S&L
Land Development
and Design Specialists

GREENHILL PARK RESIDENTIAL SUBDIVISION

STAGE 12

INFRASTRUCTURE DEVELOPMENT COMPLETION REPORT

POPHAM ROAD, GREENHILL PARK

CHEDWORTH PROPERTIES LTD

Our reference: 19-30378-01

Prepared for Chedworth Properties Limited

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This report has been prepared specifically for Chedworth Properties Ltd and supplied to Hamilton City Council for works clearance for Greenhill Park Subdivision and no responsibility is accepted by S&L Consultants Ltd for the use of any part of this report in other contexts without written approval.

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REVISION	Issued for Application	**DATE**	6 November 2020

Quality Assurance Statement		
Task	**Responsibility**	**Signature/Approval**
Written by:	Kurt Uttinger Engineer	
Reviewed by:	Nic Fu Client Principal	

Our Ref: 19-30378-01

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Appendices

1.0 BACKGROUND

1.1 Introduction

This application relates to Greenhill Park Subdivision Stage 12 located alongside Popham Road, south of Pardoa Boulevard.

Works included the following:

- Stage 12 subdivision roading (including Gosset Avenue and Couldsack Ave)
- Wastewater reticulation and lot connections
- Stormwater reticulation for roading and lot connections
- Watermain and lot connections
- Associated Streetlights
- Electrical reticulation for subdivision lots and street lighting
- Ultrafast Broadband reticulation
- Gas supply for subdivision development
- Concrete footpath construction
- Landscape planting

On the south side of Popham Road, Stage 12 development works for 29 residential lots have been carried out under Hamilton City Council Subdivision Resource Consent 011.2018.6632, granted 05 September 2018.

This application is made on behalf of Chedworth Properties Ltd for Works Clearance from Hamilton City Council. Works clearance is sought in order to obtain certification pursuant to Section 224(c) of the Resource Management Act 1991 for Greenhill Park subdivision, Stage 12, LT 548658. A copy of the land transfer plan is included in Appendix 8.

This report addresses the key details associated with the Infrastructure provided.

1.2 Entities Involved with Development

The following companies have been involved with the construction of the Subdivision;

• Developer:	Chedworth Properties Ltd
• Consultant Design Engineers:	Beca Consultants
• Consultant Engineers and Surveyors:	S&L
• Geotech Engineer	DBCon Engineers
• Landscape Design	Boffa Miskell
• Landscape Planting	Native Awa
• Head Contractor:	Online Contractors 2016 Ltd (OLC)
• Subcontractors & Suppliers:	
Civil Materials Supply	Hynds
Stormwater and Wastewater Drainage	West Construction Ltd (WC)

Geotechnical Testing	Opus/WSP
Concrete Supply	Bowers Bros Concrete
Concrete kerbs	Waikato Construction
Carparks	Purrfect Paving
Footpaths	Purrfect Paving
Concrete Cutting	Ironman Concrete Cutting
Streetlights	Ibex Lighting
Power Reticulation	WEL Networks – (Subcontractors: Northpower and Bayonne)
Road Materials Supplier	Stevenson Resources, Gleeson Quarry – Huntly
Road Surfacing Contractor	Higgins Contractors
Road Signs	Directionz Ltd
Road Line Marking	Linemark
Gas	First Gas
Telecommunication	Ultrafast Fibre – (Subcontractor: Civtec)

1.3 Observation of Works

S&L undertook regular inspections of the works as the project progressed and reviewed the contractor's quality assurance measures including test results. The progress of the construction was reviewed formally at weekly site meetings as well as discussions on site with the contractor.

The observation and supervision activities by S&L were undertaken to a level of CM3 (weekly site visits) as described in the IPENZ document "Guidelines on the Briefing and Engagement of Consulting Engineering Services" with additional inspections when required by the nature of the works under construction.

1.4 As-Built Data

A full set of as-built drawings and excel spreadsheets have been appended to this document in Appendix 9 and 10. These include the as built and asset value information required in accordance with the RITS. The as built data has also been included in this application in electronic format and a copy enclosed in final works clearance report for reference.

1.5 CCTV

CCTV inspections have been completed for the wastewater and stormwater lines. The footage has been provided to Hamilton City Council separately.

1.6 Design and Hamilton City Council Development Unit Design Acceptance

The following Approvals have been gained from the HCC Development Unit:

- Greenhill Park Stage 12 was designed by Beca Consultants and approved by HCC Development Unit.

