Appendix A:

Site Location and Aerial Photo

Utilities location plans

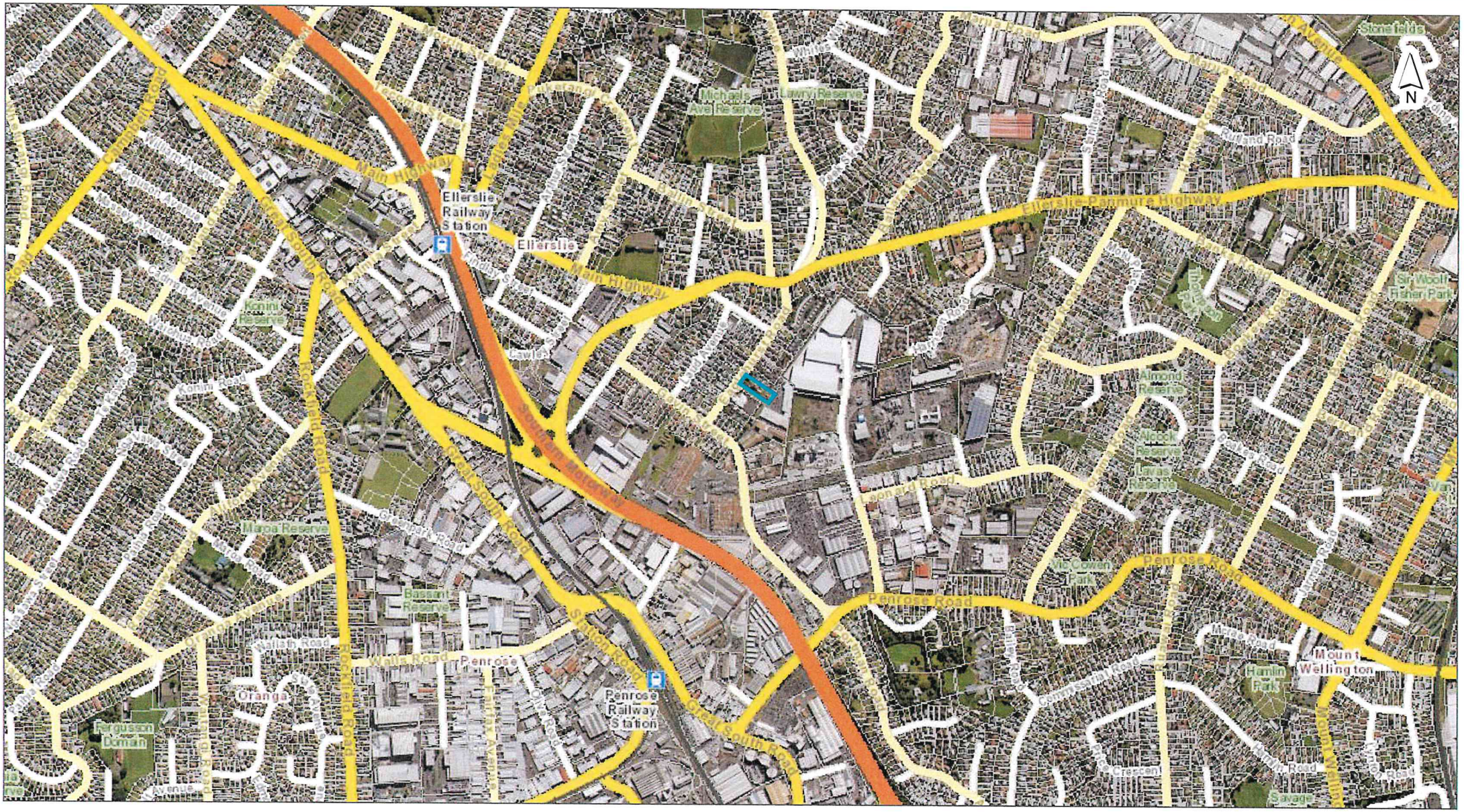
36A Eaglehurst Road

0 3.5 7 10.5
Meters

Scale @ A4
= 1:500

Date Printed:
24/05/2021

Auckland Council
Te Kaunihera o Tāmaki Makaurau



DISCLAIMER:
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36A Eaglehurst Road

0 100 200 300
Meters

Scale @ A4
= 1:15,000

Date Printed:
24/05/2021

Auckland Council
Te Kaunihera o Tāmaki Makaurau

DISCLAIMER:
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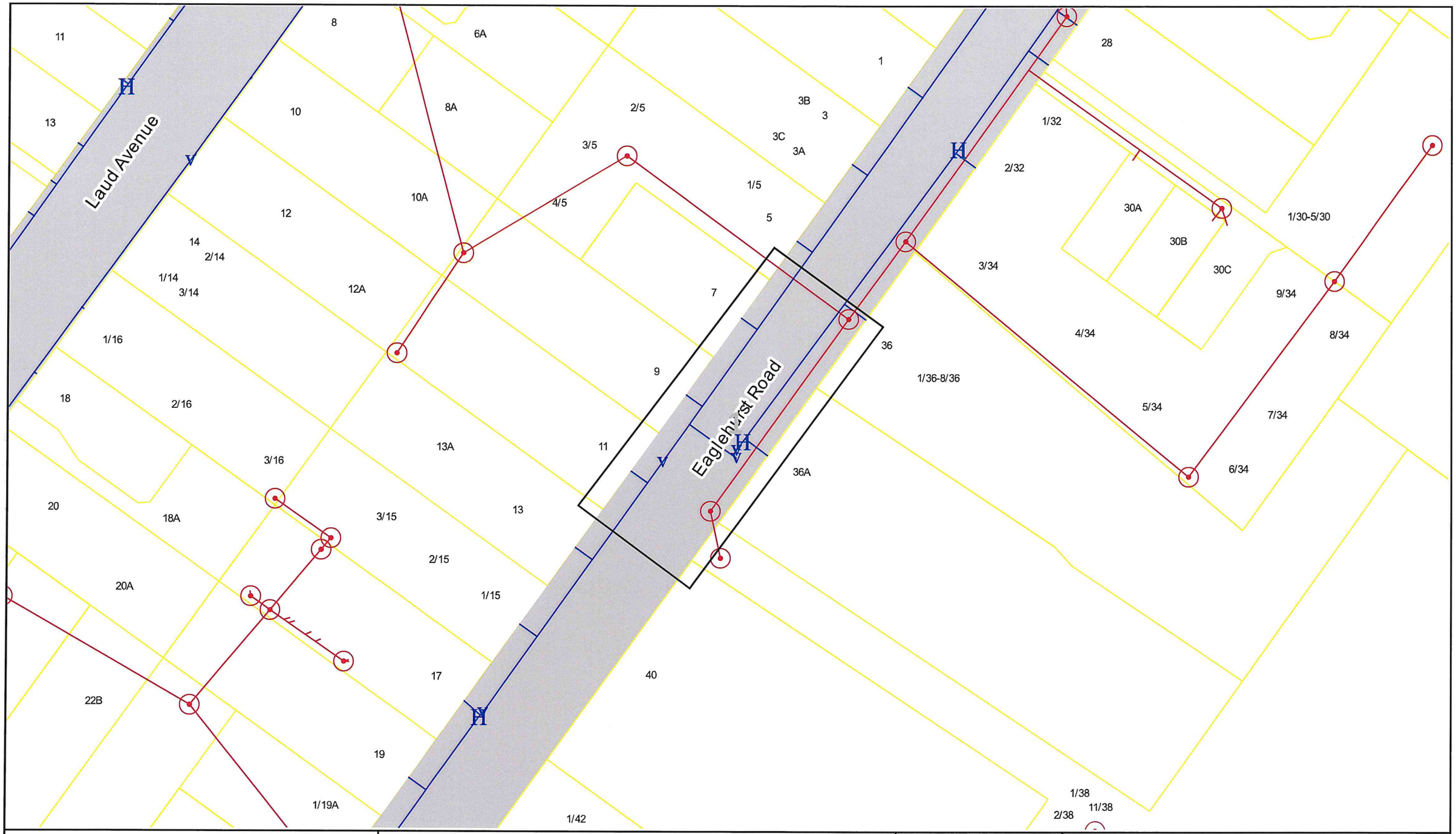
36a Eaglehurst Road

0 10 20 30
Meters

Scale @ A3
= 1:1,000

Date Printed:
22/07/2020

Auckland Council
Te Kaunihera o Tāmaki Makaurau



Watercare
An Auckland Council Organisation

Sequence Number: 9392594

Address: 36A Eaglehurst Road
Ellerslie, Auckland, 1060

- Waste Water
- Water
- Electrical/Cathodic Protection
- Waste Water Proposed
- Water Proposed

- V Valve
- H Hydrant
- M Water Meter
- Manhole

Scale: 1:1000

N

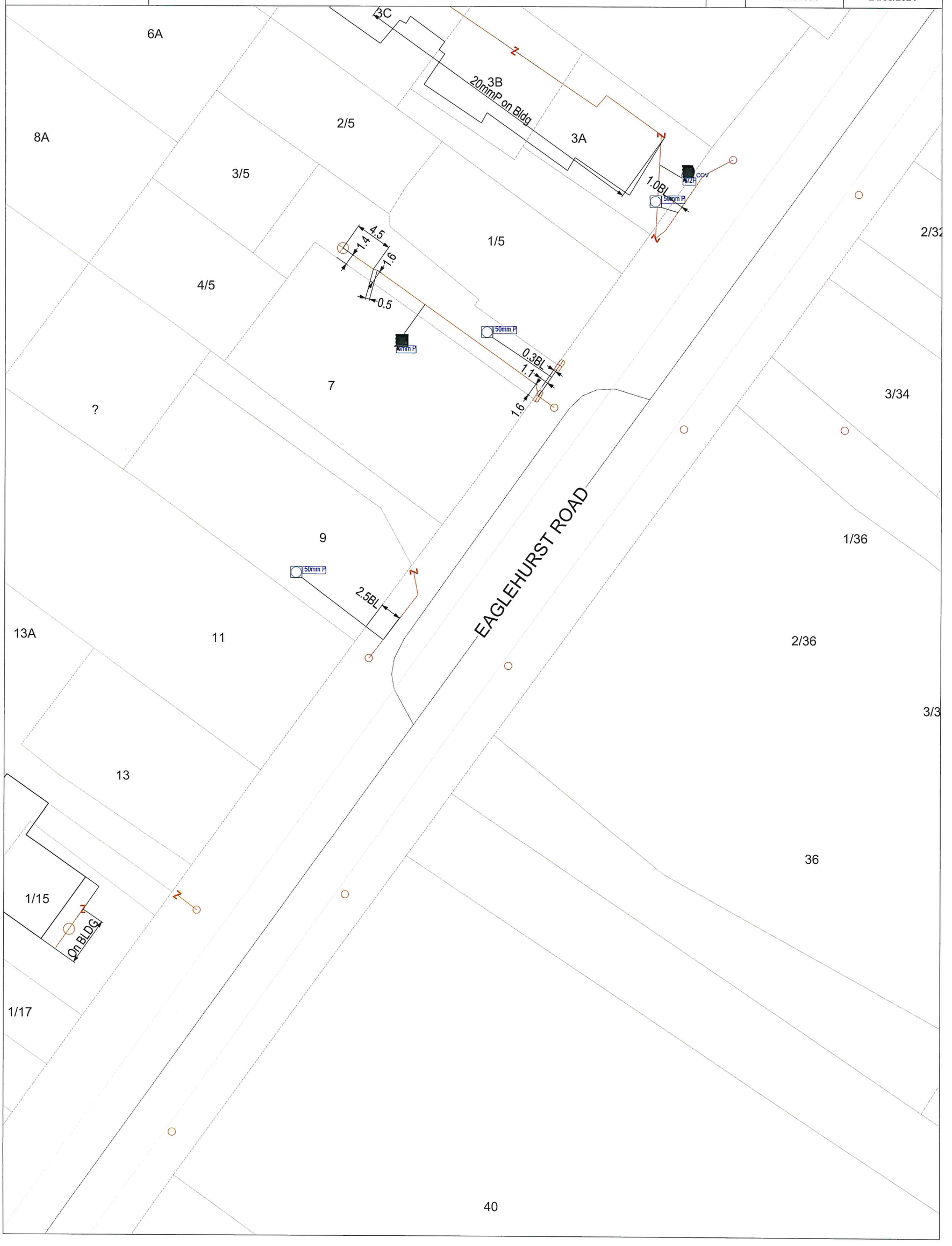
OVERVIEW NOT TO SCALE.

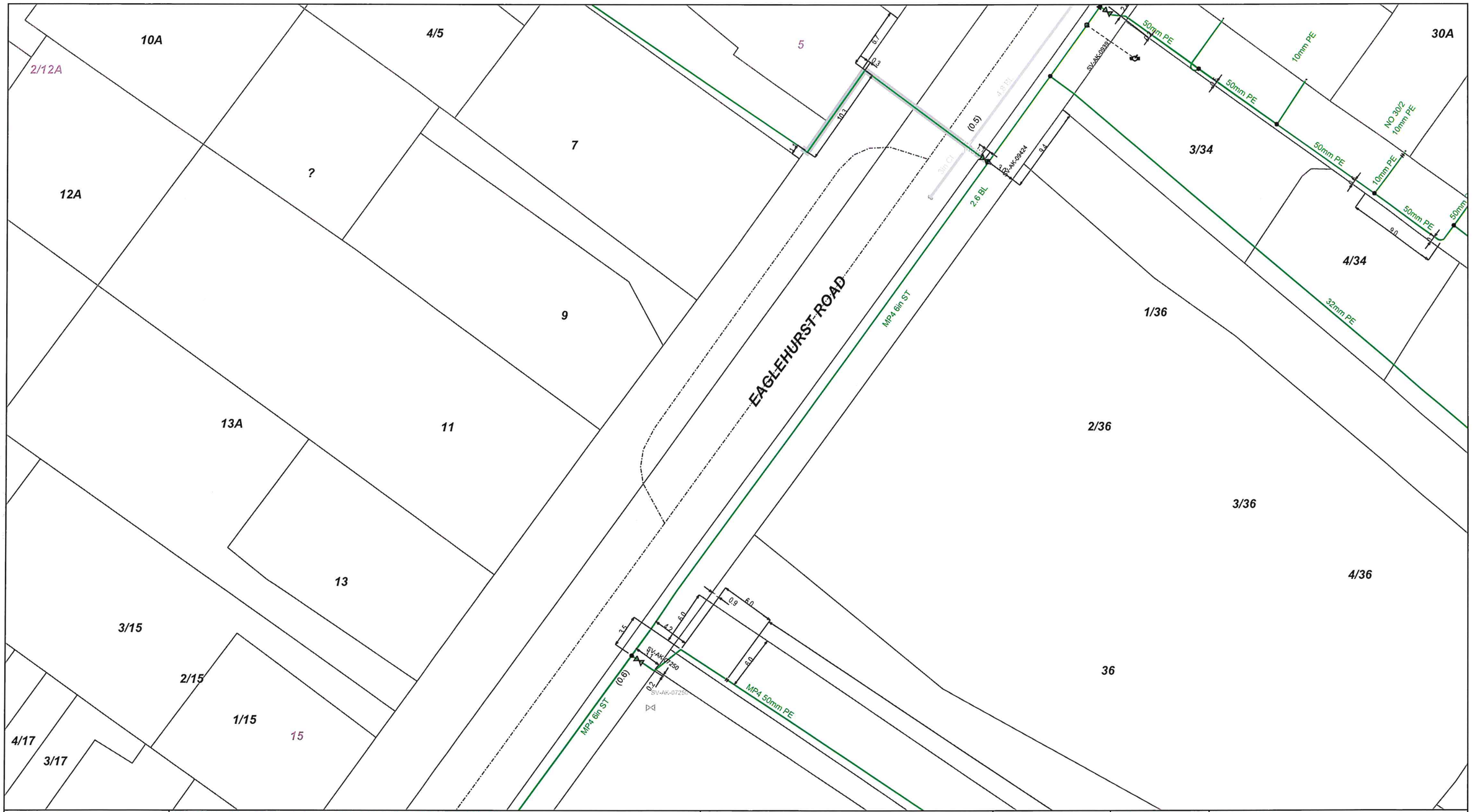
CHORUS

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	Gold
Plan ID	
Version	
Current at	24/05/2021





vector

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.

DISCLAIMER: Whilst care has been taken in the preparation of this plan, Vector Limited and its subsidiaries do not accept any liability for its accuracy and completeness and do not make any representation or warranty, express or implied, in relation to the same. These drawings are not to scale and may not show customer connections or obsolete lines. Works may have occurred in the vicinity which may not be represented in this plan at the date of issue. The information contained in this plan is supplied for reference purposes only; actual dimensions and locations on site may differ from those indicated. Without limiting the foregoing, where plans are more than 28 days old they should not be used; a new plan should be requested from Vector.

Vector reminds you of your responsibilities under the Health and Safety at Work Act 2015, whereby you must establish the location of underground services before commencing excavation.

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: 9392596
Request for:	Scale: 1:400
Customer Contact:	Printed by:
Phone:	Date printed: 24. May 2021
Client Reference:	Page: 3 of 4

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
- On Hold
- Planned

OTHER GAS FEATURES

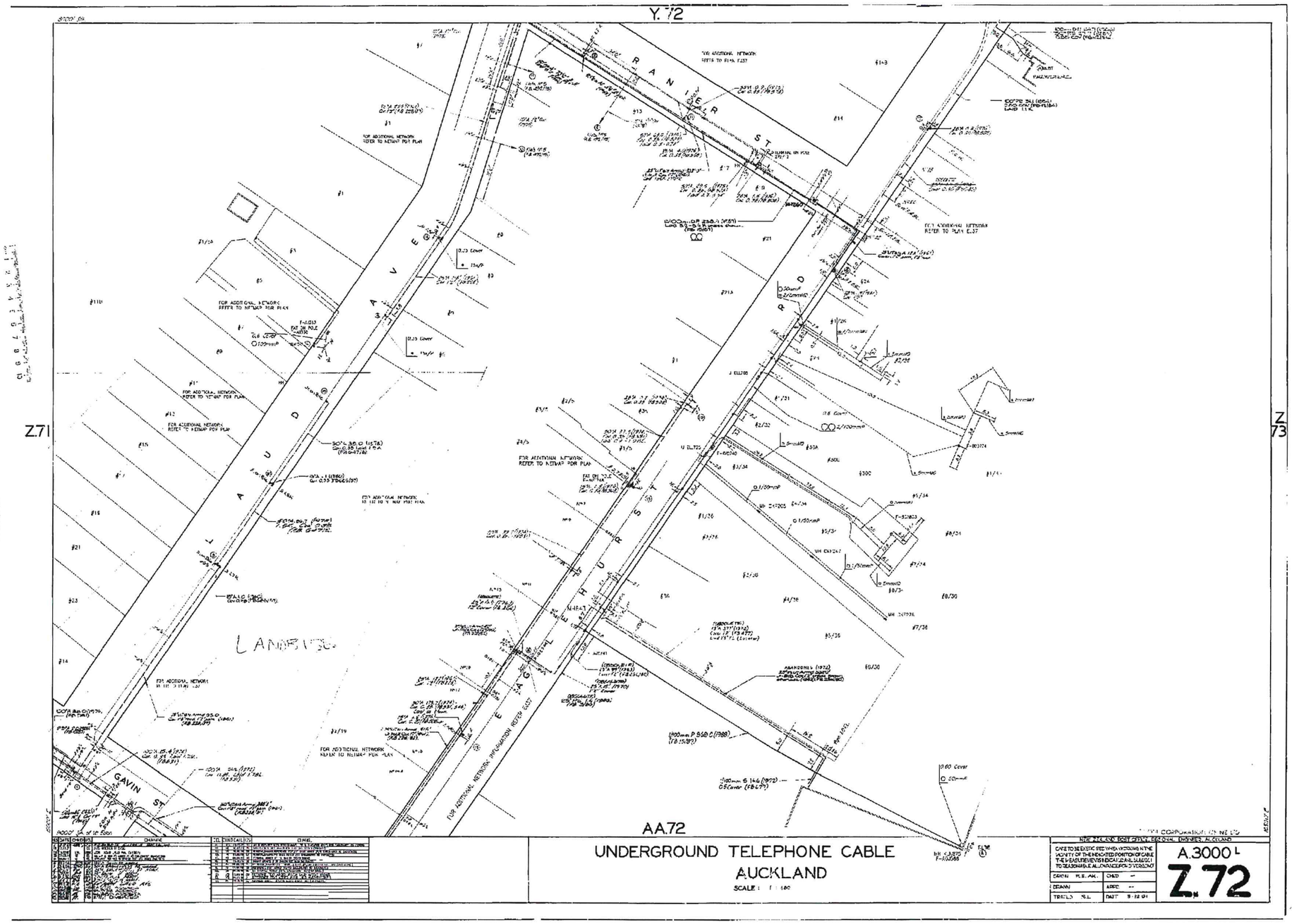
- Fibre Optic
- Closed Valve
- Gate
- Riser
- Open Valve
- PRS
- Service Regulator
- Reducer

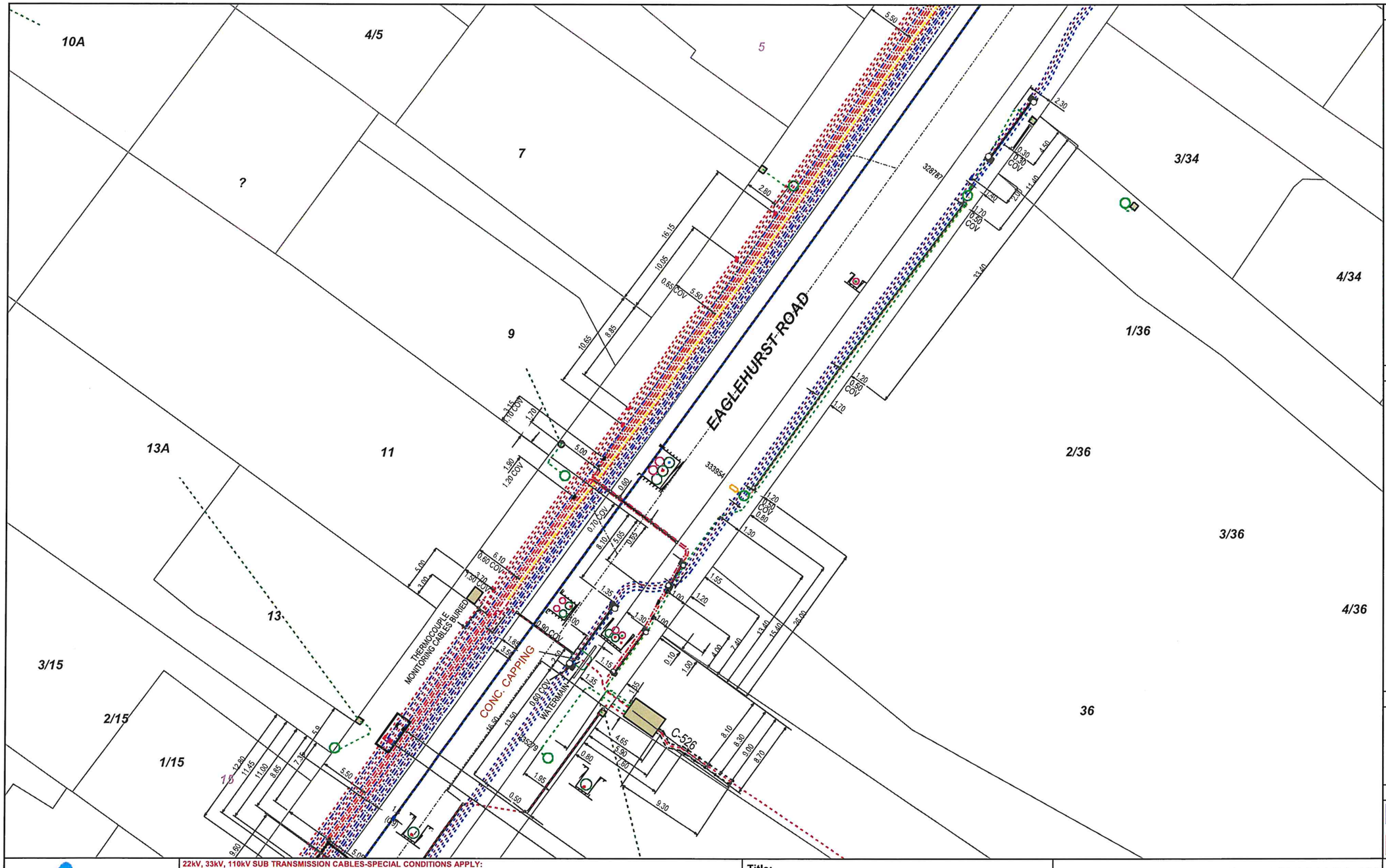
CHORUS

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	Z72
Plan ID	87670
Version	HF
Current at	24/05/2021





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
- ON HOLD
- PLANNED

vector

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

Vector Limited provides a free standover service that requires 2 working days notice. Hand digging is required when excavating within 1 metre of the cable. Replacement trench backfill material must be the same as that removed and it must be replaced to the same level of compaction. Refer to attached covering letter for additional information.

