²	4,537 m ² / 48,837 ft ²	55 (5)	8
Unit B	5,840 m ² / 62,861 ft ²	338 m ² / 3,638 ft ²	6,178 m ² / 66,499 ft ²	61 (7)	8
Retail Store			2,389 m ² / 25,715 ft ²	118 (9)	18
TOTAL SITE GIA			20,053 m ² / 215,549 ft ²	319 (28)	42



Rev	Job No
P02	13579-AEW-SI-XX-DR-A-1103

client Davos Industrial Ltd.

project Sovereign Distillery
Huyton

drawing title Proposed Site Plan (Option 2a)

date Sept 2024
scale@A1 1:1000
drawn DW
checked DNS

PRO-FORMA 1: Sustainable Drainage System: Planning Permission

This pro-forma is a requirement of the Planning Validation Checklist. You **must complete all white boxes in full** and submit this pro-forma along with your supporting evidence to the Local Planning Authority for any application which seeks planning permission for major development (as defined in section 2 of [Statutory Instrument 2015 No. 595](#)).

This pro-forma supports developers and regulators in **summarising and confirming** how surface water from a development will be managed sustainably under current and future conditions. It should be completed in conjunction with the Council's 'Completing your Pro Forma' document and your sustainable drainage system should be designed in accordance with [CIRIA The SuDS Manual C753](#).

The pro-forma follows Policy CS24 of [Knowsley MBC's Local Plan](#), [National Planning Policy Framework](#), [House of Commons Written Statement \(HWSW 161\) on SuDS](#), [Planning Practice Guidance](#) and [Defra's Non-Statutory Technical Standards for Sustainable Drainage Systems](#). It is supported by the [Defra/EA Guidance on Rainfall Runoff Management](#) and can be completed using freely available tools such as [Tools for Sustainable Drainage Systems](#) or approved Industry Standard surface water management design software. The Council's [Sustainable Drainage & Surface Water Management Technical Guidance document](#) also provides further information.

Section 1: Development Details

Development Name		The Sovereign Distillery (Phase 2)			
Development Address (including postcode)		The Sovereign Distillery, Wilson Road, Huyton Business Park, Liverpool, Merseyside, United Kingdom, L36 6AD		Planning Application Reference (if available)	23/02782/FUL
Development Grid Reference	Northings	389515		Expected lifetime of development (years)	30
	Eastings	345701		Have you submitted a Flood Risk Assessment?	Yes ☒ No ☐
Total Development Site Area (Ha)		6.59		Type of Planning Application (✓)	Outline ☐
Site area served by proposed drainage system (excluding open space) (Ha)*		4.63			Full ☒
Is your surface water drainage system designed to a (tick all that apply):					Hybrid ☐
Greenfield Standard		☐			Reserved Matters ☐
Previously Developed Standard		☒			
- Site is undeveloped and a new drainage system will be installed; OR - Site is already developed and a new surface water drainage system will be installed to serve the new development.					
Site is already developed and the <u>entirety</u> of the existing surface water drainage system will be used to serve the new development.					

PRO-FORMA 1: Sustainable Drainage System: Planning Permission

Section 2: Impermeable Area and Existing Drainage For outline or reserved matters applications, go to Section 3

	Existing (E)	Proposed (P)	Difference (P – E)	Evidence Checklist	
Impermeable Area (Ha)	4.631	4.945	0.314	☒	Plans showing development layout of site with existing and proposed impermeable areas.
State Drainage Method	piped	piped	N/A	☒	Plans showing current and proposed locations of sustainable drainage system.
Are there existing sewers, watercourses, water bodies, highway drains, soakaways or filter drains on the site?			Yes ☐ No ☐	☒	Plans showing existing layout to include: • Watercourses, open or culverted • Water bodies – ponds, swales etc. • Sewers, including manholes • Highway drains, include manholes • Soakaways, filter drains

Section 3: Surface Water Discharge Hierarchy – Planning Practice Guidance

Surface Water Discharge Method	Proposed?	If YES - Evidence Checklist		If NO - Evidence Checklist	
1. Infiltration to ground	Yes ☐ No ☒	☐	Completed Infiltration Checklist from CIRIA The SuDS Manual C753 Appendix B <i>An editable version of this form is available on SusDrain website.</i>	☒	Geotechnical Survey, including Soil Permeability Testing stating Percolation Coefficient, in accordance with BRE 365 AND Statement providing justification in your Sustainable Drainage Strategy
2. Discharge to watercourse or surface water body (Main River or Ordinary)	Yes ☐ No ☒	☐	Watercourse and/or Water Body Survey Report	☐	Plan showing nearby watercourses and water bodies AND Statement providing justification in your Sustainable Drainage Strategy
3. Discharge to surface water sewer	Yes ☒ No ☐	☐	Water and Sewerage Company written agreement for the Right to Connect.	☐	Plan showing nearby sewers AND Statement providing justification in your Sustainable Drainage Strategy
4. Discharge to combined sewer	Yes ☐ No ☐				

PRO-FORMA 1: Sustainable Drainage System: Planning Permission

Section 4: Calculate Peak Discharge Rates – Technical Standards S2 and S3 (unless S1 applies)

Rainfall Event	Existing Rate (l/s)	Greenfield Rate (l/s)	Proposed Rate (l/s) <i>Brownfield sites must reduce discharge rates by 50%</i>	Evidence Checklist	
Qbar				☒	MicroDrainage (or equivalent) calculations
1:1 Year Event					
1:30 Year Event					
1:100 Year Event					

Section 5: Calculate Discharge Volume – Technical Standards S4 and S6 (unless S1 applies)

Rainfall Event	Existing Volume (m ³)	Greenfield Volume (m ³)	Proposed Volume (m ³)	Evidence Checklist	
1:100 Year 6 Hour Event				☒	MicroDrainage (or equivalent) calculations

Section 6: Infiltration

Site Information	✓	Evidence Checklist	
Do your sustainable drainage proposals include any infiltration?	Yes ☐ No ☒ <i>If NO, please move on to Section 7</i>	☐	Proposed sustainable drainage plans
You should submit an alternative 'Plan B' sustainable drainage design utilising an alternative discharge method if site specific ground conditions are unknown at this stage. This will become the default design in the event infiltration proposals are not feasible upon site specific ground investigation. Have you submitted an alternative 'Plan B' sustainable drainage design?	Yes ☐ No ☐	☐	'Plan B' conceptual sustainable drainage plans and statement of approach

PRO-FORMA 1: Sustainable Drainage System: Planning Permission

Section 7: Storage – Technical Standards S7, S8 and S9

Storage Details	Details	Evidence Checklist	
State climate change allowance used (%)	40	☒	State / use in MicroDrainage
State storage volume provided (m ³) (excluding non-void spaces) <i>Must include an allowance for climate change and urban creep.</i>	Tank 1 - 439.3 Tank 2 - 181 Tank 3 - 427.5	☒	Drainage plans showing location of attenuation and all flow control devices and any supporting calculations
Summarise how storage will be provided for 1:30 year event on site. <i>Storage must be designed to ensure that at no flooding occurs onsite in a 1 in 30 year event except in designed areas and no flooding occurs offsite in a 1 in 100 year (+ climate change allowance) event.</i>	Underground attenuation crates.	☒	Plans showing size and location of storage and supporting calculations
Summarise how storage will be provided for 1:100 year (+ climate change) 6 hour event on site. <i>Where storage above the 1:30 year rainfall event is provided in designated areas designed to accommodate excess surface water volumes, plans showing storage locations and surface water depths and supported by MicroDrainage (or equivalent) calculations.</i>	Underground attenuation crates.	☒	Plans showing size and location of storage and supporting calculations

Section 8: Operation and Maintenance – Technical Standard S12 and HCWS161

Consideration	Select <u>ALL</u> that apply (✓)		Evidence Checklist
State how <u>ALL</u> components of the sustainable drainage system will be maintained for the design life of the development.	Sustainable drainage features are at property level	☒	☒ Statement provided within your Sustainable Drainage Strategy
	Sustainable drainage system to be adopted by Water and Sewerage Company through a Section 104 agreement (Water Industry Act 1991)	☐	
	Applicant to secure maintenance of sustainable drainage features by entering into a Section 106 agreement (Town and Country Planning Act 1990)	☒	

PRO-FORMA 1: Sustainable Drainage System: Planning Permission

Declaration and Submission

This pro-forma has been completed using evidence from information which has been submitted with my planning application.

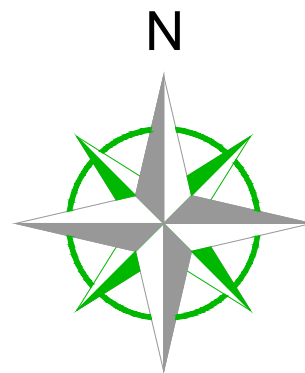
The information submitted in the Sustainable Drainage Strategy and site-specific Flood Risk Assessment (FRA), where submitted, is proportionate to the site conditions, flood risks and magnitude of development and I agree that this information can be used as evidence to this sustainable drainage approach.

Submitter Details

Form <u>completed</u> by	Aleks Jencu	Email Address	aleks.jencu@adeptcsce.com
		Daytime Telephone	0161 249 7989
Form <u>signed off</u> by	Richard Parker	Accreditation(s) and/or Qualification(s) of Signatory	Director - B.Eng
Date (dd/mm/yyyy)	01/03/2024	Company	Adept Consulting Engineers

Client Details

Name	Dave Little	Company	TJ Morris
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NOTES:
Only BT & Gas records available at time of survey.
Unable to locate all Water supplies within the survey area, limited signals gained on site.
Some of the drainage routes cannot be fully surveyed on site due to limited access. We would recommend CCTV Camera Survey is carried out to prove the route of any drainage which cannot be safely surveyed at present.

UTILITY KEY	
	ELECTRIC CABLE
	ELECTRIC & COMB CABLE
	TRAFFIC SIGNALS
	TELECOMS CABLE
	CABLE TELEVISION
	COMMUNICATION CABLE
	WATER PIPE
	GAS PIPE
	FULL DRAINAGE
	SURFACE DRAINAGE
	COMBINED DRAINAGE
	FUEL PIPE
	VENT PIPE
	OFFSET FILL PIPE
	GAUGE LINE
	VAPOR RECOVERY
	SERVICE DUCTS
	UNIDENTIFIED
	END OF TRACE

ABBREVIATIONS	
AR	ASSUMED ROUTE
BD	BACKDROP
CP	CATCHMENT
CL	COVER LEVEL
CR	CABLE RISER
DP	DOWN PIPE
EP	ELECTRICITY POLE
EC	EDGE OF CANOPY
ET	END OF TRACE
FH	FIRE HYDRANT
G	GULLY
GV	GAS VALVE
HL	HIGH LEVEL
IC	INJECTION CHAMBER
IL	INVERT LEVEL
LH	LAMP HOUSE
LP	LAMP POST
MH	MANHOLE
NEV	NO EXIT VISIBLE
NSW	SURFACE WATER SEWER
FWS	FULL WATER SEWER
CWS	COMBINED WATER SEWER
NL	NOT LOCATED
OSA	OFF SURVEY AREA
PIR	PIRE RISER
RE	RODDING EYE
RWP	RAINWATER PIPE
SA	SOAKAWAY
SV	STOP VALVE
SVP	SOIL VENT PIPE
TE	TRAPPED EXIT
TP	TELEGRAPH POLE
TRF	TAKEN FROM RECORDS
UTL	UNABLE TO FIND
UTL	UNABLE TO SURVEY
UTL	UNABLE TO LIFT
VP	VENT PIPE
VR	VAPOR RECOVERY
WL	WATER LEVEL
WM	WATER METER
WO	WASH OUT VALVE
WP	WASTE PIPE

DISCLAIMER
ELECTRO-MAGNETIC TECHNIQUES AND/OR GROUND PENETRATING RADAR HAVE BEEN USED IN THE LOCATION OF UNDERGROUND SERVICES. THE RESULTS ARE NOT INFALLIBLE AND TRUE DECATATIONS SHOULD BE OBTAINED BY TO LAMP HOUSES. PARTICULARLY DEPTHS WHERE THESE ARE CRITICAL. ALTHOUGH ALL REASONABLE EFFORT HAS BEEN MADE IN SEARCHING AVAILABLE RECORDS, THE COMPLETENESS OF THE UNDERGROUND SERVICES INFORMATION CANNOT BE GUARANTEED. THE METHOD OF SURVEY DOES NOT DIFFERENTIATE BETWEEN LIVE AND DEAD SERVICES AND AS SUCH ALL SERVICES SHOULD BE TREATED AS LIVE.
WHERE SERVICES ARE NON-METALLIC POSITIONS MAY BE TAKEN FROM RECORDS, TRENCH SCANS & SURFACE DETAIL.
WHERE QUOTED DEPTH ESTIMATIONS ARE GENERALLY TO THE CENTRE OF THE SERVICE, OFFSETS TO SURFITY SERVICES AND LOCATIONS GENERALLY.
PIPE SIZES WHICH CANNOT BE OBTAINED BY VISUAL SURVEY ARE TAKEN FROM RECORD DRAWINGS OR MARKER PLATES WHERE AVAILABLE.
WHERE GROUND PENETRATING RADAR HAS BEEN USED IT WILL PROVIDE A RANGE OF DATA TO IDENTIFY UNDERGROUND UTILITIES. IF POSSIBLE WE WILL ALSO IDENTIFY UNDERGROUND STRUCTURES (TANKS ETC.) BUT CANNOT GUARANTEE TO HAVE LOCATED ALL SUCH ITEMS. THE USE OF RADAR CAN BE LIMITED BOTH BY SURFACE CONDITIONS AND ALSO BY SOIL TYPE. DEPTH ESTIMATES WOULD NOT NORMALLY BE PROVIDED FOR SERVICES LOCATED WITH GPR.

Rev	Date	Description	Drawn	C. Ref

greenhatch group

- ☐ Topographical Surveys
- ☐ Site Engineering
- ☐ Utility / CCTV Surveys
- ☐ Measured Building Surveys
- ☐ 3D Laser Scanning
- ☐ Revit & BIM Models

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Duffield Road
Little Eaton
Derby
DE21 5DR
Tel (01332) 830044 Fax (01332) 830055
admin@greenhatch-group.co.uk
www.greenhatch-group.co.uk

St Albans Unit 8, The Courtyard Alban Park St Albans Hertfordshire AL1 6JA t. (01727) 854481	Newcastle 24 Riverside Studios Armstrong Road Newcastle-U Tyne NE5 7TL t. (01912) 736391	Poland ul. Rybnicka 91 40-761 Katowice Poland t. 0048 32 202 2252 www.greenhatch.pl
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CLIENT **AEW Architects**

PROJECT **Sovereign Distillery
Huyton Business Park
Liverpool**

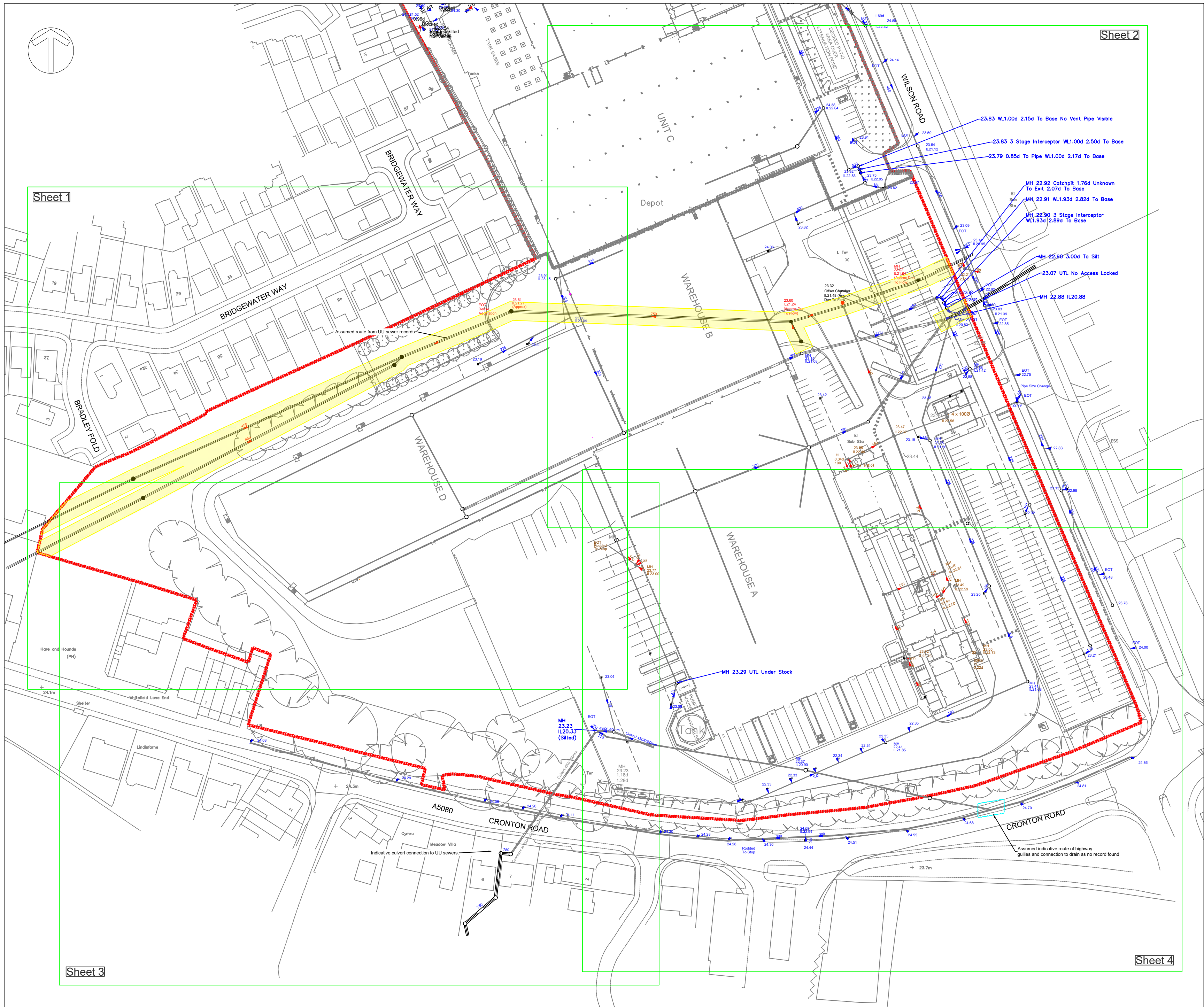
TITLE **Underground Utility
Survey**

SCALE A0@ 1: 500	DATE 14-25/06/21
DRAWN SLD.O.T	QUALITY REF 14396

Level datum Grid orientation	See OS Note See OS Note
Job number	40493

Drawing No. 40493_UG_2	Rev. 0
----------------------------------	------------------

Comments
This plan should only be used for its original purpose. Greenhatch Group accepts no responsibility for this plan if supplied to any party other than the original client.
All dimensions should be checked on site prior to design and construction.
Drainage information (where applicable) has been visually inspected from the surface and therefore should be treated as approximate only.
Notes:



Do Not Scale

DESIGN REVIEW

Design review by: ** Checked by: **

Residual hazards:

Health, Safety & Environmental Notes

NOTES

Key

- Red line site boundary
- Existing Adopted Combined Water Pipe Network
- Existing Adopted Surface Water Pipe Network
- Existing Private Surface Water Pipe Network
- Existing Culvert
- Existing Channel Drain
- Easement
- Gully

Refer to HUYTON 40493_T_UG_REV0 SUB GROUP PHASE 1 Underground Utility Survey drawing no. 40493_UG_1 & 40493_UG_2

Refer to Ref no. B029681-Sewer Plans Issued on 15/06/2021

06.10.23	First Issue	AJ	GT	P1
Date	Description	By	Chk	Rev

Web: www.adeptcsce.com
Email: inbox@adeptcsce.com
Tel: 0113 239 4518 (Head Office)

Originating Office: Manchester
7 St James Square, 4th Floor,
Manchester, M2 6DN
Tel: 0161 974 3620

Project
Sovereign Distillery Phase 2, Huyton

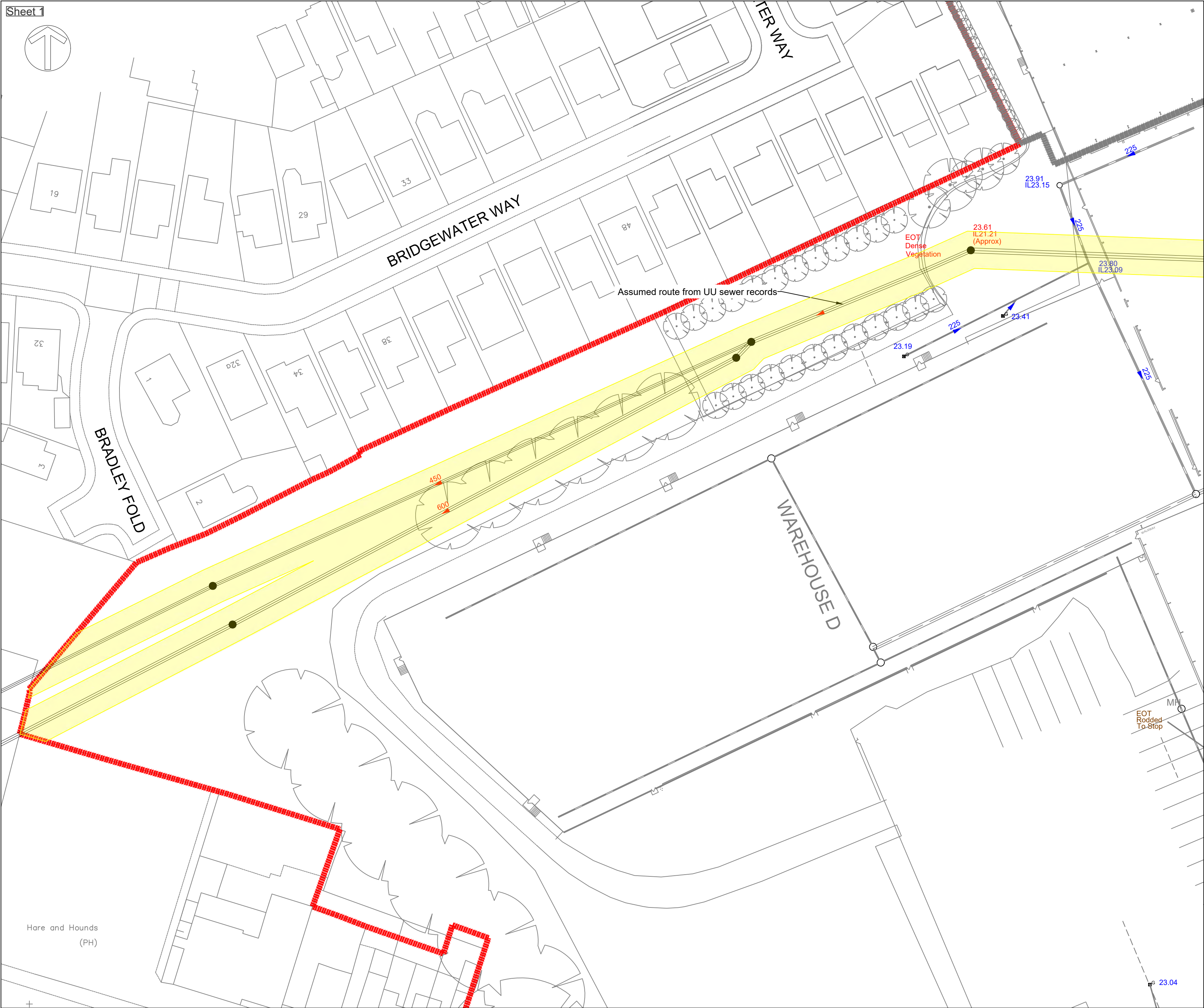
Title
Existing Drainage Layout Plan

Client
DAVOS Property Developments Ltd

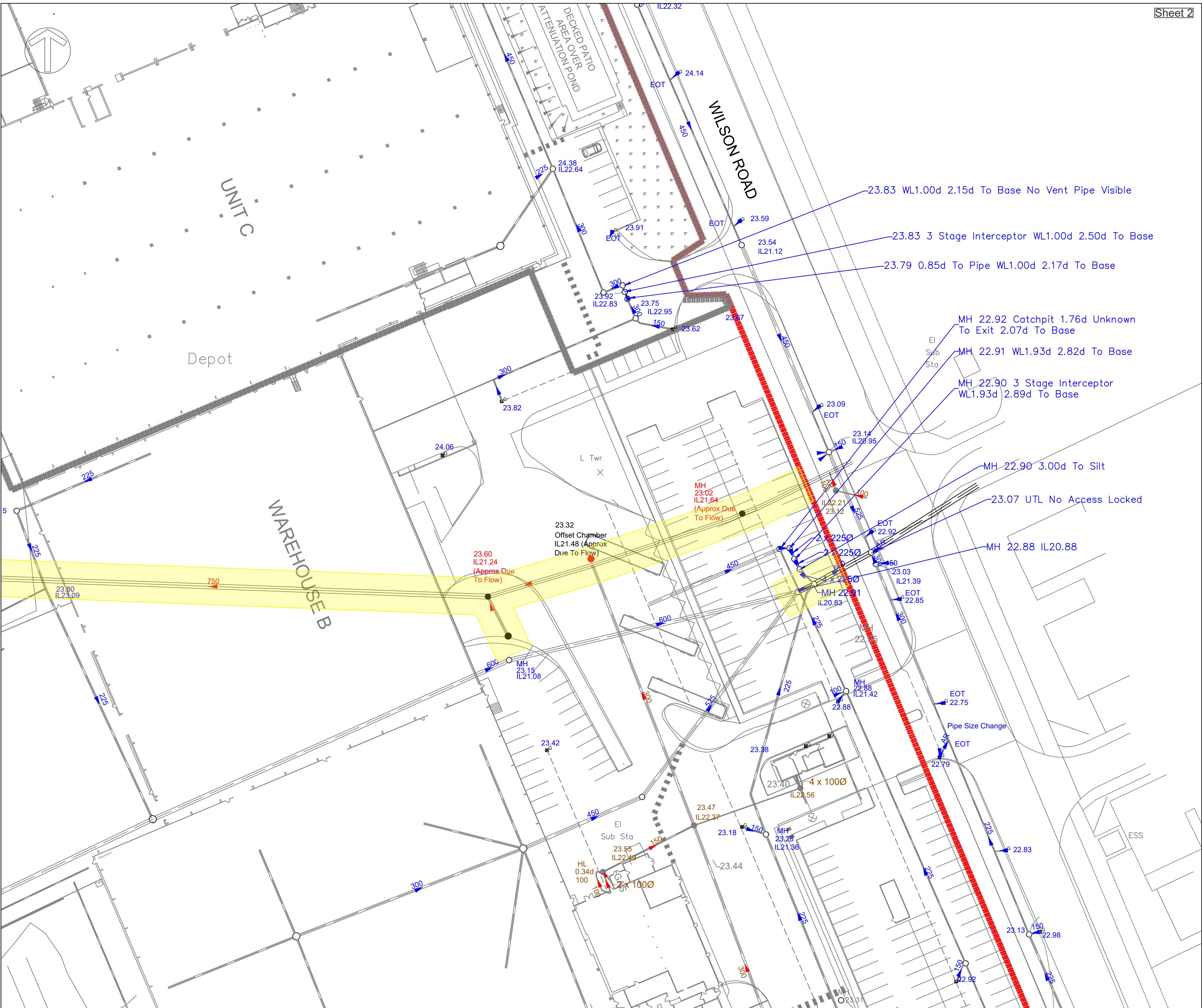
Scale @ A2	Initial author	Initial checker	Approver	Initial Date
1:1000	AJ	JBW	NB	Sep '23

