ARUP

Kirklees Council

Kirklees Cultural Heart

Drainage Statement

Reference: CDT430201-ARP-XX-XX-RP-C-001002

P02 | 30 September 2022

Job number 284642

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Document Verification

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1. Introduction

This Drainage Statement has been prepared by Ove Arup and Partners Ltd (Arup) on behalf of Kirklees Council (KC) to support a detailed planning application for a mixed-use development at Queensgate, Huddersfield.

Application for 'Demolition of the existing Piazza shopping centre, part removal of elements of Queensgate Market, and demolition/retention of service tunnels; with redevelopment of the site to form new public realm space (including public park and gardens, play areas, public square/outdoor event space); refurbishment and change of use of existing Queensgate Market Hall into new food hall (Use Class E (b) Sale of food and drink for consumption, mostly, on the premises); refurbishment and extension of existing library and art gallery building to form a new museum (Use Class F.1); change of use of part existing market hall building and extension to form a new public library (Use Class F.1); construction of new indoor event venue incorporating multi-storey car park below (Sui-Generis); erection of new public gallery building (Class F.1); and associated infrastructure on land and buildings at Queensgate Market, Huddersfield Library and Art Gallery, and Piazza (and The Shambles) Shopping Centre, Huddersfield.'

A review of the existing site infrastructure has been undertaken and is described in Section 3. Consultation has been undertaken with key stakeholders and is summarised in Section 5. This has been used to develop surface water and foul water drainage strategies which are described in Sections 6 and 7 respectively.

The report should be read in conjunction with the Flood Risk Assessment (CDT430201-ARUP-XX-XX-RP-C-001001).

The report has been prepared by Arup for Kirklees Council in connection with the above development, and their application for Planning Consent. It shall not be relied upon or transferred to any other party without prior written authorisation. Whilst Arup does not guarantee, nor accept liability for, the accuracy of any information derived from secondary sources, endeavours have been made to verify the suitability of all information used in preparation of this report.

2. Site Context

The site is located on the corner of Queen Street and Queensgate in the centre of Huddersfield and is situated opposite to the Huddersfield Town Hall (Figure 1).

The site comprises of the Huddersfield Library, market buildings and the Piazza Shopping Centre. There is a landscaped area between the library and Piazza at a lower level. The Piazza building located to the North and Eastern boundaries of the site is to be demolished as a part of the development.

The total site ownership area is (blue) 2.93 ha, the planning boundary (red) extends beyond this to 3.93 ha.

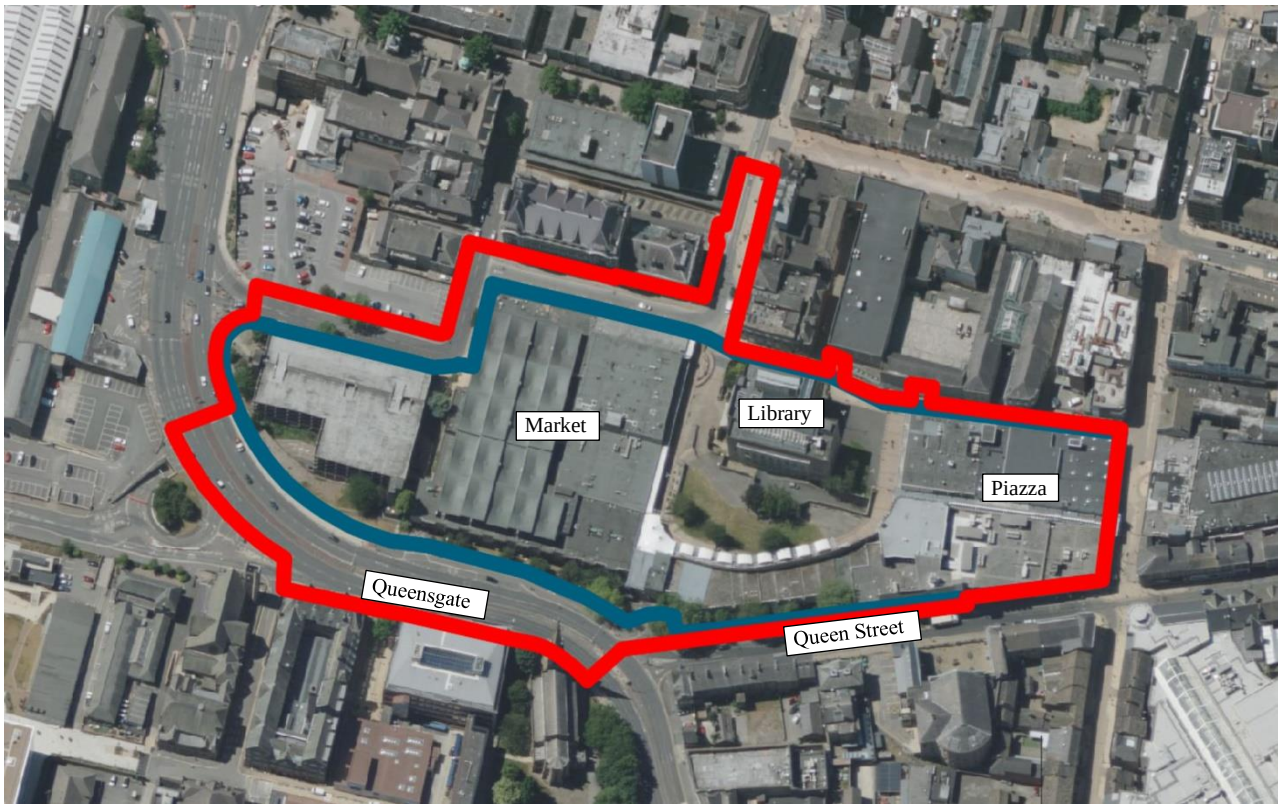

Figure 1: Site Location Plan, postcode HD1 2SU

3. Existing Site Overview

3.1 Topography

The existing level information is based on site observations and following topographical survey information, included in Appendix B:

- 2019 Survey Operations Topographical Survey of Land at Market Hall Muti-Storey Car Park (19J037, 19J138).
- 2020 Survey & Engineering Projects Utility Survey (S20124-U), which includes a topographical survey base.

The site generally falls west to east, with levels ranging between 88m to 80m, see Figure 2 (below). Levels along Princess Alexandria Walk tie into Ramsden St at ~87mAOD and fall east to ~86m which creates a ~5.5m level difference at the Queensgate boundary. Access between Queensgate and Princess Alexandria Walk is currently via two flights of steps (Figure 4, below).

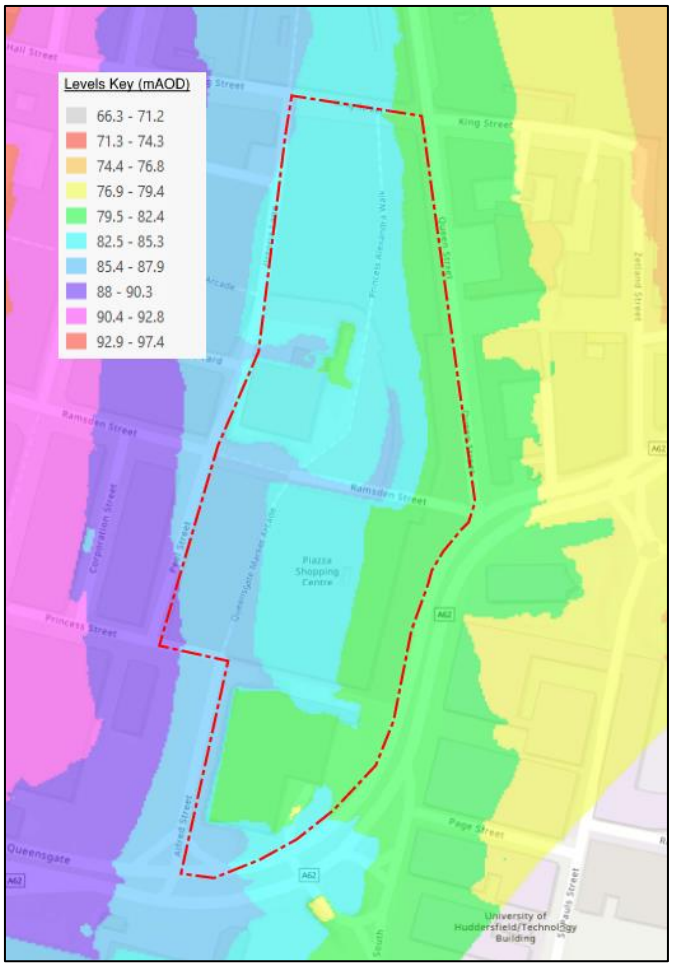

Figure 2 Site Elevations

The Library's lower ground flood level is set ~2m below adjacent levels on Ramsden St and Princess Alexandria Walk (Figure 3, below).

Figure 3 Level difference adjacent to the existing library building

Figure 4 Steps down from Princess Alexandra Walk to Queensgate

Service tunnels run under the site, accessed from Queen Street and Queensgate (Figure 5 and Figure 6, below).

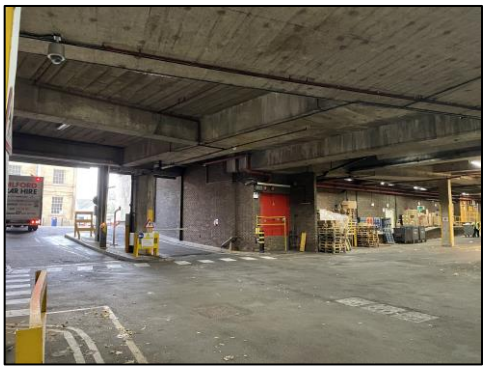

Figure 5 Service tunnel under site

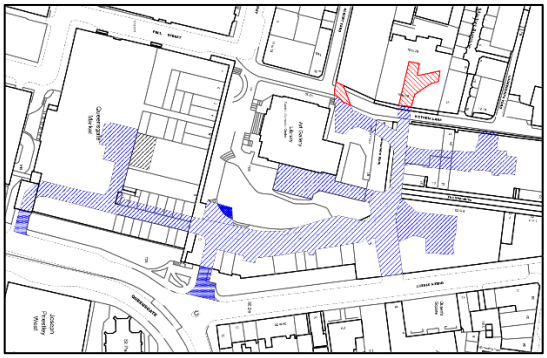

Figure 6 Approximate extents of service tunnels

3.2 Ground Conditions

Due to its town centre location, the site has a long history of development, with the majority of the site developed by the earliest available mapping in 1854. All potentially contaminative uses were relatively small scale and have not been present for several decades.

Ground surface across the site is variable. Where not occupied by buildings the ground surface is typically paved with a small proportion of soft landscaping. The southernmost part of the site is a vacant plot where a multi storey car park has been demolished.

Limited ground investigation data is available within the site boundary. A combination of historical borehole records and ground investigation data (southernmost site area only) indicate the following ground conditions:

- Made ground comprising demolition rubble and general fill, up to 3m thickness
- Head deposits comprising typically clay in the west and more variable sands and clays in the east, up to 7m thickness to the east of the site;
- Lower Coal Measures comprising sandstone, mudstone and siltstone including the Soft Bed Coal at approximately 21m depth.
- No significant groundwater inflows are recorded in the available data.

Refer to the reports: *Aecom (2020) Kirklees Council Queensgate Quarter, Soundspace Phase 1 Geo-environmental Report, and Arup (2022) Kirklees Cultural Heart, Geotechnical and Geoenvironmental Technical Note (CDT430201-ARP-XX-XX-RP-CG-000001)* for further details.

3.3 Existing Drainage Infrastructure

The existing drainage infrastructure is shown in drawing CDT430201-ARP-XX-XX-DR-C-00001 in Appendix A. Yorkshire Water (YW) Record Drawing (Appendix B, Figure 7) indicates the following public infrastructure within the site:

- Between the former multi-story car park (MSCP) and Queensgate market, a 375mm diameter combined sewer drains from Princess Street to Queensgate.
- Between Queensgate Market and the existing Library, a 600mm diameter combined sewer drains from Ramsden Street to Queensgate. This sewer runs under the
- 450mm diameter combined sewer from Victoria Lane and Queen Street.

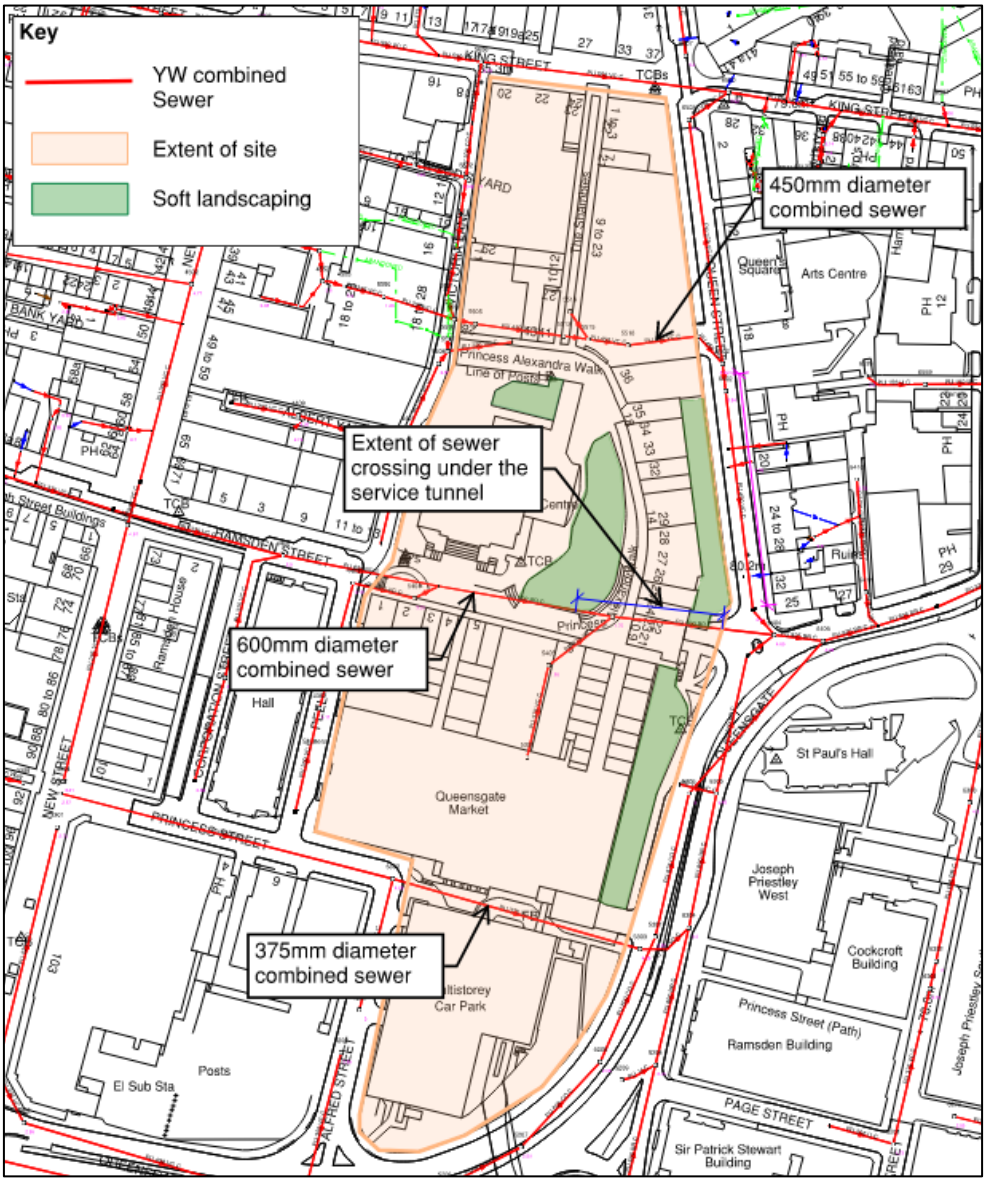

Figure 7 Extract from Yorkshire Water Record Drawing, Appendix B

The assumed impermeable and permeable areas have been estimated based on site observations and topographical surveys from the site. These areas are CDT430201-ARP-XX-XX-DR-C-00003 in Appendix A and Figure 8 (below).

