

LONDON BOROUGH OF ENFIELD

PLANNING COMMITTEE

Date: 18th June 2024

Report of

Karen Page –
Head of Planning & Building
Control

Contact Officers:

Samuel Wong – Case Officer
Sharon Davidson –
Planning Decisions Manager

Category

Major

Ward

Southbury

Councillor Request

No

LOCATION: Enfield District Heat Network Between Southbury Road EN1 Hertford Road And St Martins Road N9

APPLICATION NUMBER: 24/01437/FUL

PROPOSAL: Amendment to Phase 1 of a Borough-wide district heat distribution network in Enfield comprising pipework of approximately 7km in length as approved under application reference 22/00047/FUL, the proposed part of the route comprising a diversion along Rays Road, Montagu Road and Kenninghall Road, and then a further diversion under the North Circular Road (A406) before connecting with the remainder of the approved route near the junction of Leopold Road with Albany Road. Proposed leak detection cabinets to be located along part of the revised route.

Applicant Name & Address:

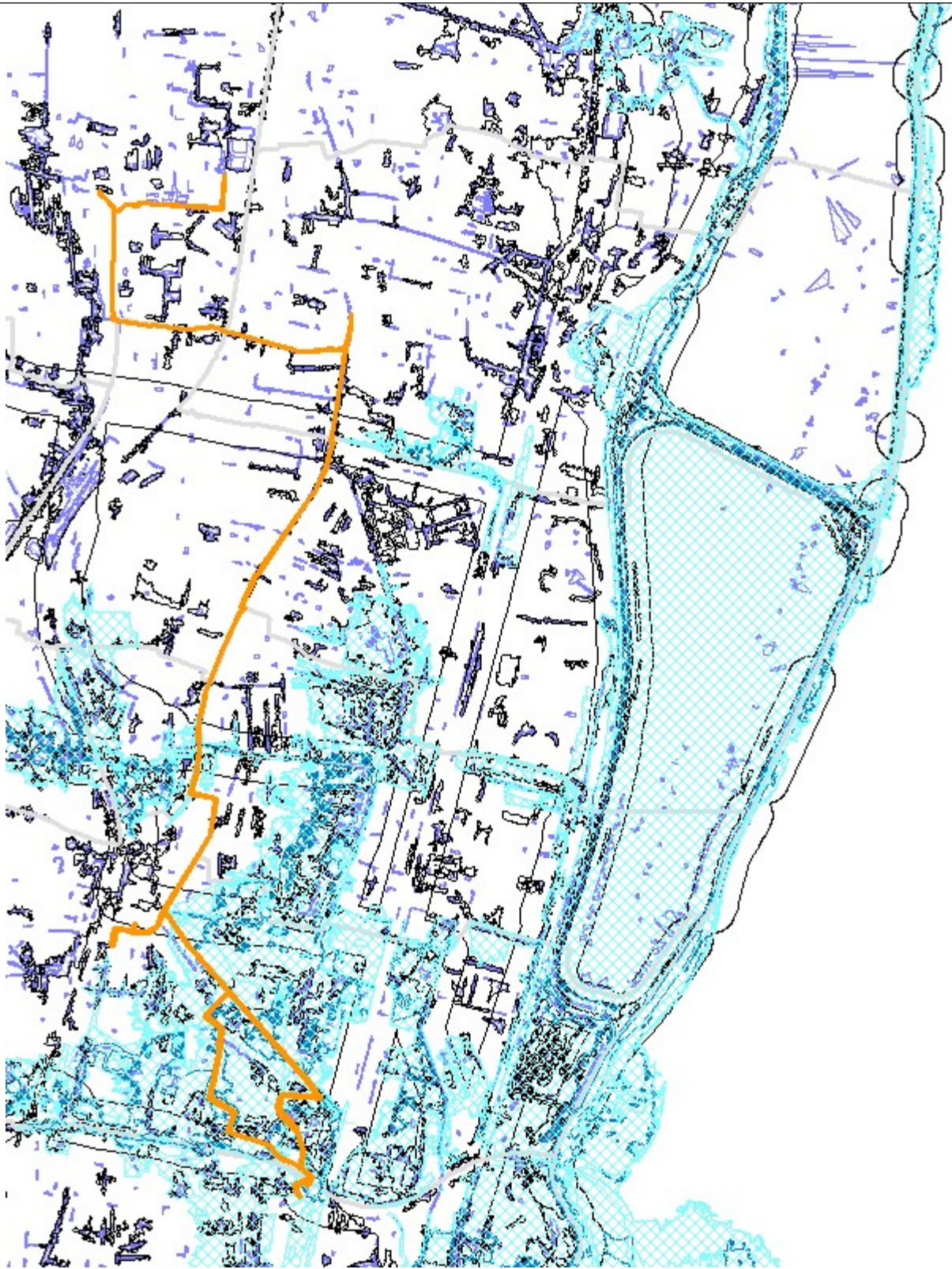
D3 Associates Limited
c/o DRK Planning Limited
215 Alfred Court
53 Fortune Green Road
London
NW6 1DF

Agent Name & Address:

Mr David Kemp
DRK Planning Ltd
215 Alfred Court
53 Fortune Green Road
West Hampstead
NW6 1DF

RECOMMENDATION:

1. That planning permission be **GRANTED** subject to conditions.
2. That the Planning Decisions Manager be granted delegated authority to finalise the wording of the conditions to cover the matters in the Recommendation section of this report.



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North



1. Note for Members

- 1.1. The application is reported to the Planning Committee because it is classified as a major development. In addition, the applicant for the development is closely associated with Enfield Council and in accordance with the scheme of delegation, is reported to the Planning Committee for determination.
- 1.2. The applicant acts on behalf of Energetik, a local energy company owned by Enfield Council to supply heat and hot water to homes and businesses across North London.

2. Recommendation

- 2.1. That planning permission be **GRANTED** subject to following conditions.
- 2.2. That the Planning Decisions Manager be granted delegated authority to finalise the wording of the conditions to cover the matters in the Recommendation section of this report.

1. Limited Time Period Permission

The development to which this permission relates must be begun not later than the expiration of three years beginning with the date of the decision notice.

Reason: To comply with the provisions of S.51 of the Planning & Compulsory Purchase Act 2004.

2. Approved Plans

The development hereby permitted shall be carried out in accordance with the approved plans as set out in the attached schedule which forms part of this notice.

5001 Rev C01
8001 Rev C05
3605-VED-00-XX-DWG-CV-011000 Rev A03
3605-VED-00-XX-DWG-CV-011002 Rev A03
3605-VED-00-XX-DWG-CV-011003 Rev A01
3605-VED-00-XXDWG-CV-013002 Rev A04
3605-VED-00-XXDWG-CV-013003 Rev A04
0001 Rev P01
0004 Rev 002
0006 Rev C01
0007 Rev C01
0008 Rev C02
0009 Rev P02
0010 Rev 001
0010 Rev P02
0011 Rev 001
0011 Rev C04
0012 Rev 002
0012 Rev C04

0013 Rev 001
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0017 Rev 001
0018 Rev 001
0019 Rev 003
0020 Rev 001
0023 Rev P01
1665-ENF-D3A-00-XX-DR-M-0054D Rev P09
1665-ENF-D3A-00-XX-DR-M-0058 Rev R01
1665-ENF-D3A-00-XX-DR-M-0059 Rev R01
1665-ENF-D3A-00-XX-DR-M-0063 Rev R02
001 Traffic Management Proposal - Montagu Road Jc Conduit Lane
001 Traffic Management Proposal - Kenninghall Road Lane Reduction
001 Traffic Management Proposal - Kenninghall Road Traffic Lights
001 Traffic Management Proposal - Rays Road
Technical Note dated 2 Apr 2024
Planning Statement dated 30 Apr 2024
Energetik Meridian Water Heat Network Zone 1A - Management of Contaminated Ground Rev 4
Phase 1 Arboricultural Impact Assessment Version 4.0 dated 24 May 2024
Construction Environmental Management Plan dated Mar 2024
Ecological Management Plan dated Mar 2024
Ecological Assessment Version 2.0 dated Apr 2024
Biodiversity Net Gain Report Version 2.0 dated Apr 2024
Biodiversity Net Gain Metric
BNG Declaration Form
Archaeological Desk-Based Assessment dated Mar 2024
Written Scheme of Investigation for Archaeological Observation dated Apr 2024
Sustainable Urban Drainage Method Statement
Flood Risk Assessment Report

Reason: For the avoidance of doubt and in the interests of proper planning.

3. Air Quality

All Non-Road Mobile Machinery (NRMM) of net power of 37kW and up to and including 560kW used during the course of the demolition, site preparation and construction phases shall comply with the emission standards set out in chapter 7 of the GLA's supplementary planning guidance "Control of Dust and Emissions During Construction and Demolition" dated July 2014 (SPG), or subsequent guidance. Unless it complies with the standards set out in the SPG, no NRMM shall be on site, at any time, whether in use or not, without the prior written consent of the local planning authority. The developer shall keep an up to date list of all NRMM used during the demolition, site preparation and construction phases of the development on the online register at <https://nrmm.london/>

Reasons: In the interests of good air quality with regard to London Plan (2021).

4. Contamination Compliance

The development shall be undertaken in accordance with Energetik Meridian Water Heat Network Zone 1A - Management of Contaminated Ground Rev 4

and shall be carried out in accordance with the contaminated management measures set out in the aforementioned document.

Reason: To avoid risk to public health and the environment.

5. Unidentified Contamination

If, during development, contamination not previously identified is found to be present at the site then no further development (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until the developer has submitted and obtained written approval from the Local Planning Authority for, an amendment to the remediation strategy detailing how this unsuspected contamination shall be dealt with.

Reason: To protect against risks arising from contamination

6. Tree Protection Compliance

The development shall be undertaken in accordance with Phase 1 Arboricultural Impact Assessment Version 4.0 dated 24 May 2024 and shall be carried out in accordance with tree protection and mitigation measures set out in the aforementioned document.

Reason: To ensure trees to be retained will not be damaged during construction works and to protect and enhance the appearance and character of the site and locality, in accordance with DMD 80 and pursuant to section 197 of the Town and Country Planning Act 1990.

7. Construction Environmental Management Plan Compliance

The development shall be carried out in accordance with the Construction Environmental Management Plan dated March 2024.

Reason: To minimise impacts on biodiversity in accordance with Paragraph 180 of the NPPF (2023), Policy G6 of the London Plan (2021) and Policy CP 36 of the Core Strategy (2010).

8. Ecological Enhancement measures

The ecological enhancement measures detailed in section 5.0 of Appendix A of the Construction Environmental Management Plan dated March 2024 shall be implemented in full and prior to first use of the development a concise report, including a plan and photos of the ecological enhancement measures shall be submitted to and approved in writing by the local planning authority.

Reason: To protect and enhance biodiversity in accordance with Paragraph 180 of the NPPF (2023), Policy G6 of the London Plan (2021) and Policy CP 36 of the Core Strategy (2010).

9. River Culverts

No works approved by this application within an individual development zone or section shall commence until a detailed condition survey is undertaken of any main river culverts where the proposed pipework crosses or passes within 8

meters. The survey(s) will be submitted to, and approved by, the local planning authority in consultation with the Environment Agency.

Details of any improvement works shall be included along with proposed timings. Any required maintenance or replacement of the culverts will need to be undertaken prior to construction of any heat network infrastructure within 8 meters of a main river.

Reason: The current condition of the culverts is unknown and could be impacted by the proposed construction works. A collapse of a culvert can cause considerable flooding to the area. To prevent this, the applicant must demonstrate the current condition of the culvert and any improvement works required to ensure the structural integrity will not be compromised.

3. Executive Summary

- 3.1. The application site concerns the areas around Kenninghall Open Space. The application seeks approval for the diversion of the approved first phase of a decentralised energy network that will eventually cover large areas of the London Borough of Enfield and some areas of neighbouring London Boroughs.
- 3.2. Decentralised energy networks are encouraged and supported in local, regional, and national planning policies and major developments are required to connect to existing or planned energy networks whenever possible. Several major developments within the Borough have already installed or are installing the equipment and infrastructure necessary to connect to the subject energy network.
- 3.3. The proposed diverted route would be circa 500m within the approved 7km first phase network. The first phase network extends from the Meridian Water/Edmonton area in the south of the Borough towards the north. There will be three phases following this phase to complete the total 23km pipeline network.
- 3.4. The Energetik/Lee Valley Heat Network is supplied with energy from the adjacent EcoPark/North London Heat and Power Project facility to the north, which generates energy from waste.
- 3.5. The primary reasons for recommending approval are:
 - The development and expansion of low carbon decentralised energy networks is strongly supported throughout all levels of planning policy.
 - The development would form part of the decentralised energy network, which is both encouraged and required by local and regional plans and policies and enables the wider delivery of actual service to progress. It will facilitate further expansion of the network as well, allowing development in the future to benefit from connecting to the network.
 - The development complies with relevant planning policy where identified in this report, or compliance can be ensured through the use of planning conditions that have been proposed.
- 3.6. The proposal is considered acceptable in particular having regard to Policies GG1, SI2, and SI3 of the London Plan, Policy CP20 of the Core Strategy and Policies 51 and 52 of the Development Management Document.

4. Site and Surroundings

- 4.1. The subject site concerns a diversion of an approved pipe network connected to the district heat network. The approved pipe network spans across several wards and is approximately 7km in length. The vast majority of the piping will be located within the public highway, buried under road and pedestrian surfaces.

- 4.2. The proposed diversion relates only to the south section of the approved Phase 1 route A1A (as indicated in Figure 1) comprising the areas along Rays Road, Montagu Road and Kenninghall Road, and then a further diversion under the North Circular Road (A406) (as indicated in Figure 3).
- 4.3. The diverted area covers the following planning designations:
- Edmonton Leaside Area Action Plan
 - Place Shaping Priority Area
 - Locally Significant Industrial Site
 - Flood Zones 2, 3 and 3b
- 4.4. Kenninghall Open Space, where the diversion would only run along its fringe, is a Local Open Space.
- 4.5. Figures 1 and 2 depict the approved route whilst Figure 3 depicts the proposed amended route:

[see next pages]

Figure 1 – Approved route: Beginning near Meridian Water in the south and running north

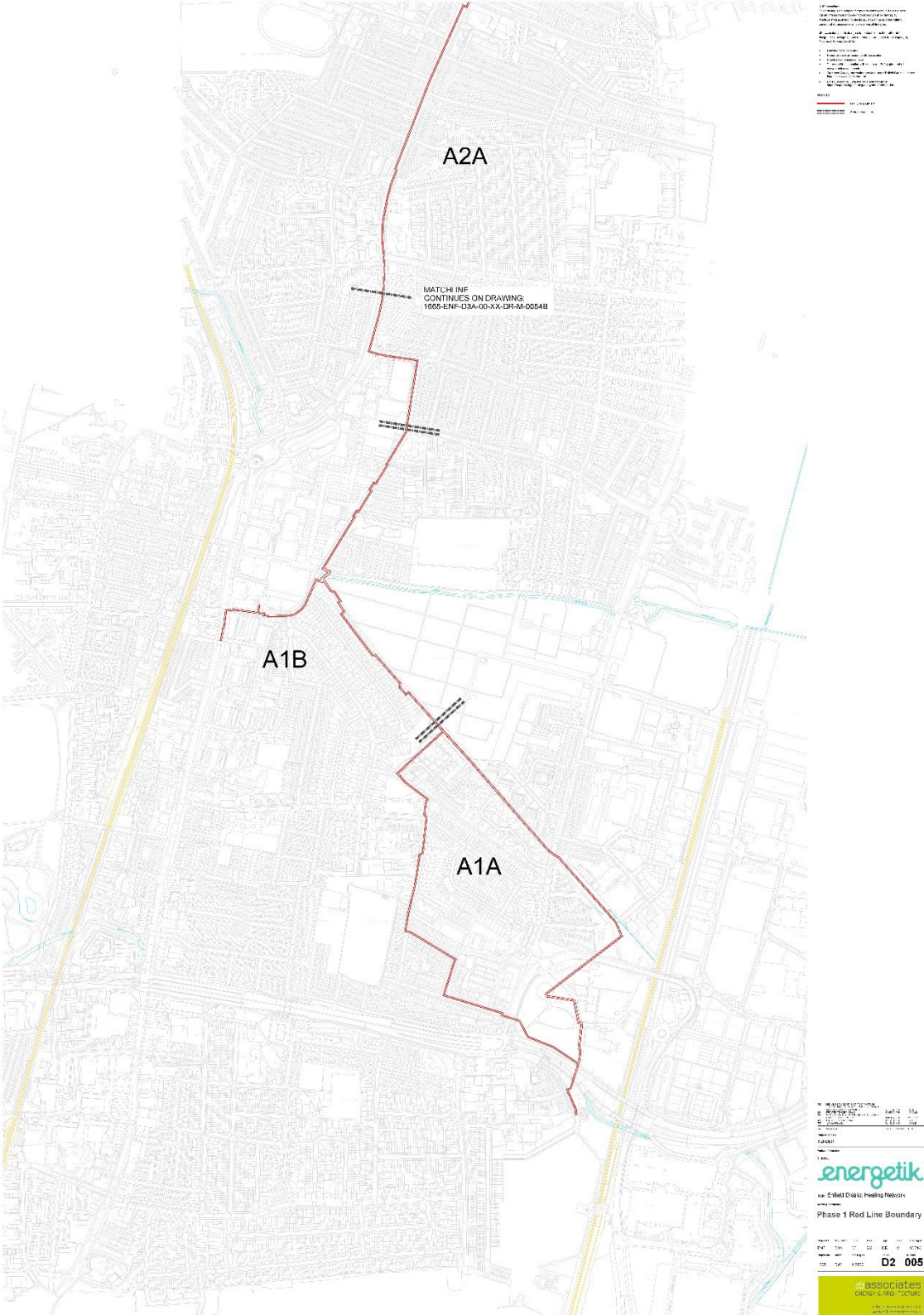
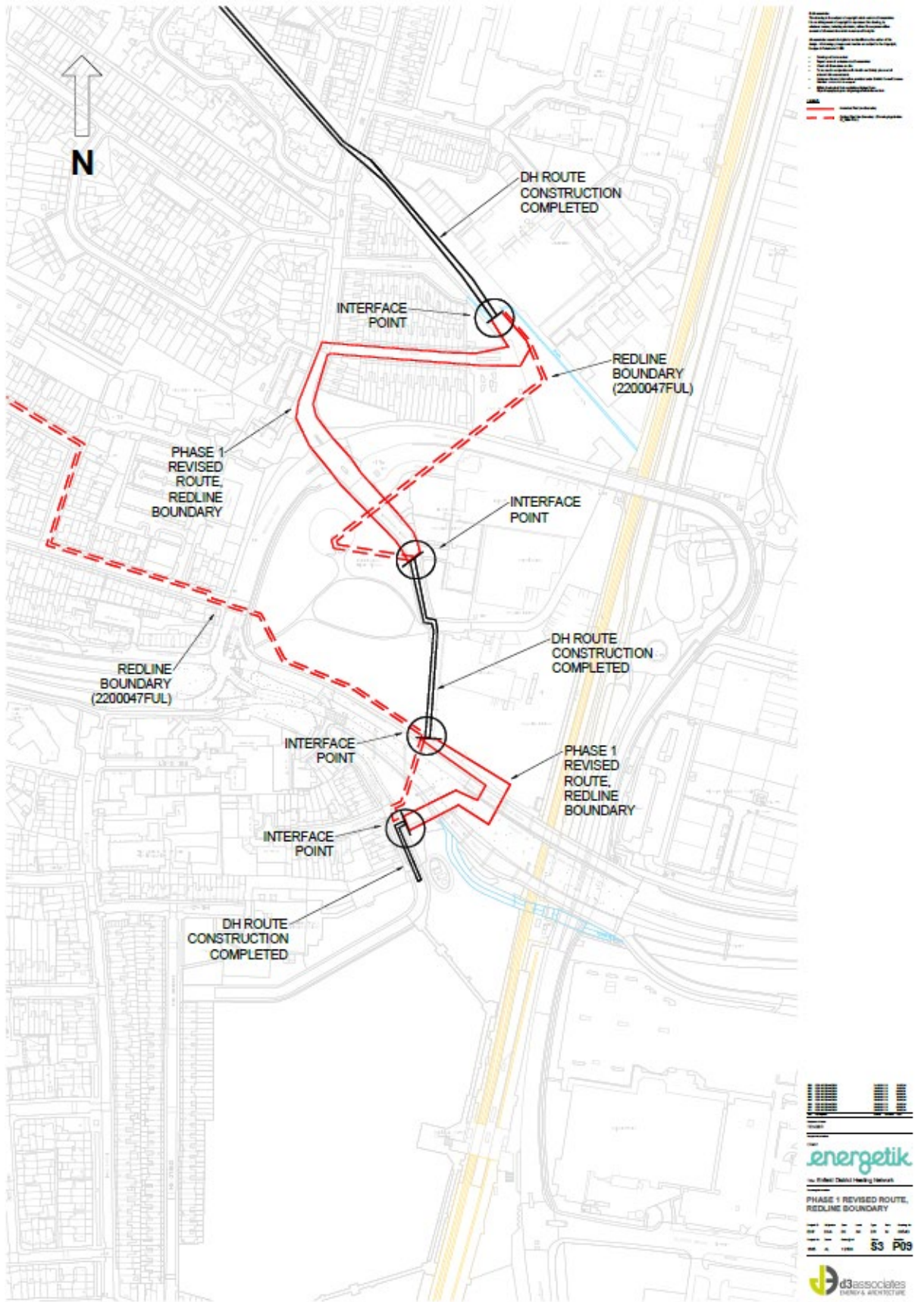


Figure 3 – Proposed diversion



5. Proposal

- 5.1. The proposal seeks to divert the approved heating pipe network. The diverted sections measure circa 500m. There would be two sections of diversion (north and south) which would be connected to the constructed network. The north section would avoid the need to run into Kenninghall Open Space, which was previously approved. Instead, the proposed route would run along Rays Road and Kenninghall Road, briefly aligning with the approved route along Kenninghall Road, before taking another diversion passing under A406 North Circular and crossing above Pymmes Brook (south section of diversion).
- 5.2. The majority of the pipework would be installed within the carriageway with at least 800mm cover to the crown of the pipe. Part of the south section would cross above the culvert of Pymmes Brook with steel pipe support structures
- 5.3. Two cabinets would be erected along the diverted pipeline, one being located on Kenninghall Road and the other one being located on Albany Road. The cabinets would measure 836mm in height, 600mm in width and 260mm in depth, painted in green.

6. Relevant Planning History

- 6.1. The following is the primary planning application associated with the district heat network.

Reference	Description	Decision	Date
18/04517/FUL	Construction of a new district heating energy centre building and phase 1 of the associated buried heat network piping which extends westward into the wider borough.	S106 Granted with Conditions	11 January 2021
Officer Note: This was an application for Energetik's operational hub for the decentralised energy network pipes and an extension of the piping to Meridian Water. This was also called phase 1 but was specific to an extension to Meridian Water.			
The energy centre building is located at 4 Advent Way, to the north of the North Circular Road.			

- 6.2. The following are similar, albeit smaller scale applications to extend piping to connect to various developments, in anticipation of the full decentralised energy network being built.

Reference	Description	Decision	Date
19/02282/FUL	Installation of district heating pipework.	Granted with Conditions	24 October 2019
Officer Note: This was an application to install connecting pipework between Alma Estate and the Electric Quarter for future connection to the wider decentralised energy network.			
21/02036/FUL	Installation of district heating pipework and all associated works including pipework and connections on external elevations of properties	Granted with Conditions	29 July 2021
Officer Note: This application was associated with properties along Naylor Grove, EN3.			

21/02587/FUL	Installation of district heating pipework and all associated works including pipework and connections on external elevations of properties.	Granted with Conditions	16 September 2021
Officer Note: This application was associated with properties along South Street, EN3.			
22/00013/RE4	Extension of Ponders End Heat Network to supply low carbon heat to the Swan Annexe.	Granted with Conditions	17 March 2022
Officer Note: This application was associated with properties at Swan Annexe, adjacent to High Street, Ponders End.			

6.3. The following relates to the proposals which the current proposal now seeks to amend.

Reference	Description	Decision	Date
22/00047/FUL	Phase 1 of new 23km Borough-wide district heating distribution network in Enfield comprising at this stage pipework of approximately 7km in length.	Granted with Conditions	3 October 2022
22/03867/CND	Details pursuant to ref: 22/00047/FUL: Contamination (5) for Phase 1 of new 23km Borough-wide district heating distribution network in Enfield comprising at this stage pipework of approximately 7km in length.	Granted	26 January 2023
22/04214/CND	Details pursuant to ref: 22/00047/FUL: Archaeology (3) for Phase 1 of new 23km Borough-wide district heating distribution network in Enfield comprising at this stage pipework of approximately 7km in length.	Granted	17 January 2023
23/00383/CND	Details pursuant to ref: 22/00047/FUL: Construction Environmental Management Plan (8) for Phase 1 of new 23km Borough-wide district heating distribution network in Enfield comprising at this stage pipework of approximately 7km in length.	Granted	27 January 2023
23/01293/CND	Details pursuant to Ref: 22/00047/FUL for River Culverts-Special Inspection Report (7) in respect of Phase 1 of new 23km Borough-wide district heating distribution network in Enfield comprising at this stage pipework of approximately 7km in length.	Withdrawn	
Officer Note: 22/00047/FUL is the original application to which the current application seeks amendments. The rest of the applications in this table are the discharge of condition applications associated with the original application.			

7. Consultation

Statutory and Non-Statutory ConsulteesInternal

- 7.1. Ecology:
No objections.
- 7.2. Environmental Health:
No objections.
- 7.3. Highway Services:
No objections.
- 7.4. Flood risk and SuDS:
No objections.
- 7.5. Heritage
No objection
- 7.6. Tree:
No objections.

External

Cadent Gas: No comments received.

- 7.7. Environment Agency:
No objections. Flood Risk Activity Permit should be applied separately.
- 7.8. Historic England (GLASS):
The consultee does not consider this application necessary to be notified nor suggest any pre-commencement conditions.
- 7.9. Natural England:
No objections.
- 7.10. Thames Water: No comments received.
- 7.11. Transport for London:
No objections.

Public Consultation

- 7.12. Consultation letters dated 16 May 2024 were sent to 90 neighbouring and nearby properties. Notice was also displayed at the site (dated 15 May 2024) and published in the local press (dated 22 May 2024).
- 7.13. In response no representations have yet been received. Any comments received will be reported at the meeting.

8. Relevant Planning Policies

8.1. Section 70(2) of the Town and Country Planning Act 1990 requires the Committee have regard to the provisions of the development plan so far as material to the application: and any other material considerations. Section 38(6) of the Planning and Compulsory Purchase Act 2004 requires planning decisions to be made in accordance with the development plan unless material considerations indicate otherwise.

8.2. National Policy

National Planning Policy Framework 2023 (NPPF)

National Planning Practice Guidance (PPG)

8.3. London Plan (2021)

The London Plan together with Enfield's Local plan forms the Development Plan for this application. It is the overall strategic plan for London setting out an integrated economic, environmental, transport and social Framework for the development of London for the next 20-25 years. The following policies of the London Plan are considered particularly relevant:

GC6: Increasing efficiency and resilience

D4: Delivering good design

HC1: Heritage conservation and growth

G6: Biodiversity and access to nature

G7: Trees and woodlands

SI 1: Improving air quality

SI 2: Minimising greenhouse gas emissions

SI 3: Energy infrastructure

T1: Strategic approach to transport

1.1. Core Strategy (2010)

The Core Strategy was adopted in November 2010 and sets out a spatial planning framework for the development of the Borough through to 2025. The document provides the broad strategy for the scale and distribution of development and supporting infrastructure, with the intention of guiding patterns of development and ensuring development within the Borough is sustainable. The following policies of the Core Strategy is considered particularly relevant:

CP 20: Sustainable Energy Use and Energy Infrastructure

CP 30: Maintaining and Improving the Quality of the Built and Open Environment

CP 31: Built and Landscape Heritage

CP 36: Biodiversity

1.2. Development Management Document (2014)

The Council's Development Management Document (DMD) provides further detail and standard based policies by which planning applications should be determined. Policies in the DMD support the delivery of the Core Strategy. The following local plan Development Management Document policies are considered particularly relevant:

DMD 37: Achieving High Quality and Design-Led Development

DMD 44: Conserving and Enhancing Heritage Assets

DMD 51: Energy Efficiency Standards

DMD 52: Decentralised Energy Networks

DMD 80: Trees on Development Sites

8.4. Edmonton Leaside Area Action Plan (2020)

EL17: Redevelopment of the EcoPark Site

EL26: The Meridian Water Heat Network

8.5. Other material considerations

Decentralised Energy Network Technical Specification SPD (2015)

8.6. Emerging Local Plan

The Council published the Enfield Local Plan 2019-2041 for Regulation 19 Consultation between 28 March and 20 May 2024. The Enfield Local Plan is at an advanced stage of preparation and is considered by the council to be sound and will not be modified significantly prior to examination. The NPPF Paragraph 48 states that decision-makers may give weight to relevant policies in emerging plans according to their stage of preparation, the extent to which there are unresolved objections to relevant policies, and their degree of consistency with policies in the NPPF 3. For example, a policy that receives few objections at the Regulation 19 consultation can be given more weight than a policy that receives many objections. As such, policies must be considered on a case-by-case basis for larger schemes during the consultation and examination period and the weight given to specific policies must be determined at the time a decision is made. Enfield's [adopted](#) Development Plans remain the starting point for decision making until the new Enfield Local Plan is adopted.

9. **Analysis**

9.1. The main issues arising from this proposal to consider are:

- Principle of development
- Character and appearance of the site and surrounding area
- Environmental health
- Transportation and highways
- Trees and ecology
- Drainage and flooding
- Archaeology

Principle of Development

- 9.2. The principle of installing and strategically expanding decentralised energy networks and associated infrastructure is fully supported and encouraged by policy DMD 52 of the Enfield Development Management Document (2014) and CP 20 of the Enfield Core Strategy (2010), as well as the Enfield Decentralised Energy Network Technical Specification Supplementary Planning Document (2015). The National Planning Policy Framework and policy SI3 of the London Plan (2021) further reinforce the support for decentralised energy networks.
- 9.3. Decentralised energy networks generate energy at the point of distribution, in this case an existing energy from waste facility that is currently being replaced and upgraded with modernised technology and methods. Power and/or heat is then distributed in a network of underground pipelines.
- 9.4. Policies DMD 51 and DMD 52 require new developments to connect to decentralised networks if nearby, contribute towards extensions of the network if feasible to do so, or if the network does not yet exist but is planned then to commit to connect to the network in the future when available.
- 9.5. The principle of the development of the application decentralised energy network has been agreed upon in the previous application 22/00047/FUL. The current proposal to divert part of the network would be consistent with the approved principle.

Character and appearance of the site and surrounding area

- 9.6. The north section of the diversion would be laid underground. The south section would rise from below ground, supported by concrete foundations and headwalls running underneath the A406 North Circular and above Pymmes Brook. The majority of the above ground piping would be enclosed by 2m high fencing.
- 9.7. The above ground piping in the south section would be mainly located in an undeveloped area underneath the North Circular. The area, which is located within a Locally Significant Industrial Site, is mainly industrial with limited distinctive character. Therefore, the proposed structure would not adversely impact the appearance and the character of the local area.
- 9.8. Two cabinets would be erected along the diverted pipeline, one being located on Kenninghall Road and the other one being located on Albany Road. The cabinets would measure 836mm in height, 600mm in width and 260mm in depth, painted in green. It is considered that they would be in discreet locations and given the size of the cabinet, they would have limited visual impact.

Environmental Health

Air quality

- 9.9. Policy SI 1 of the London Plan (2021) requires that development proposals control, and where possible improve, air quality within London. The proposed diversion concerns only 500m of the approved network. Given the scale of the development, it is considered that the proposal would not significantly impact air quality. The Council's Environmental Health Officer raised no objection in this regard. A condition is applied to require non-road mobile machinery to comply with the GLA's supplementary planning guidance Control of Dust and Emissions During Construction and Demolition (2014) to control dust during construction works.

Contamination

- 9.10. A contamination management plan has been submitted along with the application. The Environmental Health Officer is satisfied with the measures suggested in the management plan and considers the measures to be sufficient. A condition is applied to require the compliance of the management plan.
- 9.11. As conditioned, it is considered that the proposal will not negatively impact the environment in the context of air quality and contamination.

Transportation and Highways

- 9.12. The north section of the diverted piping will be located within the public highway. As such, it will require temporary traffic control measures to ensure the safety of road users and efficiency of movement.
- 9.13. The Council's Highways department recognised that the proposal has no long term effects on either highway usage or amenity. In addition to the south section which would run underneath the Transport for London structure on A406 North Circular, the management of the actual execution of works will be controlled by licensing in accordance with Section 50 of the New Roads and Street Works Act 1991, which is a separate process from granting planning permission.
- 9.14. It will be the responsibility of the developer to enter into agreements with the Council as the Highway Authority and Transport for London to ensure any construction related impacts to the movement and free flow of traffic will be managed and sufficiently mitigated.

