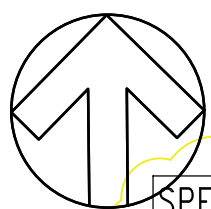


File name: I:\UK\WSPGROUP\COMCENTRAL\DATA\PROJECTS\70064036 - CROWN STREET - WIP\CVI\DRAWINGS\WORKING\Z1-WSP-580-PL-XX-DR02.DWG, printed on 10 May 2021 13:08:24, by Ms. Stephen



SPECIALIST DESIGN ITEM (1) -

BLUE ROOF SLOPS ATTENUATION SYSTEM BY WATERSHED.
WSP PERFORMANCE CRITERIA AS FOLLOWS:
SURFACE WATER RUNOFF FROM PHASES A & C BUILDINGS AND PHASES A & B PUBLIC REALM TO BE DRAINED BLUE ROOF ATTENUATION SYSTEM WITHIN AREA HATCHED BLUE SURROUNDED BY A CONCRETE UPSTAND. BLUE ROOF SUPPLIER / WATERSHED TO TAKE DESIGN RESPONSIBILITY FOR BLUE ROOF SYSTEM, WSP TO PROVIDE PERFORMANCE SPEC AS FOLLOWS:
TOTAL DRAINED IMPERMEABLE AREA - 6965 m²
TOTAL PLAN AREA AVAILABLE FOR BLUE ROOF CRATE SYSTEM - 2400 m²
DISCHARGE RATE AGREED WITH WATERSHED - 12 L/S
MAXIMUM HALF DRAIN TIME - 720 MINS (12 HOURS)
OVERFLOW TO BE PROVIDED AT EACH OUTLET POINT
TOTAL DEPTH OF STORAGE CRATES TO BE 200mm (MAX). CONCRETE UPSTAND TO ALSO BE 200mm (MAX). SLAB BUILT TO IN BUILT FALLS. REFERENCE SHOULD BE MADE TO SHP / DP2 SLAB DETAILS DRAWING AND BLUE ROOF CRATES TO BE COORDINATED WITH FALLS IN SLAB
BLUE ROOF TO PROVIDE SUFFICIENT SURFACE WATER ATTENUATION FOR 100 YR STORM EVENT PLUS A 40% ALLOWANCE FOR CLIMATE CHANGE
NUMBER OF BLUE ROOF OUTLETS, FINALISED FLOW RATES, FLOW CONTROL AND INSPECTION CHAMBER CONSTRUCTION DETAILS AND TRANSFER OF RUNOFF FROM VEHICULAR AREA & PHASE B EXTERNALS TO ATTENUATION CRATES TO BE AGREED WITH / CONFIRMED BY BLUE ROOF SUPPLIER / WATERSHED.