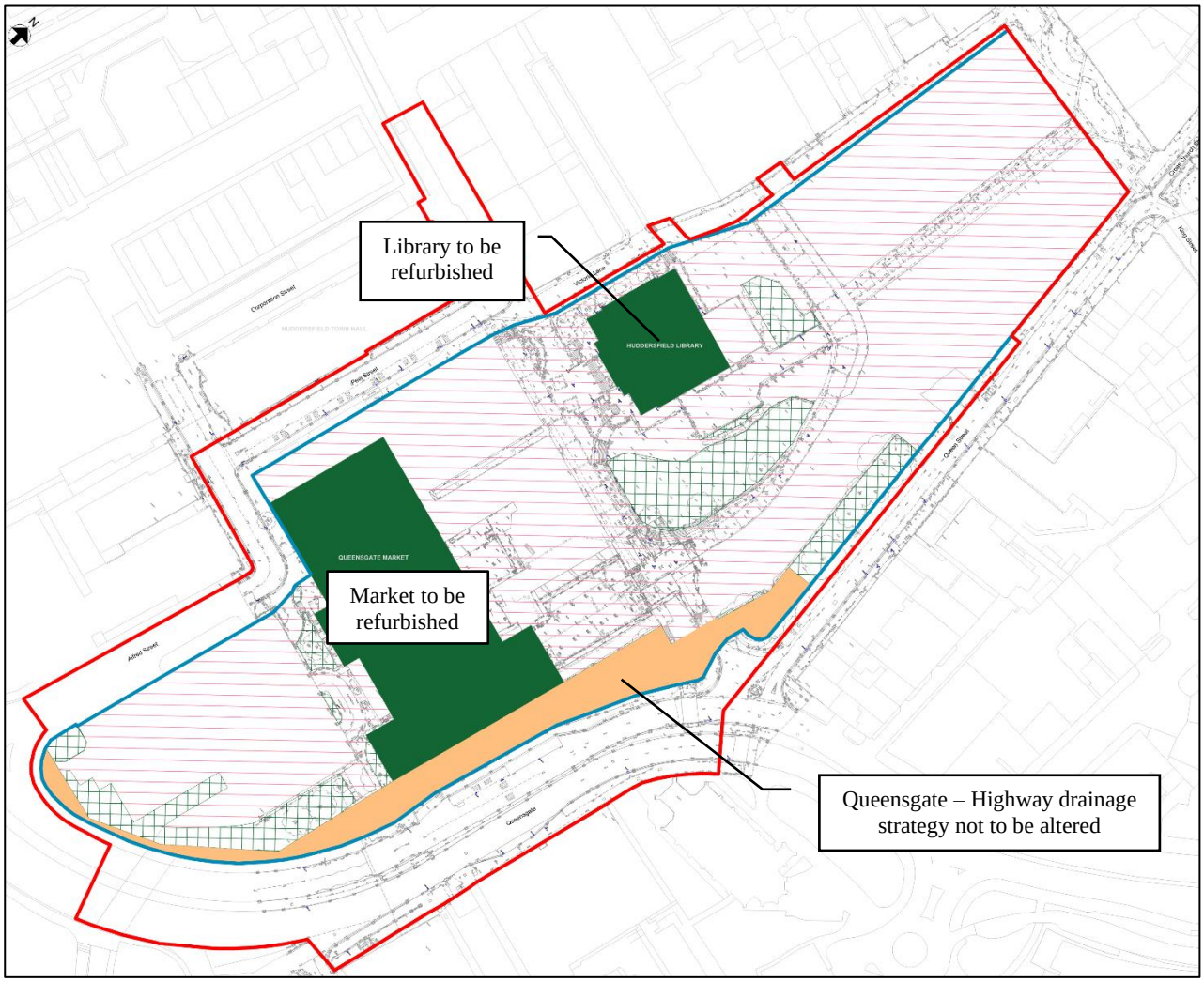

Figure 8 Existing Permeable and Impermeable Areas, Extract from CDT-430201-ARP-XX-XX-DR-C-00003 – Appendix A

The total impermeable areas at the site are summarised below in Table 1. Currently an estimated 91% of the site within the ownership boundary is impermeable, that includes areas of hardstanding and building roofs that are actively drained. It is understood that these areas drain to the YW sewers crossing the site. Based on the existing areas of hardstanding, the site currently discharges at 373 l/s overall.

Table 1: Existing Runoff Rates within site boundary

Type	Area within site boundary (ha)	Existing Brownfield Runoff Rate*
Permeable (soft landscaping)	0.2	n/a
Impermeable areas to be developed (hardstanding and roof areas)	2.0	278 l/s
Refurbished buildings (existing drainage strategy to be retained)	0.5	66 l/s
Public highways (existing drainage strategy to be retained)	0.2	29 l/s
Total	**2.9**	**373 l/s**

*The existing discharge rate is based on a brownfield runoff rate of 140 l/s/ha, as per the Leeds City Region Sustainable Drainage Systems Guidance (February 2020)

4. Proposed Development

The following list sets out the core elements of the scheme as it is presently understood:

- Retention and reuse of Listed Buildings within the site, principally the Market Hall and the Library and Art Gallery;
- Demolition of buildings within the site, including the parade of shops within the Piazza, elements of the Market Hall fronting onto Peel Street, the Shambles shopping arcade (including those fronting King Street/Queen Street) and the retail units fronting Princess Alexandra Walk. This demolition being necessary in order to facilitate the scope, scale and ambition of the project;
- The demolition, adaptation and retention of service tunnels, where appropriate;
- A new library, located within the Market Hall (along with some extension works), of 4,784sqm (Gross Internal Area);
- A new museum of 5,726sqm (Gross Internal Area), located within the existing Library and Art Gallery building, with an extension upon its northern elevation;
- A gallery space fronting onto Queen Street, of 2,993sqm (Gross Internal Area);
- A new venue space upon the site of the former multi story car park, accommodating around 2,200 people at 7,705sqm (Gross Internal Area);
- A new multi storey car park below the new venue, providing 350 car parking spaces and 6 motorcycle spaces. Of these car parking spaces 70 are EVCP, 35 offer disabled parking and 8 of the disabled parking spaces have ECVP, meaning the remaining 62 are distributed elsewhere;
- A new food hall, located within the Market Hall, of 2,379sqm (Gross Internal Area);
- Public realm, including an outdoor event space for around 3,000 people, linking the above-mentioned components of the scheme, including a new frontage to Queen Street (in lieu of the demolished buildings) and into the northern section of the site and leading up to King Street;
- Linked to the above, a scheme of hard and soft landscaping measures across the site, including the retention of existing features;

5. Consultation with Stakeholders

5.1 Environment Agency (EA)

Arup placed a formal enquiry with the EA and requested any available Product 4 flood data in preparation of this FRA. The EA confirmed, the site is not within 150m of an area at risk to fluvial flooding, therefore they do not hold any modelling data for the site.

A record of correspondence is included in Appendix C.

5.2 Kirklees Council (KC)

Arup liaised with the Kirklees Council Flood Risk and Drainage Management team in preparation of this FRA, including digital meetings on 19/05/22 and 22/06/22. A record of correspondence is included in Appendix C, where the following points are highlighted:

- A 40% uplift to rainfall should be included in the drainage design to account for climate change.
- For new drainage infrastructure, the development must provide a 30% reduction in the existing run-off rates.
- However for the existing Library and Queensgate Market buildings that are to be retained and refurbished, no reduction in runoff rates is required. The proposed strategy can retain and reuse the existing drainage where possible, without additional attenuation/flow restrictions.
- The use of permeable paving and rain gardens in landscaped/public realm areas are acceptable.
- Existing runoff rates should be based on 140 l/s/ha.
- The overland flow paths through the site must be considered in the design to ensure mitigation is provided. This is to prevent any increase in flood risk as a result of the development.
- Kirklees Council do not have any records of flooding but noted the following two records of pluvial flooding near the site –
    - 2018 ‘minor’ flooding of a premise cellar on New St, north of High St.
    - 2019 ‘minor’ flooding of another premise cellar on New St, south of High St.

5.3 Yorkshire Water (YW)

A pre-planning sewerage enquiry was placed with Yorkshire Water in February 2022 and a digital meeting was held in March 2022. Copies of the correspondence is included in Appendix C. Through discussions Yorkshire Water provided the following:

- A statutory sewer map (Appendix B).
- Guidance on easements and minimum offsets to sewers crossing the site. Through discussions, it was confirmed that easements do not apply for sewers that are already located under buildings and service tunnels crossing the site.
- Confirm there are no records of hydraulic failure in the surrounding public sewer network at the site.
- Confirmation that based on the current masterplan, a build over agreement or sewer diversion (under Section 185 of the Water Industry Act) will be required for the 375mm diameter sewer located between Queensgate Market and the former MSCP. Discussions for diversion of this sewer are ongoing at the time of writing.
- For new drainage connections to the sewer, the development must ensure a 30% reduction in the existing runoff rates.

6. Proposed Surface Water Drainage

6.1 Design Basis

The following local design guidance and standards will apply for the development:

- West Yorkshire Combined Authority SuDS Guidance[1]
- Leeds City Region Sustainable Drainage Systems Guidance[2]
- The CIRIA SuDS Manual
- Building Regulations 2010, Part H – Drainage and waste disposal

6.1.1 Climate Change

In accordance with the Leeds City Region Sustainable Drainage Systems Guidance, the drainage design is to consider the impacts climate change on a 1% AEP (1 in 100 year) event.

Table 2 (below), shows the Environment Agency recommended upper and central climate change allowances for pluvial events for the Aire and Calder management area[3]. This states for a design considering climate, a range between 25% and 45%.

As per Kirklees council's requirements, the development's drainage design will include a 40% uplift for climate change. which is at the upper end of the recommended ranges provided by the EA.

Table 2: 1% annual exceedance rainfall event, Environment Agency

	Central allowance	Upper end allowance
2050s	25%	40%
2070s	30%	45%

6.2 Surface Water Drainage Discharge Strategy

Drawing CDT430201-ARP-XX-XX-DR-C-00002 in Appendix A indicates the proposed drainage strategy.

This has considered the following hierarchy of surface water disposal:

1. Discharging to ground through soakaways and infiltration systems;
2. Discharging to local watercourses;
3. Discharging to the public sewer network.

6.2.1 Use of soakaways and infiltration systems

As raised in Section 3.2, the use of soakaways is not deemed suitable for the site due to the following:

- Contamination – the Arup Geotechnical and Geoenvironmental Technical Note, indicates potential ground contamination at the site due to previous uses.
- Underground structures – the existing tunnels under the site will be retained to service the site. Increasing the water content of the ground adjacent to these tunnels could compromise their stability.

[1] Source: https://www.westyorks-ca.gov.uk/media/5397/lcr-suds-guidance-final-february-2020-1.pdf accessed 19/08/2022

[2] Source: https://www.kirklees.gov.uk/beta/flooding-and-drainage/pdf/sustainable-urban-drainage.pdf accessed 19/08/2022

[3] Source: https://environment.data.gov.uk/hydrology/climate-change-allowances/rainfall?mgmtcatid=3001 accessed 16/08/2022

- Building offsets – in accordance with Building Regulations Part H, infiltration systems are not permitted with 5m of buildings.

Therefore, infiltration is not included in the drainage proposals as means of surface water disposal.

6.2.2 Discharge to nearby watercourse

The nearest watercourse to the site is the Huddersfield Canal, which runs a similar route to the River Colne. The Huddersfield Canal is approximately 260m from the site boundary at the closest point. Because of the distance to the water course, it is not deemed a suitable point of discharge.

6.2.3 Discharging flows to Yorkshire Water network

Therefore in the absence of a suitable alternative, it is proposed that surface water from the site will discharge to the Yorkshire Water sewers crossing the site, as per the existing regime.

6.3 Sustainable Drainage Systems

A Sustainable Drainage Systems Audit has been undertaken to identify where SuDS methods could be incorporated into the drainage design. Through this review, the following opportunities to include SuDS in the design has been identified at this stage:

- Blue roofs – the potential to incorporate blue roofs and rainwater harvesting on the venue and gallery buildings have been identified and included in the current drainage design.
- Bioretention systems and Trees – the landscape design currently includes multiple locations of planting and trees that could offer surface SuDS collection features. The incorporation of rain gardens is included in the current drainage design. The rain gardens collect runoff from adjacent hardstanding, before discharging to the below ground drainage network. A granular medium is to be included under the rain gardens to reduce runoff rates and provide an opportunity to attenuate surface water during major storm events. Further opportunities for SuDS in the urban park areas will be assessed at the next design stage.
- Attenuation Tanks and oversized pipes – the below ground drainage networks includes oversized pipes and tanks, which provide surface water attenuation. This attenuation ensures the site runoff rates can be reduced, offering a betterment from the existing.
- Permeable paving – landscaped areas north of the site include permeable paving. This includes an oversized sub-base layer of Course Graded Aggregate (CGA) to offer surface water attenuation in exceedance events.