Trees and ecology

- 9.15. There is no Tree Protection Order in place within or near the diverted area. An Arboricultural Impact Assessment (AIA) has been submitted by the applicant. The AIA includes survey data, survey methods, tree constraints plans, tree works plans, tree protection plans, and tree protection fencing specifications.
- 9.16. The proposal would not propose any tree removal. Group trees G41 (Category C) would be in close proximity to the north section of the diversion. The AIA suggests open trench excavations which can be micro-sited on the site to avoid conflicts with root protection area.
- 9.17. The Council's Tree Officer was consulted and raised no objection to the proposal and the tree protection and root pruning methods.

- 9.18. The proposed diversion does not cover any ecological sensitive areas. The diversion would avoid running through the Kennington Open Space as in the approved route.
- 9.19. The application suggests appropriate precautionary measures to protect woodland, trees, nesting birds, hedgehogs, reptiles and other protected species and measures to stop the spread of non native invasive species. The proposal also includes enhancement measures such as bird and bat boxes, reptile hibernacula, logger, hedgehog brush piles and wildlife sensitive management. An appointed ecologist has been consulted and raised no objections to the proposed ecological measures and enhancement. Conditions are imposed to ensure compliance with these measures identified in the Construction Environmental Management Plan.
- 9.20. As such, with the appropriate conditions, the proposal is found to be acceptable in this regard and would not result in adverse impact to trees and ecology.

Drainage and Flooding

- 9.21. Given the development consists of underground piping and minor above ground structures, including cabinets and concrete support structure in the south section, the impact on flood risk and drainage would be limited. The Council's Flood Risk and Sustainable Drainage Officer raised no objections to the proposal

Archaeology

- 9.22. The applicant submitted a desk-based archaeology report and a written scheme of investigation. The Greater London Archaeological Advisory Service (GLASS) at Historic England was consulted and noted that due to the scale of the development and the diverted area not falling within an archaeological priority area, the GLASS would not comment on the proposal or require any pre-commencement condition in this regard.

10. The Community Infrastructure Levy (CIL)

- 10.1. In this case, due to the nature of the development, the proposal would not be liable to pay the Council's CIL or the Mayoral CIL.

11. Public Sector Equality Duty

- 11.1. In line with the Public Sector Equality Duty the Council must have due regard to the need to eliminate discrimination and advance equality of opportunity, as set out in section 149 of the Equality Act 2010. Section 149 of the Act requires public authorities to have due regard to several equality considerations when exercising their functions including decision making on planning applications. It is considered that the proposal to grant planning permission for this development would not disadvantage people who share any of the different nine protected characteristics compared to those who do not have those characteristics and therefore it is considered that the development would not have a disproportionate equalities effect. Accordingly, the recommendation is considered appropriate in upholding the council's adopted and emerging policies and is not outweighed by any engaged rights.

12. Conclusion

- 12.1. Strategic national, regional, and local policies are supportive of the delivery of decentralised energy networks. This application is for the diversion of the approved first major phase of underground infrastructure to enable the provision of reliable and sustainable energy and allow for future extension of the network. It is considered that the proposed diverted route is in appropriate locations with limited visual impact. The proposal would successfully mitigate transportation, tree, ecology, archaeology and contamination issues that may arise through the requirements of the suggested conditions or by following the plans put forth by the applicant.
- 12.2. The proposal is therefore recommended for approval subject to the recommended conditions.



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Legend

- Zone demarcation
- 1665-ENF-D3A-M-DHN-00-DR-M-00XX drawing reference

001	TENDER ISSUE	10.12.21	PH	10.12.21
Rev	Description	Issued	Checked	Date

Purpose of issue
TENDER

Project Information
 Client:



Title: Enfield District Heating Network

Drawing Information
**District Heating Network
 Phase 1 Overall Scheme**

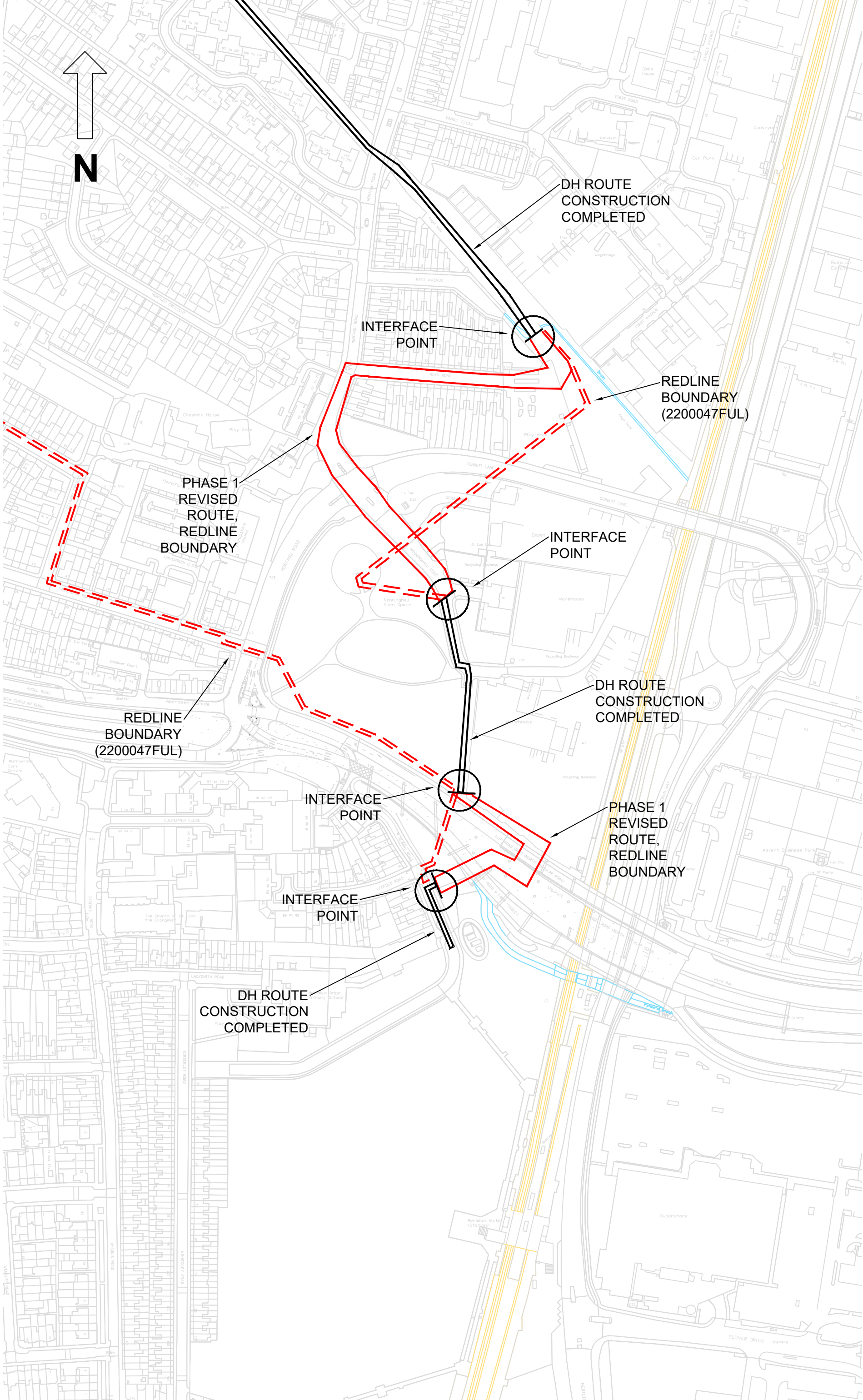
Project ID	Originator	Zone	Level	Type	Role	Drawing No.
ENF	D3A	00	XX	DR	M	0010
Project No.	Drawn	Scale @ A1	Status	Revision		
1665	DW	NA			D2	001

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LEGEND

- Amended Red Line Boundary
- Original Red Line Boundary (Planning Application 22/0047FUL)



Rev	Description	Issued	Checked	Date
001	FOR INFORMATION	21.05.24	PH	21.05.24
002	FOR INFORMATION	19.05.24	PH	19.05.24
003	FOR INFORMATION	04.04.24	PH	04.04.24
004	FOR INFORMATION	03.04.24	PH	03.04.24
005	FOR INFORMATION	22.02.24	PH	22.02.24
006	FOR INFORMATION	20.02.24	PH	20.02.24
007	FOR INFORMATION	20.02.24	PH	20.02.24
008	FOR INFORMATION	04.02.24	PH	04.02.24
009	FOR INFORMATION	20.02.24	PH	20.02.24

Purpose of issue
 TENDER

Client:
energetik

Title: Enfield District Heating Network
PHASE 1 REVISED ROUTE, REDLINE BOUNDARY



Project ID	Developer	Zone	Level	Type	Scale	Drawing No.
ENF	DSA	00	XX	DR	M	0054D
Project No.	Drawn	Scale @ A3	Sheet			
1665	AL	1:2500	S3 P09			

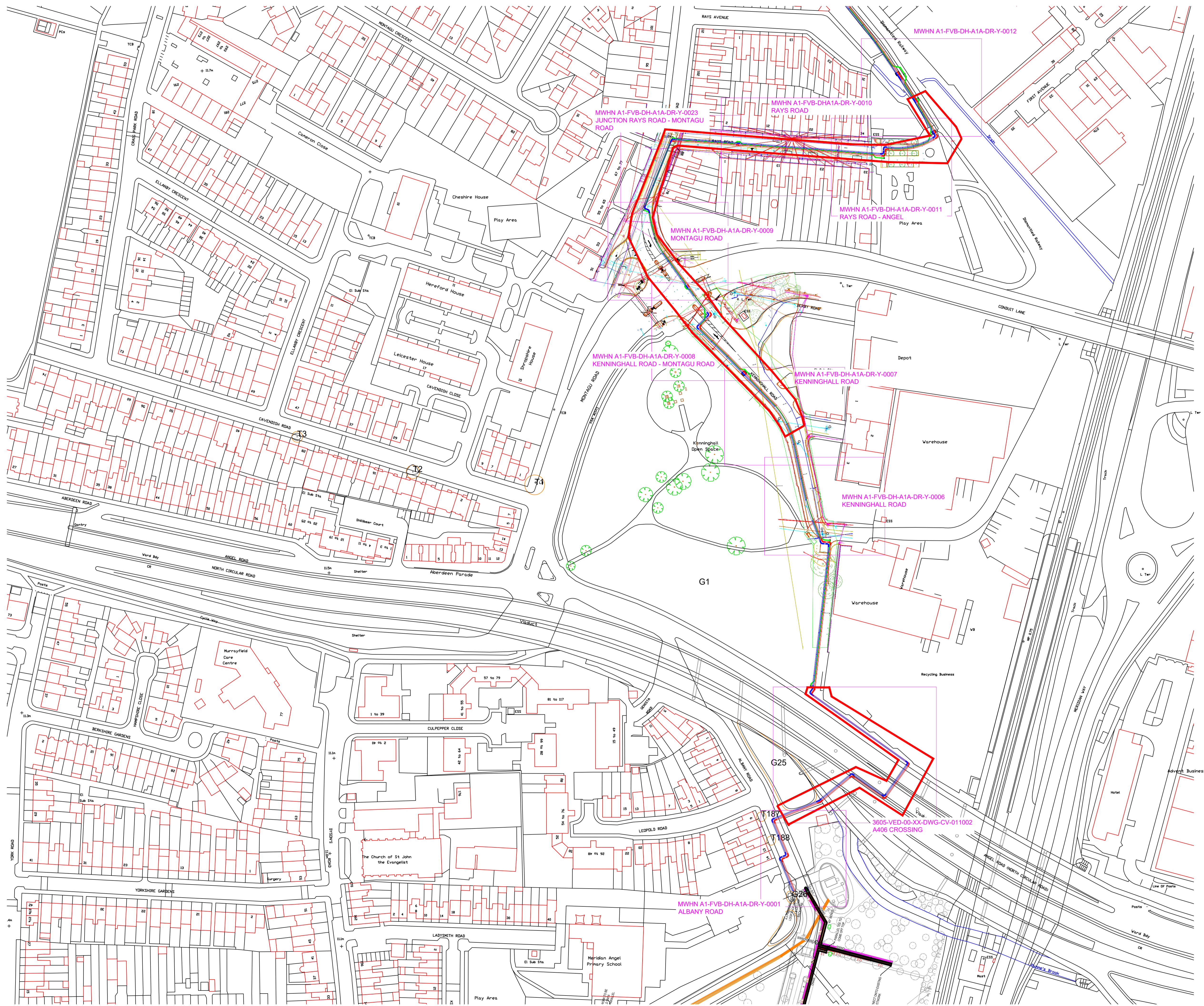
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LEGEND

-  Drawing Boundary
-  Red Line Boundary



R02 FOR INFORMATION	PH	PH	24.05.24
R01 FOR INFORMATION	PH	PH	22.05.24
REV DESCRIPTION			ISSUED CHECKED DATE

FOR INFORMATION

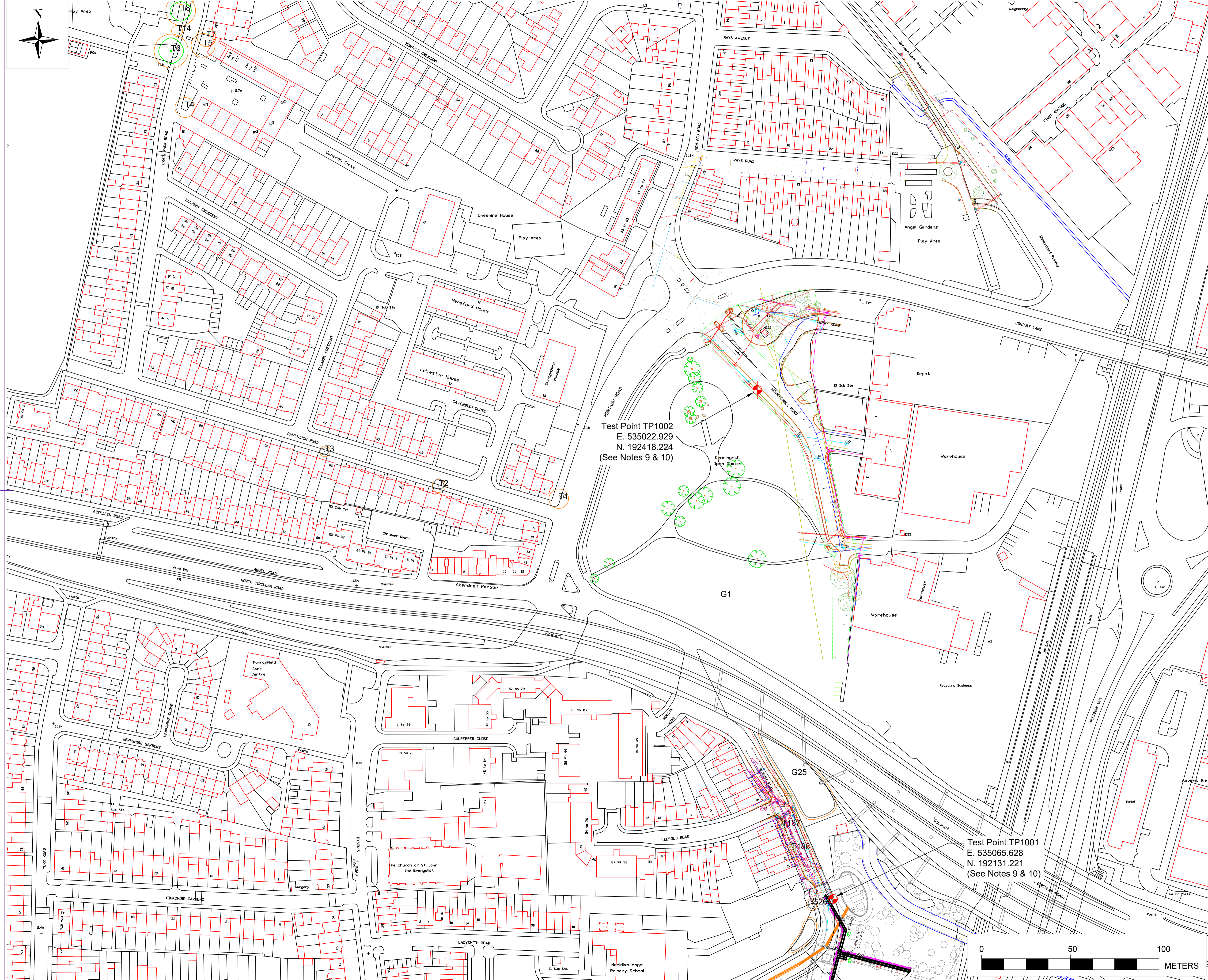
ENFIELD DISTRICT HEATING NETWORK

PHASE 1 DRAWING OVERVIEW WITH REDLINE BOUNDARY

DRAWING NO. 1665-ENF-D3A-00-XX-DR-M- 0063

PROJECT NO.	DRAWN	SCALE @ A1	STATUS	REVISION
1665	AL	1:1000	S2	R02





LEGEND

Test Point

NOTES

- All dimensions are in meters (m) unless otherwise stated.
- All coordinates provided for the purpose of this work are based upon Ordnance Survey coordinates.
- All levels are in metres (m) above Ordnance Datum.
- Do not scale from this drawing. If in doubt, ask.
- Assumptions made on site by contractors or sub-contractors are done so at their own risk.
- This drawing should be read in combination with the Desktop study, GPR survey, "In-Date" Utility Asset Records "C2" Stat Packs and the phase drawings linked to this one (continuation drawings).
- Contractor to work around new and existing services. Any existing services/structures information that has been overlaid onto this drawing is for information purposes only and cannot be relied upon due to possible inaccuracies between background files, ground conditions, latest physical changes on site, etc. Prior to any work it is the contractors responsibility to ensure they have checked and verified the information along with working in accordance to industry standards, such as, but not limited to HSG 47 'Avoiding danger from Underground Services', etc.
- It is the contractors responsibility to liaise with the utility companies in relation to working near/adjacent to their assets and seek any such approvals.
- Test point reference numbers and locations taken from Logstor Document No. 55797-0002-P- REV B - Northern Extension A1-A3 Test Point Analysis.
- Test point locations shown are approximate and are to be confirmed on-site.

Test Point TP1002
E. 535022.929
N. 192418.224
(See Notes 9 & 10)

Test Point TP1001
E. 535065.628
N. 192131.221
(See Notes 9 & 10)

District Heating Pipe Network Design has been carried out in accordance with EN15941 : Parts 1 & 2, 'Design & Installation of Thermal Insulated Bonded Single & Twin Pipe Systems for Directly Buried Hot Water Networks'.

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C01	For Construction	24-04-18	CH
P01	First Issue	24-01-26	CH
REV	Description	Date	Appr. Client Appr.

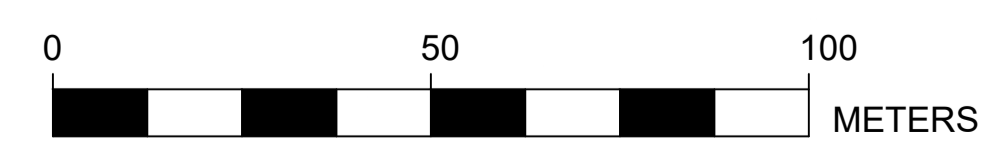
FOR CONSTRUCTION

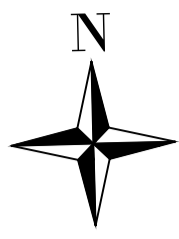
PROVEN PROJECT CONSTRUCTION
District Heating

FVB
FVB District Energy UK Ltd
9 Greyfriars Road, Reading
RG1 1NU
United Kingdom
Email: info@fvb.co.uk

MERIDIAN WATER HEAT NETWORK
PLOT PLAN
ZONE A1 - TEST POINT LOCATIONS
SHT 1 OF 3

FVB Project No.	Drawn By	Scale A1	Scale A3	Status
22009	CH	1:1000	1:2000	A
Project ID	Originator	Volume	Level	Type
MWHNA1	FVB	DH	XX	DR Y
DRG No.	REV	5001	C01	





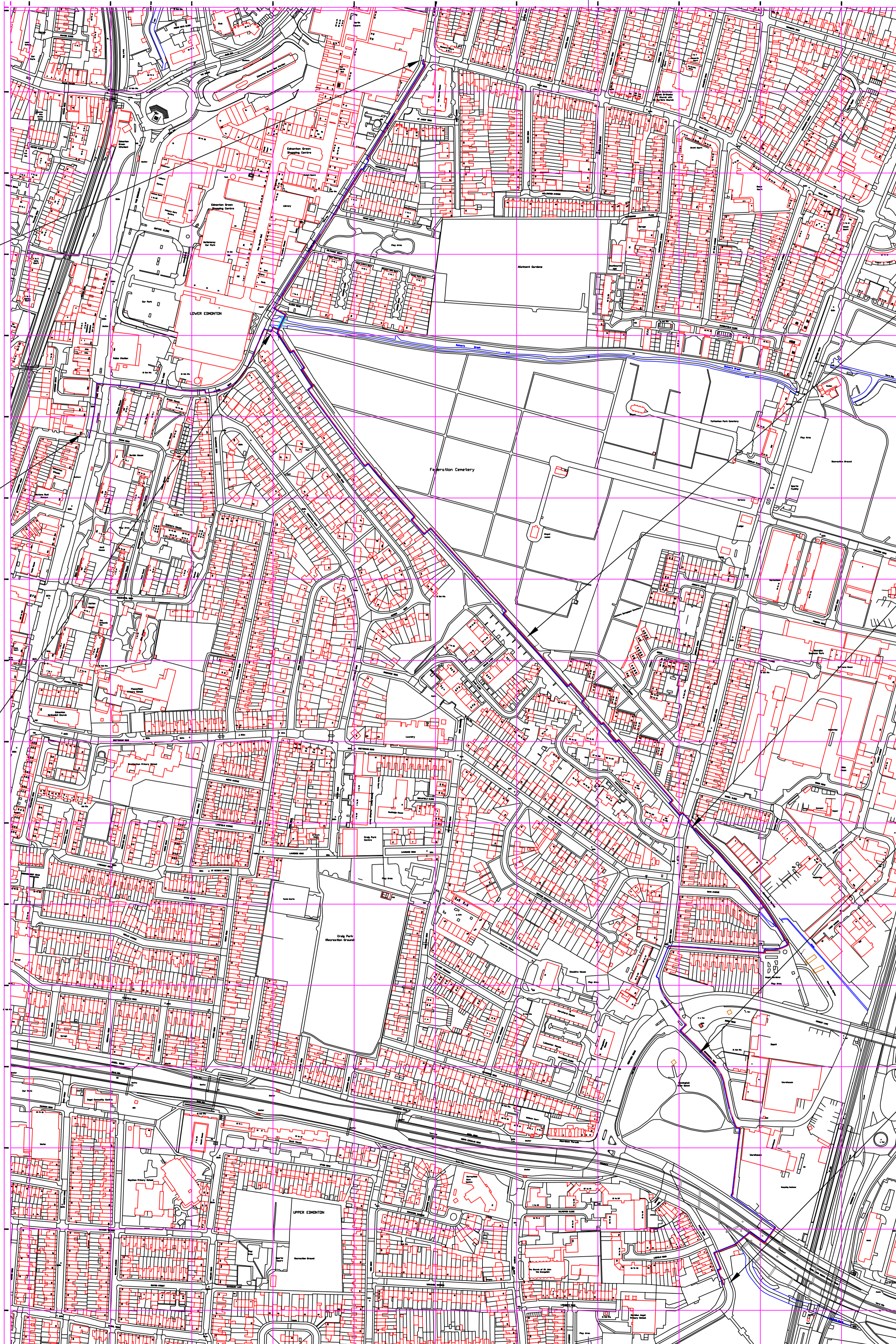
TP1007 Plevna Road/Town Road Junction Test Point Cabinet Location
Map Co-Ordinates E. 534678.378 N. 193634.399



TP1021 Fore Street/Shrubbery Road Test Point Cabinet Location
Map Co-Ordinates E. 534264.255 N. 193177.281



TP1005/TP1006 Top Of Cemetery Walkway Test Point Cabinet Location
Map Co-Ordinates E. 534506.726 N. 193298.083
Map Co-Ordinates E. 534492.869 N. 193304.361



TP1004 Cemetery Walk Test Point Cabinet Location
Map Co-Ordinates E. 534748.252 N. 193006.977



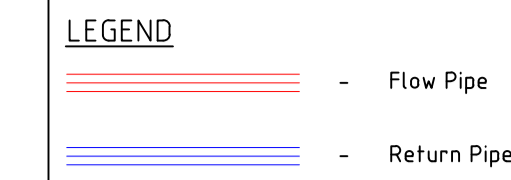
TP1003 Angel Walk Test Point Cabinet Location
Map Co-Ordinates E. 535019.241 N. 192690.581



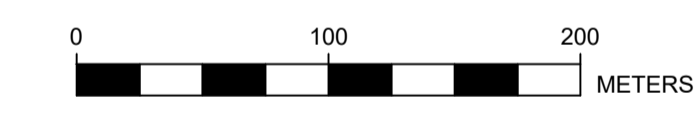
TP1002 Kenninghall Road Test Point Cabinet Location
Map Co-Ordinates E. 535022.929 N. 192418.224



TP1001 Albany Road/Meridian One Site Test Point Cabinet Location
Map Co-Ordinates E. 535065.628 N. 192131.221



- NOTES**
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 8. It is the contractors responsibility to liaise with the utility companies in relation to working near/adjacent to their assets and seek any such approvals.
 9. Above ground test point cabinets are to be Lucy Zodion Fortress Pillar Range. The type is a single door pillar - Size Code 08
Height (Above Ground) 836mm
Width 600mm
Depth 250mm
Colour Moss Green RAL 6005.



District Heating Pipe Network Design has been carried out in accordance with EN15941: Parts 1 & 2, "Design & Installation of Thermal Insulated Bonded Single & Twin Pipe Systems for Directly Buried Hot Water Networks".

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REV	Description	Date	Appr.	Client Appr.
C05	For Construction	24-04-18	CH	
C04	For Construction	24-03-27	CH	
C03	For Construction - Test Points Added	24-03-04	CH	
C02	For Construction - Route Change	24-02-27	CH	
C01	For Construction	23-06-15	CH	

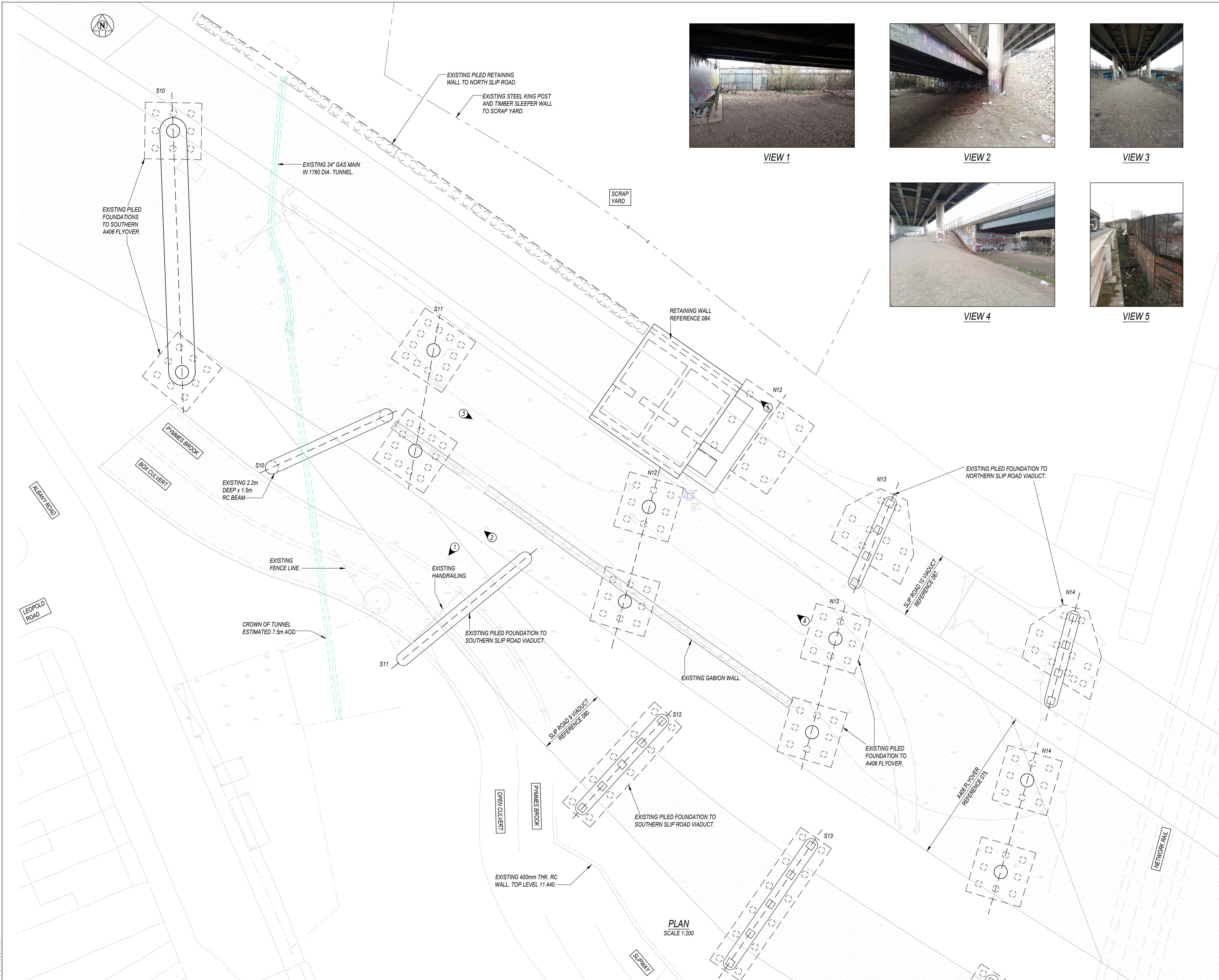
FOR CONSTRUCTION



**MERIDIAN WATER HEAT NETWORK
PLANNING GENERAL ARRANGEMENT
DH FLOW & RETURN
ZONE A1**

FVB Project No.	Drawn By	Scale A1	Scale A3	Status
22009	CH	1:3000	1:6000	A

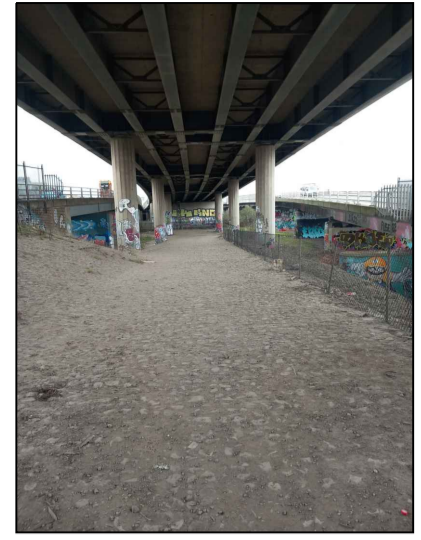
Project ID	Originator	Volume	Level	Type	Disc.	DRG No.	REV
MWHNA1	FVB	DH	XX	DR	Y	8001	C05



VIEW 1



VIEW 2



VIEW 3



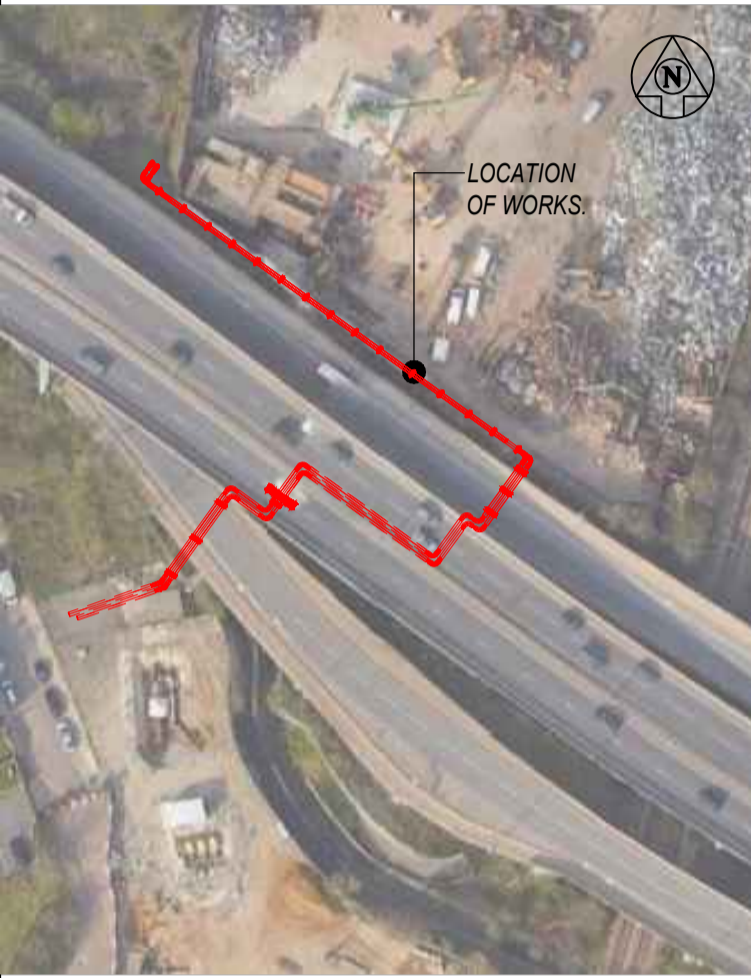
VIEW 4



VIEW 5

NOTES

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LOCATION PLAN
NTS

COLOUR KEY EXISTING SERVICES

—	EXISTING GAS MAIN
—	EXISTING SURFACE WATER DRAINAGE

COLOUR KEY

+31.61	EXISTING LEVEL
①	DIRECTION OF PHOTO

A03	13.03.24	SSS	ALIGNMENT REVISED FOLLOWING TFL COMMENTS
A02	20.11.23	SS	FOR AIP REVIEW
A01	08.09.23	SS	FOR AIP REVIEW
P01	21.07.23	SS	FOR INFORMATION
REV	DATE	BY	DESCRIPTION