Status	Purpose	Adept Ref
S1	Preliminary	100.23083

Project Number	Originator	Volume	Level	Type	Role	Drg. No.	Rev.
100.23083-ACE-00-ZZ-SK-C-0002							P1



Do Not Scale				
DESIGN REVIEW				
Design review by:	**	Checked by:	**	
Residual hazards:				
Health, Safety & Environmental Notes				
NOTES				
Key				
Red line site boundary				
Existing Adopted Combined Water Pipe Network				
Existing Adopted Surface Water Pipe Network				
Existing Private Surface Water Pipe Network				
Existing Culvert				
Existing Channel Drain				
Easement				
Gulley				
Refer to HUYTON 40493_T_UG_REV0 SUB GROUP PHASE 1 Underground Utility Survey drawing no. 40493_UG_1 & 40493_UG_2				
Refer to Ref no. B029681-Sewer Plans Issued on 15/06/2021				
06.10.23	First Issue	AJ	GT	P1
Date	Description	By	Chk	Rev
ADEPT CIVIL AND STRUCTURAL CONSULTING ENGINEERS Web: www.adeptcsce.com Email: inbox@adeptcsce.com Tel: 0113 239 4518 (Head Office) Originating Office: Manchester 7 St James Square, 4th Floor, Manchester, M2 6DN Tel: 0161 974 3620				
Project				
Sovereign Distillery Phase 2, Huyton				
Title				
Existing Drainage Layout Sheet 1 of 4				
Client				
DAVOS Property Developments Ltd				
Scale @ A2	Initial author	Initial checker	Approver	Initial Date
1:500	AJ	JBW	NB	Sep '23
Status	Purpose	Adept Ref		
S1	Preliminary	100.23083		
Project Number				Rev.
100.23083-ACE-00-ZZ-SK-C-0003				P1



Do Not Scale

DESIGN REVIEW

Design review by:

**

Checked by:

**

Residual hazards:

Health, Safety & Environmental Notes

NOTES

Key

Red line site boundary

Existing Adopted Combined Water Pipe Network

Existing Adopted Surface Water Pipe Network

Existing Private Surface Water Pipe Network

Existing Culvert

Existing Channel Drain

Easement

Gully

Refer to HUYTON 40493_T_UG_REV0 SUB GROUP PHASE 1 Underground Utility Survey drawing no. 40493_UG_1 & 40493_UG_2

Refer to Ref no. B029681-Sewer Plans Issued on 15/06/2021

06.10.23

First Issue

AJ

GT

P1

Date

Description

By

Chk

Rev

ADEPT

CIVIL AND STRUCTURAL CONSULTING ENGINEERS

Web: www.adeptcsce.com

Email: inbox@adeptcsce.com

Tel: 0113 239 4518 (Head Office)

Originating Office: Manchester

7 St James Square, 4th Floor,

Manchester, M2 6DN

Tel: 0161 974 3620

Project

Sovereign Distillery Phase 2, Huyton

Title

Existing Drainage Layout Sheet 2 of 4

Client

DAVOS Property Developments Ltd

Scale @ A2

Initial author

Initial checker

Approver

Initial Date

1:500

AJ

JBW

NB

Sep '23

Status

Purpose

Adept Ref

S1

Preliminary

100.23083

Project Number

Originator

Volume

Level

Type

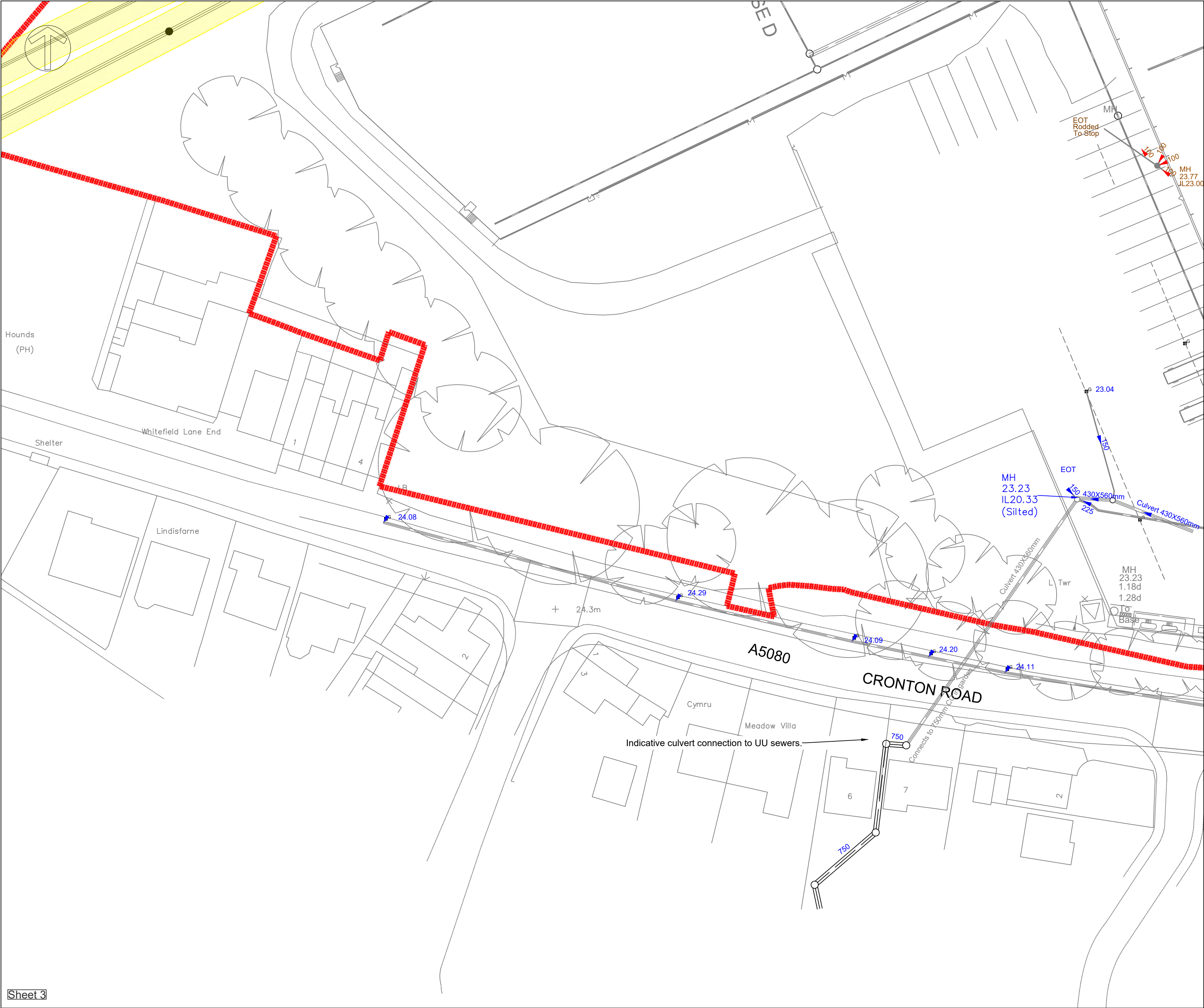
Role

Drg. No.

Rev.

100.23083-ACE-00-ZZ-SK-C-0004

P1



Do Not Scale

DESIGN REVIEW

Design review by: ** Checked by: **

Residual hazards:

Health, Safety & Environmental Notes

NOTES

Key

- Red line site boundary
- Existing Adopted Combined Water Pipe Network
- Existing Adopted Surface Water Pipe Network
- Existing Private Surface Water Pipe Network
- Existing Culvert
- Existing Channel Drain
- Easement
- Gully

Refer to HUYTON 40493_T_UG_REV0 SUB GROUP PHASE 1 Underground Utility Survey drawing no. 40493_UG_1 & 40493_UG_2

Refer to Ref no. B029681-Sewer Plans Issued on 15/06/2021

06.10.23	First Issue	AJ	GT	P1
Date	Description	By	Chk	Rev

Web: www.adeptcsce.com
Email: inbox@adeptcsce.com
Tel: 0113 239 4518 (Head Office)

Originating Office: Manchester
7 St James Square, 4th Floor,
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Tel: 0161 974 3620

Project
Sovereign Distillery Phase 2, Huyton

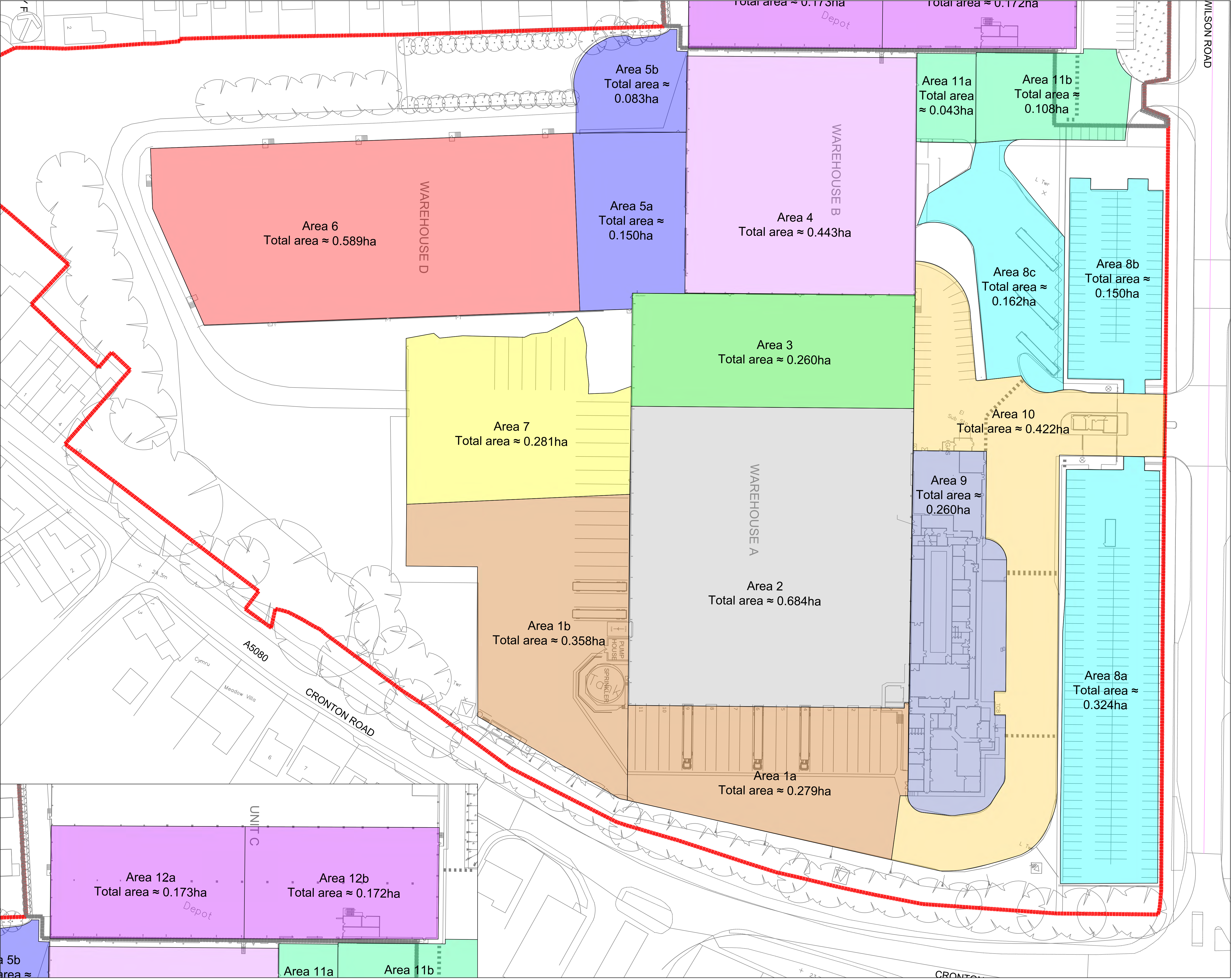
Title
Existing Drainage Layout Sheet 3 of 4

Client
DAVOS Property Developments Ltd

Scale @ A2 1:500	Initial author AJ	Initial checker JBW	Approver NB	Initial Date Sep '23
---------------------	----------------------	------------------------	----------------	-------------------------

Status S1	Purpose Preliminary	Adept Ref 100.23083
--------------	------------------------	------------------------

Project Number 100.23083-ACE-00-ZZ-SK-C-0005	Originator Volume Level Type Role Drg. No. P1
---	--



Do Not Scale

DESIGN REVIEW

Design review by: **

Checked by: **

Residual hazards:

Health, Safety & Environmental Notes

NOTES

Key

Area 1

Area 2

Area 3

Area 4

Area 5

Area 6

Area 7

Area 8

Area 9

Area 10

Area 11

Area 12

14.05/25

Updated Rev P04 FRA

AJE

RR

P03

21.11.24

Updated areas

AJe

RR

P02

05.10.23

First Issue

AJ

GT

P1

Date

Description

By

Chk

Rev

ADEPT

CIVIL AND STRUCTURAL CONSULTING ENGINEERS

Web: www.adeptcsce.com

Email: inbox@adeptcsce.com

Tel: 0113 239 4518 (Head Office)

Originating Office: Manchester

7 St James Square, 4th Floor,

Manchester, M2 6DN

Tel: 0161 974 3620

Project

Sovereign Distillery Phase 2, Huyton

Title

Existing Impermeable Area Layout

Client

DAVOS Property Developments Ltd

Scale @ A1

1:500

Initial author

AJ

Initial checker

GT

Approver

NB

Initial Date

Sep '23

Status

S3

Purpose

Preliminary

Adapt Ref

100.23083

Project Number

100.23083-ACE-00-ZZ-DR-C-1010

Originator

Volume

Level

Type

Role

Orig. No.

Rev.

P03

Project: 100.23083 Sovereign Phase 2 Rev: P02	Date: 20/11/0024			
Report Details: Type: Junctions Storm Phase: Existing SW	Designed by: AJe	Checked by: RR	Approved By: RR	
Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN				

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
MH290	Outlet	Pipe291	Free Discharge
MH91	Outlet	Pipe87	Free Discharge
MH257	Outlet	Pipe301	Free Discharge
MH249	Outlet	Pipe274	Free Discharge
MH248	Outlet	Pipe298	Free Discharge
MH245	Outlet	Pipe57	Free Discharge
MH246	Outlet	Pipe45	Free Discharge
MH247	Outlet	Pipe273	Free Discharge
MH132	Outlet	Pipe50 (1)	Free Discharge
MH123	Outlet	Pipe46	Free Discharge
MH315	Outlet	Pipe191	Free Discharge
MH106	Outlet	Pipe69	Free Discharge
MH108	Outlet	Pipe241	Free Discharge
MH107	Outlet	Pipe70	Free Discharge
MH67	Outlet	Pipe73	Free Discharge
MH208	Outlet	Outfall 2	Free Discharge
MH96	Outlet	Pipe58	Free Discharge
MH207	Outlet	Pipe198	Free Discharge
MH79	Outlet	Pipe56	Free Discharge
MH97	Outlet	Pipe51 (1) (1)	Free Discharge
MH80	Outlet	Outfall 1	Free Discharge
MH81	Outlet	Pipe52	Free Discharge
MH68	Outlet	Pipe74	Free Discharge
MH75	Outlet	Pipe61	Free Discharge
MH77	Outlet	Pipe62	Free Discharge
MH73	Outlet	Pipe48	Free Discharge
MH76	Outlet	Pipe	Free Discharge
MH70	Outlet	Pipe75	Free Discharge
MH72	Outlet	Pipe59	Free Discharge
MH117	Outlet	Pipe68 (1)	Free Discharge
MH265	Outlet	Pipe293	Free Discharge
MH98	Outlet	Pipe55	Free Discharge
MH84	Outlet	Pipe54 (2)	Free Discharge
MH214	Outlet	Pipe206	Free Discharge
MH254	Outlet	Pipe77	Free Discharge
Simple Junction (11)	Outlet	Pipe243	Free Discharge
Simple Junction (1)	Outlet	Pipe60	Free Discharge
Simple Junction (9)	Outlet	Pipe195	Free Discharge
Simple Junction (10)	Outlet	Pipe197	Free Discharge
Simple Junction (16)	Outlet	Pipe239	Free Discharge
Simple Junction (18)	Outlet	Pipe272	Free Discharge
Simple Junction (19)	Outlet	Pipe275	Free Discharge
Simple Junction (20)	Outlet	Pipe276	Free Discharge
Simple Junction (21)	Outlet	Pipe277	Free Discharge
Simple Junction (22)	Outlet	Pipe278	Free Discharge
Simple Junction (23)	Outlet	Pipe279	Free Discharge
Simple Junction (24)	Outlet	Pipe280	Free Discharge
Simple Junction (27)	Outlet	Pipe296	Free Discharge
Simple Junction (28)	Outlet	Pipe297	Free Discharge
Simple Junction (29)	Outlet	Pipe299	Free Discharge
Simple Junction (30)	Outlet	Pipe300	Free Discharge
Manhole	Outlet	Pipe (1)	Free Discharge
Manhole (1)	Outlet	Pipe (2)	Free Discharge
Manhole (3)	Outlet	Into Phase 1	Free Discharge
Simple Junction (3)	Outlet	Pipe (4)	Free Discharge

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024		
Report Details: Type: Connections Storm Phase: Existing SW		Designed by: AJe	Checked by: RR	
		Approved By: RR		
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN		

Name	Length (m)	Connection Type	Slope (1:X)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)	Upstream Invert Level (m)
Pipe45	24.569	Pipe	289.045		0.6	450	23.900	21.080
Pipe46	48.784	Pipe	1219.602		0.6	525	23.600	20.920
Pipe48	12.351	Pipe	308.787		0.6	600	22.910	20.830
Outfall 1	23.890	Pipe	298.630		0.6	600	23.070	20.790
Pipe52	2.348	Pipe	7.827		0.6	300	23.030	21.390
Pipe55	42.639	Pipe	448.829		0.6	450	21.845	21.120
Pipe56	20.620	Pipe	242.594		0.6	525	23.140	20.950
Pipe57	74.025	Pipe	231.329		0.6	600	23.900	21.400
Pipe58	56.225	Pipe	281.125		0.6	600	23.150	21.080
Pipe59	3.484	Pipe	69.686		0.6	600	22.880	20.880
Pipe60	26.909	Pipe	85.425		0.6	450	21.795	21.345
Pipe61	1.880	Pipe	187.992		0.6	225	22.920	21.255
Pipe62	2.216	Pipe	221.595		0.6	225	22.910	21.245
Pipe69	39.021	Pipe	185.814		0.6	225	23.410	21.680
Pipe70	59.753	Pipe	543.213		0.6	225	23.270	21.470
Pipe73	58.126	Pipe	242.192		0.6	225	23.260	21.880
Pipe74	56.433	Pipe	256.511		0.6	225	22.940	21.640
Pipe75	29.752	Pipe	180.315		0.6	225	22.880	21.420
Pipe77	39.154	Pipe	223.737		0.6	225	23.400	23.265
Pipe87	15.660	Pipe	261.004		0.6	225	23.910	23.150
Pipe54 (2)	49.767	Pipe	41.472		0.6	450	24.550	22.320
Pipe191	48.324	Pipe	34.765		0.6	225	23.561	23.090
Pipe195	21.184	Pipe	151.316		0.6	150	21.095	20.945
Pipe197	16.344	Pipe	233.484		0.6	375	21.025	20.650
Pipe198	6.733	Pipe	26.931		0.6	375	23.140	20.580
Pipe206	57.603	Pipe	295.401		0.6	150	22.500	22.045
Pipe50 (1)	47.749	Pipe	222.089		0.6	225	23.760	22.085
Pipe239	27.674	Pipe	221.389		0.6	225	23.500	23.275
Pipe243	41.645	Pipe	320.345		0.6	225	23.316	21.335
Pipe68 (1)	58.612	Pipe	616.968		0.6	150	22.410	21.850
Pipe272	26.165	Pipe	218.041		0.6	225	21.720	21.580
Pipe273	46.167	Pipe	297.853		0.6	300	23.900	21.385
Pipe274	67.631	Pipe	346.828		0.6	600	23.900	21.595
Pipe275	62.233	Pipe	222.261		0.6	225	21.880	21.740
Pipe276	17.818	Pipe	222.725		0.6	225	21.680	21.540
Pipe277	64.320	Pipe	225.684		0.6	225	21.735	21.590
Pipe278	22.942	Pipe	218.499		0.6	225	21.550	21.410
Pipe279	19.430	Pipe	215.890		0.6	225	21.535	21.395
Pipe280	21.321	Pipe	224.434		0.6	225	21.540	21.400
Pipe291	48.291	Pipe	193.164		0.6	225	24.929	21.150
Pipe293	80.967	Pipe	192.779		0.6	225	22.370	20.900
Outfall 2	42.480	Pipe	128.728		0.6	375	23.230	20.330
Pipe296	52.662	Pipe	102.256		0.6	225	22.385	22.175
Pipe297	67.688	Pipe	116.704		0.6	225	22.450	22.240
Pipe298	3.305	Pipe	50.840		0.6	225	23.900	21.660
Pipe299	58.137	Pipe	223.606		0.6	225	22.590	22.365
Pipe300	68.662	Pipe	225.122		0.6	225	22.635	22.410
Pipe301	40.570	Pipe	79.549		0.6	225	23.900	22.105
Pipe241	8.157	Pipe	326.290		0.6	225	23.280	21.360
Pipe51 (1) (1)	76.042	Pipe	158.422		0.6	225	23.130	21.870
Pipe	2.354	Pipe	235.442		0.6	225	22.900	21.235
Pipe (1)	3.822	Pipe	191.103		0.6	225	22.900	21.225
Pipe (2)	7.810	Pipe	65.086		0.6	300	23.750	22.950
Into Phase 1	25.413	Pipe	133.755		0.6	300	23.920	22.830
Pipe (4)	54.347	Pipe	301.930		0.6	300	23.900	23.130

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024	
Report Details: Type: Connections Storm Phase: Existing SW		Designed by: AJe	Checked by: RR
		Approved By: RR	
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN	



Name	Downstream Cover Level (m)	Downstream Invert Level (m)	Lock	Culvert Type	Culvert Entrance
Pipe45	23.600	20.995	All	(None)	(None)
Pipe46	22.880	20.880	All	(None)	(None)
Pipe48	23.070	20.790	All	(None)	(None)
Outfall 1	23.200	20.710	All	(None)	(None)
Pipe52	23.070	21.090	All	(None)	(None)
Pipe55	23.140	21.025	All	(None)	(None)
Pipe56	23.070	20.865	All	(None)	(None)
Pipe57	23.150	21.080	All	(None)	(None)
Pipe58	22.880	20.880	All	(None)	(None)
Pipe59	22.910	20.830	All	(None)	(None)
Pipe60	22.920	21.030	All	(None)	(None)
Pipe61	22.910	21.245	All	(None)	(None)
Pipe62	22.900	21.235	All	(None)	(None)
Pipe69	23.270	21.470	All	(None)	(None)
Pipe70	23.280	21.360	All	(None)	(None)
Pipe73	22.940	21.640	All	(None)	(None)
Pipe74	22.880	21.420	All	(None)	(None)
Pipe75	22.920	21.255	All	(None)	(None)
Pipe77	23.561	23.090	All	(None)	(None)
Pipe87	23.561	23.090	All	(None)	(None)
Pipe54 (2)	21.845	21.120	All	(None)	(None)
Pipe191	23.900	21.700	All	(None)	(None)
Pipe195	23.140	20.805	All	(None)	(None)
Pipe197	23.140	20.580	All	(None)	(None)
Pipe198	23.230	20.330	All	(None)	(None)
Pipe206	22.410	21.850	All	(None)	(None)
Pipe50 (1)	23.130	21.870	All	(None)	(None)
Pipe239	23.910	23.150	All	(None)	(None)
Pipe243	22.910	21.205	All	(None)	(None)
Pipe68 (1)	23.410	21.755	All	(None)	(None)
Pipe272	23.900	21.460	All	(None)	(None)
Pipe273	23.900	21.230	All	(None)	(None)
Pipe274	23.900	21.400	All	(None)	(None)
Pipe275	23.900	21.460	All	(None)	(None)
Pipe276	23.900	21.460	All	(None)	(None)
Pipe277	23.900	21.305	All	(None)	(None)
Pipe278	23.900	21.305	All	(None)	(None)
Pipe279	23.900	21.305	All	(None)	(None)
Pipe280	23.900	21.305	All	(None)	(None)
Pipe291	22.370	20.900	All	(None)	(None)
Pipe293	23.230	20.480	All	(None)	(None)
Outfall 2	20.375	20.000	All	(None)	(None)
Pipe296	23.900	21.660	All	(None)	(None)
Pipe297	23.900	21.660	All	(None)	(None)
Pipe298	23.900	21.595	All	(None)	(None)
Pipe299	23.900	22.105	All	(None)	(None)
Pipe300	23.900	22.105	All	(None)	(None)
Pipe301	23.900	21.595	All	(None)	(None)
Pipe241	23.316	21.335	All	(None)	(None)
Pipe51 (1) (1)	23.030	21.390	All	(None)	(None)
Pipe	22.900	21.225	All	(None)	(None)
Pipe (1)	22.910	21.205	All	(None)	(None)
Pipe (2)	23.920	22.830	All	(None)	(None)
Into Phase 1	24.380	22.640	All	(None)	(None)
Pipe (4)	23.750	22.950	All	(None)	(None)

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
Report Details: Type: Manhole Schedule Storm Phase: Existing SW		Designed by: AJe	Checked by: RR		Approved By: RR
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH290	24.929 21.150	Diameter / Length: 0.900					Manhole
E:345779.285 N:389398.774	3.779		{a} Pipe291	Pipe	21.150	Diam/Width:225	Not Applicable
MH91	23.910 23.150	Diameter / Length: 0.900	{1} Pipe239	Pipe	23.150	Diam/Width:225	Manhole
E:345637.202 N:389595.930	0.760		{a} Pipe87	Pipe	23.150	Diam/Width:225	Not Applicable
MH257	23.900 22.105	Diameter / Length: 0.900	{1} Pipe299	Pipe	22.105	Diam/Width:225	Manhole
E:345582.638 N:389544.193	1.795		{2} Pipe300	Pipe	22.105	Diam/Width:225	
			{a} Pipe301	Pipe	22.105	Diam/Width:225	Not Applicable
MH249	23.900 21.595	Diameter / Length: 0.900	{1} Pipe298	Pipe	21.595	Diam/Width:225	Manhole
E:345601.902 N:389508.489	2.305		{2} Pipe301	Pipe	21.595	Diam/Width:225	
			{a} Pipe274	Pipe	21.595	Diam/Width:600	Not Applicable