The drainage design is subject to further design development, however the intention is to continue to incorporate SuDS in the design where possible.

6.4 Discharge Rates for Areas of Refurbishment

The drainage strategy of the existing Library Building, Queensgate Market Building (Catchment 2B) and portions of highway on Queensgate (within the site boundary) are to be retained. These areas comprise 0.7 ha of the site, with a runoff rate of 95 l/s which is to remain unchanged as part of the development.

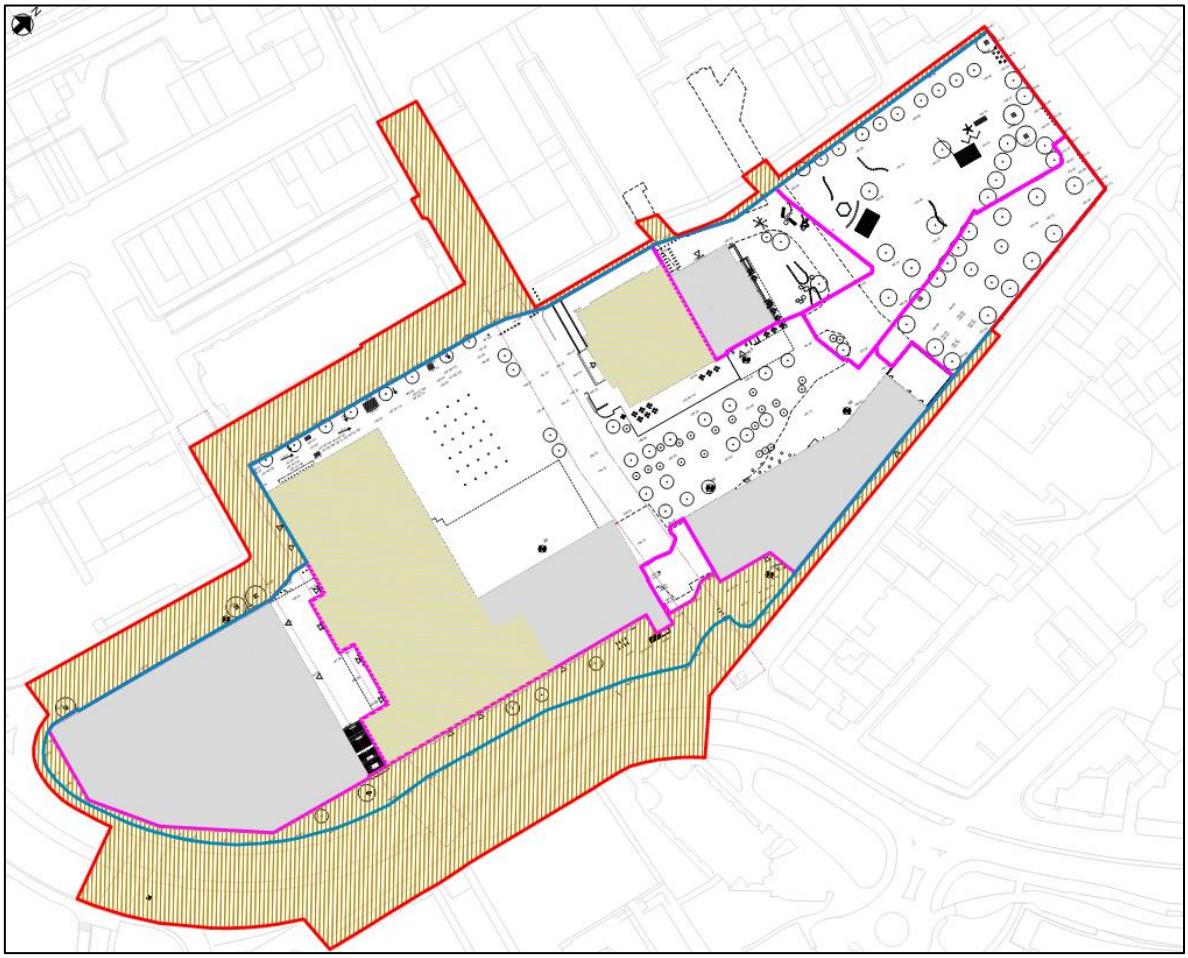

Figure 9 Existing drainage strategy to be retained in Catchments 2B (Yellow) and Highways (Orange), Extract from CDT430201-ARP-XX-XX-DR-C-00004 – Appendix A

6.5 Discharge Rates for Areas of Redevelopment

The proposed permeable and impermeable areas are shown in the drawing CDT430201-ARP-XX-XX-DR-C-00004 in Appendix A and are based on the current masterplan. For 2.2 ha of the site, a new drainage strategy is to be developed to provide a 30% reduction from existing runoff rates (Figure 10). As described in Table 1, the existing runoff rate from these areas is 278 l/s.

Therefore, the proposed restricted discharge for areas of redevelopment is to be restricted to 195 l/s.

The discharge location of existing catchments will be maintained as far as reasonable to minimise change of volumes discharging to any of the surrounding Yorkshire Water sewers.

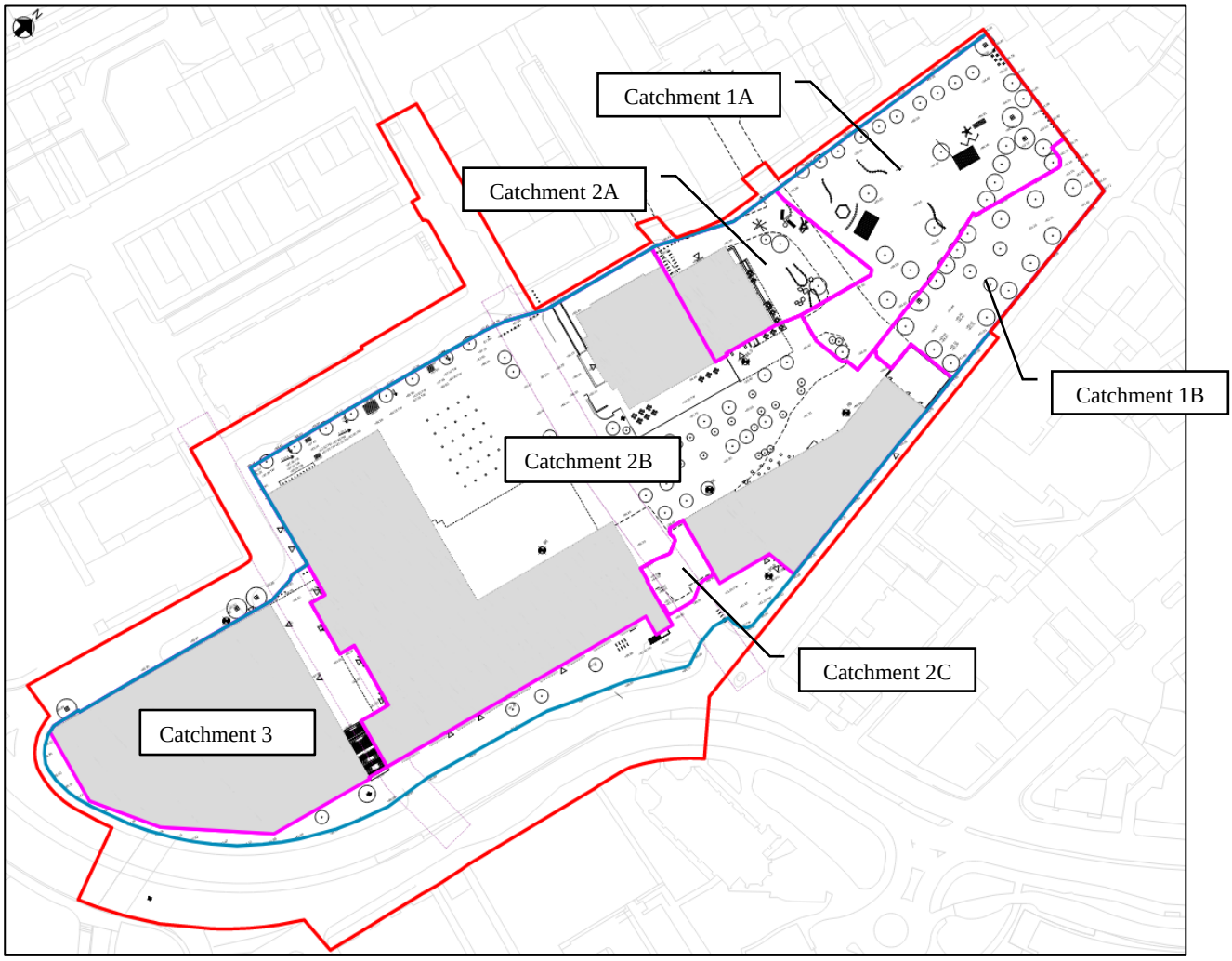

Figure 10 Proposed Drainage Catchments

6.6 Surface Water Exceedance

In extreme events, the surface water discharge will be greater than the restricted capacity for outflow and storage capacity. Therefore, the impact of exceedance events has been considered, with the surface water drainage system designed to avoid an increase in flood risk.

Building thresholds should be set above the public open space and highway. The site levels should be designed to direct surface water away from building thresholds and toward the adjacent runoff areas for removal by collection features.

Drainage infrastructure will be designed to capture flooding on site up to an including the 1 in 100-year event, including a 40% uplift for climate change. However, due to the overall topography of the area, it is unlikely to be possible to capture all rainfall in this event at the northern end of the site where some will spill onto King Street / Queen Street. In these areas we will include as extensive water collection features as feasible for these public realm areas to minimise offsite flows.

7. Proposed Foul Drainage

The proposed development will generate foul flows during operation. An indicative layout of the proposed foul network and outfall location is provided on Drawing CDT430201-ARP-XX-XX-DR-C-000002 of Appendix A.

The strategy is to provided separate foul drainage networks for each building, before outfalling to Yorkshire Water sewers crossing the site.

Appendix A

Drawings

- CDT430201-ARP-XX-XX-DR-C-00001 Existing Site Drainage
- CDT430201-ARP-XX-XX-DR-C-00002 Proposed Drainage General Arrangement
- CDT430201-ARP-XX-XX-DR-C-00003 Existing Drainage Catchment Areas and Permeability
- CDT430201-ARP-XX-XX-DR-C-00004 Proposed drainage Catchment areas and Permeability

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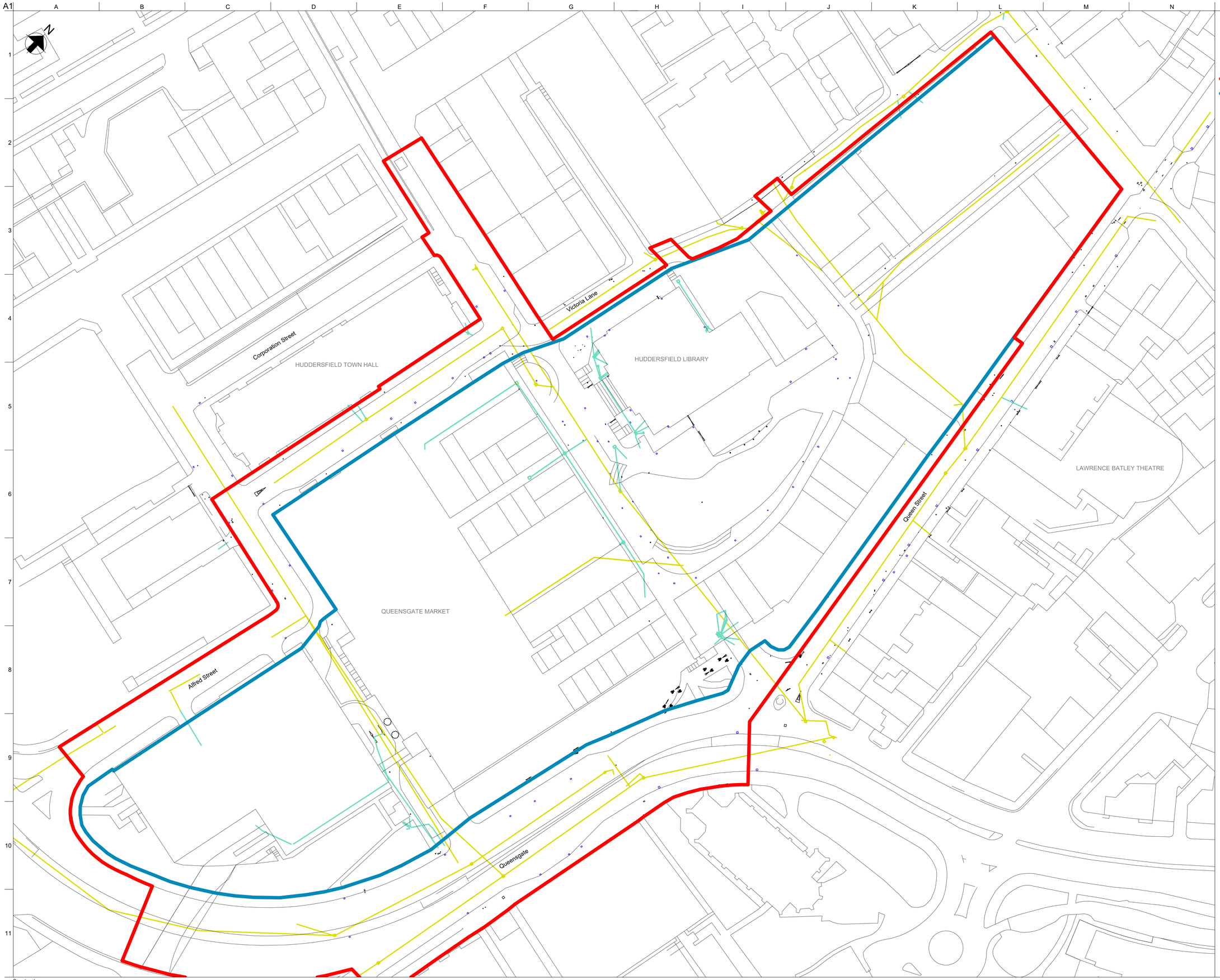

Notes:

1. Location of Yorkshire Water sewers are based on 2022 Statutory Plans shown only in the vicinity of the site.

Key:

- Red Line Boundary
- Site Boundary
- Existing Yorkshire Water Combined Drainage Network
- Existing Private Drainage Network
- Existing Gully

Rev	Date	By	Chkd	Appd
P02	23 /09/22	PM	ID	AJ
	For Planning			
P01	09 /09/22	SM	ID	AJ
	First Issue			

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Client
Kirklees Council

Project Title
Kirklees Cultural Heart

Drawing Title
Existing Site Drainage

Scale at A1 1:500

Role Civil

Suitability S0 - For Information

Arup Job No **284642**

Rev **P02**

Name **CDT430201-ARP-XX-XX-DR-C-000001**

Do not scale

A1

Notes:

1. Building drainage connection points shown indicatively and subject to further design development.
2. Separate foul and surface water drainage networks are to be provided.
3. Internal building sub-slab drainage will be developed in detailed design to connect to external drainage networks as shown.
4. Cover levels, invert levels and sizes of drainage infrastructure is subject to change through detailed design.
5. Drainage calculations include a 40% uplift for climate change.
6. Refer to drawing CDT430201-ARP-XX-XX-DR-C-00004 for the proposed drainage catchments and basis of the proposed flow restrictions.
4. Refer to the Flood Risk Assessment (CDT430201-ARP-XX-XX-RP-C-001002) and the Drainage Statement (CDT430201-ARUP-XX-XX-RP-C-001003) for further details.