VEDA
 London Office
 Highland House,
 185 The Broadway,
 Wimbledon,
 London,
 SW11 3BY
 T: +44 (0)20 3214 5217
 E: info@veda.co.uk
 www.veda.co.uk

CLIENT
PROVEN PROJECT CONSTRUCTION
 District Heating

PROJECT TITLE
MERIDIAN WATER A406 CROSSING

DRAWING TITLE
EXISTING SITE PLAN

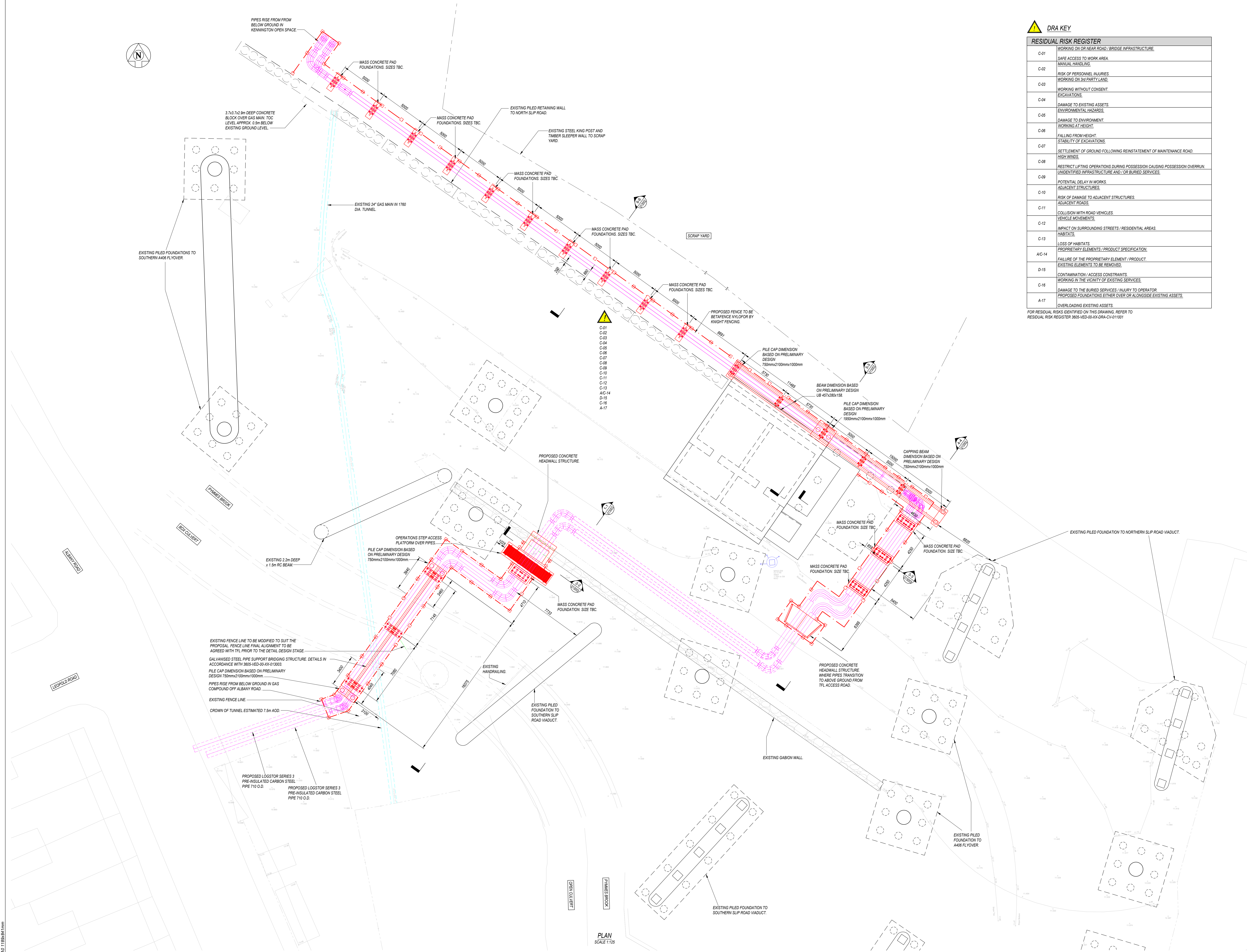
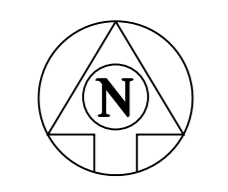
DRAWING STATUS
FOR AIP REVIEW

DRAWING No.	3605-VED-00-XX-DWG-CV-011000	REV	A03
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DATE	JULY 2023	SCALE @ A1	1:200
DRAWN	SS	CHECKED	CPL
VEDA JOB No.		3605	

A1 841x594mm

PLAN
SCALE 1:200



DRA KEY

RESIDUAL RISK REGISTER	
C-01	WORKING ON OR NEAR ROAD / BRIDGE INFRASTRUCTURE
C-02	SAFE ACCESS TO WORK AREA
C-03	MANUAL HANDLING
C-04	RISK OF PERSONNEL INJURIES WORKING ON 3rd PARTY LAND
C-05	WORKING WITHOUT CONSENT
C-06	DAMAGE TO EXISTING ASSETS
C-07	ENVIRONMENTAL HAZARDS
C-08	DAMAGE TO ENVIRONMENT
C-09	WORKING AT HEIGHT
C-10	FALLING FROM HEIGHT
C-11	SETTLEMENT OF GROUND FOLLOWING REINSTATEMENT OF MAINTENANCE ROAD
C-12	RESTRICT LIFTING OPERATIONS DURING POSSESSION CAUSING POSSESSION OVERRUN
C-13	UNIDENTIFIED INFRASTRUCTURE AND / OR BURIED SERVICES
C-14	POTENTIAL DELAY IN WORKS
C-15	ADJACENT STRUCTURES
C-16	RISK OF DAMAGE TO ADJACENT STRUCTURES
C-17	ADJACENT ROADS
C-18	COLLISION WITH ROAD VEHICLES
C-19	VEHICLE MOVEMENTS
C-20	IMPACT ON SURROUNDING STREETS / RESIDENTIAL AREAS
C-21	HABITATS
C-22	LOSS OF HABITATS
C-23	PROPRIETARY ELEMENTS / PRODUCT SPECIFICATION
C-24	FAILURE OF THE PROPRIETARY ELEMENT / PRODUCT
C-25	EXISTING ELEMENTS TO BE REMOVED
C-26	CONTAMINATION / ACCESS CONSTRAINTS
C-27	WORKING IN THE VICINITY OF EXISTING SERVICES
C-28	DAMAGE TO THE BURIED SERVICES / INJURY TO OPERATOR
C-29	PROPOSED FOUNDATIONS EITHER OVER OR ALONGSIDE EXISTING ASSETS
C-30	OVERLOADING EXISTING ASSETS

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COLOUR KEY

+31.01	EXISTING LEVEL
BLACK	EXISTING OR UNCHANGED
GREEN	TO BE INCORPORATED / REMOVED
RED	NEW, PROPOSED OR ADDITIONAL
MAGENTA	BY OTHERS

COLOUR KEY EXISTING SERVICES

(Blue line)	EXISTING GAS MAIN
(Green line)	EXISTING SURFACE WATER DRAINAGE

KEY TO FENCE

(Red dashed line)	PROPOSED 2.03m HIGH SECURITY FENCE IN/OF/OP BY KNIGHT FENCING TO BE INSTALLED AROUND THE PIPES WITH 500mm CLEARANCE. FENCE IS TO BE ROOT MOUNTED ON MASS CONCRETE FOUNDATIONS. FOUNDATION SIZE TO BE CONFIRMED AT THE DETAILED DESIGN STAGE
-------------------	---

A03	13.03.24	SSS	ALIGNMENT REVISED FOLLOWING TFL COMMENTS
A02	15.12.23	SS	FOR AIR REVIEW
A01	20.11.23	SS	FOR AIR REVIEW
REV	DATE	BY	DESCRIPTION



CLIENT
PROVEN PROJECT CONSTRUCTION
District Heating

PROJECT TITLE
MERIDIAN WATER A406 CROSSING

DRAWING TITLE
PROPOSED GENERAL ARRANGEMENT PLAN

DRAWING STATUS

FOR AIR REVIEW	REV	A03
DRAWING No.	3605-VED-00-XX-DWG-CV-01/1002	

DATE	NOVEMBER 2023	SCALE @ A1	AS SHOWN
DRAWN	SS	CHECKED	CPL
VEDA JOB No.	3605		

AD 11896 647mm

PLAN SCALE 1:125

FOUNDATIONS	Fx (kN)	Fy (kN)	Fz (kN)	Mx (kN.m)	My (kN.m)	Mz (kN.m)	FOUNDATION TYPE
F1	0.00	5.97	89.05	0.00	10.15	0.00	PILE
F2	0.00	6.90	102.83	0.00	11.72	0.00	PILE
F3	0.00	3.07	27.90	0.00	3.38	0.00	PAD
F4	0.00	3.71	33.75	0.00	4.18	0.00	PAD
F5	0.00	2.81	25.50	0.00	3.51	0.00	PAD
F6	0.00	2.39	21.75	0.00	2.99	0.00	PAD
F7	9.45	0.00	73.80	0.00	23.63	0.00	PILE
F8	16.70	0.00	130.38	0.00	41.74	0.00	PILE
F9	11.47	0.00	89.54	0.00	28.67	0.00	PILE
F10	7.37	0.00	35.10	0.00	12.16	0.00	PAD
F11	6.30	0.00	30.00	0.00	10.40	0.00	PAD
F12	6.30	0.00	30.00	0.00	10.40	0.00	PAD
F13	6.30	0.00	30.00	0.00	10.40	0.00	PAD
F14	6.30	0.00	30.00	0.00	10.40	0.00	PAD
F15	6.30	0.00	30.00	0.00	10.40	0.00	PAD
F16	6.30	0.00	30.00	0.00	10.40	0.00	PAD
F17	6.30	0.00	30.00	0.00	10.40	0.00	PAD
F18	6.30	0.00	30.00	0.00	10.40	0.00	PAD
F19	6.30	0.00	30.00	0.00	10.40	0.00	PAD

- NOTE:
- Fx IS PERPENDICULAR TO THE PIPE RUN.
 - Fy IS LONGITUDINAL TO THE PIPE RUN.
 - Fz IS THE VERTICAL REACTION TO THE FOUNDATION.
 - PIPE SW CONSIDERED AT FULL CAPACITY LOAD. ANY OTHER LOAD TRANSFERRED TO THE SUPPORT DUE TO CHANGE OF TEMPERATURE OF THE PIPE AND/OR PRESSURE OF WATER, ETC. HAVE NOT BEEN CONSIDERED.
 - AT THE AIP STAGE, PIPE DESIGNER TO CONFIRM THESE LOADINGS AT THE DETAILED DESIGN STAGE.
 - WIND LOADING ON THE MOST ENORMOUS DIRECTION 20% OF THE PIPE SW ADDED TO CONSIDERED THE ADDITIONAL STEELWORK REQUIRED TO SUPPORT THE PIPES.
 - ADDITIONAL STEEL BEAM LOADINGS TAKING INTO ACCOUNT



RESIDUAL RISK REGISTER

Code	Description
C-01	WORKING ON OR NEAR ROAD / BRIDGE INFRASTRUCTURE
C-02	SAFE ACCESS TO WORK AREA. MANUAL HANDLING.
C-03	RISK OF PERSONNEL INJURIES. WORKING ON 3rd PARTY LAND.
C-04	WORKING WITHOUT CONSENT. EXCAVATIONS.
C-05	DAMAGE TO EXISTING ASSETS. ENVIRONMENTAL HAZARDS.
C-06	DAMAGE TO ENVIRONMENT. WORKING AT HEIGHT.
C-07	FALLING FROM HEIGHT. STABILITY OF EXCAVATIONS.
C-08	SETTLEMENT OF GROUND FOLLOWING REINSTATEMENT OF MAINTENANCE ROAD. HIGH WINDS.
C-09	RESTRICT LIFTING OPERATIONS DURING POSSESSION CAUSING POSSESSION OVERRUN. UNIDENTIFIED INFRASTRUCTURE AND / OR BURIED SERVICES.
C-10	POTENTIAL DELAY IN WORKS. ADJACENT STRUCTURES.
C-11	RISK OF DAMAGE TO ADJACENT STRUCTURES. ADJACENT ROADS.
C-12	COLLISION WITH ROAD VEHICLES. VEHICLE MOVEMENTS.
C-13	IMPACT ON SURROUNDING STREETS / RESIDENTIAL AREAS. HABITATS.
C-14	LOSS OF HABITATS. PROPRIETARY ELEMENTS / PRODUCT SPECIFICATION.
D-15	FAILURE OF THE PROPRIETARY ELEMENT / PRODUCT. EXISTING ELEMENTS TO BE REMOVED.
C-16	CONTAMINATION / ACCESS CONSTRAINTS. WORKING IN THE VICINITY OF EXISTING SERVICES.
A-17	DAMAGE TO THE BURIED SERVICES / INJURY TO OPERATOR. PROPOSED FOUNDATIONS EITHER OVER OR ALONGSIDE EXISTING ASSETS. OVERLOADING EXISTING ASSETS.

FOR RESIDUAL RISKS IDENTIFIED ON THIS DRAWING, REFER TO RESIDUAL RISK REGISTER 3605-VED-00-XX-DWG-CV-01/1001

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COLOUR KEY

+31.01	EXISTING LEVEL
BLACK	EXISTING OR UNCHANGED
GREEN	TO BE INCORPORATED / REMOVED
RED	NEW, PROPOSED OR ADDITIONAL
MAGENTA	BY OTHERS

COLOUR KEY EXISTING SERVICES

Blue line	EXISTING GAS MAIN
Green line	EXISTING SURFACE WATER DRAINAGE

- KEY TO FENCE**
- Proposed 2.03m high security fence w/loop for by knight fencing to be installed around the pipes with 500mm clearance. Fence is to be root mounted on mass concrete foundations. Foundation size to be confirmed at the detailed design stage.

REV	DATE	BY	DESCRIPTION
A01	13.03.2024	SSS	ALIGNMENT REVISED FOLLOWING TFL COMMENTS



CLIENT
PROVEN PROJECT CONSTRUCTION
 District Heating

PROJECT TITLE
MERIDIAN WATER A406 CROSSING

DRAWING TITLE
REACTION AT EACH SUPPORT

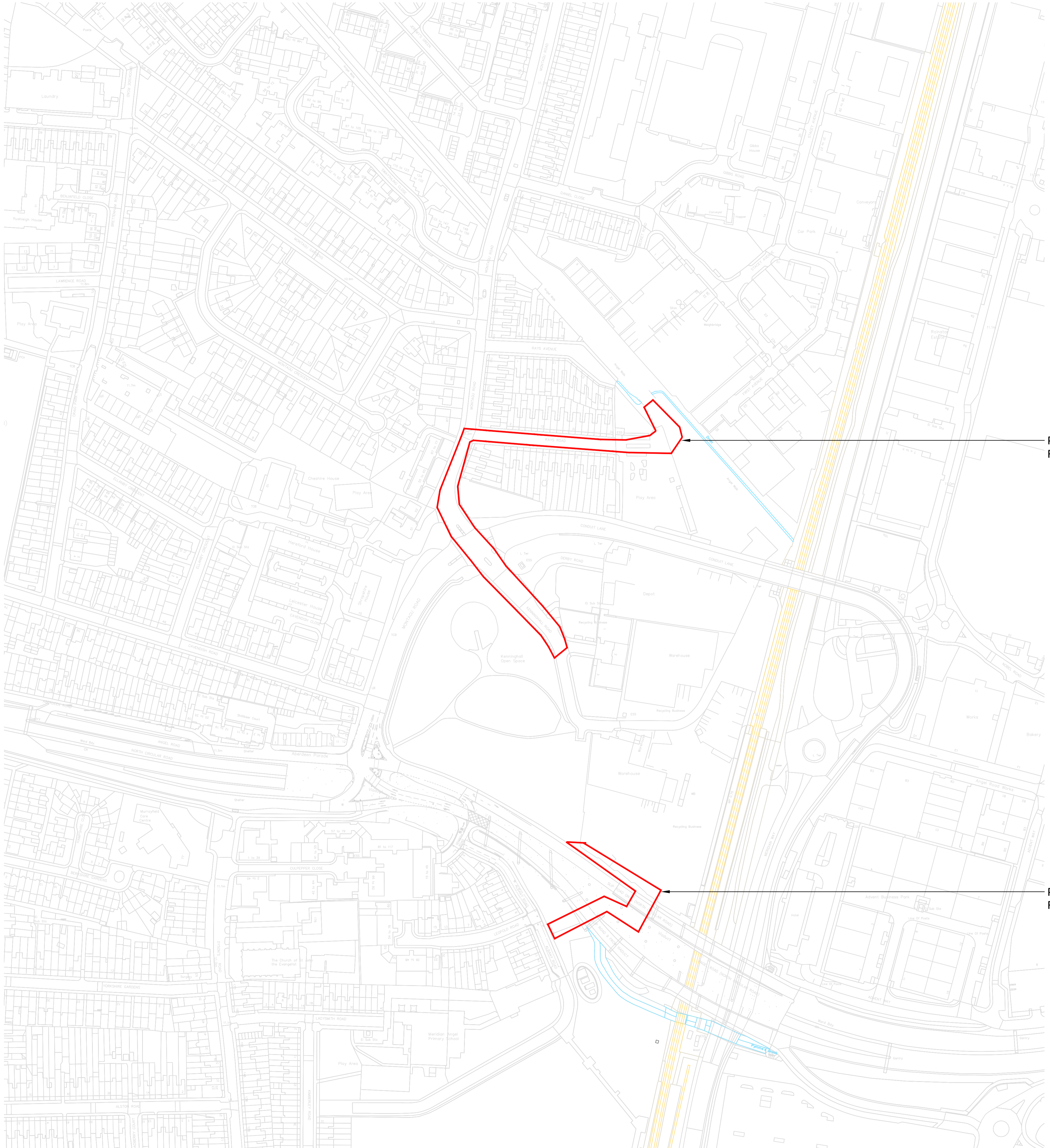
DRAWING STATUS: FOR AIP REVIEW

DRAWING No.	REV
3605-VED-00-XX-DWG-CV-01/1003	A01

DATE	MARCH 2023	SCALE	AS SHOWN
DRAWN	SS	CHECKED	CPL
VEDA JOB No.	3605		

A0: 118x66.61mm

PLAN SCALE 1:125



PHASE 1 REVISED ROUTE
RED LINE BOUNDARY

PHASE 1 REVISED ROUTE
RED LINE BOUNDARY

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01	FIRST ISSUE FOR INFORMATION	AL	PH	17.04.24
REV	DESCRIPTION		ISSUED	CHECKED DATE

PURPOSE OF ISSUE
ISSUE FOR INFORMATION

PROJECT INFORMATION
ENFIELD DISTRICT HEATING NETWORK

CLIENT



DRAWING INFORMATION
REVISED RED LINE BOUNDARY

DRAWING NO.
1665-ENF-D3A-00-XX-DR-M-0058

PROJECT NO.	DRAWN	SCALE @ A1	STATUS	REVISION
1665	AL	1 : 1500	S2	R01





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DH ROUTE CONSTRUCTION COMPLETED

INTERFACE POINT

INTERFACE POINT

DH ROUTE CONSTRUCTION COMPLETED

INTERFACE POINT

INTERFACE POINT

DH ROUTE CONSTRUCTION COMPLETED

REV	DESCRIPTION	AL	PH	17.04.24
01	FIRST ISSUE FOR INFORMATION			

PURPOSE OF ISSUE
 ISSUE FOR INFORMATION

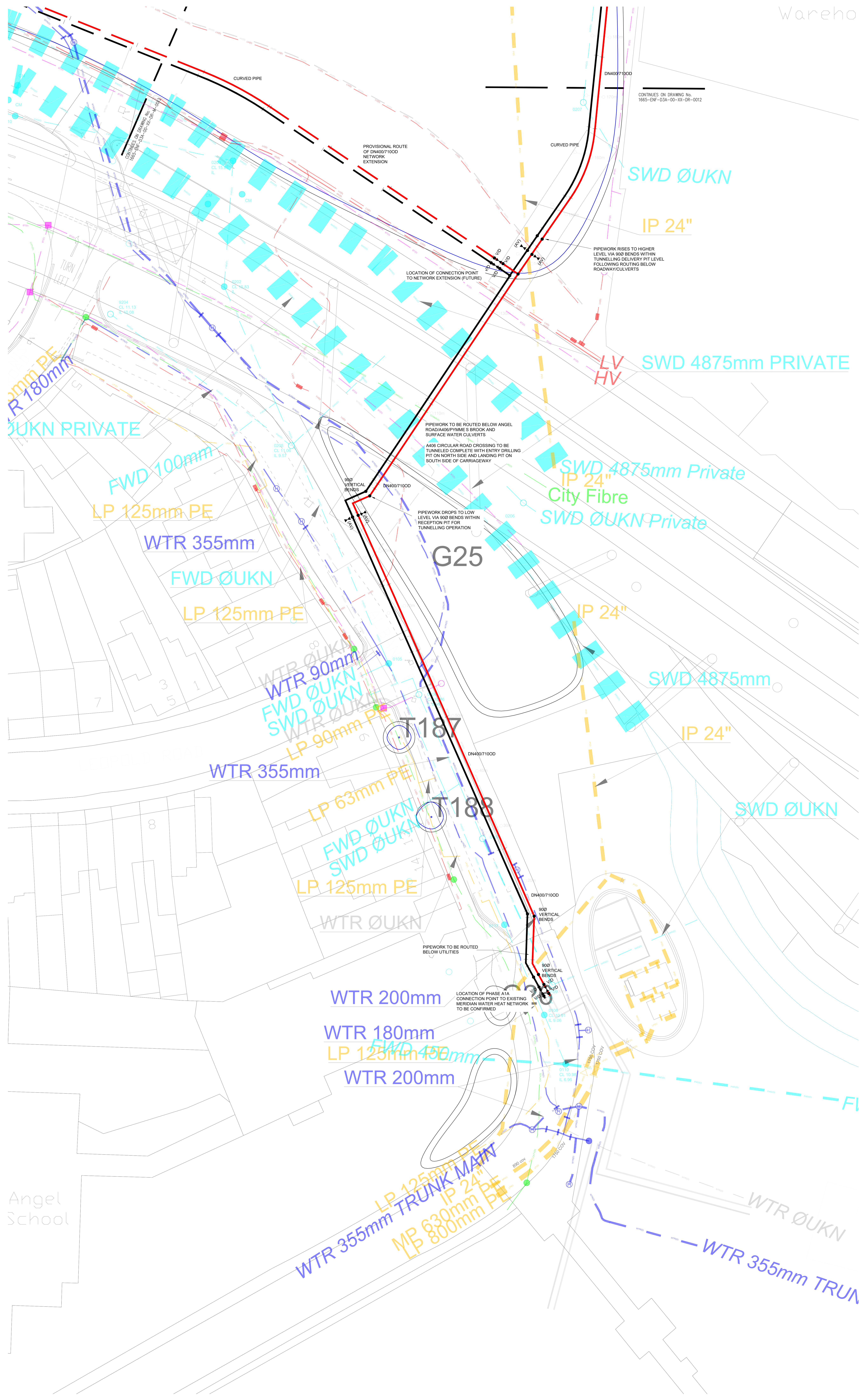
PROJECT INFORMATION
ENFIELD DISTRICT HEATING NETWORK
 CLIENT



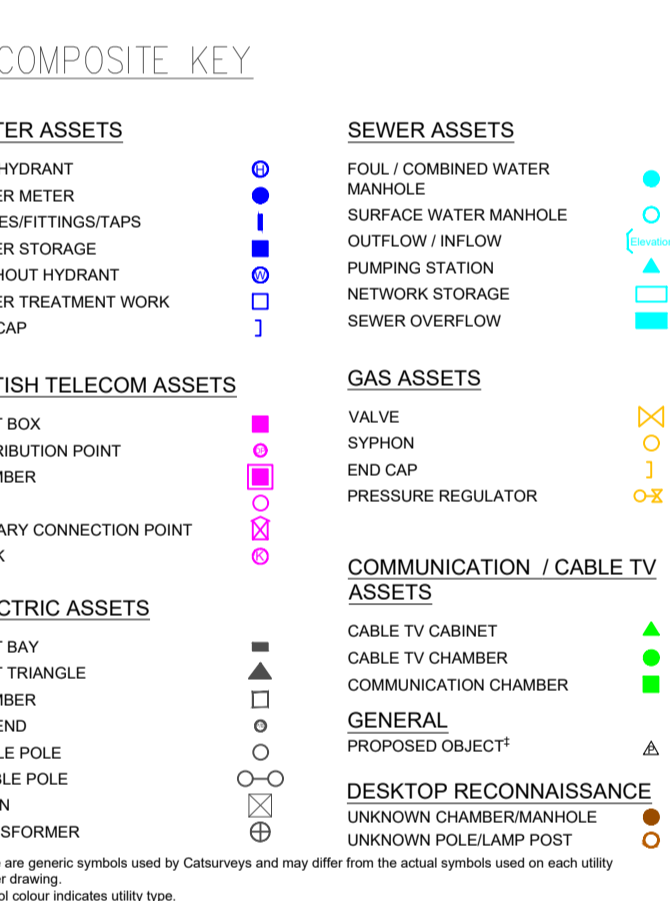
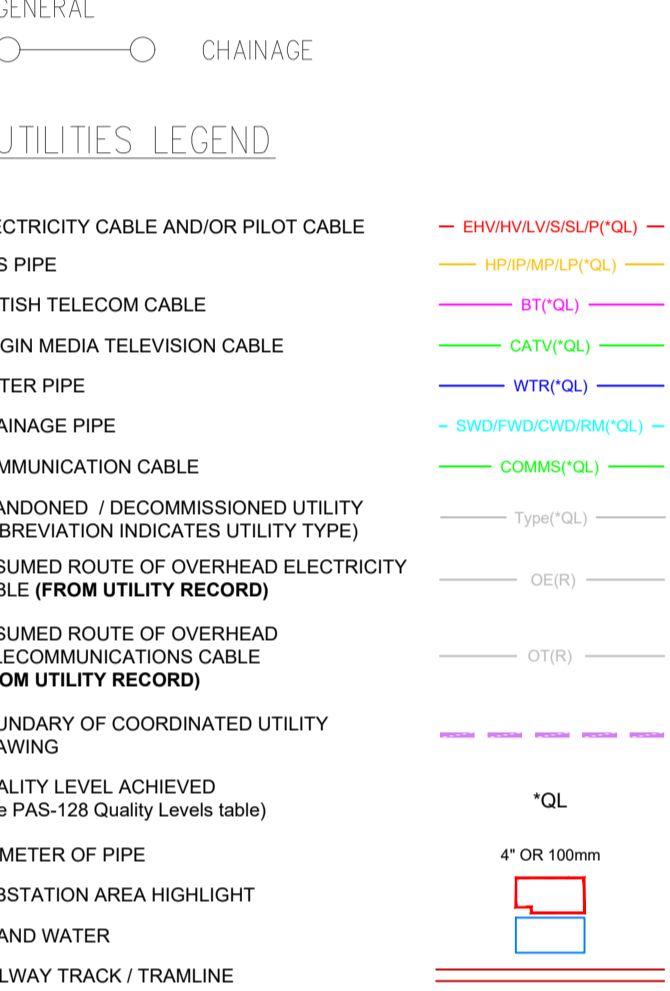
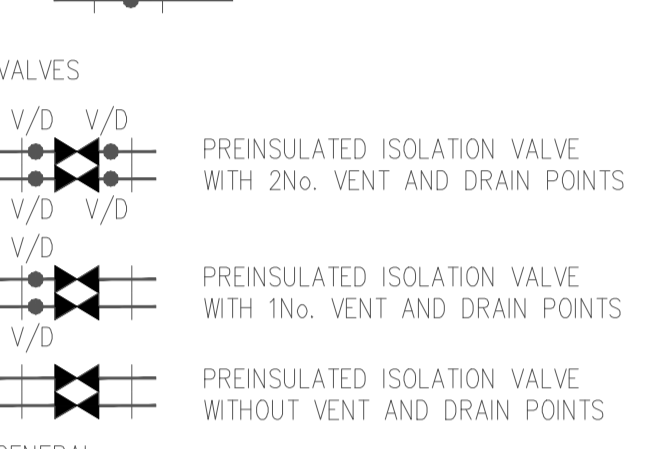
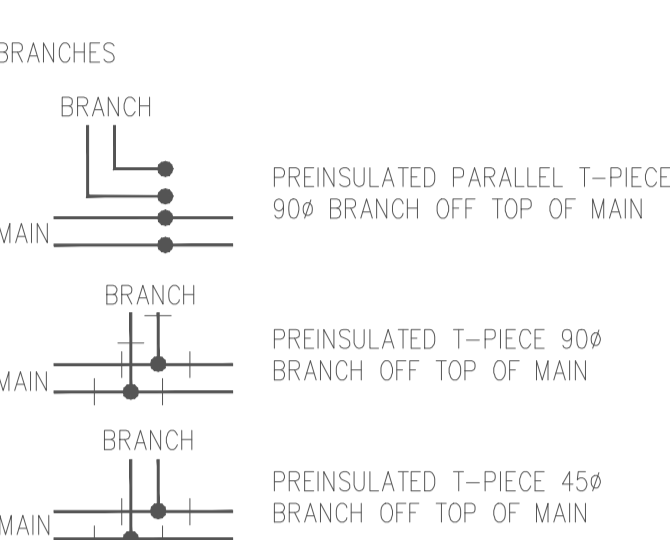
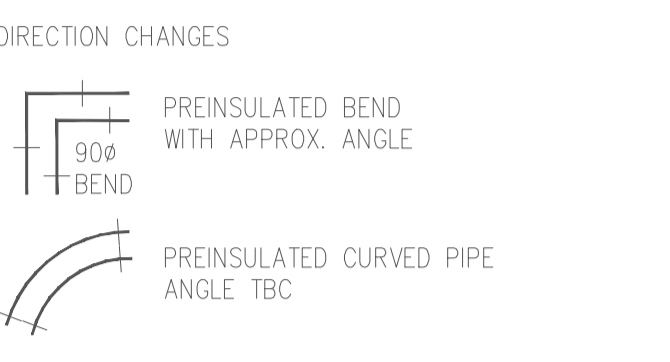
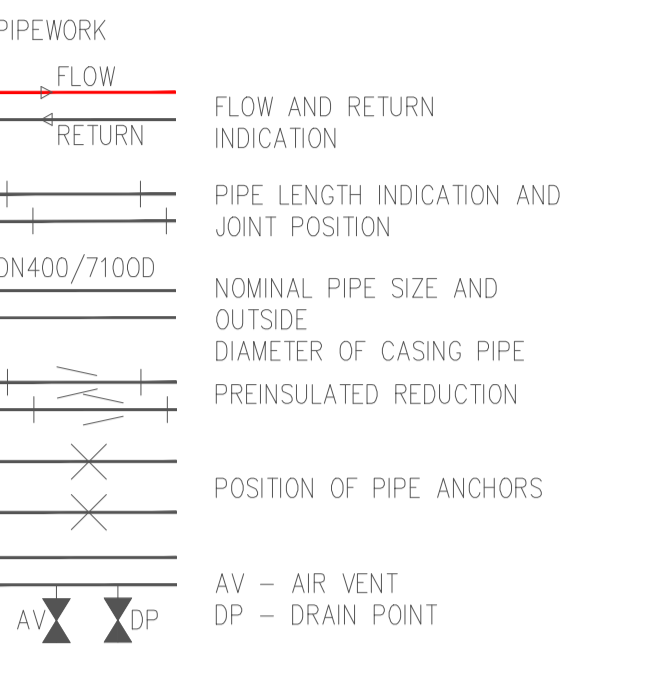
DRAWING INFORMATION
POINTS OF INTERSECTION