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Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH248	23.900 21.660	Diameter / Length: 0.900	{1} Pipe296	Pipe	21.660	Diam/Width:225	Manhole
E:345603.346 N:389505.516	2.240		{2} Pipe297	Pipe	21.660	Diam/Width:225	
			{a} Pipe298	Pipe	21.660	Diam/Width:225	Not Applicable
MH245	23.900 21.400	Diameter / Length: 0.900	{1} Pipe191	Pipe	21.700	Diam/Width:225	Manhole
E:345663.029 N:389537.430	2.500		{2} Pipe274	Pipe	21.400	Diam/Width:600	
			{a} Pipe57	Pipe	21.400	Diam/Width:600	Not Applicable
MH246	23.900 21.080	Diameter / Length: 0.900	{1} Pipe273	Pipe	21.230	Diam/Width:300	Manhole
E:345733.295 N:389531.904	2.820		{2} Pipe277	Pipe	21.305	Diam/Width:225	
			{3} Pipe278	Pipe	21.305	Diam/Width:225	
			{4} Pipe279	Pipe	21.305	Diam/Width:225	
			{5} Pipe280	Pipe	21.305	Diam/Width:225	
					21.305		
			{a} Pipe45	Pipe	21.080	Diam/Width:450	Not Applicable

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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH247	23.900 21.385	Diameter / Length: 0.900	{1} Pipe272	Pipe	21.460	Diam/Width:225	Manhole
E:345690.240	2.515		{2} Pipe275	Pipe	21.460	Diam/Width:225	
N:389515.240			{3} Pipe276	Pipe	21.460	Diam/Width:225	
			{a} Pipe273	Pipe	21.385	Diam/Width:300	Not Applicable
MH132	23.760 22.085	Diameter / Length: 0.900					Manhole
E:345848.649	1.675						
N:389471.991			{a} Pipe50 (1)	Pipe	22.085	Diam/Width:225	Not Applicable
MH123	23.600 20.920	Diameter / Length: 0.900	{1} Pipe45	Pipe	20.995	Diam/Width:450	Manhole
E:345755.834	2.680						
N:389541.681			{a} Pipe46	Pipe	20.920	Diam/Width:525	Not Applicable
MH315	23.561 23.090	Diameter / Length: 0.900	{1} Pipe77	Pipe	23.090	Diam/Width:225	Manhole
E:345642.656	0.471		{2} Pipe87	Pipe	23.090	Diam/Width:225	
N:389581.250			{a} Pipe191	Pipe	23.090	Diam/Width:225	Not Applicable

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH106	23.410 21.680	Diameter / Length: 0.900	{1} Pipe68 (1)	Pipe	21.755	Diam/Width:150	Manhole
E:345816.371 N:389443.002	1.730		{a} Pipe69	Pipe	21.680	Diam/Width:225	Not Applicable
MH108	23.280 21.360	Diameter / Length: 0.900	{1} Pipe70	Pipe	21.360	Diam/Width:225	Manhole
E:345779.336 N:389534.570	1.920		{a} Pipe241	Pipe	21.360	Diam/Width:225	Not Applicable
MH107	23.270 21.470	Diameter / Length: 0.900	{1} Pipe69	Pipe	21.470	Diam/Width:225	Manhole
E:345801.834 N:389479.214	1.800		{a} Pipe70	Pipe	21.470	Diam/Width:225	Not Applicable
MH67	23.260 21.880	Diameter / Length: 0.900					Manhole
E:345840.141 N:389456.679	1.380		{a} Pipe73	Pipe	21.880	Diam/Width:225	Not Applicable
MH208	23.230 20.330	Diameter / Length: 0.900	{1} Pipe198	Pipe	20.330	Diam/Width:375	Manhole
E:345652.552 N:389424.100	2.900		{2} Pipe293	Pipe	20.480	Diam/Width:225	
			{a} Outfall 2	Pipe	20.330	Diam/Width:375	Not Applicable

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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH96	23.150 21.080	Diameter / Length: 0.900	{1} Pipe57	Pipe	21.080	Diam/Width:600	Manhole
E:345730.618 N:389567.619	2.070		{a} Pipe58	Pipe	21.080	Diam/Width:600	Not Applicable
MH207	23.140 20.580	Diameter / Length: 0.900	{1} Pipe195	Pipe	20.805	Diam/Width:150	Manhole
E:345659.283 N:389423.922	2.560		{2} Pipe197	Pipe	20.580	Diam/Width:375	
			{a} Pipe198	Pipe	20.580	Diam/Width:375	Not Applicable
MH79	23.140 20.950	Diameter / Length: 0.900	{1} Pipe55	Pipe	21.025	Diam/Width:450	Manhole
E:345791.291 N:389607.066	2.190		{a} Pipe56	Pipe	20.950	Diam/Width:525	Not Applicable
MH97	23.130 21.870	Diameter / Length: 0.900	{1} Pipe50 (1)	Pipe	21.870	Diam/Width:225	Manhole
E:345829.215 N:389515.607	1.260		{a} Pipe51 (1) (1)	Pipe	21.870	Diam/Width:225	Not Applicable

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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH80	23.070 20.790	Diameter / Length: 0.900	{1} Pipe48	Pipe	20.790	Diam/Width:600	Manhole
E:345799.271	2.280		{2} Pipe52	Pipe	21.090	Diam/Width:300	
N:389588.052			{3} Pipe56	Pipe	20.865	Diam/Width:525	
			{a} Outfall 1	Pipe	20.790	Diam/Width:600	Not Applicable
MH81	23.030 21.390	Diameter / Length: 0.900	{1} Pipe51 (1) (1)	Pipe	21.390	Diam/Width:225	Manhole
E:345800.138	1.640		{a} Pipe52	Pipe	21.390	Diam/Width:300	Not Applicable
N:389585.870							
MH68	22.940 21.640	Diameter / Length: 0.900	{1} Pipe73	Pipe	21.640	Diam/Width:225	Manhole
E:345817.195	1.300		{a} Pipe74	Pipe	21.640	Diam/Width:225	Not Applicable
N:389510.085							
MH75	22.920 21.030	Diameter / Length: 0.900	{1} Pipe60	Pipe	21.030	Diam/Width:450	Manhole
E:345781.912	1.890		{2} Pipe75	Pipe	21.255	Diam/Width:225	
N:389588.710			{a} Pipe61	Pipe	21.255	Diam/Width:225	Not Applicable

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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH77	22.910 21.245	Diameter / Length: 0.900	{1} Pipe61	Pipe	21.245	Diam/Width:225	Manhole
E:345783.788 N:389588.837	1.665		{a} Pipe62	Pipe	21.245	Diam/Width:225	Not Applicable
MH73	22.910 20.830	Diameter / Length: 0.900	{1} Pipe59	Pipe	20.830	Diam/Width:600	Manhole
E:345788.475 N:389582.052	2.080		{2} Pipe243	Pipe	21.205	Diam/Width:225	
			{3} Pipe (1)	Pipe	21.205	Diam/Width:225	
			{a} Pipe48	Pipe	20.830	Diam/Width:600	Not Applicable
MH76	22.900 21.235	Diameter / Length: 0.900	{1} Pipe62	Pipe	21.235	Diam/Width:225	Manhole
E:345784.696 N:389586.816	1.665		{a} Pipe	Pipe	21.235	Diam/Width:225	Not Applicable
MH70	22.880 21.420	Diameter / Length: 0.900	{1} Pipe74	Pipe	21.420	Diam/Width:225	Manhole
E:345794.519 N:389561.761	1.460		{a} Pipe75	Pipe	21.420	Diam/Width:225	Not Applicable

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH72	22.880 20.880	Diameter / Length: 0.900	{1} Pipe46	Pipe	20.880	Diam/Width:525	Manhole
E:345785.341 N:389580.529	2.000		{2} Pipe58	Pipe	20.880	Diam/Width:600	
			{a} Pipe59	Pipe	20.880	Diam/Width:600	Not Applicable
MH117	22.410 21.850	Diameter / Length: 0.900	{1} Pipe206	Pipe	21.850	Diam/Width:150	Manhole
E:345762.491 N:389419.929	0.560		{a} Pipe68 (1)	Pipe	21.850	Diam/Width:150	Not Applicable
MH265	22.370 20.900	Diameter / Length: 0.900	{1} Pipe291	Pipe	20.900	Diam/Width:225	Manhole
E:345732.153 N:389409.291	1.470		{a} Pipe293	Pipe	20.900	Diam/Width:225	Not Applicable
MH98	21.845 21.120	Diameter / Length: 0.900	{1} Pipe54 (2)	Pipe	21.120	Diam/Width:450	Manhole
E:345774.718 N:389646.352	0.725		{a} Pipe55	Pipe	21.120	Diam/Width:450	Not Applicable
MH84	24.550 22.320	Diameter / Length: 0.900					Manhole
E:345754.892 N:389692.000	2.230		{a} Pipe54 (2)	Pipe	22.320	Diam/Width:450	Not Applicable

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH214	22.500 22.045	Diameter / Length: 0.600					Manhole
E:345709.739 N:389396.792	0.455		{a} Pipe206	Pipe	22.045	Diam/Width:150	Not Applicable
MH254	23.400 23.265	Diameter / Length: 0.100					Manhole
E:345607.748 N:389563.516	0.135		{a} Pipe77	Pipe	23.265	Diam/Width:225	Not Applicable
Simple Junction (11)		Diameter / Length: 0.100	{1} Pipe241	Pipe	21.335	Diam/Width:225	Simple Junction
E:345776.422 N:389542.189			{a} Pipe243	Pipe	21.335	Diam/Width:225	Not Applicable
Outfall 1	23.200 20.710	Diameter / Length: 1.200	{1} Outfall 1	Pipe	20.710	Diam/Width:600	Manhole
E:345819.463 N:389600.821	2.490						Not Applicable
Simple Junction (1)		Diameter / Length: 1.200					Simple Junction
E:345757.140 N:389578.201			{a} Pipe60	Pipe	21.345	Diam/Width:450	Not Applicable

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
Report Details: Type: Manhole Schedule Storm Phase: Existing SW		Designed by: AJe	Checked by: RR		Approved By: RR
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
Simple Junction (9) E:345654.330 N:389444.519		Diameter / Length: 1.200					Simple Junction
			{a} Pipe195	Pipe	20.945	Diam/Width:150	Not Applicable
Simple Junction (10) E:345674.513 N:389417.993		Diameter / Length: 1.200					Simple Junction
			{a} Pipe197	Pipe	20.650	Diam/Width:375	Not Applicable
Simple Junction (16) E:345662.649 N:389606.807		Diameter / Length: 1.200					Simple Junction
			{a} Pipe239	Pipe	23.275	Diam/Width:225	Not Applicable
Simple Junction (18) E:345665.973 N:389505.456		Diameter / Length: 1.200					Simple Junction
			{a} Pipe272	Pipe	21.580	Diam/Width:225	Not Applicable

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
Report Details: Type: Manhole Schedule Storm Phase: Existing SW		Designed by: AJe	Checked by: RR		Approved By: RR
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
Simple Junction (19)		Diameter / Length: 1.200					Simple Junction
E:345713.195 N:389457.395							
			{a} Pipe275	Pipe	21.740	Diam/Width:225	Not Applicable
Simple Junction (20)		Diameter / Length: 1.200					Simple Junction
E:345683.276 N:389531.640							
			{a} Pipe276	Pipe	21.540	Diam/Width:225	Not Applicable
Simple Junction (21)		Diameter / Length: 1.200					Simple Junction
E:345757.102 N:389472.152							
			{a} Pipe277	Pipe	21.590	Diam/Width:225	Not Applicable
Simple Junction (22)		Diameter / Length: 1.200					Simple Junction
E:345730.013 N:389509.197							
			{a} Pipe278	Pipe	21.410	Diam/Width:225	Not Applicable

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
Simple Junction (23)		Diameter / Length: 1.200					Simple Junction
E:345714.449 N:389536.633							
			{a} Pipe279	Pipe	21.395	Diam/Width:225	Not Applicable
Simple Junction (24)		Diameter / Length: 1.200					Simple Junction
E:345725.119 N:389551.595							
			{a} Pipe280	Pipe	21.400	Diam/Width:225	Not Applicable
Outfall 2	20.375 20.000	Diameter / Length: 1.200	{1} Outfall 2	Pipe	20.000	Diam/Width:375	Manhole
E:345623.866 N:389392.769	0.375						
							Not Applicable
Simple Junction (27)		Diameter / Length: 1.200					Simple Junction
E:345650.866 N:389528.214							
			{a} Pipe296	Pipe	22.175	Diam/Width:225	Not Applicable
Simple Junction (28)		Diameter / Length: 1.200					Simple Junction
E:345542.305 N:389476.264							
			{a} Pipe297	Pipe	22.240	Diam/Width:225	Not Applicable

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Report Details: Type: Manhole Schedule Storm Phase: Existing SW		Designed by: AJe	Checked by: RR		Approved By: RR
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
Simple Junction (29)		Diameter / Length: 1.200					Simple Junction
E:345634.831 N:389569.802							
			{a} Pipe299	Pipe	22.365	Diam/Width:225	Not Applicable
Simple Junction (30)		Diameter / Length: 1.200					Simple Junction
E:345521.010 N:389513.919							
			{a} Pipe300	Pipe	22.410	Diam/Width:225	Not Applicable
Manhole	22.900 21.225	Diameter / Length: 0.900	{1} Pipe	Pipe	21.225	Diam/Width:225	Manhole
E:345785.711 N:389584.691	1.675						
			{a} Pipe (1)	Pipe	21.225	Diam/Width:225	Not Applicable
Manhole (1)	23.750 22.950	Diameter / Length: 1.200	{1} Pipe (4)	Pipe	22.950	Diam/Width:300	Manhole
E:345754.685 N:389632.575	0.800						
			{a} Pipe (2)	Pipe	22.950	Diam/Width:300	Not Applicable
Into Phase 1	24.380 22.640	Diameter / Length: 1.200	{1} Into Phase 1	Pipe	22.640	Diam/Width:300	Manhole
E:345738.846 N:389660.867	1.740						
							Not Applicable

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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
Manhole (3)	23.920 22.830	Diameter / Length: 1.200	{1} Pipe (2)	Pipe	22.830	Diam/Width:300	Manhole
E:345748.517 N:389637.366	1.090		{a} Into Phase 1	Pipe	22.830	Diam/Width:300	Not Applicable
Simple Junction (3)		Diameter / Length: 1.200					Simple Junction
E:345704.800 N:389611.008			{a} Pipe (4)	Pipe	23.130	Diam/Width:300	Not Applicable

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
Report Details: Type: Inflow Summary Storm Phase: Existing SW		Designed by: AJe	Checked by: RR		
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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (m²)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (m²)
Area 1a	MH214		Time of Concentration	2765.502	100	0	100	2765.502
Area 1b	Simple Junction (10)		Time of Concentration	3556.696	100	0	100	3556.696
Area 2	Simple Junction (19)		Time of Concentration	3392.656	100	0	100	3392.656
Area 2 (1)	Simple Junction (21)		Time of Concentration	3460.228	100	0	100	3460.228
Area 3	Simple Junction (20)		Time of Concentration	1335.169	100	0	100	1335.169
Area 3 (1)	Simple Junction (24)		Time of Concentration	1271.012	100	0	100	1271.012
Area 4	Simple Junction (16)		Time of Concentration	1139.441	100	0	100	1139.441
Area 4 (1)	MH245		Time of Concentration	1127.525	100	0	100	1127.525
Area 4 (2)	Simple Junction (16)		Time of Concentration	1114.991	100	0	100	1114.991
Area 4 (3)	MH245		Time of Concentration	1065.918	100	0	100	1065.918
Area 5a	MH315		Time of Concentration	1478.721	100	0	100	1478.721
Area 5b	MH91		Time of Concentration	825.505	100	0	100	825.505
Area 6	Simple Junction (30)		Time of Concentration	1955.953	100	0	100	1955.953
Area 6 (1)	Simple Junction (28)		Time of Concentration	1769.859	100	0	100	1769.859
Area 6 (2)	Simple Junction (29)		Time of Concentration	1107.376	100	0	100	1107.376
Area 6 (3)	Simple Junction (27)		Time of Concentration	1101.927	100	0	100	1101.927
Area 7	MH207		Time of Concentration	2800.553	100	0	100	2800.553
Area 8a	MH67		Time of Concentration	1645.106	100	0	100	1645.106
Area 8a (1)	MH68		Time of Concentration	1776.325	100	0	100	1776.325
Area 8b	MH75		Time of Concentration	1510.502	100	0	100	1510.502
Area 8c	Simple Junction (1)		Time of Concentration	1653.547	100	0	100	1653.547
Area 9	MH106		Time of Concentration	784.391	100	0	100	784.391
Area 9 (1)	MH107		Time of Concentration	1334.655	100	0	100	1334.655
Area 10	MH106		Time of Concentration	1160.293	100	0	100	1160.293
Area 10 (1)	MH107		Time of Concentration	558.730	100	0	100	558.730
Area 10 (2)	MH108		Time of Concentration	1736.837	100	0	100	1736.837
Area 10 (3)	MH123		Time of Concentration	874.596	100	0	100	874.596
Area 11a	Simple Junction (3)		Time of Concentration	431.597	100	0	100	431.597
Area 11b	Manhole (1)		Time of Concentration	1108.898	100	0	100	1108.898
Area 12	Simple Junction (16)		Time of Concentration	1798.803	100	0	100	1798.803
Area 12 (1)	Simple Junction (3)		Time of Concentration	1738.739	100	0	100	1738.739
TOTAL		0.0		49382.049				49382.049

Project: 100.23083 Sovereign Phase 2 Rev: P02	Date: 20/11/0024		
	Designed by: AJe	Checked by: RR	Approved By: RR
Report Title: Rainfall Analysis Criteria	Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN		



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

FSR

Type: FSR

Region	England And Wales
M5-60 (mm)	20.0
Ratio R	0.400
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
100.0	0.000
30.0	0.000
1.0	0.000

Storm Durations

Duration (hrs)	Run Time (hrs)
0.25	0.50
0.50	1.00
1.00	2.00
2.00	4.00
3.00	6.00
4.00	8.00
6.00	12.00
8.00	16.00
10.00	20.00
12.00	24.00
16.00	32.00
24.00	48.00
36.00	72.00
48.00	96.00
72.00	144.00
96.00	192.00
120.00	240.00
144.00	288.00
168.00	336.00

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
Report Details: Type: Junctions Summary Storm Phase: Existing SW		Designed by: AJe	Checked by: RR		Approved By: RR
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FSR: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MH290	FSR: 100 years: +0 %: 0.25 hrs: Summer	24.92 9	21.15 0	21.150	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH91	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.91 0	23.15 0	23.949	0.799	204.7	39.304	38.820	86.1	101.104	Flood
MH257	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.90 0	22.10 5	23.797	1.692	103.3	1.076	0.000	99.4	63.419	Flood Risk
MH249	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.90 0	21.59 5	22.692	1.097	153.5	0.698	0.000	160.0	123.334	Surcharged
MH248	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.90 0	21.66 0	22.812	1.152	89.7	0.732	0.000	61.5	59.499	Surcharged
MH245	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.90 0	21.40 0	22.655	1.255	293.7	0.798	0.000	271.8	286.620	Surcharged
MH246	FSR: 100 years: +0 %: 0.50 hrs: Winter	23.90 0	21.08 0	22.716	1.636	273.9	1.041	0.000	272.4	259.576	Surcharged
MH247	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.90 0	21.38 5	23.478	2.093	171.8	1.331	0.000	144.8	99.135	Surcharged
MH132	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.76 0	22.08 5	22.085	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH123	FSR: 100 years: +0 %: 0.50 hrs: Winter	23.60 0	20.92 0	22.480	1.560	298.2	0.992	0.000	297.8	280.623	Surcharged
MH315	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.56 1	23.09 0	23.567	0.477	138.0	6.218	5.919	90.0	139.675	Flood
MH106	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.41 0	21.68 0	23.413	1.733	87.1	3.994	2.893	30.8	54.167	Flood
MH108	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.28 0	21.36 0	23.280	1.920	88.7	1.267	0.046	83.5	94.967	Flood
MH107	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.27 0	21.47 0	23.301	1.831	115.6	31.733	30.588	63.3	67.321	Flood
MH67	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.26 0	21.88 0	23.266	1.386	73.7	6.895	6.017	38.8	33.020	Flood
MH208	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.23 0	20.33 0	21.139	0.809	267.7	0.514	0.000	246.6	133.624	Surcharged
MH96	FSR: 100 years: +0 %: 0.50 hrs: Winter	23.15 0	21.08 0	22.394	1.314	306.2	0.836	0.000	305.9	394.179	Surcharged
MH207	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.14 0	20.58 0	21.406	0.826	278.4	0.525	0.000	267.7	132.340	Surcharged
MH79	FSR: 100 years: +0 %: 0.50 hrs: Winter	23.14 0	20.95 0	21.780	0.830	38.9	0.528	0.000	30.8	25.826	Surcharged
MH97	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.13 0	21.87 0	21.870	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH80	FSR: 100 years: +0 %: 0.50 hrs: Winter	23.07 0	20.79 0	21.780	0.990	769.6	0.630	0.000	767.6	1016.062	Surcharged
MH81	FSR: 100 years: +0 %: 0.50 hrs: Winter	23.03 0	21.39 0	21.780	0.390	17.9	0.248	0.000	5.2	2.542	Surcharged
MH68	FSR: 100 years: +0 %: 0.50 hrs: Winter	22.94 0	21.64 0	22.983	1.343	91.3	43.331	42.504	59.9	93.169	Flood
MH75	FSR: 100 years: +0 %: 0.25 hrs: Winter	22.92 0	21.03 0	22.921	1.891	142.7	2.031	0.829	104.5	123.536	Flood
MH77	FSR: 100 years: +0 %: 0.50 hrs: Winter	22.91 0	21.24 5	22.716	1.471	111.0	0.936	0.000	107.6	178.012	Flood Risk
MH73	FSR: 100 years: +0 %: 0.50 hrs: Winter	22.91 0	20.83 0	22.116	1.286	769.8	0.818	0.000	769.6	998.031	Surcharged
MH76	FSR: 100 years: +0 %: 0.50 hrs: Winter	22.90 0	21.23 5	22.536	1.301	107.6	0.827	0.000	104.5	177.994	Surcharged
MH70	FSR: 100 years: +0 %: 0.25 hrs: Winter	22.88 0	21.42 0	22.890	1.470	60.1	10.840	9.911	60.1	63.603	Flood

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MH72	FSR: 100 years: +0 %: 0.50 hrs: Winter	22.88 0	20.88 0	22.255	1.375	603.7	0.874	0.000	603.4	674.095	Surcharged
MH117	FSR: 100 years: +0 %: 0.50 hrs: Winter	22.41 0	21.85 0	22.451	0.601	32.1	41.794	41.438	17.2	29.201	Flood
MH265	FSR: 100 years: +0 %: 0.25 hrs: Winter	22.37 0	20.90 0	20.966	0.066	17.1	0.042	0.000	2.4	2.310	OK
MH98	FSR: 100 years: +0 %: 0.50 hrs: Winter	21.84 5	21.12 0	21.780	0.660	31.9	0.420	0.000	19.4	9.592	Flood Risk
MH84	FSR: 100 years: +0 %: 0.25 hrs: Summer	24.55 0	22.32 0	22.320	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH214	FSR: 100 years: +0 %: 1.00 hrs: Winter	22.50 0	22.04 5	22.564	0.519	60.6	63.898	63.769	12.5	57.324	Flood
MH254	FSR: 100 years: +0 %: 0.50 hrs: Winter	23.40 0	23.26 5	23.422	0.157	28.9	22.417	22.416	26.0	23.059	Flood
Simple Junction (11)	FSR: 100 years: +0 %: 0.25 hrs: Winter		21.33 5	23.014	1.679	83.5			82.0	93.802	Surcharged
Outfall 1	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.20 0	20.71 0	21.310	0.600	669.3	0.000	0.000	668.5	636.621	OK
Simple Junction (1)	FSR: 100 years: +0 %: 0.25 hrs: Winter		21.34 5	22.946	1.601	74.1			75.0	32.490	Surcharged
Simple Junction (9)	FSR: 100 years: +0 %: 0.25 hrs: Winter		20.94 5	21.394	0.449	5.2			0.1	0.631	Surcharged
Simple Junction (10)	FSR: 100 years: +0 %: 0.25 hrs: Winter		20.65 0	21.551	0.901	159.3			152.9	73.705	Surcharged
Simple Junction (16)	FSR: 100 years: +0 %: 0.25 hrs: Winter		23.27 5	26.640	3.365	181.5			167.7	84.071	Surcharged
Simple Junction (18)	FSR: 100 years: +0 %: 0.25 hrs: Winter		21.58 0	23.456	1.876	13.4			13.5	3.288	Surcharged
Simple Junction (19)	FSR: 100 years: +0 %: 0.25 hrs: Winter		21.74 0	26.334	4.594	152.0			126.0	68.641	Surcharged
Simple Junction (20)	FSR: 100 years: +0 %: 0.25 hrs: Winter		21.54 0	23.624	2.084	59.8			45.8	27.506	Surcharged
Simple Junction (21)	FSR: 100 years: +0 %: 0.25 hrs: Winter		21.59 0	25.977	4.387	155.0			131.0	69.828	Surcharged
Simple Junction (22)	FSR: 100 years: +0 %: 0.50 hrs: Winter		21.41 0	22.717	1.307	2.9			3.7	1.701	Surcharged
Simple Junction (23)	FSR: 100 years: +0 %: 0.50 hrs: Winter		21.39 5	22.716	1.321	4.5			3.7	1.669	Surcharged
Simple Junction (24)	FSR: 100 years: +0 %: 0.25 hrs: Winter		21.40 0	22.850	1.450	56.9			46.2	25.990	Surcharged
Outfall 2	FSR: 100 years: +0 %: 0.25 hrs: Summer	20.37 5	20.00 0	20.375	0.375	235.8	0.000	0.000	236.3	117.601	Flood Risk
Simple Junction (27)	FSR: 100 years: +0 %: 0.50 hrs: Winter		22.17 5	23.001	0.826	32.5			31.9	29.874	Surcharged
Simple Junction (28)	FSR: 100 years: +0 %: 0.25 hrs: Winter		22.24 0	23.607	1.367	79.3			60.6	36.416	Surcharged
Simple Junction (29)	FSR: 100 years: +0 %: 0.25 hrs: Winter		22.36 5	23.925	1.560	49.6			34.0	22.900	Surcharged
Simple Junction (30)	FSR: 100 years: +0 %: 0.25 hrs: Winter		22.41 0	24.721	2.311	87.6			69.2	40.260	Surcharged
Manhole	FSR: 100 years: +0 %: 0.50 hrs: Winter	22.90 0	21.22 5	22.348	1.123	104.5	0.714	0.000	101.6	177.976	Surcharged

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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN					

Manhole (1)	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.75 0	22.95 0	23.597	0.647	140.6	0.732	0.000	136.2	67.982	Flood Risk
Into Phase 1	FSR: 100 years: +0 %: 0.25 hrs: Summer	24.38 0	22.64 0	22.940	0.300	124.2	0.000	0.000	124.6	60.689	OK
Manhole (3)	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.92 0	22.83 0	23.386	0.556	136.2	0.629	0.000	133.0	67.966	Surcharged
Simple Junction (3)	FSR: 100 years: +0 %: 0.25 hrs: Winter		23.13 0	24.008	0.878	97.2			90.9	44.943	Surcharged

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
Report Details: Type: Junctions Summary Storm Phase: Existing SW		Designed by: AJe	Checked by: RR		Approved By: RR
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			