Key:

- Existing YW combined Network
- YW sewer to be diverted
- Proposed Surface Water Network
- Proposed Foul Water Network
- Red Line Boundary
- Site Boundary
- Rain gardens
- Permeable paving
- Area of existing highway drainage with localised drainage features altered
- Service Tunnel

Rev	Date	By	Chkd	Appd
P02	23 /09/22	PM	ID	AJ
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P01	02 /09/22	SM/PM	ID	AJ
	First Issue			

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Client
Kirklees Council

Project Title
Kirklees Cultural Heart

Drawing Title
Proposed Drainage Strategy
General Arrangement

Scale at A1 1:500

Role Civil

Suitability S2 - For Information

Arup Job No **284642**

Rev **P02**

Name **CDT430201-ARP-XX-XX-DR-C-000002**

Do not scale

A1

Notes:

1. The Red Line Boundary is based on FCBS drawing CDT430201-FCB-XX-XX-DR-A-02-SK0184 P01.
2. Topographical information shown is from Survey & Engineering Projects drawing S20124-U (dated January 2020).

Key:

- Red Line Boundary
- Site Boundary
- Existing Topographical / Ordnance Survey Information
- Permeable (Soft Landscaping)
- Impermeable areas to be developed (hardstanding and roof areas)
- Refurbished buildings (existing drainage strategy to be retained)
- Public highways (existing drainage strategy to be retained)

Type	Area within site boundary (ha)
Permeable (Soft Landscaping)	0.2
Impermeable areas to be developed (hardstanding and roof areas)	2.0
Refurbished buildings (existing drainage strategy to be retained)	0.5
Public highways (existing drainage strategy to be retained)	0.2
Total	2.9

Rev	Date	By	Chkd	Appd
P02	23 /09/22	SM	ID	AJ
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P01	09 /09/22	SM	ID	AJ
	First Issue			

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Client
Kirklees Council

Project Title
Kirklees Cultural Heart

Drawing Title
Existing Drainage Catchment Areas and Permeability

Scale at A1 1:500

Role Civil

Suitability S0 - For Information

Arup Job No **284642**

Rev **P02**

Name **CDT430201-ARP-XX-XX-DR-C-000003**

Do not scale

Notes:

1. The Red Line Boundary is based on FCBS drawing A_2069_FCB-SK_0028_2_Red_Line _Boundary.
2. Topographical information shown is from Survey & Engineering Projects drawing S20124-U (dated January 2020).
3. Drainage attenuation will be provided to achieve the proposed flow restriction from the site up to a 1 in 100 year storm event, including a 40% uplift for climate change.
4. Refer to the Flood Risk Assessment (CDT430201-ARP-XX-XX-RP-C-001002) and the Drainage Statement (CDT430201-ARUP-XX-XX-RP-C-001003) for further details.
5. Refer to the Proposed Drainage General Arrangement (CDT430201-ARP-XX-XX-DR-C-00002).

Key:

- Red Line Planning Boundary
- Site Boundary
- Existing Topographical / Ordnance Survey Information
- Proposed Permeable Area (Planting)
- SuDS features (Permeable paving and Rain Gardens)
- Proposed Impermeable Area (Building)
- Proposed Impermeable Area (Hardstanding)
- Proposed Drainage Catchments
- Indicative Outfall Locations
- Service Tunnel
- Public Highway (existing drainage strategy to be retained)
- Building with blue roof
- Building with roof structure retained or refurbished
- New building roof structure

Table 1: Proposed Site Discharge Rates

	Existing area within site boundary (ha)	Existing Brownfield Runoff Rate (l/s)	Proposed flow (l/s)	Basis of design
Permeable (soft lanscaping)	0.2	n/a	n/a	No existing discharge
Impermeable areas to be developed (hardstanding and roof areas)	2.0	278	194.5	30% reduction
Refurbished buildings (existing drainage strategy to be retained)	0.5	66	66.0	Existing strategy retained
Public highways (existing drainage strategy to be retained)	0.2	29	29.2	Existing strategy retained
Total	**2.9**	**373.1**	**289.7**	

Table 2: Catchments and proposed flows

Catchment	total proposed runoff (l/s)
1A	31.9
1B	14.7
2A	14.3
2B	157.3
2C	2.6
3	39.7
Highways, within site boundary	29.2
Total	**289.7**

Rev	Date	By	Chkd	Appd
P02	23 /09/22	PM	ID	AJ
	Issued for Planning			
P01	09 /09/22	SM	ID	AJ
	First Issue			

ARUP

Admiral House, Rose Wharf
78 East Street, Leeds, LS9 8EE
Tel +44 (0)113 242 8498 Fax +44 (0)113 2428573
www.arup.com

Client
Kirklees Council

Project Title
Kirklees Cultural Heart

Drawing Title
Proposed drainage Catchments and Permeability

Scale at A1 1:500

Role Civil

Suitability S0 - For Planning

Arup Job No **284642**

Rev **P02**

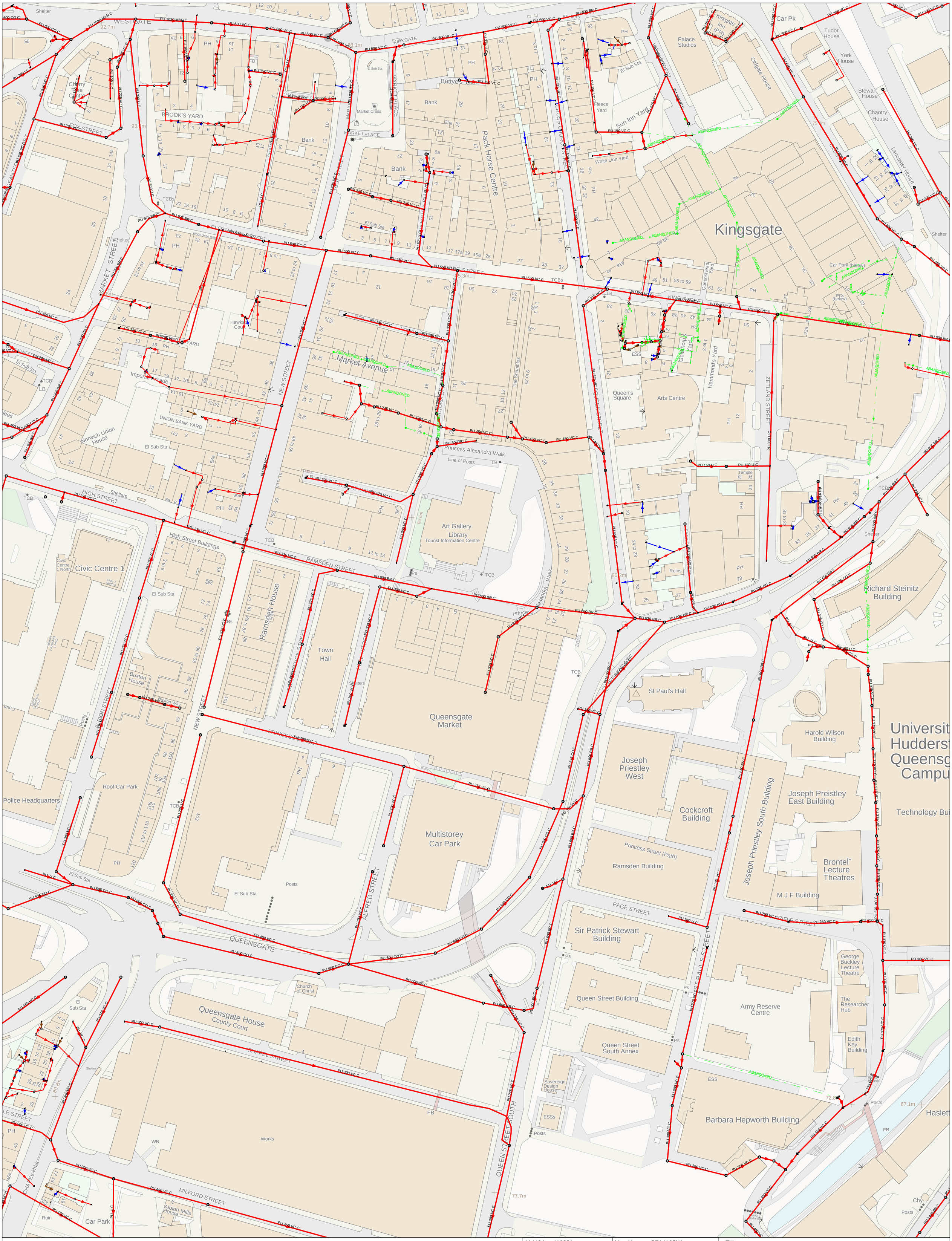
Name **CDT430201-ARP-XX-XX-DR-C-000004**

Do not scale

Appendix B

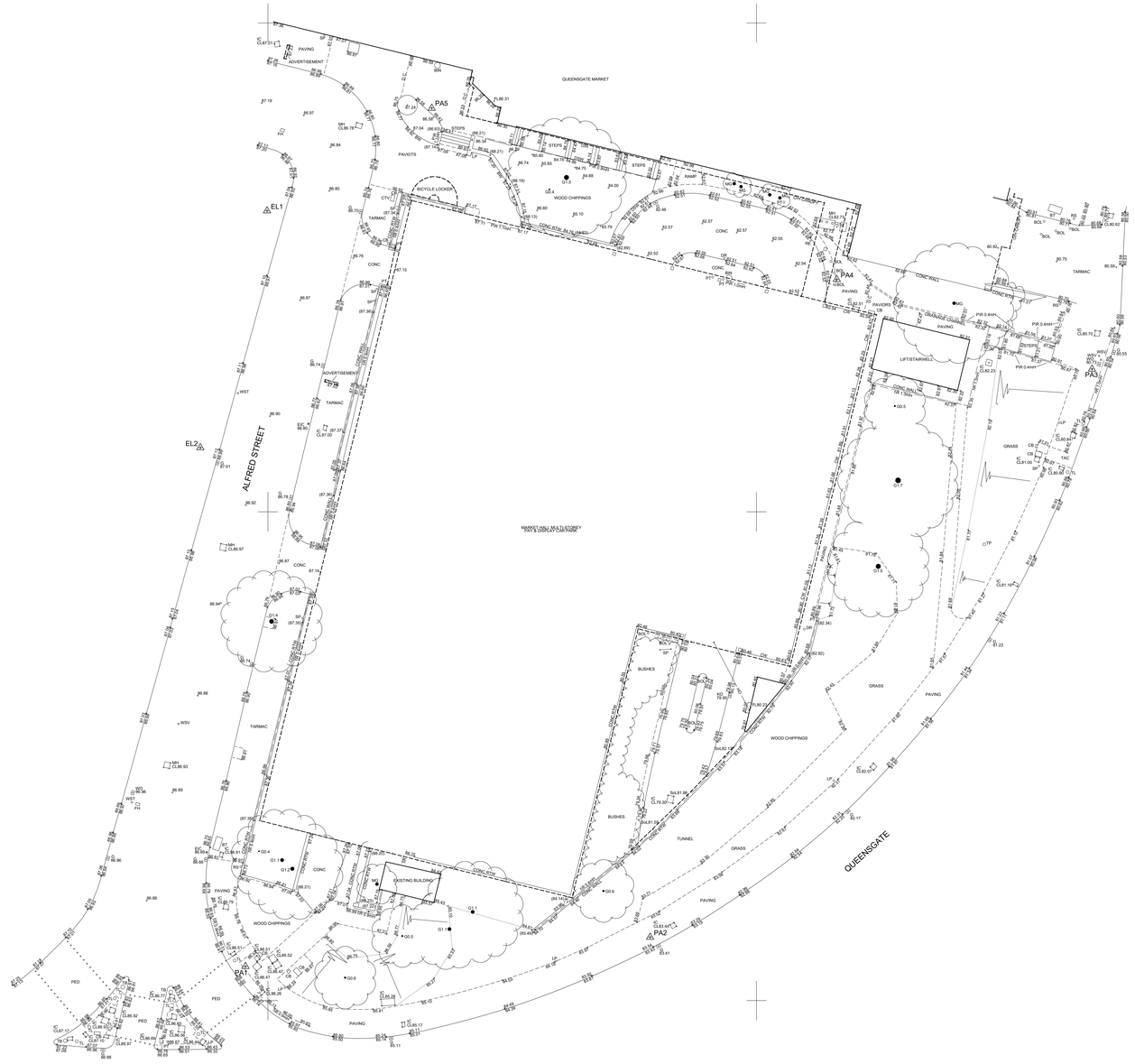
Record Information

- Yorkshire Water Record Drawing
- 2019 Survey Operations Topographical Survey of Land at Market Hall Muti-Storey Car Park (19J037, 19J138)
- 2020 Survey & Engineering Projects Utility Survey (S20124-U)



414404 : 416231	Map Name : SE1416SW	Title
YorkshireWater Yorkshire Water, PO Box 500, Halifax Road, Bradford BD6 2LZ Contact Name : Thomas Garside Contact Tel :		Notes
		Partial Key Water mains up to 4" in diameter Water mains over 4" in diameter Raw water mains Private water mains
		The position and depths of apparatus shown on this plan are approximate only. The exact positions and depths should be obtained by excavation trial holes.
		Scale : 1:1250
		Drg No :
		Maris No :
		Date Req : 27/01/2022, 09:52:14
		Date Gen : 27/01/2022, 09:52:27
		Source : Water Network Enquiry

UPN: Undefined Originator: Thomas Garside, SafeMove,



N

Note:

The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the
OS National GPS Network.

Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

Levels in parenthesis indicate top of wall.

SURVEY STATIONS

Name	Easting	Northing	Height
EL1	414459.91	416330.79	87.17
EL2	414463.08	416536.56	87.22
PA1	414497.70	416253.49	86.44
PA2	414539.11	416256.48	83.56
PA3	414584.34	416314.60	80.74
PA4	414558.21	416323.77	82.67
PA5	414516.77	416341.28	86.48

STANDARD REFERENCE & ABBREVIATIONS

(AS).....Assumed Route
AB.....Air Brick
AV.....Air Valve
B/W.....Barbed Wire
BAR.....Barrier
BB.....Bellobe Beacon
BH.....Borehole
BL.....Bed Level
BOL.....Bollard
BS.....Bus Stop
BT Box.....British Telecom Box
BT.....British Telecom (C
BRTW.....Brick Retaining Wall
BW.....Brick Wall
C/B.....Close Boarded
C/I.....Corrugated Iron
C/P.....Chestnut Paling
CB.....Control Box
CBW.....Concrete Block Wall
CCTV.....Closed Circuit TV
CD.....Cable Duct
CEL.....Cellar Light
CHL.....Chain Link
CHY.....Chimney
CL.....Cover Level
CM.....Cable Marker
COL.....Column
CONC.....Concrete
CP.....Catch Pit
CRTW.....Concrete Retaining Wall
CTV.....Cable Television
CUL.....Culvert
CW.....Concrete Block Wall
DC.....Drainage Channel
DPC.....Damp Proof Course
DR.....Drain
DRW.....Dry Stone Wall
ECT.....Electricity Cable Pit
EIC.....Electricity Inspection Cover
EJ.....Expansion Joint
EJB.....Electricity Junction Box
EL SUB STN..Electricity Sub Station
EL.....Eaves Level
ELB.....Electricity Box
EP.....Electricity Pole
ER.....Earth Rod
ETL.....Electricity Transmission Line
FB.....Flower Bed
FH.....Fire Hydrant
FL.....Floor Level
FP.....Flagpole
G^.^.....Girth (of tree)
H.....Holly
GAB.....Gabion
GIP.....Gas Inlet Pipe
GM.....Gas Marker
GBT.....Gas Stop Tap (Domestic)
GBV.....Gas Stop Valve (Mains)
HSE.....Housing
HT.....Height
HV.....High Voltage
I/R.....Iron Railing
IC.....Inspection Cover
IL).....Invert Level
IP.....Inlet Pipe
K).....Kerb Outlet
LB.....Letter Box
LP.....Lamp Post
MS.....Multi-Girth
MH.....Manhole
MRK.....Marker
MP.....Mooring Point
NP.....Street Name Plate
O/H.....Overhead
O/P.....Open Paling
OE.....Overhead Electric Wire
OP.....Outfall Pipe
OSBM.....Ordnance Survey Bench Mark
OT.....Overhead Telecom Wire
P/C.....Post & Chain
P/R.....Post & Rail
P/W.....Post & Wire
PAV.....Paving
PB.....Pillar Box
PC.....Pedestrian Crossing
PF.....Petrol Pump
PT.....Post or Pillar
R).....Road Sign
RTW.....Retaining Wall
RWP.....Rain Water Pipe
SHP.....Shaling
S).....Sump Level
SOL.....Soffit Level
SP.....Sign Post
SPL.....Springing Level
SRTW.....Stone Retaining Wall
SV.....Stop Valve (unspecified)
SVP.....Soil Vent Pipe
SW.....Stone Wall
TAC.....Tactile Paving
TB.....Traffic Bollard
TBM.....Temporary Bench Mark
TCB.....Telephone Call Box
TPB.....Taken From Records
TIE.....Anchor Point (Boats/Poles)
TL.....Traffic Light
TLB.....Traffic Light Control Box
TM.....Ticket Machine
TWC.....Tarmac
TP.....Telecommunications Pole
TPIT.....Trial Pit
TS.....Trash Screen
U/C).....Under Construction
U/G.....Underground
UTL).....Unable to Lift (BM,IC etc)
UTS).....Unable to Survey
VDP.....Vehicle Detector Pad
VP.....Vent Pipe
W/B.....Wire Mesh
WL.....Water Level
WM.....Water Meter
WO.....Wash Out
WP.....Waste Pipe
WBT.....Water Stop Tap (domestic)
WSV.....Water Stop Valve (mains)

Survey Operations

Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

Client
Kirklees Metropolitan Council

Drawing Title
Topographical Survey of Land at:
Market Hall Multi-Storey Car Park
Huddersfield

Scale(s)	1:200	Surveyor	PA
Date	Oct 19	Drawn	NR
Job Number	19J037	Checked	MG

Sheet Size & Drg Number & Revision
A0 19J037/001

SW	STORM WATER SEWERS
FW	FOUL WATER SEWERS
WM	WATER MAIN
GM	GAS MAIN
EL	ELECTRIC CABLES
DUCT	CABLE DUCTING
BT	BT (UNDERGROUND)
	CABLE TV
CCTV	CLOSED CIRCUIT TV
UI	UNIDENTIFIED FEATURE
UP	UNIDENTIFIED PIPE
UC	UNIDENTIFIED CABLE
UNPR	UNPROVEN FEATURE
SW	END OF TRACE
FW C	LATERAL CONNECTIONS
	EXTENT OF SURVEY BY SURVEY OPERATIONS LTD.
	EXTENT OF SURVEY BY SURVEY OPERATIONS LTD. (SURVEYED **** ****)
FW SW	CONNECTIVITY BETWEEN CHAMBERS FROM CCTV REPORT
☐	COVER POSITION FROM CCTV REPORT - NOT SURVEYED ON TOPOGRAPHICAL SURVEY.
0.6d	APPROXIMATE DEPTH OF BURIED SERVICE

UNIDENTIFIED - A buried feature or utility that has been located, but we are unable to state what it is.

UNPROVEN - The assumed location of a reported feature or utility, usually taken from records, but not found during the utility trace (due to various conditions).

CAUTION - Electric pot ended cables, even when they are live, are unable to be detected or traced.

UNDERGROUND UTILITIES SERVICES DISCLAIMER

We have endeavoured to locate existing services using records provided by Statutory Authorities as a guide. Some apparatus were untraceable and details have therefore been taken from Utility Record Drawings, which may be of poor quality. Consequently we cannot guarantee accuracy of information taken from such records.

Where indicated, no allowance has been made for sub-surface entry into manholes, other chambers or confined spaces below ground level. Therefore any details relating to depths, sizes etc, are taken from the surface and as such will be approximate.

We have endeavoured to supply you with the most accurate data possible by using methods and equipment that are at the forefront of our industry. We have taken great care in the detection of pipework and buried features, but as with all methods of detecting underground or buried utilities the information provided is based on results obtained from electromagnetic techniques, and as such may be liable to distortion or errors beyond the reasonable control of the operator or his instruments.

It is the responsibility of the user under Health & Safety (HSG47) Guidelines to satisfy himself of the suspected location of any services prior to excavation of the services shown.

NOTE 1

This utility survey has been undertaken using:
A: Radiodetection RD4000 + RD4000 TIO
B: Mala Geoscience Ground Probing Radar

NOTE 2

Power carrying features shown on this drawing are shown as an individual service line. This does not necessarily represent the number of cables actually present and it is possible that there could be multi numbers of cables including HV, LV and communications transmission cables following the same trace line. These could be at different depths, the trace signal from the deeper cables being masked by signal emitted from the shallower service above. Cable runs could also be present running parallel to the single line shown.

N

Note:
The survey is plotted on a plane local Grid. Orientation to National Grid.
All levels relate to Ordnance Datum, achieved using the OS National GPS Network.

Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

Drainage information must be verified with local authority records before use

Survey Operations Dwg 19J138 added to Survey Operations Dwg 19J037.

SURVEY STATIONS

Name	Easting	Northing	Height
EL1	414499.91	416330.79	87.17
EL2	414493.08	416306.56	87.22
PA1	414497.70	416253.49	86.44
PA2	414539.11	416256.48	83.56
PA3	414584.34	416314.60	80.74
PA4	414558.22	416323.77	82.67
PA5	414516.77	416341.28	86.48

STANDARD REFERENCE & ABBREVIATIONS

(AR)........Assumed Route
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B/W........Barbed Wire
BAR........Barrier
BB.........Belisha Beacon
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BL.........Bed Level
BOL........Bollard
BS.........Bus Stop
BT Box.....British Telecom Box
BT.........British Telecom IC
BRTW.......Brick Retaining Wall
BW.........Brick Wall
C/B........Close Boarded
C/I........Corrugated Iron
C/P........Chestnut Paling
CB.........Control Box
CBW........Concrete Block Wall
CCTV.......Closed Circuit TV
CD.........Cable Duct
CEL........Cellar Light
CH/L.......Chain Link
CHY........Chimney
CL.........Cover Level
CM.........Cable Marker
COL........Column
CONC.......Concrete
CP.........Catch Pit
CRTW.......Concrete Retaining Wall
CTV........Cable Television
CUL........Culvert
CW.........Concrete Block Wall
DC.........Drainage Channel
DPC........Damp Proof Course
DR.........Drain
DSW........Dry Stone Wall
ECP........Electricity Cable Pit
EIC........Electricity Inspection Cover
EJ.........Expansion Joint
EJB........Electricity Junction Box
EL SUB STN..Electricity Sub Station
EL.........Eaves Level
ELB........Electricity Box
EP.........Electricity Pole
ER.........Earth Rod
ETL........Electricity Transmission Line
FB.........Flower Bed
FH.........Fire Hydrant
FL.........Floor Level
FP.........Flagpole
G*.*.......Girth (of tree)
G..........Gulley
GAB........Gabion
GIP........Gas Inlet Pipe
GMKR.......Gas Marker
GST........Gas Stop Tap (Domestic)
GSV........Gas Stop Valve (Mains)
HSE........Housing
Ht.........Height
HV.........High Voltage
I/R........Iron Railing
IC.........Inspection Cover
IL.........Invert Level
IP.........Inlet Pipe
KO.........Kerb Outlet
LB.........Letter Box
LP.........Lamp Post
MG.........Multi-Girth
MH.........Manhole
MKR........Marker
MP.........Mooring Point
NP.........Street Name Plate
O/H........Overhead
O/P........Open Paling
OE.........Overhead Electric Wire
OP.........Outfall Pipe
OSBM.......Ordnance Survey Bench Mark
OT.........Overhead Telecom Wire
P/C........Post & Chain
P/R........Post & Rail
P/W........Post & Wire
PAV........Paving
PB.........Pillar Box
PC.........Pedestrian Crossing
PP.........Petrol Pump
PT.........Post or Pillar
RE.........Rodding Eye
RS.........Road Sign
RTW........Retaining Wall
RWP........Rain Water Pipe
SAP........Sapling
SL.........Sump Level
SoL........Soffit Level
SP.........Sign Post
SPL........Springing Level
SRTW.......Stone Retaining Wall
SV.........Stop Valve (unspecified)
SVP........Soil Vent Pipe
SW.........Stone Wall
TAC........Tactile Paving
TB.........Traffic Bollard
TBM........Temporary Bench Mark
TCB........Telephone Call Box
TFR........Taken From Records
TIE........Anchor Point (Masts/Poles)
TL.........Traffic Light
TLB........Traffic Light Control Box
TM.........Ticket Machine
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TP.........Telecommunications Pole
TPIT.......Trial Pit
TS.........Trash Screen
U/C........Under Construction
U/G........Underground
UTL........Unable to Lift (MH,IC etc)
UTS........Unable to Survey
VDP........Vehicle Detector Pad
VP.........Vent Pipe
W/M........Wire Mesh
WL.........Water Level
WM.........Water Meter
WO.........Wash Out
WP.........Waste Pipe
WST........Water Stop Tap (domestic)
WSV........Water Stop Valve (mains)

Survey Operations
Smith Street, Skelmersdale, Lancs. WN8 8LN
Tel: 01695 725662 Fax: 01695 51816
Email: mail@survops.co.uk – www.survops.co.uk

Client
Kirklees Metropolitan Council

Drawing Title
Utility Survey of Land at:
Market Hall Multi-Storey Car Park
Huddersfield