1.7 Amendments to approved plans

Amendments from the approved plans have been made during construction as follows:

- Pavement type B changed to one 230mm thick layer of TNZ M/4 AP40. Refer emailed confirmation with HCC Development Engineer in Appendix 2(b).
- Pavement type C changed to one 200mm thick layer of GAP40. Refer emailed confirmation with HCC Development Engineer in Appendix 2(b).
- Kerbing changes made removing flush kerbs and footpaths. Refer emailed confirmation with HCC Development Engineer in Appendix 2(b).

2.0 EARTHWORKS

Earthworks have been carried out onsite under the supervision of S&L and DBCon Engineers. DBCon Engineers were engaged as the geotechnical engineer. The DBCon report of stage 12 subdivision earthworks and recommendations for building development is included in Appendix 1, detailing earthworks compliance with HCC RITS and NZ Standards.

3.0 ROADING INFRASTRUCTURE

3.1 Road Construction

Roads have been constructed in general accordance with the pavement shown on the approved engineering plans, except where the pavement has been changed as discussed in section 1.7 above.

Review of the road construction is as follows:

3.2 Subgrade

The underlying natural soils comprise sandy silts of varying strengths. Significant subgrade improvement works have been carried out as follows:

- Much of the Stage 12 subgrade consists of imported hardfill for the backfill of the stormwater and sanitary sewer underground lines beneath.

- All areas in the road carriageway that have not been backfilled with hard brown rock have been undercut to a minimum depth of 0.5m below subgrade level and replaced with a subgrade improvement layer of compacted hard brown rock.

- Subsoil drains have been laid beneath kerbs discharging into catchpits

Testing of the subgrade improvement layer included proof rolling with no visible weave, stringing by way of GPS survey, and Clegg hammer testing to confirm that a CIV>15 (CBR>15) had been achieved for all roads in Stage 12. Results of the Clegg hammer testing are included in Appendix 2(a).

A GPS survey was undertaken throughout Stage 12 and checked against the design surface. Results are included in Appendix 2(a), confirming that design pavements depths have generally been achieved to ITS tolerances.

All road subgrades have been tested using clegg hammers, showing that CBR values over 15 have been consistently achieved on all roads. The results from the Subgrade Clegg Hammer testing are summarised below:

Subgrade Clegg Hammer Results Summary

Road 37 CH 350 - 460	Range CIV 26 - 46 Mean CIV 35	Min Inferred CBR 47*
Road 38 CH 10 - 130	Range CIV 31 - 46 Mean CIV 37	Min Inferred CBR 67*
Road 39 CH 470 - 540	Range CIV 29 - 46 Mean CIV 38	Min Inferred CBR 59*

***Note: CBR = $0.07(CIV)^2$ formula applied in accordance with RITS

3.3 Subbase

The subbase of roads with pavement type C have been incorporated into the basecourse layer. Construction and testing methods for these roads are covered in the basecourse section below.

3.4 Basecourse

Subdivision roading comprises of the following basecourse types:

Road 37, 38 and 39 (Gosset Avenue and Couldsack Avenue)	200mm GAP40 basecourse – Stevensons Tauhei

QA Supplied for the basecourse included in Appendix 2(b) includes the following:

- Material testing sheets
- Stringing
- Compaction testing of the basecourse with Nuclear Densometer
- Clegg Hammer tests
- Benkelman Beam testing

Stringing

Stringing of the basecourse was carried out from kerbs prior to sealing. Results are included in Appendix 2(b) confirming that design pavements depths have generally been achieved to ITS tolerances.

Clegg Hammer

Clegg hammer testing has been undertaken on the subdivision roading basecourse showing compliance with RITS.

Nuclear Densometer

Nuclear densometer testing was carried out by Opus in order to confirm density.

Nuclear Densometer testing has been undertaken in accordance with RITS Section 3.8.2.5 & 3.8.3.4, Table 3-22. Results are included in Appendix 2(b).

The Target MDD for the GAP40 pavement is 2.22t/m3 as per Opus MDD report (project number: 2-68015.00, lab reference: HA 6289/2_VHMDD).