FSR: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MH290	FSR: 30 years: +0 %: 0.25 hrs: Summer	24.92 9	21.15 0	21.150	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH91	FSR: 30 years: +0 %: 0.25 hrs: Winter	23.91 0	23.15 0	23.930	0.780	159.3	20.200	19.717	84.6	77.919	Flood
MH257	FSR: 30 years: +0 %: 0.25 hrs: Winter	23.90 0	22.10 5	22.882	0.777	85.2	0.494	0.000	77.7	48.849	Surcharged
MH249	FSR: 30 years: +0 %: 0.50 hrs: Winter	23.90 0	21.59 5	22.200	0.605	122.4	0.385	0.000	119.1	123.510	Surcharged
MH248	FSR: 30 years: +0 %: 0.50 hrs: Winter	23.90 0	21.66 0	22.294	0.634	62.2	0.403	0.000	58.6	59.705	Surcharged
MH245	FSR: 30 years: +0 %: 0.50 hrs: Winter	23.90 0	21.40 0	22.171	0.771	252.8	0.490	0.000	249.3	301.575	Surcharged
MH246	FSR: 30 years: +0 %: 0.50 hrs: Winter	23.90 0	21.08 0	22.223	1.143	206.9	0.727	0.000	204.4	197.742	Surcharged
MH247	FSR: 30 years: +0 %: 0.25 hrs: Winter	23.90 0	21.38 5	22.727	1.342	133.3	0.854	0.000	113.2	75.485	Surcharged
MH132	FSR: 30 years: +0 %: 0.25 hrs: Summer	23.76 0	22.08 5	22.085	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH123	FSR: 30 years: +0 %: 0.50 hrs: Winter	23.60 0	20.92 0	22.086	1.166	224.1	0.741	0.000	223.3	214.257	Surcharged
MH315	FSR: 30 years: +0 %: 0.25 hrs: Winter	23.56 1	23.09 0	23.558	0.468	122.7	0.297	0.000	93.7	113.525	Flood Risk
MH106	FSR: 30 years: +0 %: 0.25 hrs: Winter	23.41 0	21.68 0	23.410	1.730	67.2	1.488	0.388	31.3	44.814	Flood
MH108	FSR: 30 years: +0 %: 0.25 hrs: Winter	23.28 0	21.36 0	23.128	1.768	89.0	1.124	0.000	86.8	79.985	Flood Risk
MH107	FSR: 30 years: +0 %: 0.25 hrs: Winter	23.27 0	21.47 0	23.284	1.814	96.7	14.971	13.827	49.1	56.031	Flood
MH67	FSR: 30 years: +0 %: 0.25 hrs: Winter	23.26 0	21.88 0	23.261	1.381	56.8	2.058	1.180	39.0	26.372	Flood
MH208	FSR: 30 years: +0 %: 0.25 hrs: Winter	23.23 0	20.33 0	20.804	0.474	197.4	0.301	0.000	179.6	101.501	Surcharged
MH96	FSR: 30 years: +0 %: 0.50 hrs: Winter	23.15 0	21.08 0	22.052	0.972	249.3	0.618	0.000	248.0	301.322	Surcharged
MH207	FSR: 30 years: +0 %: 0.25 hrs: Winter	23.14 0	20.58 0	20.906	0.326	218.7	0.207	0.000	197.4	101.595	OK
MH79	FSR: 30 years: +0 %: 0.50 hrs: Winter	23.14 0	20.95 0	21.639	0.689	59.9	0.438	0.000	20.3	24.153	Surcharged
MH97	FSR: 30 years: +0 %: 0.25 hrs: Summer	23.13 0	21.87 0	21.870	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH80	FSR: 30 years: +0 %: 0.50 hrs: Winter	23.07 0	20.79 0	21.638	0.848	641.4	0.540	0.000	633.5	793.914	Surcharged
MH81	FSR: 30 years: +0 %: 0.50 hrs: Winter	23.03 0	21.39 0	21.639	0.249	2.1	0.158	0.000	4.9	2.008	OK
MH68	FSR: 30 years: +0 %: 0.25 hrs: Winter	22.94 0	21.64 0	22.964	1.324	100.4	24.499	23.672	56.3	54.417	Flood
MH75	FSR: 30 years: +0 %: 0.25 hrs: Winter	22.92 0	21.03 0	22.881	1.851	121.7	1.177	0.000	117.6	102.587	Flood Risk
MH77	FSR: 30 years: +0 %: 0.25 hrs: Winter	22.91 0	21.24 5	22.605	1.360	117.6	0.865	0.000	113.6	102.459	Surcharged
MH73	FSR: 30 years: +0 %: 0.50 hrs: Winter	22.91 0	20.83 0	21.870	1.040	642.0	0.661	0.000	641.4	777.250	Surcharged
MH76	FSR: 30 years: +0 %: 0.50 hrs: Winter	22.90 0	21.23 5	22.337	1.102	98.9	0.701	0.000	96.1	135.770	Surcharged
MH70	FSR: 30 years: +0 %: 0.25 hrs: Winter	22.88 0	21.42 0	22.880	1.460	56.3	0.953	0.024	57.4	54.190	Flood

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024				
Report Details: Type: Junctions Summary Storm Phase: Existing SW		Designed by: AJe	Checked by: RR	Approved By: RR		
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN				

MH72	FSR: 30 years: +0 %: 0.50 hrs: Winter	22.88 0	20.88 0	21.956	1.076	471.4	0.684	0.000	470.6	514.993	Surcharged
MH117	FSR: 30 years: +0 %: 0.50 hrs: Winter	22.41 0	21.85 0	22.437	0.587	30.8	27.196	26.840	17.0	34.490	Flood
MH265	FSR: 30 years: +0 %: 0.25 hrs: Summer	22.37 0	20.90 0	20.900	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH98	FSR: 30 years: +0 %: 0.50 hrs: Winter	21.84 5	21.12 0	21.641	0.521	36.6	0.331	0.000	12.5	8.844	Flood Risk
MH84	FSR: 30 years: +0 %: 0.25 hrs: Summer	24.55 0	22.32 0	22.320	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH214	FSR: 30 years: +0 %: 1.00 hrs: Winter	22.50 0	22.04 5	22.543	0.498	46.1	43.037	42.909	13.2	63.590	Flood
MH254	FSR: 30 years: +0 %: 0.50 hrs: Winter	23.40 0	23.26 5	23.412	0.147	24.3	12.510	12.509	24.2	13.803	Flood
Simple Junction (11)	FSR: 30 years: +0 %: 0.25 hrs: Winter		21.33 5	22.830	1.495	86.8			84.5	78.662	Surcharged
Outfall 1	FSR: 30 years: +0 %: 0.25 hrs: Summer	23.20 0	20.71 0	21.310	0.600	580.8	0.000	0.000	580.0	512.396	OK
Simple Junction (1)	FSR: 30 years: +0 %: 0.25 hrs: Winter		21.34 5	22.895	1.550	57.1			52.7	26.396	Surcharged
Simple Junction (9)	FSR: 30 years: +0 %: 0.25 hrs: Winter		20.94 5	20.949	0.004	0.0			0.0	0.093	OK
Simple Junction (10)	FSR: 30 years: +0 %: 0.25 hrs: Winter		20.65 0	20.991	0.341	122.9			121.9	56.799	OK
Simple Junction (16)	FSR: 30 years: +0 %: 0.25 hrs: Winter		23.27 5	25.667	2.392	140.0			130.8	64.718	Surcharged
Simple Junction (18)	FSR: 30 years: +0 %: 0.25 hrs: Winter		21.58 0	22.719	1.139	10.2			8.1	2.067	Surcharged
Simple Junction (19)	FSR: 30 years: +0 %: 0.25 hrs: Winter		21.74 0	24.676	2.936	117.2			97.7	52.536	Surcharged
Simple Junction (20)	FSR: 30 years: +0 %: 0.25 hrs: Winter		21.54 0	22.828	1.288	46.1			35.7	21.142	Surcharged
Simple Junction (21)	FSR: 30 years: +0 %: 0.25 hrs: Winter		21.59 0	24.430	2.840	119.5			101.9	53.413	Surcharged
Simple Junction (22)	FSR: 30 years: +0 %: 0.50 hrs: Winter		21.41 0	22.220	0.810	4.7			2.2	1.139	Surcharged
Simple Junction (23)	FSR: 30 years: +0 %: 0.50 hrs: Winter		21.39 5	22.224	0.829	5.2			2.3	1.102	Surcharged
Simple Junction (24)	FSR: 30 years: +0 %: 0.25 hrs: Winter		21.40 0	22.325	0.925	43.9			37.2	19.973	Surcharged
Outfall 2	FSR: 30 years: +0 %: 0.25 hrs: Winter	20.37 5	20.00 0	20.375	0.375	179.6	0.000	0.000	179.8	101.501	Flood Risk
Simple Junction (27)	FSR: 30 years: +0 %: 0.50 hrs: Winter		22.17 5	22.409	0.234	24.8			24.0	22.833	Surcharged
Simple Junction (28)	FSR: 30 years: +0 %: 0.25 hrs: Winter		22.24 0	22.890	0.650	61.1			54.4	28.013	Surcharged
Simple Junction (29)	FSR: 30 years: +0 %: 0.25 hrs: Winter		22.36 5	23.089	0.724	38.3			29.5	17.629	Surcharged
Simple Junction (30)	FSR: 30 years: +0 %: 0.25 hrs: Winter		22.41 0	23.679	1.269	67.6			55.7	30.969	Surcharged
Manhole	FSR: 30 years: +0 %: 0.50 hrs: Winter	22.90 0	21.22 5	22.128	0.903	96.1	0.574	0.000	95.5	135.760	Surcharged

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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN				

Manhole (1)	FSR: 30 years: +0 %: 0.25 hrs: Winter	23.75 0	22.95 0	23.233	0.283	107.6	0.320	0.000	101.2	52.363	OK
Into Phase 1	FSR: 30 years: +0 %: 0.25 hrs: Winter	24.38 0	22.64 0	22.886	0.246	96.8	0.000	0.000	96.8	52.349	OK
Manhole (3)	FSR: 30 years: +0 %: 0.25 hrs: Winter	23.92 0	22.83 0	23.127	0.297	101.2	0.336	0.000	96.8	52.349	OK
Simple Junction (3)	FSR: 30 years: +0 %: 0.25 hrs: Winter		23.13 0	23.447	0.317	75.0			69.3	34.621	Surcharged

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Report Details: Type: Junctions Summary Storm Phase: Existing SW		Designed by: AJe	Checked by: RR		Approved By: RR
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			



FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MH290	FSR: 1 years: +0 %: 0.25 hrs: Summer	24.92 9	21.15 0	21.150	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH91	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.91 0	23.15 0	23.592	0.442	64.9	0.281	0.000	63.0	31.750	Surcharged
MH257	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.90 0	22.10 5	22.235	0.130	40.0	0.082	0.000	34.9	19.906	OK
MH249	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.90 0	21.59 5	21.758	0.163	68.6	0.104	0.000	61.3	38.402	OK
MH248	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.90 0	21.66 0	21.814	0.154	38.5	0.098	0.000	33.7	18.674	OK
MH245	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.90 0	21.40 0	21.653	0.253	169.5	0.161	0.000	147.7	94.119	OK
MH246	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.90 0	21.08 0	21.417	0.337	106.9	0.214	0.000	99.3	60.502	OK
MH247	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.90 0	21.38 5	21.598	0.213	58.7	0.135	0.000	49.8	30.020	OK
MH132	FSR: 1 years: +0 %: 0.25 hrs: Summer	23.76 0	22.08 5	22.085	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH123	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.60 0	20.92 0	21.399	0.479	111.6	0.305	0.000	94.8	66.531	OK
MH315	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.56 1	23.09 0	23.265	0.175	83.8	0.112	0.000	77.3	41.393	Flood Risk
MH106	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.41 0	21.68 0	22.583	0.903	27.4	0.574	0.000	21.9	26.678	Surcharged
MH108	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.28 0	21.36 0	22.192	0.832	64.9	0.529	0.000	62.0	46.818	Surcharged
MH107	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.27 0	21.47 0	22.551	1.081	42.8	0.687	0.000	40.5	36.283	Surcharged
MH67	FSR: 1 years: +0 %: 0.50 hrs: Winter	23.26 0	21.88 0	22.050	0.170	15.1	0.108	0.000	14.1	13.979	OK
MH208	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.23 0	20.33 0	20.523	0.193	87.4	0.123	0.000	82.5	41.364	OK
MH96	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.15 0	21.08 0	21.420	0.340	147.7	0.216	0.000	132.2	93.638	OK
MH207	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.14 0	20.58 0	20.731	0.151	88.6	0.096	0.000	87.4	41.367	OK
MH79	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.14 0	20.95 0	21.290	0.340	14.0	0.216	0.000	19.5	10.422	OK
MH97	FSR: 1 years: +0 %: 0.25 hrs: Summer	23.13 0	21.87 0	21.870	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH80	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.07 0	20.79 0	21.288	0.498	348.4	0.317	0.000	354.3	253.231	OK
MH81	FSR: 1 years: +0 %: 0.25 hrs: Summer	23.03 0	21.39 0	21.390	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH68	FSR: 1 years: +0 %: 0.25 hrs: Winter	22.94 0	21.64 0	22.090	0.450	35.4	0.286	0.000	32.2	22.189	Surcharged
MH75	FSR: 1 years: +0 %: 0.25 hrs: Winter	22.92 0	21.03 0	21.741	0.711	63.3	0.452	0.000	59.7	41.548	Surcharged
MH77	FSR: 1 years: +0 %: 0.25 hrs: Winter	22.91 0	21.24 5	21.659	0.414	59.7	0.264	0.000	57.1	41.522	Surcharged
MH73	FSR: 1 years: +0 %: 0.25 hrs: Winter	22.91 0	20.83 0	21.363	0.533	326.8	0.339	0.000	328.9	246.610	OK
MH76	FSR: 1 years: +0 %: 0.50 hrs: Winter	22.90 0	21.23 5	21.584	0.349	55.8	0.222	0.000	55.7	54.749	Surcharged
MH70	FSR: 1 years: +0 %: 0.25 hrs: Winter	22.88 0	21.42 0	21.848	0.428	32.2	0.272	0.000	29.1	22.155	Surcharged
MH72	FSR: 1 years: +0 %: 0.25 hrs: Winter	22.88 0	20.88 0	21.384	0.504	220.0	0.321	0.000	232.3	159.452	OK

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024		
		Designed by: AJe	Checked by: RR	Approved By: RR
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MH117	FSR: 1 years: +0 %: 0.25 hrs: Summer	22.41 0	21.85 0	22.412	0.562	13.0	2.437	2.081	13.5	15.369	Flood
MH265	FSR: 1 years: +0 %: 0.25 hrs: Summer	22.37 0	20.90 0	20.900	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH98	FSR: 1 years: +0 %: 0.25 hrs: Winter	21.84 5	21.12 0	21.294	0.174	2.4	0.111	0.000	12.3	3.187	OK
MH84	FSR: 1 years: +0 %: 0.25 hrs: Summer	24.55 0	22.32 0	22.320	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH214	FSR: 1 years: +0 %: 0.50 hrs: Winter	22.50 0	22.04 5	22.510	0.465	25.4	9.719	9.590	13.0	23.421	Flood
MH254	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.40 0	23.26 5	23.271	0.006	0.0	0.000	0.000	0.0	0.029	Flood Risk
Simple Junction (11)	FSR: 1 years: +0 %: 0.25 hrs: Winter		21.33 5	22.023	0.688	62.0			59.4	45.955	Surcharged
Outfall 1	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.20 0	20.71 0	21.149	0.439	354.3	0.000	0.000	354.1	246.005	OK
Simple Junction (1)	FSR: 1 years: +0 %: 0.25 hrs: Winter		21.34 5	21.742	0.397	23.3			15.8	10.809	OK
Simple Junction (9)	FSR: 1 years: +0 %: 0.25 hrs: Summer		20.94 5	20.945	0.000	0.0			0.0	0.000	OK
Simple Junction (10)	FSR: 1 years: +0 %: 0.25 hrs: Winter		20.65 0	20.821	0.171	50.0			49.2	23.143	OK
Simple Junction (16)	FSR: 1 years: +0 %: 0.25 hrs: Winter		23.27 5	23.927	0.652	57.0			53.3	26.378	Surcharged
Simple Junction (18)	FSR: 1 years: +0 %: 0.25 hrs: Winter		21.58 0	21.586	0.006	0.7			0.0	0.096	OK
Simple Junction (19)	FSR: 1 years: +0 %: 0.25 hrs: Winter		21.74 0	22.006	0.266	47.7			40.3	22.070	Surcharged
Simple Junction (20)	FSR: 1 years: +0 %: 0.25 hrs: Winter		21.54 0	21.666	0.126	18.8			18.4	8.597	OK
Simple Junction (21)	FSR: 1 years: +0 %: 0.25 hrs: Winter		21.59 0	21.878	0.288	48.7			40.1	21.779	Surcharged
Simple Junction (22)	FSR: 1 years: +0 %: 0.25 hrs: Winter		21.41 0	21.429	0.019	0.0			0.6	0.138	OK
Simple Junction (23)	FSR: 1 years: +0 %: 0.25 hrs: Winter		21.39 5	21.420	0.025	0.0			1.0	0.133	OK
Simple Junction (24)	FSR: 1 years: +0 %: 0.25 hrs: Winter		21.40 0	21.519	0.119	17.9			17.0	8.139	OK
Outfall 2	FSR: 1 years: +0 %: 0.25 hrs: Winter	20.37 5	20.00 0	20.180	0.180	82.5	0.000	0.000	82.6	41.364	Flood Risk
Simple Junction (27)	FSR: 1 years: +0 %: 0.25 hrs: Winter		22.17 5	22.257	0.082	15.5			14.9	7.192	OK
Simple Junction (28)	FSR: 1 years: +0 %: 0.25 hrs: Winter		22.24 0	22.352	0.112	24.9			23.6	11.549	OK
Simple Junction (29)	FSR: 1 years: +0 %: 0.25 hrs: Winter		22.36 5	22.467	0.102	15.6			14.6	7.231	OK
Simple Junction (30)	FSR: 1 years: +0 %: 0.25 hrs: Winter		22.41 0	22.563	0.153	27.5			25.4	12.766	OK
Manhole	FSR: 1 years: +0 %: 0.50 hrs: Winter	22.90 0	21.22 5	21.511	0.286	55.7	0.182	0.000	55.6	54.739	Surcharged
Manhole (1)	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.75 0	22.95 0	23.085	0.135	44.3	0.153	0.000	41.8	21.336	OK
Into Phase 1	FSR: 1 years: +0 %: 0.25 hrs: Winter	24.38 0	22.64 0	22.775	0.135	40.3	0.000	0.000	40.4	21.324	OK

Project: 100.23083 Sovereign Phase 2 Rev: P02				Date: 20/11/0024									
Report Details: Type: Junctions Summary Storm Phase: Existing SW				Designed by: AJe		Checked by: RR						Approved By: RR	
				Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN									
Manhole (3)	FSR: 1 years: +0 %: 0.25 hrs: Winter	23.92 0	22.83 0	22.976	0.146	41.8	0.165	0.000	40.3	21.324	OK		
Simple Junction (3)	FSR: 1 years: +0 %: 0.25 hrs: Winter		23.13 0	23.279	0.149	30.5			28.7	14.138	OK		

Project: 100.23083 Sovereign Phase 2 Rev: P02	Date: 20/11/0024		
Report Details: Type: Connections Summary Storm Phase: Existing SW	Designed by: AJe	Checked by: RR	Approved By: RR
Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			



FSR: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
Pipe45	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH246	MH123	23.900	22.670	0.450	194.167	1.8	1.54	291.3	Surcharged
Pipe46	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH123	MH72	23.600	22.394	0.525	210.950	1.5	2.33	319.7	Surcharged
Pipe48	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH73	MH80	22.910	22.116	0.600	998.031	2.7	1.97	769.6	Surcharged
Outfall 1	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH80	Outfall 1	23.070	21.780	0.600	997.323	2.7	1.93	767.6	Surcharged
Pipe52	FSR: 100 years: +0 %: 0.50 hrs: Summer	Pipe	MH81	MH80	23.030	21.753	0.300	0.001	0.1	0.02	8.1	Surcharged
Pipe55	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH98	MH79	21.845	21.729	0.450	0.000	0.4	0.42	64.0	Flood Risk
Pipe56	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH79	MH80	23.140	21.754	0.525	0.000	0.3	0.23	71.8	Surcharged
Pipe57	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH245	MH96	23.900	22.570	0.600	394.585	1.2	0.68	306.2	Surcharged
Pipe58	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH96	MH72	23.150	22.394	0.600	394.179	1.1	0.75	305.9	Surcharged
Pipe59	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH72	MH73	22.880	22.255	0.600	674.095	2.1	0.73	603.4	Surcharged
Pipe60	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (1)	MH75	21.795	22.946	0.450	32.490	0.5	0.21	75.0	Surcharged
Pipe61	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH75	MH77	22.920	22.885	0.225	178.029	2.8	2.94	111.0	Flood Risk
Pipe62	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH77	MH76	22.910	22.678	0.225	112.939	2.8	3.15	109.5	Flood Risk
Pipe69	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH106	MH107	23.410	23.411	0.225	51.100	0.8	0.82	31.0	Flood

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
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Pipe70	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH107	MH108	23.270	23.296	0.225	56.491	1.6	2.9	63.9	Flood
Pipe73	FSR: 100 years: +0 %: 0.50 hrs: Summer	Pipe	MH67	MH68	23.260	23.263	0.225	40.026	1.0	1.18	39.1	Flood
Pipe74	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH68	MH70	22.940	22.979	0.225	61.510	1.5	1.86	60.1	Flood
Pipe75	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH70	MH75	22.880	22.890	0.225	58.963	1.5	1.56	60.1	Flood
Pipe77	FSR: 100 years: +0 %: 0.50 hrs: Summer	Pipe	MH254	MH315	23.400	23.419	0.225	0.101	1.2	0.76	26.4	Flood
Pipe87	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH91	MH315	23.910	23.949	0.225	101.011	2.2	2.69	86.1	Flood
Pipe54 (2)	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH84	MH98	24.550	22.320	0.304	0.000	0.0	0	0.0	OK
Pipe191	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH315	MH245	23.561	23.563	0.225	173.004	2.3	1.05	93.0	Flood
Pipe195	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (9)	MH207	21.095	21.394	0.150	0.016	0.2	0	0.1	Surcharged
Pipe197	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (10)	MH207	21.025	21.551	0.375	73.705	1.4	1.17	152.9	Surcharged
Pipe198	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH207	MH208	23.140	21.406	0.375	131.724	2.4	0.69	267.7	Surcharged
Pipe206	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH214	MH117	22.500	22.541	0.150	14.172	0.9	1.54	15.7	Flood
Pipe50 (1)	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH132	MH97	23.760	22.085	0.000	0.000	0.0	0	0.0	OK
Pipe239	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (16)	MH91	23.500	26.640	0.225	83.982	4.2	4.82	167.7	Surcharged
Pipe243	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	Simple Junction (11)	MH73	23.316	22.960	0.225	86.548	2.1	2.93	84.6	Surcharged
Pipe68 (1)	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH117	MH106	22.410	22.451	0.150	2.788	1.0	2.45	17.2	Flood
Pipe272	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (18)	MH247	21.720	23.456	0.225	0.002	0.3	0.38	13.5	Surcharged

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Pipe273	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH247	MH246	23.900	23.478	0.300	95.849	2.0	2.26	144.8	Surcharged
Pipe274	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH249	MH245	23.900	22.621	0.600	161.811	0.7	0.46	168.7	Surcharged
Pipe275	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (19)	MH247	21.880	26.334	0.225	68.641	3.2	3.63	126.0	Surcharged
Pipe276	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (20)	MH247	21.680	23.624	0.225	27.506	1.2	1.32	45.8	Surcharged
Pipe277	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (21)	MH246	21.735	25.977	0.225	69.828	3.3	3.8	131.0	Surcharged
Pipe278	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (22)	MH246	21.550	22.655	0.225	0.020	0.2	0.2	7.0	Surcharged
Pipe279	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	Simple Junction (23)	MH246	21.535	22.456	0.225	0.001	0.2	0.2	6.9	Surcharged
Pipe280	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (24)	MH246	21.540	22.850	0.225	25.990	1.2	1.34	46.2	Surcharged
Pipe291	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH290	MH265	24.929	21.150	0.016	0.000	0.0	0	0.0	OK
Pipe293	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH265	MH208	22.370	20.966	0.225	0.398	0.3	0.06	2.4	OK
Outfall 2	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH208	Outfall 2	23.230	21.139	0.375	131.713	2.2	1.4	246.6	Surcharged
Pipe296	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	Simple Junction (27)	MH248	22.385	22.621	0.225	20.251	1.0	0.76	39.3	Surcharged
Pipe297	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	Simple Junction (28)	MH248	22.450	23.363	0.225	32.474	1.6	1.35	65.1	Surcharged
Pipe298	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH248	MH249	23.900	22.297	0.225	53.132	2.4	1.31	95.8	Surcharged
Pipe299	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	Simple Junction (29)	MH257	22.590	23.603	0.225	20.430	0.9	1.02	35.1	Surcharged
Pipe300	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (30)	MH257	22.635	24.721	0.225	40.260	1.7	2.01	69.2	Surcharged
Pipe301	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH257	MH249	23.900	23.797	0.225	63.419	2.5	1.7	99.4	Flood Risk

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Pipe241	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH108	Simple Junction (11)	23.280	23.259	0.225	87.649	2.2	3.07	87.7	Flood Risk
Pipe51 (1) (1)	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH97	MH81	23.130	21.870	0.137	0.000	0.0	0	0.0	OK
Pipe	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH76	Manhole	22.900	22.422	0.225	112.638	2.7	3.17	106.7	Surcharged
Pipe (1)	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	Manhole	MH73	22.900	22.168	0.225	112.290	2.6	2.74	102.5	Surcharged
Pipe (2)	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Manhole (1)	Manhole (3)	23.750	23.597	0.300	67.982	1.9	0.99	136.2	Flood Risk
Into Phase 1	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Manhole (3)	Into Phase 1	23.920	23.386	0.300	67.966	1.9	1.39	133.0	Surcharged
Pipe (4)	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (3)	Manhole (1)	23.900	24.008	0.300	44.943	1.3	1.43	90.9	Surcharged