Scale(s)	1:200	Surveyor	AR
Date	Oct 19	Drawn	MP
Job Number	19J138	Checked	SO

Sheet Size & Drg Number & Revision
A0 19J138/001

T. (01495) 729555 F. (01495) 720044 W. www.sepsurvey.com E. info@sepsurvey.com

N

PLAN GRID NORTH

File Name: S20124-USP02.dwg

LEGEND

AB	AIR VALVE	BT	BT
BT	BT INSPECTION COVER	BT STAT RECORD	BT-A
CB	CONTROL BOX	CABLE DUCT	DUCT-A
CBP	CATHODIC PROT. POST	CABLE DUCT STAT RECORD	DUCT-A
COM	COMMUNICATIONS COVER	CABLE TV	CA-A
CTV	CABLE TV COVER	CABLE TV STAT RECORD	CA-A
DC	DRAINAGE CHANNEL	COAL	CO-A
DP	DOWN PIPE	COAL STAT RECORD	CO-A
EH	ELEC. HEATER	ELECTRIC	EL-A
EM	ELEC. INSPECTION COVER	TELECOMS STAT RECORD	TC-U
EP	ELECTRIC POST	EARTH ROD STRIP	EA-A
ER	EARTH ROD	ELECTRIC STAT RECORD (OLDHAM)	EL-A
EP	ELECTRICITY POLE	ELECTRIC	EL-A
FG	FINISHED FLOOR LEVEL	ELECTRIC STAT RECORD	EL-A
FH	FIRE HYDRANT	FIBRE OPTICS	FO-A
G	GULLY	FIBRE OPTIC STAT RECORD	FO-A
GL	GROUND LIGHT	FUEL LINE	FL-A
GST	GAS TAP	FUEL LINE STAT RECORD	FL-A
GSV	GAS VALVE	GPR STRUCTURE LINE	GM-U
IC	INSPECTION COVER	GAS	GM-U
IL	INVERT LEVEL	GAS STAT RECORD	GM-U
KP	KERB OUTLET	MAINS WATER	WA-A
MH	MANHOLE	WATER STAT RECORD	WA-A
MW	MINIATU	SEWER CW	CW-A
OC	OPTIC C	SEWER CW STAT RECORD	CW-A
OP	OUTFALL PIPE	SEWER FW	FW-A
PC	PEDESTAL	SEWER FW STAT RECORD	FW-A
PP	PETROL PUMP	SEWER SW	SW-A
RE	RODDING EYE	SEWER SW STAT RECORD	SW-U
SGP	SERVICE GAS PIPE	TRAFFIC SIGNAL CABLE	TC-U
SOF	SOFFIT LEVEL	TRAFFIC SIGNAL CABLE	TC-U
SV	STOP VALVE	UNIDENTIFIED TRACE	UT-A
TCB	TELEPHONE CALL BOX	UNIDENTIFIED DUCT	UD-A
TL	TRAFFIC LIGHT	UNIDENTIFIED PIPE	UP-A
TLB	TRAFFIC LIGHT BOX	VEHICLE DETECTOR CABLE	TC-U
TP	TELEGRAPH POLE	WATER FEATURE	WA-A
WM	WATER METER	SURVEY BOUNDARY	
WO	WATER OUTLET	OUTSIDE SURVEY AREA	
WST	WATER STOP TAP		
WSV	WATER STOP VALVE		
EOT	END OF TRACE		
OSA	OUTSIDE SURVEY AREA		
UTL	UNABLE TO LIFT		
UTS	UNABLE TO SONDE		
VOT	VOID OR END TRACE		
S/L	SIGNAL LOSS		
BLK	BLOCKED		
NC	NO OTHER GPR CONTACTS		
BC	BACKDROP PIPE		
TOP	TOP OF PIPE		
TOT	TOP OF TANK		
■	STD CHAMBER		
■	FITTING FROM RECORDS		

ENCLOSED PIPE

Indicates no or uncertain width of coverage

QUALITY LEVEL

A – Verification

B1 – Horizontal/Vertical location using multiple techniques

B2 – Horizontal/Vertical location using a single technique

B3 – Horizontal location using a single technique

B4 – Assumed route

C – Site Reconnaissance

D – Desktop utility records search

All levels relate to O.S (Newlyn) Datum, Established using network RTK. Survey plotted on a plane local grid, orientated to National Grid.

This Underground Utilities survey was conducted in compliance with the BSI PAS128:2014 standards.
Services linetypes display text indicating first an abbreviation of the services' type, followed by its Horizontal (H) & Vertical (V) Quality Level to which that service was located (eg. B4 = Assumed route).

Quality Level descriptions shown in the above legend are for reference purposes only and are not intended as detailed descriptions.
For more detailed Quality Levels, please consult the
BSI PAS 128:2014 standards document.

Lines annotated as GPR indicate a series of consistent subsurface anomalies located using the Ground Penetrating Radar and should be considered as Quality Level C. The nature of these anomalies could not be determine by non-invasive means. GPR lines that were identifiable as a service are shown as their respective service.

DISCLAIMER:

At SEP we use skilled and experienced staff, modern up to date techniques and top of the range electromagnetic and radar technology to locate and trace sub-surface utilities. However the performance of the equipment employed in non-invasive surveys can be adversely affected by factors outside the control of SEP, therefore SEP cannot guarantee that all utilities present on site have been located. It is the responsibility of the Client to consult regional authority records and undertake trial digs where appropriate.

Where similar services run in close proximity it may be impossible to separately trace individual services as the trace signal can experience interference. In such cases, services will be shown as a single, annotated line. The displayed depth will refer to the shallowest detected utility.

Successful tracing of non-conductive materials may be limited. Drainage gulleys are dye tested where possible to prove connectivity but it is not always possible to introduce the sonde due to narrow pipe sizes and/or accumulated silt.

Depth information of underground services/features are generally accurate to within +/- 10% (i.e. a pipe at 2m deep may be accurate to +/-200mm) but this cannot be guaranteed. Depths shown usually refer to the top of the service. Gravity sewer and drain depths are usually to invert (base of drainage channel) unless otherwise stated.

Some above ground features may have been obscured at time of survey. It is not always possible to operate the Ground Penetrating Radar in areas including, but not limited to, dense vegetation, rubble, debris and/or rough/uneven ground.

Existing record information that was made available to SEP by the Client or by the statutory utility provider should be regarded only as an indication and cannot be guaranteed.

Excavation in the vicinity of services shown should be carried out with due diligence (Ref. HSG47).

SHEET LAYOUT

0 2m 4m 8m 12m 16m

SCALE BAR

REV	DATE	DESCRIPTION

SURVEY & ENGINEERING PROJECTS

Client
AECOM
Ground Floor
2 City Walk
Leeds
LS11 9AR

Project Title
Utility Survey of Land at:
Huddersfield Indoor Market
Brook Street,
Huddersfield,
HD1 1RY

Surveyed	Drawn	Checked
SEP	J.Cherry	SEP

Scale	Date	Drawing Ref.	No.	Size	Rev
1:200	Jan 20	S20124-U	01	A0	--

T. (01495) 729555 F. (01495) 720044 W. www.sepsurvey.com E. info@sepsurvey.com

N

PLAN GRID NORTH

File Name: S20124-USP02.dwg

LEGEND

AV	AIR VALVE	BT	BT-A / BT-U
BT	BT INSPECTION COVER	BT STAT RECORD	BT-A / BT-U
CB	CONTROL BOX	CABLE DUCT	DUCT-A / DUCT-U
CBP	CATCH BOLLARD POST	CABLE DUCT STAT RECORD	DUCT-A / DUCT-U
COM	COMMUNICATIONS COVER	CABLE TV	CA-A / CA-U
CTV	CABLE TV COVER	CABLE TV STAT RECORD	CA-A / CA-U
DM	DRAIN MANHOLE / CHAMBER	COMBINED	CO-A / CO-U
DP	DOWN PIPE	COMB STAT RECORD	CO-A / CO-U
EH	ELECTRIC HEATER	TELECOMS	TC-O / TC-U
EIC	ELEC. INSPECTION COVER	TELECOMS STAT RECORD	TC-O / TC-U
EM	ELECTRIC METER	EARTH ROD STRIP	EA-A / EA-U
ER	EARTH ROD	ELECTRIC FILLING	EL-A / EL-U
EP	ELECTRICITY POLE	ELECTRIC	EL-A / EL-U
FCL	FINISHED CARRIAGE LEVEL	ELEC STAT RECORD	EL-A / EL-U
FH	FIRE HYDRANT	FIBRE OPTICS	FO-A / FO-U
G	GULLY		
GLT	GROUND LIGHT	FUEL LINE	FL-A / FL-U
GST	GAS TAP	FUEL LINE STAT RECORD	FL-A / FL-U
GV	GAS VALVE	GAS SUPPLY LOW LINE	GM-O / GM-U
IC	INSPECTION COVER	GAS	GM-O / GM-U
IL	INVERT LEVEL	GAS STAT RECORD	GM-O / GM-U
LP	KERB OUTLET	MAINS WATER	MW-A / MW-U
MH	MANHOLE	WATER	CW-A / CW-U
MV	MINIVOLT	SEWER CW	CW-A / CW-U
OP	OUTFALL PIPE	SEWER CW STAT RECORD	CW-A / CW-U
OV	OUTFALL	SEWER FW	FW-A / FW-U
PP	PETROL PUMP	SEWER FW STAT RECORD	FW-A / FW-U
RE	RODDING EYE	SEWER SW	SW-A / SW-U
RWP	RAIN WATER PIPE	SEWER SW STAT RECORD	SW-A / SW-U
SOF	SOFFIT LEVEL	TRAFFIC SIGNAL CABLE	TR-O / TR-U
SV	STOP VALVE	UNIDENTIFIED	UI-A / UI-U
TB	TELEPHONE CALL BOX	UNIDENTIFIED TRACE	UI-A / UI-U
TL	TRAFFIC LIGHT	UNIDENTIFIED PIPE	UP-A / UP-U
TLB	TRAFFIC LIGHT BOX	VEHICLE DETECTOR CABLE	VD-A / VD-U
TP	TELEGRAPH POLE	WATER FILLING	WA-A / WA-U
WV	WATER VALVE	SURVEY BOUNDARY	
WM	WATER METER	SURVEY BOUNDARY LINKEY	
WST	WATER STOP TAP		
WSV	WATER STOP VALVE		
EOT	END OF TRACE	QUALITY LEVEL	
INA	INACCESSIBLE AREA	A – Verification	
UTL	UNABLE TO LIFT	B1 – Horizontal/Vertical location using multiple techniques	
UTS	UNABLE TO SONDE	B2 – Horizontal/Vertical location using a single technique	
UTT	UNABLE TO TRACE	B3 – Horizontal location using a single technique	
SL	SIGNAL LOSS		
BLK	BLOCKED	B4 – Assumed route	
NCP	NO CONCRETE GPR CONTACT	C – Site Reconnaissance	
BC	BACKDROP PIPE	D – Desktop utility records search	
TOP	TOP OF PIPE		
INT	INVERT LEVEL		
■	FITTING FROM RECORDS		

All levels relate to O.S (Newlyn) Datum, Established using network RTK. Survey plotted on a plane local grid, orientated to National Grid.

This Underground Utilities survey was conducted in compliance with the BSI PAS128:2014 standards.
Services linetypes display text indicating first an abbreviation of the services' type (see LEGEND), followed by the Quality Level to which that service was located (eg. B4 = Assumed route).

Quality Level descriptions shown in the above legend are for reference purposes only and are not intended as detailed descriptions.
For more information on Quality Levels, please consult the BSI PAS 128:2014 standard document.

Lines annotated as GPR indicate a series of consistent subsurface anomalies located using the Ground Penetrating Radar and should be considered as Quality Level C. The nature of these anomalies could not be determine by non-invasive means. GPR lines that were identifiable as a service are shown as their respective service.

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SHEET LAYOUT

0 2m 4m 8m 12m 16m

SCALE BAR

REV	DATE	DESCRIPTION

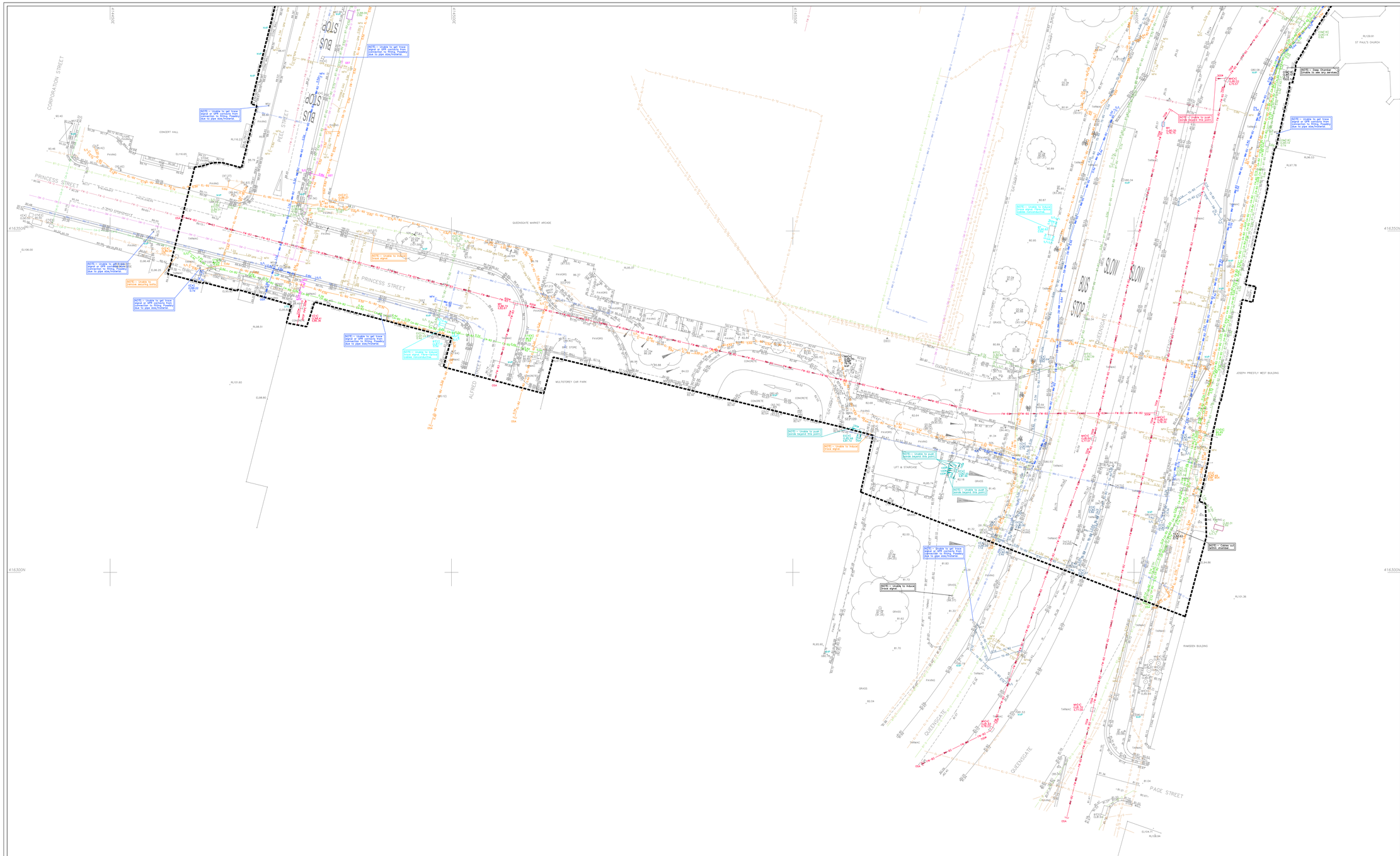
SURVEY & ENGINEERING PROJECTS

Client
AECOM
Ground Floor
2 City Walk
Leeds
LS11 9AR

Project Title
Utility Survey of Land at:
Huddersfield Indoor Market
Brook Street,
Huddersfield,
HD1 1RY