Results are summarised below:

Basecourse NDM Results Summary

Road 37 CH 350 - 460	Min 95% of MDD (Target MDD 2.22t/m3)	Mean 99% of MDD
Road 38 CH 10 - 130	Min 97% of MDD (Target MDD 2.22t/m3)	Mean 100% of MDD
Road 39 CH 470 - 540	Min 97% of MDD (Target MDD 2.22t/m3)	Mean 98% of MDD

3.5 Benkelman Beam Results

Benkelman beam tests were carried out by Opus on the basecourse surface following surfacing. Results are summarised below:

Basecourse Benkelman Beam Results Summary

	Deflection (mm)			
	Maximum (mm)	**Minimum (mm)**	**%age over 1.8mm (A2)**	**Average (mm)**
Road 37 CH 350 - 460	1.30	0.90	0	1.07
Road 38 CH 10 - 130	1.30	0.76	0	1.10
Road 39 CH 470 - 540	1.30	0.90	0	1.10

Results conform to the maximum and average deflection requirements of Section 3.8.3.5, Table 3-23 of the RITS for A2 (up to 10^5 EDA) roads.

3.6 Road Surfacing

A summary of road surfacing details laid by Higgins is listed below:

Road Surfacing Summary

Road	Membrane Seal	Surface
Pavement Type C	Grade four single coat first coat seal Residual Application Rate: 1.0L/m^2	30mm DG7

4.0 WATER INFRASTRUCTURE

4.1 Installation

The water supply reticulation completed by Online Contractors includes the following components:

- 150mm mPVC PN12RRJ principal main
- 63mm PE80 PN12.5 ridermain
- Associated fittings, valves and hydrants
- Residential connections to all lots

Quantities and installation locations are shown on as-built records appended to this document.

4.2 Testing and Disinfection

Online Contractors Ltd carried out all aspects of pressure testing of the supply lines and disinfection prior to livening, in accordance with the ITS and in the presence of HCC.

Testing included the following items:

- Water supply pressure test result
- Water Supply disinfection
- Water Supply E Coli test

The pressure test and the observation of FAC (Free Available Chlorine) was witnessed by HCC's testing officer. The E Coli test samples were collected as part of the testing and the samples have been reviewed by HCC Officer, L. Parkes and passed.

Pressure testing results, pipe laying checklists and Bacto Test results are included in Appendix 3.

5.0 WASTEWATER INFRASTRUCTURE

Supporting quality assurance documentation for Wastewater Infrastructure supplied by the contractor and reviewed by S&L is attached in Appendix 4.

The gravity sewerage system comprises installation of the following components:

- 150mm dia uPVC SN16 wastewater main
- 100mm dia uPVC SN16 sewer laterals and lot connections
- Associated manholes.

Testing and inspection includes the following:

- CCTV inspection which has been supplied separately to Council
- Inspection of Manhole Structures
- Pressure testing of Manhole Structures by West Construction observed by HCC
- Pressure testing of 150mm dia wastewater main by West Construction observed by HCC
- As-builting by West Construction and S&L with final as-builts compiled by S&L.

6.0 STORMWATER INFRASTRUCTURE

6.1 Installation

In accordance with the approved design, stormwater from Stage 12 discharges into the Area M swales for treatment and conveyance:

- Swale 3B is located on the south side of Popham Rd and flows west.

The primary system comprises of:

- UPVC & RCRRJ stormwater mains and headwalls
- UPVC laterals and lot connections
- Road catchpits and leads
- Manholes

Observation of the works was undertaken by S&L and includes:

- CCTV inspection which has been supplied separately to Council
- Inspection of all manhole structures, catch pits, outlets and inlets
- As-builting by Online Contractors and S&L Consultants with final as-builts compiled by S&L.

QA and checklists provided by the contractor and reviewed by S&L are included in Appendix 5.

6.2 Secondary flow paths

In accordance with the approved design, the stormwater from Stage 12 discharges into swale 3B for treatment and conveyance.

A piped drainage network has been designed to collect runoff from the road and lots with standard sumps. The pipes are designed to convey (without significant surcharge) the 50% AEP flows to the network of swales downstream. Each individual lot is provided with a piped connection to the main drainage system in case on-lot soakage is not appropriate.

In events larger than a 50% AEP, secondary stormwater flows for Stage 12 will flow down the road shoulders to a low point at the road 38/39 intersection and flow north across the overland flow path (lot 507), then spill into Swale 3B that runs along the southern side of Popham Road and flows west.

See attached as-built drawings 21879-M-12-R1 and 21879-M-12-SW1 in appendix 9 showing the location and direction of stormwater overland flow.

7.0 STREET LIGHTING, STREET MARKING AND SIGNAGE

Streetlights have been designed, supplied and installed by Ibex Lighting Ltd. All quality assurance documentation for the street lights is included in Appendix 7.