DISCLAIMER: Whilst care has been taken in the preparation of this plan, Vector Limited and its subsidiaries do not accept any liability for its accuracy and completeness and do not make any representation or warranty, express or implied, in relation to the same. These drawings are not to scale and may not show customer connections or obsolete lines. Works may have occurred in the vicinity which may not be represented in this plan at the date of issue. The information contained in this plan is supplied for reference purposes only; actual dimensions and locations on site may differ from those indicated. Without limiting the foregoing, where plans are more than 28 days old they should not be used; a new plan should be requested from Vector.

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Title:

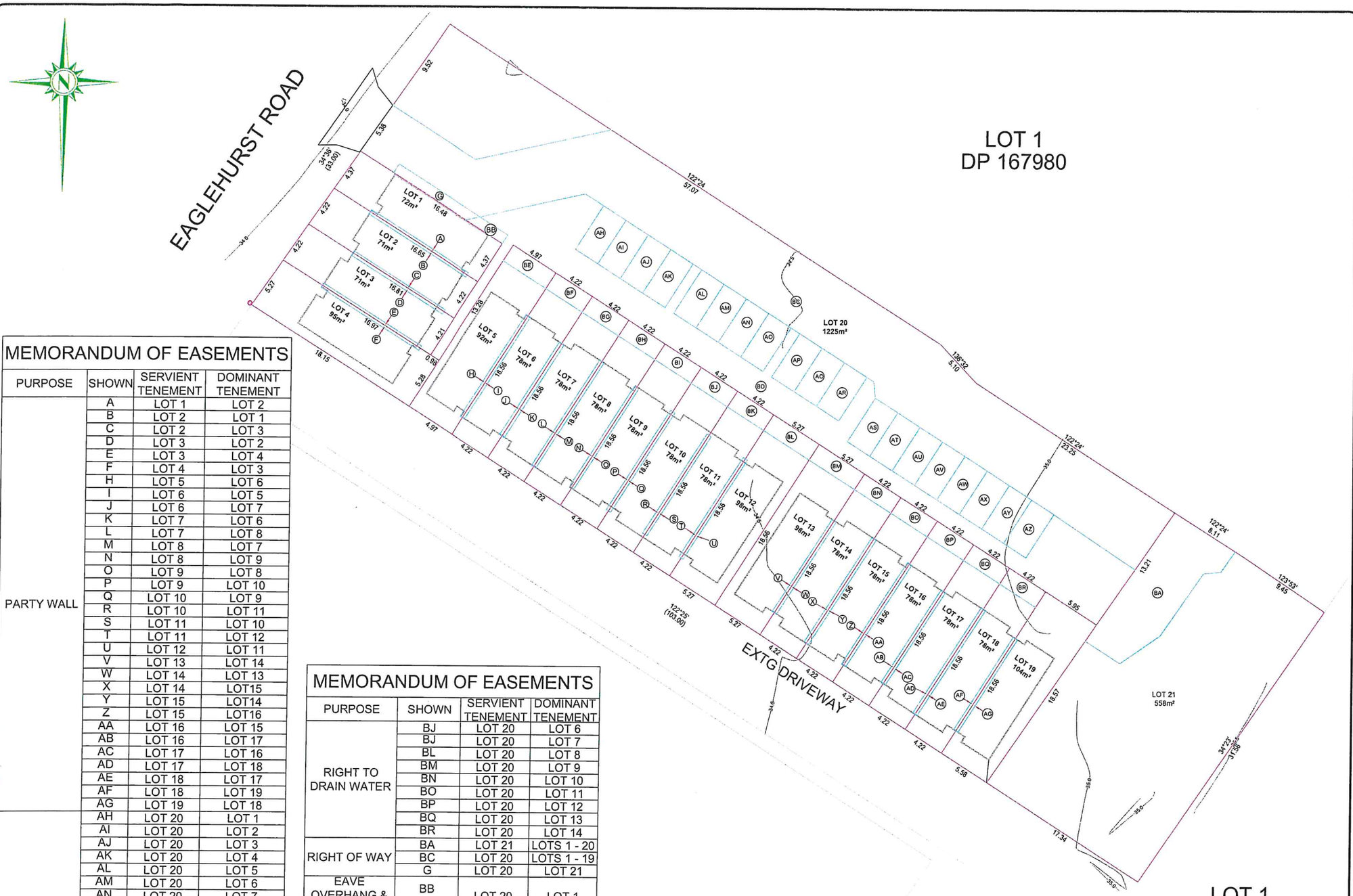
Request Title:	
Company Name:	
Usage:	Request ID: 9392595
Request for:	Scale: 1:400
Customer Contact:	Printed by: swadmin
Phone:	Date printed: 24. May 2021
Client Reference:	Page: 3 of 4

A3 ELECTRICITY OBSTRUCTION PLAN

N W E S

Appendix B:

Scheme Plan and Architectural Plans



SURVEYED		
DESIGNED		
DRAWN	CJ	05/21
TRACED		
CHECKED		

APPROVED BY: JM 03/06/21 — DATE

REVISION	CHANGES	CHECKED	DATE
	ORIGINAL		12/20
A	TEXT, EMNT, SCHEDULE CHANGED	JM	05/21
B	TEXT, EMNT, SCHEDULE CHANGED	JM	06/21

MEMORANDUM OF EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
PARTY WALL	A	LOT 1	LOT 2
	B	LOT 2	LOT 1
	C	LOT 2	LOT 3
	D	LOT 3	LOT 2
	E	LOT 3	LOT 4
	F	LOT 4	LOT 3
	H	LOT 5	LOT 6
	I	LOT 6	LOT 5
	J	LOT 6	LOT 7
	K	LOT 7	LOT 6
	L	LOT 7	LOT 8
	M	LOT 8	LOT 7
	N	LOT 8	LOT 9
	O	LOT 9	LOT 8
	P	LOT 9	LOT 10
	Q	LOT 10	LOT 9
	R	LOT 10	LOT 11
	S	LOT 11	LOT 10
	T	LOT 11	LOT 12
	U	LOT 12	LOT 11
	V	LOT 13	LOT 14
	W	LOT 14	LOT 13
	X	LOT 14	LOT15
	Y	LOT 15	LOT14
	Z	LOT 15	LOT16
	AA	LOT 16	LOT 15
	AB	LOT 16	LOT 17
	AC	LOT 17	LOT 16
	AD	LOT 17	LOT 18
	AE	LOT 18	LOT 17
	AF	LOT 18	LOT 19
	AG	LOT 19	LOT 18
PARKING	AH	LOT 20	LOT 1
	AI	LOT 20	LOT 2
	AJ	LOT 20	LOT 3
	AK	LOT 20	LOT 4
	AL	LOT 20	LOT 5
	AM	LOT 20	LOT 6
	AN	LOT 20	LOT 7
	AO	LOT 20	LOT 8
	AP	LOT 20	LOT 9
	AQ	LOT 20	LOT 10
	AR	LOT 20	LOT 11
	AS	LOT 20	LOT 12
	AT	LOT 20	LOT 13
	AU	LOT 20	LOT 14
	AV	LOT 20	LOT 15
	AW	LOT 20	LOT 16
	AX	LOT 20	LOT 17
	AY	LOT 20	LOT 18
	AZ	LOT 20	LOT 19
RIGHT TO DRAIN WATER	BE	LOT 20	LOT 1
	BF	LOT 20	LOT 2
	BG	LOT 20	LOT 3
	BH	LOT 20	LOT 4
	BI	LOT 20	LOT 5

MEMORANDUM OF EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
RIGHT TO DRAIN WATER	BJ	LOT 20	LOT 6
	BJ	LOT 20	LOT 7
	BL	LOT 20	LOT 8
	BM	LOT 20	LOT 9
	BN	LOT 20	LOT 10
	BO	LOT 20	LOT 11
	BP	LOT 20	LOT 12
	BQ	LOT 20	LOT 13
	BR	LOT 20	LOT 14
RIGHT OF WAY	BA	LOT 21	LOTS 1 - 20
	BC	LOT 20	LOTS 1 - 19
EAVE OVERHANG & MAINTENANCE	G	LOT 20	LOT 21
	BB G	LOT 20	LOT 1

SCHEDULE OF EASEMENT IN GROSS

PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
RIGHT TO CONVEY TELECOMMUNICATIONS	G BB BC BD	LOT 20	CHORUS NEW ZEALAND LIMITED

AMALGAMATION CONDITIONS

THAT LOT 20 BE HELD AS TO 19 UNDIVIDED ONE - NINETEENTH SHARE BY THE OWNERS OF LOTS 1 - 19 HERE AS TENANT IN COMMON IN THE SAID SHARES AND THAT THE INDIVIDUAL COMPUTER REGISTERS BE ISSUED IN ACCORDANCE THEREWITH.

NOTES

1. LEVELS ARE IN TERMS OF AUCKLAND VERTICAL DATUM (MSL) 1946
2. COORDINATES ARE IN TERMS OF GEODETIC DATUM MOUNT EDEN 2000 CIRCUIT
3. CONTOURS ARE AT 0.50m INTERVALS
4. COMPRISED IN RT NA101D/827
5. RECORD OF TITLE AREA 3342m²
6. LOCAL AUTHORITY - AUCKLAND COUNCIL
7. PROPERTY BOUNDARIES HAVE BEEN SOURCED FROM THE LINZ SPATIAL DATABASE AND ARE ACCURATE FOR TOPOGRAPHICAL PURPOSES ONLY. WHERE CRITICAL, BOUNDARY DIMENSIONS SHOULD BE CONFIRMED BY LAND TRANSFER SURVEY.
8. CERTAIN DRAINAGE AND UNDERGROUND SERVICE INFORMATION HAS BEEN PLOTTED FROM SERVICE PROVIDERS RECORDS, LOCATION SHOULD BE VERIFIED ON SITE.
9. WHERE THE RELATIONSHIP OF A PROPOSED BUILDING TO COUNCIL'S HEIGHT TO BOUNDARY CONTROL RULES BECOMES CRITICAL FURTHER GROUND LEVELS SHOULD BE TAKEN ON THE BOUNDARY ADJACENT TO THE CRITICAL POSITION(S)
10. THESE NOTES ARE AN INTEGRAL PART OF THIS PLAN.

APEXONE LTD

36A EAGLEHURST ROAD
ELLERSLIE
AUCKLAND

SCHEME PLAN
LOT 2 DP 167980

Barry Satchell
ENGINEERS SURVEYORS PLANNERS
60 NEW NORTH ROAD, EDEN TERRACE
PO BOX 10-343
DOMINION ROAD
AUCKLAND
TEL:+64-9-623-4573
WEB:www.bscl.co.nz

CAD Ref: P/8149/CAD/8193 151
XREFS:

STATUS
STAMP FOR RESOURCE AND BUILDING CONSENT

SCALES (A1) 1: 200 (A3) 1: 400

JOB NO.	DRAWING No.	REVISION
8149	151 SHT 1 OF 1	B

DO NOT SCALE - IF IN DOUBT, ASK
ORIGINAL SIZE A1

All buildings are far away from boundary, therefore HIRB comply

Address	36A Eaglehurst Road Ellerslie Auckland 1060
Legal Description	Lot 2 DP 167980
Zone	Mixed Housing Suburban Zone
Wind Zone	Low Wind Zone

LEGEND

- EXPOSED AGGREGATE CONCRETE DRIVEWAY, BLACK OXIDE
- RUBBISH BIN
- SHARED FOOTPATH, PERMEABLE CONCRETE PAVER, GREY COLOUR
- "STEPPING STONE "CONCRETE PAVER FOOTPATH 650MM OVERALL WIDE

MIXED HOUSING SUBURBAN ZONE	LOT 1		LOT 2		LOT 3		LOT 4		LOT 5		LOT 6		LOT 7		LOT 8		LOT 9		LOT 10	
	(m^2)	(%)	(m^2)	(%)	(m^2)	(%)	(m^2)	(%)	(m^2)	(%)	(m^2)	(%)	(m^2)	(%)	(m^2)	(%)	(m^2)	(%)	(m^2)	(%)
SITE AREA (m^2)	72	-	71	-	71	-	95	-	92	-	78	-	78	-	78	-	78	-	78	-
SITE COVERAGE (m^2)	43	59.7%	43	60.6%	43	60.6%	43	45.3%	44	47.8%	44	56.4%	48	61.5%	48	61.5%	47	60.3%	48	61.5%
IMPERMEABLE (m^2)	43	59.7%	43	60.6%	43	60.6%	43	45.3%	44	47.8%	44	56.4%	48	61.5%	48	61.5%	47	60.3%	48	61.5%
LANDSCAPE (m^2)	29	40.3%	28	39.4%	28	39.4%	52	54.7%	46	50.0%	32	41.0%	30	38.5%	30	38.5%	32	41.0%	30	38.5%

MIXED HOUSING SUBURBAN ZONE	LOT 11		LOT 12		LOT 13		LOT 14		LOT 15		LOT 16		LOT 17		LOT 18		LOT 19		LOT 20	
	(m^2)	(%)	(m^2)	(%)	(m^2)	(%)	(m^2)	(%)	(m^2)	(%)	(m^2)	(%)	(m^2)	(%)	(m^2)	(%)	(m^2)	(%)	(m^2)	(%)
SITE AREA	78	-	98	-	98	-	78	-	78	-	78	-	78	-	78	-	104	-	1225	-
SITE COVERAGE (m^2)	48	61.5%	47	48.0%	47	48.0%	48	61.5%	48	61.5%	47	60.3%	48	61.5%	48	61.5%	47	45.2%	-	-
IMPERMEABLE (m^2)	48	61.5%	47	48.0%	47	48.0%	48	61.5%	48	61.5%	47	60.3%	48	61.5%	48	61.5%	47	45.2%	769	62.8%
LANDSCAPE (m^2)	30	38.5%	52	53.1%	52	53.1%	30	38.5%	30	38.5%	52	66.7%	30	38.5%	30	38.5%	58	55.8%	325	26.5%

LIGHT INDUSTRY ZONE	LOT 21	
	(m^2)	(%)
SITE AREA	558	-
SITE COVERAGE	-	-
IMPERMEABLE	87	15.6%
LANDSCAPE	471	84.4%

MHS ZONE	OVERALL	
	(m^2)	(%)
SITE AREA	2784	-
SITE COVERAGE	879	31.6%
IMPERMEABLE	1648	59.2%
LANDSCAPE	1026	36.9%
FRONT YARD AREA	99	-
FRONT YARD LANDSCAPE AREA	80	80.8%

ARCHILAND

Archiland Architecture
Add: D3/63 Apollo Drive, Rosedale, Auckland.
Ph: 09 3608163
E-mail: info@archiland.co.nz

PROPOSED TERRACED HOUSES
36A EAGLEHURST ROAD,
ELLERSLIE, AUCKLAND.

Project Status: RESOURCE CONSENT APPLICATION

Sheet title: TOWN PLANNING PLAN

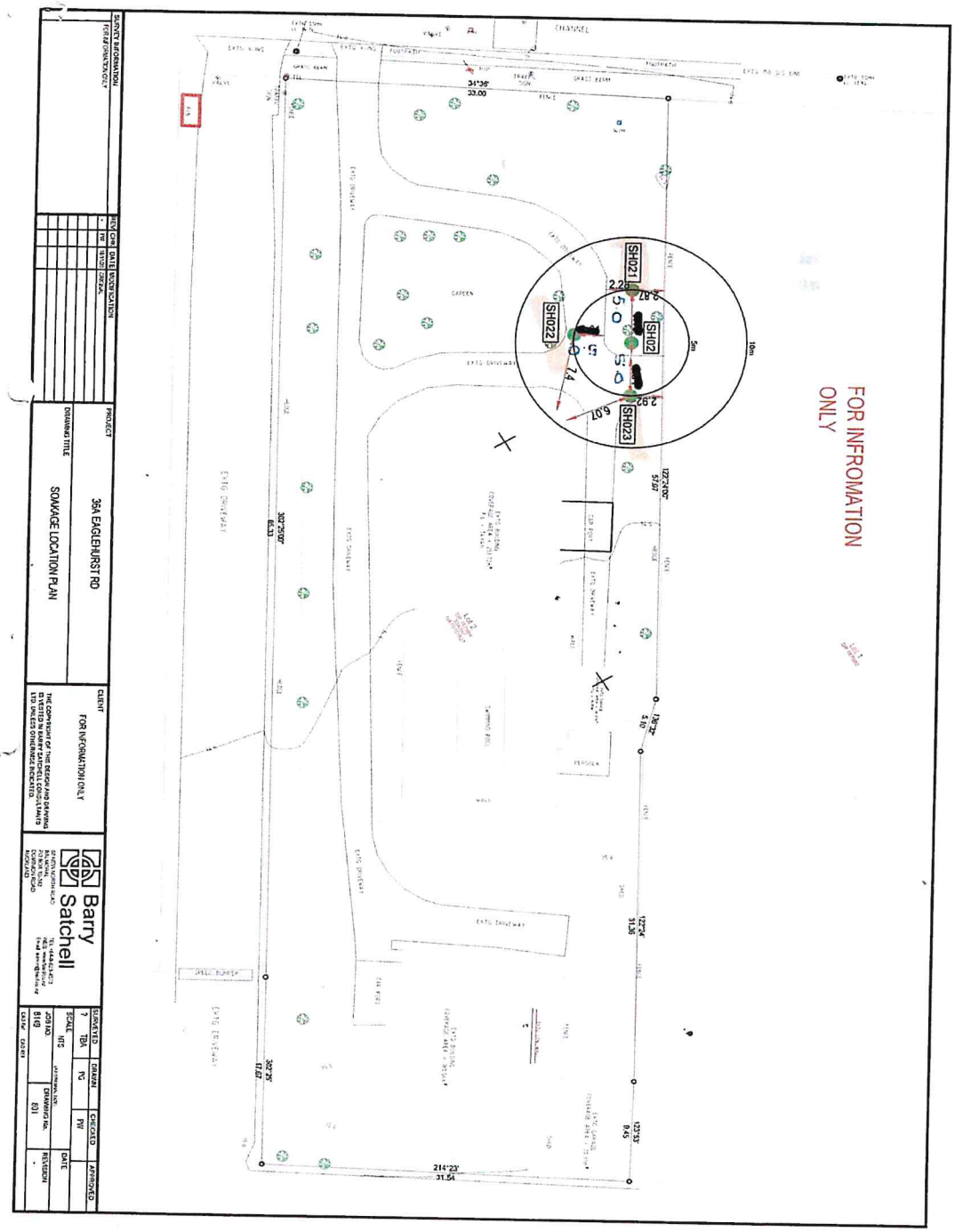
Project Code	Design	Drawn	Peer Review	Final Check	Scales - A3
9396	HHX	L J	NT	HHX	1:300

Date printed 4/06/2021

Sheet No. 04

Appendix C:

Stormwater Soakage Results and Calculations


FOR INFROMATION ONLY
SURVEY INFORMATION
FOR INFORMATION ONLY
REV CHK DATE MODIFICATION
PROJECT
36A EAGLEHURST RD
DRAWING TITLE
SOAKAGE LOCATION PLAN
CLIENT
FOR INFORMATION ONLY
Barry Satchell
SURVEYED ?
DRAWN PG
CHECKED PW
APPROVED
SCALE NTS
JOB NO 8169
DRAWING No. 801
REVISION -
DATE
SH021
SH022
SH023
SH02
CHANNEL
GARDEN
EXTG DRIVEWAY
PERGOLA
214°23'
31.54

Hole No:	**SH 021**
Hole Dia:	**100mm**
Hole Loc:	**Per Plan**
Cased to:	**3.0 mtrs**
RCK:	**0.0m - 0.3m**
SL:	**0.3m - 1.8m**
SC:	**1.8m - 2.0m**
RCK:	**2.0m - 4.3m**
SC:	**4.3m - 4.6m**
RCK:	**4.6m - 20.0m**
	E.O.H
Flow Rate:	6.1 L/sec
Test Method:	Truck
Water Vol:	3660 L
Duration:	10min
Presoak 10min:	4200 L

Truck at max flow

Hole No:	**SH 022**
Hole Dia:	**100mm 10° Angle**
Hole Loc:	**Per Plan**
Cased to:	**3.0 mtrs**
F:	**0.0m - 0.4m**
RCK (Stoney):	**0.4m - 1.2m**
RCK (Brown):	**1.2m - 6.2m**
SC:	**6.2m - 6.3m**
RCK:	**6.3m - 20.0m**
CLY:	**20.0m - 20.5m**
	E.O.H.
Flow Rate:	< 2.0 L/sec
Test Method:	Truck
Water Vol:	N/A
Duration:	N/A
Presoak 10min:	N/A

Truck at max flow

Hole No:	**SH 023**
Hole Dia:	**100mm**
Hole Loc:	**Per Plan**
Cased to:	**3.0 mtrs**
RCK (Gravely):	**0.0m - 1.3m**
RCK:	**1.3m - 2.7m**
SC:	**2.7m - 2.9m**
RCK:	**2.9m - 5.0m**
SC:	**5.0m - 5.1m**
RCK:	**5.1m - 20.0m**
SLT/W:	**20.0m - 21.0m**
	E.O.H
Flow Rate:	2.6 L/sec
Test Method:	Truck
Water Vol:	1560 L
Duration:	10min
Presoak 10min:	1900 L

Truck at max flow

Note: SH2, SH 021, SH023 Simultaneously Flow Tested

www.niedererdrilling.co.nz
5/143 Cavendish Dr Manukau
PO Box 98878 Manukau City, Auckland 2241
niedererdrilling@xtra.co.nz
Ph: 09 2783108

SOAKHOLE DRILLING SITE REPORT

Client:	**NZ Archiland**
Attn:	**Dylan Huang**
Ph:	**021 1309828**
email:	archiland.nz@gmail.com
Consultant:	**Barry Satchell**
Attn:	**Peter Garriock**
email:	**pgarriock@bscl.co.nz**
Ph:	**022 192 6727**
Site:	**36a Eaglehurst Road Ellerslie**
Date:	**17/18 - 03-2021**

A = Ash
C = Cavities
CH = Chamber
CLY = Clay
CRT = Concrete
F = Fill
F-R = Fractured Rock
GVL = Gravels
M-CLY = Marine Clay
RCK = Basalt Rock
SC = Scoria
SL = Soils
SLT = Silts
T = Tuff
V/s = Void/s
W = Water
E.O.H. = End of Hole

Rockbore Soakhole

Hole No:	**SH 01**
Hole Dia:	**100mm**
Hole Loc:	**Marked on Site**
13.5 mtrs from Front of Boundary	
4.7 mtrs from Left Boundary	
Cased to:	**3.0 mtrs**
SL:	**0.0m - 0.4m**
RCK:	**1.0m - 18.5m**
SC:	**18.5m 19.5m**
RCK (Lightly F-R, Wet):	**19.5m - 20.5m**
	E.O.H
Flow Rate:	3.1 L/sec
Test Method:	Truck
Water Vol:	1860 L
Duration:	10min
Presoak 10min:	1860 L

Hole No:	**SH 02**
Hole Dia:	**100mm - Angled**
Hole Loc:	
23.0 mtrs from Front Boundary	
3.4 mtrs from Left Boundary	
Cased to:	**3.0 mtrs**
SL:	**0.0m - 0.4m**
RCK:	**0.4m - 0.6m**
F-R:	**0.6m - 0.7m**
RCK:	**0.7m - 2.7m**
SC:	**2.7m - 2.8m**
RCK:	**2.8m - 4.5m**
RCK (Scoriaceous):	**4.5m - 7.3m**
RCK:	**7.3m - 18.0m**
F-R/SL(Wet):	**18.0m - 20.0m**
	E.O.H.
Flow Rate:	27.0 L/sec
Test Method:	Truck
Water Vol:	16200 L
Duration:	10min
Presoak 10min:	5500 L
Truck at max flow	

SH 20

WORKSHEET 2. CONSTANT-HEAD PERCOLATION TEST

W2

Site Address: 36a Eaglehurst Road, Ellerslie

Completed by: Peter Garriock

Date of test: 09.04.21 Signature: _____

Attach the following:

- [x] Log of borehole showing depth, geological layers and water table
- [x] Site-plan showing the location of the hole

(tick when attached)

- [ ] Civil Engineer
- [x] Engineering Technician
- [ ] Engineering Geologist

(tick one)

Ensure the following procedures are followed:

- [x] A permit is obtained from Metrowater
- [x] Hole is pre-soaked for 10 minutes prior to test
- [x] Test is continued for 10 to 15 minutes
- [x] Rockbores are maintained full
- [ ] Testpits are maintained ½ full
- [x] Bores within 10m of each other are tested simultaneously
- [ ] Borehole drilling is attempted before constructing a testpit

(tick when complete)

3. Test Details

Time	Flowrate (L/s)	Time	Flowrate (L/s)
10m	27L/s		

4. Determine capacity of rockbore/testpit :

(a) Capacity of bore = $P_2 = \frac{Flowrate^*}{1.3}$ = 20.8 L/s

* Use the end-of-test flowrate.