Surveyed	Drawn	Checked
SEP	J.Cherry	SEP

Scale	Date	Drawing Ref.	No.	Size	Rev
1:200	Jan 20	S20124-U	02	A0	--



T. (01495) 729555 F. (01495) 720044 W. www.sepsurvey.com E. info@sepsurvey.com

N

PLAN GRID NORTH

File Name: S20124-SURS2.dwg

LEGEND

AV	AIR VALVE	BT	BT-A / BT-C
BT	BT INSPECTION COVER	BT	BT-A / BT-C
CB	CONTROL BOX	DUCT	DU-A / DU-C
CBP	CATHODIC PROTECTION POST		
CCTV	COMMUNICATIONS COVER	CABLE TV	CA-A / CA-C
CTV	CABLE TV COVER	CCTV	CA-A / CA-C
DM	DRAINAGE MANHOLE	DRAIN	DR-A / DR-C
DP	DOWN PIPE	ELEC STAT RECORD	EL-A / EL-C
EB	ELEC BOX	ELECTRIC	EL-A / EL-C
EIC	ELEC INSPECTION COVER	TELECOMS STAT RECORD	TC-D / TC-U
EP	EARTH POST	EARTH ROD STRAP	FA-A / FA-C
ER	EARTH ROD	FIRE ALARM BUILDING	FA-A / FA-C
EP	ELECTRICITY POLE	ELECTRIC	EL-A / EL-C
FH	FIRE HYDRANT (SURFACE LEVEL)	FIRE ALARM STAT RECORD	FA-A / FA-C
FH	FIRE HYDRANT	FIRE ALARM	FA-A / FA-C
G	GULLY	GAS	GA-A / GA-C
LT	LIGHTING LIGHT	FUEL LINE	FL-A / FL-C
GST	GAS TAP	FUEL LINE STAT RECORD	FL-A / FL-C
GSV	GAS VALVE	GAS STAT RECORD	GA-A / GA-C
IC	INSPECTION COVER	UNKNOWN	UN-A / UN-C
IL	INVERT LEVEL	MAINS WATER STAT RECORD	SW-A / SW-C
LP	KERB OUTLET	MAINS WATER	SW-A / SW-C
MH	MANHOLE	SEWER STAT RECORD	DM-A / DM-C
MW	MARKER POST	SEWER CR	FW-A / FW-C
OP	OUTFALL PIPE	SEWER CR STAT RECORD	FW-A / FW-C
PC	PETROL CAP	SEWER FM	FW-A / FW-C
PP	PETROL PUMP	SEWER FM STAT RECORD	SW-A / SW-C
RE	RODDING EYE	SEWER SW	SW-A / SW-C
SVP	SOIL VENT PIPE	SEWER SW STAT RECORD	SW-A / SW-C
SOF	SOFFIT LEVEL	TRAFFIC SIGNAL CABLE	TR-A / TR-C
SV	STOP VALVE	UNIDENTIFIED TRACE	UT-A / UT-C
TCB	TRAFFIC CONTROL CALL BOX	UNIDENTIFIED CABLE	UT-A / UT-C
TL	TRAFFIC LIGHT	UNIDENTIFIED PIPE	UT-A / UT-C
TLB	TRAFFIC LIGHT BOX	VOYAGE J JUNCTION CABLE	TC-D / TC-U
TP	TRIAL PIT / TEST PIT	WATER CABLE	WA-A / WA-C
WV	WATER VALVE	SUPPLY BOUNDARY	WA-A / WA-C
WM	WATER METER	WATER STAT RECORD ONLY	WA-A / WA-C
WST	WATER STOP TAP		
WSV	WATER STOP VALVE		
EOT	END OF TRACE		
NAD	NO ACCESS TO KEY AREA		
UTL	UNABLE TO LIFT		
UTS	UNABLE TO SONDE		
EOT	END OF TRACE		
SLA	SIGNAL LOSS		
BLK	BLOCKED		
NCP	NO OTHER GPR CONTACTS		
RD	RACKING DEPTH		
TOP	TOP OF PIPE		
TOP	TOP OF RWP		
SM	SET METRIC		
FR	FITTING FROM RECORDS		

Denotes no access or closure

All levels relate to O.S (Newlyn) Datum, Established using network RTK. Survey plotted on a plane local grid, orientated to National Grid.

This Underground Utilities survey was conducted in compliance with the BSI PAS128:2014 standards.
Services linetypes display text indicating first an abbreviation of the services' function, e.g. TC = Telecoms, followed by the Quality Level to which that service was located (eg. B4 = Assumed route).

Quality Level descriptions shown in the above legend are for reference purposes only and are not intended as detailed descriptions.
For more detailed Quality Level descriptions please consult the BSI PAS 128:2014 standard document.

Lines annotated as GPR indicate a series of consistent subsurface anomalies located using the Ground Penetrating Radar and should be considered as Quality Level C. The nature of these anomalies could not be determine by non-invasive means. GPR lines thrust were identifiable as a service are shown as their respective service.

QUALITY LEVEL

- A – Verification
- B1 – Horizontal/Vertical location using multiple techniques
- B2 – Horizontal/Vertical location using a single technique
- B3 – Horizontal location using a single technique
- B4 – Assumed route
- C – Site Reconnaissance
- D – Desktop utility records search

DISCLAIMER:

At SEP we use skilled and experienced staff, modern up to date techniques and top of the range electromagnetic and radar technology to locate and trace sub-surface utilities. However the performance of the equipment employed in non-invasive surveys can be adversely affected by factors outside the control of SEP. Therefore SEP cannot guarantee that all utilities present on site have been located. It is the responsibility of the Client to consult regional authority records and undertake trial digs where appropriate.

Where similar services run in close proximity it may be impossible to separately trace individual services as the trace signal can experience interference. In such cases, services will be shown as a single, annotated line. The displayed depth will refer to the shallowest detected utility.

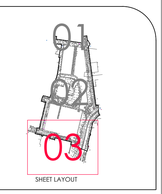
Successful tracing of non-conductive materials may be limited. Drainage gullies are dye tested where possible to prove connectivity but it is not always possible to introduce the sonde due to narrow pipe sizes and/or accumulated silt.

Depth information of underground services/features are generally accurate to within +/- 10% (i.e. a pipe at 2m deep may be accurate to +/-200mm) but this cannot be guaranteed. Depths shown usually refer to the top of the service. Gravity sewer and drain depths are usually to invert (base of drainage channel) unless otherwise stated.

Some above ground features may have been obscured at time of survey. It is not always possible to operate the Ground Penetrating Radar in areas including, but not limited to, dense vegetation, rubble, debris and/or rough/uneven ground.

Existing record information that was made available to SEP by the Client or by the statutory utility provider should be regarded only as an indication and cannot be guaranteed.

Excavation in the vicinity of services shown should be carried out with due diligence (Ref. HSG47).



SHEET LAYOUT

0 2m 4m 8m 12m 16m

SCALE BAR

REV	DATE	DESCRIPTION

SURVEY & ENGINEERING PROJECTS

Client
AECOM
Ground Floor
2 City Walk
Leeds
LS11 9AR

Project Title
Utility Survey of Land at:
Huddersfield Indoor Market
Brook Street,
Huddersfield,
HD1 1RY

Surveyed	Drawn	Checked
SEP	J.Cherry	SEP

Scale	Date	Drawing Ref.	No.	Size	Rev
1:200	Jan 20	S20124-U	03	A0	--

Appendix C

Stakeholder Correspondence

- Environment Agency
- Kirklees Council
- Yorkshire Water

Iain Dillon

From: Get flood risk information for planning <get.flood.risk.information.for.planning@notifications.service.gov.uk>
Sent: 28 June 2022 16:49
To: Iain Dillon
Subject: Requested flood risk assessment data not available. Your reference number J2A7WXB6PJB4 [Filed 28 Jun 2022 16:51]

GOV.UK

Dear Iain Dillon,

Thank you for requesting flood risk assessment data.

Location searched for:huddersfield

Location data requested for: huddersfield easting and northing coordinates.

Because this site does not fall within 150 metres of an area at risk of flooding from rivers or the sea, we do not hold any detailed flood modelling data that would impact your site. As such we are unable to provide a flood risk product.

We do not hold records of historic flood events from rivers and/or the sea affecting the area local to this site. However, please be aware that this does not necessarily mean that flooding has not occurred here in the past, as our records are not comprehensive.

If you have requested this information to help inform a development proposal, then you should note the information on GOV.UK on the use of Environment Agency Information for Flood Risk Assessments

https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications

https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

You can also view surface water flood maps online at: https://www.gov.uk/check-long-term-flood-risk#

Here is the link to the climate change allowances: https://www.gov.uk/government/publications/peak-river-flow-climate-change-allowances-by-management-catchment

This information is provided subject to the Open Government Licence, which you should read: https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

We respond to requests for recorded information that we hold under the Freedom of Information Act 2000 (FOIA) and the associated Environmental Information Regulations 2004 (EIR). If you need information for insurance purposes, you should send an Insurance Related Request by email to enquiries@environment-agency.gov.uk

Data Available Online

Many of our flood datasets are available online:

You can view and download flood risk maps on flooding from surface water, reservoirs, and rivers and the sea (accounting for existing defences) from our website at: https://www.gov.uk/check-long-term-flood-risk#

Flood Map For Planning

- Flood Zone 2: https://data.gov.uk/dataset/cf494c44-05cd-4060-a029-35937970c9c6/flood-map-for-planning-rivers-and-sea-flood-zone-2
- Flood Zone 3: https://data.gov.uk/dataset/bed63fc1-dd26-4685-b143-2941088923b3/flood-map-for-planning-rivers-and-sea-flood-zone-3

- Water Storage Areas: https://data.gov.uk/dataset/cae4e24c-0342-48aa-8a93-d727ce582b3c/flood-map-for-planning-rivers-and-sea-flood-storage-areas
- Flood Defences: https://data.gov.uk/dataset/76828b72-3c9c-4700-83c7-d7c36047d322/flood-map-for-planning-rivers-and-sea-spatial-flood-defences-without-standardised-attributes
- Areas Benefiting from Defences: https://data.gov.uk/dataset/eaa328e7-2eea-4cbf-bd6b-c66121981ba1/flood-map-for-planning-rivers-and-sea-areas-benefiting-from-defences

Other Online Data

- Historic Flood Map: https://data.gov.uk/dataset/76292bec-7d8b-43e8-9c98-02734fd89c81/historic-flood-map
- Assets and Defences: https://environment.data.gov.uk/asset-management/index.html
- Current Flood Warnings: https://check-for-flooding.service.gov.uk/
- Open data: https://data.gov.uk/

Contact us

If you have any questions about your request, contact the Environment Agency team in Yorkshire area team at neyorkshire@environment-agency.gov.uk. Make sure you include your reference number.

Regards,

Get flood risk information for planning
https://flood-map-for-planning-service.gov.uk/

Iain Dillon

From: Martin Stephenson <Martin.Stephenson@kirklees.gov.uk>
Sent: 26 August 2022 11:43
To: Iain Dillon
Cc: Ewan Chatters; Peter Mason(J); Andrew Jackson (N)
Subject: RE: Kirklees Cultural Heart - Flood Risk and Drainage

Good Morning Iain

KC have records of pluvial flooding (same as the EA mapping) and record instances of flooded roads/properties. The only reported flooding incidents close to the site are shown in the extracts below. With regard to your other statements, these are in line with LLFA requirements

Flooded_Area : Under floor space of Premise(s) e.g cellar

Photo_Docs :

Cause_of_Flooding :

Additional_Cause_Info :

Extent_of_Flooding : Minor

Description : Not witnessed. As per customers description.

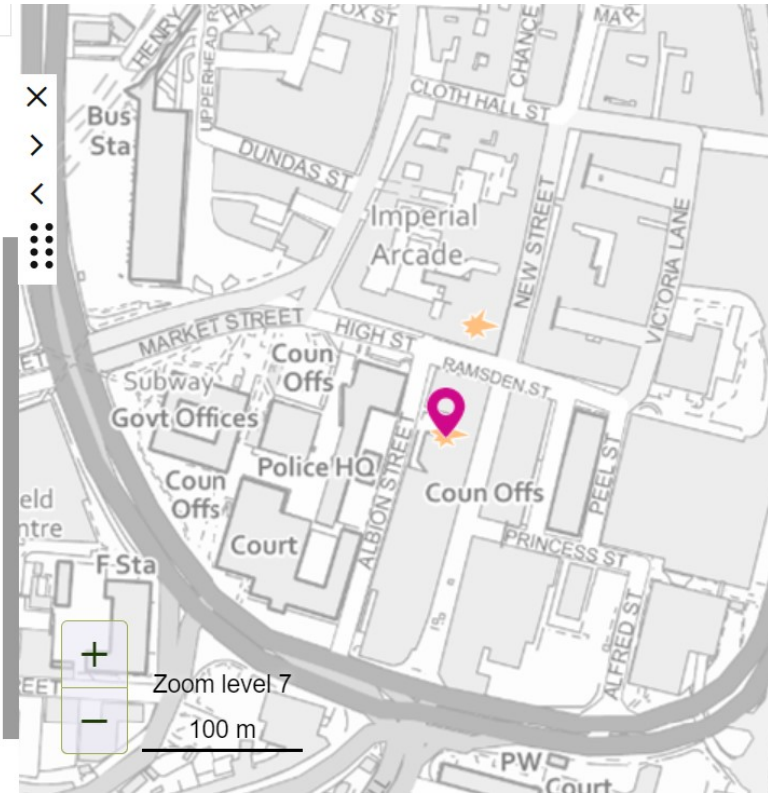
NSGId : 19402643

Street : NEW STREET

Locality :

Town : HUDDERSFIELD

Received_Date : 2018-04-30



Flooded_Area : Under floor space of Premise(s) e.g cellar

Photo_Docs :

Cause_of_Flooding :

Additional_Cause_Info :

