REPORT

Tonkin+Taylor

Downtown West - Downtown Carpark Redevelopment

Infrastructure Concept Design Report

Prepared for

Precinct Properties Holdings Limited

Prepared by

Tonkin & Taylor Ltd

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Executive summary

The table below summarises the key infrastructure and flooding considerations:

Key Consideration	Key Outcome
Stormwater	The pre and post development site are both considered fully impervious. The only increase to stormwater flow into the network from the proposed development is from the impact of future climate change. The receiving public stormwater infrastructure is expected to have capacity to accommodate future site development. Treatment of stormwater runoff from the site is not required. It is proposed to split the stormwater flows from the site into two discharge locations. The proposed design has both connection points discharging to an existing 900 mm diameter line on the Lower Hobson and Street / Quay Street corner. This solution is subject to confirmation of pipe capacities from Auckland Council and topographical survey of existing manhole invert levels and pipe gradients.
Wastewater	The estimated peak weather flow from the existing development has been calculated as 1.0 l/s, which is approximately 6.1% of the capacity of the existing 150 mm lateral connection to public wastewater network. The proposed development will significantly increase wastewater discharge from the site. Two connection points are proposed, one into a 225 mm diameter pipe on Customs Street West and the other into a 225 mm diameter pipe on Lower Albert Street. Both connections are subject to confirmation of pipe capacities from Watercare, topographical survey of existing manhole invert levels and pipe gradients. Peaking factors are also to be confirmed by Watercare. Wastewater generation flows for the proposed development are estimated to be less than 32 l/s (peak wet weather flow). A capacity assessment of the downstream infrastructure indicates there may be some pipes in the downstream network that exceed capacity as a result of the development. Watercare have also advised that they have identified several downstream wastewater lines that may need to be upgraded as a condition of their review approval, subject to further onsite investigations.
Water Supply	The peak potable water demand of the existing development has been estimated as 0.7 l/s, and an estimated total fire flow demand of 50 litres/sec. Fire hydrant flow and pressure data for the existing water network was not available for consideration in the assessment. However, based on the water mains in the vicinity of the site and the nature of the surrounding CDB district, it is assumed that this adequately services the potable and fire flow demand of the existing site. Peak water supply demand for the proposed development has been provided by Mott MacDonald. The total water supply demand is approximately 23 l/s. Two new separate connections are proposed for the potable domestic connection, and the commercial and fire supply connections. Both connections will branch off the existing 175 mm diameter CI watermain located on the eastern side of Lower Albert Street. Both the domestic and commercial connection are likely to be 150 mm diameter. These will be confirmed during the detailed design phase. A hydrant flow test will be required to confirm flow and pressure for fire flow.
Dry Services	Based on the information provided by the service utility providers, we conclude that the Downtown Carpark site (2 Lower Albert Street) can be suitably serviced either from Lower Hobson Street or Customs Street West.

1 Introduction

1.1 Background and proposed development

Precinct Properties Holdings Limited are proposing a redevelopment of the Downtown Carpark site (located at 2 Lower Hobson Street) at the corner of Lower Hobson Street and Customs Street West in Downtown) and have engaged Tonkin & Taylor Ltd (T+T) to complete a civil infrastructure and flooding assessment to support their Resource Consent application. This report assesses the existing and proposed infrastructure servicing the site and identification of any flooding issues that may need to be considered with the proposed development.

The Downtown Carpark site occupies the area confined by Lower Hobson Street and Customs Street West and is shown below in Figure 1.1. The site is approximately 6,442 m^2 in area, with the surrounding ground relatively level at about RL 4 m. The site is on land reclaimed in stages between the 1860's through to the 1920's by the Auckland Harbour Board. The reclamation fill comprises both materials cut from nearby (e.g. Point Britomart), materials dumped from unknown imported sources and dredged materials. Old harbour records identify the location of the graving dock (dry dock) that extended over the north-eastern to south-western corners of the site. According to council records, the graving dock was infilled in 1923, prior to the reclamation of Quay Street (between Princess Wharf and the site).

At the time of writing this report, we understand the development of the site will provide a mixed-use precinct, including new public spaces and a new laneway to provide connectivity within the city centre.

The current concept design proposal includes:

- Three Podium Buildings (P1-P3).
- Two towers between 41 and 53 levels[1].
- 6 level shared basement beneath the site footprint.
- Public spaces and new laneways to provide connectivity across the city.

[1] Levels outlined above exclude parapet and are based on the site elevations drawings RC21-0001 and RC21-0002 prepared by Warren and Mahoney dated 9/12/2024.

Refer to the Architects ground floor plan[2] (09/12/24) in Appendix B. For a full set of architectural plans, refer to Warren and Mahoney documentation.

Figure 1.1: Downtown Carpark Site (red dotted lined) (Source: Auckland Council GIS)

1.2 Summary of data collected

The list below outlines the various sources of information obtained and how they were used within this report:

1.2.1 Infrastructure assessment data

- Information obtained from the Auckland Council (AC) GeoMaps[3] mapping service on the public stormwater, wastewater and water supply networks has been used to inform the wet services demand and capacity analysis and identify any relevant features in the network.
- Requested additional information via email and phone call correspondence from Watercare Services regarding the capacity of the existing public wastewater network to receive wastewater flows from the proposed development. Watercare Services Senior Development Engineer, Developer Services, provided confirmation via email[4] that T+T is required to undertake a capacity assessment of the existing wastewater network upstream and

[2] Downtown West General Arrangement – Level 00, drawing no. RC10-0010 Rev F, prepared by Warren and Mahoney dated 9/12/2024.
[3] Sourced from the Auckland Council link https://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html, Viewer Release – 3.2.1.1 EXTERNAL (deployed 24 May 2016)
[4] Watercare Services Ltd, 4th August 2023, Email from James Shao, WSL Development Engineer, to Steven Lopati T+T, RE: CON-185299_Downtown Carpark Redevelopment – Network capacity_2 Lower Hobson ST

downstream of the subject site, where the extent of the assessment will stop prior to the nearest downstream 300 mm diameter pipe. The assessment is based on a relevant discharge rate per floor area for wet and dry retail, offices, and residential, in accordance with the Water and Wastewater Code of Practice for Land Development and Subdivision Chapter 5: Wastewater, Rev 2.2 dated 1/11/2019.

- Requested information from Watercare Services (response still pending) regarding the potable water and fire-fighting supply network capacity, restrictions, limitations, or changes brought about by the recent nearby development projects which would affect the Downtown Carpark site.
- Requested additional information via correspondence from Healthy Waters on the stormwater network capacity, limitations or issues, or changes resulting from the recent nearby development projects which would affect the Downtown Carpark site.
- Updated stormwater layout from the recently completed Quay Street upgrading work.
- Reviewed information from Dial-B4Udig to identify features, limitations, layout, and supply of dry services (communications, power, and gas) to the Downtown Carpark site. Also informed the layout of services along Lower Hobson Street and the area south of the Carpark site.
- Information obtained from the T+T data base which was acquired during the design of the Quay Street upgrade project which encompasses the same geographical area and has informed the wet services analysis.
- Contacted service providers: Chorus, Vital (formerly CityLink), Vector and Vodafone on the capacity of their existing networks and whether future upgrades were planned in the nearby vicinity.

Infrastructure assessment details for the proposed development are described in Sections 2- 5.

2 Stormwater

2.1 Existing stormwater infrastructure

An existing 300 mm diameter public stormwater connection connects into the north-west end of the site. All the current stormwater flows from the carpark site appear to discharge into the public network at this point.

The 300 mm diameter stormwater connection drains into the main 1050 mm diameter stormwater network via a series of 300 mm diameter concrete pipes and manholes, connecting to the 1050 mm diameter pipe at MH ID 2000374576. This 1050 mm diameter pipe runs northward towards Quay Street, and outlets into the harbour through the Quay Street seawall.

The site 300 mm diameter lateral connection into main network is shown in Figure 2.1.

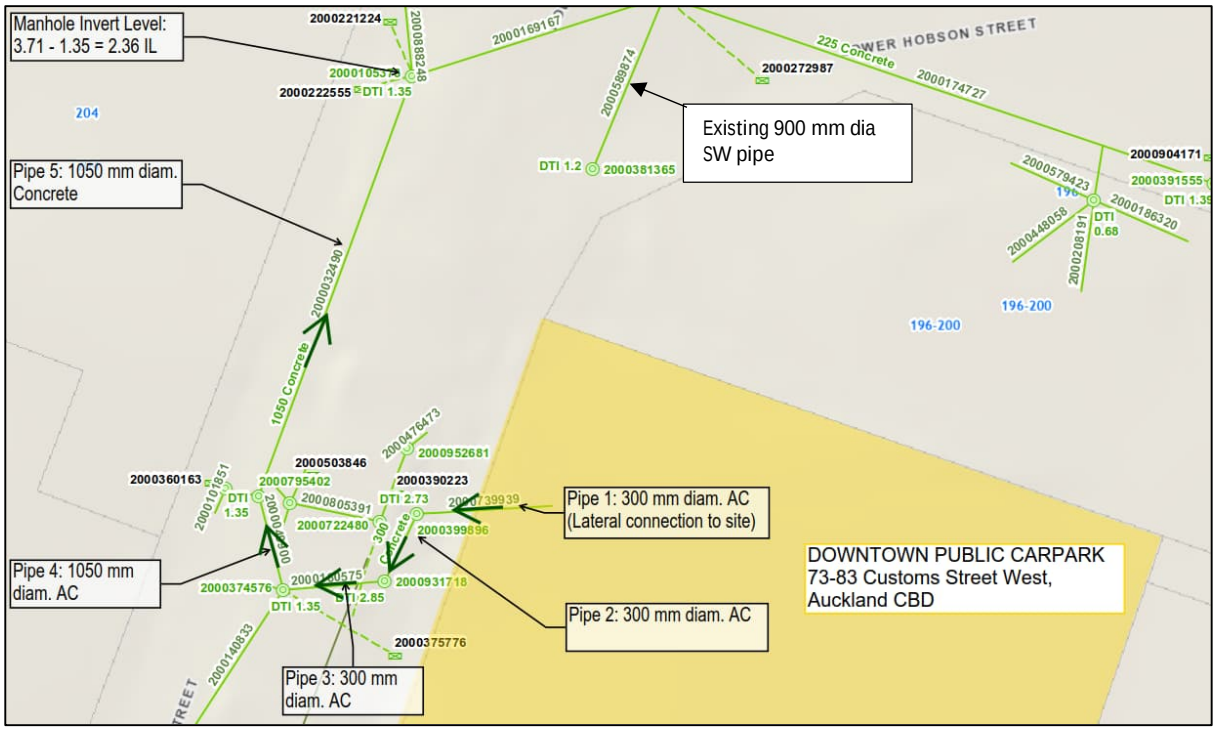

Figure 2.1: Lateral connection from site to stormwater network (Source: Auckland Council GIS)

Other stormwater infrastructure in the vicinity of the site that may provide potential connection points into the site include and existing MH (ID 2000381365) approximately 40 m north of the existing connection point, which connects to an existing 900 mm diameter concrete pipe.

There is also an existing MH (ID 2000805313) approximately 50 m south of the site, which connects to an existing 225 mm diameter earthenware pipe which then saddles onto the 1050 mm diameter pipe discussed above.

For overall plans of the surrounding stormwater network refer to Appendix C.

2.2 Existing runoff assessment

The Downtown Public Carpark site is currently occupied by a multi-level carpark building that covers the land area of 6,442 m^2. The top of the building is an exposed concrete surfaced carpark level, with small areas as roofed surfaces for enclosed stairwells and lift access. Multiple floor drains connected

into 100 mm diameter downpipes, spaced across the level 8 carpark surface, with the vertical downpipes extending down to the basement carpark level. These downpipes discharge into the 300 mm diameter stormwater service connection into the site.

The downpipes from a canopy over the level 3 exit ramp structure to Fanshawe Street (southern side of site) drains directly into the ramps kerb and channel drainage system. Therefore, the canopy area has been excluded from this assessment.

A narrow area exists at ground / street level between the edge of the building and the property boundary. These are noted alongside the western and southern boundary. From google street view images, these surfaces are both paved/concrete and garden areas. Surface runoff from these areas drain directly to the street kerb and channels. For the purposes of estimating the runoff from the site, these surfaces areas have been added to the overall site runoff.

The stormwater runoff from the existing site has been estimated using the rational formula method. This calculation is based on a 1 in 20-year annual recurrence interval (ARI) storm event, in accordance with the New Zealand Building Code - Clause E1.

For the purpose of estimating the existing runoff the existing site has been treated as fully impervious. A runoff off coefficient of 0.9 (for impervious roof surfaces), has been adopted for the entire site. A 10-minute duration has been used in the calculation of stormwater peak flows. The rainfall data were obtained from Auckland Council TP108 20-year ARI daily rainfall depth map.

Stormwater calculations and site plans are included in Appendix C. Peak runoff from the entire Carpark Building site for 1 in 20-year ARI storm event is 151.6 litres/sec as per Table 2.1.

Table 2.1: Existing runoff assessment

Design ARI storm event	Pre-development (L/s)
1 in 20 year	151.6

2.3 Existing capacity assessment

The capacity of the 300 mm diameter stormwater connection into the site is estimated to be 101.4 litres/sec based on an assumed minimum pipe slope of 1.1%. The slope of this pipe and its corresponding capacity will need to be confirmed by survey of the line prior to the detailed design phase. This existing stormwater connection does not currently have adequate capacity for full discharge of the existing peak runoff (151.6 litres/sec) during a 1 in 20-year ARI storm event from the Carpark site.

The capacity of the 1050 mm diameter stormwater pipes downstream of the lateral are 2,375 litres/sec and 680 litres/sec with the site's peak flow contributing to 6.4% and 22.3% of the total capacity of each pipe, respectively.

Refer to existing stormwater calculations in Appendix C.

2.4 Stormwater design flows

Given that the pre and post development site are both considered fully impervious, the only increase to stormwater flow into the network from the proposed development is from the impact of future climate change. The estimated runoff site in a 1 in 20-year ARI storm event is 175 litres/second, which is an increase of 24 litres/second. Initial consultation and a meeting with Healthy Waters on 25/08/23 suggests that there should not be any capacity constraints in the wider stormwater network from the post development flows. Figure 2.2 below shows the concept design for the ground floor layout which includes three separate towers connected by a series of laneways.

Figure 2.2: Proposed ground floor layout (Sourced from General Arrangement - Level 00 plan prepared by Warren and Mahoney dated 09/12/2024)

2.5 Proposed stormwater connections

It is proposed to split the stormwater flows from the site into two discharge locations as shown in Figure 2.3 and drawing 101643.1000-100 in Appendix A. This design is subject to final confirmation of pipe capacities from Auckland Council and a topographical survey of existing manhole invert levels and pipe gradients.

The proposed design involves connecting into the existing 900 mm diameter stormwater line on the corner of Lower Hobson Street and Quay Street. A new 300 / 375 mm diameter stormwater line will run down the at grade section of Lower Hobson Street adjacent to the site, connecting to an existing manhole before discharging into the existing 900 mm diameter stormwater line, refer to Figure 2.3 below. This design avoids having to replace the existing 300 mm stormwater connection that has been identified as having insufficient capacity to take the existing flows.

This design is subject to Auckland Council final confirmation that the existing 900 mm diameter pipe has sufficient capacity, and a topographical survey of existing manhole invert levels and pipe gradients. If the 900 mm diameter pipe does not have sufficient capacity it may need to be upgraded to a 1050 mm diameter pipe, over a length of approximately 20 m length.

Note that this proposed alignment has also been chosen as it will not be affected by any future demolition works associated with the Lower Hobson Street ramp.

Figure 2.3: Proposed stormwater connections

2.6 Stormwater treatment

Under the Auckland Council Unitary Plan (AUP), treatment of stormwater runoff from High Contaminant Generating Activities (HCGAs), which are those land use activities that generate and discharge contaminants at a level where treatment will result in a substantial reduction in contaminant concentration and load. HCGAs are identified as:

- Parking areas and associated accessways that are exposed to rainfall and carry more than 50 vehicles per day[5].
- Building roofing, spouting, and external walls cladding and architectural features (with a surface area greater than 25 m^2) using materials with an:
  - Exposed surface or coating of metallic zinc or any alloy containing greater than 10% zinc.
  - Exposed surface or coating of metallic copper or any alloy containing greater than 10% copper.
  - Exposed treated timber surface or any roof material with a copper-containing or zinc-containing algaecide.

[5] Auckland Council (August 2013), Auckland Unitary Plan – Stormwater Management Provisions, Technical Report 2013/035

The proposed development does not include any uncovered parking or any of the above mentioned building materials and therefore, treatment of stormwater runoff from the site is not required.

3 Wastewater

3.1 Existing wastewater network

A 225 mm diameter public sewer pipe services the existing Downtown Carpark site and neighbouring properties in Lower Hobson Street. The property is connected by a 150 mm diameter line located at the north-western corner of the site. From here, the wastewater line runs east along Quay Street, past the recent developments at Commercial Bay and Downtown Public Space/Ferry Terminal.

Site plans depicting the wastewater network surrounding the Downtown Carpark site are shown in Figure 3.1 and included in Appendix C.

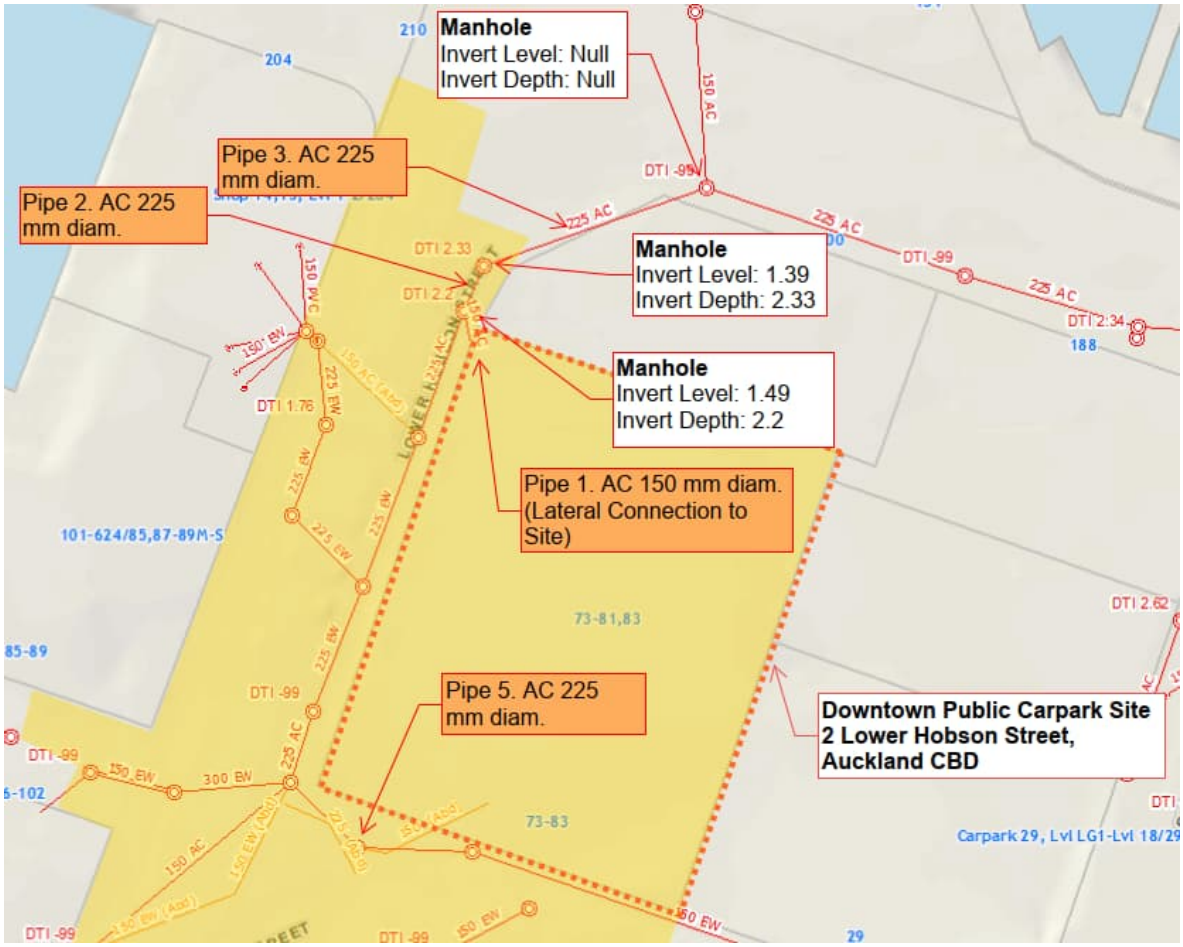

Figure 3.1: Public wastewater network servicing the Downtown Carpark site (Source: Auckland Council GIS)

3.2 Existing wastewater generation

The existing flows from the Downtown Carpark site have been estimated according to the design approach outlined in the Watercare Water and Wastewater Code of Practice for Land Development and Subdivision. Wastewater flows have been estimated based on floor plans of the bar and restaurant businesses, ground floor toilets accessible to the public and carparking administration office spaces housed within the building, sourced from the property file. We have assumed no wastewater generation from the remainder of the ground level and additional levels due to its operation as a carpark. Estimated flows are provided in Table 3.1 and included in Appendix C.

Table 3.1: Estimated wastewater generation flows at the Downtown Public Carpark Site.

Average dry weather flow (l/s)	Peak dry weather flow (l/s)	Peak wet weather flow (l/s)
0.1	0.3	0.9

3.3 Capacity assessment

The Watercare Services Ltd Development Engineer has confirmed that a wastewater capacity assessment of the existing network upstream and downstream of the site is required to provide Watercare with an understanding of where the network could be constrained. The extent of the wastewater network starts from the upstream most manhole, and as far downstream of the site to the manhole where the pipe size diameter is 300 mm diameter. Refer to Figure 3.2.

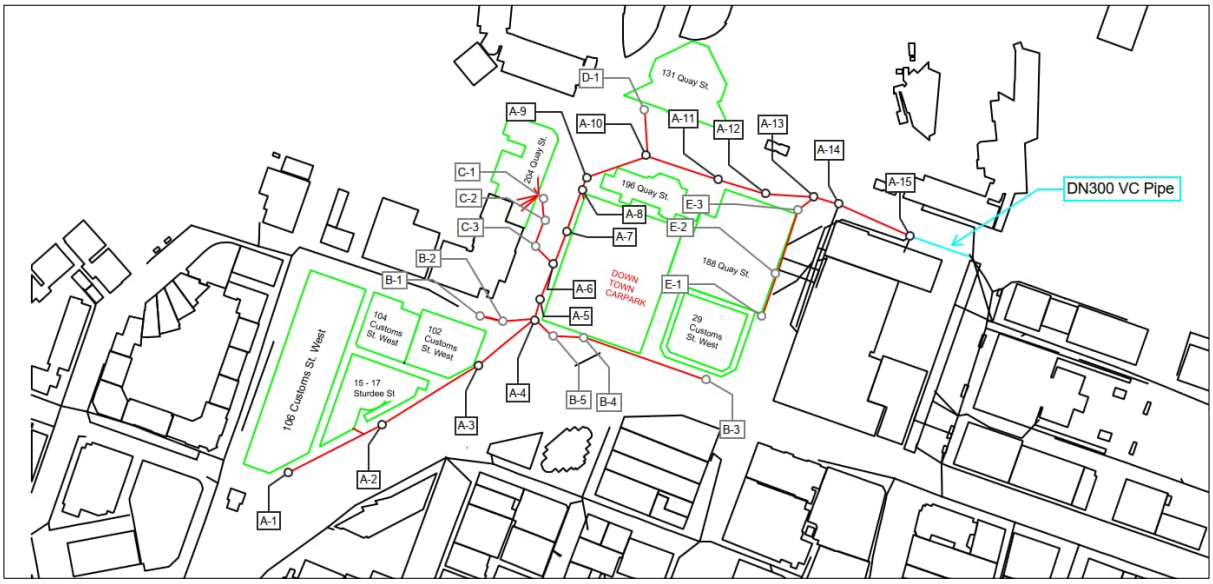

Figure 3.2: Extent of the existing wastewater capacity assessment

The capacity assessment indicates the existing public 225 mm diameter wastewater line adjacent to the site has adequate capacity to receive wastewater flows from the proposed development. The lines between manhole ID A-12 to A15 indicate the pipe capacities along the downstream network are exceeded with pipe between A-13 and A-14 have the greatest capacity exceedance at 166%. Refer to Appendix C for the capacity assessment calculations.

The estimated wastewater generation for the existing site constitutes approximately 2.1% of the total capacity of the public 225 mm sewer line running below Lower Hobson Street, and 6.1% of the 150 mm lateral connection to the property. A potential connection location has been considered along Customs Street West where it will connect into an existing 225 mm sewer line (Pipe 5).

Due to lack of available information, the slopes of Pipe 1, Pipe 3 and Pipe 5 (refer to Figure 3.1) a conservative pipe gradient of 1% has been assumed. Therefore, the slope and corresponding capacity of these pipes will need to be confirmed via survey during the detailed design phase. Refer to calculations provided in Appendix C.

An infrastructure assessment has been lodged with Watercare. They have identified several downstream wastewater lines that may need to be upgraded as a condition of their approval, subject to further onsite investigations. This may consist of upgrading the pipes between manhole ID A-12 to A15, which would require replacing 105 m of 255 mm pipe with 300 mm pipe (subject to confirmation during detailed design).

3.4 Wastewater design flows

Average dry weather wastewater flows for the proposed development have been calculated using the design parameters set out in the Water and Wastewater Code of Practice for Land Development and Subdivision ver 2.2. Wastewater flows have been estimated based on the area schedule[6] of the redeveloped site. As discussed in Section 3.5, the development has two proposed connections. For the purpose of these calculations, connection point 1 includes the flows from T2 and two-thirds of the Base. Connection point 2 includes the flows from T1 and one-third `of Base. Refer to Table 3.3 and Table 3.3. Activity types have been estimated based on the floor plans provided by Warren and Mahoney in December 2024.

Table 3.2: Estimated wastewater generation flows for the proposed development

Development Areas	Average dry weather flow (l/s)	Peak dry weather flow (l/s)	Peak wet weather flow (l/s)
T1	3.0	6.0	14.9
T2	1.4	4.2	7.1
Base (Basement + Level 00 to Level 07)	1.6	3.2	8.4

Table 3.3: Estimated wastewater generation flows for the proposed development connection points.

Connections	Average dry weather flow (l/s)	Peak dry weather flow (l/s)	Peak wet weather flow (l/s)
Connection Point 1	2.5	6.4	12.7
Connection Point 2	3.5	7.0	17.7

Peaking factors used for dry weather and wet weather flows will need to be agreed with Watercare during the detailed design phase. The above flow rates will continue to be refined as the design progresses from concept design to subsequent design stages.

3.5 Proposed wastewater connections

Two new 150 mm diameter connections are proposed to service the development as shown in Figure 3.3 below. Both of these new connections will connect into existing public wastewater manholes. The existing connection is proposed to be abandoned. The final location of the wastewater connections will be confirmed at detailed design.

[6] Area schedule provided to Ashleigh Frew (T+T) from Rory Keegan (Warren and Mahoney) via email on 2/12/2024, file name “20241115_DTW_Area Schedule_EX.xlsx”.

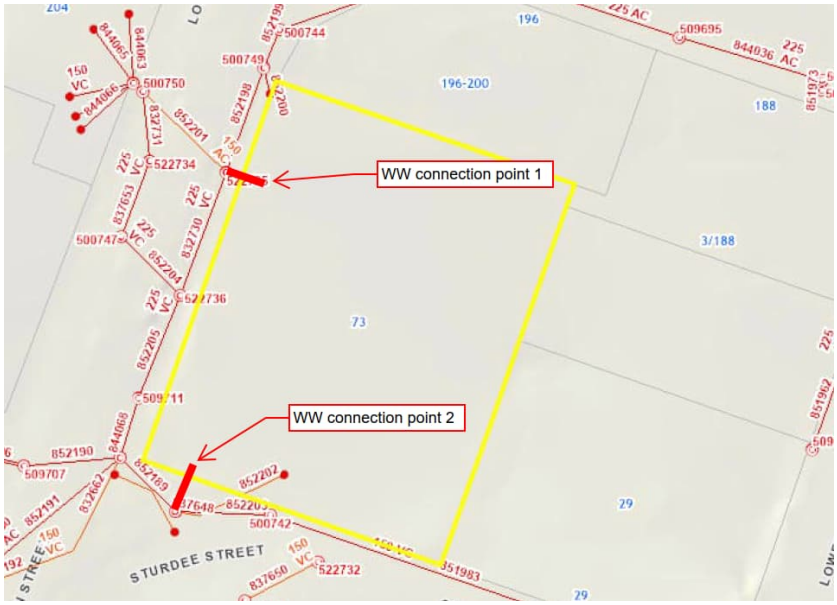

Figure 3.3: Proposed wastewater connections

4 Water supply

4.1 Existing water supply network

Outside the Downtown Carpark site a 250 mm diameter concrete lined steel (CLS) water main runs along the eastern side of Lower Hobson Street. This connects to a 600 mm diameter concrete lined steel water main in Customs Street West. There is also a 175 mm diameter cast (CI) iron water main running beneath Customs Street West, refer to Figure 4.1 and included in Appendix C. There are several hydrants in close proximity, on both Lower Hobson Street and Customs Street West. Refer to Appendix C. A 100 mm CI lateral at the north-west corner of the Carpark site (installed 17/06/1955 and deemed operational) connects to the 250 mm CLS water main located along Lower Hobson Street. At the south-east corner a 40 mm PE lateral pipe (installed 03/04/2003 and deemed operational) connects the Carpark site to the 175 mm CI water main beneath Customs Street West and connects in close proximity to the carpark offices.

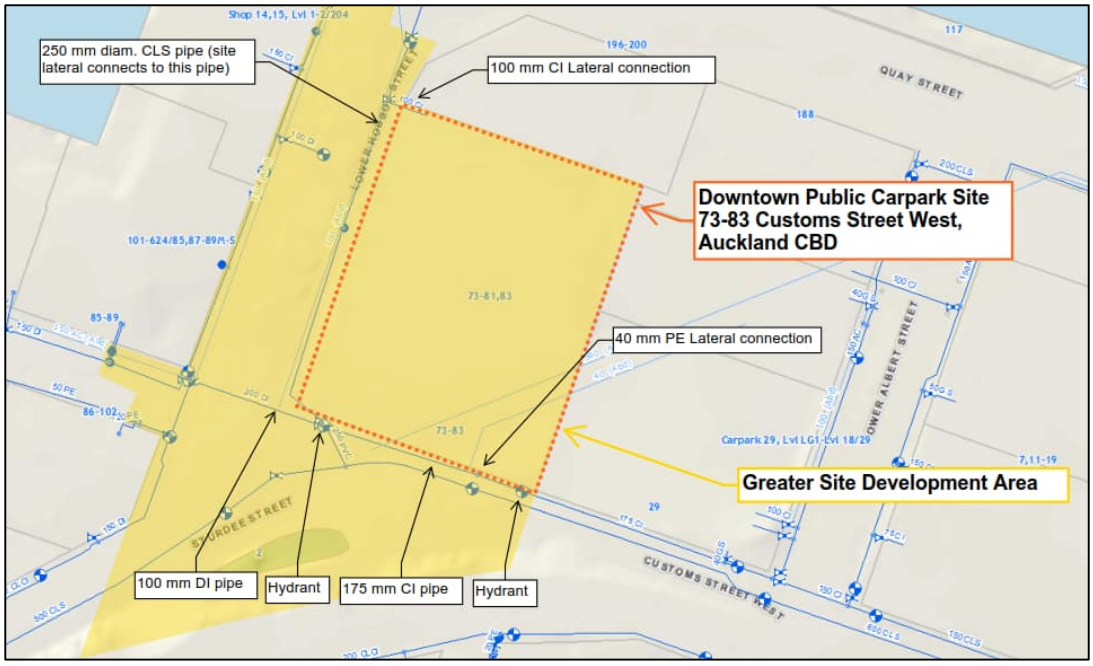

Figure 4.1: Public water supply network near the Downtown Carpark site (Source: Auckland Council GIS)

Two watermains with 560 mm and 40 mm diameter run beneath the Downtown Carpark site, Auckland Council GeoMaps notes these are abandoned.

4.2 Capacity assessment

At the time of this assessment, no fire hydrant flow and pressure tests have been carried out and no historical testing has been made available to us. However, based on the numerous water mains in the vicinity of the site and the nature of the surrounding CDB district, it is assumed that the available town supply adequately services the potable and fire flow demand of the existing site.

4.3 Potable water supply demand

Peak water supply demand for the proposed development has been provided to us by Mott MacDonald[7], based on the requirements of AS/NZS 3500.1 Fixture Units. The total potable water supply demand is approximately 23 l/s. This information was provided in May 2023. Although there have been some changes to use type of building floors, this flow rate is unlikely to have changed significantly enough to affect its serviceability by the town supply.

4.4 Fire flow demand

Assuming the proposed development is sprinklered, the indicative fire flow demand is up to 50 litres/sec for a water supply classification FW2. This is based on the New Zealand Fire Service Firefighting Water Supplies Code of Practice SNZ PAS 4509:2008, Table 1.

The firefighting water supply is based on the two fire hydrant flows, one at 12.5 litres/sec within a distance of 135 m, and the other at 12.5 litres/sec within a distance of 270 m. In addition, the fire sprinkler protection system demand is taken as 25 l/s in accordance with SNZ PAS 4509:2008 Table 2, note 4. Therefore, the total fire flow demand for the existing site is up to 50 litres/sec.

[7] Email Nick Fleckney 'Estimated Flows" dated 26/05/2023 12:34pm

There are twelve hydrants within 50 m of the vicinity of the Carpark site, the closest of which are 3 m and 6 m thus showing compliance with the code.

Refer to Appendix C for relevant Table 1 – Method for determining required water supply classification and Table 2 – Method for determining firefighting water supply, from SNZ PAS 4509:2008.

4.5 Proposed water supply connections

Two separate connections are proposed for the potable domestic connection, and the commercial and fire supply connections. Both connections will branch off the existing 175 mm diameter CI watermain located on the eastern side of Lower Albert Street. The location of the connection is subject to change and will be confirmed during detailed design. Refer to Figure 4.2. Both the domestic, and commercial and fire supply connections are likely to be DN150 mm diameter pipes. These will be confirmed during the detailed design phase.

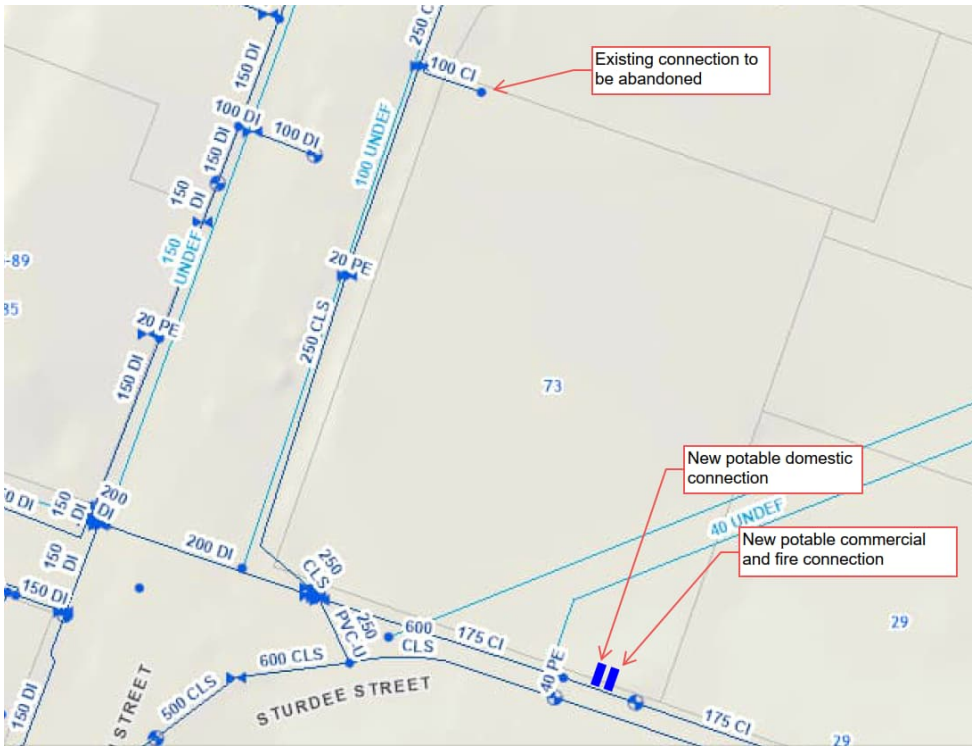

Figure 4.2: Proposed water supply connections

5 Dry services assessment

5.1 General

This assessment is based on a review of the following information:

- Dry services plans (power, gas, telecommunications) local to the site, sourced from BeforeUdig.
- Information provided by utility service providers.

The following services and providers were identified in Lower Hobson Street, Customs Street West and the area south of the Downtown Carpark site:

- Chorus – Telecommunications Fibre Optic Cables.

- Vital (formerly CityLink) – Telecommunications.
- Vector – Gas.
- Vector – Electricity Cables.
- Vodafone – Telecommunications.

Refer to Appendix D for plans showing the location of dry services within the approximate site development area.

5.2 Telecommunications

The table below summarises the telecommunications services present in each of the streets surrounding the Downtown Carpark site and surrounding development area in table below. Service plans have been supplied independently by each service provider, for a compilation of the site plans refer to Appendix D.

Location	Chorus	Vital *(formerly CityLink)*	Vodafone	Vector
Lower Hobson Street	✓ (along western side of roadway, laterals cross beneath ramp)	-	✓ (and proposed line at cnr of Quay Street)	✓ (active service at northern end & inactive service along roadway)
Customs Street West	✓	Along Fanshawe Street (outside development area)	✓	✓ (Active service along roadway. Inactive service near intersection with Lower Hobson Street)
Southern section of development area	✓ (several lines cross beneath Lower Hobson Street ramp)	Along Fanshawe Street (outside development area)	Along Fanshawe Street (outside development area)	✓ (Active service line and also outside area along Fanshawe Street)
East of Downtown Carpark site (outside property boundary)	✓	-	✓	✓

Vital (formerly CityLink) has confirmed that no future network developments or upgrades are planned within the site development area. Vital's network is located outside the site development area. They have provided capacity information on their available services. A main single trench along Fanshawe Street contains 3/1000 mm and 1/50 mm ducts and includes a 96-core fibre optic cable in one duct. A second single trench branching off the main line into Federal Street contains 2/100 mm ducts and within it are 2 x 96-core fibre optic cables. This information is different to that supplied by Before U Dig. Refer to correspondence included in Appendix D.

Vodafone have confirmed available capacity in their network within the vicinity of the development area and do not have any current plans for developing or upgrading the existing network.

Vector will provide feedback on any future upgrades to the existing network once they have reviewed an indicative demand for a proposed development and a timeframe determined.

Chorus does not have any planned works within vicinity of the site development area. They have confirmed that they have sufficient capacity in their network and can provide additional connections if required. We recommend that once development plans are available that these are provided to Chorus for its review.

5.3 Gas

The BeforeUdig plans received from Vector indicate an MP4 pressure level pipe gas main along Lower Hobson Street which extends into the development area to the south of the Downtown Carpark site and connects to another MP4 line along Quay Street to the north. MP4 pipe gas mains are also present along Customs Street West and outside the development area at the eastern end of Fanshawe Street.

The Downtown Carpark site is currently serviced by a 25 mm diameter PE pipe connection on its southern side to the MP4 gas main along Customs Street West. There are no connections marked to the Carpark site along Lower Hobson Street.

At this point in the process there is no available information on future upgrades. Vector only will provide feedback on any future upgrades to the existing network once they have reviewed an indicative demand for the proposed development and a timeframe for the development has been determined. Further liaison with Vector will be required during future design stages to confirm their requirements.

5.4 Electricity

Electrical infrastructure in the site development area and nearby vicinity is owned and operated by Vector. The existing power supply infrastructure for the Downtown Carpark site consists of two 11 KV – 6.6 KV underground cables and one 0.4 KV cable. These underground cables run along the western boundary of 2 Lower Hobson Street (at its northern end) and feed into a distribution substation located at 204 Quay Street to the north-west and 196-200 Quay Street to the north (with the exception of 11 KV – 6.6 KV volt cable, which continues alongside the entire length of the site's western boundary). Alongside the eastern boundary of the 2 Lower Hobson Street site runs two 11 KV – 6.6 KV cables which connect to a distribution station at the HSBC tower site (188 Quay Street).

Two pilot/fibre optic cables run alongside the full length of the Downtown Carpark's western site boundary. The western side of Lower Hobson Street contains one 11 KV – 6.6 KV line which runs the entire length of the roadway. The southern section of the development area (south of the Carpark site) contains several 11 KV – 6.6 KV volt, 0.4 KV and Pilot/Fibre Optic cables. Outside the development area along Fanshawe Street run several 110 KV – 22 KV sub-transmission lines, which are not impacted by the proposed redevelopment.

Vector has advised that the Downtown Carpark site has a 300 Amp supply. Regarding any future upgrades to the network Vector has advised that they will review this development again and provide feedback once an indicative demand and timeframe has been determined. Once the estimated power demand for the proposed development is confirmed, Vector can advise if the existing network can service any increase in power demand from the proposed development. From reviewing the dry services drawings, it appears the area of the site is suitably serviced either from Lower Hobson Street or Customs Street West. This is subject to confirmation with individual service providers.

5.5 Future development of dry services infrastructure

Based on the above information, we conclude that the Downtown Carpark site (2 Lower Albert Street) can be suitably serviced either from Lower Hobson Street or Customs Street West.

6 Flooding assessment

Refer to the flood hazard and risk assessment report[8], which provides flood and coastal hazard information, freeboard requirements and a natural hazard risk assessment.

[8] Downtown West – Downtown Car Park Redevelopment – Flood Hazard and Risk Assessment report, Tonkin & Taylor Ltd, December 2024

8 Applicability

This report has been prepared for the exclusive use of our client Precinct Properties Holdings Limited, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that our client will submit this report as part of an application for resource consent and that Auckland Council as the consenting authority will use this report for the purpose of assessing that application.

Tonkin & Taylor Ltd
Environmental and Engineering Consultants

Report prepared by:

.....	.....
Ashleigh Frew	Maurice Mills
Civil Engineer	Senior Civil Engineer

Authorised for Tonkin & Taylor Ltd by:

.....

Peter Millar
Project Director

AFRE
\\ttgroup.local\corporate\auckland\projects\1016043\1016043.2000\issueddocuments\20241206 dtw rc deliverables\downtown west_infrastructure report_v6.docx

Appendix A Concept Plans

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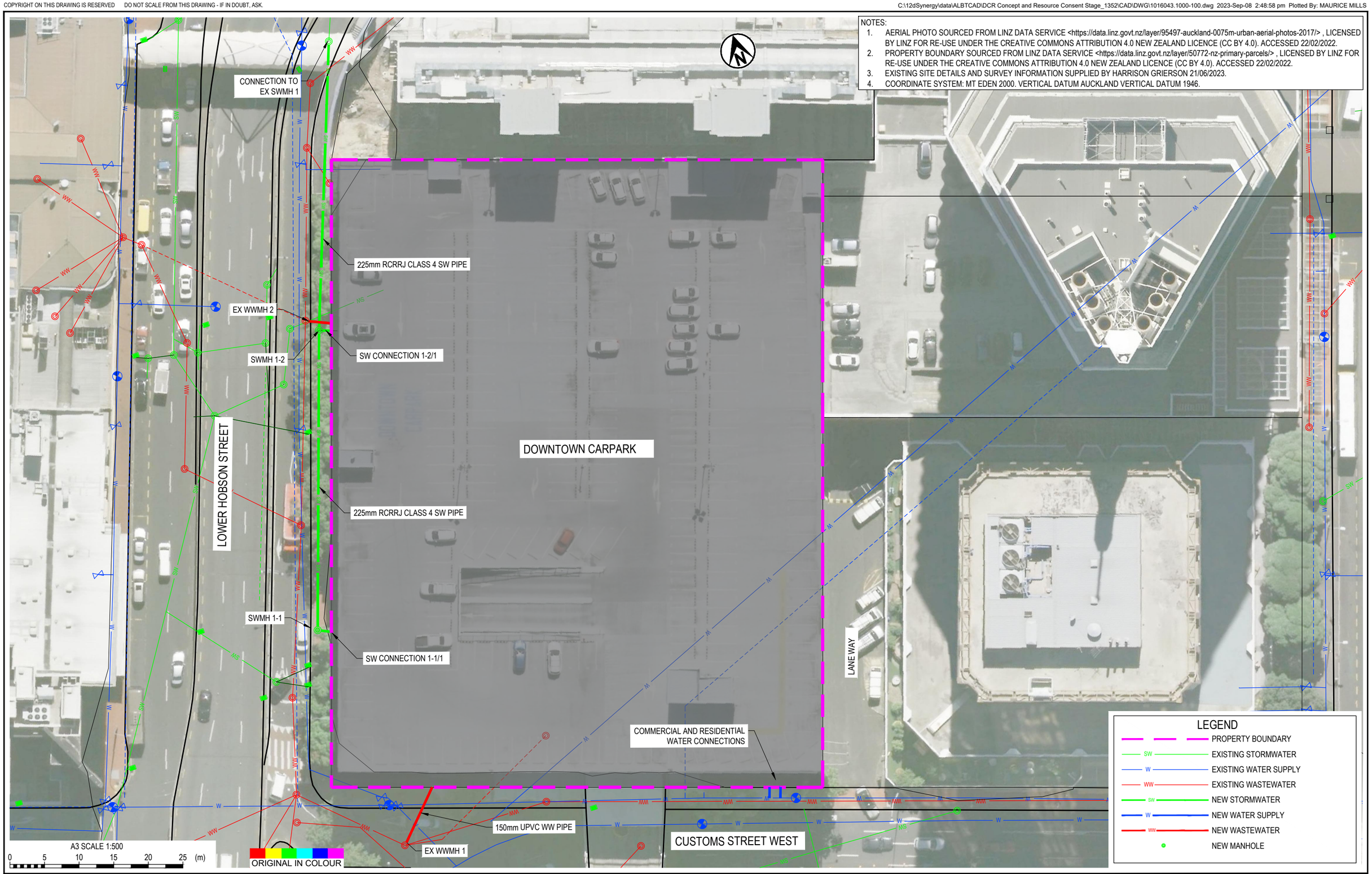
NOTES:
1. AERIAL PHOTO SOURCED FROM LINZ DATA SERVICE <https://data.linz.govt.nz/layer/95497-auckland-0075m-urban-aerial-photos-2017/> , LICENSED BY LINZ FOR RE-USE UNDER THE CREATIVE COMMONS ATTRIBUTION 4.0 NEW ZEALAND LICENCE (CC BY 4.0). ACCESSED 22/02/2022.
2. PROPERTY BOUNDARY SOURCED FROM LINZ DATA SERVICE <https://data.linz.govt.nz/layer/50772-nz-primary-parcels/> , LICENSED BY LINZ FOR RE-USE UNDER THE CREATIVE COMMONS ATTRIBUTION 4.0 NEW ZEALAND LICENCE (CC BY 4.0). ACCESSED 22/02/2022.
3. EXISTING SITE DETAILS AND SURVEY INFORMATION SUPPLIED BY HARRISON GRIERSON 21/06/2023.
4. COORDINATE SYSTEM: MT EDEN 2000. VERTICAL DATUM AUCKLAND VERTICAL DATUM 1946.



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REV	DESCRIPTION	CAD	CHK	DATE
1	90% Comsent design	KS	MGM	14.08.2023
2	100% Consent design	KS	MGM	8.09.2023

DESIGNED	KS	SEP 23	DRAWING STATUS
DRAWN	KS	SEP 23	
DESIGN CHECKED	MGM	SEP 23	
DRAWING CHECKED	MGM	SEP 23	

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APPROVED DATE

CLIENT **PRECINCT PROPERTIES NZ LIMITED**

PROJECT **DOWNTOWN CARPARK REDEVELOPMENT**

TITLE DRAINAGE DESIGN
GENERAL ARRANGEMENT PLAN

SCALE (A1) 1:500 DWG No. 101643.1000-100 REV 2

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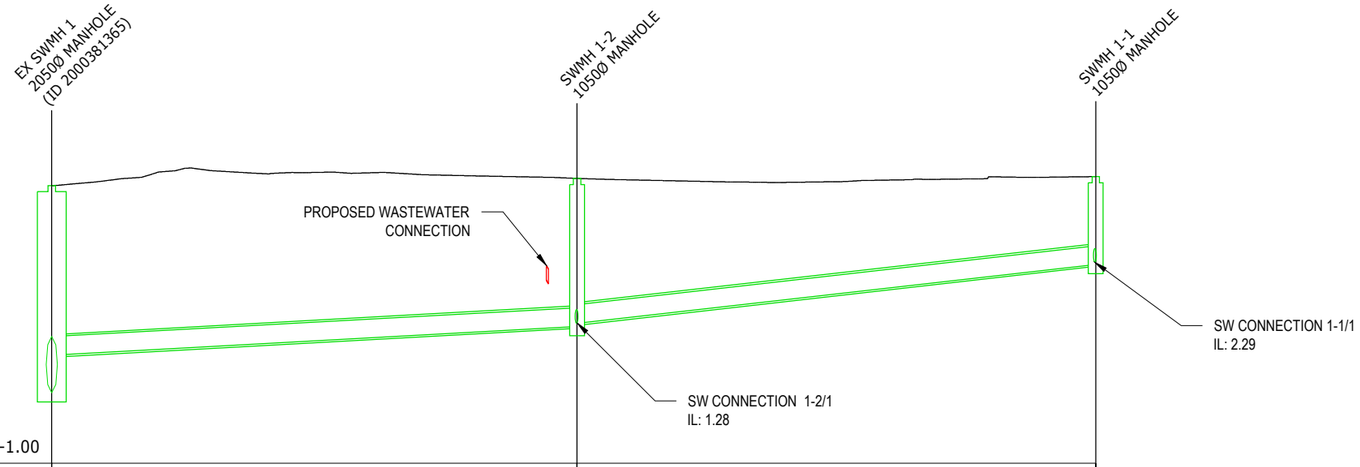
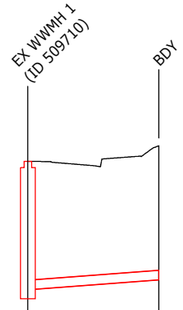


Datum R.L. -1.00

DEPTH TO INVERT		2.77	2.41	2.36		1.43
INVERT LEVEL	0.76		1.23	1.28		2.24
LID LEVEL	3.53		3.64			3.67
GRADIENT & PIPE SIZE		1.10% 375 mm Concrete Pipe ANZ Concrete Pipe RCRRJ		2.27% 375 mm Concrete Pipe ANZ Concrete Pipe RCRRJ		
PIPE LENGTH & MH No.	EX SWMH 1	42.8m	MH 1-2	42.3m		MH 1-1

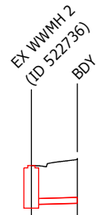
LONG SECTION - STORMWATER LINE 1



Datum R.L. 1.00

DEPTH TO INVERT		2.16	2.10
INVERT LEVEL		1.93	2.09
LID LEVEL	4.02		
GRADIENT & PIPE SIZE		1.50% 150Ø UPVC	
PIPE LENGTH & MH No.	EX WWMH 1	10.7m	

LONG SECTION - WASTEWATER CONNECTION 1



Datum R.L. 0.00

DEPTH TO INVERT		1.59	1.81
INVERT LEVEL		1.93	1.99
LID LEVEL	3.52		
GRADIENT & PIPE SIZE		1.50% 150Ø UPVC	
PIPE LENGTH & MH No.	EX WWMH 2	3.7m	

LONG SECTION - WASTEWATER CONNECTION 2

A3 SCALE 1:500

0 5 10 15 20 25 (m)

ORIGINAL IN COLOUR

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REV	DESCRIPTION	CAD	CHK	DATE
1	90% Consent design	KS	MGM	14.08.2023
2	100% Consent design	KS	MGM	8.09.2023

DESIGNED	KS	SEPT 23
DRAWN	KS	AUG 23
DESIGN CHECKED	MGM	Sep 23
DRAWING CHECKED	MGM	Sep 23

DRAWING STATUS

NOT FOR CONSTRUCTION

APPROVED DATE

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CLIENT **PRECINCT PROPERTIES NZ LIMITED**

PROJECT **DOWNTOWN CARPARK REDEVELOPMENT**

TITLE DRAINAGE DESIGN
DRAINAGE LONGSECTIONS

SCALE (A1) 1:100V, 1:500H DWG No. 101643.1000-110 REV 2

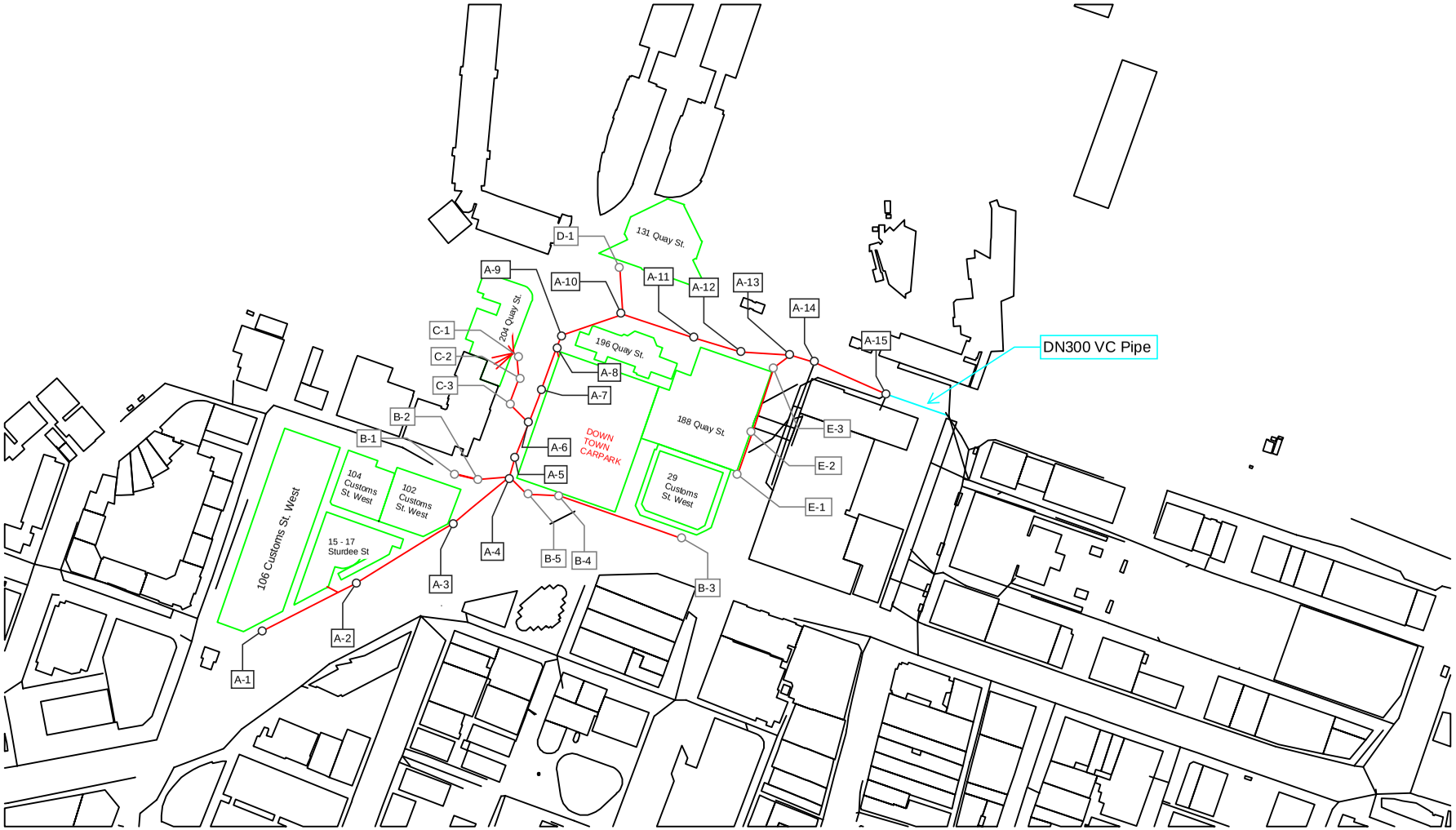
Appendix B Architectural Drawings

ARCHITECTURAL RELEVANT DRAWINGS LIST

Refer Warren and Mahoney Submission documents for details

Drawing Number	Drawing Title	Revision	Date
RC03-0001	PROPOSED SITE PLAN	F	9/12/2024
RC10-0000	GENERAL ARRANGEMENT - ELEVATION AND SE	D	9/12/2024
RC10-0001	GENERAL ARRANGEMENT - BASEMENT 06	F	9/12/2024
RC10-0002	GENERAL ARRANGEMENT - BASEMENT 05	F	9/12/2024
RC10-0003	GENERAL ARRANGEMENT - BASEMENT 04	F	9/12/2024
RC10-0004	GENERAL ARRANGEMENT - BASEMENT 03	F	9/12/2024
RC10-0005	GENERAL ARRANGEMENT - BASEMENT 02	F	9/12/2024
RC10-0006	GENERAL ARRANGEMENT - BASEMENT 01	F	9/12/2024
RC10-0010	GENERAL ARRANGEMENT - LEVEL 00	F	9/12/2024
RC10-0011	GENERAL ARRANGEMENT - LEVEL 00M	F	9/12/2024
RC22-0001	BUILDING ELEVATIONS - TOWER 1	F	9/12/2024
RC22-0002	BUILDING ELEVATIONS - TOWER 1	D	9/12/2024
RC22-0005	BUILDING ELEVATIONS - TOWER 2	F	9/12/2024
RC22-0006	BUILDING ELEVATIONS - TOWER 2	D	9/12/2024
RC22-0010	BUILDING ELEVATIONS - PODIUM 3	D	9/12/2024

Appendix C Wet Services Plans and Calculations


DN300 VC Pipe
131 Quay St.
204 Quay St.
196 Quay St.
188 Quay St.
DOWN TOWN CARPARK
29 Customs St. West
104 Customs St. West
102 Customs St. West
106 Customs St. West
15 - 17 Sturdee St
A-1
A-2
A-3
A-4
A-5
A-6
A-7
A-8
A-9
A-10
A-11
A-12
A-13
A-14
A-15
B-1
B-2
B-3
B-4
B-5
C-1
C-2
C-3
D-1
E-1
E-2
E-3

Pipe Capacity

Calculated cell | Input cell | Key results

Project:	Wastewater Capacity	By:	DAHA	Date:	14/08/2022
Work Package:	Infrastructure Assessment	Checked:	SL	Date:	18/08/2023
Title:	Downtown Carpark				
Location:	Auckland				
Stage #:	Pre-Purchase				

+ Assumptions

1. The Mannings formula specified in E1 Section 3.2 of the Building Code has been used to estimate pipe flow assuming 'full flow' pipe capacity.
2. Pipes with no IL information has an assumed Pipe Slope of 0.01 m/m.
3. Pipes with a negative slope has an assumed Pipe Slope of 0.01 m/m.