Signage has been installed by OLC subcontractor Directionz Ltd in accordance with approved drawings and RITS requirements.

Carriageway paint marking has been completed by OLC subcontractor Linemark Ltd and is in accordance with approved drawings and RITS requirements.

8.0 LANDSCAPING

8.1 Hard Landscaping

There are no hard landscaping works included in stage 12.

8.2 Soft Landscaping

The landscape planting within the road reserves and the stormwater swales has been completed. An inspection by HCC Parks and Open Spaces has been completed.

9.0 NETWORK UTILITIES

Network utilities have been provided as follows.

9.1 Power

Electrical reticulation has been installed by WEL Networks for both street lighting and residential supply.

A WEL Networks works clearance statement is attached in Appendix 7.

9.2 Gas

First Gas has installed reticulation to enable future connection by individual lot owners. A completion Certificate is included in Appendix 7.

9.3 Telecommunications

Ultrafast Fibre has installed reticulation to individual lots. An acceptance letter is included in Appendix 7.

10.0 FINAL INSPECTION

A final inspection has been undertaken and was attended by Hamilton City Council's Development Engineers and associated staff from S&L and Online Contractors.

A separate inspection by Parks and Open Spaces has also been completed.

APPENDIX 1

Earthworks QA Documentation

- DBCon Engineers Report on Subdivision Earthworks & Recommendations for Building Development

GREENHILL PARK RESIDENTIAL SUBDIVISION

STAGE 12
Area M, Greenhill Park

HAMILTON

REPORT ON SUBDIVISION EARTHWORKS AND RECOMMENDATIONS FOR BUILDING DEVELOPMENT

Our Ref: DB 171738-AREA-M-S12-01

Prepared for: Chedworth Properties Limited

Date: November 2020

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21879-01-M12-EW1
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1.0 Subdivision Development Earthworks

1.1 Introduction

In accordance with Hamilton City Council's (HCC) Subdivision Resource Consent: 011.2018.6632.001 dated: 05/09/2018. Bulk earthworks have been completed to re-contour the previously agricultural landscape for Stage 12 of the Greenhill Park Residential Subdivision in Hamilton. Prior to commencement of earthworks, geotechnical investigations were carried out by Beca Ltd (Beca) in 2016 [1].

Stage 12 of Greenhill Park is currently accessed from Pardoa Boulevard. Stage 12 comprises 29 residential lots (numbered 327 to 356). The locations of these lots are shown on attached *Cut/Fill Plan*, drawing 21879-01-M12-EW1 included in Appendix I.

HCC's Infrastructure Technical Specifications (ITS) set out the minimum standards for design and construction of public infrastructure within Hamilton City. Section 2.1.5 of the *Earthworks and Geotechnical Requirements* of the ITS states that the developer shall appoint a geo-professional to carry out functions as described in NZS 4404[5] Section 2.2.4. ITS Section 2.3.3.1 states that a geotechnical completion report shall be submitted as per NZS 4404 Section 2.6 including a statement of professional opinion on the suitability of land for building construction [4]. The developer has appointed DB Consulting Engineers (DBCE) Ltd as the geo-professional.

To satisfy the requirements of HCC's Resource Consent, the ITS and NZS 4404, this report summarises the observations and testing undertaken during the development of the stage, discusses the suitability of the ground for the support of the proposed residential buildings and contains recommendations for the disposal of stormwater runoff generated on individual sites.

Included in Appendix I of this report is the proposed subdivision plan comprising the original Lot 605 DP 516275 and the proposed new lots 327-356 for Area M Stage 12. The included earthworks plan shows the cut/fill extent of the earthworks undertaken, test positions, and road and lot locations.

1.2 Earthworks in the Subdivision

The earthworks for stage 12 of the subdivision development were undertaken between January 2019 and January 2020.

These earthworks comprised

1. The stripping of surface topsoil to expose underlying natural soils
2. The placement of filling within all lots
3. Backfilling and raising the ground level with new fill to create uniform fill platforms
4. The reinstatement of the surface topsoil cover and subsequent grassing

The soils encountered during the formation of the site and road subgrades were a mixture of silts, sands and pumiceous gravels, typical of Hinuera formation deposits in this area of Hamilton. These soils were those that had been identified in pre-construction site investigations by the Beca Report.

The filling work was undertaken using these site soils gained from areas of cut on other stages from within the larger Greenhill Subdivision. Filling was undertaken during summer 2019 when drying back of the soils was possible to close to optimum moisture contents to achieve near maximum compaction densities.