DRAWING NO.	PROJECT NO.	DRAWN	SCALE @ A1	STATUS	REVISION
1665-ENF-D3A-00-XX-DR-M-0059	1665	AL	1 : 1500	S2	R01





DISTRICT HEATING NETWORK LEGEND
FOR ADDITIONAL TECHNICAL INFORMATION PLEASE REFER TO THE LOGSTOR MANUALS
1. DESIGN MANUAL
2. DESIGN WITH TWIN PIPES
3. PRODUCT CATALOGUE
4. SURVEILLANCE MANUAL
5. HANDLING AND INSTALLATION



'QUALITY LEVELS' (BSI PAS-128)

Quality Level	Method of Detection	Confidence Level
(A)	Verification by Excavation, Manhole / Inspection Chamber entry	Horizontal: ±50mm Vertical: ±20mm
(B1)	Detected by Multiple Geophysical Techniques (EM, GPR)	±150mm or ±15% of depth
(B2)	Detected by One Geophysical Technique (EM, or GPR)	±250mm or ±40% of depth
(B3)	Geophysical Techniques Produced Weak Signal No Reliable Depth	±500mm
(B4)	Geophysical Techniques Unsuccessful Not Detected (Assumed Route)	Undefined
(C)	Site Reconnaissance (Di Street Features) / Scans / Topographical Features Not Detected	Undefined
(D)	Desktop Utility Record Search Data Not Detected	Undefined

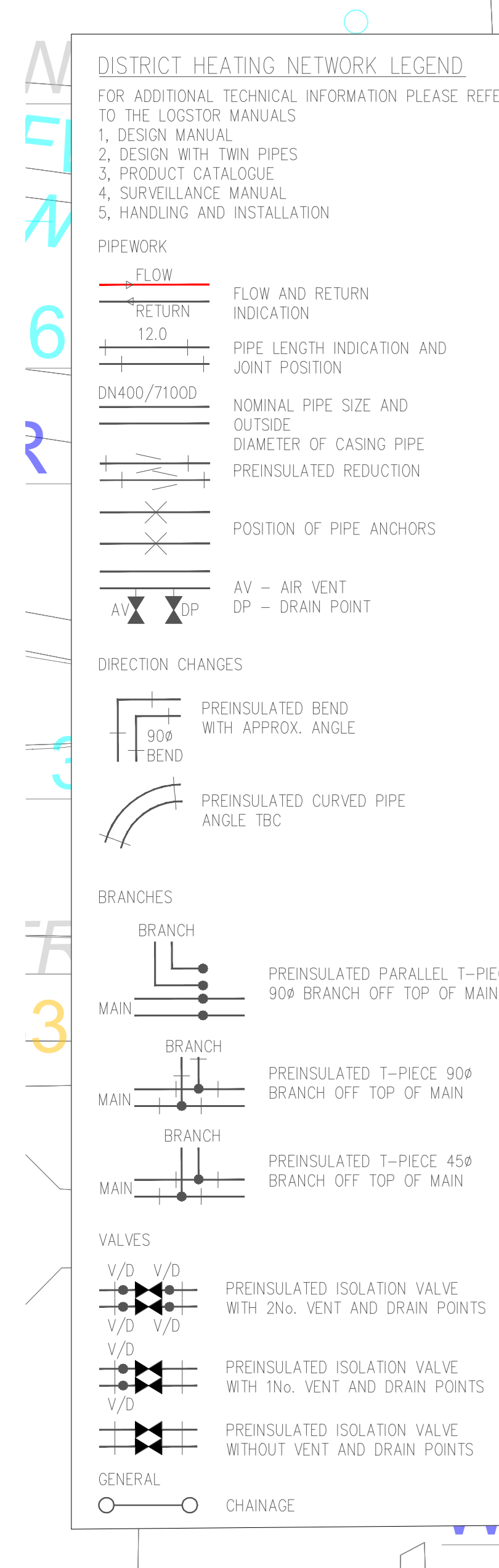
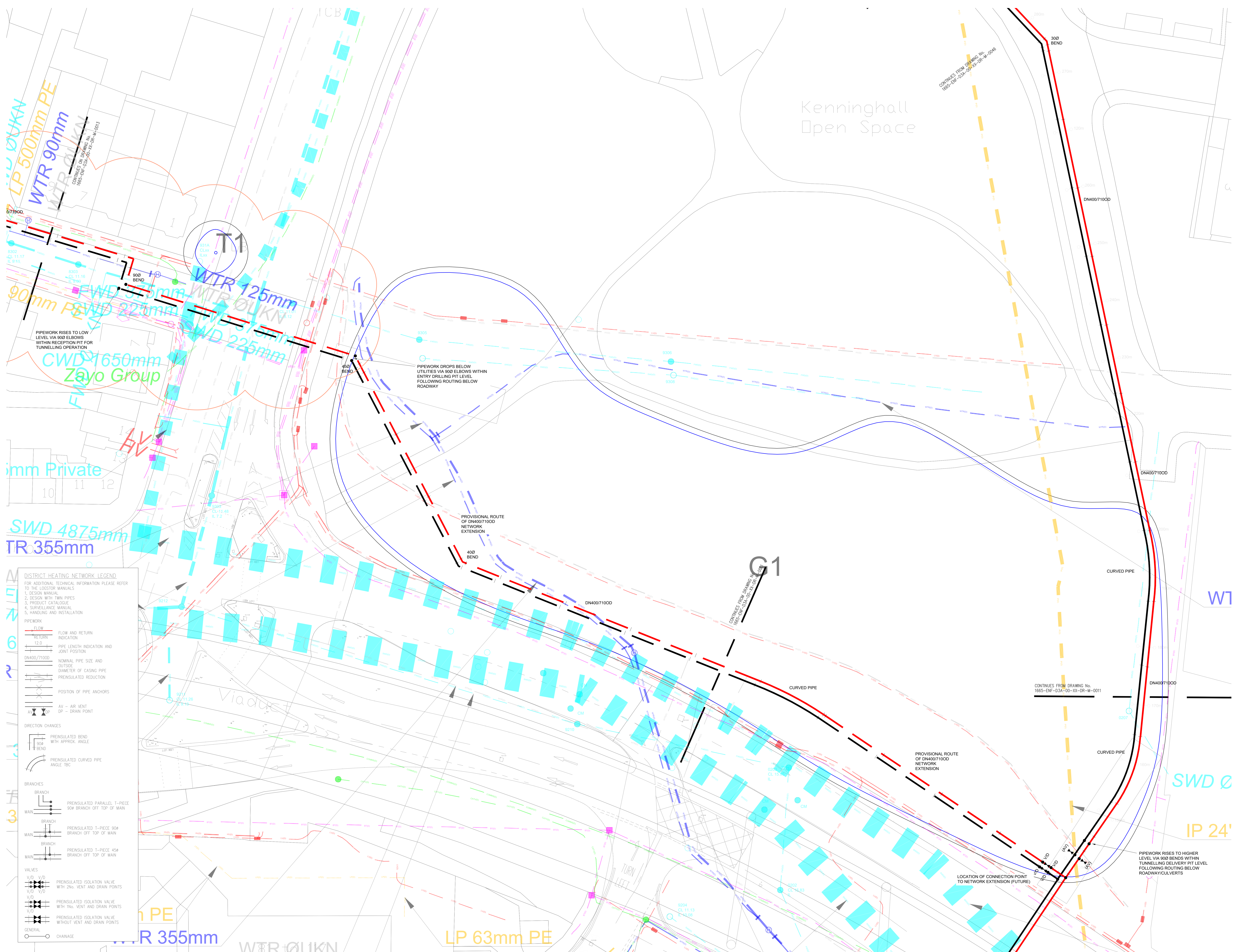
The letter (P) can follow level B1, B2 & B3 to indicate that off-site post processing of GPR has been included.

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KEY (This drawing must be reproduced in colour)
Tree Quality Categorisation
(Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)
T1G1 Trees
H1 Hedgerow
Root Protection Area (RPA)
Category A (high quality)
Category B (moderate quality)
Category C (low quality)
Category U (unsuitable for retention)
Hedgerow (not categorised)

NOTES:
This drawing should be read in conjunction with the respective Arboricultural Survey Data.
The majority of trees were not recorded on the topographical survey provided. Where this was the case, tree locations have been approximated using a combination of aerial imagery and on-site observations.

001 TENDER ISSUE 10.12.21 PM 10.12.21
Rev Description Issued Checked Date
Purpose of issue
TENDER
Project Information
Client:
energetik
Title: Enfield District Heating Network
Drawing Information
**District Heating Network
Phase 1 Layout 1 of 38**



UTILITIES LEGEND

ELECTRICITY CABLE AND/OR PILOT CABLE

GAS PIPE

BRITISH TELECOM CABLE

BRITISH TELECOM TELEVISION CABLE

WATER PIPE

SEWER PIPE

COMMUNICATION CABLE

ABANDONED / DECOMMISSIONED UTILITY

ASSUMED ROUTE OF OVERHEAD ELECTRICITY CABLE (FROM UTILITY RECORD)

ASSUMED ROUTE OF OVERHEAD TELECOMMUNICATIONS CABLE (FROM UTILITY RECORD)

BOUNDARY OF COORDINATED UTILITY DRAWING

QUALITY LEVEL ACHIEVED (See PAS-128 Quality Levels table)

DIAMETER OF PIPE

SUBSTATION AREA HIGHLIGHT

INLAND WATER

RAILWAY TRACK / TRAMLINE

SEWER ASSETS

WATER ASSETS

BRITISH TELECOM ASSETS

GAS ASSETS

ELECTRIC ASSETS

COMMUNICATION / CABLE TV ASSETS

QUALITY LEVELS (BSI PAS-128)

Quality Level	Method of Detection	Confidence Level
(A)	Verification by Excavation, Manhole Inspection, Chamber entry	±50mm of depth
(B1)	Detected by Multiple Geophysical Techniques (EM, GPR)	±150mm of depth
(B2)	Detected by One Geophysical Technique (EM, GPR)	±200mm of depth
(B3)	Geophysical Techniques Produced Weak Signal for Related Depth	±500mm
(B4)	Geophysical Techniques Unsuccessful, Not Detected (Assumed Floor)	Undefined
(C)	Site Reconnaissance Of Street Furniture / Scales / Topographical Features, Not Detected	Undefined
(D)	Desktop Utility Record Search Data, Not Detected	Undefined

The letter (P) can follow level B1, B2 & B3 to indicate that off-site post processing of GPR has been included.

KEY (This drawing must be reproduced in colour)

Tree Quality Categorisation
(Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)

NOTES:
This drawing should be read in conjunction with the respective Arboricultural Survey Data.
The majority of trees were not recorded on the topographical survey provided. Where this was the case, tree locations have been approximated using a combination of aerial imagery and on-site observations.

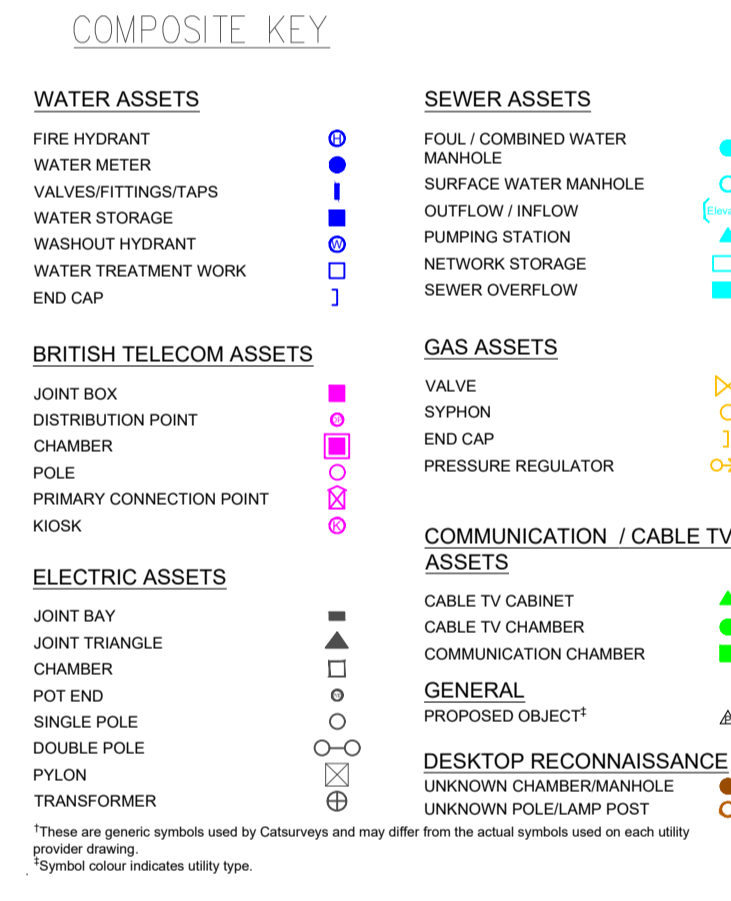
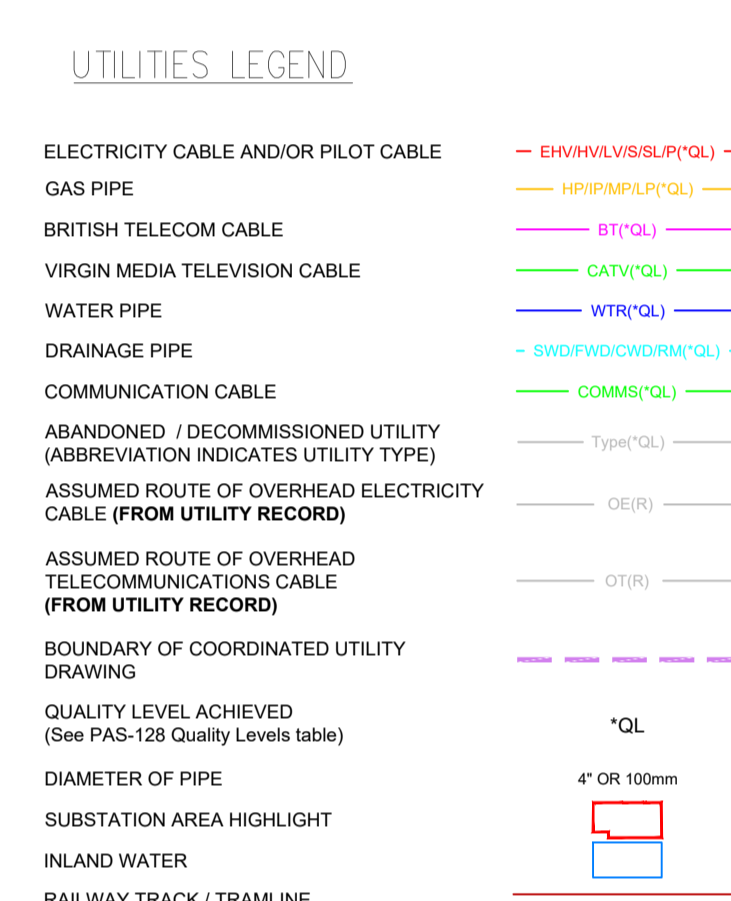
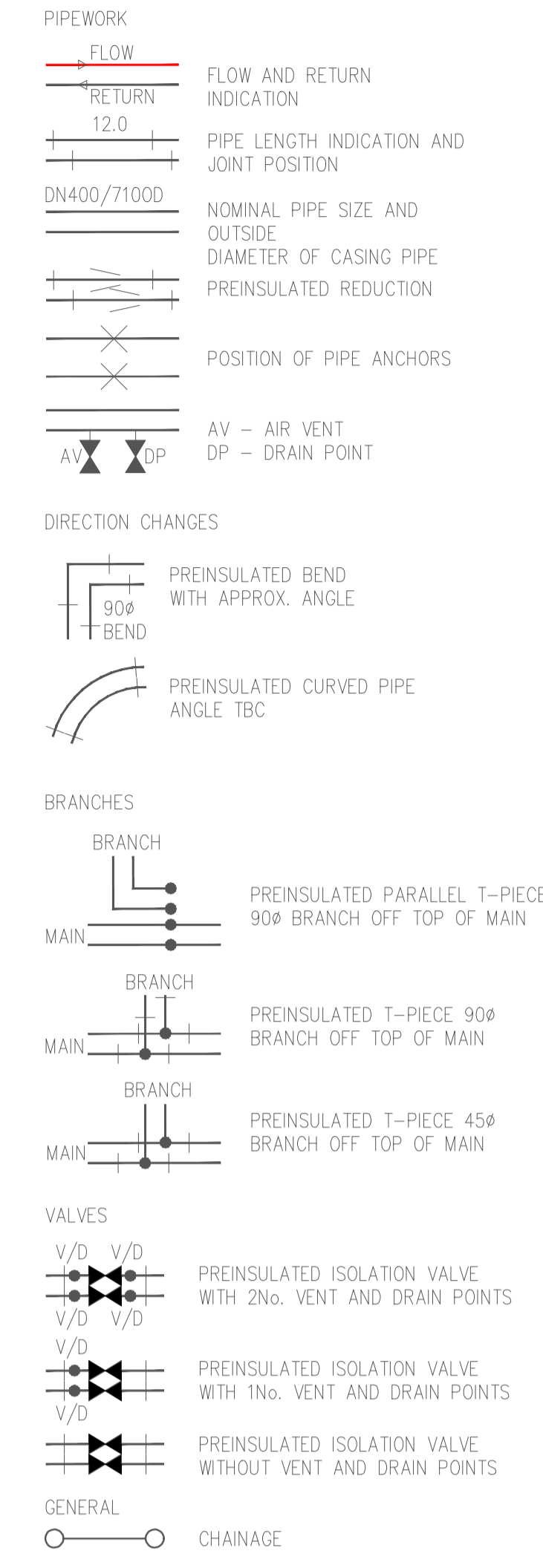
energetik
Title: Enfield District Heating Network
Drawing Information
District Heating Network Phase 1 Layout 2 of 38

Project ID	ENF_DSA_00_XX_DR_M_0012
Project No.	1665_DW_1:200
Scale	D2 002

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www.d3-associates.co.uk

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DISTRICT HEATING NETWORK LEGEND
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 1. DESIGN MANUAL
 2. DESIGN WITH TWIN PIPES
 3. PRODUCT CATALOGUE
 4. SURVEILLANCE MANUAL
 5. HANDLING AND INSTALLATION

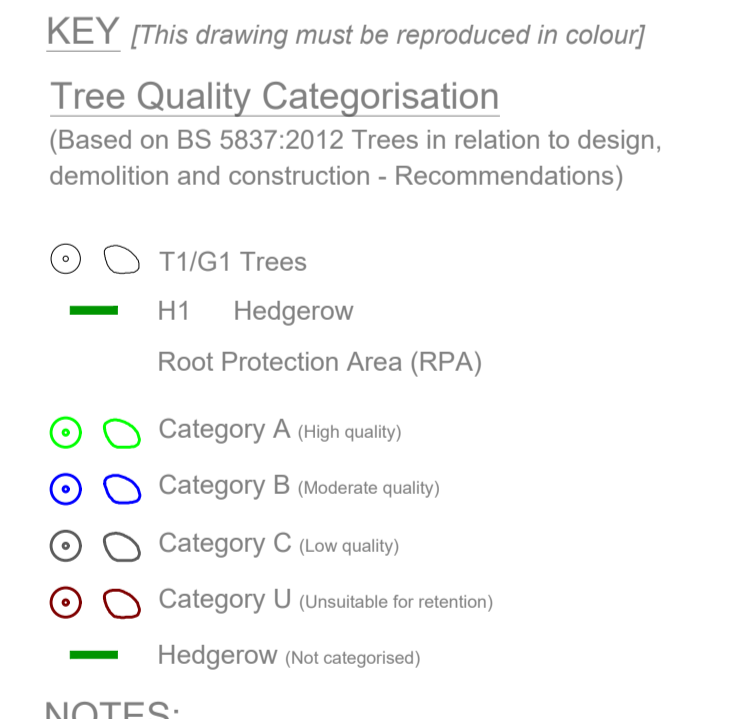


***QUALITY LEVELS (BSI PAS-128)**

Quality Level Achieved	Method of Detection	Confidence Level	
		Horizontal	Vertical
(A)	Verification by Excavation, Methods / Inspection Chamber entry	±50mm	±25mm
(B1)	Detected by Multiple Geophysical Techniques (EM & GPR)	±150mm or ±15% of depth	±15% of depth
(B2)	Detected by One Geophysical Technique (EM, or GPR)	±200mm or ±40% of depth	±40% of depth
(B3)	Geophysical Techniques Product Weak Signal No Reliable Depth.	±500mm	Undefined
(B4)	Geophysical Techniques Unconformable Not Detected (Assumed Faults)	Undefined	Undefined
(C)	Site Reconnaissance Of Street Furniture / 'Scan' Topographical Features Not Detected	Undefined	Undefined
(D)	Desktop Utility Record Search Data Not Detected	Undefined	Undefined

The letter (D) can follow level B1, B2 & B3 to indicate that off-site post processing of GPR has been included.

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NOTES:
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 The majority of trees were not recorded on the topographical survey provided. Where this was the case, tree locations have been approximated using a combination of aerial imagery and on-site observations.

001	TENDER ISSUE	10.12.21 PM	10.12.21
Rev	Description	Issued	Checked
Purpose of issue			

Project Information

Client:

emergetik

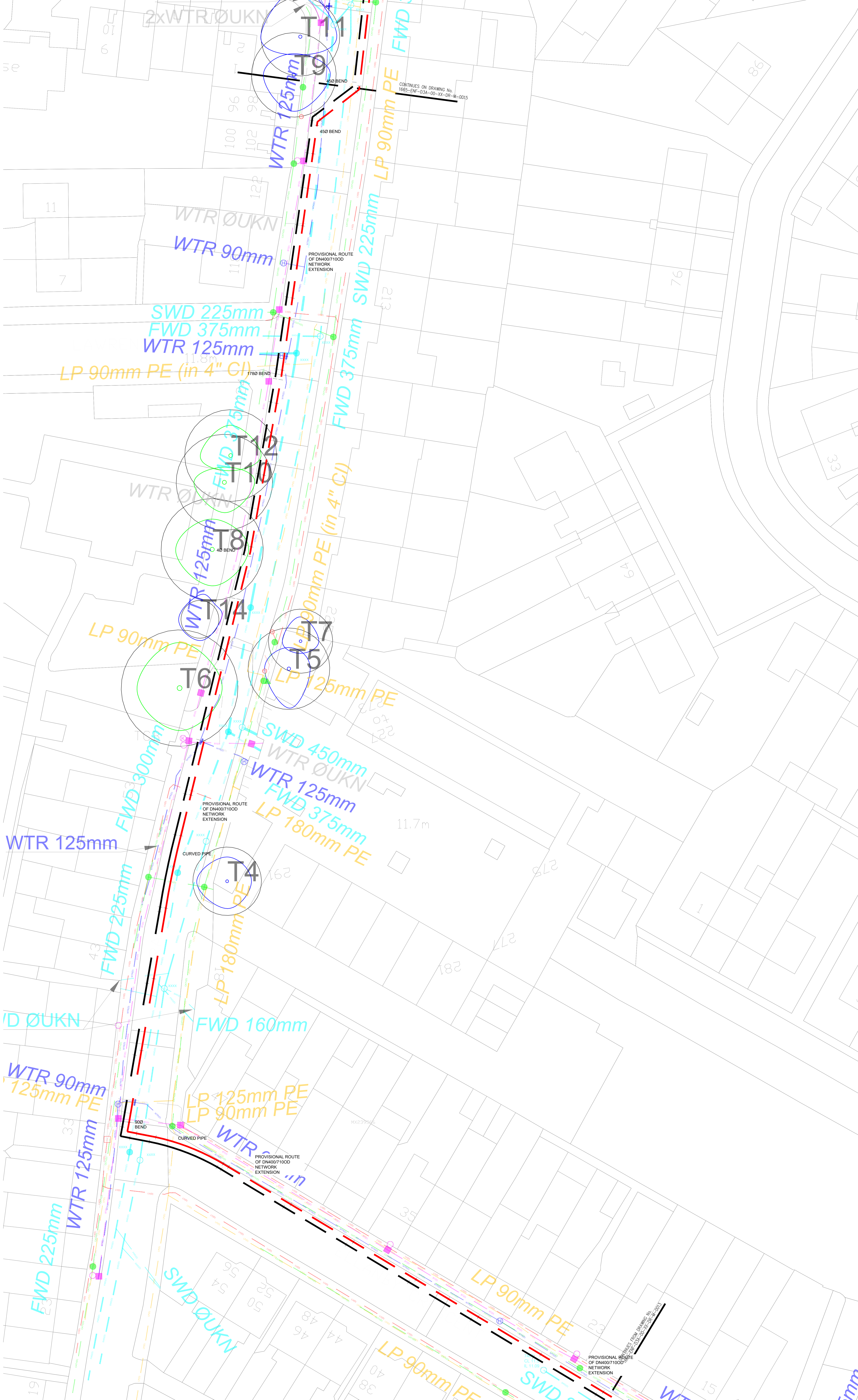
Title: Enfield District Heating Network

District Heating Network Phase 1 Layout 4 of 38

Project ID	ENF_DSA	00	XX	DR	M	0014
Project No.	DWA	1665	DW	1:200	D2	001

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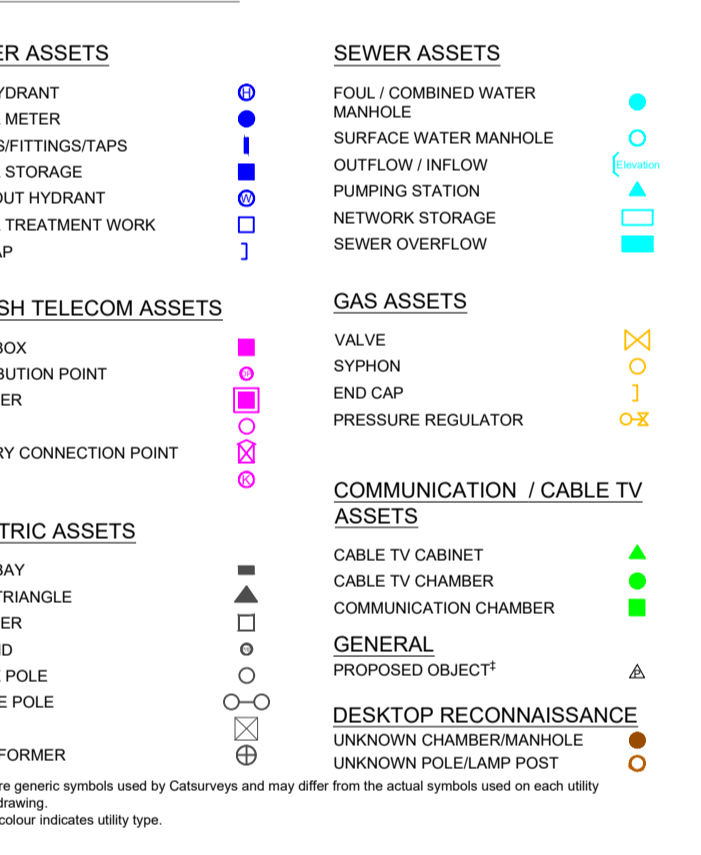
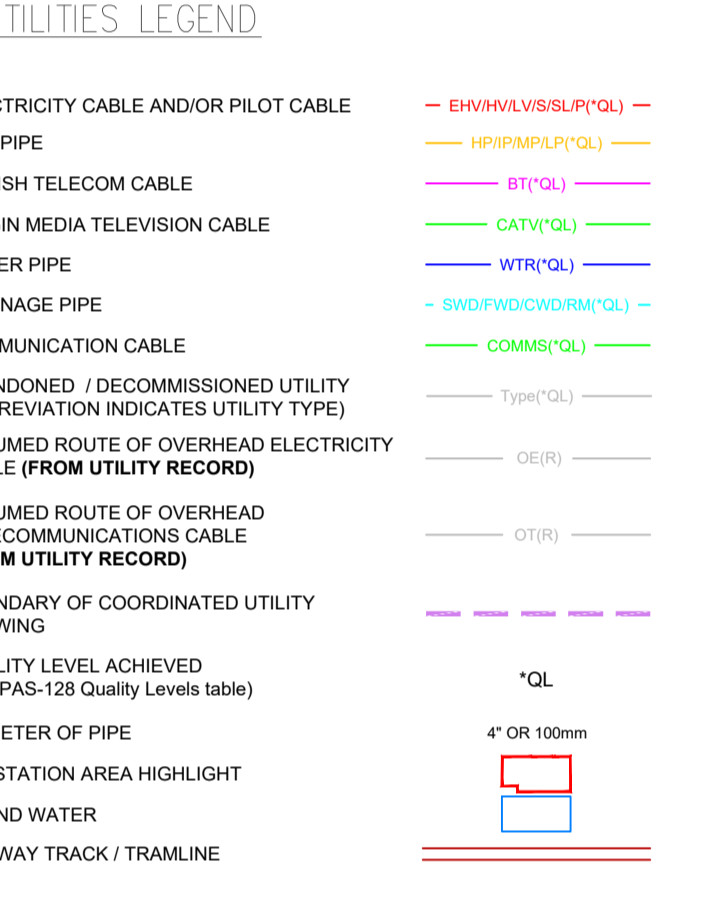
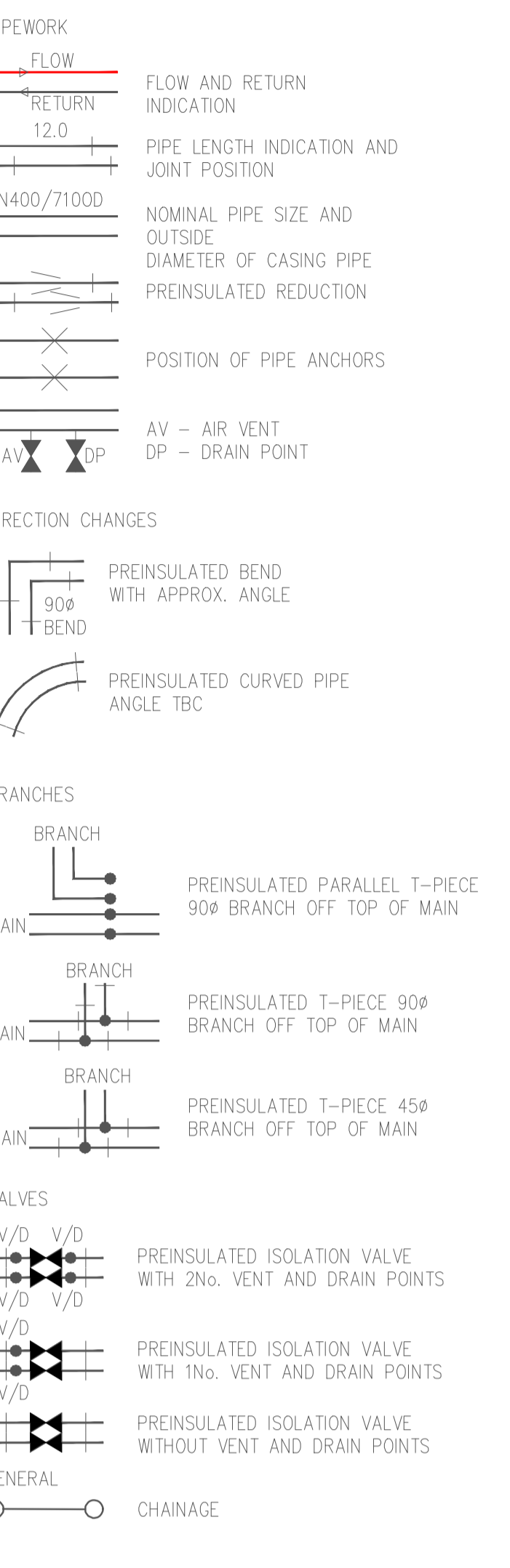


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DISTRICT HEATING NETWORK LEGEND
FOR ADDITIONAL TECHNICAL INFORMATION PLEASE REFER TO THE LOGSTOR MANUALS
1. DESIGN MANUAL
2. DESIGN WITH TWIN PIPES
3. PRODUCT CATALOGUE
4. SURVEILLANCE MANUAL
5. HANDLING AND INSTALLATION



***QUALITY LEVELS (BSI PAS-128)**

Quality Level Achieved	Method of Detection	Confidence Level
		Horizontal Vertical
(A)	Verification by Excavation, Manhole / Inspector Chamber entry	±50mm ±25mm
(B1)	Detected by Multiple Geophysical Techniques (EM & GPR)	±100mm or ±15% of depth ±15% of depth
(B2)	Detected by One Geophysical Technique (EM or GPR)	±200mm or ±40% of depth ±40% of depth
(B3)	Geophysical Techniques - Precursor Weak Signal No Reliable Depths	±500mm Undefined
(B4)	Geophysical Techniques Unsuccessful Not Detected (Assumed Route)	Undefined Undefined
(C)	Site Reconnaissance Of Street Furniture / Street Topographical Features. Not Detected	Undefined Undefined
(D)	Desktop Utility Record Search Data. Not Detected	Undefined Undefined

The letter (D) can follow level B1, B2 & B3 to indicate that off-site post processing of GPR has been included.