6. Percolation Rate (testpit only)

(do not complete this step for rockbores)

(a) Soakage surface (½ total wall area + base area) = _____ m^2

(b) Percolation rate = $P_1 = \frac{P_2 \times 60}{(soakage\_surface)}$ = _____ $L/m^2/min$

WORKSHEET 4. ROCKBORE SOAKHOLE

Site address 36a Eaglehurst Rd SH 20
Job No. 8149
Design by P. Garriock Area C
Date 27.04.21

1 Equivalent Impervious Area

Cover Type	Area (m2)		Ration, R_E	Area x R_E (m2)
Roof	Ar =	926	1	926
Paved	Ac =	0	1	0
Pervious (lawn etc)	Ap =	838	0.3	251.4

(a) Equivalent impervious area A_E Σ A_E = **1177.4** m²

2. Rockbore Capacity (if no storage provided)

a) Constant-head flow (from WORKSHEET 2) = P_2 = 20.8 L/s

b) Maximum area that can be served by bore = $\frac{P_2 \times 60}{1.1}$ = 1134.55 m²

c) If area from b) > A_E, no storage needed and step 3 does not need to be completed.

3. Storage Required

a) Catchment soakage ratio = $P_3 = \frac{P_2 \times 60}{A_E}$ = 1.0599626 L/min/(m² equivalent impervious area)

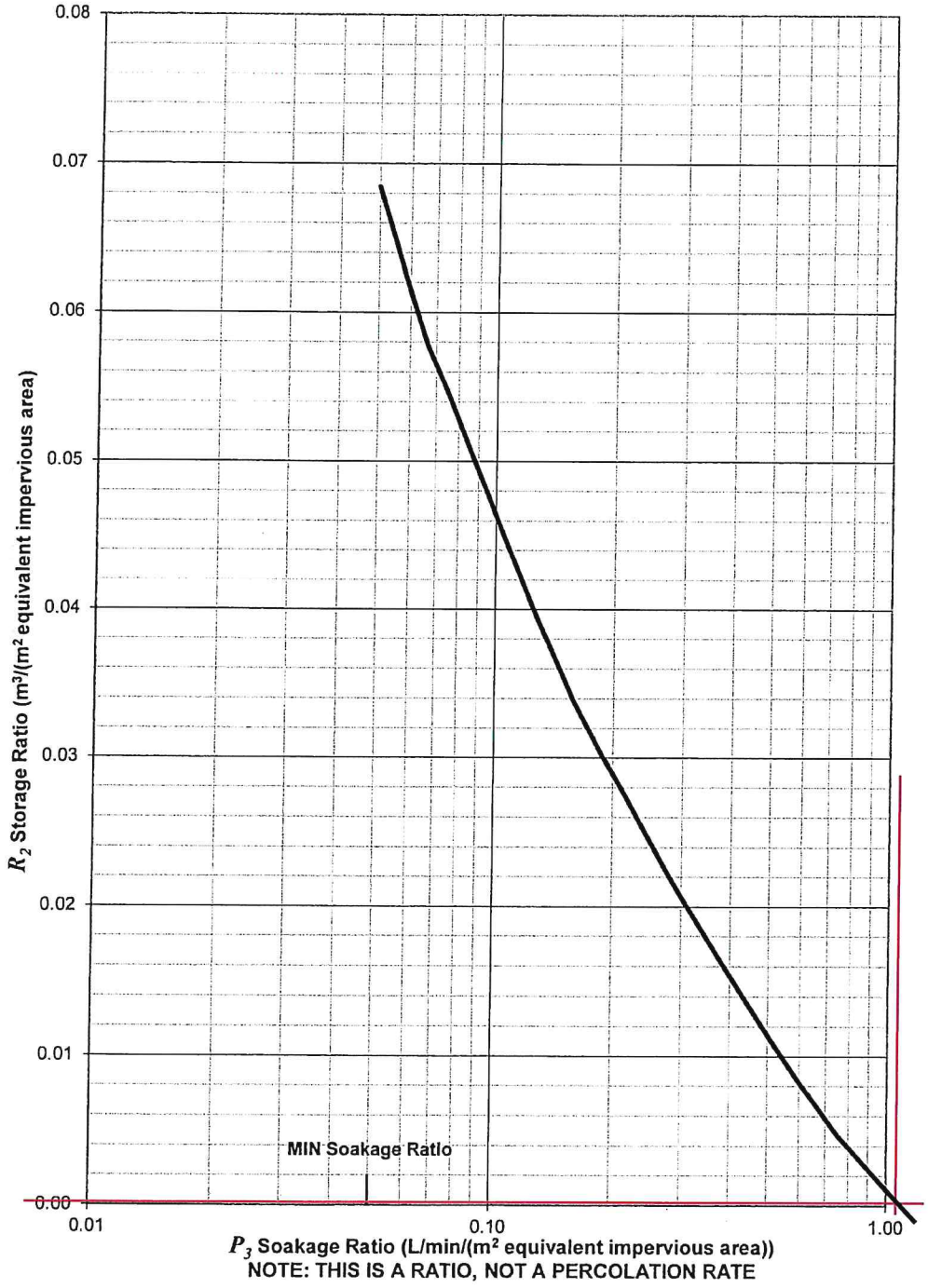
b) Read of storage ratio (from CHART 2) = R_2 = 0.001 m³/m²

c) Calculate storage required = $R_2 \times A_E$ = 1.2 m³

d) Compre to available storage = 1.3 m³
if negitve value no storage needed -0.1 m³

CHART 2 -Storage Requirements for all Soakholes

C2



SH 21

WORKSHEET 2. CONSTANT-HEAD PERCOLATION TEST

W2

Site Address: 36a Eaglehurst Road, Ellerslie

Completed by: Peter Garriock

Date of test: 09.04.21 Signature: _____

Attach the following:

- [x] Log of borehole showing depth, geological layers and water table
- [x] Site-plan showing the location of the hole

(tick when attached)

- [ ] Civil Engineer
- [x] Engineering Technician
- [ ] Engineering Geologist

(tick one)

Ensure the following procedures are followed:

- [x] A permit is obtained from Metrowater
- [x] Hole is pre-soaked for 10 minutes prior to test
- [x] Test is continued for 10 to 15 minutes
- [x] Rockbores are maintained full
- [ ] Testpits are maintained ½ full
- [x] Bores within 10m of each other are tested simultaneously
- [ ] Borehole drilling is attempted before constructing a testpit

(tick when complete)

3. Test Details

Time	Flowrate (L/s)	Time	Flowrate (L/s)
10m	6.1L/s		

4. Determine capacity of rockbore/testpit :

(a) Capacity of bore = $P_2 = \frac{Flowrate^*}{1.3}$ = 4.7 L/s

* Use the end-of-test flowrate.

6. Percolation Rate (testpit only)

(do not complete this step for rockbores)

(a) Soakage surface (½ total wall area + base area) = _____ m^2

(b) Percolation rate = $P_1 = \frac{P_2 \times 60}{(soakage\_surface)}$ = _____ $L/m^2/min$

WORKSHEET 4. ROCKBORE SOAKHOLE

Site address 36a Eaglehurst Rd SH 21
Job No. 8149
Design by P. Garriock Area A
Date 27.04.21

1 Equivalent Impervious Area

Cover Type	Area (m2)	Ration, R_E	Area x R_E (m2)
Roof	Ar = 527	1	527
Paved	Ac = 0	1	0
Pervious (lawn etc)	Ap = 135	0.3	40.5

(a) Equivalent impervious area A_E Σ A_E = **567.5** m²

2. Rockbore Capacity (if no storage provided)

a) Constant-head flow (from WORKSHEET 2) = P_2 = 4.7 L/s

b) Maximum area that can be served by bore = $\frac{P_2 \times 60}{1.1}$ = 256.364 m²

c) If area from b) > A_E, no storage needed and step 3 does not need to be completed.

3. Storage Required

a) Catchment soakage ratio = $P_3 = \frac{P_2 \times 60}{A_E}$ = 0.49692 L/min/(m² equivalent impervious area)

b) Read of storage ratio (from CHART 2) = R_2 = 0.0116 m³/m²

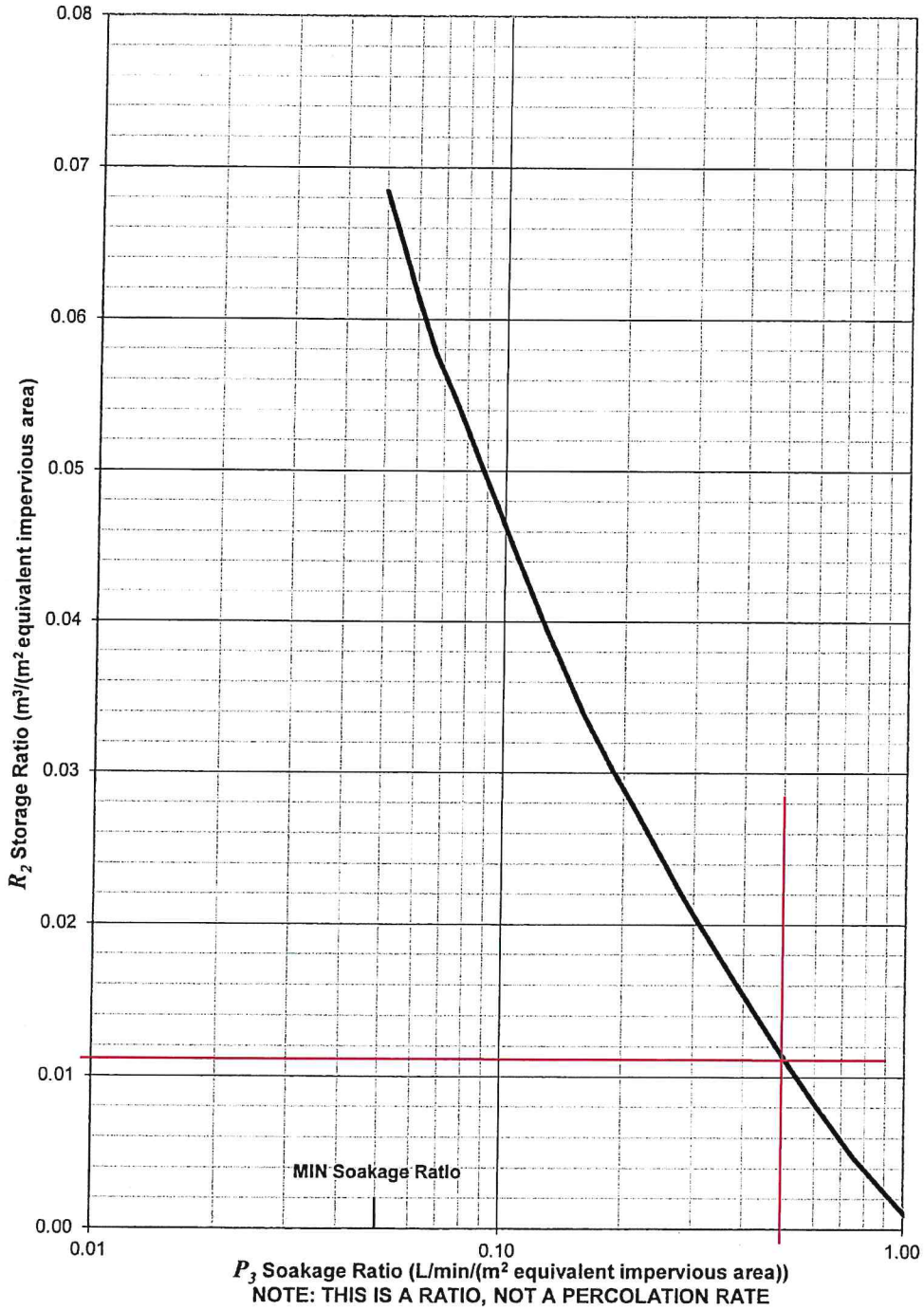
c) Calculate storage required = $R_2 \times A_E$ = 6.6 m³

d) Compre to available storage = 1.3 m³
5.3 m³

8149 36a Eaglehurst Road
SH 21

CHART 2 -Storage Requirements for all Soakholes

C2



SH 23

WORKSHEET 2. CONSTANT-HEAD PERCOLATION TEST

W2

Site Address: 36a Eaglehurst Road, Ellerslie

Completed by: Peter Garriock

Date of test: 09.04.21 Signature: _____

Attach the following:

- [x] Log of borehole showing depth, geological layers and water table
- [x] Site-plan showing the location of the hole

(tick when attached)

- [ ] Civil Engineer
- [x] Engineering Technician
- [ ] Engineering Geologist

(tick one)

Ensure the following procedures are followed:

- [x] A permit is obtained from Metrowater
- [x] Hole is pre-soaked for 10 minutes prior to test
- [x] Test is continued for 10 to 15 minutes
- [x] Rockbores are maintained full
- [ ] Testpits are maintained ½ full
- [x] Bores within 10m of each other are tested simultaneously
- [ ] Borehole drilling is attempted before constructing a testpit

(tick when complete)

3. Test Details

Time	Flowrate (L/s)	Time	Flowrate (L/s)
10m	2.7L/s		

4. Determine capacity of rockbore/testpit :

(a) Capacity of bore = $P_2 = \frac{Flowrate^*}{1.3}$ = 2.1 L/s

* Use the end-of-test flowrate.

6. Percolation Rate (testpit only)

(do not complete this step for rockbores)

(a) Soakage surface (½ total wall area + base area) = _____ m^2

(b) Percolation rate = $P_1 = \frac{P_2 \times 60}{(soakage\_surface)}$ = _____ $L/m^2/min$

WORKSHEET 4. ROCKBORE SOAKHOLE

Site address	36a Eaglehurst Rd		SH 23
Job No.	8149		
Design by	P. Garriock	Area B	
Date	27.04.21		

1 Equivalent Impervious Area

Cover Type	Area (m2)	Ration, R_E	Area x R_E (m2)
Roof	Ar = 360	1	360
Paved	Ac = 0	1	0
Pervious (lawn etc)	Ap = 0	0.3	0

(a) Equivalent impervious area A_E $\quad \Sigma \quad A_E =$ **360** m²

2. Rockbore Capacity (if no storage provided)

a) Constant-head flow (from WORKSHEET 2) = P_2 = 2.1 L/s

b) Maximum area that can be served by bore = $\frac{P_2 \times 60}{1.1}$ = 114.545 m²

c) If area from b) > A_E, no storage needed and step 3 does not need to be completed.

3. Storage Required

a) Catchment soakage ratio = $P_3 = \frac{P_2 \times 60}{A_E}$ = 0.35 L/min/(m² equivalent impervious area)

b) Read of storage ratio (from CHART 2) = R_2 = 0.018 m³/m²

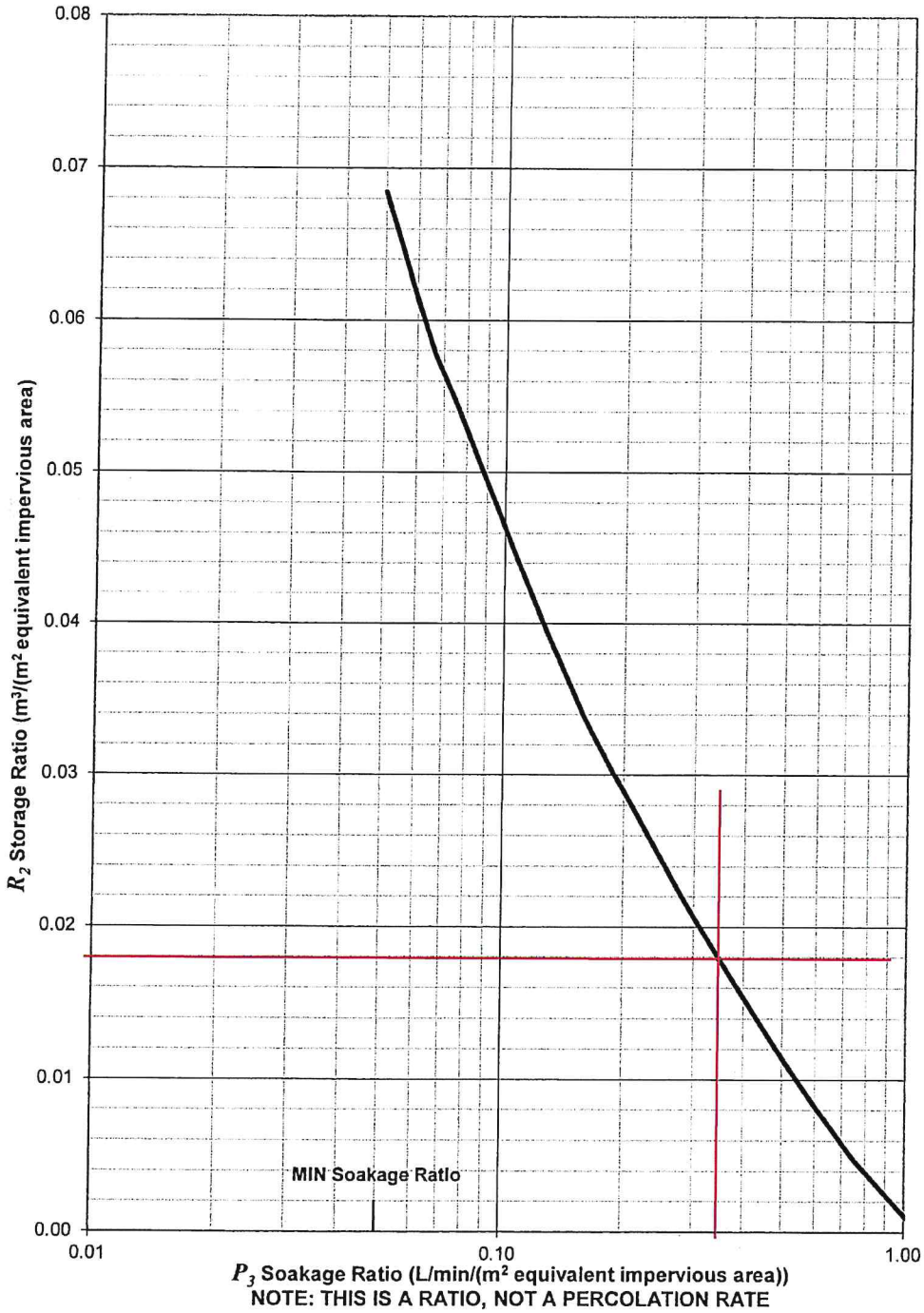
c) Calculate storage required = $R_2 \times A_E$ = 6.5 m³

d) Compre to available storage = 1.5m 1.3 m³

5.2 m³

CHART 2 -Storage Requirements for all Soakholes

C2



SH 03 & 04

W2

WORKSHEET 2. CONSTANT-HEAD PERCOLATION TEST

Site Address: 36a Eaglehurst Road, Ellerslie

Completed by: Peter Garriock

Date of test: 09.04.21 Signature: _____

Attach the following:

- [x] Log of borehole showing depth, geological layers and water table
- [x] Site-plan showing the location of the hole

(tick when attached)

- [ ] Civil Engineer
- [x] Engineering Technician
- [ ] Engineering Geologist

(tick one)

Ensure the following procedures are followed:

- [x] A permit is obtained from Metrowater
- [x] Hole is pre-soaked for 10 minutes prior to test
- [x] Test is continued for 10 to 15 minutes
- [x] Rockbores are maintained full
- [ ] Testpits are maintained ½ full
- [ ] Bores within 10m of each other are tested simultaneously
- [ ] Borehole drilling is attempted before constructing a testpit

(tick when complete)

3. Test Details

Time	Flowrate (L/s)	Time	Flowrate (L/s)
10m	1.7L/s SH03		
	1.1L/s SH04		
TOTAL	2.8L/s		

4. Determine capacity of rockbore/testpit :

(a) Capacity of bore = $P_2 = \frac{Flowrate^*}{1.3}$ = 2.2 L/s

* Use the end-of-test flowrate.

6. Percolation Rate (testpit only)

(do not complete this step for rockbores)

(a) Soakage surface (½ total wall area + base area) = _____ m^2

(b) Percolation rate = $P_1 = \frac{P_2 \times 60}{(soakage\_surface)}$ = _____ $L/m^2/min$

WORKSHEET 4. ROCKBORE SOAKHOLE

Site address 36a Eaglehurst Rd SH 03 & 04
Job No. 8149
Design by P. Garriock Area D
Date 27.04.21

1 Equivalent Impervious Area

Cover Type	Area (m2)		Ration, R_E	Area x R_E (m2)
Roof	Ar =	334	1	334
Paved	Ac =	0	1	0
Pervious (lawn etc)	Ap =	222	0.3	66.6

(a) Equivalent impervious area A_E Σ A_E = **400.6** m²

2. Rockbore Capacity (if no storage provided)

a) Constant-head flow (from WORKSHEET 2) = P_2 = 2.2 L/s

b) Maximum area that can be served by bore = $\frac{P_2 \times 60}{1.1}$ = 120 m²

c) If area from b) > A_E, no storage needed and step 3 does not need to be completed.