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FSR: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
Pipe45	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	MH246	MH123	23.900	22.193	0.450	149.322	1.5	1.25	236.4	Surcharged
Pipe46	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	MH123	MH72	23.600	21.990	0.525	163.321	1.2	1.92	262.4	Surcharged
Pipe48	FSR: 30 years: +0 %: 0.50 hrs: Winter	Pipe	MH73	MH80	22.910	21.870	0.600	777.250	2.3	1.64	641.4	Surcharged
Outfall 1	FSR: 30 years: +0 %: 0.50 hrs: Winter	Pipe	MH80	Outfall 1	23.070	21.638	0.600	776.626	2.2	1.6	633.5	Surcharged
Pipe52	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	MH81	MH80	23.030	21.606	0.300	0.003	0.2	0.02	8.3	OK
Pipe55	FSR: 30 years: +0 %: 0.25 hrs: Summer	Pipe	MH98	MH79	21.845	21.579	0.450	0.000	0.3	0.13	20.3	Flood Risk
Pipe56	FSR: 30 years: +0 %: 0.50 hrs: Summer	Pipe	MH79	MH80	23.140	21.608	0.525	0.000	0.2	0.12	37.3	Surcharged
Pipe57	FSR: 30 years: +0 %: 0.50 hrs: Winter	Pipe	MH245	MH96	23.900	22.171	0.600	301.575	1.2	0.55	249.3	Surcharged
Pipe58	FSR: 30 years: +0 %: 0.25 hrs: Summer	Pipe	MH96	MH72	23.150	21.902	0.600	205.071	0.9	0.62	255.1	Surcharged
Pipe59	FSR: 30 years: +0 %: 0.50 hrs: Winter	Pipe	MH72	MH73	22.880	21.956	0.600	514.993	1.7	0.57	470.6	Surcharged
Pipe60	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (1)	MH75	21.795	22.895	0.450	26.396	0.3	0.15	52.7	Surcharged
Pipe61	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	MH75	MH77	22.920	22.881	0.225	102.587	3.0	3.11	117.6	Flood Risk
Pipe62	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	MH77	MH76	22.910	22.605	0.225	102.459	2.9	3.27	113.6	Surcharged
Pipe69	FSR: 30 years: +0 %: 0.25 hrs: Summer	Pipe	MH106	MH107	23.410	23.410	0.225	24.897	0.8	0.83	31.4	Flood

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Pipe70	FSR: 30 years: +0 %: 0.50 hrs: Winter	Pipe	MH107	MH108	23.270	23.277	0.225	92.655	1.3	2.43	53.5	Flood
Pipe73	FSR: 30 years: +0 %: 0.25 hrs: Summer	Pipe	MH67	MH68	23.260	23.261	0.225	23.491	1.0	1.18	39.1	Flood
Pipe74	FSR: 30 years: +0 %: 0.25 hrs: Summer	Pipe	MH68	MH70	22.940	22.959	0.225	48.629	1.4	1.77	57.1	Flood
Pipe75	FSR: 30 years: +0 %: 0.25 hrs: Summer	Pipe	MH70	MH75	22.880	22.830	0.225	48.615	1.5	1.51	58.2	Flood Risk
Pipe77	FSR: 30 years: +0 %: 0.50 hrs: Winter	Pipe	MH254	MH315	23.400	23.412	0.225	0.092	1.1	0.7	24.2	Flood
Pipe87	FSR: 30 years: +0 %: 0.25 hrs: Summer	Pipe	MH91	MH315	23.910	23.924	0.225	69.532	2.1	2.65	84.9	Flood
Pipe54 (2)	FSR: 30 years: +0 %: 0.25 hrs: Summer	Pipe	MH84	MH98	24.550	22.320	0.230	0.000	0.0	0	0.0	OK
Pipe191	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	MH315	MH245	23.561	23.558	0.225	101.083	2.4	1.06	93.7	Flood Risk
Pipe195	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (9)	MH207	21.095	20.949	0.050	0.003	0.2	0	0.0	OK
Pipe197	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (10)	MH207	21.025	20.991	0.333	56.799	1.2	0.93	121.9	OK
Pipe198	FSR: 30 years: +0 %: 0.25 hrs: Summer	Pipe	MH207	MH208	23.140	20.879	0.344	90.628	1.9	0.53	203.2	OK
Pipe206	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	MH214	MH117	22.500	22.534	0.150	14.025	0.9	1.54	15.8	Flood
Pipe50 (1)	FSR: 30 years: +0 %: 0.25 hrs: Summer	Pipe	MH132	MH97	23.760	22.085	0.000	0.000	0.0	0	0.0	OK
Pipe239	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (16)	MH91	23.500	25.667	0.225	64.708	3.3	3.76	130.8	Surcharged
Pipe243	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (11)	MH73	23.316	22.830	0.225	78.662	2.1	2.93	84.5	Surcharged
Pipe68 (1)	FSR: 30 years: +0 %: 0.50 hrs: Winter	Pipe	MH117	MH106	22.410	22.437	0.150	14.792	1.0	2.41	17.0	Flood
Pipe272	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (18)	MH247	21.720	22.719	0.225	0.001	0.2	0.23	8.1	Surcharged

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Pipe273	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	MH247	MH246	23.900	22.727	0.300	73.420	1.6	1.77	113.2	Surcharged
Pipe274	FSR: 30 years: +0 %: 0.25 hrs: Summer	Pipe	MH249	MH245	23.900	22.021	0.518	84.778	0.9	0.4	149.0	OK
Pipe275	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (19)	MH247	21.880	24.676	0.225	52.536	2.5	2.81	97.7	Surcharged
Pipe276	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (20)	MH247	21.680	22.828	0.225	21.142	0.9	1.03	35.7	Surcharged
Pipe277	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (21)	MH246	21.735	24.430	0.225	53.413	2.6	2.96	101.9	Surcharged
Pipe278	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (22)	MH246	21.550	22.192	0.225	0.017	0.2	0.14	4.9	Surcharged
Pipe279	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (23)	MH246	21.535	22.203	0.225	0.003	0.2	0.14	5.0	Surcharged
Pipe280	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (24)	MH246	21.540	22.325	0.225	19.973	0.9	1.08	37.2	Surcharged
Pipe291	FSR: 30 years: +0 %: 0.25 hrs: Summer	Pipe	MH290	MH265	24.929	21.150	0.000	0.000	0.0	0	0.0	OK
Pipe293	FSR: 30 years: +0 %: 0.25 hrs: Summer	Pipe	MH265	MH208	22.370	20.900	0.120	0.000	0.0	0	0.0	OK
Outfall 2	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	MH208	Outfall 2	23.230	20.804	0.375	101.501	1.6	1.02	179.6	Surcharged
Pipe296	FSR: 30 years: +0 %: 0.25 hrs: Summer	Pipe	Simple Junction (27)	MH248	22.385	22.315	0.225	15.584	0.9	0.69	35.4	OK
Pipe297	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (28)	MH248	22.450	22.890	0.225	28.013	1.4	1.13	54.4	Surcharged
Pipe298	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	MH248	MH249	23.900	22.141	0.225	45.840	2.2	1.19	86.8	Surcharged
Pipe299	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (29)	MH257	22.590	23.089	0.225	17.629	0.7	0.85	29.5	Surcharged
Pipe300	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (30)	MH257	22.635	23.679	0.225	30.969	1.4	1.62	55.7	Surcharged
Pipe301	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	MH257	MH249	23.900	22.882	0.225	48.849	2.0	1.33	77.7	Surcharged

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Pipe241	FSR: 30 years: +0 %: 0.25 hrs: Summer	Pipe	MH108	Simple Junction (11)	23.280	23.076	0.225	74.156	2.2	3.05	87.0	Flood Risk
Pipe51 (1) (1)	FSR: 30 years: +0 %: 0.25 hrs: Summer	Pipe	MH97	MH81	23.130	21.870	0.095	0.000	0.0	0	0.0	OK
Pipe	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	MH76	Manhole	22.900	22.325	0.225	102.337	2.8	3.27	110.2	Surch arged
Pipe (1)	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Manhole	MH73	22.900	22.048	0.225	102.193	2.7	2.87	107.4	Surch arged
Pipe (2)	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Manhole (1)	Manhole (3)	23.750	23.233	0.290	52.363	1.4	0.73	101.2	OK
Into Phase 1	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Manhole (3)	Into Phase 1	23.920	23.127	0.272	52.349	1.4	1.01	96.8	OK
Pipe (4)	FSR: 30 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (3)	Manhole (1)	23.900	23.447	0.300	34.621	1.0	1.09	69.3	Surch arged

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Report Details: Type: Connections Summary Storm Phase: Existing SW	Designed by: AJe	Checked by: RR	Approved By: RR	
	Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			



FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

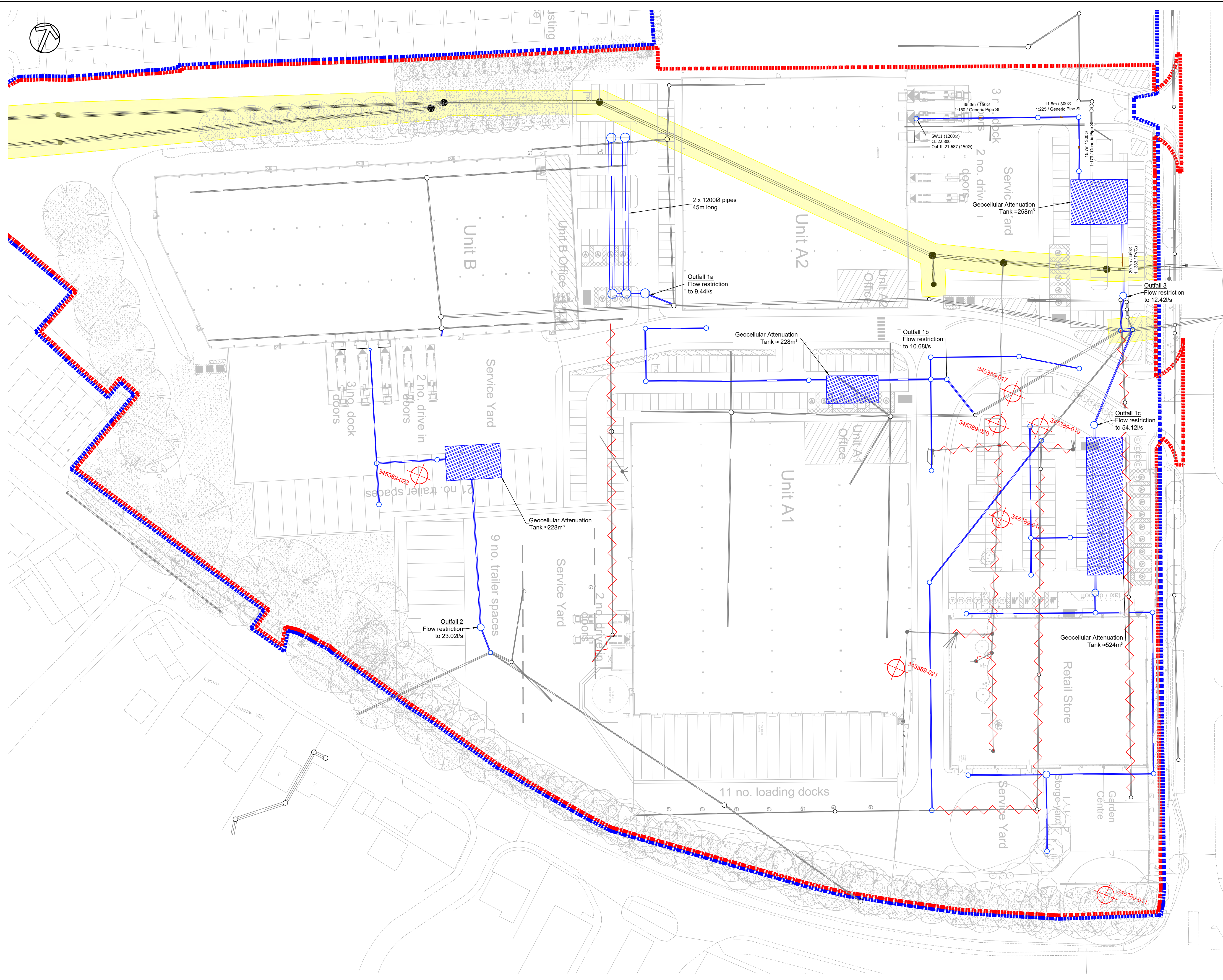
Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
Pipe45	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH246	MH123	23.900	21.417	0.370	60.220	0.9	0.52	99.3	OK
Pipe46	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH123	MH72	23.600	21.399	0.491	66.531	0.7	0.69	94.8	OK
Pipe48	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH73	MH80	22.910	21.363	0.515	246.610	1.3	0.84	328.9	OK
Outfall 1	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH80	Outfall 1	23.070	21.288	0.468	246.005	1.5	0.89	354.3	OK
Pipe52	FSR: 1 years: +0 %: 0.25 hrs: Summer	Pipe	MH81	MH80	23.030	21.390	0.086	0.000	0.0	0	0.0	OK
Pipe55	FSR: 1 years: +0 %: 0.25 hrs: Summer	Pipe	MH98	MH79	21.845	21.276	0.198	0.000	0.2	0.08	12.4	OK
Pipe56	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH79	MH80	23.140	21.290	0.381	0.000	0.2	0.06	19.5	OK
Pipe57	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH245	MH96	23.900	21.653	0.268	94.119	1.3	0.33	147.7	OK
Pipe58	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH96	MH72	23.150	21.420	0.422	93.638	0.7	0.32	132.2	OK
Pipe59	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH72	MH73	22.880	21.384	0.519	159.452	0.9	0.28	232.3	OK
Pipe60	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (1)	MH75	21.795	21.742	0.450	10.809	0.1	0.05	15.8	OK
Pipe61	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH75	MH77	22.920	21.741	0.225	41.548	1.5	1.58	59.7	Surcharged
Pipe62	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH77	MH76	22.910	21.659	0.225	41.522	1.4	1.64	57.1	Surcharged
Pipe69	FSR: 1 years: +0 %: 0.50 hrs: Winter	Pipe	MH106	MH107	23.410	22.400	0.225	39.909	0.7	0.6	22.8	Surcharged
Pipe70	FSR: 1 years: +0 %: 0.25 hrs: Summer	Pipe	MH107	MH108	23.270	22.496	0.225	35.259	1.0	1.84	40.6	Surcharged
Pipe73	FSR: 1 years: +0 %: 0.25 hrs: Summer	Pipe	MH67	MH68	23.260	22.008	0.211	9.552	0.5	0.61	20.4	OK
Pipe74	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH68	MH70	22.940	22.090	0.225	22.189	0.8	1	32.2	Surcharged
Pipe75	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH70	MH75	22.880	21.848	0.225	22.155	0.7	0.75	29.1	Surcharged
Pipe77	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH254	MH315	23.400	23.271	0.088	0.000	0.0	0	0.0	Flood Risk

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
Report Details: Type: Connections Summary Storm Phase: Existing SW		Designed by: AJe	Checked by: RR		Approved By: RR
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Pipe87	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH91	MH315	23.910	23.592	0.225	31.750	1.6	1.97	63.0	Surcharged
Pipe54 (2)	FSR: 1 years: +0 %: 0.25 hrs: Summer	Pipe	MH84	MH98	24.550	22.320	0.078	0.000	0.0	0	0.0	OK
Pipe191	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH315	MH245	23.561	23.265	0.169	41.355	2.4	0.87	77.3	Flood Risk
Pipe195	FSR: 1 years: +0 %: 0.25 hrs: Summer	Pipe	Simple Junction (9)	MH207	21.095	20.945	0.000	0.000	0.0	0	0.0	OK
Pipe197	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (10)	MH207	21.025	20.821	0.161	23.143	1.1	0.38	49.2	OK
Pipe198	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH207	MH208	23.140	20.731	0.172	41.367	1.8	0.23	87.4	OK
Pipe206	FSR: 1 years: +0 %: 0.50 hrs: Winter	Pipe	MH214	MH117	22.500	22.510	0.150	23.421	0.7	1.27	13.0	Flood
Pipe50 (1)	FSR: 1 years: +0 %: 0.25 hrs: Summer	Pipe	MH132	MH97	23.760	22.085	0.000	0.000	0.0	0	0.0	OK
Pipe239	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (16)	MH91	23.500	23.927	0.225	26.378	1.3	1.53	53.3	Surcharged
Pipe243	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (11)	MH73	23.316	22.023	0.225	45.955	1.5	2.06	59.4	Surcharged
Pipe68 (1)	FSR: 1 years: +0 %: 0.50 hrs: Summer	Pipe	MH117	MH106	22.410	22.411	0.150	20.949	0.8	2.06	14.4	Flood
Pipe272	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (18)	MH247	21.720	21.586	0.072	0.000	0.0	0	0.0	OK
Pipe273	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH247	MH246	23.900	21.598	0.193	29.918	1.0	0.78	49.8	OK
Pipe274	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH249	MH245	23.900	21.758	0.208	38.402	0.7	0.17	61.3	OK
Pipe275	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (19)	MH247	21.880	22.006	0.217	22.070	1.0	1.16	40.3	Surcharged
Pipe276	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (20)	MH247	21.680	21.666	0.132	8.597	0.8	0.53	18.4	OK
Pipe277	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (21)	MH246	21.735	21.878	0.225	21.779	1.0	1.16	40.1	Surcharged
Pipe278	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (22)	MH246	21.550	21.429	0.066	0.000	0.1	0.02	0.6	OK
Pipe279	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (23)	MH246	21.535	21.420	0.068	0.000	0.1	0.03	1.0	OK
Pipe280	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (24)	MH246	21.540	21.519	0.113	8.139	0.8	0.49	17.0	OK
Pipe291	FSR: 1 years: +0 %: 0.25 hrs: Summer	Pipe	MH290	MH265	24.929	21.150	0.000	0.000	0.0	0	0.0	OK
Pipe293	FSR: 1 years: +0 %: 0.25 hrs: Summer	Pipe	MH265	MH208	22.370	20.900	0.019	0.000	0.0	0	0.0	OK
Outfall 2	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH208	Outfall 2	23.230	20.523	0.187	41.364	1.5	0.47	82.5	OK

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
Report Details: Type: Connections Summary Storm Phase: Existing SW		Designed by: AJe	Checked by: RR	Approved By: RR	
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Pipe296	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (27)	MH248	22.385	22.257	0.118	7.192	0.7	0.29	14.9	OK
Pipe297	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (28)	MH248	22.450	22.352	0.133	11.549	1.0	0.49	23.6	OK
Pipe298	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH248	MH249	23.900	21.814	0.158	18.674	1.1	0.46	33.7	OK
Pipe299	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (29)	MH257	22.590	22.467	0.116	7.231	0.7	0.42	14.6	OK
Pipe300	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (30)	MH257	22.635	22.563	0.141	12.766	1.0	0.74	25.4	OK
Pipe301	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	MH257	MH249	23.900	22.235	0.146	19.906	1.3	0.6	34.9	OK
Pipe241	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (11)	MH108	23.280	22.192	0.225	46.818	1.6	2.17	62.0	Surcharged
Pipe51 (1) (1)	FSR: 1 years: +0 %: 0.25 hrs: Summer	Pipe	MH97	MH81	23.130	21.870	0.000	0.000	0.0	0	0.0	OK
Pipe	FSR: 1 years: +0 %: 0.50 hrs: Winter	Pipe	MH76	Manhole	22.900	21.584	0.225	54.749	1.4	1.65	55.7	Surcharged
Pipe (1)	FSR: 1 years: +0 %: 0.50 hrs: Winter	Pipe	Manhole	MH73	22.900	21.511	0.225	54.739	1.4	1.48	55.6	Surcharged
Pipe (2)	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Manhole (1)	Manhole (3)	23.750	23.085	0.141	21.336	1.3	0.3	41.8	OK
Into Phase 1	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Manhole (3)	Into Phase 1	23.920	22.976	0.140	21.324	1.2	0.42	40.3	OK
Pipe (4)	FSR: 1 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (3)	Manhole (1)	23.900	23.279	0.142	14.138	0.9	0.45	28.7	OK



Do Not Scale				
Drawing Notes				
Drawing & schedule based on the following information:				
Architect's drawing/model:		13579-AEW-SI-XX-DR-A-1103		
Revision:		P02		
Received:		13.11.2024		
Topographic Survey:		40493_T_3D		
Revision:		REV1		
Received:		26.09.2023		
Residual Hazards				
Health, Safety & Environmental Notes				
Land Ownership Boundary Site Boundary Proposed Surface Water Network Existing Adopted Combined Network Existing Adopted Surface Network Existing Private Surface Network Existing Culvert Existing Channel Drain Drainage to be abandoned UU Easement Attenuation Tank				

- | | |
|---|-----------------------------------|
|  | Land Ownership Boundary |
|  | Site Boundary |
|  | Proposed Surface Water Network |
|  | Existing Adopted Combined Network |
|  | Existing Adopted Surface Network |
|  | Existing Private Surface Network |
|  | Existing Culvert |
|  | Existing Channel Drain |
|  | Drainage to be abandoned |
|  | UU Easement |
|  | Attenuation Tank |

14.05.25	Updated flow restrictions	AJe	RR	P04
21.11.24	Updated architectural layout	AJe	RR	P03
08.07.24	Updated drainage layout	AJe	RR	P02
06.10.23	First Issue	AJe	GT	P1

Date	Description	By	Chk	Rev
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ADEPT
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Office Address
 7 St James Square, 4th Floor,
 Manchester, M2 6DN

Project
Sovereign Business Park,
Phase 2

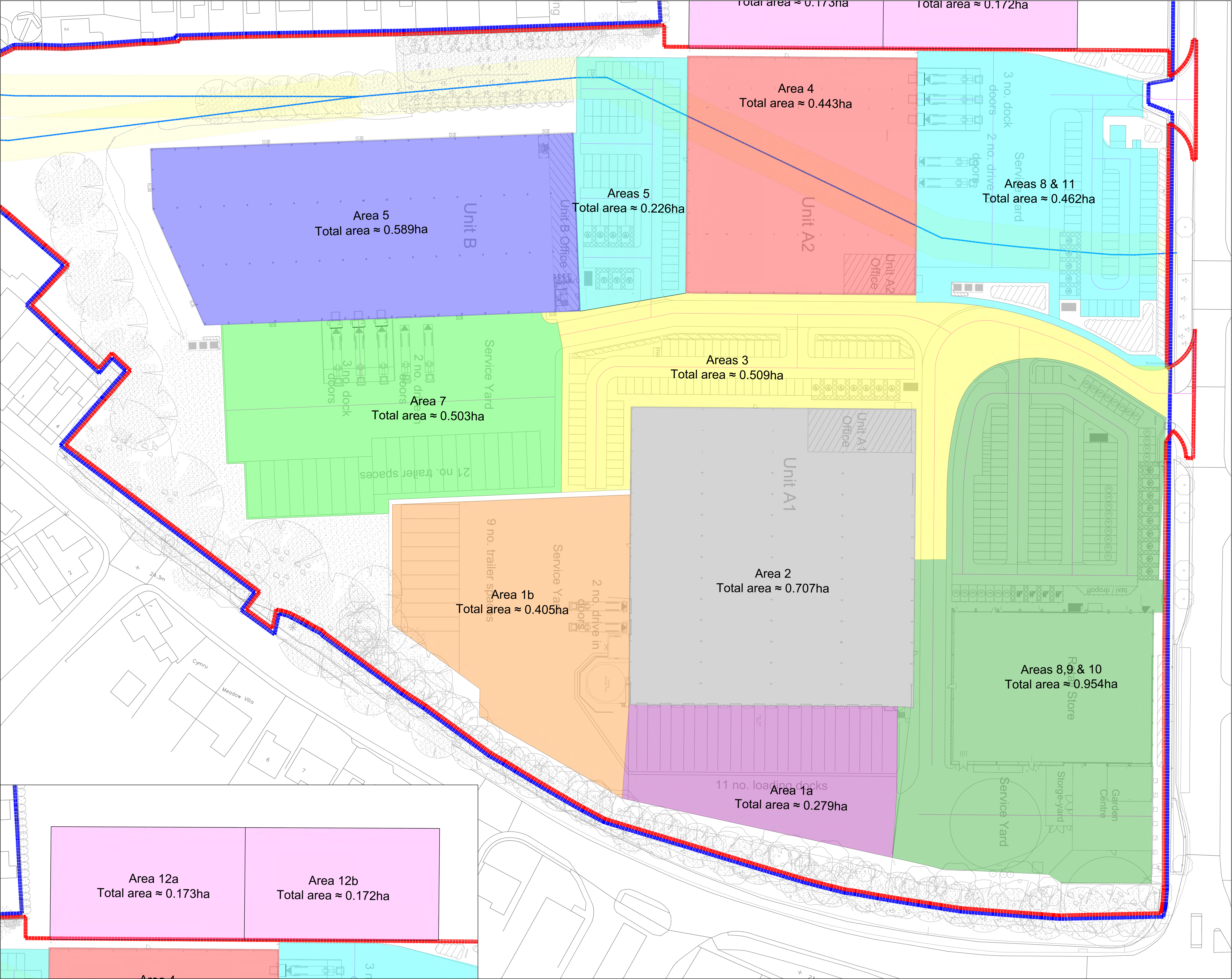
Title	Proposed Drainage Plan
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Client	DAVOS Property Developments Ltd

Scale @ A1 1:500	Initial author AJe	Initial checker RR	Approver NB	Initial Date Jul '24
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Status	Purpose	Adept Project Number
S3	Preliminary	100.23083

Project-Originator-Functional Breakdown-Spatial Breakdown-Form-Discipline-Number	Rev.
100.23083-ACE-00-ZZ-DR-C-1000	P04



Do Not Scale

DESIGN REVIEW

Design review by: **

Checked by: **

Residual hazards:

Health, Safety & Environmental Notes

NOTES

Key

Area 5

Area2

Area 1b

Area 1a

Area 2

Area 3

Area 4

Area 5

Area 12

Area 8 & 11

Area 8, 9 & 10

14.05.25

Rev P4 of FRA

AJe

RR

P03

21.11.24

Updated architectural layout

AJe

RR

P02

05.06.24

Initial Issue

AJe

RR

P1

Date

Description

By

Chk

Rev

ADEPT

CIVIL AND STRUCTURAL CONSULTING ENGINEERS

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Project

Sovereign Distillery Phase 2, Huyton

Title

Proposed Impermeable Area Layout

Client

DAVOS Property Developments Ltd

Scale @ A1

1:500

Initial author

AJe

Initial checker

RR

Approver

NBr

Initial Date

Jun '24

Status

S3

Purpose

Preliminary

Adapt Ref

100.23083

Project Number

100.23083-ACE-00-ZZ-DR-C-1011

Rev.