+ Design Calculations

Pipe ID	US Invert Level (m)	DS Invert Level (m)	Length of Pipe (m)	Pipe Diameter (mm)	Pipe Material	Mannings (n)	Pipe Area (m^2)	Pipe Slope (m/m)	Pipe Design Flow (l/s)	Pipe Capacity (l/s)	Spare Capacity (m^3/s)	Percentage of capacity used
A-1	0.00	0.00	70.50	150	Vitrified Clay	0.017	0.0177	0.010	2.80	11.65	8.85	24.02%
A-2	0.00	0.00	79.50	150	Concrete	0.013	0.0177	0.010	2.80	15.23	12.43	18.37%
A-3	0.00	0.00	49.00	150	Concrete	0.013	0.0177	0.010	6.71	15.23	8.51	44.09%
B-1	0.00	0.00	16.40	150	Vitrified Clay	0.017	0.0177	0.010	0.00	11.65	11.65	0.00%
B-2	0.00	0.00	21.74	300	Vitrified Clay	0.017	0.0707	0.003	0.00	40.50	40.50	0.00%
B-3	5.54	2.37	88.86	150	Vitrified Clay	0.017	0.0177	0.036	4.68	22.00	17.31	21.29%
B-4	2.06	1.96	21.40	150	Concrete	0.013	0.0177	0.005	4.68	10.41	5.73	44.99%
B-5	1.88	1.84	17.32	225	Concrete	0.013	0.0398	0.002	4.68	21.58	16.89	21.70%
A-4	1.83	1.76	14.00	225	Concrete	0.013	0.0398	0.005	11.40	31.75	20.35	35.90%
A-5	0.00	1.62	25.00	225	Vitrified Clay	0.017	0.0398	0.005	11.40	23.03	11.64	49.48%
C-1	2.38	2.09	15.64	225	Vitrified Clay	0.017	0.0398	0.019	7.20	46.76	39.55	15.40%
C-2	2.07	1.94	18.20	225	Vitrified Clay	0.017	0.0398	0.007	7.20	29.02	21.81	24.82%
C-3	1.90	1.70	18.73	225	Vitrified Clay	0.017	0.0398	0.011	7.20	35.48	28.28	20.30%
A-6	1.57	1.60	29.57	225	Vitrified Clay	0.017	0.0398	0.005	18.60	23.03	4.43	80.75%
A-7	1.51	0.00	25.01	225	Concrete	0.013	0.0398	0.060	18.60	110.32	91.72	16.86%
A-8	1.49	1.44	9.30	225	Concrete	0.013	0.0398	0.005	19.50	32.92	13.42	59.23%
A-9	1.39	1.13	44.10	225	Concrete	0.013	0.0398	0.006	19.50	34.48	14.98	56.56%
D-1	0.00	1.25	32.97	150	Concrete	0.013	0.0177	0.010	4.11	15.23	11.12	27.00%
A-10	0.00	0.00	50.91	225	Concrete	0.013	0.0398	0.005	36.44	30.12	-6.32	120.98%
A-11	1.10	0.00	33.53	225	Concrete	0.013	0.0398	0.033	36.44	81.33	44.89	44.80%
A-12	0.81	0.84	34.03	225	Concrete	0.013	0.0398	0.005	49.01	30.12	-18.89	162.70%
E-1	2.41	1.33	30.09	225	Concrete	0.013	0.0398	0.036	4.68	85.07	80.38	5.51%
E-2	1.19	0.92	46.56	225	Concrete	0.013	0.0398	0.006	4.68	34.19	29.51	13.70%
E-3	0.88	0.85	14.41	225	Concrete	0.013	0.0398	0.002	4.68	20.49	15.81	22.86%
A-13	0.81	0.73	16.99	225	Concrete	0.013	0.0398	0.005	53.69	30.81	-22.88	174.24%
A-14	0.00	0.00	53.67	225	Vitrified Clay	0.017	0.0398	0.005	53.69	23.03	-30.66	233.09%
A-15	0.52	0.35	45.14	300	Vitrified Clay	0.017	0.0707	0.004	53.69	45.38	-8.31	118.31%

+ Link to Pipe Catchment Plan

Pipe catchment plan can be found here: P:\1016043\1016043.1000\4 Civil Infrastruture\WorkingMaterial\Calculations

Downtown Carpark Redevelopment

Existing Wastewater Flow Calculations

Job No.: 1016043.1000

Computed by: DAHA Date: 11/08/2023

Checked by: SL Date: 17/08/2023

Tonkin+Taylor

					Peaking Factor						Peaking Factor		Design Wastewater Flow Allowances							
Location	Features	# of Floors	Design Flows (L/p/day)	Occupancy	Self-Cleansing Flow	Peak Design Flow	PDWF (L/s)	PWWF (L/s)	Floor Area (m^2)	Net Floor Area (m^2)	Self-Cleansing Flow	Peak Design Flow	Flow Allowance (L/p/day)	Dry Retail	Office	Wet Retail	Child Day Care	PDWF (L/s)	PWWF (L/s)	Subtotal PWWF (L/s)
106 Customs St	Level 1																			
	Office	1							5350	4280	2	5	65		18547			0.429	1.073	
	Ground Floor																			
	Wet Retail	1							892	713	2	6.7				10700		0.248	0.830	
	Office	1							4458	3567	2	5	65		15456			0.358	0.894	2.797
15-17 Sturdee St	Roof																			
	Car Park	1							1920	1536								0	0	
	Level 1 - 6																			
	Car Park	6							1920	1536								0	0	
	Ground Floor																			
	Car Park	1							1920	1536								0	0	0.000
102 Customs St	Level 1																			
	Office								320	256	2	5	65		1109			0.026	0.064	
	Ground Floor																			
	Leisure Centre	1							1670	1336	2	6.7				20040		0.464	1.554	1.618
104 Customs St	Level 2																			
	Office	1							830	664	2	5	65		2877			0.067	0.167	
	Wet Retail (Culinary School)	1							490	392	2	6.7				5880		0.136	0.456	
	Level 1																			
	Office	1							830	664	2	5	65		2877			0.067	0.167	
	Wet Retail (Culinary School)	1							490	392	2	6.7				5880		0.136	0.456	
	Ground Floor																			
	Office								830	664	2	5	65		2877			0.067	0.167	
	Wet Retail (Culinary School)	1							490	392	2	6.7				5880		0.136	0.456	
	Wet Retail	1							256	205	2	6.7				3072		0.071	0.238	
	Wet Retail	1							208	166	2	6.7				2490		0.058	0.193	2.299
204 Quay St	Levels 1 - 3																			
	Wet Retail	3							5805	4644	2	6.7	65			69660		1.613	5.402	
	Ground Floor																			
	Wet Retail	1							1935	1548	2	6.7	65			23220		0.538	1.801	7.203
131 Quay St	Level 1 - 6																			
	Office	6							14400	11520	2	5	65		49920			1.156	2.889	
	Ground Floor																			
	Wet Retail	1							1070	856	2	6.7				12840		0.297	0.996	
	Dry Retail	1							280	224	2	5	65	291				0.007	0.017	
	Office	1							1050	840	2	5	65		3640			0.084	0.211	4.112
29 Customs St West	Levels 1 - 21																			
	Office	21							39900	31920	2	5	65		138320			3.202	8.005	
	Ground Floor																			
	Wet Retail (Multiple)	1							160	128	2	6.7				1920		0.044	0.149	
	Child Day-Care	1							200	160	2	6.7					1110	0.026	0.086	
	Dry Retail	1							200	160	2	5	65	208				0.005	0.012	
	Wet Retail (Dental)	1							1530	1224	2	5	65			18360		0.425	1.063	
	Basement 1 - 2																			
	Car Park	1							2620	2096								0	0	
	Car Park	1							1747	1397								0	0	
	Dry Retail	1							873	699	2	5	65	908				0.021	0.053	9.367
	Level 2 - 24																			
	Office	23							46000	36800	2	5	65		159467			3.691	9.228	
	Level 1																			

188 Quay St	Wet Retail	1							1050	840	2	6.7				12600		0.292	0.977	
	Wet Retail	1							580	464	2	6.7				6960		0.161	0.540	
	Office	1							2000	1600	2	5	65		6933			0.160	0.401	
	Ground Floor																			
	Wet Retail	1							1050	840	2	6.7				12600		0.292	0.977	
	Wet Retail	1							30	24	2	6.7				360		0.008	0.028	
	Dry Retail	1							100	80	2	5	65	104				0.002	0.006	
	Dry Retail	1							100	80	2	5	65	104				0.002	0.006	
	Dry Retail	1							40	32	2	5	65	42				0.001	0.002	
	Office	1							2000	1600	2	5	65		6933			0.160	0.401	12.567
196 Quay St	Level 6 - 12																			
	Accomodation	6	180	5	3	5	3.779	6.298												
	Level 2 - 6																			
	Accomodation	5	180	5	3	5	3.779	6.298												
	Level 1																			
	Office	1							740	592	2	5	65	770				0.018	0.045	
	Ground Floor																			
	Wet Retail	1							150	120	2	6.7				1800		0.042	0.140	
	Car Park	1							200	160										
	Leisure Centre	1							50	40	2	6.7				600		0.014	0.047	12.826
Downtown Public Carpark	ALL Floors																			
	ALL Floors																	0.300	0.900	
																				0.900

Total	7.557	12.596

Total	14.822	41.093

Total PDWF (L/s)	22.380
Total PWWF (L/s)	53.689

Wastewater Design Parameters (Obtained from Watercare CoP)

1. Design flow = 180L/p/d (Table 5.1.1: Residential Design Flows)

2. Occupancy (5No.) - Table 5.1.2 (For high rise apartments four floors or more - use residential rate of 5/dwelling unit.

3. Dry and Wet Peaking Factors of 3 and 5 obtained from table 5.1.1 (for high rise residential (or mixed use) buildings four storeys and above)

4. Peaking factors for commercial dry retail are 3 and 5, and wet retail of 2 and 6.7 obtained from Table 5.1.3

5. Peaking factors for offices are 2 and 5 obtained from Table 5.1.3

Existing Stormwater Assessment

KSASC	7/06/2023	**Checked:**	SL
Job	1016043	**Date:**	28/08/2023
Directory	P:\1016043\1016043.1000\4 Civil Infrastruture\WorkingMaterial\Infrastructure Assessment report\Calculations		
Address	Downtown Carpark Site (2 Lower Hobson Street)		

Pre-Development

a) Design requirements based on The Auckland Code of Practice for Land Development and Subdivision
Chapter 4: Stormwater
b) For catchments < 50ha runoff using the Rational Method is generally accepted (4.3.5 design criteria - stormwater)
c) The design rainfall event for Primary System within a Commercial and Industrial areas in Auckland CBD to accomodate a 1 in 20 year ARI
(as requested by Healthy Waters)
d) Rainfall intensity has been sourced from Figure A.4 20 Year ARI Daily Rainfall Depth Map
e) Run-off coefficients (C) have been sourced from the New Zealand Building Code- Clause E1 Table 1
f) The catchment composition is based on the Auckland Council GEOMAPS site layout printed 31/08/2021.
g) Surface areas have been calculated in PDF exchange and are shown on plan "Site Catchment Area"

1 **Site Composition**

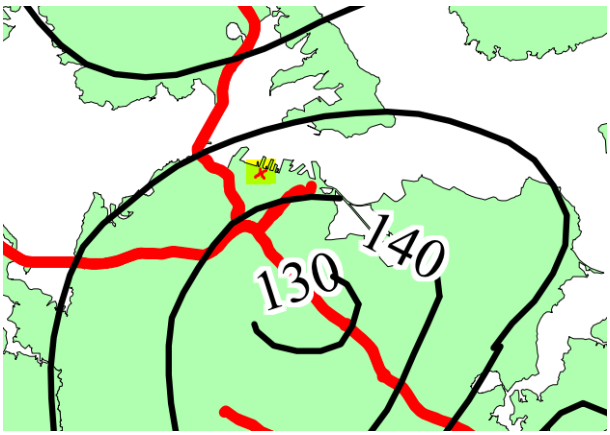
Surface Type	Downtown Carpark	
Pre-development	**Area (m^2)**	**C, Run-off Coefficent**
Level 8		
Lift shaft/stairs roof areas	138	0.9
Concrete carparking area	6058	0.9
Ground / Street level		
Paved/concrete areas	246	0.9
Total Area	**6442**	

2 **Rainfall data**

Figure A.4

20 Year ARI

Daily Rainfall depth = 145mm



3 **Time of Concentration, t_c**
10 minute duration event
t_c = 10 mins

Assumed 10 mins as a small site

4 **Pre-development ouflow: Q_{pre} = C x i x A / 3600**

$i_{1 \text{ in 10 year ARI}}$	97.89	mm/hour

Q pre-1 in 20 year ARI		
Location	**Peak flow rate (litre/sec)**	
Level 8 roof/parking	151.63	*Runoff entering carpark building downpipe system discharging to the public pipe connection to site.*
Ground/ street level	0.00	*Surface runoff directly to kerb and channel along Lower Hobson St and Custom Street West.*
TOTAL	**151.63**	*Conservatively use as the design peak runoff from the site*

Existing Stormwater Assessment

KSASC	7/06/2023	**Checked:**	MM
Job	1016043	**Date:**	7/06/2023
Directory	P:\1016043\1016043.1000\4 Civil Infrastruture\WorkingMaterial\Infrastructure Assessment report\Calculations		
Address	Downtown Carpark Site (2 Lower Hobson Street)		

These calculations use the existing (pre-developed) sub-catchment assessment of the existing stormwater networks identified below. The results indicate the existing stormwater network has adequate spare capacity to receive additional flows from the existing site.

A summary of the design parameters and assumptions are below:
a) Pipe connections and pipe sizes have assumed based on the New Zealand Building Code Clause E1 Surface Water.
b) The Manning's formula specified in NZBC Clause E1 Surface Water, section 3.2 Hydraulic Design has been used to estimate the pipe flow capacity assuming 'full pipe flow'.
c) The Manning's 'n' value for uPVC is 0.011, and AC and concrete is 0.013, as specified in NZBC Clause E1 Surface Water, Table 3.
d) Pipe length and upstream and downstream invert levels have been taken from Auckland Council GEOMAP data, dated 01/09/2021
e) Pipe ID, pipe slope direction and manhole invert levels shown on plan "Excerpt 1: Stormwater Network Connection"

1. Determining Pipe Capacity

n Concrete	0.013
n uPVC (smooth wall)	0.011
n AC (smooth wall)	0.013

a)300mm diameter pipe connection Lower Hobson Street

Pipe ID	Upstream IL (m)	Downstream IL (m)	Pipe length (m)	Pipe Slope (m/m)	Pipe Dia. (mm)	Pipe Area (m^2)	Mannings (n)	Pipe Capacity (litre/sec)
1. Lateral to site (AC)	*unknown*	1.95	14.64	0.011	300	0.07	0.013	101.4
2. Minor pipe (AC)	0.94	0.85	8.11	0.011	300	0.07	0.013	101.9
3. Minor pipe (AC)	0.82	0.63	10.97	0.017	300	0.07	0.013	127.3
4. Minor pipe (AC)	0.22	0.14	10.57	0.008	1050	0.87	0.013	2375.7
5. Main pipe (Concrete)	0.11	0.08	48.45	0.001	1050	0.87	0.013	679.5

NB: Lateral pipe connection gradient assumed to be 1.1%, given invert levels the pipe network above (1 to 5) is assumed to be tidal.

Based on the available Auckland Council GEOMAPs information, the existing 300 mm diameter pipe connection on Lower Hopson Street, under gravity, provides an estimated flow capacity of **101.4** litres/sec.

b) Check capacity existing of 300mm diameter pipe connection under gravity flow conditions
It is assumed that the vertical downpipes connecting the floor drains on level 8 (top roof level) carparking, all drain directly into the 300 m diameter connection at the upper basement carparking level. Under gravity conditions, the 300 mm diameter receiving stormwater network is undersized for the peak runoff from roof top (level 8) carparking, as noted in the table below

Site peak flow (L/s), 1 in 20 year ARI	Overall SW connection network capacity (L/s)	Criteria, Capacity > Peak flow, OK
151.63	101.4	NOT OK

2. Conclusion:
The 300 mm diameter public stormwater connections to the site on Lower Hobson Street provides only likely connection to the site.

Under gravity conditions, the 300 mm diameter connection is undersized during a 1 in 20 year ARI design storm, and needs to be considered for future development of the site.

Proposed Stormwater Assessment

KSASC	7/06/2023	**Checked:**	MM
Job	1016043	**Date:**	7/06/2023
Revised Rev 1:	AFRE		
Date:	5/12/2024		
Directory	P:\1016043\1016043.1000\4 Civil Infrastruture\WorkingMaterial\Infrastructure Assessment report\Calculations		
Address	Downtown Carpark Site (2 Lower Hobson Street)		

Revision:

Rev 1 *Updated calculation to assume total site area is impervious (no change to overall run-off from previous version)*

1 **Site Composition**

Surface Type	Downtown Carpark	
Pre-development	**Area (m^2)**	**C, Run-off Coefficent**
Roof areas + Imperv areas Total site area	6442	0.9
Total Area	**6442**	

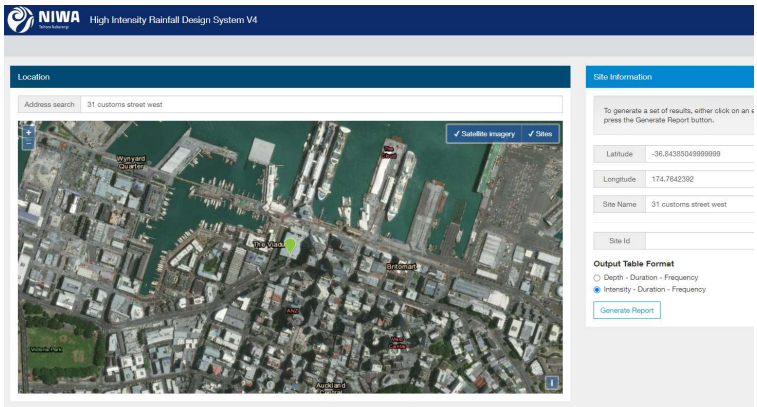
2 **Rainfall data**

HIRDS V4

Coordinate system: WGS84

Longitude: 174.76

Latitude: -36.84



3 **Time of Concentration, t_c**

10 minute duration event

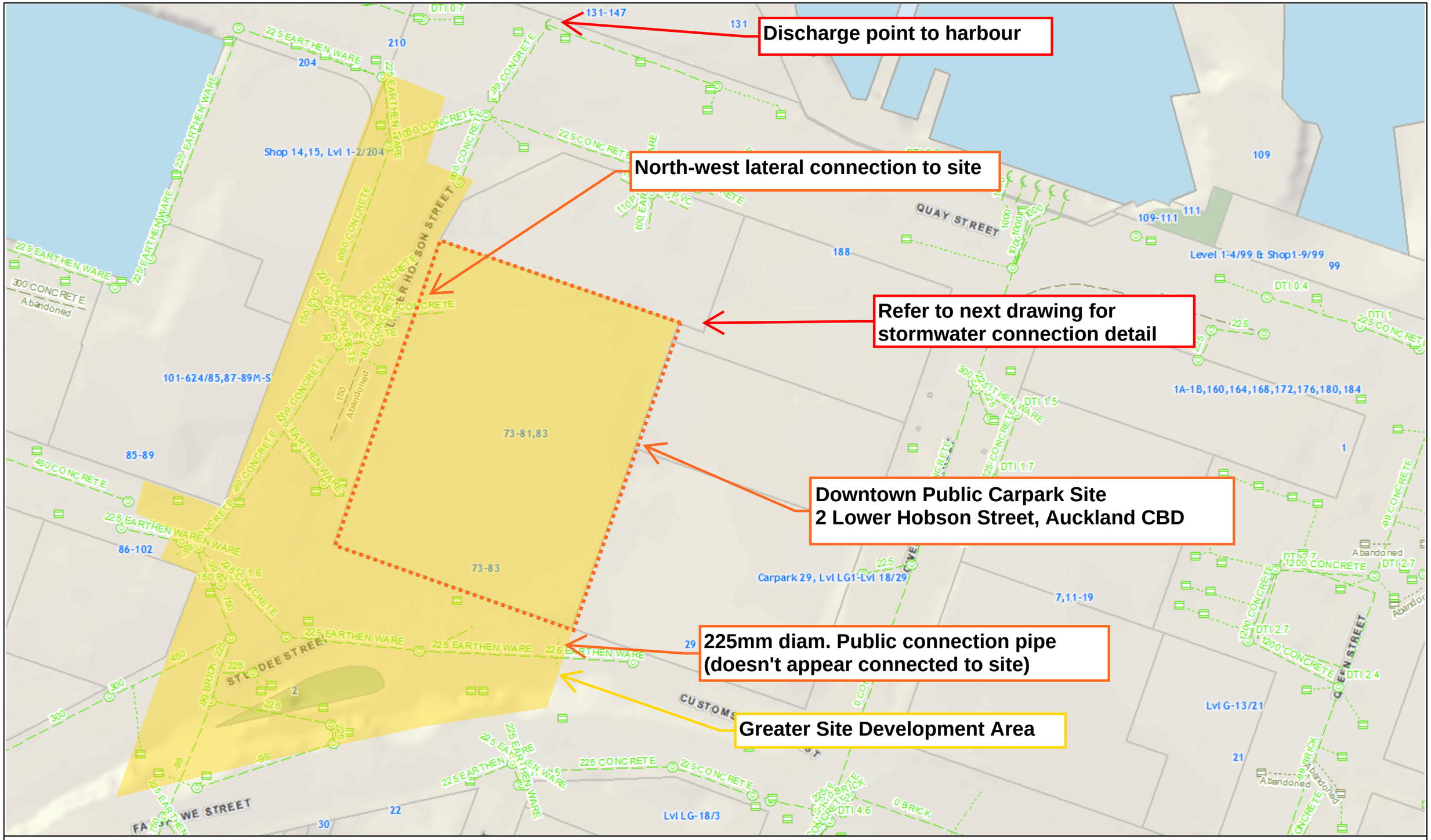
t_c = 10 mins

Assumed 10 mins as a small site

4 **Pre-development ouflow: Q_{pre} = C x i x A / 3600**

$i_{1 \text{ in 10 year ARI}}$ **94** mm/hour

Q pre-1 in 10 year ARI		
Location	**Peak flow rate (litre/sec)**	
Imper area	151.39	*Assumed total site area is impervious*
TOTAL	151.39	*Conservatively use as the design peak runoff from the site*



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EXISTING STORMWATER NETWORK

SITE: Downtown Public Carpark

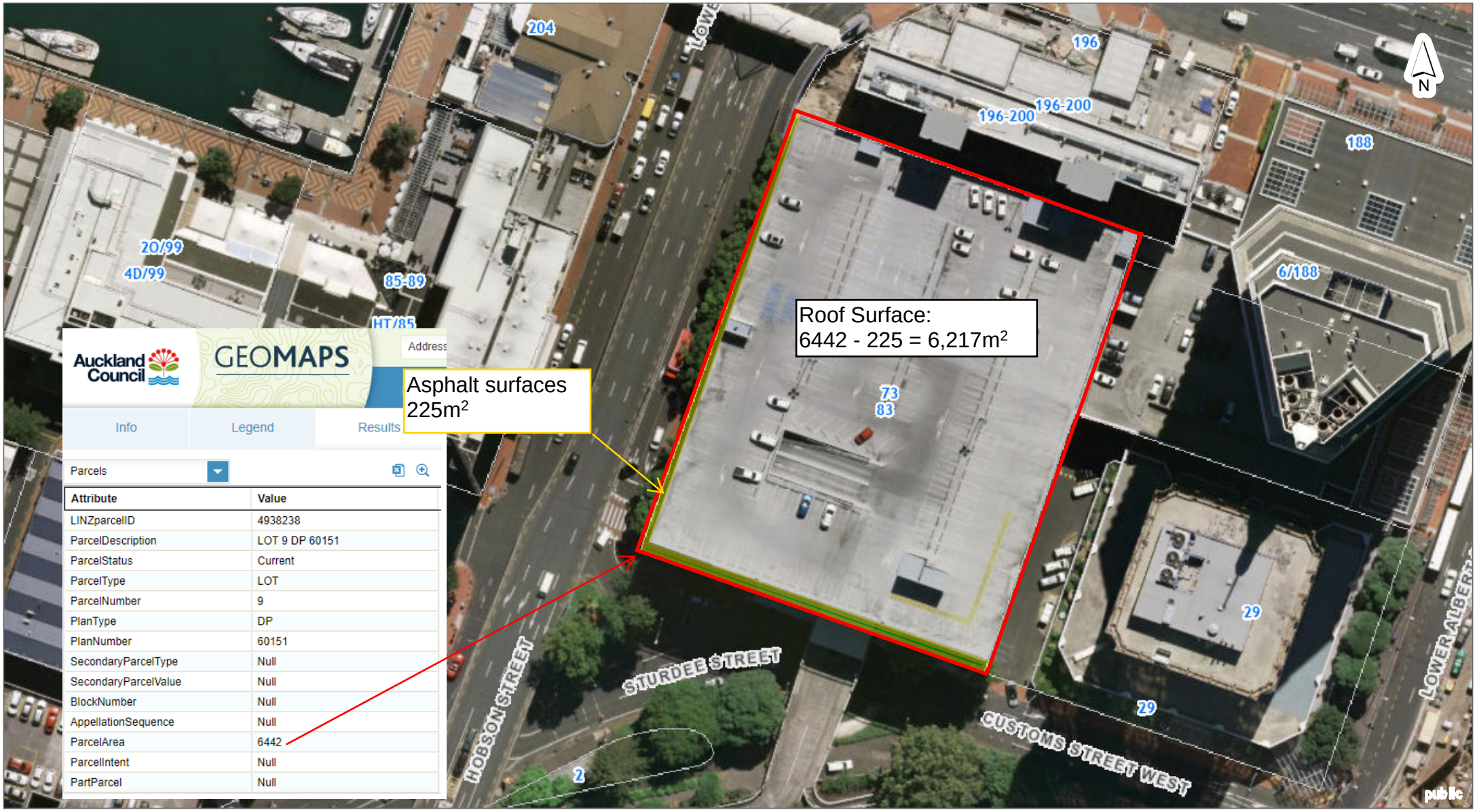
ADDRESS: 73-83 Customs Street West, Auckland CBD

Created: Thursday, 25 June 2015,8:54:39 a.m.

Scale @ A3 1:1000

N

Auckland Council
Te Kaunihera o Tāmaki Makaurau



Auckland Council GEOMAPS

Address

Info | Legend | Results

Parcels

Attribute	Value
LINZparcelID	4938238
ParcelDescription	LOT 9 DP 60151
ParcelStatus	Current
ParcelType	LOT
ParcelNumber	9
PlanType	DP
PlanNumber	60151
SecondaryParcelType	Null
SecondaryParcelValue	Null
BlockNumber	Null
AppellationSequence	Null
ParcelArea	6442
ParcelIntent	Null
PartParcel	Null

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SITE CATCHMENT AREA

SITE: Downtown Public Carpark

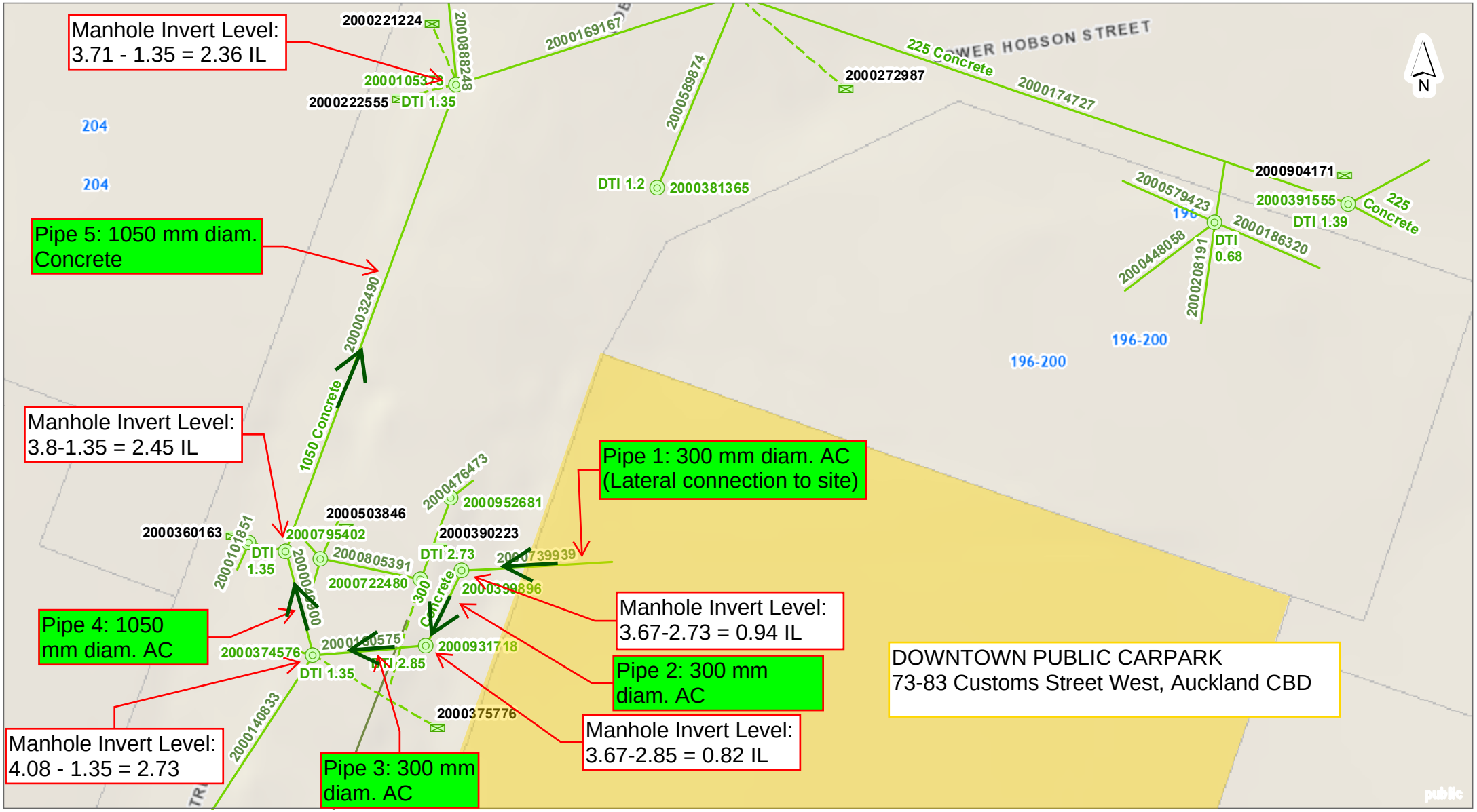
ADDRESS: 73-83 Customs Street West, Auckland CBD

0 6.5 13 19.5
Meters

Scale @ A4
= 1:1,000

Date Printed:
31/08/2021

Auckland Council
Te Kaunihera o Tāmaki Makaurau



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EXCERPT 1: STORMWATER NETWORK CONNECTION
SITE: Downtown Public Carpark
ADDRESS: 73-83 Customs Street West, Auckland CBD

0 3.5 7 10.5
Meters

Scale @ A4
= 1:500

Date Printed:
2/09/2021

Auckland Council
Te Kaunihera o Tāmaki Makaurau

HIRDS V4 Intensity-Duration-Frequency Results
Sitename: 2 Lower Hobson Street
Coordinate system: WGS84
Longitude: 174.7642966
Latitude: -36.8434779

HIRDS rainfall data sourced website https://hirds.niwa.co.nz, Date: 07/06/2023

Rainfall intensities (mm/hr) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	59.7	42.6	34.5	23.6	15.6	7.69	4.74	2.84	1.66	1.19	0.939	0.777
2	0.5	64.7	46.2	37.5	25.6	17	8.39	5.18	3.11	1.81	1.31	1.03	0.852
5	0.2	81.7	58.6	47.6	32.6	21.7	10.8	6.68	4.02	2.36	1.7	1.34	1.11
10	0.1	94	67.6	55	37.8	25.2	12.6	7.8	4.71	2.76	2	1.58	1.31
20	0.05	106	76.7	62.5	43	28.8	14.4	8.96	5.42	3.19	2.31	1.82	1.51
30	0.033	114	82.1	67	46.2	31	15.5	9.66	5.85	3.45	2.5	1.97	1.64
40	0.025	119	86	70.2	48.4	32.5	16.3	10.2	6.16	3.63	2.63	2.08	1.73
50	0.02	123	89.1	72.7	50.2	33.7	16.9	10.6	6.41	3.78	2.74	2.17	1.8
60	0.017	127	91.5	74.7	51.6	34.7	17.4	10.9	6.61	3.9	2.83	2.24	1.86
80	0.013	132	95.5	78	53.9	36.3	18.3	11.4	6.93	4.1	2.97	2.35	1.96
100	0.01	136	98.5	80.5	55.7	37.5	18.9	11.8	7.19	4.25	3.08	2.44	2.03
250	0.004	153	111	90.8	63.1	42.6	21.5	13.5	8.24	4.88	3.55	2.81	2.34

Water Supply Assessment

SNAA	21/09/2021	Checked	SL
Job	1018052	Date	23/09/2021
Directory	P:\1018052\WorkingMaterial\Wastewater		
Address	Downtown Carpark Site (73-83 Customs Street West)		

Pre-Development Assessment

The following assessment is undertaken to estimate the existing water demand at 73-83 Custom Street West. The exisiting site comprises an 8 level carpark building, including a restaurant (Monsoon Poon), a bar (Pointers Bar and Grill), two toilets accessible to office/carpark users and offices spaces on ground floor and first floor.

Design requirements are based on Auckland COP for Land Development and Subdivision, Water and Wastewater Code of Practice, Chapter 6: Water dated 01/06/2021, Ver 2.4. Floor areas have been measured from building / property file plans using PDF Exchange, and are considered net floor areas.

1) Potable water demand

Restaurant and Bar footprint taken from floor plans contained in property file (refer to Monsoon Poon and Pointers Bar & Grill floor plans)

Net floor area:	745	m^2	*taken from Property File*
Water design flow allowance:	15	litres/day/m^2	*for Wet Retail from Table 6.1.c*
Average day demand (ADD):	11175	litres/day	
	0.129	litres/sec	*Average day demand in L/s*
Peak day demand			
Peak flow factor	2		*refer 6.3.5.3 Peaking Factor*
Peak day demand:	22350	litres/day	*over a 12 month period*
Peak hourly demand			
Peak flow factor	2.5		*refer 6.3.5.3 Peaking Factor over 24 hour period*
Peak hourly demand:	2328	litres/hr	
	0.65	litres/sec	*Peak hourly demand in L/s*

Office footprints taken from floor plans contained in property file (refer to carpark office space floor plans)

Net floor Area:	231	m^2	*215 m2 (offices) + 16 m2 (2no. toilets) taken from Property File*
Space allowance : 1 person per	15	m^2	*1 person / 15m^2 , for dry retail/office from Table 6.1.c*
Kiosk Employees:	2		*30 m2 foor area, taken from Property File, Council correspondence*
No. of persons:	17	people	
water design flow allowance:	65	litres/person/day	*for dry retail/office buildings from Table 6.1.c*
Average day demand (ADD):	1131	litres/day	
	0.013	litres/sec	*Average day demand in L/s*
Peak day demand			
Peak flow factor	2		*refer 6.3.5.3 Peaking Factor, populations < 2000*
Peak day demand:	2262	litres/day	
Peak hourly demand			
Peak flow factor	2.5		*refer 6.3.5.3 Peaking Factor for Peak Hourly Demand*
Peak hourly demand:	236	litres/hr	
	0.07	litres/sec	*Peak hourly demand in L/s*
Total Average day demand:	12306	litres/day	
	0.142	litres/sec	
Total Peak day demand:	24612	litres/day	
	0.285	litres/sec	
Total Peak hourly demand:	2564	litres/hr	
	0.712	litres/sec	

2) Fire Flow demand

We have assumed the retail and office spaces are sprinklered, we have considered the site as a fire classification FW2, in accordance with Determine the fire fighting demand in accordance with SNZ PAS 4509:2008.

Fire flow demand:			
Hydrant flow	25	litres/sec	*Table 2, 12.5 L/s from within 135m + other 12.5 L/s from within 270m, for 2 hydrants*
Sprinkler flow	25	litres/sec	*As per Table 2, note 4, assumed Maximum Ordinary Hazard sprinkler system flow*
Total fire fighting flow	50	litres/sec	

3) Town supply capacity

At the time of this assessment, no fire hydrant flow and pressure tests have been carried out to determine the available flow and pressure in the town supply.

Conclusion

In the absence of hydrant flow and pressure tests, based on the numerous water mains in the vicinity of the site and the nature of the surrounding CBD district, it can be assumed that the available water supply system adequately services the existing potable and fire flow demand for the site at 83/73 Custom Street West.

250 mm diam. CLS pipe (site lateral connects to this pipe)

100 mm CI Lateral connection

40 mm PE Lateral connection

Downtown Public Carpark Site
2 Lower Albert Street, Auckland CBD

Greater Site Development Area

Hydrant

Hydrant

100 mm DI pipe

175 mm CI pipe

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WATER SUPPLY NETWORK

SITE: Downtown Public Carpark

ADDRESS:73-83 Customs Street West, Auckland CBD

Created: Thursday, 25 June 2015,8:53:53 a.m.

Scale @ A3 1:1000

Auckland Council
Te Kaunihera o Tāmaki Makaurau

Existing Wastewater Assessment

KSASC	7/06/2023	Checked:	MM
Job	1016043	Date:	7/06/2023
Directory	P:\1016043\1016043.1000\4 Civil Infrastruture\WorkingMaterial\Infrastructure Assessment report\Calculations		
Address	Downtown Carpark Site (2 Lower Hobson Street)		

Pre-Development Assessment

The following assessment is undertaken to estimate the existing wastewater generated at 2 Lower Hobson Street. The exisiting site comprises an 8 level carpark building, including a restaurant (Monsoon Poon), a bar (Pointers Bar and Grill), two toilets accessible to office/carpark users, and offices spaces on ground floor and first floor.

Design requirements are based on Auckland COP for Land Development and Subdivision, Water and Wastewater Code of Practice, Chapter 5: Wastewater dated 01/1/2019, Ver 2.2. Floor areas have been measured from building / property file plans using PDF Exchange, and are considered net floor areas.

2 Lower Hobson Street 8 level carpark building including restaurant, bar, toilets available to public and carparking offices on ground level and first level

Restaurant and Bar footprint taken from floor plans contained in property file (refer to Monsoon Poon and Pointers Bar & Grill floor plans)

Net floor Area:	745	m^2	*taken from Property File*
waste water generation:	15	litres/day/m^2	*for Wet Retail from Table 5.1.3.*
Average dry weather flow (ADWF):	11175	litres/day	
	0.129	litres/sec	*ADWF in L/s*
Peaking Factor - Cleansing	2		*for Wet Retail from Table 5.1.3.*
Peak dry weather flow (PDWF):	0.259	litres/sec	
Peaking Factor - Design	6.7		*for Wet Retail from Table 5.1.3.*
Peak wet weather flow (PWWF):	0.867	litres/sec	

Office footprints taken from floor plans contained in property file (refer to carpark office space floor plans)

Net floor Area:	231	m^2	*215 m^2 (offices) + 16 m^2 (2no. toilets) taken from Property File*
Space: 1 person per	15	m^2	*net floor area for Offices from Table 5.1.3.*
Kiosk Employees:	2		*30 m^2 foor area, taken from Property File, Council correspondence*
Employees:	17	people	
waste water generation:	65	litres/person/day	*for dry retail/offices from Table 5.1.3.*
Average dry weather flow (ADWF):	1131	litres/day	
	0.013	litres/sec	*ADWF in L/s*
Peaking Factor - Cleansing	2		*for dry retail/offices from Table 5.1.3.*
Peak dry weather flow (PDWF):	0.026	litres/sec	
Peaking Factor - Design	5		*for dry retail/offices from Table 5.1.3.*
Peak wet weather flow (PWWF):	0.065	litres/sec	

8 storey carparking areas

Approximate net floor Area:	51683	m^2	*Sum of basement, ground floor, carpark level 1 to 7 floor areas*
wastewater generation	0	litres/m^2/day	*refer to multi storey carparking 5.3.5.1.1, E Mixed use*
Average dry weather flow (ADWF):	0	litres/day	
	0	litres/sec	*ADWF in L/s, considered to be negligible*

Total flow scenarios for Restaurant & Bar, Office footprints, toilets accessible to public, office/carpark users and 8 storey carparking:

Total ADWF:	0.142	l/s
Total PDWF:	0.285	l/s
Total PWWF:	0.932	l/s

Determining Pipe Capacity

To determine the capacity of the existing wastewater lateral connection to site and the downstream receiving section of public wastewater pipe, is based on the following:

a) Existing pipe layout, invert levels, material and sizes are based on information sourced from Auckland Council GEOMAP's data refer to plan "Existing Wastewater Network"

b) The Manning's formula as specified in Watercare Water and Wastewater Code of Practice for Land development and Subdivision Chapter 5: Wastewater, section 5.3.5.2, Hydraulic Design of Pipelines.

c) The Manning's 'n' value for gravity wastewater systems for all pipe materials is taken as 0.013, as per section Table 5.2, Watercare Water and Wastewater Code of Practice.

n All gravity pipe materials	0.013

Pipe ID	Upstream IL (m)	Downstream IL (m)	Pipe length (m)	Pipe Slope (m/m)	Pipe Dia. (mm)	Pipe Area (m^2)	Mannings (n)	PWWF (l/s)
1. Lateral connection (AC)	unknown	unknown	unknown	0.010	150	0.02	0.013	0.93
2. Minor Pipe (AC)	1.49	1.39	9.4	0.011	225	0.04	0.013	0.93
3. Minor Pipe (AC)	unknown	unknown	unknown	0.010	225	0.04	0.013	0.93

NB: If pipe slope cannot be determined, a minimum slope of 1% has been assumed

Wastewater Assessment

KSASC	7/06/2023	Checked:	MM
Job	1016043	Date:	7/06/2023
Directory	P:\1016043\1016043.1000\4 Civil Infrastruture\WorkingMaterial\Infrastructure Assessment report\Calculations		
Address	Downtown Carpark Site (2 Lower Hobson Street)		

Pipe ID	Pipe Capacity (l/s)	Spare Capacity (l/s)	Capacity Check	Percentage of total Capacity %
1. Lateral to site (AC)	15.2	14.30	OK	6.1
2. Minor pipe (AC)	46.3	45.38	OK	2.0
3. Minor pipe (AC)	44.9	43.97	OK	2.1

Conclusion:

During a peak wet weather flow (PWWF) from the existing site, 6.1% of the 150mm diameter lateral connection's (pipe #1) capacity is utilised. This is based on the lateral having an assumed 1% gradient.

The PWWF from the site entering the downstream receiving wastewater network (ie. pipes #2 & 3 both sized 225mm diameter) it only utilises 2.0-2.1% of that section of networks total line capacity.

Proposed Wastewater Assessment

Project	Downtown West - Downtown Carpark Redevelopment	**Checked:**	AFRE
Project No	1016043	**Date:**	18/10/2024
Directory	P:\1016043\1016043.2000\4. Civil Infrastructure\2. S9:	**Updated:**	EMHJ
Address	Downtown Carpark Redevelopment (2 Lower Hobson Street)	**Date:**	2/12/2024
Purpose	Concept design calculations to support Resource Consent	**Checked:**	AFRE
		Date:	5/12/2024

Post-Development Assessment

The following assessment is undertaken to estimate the proposed wastewater generated at Downtown West Building (2 Lower Hobson Street). The proposed development consists of 2 towers. The first (T1) consists of 53 floors and is primarily commercial use, and the second (T2) consists of 41 floors and is primarily residential use (levels exclude parapet). The remaining floors are summarised into the Base, which includes the basement levels, and Level 00 to Level 07. Floor areas have been obtained from the Area Schedule provided by Warren and Mahoney dated 15 Nov 2024 "20241115 DTW_Area Schedule_EX.xlsx". It is assumed that any floor areas that were not in the GFA Schedule have no wastewater flow because they are primarily basement parkings and plant rooms. It is additionally assumed that all external area is non-productive and does not generate wastewater. The existing wastewater generation is also calculated for the HSBC Building and AON Building.

Design requirements are based on Auckland COP for Land Development and Subdivision, Water and Wastewater Code of Practice, Chapter 5: Wastewater dated 01/1/2019, Ver 2.2.

Link to Warren and Mahoney DTW Area Schedule: Source Mat\20241115_DTW_Area Schedule_EX.xlsx

Downtown West

T1 *Assuming no wastewater is generated in plant areas*

Office	59427	m^2	*ref. DTW Area Schedule*	
Occupancy	3962	people	*WW COP Table 5.1.3*	*1 person per 15m^2 net floor area(assume excl. external area)*
Wastewater generation:	65	litres/person/day	*WW COP Table 5.1.3*	*for dry retail/offices*
Average dry weather flow (ADWF):	257515	litres/day		
	2.980	litres/sec	*ADWF in L/s*	
Total ADWF:	2.980	**l/s**		
Total PDWF:	5.961	**l/s**	*using peaking factor from Table 5.1.3*	
Total PWWF:	14.902	**l/s**	*using peaking factor from Table 5.1.3*	

T2 *Assuming no wastewater is generated in plant areas*

Residential	36298	m^2	*ref. DTW Area Schedule*
Rooms with 1-bedroom	62		*ref. DTW Area Schedule*
Rooms with 2-bedroom to 4-bedroom	185		*ref. DTW Area Schedule*
Occupancy	679		*WW COP Table 5.1.2*
Wastewater generation:	180	litres/room/day	*from Table 5.1.1 for residential design*
Average dry weather flow (ADWF):	122220	litres/day	
	1.415	litres/sec	*ADWF in L/s*
Total ADWF:	1.415	**l/s**	
Total PDWF:	4.244	**l/s**	*WW COP Table 5.1.1*
Total PWWF:	7.073	**l/s**	*WW COP Table 5.1.1*

Base *Assuming this comprises P1 - P3, and BMT, additionally assuming all plant, and assigned residential area is non-productive area (no WW generation) incl. lift and lobby area.*

Office	27530	m^2	*ref. DTW Area Schedule*
Occupancy	1835	people	*WW COP Table 5.1.3*
Wastewater generation:	65	litres/person/day	*WW COP Table 5.1.3*
Average dry weather flow (ADWF):	119297	litres/day	
	1.381	litres/sec	*ADWF in L/s*
Dry Retail	1107	m^2	*ref. DTW Area Schedule*
Occupancy	22	people	*1 person per 50m^2 net floor area from Table 5.1.3.*
Wastewater generation:	65	litres/person/day	*WW COP Table 5.1.3*
Average dry weather flow (ADWF):	1439	litres/day	
	0.017	litres/sec	*ADWF in L/s*
Wet Retail	1192		*ref. DTW Area Schedule*
Wastewater generation:	15	litres/day/m^2	*WW COP Table 5.1.3*
Average dry weather flow (ADWF):	17880	litres/day	
	0.207	litres/sec	*ADWF in L/s*
Total ADWF:	1.604	**l/s**	
Total PDWF:	3.209	**l/s**	*WW COP Table 5.1.3*
Total PWWF:	8.374	**l/s**	*WW COP Table 5.1.3*

Conclusion: *The development has two proposed connections. The first (connection point 1) includes the flows from T2 and two-thirds of the Base. The second (connection point 2) includes the flows form T1 and one-third of Base. Overall flows shown below:*

Connection Point 1	
Average dry weather flow (ADWF):	2.48
Peak dry weather flow (PDWF):	6.38
Peak wet weather flow (PDWF):	12.66
Connection 2	
Average dry weather flow (ADWF):	3.52
Peak dry weather flow (PDWF):	7.03
Peak wet weather flow (PDWF):	17.69

HSBC Building

Office	34328	m^2	*ref. GFA RC05-0100*	*removed EOT, WC, and lobby space as non-productive per WSL COP*
Occupancy	2289	people	*WW COP Table 5.1.3*	*1 person per 15 m^2 net floor area*
Wastewater generation:	65	litres/person/day	*WW COP Table 5.1.3*	*1 person per 15m2 net floor area(assume excl. external area)*
Average dry weather flow (ADWF):	148755	litres/day		
	1.722	litres/sec	*ADWF in L/s*	
Dry Retail	537	m^2	*ref. RC05-0100 summary tab*	
Occupancy	11	people	*WW COP Table 5.1.3*	*1 person per 50 m^2 net floor area*
Wastewater generation:	65	litres/person/day	*WW COP Table 5.1.3*	
Average dry weather flow (ADWF):	698	litres/day		
	0.008	litres/sec	*ADWF in L/s*	
Wet Retail	866	m^2	*ref. GFA RC05-0100 - assumed Level 4 all wet retail, and 50% of Level 3 per knowledge of existing businesses here.*	
Wastewater generation:	15	litres/day/m^2	*WW COP Table 5.1.3*	
Average dry weather flow (ADWF):	12990	litres/day		
	0.150	litres/sec	*ADWF in L/s*	
Light Water Usage	463	m^2	*ref. GFA RC05-0100 EOT & WC*	
Wastewater generation:	4.5	litres/day/m^2	WW COP Table 5.1.4	
Average dry weather flow (ADWF):	2084	litres/day		
	0.024	litres/sec	*ADWF in L/s*	
Total ADWF:	1.904	**l/s**		
Total PDWF:	3.881	**l/s**	*WW COP Table 5.1.3*	*WW COP Table 5.1.3*
Total PWWF:	9.818	**l/s**	*WW COP Table 5.1.3*	*WW COP Table 5.1.4*

AON Building *Assuming all retail is dry retail.*

Office	25634	m^2	*ref. GFA RC05-0100*	
Occupancy	1709	people	*WW COP Table 5.1.3*	*1 person per 15 m^2 net floor area*
Wastewater generation:	65	litres/person/day	*WW COP Table 5.1.3*	
Average dry weather flow (ADWF):	111081	litres/day		
	1.286	litres/sec	*ADWF in L/s*	
Dry Retail	2327	m^2	*ref. GFA RC05-0100*	*assuming lobby is non-productive area (771 sq m)*
Occupancy	47	people	*WW COP Table 5.1.3*	*1 person per 50 m^2 net floor area*
Wastewater generation:	65	litres/person/day	*WW COP Table 5.1.3*	
Average dry weather flow (ADWF):	3025	litres/day		
	0.035	litres/sec	*ADWF in L/s*	
Total ADWF:	1.321	**l/s**		
Total PDWF:	2.641	**l/s**	*WW COP Table 5.1.3*	
Total PWWF:	6.603	**l/s**	*WW COP Table 5.1.3*	

Downtown West GFA Summary

Summary table below is based on the Downtown West - Downtown Carpark Redevelopment Area Schedule provided by Warren and Mahoney dated 15 November 2024, "20241115 DTW_Area Schedule_EX.xlsx".