SPECIALIST DESIGN ITEM (2) -

BASEMENT PUMP SYSTEM TO DRAIN RUNOFF FROM UNCOVERED CAR PARK RAMP -
WSP PERFORMANCE CRITERIA:
SURFACE WATER RUNOFF FROM UNCOVERED BASEMENT CAR PARK RAMP TO BE DRAINED TO PUMP CHAMBER IN BASEMENT BEFORE BEING PUMPED TO MH001 AT SILVERCROFT STREET JUNCTION.
TOTAL DRAINED IMPERMEABLE AREA - 140 m²
RUNOFF BASED ON RATIONAL METHOD (50mm/hr) - 2 L/S
PUMP CHAMBER TO BE MINIMUM 4m³ TO CATER FOR STORM EVENTS UP TO AND INCLUDING THE 100 YR EVENT PLUS A 40% ALLOWANCE FOR CLIMATE CHANGE. THIS DOES NOT INCLUDE FOR ANY EMERGENCY STORAGE. IN THE EVENT OF PUMP FAILURE, A HIGH LEVEL ALARM WILL BE ACTIVATED AND WARNINGS WILL BE SENT AUTOMATICALLY TO THE SITE MANAGEMENT TEAM. EXCESS WATER WITHIN THE CHAMBER WILL DISCHARGE VIA AN OVERFLOW PIPE AND GULLY TO THE ADDITIONAL PERMANENT PUMP AND SUMP UNITS AT BASEMENT LEVEL B3 AND BE PUMPED TO MH001 IN SILVERCROFT STREET. PUMP DETAILS BASED ON A 1.5M DIA CHAMBER, 2.25M HEIGHT.
MAX PUMP DISCHARGE RATE - 2 L/S
PUMP SWITCH ON / OFF (DEPTH ABOVE INVERT) - 0.7m (ON), 0.3m (OFF)
PUMP ARRANGEMENT - DUTY / STAND BY
HIGH LEVEL ALARM TELEMETRY WARNING - REQUIRED
BACK UP POWER SUPPLY - TO BE AGREED
PUMP CHAMBER TO BE POSITIONED AT BASEMENT LEVEL B2 IN ABOVE GROUND CHAMBER. CHAMBER DESIGN, INCOMING / OUTGOING PIPING, POWER SUPPLY, TELEMETRY AND ALL OTHER MECHANICAL AND ELECTRICAL REQUIREMENTS TO BE SPECIFIED BY MEP DESIGN. REFERENCE SHOULD BE MADE TO MEP DRAWINGS Z3-MEP-6590-PL-B1-003 & Z3-MEP-6590-PL-B2-002 FOR DETAILS.

DUE TO MINIMAL DEPTH OF BUILD UP FROM BASEMENT SLAB LEVEL TO FINISHED GROUND LEVEL IN THIS AREA, IT IS NOT POSSIBLE TO COLLECT ALL RUNOFF AT SURFACE LEVEL AND DISCHARGE THROUGH BLUE ROOF SYSTEM.
TOTAL EXTENT OF CONCRETE UPSTAND (HATCHED BLUE) AT SILVERCROFT STREET SHOWN AS AGREED WITH TPM / RBL AREA OUTSIDE CONCRETE UPSTAND (310 m², HATCHED PURPLE) TO DRAIN FREELY INTO EXISTING DRAINAGE IN SILVERCROFT STREET. ALLOWANCE OF 4.3 L/S FOR THIS AREA BASED ON RATIONAL METHOD (50mm/hr RAINFALL) TAKEN FROM OVERALL OFF SITE DISCHARGE RATE.

FINALISED SPECIFICATION OF PAVEMENT MATERIALS AND PERMEABLE / IMPERMEABLE CONSTRUCTION FOR PROPOSED PEDESTRIAN FOOTPATH AND VEHICULAR AREAS TO BE PROVIDED BY TPM.

REFERENCE SHOULD BE MADE TO MEP DRAWING Z3-MEP-6590-PL-B1-003 FOR DETAILS OF INDICATIVELY SHOWN UNDERSLUNG BLUE ROOF OUTLET PIPEWORK AT HIGH LEVEL WITHIN BASEMENT.

DETAILED COORDINATION REQUIRED BETWEEN TPM (LANDSCAPE ARCHITECT) AND BLUE ROOF SUPPLIER (WATERSHED) TO INCLUDE COORDINATION OF TREE ROOTS / PITS WITH BLUE ROOF SYSTEM. INTERFACE OF LANDSCAPE BUILD UP'S WITH BLUE ROOF SYSTEM (PERMEABLE GEO-TEXTILE), MINIMUM DEPTH OF TOPSOIL / PLANTING ZONES ETC.

REFERENCE SHOULD BE MADE TO MEP DRAWING Z3-MEP-6590-PL-B1-001 FOR DETAILS OF ABOVE GROUND FOUL AND SURFACE WATER CONNECTIONS FROM C4 TOWER.