3. Storage Required

a) Catchment soakage ratio = $P_3 = \frac{P_2 \times 60}{A_E}$ = 0.32951 L/min/(m² equivalent impervious area)

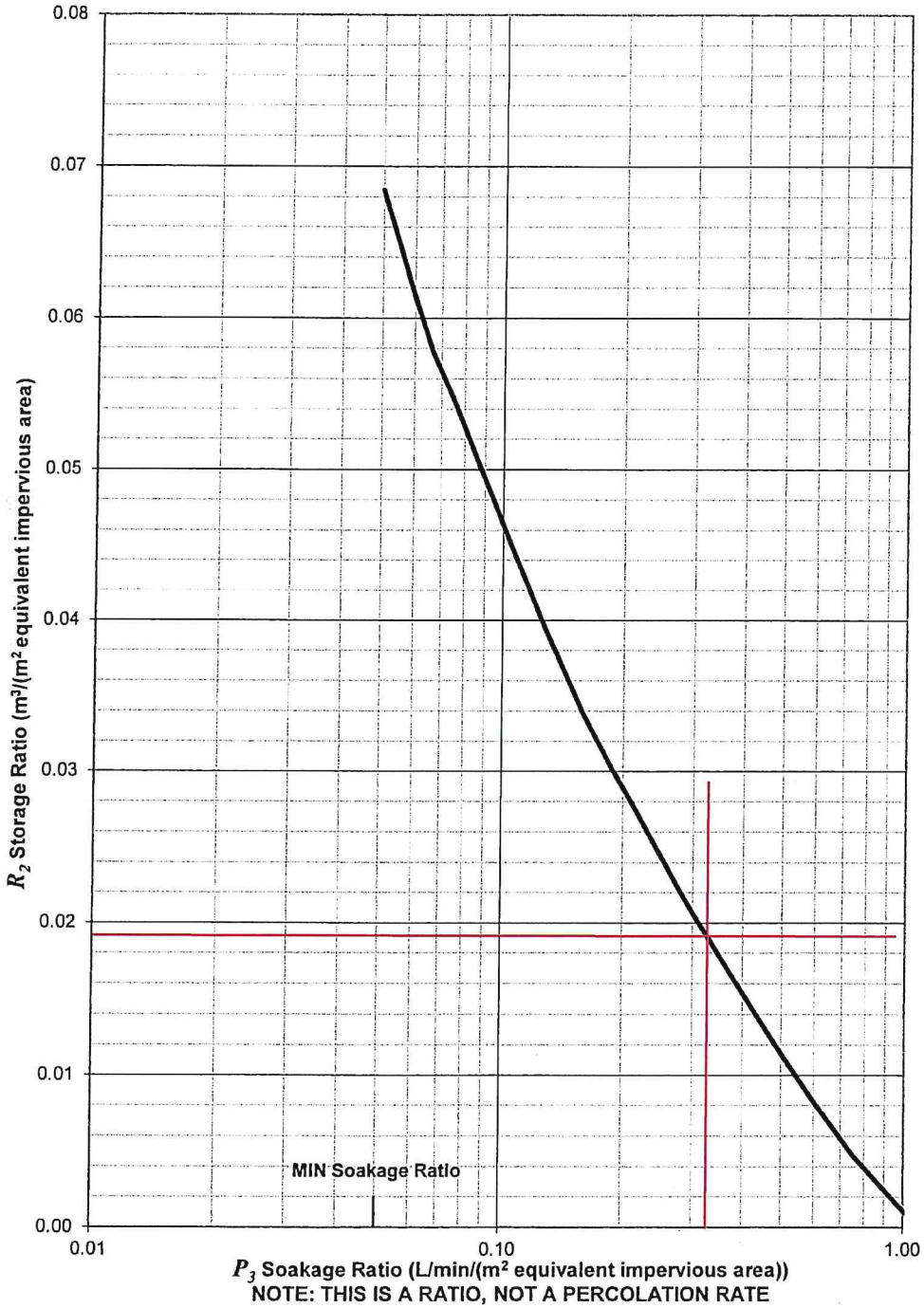
b) Read of storage ratio (from CHART 2) = R_2 = 0.019 m³/m²

c) Calculate storage required = $R_2 \times A_E$ = 7.6 m³

d) Compre to available storage = 2 MH 2.6 m³
5.0 m³

CHART 2 -Storage Requirements for all Soakholes

C2



LEGEND

SOAKHOLE FOR DRIVEWAY DRAINAGE SLIT BETWEEN SH 21 & 23

SOAKHOLE FOR ROOF & GRASS DRAINAGE

SH 21
AREA A
527m2 Impervious
135m2 grass
6.6m3 detention
1.3m3 chamber
5.3m3 storage

SH 20
AREA C
926m2 roof
838m2 grass

SH 23
AREA B=360m2
6.5m3 detention
1.3m3 chamber
5.2m3 storage

SH03

SH 03 & 04
AREA D
334m2 roof
222m2grass
7.6m3 deten
2.6m3 chambers
5.0m3 storage

SH04

A D'WAY & PARKING 600m³ GRASS 135m²

B D'WAY & PARKING 422m³

C ROOF 926m³ GRASS 838m²

D ROOF 334m³ GRASS 222m²

LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
LOT 11
LOT 12
LOT 13
LOT 14
LOT 15
LOT 16
LOT 17
LOT 18
LOT 19

FOOTPATH
GRASS BERM
TRAFFIC SIGN
TEL
GRASS BERM

EXTG DRIVEWAY

SURVEY INFORMATION	REV	CHK	DATE	MODIFICATION
FOR INFORMATION ONLY	-	PW	29/04/21	ORIGINAL

PROJECT: 36A EAGLEHURST RD

DRAWING TITLE: SOAKHOLE LOCATION PLAN

CLIENT: FOR INFORMATION ONLY

Barry Satchell
ENGINEERS - SURVEYORS - PLANNERS
60 NEW NORTH ROAD
BALMORAL
PO BOX 10-343
DOMINION ROAD
AUCKLAND
TEL:+64-9-623-4573
WEB: www/bscl/co.nz
Email: admin@bscl.co.nz

SURVEYED	DRAWN	CHECKED	APPROVED
N/A	PG	PW	

SCALE: NTS (A3 ORIGINAL SIZE)

DATE:

JOB NO.: 8149

DRAWING No.: 701

REVISION: -

CAD Ref. 8149 soakage location.13.11.20

FORM "OSM-O&M-PLAN"

(A) SITE & OSM DEVICE DETAILS:

(1) Site Address: 36a Eaglehurst Road, Ellerslie

(2) Owners Name: TBA

(3) Details of OSM Device(s): Residential Soakholes

Ref. No	Type	Size (eg m2 or m3)	Location	Runoff Source*
SH 20	Rockbore	1,177.4m2	accessway	roof, grass
SH03 & 04	Rockbore	400.6m2	accessway	roof, grass

* eg roof, paved area

(4) Name & Address of Parties Responsible for Inspecting and Maintaining the Devices:

TBA

(B) O&M PLAN PREPARED BY:

(1) Firm: Barry Satchell Consultants Liminted

(2) Responsible Individuals Name: Peter Garriock

(3) Firms Address: 60 New North Road. Eden Terrace

(C) ATTACHED FORMS:

(1) Form "OSM-O&M-Routine"

(2) Forms "DEVICE-SPECIFIC O&M DETAILS": (one for each OSM device)

Ref. No	Type
SH 20	Rockbore
SH 03 & 04	Rockbore

Signed Date

AC Office Use:

Reference No. _____

Checked by: _____ Date: _____

Entered by: _____ Date: _____

FORM "OSM-O&M-ROUTINE"

List of Routine Maintenance Requirements

(a) Monitoring & Inspection Programme:

Routine monitoring and inspections are required to:

- Develop a condition history
- Improve scheduling efficiency
- Apply preventative maintenance

Inspection records are to be used to:

- Determine where special maintenance conditions exist
- Determine optimal frequencies for future inspection and maintenance
- Establish scheduled and unscheduled maintenance provisions
- Assure OSM device operation and aesthetics

Specific requirements cover:

- The owner will be responsible for conducting inspections (or having then done on his/her behalf) with the OSM device "as-built" plans in hand, generally at the following intervals (noting that this may vary, depending on site-specific conditions):
    - quarterly basis for the first 2 years
    - minimum of semi-annually thereafter
- The owner will be responsible for keeping inspection records to track the progressive development of the OSM device(s) over time, covering (note that these are to be available to the maintenance contractor noted in Section 11.2 and/or the City/ACE as may be required):
    - general condition of vegetation area(s), predominant plant species, distribution, and success rate (where applicable)
    - sediment condition and depth in forebay (or other pre-treatment structure), treatment facility, bench planting zones, and other sediment removal components
    - water elevations/observations (sheen, smell, etc.)
    - condition of the inlet, outlet, and overflow structures/devices, etc
    - unscheduled maintenance needs
    - components that do not meet performance criteria and require immediate maintenance
    - common problem areas, solutions, and general observations
    - aesthetic conditions

(b) Soils in Stormwater Planters & Rain Gardens:

The following requirements apply:

- Test the pH of planting bed soils in areas where vegetation has died:
    - if the pH is below 5.2, apply limestone
    - if the pH is above 7.0, add iron sulfate plus sulfur to reduce the pH
- Use core aeration of unvegetated areas if the surface of the bed becomes clogged with fine sediments over time: redesign plantings to correct problems, and re-establish soil coverage

(c) Vegetation Management:

Vegetated stormwater facilities may require a number of control practices, especially during the 2-year establishment period. Corresponding required practices cover:

- Maintain plantings for a period of 2 years after date of the Building Consent final inspection
- During the establishment period, remove undesired vegetation with minimal (or preferably no) use of toxic herbicides and pesticides at least three times in year 1, and once or twice in the summer of year 2; replace plants that die during this period within 3 months
- At the end of the second year, healthy plant establishment shall be achieved for at least 90% of the vegetation
- Selectively irrigate if necessary during the establishment period, during times of drought, or until the vegetation becomes established: it is preferred that the facility be designed to sustain its function without a permanent irrigation system
- Replenish mulch at least annually, and specify the mulching schedule in the O&M Plan; noting also that mulching shall be done to retain topsoil, heat, and moisture, and to inhibit weed growth
- Schedule maintenance outside sensitive wildlife and vegetation seasons
- Minimise plant disturbance during maintenance activities
- Do not use fertilisers, herbicides, or pesticides for vegetation maintenance, unless it is specifically called for in the O&M Plan
- Use replacement plants that conform with the initial planting plan

(d) Sediment Management/Pollutant Control:

Sediment and other pollutants that degrade water quality will accumulate in OSM devices and require removal to ensure proper operational performance. Corresponding requirements cover:

- Remove sediment when accumulations reach 100 mm in depth, or 50% of the designed sediment storage depth, or if sediment accumulation inhibits facility operation
- Dispose of the sediment in a safe manner
- If sediment and/or other pollutants are accumulating more rapidly than assumed when the O&M Plan was formulated, investigate and rectify the cause

(e) Access and Safety:

O&M programmes must provide for safe and efficient access to a facility. The following are general requirements; specific conditions may require site-specific modifications:

- Secure easements necessary to provide facility and maintenance access (if applicable)
- Use only suitably trained personnel to access confined spaces
- Maintain ingress/egress routes to design standards, in a manner that allows efficient maintenance of the facility
- Ensure that fencing is in good repair

FORM "OSM-O&M-CERT"

(A) SITE & OSM DEVICE DETAILS:

Site Address: 36a Eaglehurst Road, Ellerslie

Owners Name: TBA

Device(s):

Ref. No	Type	Size (eg m2 or m3)	Date Installed
SH 20	Rockbore	1.177.4m2	
SH 03 & 04	Rockbore	400.6m2	

(B) MAINTENANCE CONTRACTOR'S DETAILS:

Firms Name: _____

Firms Address: _____

Name of Serviceperson: _____

Date(s) of Service: _____

(C) SERVICE DETAILS:

Device Ref. No	Checklist Completed	MAINTENANCE ACTION	
		Item	**Action (describe, eg "pipe replaced")**
	1	(a)	
		(b)	
		(c)	
		(d)	
	2	(a)	
		(b)	
		(c)	
		(d)	
	3	etc....(continue on a separate sheet)	

* on attached form "Device-Specific O&M Details"

(D) CERTIFICATION:

I/we hereby certify that:

- The OSM device inspection and maintenance programme has been undertaken in accordance with the provision of Section 11 of the City's "OSM Manual" dated 2002
- The details above and on the attached form(s) are a full and correct record of the work performed
- The OSM device(s) are in sound working order
- The owner has been advised of the problems found (if any) and alerted as to the need to inspect for any recurrences and rectify such promptly

_____ _____

Signed Date

ACE Office Use:

Reference No. _____

Checked by: _____ Date:_____

Entered by: _____ Date: _____

FORM "OSM-O&M-PLAN"

(A) SITE & OSM DEVICE DETAILS:

(1) Site Address: 36a Eaglehurst Road, Ellerslie

(2) Owners Name: TBA

(3) Details of OSM Device(s): Driveway and parking area Soakholes

Ref. No	Type	Size (eg m2 or m3)	Location	Runoff Source*
SH 21	Rockbore	567.5m2	accessway	paved areas
SH 23	Rockbore	360m2	accessway	paved areas

* eg roof, paved area

(4) Name & Address of Parties Responsible for Inspecting and Maintaining the Devices:

TBA

(B) O&M PLAN PREPARED BY:

(1) Firm: Barry Satchell Consultants Liminted

(2) Responsible Individuals Name: Peter Garriock

(3) Firms Address: 60 New North Road, Eden Terrace

(C) ATTACHED FORMS:

(1) Form "OSM-O&M-Routine"

(2) Forms "DEVICE-SPECIFIC O&M DETAILS": (one for each OSM device)

Ref. No	Type
SH 21	Rockbore
SH 23	Rockbore

Signed Date

AC Office Use:

Reference No. _____

Checked by: _____ Date: _____

Entered by: _____ Date: _____

FORM "OSM-O&M-ROUTINE"

List of Routine Maintenance Requirements

(a) Monitoring & Inspection Programme:

Routine monitoring and inspections are required to:

- Develop a condition history
- Improve scheduling efficiency
- Apply preventative maintenance

Inspection records are to be used to:

- Determine where special maintenance conditions exist
- Determine optimal frequencies for future inspection and maintenance
- Establish scheduled and unscheduled maintenance provisions
- Assure OSM device operation and aesthetics

Specific requirements cover:

- The owner will be responsible for conducting inspections (or having then done on his/her behalf) with the OSM device "as-built" plans in hand, generally at the following intervals (noting that this may vary, depending on site-specific conditions):
    - quarterly basis for the first 2 years
    - minimum of semi-annually thereafter
- The owner will be responsible for keeping inspection records to track the progressive development of the OSM device(s) over time, covering (note that these are to be available to the maintenance contractor noted in Section 11.2 and/or the City/ACE as may be required):
    - general condition of vegetation area(s), predominant plant species, distribution, and success rate (where applicable)
    - sediment condition and depth in forebay (or other pre-treatment structure), treatment facility, bench planting zones, and other sediment removal components
    - water elevations/observations (sheen, smell, etc.)
    - condition of the inlet, outlet, and overflow structures/devices, etc
    - unscheduled maintenance needs
    - components that do not meet performance criteria and require immediate maintenance
    - common problem areas, solutions, and general observations
    - aesthetic conditions

(b) Soils in Stormwater Planters & Rain Gardens:

The following requirements apply:

- Test the pH of planting bed soils in areas where vegetation has died:
    - if the pH is below 5.2, apply limestone
    - if the pH is above 7.0, add iron sulfate plus sulfur to reduce the pH
- Use core aeration of unvegetated areas if the surface of the bed becomes clogged with fine sediments over time: redesign plantings to correct problems, and re-establish soil coverage

(c) Vegetation Management:

Vegetated stormwater facilities may require a number of control practices, especially during the 2-year establishment period. Corresponding required practices cover:

- Maintain plantings for a period of 2 years after date of the Building Consent final inspection
- During the establishment period, remove undesired vegetation with minimal (or preferably no) use of toxic herbicides and pesticides at least three times in year 1, and once or twice in the summer of year 2; replace plants that die during this period within 3 months
- At the end of the second year, healthy plant establishment shall be achieved for at least 90% of the vegetation
- Selectively irrigate if necessary during the establishment period, during times of drought, or until the vegetation becomes established: it is preferred that the facility be designed to sustain its function without a permanent irrigation system
- Replenish mulch at least annually, and specify the mulching schedule in the O&M Plan; noting also that mulching shall be done to retain topsoil, heat, and moisture, and to inhibit weed growth
- Schedule maintenance outside sensitive wildlife and vegetation seasons
- Minimise plant disturbance during maintenance activities
- Do not use fertilisers, herbicides, or pesticides for vegetation maintenance, unless it is specifically called for in the O&M Plan
- Use replacement plants that conform with the initial planting plan

(d) Sediment Management/Pollutant Control:

Sediment and other pollutants that degrade water quality will accumulate in OSM devices and require removal to ensure proper operational performance. Corresponding requirements cover:

- Remove sediment when accumulations reach 100 mm in depth, or 50% of the designed sediment storage depth, or if sediment accumulation inhibits facility operation
- Dispose of the sediment in a safe manner
- If sediment and/or other pollutants are accumulating more rapidly than assumed when the O&M Plan was formulated, investigate and rectify the cause

(e) Access and Safety:

O&M programmes must provide for safe and efficient access to a facility. The following are general requirements; specific conditions may require site-specific modifications:

- Secure easements necessary to provide facility and maintenance access (if applicable)
- Use only suitably trained personnel to access confined spaces
- Maintain ingress/egress routes to design standards, in a manner that allows efficient maintenance of the facility
- Ensure that fencing is in good repair

FORM "OSM-O&M-CERT"

(A) SITE & OSM DEVICE DETAILS:

Site Address: 36a Eaglehurst Road, Ellerslie

Owners Name: TBA

Device(s):

Ref. No	Type	Size (eg m2 or m3)	Date Installed
SH 21	Rockbore	567.5m2	
SH 23	Rockbore	360m2	

(B) MAINTENANCE CONTRACTOR'S DETAILS:

Firms Name: _____

Firms Address: _____

Name of Serviceperson: _____

Date(s) of Service: _____

(C) SERVICE DETAILS:

Device Ref. No	Checklist Completed	MAINTENANCE ACTION	
		Item	**Action (describe, eg "pipe replaced")**
	1	(a)	
		(b)	
		(c)	
		(d)	
	2	(a)	
		(b)	
		(c)	
		(d)	
	3	etc....(continue on a separate sheet)	

* on attached form "Device-Specific O&M Details"

(D) CERTIFICATION:

I/we hereby certify that:

- The OSM device inspection and maintenance programme has been undertaken in accordance with the provision of Section 11 of the City's "OSM Manual" dated 2002
- The details above and on the attached form(s) are a full and correct record of the work performed
- The OSM device(s) are in sound working order
- The owner has been advised of the problems found (if any) and alerted as to the need to inspect for any recurrences and rectify such promptly

_____ _____

Signed Date

ACE Office Use:

Reference No. _____

Checked by: _____ Date:_____

Entered by: _____ Date: _____

FORM "DEVICE SPECIFIC O&M DETAIL SM005"- PAGE 1 OF 2
OPERATION AND MAINTENANCE OF ROCKBORE SOAKHOLE"

Note: One form required for each OSM device on a site

(A) DESCRIPTION OF ROCKBORE SOAKHOLE :

The rockbore soakhole is a concrete chamber with a borehole extending down into fractured rock beneath the chamber. The chamber normally extends to the surface with a steel lid to allow access. The top of the borehole is lined with a PVC liner that ends in syphon or a coil of perforated pipe. Rainwater is piped into the concrete chamber, and flows into the borehole through the syphon or perforated pipe.

(B) OPERATIONAL POINTS

- Any site runoff (from paved areas) feeding to the soakhole will first pass through a pre-treatment device, such as a raingarden or a sandfilter. Maintenance of the pre-treatment device will be covered under a separate O&M form, and this will also cover maintenance of any catchpits or stormwater pipes feeding to the pre-treatment device.
- Roof runoff flows through a small chamber before entering the soakhole (does not apply to soakholes installed prior to 2003). The small chamber will be connected to the pipework between the spouting and the soakhole.

(C) GENERAL O&M NEEDS

- Maintenance of flow through the spouting and downpipe system.
- Removal of accumulated sediment from the chamber.
- Cleaning of the rockbore soakage surface.
- Checking the soakage capacity of the soakhole.

(D) RECORD KEEPING

- Completed Form must be submitted to AC. For 2 yearly inspections, the form must be submitted with and OSM-O&M Cert" form.
- A copy of the completed form (and any additional records) is to be kept on-site and made available to the plumber/drainlayer

Site Address: 36a Eaglehurst Road, Ellerslie
Building Consent Number:
Reference Number (from Form "OSM-O&M-Plan"): SH 03 & 04
Date Installed

FORM "DEVICE SPECIFIC O&M DETAIL SM005"- PAGE 2 OF 2

CHECKLIST – ROCKBORE SOAKHOLE

Frequency				Action	Notes
After Storm	**Quarterly**	**Annually**	**2 Yearly***		
√	√	√	√	**Spouting and downpipes:** • Check for debris accumulation, blockages and leaks. • Check that the overflow is not obstructed. • Check that any leaf-removing devices are operating correctly. • Carry out maintenance as necessary.	
			√	**Rockbore and chamber:** • If chamber is dry, remove sediment manually (eg using a shovel and bucket). • If chamber is wet, remove sediment using an air-vacuum system. • Check perforated pipe for clogging and correct operation. Clean and repair as necessary. • Remove borehole cap and check borehole is dry. • Carry out rockbore cleaning as required and at least every 4 years on commercial sites and 6 years on residential sites (process detailed below).	
				Rockbore cleaning: • Remove accumulated sediment from borehole using an air-vacuum system. • Hydro-blast borehole. • Use the air vacuum system to remove sediment loosened by hydroblasting. • Check that rockbore is draining correctly (if not, it may require replacement).	

*Plumber/Drainlayer Checklist

Plumber/Drainlayer Signature Date

Name Reg No

Company Name

Company Address

Site Address: 36a Eaglehurst Road, Ellerslie

Building Consent Number:

Reference Number (from Form "OSM-O&M-Plan"): SH 03 & 04

Date Installed

FORM "DEVICE SPECIFIC O&M DETAIL SM005"- PAGE 1 OF 2
OPERATION AND MAINTENANCE OF ROCKBORE SOAKHOLE"

Note: One form required for each OSM device on a site

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The rockbore soakhole is a concrete chamber with a borehole extending down into fractured rock beneath the chamber. The chamber normally extends to the surface with a steel lid to allow access. The top of the borehole is lined with a PVC liner that ends in syphon or a coil of perforated pipe. Rainwater is piped into the concrete chamber, and flows into the borehole through the syphon or perforated pipe.

(B) OPERATIONAL POINTS

- Any site runoff (from paved areas) feeding to the soakhole will first pass through a pre-treatment device, such as a raingarden or a sandfilter. Maintenance of the pre-treatment device will be covered under a separate O&M form, and this will also cover maintenance of any catchpits or stormwater pipes feeding to the pre-treatment device.
- Roof runoff flows through a small chamber before entering the soakhole (does not apply to soakholes installed prior to 2003). The small chamber will be connected to the pipework between the spouting and the soakhole.

(C) GENERAL O&M NEEDS

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- Removal of accumulated sediment from the chamber.
- Cleaning of the rockbore soakage surface.
- Checking the soakage capacity of the soakhole.