Extent_of_Flooding : Minor

Description : Not witnessed, recorded as per customer

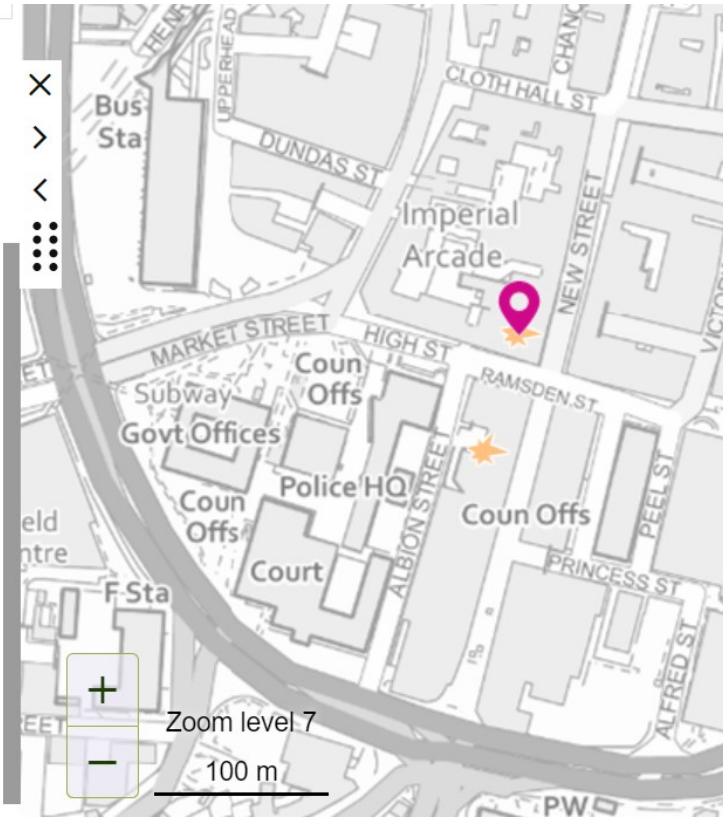
NSGId : 19402643

Street : NEW STREET

Locality :

Town : HUDDERSFIELD

Received_Date : 2019-03-18



Regards

Martin Stephenson
Principal Flood Risk Officer
Flood Risk and Drainage Management
Civic Centre 3
Huddersfield
High Steet
HD1 2NF

T: 01484 22 1000 (Ext. 75870)
E: martin.stephenson@kirklees.gov.uk

From: Iain Dillon <Iain.Dillon@arup.com>
Sent: 26 August 2022 10:45
To: Martin Stephenson <Martin.Stephenson@kirklees.gov.uk>
Cc: Ewan Chatters <Ewan.Chatters@arup.com>; Peter Mason(J) <Peter-J.Mason@arup.com>; Andrew Jackson (N) <andrew-n.jackson@arup.com>; Rashid Mahmood <Rashid.Mahmood@kirklees.gov.uk>
Subject: Kirklees Cultural Heart - Flood Risk and Drainage

Hi Martin

I trust you are well.

Just following on from our meetings earlier this year regarding the Cultural Heart project, where we presented the attached – we are compiling our Flood Risk Assessment and Drainage Statement for the planning submission and wanted to formally confirm the following:

Flood Risk

- Do Kirklees hold any records of flooding at the site - pluvial, sewers or other?

Drainage Design

- A 40% uplift to rainfall should be included in the drainage design to account for climate change.
- For new drainage infrastructure, the development must provide a 30% reduction in the existing run-off rates. Existing runoff rates should be based on 140 l/s/ha.
- For the existing Library and Queensgate Market buildings that are to be retained and refurbished – our understanding that this 30% reduction does not apply and we will be able to retain/reuse the existing drainage (without additional attenuation/flow restrictions).
- The use of permeable paving and rain gardens in landscaped/public realm areas are acceptable.

Apologies some of the above has already been discussed when we met in May – we are just keen to confirm the above prior to finalising our planning docs for submission.

Many thanks

Iain Dillon
Civil Engineer
MEng CEng MICE

Arup
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Leeds, LS9 8EE, UK
d +44 113 301 6010
arup.com
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Usual working hours 0830-1800 Monday to Thursday and 0830-1230 Friday
Upcoming leave: 23rd to 30th September

Environment Agency

If you’re not sure that an email is from the Environment Agency:

- do not reply to it or click any links
- forward it to enquiries@environment-agency.gov.uk

Kingsgate

414429 : 416270

Map Name : SE1416SW

Title

Notes

Yorkshire Water,
PO Box 500,
Halifax Road,
Bradford BD6 2LZ
Contact Name :
YorMap Advisor C ROBERTS
Contact Tel : 87 2582

Partial Key

Foul Sewer = F

Combined Sewer = C

Surface Water Sewer = SW

Trade Sewer = TD

Partially Separate = PS

Date Req : 22/02/2022, 16:23:17

Date Gen : 22/02/2022, 16:23:44

Source : Sewer Network Enquiry

UPN: Undefined

Originator: C ROBERTS, YorMap, 87 2582

YorkshireWater

Mr A Jackson
Ove Arup & Partners Ltd
Shared Services Centre; Central Square
Forth Street
Newcastle
NE1 3PL
andrew-n.jackson@arup.com

Yorkshire Water Services
Developer Services
Pre-Development Team
PO BOX 52
Bradford
BD3 7AY

Tel: 0345 120 8482
Fax:

Email:
technical.sewerage@yorkshirewater.co.uk

Your Ref:
Our Ref: Y002357

For telephone enquiries ring:
Chris Roberts on 0345 120 8482

22nd February 2022

Dear Mr Jackson,

Unit 7 Princess Alexandra Walk, Huddersfield, HD1 2RS – Pre-Planning Sewerage Enquiry U550895

Thank you for your recent enquiry. Our charge of £165.00 plus VAT will be added to your account with us, reference ARL050. You will receive an invoice for your account in due course.

Please find enclosed a complimentary extract from the Statutory Sewer Map which indicates the recorded position of the public sewers. Please note that as of October 2011 and the private to public sewer transfer, there are many uncharted Yorkshire Water assets currently not shown on our records. The following comments reflect our view, with regard to the public sewer network only, based on a 'desk top' study of the site and are valid for a maximum period of twelve months:

YorkshireWater

Existing Infrastructure

There is a 300 mm diameter public combined water sewer recorded crossing the site. No buildings, or other obstructions, are to be erected within 4 (four) metres is required at each side of the sewer centre-line, no trees planted within 5 (five) metres of this public sewer. It may not be acceptable to raise or lower ground levels over the sewer, nor to restrict access to the manholes on the sewer.

There is a 350 mm diameter public combined water sewer recorded crossing the site. No buildings, or other obstructions, are to be erected within 3 (three) metres is required at each side of the sewer centre-line, no trees planted within 5 (five) metres of this public sewer. It may not be acceptable to raise or lower ground levels over the sewer, nor to restrict access to the manholes on the sewer.

There is a 375 mm diameter public combined water sewer recorded crossing the site. No buildings, or other obstructions, are to be erected within 3 (three) metres is required at each side of the sewer centre-line, no trees planted within 5 (five) metres of this public sewer. It may not be acceptable to raise or lower ground levels over the sewer, nor to restrict access to the manholes on the sewer.

There is a 450 mm diameter public combined water sewer recorded crossing the site. No buildings, or other obstructions, are to be erected within 3 (three) metres is required at each side of the sewer centre-line, no trees planted within 5 (five) metres of this public sewer. It may not be acceptable to raise or lower ground levels over the sewer, nor to restrict access to the manholes on the sewer.

There is a 600 mm diameter public combined water sewer recorded crossing the site. No buildings, or other obstructions, are to be erected within 3.5 (three point five) metres is required at each side of the sewer centre-line, no trees planted within 5 (five) metres of this public sewer. It may not be acceptable to raise or lower ground levels over the sewer, nor to restrict access to the manholes on the sewer.

If you wish to have this sewer diverted under Section 185 of the Water Industry Act 1991 an application should be made in writing. To discuss this matter, please telephone 0345 120 84 82.

Foul Water

Development of the site should take place with separate systems for foul and surface water drainage on site, with a combined sewer off site.

Foul water domestic waste can discharge to the suitably sized combined sewer network recorded around the site. Existing private foul connections can be utilised if suitably sized.

Foul water from kitchens and/or food preparation areas of any restaurants and/or canteens etc. must pass through a fat and grease trap of adequate design before any discharge to the public sewer network.

Surface Water

The developer's attention is drawn to Requirement H3 of the Building Regulations 2010. This establishes a preferred hierarchy for surface water disposal. Consideration should firstly be given to discharge to soakaway, infiltration system and watercourse in that priority order.

Sustainable Drainage Systems (SuDS), for example the use of soakaways and/or permeable hardstanding etc, may be a suitable solution for surface water disposal appropriate in this situation. You are advised to seek comments on the suitability of SuDS in this instance from the appropriate authorities.

If other methods of surface water disposal are not viable and subject to providing satisfactory evidence as to why they have been discounted, curtilage surface water discharges to the public sewer will be restricted to the level of run-off - i.e. same rate of discharge - to that from the existing use of the site less a 30% reduction in the existing discharge.

Any discharge of surface water from the site should discharge to similar points of connection to that of the existing use of the site. You will need to demonstrate positive drainage, based on a 1 in 1 year storm, to the public sewer to Yorkshire Water by means of investigation and calculation carried out at your expense.

To do this, Yorkshire Water requires to see existing and proposed drainage layouts with pipe sizes, gradients, gullies, downpipes and connection points, measured impermeable areas of the present and proposed use of the site, along with the calculations that show the existing and proposed discharge rate from the site to the public sewer.

Other Observations

Any new connection to an existing public sewer will require the prior approval of Yorkshire Water. You may apply on line or obtain an application form from our website (www.yorkshirewater.com) or by telephoning 0345 120 84 82.

Under the provisions of section 111 of the Water Industry Act 1991 it is unlawful to pass into any public sewer (or into any drain or private sewer communicating with the public sewer network) any items likely to cause damage to the public sewer network interfere with the free flow of its contents or affect the treatment and disposal of its contents. Amongst other things this includes fat, oil, nappies, bandages, syringes, medicines, sanitary towels and incontinence pants. Contravention of the provisions of section 111 is a criminal offence.

An off-site foul and surface water sewer may be required which may be provided by the developer and considered for Code for Adoption under Section 104 of the Water Industry Act 1991. Please telephone 0345 120 84 82 for advice on sewer adoptions. Alternatively, the developer may in certain circumstances be able to requisition off-site sewers under Section 98 of the Water Industry Act 1991 for which an application must be made in writing. For further information, please telephone 0345 120 84 82.

Yorkshire Water's Trade Effluent team must be consulted in respect of any proposed trade effluent discharge to the public sewer.

YorkshireWater

All the above comments are based upon the information and records available at the present time and is subject to formal planning approval agreement. The information contained in this letter together with that shown on any extract from the Statutory Sewer Map that may be enclosed is believed to be correct and is supplied in good faith. Please note that capacity in the public sewer network is not reserved for specific future development. It is used up on a 'first come, first served' basis. You should visit the site and establish the line and level of any public sewers affecting your proposals before the commencement of any design work.

Yours sincerely

Chris Roberts
Development Services Technician

Iain Dillon

From: Technical Sewerage <technical.sewerage@yorkshirewater.co.uk>
Sent: 06 September 2022 10:46
To: Iain Dillon
Subject: RE: Unit 7 Princess Alexandra Walk, Huddersfield, HD1 2RS - Pre Planning Sewerage Enquiry U550895

Hi Iain,

There are no incidents of hydraulic failure in the surrounding public sewer network at this location.

Regards

YorkshireWater

Chris Roberts
Pre-Development Technician
Developer Services
Tel: 0345 1 20 84 82

-----Original Message-----
From: Iain Dillon <Iain.Dillon@arup.com>
Sent: 26 August 2022 15:05
To: Technical Sewerage <technical.sewerage@yorkshirewater.co.uk>; Chris Roberts <Chris.Roberts@yorkshirewater.co.uk>
Cc: Ewan Chatters <Ewan.Chatters@arup.com>
Subject: RE: Unit 7 Princess Alexandra Walk, Huddersfield, HD1 2RS - Pre Planning Sewerage Enquiry U550895

Good afternoon Chris

Hope you are well.

Regarding the Cultural Heart site in Huddersfield (U550895), please can you confirm if YW hold any records of sewer flooding at the site (HD1 2RS)?

Many thanks
Iain

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

From: Chris.Roberts@yorkshirewater.co.uk <Chris.Roberts@yorkshirewater.co.uk> On Behalf Of technical.sewerage@yorkshirewater.co.uk
Sent: 22 February 2022 17:01
To: Andrew Jackson (N) <andrew-n.jackson@arup.com>
Subject: Unit 7 Princess Alexandra Walk, Huddersfield, HD1 2RS - Pre Planning Sewerage Enquiry U550895

Dear Mr Jackson,

Please find my response below.

(See attached file: Unit 7 Princess Alexandra Walk, Huddersfield, HD1 2RS – Pre-Planning Sewerage Enquiry U550895.pdf)(See attached file: roberts4_radB19FA.PDF)

Kind Regards

(Embedded image moved to file: pic01018.gif)
*** Please note, all correspondence must be sent to technical.sewerage@yorkshirewater.co.uk and will be responded to within 10 working days ***

|------------>
| From: |
|------------>
>----------|
|"Andrew Jackson (N)" <andrew-n.jackson@arup.com> |
>----------|
|------------>
| To: |
|------------>
>----------|
|Technical Sewerage@NotesMail |
>----------|
|------------>
| Cc: |

|------------>
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----------|
|Iain Dillon <Iain.Dillon@arup.com>, Greg Hardie
<Greg.Hardie@arup.com> |
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|------------>
| Date: |
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|03/02/2022 16:35 |
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| Subject: |
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|Pre-planning enquiry - Huddersfield Cultural
Heart |
>----------
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VR DATED 3/2/2022

EXTERNAL SOURCE - THINK BEFORE YOU CLICK

Hi,

Please find attached a pre-planning enquiry for the proposed Huddersfield Cultural Heart project and accompanying documents.

Any questions please don't hesitate to get in touch.

Regards,

Andy Jackson
He/him/his
Associate | Infrastructure

Arup

Admiral House Rose Wharf, 78 East Street

Leeds, LS9 8EE, United Kingdom
d +44 (0) 161 602 9267 (direct to laptop) m +44 (0) 7387 022 177

arup.com

Bl5Zki6-XRbwtLQiek5jsdO5d1uzUjOt7lxTh3dJYqM_PIeHVMPoG66zsDGVOrfWuJvBTHa3oIW-XeJSI1peL0m--k8VZKaz7pViUIvIIT1XyA80OrUflneS74/https%3A%2F%2Fwww.yorkshirewater.com%2Fsavewater

Yorkshire Water Services Limited
Registered Office Western House, Halifax Road, Bradford, BD6 2SZ Registered in England and Wales No 2366682

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Registered Office Western House, Halifax Road, Bradford, BD6 2SZ
Registered in England and Wales No 2366682