Upon completion of the earthworks, approximately 200 to 300 mm of topsoil was placed across the sites and the finished surfaces were grassed in accordance with Conditions of the Resource Consent. Areas where an initial grass strike did not take place were re-grassed. While the target topsoil depths after the earthworks were to be around 300 mm, no guarantee is implied or given that the topsoil on any part of any lot is actually 300 mm or less and it is recommended that future owners or designers or builders check topsoil depths when preparing site development plans and cost schedules.

1.3 Earthworks Standards

The earthworks in filling were undertaken using insitu silts and sands and silty sand mixtures gained from areas of cut across the larger subdivision and already used for the earlier stages of the development. The standards for the placement of filling, as stated in the earthworks contract documents, were to comply with NZS 4431:1989 “Code of Practice for Earth fill for Residential Development” and the Council ITS. Filling placed to these standards may be considered as good ground in terms of NZS 3604:2011 “Timber Framed Structures.”

The compaction of the filling placed was monitored and tested for compaction density using a Scala penetrometer in sand filling and a hand-held shear vane in finer grained silts and clayey silts. Adequate strengths would be achieved when blow counts recorded with a Scala penetrometer were to be 5 or more per 100 mm of penetration in the sand filling or when an undrained shear strength of 100 kPa or more had been developed in silts and clays.

Materials used where the same basic strata as being used for the previous Stages of works, with a high level of consistency based on previous test results.

1.4 Filled Ground

During the placement of filling on the road subgrades and on areas intended for residential development, the contractor, OLC, stripped and removed all topsoil and other surface organic soils. Post construction testing was carried out to confirm the interface between the cut and fill. Filling was placed in discrete layers with compaction applied through sheepsfoot drum rollers and smooth drum rollers.

As most of the filling placed comprised the sands identified in the pre subdivision boreholes, testing of the compaction achieved was mostly undertaken with a Scala penetrometer.

OLC undertook their own Scala penetrometer testing throughout the contract works to verify that the filling had been placed with adequate compaction. The results indicate that

the construction filling standards have been met. Foundations may therefore be detailed to NZS 3604:2011 where a timber framed subfloor containing shallow piles, bearers and joists is contemplated. Concrete floors designed to NZS3604 can be used on most lots where they are not immediately adjacent to a stormwater swale.

Notwithstanding the comments above, restriction from ground hazards (refer section 1.8.3) still apply to some lots.

1.5 Areas of Cut

Areas developed in cut are shown on 21879-01-M12-EW1 (Appendix I). In these areas, the ground at formation levels was observed to comprise the same silts and sands that had been used for filling elsewhere and as identified by pre subdivision tests.

1.6 Test Results In Filling Placed

A summary of the tests undertaken by DBCE is present in Appendix IV. The test positions are shown on 21879-01-M12-EW1 and the test results are in Appendix IV.

The Scala test results show that acceptable soil strengths had been developed in all fill areas tested.

1.7 Test Results In Areas of Cut and Natural Ground

The natural ground at the finished ground surface or under the filling comprised silty sands and sands as had been identified in the pre-subdivision investigation boreholes.

The results of the tests undertaken indicate that "good ground" as defined in NZS3604:2011 is present. No areas that were tested will require any future ground improvement work for buildings supported

1.8 Land Hazards

1.8.1 Land Stability

There are no landform stability issues within Stage 12 of the Greenhill Park Subdivision. The specification from the developer for the site earthworks was that the lots were to be graded as flat as possible with a desirable gradient of 0.5%.

1.8.2 Flooding

The final lot levels have been set based on infrastructure requirements and freeboard from flood levels developed as part of the stormwater design for the larger subdivision. The means of disposal of stormwater runoff from lots in this stage of the subdivision are described in the catchment and overland flow assessments by Beca (interpretive Report Lot Levels Area M). In the report for area M, a 1% AEP flood event is identified for each swale system. The two relevant swales for Stage 12 are Swale 3B (R.L. 36.46 1% Flood level). A flood level of 36.10 R.L. has been used in assessing the flood risk in stage 12. This equates to minimum lot levels of 38.082m to 39.486m R.L. across the stage (with low being the north end and high being the south end). A list of Lot Levels for Stage 12 is included in Appendix V.

Site grading during house construction must not lower finished levels below the minimum finished ground levels identified by Beca without further review of the impacts on flooding. Earthworks must not direct stormwater runoff to adjacent properties, or towards buildings, or create areas of localised ponding. All overland flow is to be towards the road frontage on each section, where falls will direct surface flow towards the north and Swale 3B.