(D) RECORD KEEPING

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Site Address: 36a Eaglehurst Road, Ellerslie
Building Consent Number: _____
Reference Number (from Form "OSM-O&M-Plan"): SH 20
Date Installed _____

FORM "DEVICE SPECIFIC O&M DETAIL SM005"- PAGE 2 OF 2

CHECKLIST – ROCKBORE SOAKHOLE

Frequency				Action	Notes
After Storm	**Quarterly**	**Annually**	**2 Yearly***		
√	√	√	√	**Spouting and downpipes:** • Check for debris accumulation, blockages and leaks. • Check that the overflow is not obstructed. • Check that any leaf-removing devices are operating correctly. • Carry out maintenance as necessary.	
			√	**Rockbore and chamber:** • If chamber is dry, remove sediment manually (eg using a shovel and bucket). • If chamber is wet, remove sediment using an air-vacuum system. • Check perforated pipe for clogging and correct operation. Clean and repair as necessary. • Remove borehole cap and check borehole is dry. • Carry out rockbore cleaning as required and at least every 4 years on commercial sites and 6 years on residential sites (process detailed below).	
				Rockbore cleaning: • Remove accumulated sediment from borehole using an air-vacuum system. • Hydro-blast borehole. • Use the air vacuum system to remove sediment loosened by hydroblasting. • Check that rockbore is draining correctly (if not, it may require replacement).	

*Plumber/Drainlayer Checklist

Plumber/Drainlayer Signature Date

Name Reg No

Company Name

Company Address

Site Address: 36a Eaglehurst Road, Ellerslie

Building Consent Number:

Reference Number (from Form "OSM-O&M-Plan"): SH 20

Date Installed

FORM "DEVICE SPECIFIC O&M DETAIL SM005"- PAGE 1 OF 2
OPERATION AND MAINTENANCE OF ROCKBORE SOAKHOLE"

Note: One form required for each OSM device on a site

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The rockbore soakhole is a concrete chamber with a borehole extending down into fractured rock beneath the chamber. The chamber normally extends to the surface with a steel lid to allow access. The top of the borehole is lined with a PVC liner that ends in syphon or a coil of perforated pipe. Rainwater is piped into the concrete chamber, and flows into the borehole through the syphon or perforated pipe.

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- Maintenance of flow through the spouting and downpipe system.
- Removal of accumulated sediment from the chamber.
- Cleaning of the rockbore soakage surface.
- Checking the soakage capacity of the soakhole.

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Site Address: 36a Eaglehurst Road, Ellerslie
Building Consent Number:
Reference Number (from Form "OSM-O&M-Plan"): SH 21
Date Installed

FORM "DEVICE SPECIFIC O&M DETAIL SM005"- PAGE 2 OF 2

CHECKLIST – ROCKBORE SOAKHOLE

Frequency				Action	Notes
After Storm	**Quarterly**	**Annually**	**2 Yearly***		
√	√	√	√	**Spouting and downpipes:** • Check for debris accumulation, blockages and leaks. • Check that the overflow is not obstructed. • Check that any leaf-removing devices are operating correctly. • Carry out maintenance as necessary.	
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*Plumber/Drainlayer Checklist

Plumber/Drainlayer Signature Date

Name Reg No

Company Name

Company Address

Site Address: 36a Eaglehurst Road, Ellerslie

Building Consent Number:

Reference Number (from Form "OSM-O&M-Plan"): SH 21

Date Installed

FORM "DEVICE SPECIFIC O&M DETAIL SM005"- PAGE 1 OF 2
OPERATION AND MAINTENANCE OF ROCKBORE SOAKHOLE"

Note: One form required for each OSM device on a site

(A) DESCRIPTION OF ROCKBORE SOAKHOLE :

The rockbore soakhole is a concrete chamber with a borehole extending down into fractured rock beneath the chamber. The chamber normally extends to the surface with a steel lid to allow access. The top of the borehole is lined with a PVC liner that ends in syphon or a coil of perforated pipe. Rainwater is piped into the concrete chamber, and flows into the borehole through the syphon or perforated pipe.

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- Roof runoff flows through a small chamber before entering the soakhole (does not apply to soakholes installed prior to 2003). The small chamber will be connected to the pipework between the spouting and the soakhole.

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- Maintenance of flow through the spouting and downpipe system.
- Removal of accumulated sediment from the chamber.
- Cleaning of the rockbore soakage surface.
- Checking the soakage capacity of the soakhole.

(D) RECORD KEEPING

- Completed Form must be submitted to AC. For 2 yearly inspections, the form must be submitted with and OSM-O&M Cert" form.
- A copy of the completed form (and any additional records) is to be kept on-site and made available to the plumber/drainlayer

Site Address: 36a Eaglehurst Road, Ellerslie
Building Consent Number:
Reference Number (from Form "OSM-O&M-Plan"): SH 23
Date Installed

FORM "DEVICE SPECIFIC O&M DETAIL SM005"- PAGE 2 OF 2

CHECKLIST – ROCKBORE SOAKHOLE

Frequency				Action	Notes
After Storm	**Quarterly**	**Annually**	**2 Yearly***		
√	√	√	√	**Spouting and downpipes:** • Check for debris accumulation, blockages and leaks. • Check that the overflow is not obstructed. • Check that any leaf-removing devices are operating correctly. • Carry out maintenance as necessary.	
			√	**Rockbore and chamber:** • If chamber is dry, remove sediment manually (eg using a shovel and bucket). • If chamber is wet, remove sediment using an air-vacuum system. • Check perforated pipe for clogging and correct operation. Clean and repair as necessary. • Remove borehole cap and check borehole is dry. • Carry out rockbore cleaning as required and at least every 4 years on commercial sites and 6 years on residential sites (process detailed below).	
				Rockbore cleaning: • Remove accumulated sediment from borehole using an air-vacuum system. • Hydro-blast borehole. • Use the air vacuum system to remove sediment loosened by hydroblasting. • Check that rockbore is draining correctly (if not, it may require replacement).	

*Plumber/Drainlayer Checklist

Plumber/Drainlayer Signature Date

Name Reg No

Company Name

Company Address

Site Address: 36a Eaglehurst Road, Ellerslie

Building Consent Number:

Reference Number (from Form "OSM-O&M-Plan"): SH 23

Date Installed

Appendix D:

Stormwater pipe run calculations

AKC STORMWATER EXIST. PIPERUN CALCULATION

PROJECT	5 Crosbie Road		8149
	Pukekohe		
	Calculated	Peter Garriock	24.05.21
	Reviewed	P Wilson	24.05.21

Barry Satchell
ENGINEERS • SURVEYORS • PLANNERS

SW line A to Soakhole 20, CP 1 to Soakhole 21, CP 2 to Soakhole 23
Lot 21 to Soakhole 03 & 04

Project: 36a Eaglehurst Road
Job No. 8149
Storm Frequency = 10 Year
Duration=10min Ks=0.6mm
ARI i 120
climate change + 13.2 % **136**

TP108 STORMWATER RUNOFF ARC April 1999

MH	MH	Catchment Area (m2) Incr.	Total Area	Comments (Contrib Area)	TP108 Curve No.	Daily Rainfall Depth ARI	Total Eqiv. Area (ha)	Depression Storage (S) mm	Specific flow rate fig5.1	Catachment Runoff Q (m3/s)	This line only (l/s)	Total Flow Q (l/s)	L (m)	Design S %	Ks	Kv	Pipe D (mm)	Q/c Full (l/s)	Velocity Full (m/s) (4.5 max.) (2.0 outlet)	Pipe Capability (%) Total Flow
END A	MH D	138	138	Impervious	98.00	136	0.014	5.2	0.160	0.003										
		107	107	Pervious	74.00	136	0.011	89.2	0.114	0.002	5	5	5.00	0.55	0.60	1.14E-06	***150***	13.3	0.75	0.35
MH D	MH C	89	334	Impervious	98.00	136	0.009	5.2	0.160	0.002										
		66	66	Pervious	74.00	136	0.007	89.2	0.114	0.001	3	8	34.55	0.55	0.60	1.14E-06	***150***	13.3	0.75	0.57
END B	MHC	640	1040	Impervious	98.00	136	0.064	5.2	0.160	0.014										
		639	639	Road/Res	74.00	136	0.064	89.2	0.114	0.010	24	24	42.24	2.40	0.60	1.14E-06	***150***	27.8	1.57	0.86
MHC	SETT	58	1737	Impervious	98.00	136	0.006	5.2	0.160	0.001										
		96	96	Road/Res	74.00	136	0.010	89.2	0.114	0.001	3	34	35.85	0.47	0.60	1.14E-06	***225***	35.7	0.90	0.96
SETT	SH20	0	1833	Impervious	75.00	136	0.000	84.7	0.140	0.000										
		0	0	Road/Res	76.00	136	0.000	80.2	0.114	0.000	0	34	2.00	0.45	0.60	1.14E-06	***225***	34.9	0.88	0.98
CP1	SH21	527	527	Impervious	98.00	136	0.053	5.2	0.160	0.011										
		135	135	Pervious	74.00	136	0.014	89.2	0.114	0.002	14	14	31.64	0.55	0.60	1.14E-06	***150***	13.3	0.75	1.02
CP2	SH23	360	0	Impervious	98.00	136	0.036	5.2	0.160	0.008										
		0	0	Pervious	74.00	136	0.000	89.2	0.114	0.000	8	8	23.75	0.55	0.60	1.14E-06	***150***	13.3	0.75	0.59
Lot 21	SH03&04	334	861	Impervious	98.00	136	0.033	5.2	0.160	0.007										
		222	222	Pervious	74.00	136	0.022	89.2	0.114	0.003	11	11	34.99	0.55	0.60	1.14E-06	***150***	13.3	0.75	0.81

Appendix E:

Wastewater catchment and capacity calculations

PROJECT	Eaglehurst Road		8149
	Ellerslie		
	Calculated	Peter Garriock	05.03.21
	Reviewed	P Wilson	05.03.21

Barry Satchell
ENGINEERS • SURVEYORS • PLANNERS

WATERCARE WASTEWATER CAPACITY CALCULATIONS

Design Parameters Watercare services: Water and Wastwater code of practice
V 2.2 Nov-19

Residential COP

Number of Dwellings / Lots		20.0		
People per dwelling		3.0		
Average Dry Weather Flow	ADWF	180.0	l / person / day	5.3.5.1
Dry Weather peaking factor	PDWF	3.0		
Peak Wet Weather factor	PWWF	6.7		

Residential	ADWF	0.1	l/s
Residential	PDWF	0.4	l/s
Residential	PWWF	0.8	l/s

Catchment Wastewater flow 1st MH downtream 510212

Number of Dwellings / Lots		42.0		
People per dwelling		3.0		
Average Dry Weather Flow	ADWF	180.0	l / person / day	5.3.5.1
Dry Weather peaking factor	PDWF	3.0		
Peak Wet Weather factor	PWWF	6.7		

Residential	ADWF	0.3	l/s	
Residential	PDWF	0.8	l/s	
Residential	PWWF	1.8	l/s	
TOTAL Peak Dry Weather flow	PDWF	1.2	l/s	V > self cleansing 0.75 m/s if half fu
Residential	PWWF	2.6	l/s	V < 3.0 m/s max

Pipe Flow Capacity

V = 1/n (A/P) ^2/3 S ^1/2

Pipe		Concrete		PVC
Pipe Diameter		150	mm	
Mannings	n	0.013		0.011
Slope	S	3.0%	%	
Area	A	0.018	m2	
Wetted P	P	0.471		
Full Flow Velocity	V	1.5	m/s	
Full Flow Pipe	Q = V A	26.3	l/s	

Capacity % Development / Total capacity 3.2%

DISCLAIMER:
This map/plan is illustrative only and all information should be independently verified on site before taking any action. Copyright Auckland Council. Land Parcel Boundary information from LINZ (Crown Copyright Reserved). Whilst due care has been taken, Auckland Council gives no warranty as to the accuracy and plan completeness of any information on this map/plan and accepts no liability for any error, omission or use of the information.
Height datum: Auckland 1946.

36A EAGELHURST WW CATCHMENT

0 10 20 30
Meters

Scale @ A3
= 1:1,000

Date Printed:
8/01/2021

Auckland Council
Te Kaunihera o Tāmaki Makaurau

DISCLAIMER:
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Height datum: Auckland 1946.

36A EAGELHURST WW CATCHMENT

0 10 20 30
Meters

Scale @ A3
= 1:1,000

Date Printed:
8/01/2021

Auckland Council
Te Kaunihera o Tāmaki Makaurau

Appendix F:

Drainage, Accessway and Water design plans

EAGLEHURST ROAD

FOOTPATH

GRASS BERM

NEW VEHICLE CROSSING TO AT STANDARDS GD017A-1C

EXISTING TRAFFIC SIGN TO BE RELOCATED

TRAFFIC SIGN

VALVE

EXTG X-ING

TEL

CONTRACTION JOINT AT 20m INTERVALS. THESE JOINTS CONSIST OF A 25mm GAP FILLED WITH A PACKER AND SEALED AT THE SURFACE.

SH21
LL = 34.02

SH20
LL = 34.04

SH23
LL = 34.07

CAW CP 01

CONTRACTION JOINT AT 20m INTERVALS. THESE JOINTS CONSIST OF A 25mm GAP FILLED WITH A PACKER AND SEALED AT THE SURFACE.

NEW 0m - 0.8m HIGH RETAINING WALL 74m IN LENGTH FROM CHAINAGE 27.98m - 99.68m

34°36'
33.00

34.34

122°24'00"
57.07

LOT 1
DP 167980

CONTRACTION JOINT AT 20m INTERVALS. THESE JOINTS CONSIST OF A 25mm GAP FILLED WITH A PACKER AND SEALED AT THE SURFACE.

CAW CP 02

SH03
LL = 34.29

FFL = 34.20

LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
LOT 11
LOT 12
LOT 20

FFL = 34.50

FFL = 34.95

LOT 13
LOT 14
LOT 15
LOT 16
LOT 17
LOT 18
LOT 19

302°25'00"
85.33

LOT 1
DP 145874

A

B

KEY:

- EXIST - STORMWATER
- EXIST - WASTEWATER
- MANHOLE - SOAKHOLE
- MANHOLE - WW EXISTING
- CESSPIT
- 0.8m HIGH RETAINING WALL

SURVEYED			
DESIGNED			
DRAWN	PG	12/20	
TRACED			
CHECKED	PW	12/20	

APPROVED BY: [signature] DATE: 19/05/21

REVISION	CHANGES	CHECKED	DATE
-	ORIGINAL	PW	12/20

NOTES

1. LEVELS ARE IN TERMS OF AUCKLAND VERTICAL DATUM (MSL) 1946

   ORIGIN = RM3982 SO54493
2. COORDINATES ARE IN TERMS OF GEODETIC DATUM MOUNT EDEN 2000 CIRCUIT
3. CONTOURS ARE AT 0.25m INTERVALS
4. COMPRISED IN CT NA101D/827
5. CERTIFICATE OF TITLE AREA 3342m²
6. LOCAL AUTHORITY - AUCKLAND COUNCIL
7. PROPERTY BOUNDARIES HAVE BEEN SOURCED FROM THE LINZ SPATIAL DATABASE AND ARE ACCURATE FOR TOPOGRAPHICAL PURPOSES ONLY. WHERE CRITICAL, BOUNDARY DIMENSIONS SHOULD BE CONFIRMED BY LAND TRANSFER SURVEY.
8. CERTAIN DRAINAGE AND UNDERGROUND SERVICE INFORMATION HAS BEEN PLOTTED FROM SERVICE PROVIDERS RECORDS, LOCATION SHOULD BE VERIFIED ON SITE.
9. WHERE THE ROAD OPENING NOTICE IS TO BE APPLIED FOR AND OBTAINED BY CONTRACTOR PRIOR TO ANY WORK COMMENCING ON ROAD RESERVE.
10. V SHAPE 200mm 20MPa CONCRETE ACCESS DRIVEWAY.

APEXONE LTD

36A EAGLEHURST ROAD
ELLERSLIE
AUCKLAND

COMMON ACCESS WAY
PLAN 01
DP 167980

Barry Satchell
ENGINEERS · SURVEYORS · PLANNERS
60 NEW NORTH ROAD, EDEN TERRACE
PO BOX 10-343
DOMINION ROAD
AUCKLAND
TEL:+64-9-623-4573
WEB:www.bscl.co.nz

CAD Ref: P/8193/CAD/8193 301
XREFS:

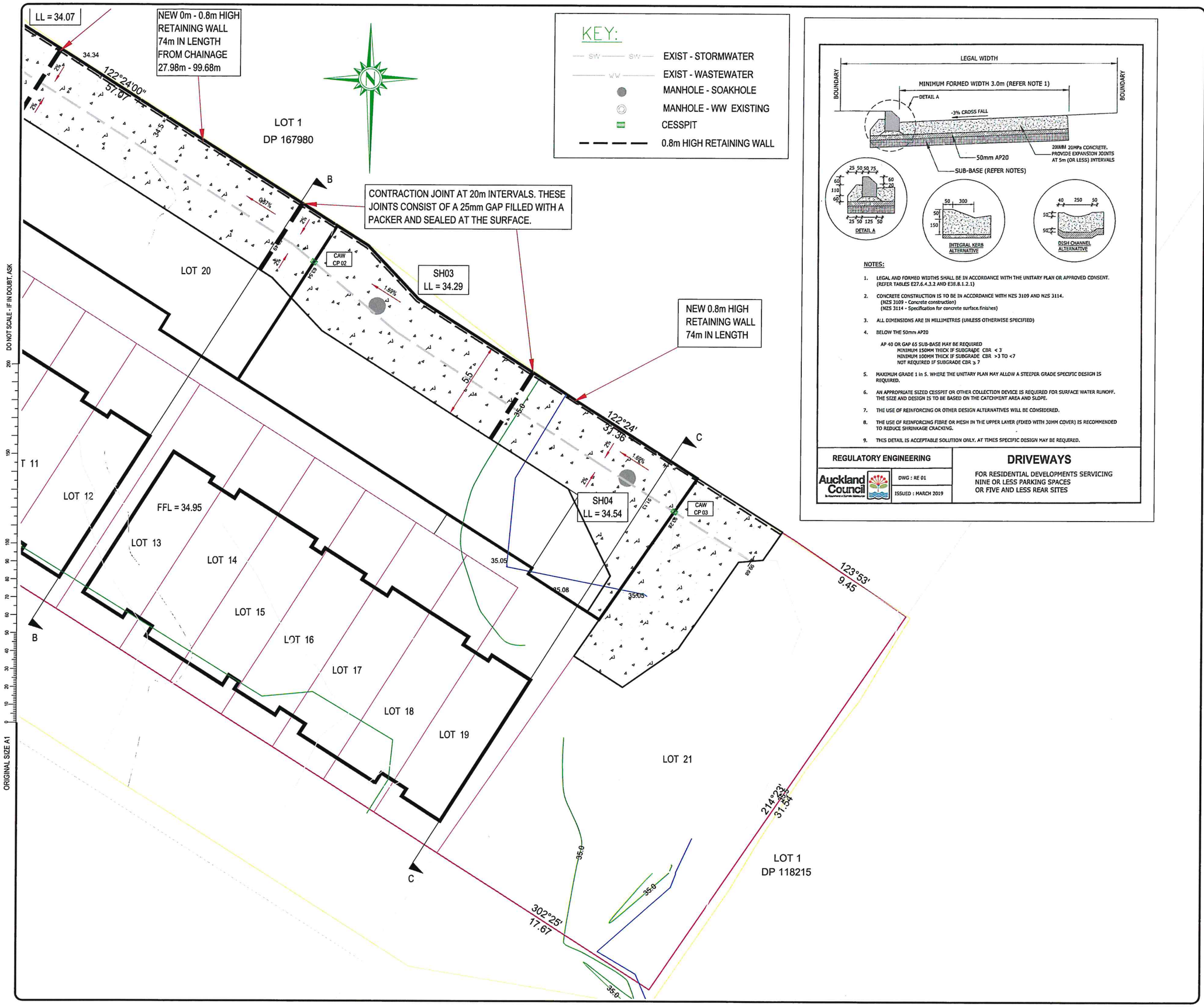
STATUS
STAMP FOR RESOURCE CONSENT
-

SCALES (A1) 1: 125 (A3) 1: 250

JOB NO.	DRAWING No.	REVISION
8149	301 SHT 1 OF 1	-

DO NOT SCALE - IF IN DOUBT, ASK

ORIGINAL SIZE A1



SURVEYED			
DESIGNED			
DRAWN	PG	12/20	
TRACED			
CHECKED	PW	12/20	

APPROVED BY: DATE 18/05/21

REVISION	CHANGES	CHECKED	DATE
-	ORIGINAL	PW	12/20

NOTES

1. LEVELS ARE IN TERMS OF AUCKLAND VERTICAL DATUM (MSL) 1946

   ORIGIN = RM3982 SO54493
2. COORDINATES ARE IN TERMS OF GEODETIC DATUM MOUNT EDEN 2000 CIRCUIT
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9. WHERE THE ROAD OPENING NOTICE IS TO BE APPLIED FOR AND OBTAINED BY CONTRACTOR PRIOR TO ANY WORK COMMENCING ON ROAD RESERVE.
10. V SHAPE 200mm 20MPa CONCRETE ACCESS DRIVEWAY.

APEXONE LTD

36A EAGLEHURST ROAD
ELLERSLIE
AUCKLAND

COMMON ACCESS WAY PLAN 02 & PAVEMENT DETAIL DP 167980

Barry Satchell
ENGINEERS • SURVEYORS • PLANNERS
60 NEW NORTH ROAD, EDEN TERRACE
PO BOX 10-343
DOMINION ROAD
AUCKLAND
TEL:+64-9-623-4573
WEB:www.bscl.co.nz

CAD Ref: P/8193/CAD/8193 301
XREFS:

STATUS
STAMP FOR RESOURCE CONSENT
-

SCALES (A1) 1: 125 (A3) 1: 250

JOB NO.	DRAWING No.	REVISION
8149	302 SHT 1 OF 1	-

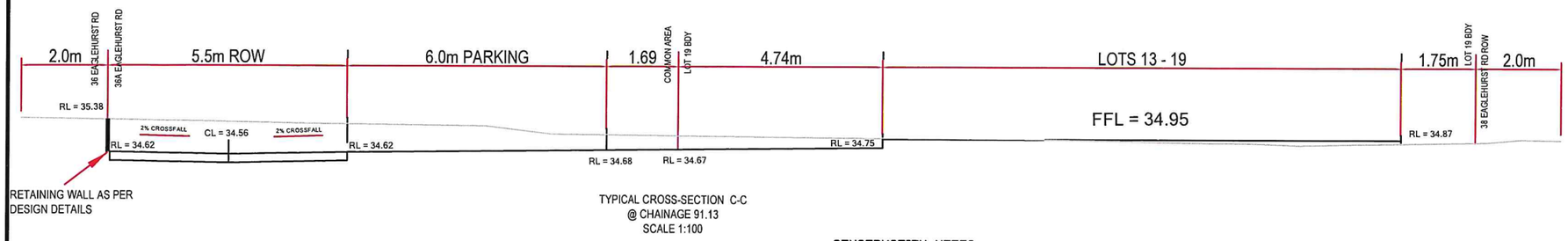
NOTES

6. PROPERTY BOUNDARIES HAVE BEEN SOURCED FROM THE LINZ SPATIAL DATABASE AND ARE ACCURATE FOR TOPOGRAPHICAL PURPOSES ONLY. WHERE CRITICAL, BOUNDARY DIMENSIONS SHOULD BE CONFIRMED BY LAND TRANSFER SURVEY.