BUILDING	Approx Retail Area (sq m)				Approx Plant Area (sq m)		Approx Office Area (sq m)		Residential Area (sq m)									Total GBA		
	Dry Retail GBA	*Wet Retail GBA*	*Comment*	*External Retail GBA (Enclosed Roof / Terrace Area)*	*Plant GBA*	*External Plant GBA (Enclosed Roof / Terrace Area)*	*Office GBA*	*External Office GBA (Enclosed Roof / Terrace Area)*	*One Bed*	*Two Bed*	*Three Bed*	*Total units*	*Resi GFA*	*Residential Common GFA*	*Residential Amenity / Lobby*	*Residential GBA*	*External Resi GBA (Enclosed Roof / Terrace Area)*	*Shared GBA*	*External Shared GBA (Enclosed Roof / Terrace Area)*	*Total GBA*
T1	0	0	-	0	7307	1193	59427	455	-	-	-	-	-	-	-	-	-	0	0	68381
T2	0	0	-	0	1469	773	0	0	62	142	43	247	25028	6696	415	36298	3981	0	0	35644
P1	294	0	Notes "Office Lobby / Meeting Suites / Retail"	0	0	0	13668	0	-	-	-	-	-	-	-	-	-	142	0	14104
P2	813	0	Residents Amenity & retail (assumed dry retail)	0	87	0	8705	0	0	0	0	0	0	241	415	1433	1018	0	0	13087
P3	0	1,192	Retail / F+B (assumed all wet)	0	0	0	574	0	-	-	-	-	-	-	-	-	-	800	863	3,429
Basement	0	0	-	0	0	0	4,583	0	-	-	-	-	-	-	-	-	-	1,205	0	33,038

GFA SCHEDULE - HSBC BUILDING

TABLE 1						
SPACE NAME	CATEGORY	BUILDING	LEVEL	AREA	unit	REF
RETAIL	DRY RETAIL	HSBC BUILDING	HSBC L3	537	m²	INCLUDED
CORE	CORE	HSBC BUILDING	HSBC L3	218	m²	INCLUDED
PARKING	CAR PARK	HSBC BUILDING	HSBC L3	933	m²	INCLUDED
PUBLIC OFFICE LOBBY	MISC	HSBC BUILDING	HSBC L3	50	m²	INCLUDED
IRRIGATION CUPBOARD	MISC	HSBC BUILDING	HSBC L3	7	m²	INCLUDED
PARKING	CAR PARK	HSBC BUILDING	HSBC L3	312	m²	INCLUDED
RETAIL	WET RETAIL	HSBC BUILDING	HSBC L3	156	m²	INCLUDED
PUBLIC OFFICE LOBBY	MISC	HSBC BUILDING	HSBC L3	22	m²	INCLUDED
FCR	MISC	HSBC BUILDING	HSBC L3	8	m²	INCLUDED
RETAIL	WET RETAIL	HSBC BUILDING	HSBC L3	296	m²	INCLUDED
EOT	LIGHT WATER	HSBC BUILDING	HSBC L3	245	m²	INCLUDED
EOT	LIGHT WATER	HSBC BUILDING	HSBC L3	172	m²	INCLUDED
PARKING	CAR PARK	HSBC BUILDING	HSBC L4	1244	m²	INCLUDED
RETAIL	WET RETAIL	HSBC BUILDING	HSBC L4	37	m²	INCLUDED
RETAIL	WET RETAIL	HSBC BUILDING	HSBC L4	80	m²	INCLUDED
ATRIUM	MISC	HSBC BUILDING	HSBC L4	267	m²	INCLUDED
RETAIL	WET RETAIL	HSBC BUILDING	HSBC L4	10	m²	INCLUDED
RETAIL	WET RETAIL	HSBC BUILDING	HSBC L4	67	m²	INCLUDED
RETAIL	WET RETAIL	HSBC BUILDING	HSBC L4	54	m²	INCLUDED
RETAIL	WET RETAIL	HSBC BUILDING	HSBC L4	116	m²	INCLUDED
RETAIL	WET RETAIL	HSBC BUILDING	HSBC L4	50	m²	INCLUDED
WC	LIGHT WATER	HSBC BUILDING	HSBC L4	46	m²	INCLUDED
PARKING	CAR PARK	HSBC BUILDING	HSBC L5	1253	m²	INCLUDED
PARKING	CAR PARK	HSBC BUILDING	HSBC L6	1779	m²	INCLUDED
STORAGE	MISC	HSBC BUILDING	HSBC L6	347	m²	INCLUDED
HSBC CORE	CORE	HSBC BUILDING	HSBC L6	182	m²	INCLUDED
OFFICE	OFFICE	HSBC BUILDING	HSBC L7A	1033	m²	INCLUDED
OFFICE	OFFICE	HSBC BUILDING	HSBC L8	1132	m²	INCLUDED
OFFICE	OFFICE	HSBC BUILDING	HSBC L9	1533	m²	INCLUDED
OFFICE	OFFICE	HSBC BUILDING	HSBC L10	1533	m²	INCLUDED
OFFICE	OFFICE	HSBC BUILDING	HSBC L11	1533	m²	INCLUDED
OFFICE	OFFICE	HSBC BUILDING	HSBC L12	1533	m²	INCLUDED
OFFICE	OFFICE	HSBC BUILDING	HSBC L13	1533	m²	INCLUDED
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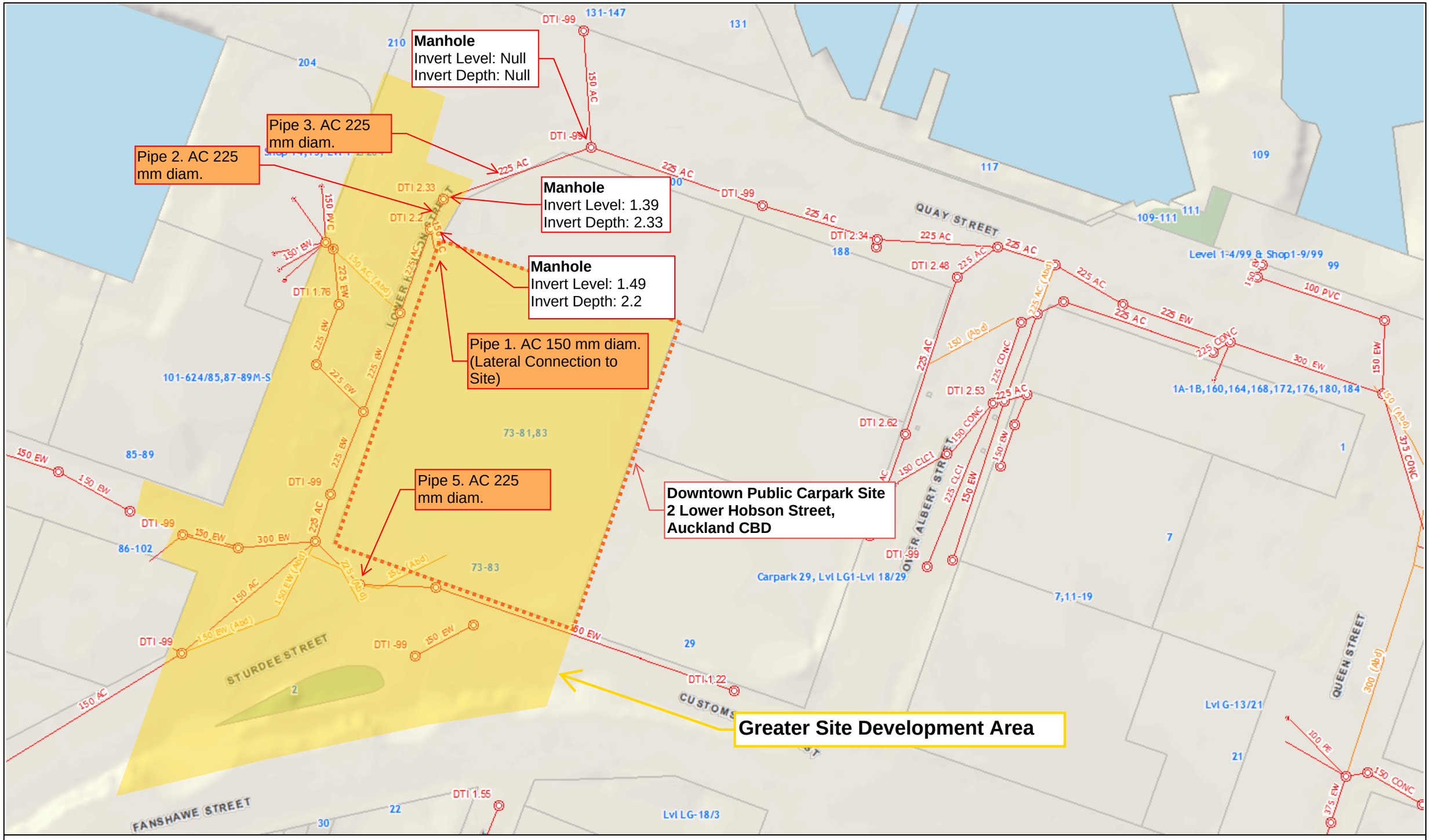
OFFICE	OFFICE	HSBC BUILDING	HSBC L24	1533	m²	INCLUDED
OFFICE	OFFICE	HSBC BUILDING	HSBC L25	1533	m²	INCLUDED
OFFICE	OFFICE	HSBC BUILDING	HSBC L26	1533	m²	INCLUDED
OFFICE	OFFICE	HSBC BUILDING	HSBC L27	1523	m²	INCLUDED
OFFICE	OFFICE	HSBC BUILDING	HSBC L28	1523	m²	INCLUDED
OFFICE	OFFICE	HSBC BUILDING	HSBC L29	1523	m²	INCLUDED
TOTAL GFA (calculated)				**42816**	**m²**	
TOTAL GFA (provided)				**42825**	**m²**	
SITE AREA				**4730**	**m²**	

GFA SCHEDULE - AON BUILDING

TABLE 1						
SPACE NAME	CATEGORY	BUILDING	LEVEL	AREA	unit	REF
RETAIL	DRY RETAIL	AON BUILDING	AON Arcade	1449	m²	INCLUDED
CAR PARKING	CAR PARK	AON BUILDING	AON Arcade	1053	m²	INCLUDED
RETAIL	DRY RETAIL	AON BUILDING	AON Plaza	771	m²	INCLUDED
LOBBY	DRY RETAIL	AON BUILDING	AON Plaza	181	m²	INCLUDED
RETAIL	DRY RETAIL	AON BUILDING	AON Plaza	107	m²	INCLUDED
CORE	CORE	AON BUILDING	AON Plaza	393	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L1	1713	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L2	1115	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L3	1115	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L4	1207	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L5	1207	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L6	1207	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L7	1207	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L8	1207	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L9	1207	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L10	1207	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L11	1207	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L12	1172	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L13	1207	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L14	1207	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L15	1207	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L16	1207	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L17	1207	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L18	1207	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L19	1207	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L20	1207	m²	INCLUDED
OFFICE	OFFICE	AON BUILDING	AON L21	1207	m²	INCLUDED
TOTAL GFA (calculated)				**29588**	**m²**	
TOTAL GFA (provided)				**29591**	**m²**	
SITE AREA				**3704**	**m²**	



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Height datum: Auckland 1946.

EXISTING WASTEWATER NETWORK

SITE: Downtown Public Carpark

ADDRESS: 73-83 Customs Street West, Auckland CBD

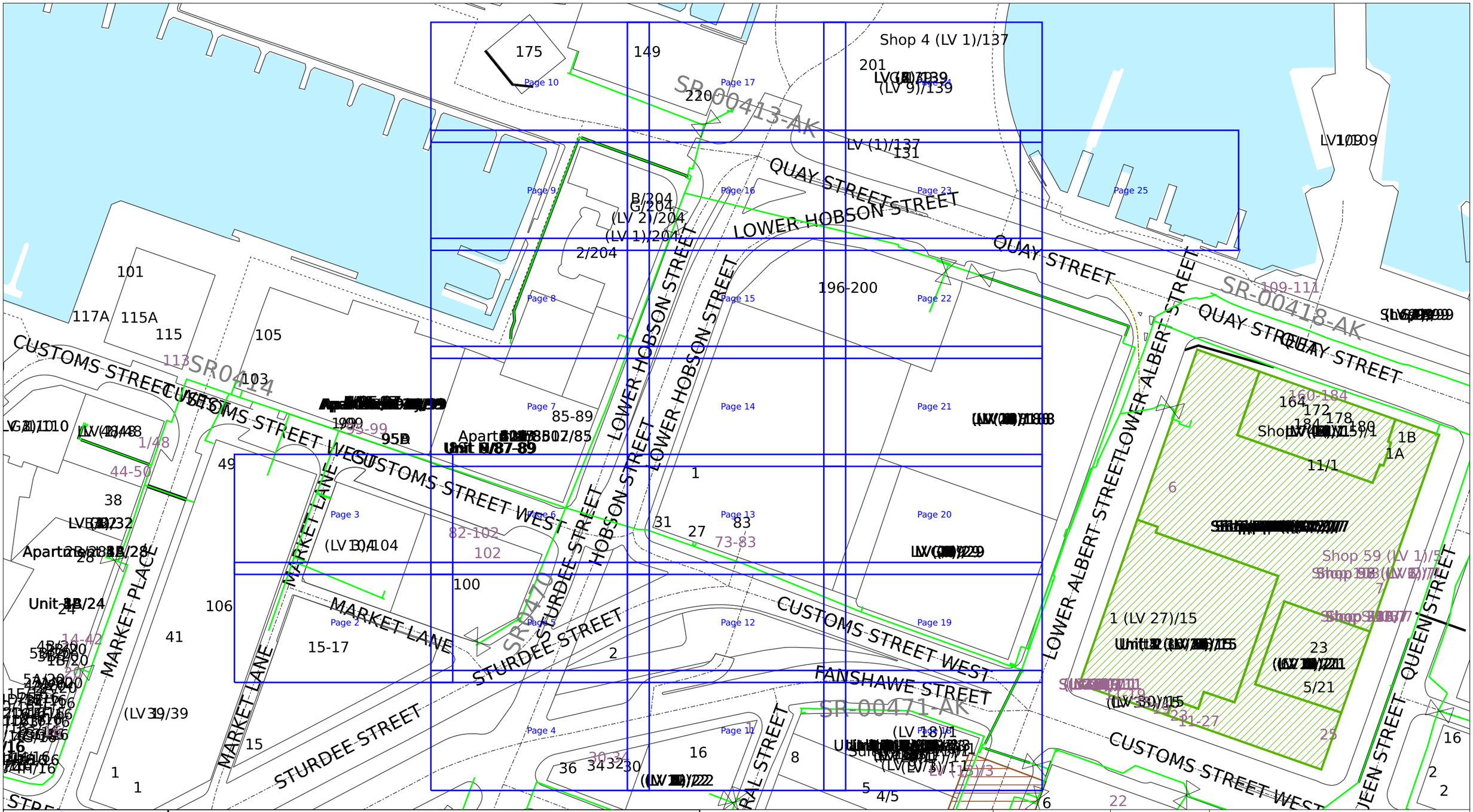
Created: Thursday, 25 June 2015,8:55:14 a.m.

Scale @ A3 1:1000

N

Auckland Council
Te Kaunihera o Tāmaki Makaurau

Appendix D Dry Services



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Request Title:	
Company Name:	
Usage:	Request ID: 11197176
Request for:	No associated viewport
Customer Contact:	Printed by:
Phone:	Date printed: 29. March 2023
Client Reference:	Page: 1 of 25

PIPE COLOUR BY PRESSURE
- LP Pipe
- LPG Pipe
- MP1 Pipe
- MP2 Pipe
- MP4 Pipe
- MP7 Pipe
- IP10 Pipe
- IP20 Pipe
- HP Pipe
- 0 kPa

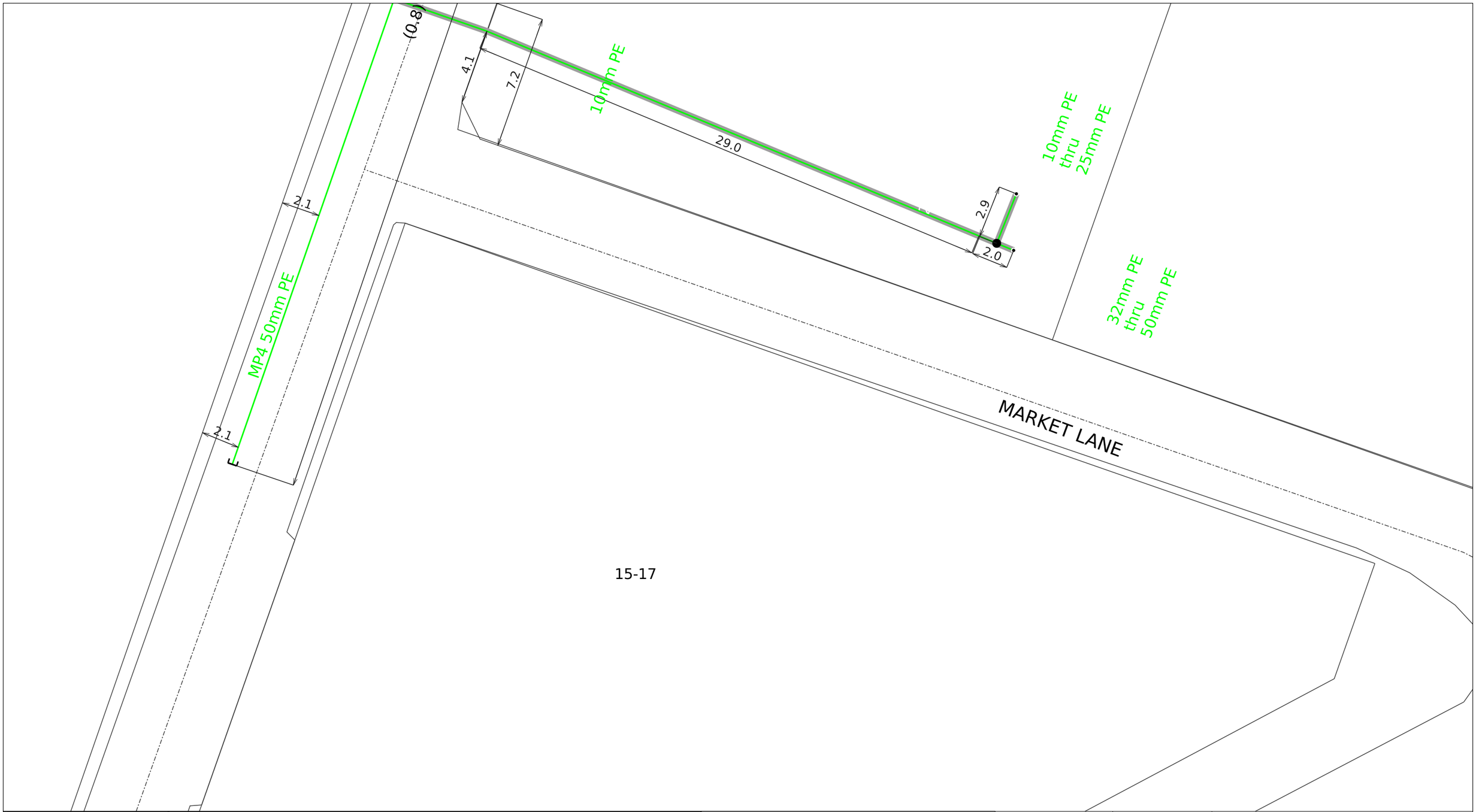
WARNING! Live service within this property.

WARNING! Indication only additional data is required

Transmission Pipeline (ex - NGC)
Please contact Vector - New Plymouth on 0800 734 567 for On-Site Location and Work Permits. A minimum of 48 hours notice is required.

WORK MANAGEMENT
- In Progress
- Planned
- Future Planned

OTHER GAS FEATURES
- Fibre Optic
- Closed Valve
- Gate
- Riser
- Open Valve
- PRS
- Service Regulator
- Reducer



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Company Name:	
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Request for:	Scale: 1:200
Customer Contact:	Printed by:
Phone:	Date printed: 29. March 2023
Client Reference:	Page: 2 of 25

PIPE COLOUR BY PRESSURE

- LP Pipe
- LPG Pipe
- MP1 Pipe
- MP2 Pipe
- MP4 Pipe
- MP7 Pipe
- IP10 Pipe
- IP20 Pipe
- HP Pipe
- 0 kPa

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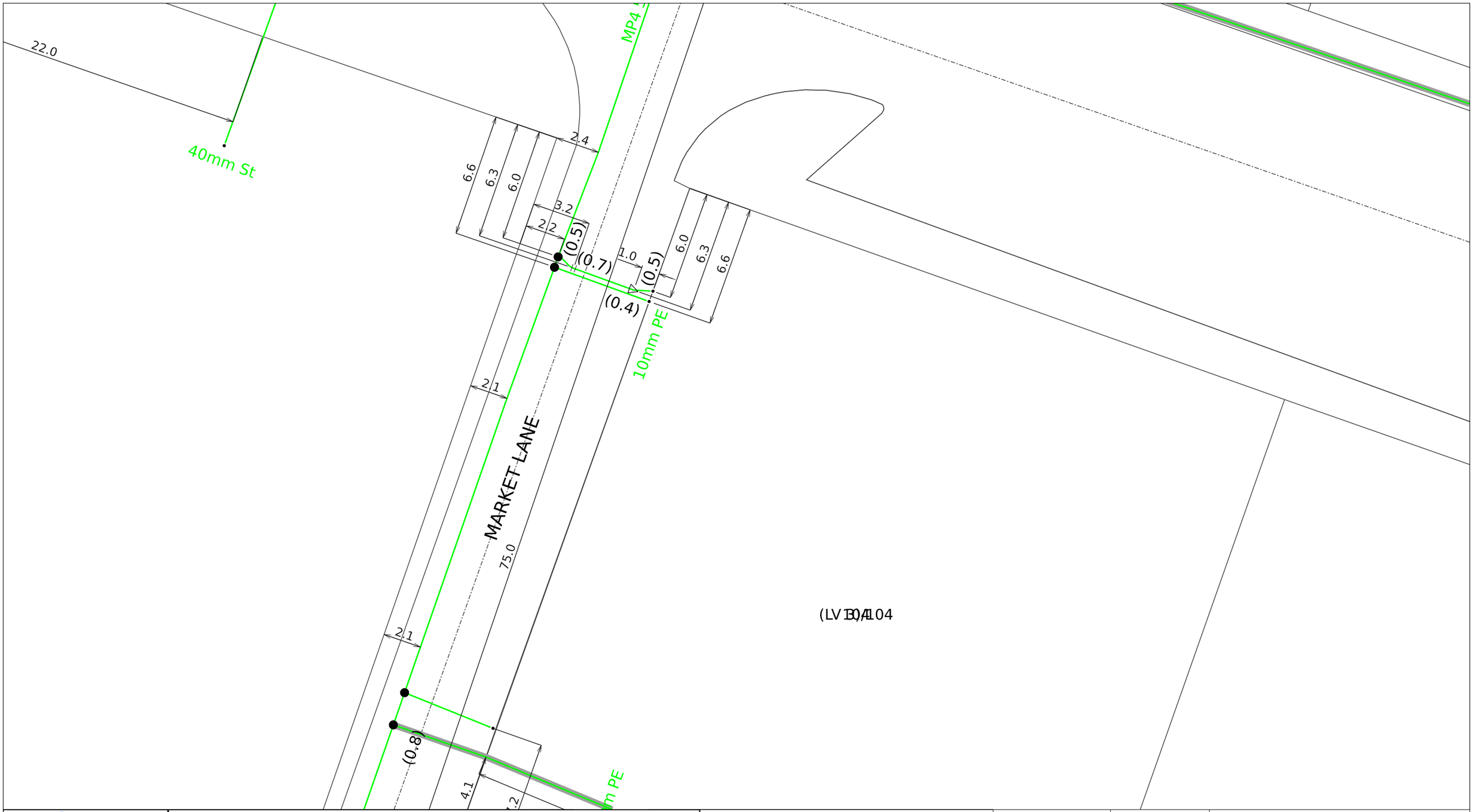

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- MP7 Pipe
- IP10 Pipe
- IP20 Pipe
- HP Pipe
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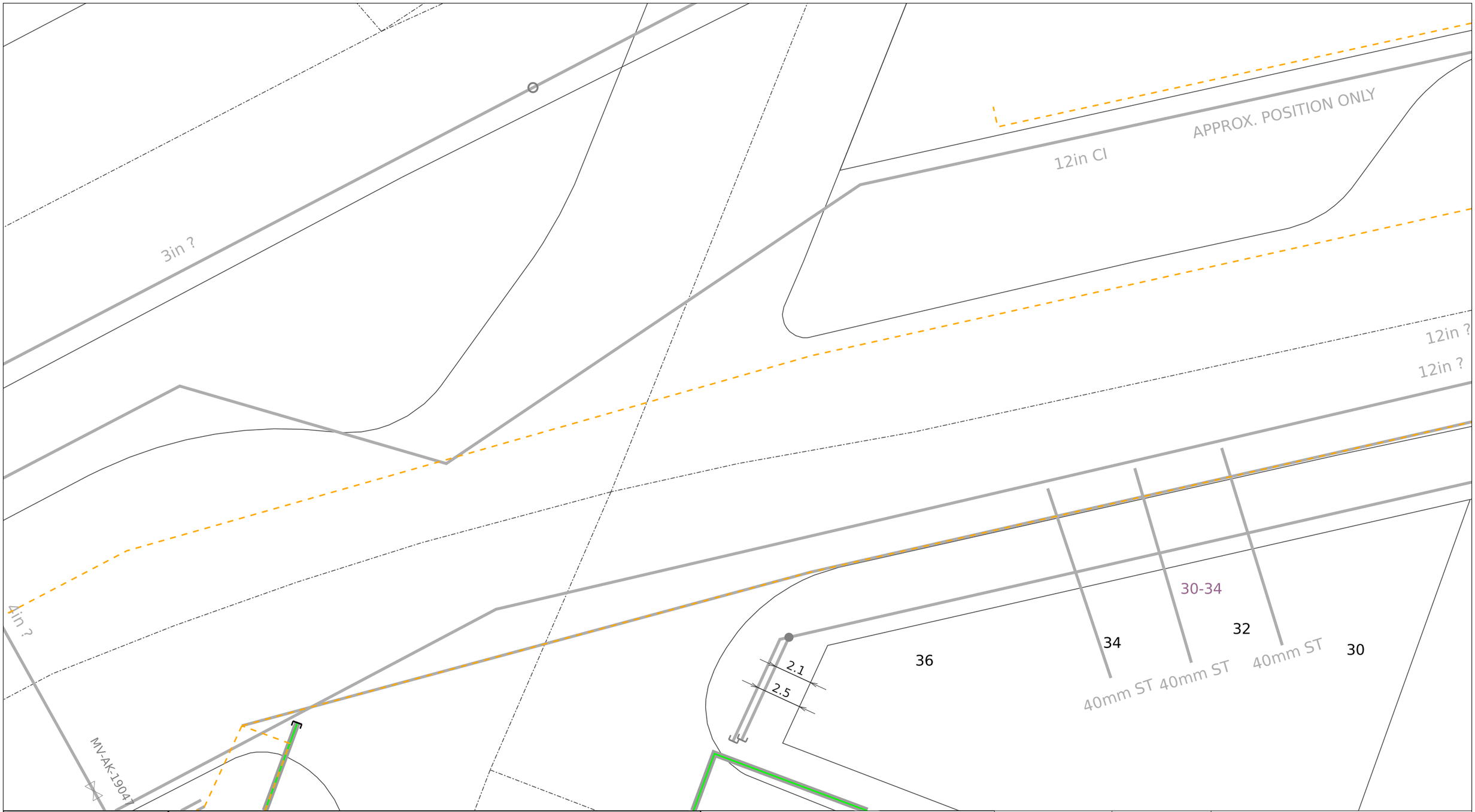

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- IP10 Pipe
- IP20 Pipe
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- 0 kPa

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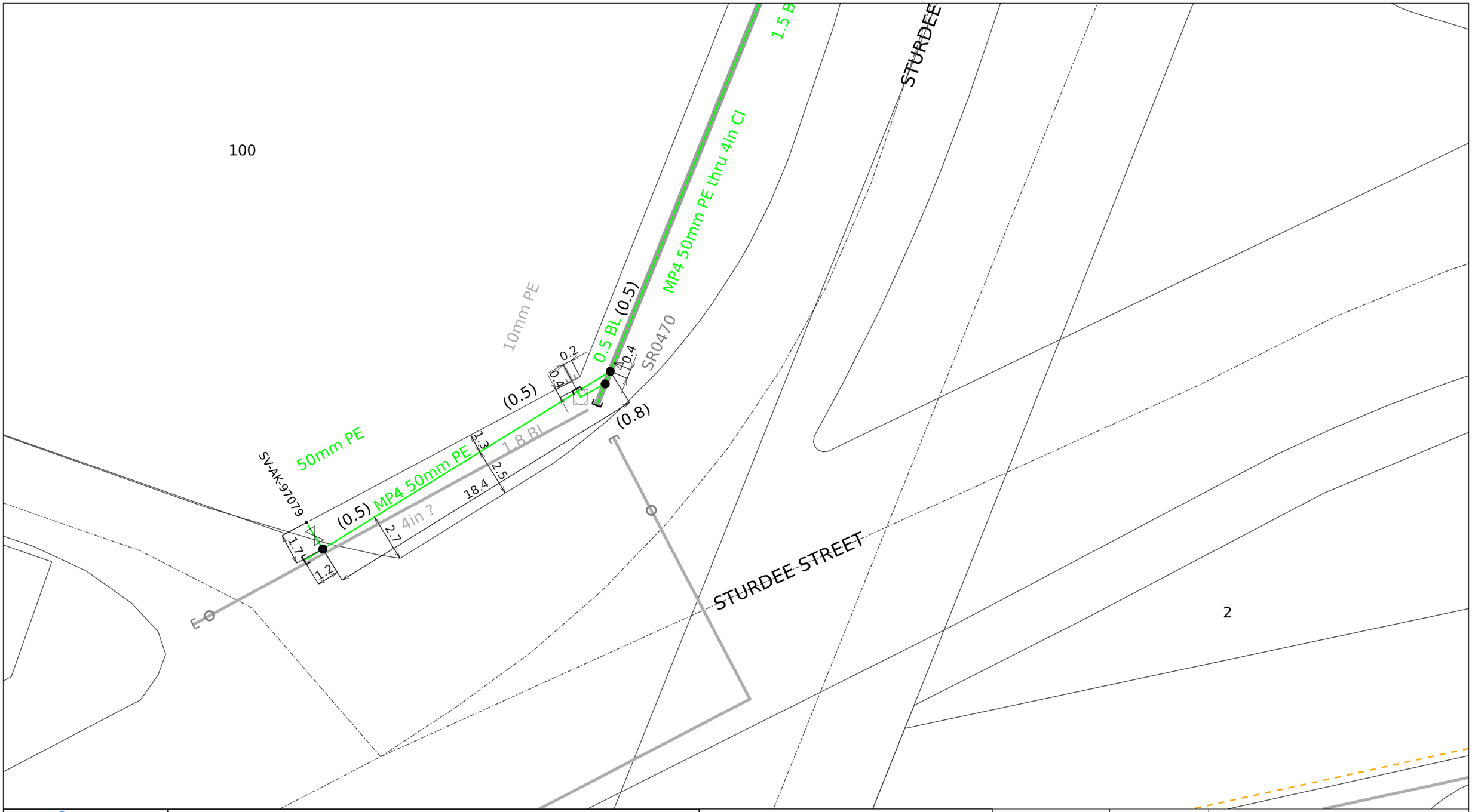

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Request Title:	
Company Name:	
Usage:	Request ID: 11197176
Request for:	Scale: 1:200
Customer Contact:	Printed by:
Phone:	Date printed: 29. March 2023
Client Reference:	Page: 5 of 25

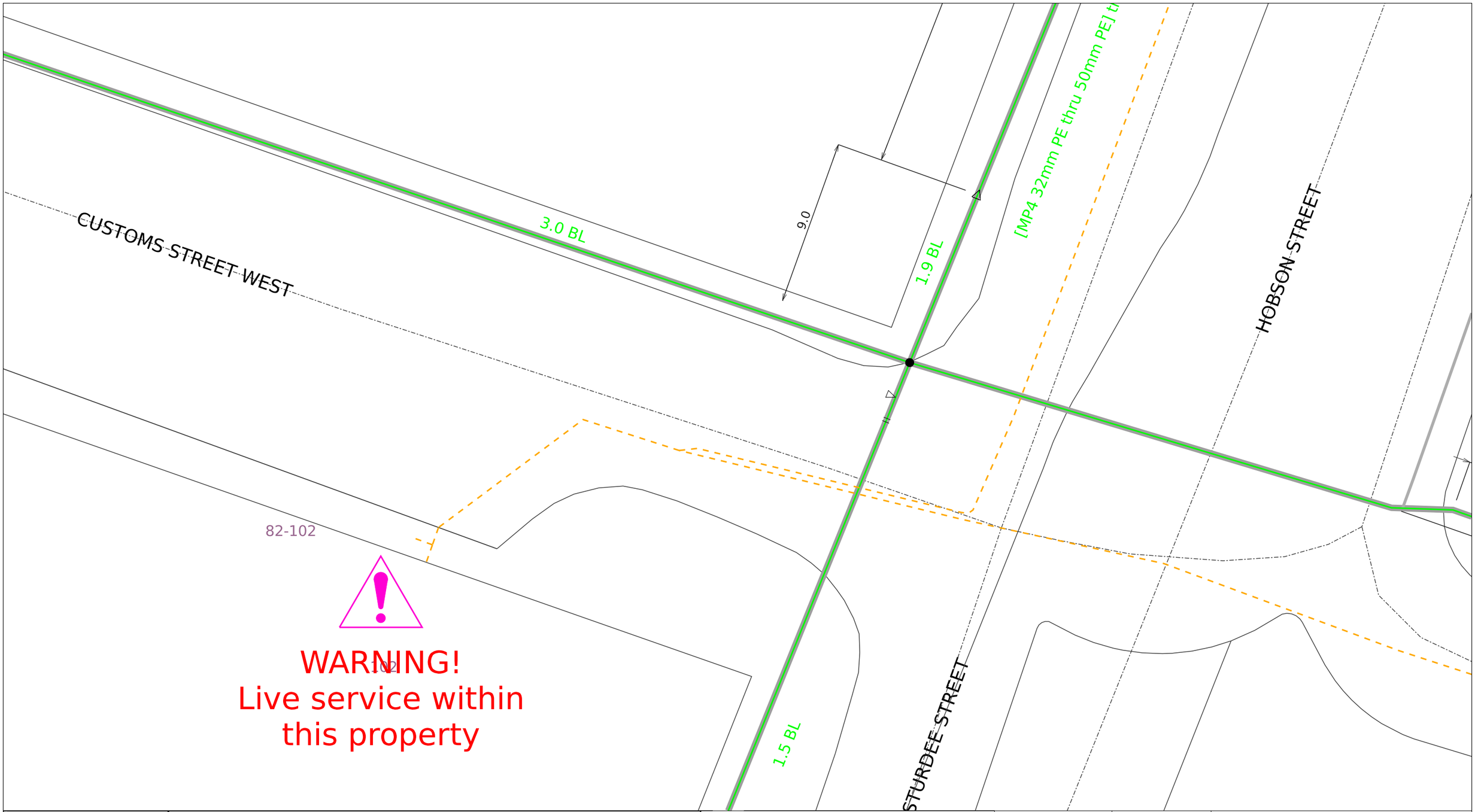
PIPE COLOUR BY PRESSURE
- LP Pipe
- LPG Pipe
- MP1 Pipe
- MP2 Pipe
- MP4 Pipe
- MP7 Pipe
- IP10 Pipe
- IP20 Pipe
- HP Pipe
- 0 kPa

WARNING! Live service within this property.

WARNING! Indication only additional data is required
Transmission Pipeline (ex - NGC)
Please contact Vector - New Plymouth on 0800 734 567 for On-Site Location and Work Permits. A minimum of 48 hours notice is required.

WORK MANAGEMENT
- In Progress
- Planned
- Future Planned

OTHER GAS FEATURES
- Fibre Optic
- Closed Valve
- Gate
- Riser
- Open Valve
- PRS
- Service Regulator
- Reducer



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WORK MANAGEMENT

- In Progress
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OTHER GAS FEATURES

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PIPE COLOUR BY PRESSURE

- LP Pipe
- LPG Pipe
- MP1 Pipe
- MP2 Pipe
- MP4 Pipe
- MP7 Pipe
- IP10 Pipe
- IP20 Pipe
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WORK MANAGEMENT

- In Progress
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OTHER GAS FEATURES

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- Closed Valve
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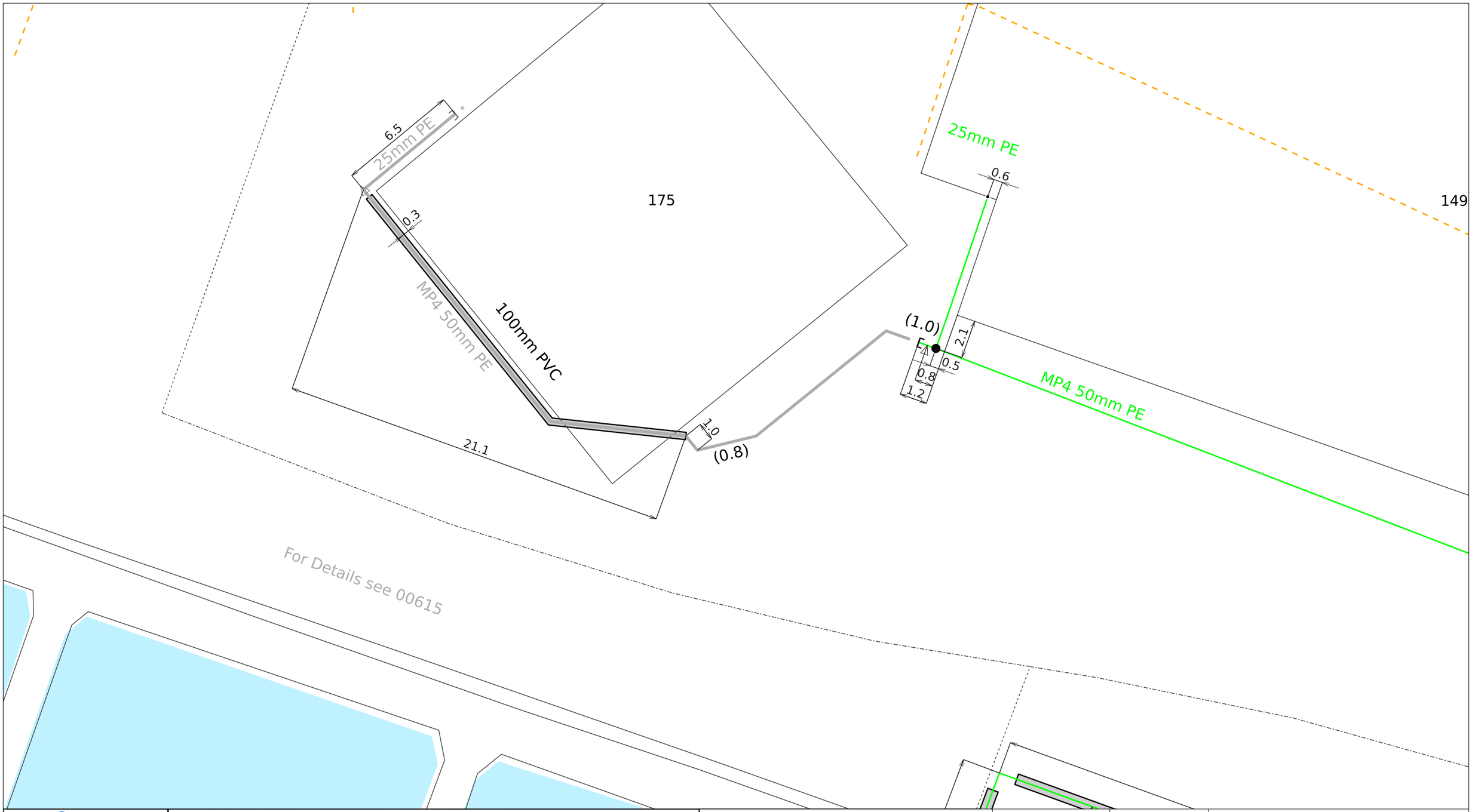
- PRS
- Service Regulator
- Reducer



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PIPE COLOUR BY PRESSURE

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- LPG Pipe
- MP1 Pipe
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- IP10 Pipe
- IP20 Pipe
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WORK MANAGEMENT

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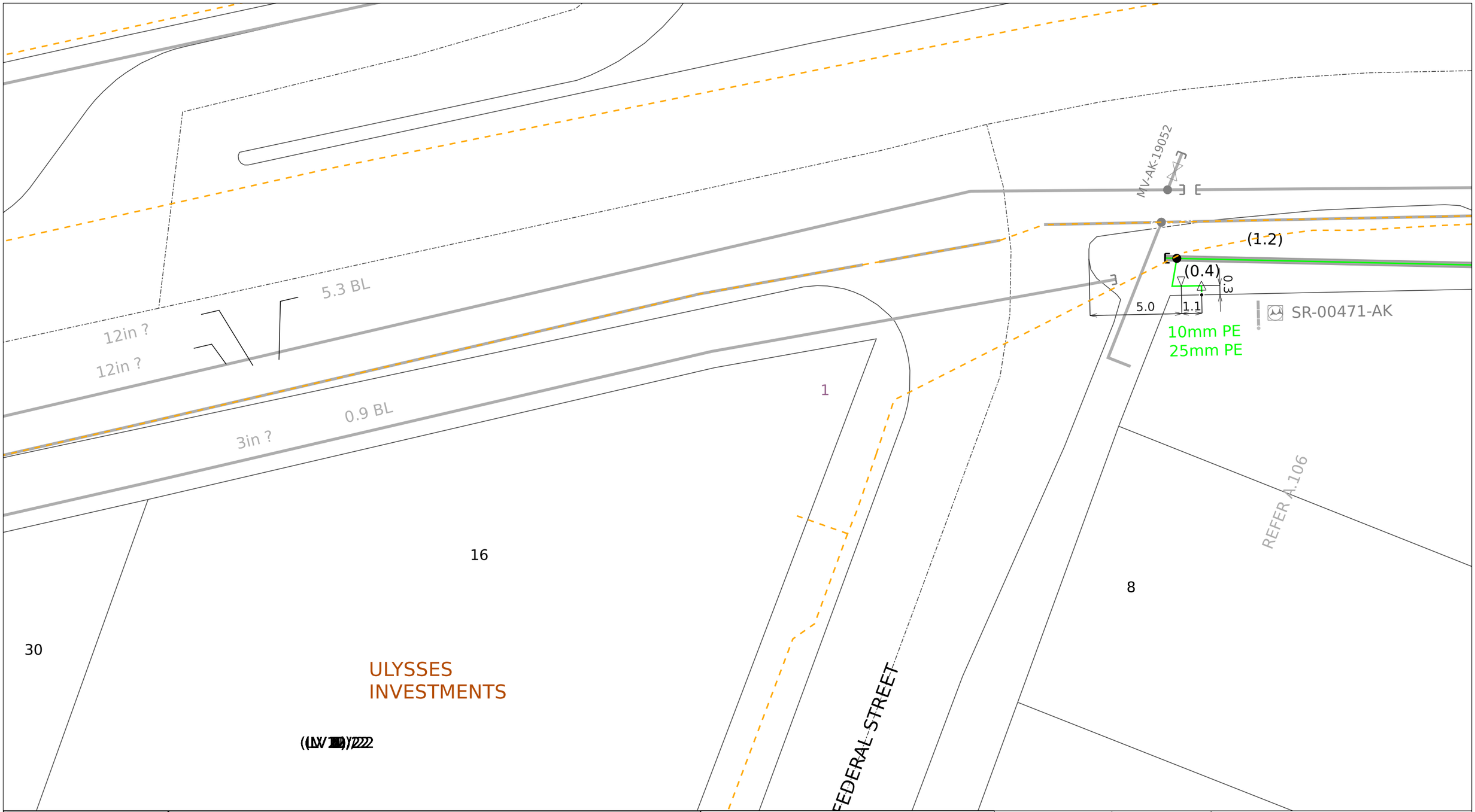

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Customer Contact:	Printed by:
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PIPE COLOUR BY PRESSURE

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WORK MANAGEMENT

- In Progress
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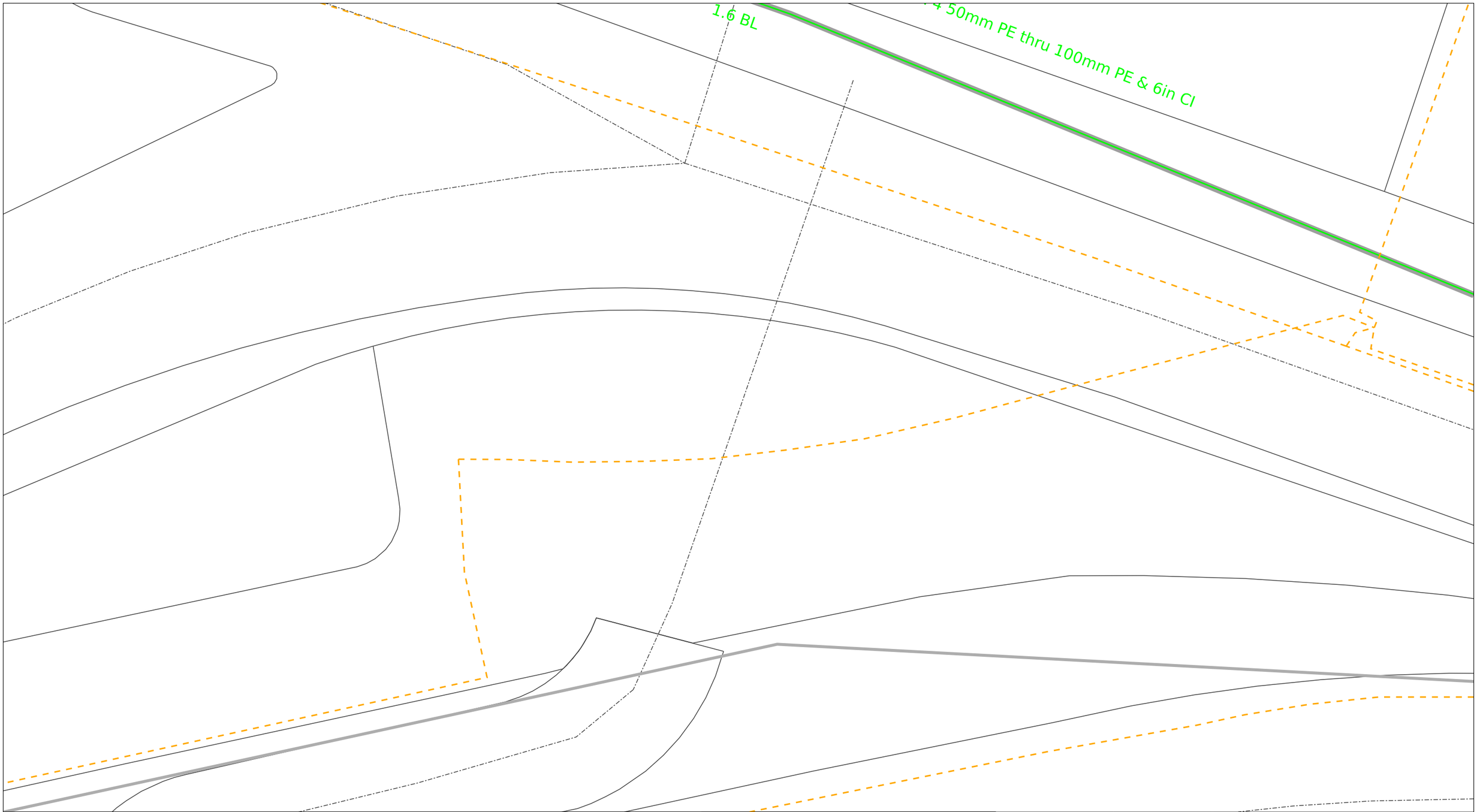

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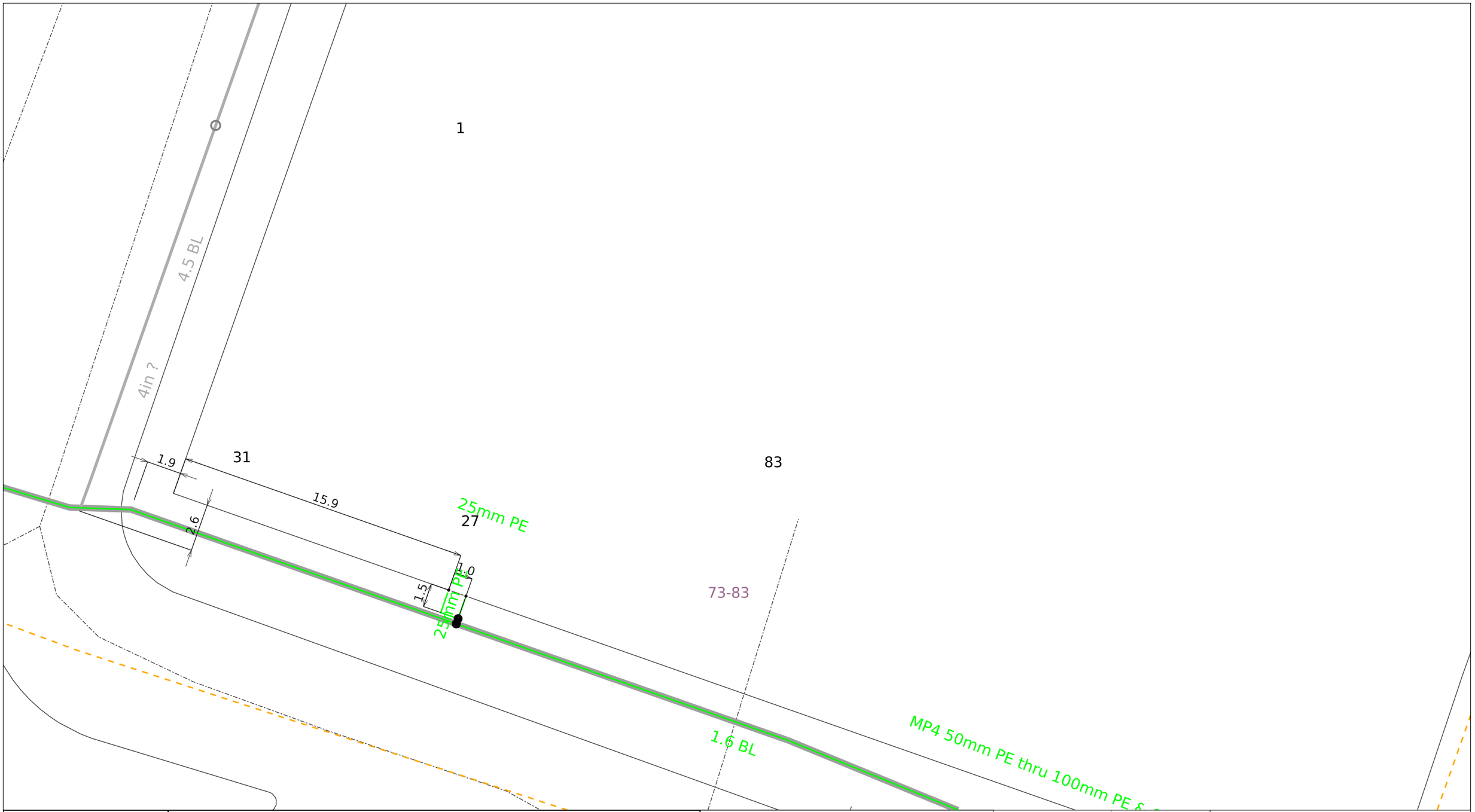

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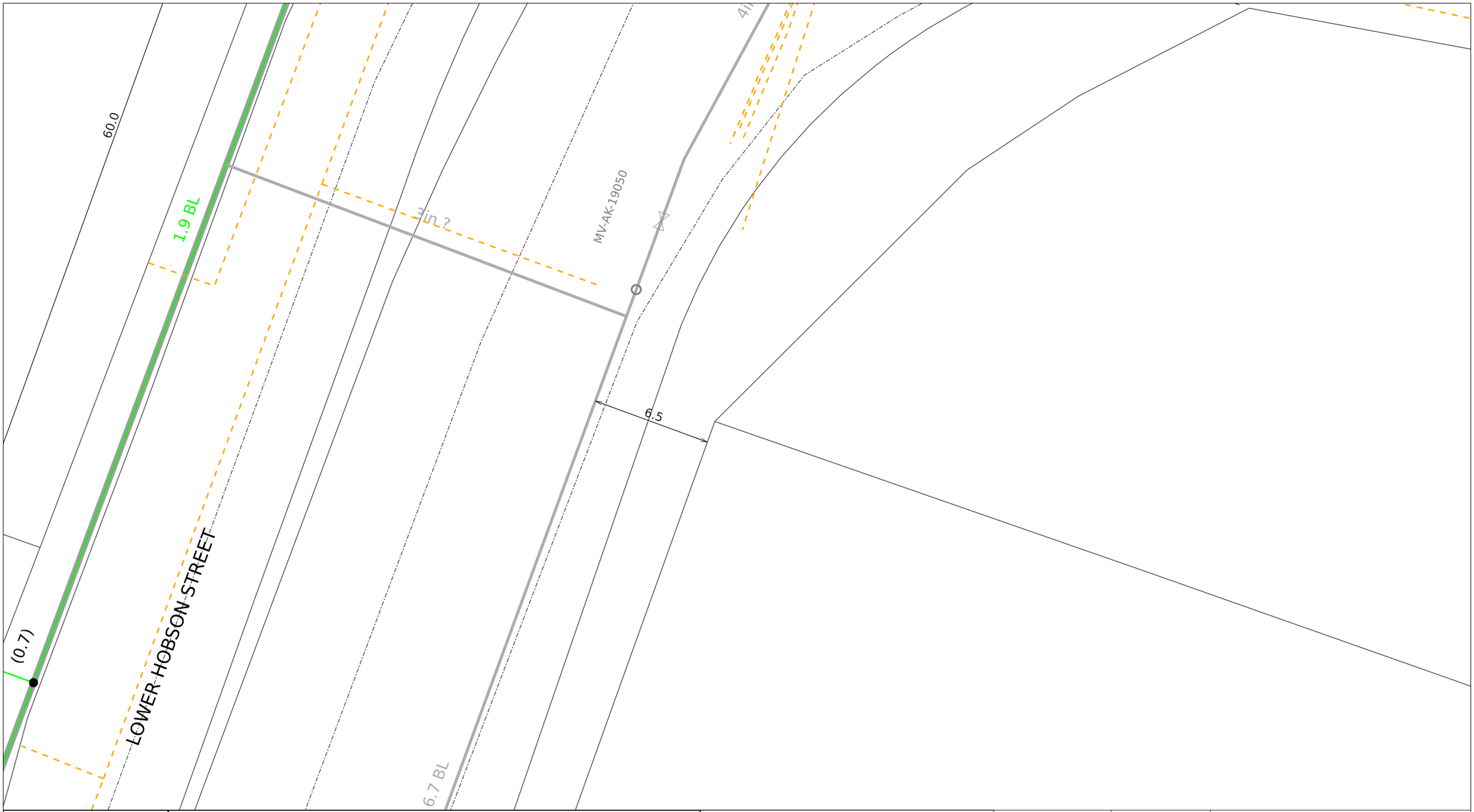

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Company Name:	
Usage:	Request ID: 11197176
Request for:	Scale: 1:200
Customer Contact:	Printed by:
Phone:	Date printed: 29. March 2023
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PIPE COLOUR BY PRESSURE
- LP Pipe
- LPG Pipe
- MP1 Pipe
- MP2 Pipe
- MP4 Pipe
- MP7 Pipe
- IP10 Pipe
- IP20 Pipe
- HP Pipe
- 0 kPa

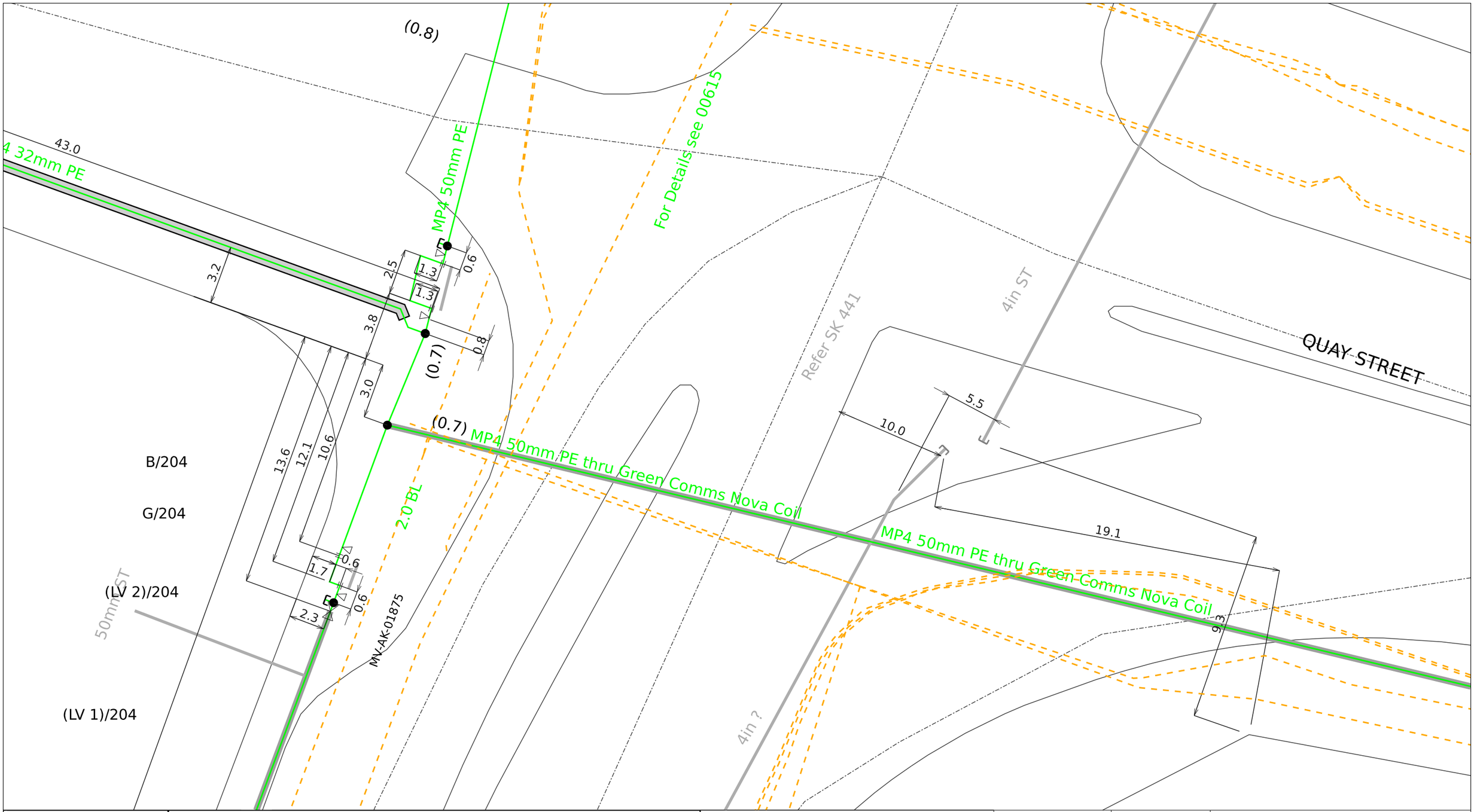
WARNING! Live service within this property.