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KEY (This drawing must be reproduced in colour)
Tree Quality Categorisation
(Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)
T1G1 Trees
H1 Hedgerow
Root Protection Area (RPA)
Category A (high quality)
Category B (moderate quality)
Category C (low quality)
Category U (unsuitable for retention)
Hedgerow (not categorised)

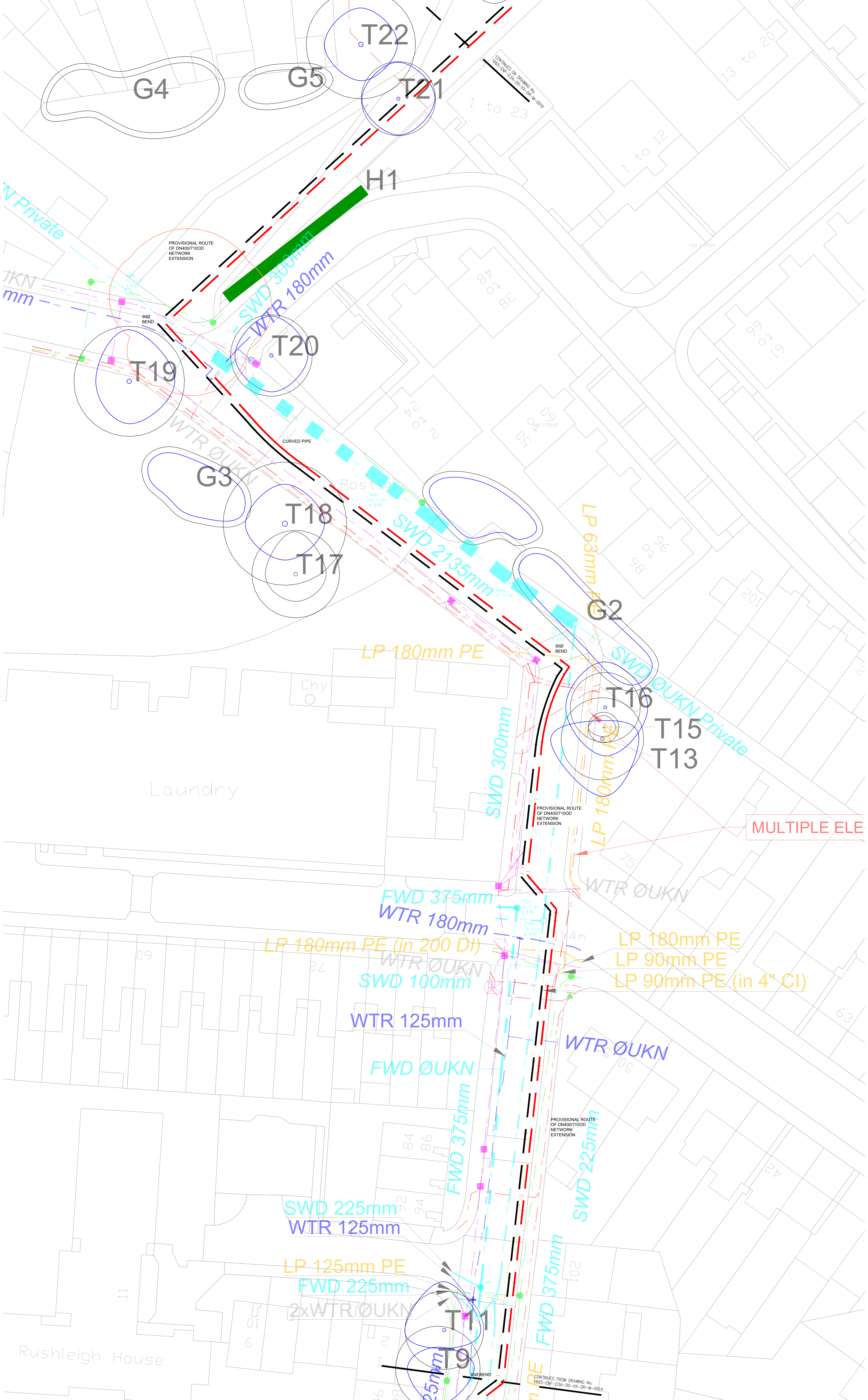
NOTES:
This drawing should be read in conjunction with the respective Arboricultural Survey Data.
The majority of trees were not recorded on the topographical survey provided. Where this was the case, tree locations have been approximated using a combination of aerial imagery and on-site observations.

01	TENDER ISSUE	10/12/21 PM	10/12/21
Rev	Description	Issued	Checked
Purpose of issue			
TENDER			
Project Information			
Client:			

energetik
Title: Enfield District Heating Network
Drawing Information
District Heating Network Phase 1 Layout 5 of 38

Project ID	ENF	Originator	DSA	Zone	00	Level	XX	Type	DR	Scale	M	Sheet No.	0015
Project No.	DWA	Drawn	SWH	Scale	1:200	Date		D2		001			

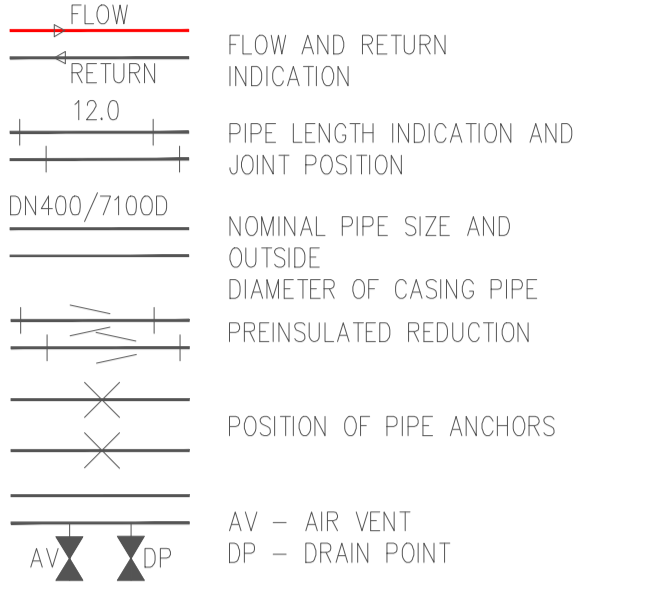
d3associates
ENERGY & ARCHITECTURE
enfield@d3-associates.co.uk
www.d3-associates.co.uk



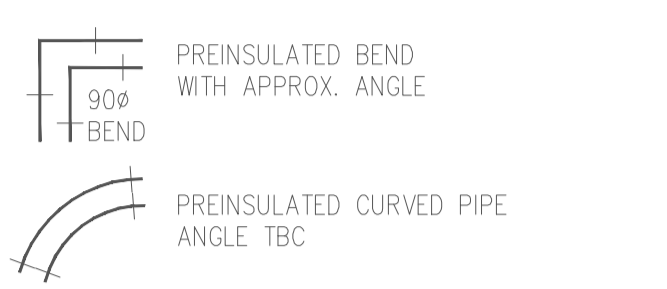
DISTRICT HEATING NETWORK LEGEND

FOR ADDITIONAL TECHNICAL INFORMATION PLEASE REFER TO THE LOGSTOR MANUALS
 1. DESIGN MANUAL
 2. DESIGN WITH TWIN PIPES
 3. PRODUCT CATALOGUE
 4. SURVEILLANCE MANUAL
 5. HANDLING AND INSTALLATION

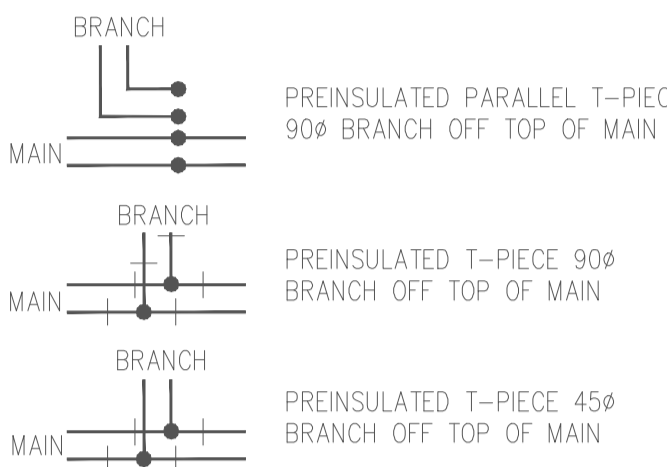
PIPEWORK



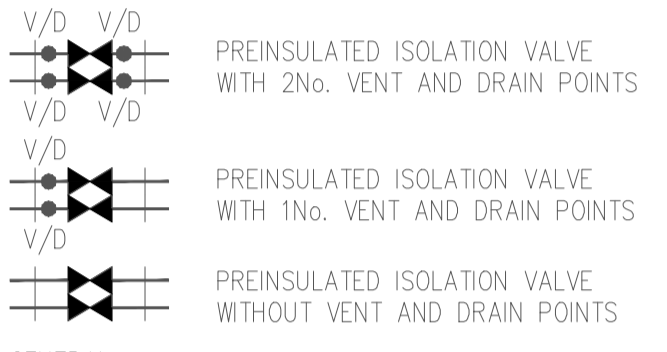
DIRECTION CHANGES



BRANCHES



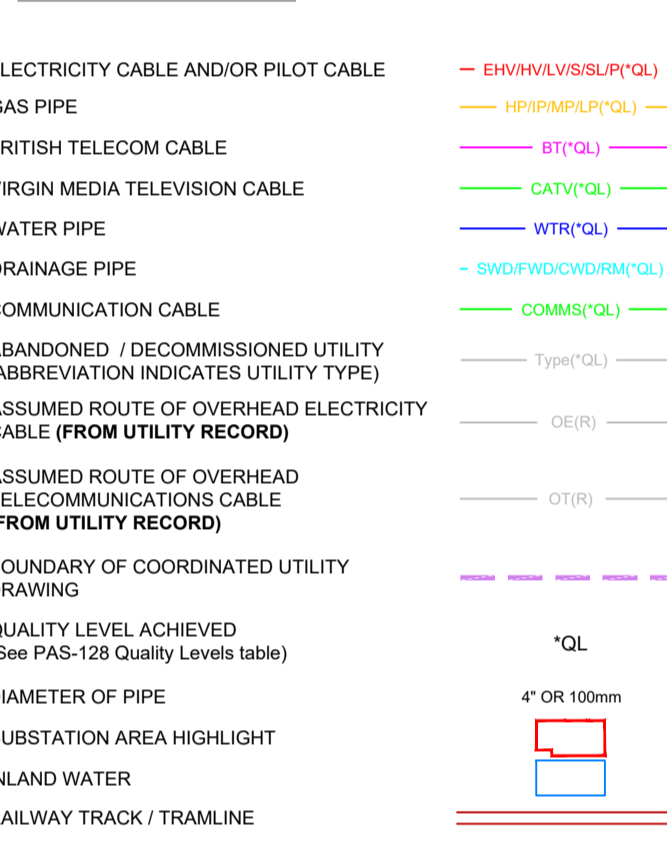
VALVES



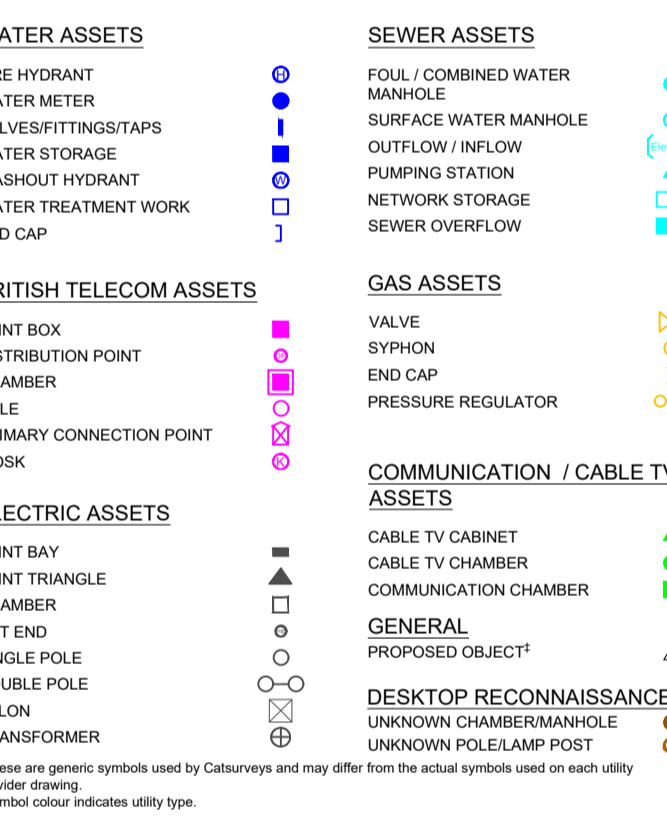
GENERAL



UTILITIES LEGEND



COMPOSITE KEY



***QUALITY LEVELS (BSI PAS-128)**

Quality Level Achieved	Method of Detection	Confidence Level	
		Horizontal	Vertical
(A)	Verification by Excavation, Manhole / Inspection Chamber Entry	±50mm	±20mm
(B1)	Detected by Multiple Geophysical Techniques (EM & GPR)	±100mm or 15% of depth	±15% of depth
(B2)	Detected by One Geophysical Technique (EM, or GPR)	±200mm or 40% of depth	±40% of depth
(B3)	Geophysical Techniques Produced Weak Signal No Reliable Depths	±500mm	Undefined
(B4)	Geophysical Techniques Unsuccessful, Not Detected (Assumed Route)	Undefined	Undefined
(C)	Site Reconnaissance Of Street Furniture / Signs / Topographical Features Not Detected	Undefined	Undefined
(D)	Desktop Utility Record Search Data Not Detected	Undefined	Undefined

The letter (B) can follow level B1, B2 & B3 to indicate that off-site post processing of GPR has been included.

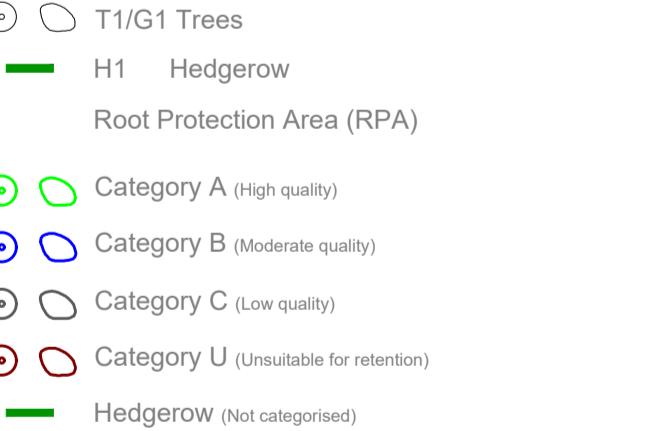
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KEY (This drawing must be reproduced in colour)

Tree Quality Categorisation
 (Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)



NOTES:

This drawing should be read in conjunction with the respective Arboricultural Survey Data.
 The majority of trees were not recorded on the topographical survey provided. Where this was the case, tree locations have been approximated using a combination of aerial imagery and on-site observations.

01	TENDER ISSUE	10.12.21	PH	10.12.21
Rev	Description	Issued	Checked	Date

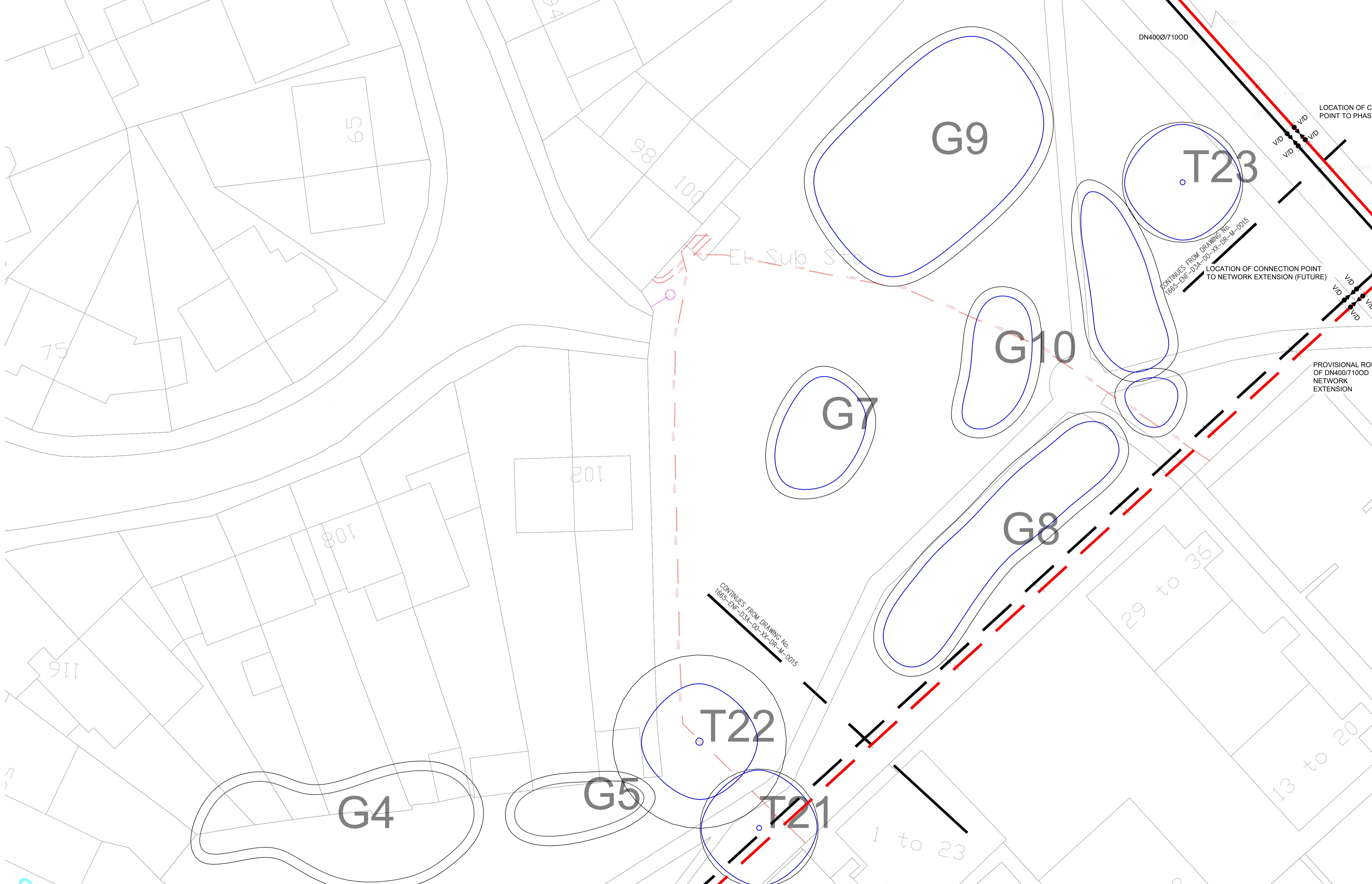
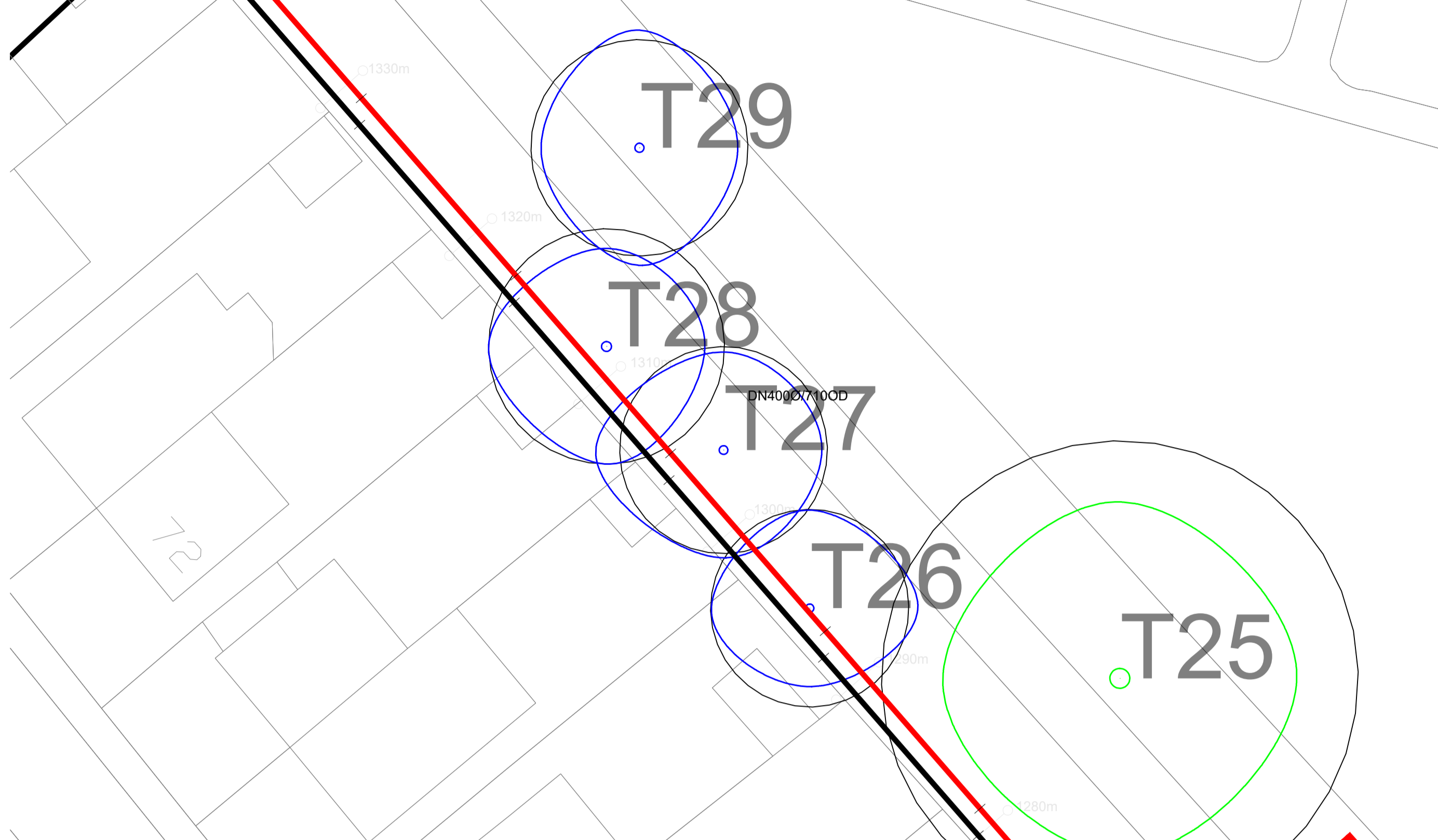
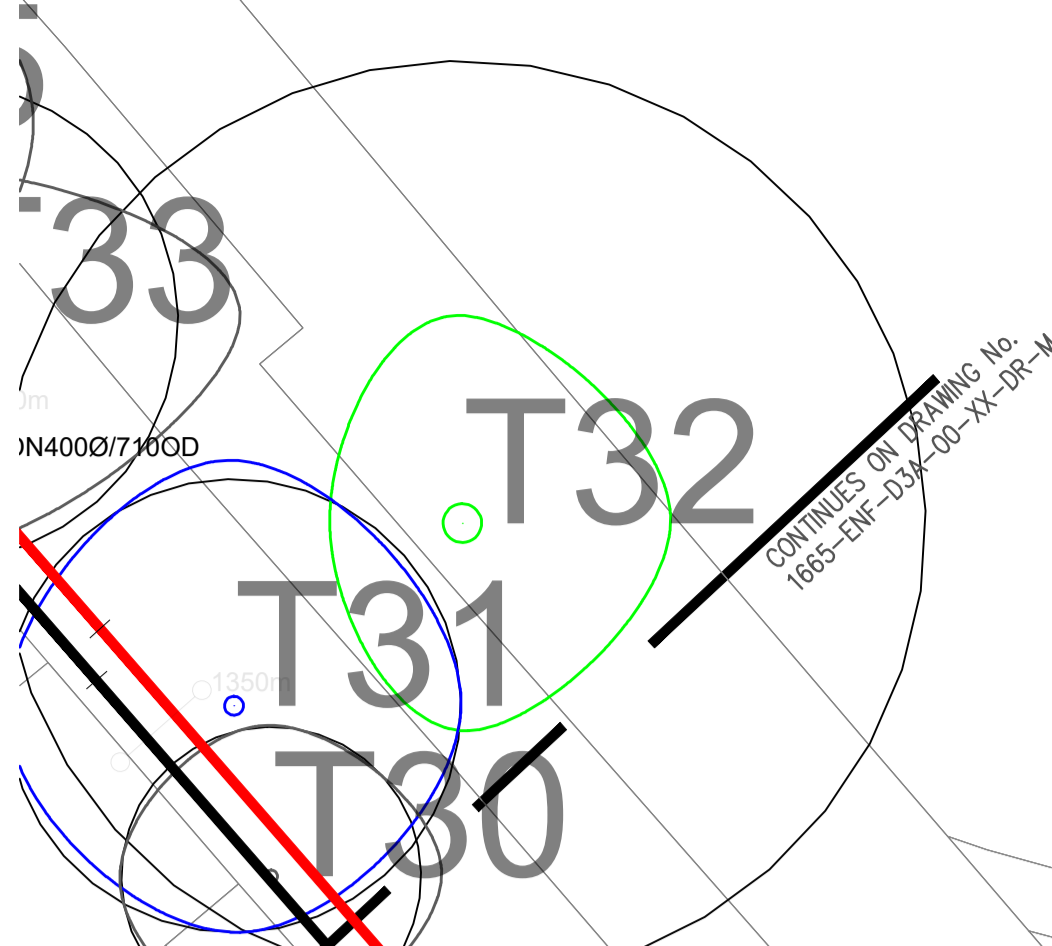
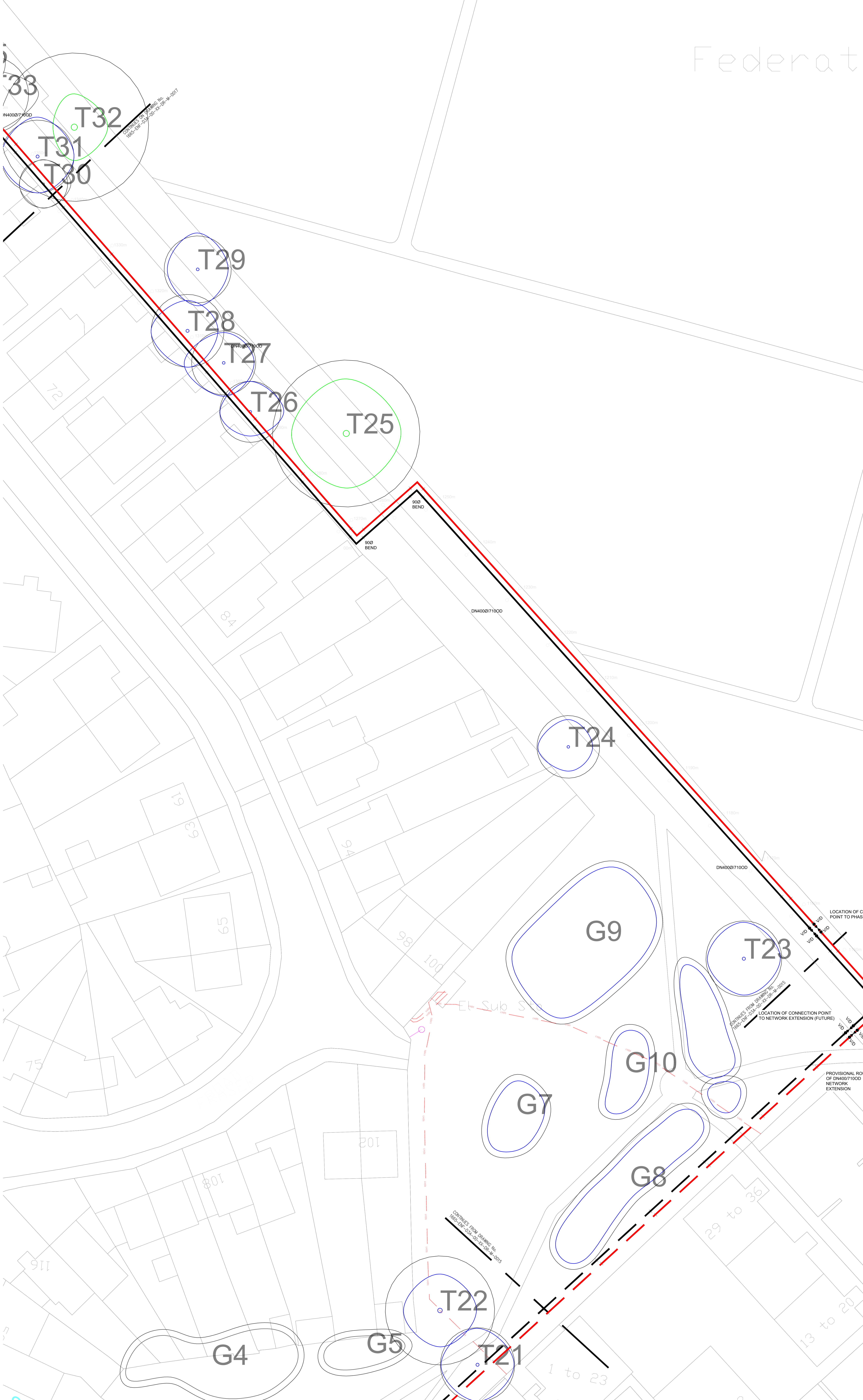
Purpose of issue
TENDER

Project Information
 Client:
energetik

Title: **Enfield District Heating Network**

Drawing Information
District Heating Network Phase 1 Layout 6 of 38

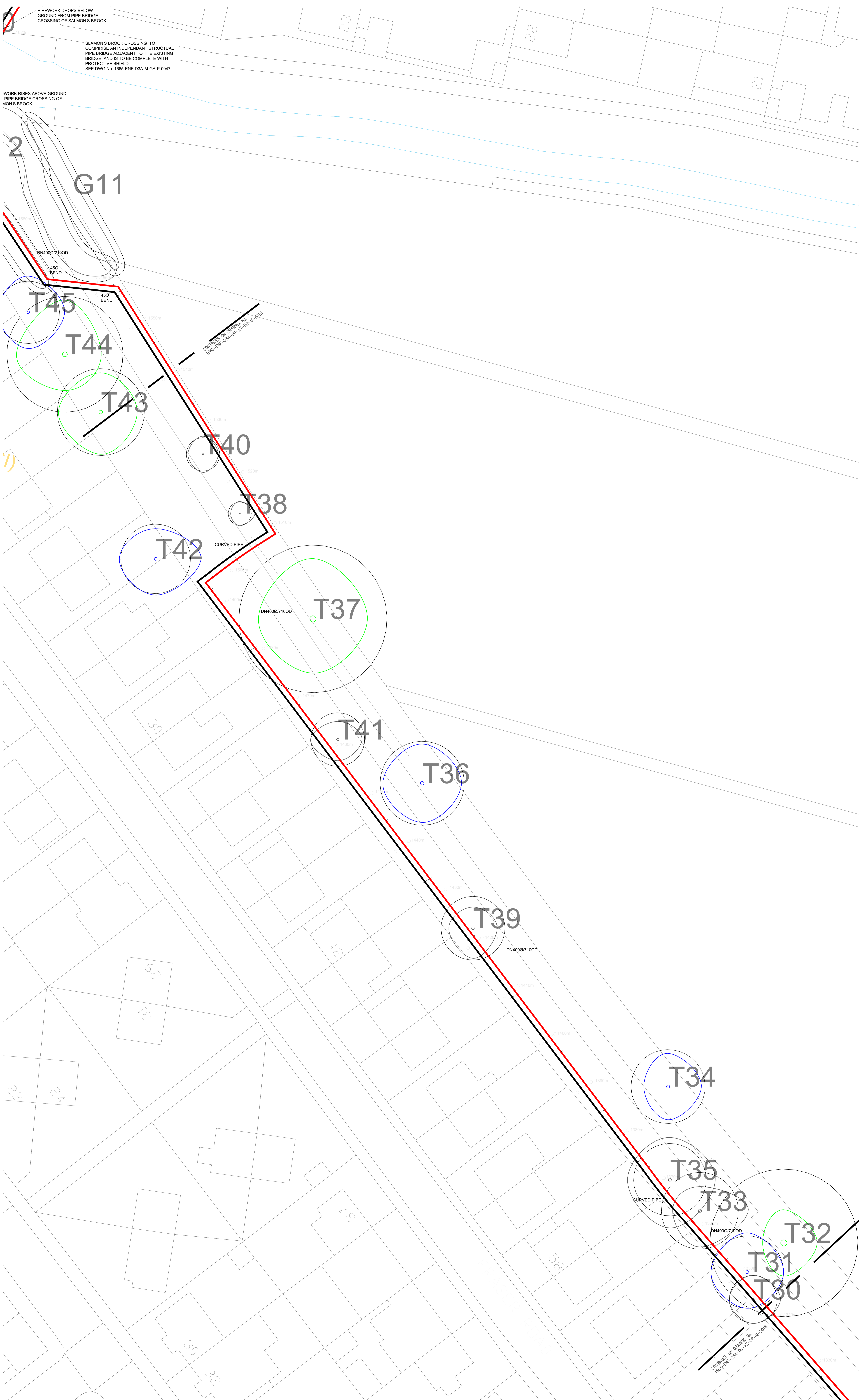
Project ID	ENF	Originator	D3A	Zone	00	Level	XX	Type	DR	Scale	M	Sheet	0016
Project No.	1665	Drawn	DW	Scale @ A0	1:200	Revision	D2	Issue	001				