7. CERTAIN DRAINAGE AND UNDERGROUND SERVICE INFORMATION HAS BEEN PLOTTED FROM SERVICE PROVIDERS RECORDS, LOCATION SHOULD BE VERIFIED ON SITE.

8. WHERE THE ROAD OPENING NOTICE IS TO BE APPLIED FOR AND OBTAINED BY CONTRACTOR PRIOR TO ANY WORK COMMENCING ON ROAD RESERVE.

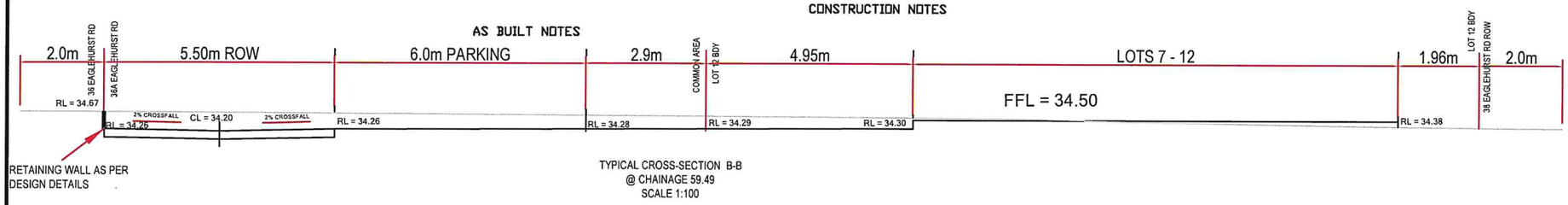
9. V SHAPE 200mm 20MPa CONCRETE ACCESS DRIVEWAY.



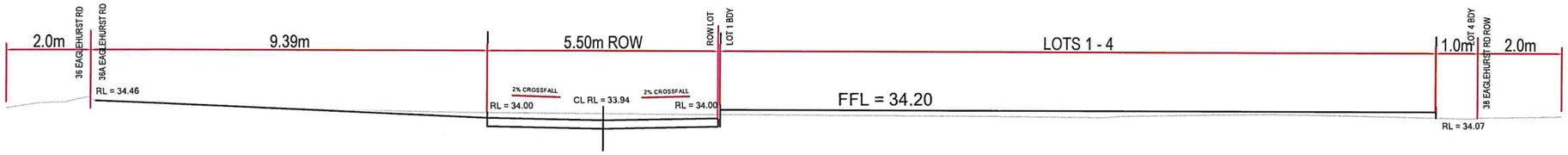
TYPICAL CROSS-SECTION C-C
@ CHAINAGE 91.13
SCALE 1:100

AS BUILT NOTES

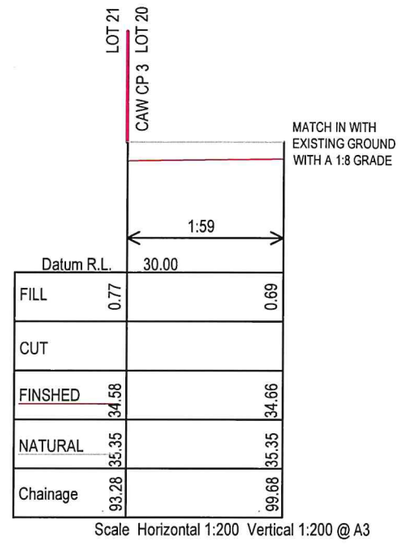
CONSTRUCTION NOTES



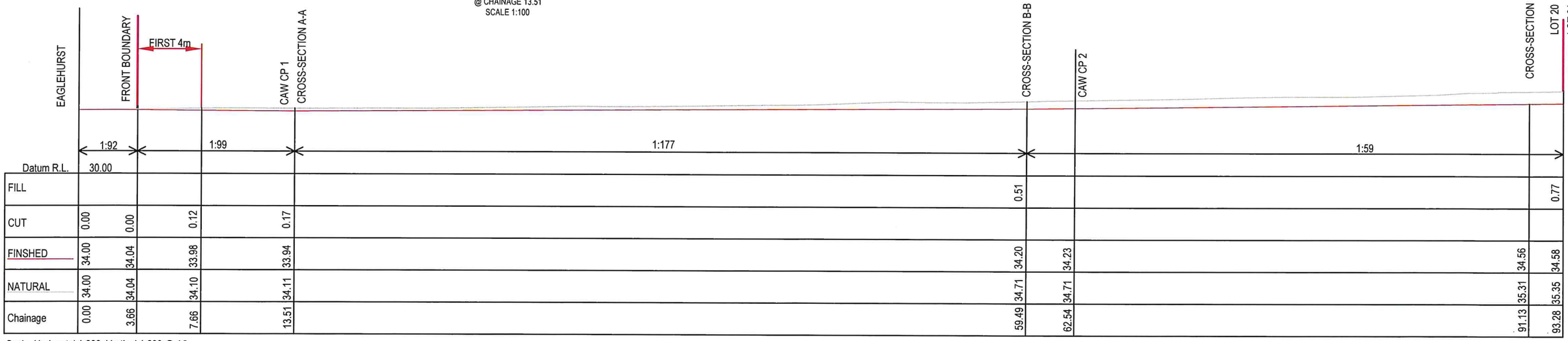
TYPICAL CROSS-SECTION B-B
@ CHAINAGE 59.49
SCALE 1:100



TYPICAL CROSS-SECTION A-A
@ CHAINAGE 13.51
SCALE 1:100



Scale Horizontal 1:200 Vertical 1:200 @ A3



Scale Horizontal 1:200 Vertical 1:200 @ A3

SURVEY INFORMATION

1. LEVELS ARE IN TERMS OF AUCKLAND VERTICAL DATUM (MSL) 1946 ORIGIN = RM3982 SO54493
2. COORDINATES ARE IN TERMS OF GEODETIC DATUM MOUNT EDEN 2000 CIRCUIT
3. CONTOURS ARE AT 0.25m INTERVALS
4. COMPRISED IN CT NA101D/827
5. CERTIFICATE OF TITLE AREA 3342m²

REV	CHK	DATE	MODIFICATION
	PW	05/21	ORIGINAL

PROJECT: 36a EAGLEHURST ROAD ELLERSLIE

DRAWING TITLE: COMMON ACCESS WAY LONG & CROSS SECTION

CLIENT: APEXONE LTD

Barry Satchell
ENGINEERS · SURVEYORS · PLANNERS
60 NEW NORTH ROAD
BALMORAL
PO BOX 10-343
DOMINION ROAD
AUCKLAND
TEL:+64-9-623-4573
WEB: www/bscl/co.nz
Email: admin@bscl.co.nz

SURVEYED	DRAWN	CHECKED	APPROVED
OTHERS	PG	PG	

SCALE: AS SHOWN (A3 ORIGINAL SIZE) DATE: 16/6/21

JOB NO.	DRAWING No.	REVISION
8149	303	-

CAD Ref: P/8149/CAD/8149 301

EAGLEHURST ROAD

EXT WATER 100 AC

EXT WW 150 EW

SLUICE VALVE

FLANGED TEE

ROAD SIDE SIGN TO BE RELOCATED

FLANGED TEE

NEW WWMH 1 1050
LL = 34.04
IL = 32.52 (out 150)
IL = 32.62 (in 150)

NEW WWMH 2 1050
LL = 34.14
IL = 32.67 (out 150)
IL = 32.72 (in 150)
IL = 32.77 (in 150)

RELOCATE EXT WATER METER FOR LOT 1

NEW WATER METER FOR LOT 2

NEW WATER METER FOR LOT 3

NEW WATER METER FOR LOT 4

WW LOT 1

WW LOT 2

WW LOT 3

WW LOT 4

PROP 150mm SN16 uPVC WW LINE 2 13.00 @ 1.11%

CAW CP 01
LL = 33.94

NEW 150Ø SW uPVC LINE C @ 3.4%

UNDERGROUND CONCRETE STORAGE TANK 01 - 5.3m³ 1.05m DIA. LENGTH 6.1m

PROPOSED SOAKHOLE SH 21 CAW
LL = 34.02

NEW SWMH A PROPOSED SOAKHOLE SH 20 RES
LL = 34.04
IL = 32.17

NEW 150Ø SW uPVC LINE C @ 0.55%

PROP 150mm SN16 uPVC WW LINE 1 19.79 @ 1.0%

NEW 200mm uPVC SW LINE A 10.73m @ 0.55%

PROPOSED SOAKHOLE SH 23 CAW
LL = 34.07

NEW SETTLING CHAMBER SWMH B 1050
LL = 34.06
IL = 32.18 (out 150)
IL = 32.20 (in 150)

NEW SWMH D 1050
LL = 34.00
IL = 32.92 (out 150)
IL = 32.82 (in 150)

NEW 150mm uPVC SW LINE A 7.18m @ 0.55%

NEW 150mm uPVC SW LINE A 12.80m @ 0.55%

NEW SWMH C 1050
LL = 34.27
IL = 32.38 (out 150)
IL = 32.29 (in 150)

50mm RIDER MAIN PN12

NEW 150Ø SW uPVC LINE D @ 0.55%

UNDERGROUND CONCRETE STORAGE TANK 02 - 5.2m³ 1.05m DIA. LENGTH 6.1m

NEW WWMH 3 1050
LL = 34.14
IL = 33.13 (out 150)
IL = 33.18 (in 150)

CAW CP 02
LL = 34.23

NEW 150Ø SW uPVC LINE D @ 11.4%

PROPOSED SOAKHOLE SH 03 RES
LL = 34.29

NEW 150Ø SW uPVC LINE E @ 0.55%

UNDERGROUND CONCRETE STORAGE TANK 03 - 5.0m³ 1.05m DIA. LENGTH 6.1m

PROP 150mm SN16 uPVC WW LINE 1 74.26 @ 1.0%

50mm RIDER MAIN PN12

NEW 150mm uPVC SW LINE B 56.64m @ 2.5%

END WW LINE 2
LL = 34.00
IL = 32.95

END SW LINE A
GL = 34.00
IL = 33.00

LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
LOT 11
LOT 12
LOT 13
LOT 14
LOT 15
LOT 16
LOT 17
LOT 20

FFL = 34.20
FFL = 34.50
FFL = 34.95

SW

SW

SW

KEY:

- NEW - STORMWATER
- EXIST - STORMWATER
- NEW - WASTEWATER
- EXIST - WASTEWATER
- WATER MAIN
- MANHOLE - SW NEW
- MANHOLE - SW EXISTING
- MANHOLE - WW NEW
- MANHOLE - WW EXISTING
- CESSPIT
- WATER METER FIRE
- HYDRANT
- SLUICE VALVE

DO NOT SCALE - IF IN DOUBT, ASK

ORIGINAL SIZE A1

SURVEYED			
DESIGNED	-	-	
DRAWN	PG	05/21	
TRACED			
CHECKED	PW	05/21	

APPROVED BY DATE

REVISION	CHANGES	CHECKED	DATE
-	ORIGINAL	PW	05/21
A	STROAGE TANK 01 RELOCATED, TEXT	PW	05/21
B	MOVE WATER OUT ROOT ZONE	PW	05/21
-			

NOTES

1. LEVELS ARE IN TERMS OF AUCKLAND VERTICAL DATUM (MSL) 1946
   ORIGIN = RM3982 SO 54493
2. COORDINATES ARE IN TERMS OF GEODETIC DATUM 2000
3. CONTOURS ARE AT 0.25m INTERVALS
4. COMPRISED IN CT NA 101D/827
5. CERTIFICATE OF TITLE AREA 3342m²
6. LOCAL AUTHORITY - AUCKLAND COUNCIL
7. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS. ALL SEDIMENT CONTROL MEASURES TO BE IN PLACE PRIOR TO ANY WORK COMMENCING. WORKS ONLY TO COMMENCE UPON ENGINEERS WRITTEN ACCEPTANCE.
12. CONTRACTOR TO SEARCH, LOCATE AND CONFIRM ALL EXISTING SERVICES BEFORE COMMENCEMENT OF WORKS WHETHER SHOWN ON DRAWING OR NOT AND MAINTAIN RESPONSIBILITY FOR ALL SERVICES.
13. CONTRACTOR TO REINSTATE ALL AREAS TO ENGINEER/OWNERS SATISFACTION. MAINTAIN ACCESS TO SITE AT ALL TIMES.
14. ROAD OPENING NOTICE IS TO BE APPLIED FOR AND OBTAINED BY CONTRACTOR PRIOR TO ANY WORK COMMENCING ON ROAD RESERVE.

APEXONE LTD

36A EAGLEHURST ROAD
ELLERSLIE
AUCKLAND

PUBLIC WASTEWATER. SOAKHOLE STORMWATER AND WATER PLAN 01

Barry Satchell

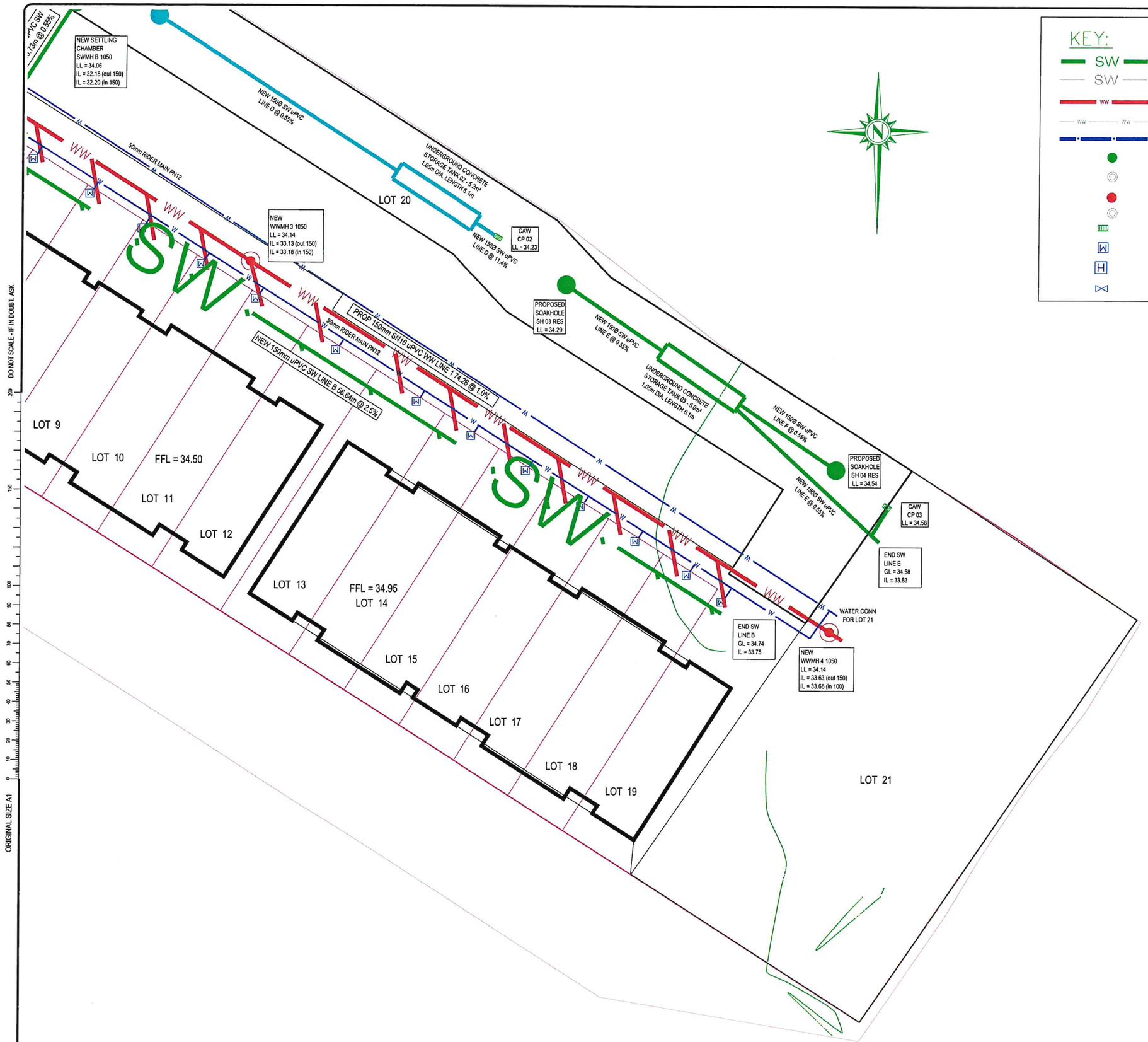
60 NEW NORTH ROAD, EDEN TERRACE
PO BOX 10-343
DOMINION ROAD
AUCKLAND
TEL:+64-9-623-4573
WEB:www.bscl.co.nz

CAD Ref: P/8149/CAD/8149 401
XREFS:

STATUS
STAMP FOR RESOURCE CONSENT
-

SCALES (A1) 1: 125 (A3) 1: 250

JOB NO.	DRAWING No.	REVISION
8149	401 SHT 1 OF 1	B



KEY:

- NEW - STORMWATER
- EXIST - STORMWATER
- NEW - WASTEWATER
- EXIST - WASTEWATER
- WATER MAIN
- MANHOLE - SW NEW
- MANHOLE - SW EXISTING
- MANHOLE - WW NEW
- MANHOLE - WW EXISTING
- CESSPIT
- WATER METER FIRE
- HYDRANT
- SLUICE VALVE

SURVEYED			
DESIGNED	-	-	
DRAWN	PG	05/21	
TRACED			
CHECKED	PW	05/21	

APPROVED BY — DATE: 18/05/21

REVISION	CHANGES	CHECKED	DATE
-	ORIGINAL	PW	05/21
A	MOVE WM OUT ROOT ZONE	PW	05/21
-			

NOTES

1. LEVELS ARE IN TERMS OF AUCKLAND VERTICAL DATUM (MSL) 1946
   ORIGIN = RM3982 SO 54493
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14. ROAD OPENING NOTICE IS TO BE APPLIED FOR AND OBTAINED BY CONTRACTOR PRIOR TO ANY WORK COMMENCING ON ROAD RESERVE.

APEXONE LTD

36A EAGLEHURST ROAD
ELLERSLIE
AUCKLAND

PUBLIC WASTEWATER. SOAKHOLE STORMWATER AND WATER PLAN 02

Barry Satchell

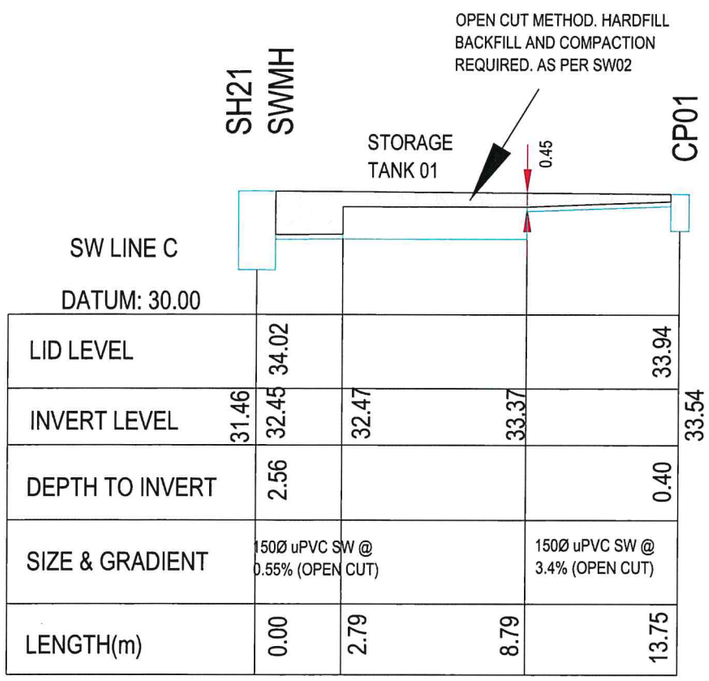
60 NEW NORTH ROAD, EDEN TERRACE
PO BOX 10-343
DOMINION ROAD
AUCKLAND
TEL:+64-9-623-4573
WEB:www.bscl.co.nz

CAD Ref: P/8149/CAD/8149 401
XREFS:

STATUS
STAMP FOR RESOURCE CONSENT
-

SCALES (A1) 1: 125 (A3) 1: 250

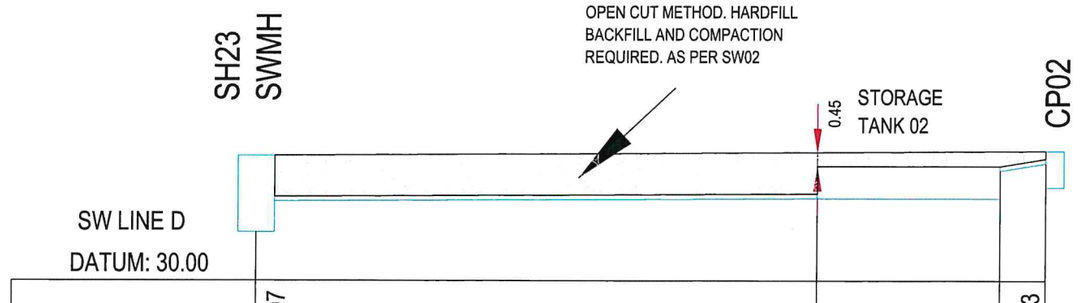
JOB NO.	DRAWING No.	REVISION
8149	402 SHT 1 OF 1	A



SW LINE C

DATUM: 30.00

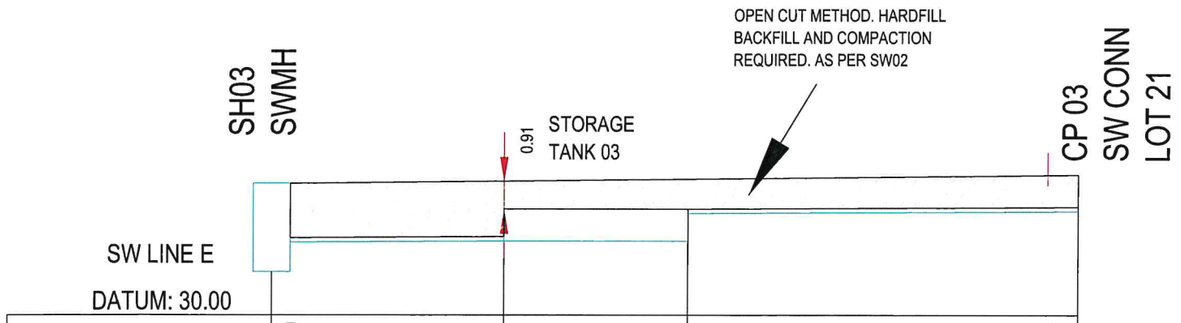
LID LEVEL	34.02			33.94
INVERT LEVEL	31.46 / 32.45	32.47	33.37	33.54
DEPTH TO INVERT	2.56			0.40
SIZE & GRADIENT	150Ø uPVC SW @ 0.55% (OPEN CUT)			150Ø uPVC SW @ 3.4% (OPEN CUT)
LENGTH(m)	0.00	2.79	8.79	13.75



SW LINE D

DATUM: 30.00

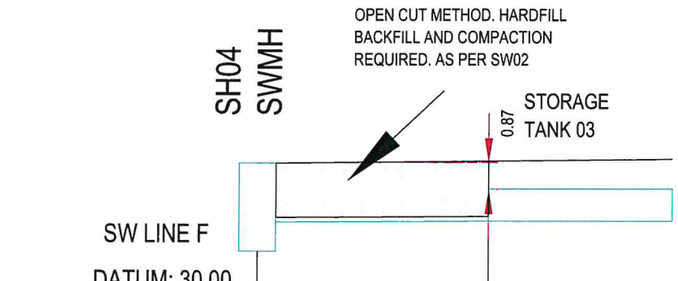
LID LEVEL	34.07			34.23
INVERT LEVEL	31.59 / 32.59		32.69 / 33.59	33.83
DEPTH TO INVERT	2.48			0.40
SIZE & GRADIENT	150Ø uPVC SW @ 0.55% (OPEN CUT)			150Ø uPVC SW @ 11.4% (OPEN CUT)
LENGTH(m)	0.00	17.76	23.76	25.86



SW LINE E

DATUM: 30.00

LID LEVEL	34.29			34.58
INVERT LEVEL	31.37 / 32.37	32.41	33.31	33.83
DEPTH TO INVERT	2.92			1.20
SIZE & GRADIENT	150Ø uPVC SW @ 0.55% (OPEN CUT)			150Ø uPVC SW @ 0.55% (OPEN CUT)
LENGTH(m)	0.00	6.98	12.98	25.86



SW LINE F

DATUM: 30.00

LID LEVEL	34.29	
INVERT LEVEL	31.37 / 32.37	32.41
DEPTH TO INVERT	2.92	
SIZE & GRADIENT	150Ø uPVC SW @ 0.55% (OPEN CUT)	
LENGTH(m)	0.00	6.98

SURVEYED			
DESIGNED	-	-	
DRAWN	PG	05/21	
TRACED			
CHECKED	PW	05/21	

APPROVED BY / DATE: 14/05/21

REVISION	CHANGES	CHECKED	DATE
-	ORIGINAL	PW	05/21
A	SW LINE C, LENGTH , TEXT	PW	05/21
-			

NOTES

1. LEVELS ARE IN TERMS OF AUCKLAND VERTICAL DATUM (MSL) 1946
   ORIGIN = RM3982 SO 54493
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3. CONTOURS ARE AT 0.25m INTERVALS
4. COMPRISED IN CT NA 101D/827
5. CERTIFICATE OF TITLE AREA 3342m²
6. LOCAL AUTHORITY - AUCKLAND COUNCIL
7. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS. ALL SEDIMENT CONTROL MEASURES TO BE IN PLACE PRIOR TO ANY WORK COMMENCING. WORKS ONLY TO COMMENCE UPON ENGINEERS WRITTEN ACCEPTANCE.
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13. CONTRACTOR TO REINSTATE ALL AREAS TO ENGINEER/OWNERS SATISFACTION. MAINTAIN ACCESS TO SITE AT ALL TIMES.
14. ROAD OPENING NOTICE IS TO BE APPLIED FOR AND OBTAINED BY CONTRACTOR PRIOR TO ANY WORK COMMENCING ON ROAD RESERVE.