WARNING! Indication only additional data is required

Transmission Pipeline (ex - NGC)
Please contact Vector - New Plymouth on 0800 734 567 for On-Site Location and Work Permits. A minimum of 48 hours notice is required.

WORK MANAGEMENT
- In Progress
- Planned
- Future Planned

OTHER GAS FEATURES
- Fibre Optic
- Closed Valve
- Gate
- Riser
- Open Valve
- PRS
- Service Regulator
- Reducer



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PIPE COLOUR BY PRESSURE

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- MP1 Pipe
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WORK MANAGEMENT

- In Progress
- Planned
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OTHER GAS FEATURES

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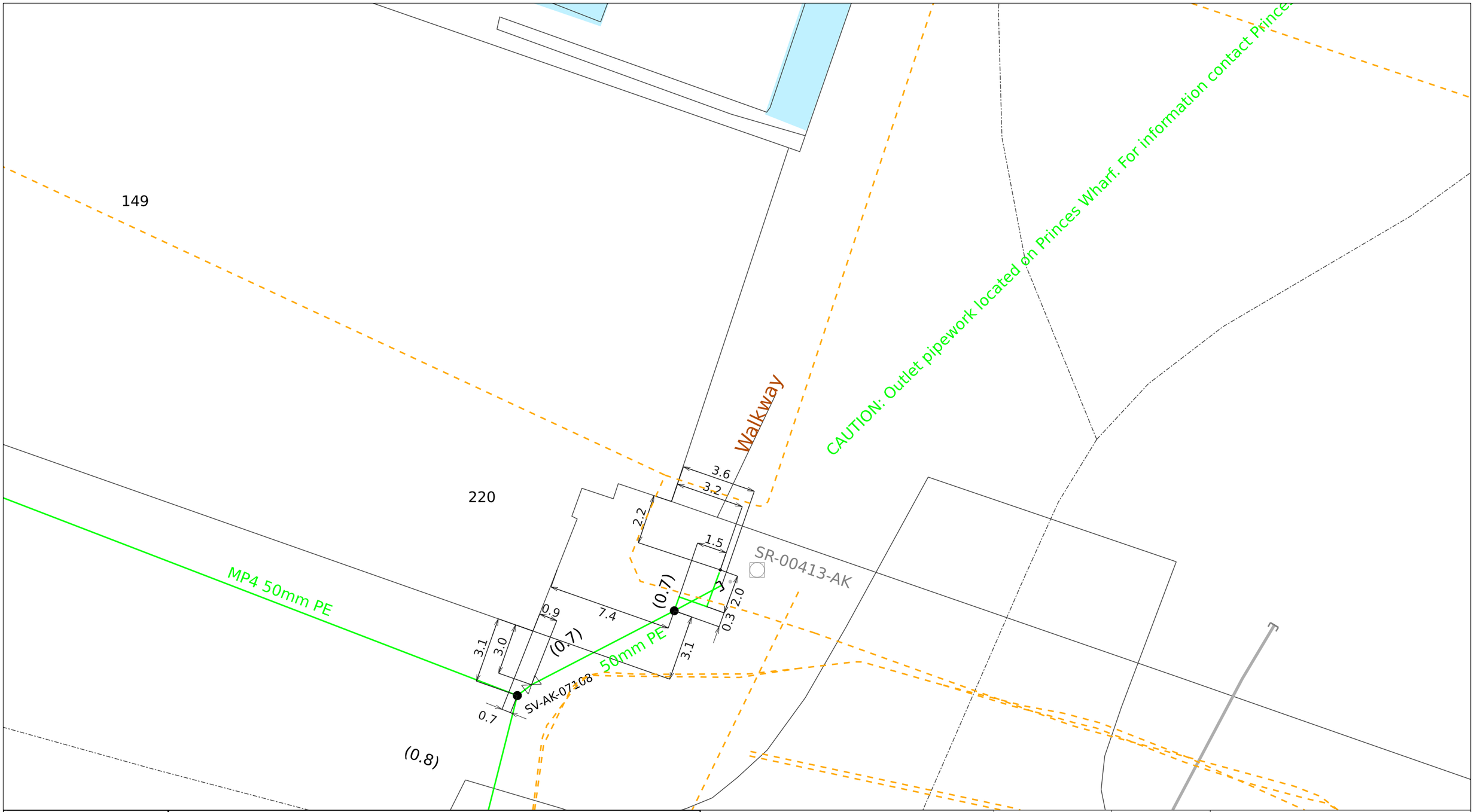
- Service Regulator
- Reducer



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WORK MANAGEMENT
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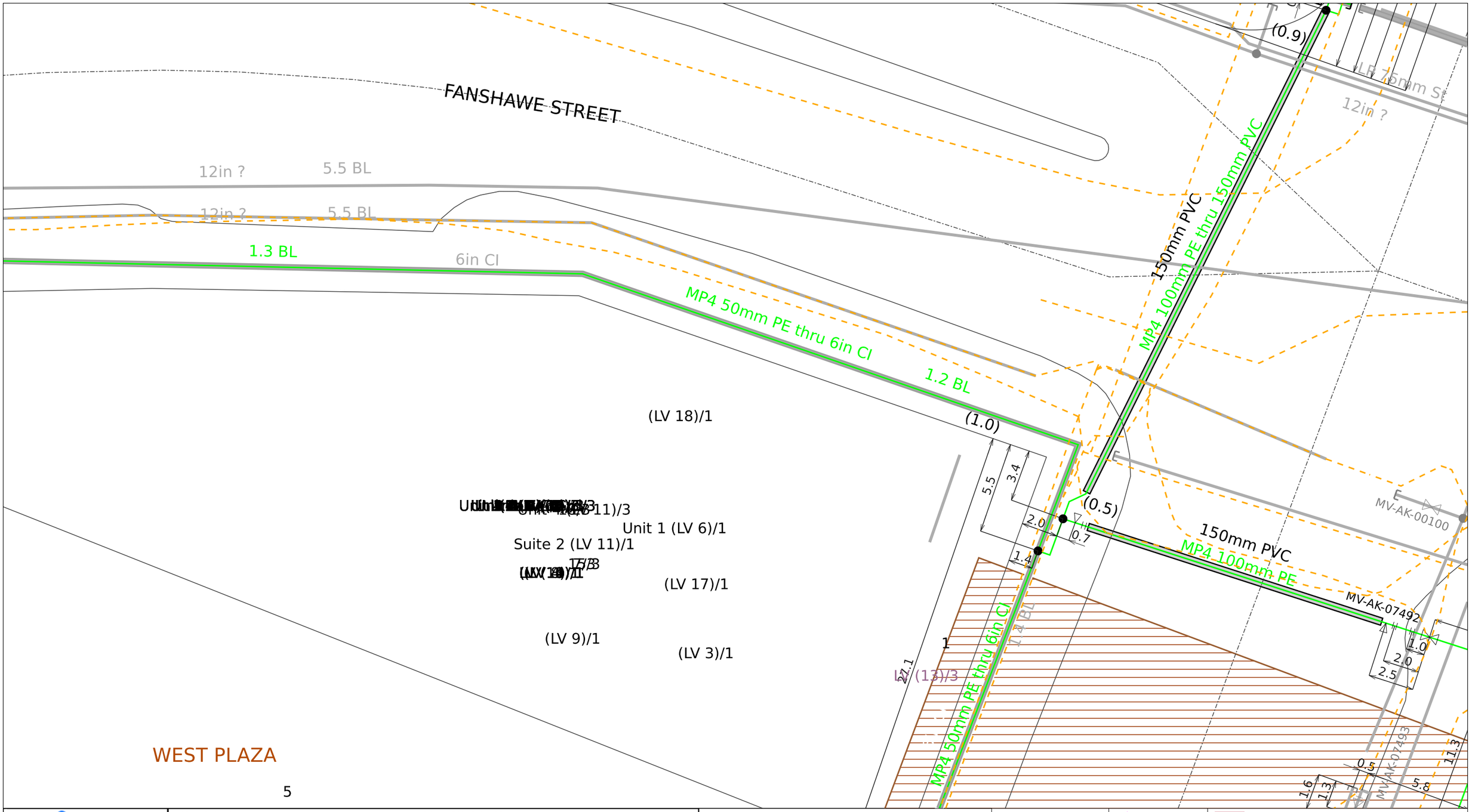
- Service Regulator
- Reducer



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PIPE COLOUR BY PRESSURE
- LP Pipe
- LPG Pipe
- MP1 Pipe
- MP2 Pipe
- MP4 Pipe
- MP7 Pipe
- IP10 Pipe
- IP20 Pipe
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WORK MANAGEMENT
- In Progress
- Planned
- Future Planned

OTHER GAS FEATURES
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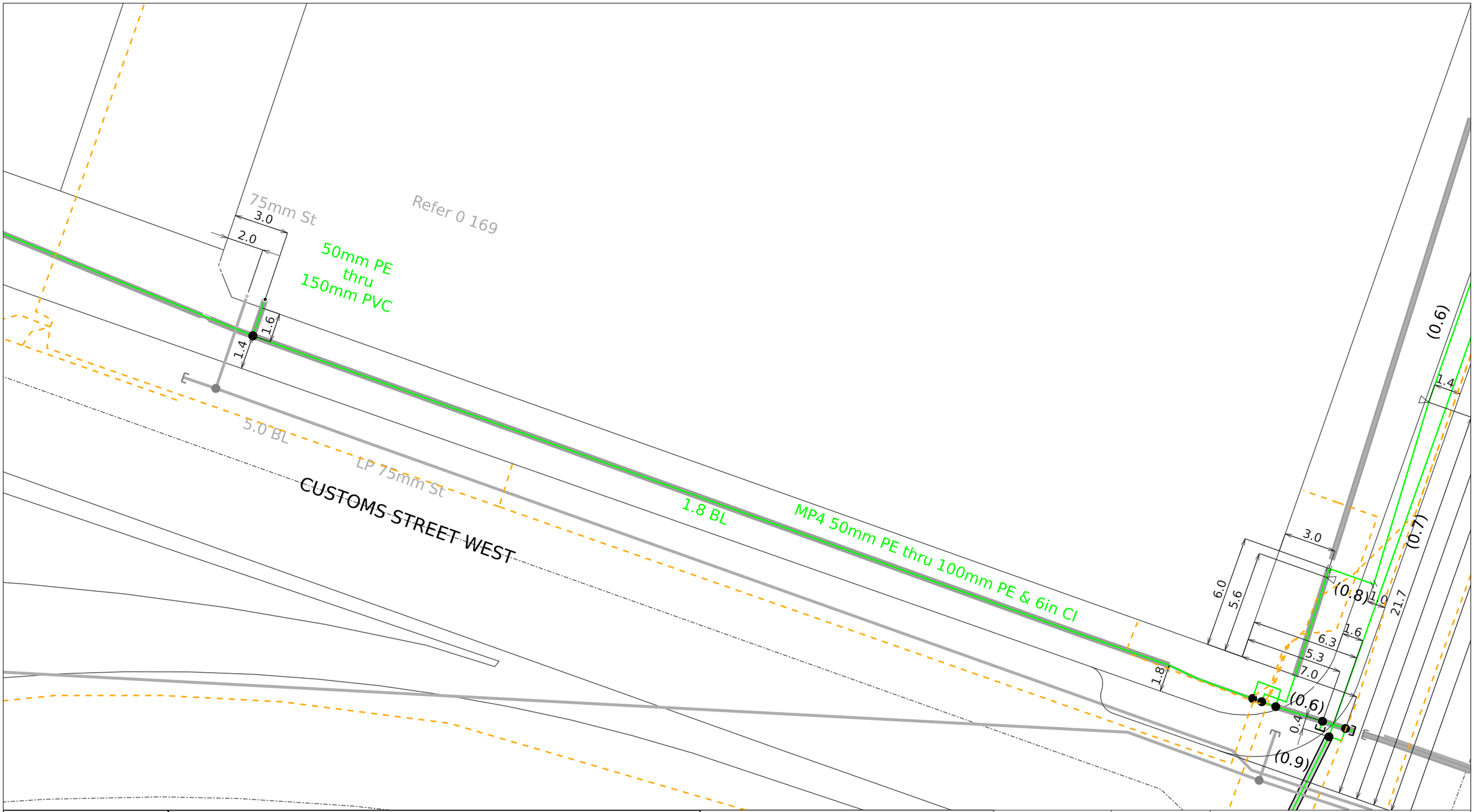
- Closed Valve
- Gate
- Riser
- Open Valve
- PRS
- Service Regulator
- Reducer



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Usage:	Request ID: 11197176
Request for:	Scale: 1:200
Customer Contact:	Printed by:
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PIPE COLOUR BY PRESSURE

- LP Pipe
- LPG Pipe
- MP1 Pipe
- MP2 Pipe
- MP4 Pipe
- MP7 Pipe
- IP10 Pipe
- IP20 Pipe
- HP Pipe
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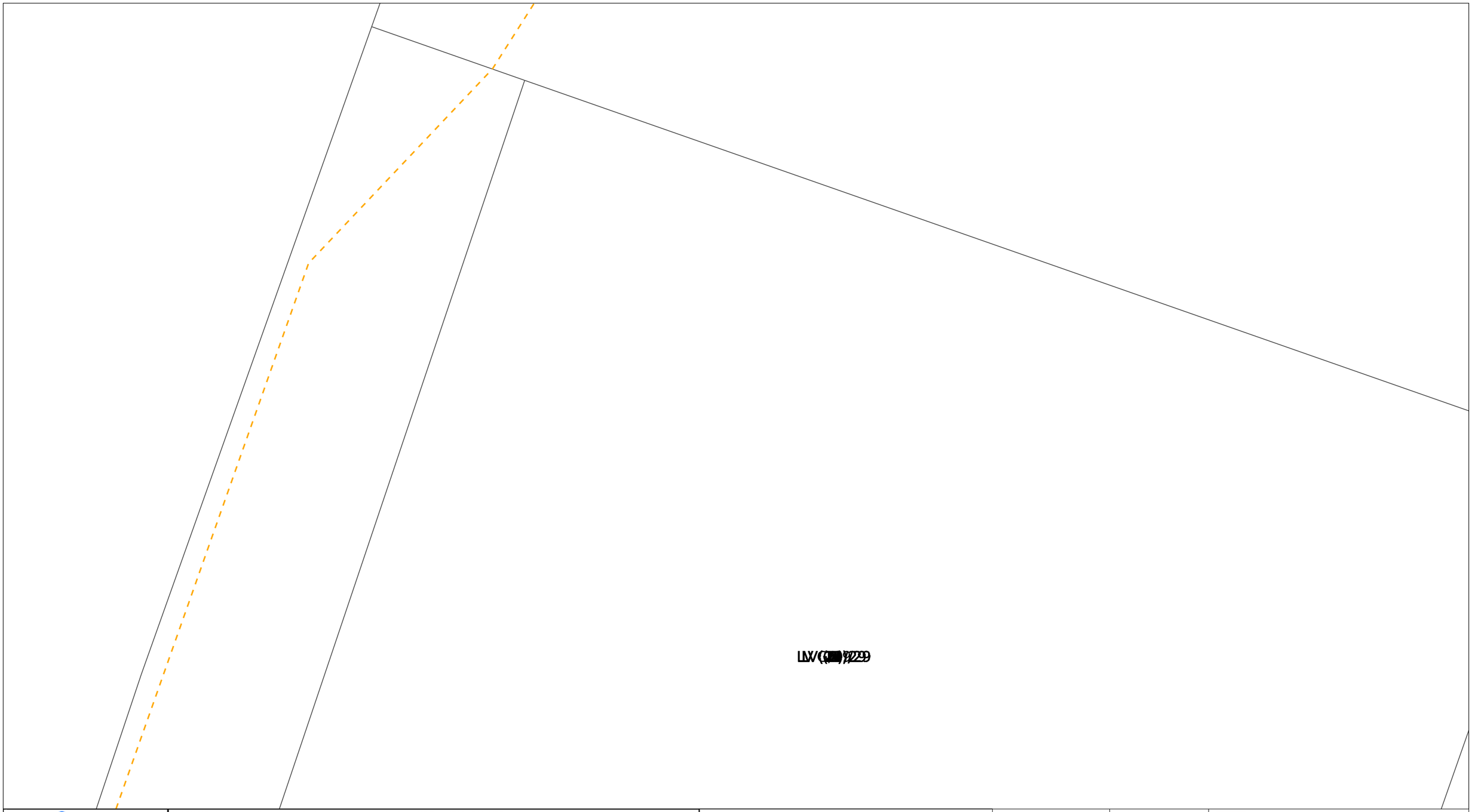
WORK MANAGEMENT

- In Progress
- Planned
- Future Planned

OTHER GAS FEATURES

- Fibre Optic
- Closed Valve
- Gate
- Riser
- Open Valve
- PRS
- Service Regulator
- Reducer



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Customer Contact:	Printed by:
Phone:	Date printed: 29. March 2023
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PIPE COLOUR BY PRESSURE

- LP Pipe
- LPG Pipe
- MP1 Pipe
- MP2 Pipe
- MP4 Pipe
- MP7 Pipe
- IP10 Pipe
- IP20 Pipe
- HP Pipe
- 0 kPa

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WORK MANAGEMENT

- In Progress
- Planned
- Future Planned

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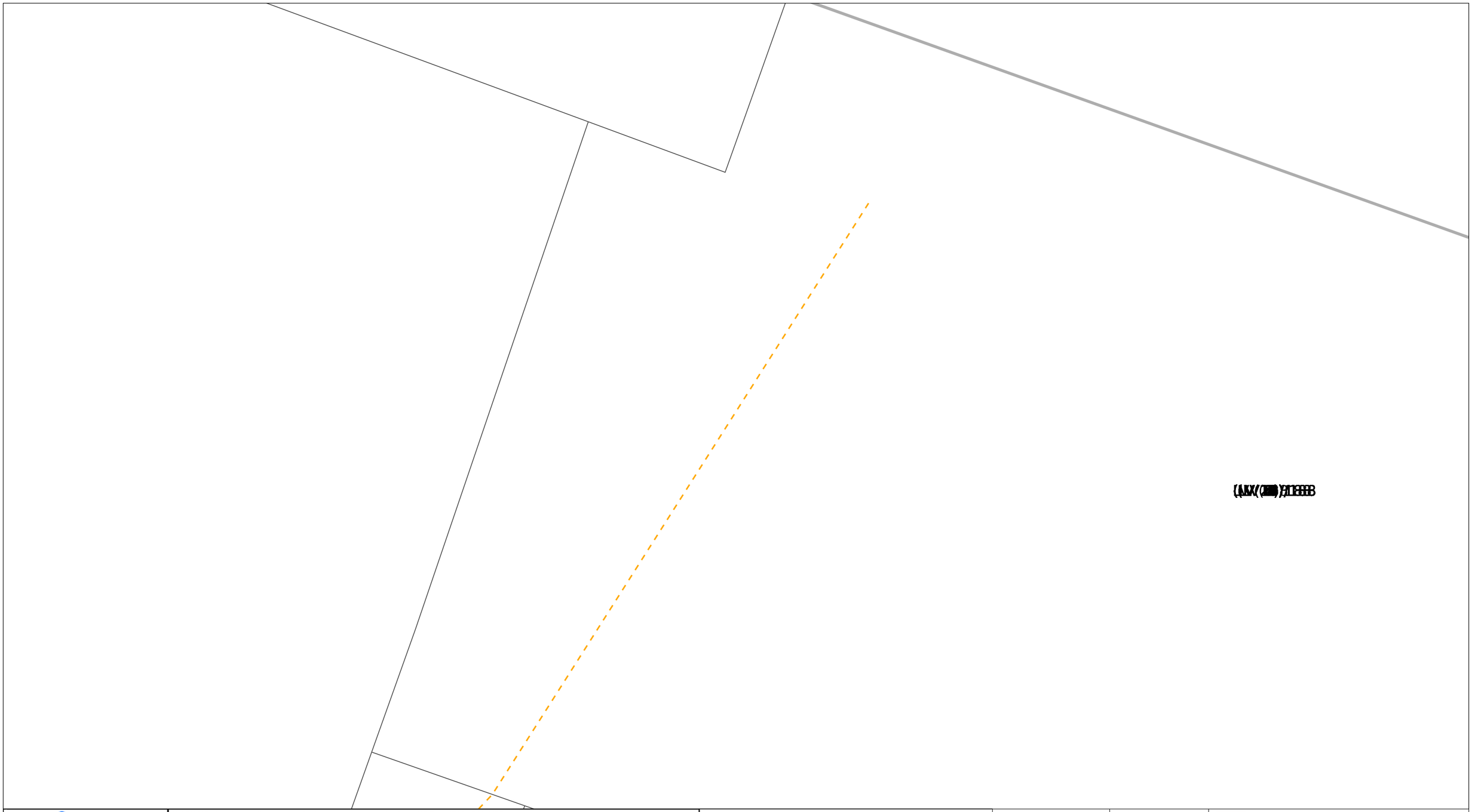

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PIPE COLOUR BY PRESSURE

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- LPG Pipe
- MP1 Pipe
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- In Progress
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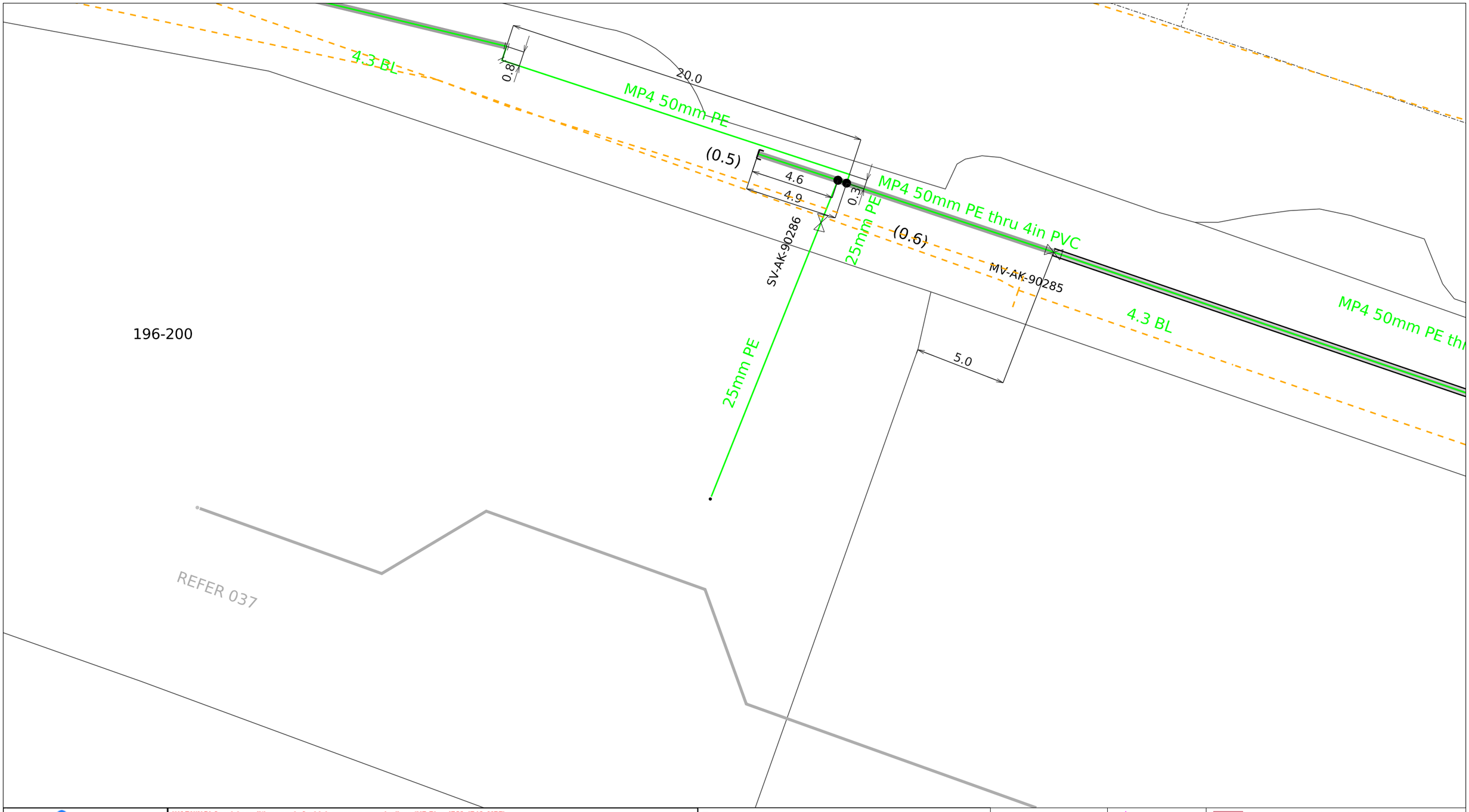

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PIPE COLOUR BY PRESSURE

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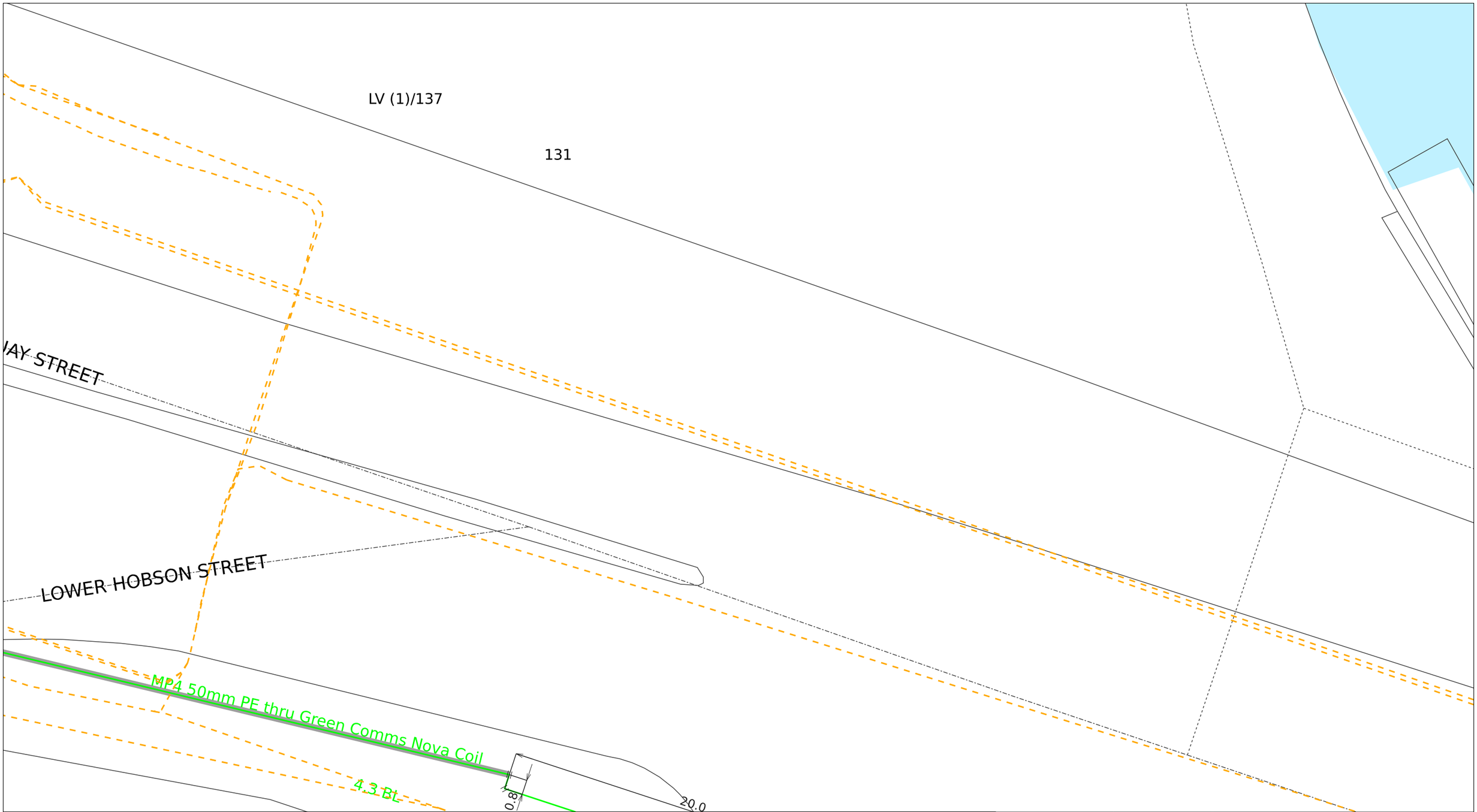

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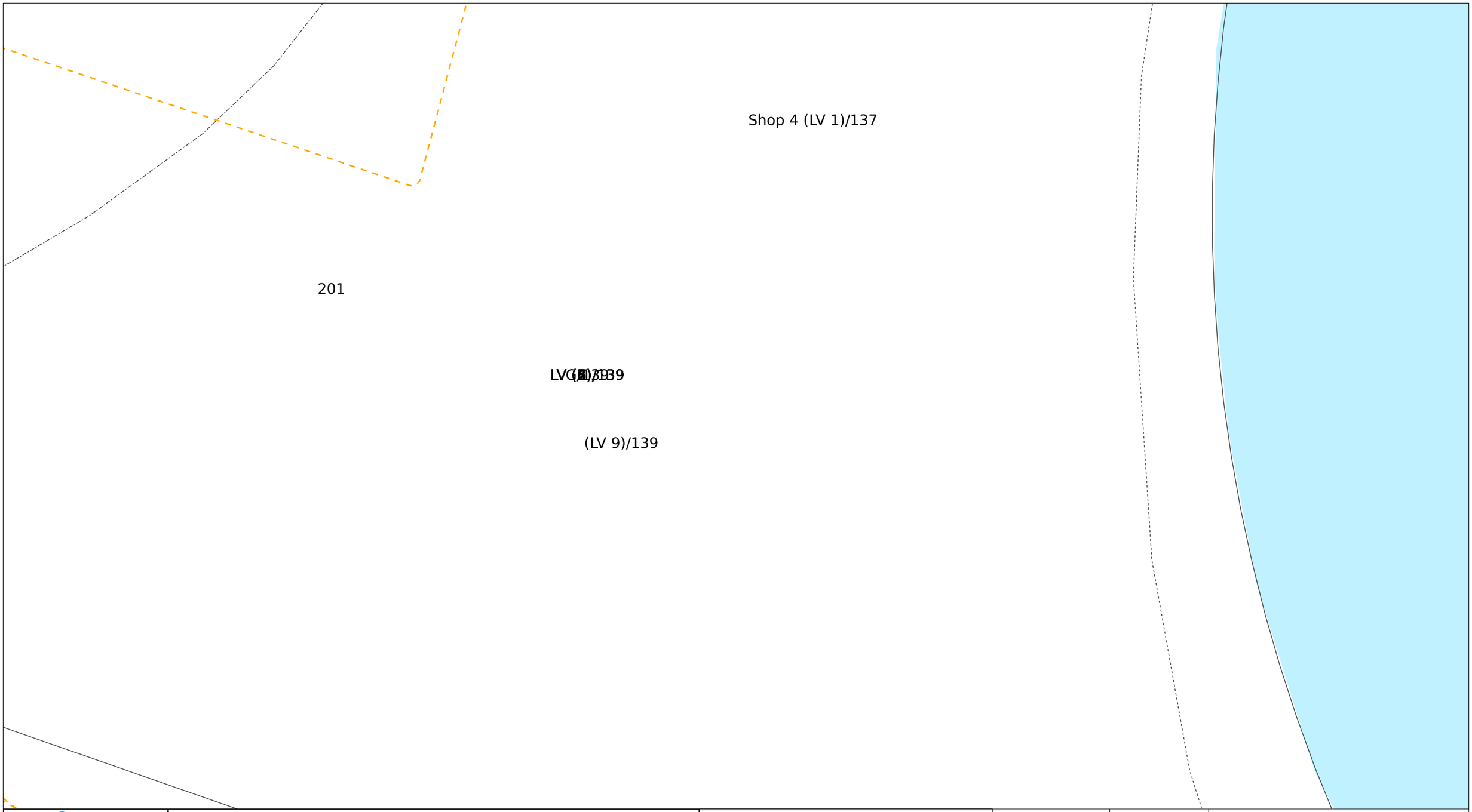

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If you hit an electricity cable or overhead line please call us immediately on 0508 VECTOR (0508 832 867). If you hit any gas pipeline call the Fire Service first on 111. If you hit a gas distribution pipe in the Auckland area call us on 0800 764 764. If you hit a gas pipeline in the rest of the North Island call FIRST GAS on 0800 800 393. If you hit a gas transmission pipeline call FIRST GAS on 0800 734 567. If you hit a communications cable (all areas) call us immediately on 0800 826 436 (select option 1).

Title:	
Request Title:	
Company Name:	
Usage:	Request ID: 11197176
Request for:	Scale: 1:200
Customer Contact:	Printed by:
Phone:	Date printed: 29. March 2023
Client Reference:	Page: 24 of 25

PIPE COLOUR BY PRESSURE

- LP Pipe
- LPG Pipe
- MP1 Pipe
- MP2 Pipe
- MP4 Pipe
- MP7 Pipe
- IP10 Pipe
- IP20 Pipe
- HP Pipe
- 0 kPa

WARNING! Live service within this property.

WARNING! Indication only additional data is required

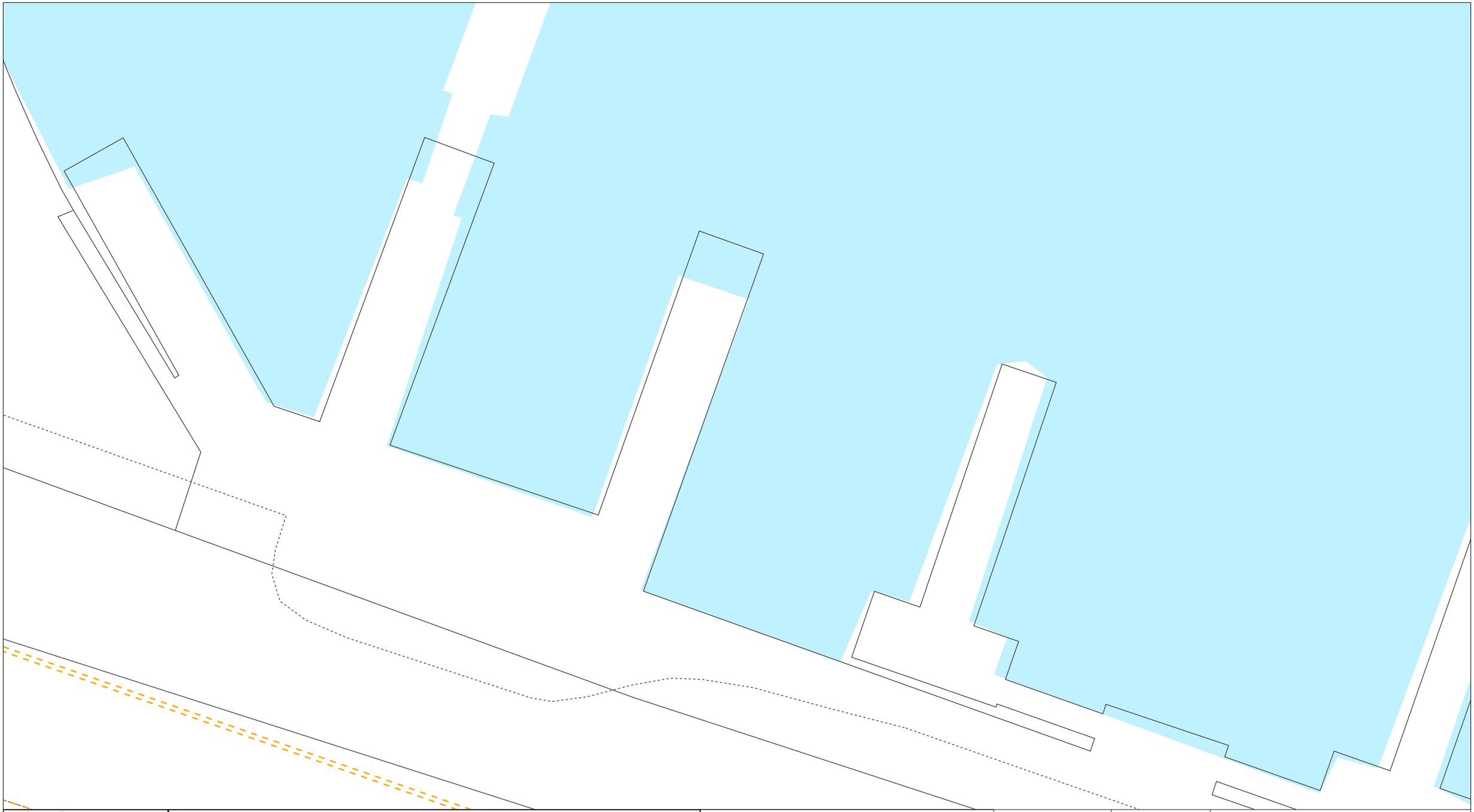
Transmission Pipeline (ex - NGC)
Please contact Vector - New Plymouth on 0800 734 567 for On-Site Location and Work Permits. A minimum of 48 hours notice is required.

WORK MANAGEMENT

- In Progress
- Planned
- Future Planned

OTHER GAS FEATURES

- Fibre Optic
- Closed Valve
- Gate
- Riser
- Open Valve
- PRS
- Service Regulator
- Reducer



vector

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WARNING! Special conditions apply for high pressure gas pipelines (HP Pipe, IP20, IP10, MP7)

A permit/consent is required for any excavation within 2 metres of this pipeline. A MINIMUM of 3 working days notice is required when applying for a permit/consent. Refer to attached covering letter for additional information.

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Title:	
Request Title:	
Company Name:	
Usage:	Request ID: 11197176
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Customer Contact:	Printed by:
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Client Reference:	Page: 25 of 25

PIPE COLOUR BY PRESSURE

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- LPG Pipe
- MP1 Pipe
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WARNING! Live service within this property.

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- In Progress
- Planned
- Future Planned

OTHER GAS FEATURES

- Fibre Optic
- Closed Valve
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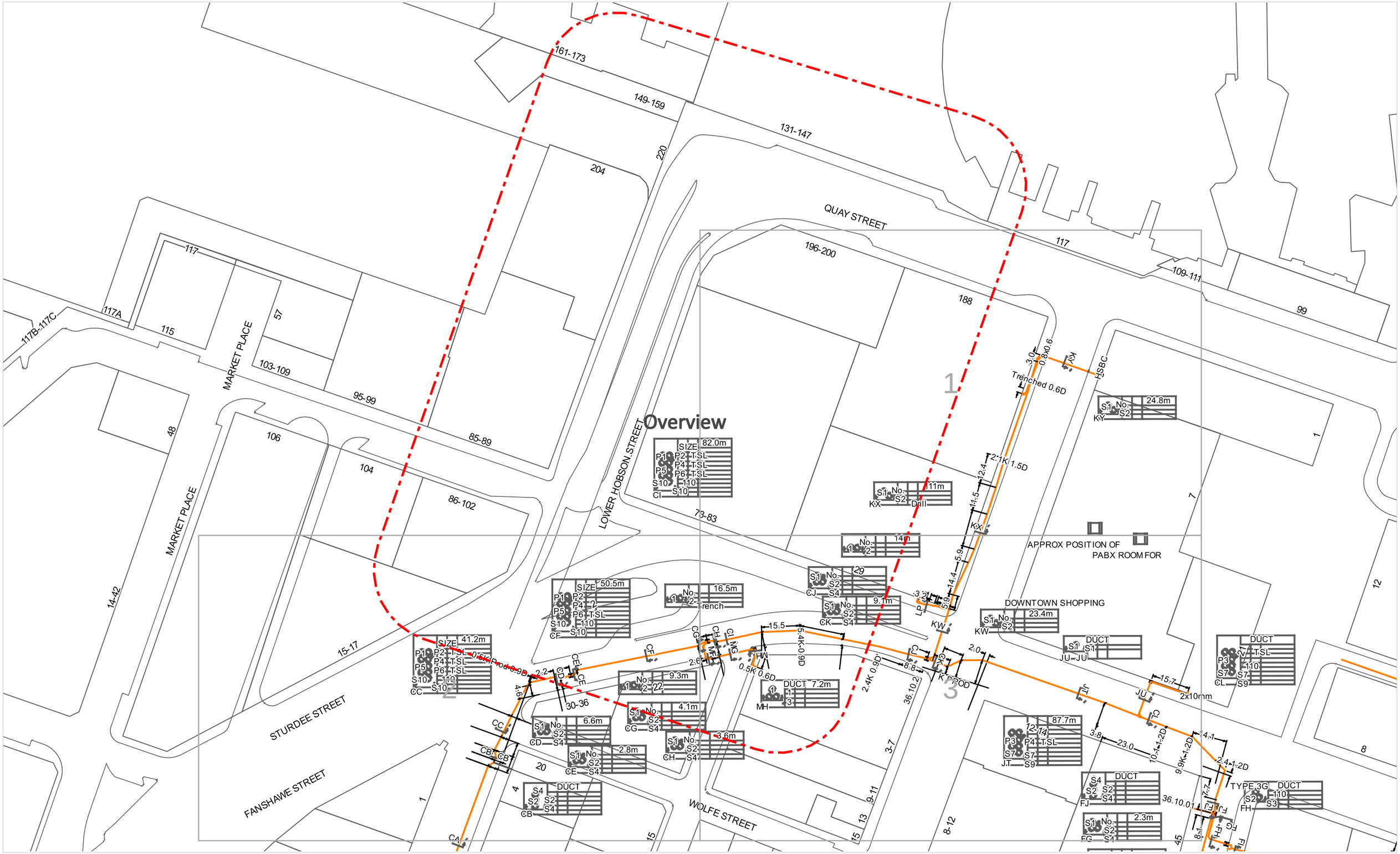
- Riser
- Open Valve
- PRS
- Service Regulator
- Reducer

N W E S

Sequence No: 11197172
Job No: 2186124
Location: Hobson St, Auckland Central, Auckland 1010



Legend | Scale: 1:1390 (A3)

	CityLink Underground Route
	3rd Party Underground Route

N

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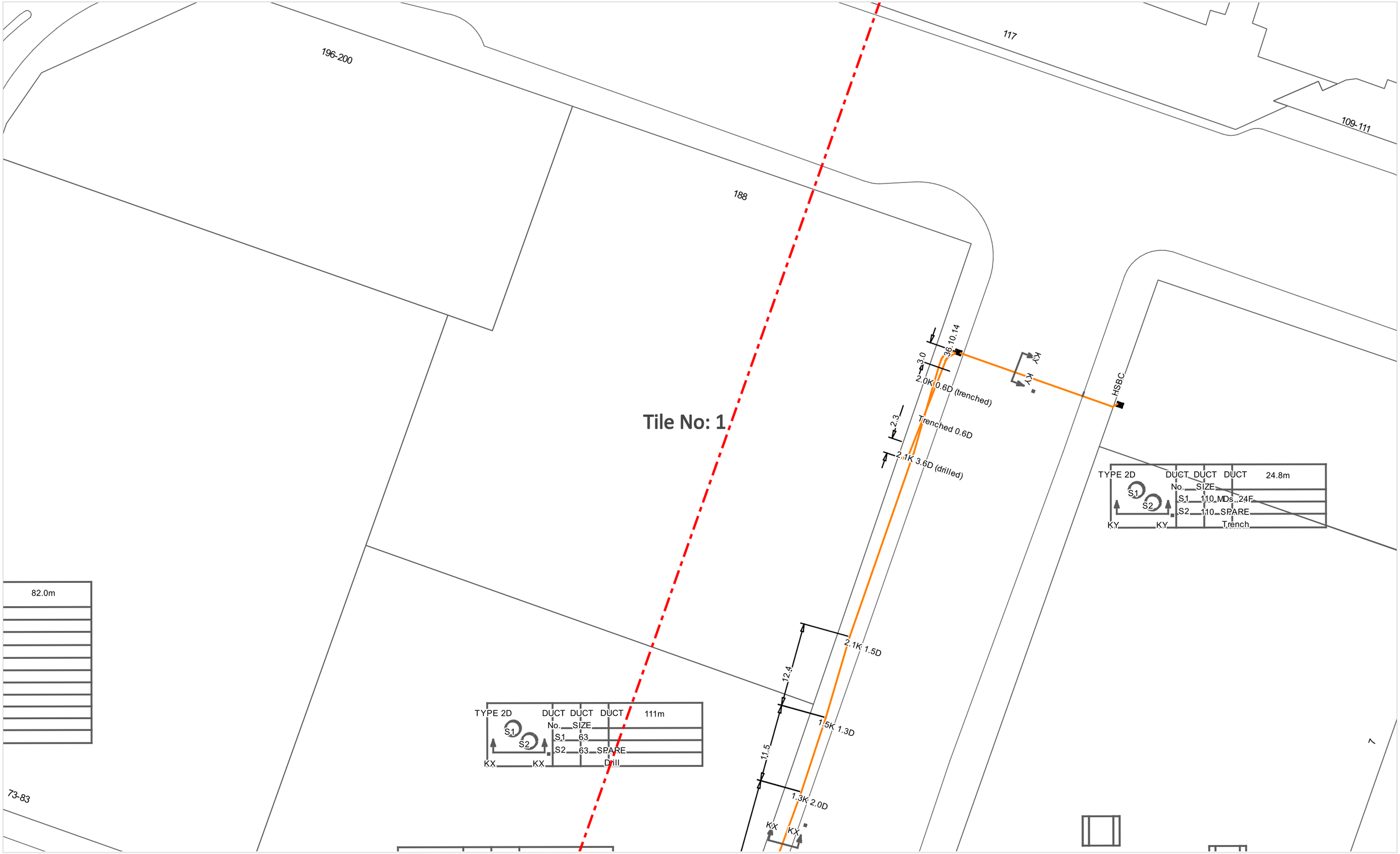
Sequence No: 11197172
Job No: 2186124
Location: Hobson St, Auckland Central, Auckland 1010



Legend | Scale: 1:500 (A3)

	CityLink Underground Route
	3rd Party Underground Route

N

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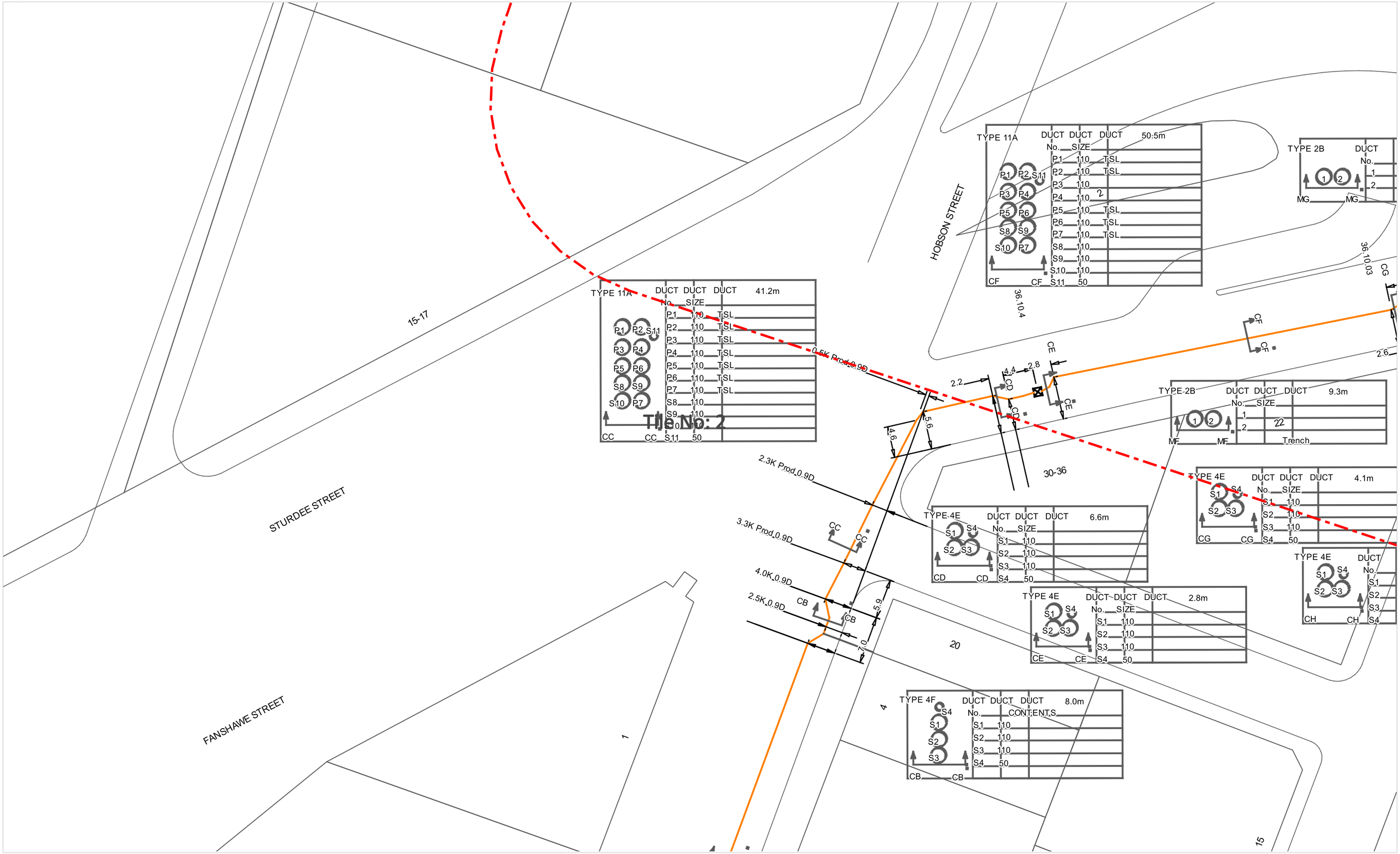
Location: Hobson St, Auckland Central, Auckland 1010



Legend | Scale: 1:500 (A3)