P03

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04	Date: 07/06/2024		
	Designed by: aleks.jencu	Checked by:	Approved By:
Report Details: Type: Junctions Storm Phase: Existing SW	Company Address: Adept Consulting Engineers		



Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
MH290	Outlet	Pipe291	Free Discharge
MH91	Outlet	Pipe87	Free Discharge
MH257	Outlet	Pipe301	Free Discharge
Ex. MH07	Outlet	Pipe274	Free Discharge
MH248	Outlet	Pipe298	Free Discharge
Ex. MH06	Outlet	Pipe57	Free Discharge
MH246	Outlet	Pipe45	Free Discharge
MH247	Outlet	Pipe273	Free Discharge
MH132	Outlet	Pipe50 (1)	Free Discharge
MH123	Outlet	Pipe46	Free Discharge
MH315	Outlet	Pipe191	Free Discharge
SW16	Outlet	Ex. Yard Diversion	Free Discharge
MH108	Outlet	Ex. Yard Diversion (1)	Free Discharge
MH208	Outlet	Outfall 2	Free Discharge
MH96	Outlet	Pipe58	Free Discharge
MH207	Outlet	Pipe198	Free Discharge
MH79	Outlet	Pipe56	Free Discharge
MH97	Outlet	Pipe51 (1) (1)	Free Discharge
MH80	Outlet	Outfall 1	Free Discharge
MH81	Outlet	Pipe52	Free Discharge
MH73	Outlet	Pipe48	Free Discharge
MH72	Outlet	Pipe59	Free Discharge
MH117	Outlet	Pipe68 (1)	Free Discharge
MH265	Outlet	Pipe293	Free Discharge
MH98	Outlet	Pipe55	Free Discharge
MH84	Outlet	Pipe54 (2)	Free Discharge
MH214	Outlet	Pipe206	Free Discharge
MH254	Outlet	Pipe77	Free Discharge
Simple Junction (11)	Outlet	Ex. Yard Diversion (2)	Free Discharge
Simple Junction (9)	Outlet	Pipe195	Free Discharge
Simple Junction (10)	Outlet	Pipe197	Free Discharge
Simple Junction (16)	Outlet	Pipe239	Free Discharge
Simple Junction (18)	Outlet	Pipe272	Free Discharge
Simple Junction (19)	Outlet	Pipe275	Free Discharge
Simple Junction (20)	Outlet	Pipe276	Free Discharge
Simple Junction (21)	Outlet	Pipe277	Free Discharge
Simple Junction (22)	Outlet	Pipe278	Free Discharge
Simple Junction (24)	Outlet	Pipe280	Free Discharge
Simple Junction (27)	Outlet	Pipe296	Free Discharge
Simple Junction (28)	Outlet	Pipe297	Free Discharge
Simple Junction (29)	Outlet	Pipe299	Free Discharge
Simple Junction (30)	Outlet	Pipe300	Free Discharge
SW37	Outlet	5.002	Free Discharge
SW39	Outlet	5.004	Free Discharge
SW38	Outlet	5.003	Free Discharge
SW35	Outlet	5.000	Free Discharge
SW1	Outlet	1.000	Free Discharge
SW3	Outlet	1.002	Free Discharge
SW4	Outlet	1.003	Free Discharge
	Outlet	1.005	Hydro-Brake®

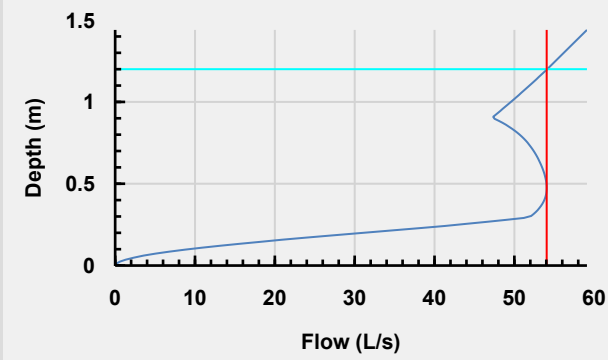
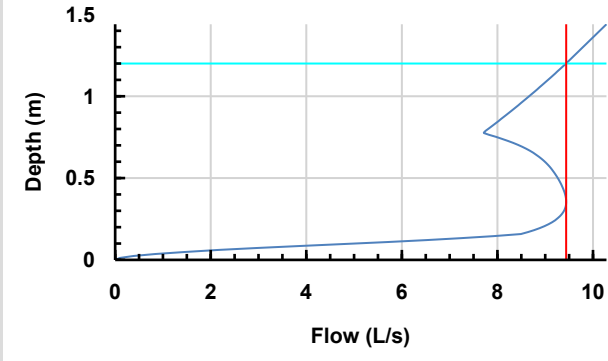
Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04	Date: 07/06/2024		
	Designed by: aleks.jencu	Checked by:	Approved By:
Report Details: Type: Junctions Storm Phase: Existing SW	Company Address: Adept Consulting Engineers		



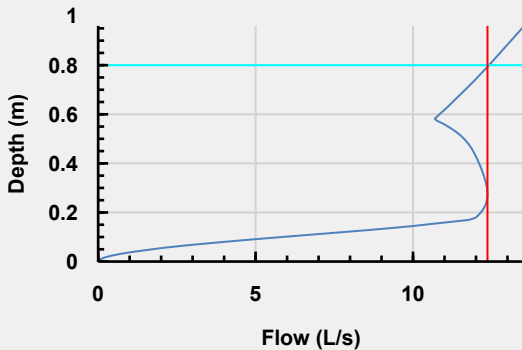
Junction	Outlet Name	Outgoing Connection	Outlet Type
SW5 (FC)	Invert Level (m)	20.713	
	Design Depth (m)	0.800	
	Design Flow (L/s)	23.02	
	Objective	Minimise Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☒	
	Unit Reference	SHE-0213-2302-0800-2302	
	Outlet	1.001	Free Discharge
	Outlet	2.000	Free Discharge
SW6	Outlet	2.001	Free Discharge
SW7	Outlet	2.002	Free Discharge
SW8	Outlet	2.004	Free Discharge
SW9	Outlet	2.007	Free Discharge
SW10 (FC)	Outlet	2.007	Hydro-Brake®
	Invert Level (m)	21.308	
	Design Depth (m)	1.200	
	Design Flow (L/s)	10.68	
	Objective	Minimise Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☒	
	Unit Reference	SHE-0147-1068-1200-1068	
	Outlet	4.000	Free Discharge
SW19	Outlet	4.002	Free Discharge
SW20	Outlet	4.003	Free Discharge
SW21	Outlet	4.004	Free Discharge
SW23	Outlet	4.005	Free Discharge
SW31	Outlet	4.005	Free Discharge
SW22	Outlet	4.003a	Free Discharge
SW27	Outlet	7.002	Free Discharge
SW26	Outlet	7.001	Free Discharge
	Outlet	4.007	Hydro-Brake®

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04	Date: 07/06/2024		
	Designed by: aleks.jencu	Checked by:	Approved By:
Report Details: Type: Junctions Storm Phase: Existing SW	Company Address: Adept Consulting Engineers		



Junction	Outlet Name		Outgoing Connection	Outlet Type
SW33 (FC)	Invert Level (m)		20.971	
	Design Depth (m)		1.200	
	Design Flow (L/s)		54.12	
	Objective	Minimise Upstream Storage Requirements		
	Application	Surface Water Only		
	Sump Available	☒		
	Unit Reference	SHE-0302-5412-1200-5412		
				
	SW24	Outlet	4.000a	Free Discharge
	SW25	Outlet	4.001	Free Discharge
SW8a	Outlet	2.003	Free Discharge	
SW17	Outlet	6.000	Free Discharge	
SW18	Outlet	6.001	Free Discharge	
SW18a	Outlet	6.002	Free Discharge	
SW10b	Outlet	7.002a	Free Discharge	
SW10a	Outlet	2.006	Free Discharge	
SW26a	Outlet	7.000	Free Discharge	
SW18b	Outlet	6.003	Free Discharge	
SW45 (FC)	Outlet (1)	3.003	Hydro-Brake®	
	Invert Level (m)		21.790	
	Design Depth (m)		1.200	
	Design Flow (L/s)		9.44	
	Objective	Minimise Upstream Storage Requirements		
	Application	Surface Water Only		
	Sump Available	☒		
	Unit Reference	SHE-0139-9440-1200-9440		
				
	SW44	Outlet	3.002	Free Discharge
SW43	Outlet	3.001	Free Discharge	
SW41	Outlet	3.000	Free Discharge	
SW42	Outlet	3.000a	Free Discharge	
	Outlet	5.006	Hydro-Brake®	

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04		Date: 07/06/2024			
		Designed by: aleks.jencu	Checked by:		Approved By:
Report Details: Type: Junctions Storm Phase: Existing SW		Company Address: Adept Consulting Engineers			

Junction	Outlet Name	Outgoing Connection	Outlet Type
	Invert Level (m)	21.431	
	Design Depth (m)	0.800	
	Design Flow (L/s)	12.42	
	Objective	Minimise Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☒	
	Unit Reference	SHE-0163-1242-0800-1242	
			
SW40 (FC)			

SW36	Outlet	5.001	Free Discharge
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Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04	Date: 07/06/2024			
	Designed by: aleks.jencu	Checked by:	Approved By:	
Report Details: Type: Stormwater Controls Storm Phase: Existing SW	Company Address: Adept Consulting Engineers			



Tank

Type : Tank

Dimensions

Exceedance Level (m)	22.800
Depth (m)	1.800
Base Level (m)	21.000
Freeboard (mm)	1
Initial Depth (m)	0.000
Porosity (%)	95
Average Slope (1:X)	0.00
Total Volume (m³)	229.283

Depth (m)	Area (m²)	Volume (m³)
0.000	300.000	0.000
0.800	300.000	228.000
0.801	300.001	228.285

Inlets

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	1.003
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	1.004
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	8.000

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04	Date: 07/06/2024			
	Designed by: aleks.jencu	Checked by:	Approved By:	
Report Details: Type: Stormwater Controls Storm Phase: Existing SW	Company Address: Adept Consulting Engineers			



Tank (1)

Type : Tank

Dimensions

Exceedance Level (m)	23.350
Depth (m)	2.000
Base Level (m)	21.350
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	95
Average Slope (1:X)	0.00
Total Volume (m³)	228.989

Depth (m)	Area (m²)	Volume (m³)
0.000	200.000	0.000
1.200	200.000	228.000
1.201	200.001	228.190

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	2.004
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	2.005
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	18.800

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04	Date: 07/06/2024		
	Designed by: aleks.jencu	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Existing SW	Company Address: Adept Consulting Engineers		





Tank (2)

Type : Tank

Dimensions		
Exceedance Level (m)		23.500
Depth (m)		2.500
Base Level (m)		21.000
Freeboard (mm)		0
Initial Depth (m)		0.000
Porosity (%)		95
Average Slope (1:X)		0.00
Total Volume (m³)		526.136
Depth (m)	Area (m²)	Volume (m³)
0.000	460.000	0.000
1.200	460.000	524.400
1.201	460.001	524.837

Inlets	
Inlet (1)	
Inlet Type	Point Inflow
Incoming Item(s)	4.005
Bypass Destination	(None)
Capacity Type	No Restriction
Inlet	
Inlet Type	Point Inflow
Incoming Item(s)	6.003
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets	
Outlet	
Outgoing Connection	4.006
Outlet Type	Free Discharge

Advanced	
Perimeter	Circular
Length (m)	39.985

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04	Date: 07/06/2024			
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Report Details: Type: Stormwater Controls Storm Phase: Existing SW	Company Address: Adept Consulting Engineers			



Tank (3)

Type : Tank

Dimensions

Exceedance Level (m)	23.100
Depth (m)	1.600
Base Level (m)	21.500
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	95
Average Slope (1:X)	0.00
Total Volume (m³)	259.522

Depth (m)	Area (m²)	Volume (m³)
0.000	340.000	0.000
0.800	340.000	258.400
0.801	340.001	258.723

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	5.004
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	5.005
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	8.373

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04	Date: 07/06/2024		
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Report Details: Type: Connections Storm Phase: Existing SW	Company Address: Adept Consulting Engineers		



Name	Length (m)	Connection Type	Slope (1:X)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)	Upstream Invert Level (m)
Pipe45	24.569	Pipe	289.045		0.6	450	23.900	21.080
Pipe46	48.784	Pipe	1219.602		0.6	525	23.600	20.920
Pipe48	12.351	Pipe	308.787		0.6	600	22.910	20.830
Outfall 1	23.890	Pipe	298.630		0.6	600	23.070	20.790
Pipe52	2.348	Pipe	7.827		0.6	300	23.030	21.390
Pipe55	42.639	Pipe	448.829		0.6	450	21.845	21.120
Pipe56	20.620	Pipe	242.594		0.6	525	23.140	20.950
Pipe57	74.025	Pipe	231.329		0.6	600	23.900	21.400
Pipe58	56.225	Pipe	281.125		0.6	600	23.150	21.080
Pipe59	3.484	Pipe	69.686		0.6	600	22.880	20.880
Pipe77	39.154	Pipe	223.737		0.6	225	23.400	23.265
Pipe87	15.660	Pipe	261.004		0.6	225	23.910	23.150
Pipe54 (2)	49.767	Pipe	41.472		0.6	450	24.550	22.320
Pipe191	48.324	Pipe	34.765		0.6	225	23.561	23.090
Pipe195	21.184	Pipe	151.316		0.6	150	23.279	20.945
Pipe197	16.344	Pipe	233.484		0.6	375	21.025	20.650
Pipe198	6.733	Pipe	26.931		0.6	375	23.140	20.580
Pipe206	57.603	Pipe	295.401		0.6	150	22.500	22.045
Pipe50 (1)	47.749	Pipe	222.089		0.6	225	23.760	22.085
Pipe239	27.674	Pipe	221.389		0.6	225	23.890	23.275
Ex. Yard Diversion (2)	41.645	Pipe	320.345		0.6	225	23.995	21.335
Pipe68 (1)	28.083	Pipe	374.437		0.6	150	22.410	21.850
Pipe272	26.165	Pipe	218.041		0.6	225	23.709	21.580
Pipe273	46.167	Pipe	297.853		0.6	300	23.900	21.385
Pipe274	67.631	Pipe	346.828		0.6	600	23.900	21.595
Pipe275	62.233	Pipe	222.261		0.6	225	23.890	21.740
Pipe276	17.818	Pipe	222.725		0.6	225	23.168	21.540
Pipe277	64.320	Pipe	225.684		0.6	225	23.890	21.590
Pipe278	22.942	Pipe	218.499		0.6	225	23.890	21.410
Pipe280	21.321	Pipe	224.434		0.6	225	23.798	21.400
Pipe291	48.291	Pipe	193.164		0.6	225	24.929	21.150
Pipe293	80.967	Pipe	192.779		0.6	225	22.370	20.900
Outfall 2	42.480	Pipe	128.728		0.6	375	23.230	20.330
Pipe296	52.662	Pipe	102.256		0.6	225	23.436	22.175
Pipe297	67.688	Pipe	116.704		0.6	225	23.890	22.240
Pipe298	3.305	Pipe	50.840		0.6	225	23.900	21.660
Pipe299	58.137	Pipe	223.606		0.6	225	23.774	22.365
Pipe300	68.662	Pipe	225.122		0.6	225	23.890	22.410
Pipe301	40.570	Pipe	79.549		0.6	225	23.900	22.105
Pipe51 (1) (1)	76.042	Pipe	158.422		0.6	225	23.130	21.870
5.002	15.681	Pipe	224.008		0.6	375	23.100	21.604
5.003	3.659	Pipe	228.681		0.6	375	23.100	21.534
1.000	33.007	Pipe	235.763		0.6	150	22.800	21.450
1.002	17.581	Pipe	300.000		0.6	375	23.000	21.085
1.001	12.000	Pipe	299.669		0.6	375	22.700	21.125
2.000	17.664	Pipe	300.000		0.6	300	22.891	21.791
2.001	15.329	Pipe	300.568		0.6	300	23.232	21.732
1.005	7.838	Pipe	33.640		0.6	225	23.150	20.713
2.007	13.250	Pipe	150.569		0.6	225	24.043	21.308
1.004	43.053	Pipe	150.012		0.6	300	22.853	21.000
2.004	3.597	Pipe	187.590		0.6	375	23.498	21.449
Ex. Yard Diversion	66.176	Pipe	339.362		0.6	225	23.410	21.700
4.002	46.769	Pipe	300.000		0.6	375	23.706	21.597
4.003	16.533	Pipe	300.000		0.6	375	23.413	21.441
4.004	8.194	Pipe	300.000		0.6	375	23.565	21.386
4.003a	37.438	Pipe	72.414		0.6	150	23.478	22.128

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04	Date: 07/06/2024		
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Report Details: Type: Connections Storm Phase: Existing SW	Company Address: Adept Consulting Engineers		



4.000a	22.310	Pipe	302.571		0.6	300	23.350	21.850
7.001	25.619	Pipe	100.000		0.6	150	23.727	21.972
4.007	29.756	Pipe	211.034		0.6	300	23.994	20.971
4.006	3.727	Pipe	133.868		0.6	450	24.034	21.000
Ex. Yard Diversion (1)	52.327	Pipe	307.805		0.6	225	23.280	21.505
1.003	5.774	Pipe	300.000		0.6	375	23.000	21.026
2.002	42.437	Pipe	300.000		0.6	375	23.498	21.606
2.003	4.811	Pipe	300.000		0.6	375	23.500	21.465
4.000	22.634	Pipe	78.592		0.6	300	23.564	22.139
4.001	31.100	Pipe	300.000		0.6	375	23.200	21.776
4.005	3.213	Pipe	300.000		0.6	375	23.477	21.359
6.001	11.918	Pipe	150.000		0.6	225	23.513	22.088
6.000	36.082	Pipe	69.791		0.6	225	23.951	22.526
7.002	6.418	Pipe	29.041		0.6	150	23.940	21.716
2.006	4.608	Pipe	230.419		0.6	300	24.032	21.328
7.002a	26.450	Pipe	18.043		0.6	150	24.311	22.961
2.005	13.361	Pipe	607.316		0.6	300	23.350	21.350
7.000	17.796	Pipe	100.000		0.6	150	23.500	22.150
6.002	11.118	Pipe	300.000		0.6	300	24.000	21.934
6.003	5.435	Pipe	300.000		0.6	300	23.742	21.897
3.000	45.200	Pipe	0.000		0.6	1200	23.700	21.800
3.000a	45.200	Pipe	0.000		0.6	1200	23.750	21.800
3.001	4.000	Pipe	0.000		0.6	1200	23.450	21.800
3.002	5.500	Pipe	550.000		0.6	1200	23.450	21.800
5.004	3.980	Pipe	221.112		0.6	375	23.100	21.518
5.005	20.233	Pipe	293.234		0.6	300	23.100	21.500
5.006	10.119	Pipe	40.314		0.6	300	23.000	21.431
5.001	12.230	Pipe	226.472		0.6	300	23.000	21.658
5.000	34.870	Pipe	149.656		0.6	300	22.800	21.891
3.003	9.079	Pipe	100.880		0.6	150	23.350	21.790

Name	Downstream Cover Level (m)	Downstream Invert Level (m)	Lock	Min. Cover Depth (m)	Flow Restriction (L/s)	Velocity (m/s)	Culvert Type	Culvert Entrance
Pipe45	23.600	20.995	All	0.000			(None)	(None)
Pipe46	22.880	20.880	All	0.000			(None)	(None)
Pipe48	23.070	20.790	All	0.000			(None)	(None)
Outfall 1	23.200	20.710	All	0.000			(None)	(None)
Pipe52	23.070	21.090	All	0.000			(None)	(None)
Pipe55	23.140	21.025	All	0.000			(None)	(None)
Pipe56	23.070	20.865	All	0.000			(None)	(None)
Pipe57	23.150	21.080	All	0.000			(None)	(None)
Pipe58	22.880	20.880	All	0.000			(None)	(None)
Pipe59	22.910	20.830	All	0.000			(None)	(None)
Pipe77	23.561	23.090	All	0.000			(None)	(None)
Pipe87	23.561	23.090	All	0.000			(None)	(None)
Pipe54 (2)	21.845	21.120	All	0.000			(None)	(None)
Pipe191	23.900	21.700	All	0.000			(None)	(None)
Pipe195	23.140	20.805	All	0.000			(None)	(None)
Pipe197	23.140	20.580	All	0.000			(None)	(None)
Pipe198	23.230	20.330	All	0.000			(None)	(None)
Pipe206	22.410	21.850	All	0.000			(None)	(None)
Pipe50 (1)	23.130	21.870	All	0.000			(None)	(None)
Pipe239	23.910	23.150	All	0.000			(None)	(None)
Ex. Yard Diversion (2)	22.910	21.205	All	0.000			(None)	(None)
Pipe68 (1)	23.410	21.775	All	0.000			(None)	(None)
Pipe272	23.900	21.460	All	0.000			(None)	(None)
Pipe273	23.900	21.230	All	0.000			(None)	(None)
Pipe274	23.900	21.400	All	0.000			(None)	(None)
Pipe275	23.900	21.460	All	0.000			(None)	(None)
Pipe276	23.900	21.460	All	0.000			(None)	(None)

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04		Date: 07/06/2024			
		Designed by: aleks.jencu	Checked by:		Approved By:
Report Details: Type: Connections Storm Phase: Existing SW		Company Address: Adept Consulting Engineers			

Pipe277	23.900	21.305	All	0.000		(None)	(None)
Pipe278	23.900	21.305	All	0.000		(None)	(None)
Pipe280	23.900	21.305	All	0.000		(None)	(None)
Pipe291	22.370	20.900	All	0.000		(None)	(None)
Pipe293	23.230	20.480	All	0.000		(None)	(None)
Outfall 2	20.375	20.000	All	0.000		(None)	(None)
Pipe296	23.900	21.660	All	0.000		(None)	(None)
Pipe297	23.900	21.660	All	0.000		(None)	(None)
Pipe298	23.900	21.595	All	0.000		(None)	(None)
Pipe299	23.900	22.105	All	0.000		(None)	(None)
Pipe300	23.900	22.105	All	0.000		(None)	(None)
Pipe301	23.900	21.595	All	0.000		(None)	(None)
Pipe51 (1) (1)	23.030	21.390	All	0.000		(None)	(None)
5.002	23.100	21.534	All	0.000		(None)	(None)
5.003	23.100	21.518	All	0.000		(None)	(None)
1.000	23.000	21.310	All	0.000		(None)	(None)
1.002	23.000	21.026	All	0.000		(None)	(None)
1.001	23.000	21.085	All	0.000		(None)	(None)
2.000	23.232	21.732	All	0.000		(None)	(None)
2.001	23.498	21.681	All	0.000		(None)	(None)
1.005	23.230	20.480	All	0.000	25.11	(None)	(None)
2.007	23.600	21.220	All	0.000	11.63	(None)	(None)
1.004	23.150	20.713	All	0.000		(None)	(None)
2.004	23.503	21.430	All	0.000		(None)	(None)
Ex. Yard Diversion	23.280	21.505	All	0.000		(None)	(None)
4.002	23.413	21.441	All	0.000		(None)	(None)
4.003	23.565	21.386	All	0.000		(None)	(None)
4.004	23.477	21.359	All	0.000		(None)	(None)
4.003a	23.565	21.611	All	0.000		(None)	(None)
4.000a	23.200	21.776	All	0.000		(None)	(None)
7.001	23.940	21.716	All	0.000		(None)	(None)
4.007	22.910	20.830	All	0.000	59.09	(None)	(None)
4.006	23.994	20.972	All	0.000		(None)	(None)
Ex. Yard Diversion (1)	23.995	21.335	All	0.000		(None)	(None)
1.003	22.800	21.007	All	0.000		(None)	(None)
2.002	23.500	21.465	All	0.000		(None)	(None)
2.003	23.498	21.449	All	0.000		(None)	(None)
4.000	23.200	21.851	All	0.000		(None)	(None)
4.001	23.706	21.672	All	0.000		(None)	(None)
4.005	23.500	21.348	All	0.000		(None)	(None)
6.001	24.000	22.009	All	0.000		(None)	(None)
6.000	24.000	22.009	All	0.000		(None)	(None)
7.002	24.032	21.495	All	0.000		(None)	(None)
2.006	24.043	21.308	All	0.000		(None)	(None)
7.002a	24.032	21.495	All	0.000		(None)	(None)
2.005	24.032	21.328	All	0.000		(None)	(None)
7.000	23.727	21.972	All	0.000		(None)	(None)
6.002	23.742	21.897	All	0.000		(None)	(None)
6.003	23.500	21.879	All	0.000		(None)	(None)
3.000	23.450	21.800	All	0.000		(None)	(None)
3.000a	23.450	21.800	All	0.000		(None)	(None)
3.001	23.450	21.800	All	0.000		(None)	(None)
3.002	23.350	21.790	All	0.000		(None)	(None)
5.004	23.100	21.500	All	0.000		(None)	(None)
5.005	23.000	21.431	All	0.000		(None)	(None)
5.006	22.880	21.180	All	0.000	13.53	(None)	(None)
5.001	23.100	21.604	All	0.000		(None)	(None)
5.000	23.000	21.658	All	0.000		(None)	(None)
3.003	23.900	21.700	All	0.000	10.28	(None)	(None)

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04	Date: 07/06/2024			
	Designed by: aleks.jencu	Checked by:	Approved By:	
Report Details: Type: Inflow Summary Storm Phase: Existing SW	Company Address: Adept Consulting Engineers			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (m ²)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (m ²)
Area 1a	MH214		Time of Concentration	3160.263	100	0	100	3160.263
Area 1b	Simple Junction (10)		Time of Concentration	3445.193	100	0	100	3445.193
Area 2	Simple Junction (19)		Time of Concentration	3653.092	100	0	100	3653.092
Area 2 (1)	Simple Junction (21)		Time of Concentration	3520.693	100	0	100	3520.693
Area 3	SW6		Time of Concentration	539.976	100	0	100	539.976
Area 3 (1)	SW6		Time of Concentration	616.049	100	0	100	616.049
Area 3 (2)	SW8		Time of Concentration	770.273	100	0	100	770.273
Area 3 (3)	SW8		Time of Concentration	779.848	100	0	100	779.848
Area 4	Simple Junction (16)		Time of Concentration	1139.441	100	0	100	1139.441
Area 4 (1)	Ex. MH06		Time of Concentration	1127.525	100	0	100	1127.525
Area 4 (2)	Simple Junction (16)		Time of Concentration	1114.991	100	0	100	1114.991
Area 4 (3)	Ex. MH06		Time of Concentration	1065.918	100	0	100	1065.918
Area 5a	SW41		Time of Concentration	1478.721	100	0	100	1478.721
Area 5b	SW41		Time of Concentration	825.505	100	0	100	825.505
Area 6	Simple Junction (30)		Time of Concentration	1955.953	100	0	100	1955.953
Area 6 (1)	Simple Junction (28)		Time of Concentration	1769.859	100	0	100	1769.859
Area 6 (2)	Simple Junction (29)		Time of Concentration	1107.376	100	0	100	1107.376
Area 6 (3)	Simple Junction (27)		Time of Concentration	1101.927	100	0	100	1101.927
Area 7	SW2		Time of Concentration	2235.725	100	0	100	2235.725
Area 7 (1)	SW2		Time of Concentration	2474.102	100	0	100	2474.102
Area 7 (2)	SW1		Time of Concentration	356.246	100	0	100	356.246
Area 11a	SW35		Time of Concentration	431.597	100	0	100	431.597
Area 11b	SW36		Time of Concentration	1108.898	100	0	100	1108.898
Area 12	Simple Junction (16)		Time of Concentration	1798.803	100	0	100	1798.803
Area 12 (1)			Time of Concentration	1738.739	100	0	100	1738.739
Catchment Area	SW22		Time of Concentration	657.018	100	0	100	657.018
Catchment Area (1)	SW19		Time of Concentration	579.882	100	0	100	579.882
Catchment Area (2)	SW19		Time of Concentration	586.008	100	0	100	586.008
Catchment Area (3)	SW20		Time of Concentration	663.322	100	0	100	663.322
Catchment Area (4)	SW24		Time of Concentration	2296.175	100	0	100	2296.175
Catchment Area (5)	SW19		Time of Concentration	649.978	100	0	100	649.978
Catchment Area (6)	SW18		Time of Concentration	2095.839	100	0	100	2095.839
Catchment Area (7)	SW17		Time of Concentration	1126.062	100	0	100	1126.062

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04		Date: 07/06/2024			
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Report Details: Type: Inflow Summary Storm Phase: Existing SW		Company Address: Adept Consulting Engineers			

Catchment Area (8)	SW26a		Time of Concentration	985.534	100	0	100	985.534
Catchment Area (9)	SW35		Time of Concentration	1580.211	100	0	100	1580.211
Catchment Area (10)	SW37		Time of Concentration	1451.370	100	0	100	1451.370
Catchment Area (11)	SW7		Time of Concentration	1028.816	100	0	100	1028.816
Catchment Area (12)	SW10b		Time of Concentration	410.849	100	0	100	410.849
Catchment Area (13)	SW17		Time of Concentration	734.858	100	0	100	734.858
TOTAL		0.0		54162.635				54162.635