APEXONE LTD

36A EAGLEHURST ROAD
ELLERSLIE
AUCKLAND

DRIVEWAY TO SOAKHOLE
LONGSECTIONS

Barry Satchell

60 NEW NORTH ROAD, EDEN TERRACE
PO BOX 10-343
DOMINION ROAD
AUCKLAND
TEL:+64-9-623-4573
WEB:www.bscl.co.nz

CAD Ref: P/8149/CAD/8149 401
XREFS:

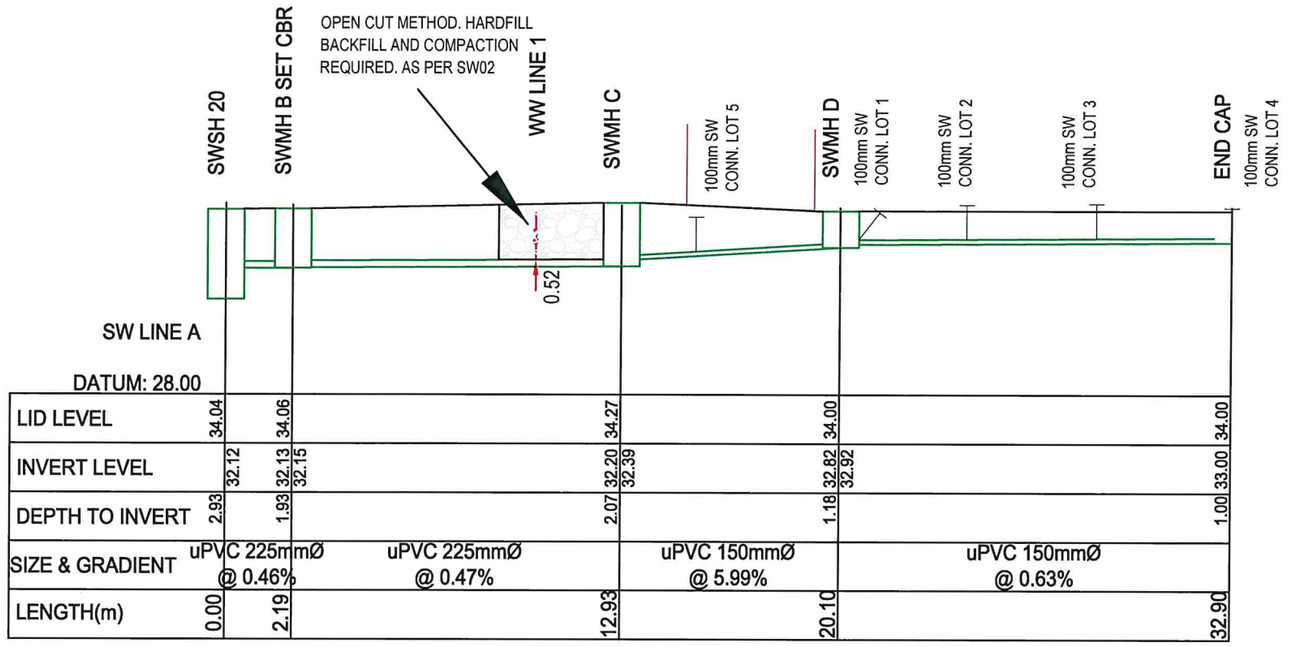
STATUS
STAMP FOR RESOURCE CONSENT
-

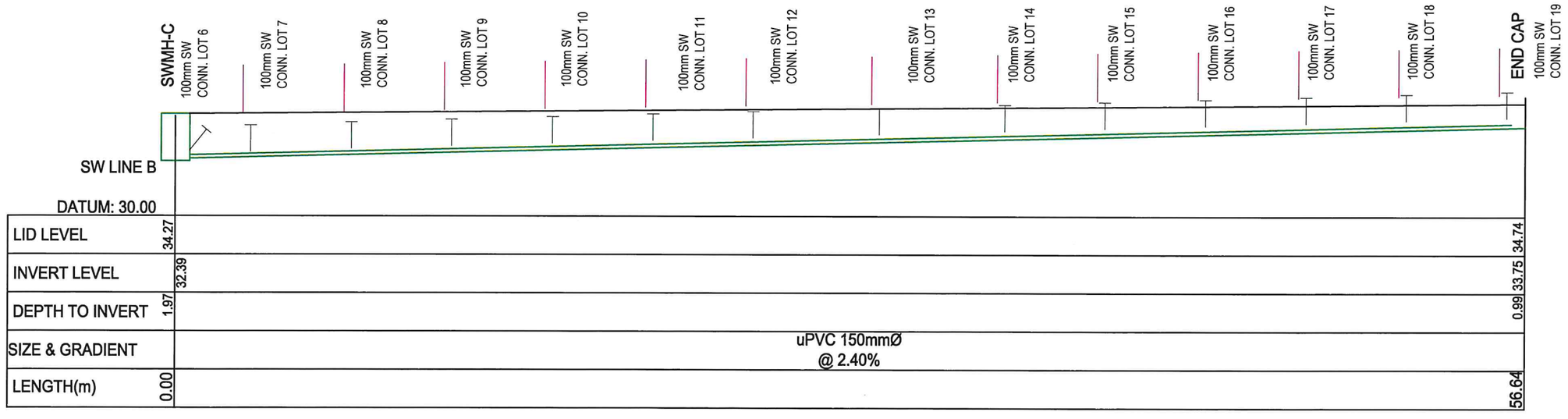
SCALES (A1) 1: 100 (A3) 1: 200

JOB NO.	DRAWING No.	REVISION
8149	403 SHT 1 OF 1	A

DO NOT SCALE - IF IN DOUBT, ASK

ORIGINAL SIZE A1





NOTES

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SURVEY INFORMATION

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5. CERTIFICATE OF TITLE AREA 3342m²
6. LOCAL AUTHORITY - AUCKLAND COUNCIL

REV	CHK	DATE	MODIFICATION
-	PW	05/21	ORIGINAL

PROJECT
36a EAGLEHURST ROAD
ELLERSLIE

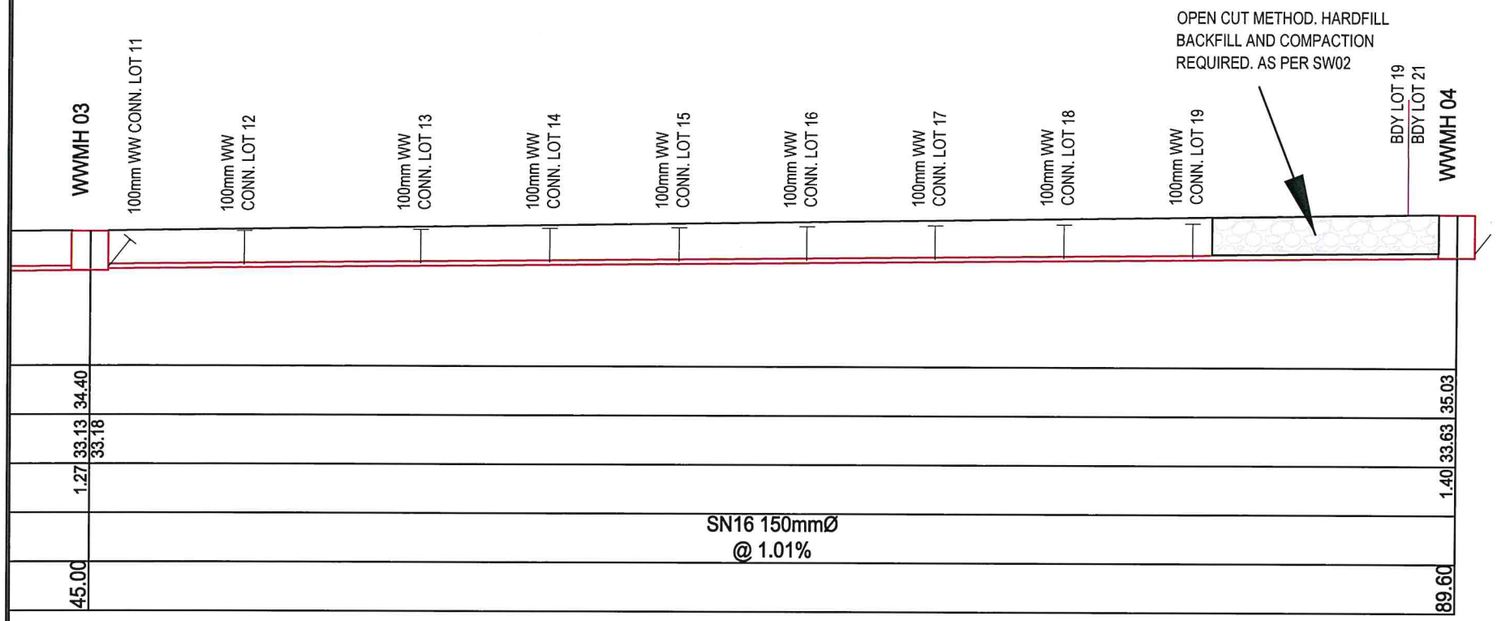
DRAWING TITLE
STORMWATER LINES
A & B LONGSECITONS

CLIENT
APEONE LTD

Barry Satchell
ENGINEERS - SURVEYORS - PLANNERS
60 NEW NORTH ROAD
BALMORAL
PO BOX 10-343
DOMINION ROAD
AUCKLAND
TEL:+64-9-623-4573
WEB: www/bscl/co.nz
Email: admin@bscl.co.nz

SURVEYED	DRAWN	CHECKED	APPROVED
OTHERS	PG	PW	16/05/21

SCALE 1:200 (A3 ORIGINAL SIZE)
DATE
JOB NO. 8149
DRAWING No. 404
REVISION -
CAD Ref: P/8149/CAD/8149 401



NOTES

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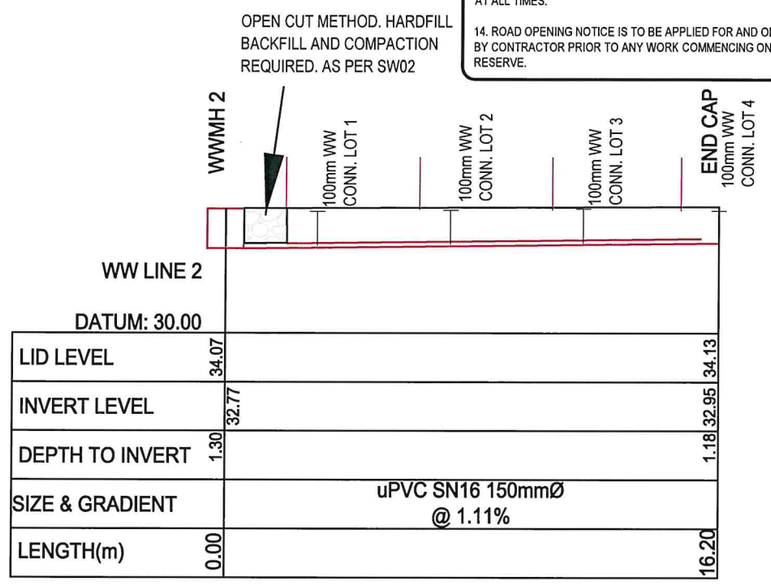

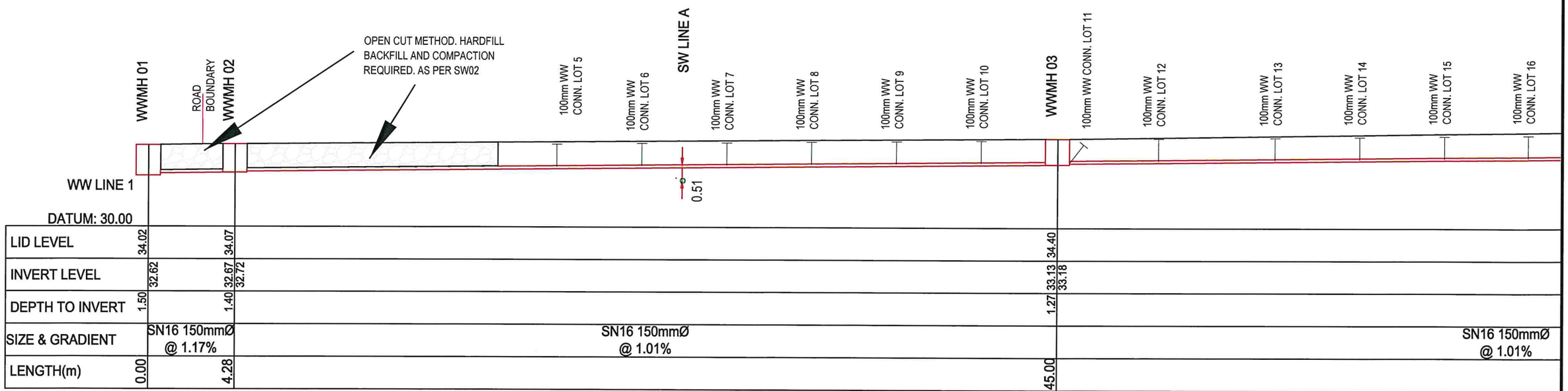

SURVEY INFORMATION

1. LEVELS ARE IN TERMS OF AUCKLAND VERTICAL DATUM (MSL) 1946 ORIGIN = RM3982 SO 54493
2. COORDINATES ARE IN TERMS OF GEODETIC DATUM 2000
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4. COMPRISED IN CT NA 101D/827
5. CERTIFICATE OF TITLE AREA 3342m²
6. LOCAL AUTHORITY - AUCKLAND COUNCIL

REV	CHK	DATE	MODIFICATION
-	PW	05/21	ORIGINAL

PROJECT
36a EAGLEHURST ROAD
ELLERSLIE

DRAWING TITLE
PUBLICE WASTWATER
LINES 1 & 2 LONGSECITONS

CLIENT
APEXONE LTD

Barry Satchell
ENGINEERS · SURVEYORS · PLANNERS
60 NEW NORTH ROAD
BALMORAL
PO BOX 10-343
DOMINION ROAD
AUCKLAND
TEL:+64-9-623-4573
WEB: www/bscl/co.nz
Email: admin@bscl.co.nz