PIPEWORK DROPS BELOW GROUND FROM PIPE BRIDGE CROSSING OF SALMON'S BROOK

SLAMON'S BROOK CROSSING TO COMPRISE AN INDEPENDANT STRUCTURAL PIPE BRIDGE ADJACENT TO THE EXISTING BRIDGE, AND IS TO BE COMPLETE WITH PROTECTIVE SHIELD
SEE DWG No. 1665-ENF-D3A-M-GA-P-0017

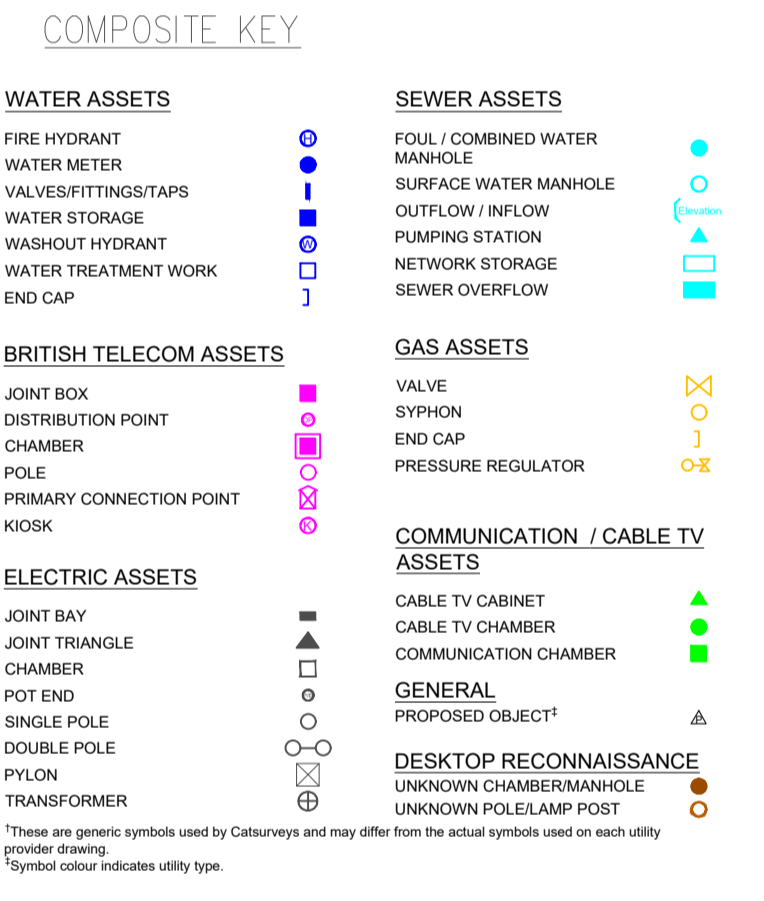
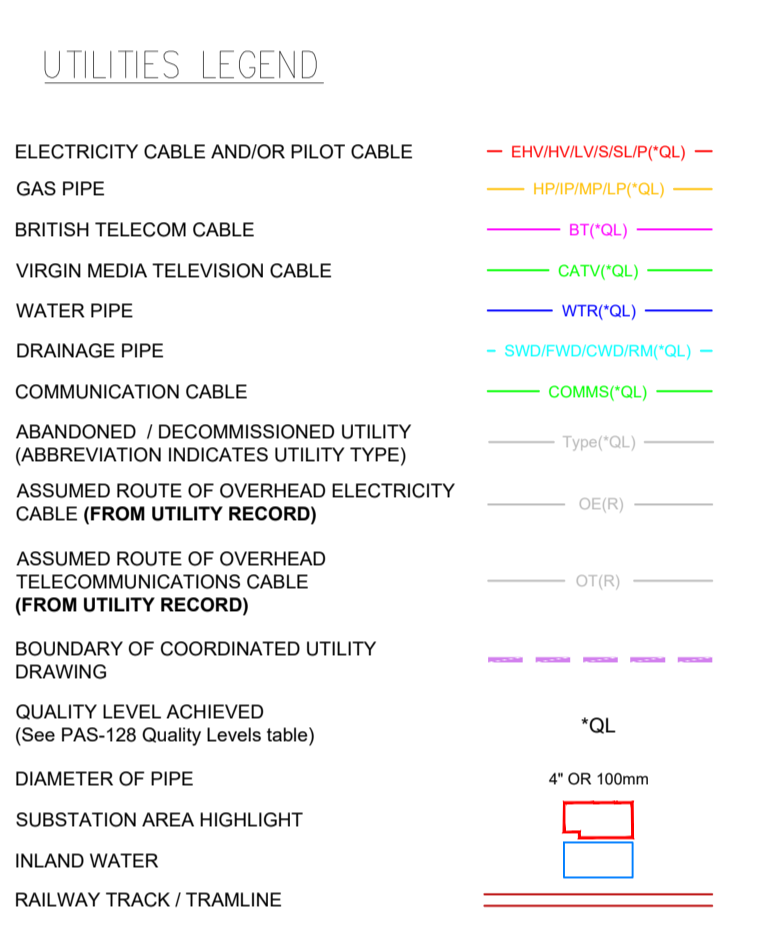
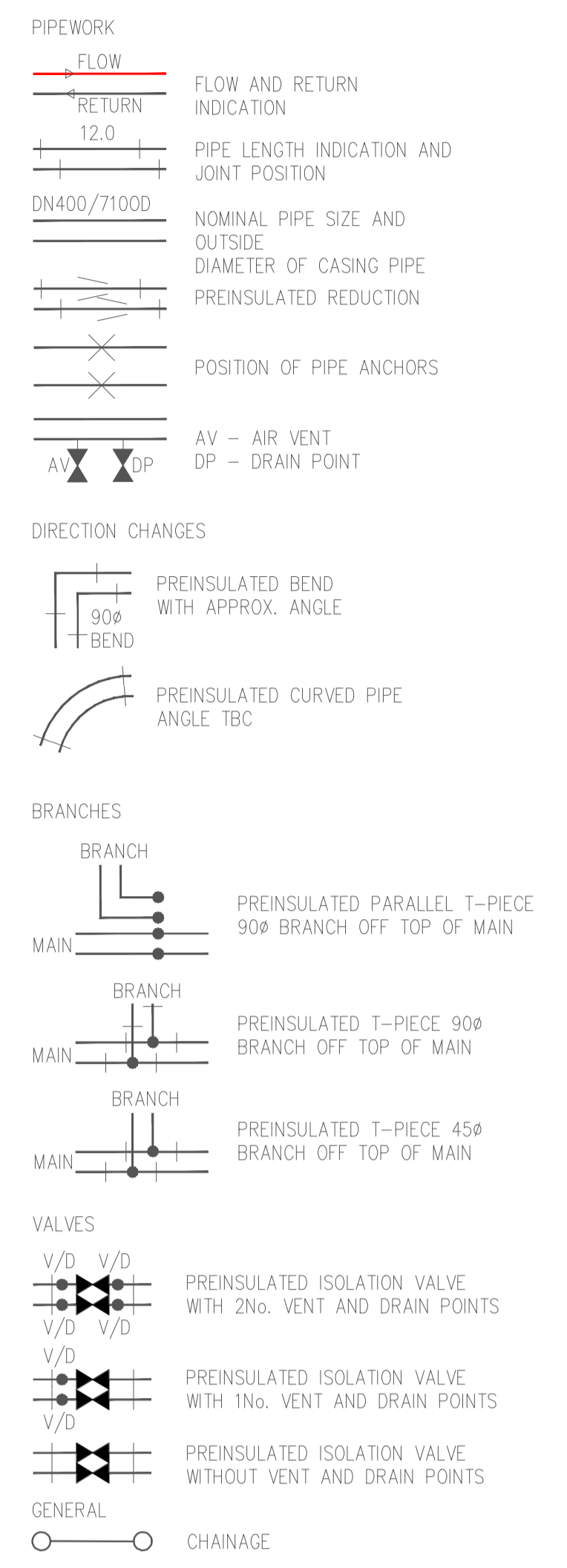
WORK RISES ABOVE GROUND PIPE BRIDGE CROSSING OF MON'S BROOK



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DISTRICT HEATING NETWORK LEGEND
FOR ADDITIONAL TECHNICAL INFORMATION PLEASE REFER TO THE LOSGOR MANUALS
1. DESIGN MANUAL
2. DESIGN WITH TWIN PIPES
3. PRODUCT CATALOGUE
4. SURVEILLANCE MANUAL
5. HANDLING AND INSTALLATION



***QUALITY LEVELS (BSI PAS-128)**

Quality Level Achieved	Method of Detection	Confidence Level	
		Horizontal	Vertical
(A)	Verification by Excavation, Manhole / Inspection Chamber entry	±50mm	±50mm
(B1)	Detected by Multiple Geophysical Techniques (EM & GPR)	±150mm or ±15% of depth	±15% of depth
(B2)	Detected by One Geophysical Technique (EM, or GPR)	±200mm or ±40% of depth	±40% of depth
(B3)	Geophysical Techniques Produced Weak Signal No Reliable Depths	±500mm	Undefined
(B4)	Geophysical Techniques Unsuccessful, Not Detected (Assumed Route)	Undefined	Undefined
(C)	Site Reconnaissance Of Street Furniture / Signs / Topographical Features Not Detected	Undefined	Undefined
(D)	Desktop Utility Record Search Data Not Detected	Undefined	Undefined

The letter (P) can follow level B1, B2 & B3 to indicate that off site post processing of GPR has been included.

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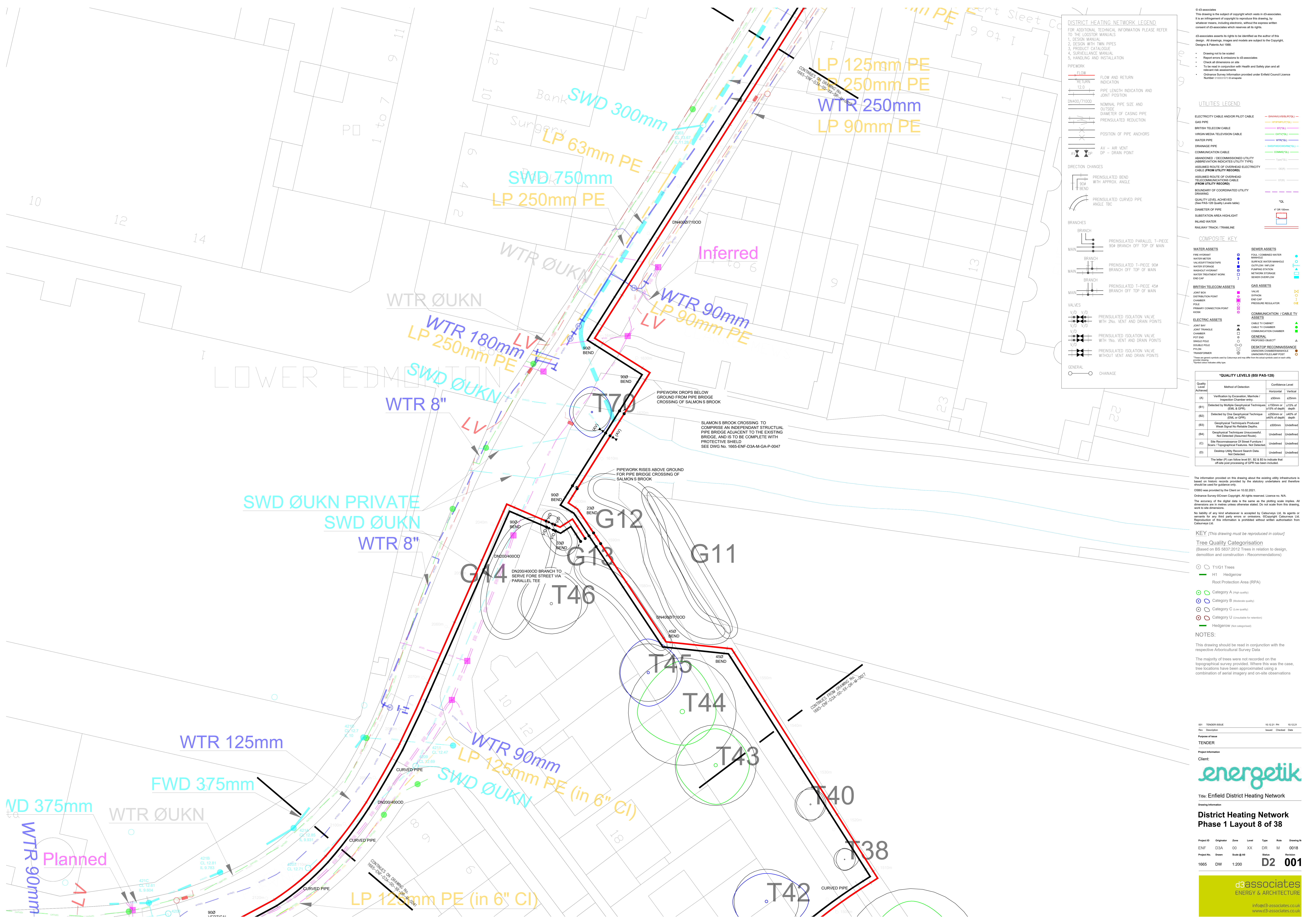
KEY (This drawing must be reproduced in colour)
Tree Quality Categorisation
(Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)
Root Protection Area (RPA)
Category A (high quality)
Category B (moderate quality)
Category C (low quality)
Category U (unsuitable for retention)
Hedgerow (not categorised)

NOTES:
This drawing should be read in conjunction with the respective Arboricultural Survey Data
The majority of trees were not recorded on the topographical survey provided. Where this was the case, tree locations have been approximated using a combination of aerial imagery and on-site observations

001 TENDER ISSUE 10.12.21 PM 10.12.21
Rev Description Issued Checked Date
Purpose of issue
TENDER
Project Information
Client:
emergetik
Title: Enfield District Heating Network

District Heating Network Phase 1 Layout 7 of 38

Project ID	Originator	Zone	Level	Type	Scale	Drawing No.
ENF	D3A	00	XX	DR	M	0017
Project No.	Drawn	Scale @ A0	Issue			
1665	DW	1:200	D2	001		



DISTRICT HEATING NETWORK LEGEND

FOR ADDITIONAL TECHNICAL INFORMATION PLEASE REFER TO THE LOGBOOK MANUALS

- DESIGN MANUAL
- DESIGN WITH TWIN PIPES
- PRODUCT CATALOGUE
- SURVEILLANCE MANUAL
- HANDLING AND INSTALLATION

PIPEWORK

- FLOW AND RETURN INDICATION
- PIPE LENGTH INDICATION AND JOINT POSITION
- NOMINAL PIPE SIZE AND OUTSIDE DIAMETER OF CASING PIPE
- PREINSULATED REDUCTION
- POSITION OF PIPE ANCHORS
- AV - AIR VENT
- DP - DRAIN POINT

DIRECTION CHANGES

- PREINSULATED BEND WITH APPROX. ANGLE
- PREINSULATED CURVED PIPE ANGLE 75C

BRANCHES

- PREINSULATED PARALLEL T-PIECE 90° BRANCH OFF TOP OF MAIN
- PREINSULATED T-PIECE 90° BRANCH OFF TOP OF MAIN
- PREINSULATED T-PIECE 45° BRANCH OFF TOP OF MAIN

VALVES

- PREINSULATED ISOLATION VALVE WITH 2No. VENT AND DRAIN POINTS
- PREINSULATED ISOLATION VALVE WITH 1No. VENT AND DRAIN POINTS
- PREINSULATED ISOLATION VALVE WITHOUT VENT AND DRAIN POINTS
- CHAINAGE

UTILITIES LEGEND

ELECTRICITY CABLE AND/OR PLOT CABLE

- GAS PIPE
- BRITISH TELECOM CABLE
- VISION MEDIA TELEVISION CABLE
- WATER PIPE
- DRAINAGE PIPE
- COMMUNICATION CABLE
- ABANDONED / DECOMMISSIONED UTILITY (ABBREVIATION INDICATES UTILITY TYPE)
- ASSUMED ROUTE OF OVERHEAD ELECTRICITY CABLE (FROM UTILITY RECORD)
- ASSUMED ROUTE OF OVERHEAD TELECOMMUNICATIONS CABLE (FROM UTILITY RECORD)
- BOUNDARY OF COORDINATED UTILITY DRAWING
- QUALITY LEVEL ACHIEVED (SEE PAS 128 QUALITY LEVELS)
- DIAMETER OF PIPE
- SUBSTATION AREA HIGHLIGHT
- INLAND WATER
- RAILWAY TRACK / TRAMLINE

COMPOSITE KEY

WATER ASSETS

- SOIL COVERED WATER MAIN
- WATER METER
- VALVE/STREET CLOSURE
- WATER STORAGE
- WATER TREATMENT WORK
- END CAP

BRITISH TELECOM ASSETS

- JOINT BOX
- DISTRIBUTION POINT
- POLE
- PRIMARY CONNECTION POINT
- WORK

ELECTRIC ASSETS

- JOINT BOX
- JOINT TRIANGLE
- CHAMBER
- POT END
- SHOCK HOLE
- DOUBLE POLE
- PILON
- TRANSFORMER
- GENERAL
- CHAINAGE

SEWER ASSETS

- SOIL COVERED WATER MAIN
- SURFACE WATER MANHOLE
- UNDERGROUND MANHOLE
- OUTFLOW / INFLOW
- PUMPING STATION
- NETWORK STORAGE
- SEWER OVERFLOW

GAS ASSETS

- VALVE
- SPURION
- END CAP
- PRESSURE REGULATOR

COMMUNICATION / CABLE TV ASSETS

- CABLE TV CABINET
- CABLE TV CHAMBER
- COMMUNICATION CHAMBER
- PROTECTED REARLET
- DESKTOP PRECONNAISSANCE
- UNKNOWN CHAMBER/ASSET
- UNKNOWN POLE/MAIN POINT

QUALITY LEVELS (BSI PAS-128)

Quality Level Achieved	Method of Detection	Confidence Level
(A)	Verification by Excavation, Manhole / Inspection Chamber entry.	Horizontal 100mm / Vertical 25mm
(B1)	Detected by Multiple Geophysical Techniques (EM, GPR).	±150mm or ±15% of depth
(B2)	Detected by One Geophysical Technique (EM, GPR).	±250mm or ±40% of depth
(B3)	Geophysical Techniques Produced 'Weak Signal / Reliable Depth'.	±500mm
(B4)	Geophysical Techniques Unsuccessful, Not Detected (Assumed Route).	Undefined
(C)	Site Reconnaissance Of Street Furniture / Survey / Geographical Features, Not Detected.	Undefined
(D)	Desktop Utility Record Search Data, Not Detected.	Undefined

The letter (P) can follow level B1, B2 & B3 to indicate that off-site post processing of GPR has been included.

The information provided on this drawing about the existing utility infrastructure is based on historic records provided by the statutory undertakers and therefore should be used for guidance only.

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KEY (This drawing must be reproduced in colour)

Tree Quality Categorisation

(Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)

- T1/G1 Trees
- H1 Hedgerow
- Root Protection Area (RPA)
- Category A (high quality)
- Category B (adequate quality)
- Category C (low quality)
- Category U (unsuitable for retention)
- Hedgerow (not categorised)

NOTES:

This drawing should be read in conjunction with the respective Arboricultural Survey Data.

The majority of trees were not recorded on the topographical survey provided. Where this was the case, tree locations have been approximated using a combination of aerial imagery and on-site observations.

01	TENDER ISSUE	10/12/21 PH	10/12/21
Rev	Description	Issued	Checked
Purpose of Issue			
TENDER			
Project Information			
Client:			
energetik			
Title: Enfield District Heating Network			
Drawing Information			
District Heating Network Phase 1 Layout 8 of 38			
Project ID	Originator	Date	Level
ENF_D3A	00	XX	DR
Project No.	Drawn	Scale	Sheet
1665	DW	1:200	D2 001

d3associates
ENERGY & ARCHITECTURE

info@d3-associates.co.uk
www.d3-associates.co.uk

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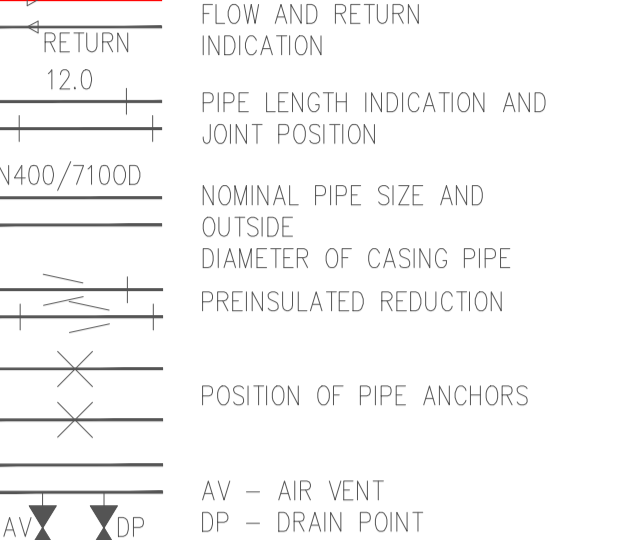
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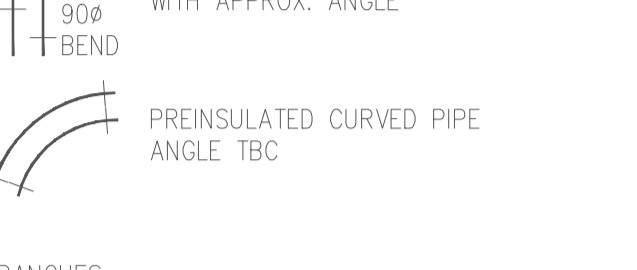
DISTRICT HEATING NETWORK LEGEND

FOR ADDITIONAL TECHNICAL INFORMATION PLEASE REFER TO THE LOGBOOK MANUALS
 1. DESIGN MANUAL
 2. DESIGN WITH TWIN PIPES
 3. PRODUCT CATALOGUE
 4. SURVEILLANCE MANUAL
 5. HANDLING AND INSTALLATION

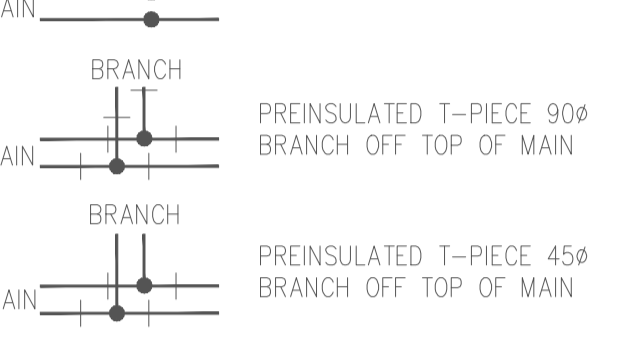
PIPEWORK



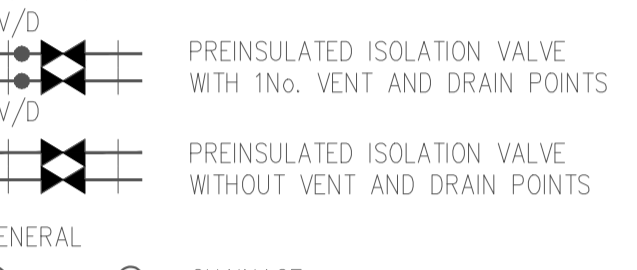
DIRECTION CHANGES



BRANCHES



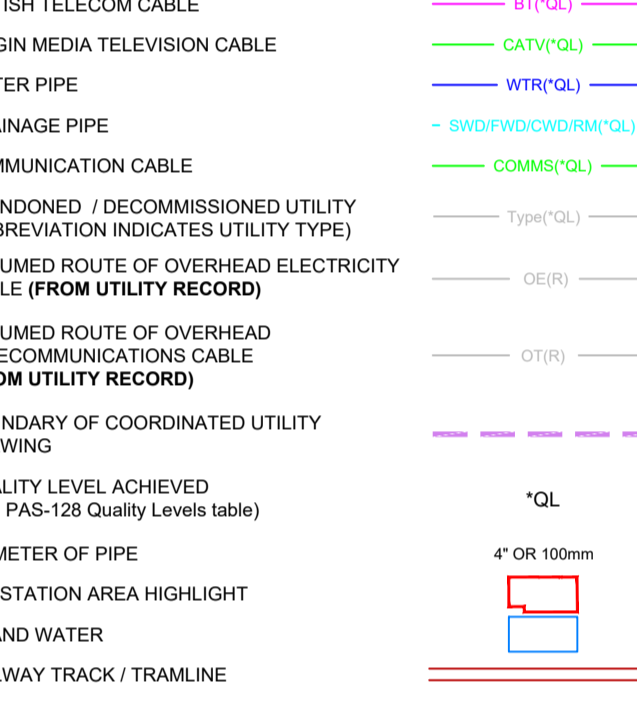
VALVES



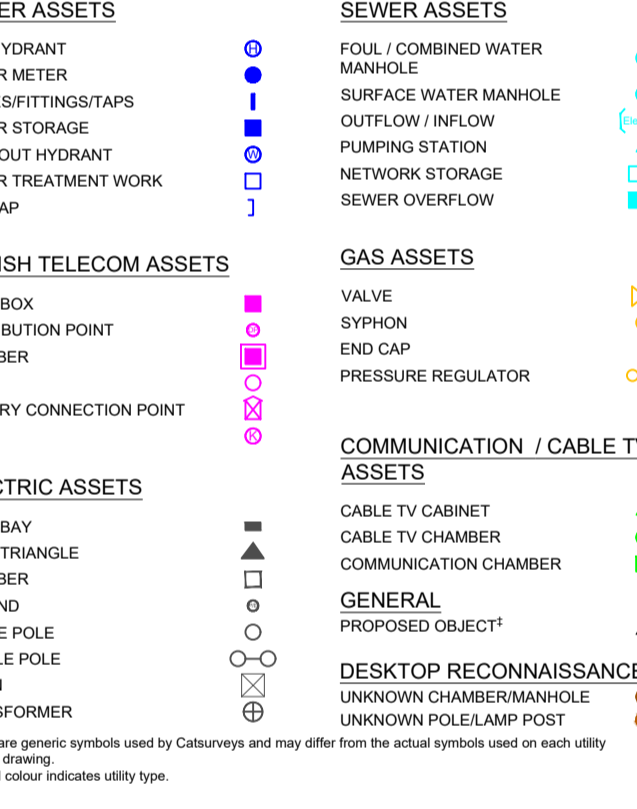
GENERAL



UTILITIES LEGEND



COMPOSITE KEY



***QUALITY LEVELS (BSI PAS-128)**

Quality Level Achieved	Method of Detection	Confidence Level	
		Horizontal	Vertical
(A)	Verification by Excavation, Manhole / Inspection Chamber entry	±50mm	±25mm
(B1)	Detected by Multiple Geophysical Techniques (GPR, EM, etc.)	±150mm or 15% of depth	±15% of depth
(B2)	Detected by One Geophysical Technique (GPR, EM, etc.)	±250mm or 40% of depth	±20% of depth
(B3)	Geophysical Techniques Produced Weak Signal No Reliable Depths	±500mm	Undefined
(B4)	Geophysical Techniques Unsuccessful, Not Detected (Assumed Route)	Undefined	Undefined
(C)	Site Reconnaissance Of Street Furniture / Signs / Topographical Features: Not Detected	Undefined	Undefined
(D)	Desktop Utility Record Search Data: Not Detected	Undefined	Undefined

The information provided on this drawing about the existing utility infrastructure is based on historic records provided by the statutory undertakers and therefore should be used for guidance only.

OSBG was provided by the Client on 10/02/2021.

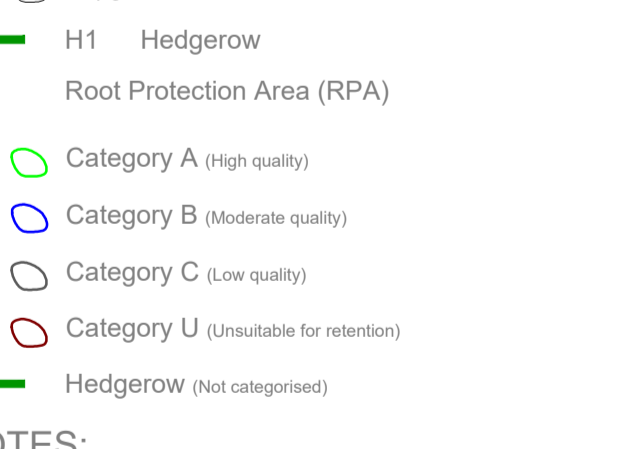
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KEY (This drawing must be reproduced in colour)

Tree Quality Categorisation
 (Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)



NOTES:

This drawing should be read in conjunction with the respective Arboricultural Survey Data.

The majority of trees were not recorded on the topographical survey provided. Where this was the case, tree locations have been approximated using a combination of aerial imagery and on-site observations.