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04	Date: 07/06/2024			
	Designed by: aleks.jencu	Checked by:	Approved By:	
Report Title: Rainfall Analysis Criteria	Company Address: Adept Consulting Engineers			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall	
FSR	Type: FSR
Region	England And Wales
M5-60 (mm)	20.0
Ratio R	0.400
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
100.0	40.000

Storm Durations

Duration (hrs)	Run Time (hrs)
0.25	0.50
0.50	1.00
1.00	2.00
2.00	4.00
3.00	6.00
4.00	8.00
6.00	12.00
8.00	16.00
10.00	20.00
12.00	24.00
16.00	32.00
24.00	48.00
36.00	72.00
48.00	96.00
72.00	144.00
96.00	192.00
120.00	240.00
144.00	288.00
168.00	336.00

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04	Date: 07/06/2024			
	Designed by: aleks.jencu	Checked by:	Approved By:	
Report Details: Type: Junctions Summary Storm Phase: Existing SW	Company Address: Adept Consulting Engineers			



FSR: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Flooded Volume

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MH290	FSR: 100 years: +40 %: 0.25 hrs: Summer	24.929	21.150	21.150	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH91	FSR: 100 years: +40 %: 0.25 hrs: Winter	23.910	23.150	23.955	0.805	231.9	45.294	44.810	89.9	117.716	Flood
MH257	FSR: 100 years: +40 %: 0.25 hrs: Winter	23.900	22.105	23.914	1.809	172.3	14.863	13.722	105.8	88.879	Flood
Ex. MH07	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.900	21.595	22.189	0.594	254.3	0.377	0.000	188.5	153.903	OK
MH248	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.900	21.660	22.573	0.913	148.2	0.581	0.000	142.1	74.362	Surcharged
Ex. MH06	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.900	21.400	22.141	0.741	403.7	1.885	0.000	320.0	324.466	Surcharged
MH246	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.900	21.080	22.231	1.151	319.8	0.732	0.000	293.9	186.903	Surcharged
MH247	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.900	21.385	23.059	1.674	181.2	1.064	0.000	143.3	97.850	Surcharged
MH132	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.760	22.085	22.085	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH123	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.600	20.920	21.930	1.010	293.9	0.642	0.000	275.2	194.143	Surcharged
MH315	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.561	23.090	23.403	0.313	91.9	0.199	0.000	89.7	108.776	Flood Risk
SW16	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.410	21.700	21.927	0.227	15.5	0.144	0.000	17.1	23.991	Surcharged
MH108	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.280	21.505	21.849	0.344	17.1	0.219	0.000	21.2	23.178	Surcharged
MH208	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.230	20.330	20.820	0.490	197.7	0.312	0.000	186.6	117.047	Surcharged
MH96	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.150	21.080	21.967	0.887	320.0	0.564	0.000	325.3	321.224	Surcharged
MH207	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.140	20.580	20.920	0.340	203.6	0.216	0.000	179.1	89.374	OK
MH79	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.140	20.950	21.555	0.605	114.8	0.385	0.000	25.7	23.394	Surcharged
MH97	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.130	21.870	21.870	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH80	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.070	20.790	21.554	0.764	550.1	0.486	0.000	551.7	549.350	Surcharged
MH81	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.030	21.390	21.555	0.165	4.9	0.105	0.000	5.5	2.013	OK

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04		Date: 07/06/2024				
		Designed by: aleks.jencu	Checked by:			Approved By:
Report Details: Type: Junctions Summary Storm Phase: Existing SW		Company Address: Adept Consulting Engineers				

MH73	FSR: 100 years: +40 %: 0.25 hrs: Summer	22.91 0	20.83 0	21.708	0.878	579.3	0.559	0.000	537.2	559.711	Surcharged
MH72	FSR: 100 years: +40 %: 0.25 hrs: Summer	22.88 0	20.88 0	21.819	0.939	576.3	0.597	0.000	579.3	517.372	Surcharged
MH117	FSR: 100 years: +40 %: 0.25 hrs: Summer	22.41 0	21.85 0	22.156	0.306	15.4	0.195	0.000	15.5	24.515	Flood Risk
MH265	FSR: 100 years: +40 %: 0.25 hrs: Summer	22.37 0	20.90 0	20.900	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH98	FSR: 100 years: +40 %: 0.25 hrs: Summer	21.84 5	21.12 0	21.559	0.439	76.7	0.279	0.000	18.5	8.620	Flood Risk
MH84	FSR: 100 years: +40 %: 0.25 hrs: Summer	24.55 0	22.32 0	22.320	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH214	FSR: 100 years: +40 %: 1.00 hrs: Winter	22.50 0	22.04 5	22.597	0.552	96.9	97.306	97.178	15.8	106.799	Flood
MH254	FSR: 100 years: +40 %: 0.50 hrs: Winter	23.40 0	23.26 5	23.405	0.140	11.8	4.534	4.533	4.2	5.297	Flood
Simple Junction (11)	FSR: 100 years: +40 %: 0.25 hrs: Summer		21.33 5	21.776	0.441	25.6			23.4	22.843	Surcharged
Outfall 1	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.20 0	20.71 0	21.310	0.600	551.7	0.000	0.000	551.5	532.204	OK
Simple Junction (9)	FSR: 100 years: +40 %: 0.25 hrs: Summer		20.94 5	20.949	0.004	0.0			0.0	0.131	OK
Simple Junction (10)	FSR: 100 years: +40 %: 0.25 hrs: Summer		20.65 0	21.187	0.537	205.7			203.6	89.216	Surcharged
Simple Junction (16)	FSR: 100 years: +40 %: 0.25 hrs: Summer		23.27 5	28.203	4.928	242.0			219.8	105.039	Surcharged
Simple Junction (18)	FSR: 100 years: +40 %: 0.25 hrs: Summer		21.58 0	23.038	1.458	12.7			11.6	2.819	Surcharged
Simple Junction (19)	FSR: 100 years: +40 %: 0.25 hrs: Summer		21.74 0	28.456	6.716	218.1			181.2	93.080	Surcharged
Simple Junction (20)	FSR: 100 years: +40 %: 0.25 hrs: Summer		21.54 0	23.044	1.504	12.8			11.6	2.740	Surcharged
Simple Junction (21)	FSR: 100 years: +40 %: 0.25 hrs: Summer		21.59 0	27.807	6.217	210.2			176.5	89.393	Surcharged
Simple Junction (22)	FSR: 100 years: +40 %: 0.25 hrs: Summer		21.41 0	22.228	0.818	9.6			5.4	1.691	Surcharged
Simple Junction (24)	FSR: 100 years: +40 %: 0.25 hrs: Summer		21.40 0	22.233	0.833	9.1			5.4	1.677	Surcharged
Outfall 2	FSR: 100 years: +40 %: 0.25 hrs: Summer	20.37 5	20.00 0	20.375	0.375	186.6	0.000	0.000	186.9	117.047	Flood Risk
Simple Junction (27)	FSR: 100 years: +40 %: 0.25 hrs: Summer		22.17 5	23.233	1.058	65.8			57.5	28.403	Surcharged
Simple Junction (28)	FSR: 100 years: +40 %: 0.25 hrs: Summer		22.24 0	24.495	2.255	105.7			90.8	45.573	Surcharged
Simple Junction (29)	FSR: 100 years: +40 %: 0.25 hrs: Summer		22.36 5	24.629	2.264	66.1			59.9	28.625	Surcharged

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04				Date: 07/06/2024					
Report Details: Type: Junctions Summary Storm Phase: Existing SW				Designed by: aleks.jencu	Checked by:	Approved By:			
				Company Address: Adept Consulting Engineers					

Simple Junction (30)	FSR: 100 years: +40 %: 0.25 hrs: Summer		22.41 0	26.025	3.615	116.8			99.9	50.382	Surcharged
SW37	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.10 0	21.60 4	22.341	0.737	227.8	0.834	0.000	226.7	116.703	Surcharged
SW39	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.10 0	21.51 8	21.863	0.345	226.2	0.391	0.000	237.5	114.897	OK
SW38	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.10 0	21.53 4	22.038	0.504	226.7	0.571	0.000	226.2	115.579	Surcharged
SW35	FSR: 100 years: +40 %: 0.25 hrs: Winter	22.80 0	21.89 1	22.803	0.912	126.3	3.996	2.968	81.1	58.439	Flood
SW1	FSR: 100 years: +40 %: 0.25 hrs: Summer	22.80 0	21.45 0	22.416	0.966	21.3	1.092	0.000	15.2	9.119	Surcharged
SW3	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.00 0	21.08 5	22.175	1.090	289.7	1.233	0.000	284.8	129.462	Surcharged
SW4	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.00 0	21.02 6	21.656	0.630	284.8	0.712	0.000	282.9	127.764	Surcharged
SW5 (FC)	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.15 0	20.71 3	21.361	0.648	21.9	0.733	0.000	23.0	28.513	Surcharged
SW2	FSR: 100 years: +40 %: 0.25 hrs: Summer	22.70 0	21.12 5	22.543	1.418	281.2	1.604	0.000	274.5	121.480	Flood Risk
SW6	FSR: 100 years: +40 %: 0.25 hrs: Winter	22.89 1	21.79 1	22.891	1.100	72.6	1.491	0.247	51.7	33.026	Flood
SW7	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.23 2	21.73 2	22.802	1.070	123.2	1.211	0.000	116.3	55.172	Surcharged
SW8	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.49 8	21.60 6	22.570	0.964	208.9	1.091	0.000	203.3	92.898	Surcharged
SW9	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.49 8	21.44 9	21.970	0.521	201.0	0.589	0.000	199.7	88.427	Surcharged
SW10 (FC)	FSR: 100 years: +40 %: 0.25 hrs: Summer	24.04 3	21.30 8	21.967	0.659	10.6	0.746	0.000	10.6	14.135	Surcharged
SW19	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.56 4	22.13 9	23.453	1.314	108.4	1.486	0.000	106.5	46.954	Flood Risk
SW20	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.70 6	21.59 7	22.938	1.341	208.9	1.516	0.000	208.5	123.543	Surcharged
SW21	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.41 3	21.44 1	22.367	0.926	208.5	1.047	0.000	208.0	122.718	Surcharged
SW23	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.56 5	21.38 6	22.106	0.720	238.5	0.814	0.000	238.1	139.013	Surcharged
SW31	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.47 7	21.35 9	21.877	0.519	238.1	0.587	0.000	238.0	138.375	Surcharged
SW22	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.47 8	22.12 8	23.189	1.061	39.2	1.200	0.000	30.5	16.721	Flood Risk
SW27	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.94 0	21.71 6	22.178	0.462	33.3	0.523	0.000	32.4	24.876	Surcharged
SW26	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.72 7	21.97 2	22.967	0.995	34.2	1.125	0.000	33.3	25.417	Surcharged

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04		Date: 07/06/2024			
		Designed by: aleks.jencu	Checked by:		Approved By:
Report Details: Type: Junctions Summary Storm Phase: Existing SW		Company Address: Adept Consulting Engineers			

SW33 (FC)	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.99 4	20.97 1	21.589	0.618	53.0	0.699	0.000	53.1	45.862	Surcharged
SW24	FSR: 100 years: +40 %: 0.25 hrs: Winter	23.35 0	21.85 0	23.353	1.503	144.1	4.771	3.074	137.3	66.597	Flood
SW25	FSR: 100 years: +40 %: 0.25 hrs: Winter	23.20 0	21.77 6	23.201	1.425	197.1	2.724	1.114	172.5	118.646	Flood
SW8a	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.50 0	21.46 5	22.035	0.571	203.3	0.645	0.000	201.0	89.734	Surcharged
SW17	FSR: 100 years: +40 %: 0.25 hrs: Winter	23.95 1	22.52 6	23.952	1.426	116.8	3.054	1.442	85.8	53.916	Flood
SW18	FSR: 100 years: +40 %: 0.25 hrs: Winter	23.51 3	22.08 8	23.514	1.426	131.5	2.913	1.302	101.1	60.775	Flood
SW18a	FSR: 100 years: +40 %: 0.25 hrs: Summer	24.00 0	21.93 4	22.965	1.031	186.8	1.166	0.000	186.8	102.512	Surcharged
SW10b	FSR: 100 years: +40 %: 0.25 hrs: Summer	24.31 1	22.96 1	23.043	0.082	24.5	0.092	0.000	24.1	10.471	OK
SW10a	FSR: 100 years: +40 %: 0.25 hrs: Summer	24.03 2	21.32 8	21.968	0.640	66.1	0.724	0.000	10.6	42.506	Surcharged
SW26a	FSR: 100 years: +40 %: 0.25 hrs: Winter	23.50 0	22.15 0	23.504	1.354	61.9	5.451	3.924	33.8	28.553	Flood
SW18b	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.74 2	21.89 7	22.496	0.599	186.8	0.678	0.000	186.8	102.496	Surcharged
SW45 (FC)	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.35 0	21.79 0	22.307	0.517	12.1	2.339	0.000	9.4	10.676	Surcharged
SW44	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.45 0	21.80 0	22.307	0.507	76.6	2.294	0.000	12.1	26.089	OK
SW43	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.45 0	21.80 0	22.307	0.507	111.6	2.295	0.000	76.6	36.778	OK
SW41	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.70 0	21.80 0	22.310	0.510	137.6	2.307	0.000	111.6	49.106	OK
SW42	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.75 0	21.80 0	22.304	0.504	26.9	2.282	0.000	8.0	2.201	OK
SW40 (FC)	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.00 0	21.43 1	21.844	0.413	12.3	0.467	0.000	12.3	13.246	Surcharged
SW36	FSR: 100 years: +40 %: 0.25 hrs: Summer	23.00 0	21.65 8	22.626	0.968	142.2	1.095	0.000	141.1	79.963	Surcharged

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04		Date: 07/06/2024		
		Designed by: aleks.jencu	Checked by:	
Report Details: Type: Stormwater Controls Summary Storm Phase: Existing SW		Company Address: Adept Consulting Engineers		



FSR: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By:
Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Tank	FSR: 100 years: +40 %: 1.00 hrs: Winter	21.605	21.605	0.605	0.605	153.8	172.310	0.000	0.000	24.6	136.578	24.848	OK
Tank (1)	FSR: 100 years: +40 %: 3.00 hrs: Winter	22.509	22.509	1.159	1.159	59.9	220.240	0.000	0.000	9.9	121.675	3.821	OK
Tank (2)	FSR: 100 years: +40 %: 2.00 hrs: Winter	21.902	21.902	0.902	0.902	180.7	393.952	0.000	0.000	54.1	454.579	25.123	OK
Tank (3)	FSR: 100 years: +40 %: 2.00 hrs: Winter	22.098	22.098	0.598	0.598	87.3	193.152	0.000	0.000	12.9	143.729	25.574	OK

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04		Date: 07/06/2024		
		Designed by: aleks.jencu	Checked by:	
		Approved By:		
Report Details: Type: Connections Summary Storm Phase: Existing SW		Company Address: Adept Consulting Engineers		



FSR: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Total Discharge Volume

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
Pipe45	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	MH246	MH123	23.900	21.127	0.045	1006.055	0.5	0.02	4.2	OK
Pipe46	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	MH123	MH72	23.600	21.003	0.081	1724.837	0.3	0.05	7.2	OK
Pipe48	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	MH73	MH80	22.910	20.942	0.109	6152.957	0.7	0.07	25.8	OK
Outfall 1	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	MH80	Outfall 1	23.070	20.897	0.105	6152.956	0.8	0.06	25.8	OK
Pipe52	FSR: 100 years: +40 %: 0.25 hrs: Winter	Pipe	MH81	MH80	23.030	21.585	0.300	0.001	0.2	0.02	7.2	OK
Pipe55	FSR: 100 years: +40 %: 0.25 hrs: Summer	Pipe	MH98	MH79	21.845	21.559	0.450	0.000	0.2	0.12	18.5	Flood Risk
Pipe56	FSR: 100 years: +40 %: 2.00 hrs: Summer	Pipe	MH79	MH80	23.140	21.485	0.525	0.000	0.1	0.05	14.3	Surcharged
Pipe57	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	Ex. MH06	MH96	23.900	21.456	0.058	2031.183	0.6	0.02	8.5	OK
Pipe58	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	MH96	MH72	23.150	21.139	0.069	2031.188	0.5	0.02	8.5	OK
Pipe59	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	MH72	MH73	22.880	20.958	0.095	4392.417	0.6	0.02	18.4	OK
Pipe77	FSR: 100 years: +40 %: 1.00 hrs: Summer	Pipe	MH254	MH315	23.400	23.402	0.225	0.056	0.2	0.11	3.7	Flood
Pipe87	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	MH91	MH315	23.910	23.193	0.034	568.790	0.6	0.07	2.4	OK
Pipe54 (2)	FSR: 100 years: +40 %: 0.25 hrs: Summer	Pipe	MH84	MH98	24.550	22.320	0.219	0.000	0.0	0	0.0	OK
Pipe191	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	MH315	Ex. MH06	23.561	23.115	0.025	568.789	1.0	0.03	2.4	OK

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04		Date: 07/06/2024			
		Designed by: aleks.jencu	Checked by:		Approved By:
Report Details: Type: Connections Summary Storm Phase: Existing SW		Company Address: Adept Consulting Engineers			

Pipe195	FSR: 100 years: +40 %: 0.25 hrs: Summer	Pipe	Simple Junction (9)	MH207	23.279	20.949	0.058	0.009	0.2	0	0.0	OK
Pipe197	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	Simple Junction (10)	MH207	21.025	20.684	0.027	483.258	0.6	0.02	2.0	OK
Pipe198	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	MH207	MH208	23.140	20.599	0.031	483.258	0.5	0.01	2.0	OK
Pipe206	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	MH214	MH117	22.500	22.088	0.046	443.798	0.4	0.18	1.9	OK
Pipe50 (1)	FSR: 100 years: +40 %: 0.25 hrs: Summer	Pipe	MH132	MH97	23.760	22.085	0.000	0.000	0.0	0	0.0	OK
Pipe239	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	Simple Junction (16)	MH91	23.890	23.315	0.041	568.791	0.5	0.07	2.4	OK
Ex. Yard Diversion (2)	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	Simple Junction (11)	MH73	23.995	21.375	0.037	443.794	0.4	0.06	1.9	OK
Pipe68 (1)	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	MH117	SW16	22.410	21.899	0.044	443.795	0.4	0.2	1.9	OK
Pipe272	FSR: 100 years: +40 %: 0.25 hrs: Winter	Pipe	Simple Junction (18)	MH247	23.709	23.285	0.225	0.004	0.3	0.38	13.3	Surch arged
Pipe273	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	MH247	MH246	23.900	21.424	0.036	512.297	0.4	0.03	2.1	OK
Pipe274	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	Ex. MH07	Ex. MH06	23.900	21.635	0.048	831.466	0.3	0.01	3.5	OK
Pipe275	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	Simple Junction (19)	MH247	23.890	21.778	0.038	512.298	0.5	0.06	2.1	OK
Pipe276	FSR: 100 years: +40 %: 0.25 hrs: Summer	Pipe	Simple Junction (20)	MH247	23.168	23.044	0.225	0.000	0.3	0.34	11.6	Surch arged
Pipe277	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	Simple Junction (21)	MH246	23.890	21.628	0.037	493.758	0.5	0.06	2.1	OK
Pipe278	FSR: 100 years: +40 %: 0.25 hrs: Winter	Pipe	Simple Junction (22)	MH246	23.890	22.355	0.225	0.006	0.2	0.15	5.3	Surch arged
Pipe280	FSR: 100 years: +40 %: 0.50 hrs: Summer	Pipe	Simple Junction (24)	MH246	23.798	22.338	0.225	0.003	0.1	0.1	3.3	Surch arged
Pipe291	FSR: 100 years: +40 %: 0.25 hrs: Summer	Pipe	MH290	MH265	24.929	21.150	0.000	0.000	0.0	0	0.0	OK

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04				Date: 07/06/2024								
				Designed by:	Checked by:	Approved By:						
				aleks.jencu								
Report Details: Type: Connections Summary Storm Phase: Existing SW				Company Address: Adept Consulting Engineers								

Pipe293	FSR: 100 years: +40 %: 0.25 hrs: Winter	Pipe	MH265	MH208	22.370	20.918	0.206	0.090	0.2	0.01	0.5	OK
Outfall 2	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	MH208	Outfall 2	23.230	20.373	0.043	1191.681	0.7	0.03	5.0	OK
Pipe296	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	Simple Junction (27)	MH248	23.436	22.193	0.021	154.104	0.3	0.01	0.7	OK
Pipe297	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	Simple Junction (28)	MH248	23.890	22.263	0.024	247.968	0.5	0.02	1.0	OK
Pipe298	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	MH248	Ex. MH07	23.900	21.685	0.033	402.070	0.5	0.02	1.7	OK
Pipe299	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	Simple Junction (29)	MH257	23.774	22.386	0.024	155.286	0.3	0.02	0.7	OK
Pipe300	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	Simple Junction (30)	MH257	23.890	22.439	0.028	274.111	0.4	0.03	1.2	OK
Pipe301	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	MH257	Ex. MH07	23.900	22.132	0.034	429.394	0.5	0.03	1.8	OK
Pipe51 (1) (1)	FSR: 100 years: +40 %: 0.25 hrs: Summer	Pipe	MH97	MH81	23.130	21.870	0.082	0.000	0.0	0	0.0	OK
5.002	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW37	SW38	23.100	21.641	0.038	640.680	0.4	0.02	2.7	OK
5.003	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW38	SW39	23.100	21.574	0.040	640.679	0.4	0.02	2.7	OK
1.000	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW1	SW3	22.800	21.465	0.014	50.447	0.3	0.02	0.2	OK
1.002	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW3	SW4	23.000	21.127	0.042	711.132	0.4	0.03	3.0	OK
1.001	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW2	SW3	22.700	21.166	0.041	660.685	0.4	0.02	2.8	OK
2.000	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW6	SW7	22.891	21.813	0.026	162.582	0.2	0.01	0.7	OK
2.001	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW7	SW8	23.232	21.762	0.028	307.265	0.4	0.02	1.3	OK
1.005	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW5 (FC)	MH208	23.150	20.804	0.028	708.423	1.0	0.03	3.0	OK

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04		Date: 07/06/2024				
		Designed by: aleks.jencu	Checked by:			Approved By:
Report Details: Type: Connections Summary Storm Phase: Existing SW		Company Address: Adept Consulting Engineers				

2.007	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW10 (FC)	MH123	24.043	21.421	0.041	718.781	0.6	0.07	3.0	OK
1.004	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	Tank	SW5 (FC)	22.853	21.036	0.063	708.426	0.3	0.03	3.0	OK
2.004	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW9	Tank (1)	23.498	21.483	0.033	524.968	0.5	0.02	2.2	OK
Ex. Yard Diversion	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW16	MH108	23.410	21.740	0.039	443.797	0.4	0.07	1.9	OK
4.002	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW20	SW21	23.706	21.637	0.040	670.375	0.4	0.02	2.8	OK
4.003	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW21	SW23	23.413	21.481	0.042	670.372	0.4	0.02	2.8	OK
4.004	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW23	SW31	23.565	21.431	0.044	762.915	0.4	0.03	3.2	OK
4.003a	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW22	SW23	23.478	22.142	0.014	92.543	0.5	0.02	0.4	OK
4.000a	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW24	SW25	23.350	21.880	0.034	322.153	0.3	0.02	1.4	OK
7.001	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW26	SW27	23.727	21.992	0.017	138.138	0.5	0.03	0.6	OK
4.007	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW33 (FC)	MH73	23.994	21.100	0.082	1316.740	0.3	0.07	5.5	OK
4.006	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	Tank (2)	SW33 (FC)	24.034	21.102	0.115	1316.744	0.2	0.02	5.5	OK
Ex. Yard Diversion (1)	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	MH108	Simple Junction (11)	23.280	21.543	0.039	443.796	0.4	0.06	1.9	OK
1.003	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW4	Tank	23.000	21.069	0.040	711.129	0.5	0.03	3.0	OK
2.002	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW8	SW8a	23.498	21.642	0.036	524.971	0.4	0.02	2.2	OK
2.003	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW8a	SW9	23.500	21.502	0.036	524.969	0.4	0.02	2.2	OK
4.000	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW19	SW25	23.564	22.159	0.020	254.741	0.5	0.01	1.1	OK

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04		Date: 07/06/2024			
		Designed by: aleks.jencu	Checked by:		Approved By:
Report Details: Type: Connections Summary Storm Phase: Existing SW		Company Address: Adept Consulting Engineers			

4.001	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW25	SW20	23.200	21.814	0.036	576.893	0.4	0.02	2.4	OK
4.005	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW31	Tank (2)	23.477	21.403	0.041	762.914	0.5	0.03	3.2	OK
6.001	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW18	SW18a	23.513	22.115	0.027	294.527	0.5	0.03	1.2	OK
6.000	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW17	SW18a	23.951	22.547	0.021	261.761	0.6	0.02	1.1	OK
7.002	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW27	SW10a	23.940	21.730	0.014	138.136	0.7	0.02	0.6	OK
2.006	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW10a	SW10 (FC)	24.032	21.422	0.104	718.784	0.1	0.04	3.0	OK
7.002a	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW10b	SW10a	24.311	22.969	0.008	57.221	0.6	0.01	0.2	OK
2.005	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	Tank (1)	SW10a	23.350	21.425	0.085	523.425	0.2	0.05	2.2	OK
7.000	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW26a	SW26	23.500	22.169	0.019	138.138	0.4	0.03	0.6	OK
6.002	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW18a	SW18b	24.000	21.974	0.040	556.289	0.4	0.04	2.3	OK
6.003	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW18b	Tank (2)	23.742	21.937	0.038	556.288	0.4	0.04	2.3	OK
3.000	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW41	SW43	23.700	21.867	0.066	322.983	0.1	0	1.3	OK
3.000a	FSR: 100 years: +40 %: 0.25 hrs: Summer	Pipe	SW42	SW44	23.750	22.304	0.506	0.000	0.0	0.01	8.0	OK
3.001	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW43	SW44	23.450	21.866	0.065	322.979	0.1	0	1.3	OK
3.002	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW44	SW45 (FC)	23.450	21.865	0.070	322.978	0.1	0	1.3	OK
5.004	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW39	Tank (3)	23.100	21.558	0.040	640.680	0.6	0.02	2.7	OK
5.005	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	Tank (3)	SW40 (FC)	23.100	21.541	0.066	636.402	0.2	0.04	2.7	OK

Project: Sovereign Distillery Phase 2 Proposed Drainage Rev P04		Date: 07/06/2024					
Report Details: Type: Connections Summary Storm Phase: Existing SW		Designed by: aleks.jencu	Checked by:	Approved By:			
		Company Address: Adept Consulting Engineers					

5.006	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW40 (FC)	MH72	23.000	21.522	0.026	636.400	0.9	0.02	2.7	OK
5.001	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW36	SW37	23.000	21.691	0.035	437.573	0.4	0.02	1.8	OK
5.000	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW35	SW36	22.800	21.915	0.028	281.928	0.3	0.01	1.2	OK
3.003	FSR: 100 years: +40 %: 168.00 hrs: Winter	Pipe	SW45 (FC)	Ex. MH06	23.350	21.865	0.028	322.973	0.6	0.08	1.3	OK

Phone: 0151 443 2704

Email: LLFA@knowsley.gov.uk

Website: [Lead Local Flood Authority - Knowsley MBC](#)

Date: 29 May 2024

APPLICATION CONSULTATION RESPONSE

APPLICATION No:	23/02782/FUL
LOCATION:	Location: Sovereign Industrial Park, Wilson Road, Huyton, Knowsley
GRID REF:	
PROPOSAL:	Partial demolition, reconfiguration and refurbishment of existing employment floorspace to create 2no. industrial warehouse buildings with ancillary offices (Classes E(g)(iii), B2 and B8) with dedicated servicing and car parking arrangements; erection of 1no. retail unit (Class E) with external display area and dedicated car parking and servicing arrangements; retention and amendment of existing site accesses along with internal estate roads; 2no. substations; landscaping; and associated works

Thank you for inviting the [Lead Local Flood Authority \(LLFA\)](#) to comment on the above application. Knowsley Council as Lead Local Flood Authority (LLFA) provide comments on planning applications as our statutory consultee role in relation to surface water drainage and works in relation to ordinary watercourse.