SURVEYED	DRAWN	CHECKED	APPROVED
OTHERS	PG	PW	18/05/21

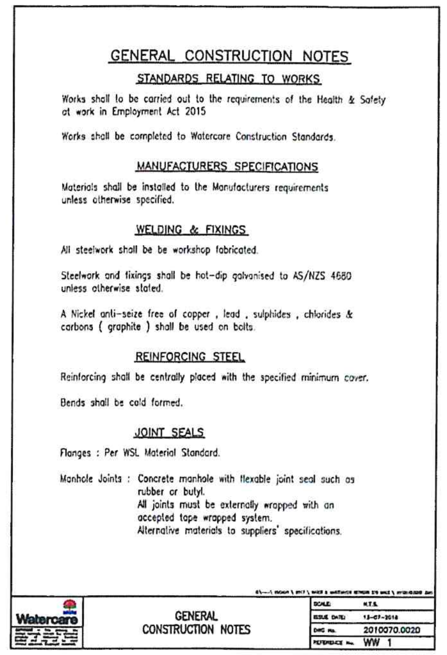
SCALE 1:200 (A3 ORIGINAL SIZE) DATE

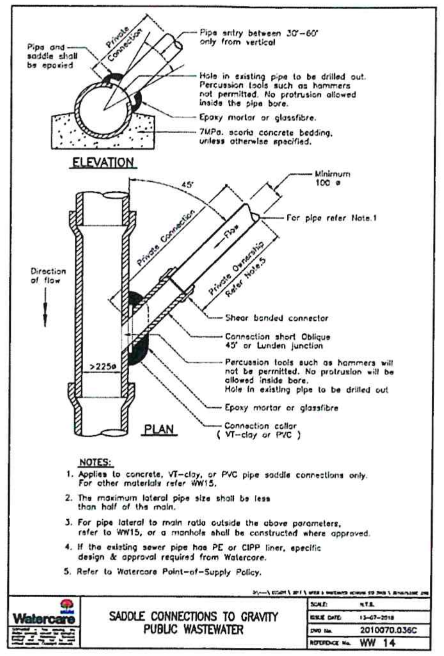
JOB NO.	DRAWING No.	REVISION
8149	405	-

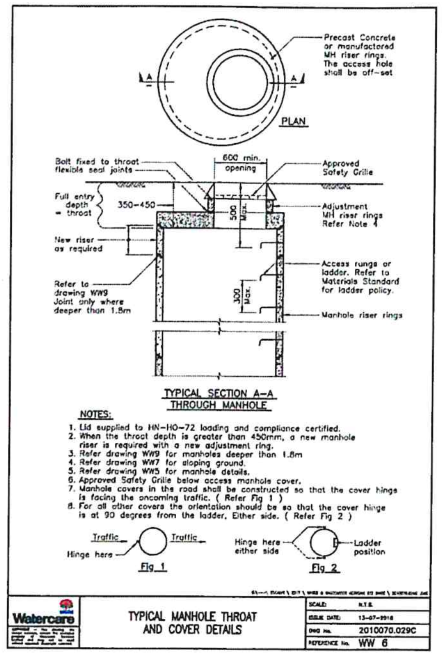
CAD Ref: P/8149/CAD/8149 401

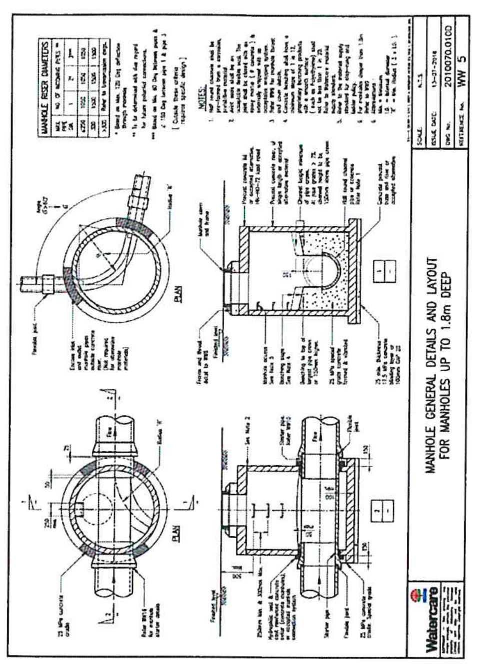
DO NOT SCALE - IF IN DOUBT, ASK

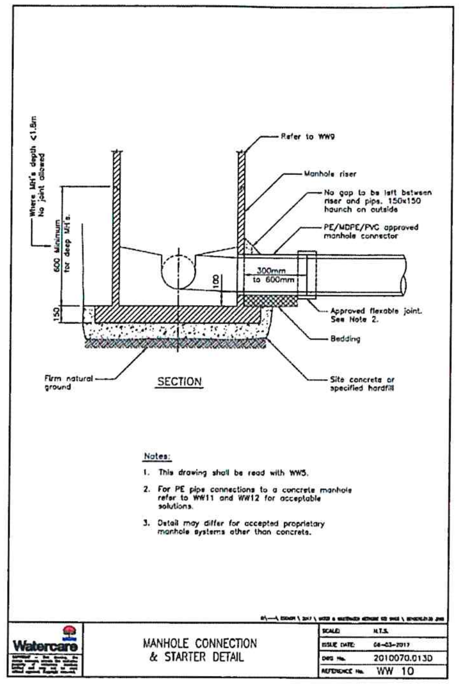
ORIGINAL SIZE A1

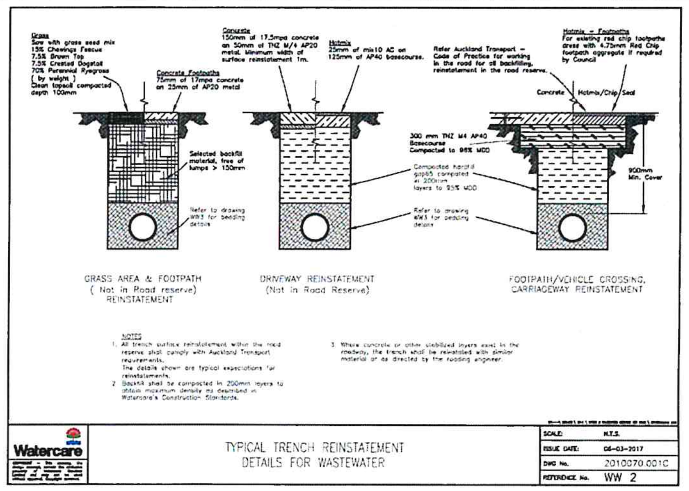


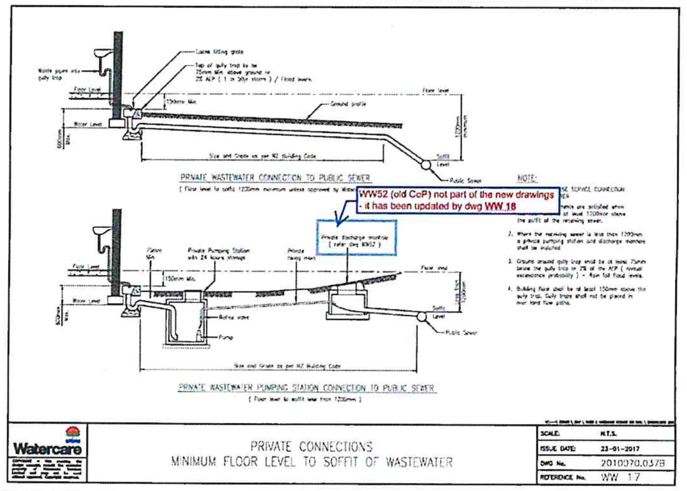


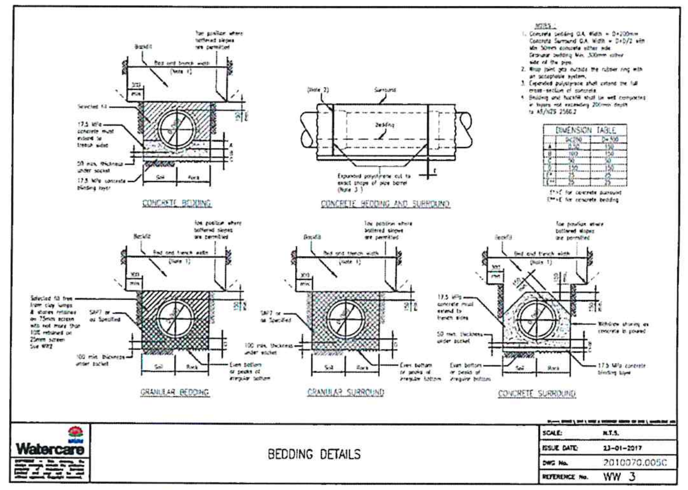


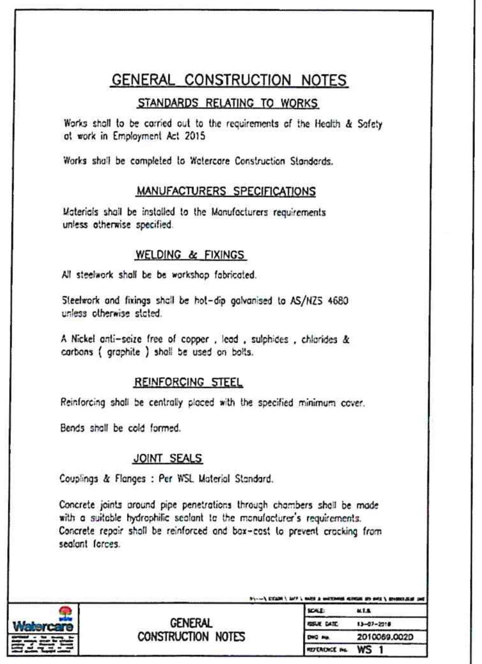


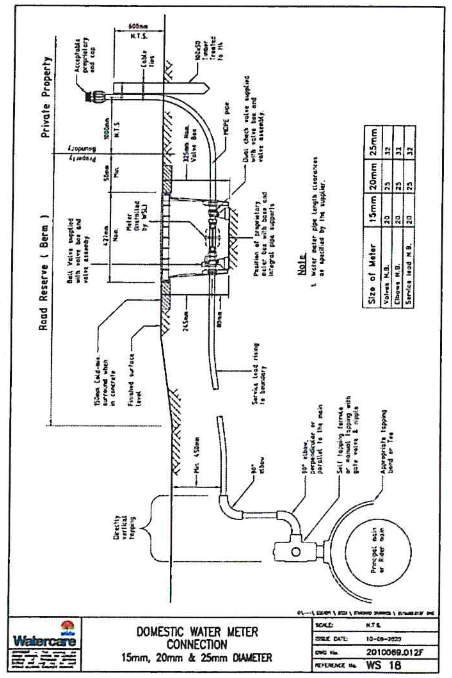


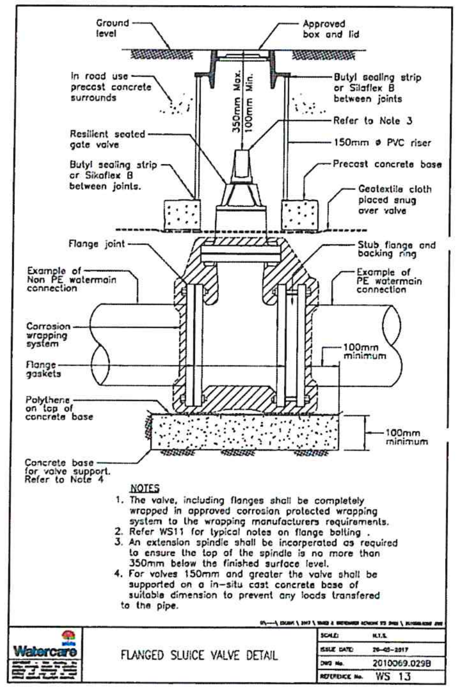


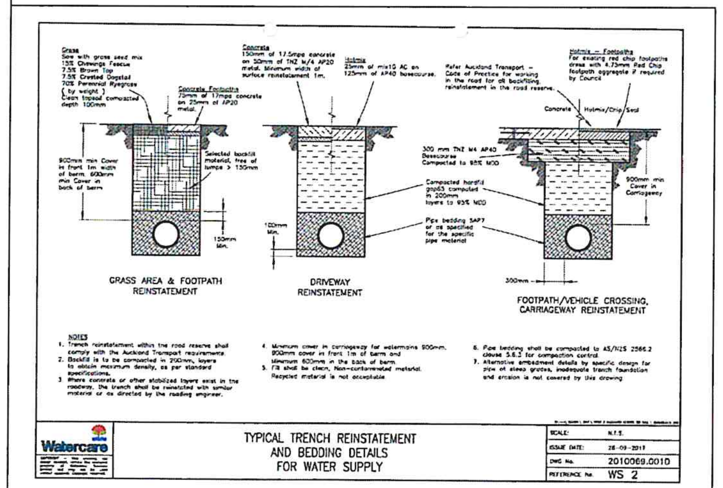












			APPROVED BY	DATE
SURVEYED				
DESIGNED	-	-		
DRAWN	PG	05/21		18/05/21
TRACED				
CHECKED	PW	05/21		

REVISION	CHANGES	CHECKED	DATE
-	ORIGINAL	PW	05/21
-			

NOTES

1. LEVELS ARE IN TERMS OF AUCKLAND VERTICAL DATUM (MSL) 1946 ORIGIN = RM3982 SO 54493
2. COORDINATES ARE IN TERMS OF GEODETIC DATUM 2000
3. CONTOURS ARE AT 0.25m INTERVALS
4. COMPRISED IN CT NA 101D/827
5. CERTIFICATE OF TITLE AREA 3342m²
6. LOCAL AUTHORITY - AUCKLAND COUNCIL
7. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS. ALL SEDIMENT CONTROL MEASURES TO BE IN PLACE PRIOR TO ANY WORK COMMENCING. WORKS ONLY TO COMMENCE UPON ENGINEERS WRITTEN ACCEPTANCE.
12. CONTRACTOR TO SEARCH, LOCATE AND CONFIRM ALL EXISTING SERVICES BEFORE COMMENCEMENT OF WORKS WHETHER SHOWN ON DRAWING OR NOT AND MAINTAIN RESPONSIBILITY FOR ALL SERVICES.
13. CONTRACTOR TO REINSTATE ALL AREAS TO ENGINEER/OWNERS SATISFACTION. MAINTAIN ACCESS TO SITE AT ALL TIMES.
14. ROAD OPENING NOTICE IS TO BE APPLIED FOR AND OBTAINED BY CONTRACTOR PRIOR TO ANY WORK COMMENCING ON ROAD RESERVE.

APEXONE LTD

36A EAGLEHURST ROAD
ELLERSLIE
AUCKLAND

WASTEWATER AND WATER TYPICAL DETAILS

Barry Satchell

60 NEW NORTH ROAD, EDEN TERRACE
PO BOX 10-343
DOMINION ROAD
AUCKLAND
TEL:+64-9-623-4573
WEB:www.bscl.co.nz

CAD Ref: P/8149/CAD/8149 401
XREFS:

STATUS STAMP: FOR RESOURCE CONSENT

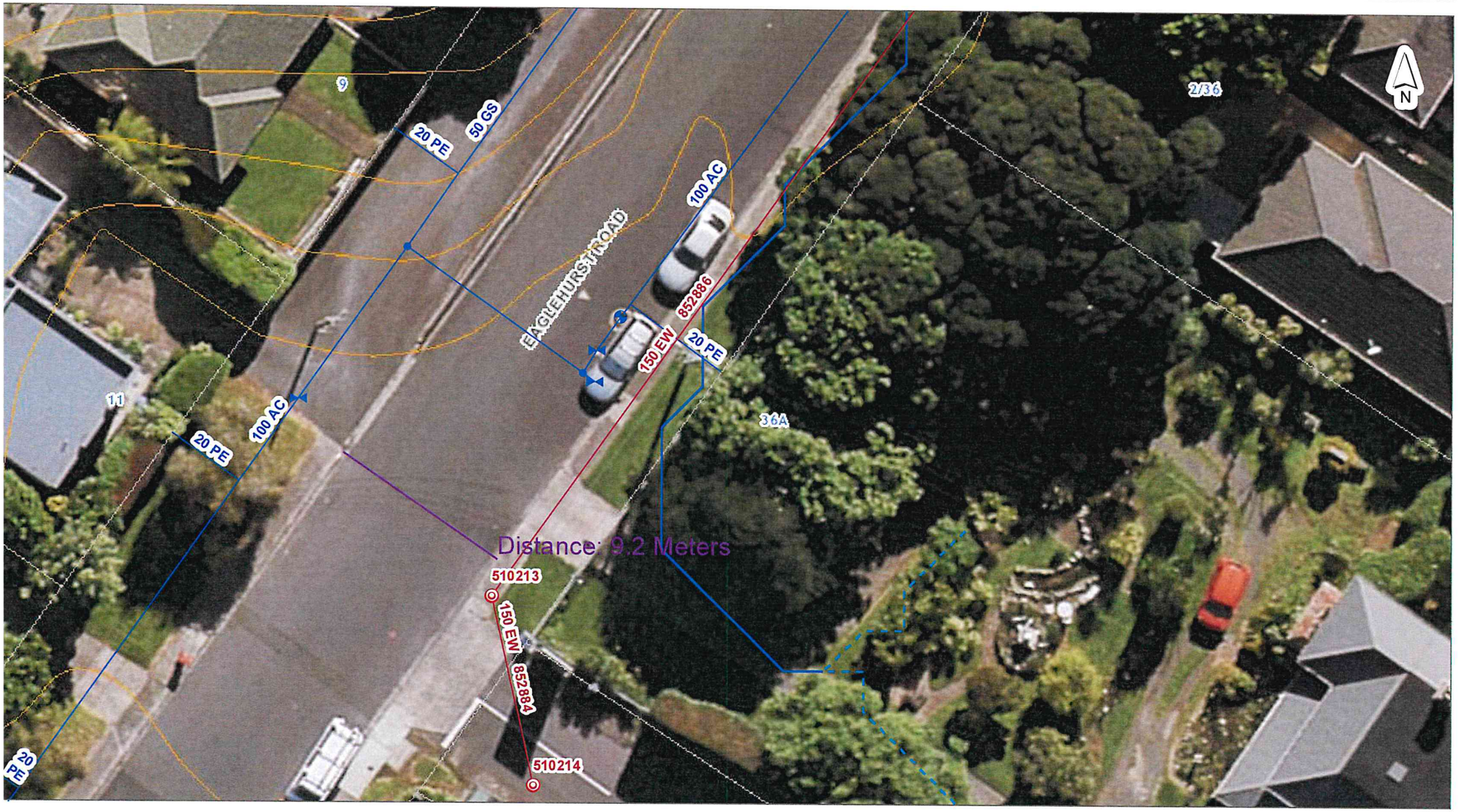
SCALES (A1) 1: AS SHOWN (A3) 1: AS SHOWN

JOB NO.	DRAWING No.	REVISION
8149	406	-

SHT 1 OF 1

Appendix G:

Firefighting supply data, WaterCare connections



36A Eaglehurst Rd

0 1.5 3 4.5
Meters

Scale @ A4
= 1:250

Date Printed:
2/12/2020

Auckland Council
Te Kaunihera o Tāmaki Makaurau

Appendix H

Earthworks and GIS Overland Flowpath

EAGLEHURST ROAD

FOOTPATH

RELOCATE ROAD SIGN

GRASS BERM

STABILISED ENTRANCE

ENTRANCE

VALVE

34°36' (34°00'P/P)

34°36' 33.00

SUPER SILT FENCE

EXTG X-ING

FOOTPATH

GRASS BERM

TEL

TRAFFIC SIGN

SH20
LL = 34.04

SH23
LL = 34.07

LOT 1
DP 167980

34.34

122°24'00"
57.01

34.5

LOT 20

SH03
LL = 34.29

SUPER SILT FENCE

35.9

35.05

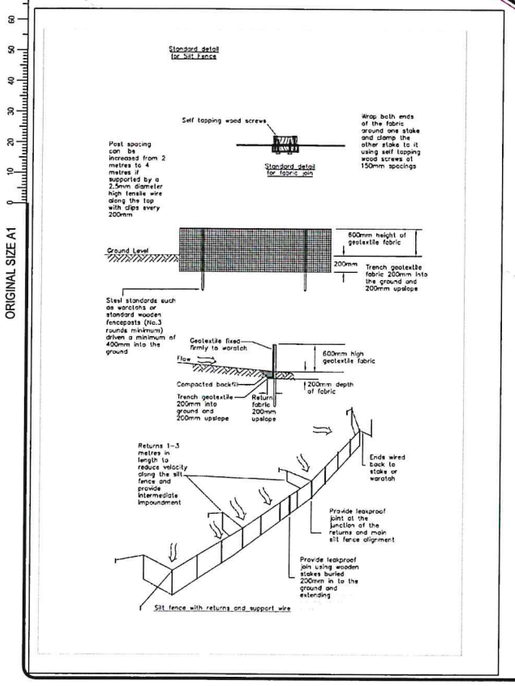
35.08

302°25'00"
85.33

LOT 1
DP 145874

DO NOT SCALE - IF IN DOUBT, ASK

ORIGINAL SIZE A1



KEY:

MIXED HOUSING SUBURBAN ZONE
CUT AREA = 2551m²
CUT VOLUME = 545m³

LIGHT INDUSTRY ZONE
CUT AREA = 179m²
CUT VOLUME = 165m³

TOTAL
CUT AREA = 2730m²
CUT VOLUME = 710m³

SILT FENCE

STAGES

1. INSTALL SUPER SILT FENCE (GD05), STABILISED CONSTRUCTION ENTRANCE & WHEEL WASH IF REQUIRED.
2. REMOVE EXISTING BUILDINGS.
3. INSTALL WW PUBLIC LINES AND SW SOAKHOLE AND LINES AND SW, WW CONNECTIONS TO EACH SITE.
4. UNDERTAKE SUBDIVISION SITE WORKS, STRUCTURES, ROW AND SERVICES INSTALLATIONS
5. KEEP ALL SILT AND SEDIMENT MEASURES IN PLACE UNTIL THE SITE HAS BEEN FULLY STABILISED
6. ENSURE SUPER SILT FENCE IS WELL MAINTAINED THROUGHOUT WORKS

SURVEYED			
DESIGNED			
DRAWN	PG	12/20	
TRACED			
CHECKED	PW	12/20	

APPROVED BY DATE 09/06/21

REVISION	CHANGES	CHECKED	DATE
-	ORIGINAL	PW	12/20
A	TEXT, HATCHING, LINES UPDATED	PW	06/21

NOTES

1. LEVELS ARE IN TERMS OF AUCKLAND VERTICAL DATUM (MSL) 1946

   ORIGIN = RM3982 SO54493
2. COORDINATES ARE IN TERMS OF GEODETIC DATUM MOUNT EDEN 2000 CIRCUIT
3. CONTOURS ARE AT 0.25m INTERVALS
4. COMPRISED IN CT NA101D/827
5. CERTIFICATE OF TITLE AREA 3342m²
6. LOCAL AUTHORITY - AUCKLAND COUNCIL
7. PROPERTY BOUNDARIES HAVE BEEN SOURCED FROM THE LINZ SPATIAL DATABASE AND ARE ACCURATE FOR TOPOGRAPHICAL PURPOSES ONLY. WHERE CRITICAL, BOUNDARY DIMENSIONS SHOULD BE CONFIRMED BY LAND TRANSFER SURVEY.
8. CERTAIN DRAINAGE AND UNDERGROUND SERVICE INFORMATION HAS BEEN PLOTTED FROM SERVICE PROVIDERS RECORDS, LOCATION SHOULD BE VERIFIED ON SITE.
9. WHERE THE ROAD OPENING NOTICE IS TO BE APPLIED FOR AND OBTAINED BY CONTRACTOR PRIOR TO ANY WORK COMMENCING ON ROAD RESERVE.
10. V SHAPE 200mm 20MPa CONCRETE ACCESS DRIVEWAY.

APEXONE LTD

36A EAGLEHURST ROAD
ELLERSLIE
AUCKLAND

SILT AND SEDIMENT EARTHWORKS PLAN 01
DP 167980

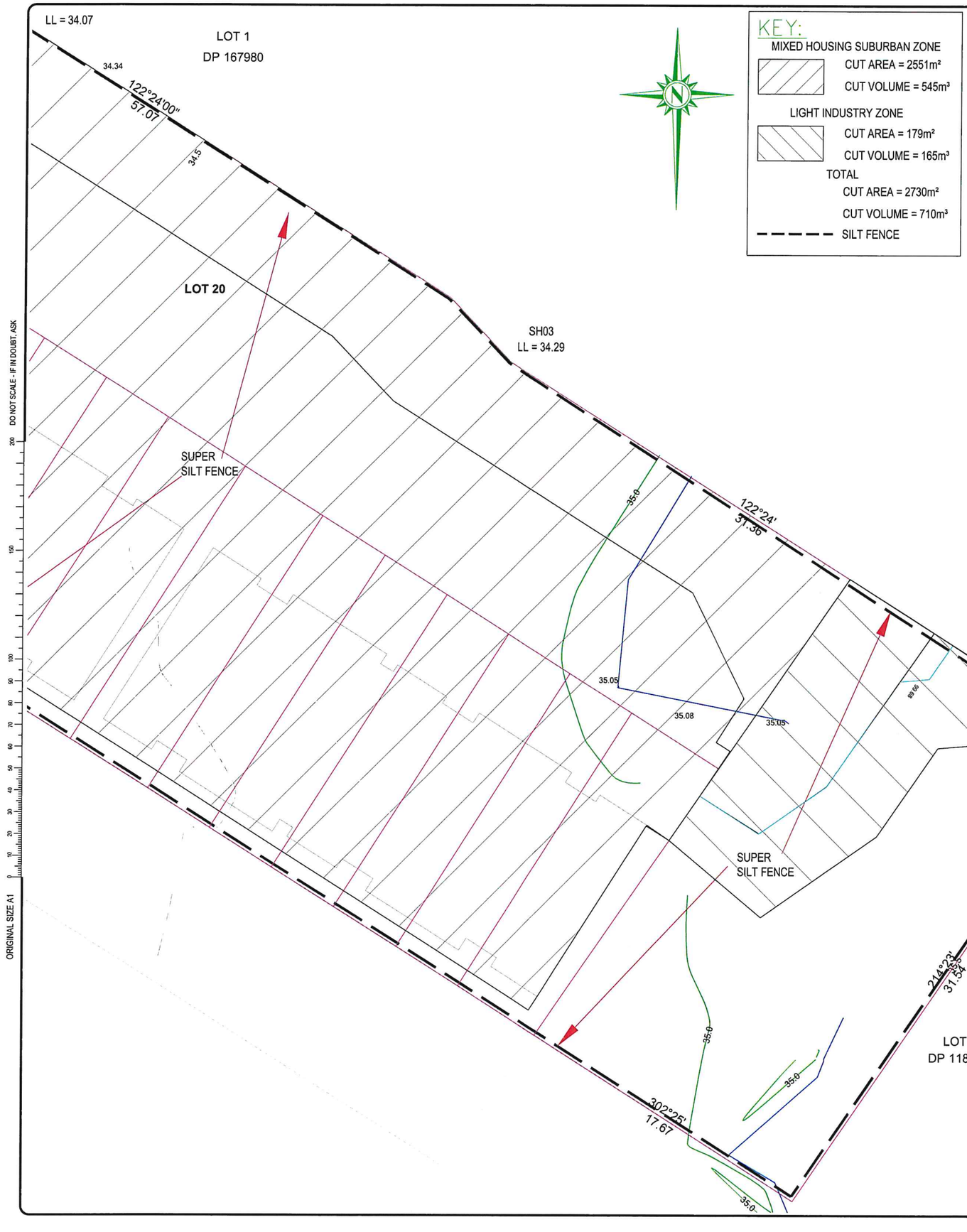
Barry Satchell
ENGINEERS · SURVEYORS · PLANNERS
60 NEW NORTH ROAD, EDEN TERRACE
PO BOX 10-343
DOMINION ROAD
AUCKLAND
TEL:+64-9-623-4573
WEB:www.bscl.co.nz

CAD Ref: P/8193/CAD/8193 301
XREFS:

STATUS
STAMP FOR RESOURCE CONSENT

SCALES (A1) 1: 125 (A3) 1: 250

JOB NO.	DRAWING No.	REVISION
8149	201 SHT 1 OF 1	A



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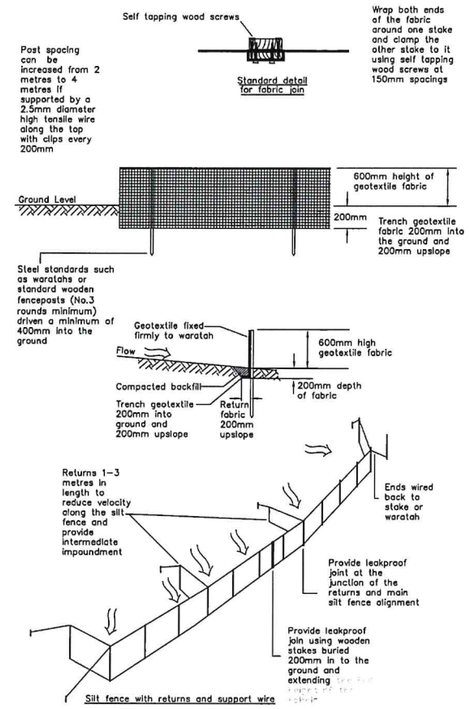
TOTAL

CUT AREA = 2730m²

CUT VOLUME = 710m³

SILT FENCE

Standard detail for Silt Fence



SURVEYED			
DESIGNED			
DRAWN	PG	12/20	
TRACED			
CHECKED	PW	12/20	

APPROVED BY DATE: 09/06/21

REVISION	CHANGES	CHECKED	DATE
-	ORIGINAL	PW	12/20
A	TEXT, HATCHING, LINES UPDATED	PW	06/21

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APEXONE LTD

36A EAGLEHURST ROAD
ELLERSLIE
AUCKLAND

SILT AND SEDIMENT EARTHWORKS PLAN 02 DP 167980

STAGES

1. INSTALL SUPER SILT FENCE (GD05), STABILISED CONSTRUCTION ENTRANCE & WHEEL WASH IF REQUIRED.
2. REMOVE EXISTING BUILDINGS.
3. INSTALL WW PUBLIC LINES AND SW SOAKHOLE AND LINES AND SW, WW CONNECTIONS TO EACH SITE.
4. UNDERTAKE SUBDIVISION SITE WORKS, BUILDINGS, ROW AND SERVICES INSTALLATIONS
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JOB NO.	DRAWING No.	REVISION
8149	202 SHT 1 OF 1	A

36A Eaglehurst Rd

0 5 10 15
Meters

Scale @ A3
= 1:500

Date Printed:
2/12/2020

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