	CityLink Underground Route
	3rd Party Underground Route

N

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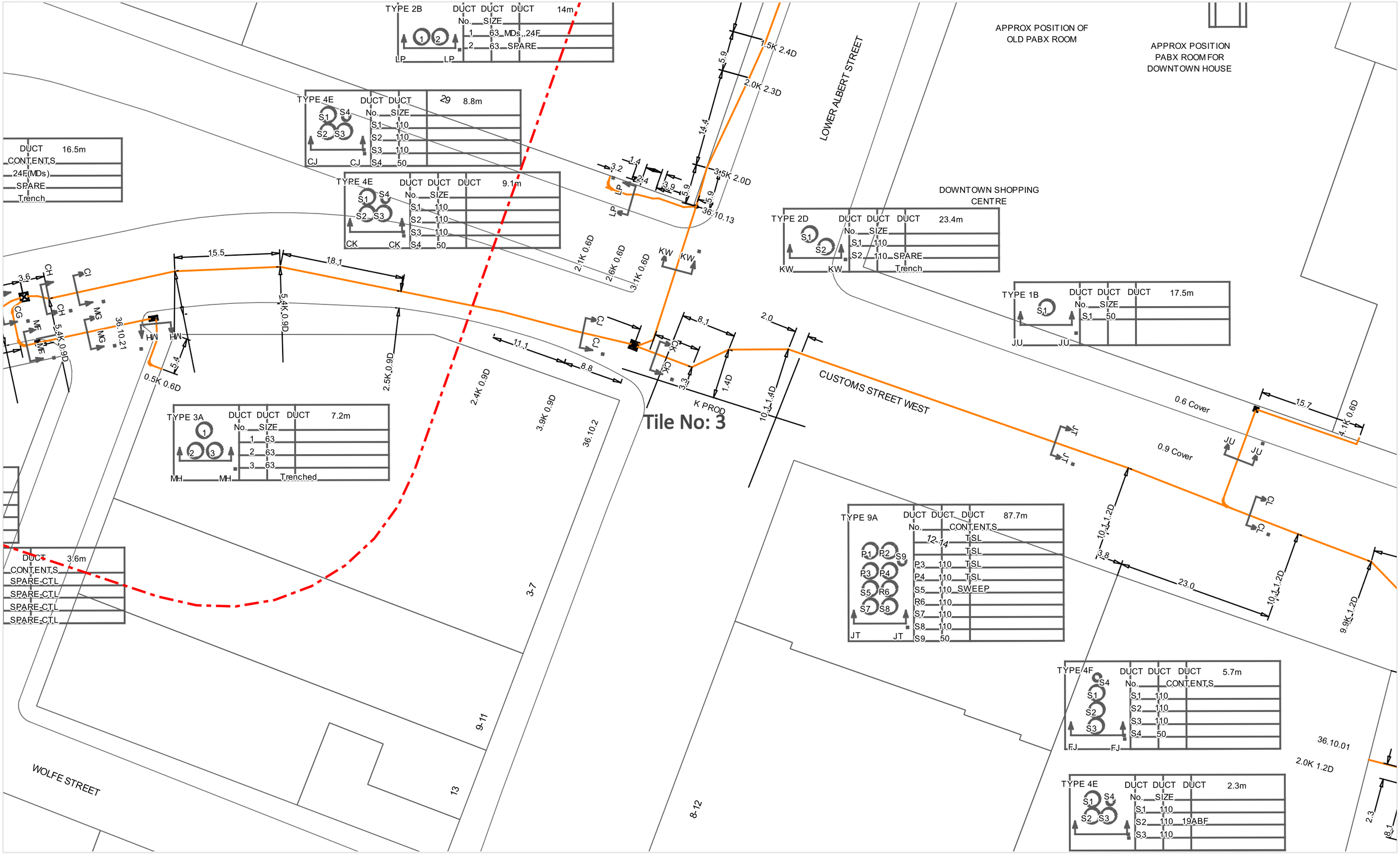

Legend | Scale: 1:500 (A3)

	CityLink Underground Route
	3rd Party Underground Route

N

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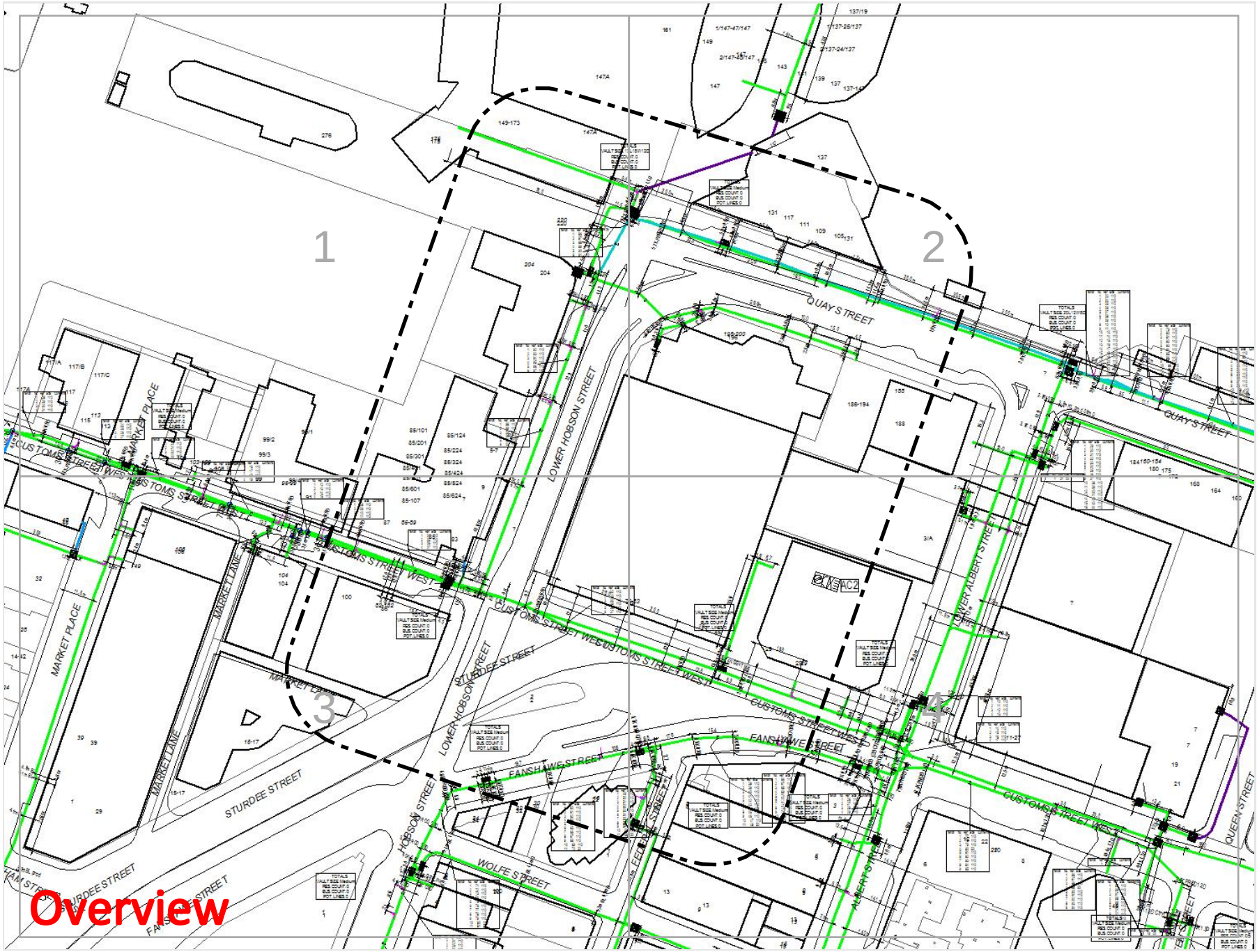
Sequence No: 11197173
Job No: 2186124
Location: Hobson St, Auckland Central, Auckland 1010



Legend

- Existing Vodafone network cables, marked as:
  - "Vodafone"
  - "ex Clear"
  - "ex Saturn, ex TelstraSaturn"
  - "ex TelstraClear or TCL"
- Proposed, or 'as stated'
- Infrastructure owned by others

Abbreviations Key

ES/EOS	Edge of Seal
PP	Power Pole: Circle with line centre line
F/L	Fence line: Yellow line with dashed black line

N

Scale: 1:2050
Expires: 27 Apr 2023

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Sequence No: 11197173
Job No: 2186124
Location: Hobson St, Auckland Central, Auckland 1010

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N

Scale: 1:1000
Expires: 27 Apr 2023

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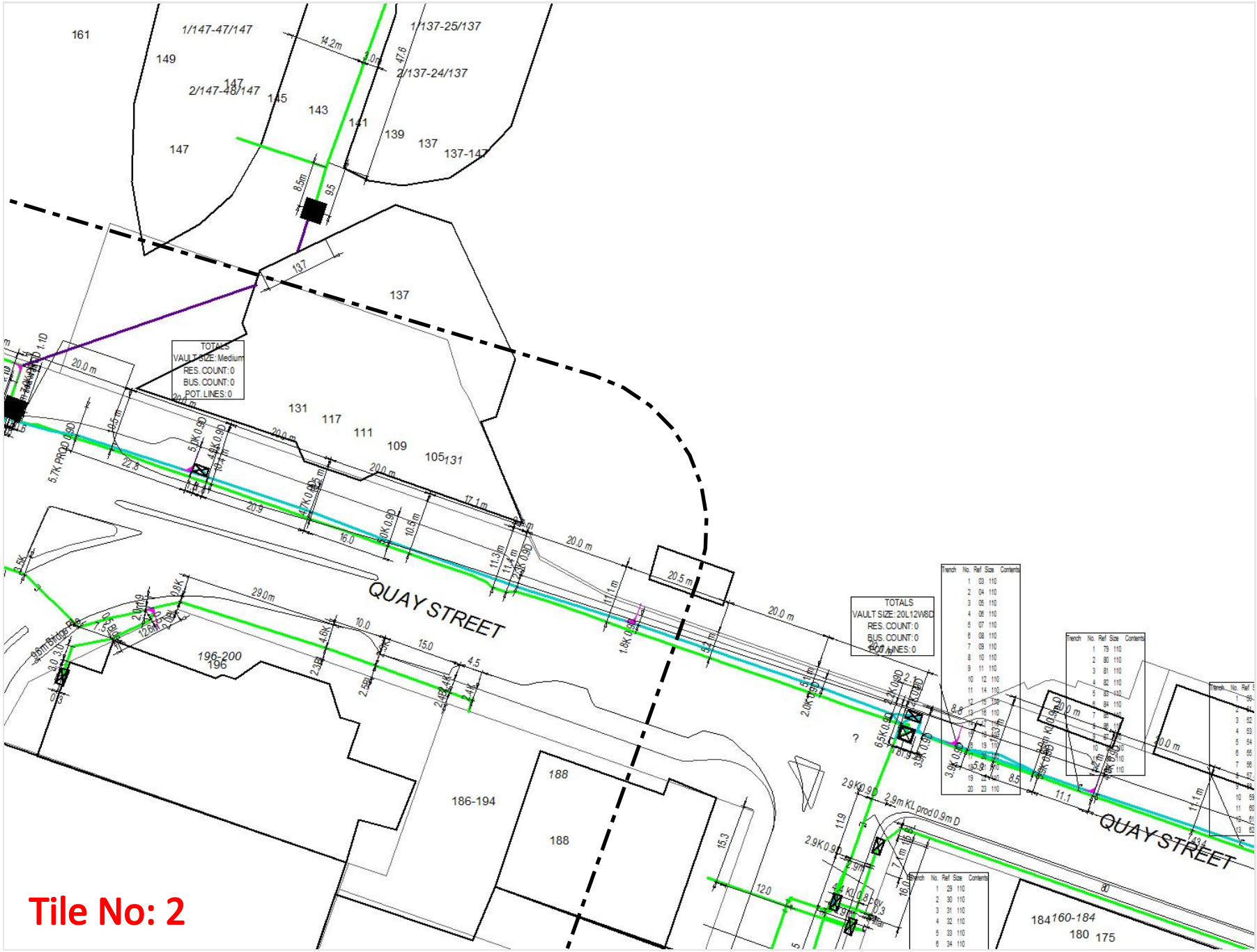
Job No: 2186124
Location: Hobson St, Auckland Central, Auckland 1010



Tile No: 2

Legend

- Existing Vodafone network cables, marked as:
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Scale: 1:1000
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Job No: 2186124
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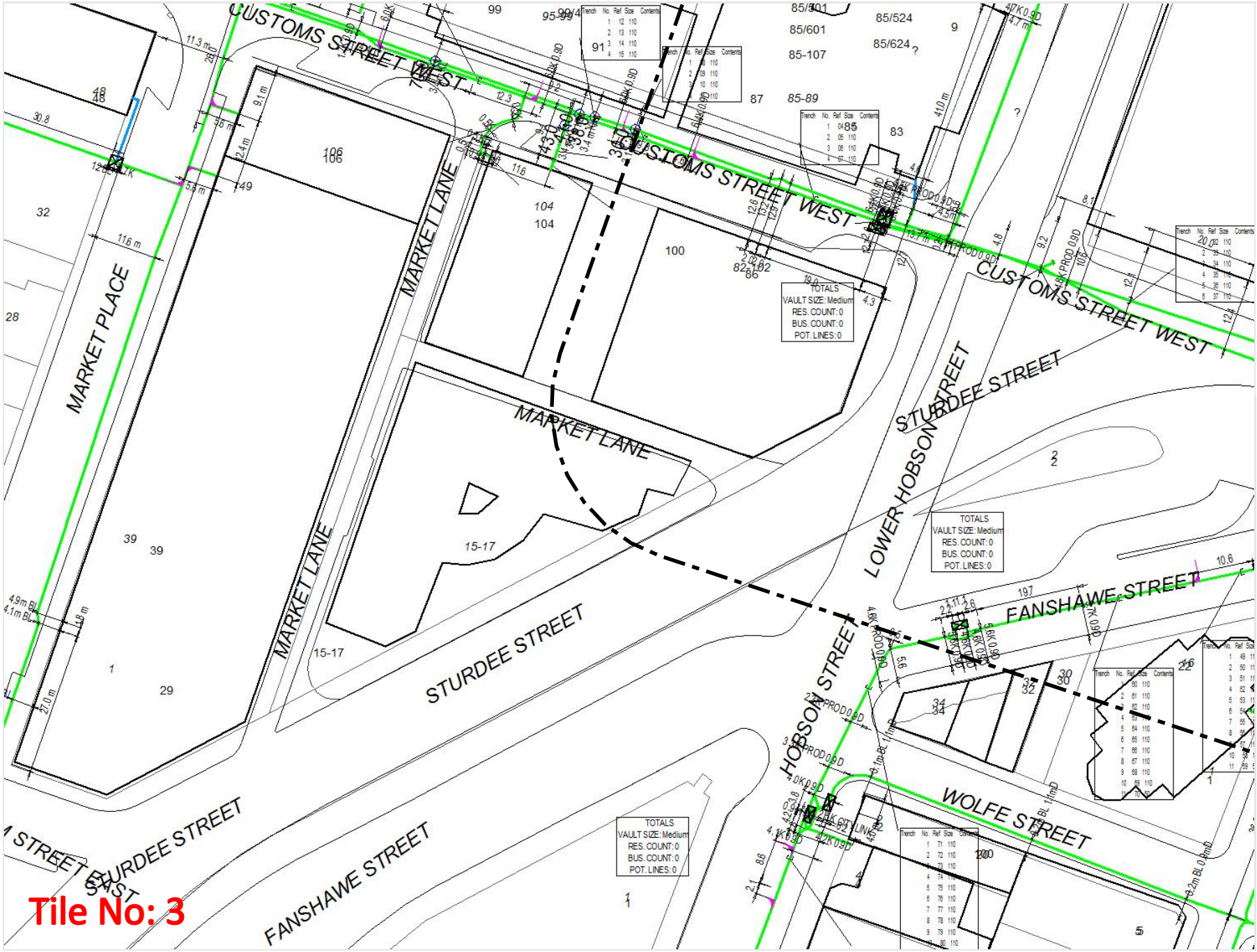

Legend

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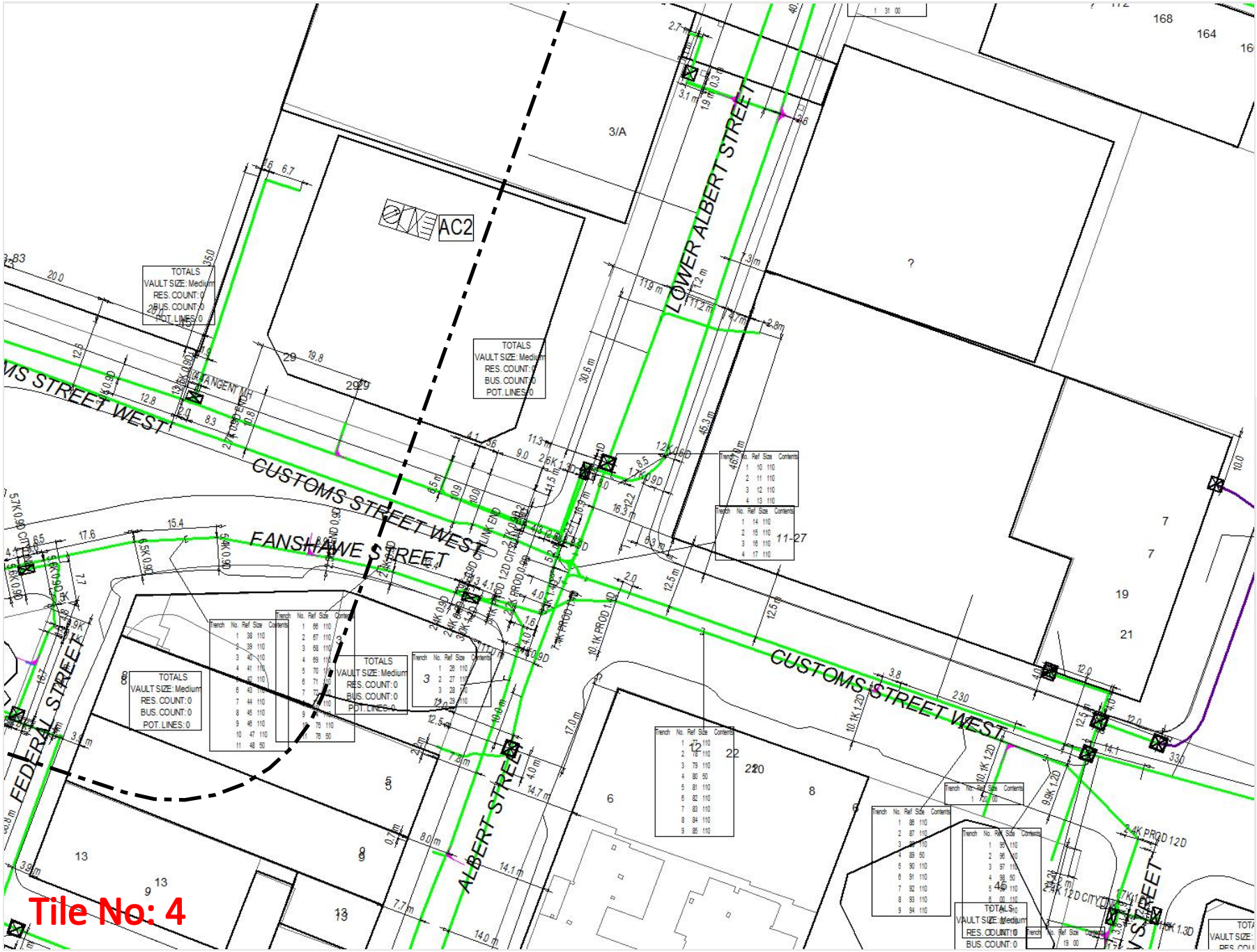

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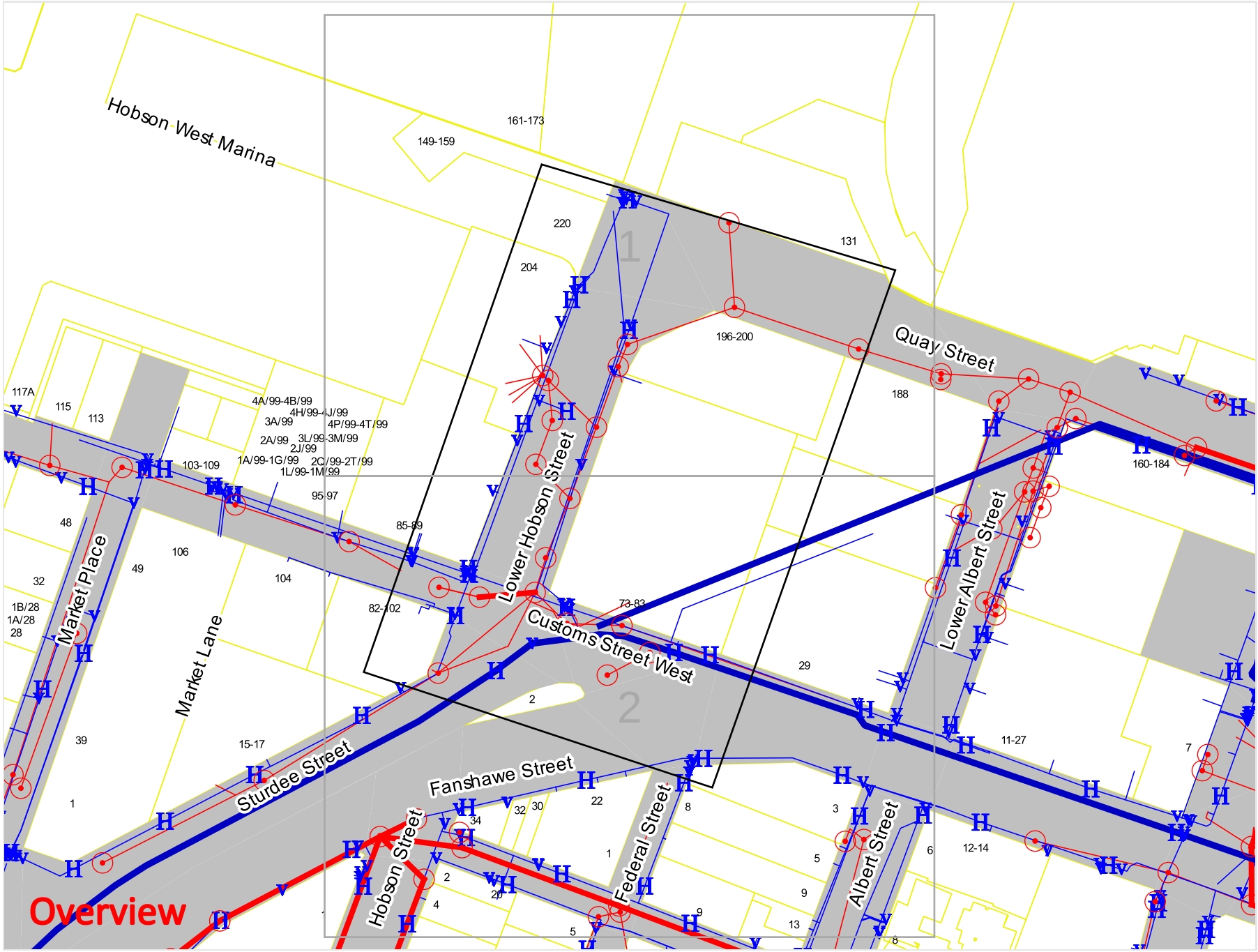
Watercare
An Auckland Council Organisation

Sequence No: 11197174
Job No: 2186124
Location: Hobson St

beforeUdig.co.nz



Legend

- Waste Water
- Water
- Electrical/Cathodic Protection
- V Valve
- H Hydrant
- M Water Meter
- Manhole

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Scale: 1:2050
Expires: 27 Apr 2023

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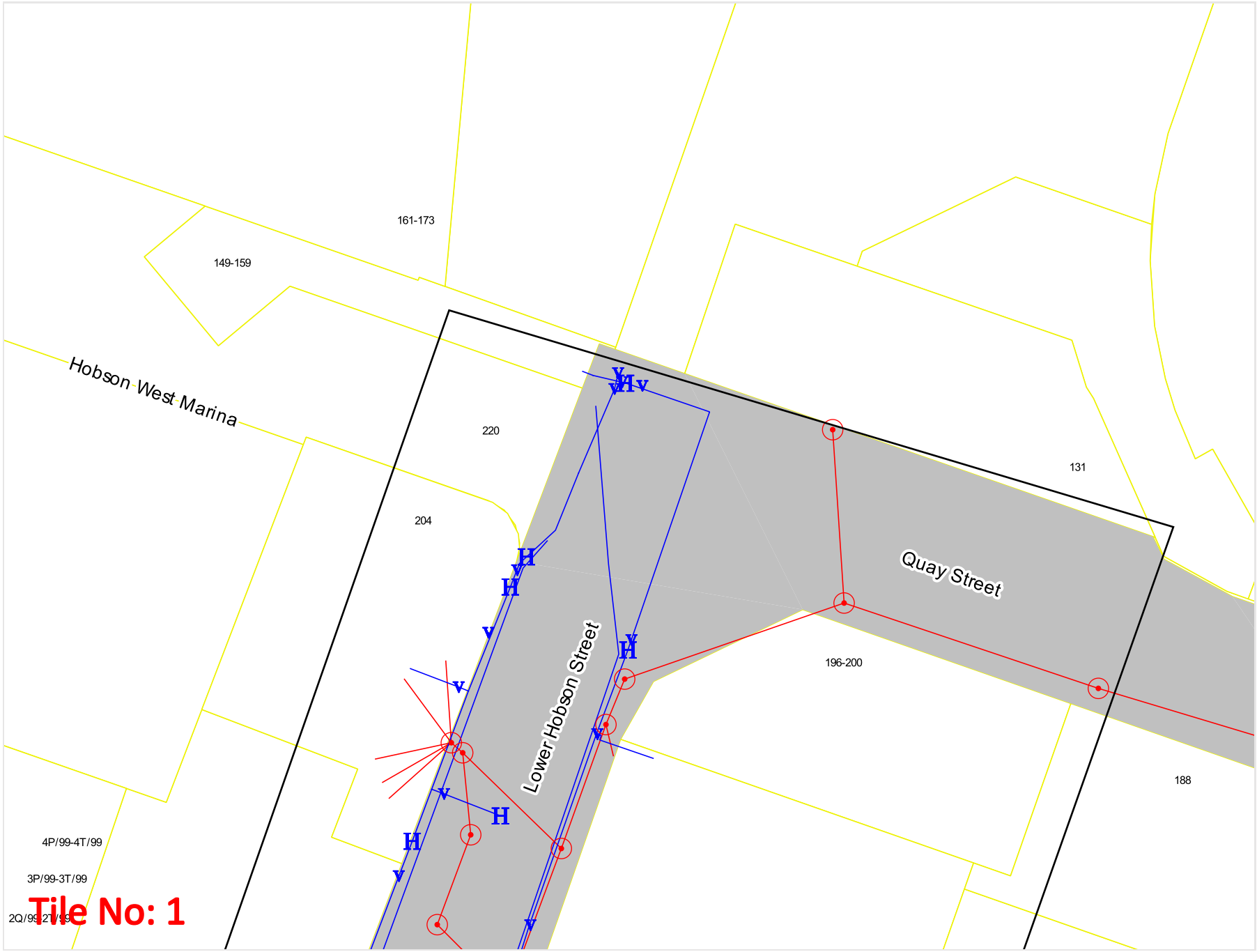
Watercare
An Auckland Council Organisation

Sequence No: 11197174
Job No: 2186124
Location: Hobson St

before u dig .co.nz



Legend

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- Manhole

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N

Scale: 1:1000
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Sequence No: 11197174
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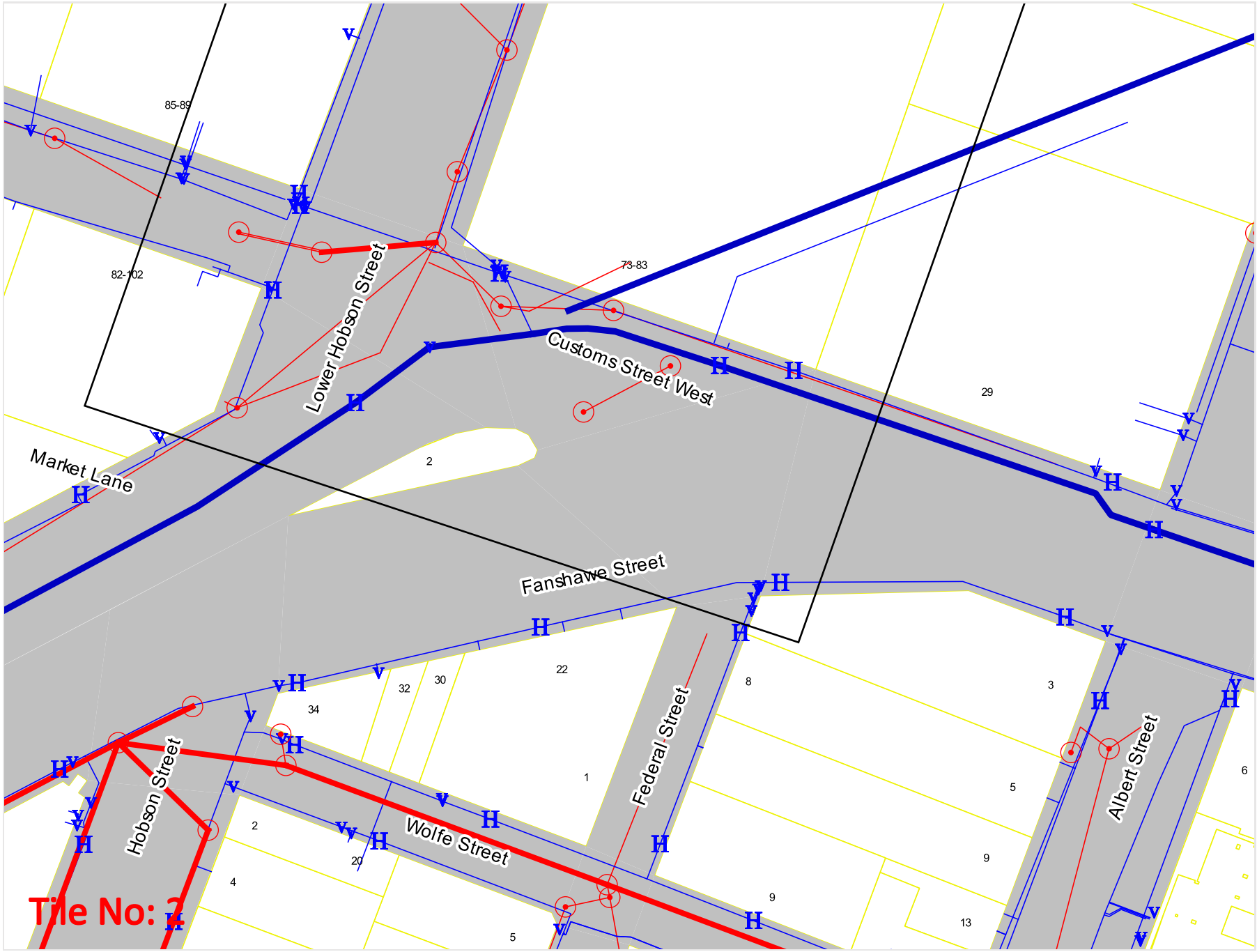

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CHORUS

WARNING: Buried services are widespread and it should be assumed that they are present until it is proven otherwise.
Cables should be expected to be found at ANY depth. In most instances Chorus plans do NOT show house service feeds on private property.
Refer to cover letter provided with your request for additional information - use all plans provided in conjunction with each other
You are responsible for interpreting the information provided and should refer to Worksafe.govt.nz for the 'Guide for safety with underground services'
For assistance contact Chorus Network Protection on 0800 822 003 or if you suspect damage has occurred contact 0800 463 896 opt 2

N

Plan Name	DJ17
Plan ID	326448
Version	HY
Current at	30/03/2023

DEL	CHKD	DATE	ISS	CHANGE
IEL	VS	17.07.19	125	MH,100mmp ADDED #QUAY ST(VS137662)
IEL	VS	23.12.19	126	5mmMD,BUILDING CODE ADDED AT 155 HALSEY ST(VS168897)
IEL	VS	20.01.20	127	20mmP,TLC CABINET ADDED AT 2 STURDEE ST(VS177380)
IEL	VS	07.02.20	128	HH,50mmP ADDED AT CUSTOMS STREET EAST(VS172204)
IEL	VS	28.02.20	129	100mmP,BUILDING CODE ADDED AT 7 QUEEN ST(VS155164)
IEL	VS	24.04.20	130	MH,BUILDING NAME ADDED #11-19 CUSTOMS ST WEST(VS155103)
RP	VS	19.06.20	131	ROADWORK PROJECT UPGRADE ALONG 1-15 ALBERT ST (VS174581)
IEL	VS	20.07.20	132	QA UPDATES ADDED AT 7 QUEEN ST(VS155164)
RP	VS	24.08.20	133	MH,CTY_1799 UPGRADED (VS189353)
IEL	VS	08.10.20	134	MH,100mmP ADDED AT 100 HALSEY ST(VS180414)
IEL	VS	19.11.20	135	QA UPDATES ADDED(VS180414)
WDI	VS	09.03.21	136	100mmP ADDED AT P1-4 LOWER ALBERT ST (VS164290)
IEL	VS	21.04.21	137	100mmP,FATNAME ADDED #QUARY ST(VS175334)
RP	VENTIA	30.07.21	138	4X100mmP, MH's AMENDED @ CNR CUSTOM ST & QUEEN ST (VS190412)
IEL	VS	21.12.16	108	TL40/740,TM27/538 REMOVED(VS82945)

DEL	CHKD	DATE	ISS	CHANGE
IEL	VS	21.12.16	109	TL17/657 REMOVED AT HALSEY ST (VS82945)
TUM	VS	27.02.17	110	MH,KET833 & MH,PRIVATE ADDED 139 PAKENHAM ST (VS93675)
POP	VS	04.04.17	111	TQ05/411 ADDED 30 GAUNT ST (VS103485)
TUM	VS	24.05.17	112	TQ05/586 & 50mmP ADDED 196 QUAY STREET (VS111280)
IK	VS	12.07.17	113	50mmP ADDED LOWER ALBERT ST (VS102312)
BC	UCG	28.07.17	114	100mmPs ADDED FROM MH 44 TO #45 QUEEN ST (24498)
IK	VS	04.08.17	115	6/100mmP ADDED QUEEN ST (VS104797)
IK	VS	15.08.17	116	6/100mmP ADDED QUEEN ST (VS104797)(CORRECTION)
IK	VS	09.09.17	117	4/100mmP & 3/75mmS REMOVED QUEEN ST (VS99797)
IK	VS	08.11.17	118	6/100mmP ADDED QUEEN ST (VS104797)(CORRECTION)
IK	VS	18.12.17	119	100mmP UPDATED QUAY ST (VS101606)
BC	UCG	09.03.18	120	50mmP DUCT TEE ADDED #20 WOLFE ST (31251)
IEL	VS	06.07.18	121	MANHOLE,100mmP ADDED AT PAKENHAM ST (VS76558)
IEL	VS	03.10.18	122	MANHOLE,100mmP ADDED AT 132 HALSEY ST(VS103075)
IEL	VS	11.10.18	123	QA UPDATES ARE ADDED (VS103075)
IEL	VS	30.11.18	124	QA UPDATES ARE ADDED (VS103075)

AUCKLAND CITY

UNDERGROUND TELEPHONE CABLE SYSTEM

CAUTION

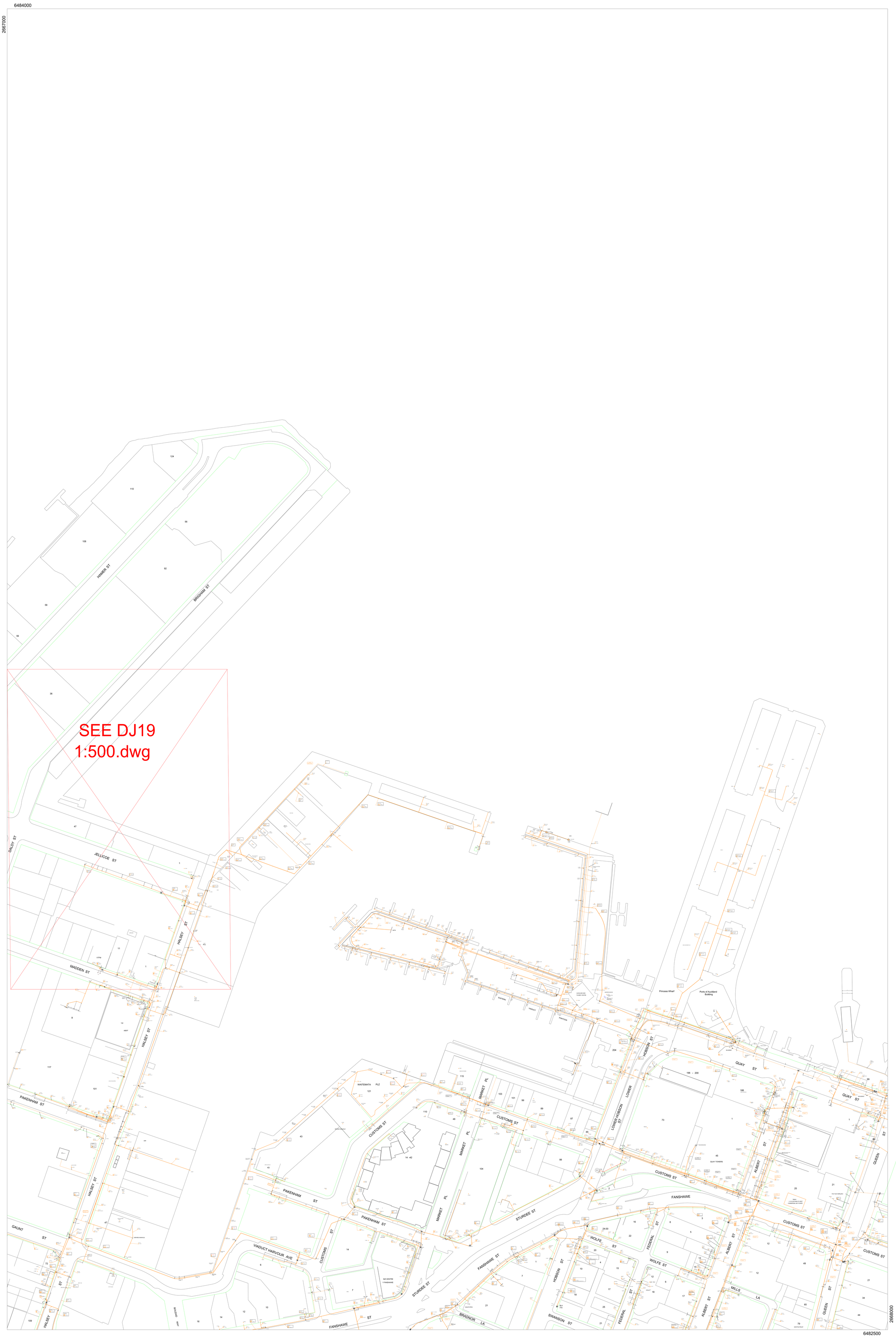
POSITIONAL MEASUREMENTS ARE SUBJECT TO REASONABLE TOLERANCE. COVER AT INSTALLATION WAS : ROADWAY 0.50m FOOTWAY O.35m. UNLESS SHOWN OTHERWISE
NOTE: COVER MAY HAVE CHANGED AND MUST BE CHECKED ON SITE.

ORIGINAL SCALE: 1:2000 A1

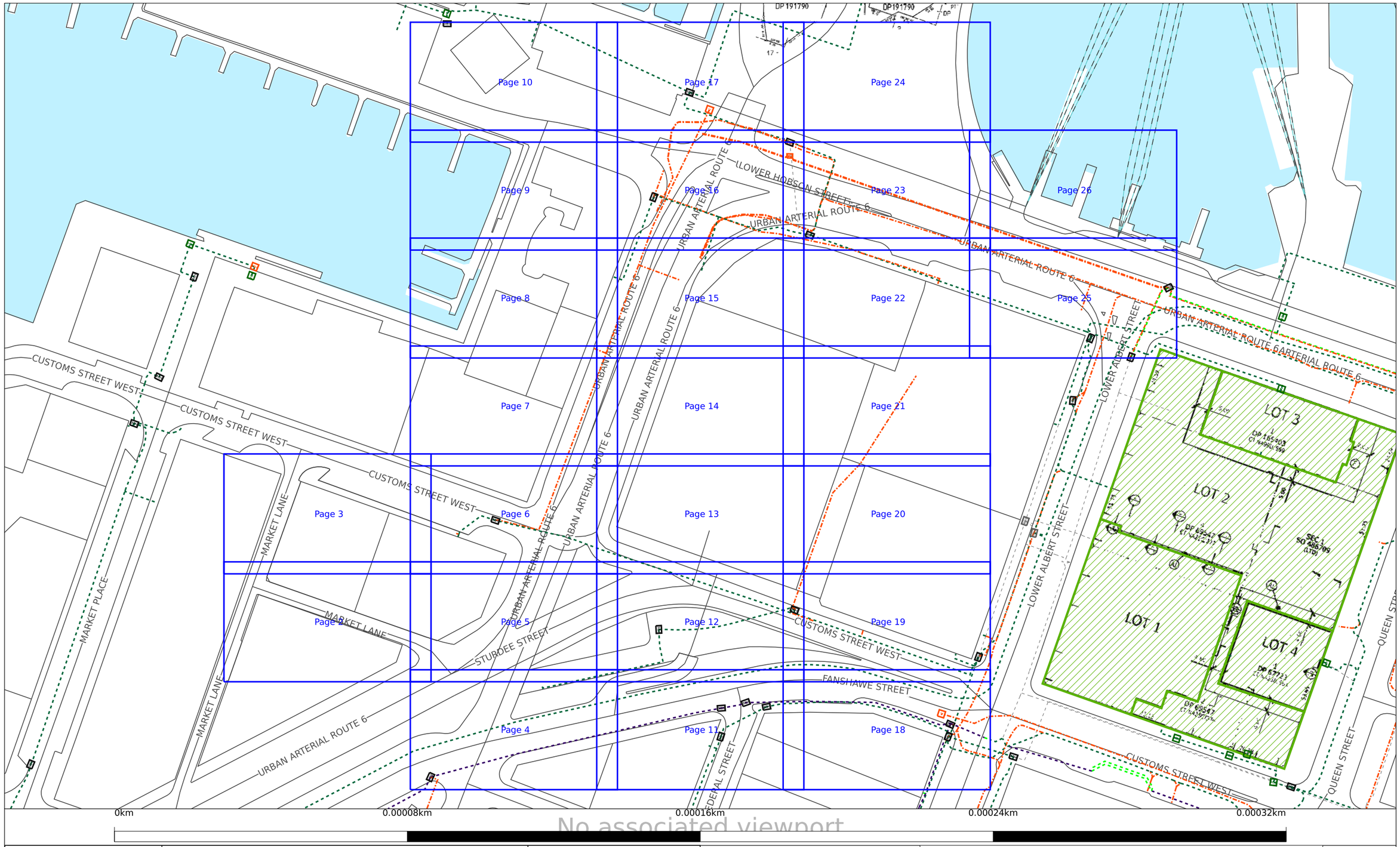
TELECOM CORPORATION OF NEW ZEALAND LTD.

NZMG REF: R11-20

TCNZ SHT. No. DJ17



DE17		DN17
DE21	DJ21	DN21



No associated viewport

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In the event of damage to equipment please remain clear of the area and immediately phone:

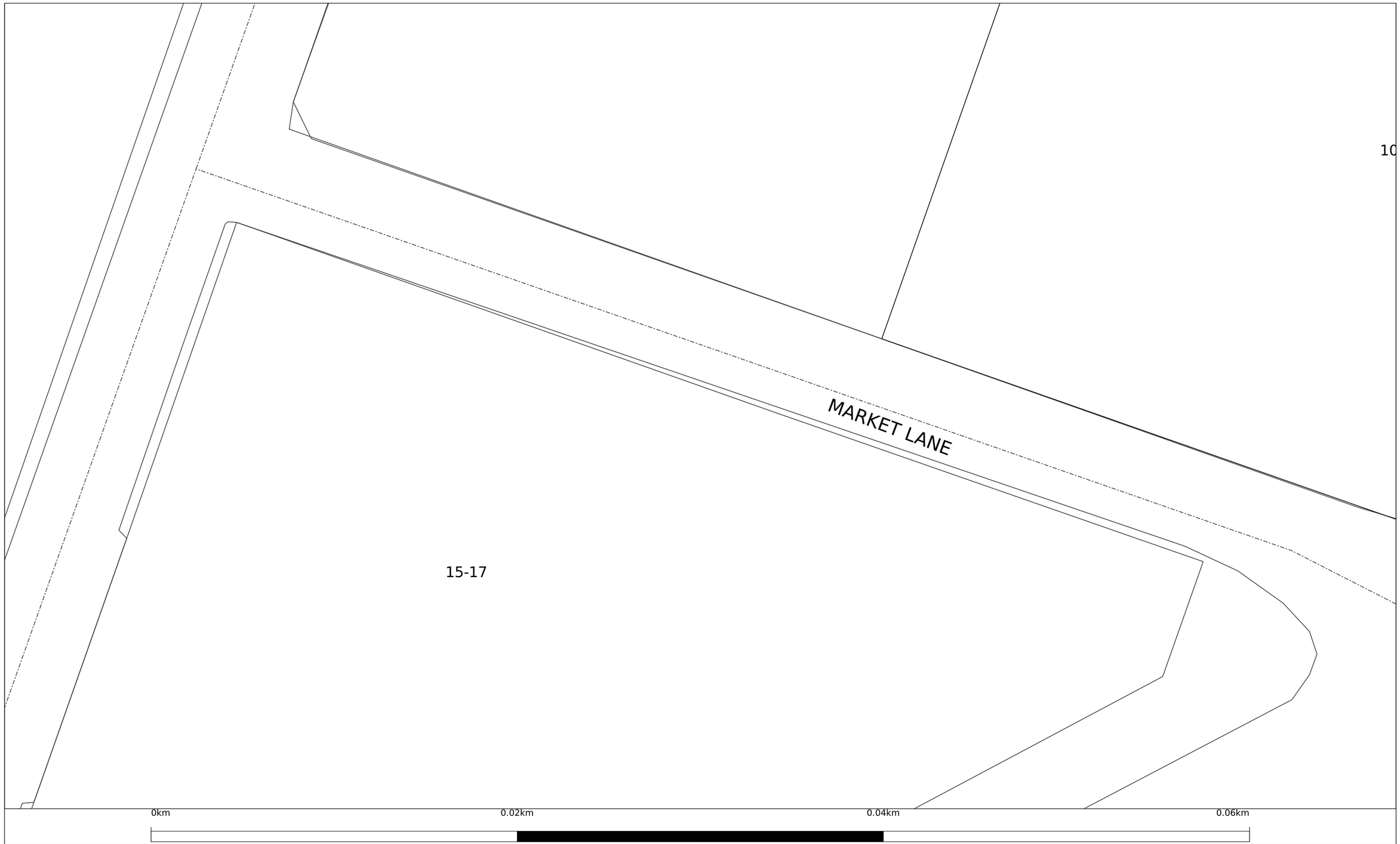
Electricity - 0508 VECTOR (0508 832 867)

Gas - Auckland area call us on 0800 764 764. If you hit a gas pipeline in the rest of the North Island call FIRST GAS on 0800 800 393. If you hit a gas transmission pipeline call FIRST GAS on 0800 734 567

Communication Cable - 0800 826 436

Title:	
Company Name:	
Customer Contact:	
Output: Page 1	No associated viewport
Printed by: sw-cloud-user	Date printed: 29/03/2023

No associated viewport



Vector communications

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In the event of damage to equipment please remain clear of the area and immediately phone:

Electricity - 0508 VECTOR (0508 832 867)

Gas - Auckland area call us on 0800 764 764. If you hit a gas pipeline in the rest of the North Island call FIRST GAS on 0800 800 393. If you hit a gas transmission pipeline call FIRST GAS on 0800 734 567

Communication Cable - 0800 826 436

Title:	
Company Name:	
Customer Contact:	
Output: Page 2	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

Strand & Structure [Gis]

- - - - Underground Route.Route Act. - Trench

N W E S

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Communication Cable - 0800 826 436

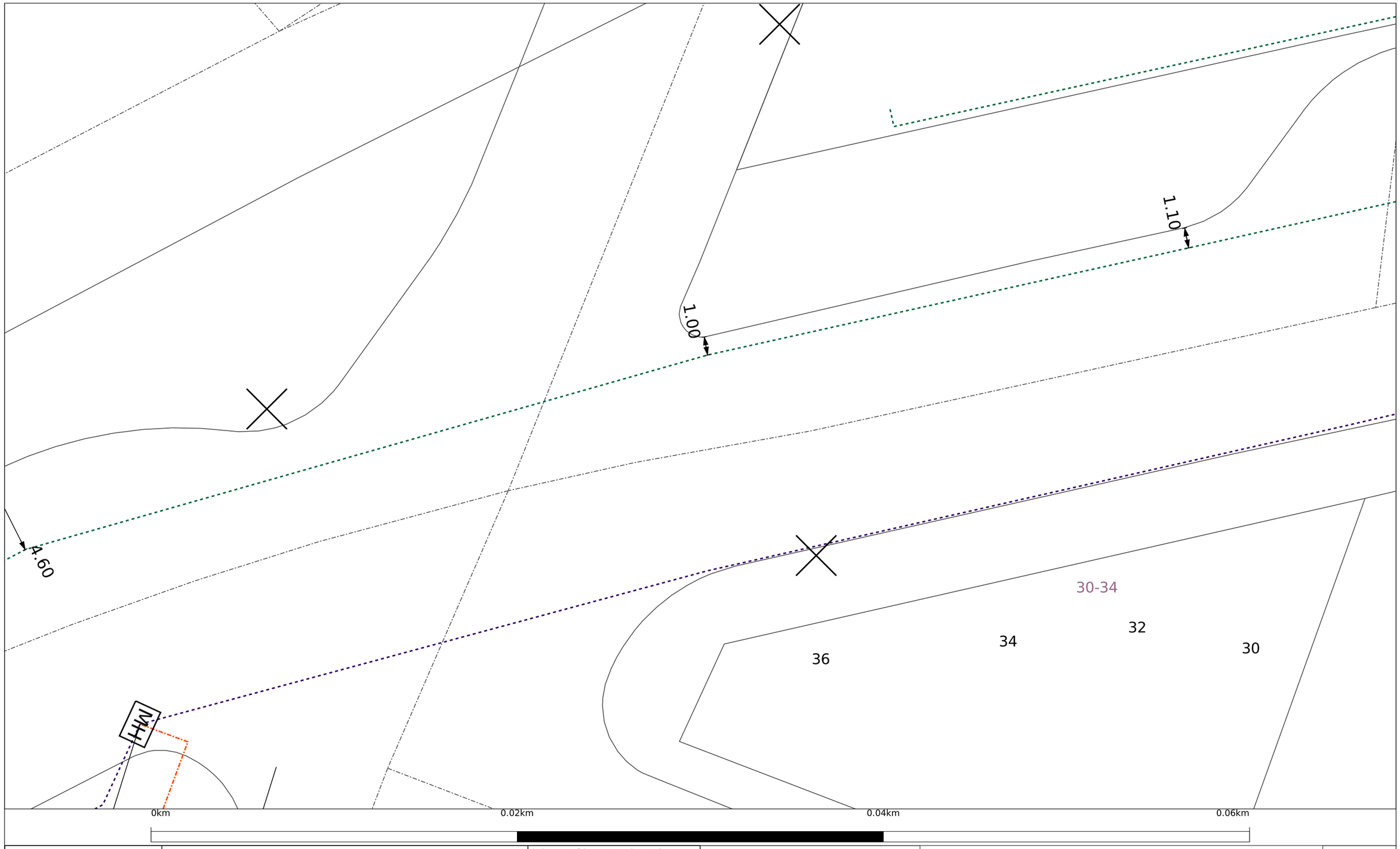
Title:	
Company Name:	
Customer Contact:	
Output: Page 3	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

Strand & Structure [Gis]

- - - - Underground Route.Route Act. - Trench

N W E S



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Communication Cable - 0800 826 436

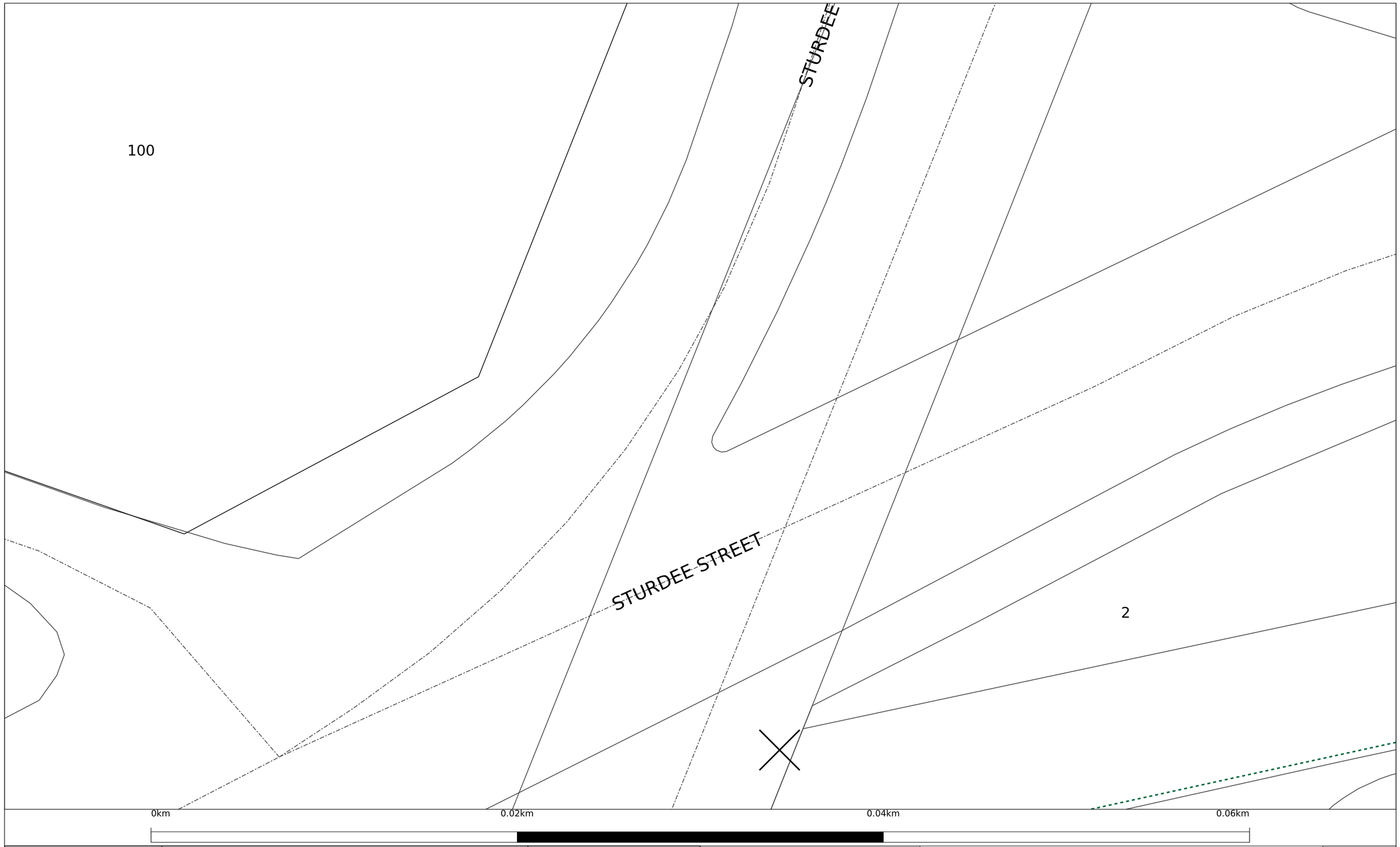
Title:	
Company Name:	
Customer Contact:	
Output: Page 4	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

Strand & Structure [Gis]

- Pole.Location Inact., T02
- Underground Route.Route Act. - Gas Standby Main
- Underground Route.Route Act. - Trench
- Underground Route.Route Inact. - Installed In-Place
- MH Underground Utility Box.Location Act., T03