The LLFA have reviewed documents submitted by the applicant concerning Drainage Strategy proposal for the above application. The LLFA review has been based on proposed drainage design strategy (Ref. 100.23083, Rev P2 - Dated 01.03.24 by Adept). The LLFA confirm that the proposed drainage strategy is acceptable in principle and should the LPA tend to grant the approval, it must be enclosed with two following conditions as follows:

Condition 1: Detailed Drainage Strategy

Development shall not commence until a detailed SUDS based drainage scheme based on the principles of The SUDS Manual (C753) and the criteria as set out within Knowsley Strategic Flood Risk Assessment (SFRA, Levels 2), has been submitted and approved in writing by the Local Planning Authority (LPA). The applicant should provide suitable drainage drawings, summary calculations and results of all investigations detailing the surface water drainage works as set out in Drainage Design Strategy 100.23083, Rev P2 - Dated 01.03.24. The maximum rate of discharge, off-site, shall not exceed 15.24, 28.1 and 28.1 l/s for Area 1, 2 and 4 respectively, unless otherwise agreed in writing with the LPA. The works shall be implemented in accordance with the approved scheme before the development is brought into use.

For avoidance of any doubt, the surface water and drainage strategy, detailed design drawings, calculations and supporting information shall be prepared considering the following points:

- (i) Given the site characteristics and groundwater levels, infiltration-based SuDS will not be feasible and the discharge to the public sewer system is accepted as the main mechanism for the surface water discharge off site.
- (ii) Detailed calculations of exiting surface water runoff in Area 1, 2 and 4 shall be required.
- (iii) The LLFA is responsible to advise on the maximum discharge rate from the site after development. In brownfield sites, the LLFA usually accept 50% reduction in the existing surface water runoff as the maximum discharge rate from site after development should (i) there is no risk of surcharging within the site and, more importantly, within the receiving sewer system in the surrounding of the site (having sufficient free capacity) and (ii) there is no risk of back water effect within the system due to high water levels in receiving watercourses. The LLFA have liaised with the UU concerning this issue and considering the restricted capacity of the public sewer system in the area and the vicinity of the site to a watercourse where the sewer system outfalls may be impacted by high water levels, the maximum discharge rate from the site shall not exceed 20% of the existing surface water runoff. Should the existing surface water runoff supplied by the applicant is approved by the LLFA (i.e. 76.2, 140.4 and 115.37 l/s for Area 1, 2, and 4, respectively), the maximum discharge rate post development shall not exceed 15.24, 28.1 and 23.1 l/s for Area 1, 2, and 4, respectively.
- (iv) Flow routes need to be considered when all on site drainage systems have been overwhelmed by an event of greater intensity than the design criteria (1 in 100 + 40% CC). The impact of exceedance flows from and on adjacent land should also be considered. In considering the exceedance event, as a minimum the 1 in 200 event plus 40% CC should be considered in calculations. Calculations and plans should be provided to show where above-ground flooding might occur, where this would pool and flow and the maximum depth of flood flows shall be established and managed so as to mitigate the flood impact to people and buildings. Evidence that the exceedance event has been considered will be required.
- (v) An evaluation of impact of potential failure of the drainage system should be provided. The risk assessment should include for blockage of pipes, blockage of outlet structures/soakaway and risk of impediments across planned flood routing paths. The drainage design should be supported by a designer's risk assessment that identifies key points of failure of the system and what means have been considered to limit risk of failure. This will also inform the maintenance plan with regards to corrective actions needed should a failure occurs.
- (vi) Compliance with above, a Model Information (Micro Drainage or similar approved) considering above points will be required. Results showing all the modelling criteria and summary network results including attenuation mechanism for critical 1 in 2 years, 1 in 30 years and 1 in 100 years plus 40% CC storm events along with maximum water level, flow and velocity and details of any surface flooding anticipated will be required.
- (vii) Compliance with above, an updated drainage plan considering the above points to show drainage layout, manholes including cover and invert levels, proposed levels,

pipe sizes and gradients, all on -line controls, on and off-line storage structures and outfall details will be required.

- (viii) Demonstrating that adequate water quality of the off-site surface water flows (draining into a sewer, watercourse and ground) in accordance with the Simplified Index Approach as set out within Section 26 of the SUDS Manual (C753) can be achieved during all phases of the development. In this case that an industrial yard is proposed, water quality risk to surface water bodies and groundwater should be assessed (screening risk or detailed risk assessment) and mitigation measures to be adopted to ensure that risk to both surface water bodies, and groundwater are effectively managed (see Table 26.1 of the SUDS Manual).
- (ix) Construction and specification details of proposed SUDS features will be required to make sure they are suitable for being used in the site.
- (x) Summary Drainage Report setting out the Drainage Strategy and results of the calculations demonstrating compliance with the above.

Reason:

To ensure a satisfactory drainage system is provided to serve the site in accordance with Paragraph 163 of the National Planning Policy Framework, House of Commons Written Statement 161 for Sustainable Drainage Systems, Non-Statutory Technical Standards for Sustainable Drainage Systems (March 2015) and Policies CS2 and CS24 of the Knowsley Local Plan: Core Strategy (January 2016).

Condition 2: Management and Maintenance Plan

A Management and Maintenance Plan for the sustainable drainage system relating to the lifetime of the development through an appropriate legally binding agreement shall be submitted to and approved in writing by the Local Planning Authority. This shall include:

- (i) The arrangements for adoption by an appropriate public body or statutory undertaker or details of provision for management and maintenance by a resident's management company.
- (ii) Arrangements for inspection and ongoing maintenance of all elements of the sustainable drainage system to secure the operation of the surface water drainage scheme throughout its lifetime.
- (iii) Details for planned maintenance and a mechanism for remedial and urgent repair works.
- (iv) Means of access for inspection and maintenance purposes.
- (v) The plan shall be implemented in accordance with the timeframes contained within it.

Reason: To ensure that management arrangements are in place for the sustainable drainage system in order to manage the risk of flooding and pollution during the lifetime of the development.

Yours faithfully,

Dr Vahid Tayefi

[Lead Local Flood Authority \(Knowsley MBC\)](#)

Robert Rigge

From: James Walsh
Sent: 15 May 2024 14:54
To: Robert Rigge
Subject: FW: DC/23/4123 and 23/02782/FUL - Sovereign Industrial Park, Wilson Road, Huyton, Knowsley. [Filed 21 May 2024 15:00]

Follow Up Flag: Follow up
Flag Status: Flagged

FYI



James Walsh – GMICE
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[Link to Email Disclaimer](#)

From: wastewaterdeveloperservices@uuplc.co.uk <wastewaterdeveloperservices@uuplc.co.uk>
Sent: Wednesday, May 15, 2024 2:46 PM
To: Richard Parker <richard.parker@adeptcsce.com>
Cc: adam.cornish@quod.com; James Walsh <james.walsh@adeptcsce.com>; eve.warwick@quod.com; Neil Brown <neil.brown@adeptcsce.com>; mark.quinn@knowsley.gov.uk; shireen.lawrenson@uuplc.co.uk
Subject: RE: DC/23/4123 and 23/02782/FUL - Sovereign Industrial Park, Wilson Road, Huyton, Knowsley.

Hi Richard

The issues we discussed previously were around the foul flows, the rates for SW are calculated based on the catchment area using HR Wallingford which accounts for the ground conditions.

It is what we would recommend, however the LLFA have the final decision on discharge rates.

Kind regards



Nicola Pilkington
Developer Engineer
Developer Services & Metering
Customer Services
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----- Original Message -----

From: Richard Parker [richard.parker@adeptcsce.com]

Sent: 13/05/2024 08:51

To: wastewaterdeveloperservices@uuplc.co.uk

Cc: adam.cornish@quod.com; james.walsh@adeptcsce.com; nicola.pilkington@uuplc.co.uk; eve.warwick@quod.com; neil.brown@adeptcsce.com

Subject: RE: DC/23/4123 and 23/02782/FUL - Sovereign Industrial Park, Wilson Road, Huyton, Knowsley.

Good morning Nicola,

With regards to the above site we have been advised you wish to impose the below condition.

The drainage for the development hereby approved, shall be carried out in accordance with principles set out in the submitted Foul & Surface Water Drainage Design strategy 100.23083, Rev P2 - Dated 01.03.24 which was prepared by Adept. For the avoidance of doubt surface water must drain at the restricted rate of Area 1 5l/s, Area 2 6.5l/s, Area 4 6.5 l/s. Prior to occupation of the proposed development, the drainage scheme shall be completed in accordance with the approved details and retained thereafter for the lifetime of the development.

I wanted to ask why the flow rates from the catchments we have measured have been reduced further than those brownfield rates calculated in our FRA submitted at planning. I was under the impression our flow rates were acceptable following consultation with you.

Catchment	FRA Flow Rate	Suggested Condition
Area 1	38.086 l/s	5 l/s
Area 2	70.195 l/s	6.5 l/s
Area 3	Existing building unaffected	Existing building unaffected
Area 4	57.68 l/s	6.5 l/s

Can you review and advise please ?

Kind Regards,

Richard Parker

Director

Adept Civil and Structural Consulting Engineers

T: 0113 239 4518

M: 07951 824366

W: www.adeptcsce.com

[Image is no longer available]

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Sheffield Courtwood House, Silver Street Head, Sheffield, S1 2DD

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Registered Office: 1912 Mill, Sunny Bank Mills, Farsley, LS28 5UJ

[Link to Email Disclaimer](#)

From: wastewaterdeveloperservices@uuplc.co.uk <wastewaterdeveloperservices@uuplc.co.uk>

Sent: Wednesday, February 21, 2024 9:42 AM

To: Richard Parker <richard.parker@adeptcsce.com>

Cc: James Walsh <james.walsh@adeptcsce.com>; Neil Brown <neil.brown@adeptcsce.com>

Subject: RE: DC/23/4123 and 23/02782/FUL - Sovereign Industrial Park, Wilson Road, Huyton, Knowsley.

Hi Richard

Thanks for your email and explanation, I will ask our planning department to remove this objection.

Kind regards

[Image is no longer available]

Nicola Pilkington
Developer Engineer
Developer Services & Metering
Customer Services
M: 07795851180
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----- Original Message -----

From: Richard Parker [richard.parker@adeptcsce.com]

Sent: 19/02/2024 12:44

To: wastewaterdeveloperservices@uuplc.co.uk

Cc: nicola.pilkington@uuplc.co.uk; james.walsh@adeptcsce.com; neil.brown@adeptcsce.com

Subject: RE: DC/23/4123 and 23/02782/FUL - Sovereign Industrial Park, Wilson Road, Huyton, Knowsley.

Hi Nicola

Thanks for your email. I understand what your issues might be here and have made some comments below;

With regards to manhole 7501 – this has a cover level of 23.02. Existing warehouse A is set at 23.90m and the new store is at 23.70 so provides some freeboard from any flooding. Overland flooding from this chamber would head east to Wilson Road away from the site.

The 150mm sewer in Cronton Road, you suggest connecting to, is some distance from the site and access is through a mature wooded area which wouldn't be viable. Also, pumping is likely to be required. The 150 also connects into the same combined sewer as noted above.

With regards to anticipated foul drainage.

Although we are adding retail space there is a notable reduction in industrial space by 1,813 sqm, the majority of which is office space serving the old distillery. The proposed retail gross floor area is 2,323 sqm and the new store only has 5 single wc's (with basins) and a small canteen so would balance out the number of appliances removed as part of the demolition of the existing offices.

We are also connecting on to the sewer network downstream of manhole 7501 at manhole 7502.

Lastly, we believe that the roof drainage from the office being demolished as part of the redevelopment drained to the combined system and measured just under 2,000m². New drainage in this area is being directed into the surface water storage system on site and to the surface water sewer. This reduces the flow to the combined sewer.

Overall, taking into consideration all of the above, I would say that we are not increasing the foul flows from the redeveloped site taking into account the demolition of the existing buildings and their current routes to outfall. The most suitable point of connection remains as manhole 7502.

Would you be able to confirm if this is acceptable to United Utilities. I'm happy to have a chat to talk over if needed?

Kind Regards,

Richard Parker

Director

Adept Civil and Structural Consulting Engineers

T: 0113 239 4518

M: 07951 824366

W: www.adeptcsce.com

[Image is no longer available]

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From: wastewaterdeveloperservices@uuplc.co.uk <wastewaterdeveloperservices@uuplc.co.uk>
Sent: Friday, February 9, 2024 8:18 AM
To: Richard Parker <richard.parker@adeptcsce.com>
Cc: nicola.pilkington@uuplc.co.uk; James Walsh <james.walsh@adeptcsce.com>; Neil Brown <neil.brown@adeptcsce.com>
Subject: RE: DC/23/4123 and 23/02782/FUL - Sovereign Industrial Park, Wilson Road, Huyton, Knowsley.

Hi Richard

Thanks for your email, the issue we have is that MH 7501 is showing that it will flood in the 1 year event. Adding any more foul flow to this is going to increase the flood risk.

Do you have some calculation on what you expect the flows to be from the retail unit so I can look into this further.

There is a 150mm Foul sewer in cronton road, have you explored the option of connection to this?

Kind regards

[Image is no longer available]

Nicola Pilkington
Developer Engineer
Developer Services & Metering
Customer Services
M: 07795851180
unitedutilities.com

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----- Original Message -----

From: Richard Parker [richard.parker@adeptcsce.com]

Sent: 05/02/2024 11:12

To: wastewaterdeveloperservices@uuplc.co.uk

Cc: nicola.pilkington@uuplc.co.uk; neil.brown@adeptcsce.com; james.walsh@adeptcsce.com

Subject: DC/23/4123 and 23/02782/FUL - Sovereign Industrial Park, Wilson Road, Huyton, Knowsley.

Good morning Nicola

We have been asked to contact you via your planning team due to the attached consultation response to our planning application, reference 23/02782 for development at the above site.

You will note the extract below from the consultation response.

“Existing public sewers pass through and near to this site which modelling data identifies as being at risk of sewer flooding. We request that the applicant liaises with United Utilities to understand the nature of this flood risk and the impact upon the proposed site layout. The risk of sewer flooding needs to be assessed further as this could affect the developable area of the site and the detail of the design”

Our proposals involve the modification of existing warehouse buildings that are currently built over your 750mm dia combined sewer along with the construction of a new retail store in the location marked with a green X below

[Image is no longer available]

The internal refurbishments include separating the existing building to create two individual buildings with relocated offices.

The new retail store will be located in the car park to the existing warehouse, approximately 100m to the south of your sewers and will set at a level 700mm above the ground level in the area of where the sewer crosses the site.

As requested in the consultation response are you able to advise on the nature of the sewer flood risk on the site and any potential impact upon the proposed site layout. We can then assess any

exceedance flow paths. There is nothing we can with regards to the refurbishment of the existing buildings and we think the new retail store would be set sufficiently high enough so as not to be at risk of sewer flooding and will not increase flood risk elsewhere

I look forward to hearing from you but please let me know if you have any queries. I will probably give a call to discuss also in the next couple of days

Kind Regards,

Richard Parker

Director

Adept Civil and Structural Consulting Engineers

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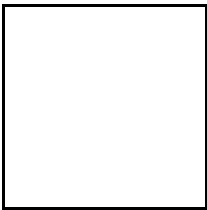


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Robert Rigge

From: Robert Rigge
Sent: 19 June 2024 13:17
To: 'LLFA@knowsley.gov.uk'
Cc: rseger@rsukassociates.co.uk; 'Adam Cornish'; Neil Brown; Richard Parker
Subject: 23/02782/FUL - Questions
Attachments: LLFA Response_23-02782-FUL.pdf

FAO: Dr Vahid Tayefi

Good afternoon,

Please refer to the attached Consultation Response received by Adept on the 5th of June, originally dated 29th of May. Firstly, thank you for your comments on the scheme and proposals.

Under condition 1; point (ii) you request detailed calculation of the existing surface water flows. However, point (iii) notes the *“existing surface water runoff supplied by the applicant is approved by the LLFA (i.e. 76.2, 140.4 and 115.37 l/s for Area 1, 2, and 4, respectively), the maximum discharge rate post development shall not exceed 15.24, 28.1 and 23.1 l/s for Area 1, 2, and 4, respectively”*

Please can you clarify a couple of questions;

1. If when carrying out an existing flow model of the drainage the rates are found to be less than those calculated in the Flood Risk Assessment & Drainage Strategy am I correct in assuming that the proposed discharge rates are fixed at those noted above i.e. 15.24, 28.1 and 23.1 l/s for Area 1, 2, and 4. In effect making the betterment more aligned with the 50% standard you as Knowsley LLFA normally accept?
2. Likewise, if the rates are modelled and bring about an increased flow to those calculated in the Flood Risk Assessment & Drainage Strategy am I correct in applying the 20% to these rates?

Thank you in advance

Best regards,

ADEPT
CIVIL AND STRUCTURAL
CONSULTING ENGINEERS



Robert Rigge BEng, MSc, CEng, MICE, NECREg
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Phone: 0151 443 2704

Email: LLFA@knowsley.gov.uk

Website: [Lead Local Flood Authority - Knowsley MBC](#)

Date: 29 May 2024

APPLICATION CONSULTATION RESPONSE

APPLICATION No:	23/02782/FUL
LOCATION:	Location: Sovereign Industrial Park, Wilson Road, Huyton, Knowsley
GRID REF:	
PROPOSAL:	Partial demolition, reconfiguration and refurbishment of existing employment floorspace to create 2no. industrial warehouse buildings with ancillary offices (Classes E(g)(iii), B2 and B8) with dedicated servicing and car parking arrangements; erection of 1no. retail unit (Class E) with external display area and dedicated car parking and servicing arrangements; retention and amendment of existing site accesses along with internal estate roads; 2no. substations; landscaping; and associated works

Thank you for inviting the [Lead Local Flood Authority \(LLFA\)](#) to comment on the above application. Knowsley Council as Lead Local Flood Authority (LLFA) provide comments on planning applications as our statutory consultee role in relation to surface water drainage and works in relation to ordinary watercourse.

The LLFA have reviewed documents submitted by the applicant concerning Drainage Strategy proposal for the above application. The LLFA review has been based on proposed drainage design strategy (Ref. 100.23083, Rev P2 - Dated 01.03.24 by Adept). The LLFA confirm that the proposed drainage strategy is acceptable in principle and should the LPA tend to grant the approval, it must be enclosed with two following conditions as follows:

Condition 1: Detailed Drainage Strategy

Development shall not commence until a detailed SUDS based drainage scheme based on the principles of The SUDS Manual (C753) and the criteria as set out within Knowsley Strategic Flood Risk Assessment (SFRA, Levels 2), has been submitted and approved in writing by the Local Planning Authority (LPA). The applicant should provide suitable drainage drawings, summary calculations and results of all investigations detailing the surface water drainage works as set out in Drainage Design Strategy 100.23083, Rev P2 - Dated 01.03.24. The maximum rate of discharge, off-site, shall not exceed 15.24, 28.1 and 28.1 l/s for Area 1, 2 and 4 respectively, unless otherwise agreed in writing with the LPA. The works shall be implemented in accordance with the approved scheme before the development is brought into use.

For avoidance of any doubt, the surface water and drainage strategy, detailed design drawings, calculations and supporting information shall be prepared considering the following points:

- (i) Given the site characteristics and groundwater levels, infiltration-based SuDS will not be feasible and the discharge to the public sewer system is accepted as the main mechanism for the surface water discharge off site.
- (ii) Detailed calculations of exiting surface water runoff in Area 1, 2 and 4 shall be required.
- (iii) The LLFA is responsible to advise on the maximum discharge rate from the site after development. In brownfield sites, the LLFA usually accept 50% reduction in the existing surface water runoff as the maximum discharge rate from site after development should (i) there is no risk of surcharging within the site and, more importantly, within the receiving sewer system in the surrounding of the site (having sufficient free capacity) and (ii) there is no risk of back water effect within the system due to high water levels in receiving watercourses. The LLFA have liaised with the UU concerning this issue and considering the restricted capacity of the public sewer system in the area and the vicinity of the site to a watercourse where the sewer system outfalls may be impacted by high water levels, the maximum discharge rate from the site shall not exceed 20% of the existing surface water runoff. Should the existing surface water runoff supplied by the applicant is approved by the LLFA (i.e. 76.2, 140.4 and 115.37 l/s for Area 1, 2, and 4, respectively), the maximum discharge rate post development shall not exceed 15.24, 28.1 and 23.1 l/s for Area 1, 2, and 4, respectively.
- (iv) Flow routes need to be considered when all on site drainage systems have been overwhelmed by an event of greater intensity than the design criteria (1 in 100 + 40% CC). The impact of exceedance flows from and on adjacent land should also be considered. In considering the exceedance event, as a minimum the 1 in 200 event plus 40% CC should be considered in calculations. Calculations and plans should be provided to show where above-ground flooding might occur, where this would pool and flow and the maximum depth of flood flows shall be established and managed so as to mitigate the flood impact to people and buildings. Evidence that the exceedance event has been considered will be required.
- (v) An evaluation of impact of potential failure of the drainage system should be provided. The risk assessment should include for blockage of pipes, blockage of outlet structures/soakaway and risk of impediments across planned flood routing paths. The drainage design should be supported by a designer's risk assessment that identifies key points of failure of the system and what means have been considered to limit risk of failure. This will also inform the maintenance plan with regards to corrective actions needed should a failure occurs.
- (vi) Compliance with above, a Model Information (Micro Drainage or similar approved) considering above points will be required. Results showing all the modelling criteria and summary network results including attenuation mechanism for critical 1 in 2 years, 1 in 30 years and 1 in 100 years plus 40% CC storm events along with maximum water level, flow and velocity and details of any surface flooding anticipated will be required.
- (vii) Compliance with above, an updated drainage plan considering the above points to show drainage layout, manholes including cover and invert levels, proposed levels,

pipe sizes and gradients, all on -line controls, on and off-line storage structures and outfall details will be required.

- (viii) Demonstrating that adequate water quality of the off-site surface water flows (draining into a sewer, watercourse and ground) in accordance with the Simplified Index Approach as set out within Section 26 of the SUDS Manual (C753) can be achieved during all phases of the development. In this case that an industrial yard is proposed, water quality risk to surface water bodies and groundwater should be assessed (screening risk or detailed risk assessment) and mitigation measures to be adopted to ensure that risk to both surface water bodies, and groundwater are effectively managed (see Table 26.1 of the SUDS Manual).
- (ix) Construction and specification details of proposed SUDS features will be required to make sure they are suitable for being used in the site.
- (x) Summary Drainage Report setting out the Drainage Strategy and results of the calculations demonstrating compliance with the above.

Reason:

To ensure a satisfactory drainage system is provided to serve the site in accordance with Paragraph 163 of the National Planning Policy Framework, House of Commons Written Statement 161 for Sustainable Drainage Systems, Non-Statutory Technical Standards for Sustainable Drainage Systems (March 2015) and Policies CS2 and CS24 of the Knowsley Local Plan: Core Strategy (January 2016).

Condition 2: Management and Maintenance Plan

A Management and Maintenance Plan for the sustainable drainage system relating to the lifetime of the development through an appropriate legally binding agreement shall be submitted to and approved in writing by the Local Planning Authority. This shall include:

- (i) The arrangements for adoption by an appropriate public body or statutory undertaker or details of provision for management and maintenance by a resident's management company.
- (ii) Arrangements for inspection and ongoing maintenance of all elements of the sustainable drainage system to secure the operation of the surface water drainage scheme throughout its lifetime.
- (iii) Details for planned maintenance and a mechanism for remedial and urgent repair works.
- (iv) Means of access for inspection and maintenance purposes.
- (v) The plan shall be implemented in accordance with the timeframes contained within it.

Reason: To ensure that management arrangements are in place for the sustainable drainage system in order to manage the risk of flooding and pollution during the lifetime of the development.

Yours faithfully,

Dr Vahid Tayefi

[Lead Local Flood Authority \(Knowsley MBC\)](#)

Sovereign Distillery Redevelopment Drainage Asset Maintenance Schedule

■ Surface ■ Foul

Maintenance Activity	Drainage Component	Required Action	Typical Frequency
Visual Inspection	Gully Sump unit Catch pit / silt trap Attenuation structures Channel drain Outlet chamber Flow control chamber	Inspect for sediment and debris Inspect inlets and outlets for blockage (where applicable)	Monthly for first year and twice yearly thereafter, after severe storm
	Pipework		Twice yearly
	Full retention interceptor / Bypass interceptor		Twice yearly or after severe storm as a minimum, refer to manufacturer guidance. Forecourt interceptor requires emptying after fuel spillage
Monitoring	Attenuation structures	Check attenuation inspection points to ensure emptying is occurring (little to no water should be present after consecutive days of dry weather)	Twice yearly, once after heavy rainfall and once after consecutive dry weather
Litter and Debris Removal	Manhole Pervious paving All sump units (gullies, channel drains and catch pits)	Remove all litter and debris	Twice yearly or after severe storm
Litter and Debris Removal - Continued	Access chambers and pre-treatment devices Flow control chamber Gutters & leaf guards		Twice yearly (spring, start of winter), or as required
Jet Wash	Pipework	High pressure jet-wash any pipe work which has silt accumulation. Care must be taken that any silts within	Twice yearly, or as required

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			the pipework are not unnecessarily flushed into the attenuation structures (use of bungs and jet-vac of chamber prior to removal of bungs)	
		Attenuation structures	High pressure jet-wash all perforated pipework and or access points. All water to be jet vac to remove any suspended silts within the water	Five yearly, or as required
	Sediment Management and Removal	ALL SUDS	Sediment accumulation should be monitored as part of the inspection regime, rate of sediment accumulation noted	Appropriate frequencies determined upon inspection
	Inspection	Pipework Manhole	Check if functioning correctly	Once site is fully operational: twice yearly for 1 st year, annually after
	Sediment Removal	Washdown separator	Inspect for build up of sediment and remove as required. Refer to manufacturer guidance	Quarterly for 1 st year, twice yearly after. Refer to manufacturer guidance

Additional notes:

- Any defects (broken/misaligned pipes, root infestation, damage to soakaways, missing parts, etc.) that are identified during inspections/maintenance should be reported back to the property/site owner so that remedial actions can be undertaken promptly to repair these defects.
- SuDS maintenance based on CIRIA 2015 chapter 32 where further information can also be found.
- Refer to manufacturer guidance for maintenance schedules of all proprietary treatment systems.