It is the responsibility of the building design professional to ensure that the requirements for mitigation for the hazard of flooding are met by the design prior to submitting to Council for consent. Confirmation of the swale construction and flood levels are excluded from the scope of this report and are to be covered separately with sign-off of infrastructure works.

1.8.3 Liquefaction

The potential for the hazard of liquefaction for Area M of the Greenhill Park Subdivision is discussed in "Greenhill Park Geotechnical Interpretation and Design - Area M" by Beca and dated 13 July 2018. Foundations within 5m of the top of the swales are classed as TC2 like foundations. Lots affected include Lots 327-332. The liquefaction summary plan is appended to this Completion report. Specifically, the requirements are:

- 0m – 1.5m no habitable dwellings to be built within 1.5 m of the swale crest.
- 1.5 – 5m adopt an enhanced TC2 _like foundation
- Beyond 5m of swale crest no specific requirements to mitigate liquefaction effects.

The Beca report refers to zones adjacent to the swales being in a TC2 type area as is defined in guidelines published by the Ministry of Business, Innovation and Employment (MBIE). MBIE recommends that TC2 type foundations should typically include 'an enhanced foundation slab' as is currently being installed for new houses in Christchurch. Alternatively, MBIE advises that houses may be supported on timber piles and a timber framed subfloor as detailed in NZS 3604 to meet a Type A construction as described in their guidelines.

2.0 Disposal of Stormwater

Greenhill Park has been designed with a swale network to limit peak flows from the subdivision to 80 % of the 1 % AEP pre-development rate, and 90 % of the 10 % and 50 % AEP pre-development rates (Beca Ltd. [2016] Greenhill Park - Stormwater Design, for Chedworth Properties Ltd, 29 June 2016). Area M has been designed to include roadside swales flowing in an approximately east to west direction. Stage 12 includes of swale 3B (Lot 506) – located adjacent to Popham Road – that will collect runoff from roads within Stage 12. The depth of the swales has been designed to accommodate the fall and cover depth required of the piped drainage system. The piped drainage network has been designed to convey the 50 % AEP flows from roads and lots to the swale network, with each lot to be provided with a piped service connection. The stormwater plan is presented in the S&L Drawing 'Stormwater As Built DWGs reported separately.

All lots will require on-site stormwater efficiency measures as per the District Plan requirements (Rule 25.13.4.5 Water Efficiency Measures). These include:

1. Detention of stormwater to 80% of pre-development runoff by an appropriate means. This has largely been achieved by the swale network for events greater than the 50 % AEP storm. For the 50 % AEP and smaller events, the stormwater efficiency measures are expected to provide sufficient additional mitigation to achieve this requirement.
2. Permeable surfaces protected to achieve at least 20% above the minimum standard of the zone (i.e. 40 % site permeability).
    a. Sites within the Ruakura Medium Density Residential Zone require a minimum permeability of 20 % (Rule 4.6.5) and are limited to 50 % site coverage (Rule 4.6.6).
3. Rainwater tank for non-potable reuse system
4. Other equivalent features

Stormwater management must ensure that the rate of stormwater discharge offsite is at or below pre-development rates. Stormwater management measures shall be implemented, as appropriate, in accordance with the following drainage hierarchy:

1. Retention for reuse
2. Soakage techniques
3. Detention and gradual release to a watercourse
4. Detention and gradual release to stormwater reticulation.

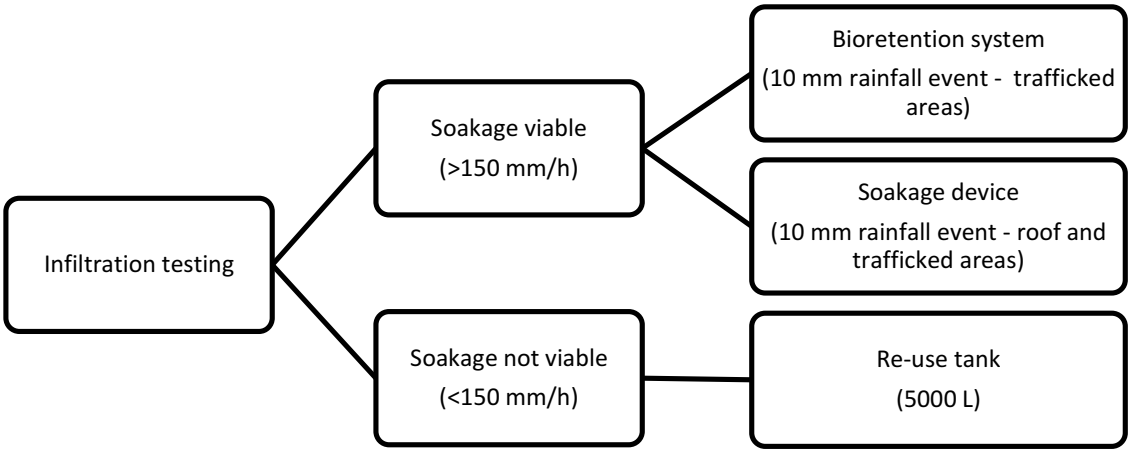
Section 42 of the Subdivision Resource Consent (SRC) relating to Stages 9-15 state that "Each residential lot shall be provided with a means for disposal of stormwater, with no private stormwater pipes or soakage systems crossing from one lot to another except where covered by an easement"