N W E S



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Communication Cable - 0800 826 436

Title:	
Company Name:	
Customer Contact:	
Output: Page 5	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

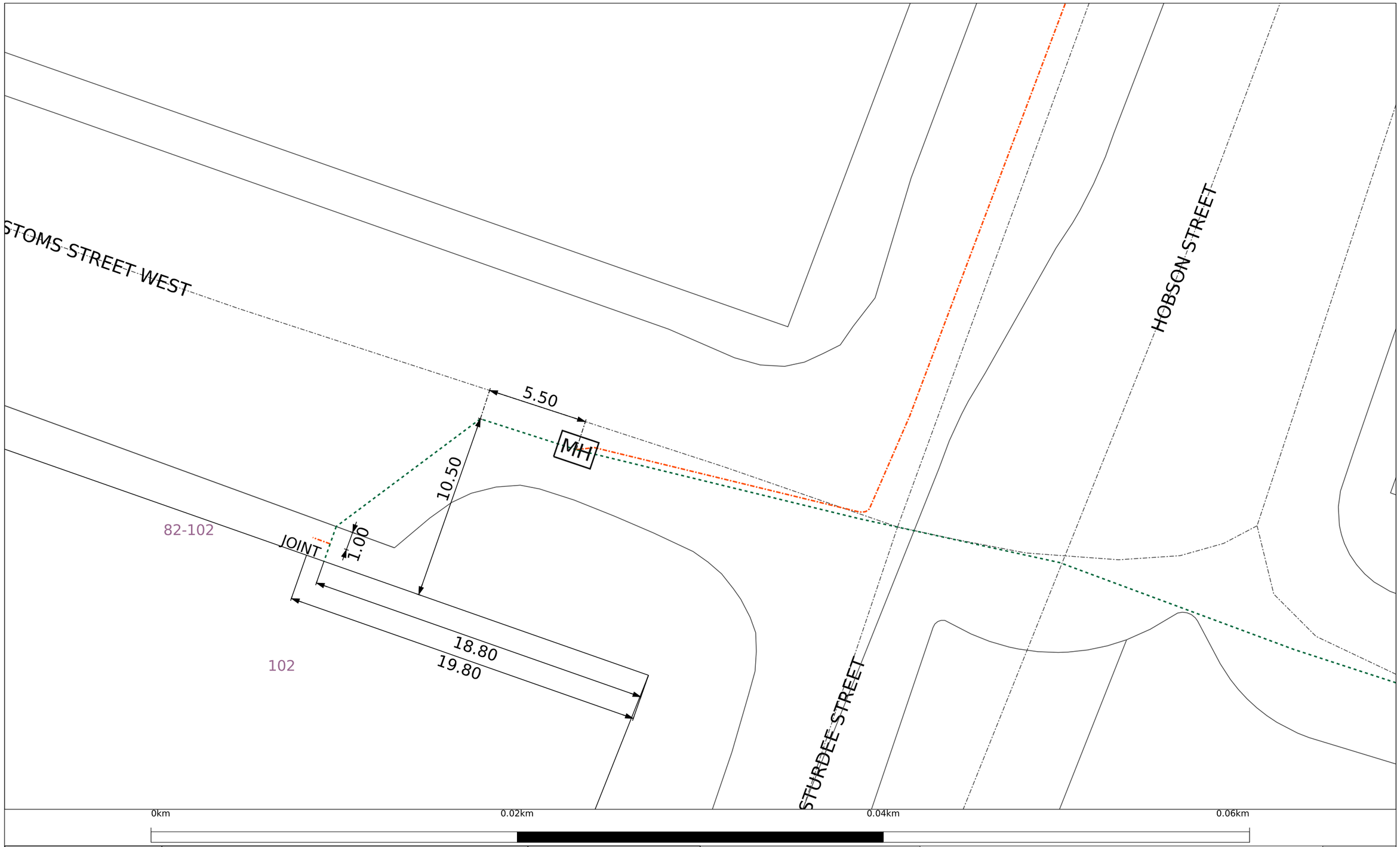
Legend

Strand & Structure [Gis]

Pole.Location Inact., T02

Underground Route.Route Act. - Trench

N E S W



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Communication Cable - 0800 826 436

Title:	
Company Name:	
Customer Contact:	
Output: Page 6	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

Strand & Structure [Gis]
Underground Route.Route Act. - Trench
Underground Route.Route Inact. - Installed In-Place
MH Underground Utility Box.Location Act., T03

N W E S

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Communication Cable - 0800 826 436

Title:	
Company Name:	
Customer Contact:	
Output: Page 7	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

Strand & Structure [Gis]

Underground Route.Route Inact. - Installed In-Place

N
W
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Communication Cable - 0800 826 436

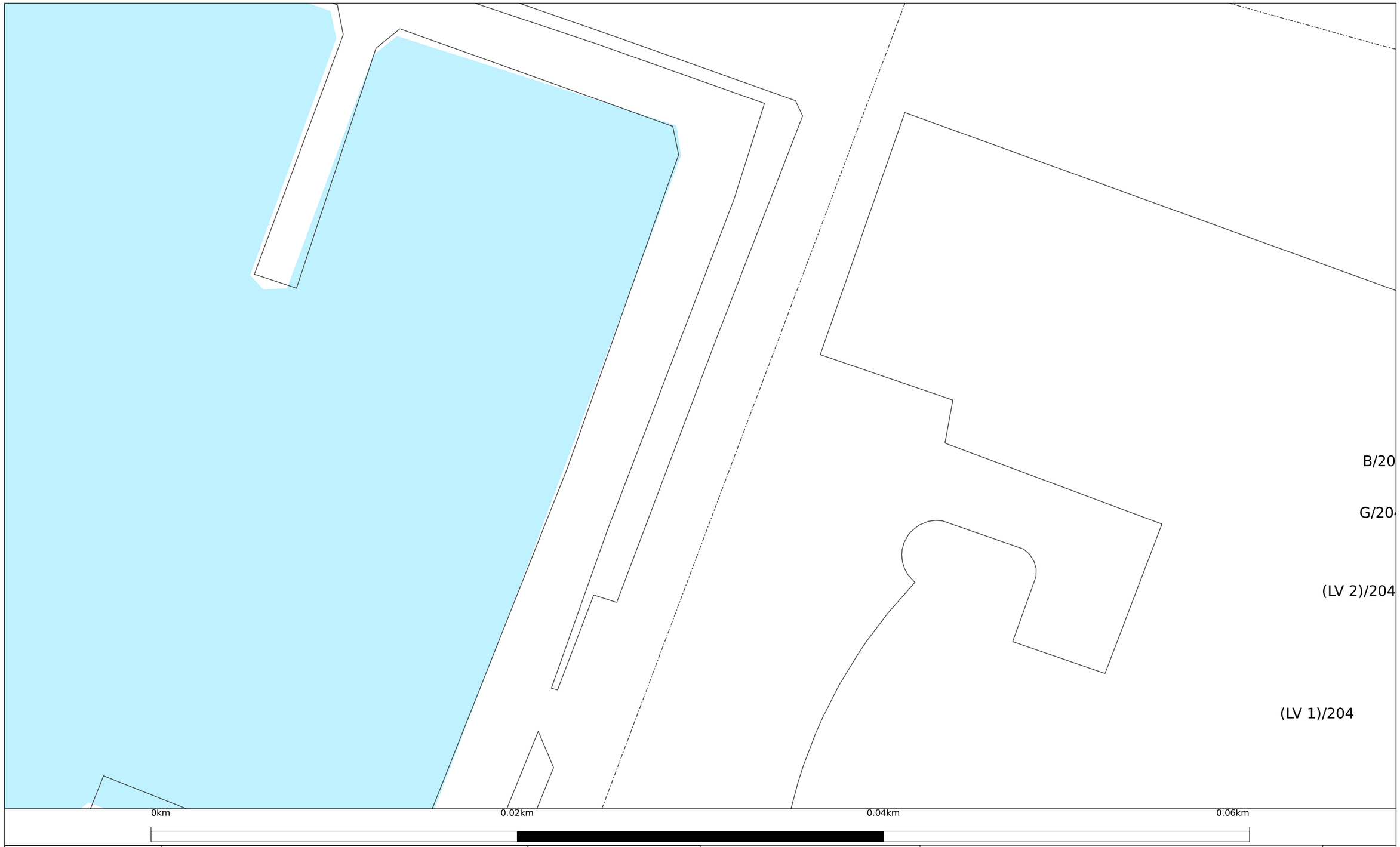
Title:	
Company Name:	
Customer Contact:	
Output: Page 8	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

Strand & Structure [Gis]

- Underground Route.Route Act. - Trench
- Underground Route.Route Inact. - Installed In-Place

N W E S



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Communication Cable - 0800 826 436

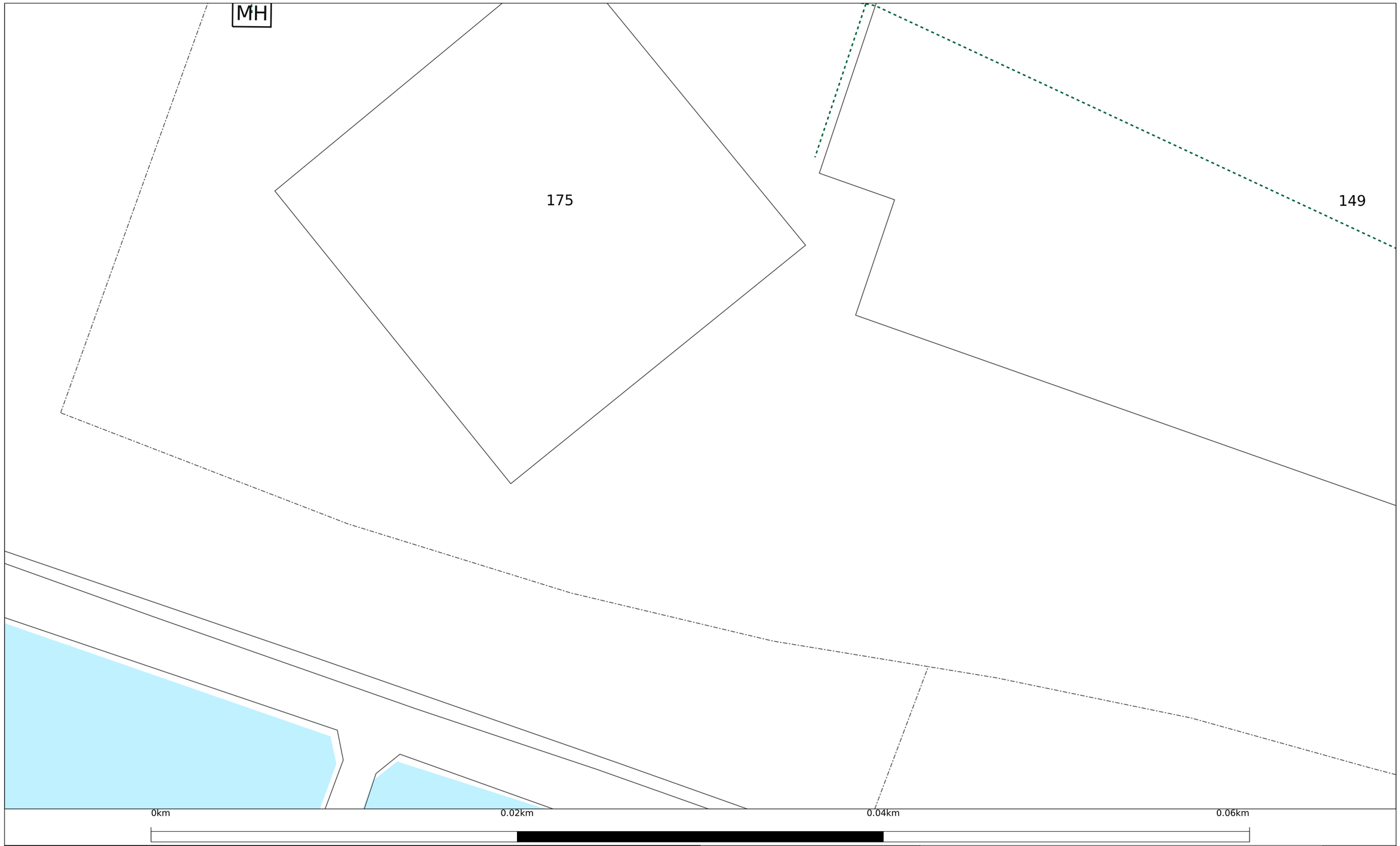
Title:	
Company Name:	
Customer Contact:	
Output: Page 9	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

Strand & Structure [Gis]

Underground Route.Route Act. - Trench

N W E S



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Communication Cable - 0800 826 436

Title:	
Company Name:	
Customer Contact:	
Output: Page 10	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

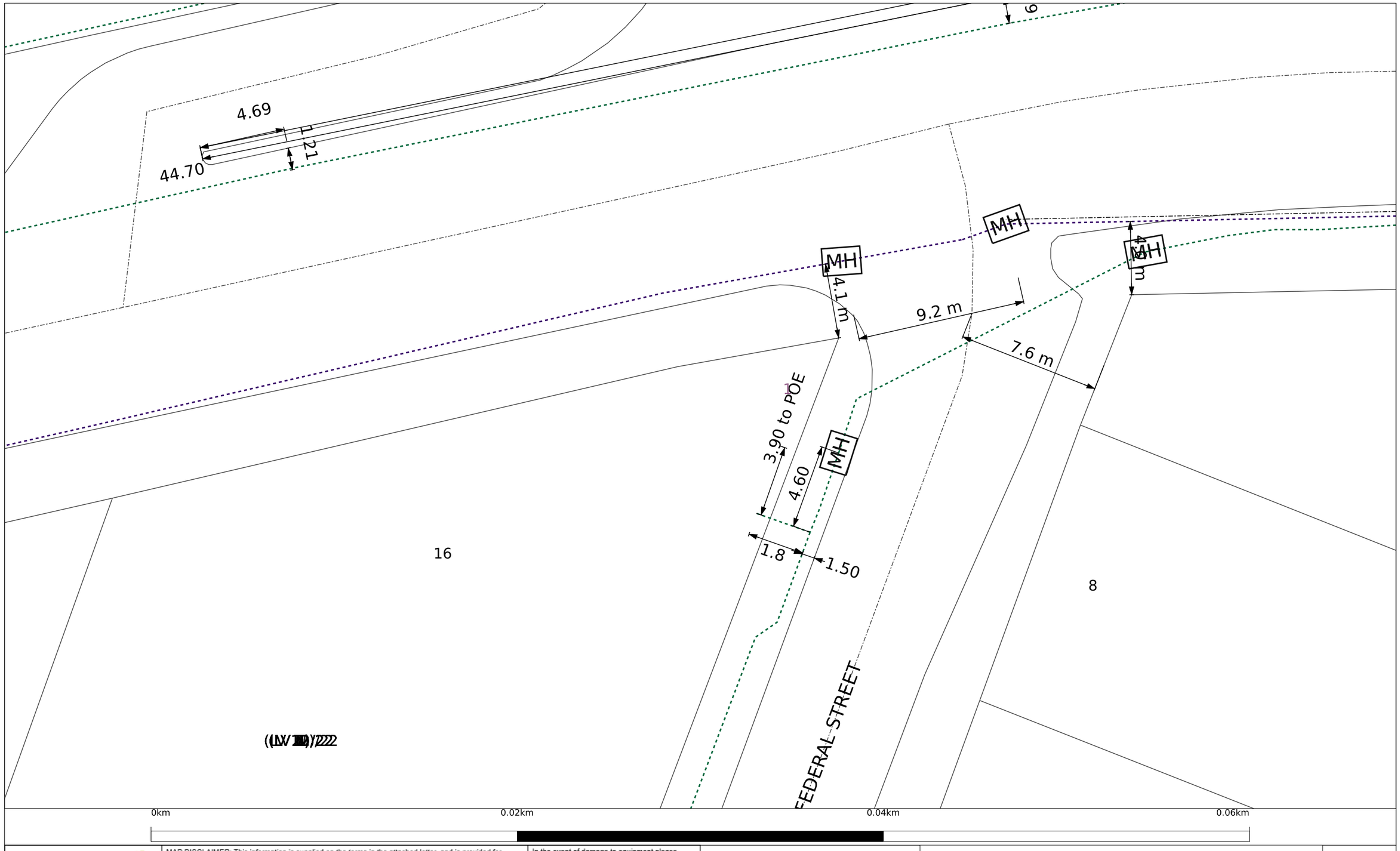
Legend

Strand & Structure [Gis]

Underground Route.Route Act. - Trench

MH Underground Utility Box.Location Act., T03

N W E S



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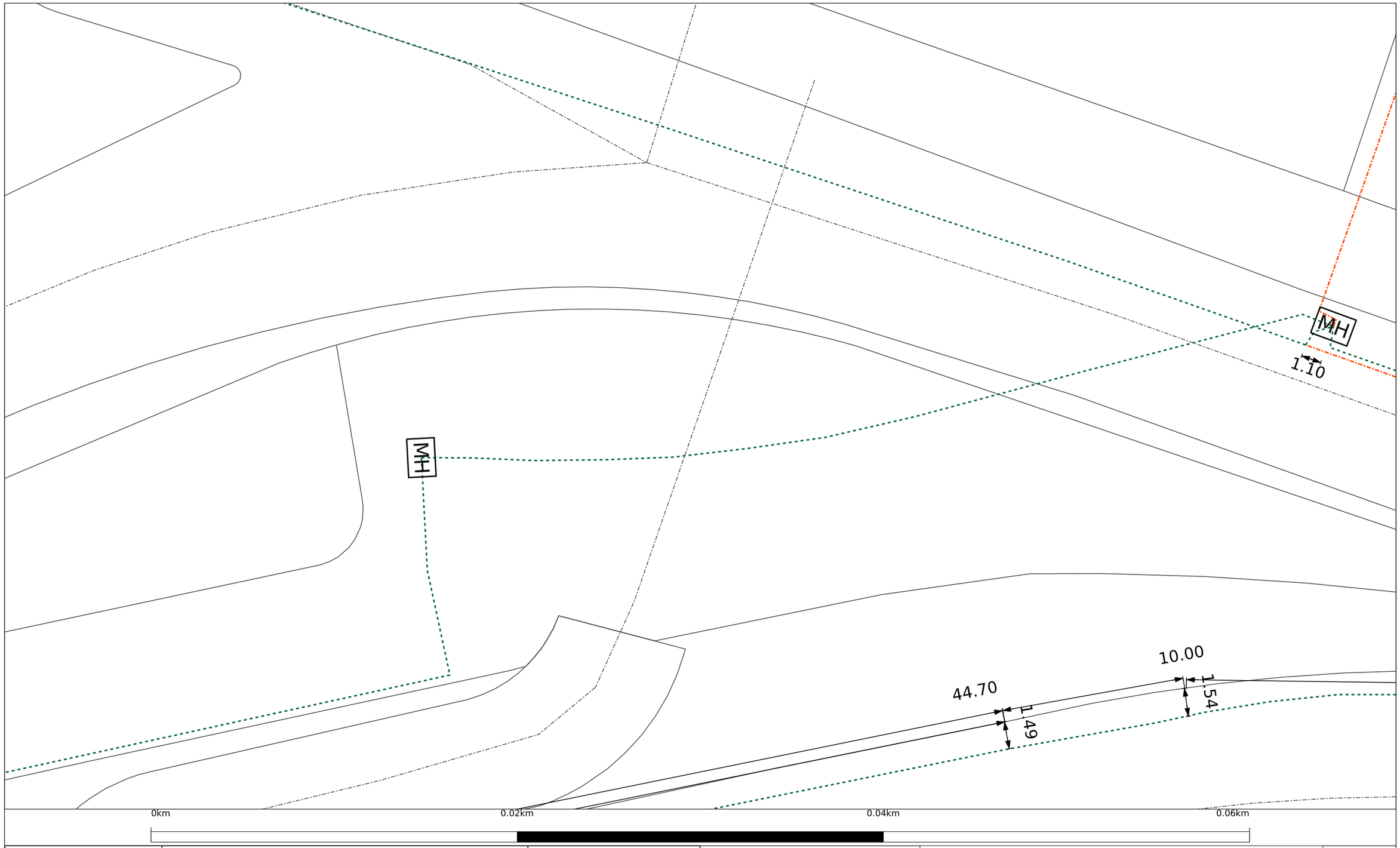
Title:	
Company Name:	
Customer Contact:	
Output: Page 11	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

- Strand & Structure [Gis]
- Underground Route.Route Act. - Gas Standby Main
- Underground Route.Route Act. - Trench
- MH Underground Utility Box.Location Act., T03

N W E S



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Title:	
Company Name:	
Customer Contact:	
Output: Page 12	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

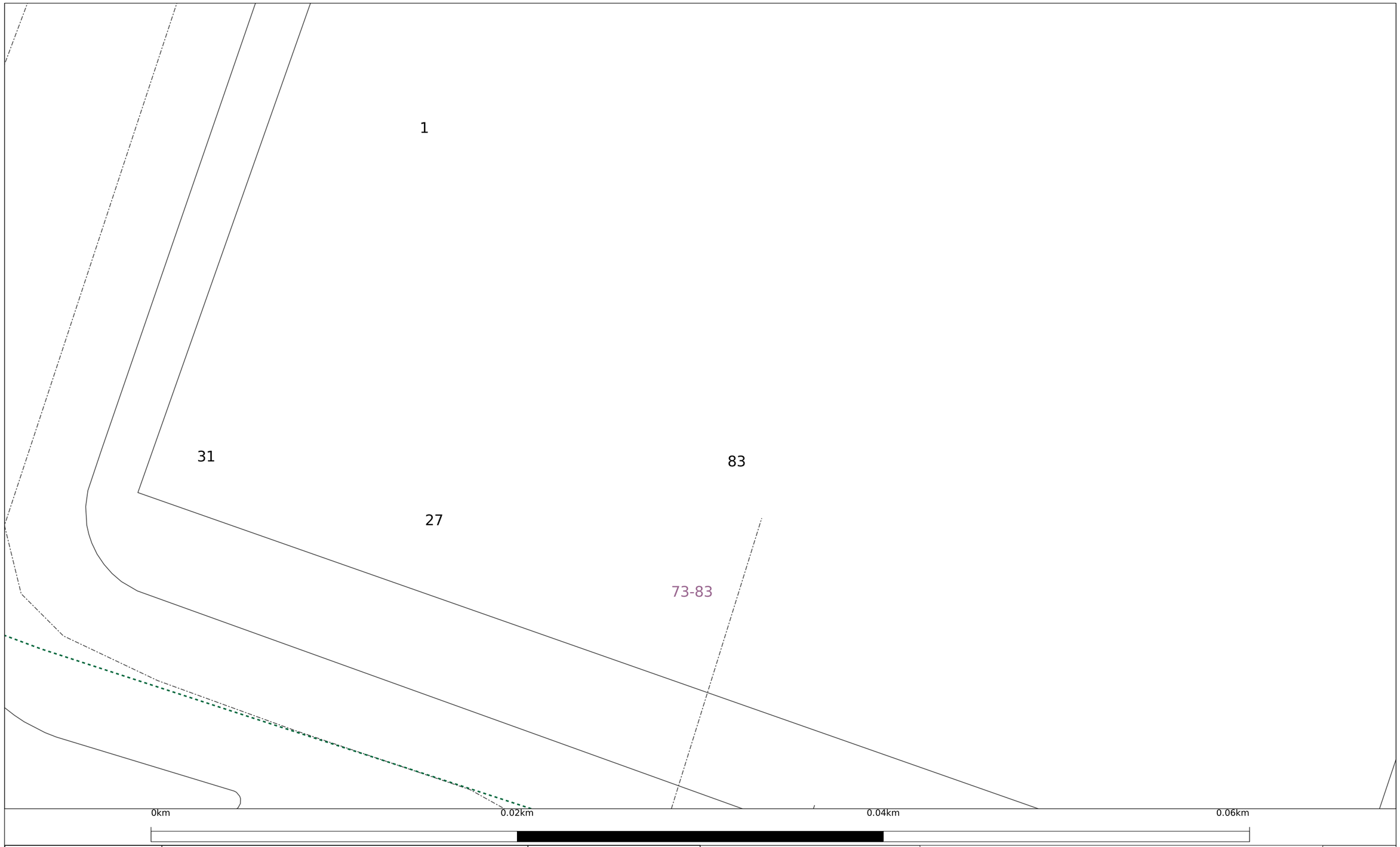
Strand & Structure [Gis]

Underground Route.Route Act. - Trench

Underground Route.Route Inact. - Installed In-Place

MH Underground Utility Box.Location Act., T03

N W E S



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Title:	
Company Name:	
Customer Contact:	
Output: Page 13	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

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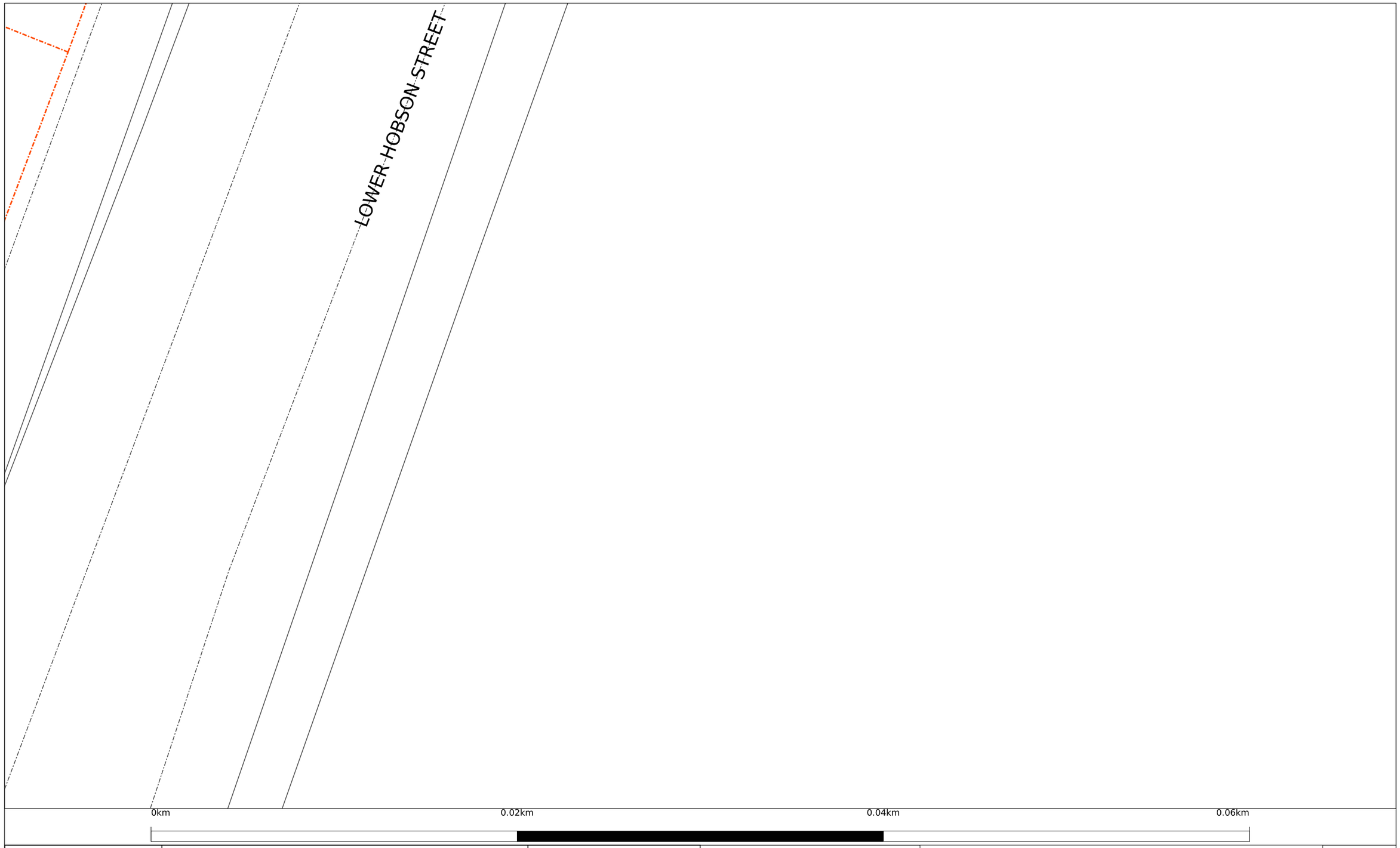

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Communication Cable - 0800 826 436

Title:

Company Name:

Customer Contact:

Output: Page 14 | Scale: 1:200

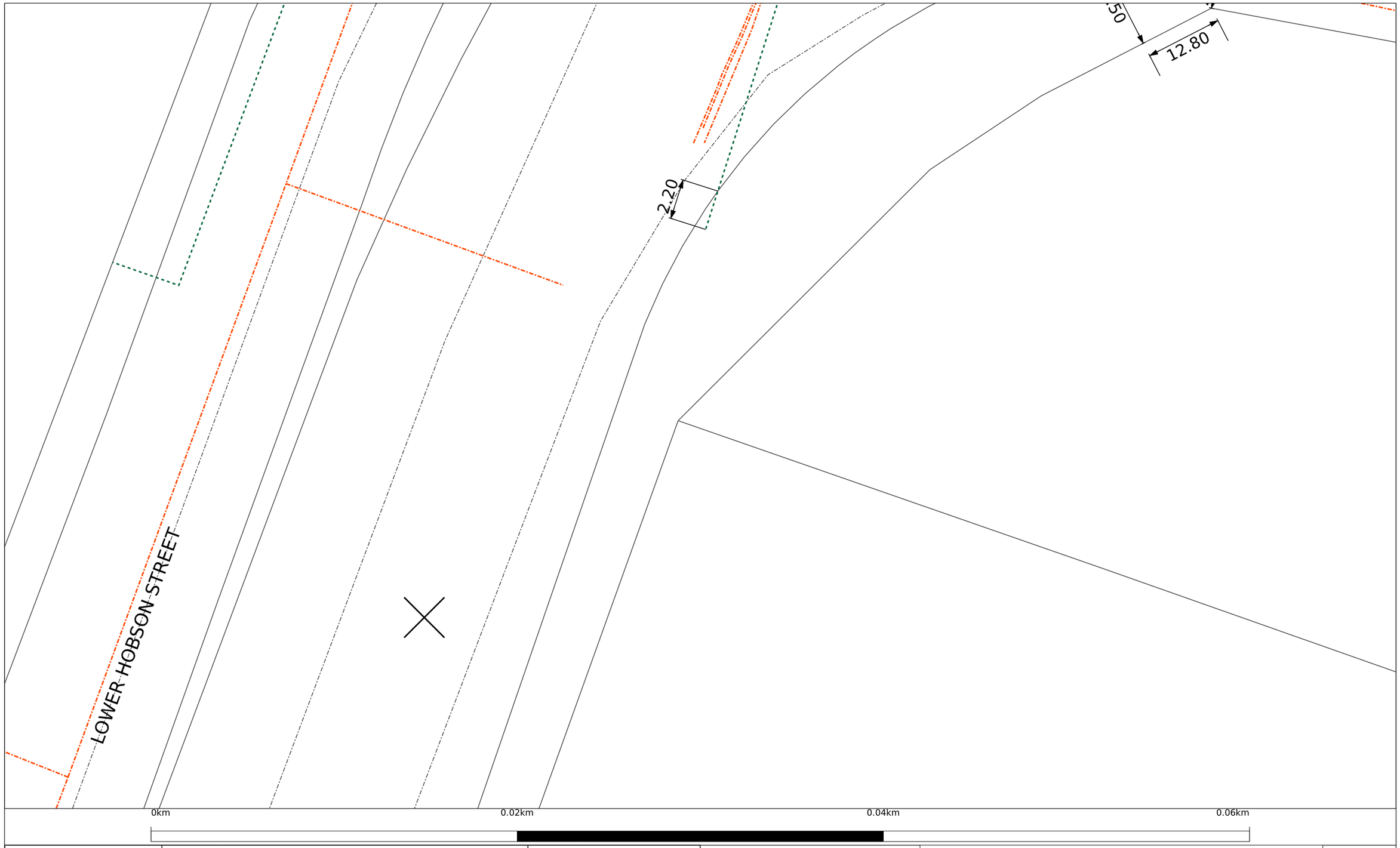
Printed by: sw-cloud-user | Date printed: 29/03/2023

Legend

Strand & Structure [Gis]

Underground Route.Route Inact. - Installed In-Place

N W E S



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Electricity - 0508 VECTOR (0508 832 867)

Gas - Auckland area call us on 0800 764 764. If you hit a gas pipeline in the rest of the North Island call FIRST GAS on 0800 800 393. If you hit a gas transmission pipeline call FIRST GAS on 0800 734 567

Communication Cable - 0800 826 436

Title:	
Company Name:	
Customer Contact:	
Output: Page 15	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

Strand & Structure [Gis]
Pole.Location Inact., T02

Underground Route.Route Act. - Trench
Underground Route.Route Inact. - Installed In-Place

N
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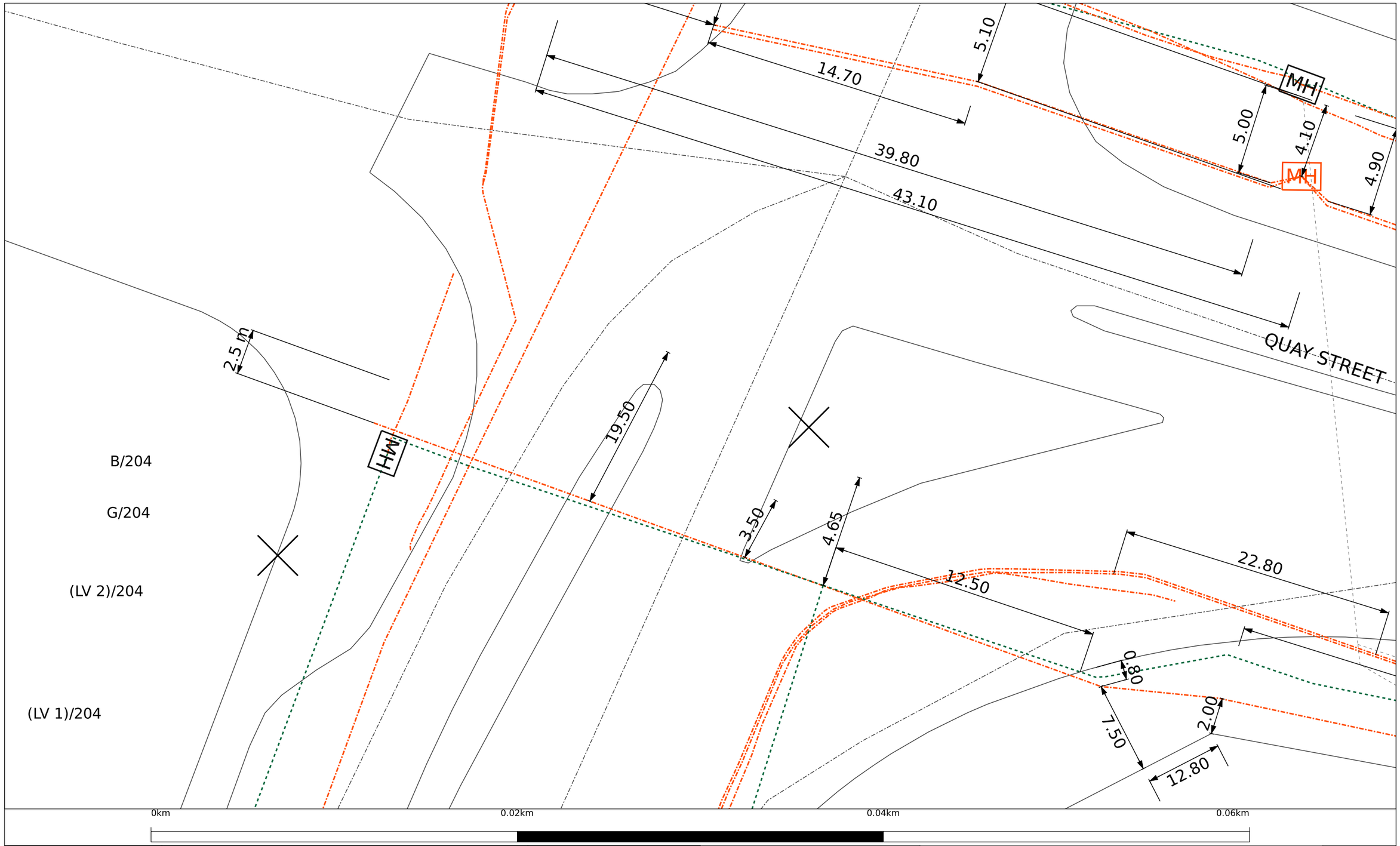

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Gas - Auckland area call us on 0800 764 764. If you hit a gas pipeline in the rest of the North Island call FIRST GAS on 0800 800 393. If you hit a gas transmission pipeline call FIRST GAS on 0800 734 567

Communication Cable - 0800 826 436

Title:

Company Name:

Customer Contact:

Output: Page 16

Scale: 1:200

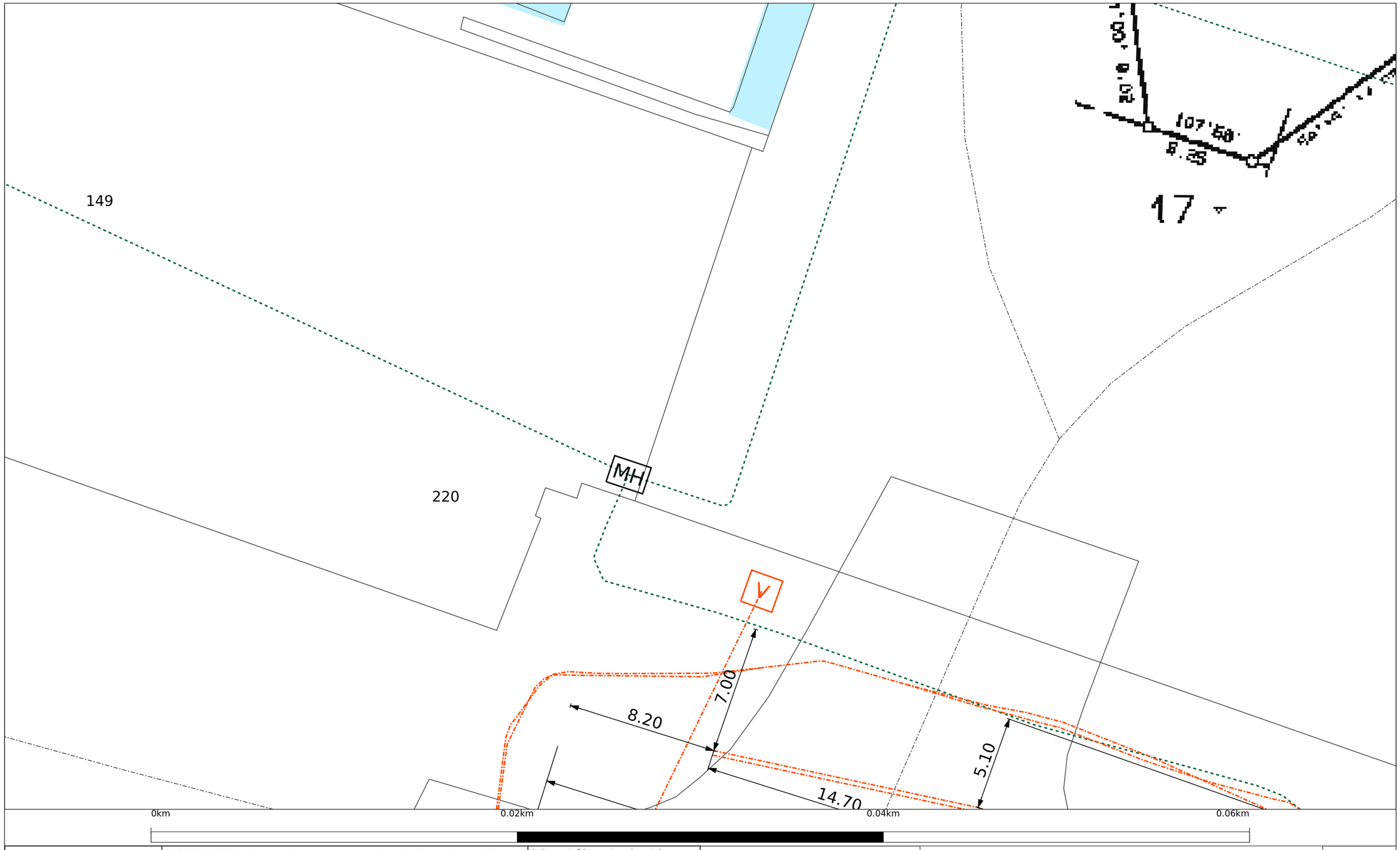
Printed by: sw-cloud-user

Date printed: 29/03/2023

Legend

Strand & Structure [Gis]
- Pole.Location Inact., T02
- Underground Route.Route Aband.
- Underground Route.Route Act. - Trench
- Underground Route.Route Inact. - Installed In-Place
- Underground Utility Box.Location Act., T03
- Underground Utility Box.Location Inact., T03 - Installed In-Place

N W E S



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Communication Cable - 0800 826 436

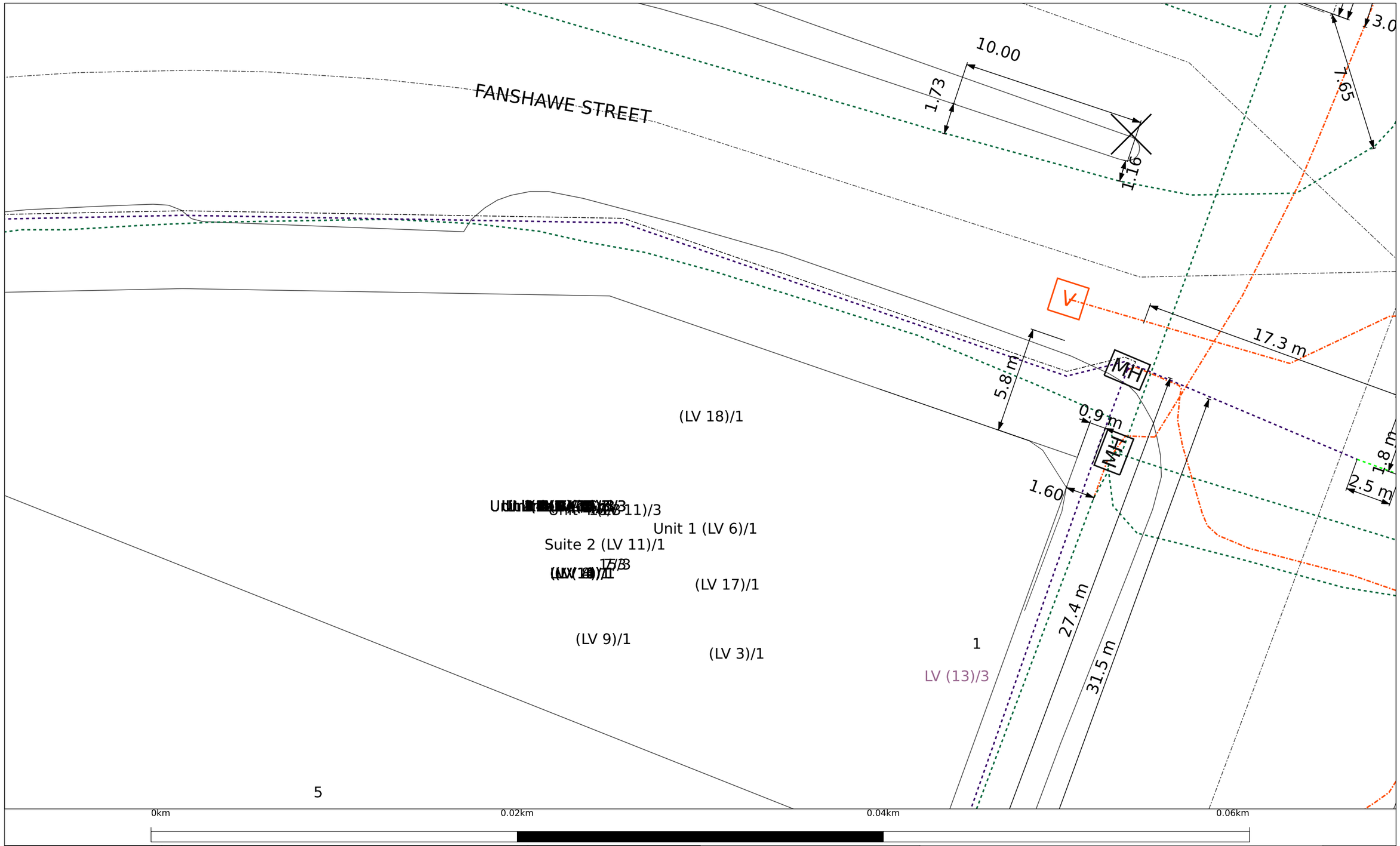
Title:	
Company Name:	
Customer Contact:	
Output: Page 17	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

Strand & Structure [Gis]

- Underground Route.Route Act. - Trench
- Underground Route.Route Inact. - Installed In-Place
- Underground Utility Box.Location Act., T03
- Underground Utility Box.Location Inact., T02 - Installed In-Place

N W E S



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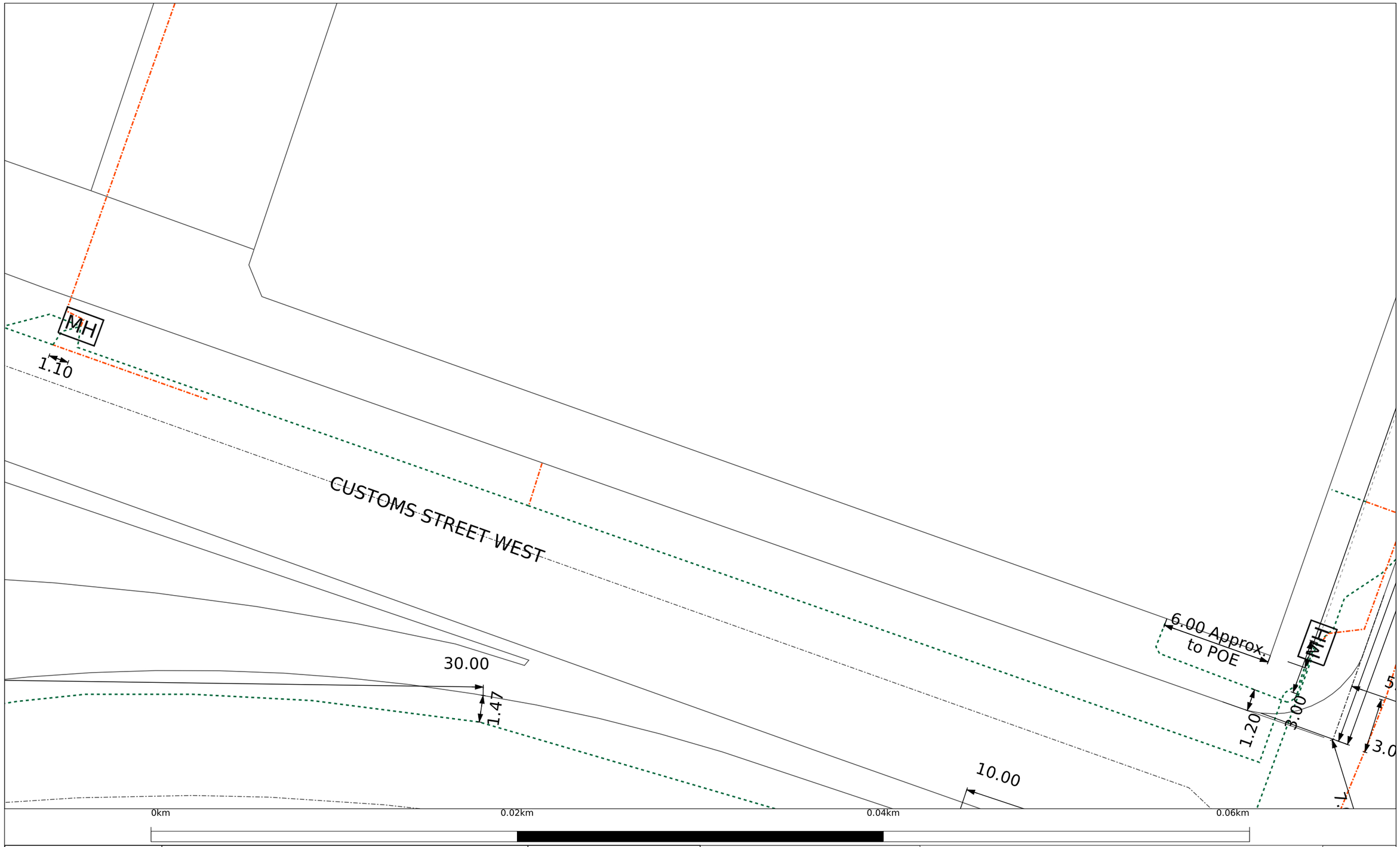
Communication Cable - 0800 826 436

Title:	
Company Name:	
Customer Contact:	
Output: Page 18	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

Strand & Structure [Gis]
- Pole.Location Inact., T02
- Underground Route.Route Act. - Gas Standby Main
- Underground Route.Route Act. - PVC
- Underground Route.Route Act. - Trench
- Underground Route.Route Inact. - Installed In-Place
- Underground Utility Box.Location Act., T03
- Underground Utility Box.Location Inact., T02 - Installed In-Place

N W E S



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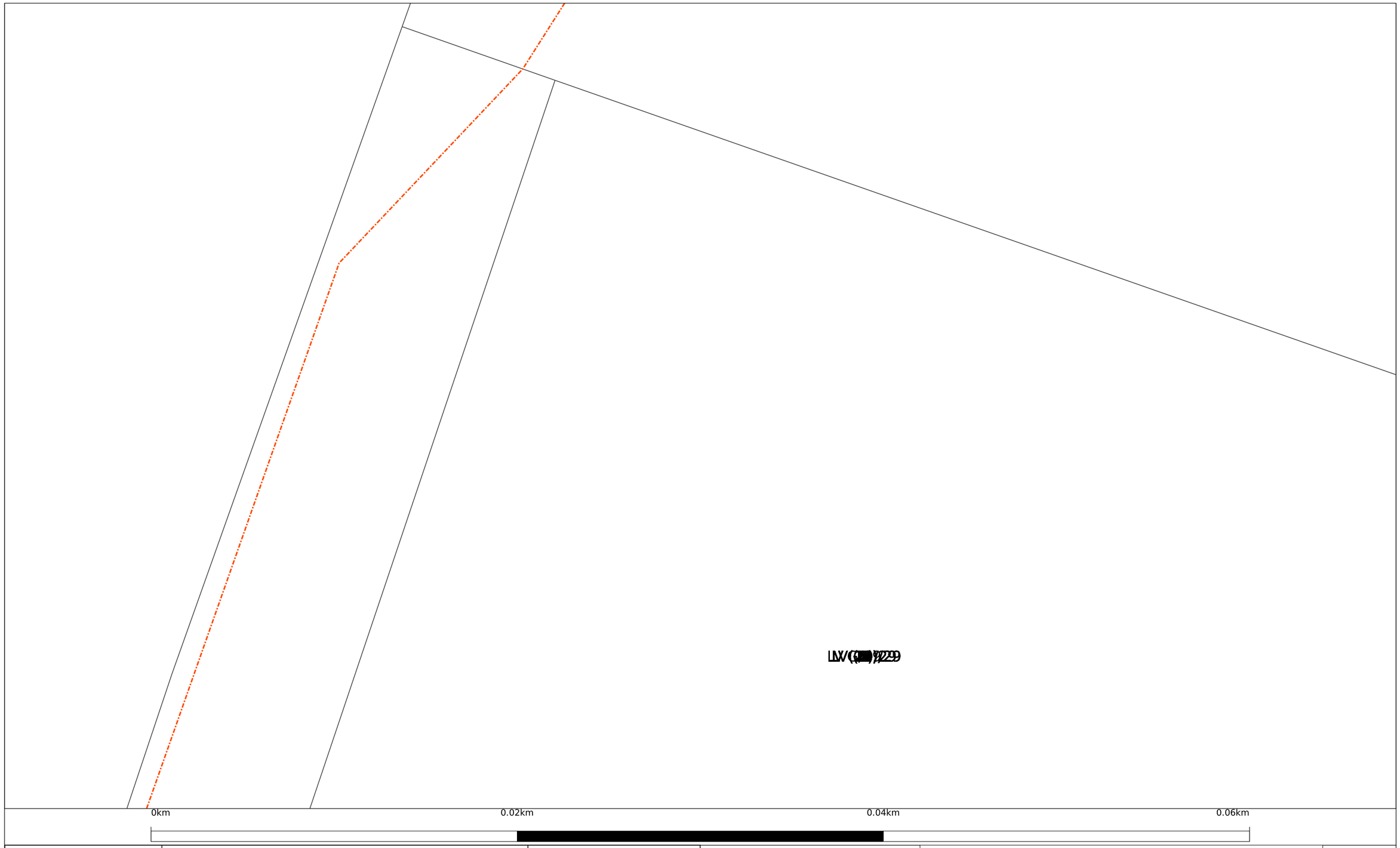
Communication Cable - 0800 826 436

Title:	
Company Name:	
Customer Contact:	
Output: Page 19	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

Strand & Structure [Gis]
Underground Route.Route Aband.
Underground Route.Route Act. - Trench
Underground Route.Route Inact. - Installed In-Place
MH Underground Utility Box.Location Act., T03

N E S W



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Communication Cable - 0800 826 436

Title:	
Company Name:	
Customer Contact:	
Output: Page 20	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

Strand & Structure [Gis]
Underground Route.Route Aband.
Underground Route.Route Act. - Trench
Underground Route.Route Inact. - Installed In-Place