010: Results updated to add tree tags
 011: Results updated to add tree tags
 012: Results updated to add tree tags
 013: For information

No.	Description	Issued	Checked	Date
010	Results updated to add tree tags	23/11/21	GA	23/11/21
011	Results updated to add tree tags	04/11/21	GA	04/11/21
012	For information	21/11/21	GA	21/11/21

Purpose of Issue

PLANNING

Client:

energetik

Title: Enfield District Heating Network

Drawing Information

District Heating Network Phase 1 Layout 9 of 38

Project No: ENF-D3A-DHN-M-GA-P-0019

Project No: DW-1200

Scale: 1:200

Issue: 003

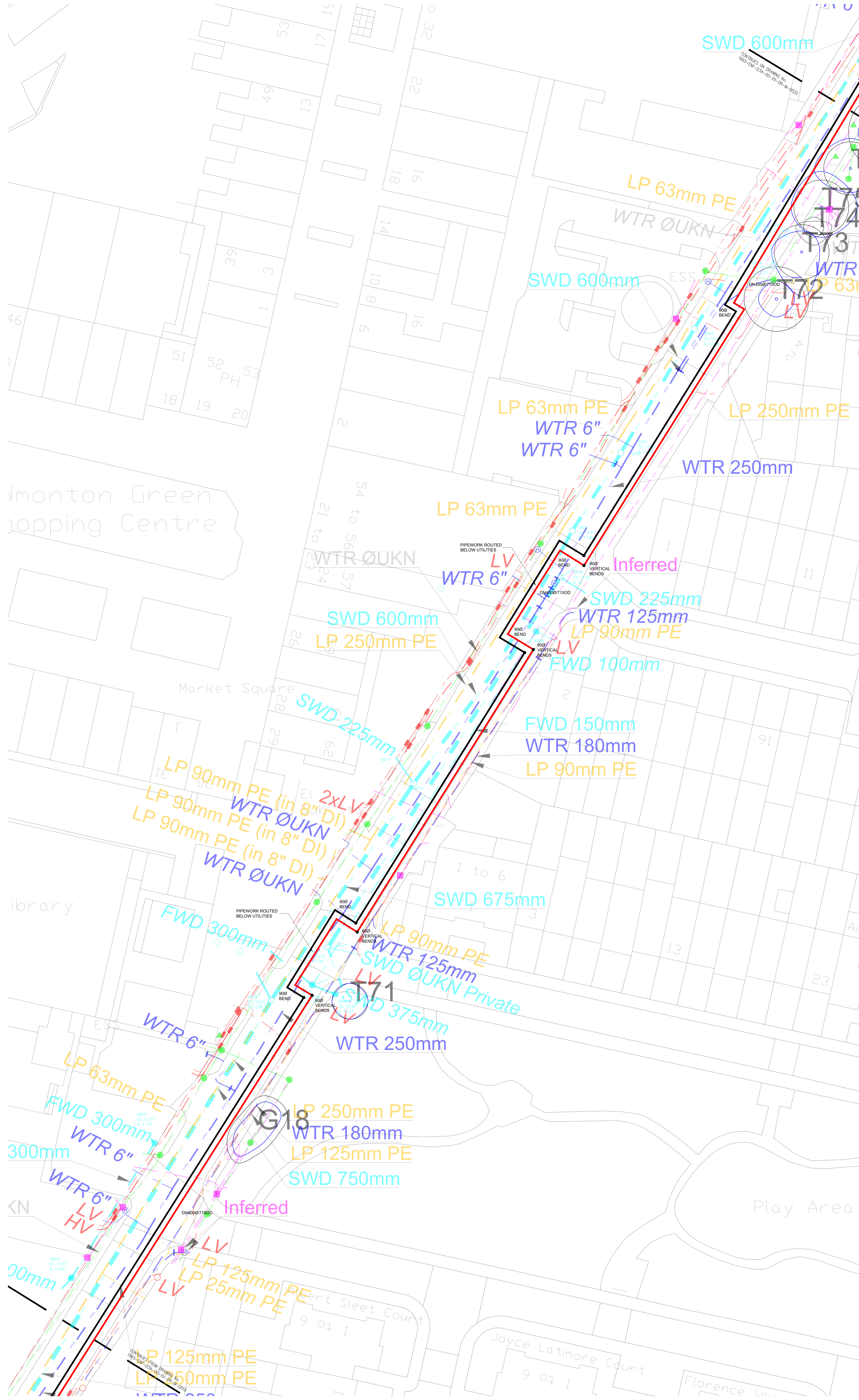
1665 DW 1:200 P 003

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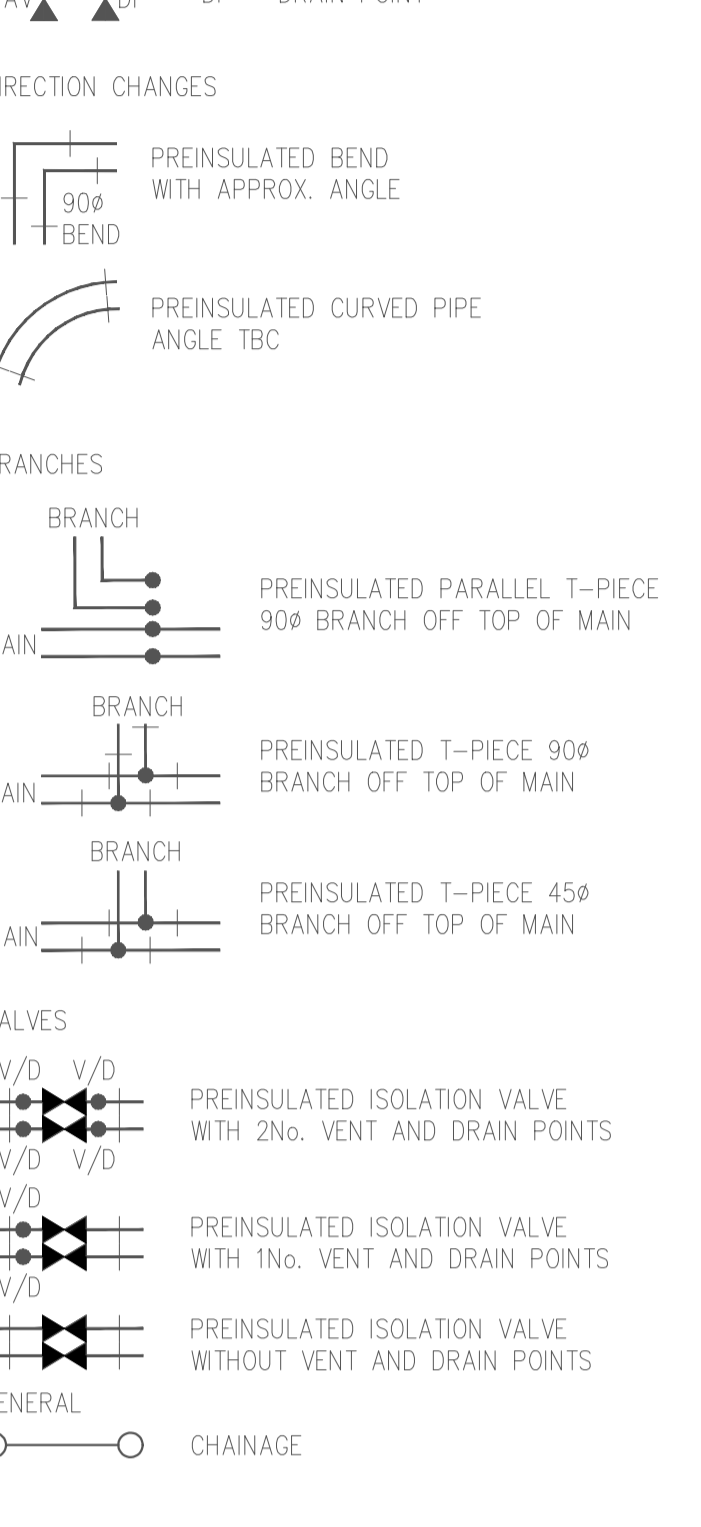
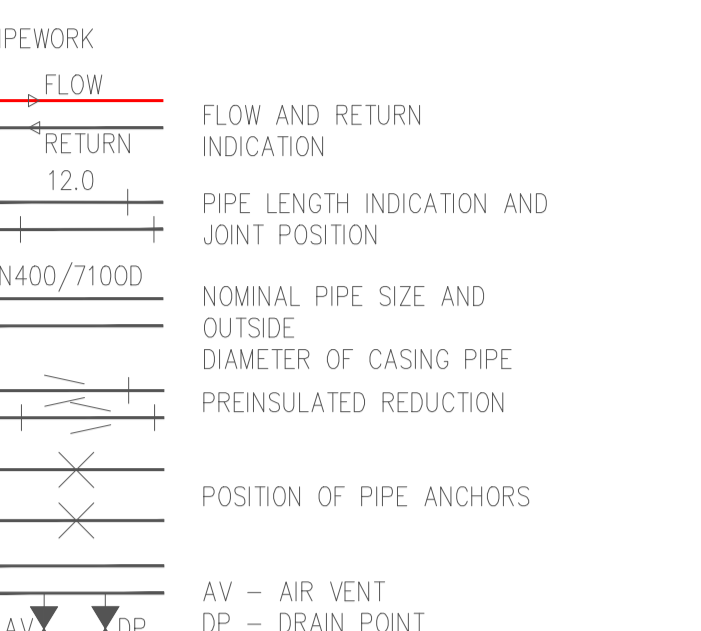
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QUALITY LEVELS (BSI PAS-128)

Quality Level	Method of Detection	Confidence Level
(A)	Verification by Excavation, Manhole / Inspection Chamber entry	Horizontal ±50mm Vertical ±25mm
(B1)	Detected by Multiple Geophysical Techniques (EM & GPR)	±150mm or ±15% of depth
(B2)	Detected by One Geophysical Technique (EM or GPR)	±250mm or ±40% of depth
(B3)	Geophysical Techniques Produced Weak Signal No Reliable Depth	±500mm Undefined
(C)	Geophysical Techniques Unsuccessful Not Detected (Assumed Route)	Undefined Undefined
(B4)	Site Reconnaissance of Street Furniture / Signs / Topographical Features, Not Detected	Undefined Undefined
(D)	Desktop Utility Record Search Data Not Detected	Undefined Undefined

The letter 'D' can follow level B1, B2 & B3 to indicate that off-site post processing of GPR has been included.

The information provided on this drawing about the existing utility infrastructure is based on historic records provided to the statutory undertakers and therefore should be used for guidance only.

OSRS was provided by the Client on 10.02.2021.

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KEY (This drawing must be reproduced in colour)

Tree Quality Categorisation

(Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)

- T1G1 Trees
- H1 Hedgerow
- Root Protection Area (RPA)
- Category A (high quality)
- Category B (moderate quality)
- Category C (low quality)
- Category U (unsuitable for retention)
- Hedgerow (not categorised)

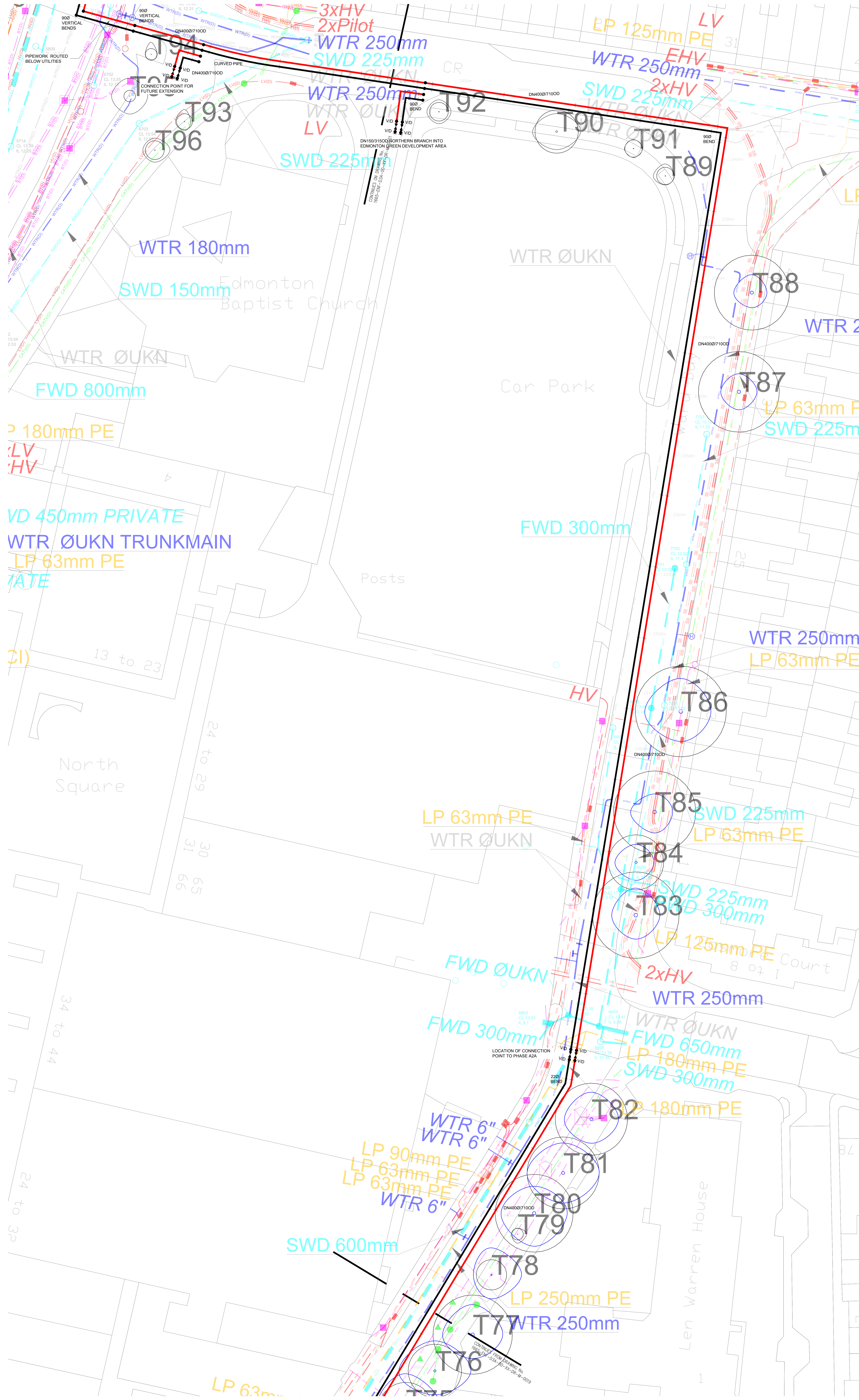
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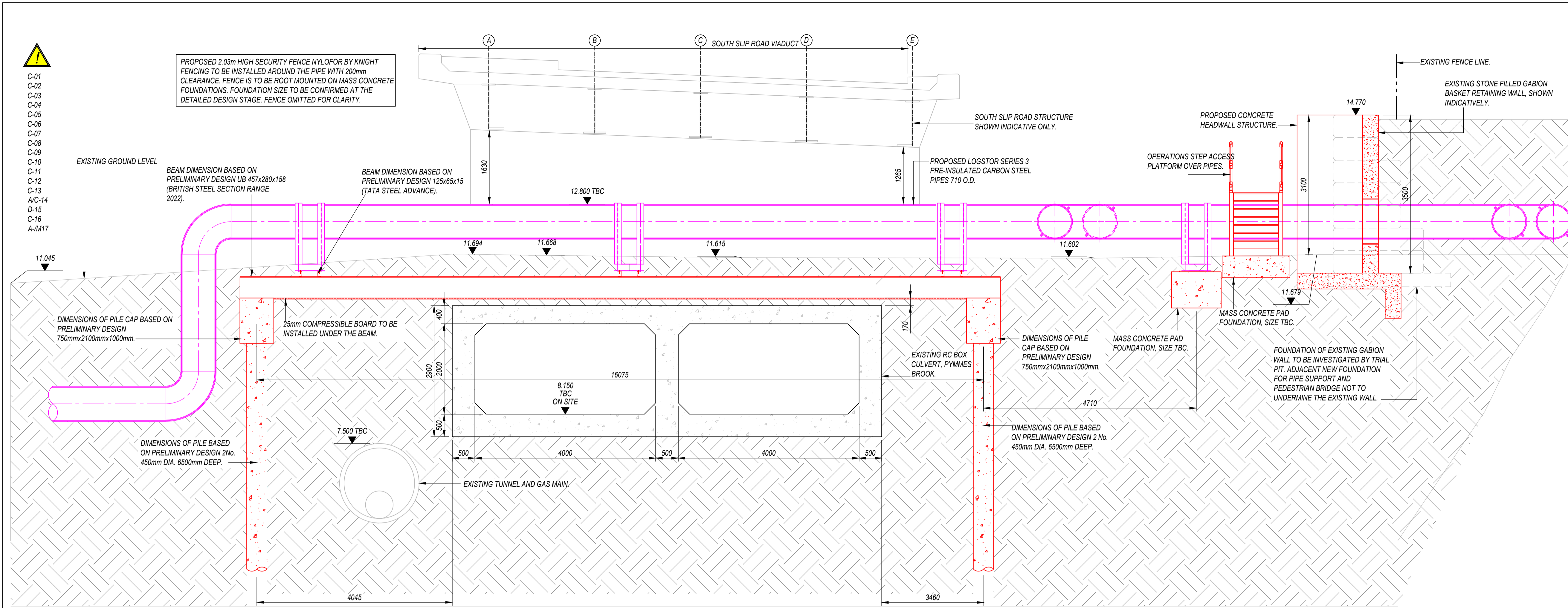
This drawing should be read in conjunction with the respective Arboricultural Survey Data

The majority of trees were not recorded on the topographical survey provided. Where this was the case, tree locations have been approximated using a combination of aerial imagery and on-site observations

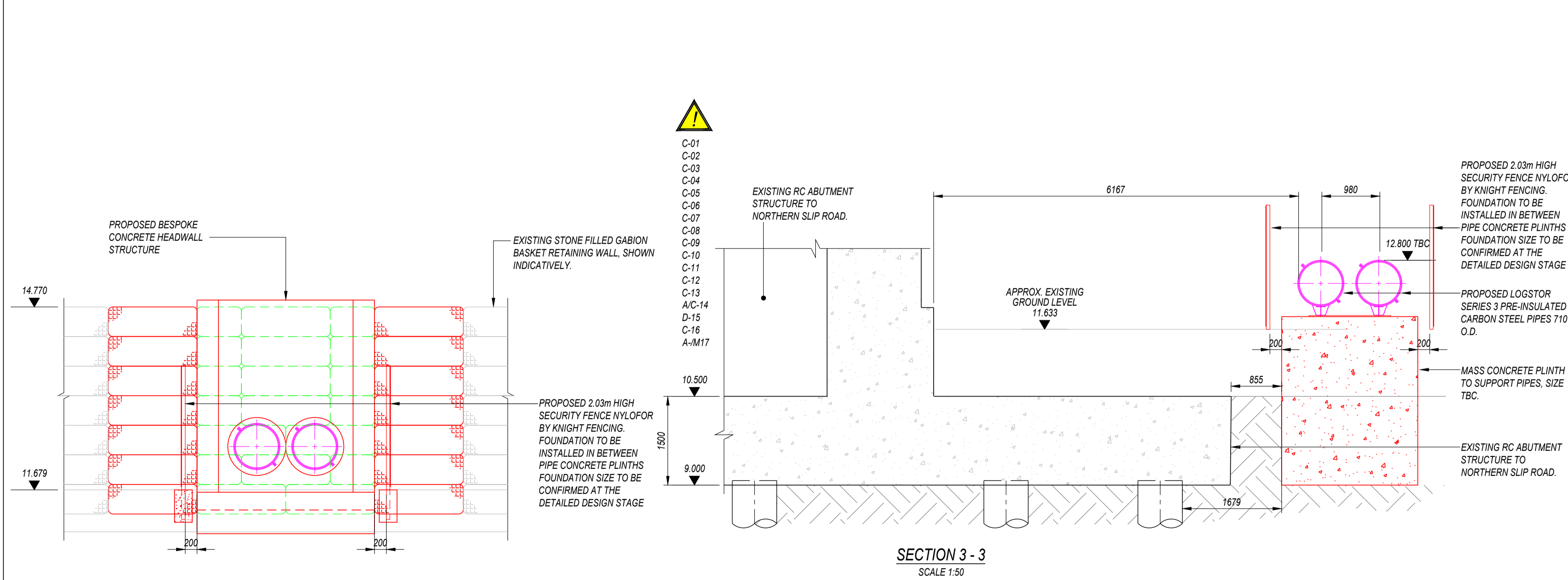
01	TENDER ISSUE	10.12.21 PM	10.12.21
Rev	Description	Issued	Checked
Purpose of Issue			
TENDER			
Project Information			
Client:			
emerge tik			
Title: Enfield District Heating Network			
Drawing Information			
District Heating Network			
Phase 1 Layout 10 of 38			

Project ID	Originator	Zone	Level	Type	Scale	Drawing No.
ENF	D3A	00	XX	DR	M	0020
Project No.	Drawn	Scale	At	Issue		
1665	DW	1:200		D2	001	





SECTION 1 - 1
SCALE 1:50



SECTION 2 - 2
SCALE 1:50

SECTION 3 - 3
SCALE 1:50

DRA KEY

RESIDUAL RISK REGISTER	
C-01	WORKING ON OR NEAR ROAD / BRIDGE INFRASTRUCTURE. SAFE ACCESS TO WORK AREA. MANUAL HANDLING.
C-02	RISK OF PERSONNEL INJURIES. WORKING ON 3rd PARTY LAND.
C-03	WORKING WITHOUT CONSENT. EXCAVATIONS.
C-04	DAMAGE TO EXISTING ASSETS. ENVIRONMENTAL HAZARDS.
C-05	DAMAGE TO ENVIRONMENT. WORKING AT HEIGHT.
C-06	FALLING FROM HEIGHT. STABILITY OF EXCAVATIONS.
C-07	SETTLEMENT OF GROUND FOLLOWING REINSTATEMENT OF MAINTENANCE ROAD. HIGH WINDS.
C-08	RESTRICT LIFTING OPERATIONS DURING POSSESSION CAUSING POSSESSION OVERRUN. UNIDENTIFIED INFRASTRUCTURE AND / OR BURIED SERVICES.
C-09	POTENTIAL DELAY IN WORKS. ADJACENT STRUCTURES.
C-10	RISK OF DAMAGE TO ADJACENT STRUCTURES. ADJACENT ROADS.
C-11	COLLISION WITH ROAD VEHICLES. VEHICLE MOVEMENTS.
C-12	IMPACT ON SURROUNDING STREETS / RESIDENTIAL AREAS. HABITATS.
C-13	LOSS OF HABITATS. PROPRIETARY ELEMENTS / PRODUCT SPECIFICATION.
A/C-14	FAILURE OF THE PROPRIETARY ELEMENT / PRODUCT. EXISTING ELEMENTS TO BE REMOVED.
D-15	CONTAMINATION / ACCESS CONSTRAINTS. WORKING IN THE VICINITY OF EXISTING SERVICES.
C-16	DAMAGE TO THE BURIED SERVICES / INJURY TO OPERATOR. PROPOSED ALIGNMENT EITHER OVER OR ALONGSIDE EXISTING ASSETS.
A-M17	OVERLOADING EXISTING ASSETS / MAINTENANCE AND INSPECTION OF THE EXISTING ASSETS BEING CONSTRAINED.

FOR RESIDUAL RISKS IDENTIFIED ON THIS DRAWING, REFER TO RESIDUAL RISK REGISTER 3605-VED-00-XX-DRA-CV-011001

- NOTES
1. THE ORIGINAL DRAWING IS IN COLOUR.
 2. ALL DIMENSIONS IN MILLIMETERS U.N.O.
 3. DO NOT SCALE FROM THIS DRAWING IN EITHER PAPER OR DIGITAL FORM. USE WRITTEN DIMENSIONS ONLY.
 4. DRAWING BASED ON - MURPHY GEOSPATIAL TOPOGRAPHICAL SURVEY DATED 31-05-23.
 5. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH LOCAL AUTHORITY, STATUARY AUTHORITY AND HEALTH AND SAFETY REQUIREMENTS AND REGULATIONS REFER TO DESIGN RISK ASSESSMENT FOR RESIDUAL RISKS. INCLUSIVE OF SERVICES ADJACENT TO THE STRUCTURE.

COLOUR KEY

+31.61	-	EXISTING LEVEL
BLACK	-	EXISTING OR UNCHANGED
GREEN	-	TO BE MODIFIED / REMOVED
RED	-	NEW, PROPOSED OR ADDITIONAL
MAGENTA	-	BY OTHERS

REV	DATE	BY	DESCRIPTION
A04	01.05.24	CPL	FOR AIP REVIEW
A03	13.03.24	SSS	ALIGNMENT REVISED FOLLOWING TFL COMMENTS
A02	15.12.23	SS	FOR AIP REVIEW
A01	20.11.23	SS	FOR AIP REVIEW

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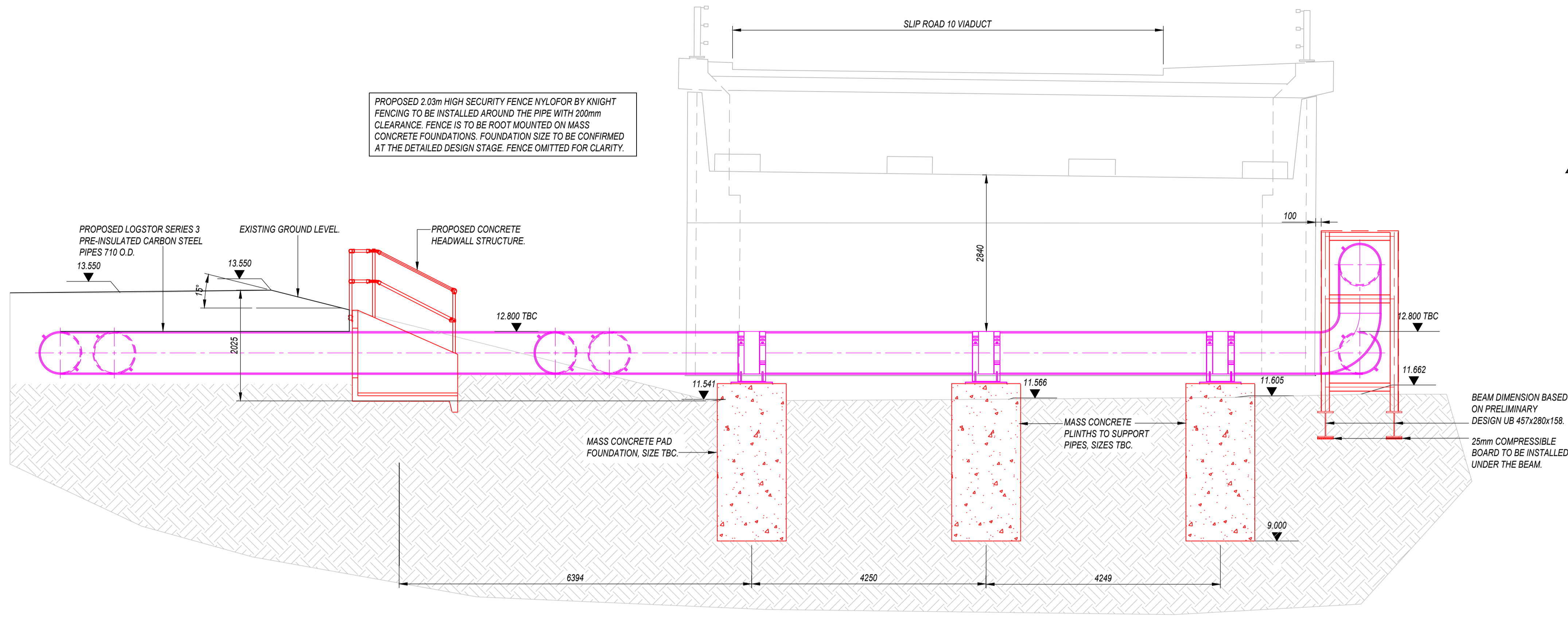
CLIENT
PROVEN PROJECT CONSTRUCTION
District Heating

PROJECT TITLE
MERIDIAN WATER A406 CROSSING

DRAWING TITLE
PROPOSED SECTIONS
SHEET 2

DRAWING STATUS
FOR AIP REVIEW

DRAWING No.	3605-VED-00-XXDWG-CV-013003	REV	A04
DATE	NOVEMBER 2023	SCALE @ A1	AS SHOWN
DRAWN	SS	CHECKED	CPL
		VEDA JOB No.	3605



SECTION 4 - 4
SCALE 1:50



- C-01
- C-02
- C-03
- C-04
- C-05
- C-06
- C-07
- C-08
- C-09
- C-10
- C-11
- C-12
- C-13
- A/C-14
- D-15
- C-16
- A-17

BEAM DIMENSION BASED ON PRELIMINARY DESIGN UB 457x280x158.
25mm COMPRESSIBLE BOARD TO BE INSTALLED UNDER THE BEAM.

PROPOSED 2.03m HIGH SECURITY FENCE NYLOR BY KNIGHT FENCING TO BE INSTALLED AROUND THE PIPE WITH 200mm CLEARANCE. FENCE IS TO BE ROOT MOUNTED ON MASS CONCRETE FOUNDATIONS. FOUNDATION SIZE TO BE CONFIRMED AT THE DETAILED DESIGN STAGE. FENCE OMITTED FOR CLARITY.

PROPOSED LOGSTOR SERIES 3 PRE-INSULATED CARBON STEEL PIPES 710 O.D.
13.550

EXISTING GROUND LEVEL.

PROPOSED CONCRETE HEADWALL STRUCTURE.

12.800 TBC

MASS CONCRETE PAD FOUNDATION, SIZE TBC.

MASS CONCRETE PLINTHS TO SUPPORT PIPES, SIZES TBC.

12.800 TBC

11.541

11.566

11.605

11.662

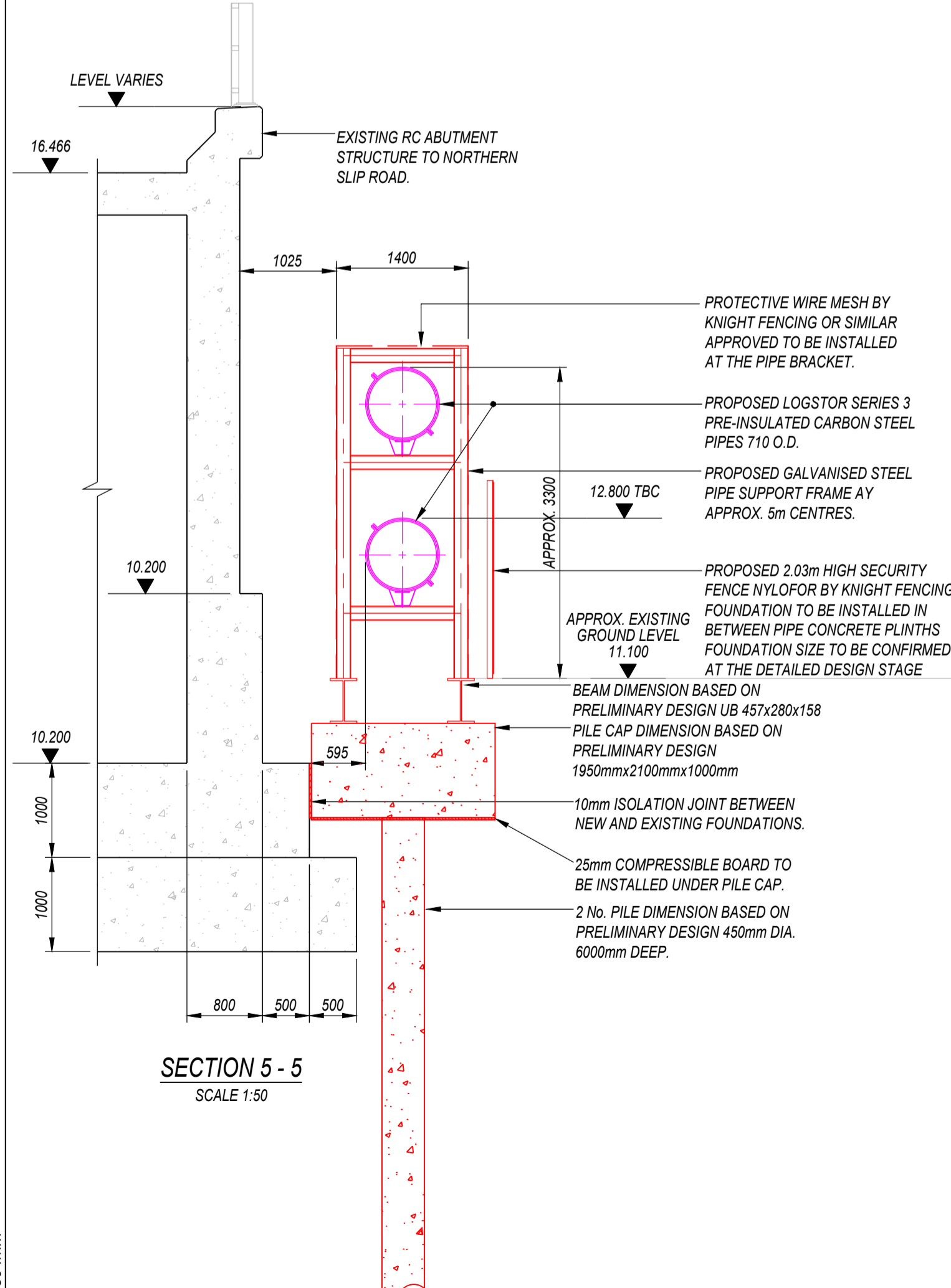
9.000

6394

4250

4249

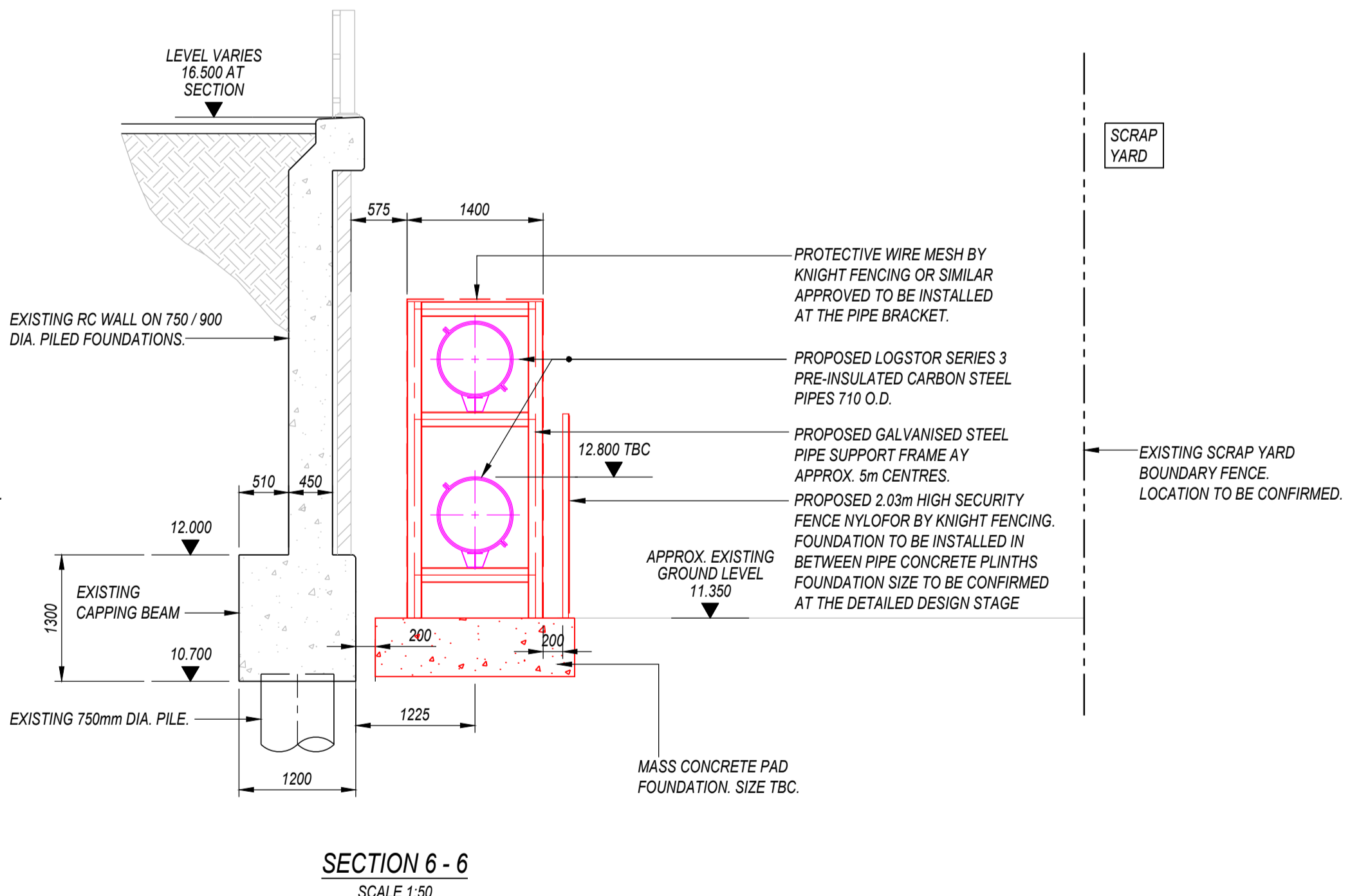
SECTION 4 - 4
SCALE 1:50



SECTION 5 - 5
SCALE 1:50



- C-01
- C-02
- C-03
- C-04
- C-05
- C-06
- C-07
- C-08
- C-09
- C-10
- C-11
- C-12
- C-13
- A/C-14
- D-15
- C-16
- A-17



SECTION 6 - 6
SCALE 1:50



DRA KEY

RESIDUAL RISK REGISTER			
C-01	WORKING ON OR NEAR ROAD / BRIDGE INFRASTRUCTURE.	SAFE ACCESS TO WORK AREA.	
C-02	MANUAL HANDLING.		
C-03	RISK OF PERSONNEL INJURIES. WORKING ON 3rd PARTY LAND.		
C-04	WORKING WITHOUT CONSENT. EXCAVATIONS.		
C-05	DAMAGE TO EXISTING ASSETS. ENVIRONMENTAL HAZARDS.		
C-06	DAMAGE TO ENVIRONMENT. WORKING AT HEIGHT.		
C-07	FALLING FROM HEIGHT. STABILITY OF EXCAVATIONS.		
C-08	SETTLEMENT OF GROUND FOLLOWING REINSTATEMENT OF MAINTENANCE ROAD. HIGH WINDS.		
C-09	RESTRICT LIFTING OPERATIONS DURING POSSESSION CAUSING POSSESSION OVERRUN. UNIDENTIFIED INFRASTRUCTURE AND / OR BURIED SERVICES.		
C-10	POTENTIAL DELAY IN WORKS. ADJACENT STRUCTURES.		
C-11	RISK OF DAMAGE TO ADJACENT STRUCTURES. ADJACENT ROADS.		
C-12	COLLISION WITH ROAD VEHICLES. VEHICLE MOVEMENTS.		
C-13	IMPACT ON SURROUNDING STREETS / RESIDENTIAL AREAS. HABITATS.		
A/C-14	LOSS OF HABITATS. PROPRIETARY ELEMENTS / PRODUCT SPECIFICATION.		
D-15	FAILURE OF THE PROPRIETARY ELEMENT / PRODUCT. EXISTING ELEMENTS TO BE REMOVED.		
C-16	CONTAMINATION / ACCESS CONSTRAINTS. WORKING IN THE VICINITY OF EXISTING SERVICES.		
A-17	DAMAGE TO THE BURIED SERVICES / INJURY TO OPERATOR. PROPOSED FOUNDATIONS EITHER OVER OR ALONGSIDE EXISTING ASSETS. OVERLOADING EXISTING ASSETS.		