Section 43 of the SRC states that water efficiency measures for the individual residential lots are to be detailed for each subdivision stage. "Where retention for reuse tanks is proposed they shall be a minimum of 5,000L to ensure they are effective or where the lot is less than 300m2 should be appropriately designed considering the specific site constraints. The required stormwater efficiency measure is to be implemented at the building consent stage and maintained on an on-going basis at the owners' expense".

Section 44 of the SRC requires a consent notice on each title advising of the required water efficiency measures to be implemented and maintained on an ongoing basis.

Section 55 of the SRC states the requirement for lot development to be undertaken in general accordance with the recommendations in the report: Greenhill Park Geotechnical Interpretation and Design – Area M, prepared by Beca Ltd., 13 July 2018.

In the Stage 12 development area, each site is to be tested for soakage capability by the property owners. For those sites that have a sufficient soakage capability, disposal of stormwater is to be undertaken onsite using soakage and/or bioretention systems with overflow to the lot stormwater service connection. Those sites that are not soakage viable are to retain stormwater for reuse by way of a Slimline Rain Tank or other similar type water tank. The size of the tank is to be 5000 litres and the tank is to be plumbed into the house for use as a non-potable water supply including for garden irrigation and in general accordance with the HCC guidelines for the Implementation of Water Efficiency Measures. The Slimline rain tank system is described in Appendix V. This requirement will be advised to purchasers and will be implemented through the building consent process by HCC. A consent notice is to be registered on the certificates of titles for each lot which describes these investigation and design requirements.



Details of the required stormwater measures are included in Appendix V, sourced from the Greenhill Park Design Guidelines.

3.0 Retaining Walls

There are no retaining walls that were constructed by the developer within stage 12.

4.0 Professional Opinion

It has been demonstrated in this Geotechnical Completion Report, that earthworks have been completed and building platforms have been constructed to comply with Council's ITS specifications and the New Zealand Building Code. Recommendations have been provided within the report for the disposal of stormwater from individual lots, for the ongoing development of the lots and for the mitigation of liquefaction risk where applicable.

In accordance with ITS Section 2.3.3.1, a statement of professional opinion is enclosed in Appendix II of this document. This statement is presented in the form of Checklist 2.2 of Council's Development Manual, Volume 4: Quality Systems for Land Development, and is accompanied by a *Summary of Geotechnical Data for Individual Lots* which summarizes the information and recommendations contained in this report.

5.0 Applicability

Recommendations contained in this document are based on data from observations of site earthworks, boreholes and test results. Inferences about the nature and continuity of subsoils away from these locations are made but cannot be guaranteed.

In all circumstances, if variations in the subsoils occur which differ from those described or are assumed to exist, the site should be inspected by an engineer suitably qualified to make an informed judgement and provide advice on appropriate improvement measures.

This report has been prepared specifically for Stage 12 as shown for Lots: 327-356 DP543207 of Area M Stage 10 within the Greenhill Park Residential Subdivision. No responsibility is accepted by DB Consulting Engineers Ltd for the use of any part of this report for other development sites without their written approval.

DB Consulting Engineers Ltd

Report prepared by Michael Richardson
CPEng 1005467 Geotechnical Engineer

November 2020

References

[1] Ruakura Land Development - LDP Geotechnical Factual Report by Beca, 15 April 2016.

[2] C. Hughes and K. Read, "Ruakura Development - Stage 1 Geotechnical Investigation – Liquefaction Potential Detailed Assessment," Opus International Consultants, Ltd., Hamilton, New Zealand, 2014.