N
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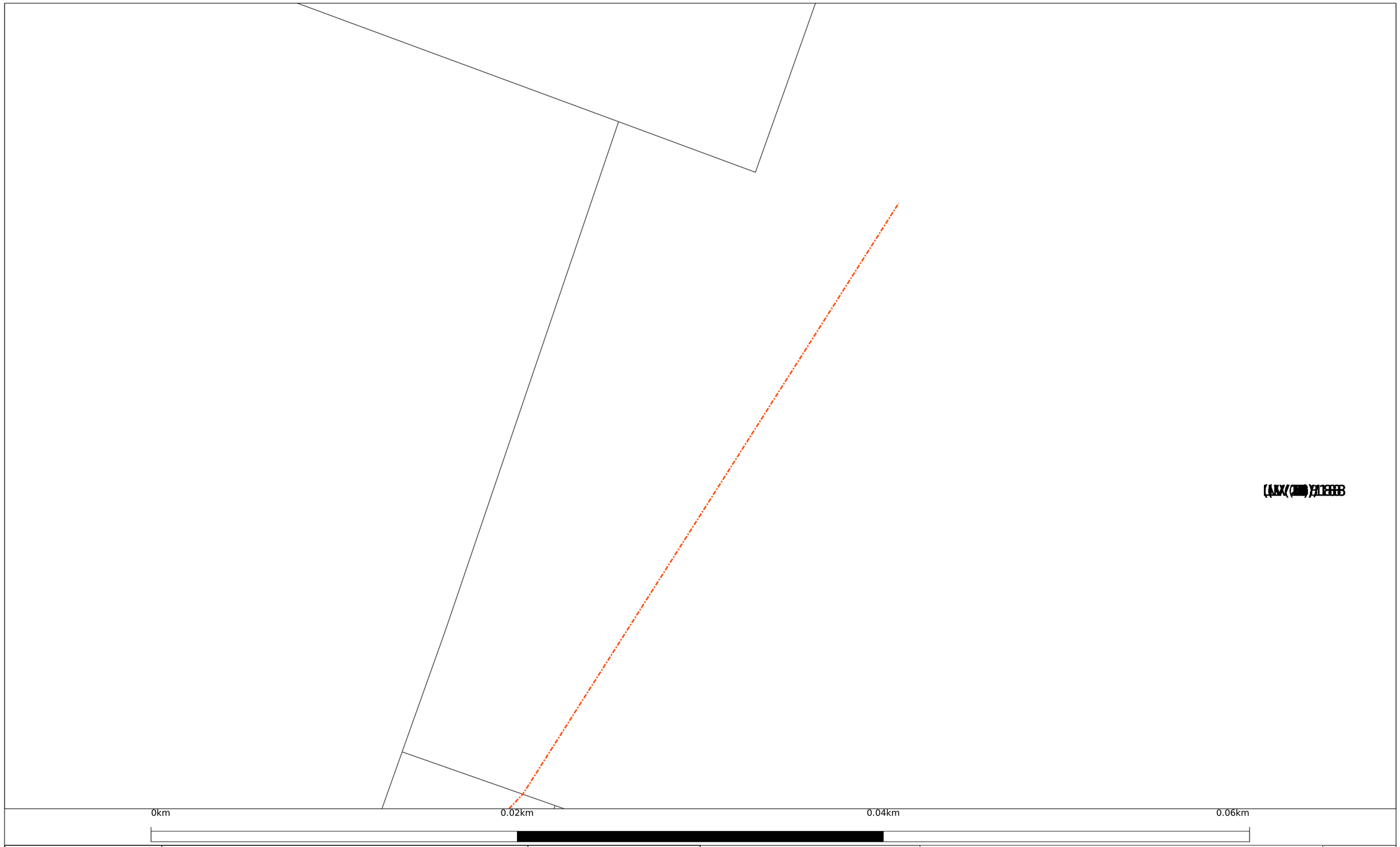

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Communication Cable - 0800 826 436

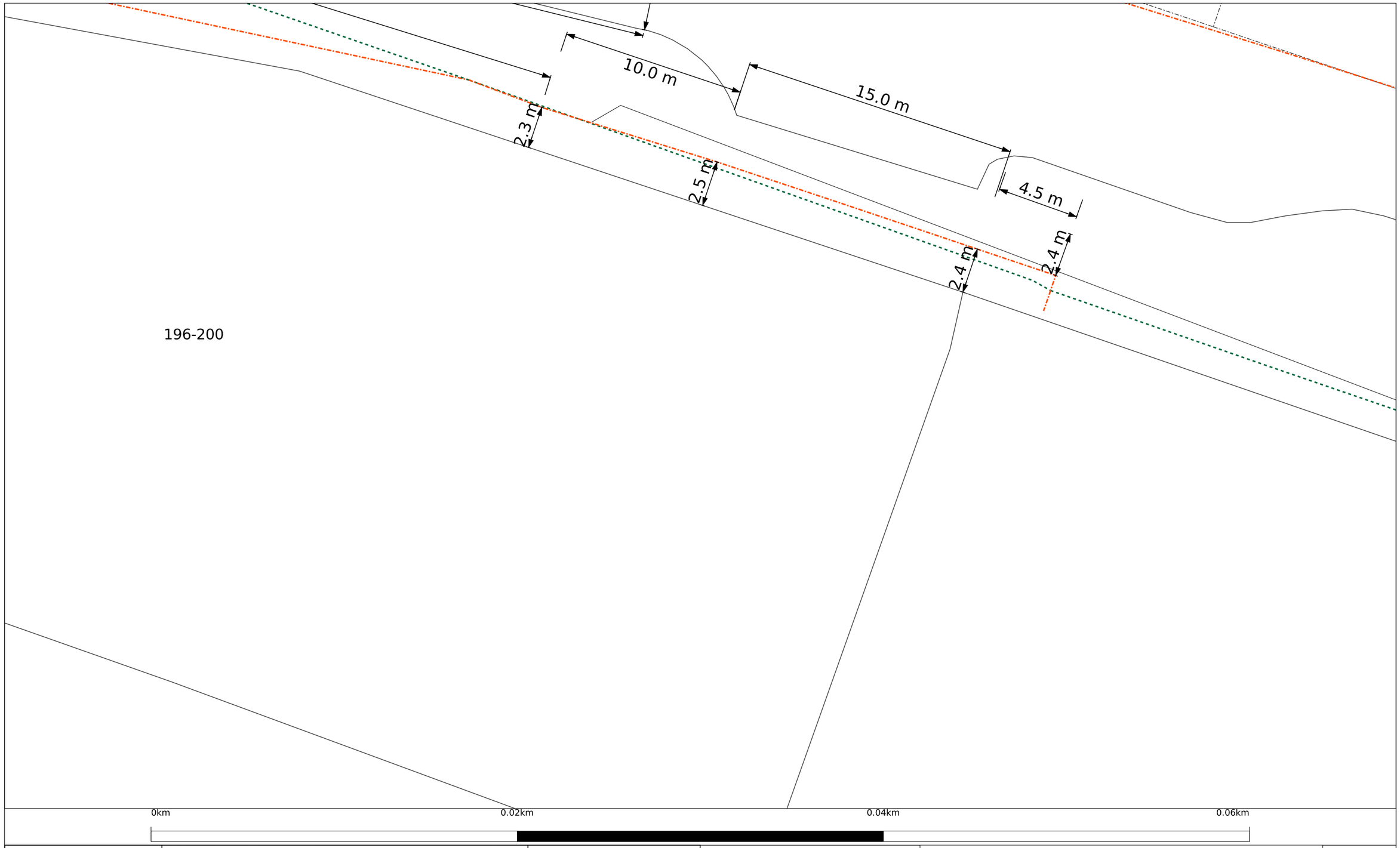
Title:	
Company Name:	
Customer Contact:	
Output: Page 21	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

Strand & Structure [Gis]

- Underground Route.Route Act. - Trench
- Underground Route.Route Inact. - Installed In-Place

N W E S



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Communication Cable - 0800 826 436

Title:

Company Name:

Customer Contact:

Output: Page 22

Scale: 1:200

Printed by: sw-cloud-user

Date printed: 29/03/2023

Legend

Strand & Structure [Gis]

- Underground Route.Route Act. - Trench
- Underground Route.Route Inact. - Installed In-Place

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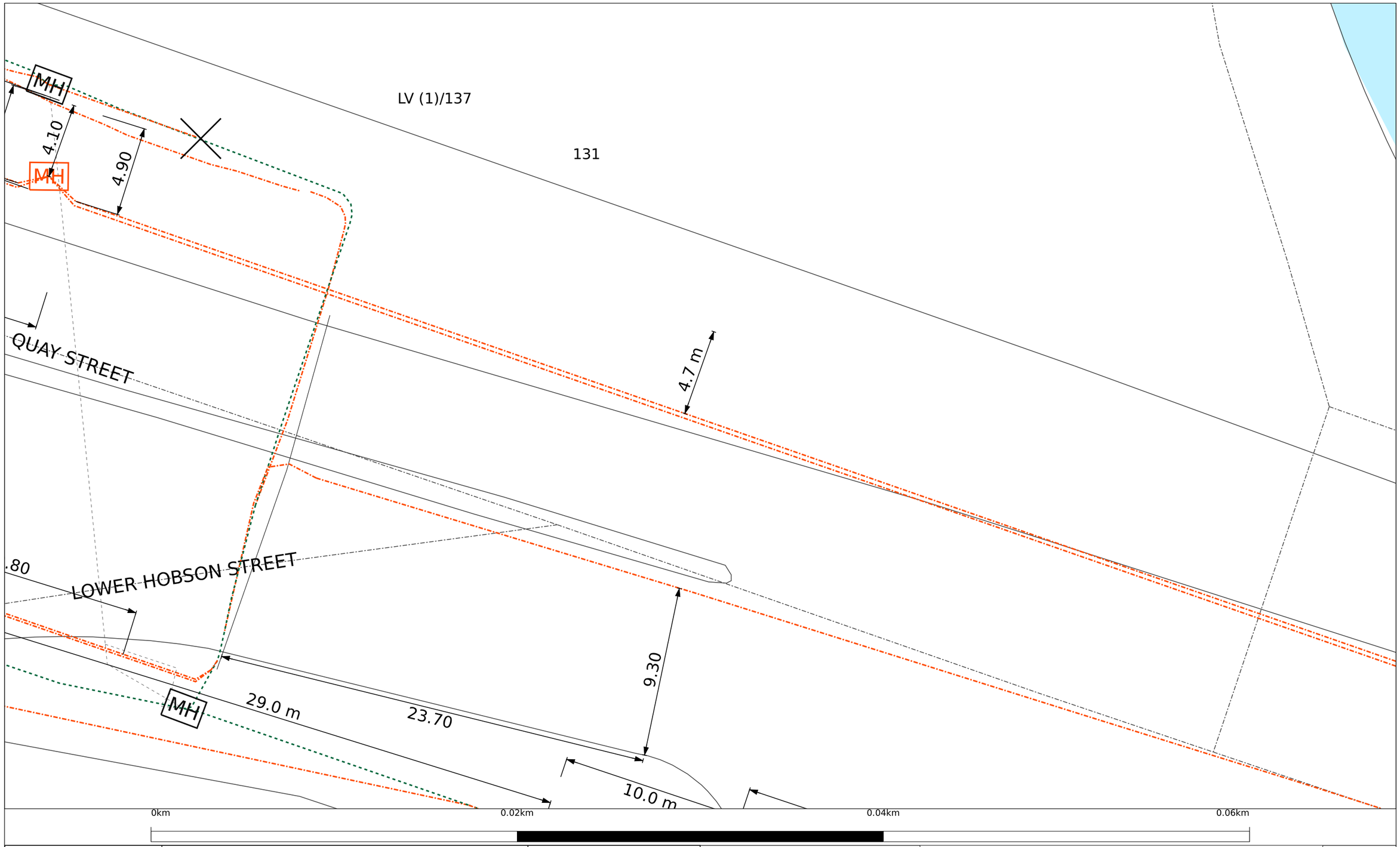

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Communication Cable - 0800 826 436

Title:

Company Name:

Customer Contact:

Output: Page 23

Scale: 1:200

Printed by: sw-cloud-user

Date printed: 29/03/2023

Legend

Strand & Structure [Gis]
- Pole.Location Inact., T02
- Underground Route.Route Aband.
- Underground Route.Route Act. - Trench
- Underground Route.Route Inact. - Installed In-Place
- Underground Utility Box.Location Act., T03
- Underground Utility Box.Location Inact., T03 - Installed In-Place

N
W
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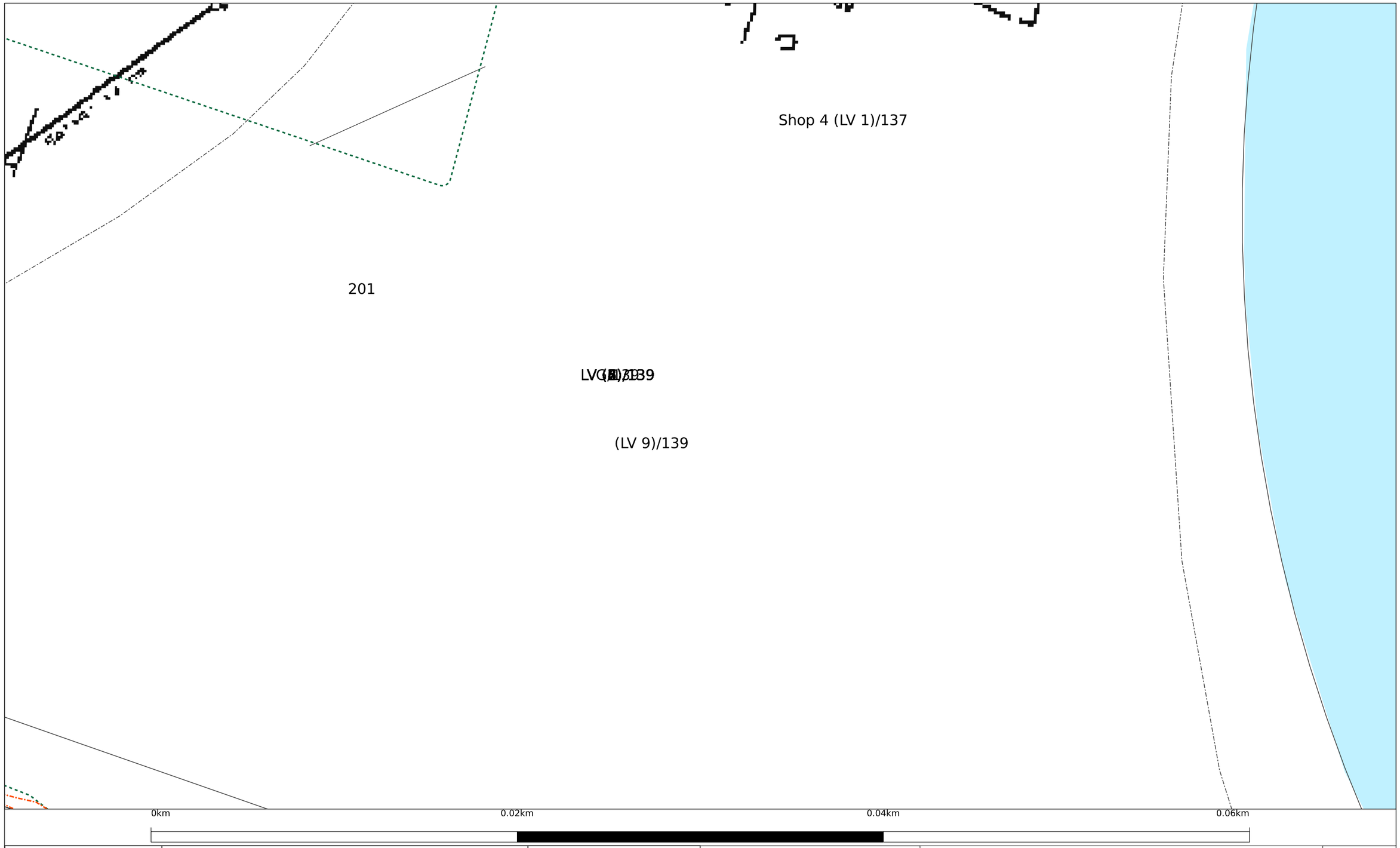

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Communication Cable - 0800 826 436

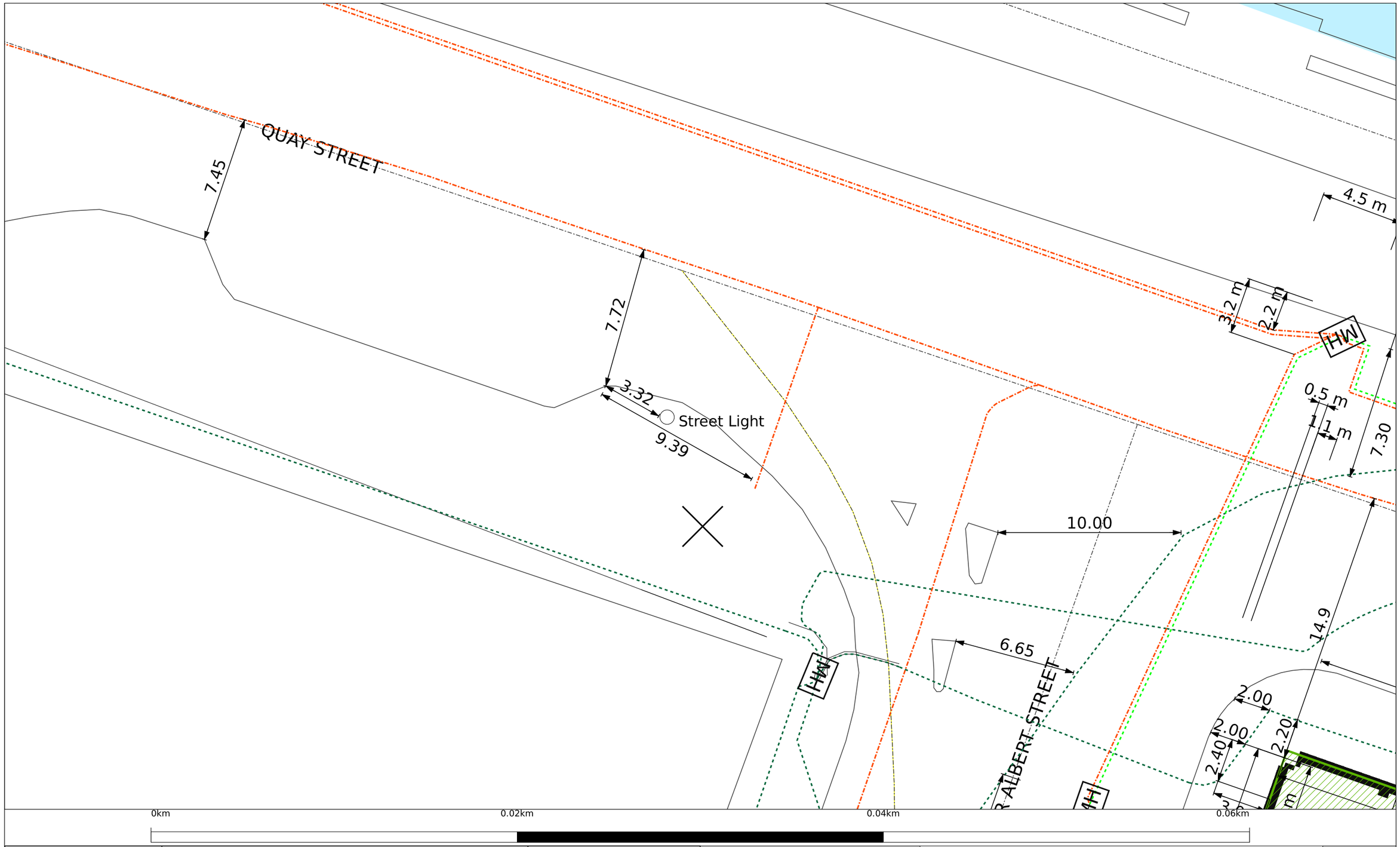
Title:	
Company Name:	
Customer Contact:	
Output: Page 24	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

Strand & Structure [Gis]

- Underground Route.Route Act. - Trench
- Underground Route.Route Inact. - Installed In-Place

N W E S



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Communication Cable - 0800 826 436

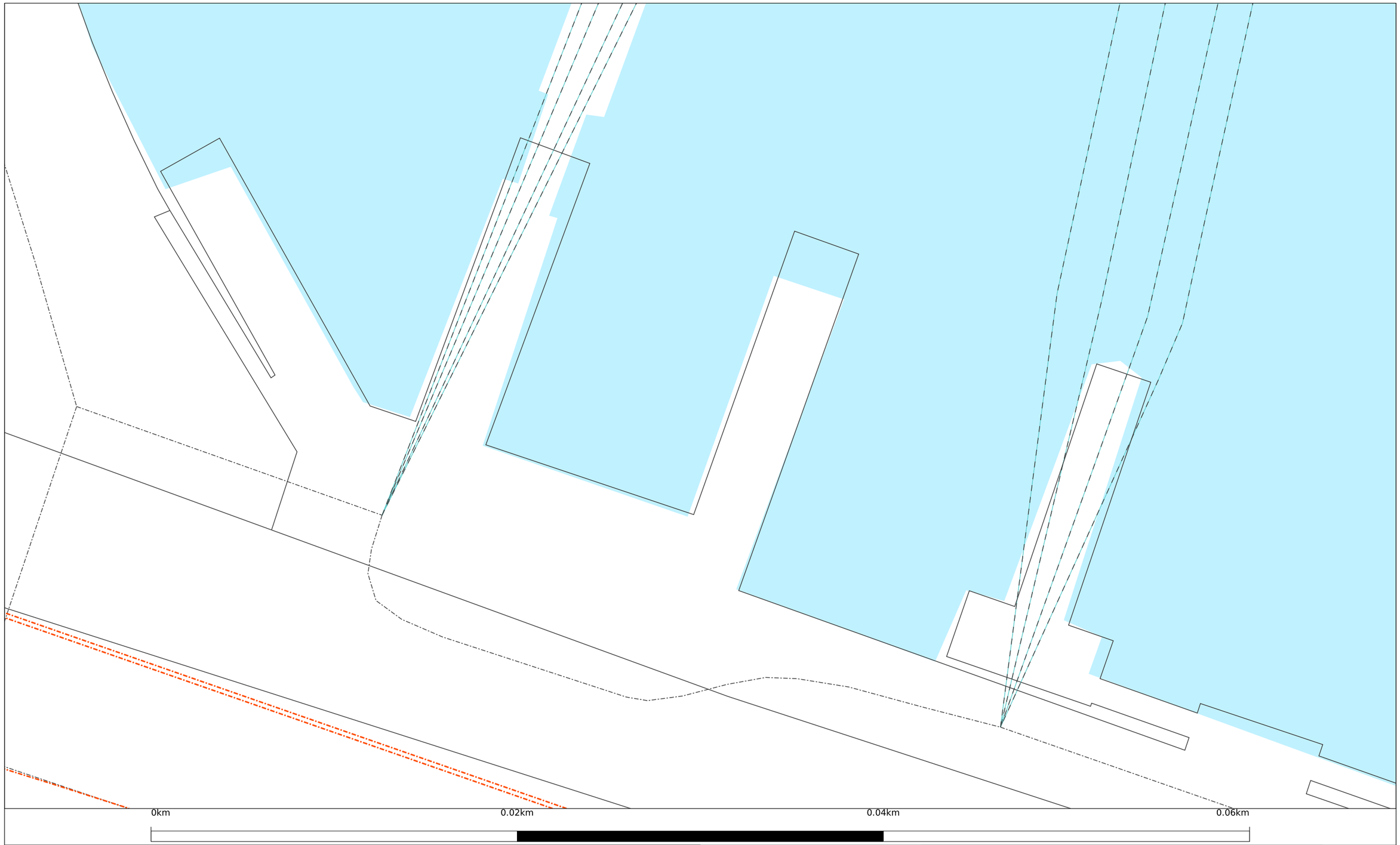
Title:	
Company Name:	
Customer Contact:	
Output: Page 25	Scale: 1:200
Printed by: sw-cloud-user	Date printed: 29/03/2023

Legend

Strand & Structure [Gis]

- Pole.Location Inact., T02
- Underground Route.Route Aband.
- Underground Route.Route Act. - PVC
- Underground Route.Route Act. - Trench
- Underground Route.Route Inact. - Installed In-Place
- Underground Utility Box.Location Act., T03

N E S W



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In the event of damage to equipment please remain clear of the area and immediately phone:

Electricity - 0508 VECTOR (0508 832 867)

Gas - Auckland area call us on 0800 764 764. If you hit a gas pipeline in the rest of the North Island call FIRST GAS on 0800 800 393. If you hit a gas transmission pipeline call FIRST GAS on 0800 734 567

Communication Cable - 0800 826 436

Title:	
Company Name:	
Customer Contact:	
Output: Page 26	Scale: 1:200
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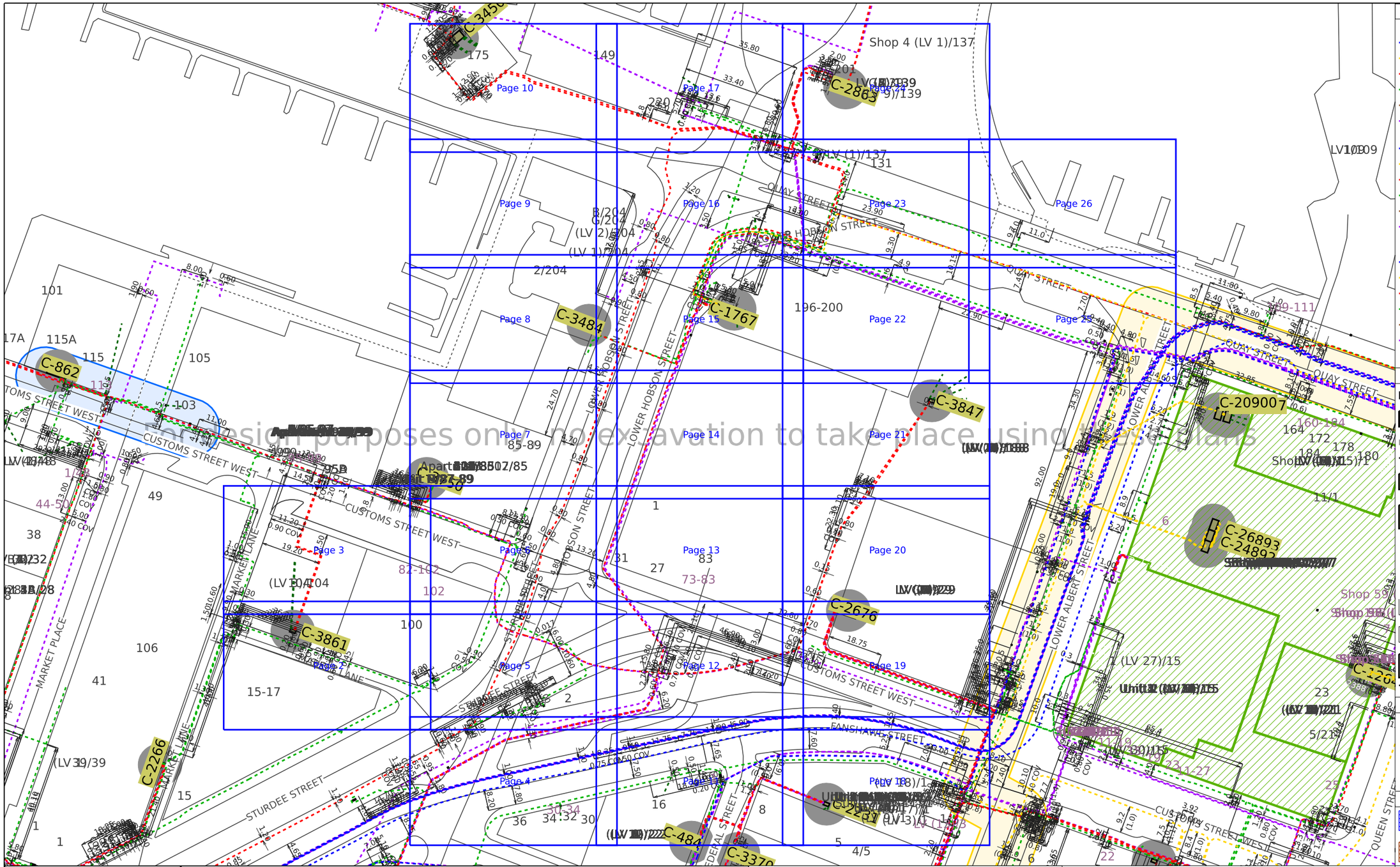
Legend

Strand & Structure [Gis]

Underground Route.Route Inact. - Installed In-Place

N W E S



For design purposes only, no excavation to take place using these plans

CABLE COLOUR CODE

CABLES IN USE
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT

- IN PROGRESS
- FUTURE PLANNED
- PLANNED

vector

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22kV, 33kV, 110kV SUB TRANSMISSION CABLES-SPECIAL CONDITIONS APPLY:

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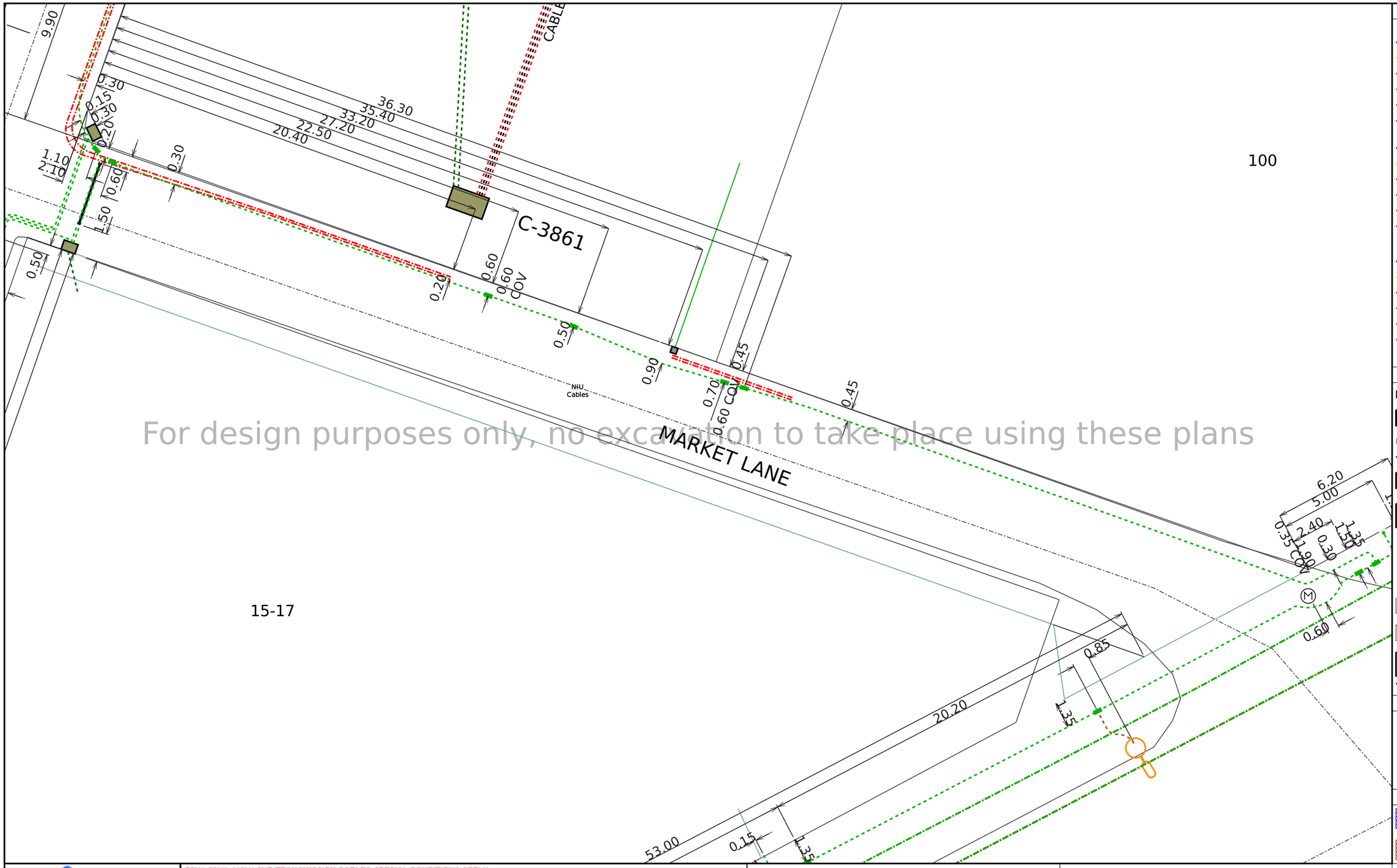
Company Name:	
Usage:	Request ID: 11197175
Request for:	No associated viewport
Customer Contact:	Printed by: sw-cloud-user
Phone:	Date printed: 29. March 2023
Client Reference:	Page: 1 of 26

A3 ELECTRICITY OBSTRUCTION PLAN

N W E S



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- 22,000 volt
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- 400 volt
- Streetlight
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- NOT IN USE

SYMBOL LEGEND

TUNNEL
DUCT BANK
FIBRE OPTIC DUCT
TRENCH
PILLAR
PIT
DISTRIBUTION SUBSTATION
POLES
LAMP
CESSPIT
MANHOLE
FIRE HYDRANT
DRAIN
FIBRE OPTIC PIT
EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT

IN PROGRESS
FUTURE PLANNED
PLANNED

vector

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Usage:	Request ID: 11197175
Request for:	Scale: 1:200
Customer Contact:	Printed by: sw-cloud-user
Phone:	Date printed: 29. March 2023
Client Reference:	Page: 2 of 26

A3 ELECTRICITY OBSTRUCTION PLAN

N
W E
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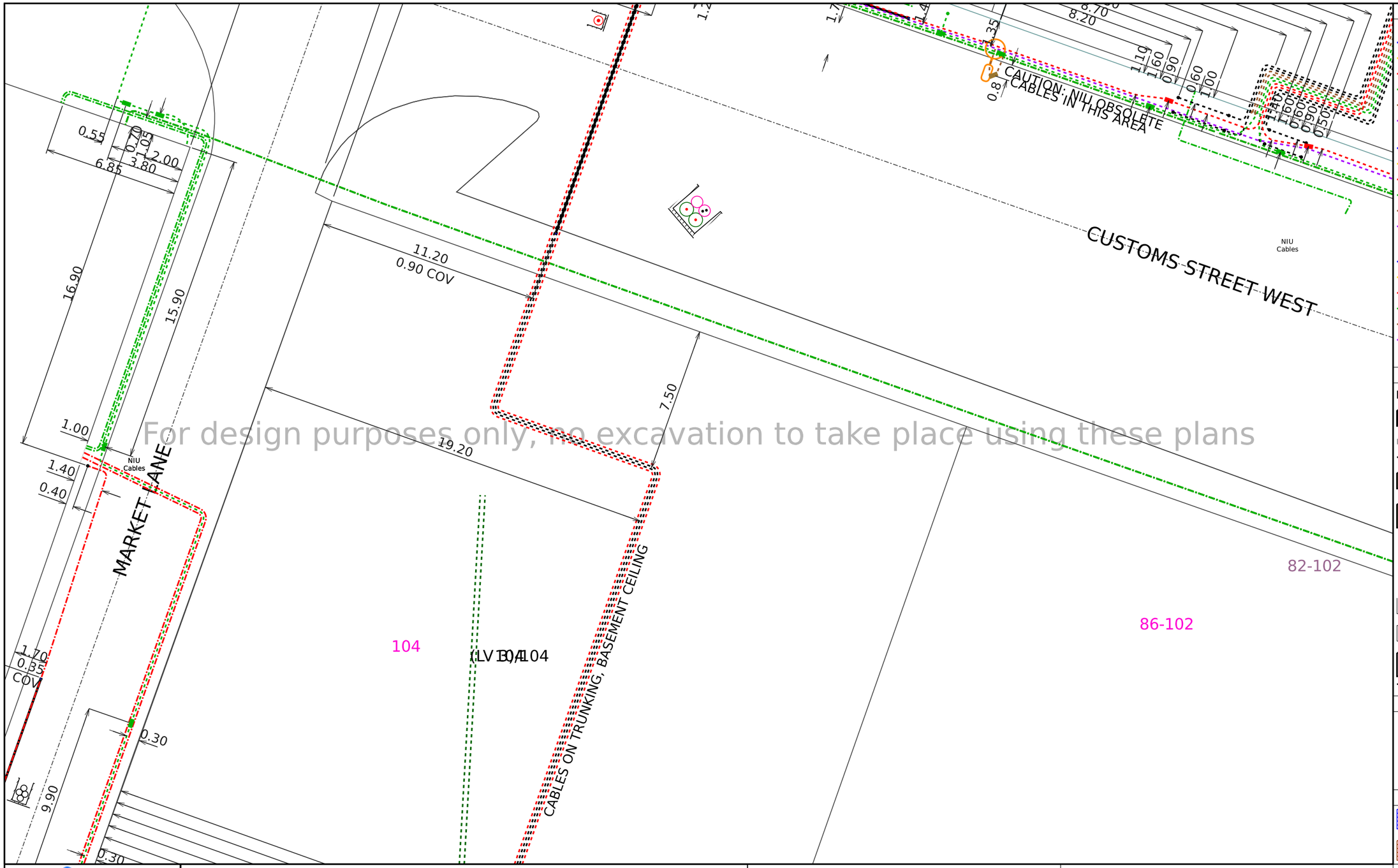

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- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT
- IN PROGRESS
- FUTURE PLANNED
- PLANNED

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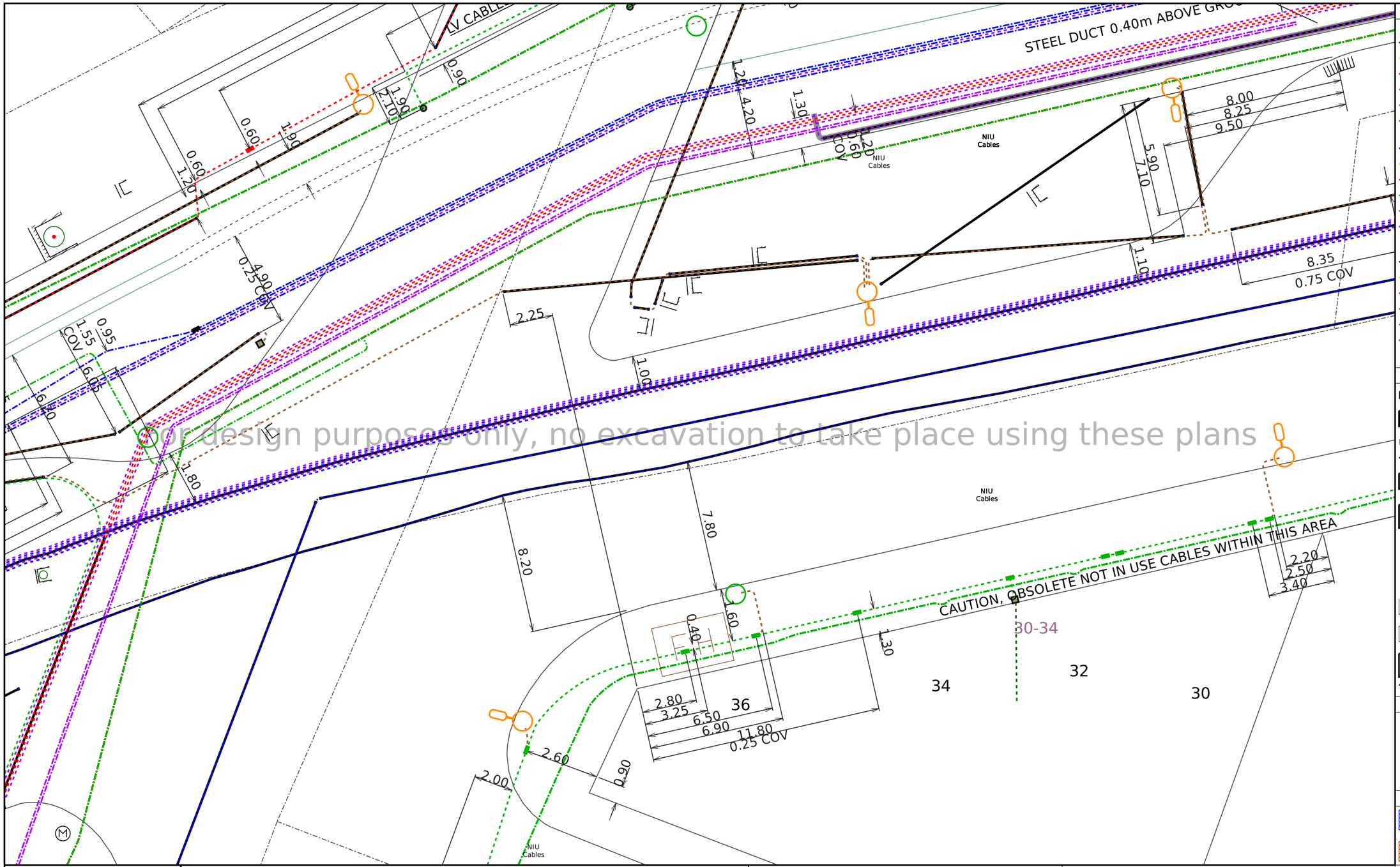
Request Title:	
Company Name:	
Usage:	Request ID: 11197175
Request for:	Scale: 1:200
Customer Contact:	Printed by: sw-cloud-user
Phone:	Date printed: 29. March 2023
Client Reference:	Page: 3 of 26

A3 ELECTRICITY OBSTRUCTION PLAN

N W E S



CABLE COLOUR CODE

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- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

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JOINTS & SEALING ENDS
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT
- IN PROGRESS
- FUTURE PLANNED
- PLANNED

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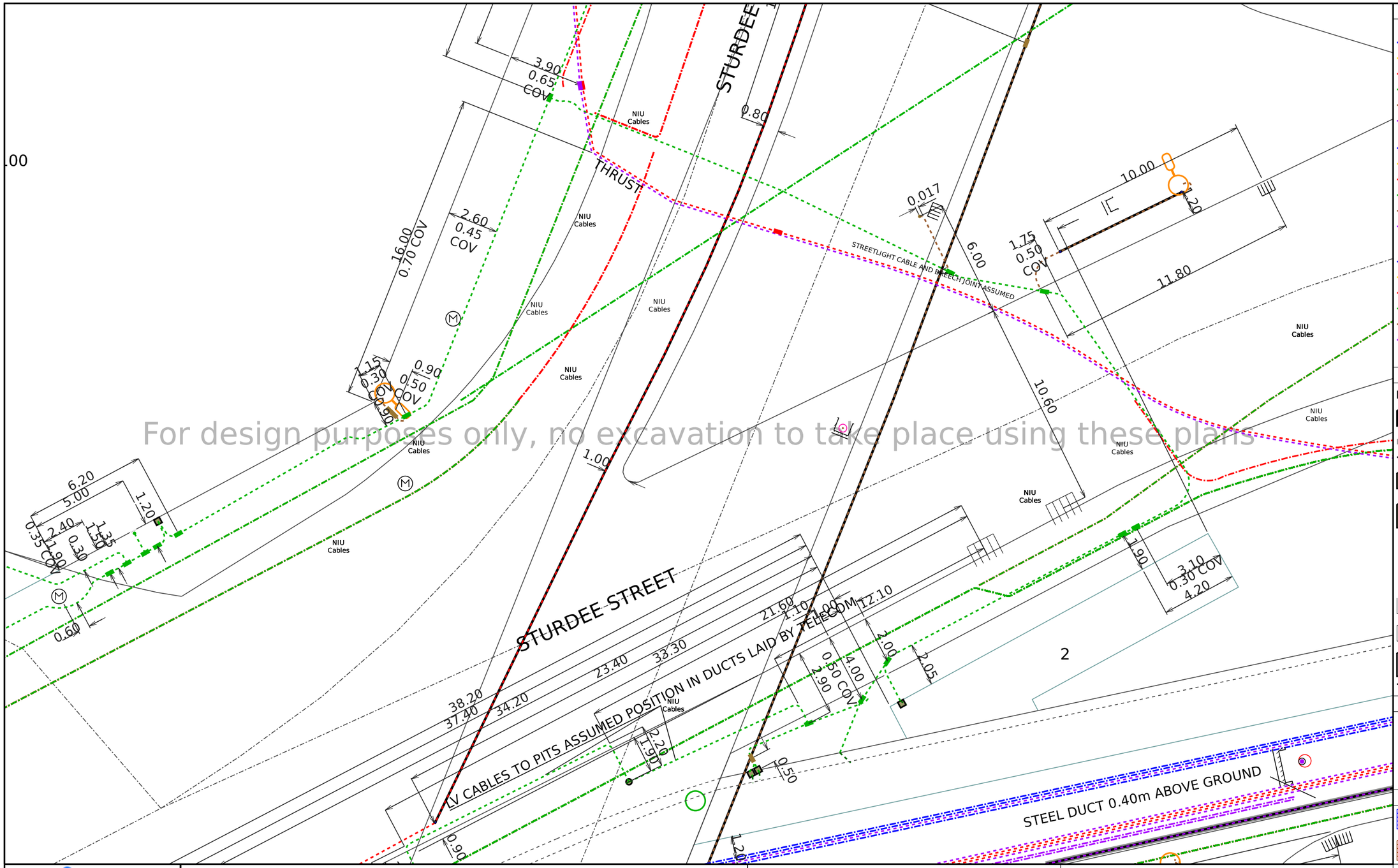
Request Title:	
Company Name:	
Usage:	Request ID: 11197175
Request for:	Scale: 1:200
Customer Contact:	Printed by: sw-cloud-user
Phone:	Date printed: 29. March 2023
Client Reference:	Page: 4 of 26

A3 ELECTRICITY OBSTRUCTION PLAN

N W E S



For design purposes only, no excavation to take place using these plans

CABLE COLOUR CODE

CABLES IN USE
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE
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JOINTS & SEALING ENDS
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT
- IN PROGRESS
- FUTURE PLANNED
- PLANNED

vector

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Title:

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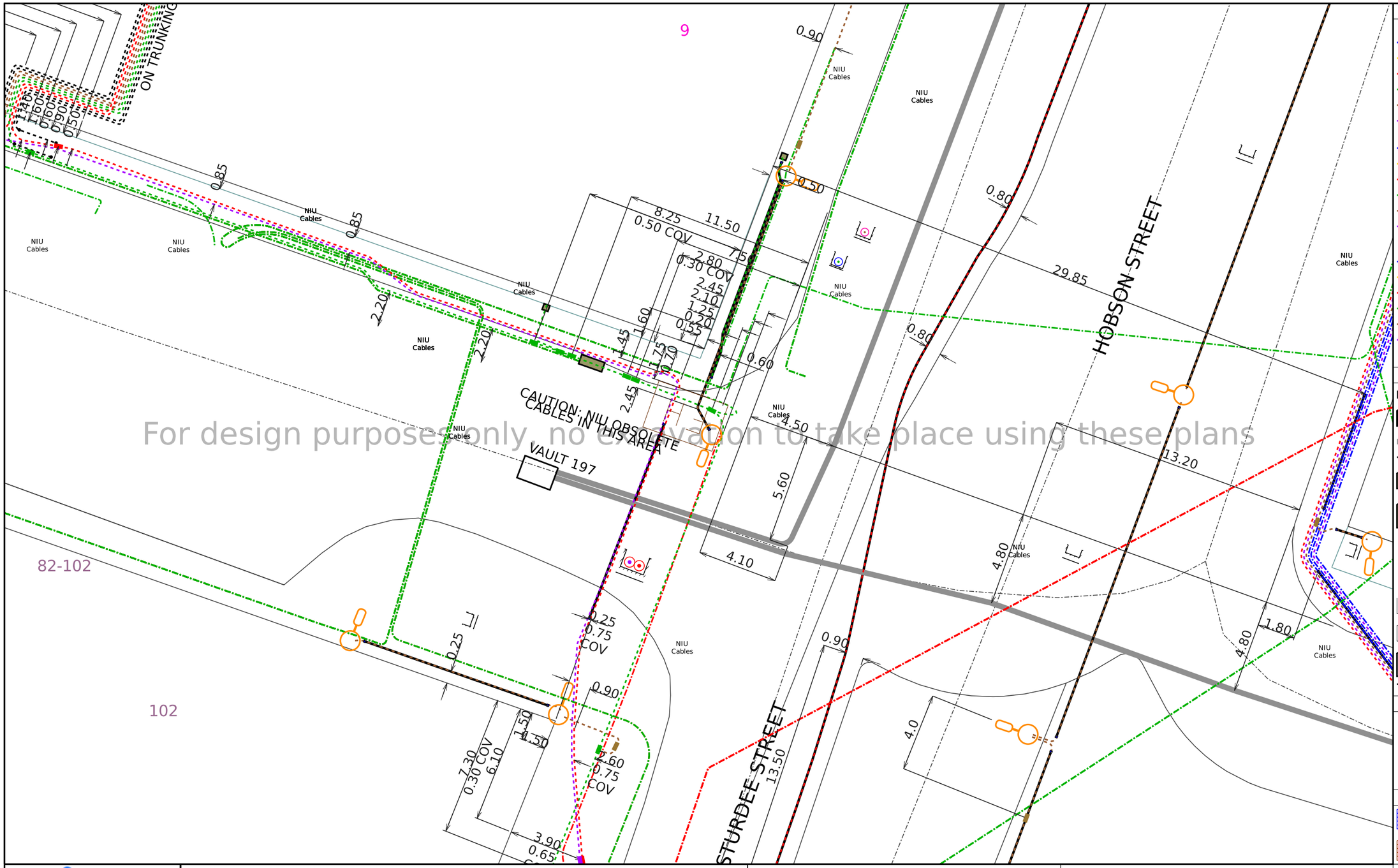
Customer Contact:	Printed by: sw-cloud-user
Phone:	Date printed: 29. March 2023
Client Reference:	Page: 5 of 26

A3 ELECTRICITY OBSTRUCTION PLAN

N W E S



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CABLE COLOUR CODE

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- 110,000 - 22,000 volt subtransmission
- 22,000 volt
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- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
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DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT
- IN PROGRESS
- FUTURE PLANNED
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Client Reference:	Page: 6 of 26

A3 ELECTRICITY OBSTRUCTION PLAN

N W E S

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- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT
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A3 ELECTRICITY OBSTRUCTION PLAN

N W E S

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- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT
- IN PROGRESS
- FUTURE PLANNED
- PLANNED

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22kV, 33kV, 110kV SUB TRANSMISSION CABLES-SPECIAL CONDITIONS APPLY:

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Title:	
Request Title:	
Company Name:	
Usage:	Request ID: 11197175
Request for:	Scale: 1:200
Customer Contact:	Printed by: sw-cloud-user
Phone:	Date printed: 29. March 2023
Client Reference:	Page: 8 of 26

A3 ELECTRICITY OBSTRUCTION PLAN

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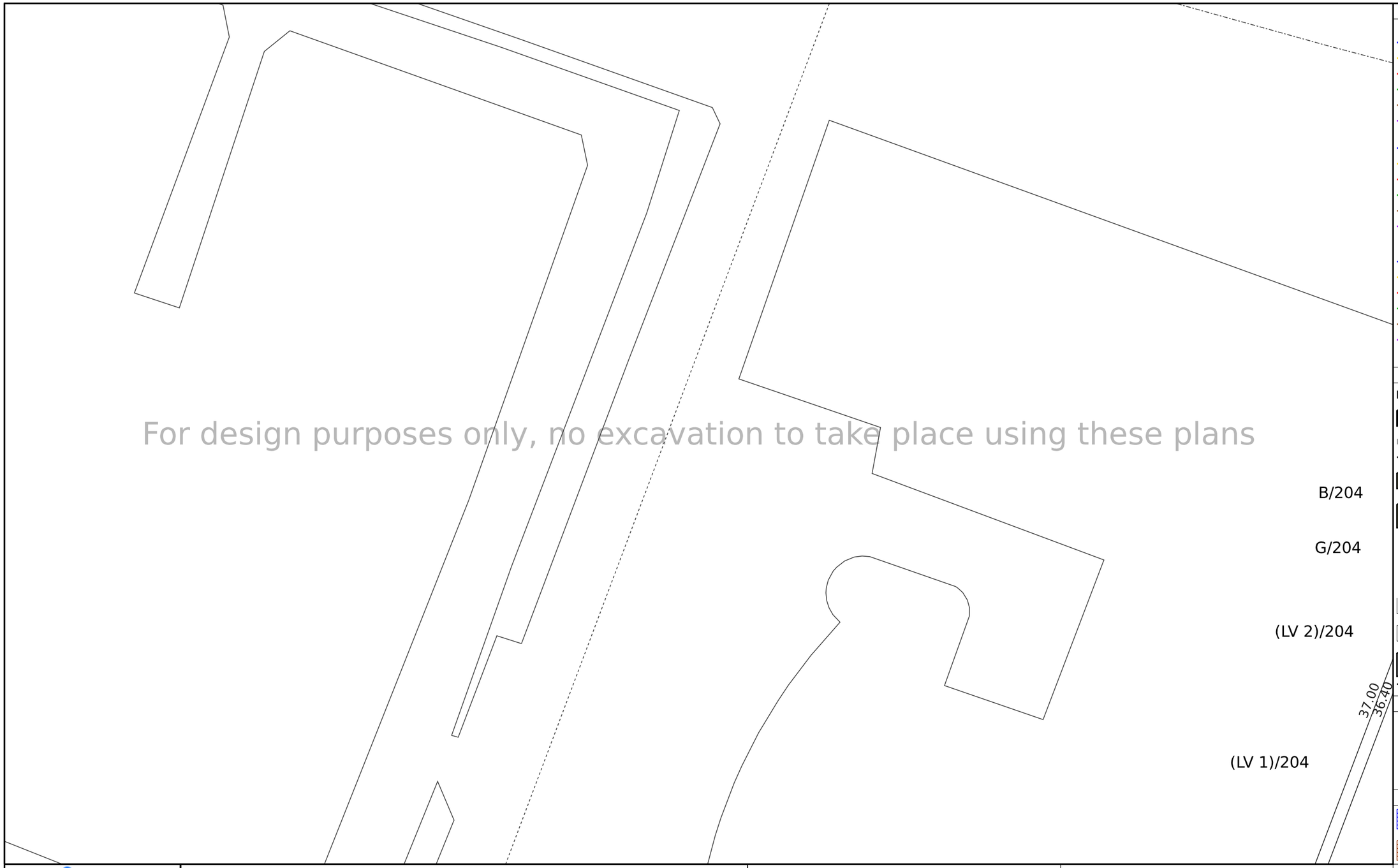

CABLE COLOUR CODE

CABLES IN USE
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT
- IN PROGRESS
- FUTURE PLANNED
- PLANNED

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Client Reference:	Page: 9 of 26