FOR RESIDUAL RISKS IDENTIFIED ON THIS DRAWING, REFER TO RESIDUAL RISK REGISTER 3605-VED-00-XX-DRA-CV-011001

- NOTES
1. THE ORIGINAL DRAWING IS IN COLOUR.
 2. ALL DIMENSIONS IN MILLIMETERS U.N.O.
 3. DO NOT SCALE FROM THIS DRAWING IN EITHER PAPER OR DIGITAL FORM. USE WRITTEN DIMENSIONS ONLY.
 4. DRAWING BASED ON - MURPHY GEOSPATIAL TOPOGRAPHICAL SURVEY DATED 31-05-23.
 5. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH LOCAL AUTHORITY, STATUARY AUTHORITY AND HEALTH AND SAFETY REQUIREMENTS AND REGULATIONS REFER TO DESIGN RISK ASSESSMENT FOR RESIDUAL RISKS. INCLUSIVE OF SERVICES ADJACENT TO THE STRUCTURE.

COLOUR KEY

+31.61	-	EXISTING LEVEL
BLACK	-	EXISTING OR UNCHANGED
GREEN	-	TO BE MODIFIED / REMOVED
RED	-	NEW, PROPOSED OR ADDITIONAL
MAGENTA	-	BY OTHERS

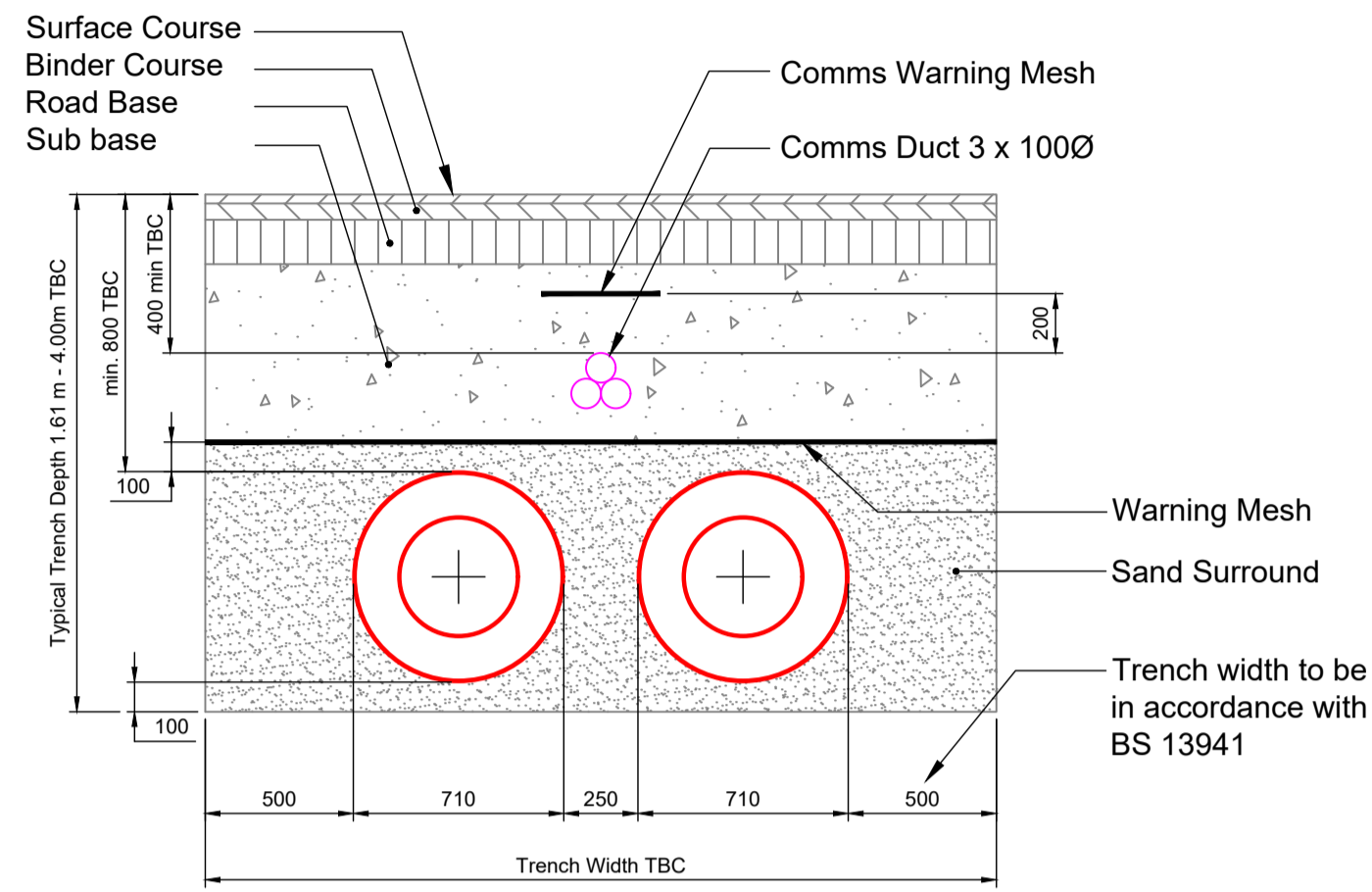
REV	DATE	BY	DESCRIPTION
A04	13.03.24	SSS	ALIGNMENT REVISED FOLLOWING TFL COMMENTS
A03	15.12.23	SS	FOR AIP REVIEW
A02	20.11.23	SS	FOR AIP REVIEW
A01	08.09.23	SS	FOR AIP REVIEW
P01	21.07.23	SS	FOR INFORMATION

CLIENT: **PROVEN PROJECT CONSTRUCTION**
District Heating

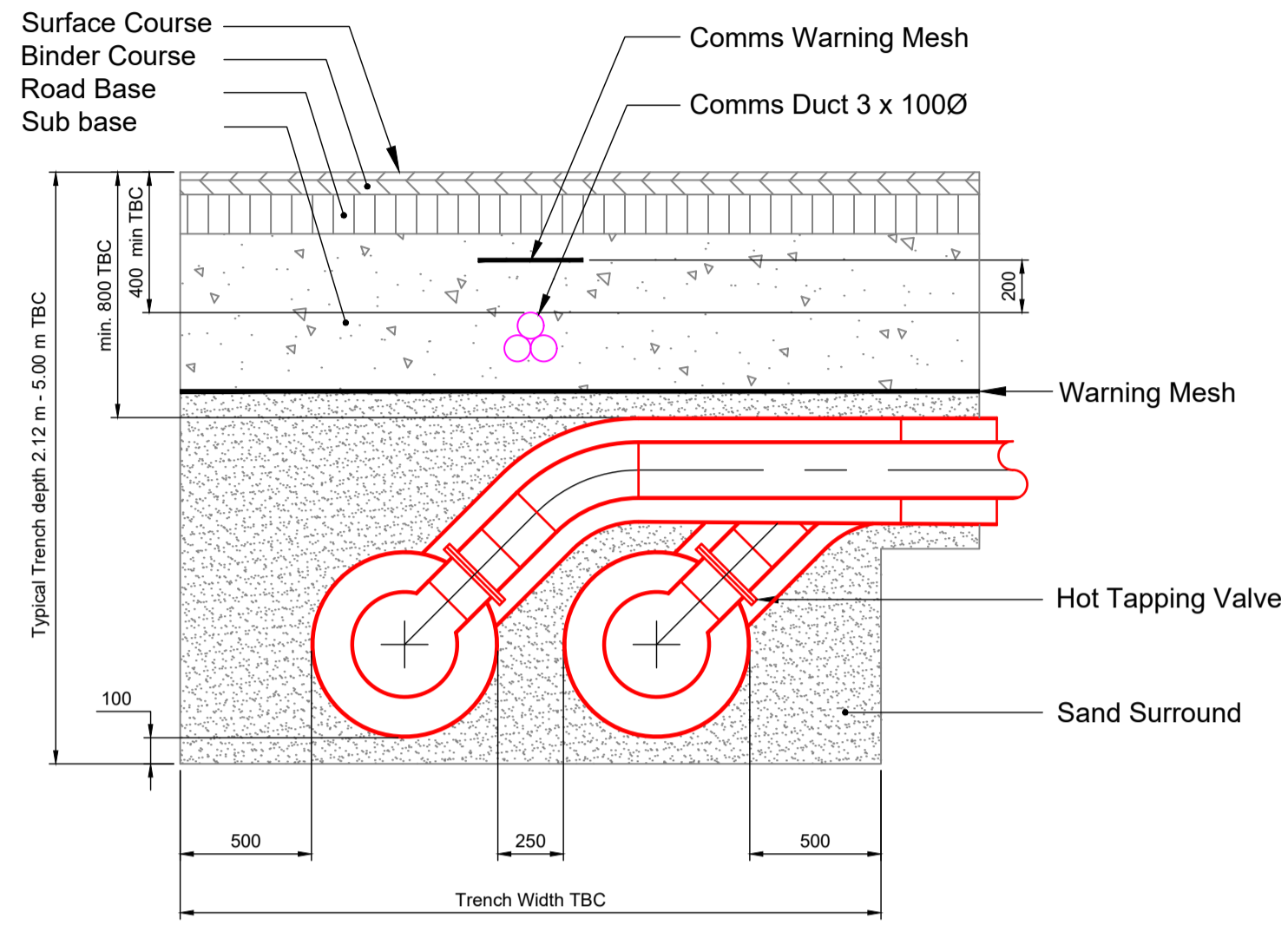
PROJECT TITLE: **MERIDIAN WATER A406 CROSSING**

DRAWING TITLE: **PROPOSED SECTIONS SHEET 1**

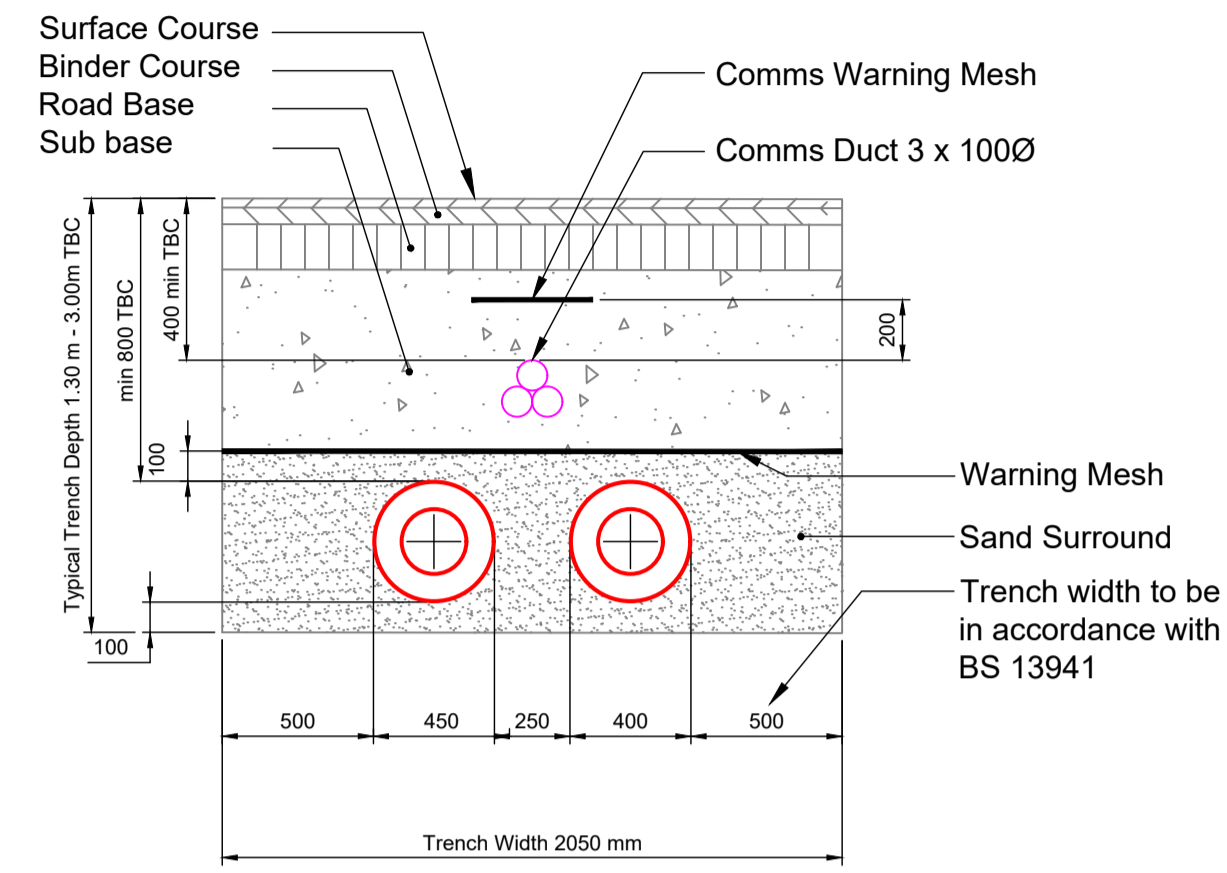
DRAWING STATUS: FOR AIP REVIEW		
DRAWING No.	3605-VED-00-XXDWG-CV-013002	REV A04
DATE	JULY 2023	SCALE @ A1 AS SHOWN
DRAWN	SS	CHECKED CPL
VEDA JOB No.		3605



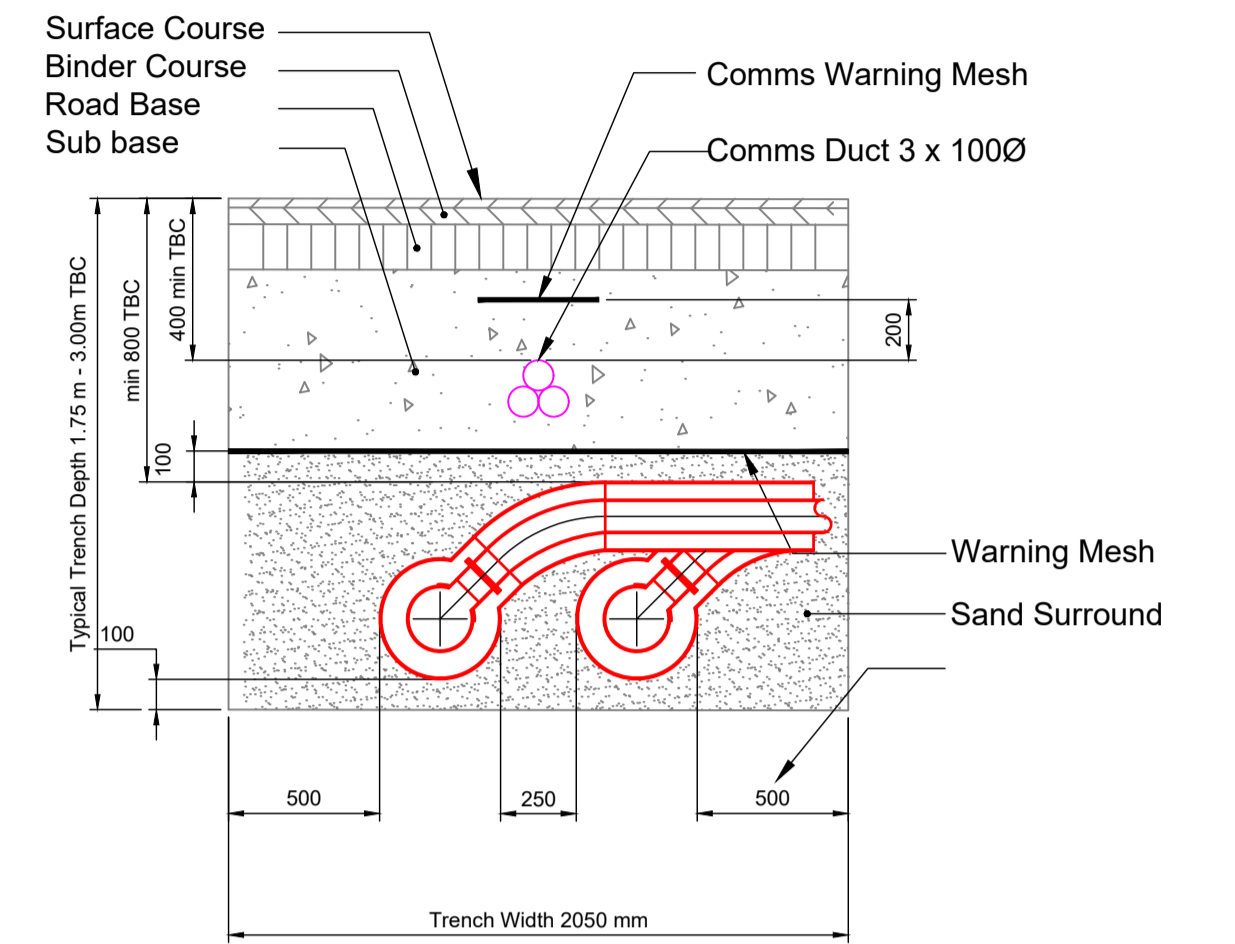
**DN400/710D SERIES 3
TYPICAL TRENCH DETAIL**



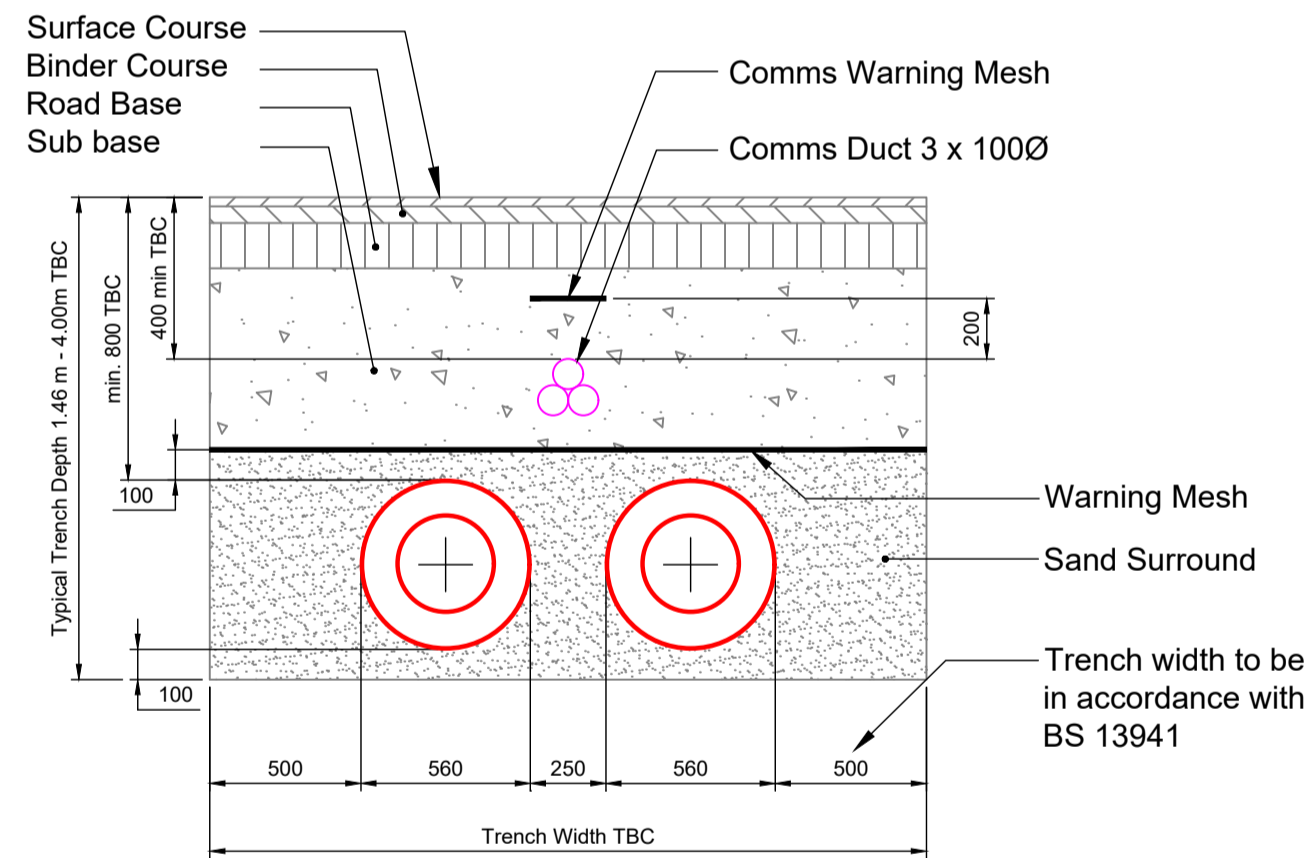
**DN400/710D SERIES 3
TYPICAL TRENCH DETAIL C/W 45° HOT TAPPING**



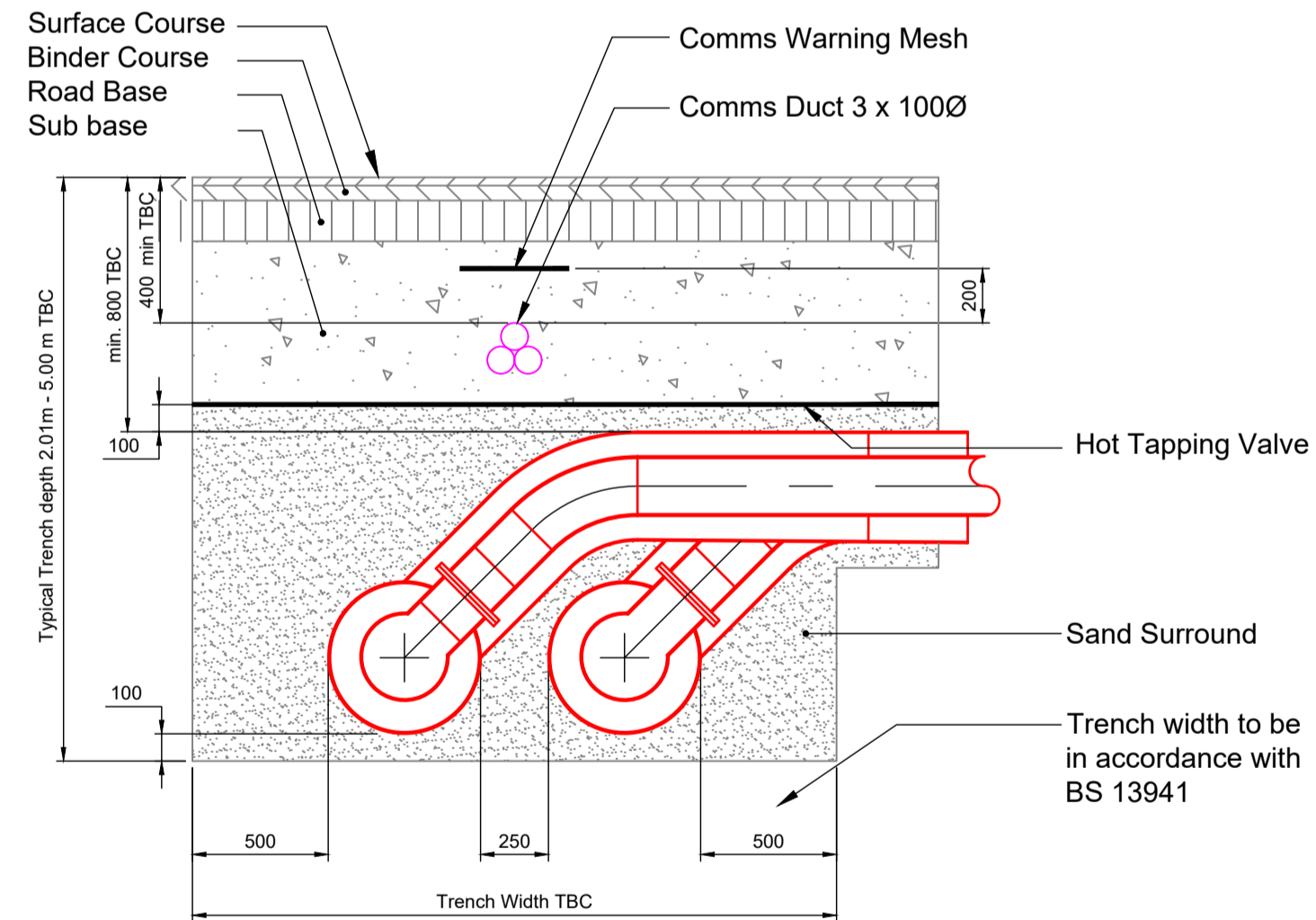
**DN200/400D SERIES 3
TYPICAL TRENCH DETAIL**



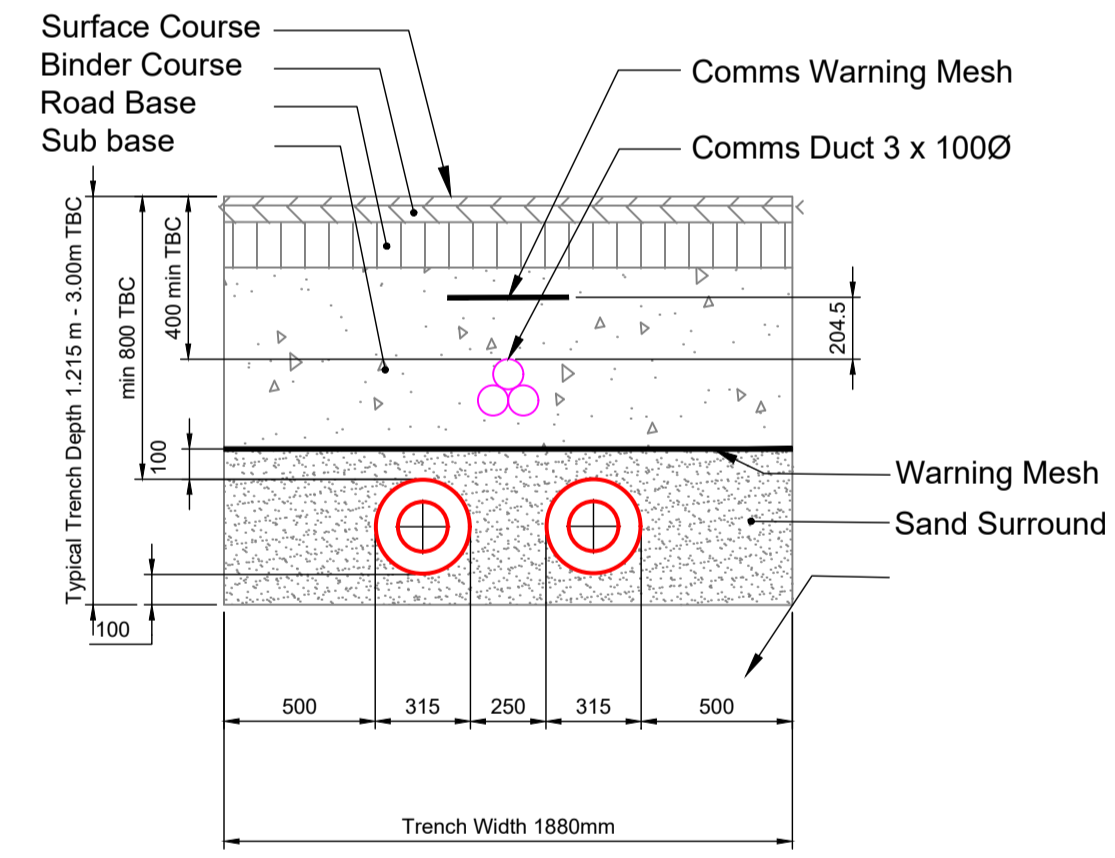
**DN200/400D SERIES 3
TYPICAL TRENCH DETAIL C/W 45° HOT TAPPING**



**DN300/560D SERIES 3
TYPICAL TRENCH DETAIL**



**DN300/560D SERIES 3
TYPICAL TRENCH DETAIL C/W 45° HOT TAPPING**



**DN150/315D SERIES 3
TYPICAL TRENCH DETAIL**

NOTES:

For additional technical information please refer to the Logstor manuals

- 1, Design
- 2, Design with Twin Pipes
- 3, Product Catalogue
- 4, Surveillance
- 5, Handling & Installation

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- Report errors & omissions to d3-associates
- Check all dimensions on site
- To be read in conjunction with Health and Safety plan and all relevant risk assessments

Rev	Description	Issued	Checked	Date
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Rev	Description	Issued	Checked	Date
001	TENDER ISSUE	10.12.21	PH	10.12.21
002	DETAILS AMENDED	14.12.21	PH	14.12.21

Purpose of Issue

TENDER

Project Information

Project: Enfield District Heating Network

Phase 1:

Drawing Information

Typical Trench Cross Sections

Client:



Project ID	Originator	Zone	Level	Type	Role	Drawing No.
ENF	D3A	00	XX	DR	M	0004
Project No.	Drawn	Scale @ A1	Status	Revision		
1665	DW	1:20			D2	002

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