PROPOSED GEO CELLULAR STORAGE TANK, ALDERBURGH OR SIMILAR APPROVED, TO PROVIDE SUFFICIENT STORAGE TO MITIGATE ALL STORM EVENTS UP TO AND INCLUDING THE 100 YR STORM EVENT INCLUDING A 40% ALLOWANCE FOR CLIMATE CHANGE. DIMENSIONS 1.5m (w) x 1.3m (h) x 13m (l)

MH REF: SW06
HYDROBRAKE MH
Q = 13.9 L/S
CL: 33.000 (TBC)
IL: 30.088
INCOMING L/S (BACK-DROP CONNECTIONS) FROM BUILDING: DRAINAGE - 31.400 (TBC)

MH REF: C02
CL: 33.000 (TBC)
IL: 29.68 (TBC)
2 X 225 DIA INC. SW
L/S: 30.055
1 X 225 DIA INC. FOUL
L/S: 30.055

PPIC REF: F002
315mm Ø PPIC
CL: 32.900 (TBC)
IL: 31.950

MH REF: C02
CL: 33.000 (TBC)
IL: 29.68 (TBC)
ON EXISTING 450mm (w) x 600mm (h) COMBINED PUBLIC SEWER INSIDE THE SITE AT THE POINT AT WHICH IT IS TO BE ABANDONED.

SECTION 106 PART 1 AND PART 2 APPROVAL REMOVED FROM UNITED UTILITIES INCLUDES AGREED ACCESS ROAD WORKS FOR RETAINED LENGTH OF SEWER BETWEEN UMH 1105 AND NEW MH C02.

PROPOSED FILTER DRAIN WITH ASSOCIATED GEO-CELLULAR STORAGE TANK & HYDROBRAKE FLOW CONTROL AT MH SW07 (17.2 L/S) TO PROVIDE SUFFICIENT STORAGE TO CATCH RUNOFF (1710 m³) FROM SERVICE YARD (REAR ACCESS ROAD) TO MITIGATE ALL STORM EVENTS UP TO AND INCLUDING THE 100 YR STORM PLUS A 40% ALLOWANCE FOR CLIMATE CHANGE.
FILTER MATERIAL TO PROVIDE A MINIMUM VOID RATIO OF 30%. MINIMUM TRENCH WIDTH 450mm. WRAPPED IN IMPERMEABLE GEOTEXTILE MEMBRANE.
FILTER DRAIN TO BE INSTALLED TIGHT UP AGAINST BASEMENT CAPPING BEAM.

SITE WIDE FOUL & SURFACE WATER DRAINAGE STRATEGY

TOTAL EXISTING IMPERMEABLE AREA: 0.783 HECTARES
EXISTING SURFACE WATER RUNOFF RATE FROM THE SITE: 108.8 l/s
(USING THE MODIFIED RATIONAL METHOD WITH A RAINFALL INTENSITY OF 50 mm/hr)

PEAK DISCHARGE RATE FROM THE DEVELOPED SITE: 54.4 l/s
(50% REDUCTION IN ACCORDANCE WITH THE MCR, SALFORD AND TRAFFORD SFRA)

PROPOSED PEAK DISCHARGE FROM THE SITE: 49.4 l/s
(OVERALL BETTERMENT OF 55% FOLLOWING LOCAL COUNCIL DECLARING A CLIMATE EMERGENCY)

310 m² UNRESTRICTED DISCHARGE: 4.3 l/s
140 m² BASEMENT ENTRANCE: 2 l/s
PHASE A & C BUILDING PLUS PHASES A & B PUBLIC REALM DISCHARGE (BLUE ROOF): 12 l/s
PHASE B BUILDING DISCHARGE: 13.9 l/s
REAR ACCESS ROAD (SERVICE YARD) SURFACE WATER DISCHARGE RATE: 17.2 l/s

TOTAL PEAK SURFACE WATER DISCHARGE RATE: 49.4 l/s

PHASE A PEAK FOUL DISCHARGE RATE: 11.94 l/s
PHASE B PEAK FOUL DISCHARGE RATE: 13.02 l/s
PHASE C PEAK FOUL DISCHARGE RATE: 1.85 l/s

TOTAL PEAK FOUL DISCHARGE RATE: 26.81 l/s

PHASES A AND C (BUILDING) & PHASE A & B PUBLIC REALM BLUE ROOF

IMPERMEABLE AREAS DRAINING TO ATTENUATION RESERVOIR:

- C4: 1623 m² (INC. 30% ROOF ALLOWANCE FOR VERTICAL SURFACES)
- SCHOOL: 695 m²
- EXTERNAL AREAS PHASE A: 2644 m² (EXCLUDES 310 m² UNRESTRICTED AND RAMPED ACCESS, INCLUDES SERVICE ROAD TURNING HEAD 370 m²)
- EXTERNAL AREAS PHASE B: 1723 m²
- 30% C5 ROOF ALLOWANCE FOR VERTICAL SURFACES: 280 m²

TOTAL IMPERMEABLE AREA DRAINING TO BLUE ROOF - 6965 m²

PHASE B BUILDING

IMPERMEABLE AREAS DRAINING ATTENUATION TANK:

- BUILDING: 1385 m²

REAR ACCESS ROAD (SERVICE YARD)

IMPERMEABLE AREAS DRAINING ATTENUATION TANK:

- ROAD: 1030 m²
- 30% ROOF AREA FOR VERTICAL SURFACES: 530 m²
- MISC: 150 m²

TOTAL IMPERMEABLE AREA DRAINING TO REAR ACCESS ROAD SYSTEM - 1710 m²

DO NOT SCALE

KEY

- EXISTING COMBINED PUBLIC SEWER
- EXISTING COMBINED PUBLIC SEWER TO BE ABANDONED
- EXISTING HIGHWAY DRAIN
- PROPOSED SURFACE WATER DRAIN
- PROPOSED FOUL WATER DRAIN
- ABOVE GROUND SW DRAINAGE (BY OTHERS)
- ABOVE GROUND FOUL DRAINAGE (BY OTHERS)
- PROPOSED CHANNEL DRAIN
- PROPOSED FILTER DRAIN
- PROPOSED FILTER TRENCH
- EXISTING MANHOLE
- PROPOSED PRIVATE FOUL MANHOLE
- PROPOSED PRIVATE SURFACE WATER MANHOLE / IC
- PROPOSED COMBINED SEWER MH
- PROPOSED BLUE ROOF OUTLET
- RODDING POINT WITH GULLY GRATING
- PROPOSED ROAD GULLY
- PROPOSED BLUE ROOF EXTENT
- LAND TO DRAIN UNRESTRICTED TO EXISTING DRAINAGE IN SILVERCROFT STREET
- DIRECTION OF FALL (GROUND LEVEL)
- DIRECTION OF FALL (BASEMENT SLAB)

REV	DATE	BY	DESCRIPTION	CHK	APP
P09	10/05/21	JB	NOTES UPDATED, UNDERSLUNG BLUE ROOF OUTLETS UPDATED TO SUIT LATEST MEP DRAWINGS	SM	SM
P08	14/01/21	JAM	NOTES UPDATED TO CROSS REFERENCE, FILTER DRAIN REVERTED	SM	SM
P07	14/12/20	JAM	ACO'S SPEC, FILTER DRAIN UPDATED	SM	SM
P06	09/11/20	JAM	FILTER DRAIN EXTENTS AND INVERTS UPDATED	SM	SM
P05	03/11/20	JAM	FILTER DRAIN UPDATED	SM	SM
P04	23/10/20	JAM	STAGE 4 ISSUE	SM	SM
P03	02/10/20	JAM	DISCHARGE PLANNING CONDITIONS	SM	SM
P02	16/09/20	JAM	ADDED MH REF'S / MH C01 AND ADDITIONAL COORDINATION NOTES	SM	SM
P01	04/09/20	JAM	FIRST ISSUE FOR COORDINATION	SM	SM

DRAWING STATUS: **S3 - FOR REVIEW**

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CLIENT: **RENAKER BUILD LTD**

ARCHITECT: **SIMPSON HAUGH**

SITE/PROJECT: **CROWN STREET, ZONE 2**

TITLE: **PROPOSED DRAINAGE LAYOUT**

SCALE @ A1: 1:250

CHECKED: SM

APPROVED: SM

PROJECT NO: 70064036

DESIGNED: JAM

DRAWN: JAM

DATE: May 21

DRAWING NO: **Z1-WSP-580-PL-XX-DR02**

REV: **P09**

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