A3 ELECTRICITY OBSTRUCTION PLAN

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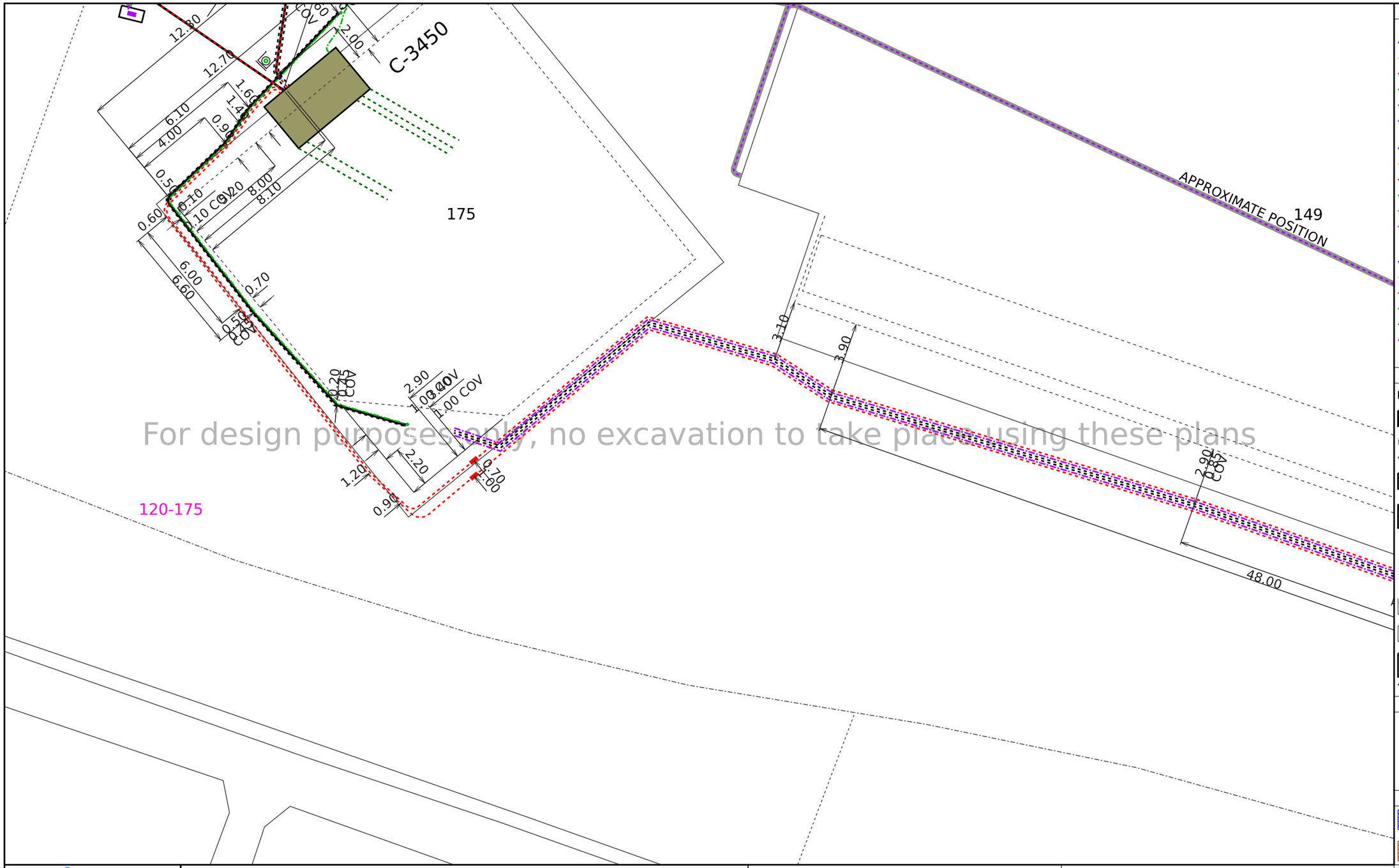

For design purposes only, no excavation to take place using these plans

CABLE COLOUR CODE

CABLES IN USE
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

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SYMBOL LEGEND

- TUNNEL
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- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT
- IN PROGRESS
- FUTURE PLANNED
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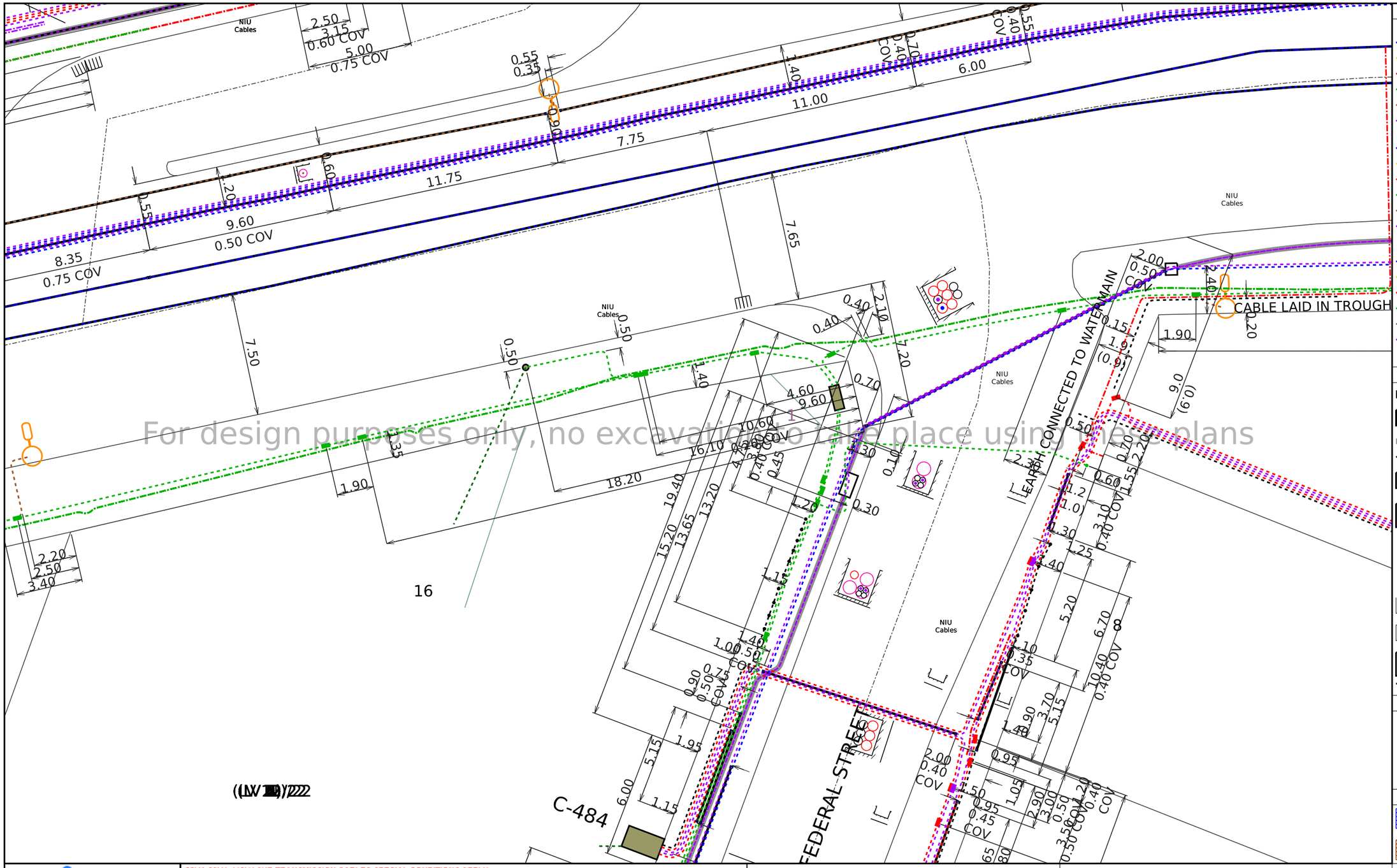
Client Reference:	Page: 10 of 26

A3 ELECTRICITY OBSTRUCTION PLAN

N W E S



CABLE COLOUR CODE

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- 22,000 volt
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- 400 volt
- Streetlight
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- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

TUNNEL
DUCT BANK
FIBRE OPTIC DUCT
TRENCH
PILLAR
PIT
DISTRIBUTION SUBSTATION
POLES
LAMP
CESSPIT
MANHOLE
FIRE HYDRANT
DRAIN
FIBRE OPTIC PIT
EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT
- IN PROGRESS
- FUTURE PLANNED
- PLANNED

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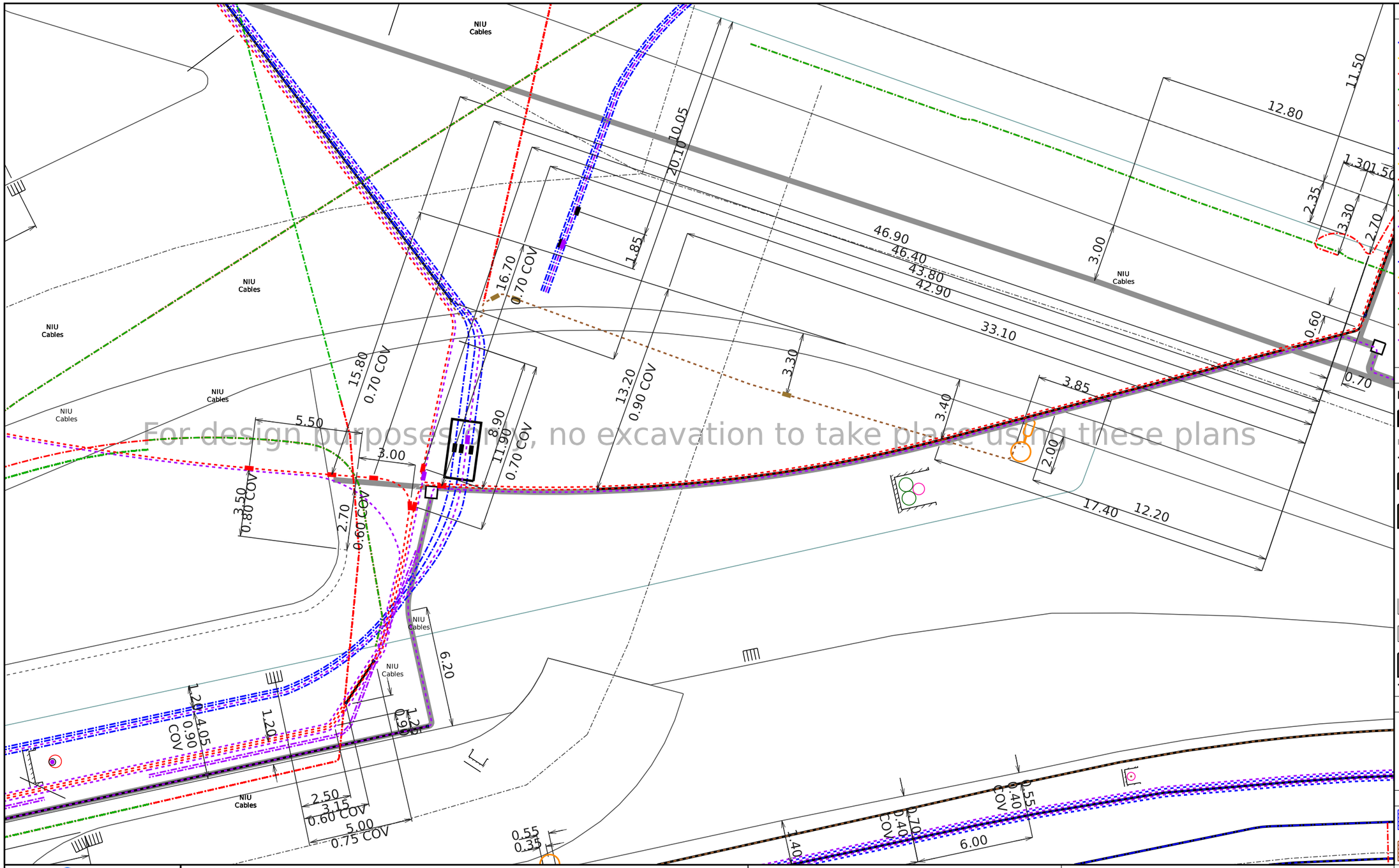
Phone:	Date printed: 29. March 2023
Client Reference:	Page: 11 of 26

A3 ELECTRICITY OBSTRUCTION PLAN

N W E S



CABLE COLOUR CODE

CABLES IN USE
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE
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- 22,000 volt
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- 400 volt
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JOINTS & SEALING ENDS
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT

- IN PROGRESS
- FUTURE PLANNED
- PLANNED

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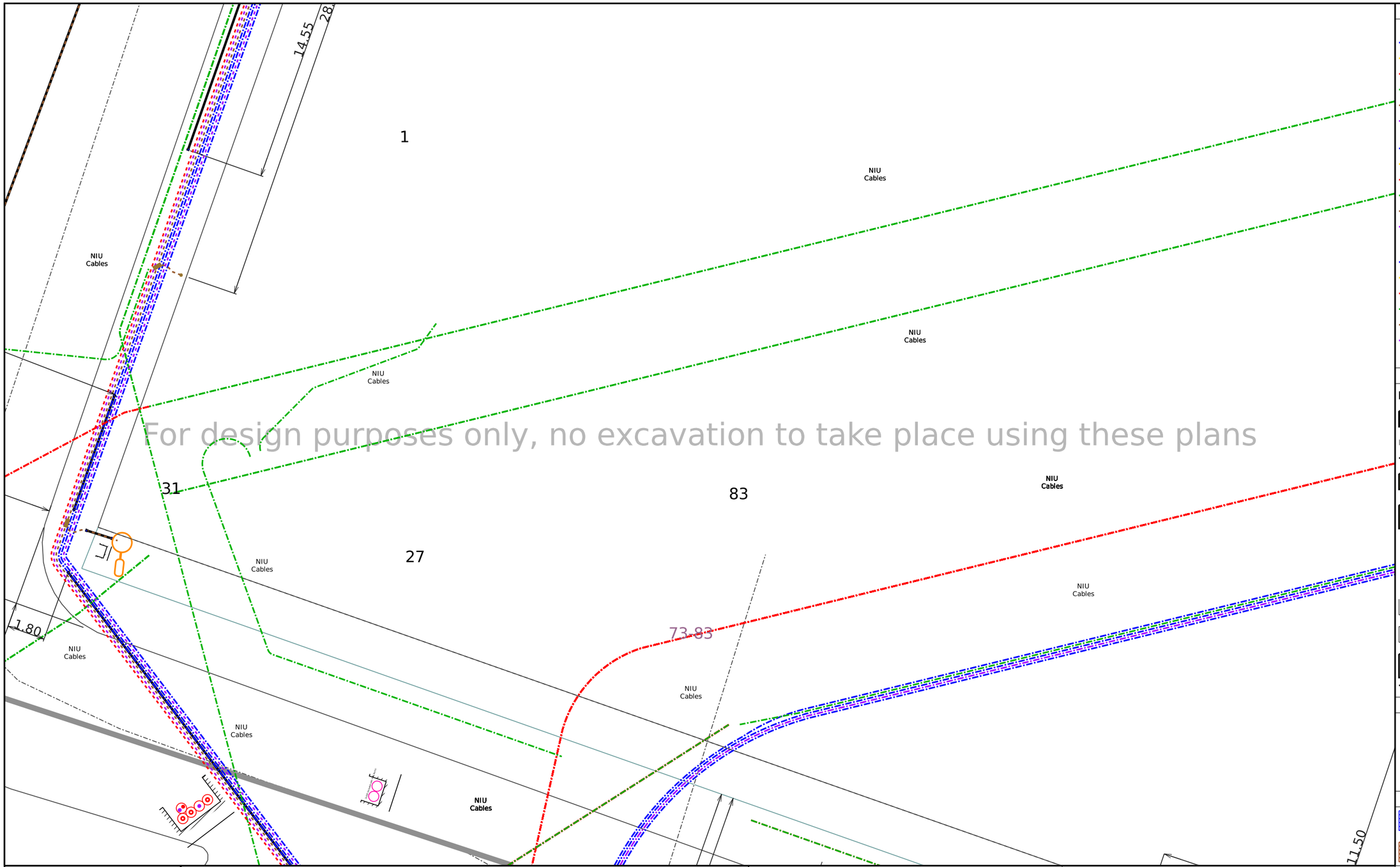
Client Reference:	Page: 12 of 26

A3 ELECTRICITY OBSTRUCTION PLAN

N W E S



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- 110,000 - 22,000 volt subtransmission
- 22,000 volt
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- 400 volt
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- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
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- FIRE HYDRANT
- DRAIN
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- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT

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A3 ELECTRICITY OBSTRUCTION PLAN

N W E S

CABLE COLOUR CODE

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- 22,000 volt
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- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT
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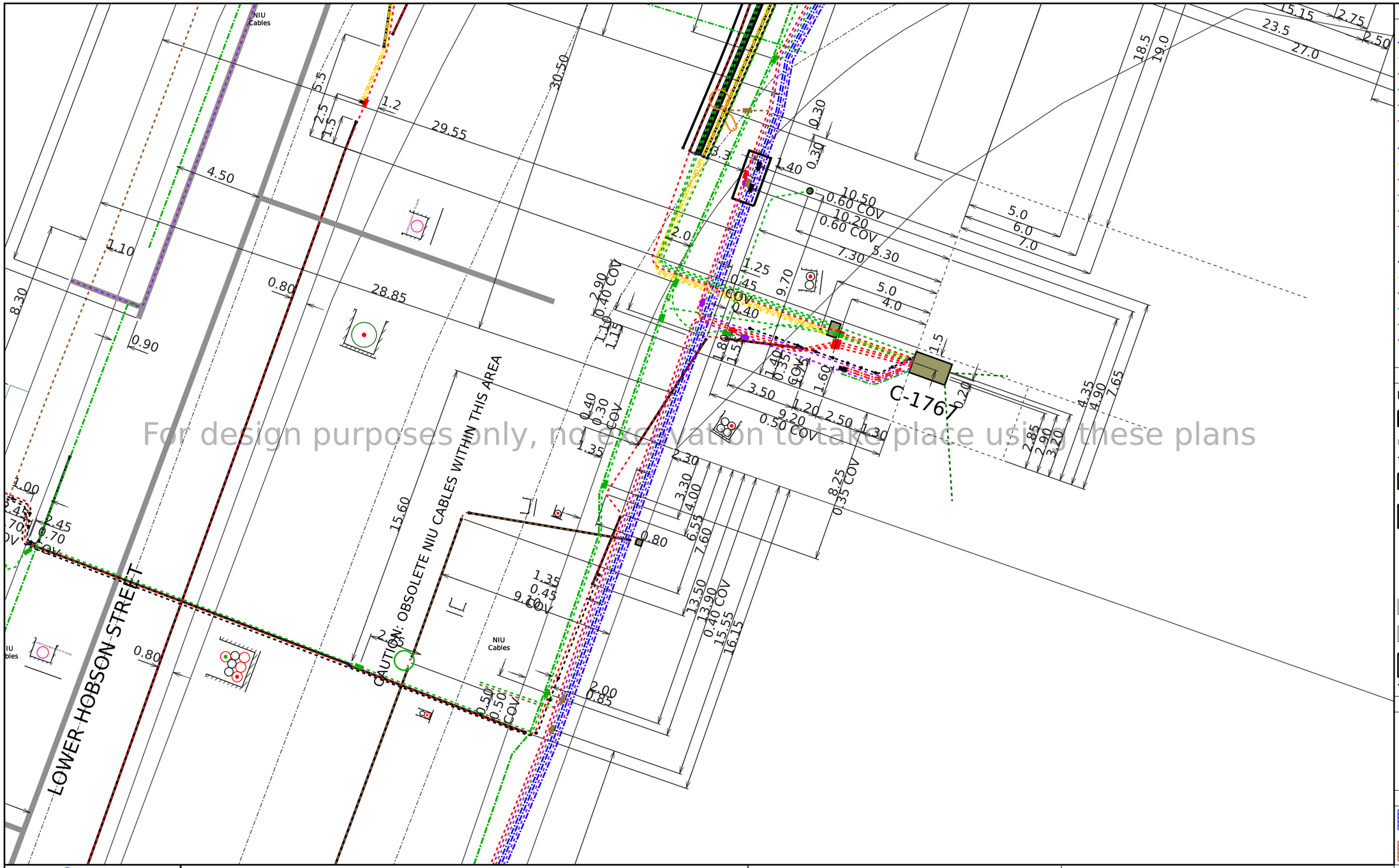

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DUCT CROSS SECTIONS mm

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A3 ELECTRICITY OBSTRUCTION PLAN

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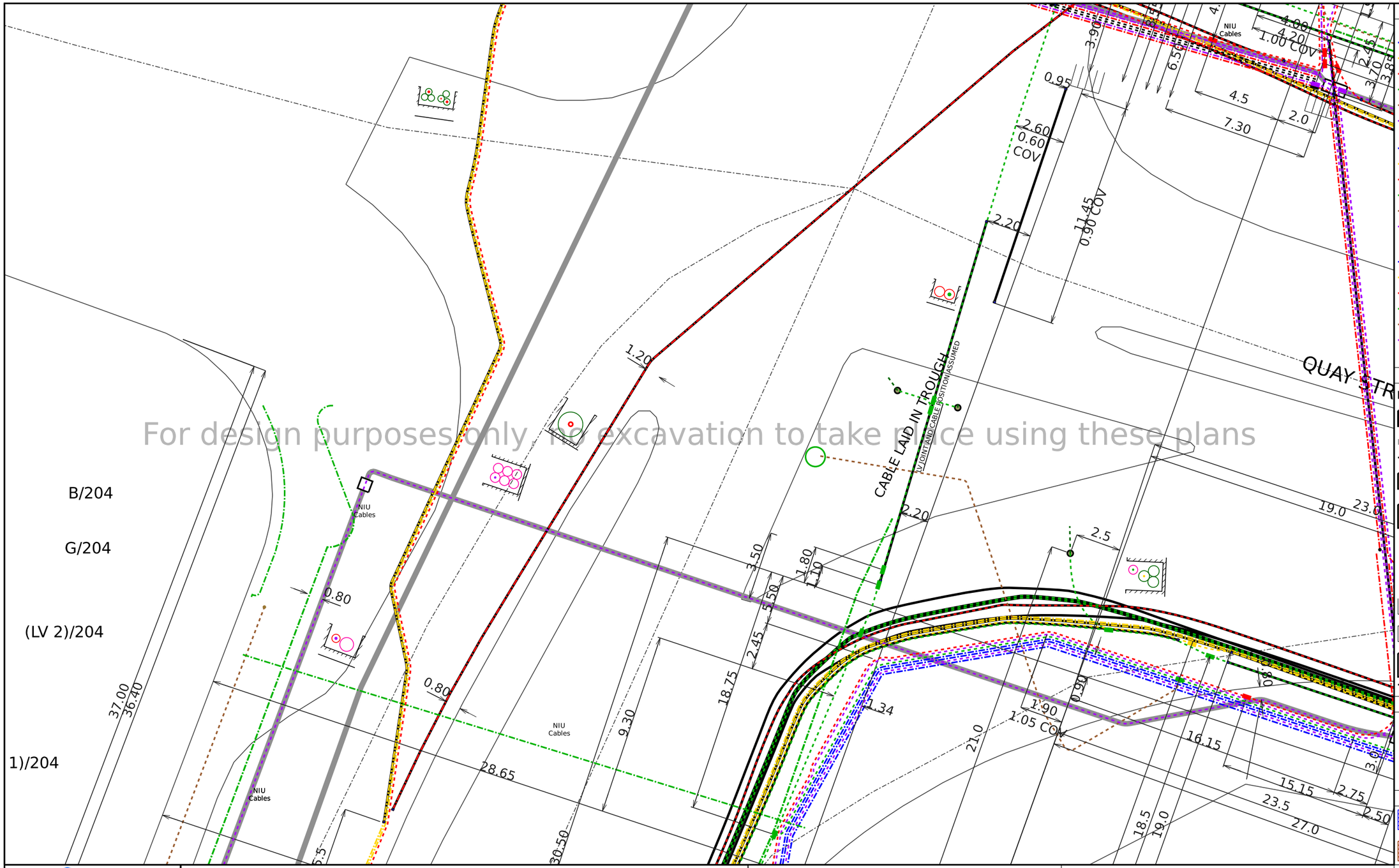

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- Pilot / Fibre Optic

JOINTS & SEALING ENDS

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT

- IN PROGRESS
- FUTURE PLANNED
- PLANNED

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22kV, 33kV, 110kV SUB TRANSMISSION CABLES-SPECIAL CONDITIONS APPLY:

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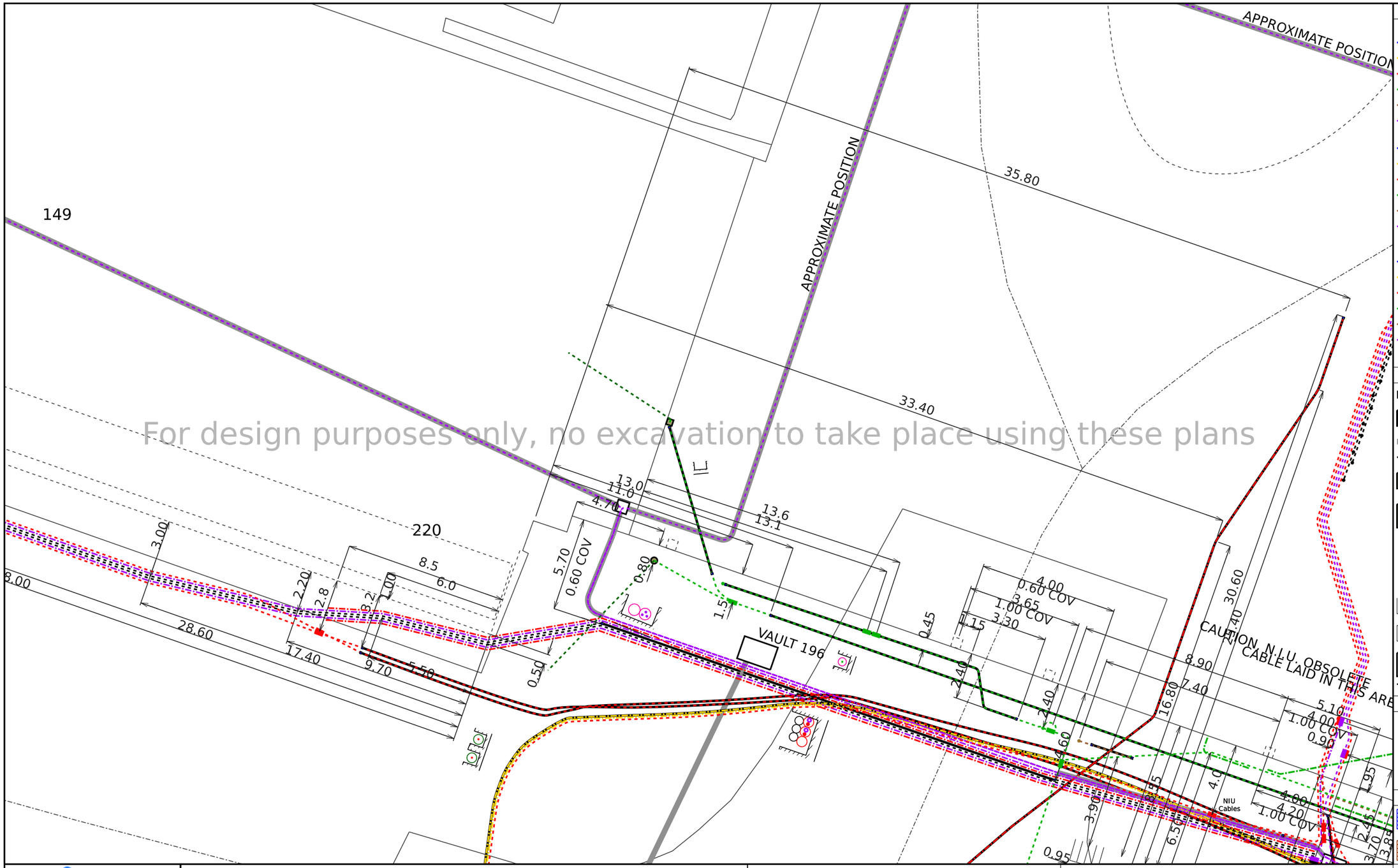
Title:	
Request Title:	
Company Name:	
Usage:	Request ID: 11197175
Request for:	Scale: 1:200
Customer Contact:	Printed by: sw-cloud-user
Phone:	Date printed: 29. March 2023
Client Reference:	Page: 16 of 26

A3 ELECTRICITY OBSTRUCTION PLAN

N W E S



CABLE COLOUR CODE

CABLES IN USE
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE
- 110,000 - 22,000 volt subtransmission
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JOINTS & SEALING ENDS
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- 400 volt
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SYMBOL LEGEND

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- LAMP
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- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT

- IN PROGRESS
- FUTURE PLANNED
- PLANNED

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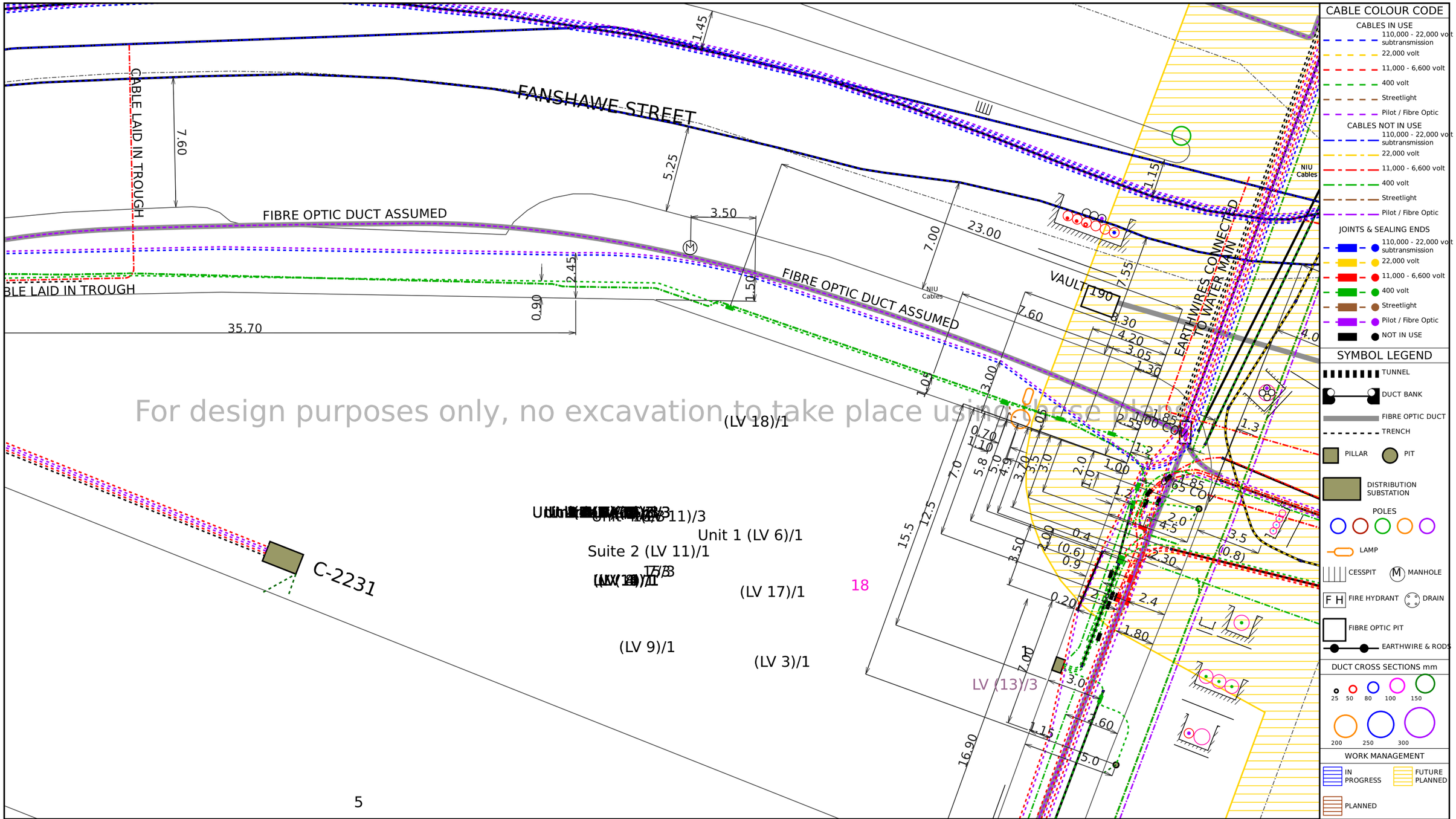
Client Reference:	Page: 17 of 26

A3 ELECTRICITY OBSTRUCTION PLAN

N W E S



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A3 ELECTRICITY OBSTRUCTION PLAN

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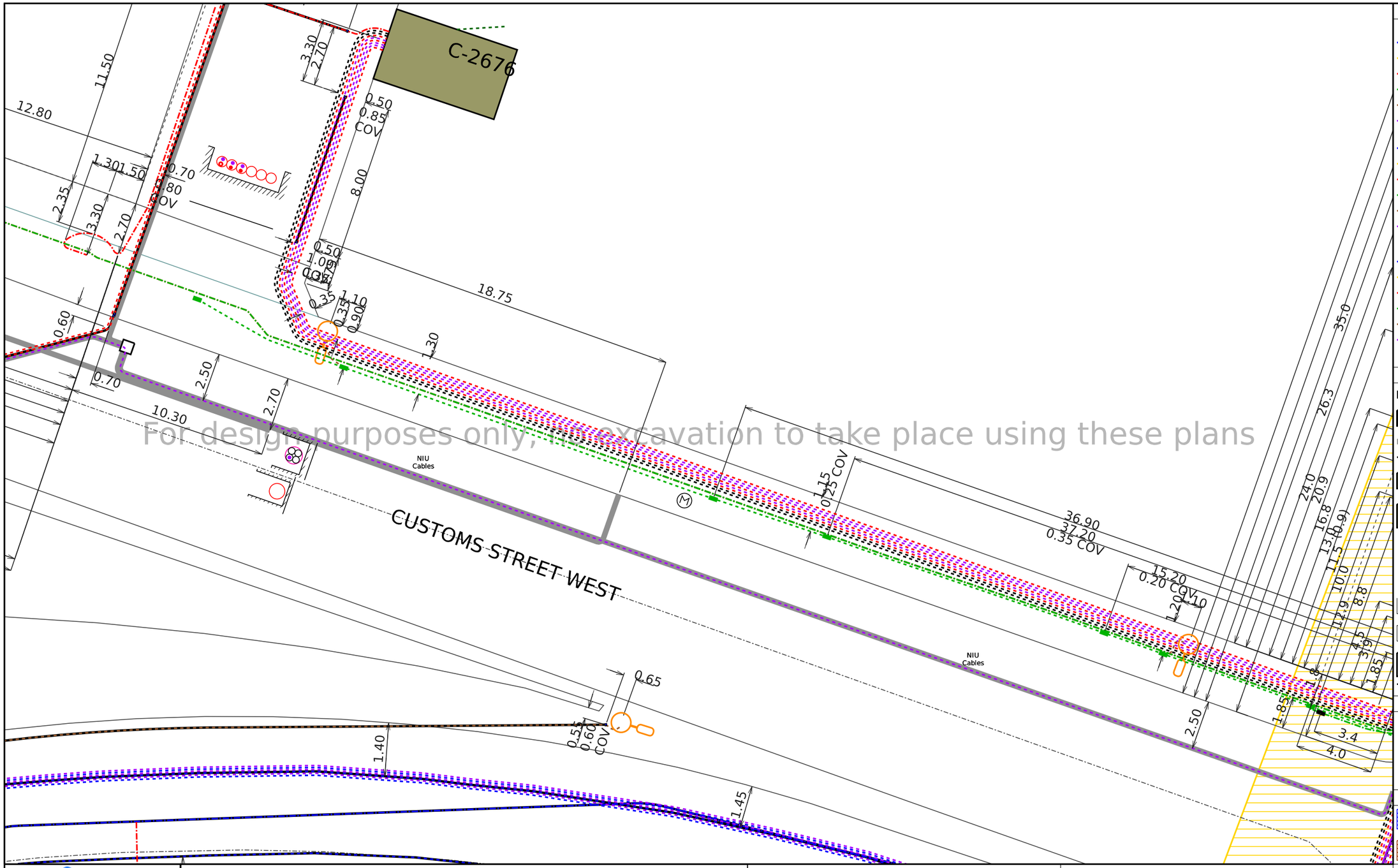

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- 22,000 volt
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- 400 volt
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- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT
- IN PROGRESS
- FUTURE PLANNED
- PLANNED

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Client Reference:	Page: 19 of 26

A3 ELECTRICITY OBSTRUCTION PLAN

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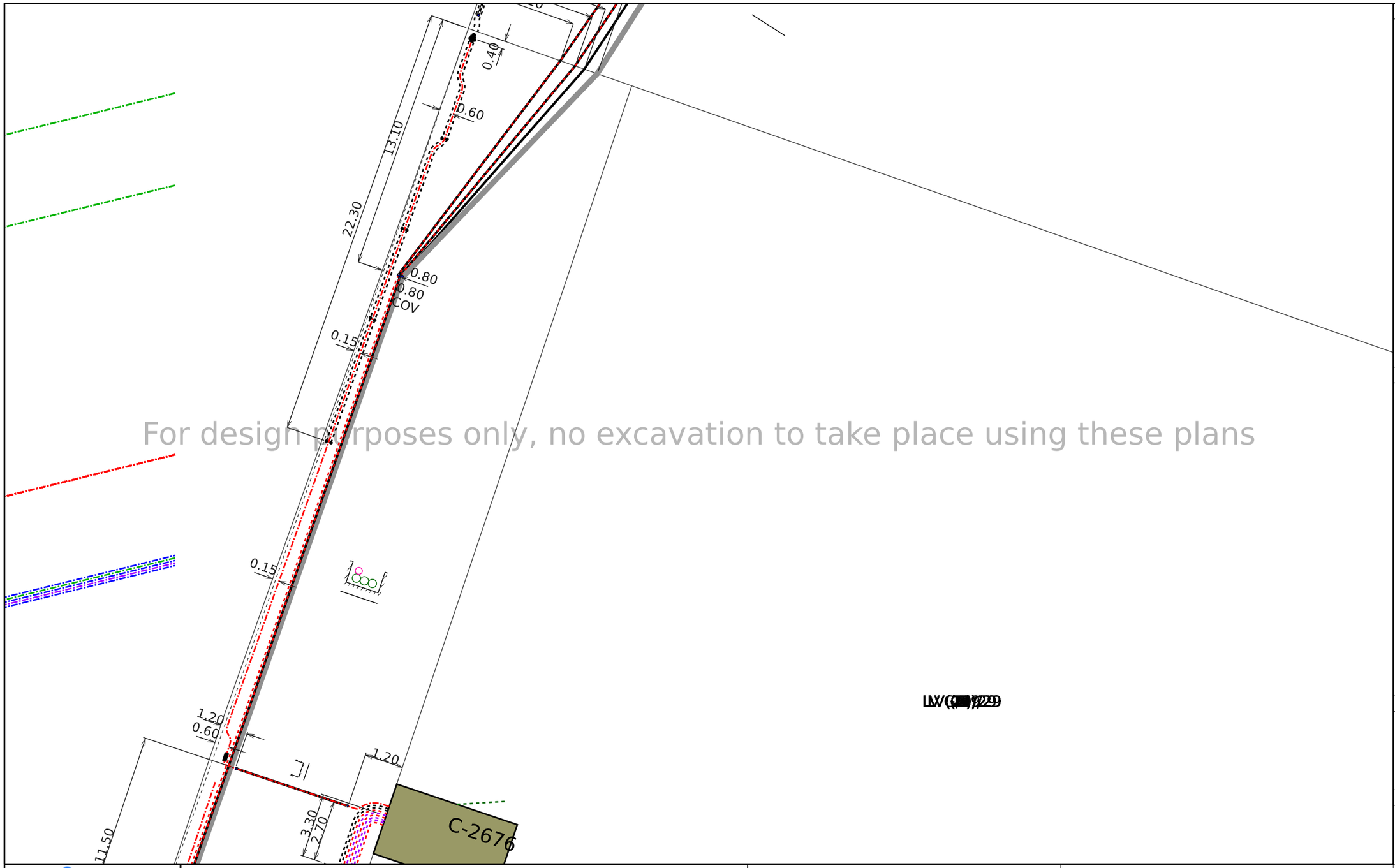

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- 110,000 - 22,000 volt subtransmission
- 22,000 volt
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- 400 volt
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- 22,000 volt
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- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
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- MANHOLE
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- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT

- IN PROGRESS
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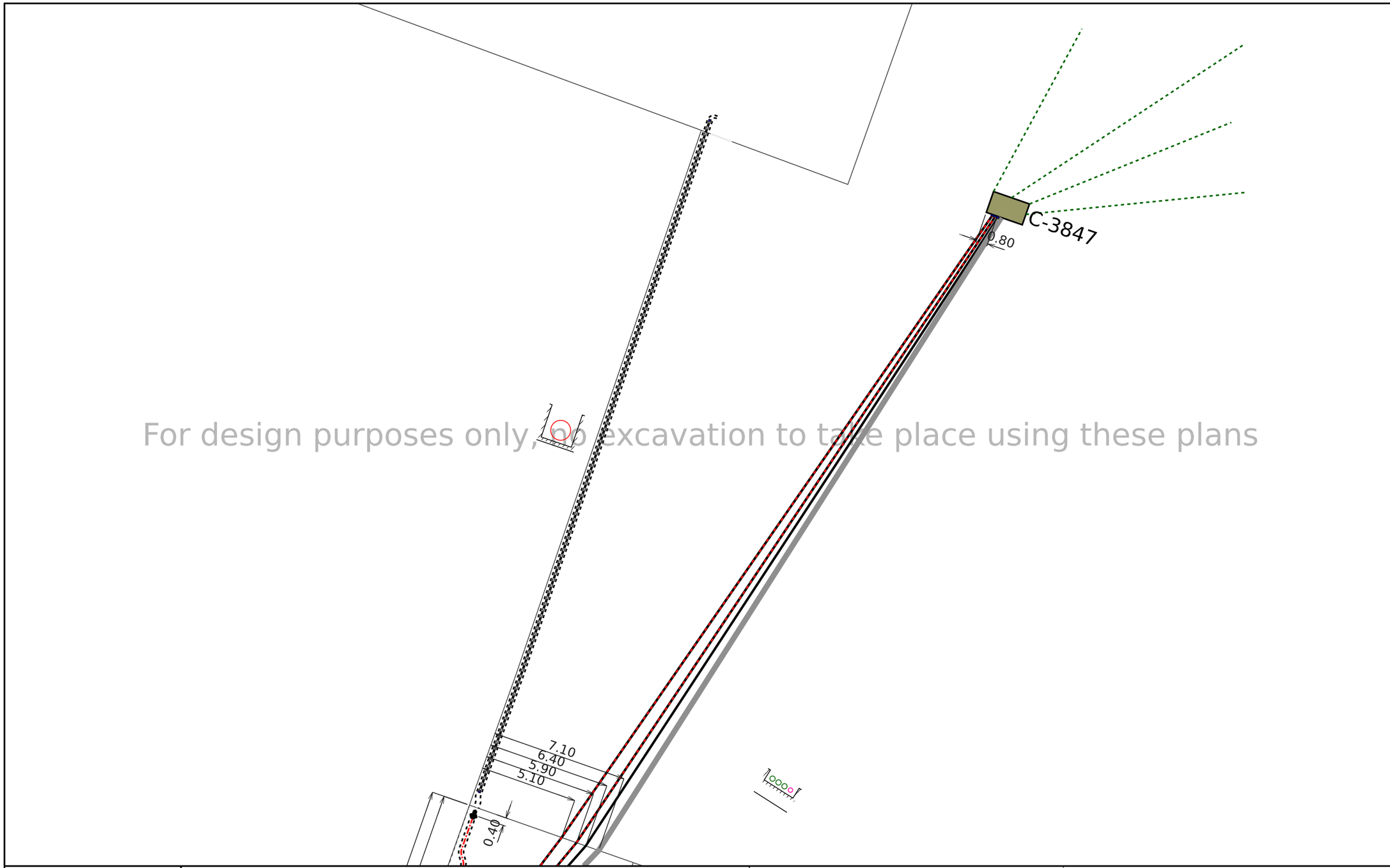
Client Reference:	Page: 20 of 26

A3 ELECTRICITY OBSTRUCTION PLAN

N W E S



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SYMBOL LEGEND

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DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT
- IN PROGRESS
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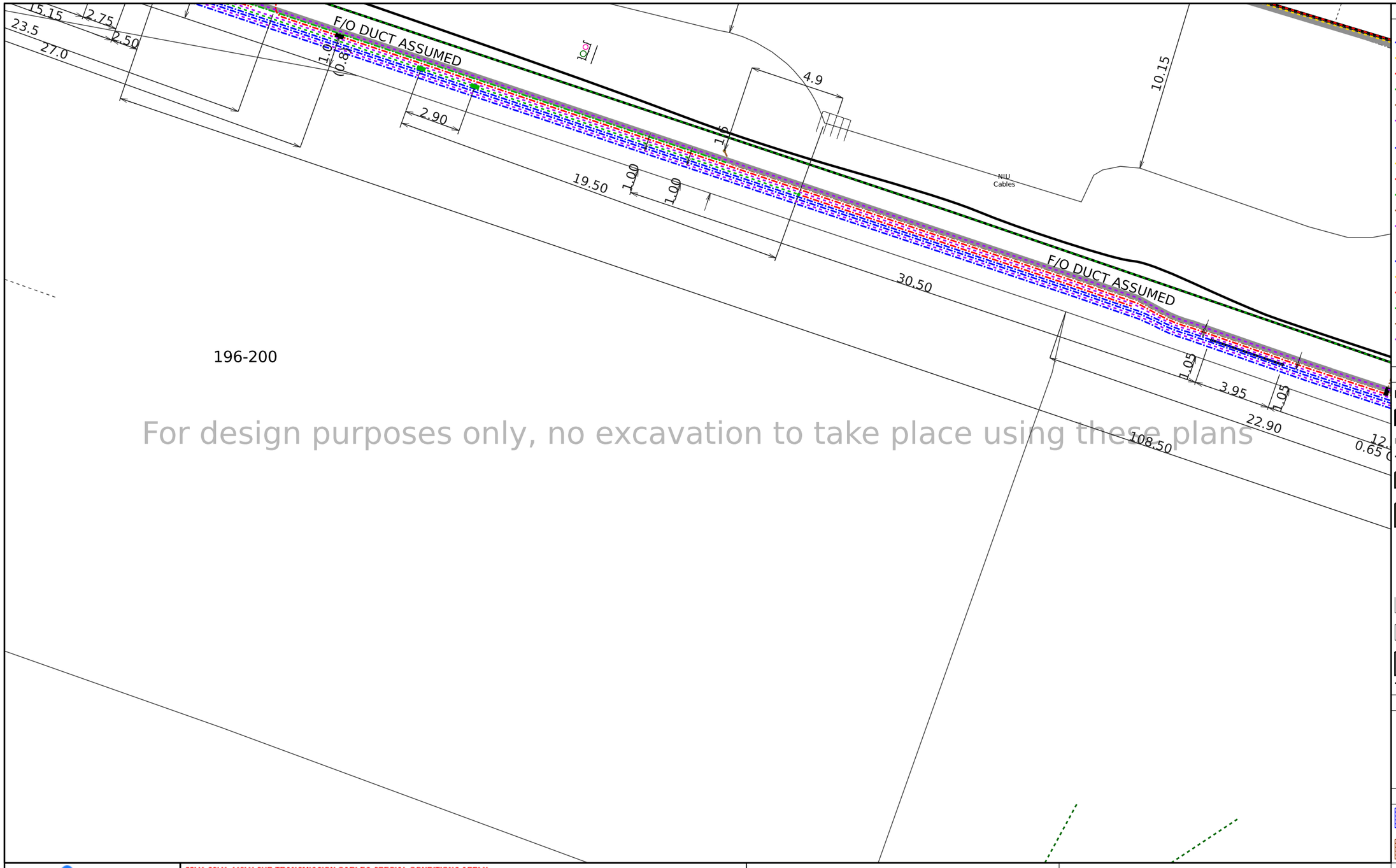
A3 ELECTRICITY OBSTRUCTION PLAN

N W E S



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DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT
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A3 ELECTRICITY OBSTRUCTION PLAN

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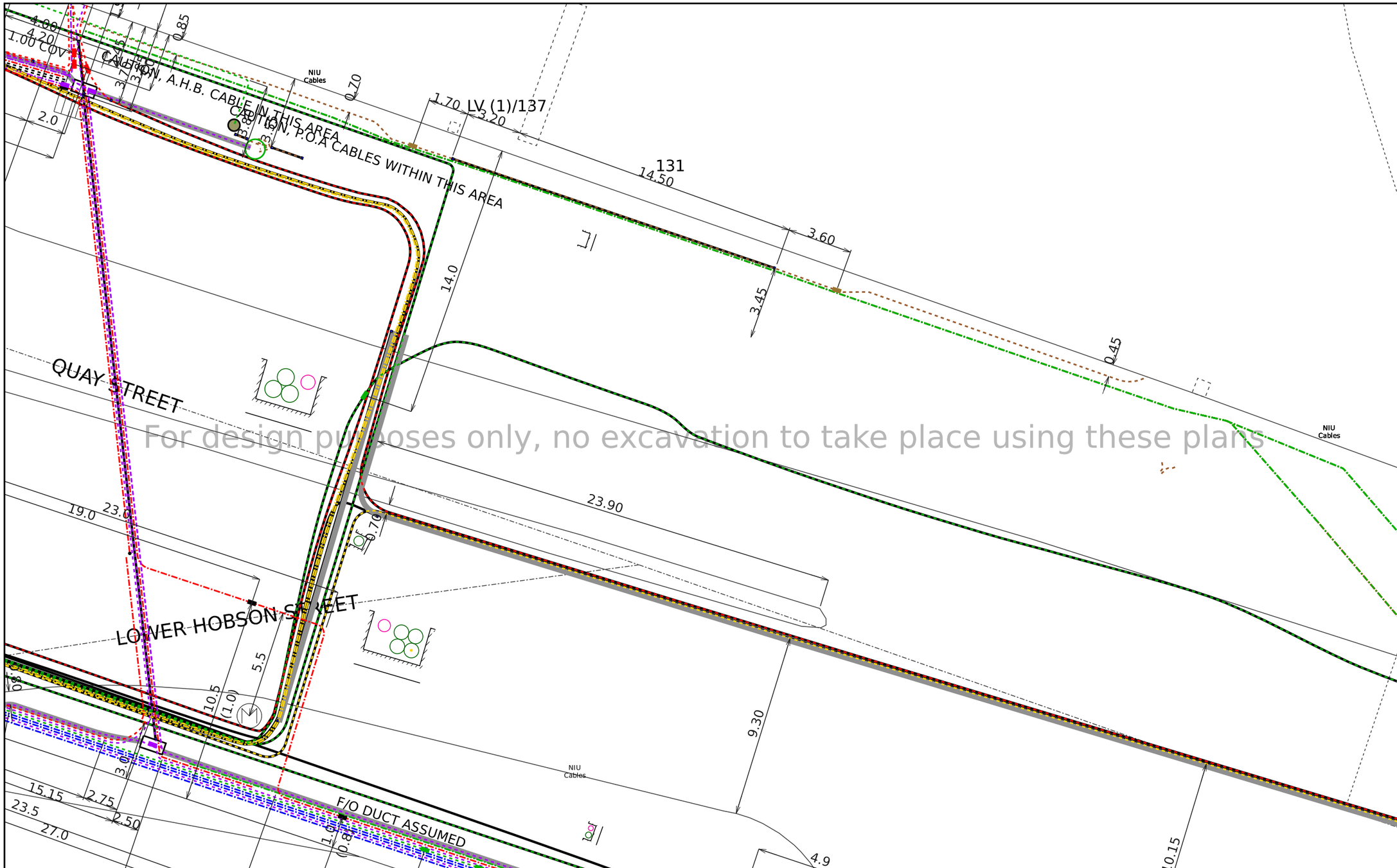

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DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT
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A3 ELECTRICITY OBSTRUCTION PLAN

N W E S

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- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150 200 250 300

WORK MANAGEMENT

- IN PROGRESS
- FUTURE PLANNED
- PLANNED

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22kV, 33kV, 110kV SUB TRANSMISSION CABLES-SPECIAL CONDITIONS APPLY:

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Title:	
Request Title:	
Company Name:	
Usage:	Request ID: 11197175
Request for:	Scale: 1:200
Customer Contact:	Printed by: sw-cloud-user
Phone:	Date printed: 29. March 2023
Client Reference:	Page: 24 of 26

A3 ELECTRICITY OBSTRUCTION PLAN

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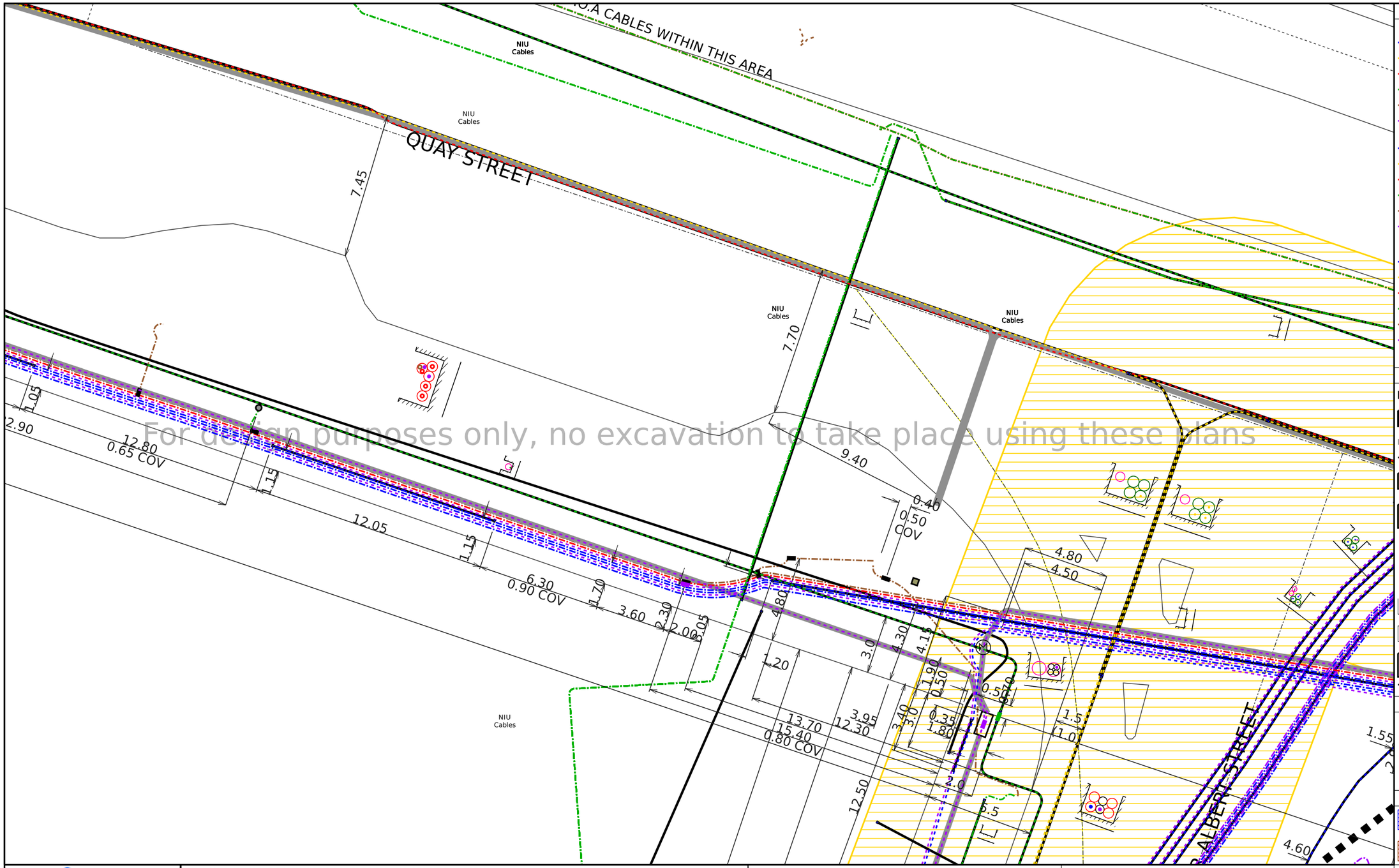

For design purposes only, no excavation to take place using these plans

CABLE COLOUR CODE

CABLES IN USE
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS
- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
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A3 ELECTRICITY OBSTRUCTION PLAN

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A3 ELECTRICITY OBSTRUCTION PLAN

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