[3] M. Hughes and L. Shuler, "Report on Preliminary Geotechnical Investigation, Ruakura Development, Hamilton," S&L Consultants, Ltd., Tauranga, New Zealand, 2015.

[4] "Section 2 Earthworks and Geotechnical Requirements," in *Infrastructure Technical Specifications*, Hamilton, New Zealand, Hamilton City Council, 2013.

[5] "NZS 4404 Land Development and Subdivision Infrastructure," in *New Zealand Standards*, Wellington, New Zealand, Standards New Zealand, 2010.

[6] "Greenhill Park - Geotechnical Interpretation and Design-Area 1" by Beca 28 October 2016.

[7] "Part 5: Earthquake Actions - New Zealand," in *NZS 1170.5:2004 Structural Design Actions*, Standards New Zealand, 2004.

[8] "Greenhill Park Design Report - Area I (Stage 5, 6, 7 & 8) by Beca 20 December 2016

[9] "Clause B1: Structure," in *Acceptable Solutions and Verification Methods For New Zealand Building Code*, Wellington, Ministry of Business, Innovation and Employment, 2014.

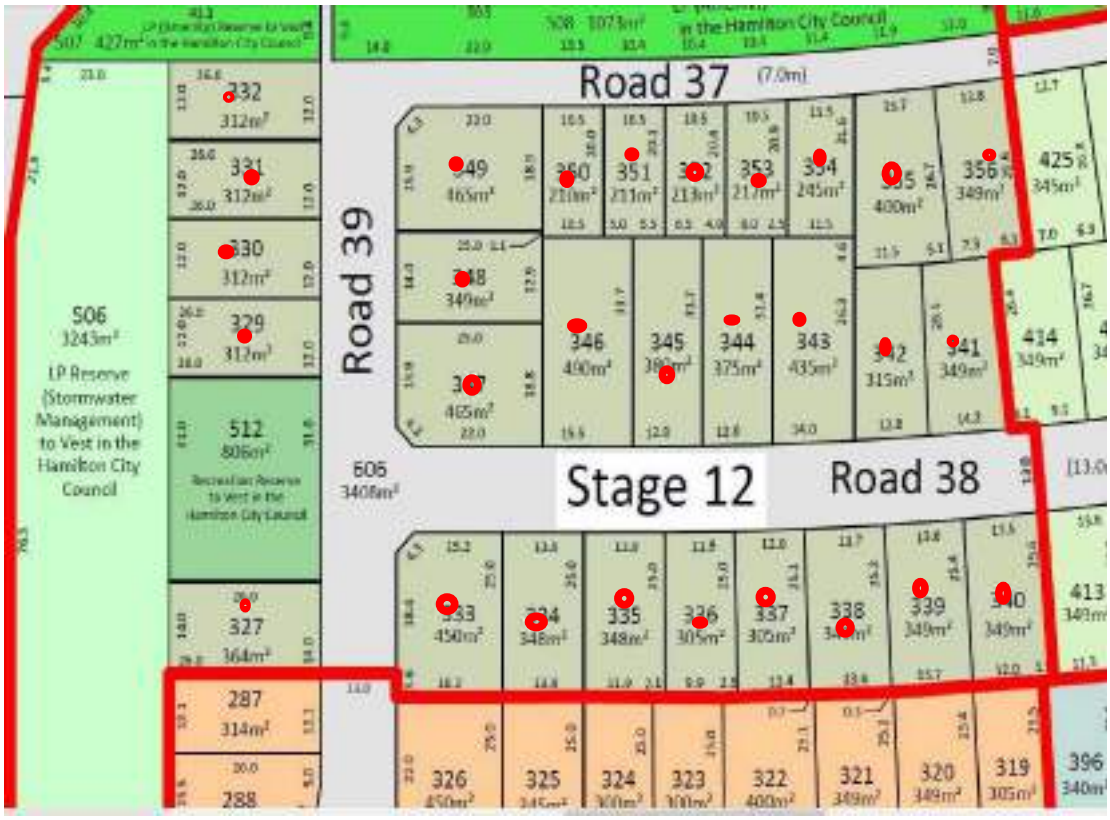
[10] "Part A: Technical Guidance," in *Repairing and rebuilding houses affected by the Canterbury earthquakes*, Wellington, Ministry of Business, Innovation and Employment, 2012.

[11] "Clause E1: Surface Water," in *Acceptable Solutions and Verification Methods For New Zealand Building Code*, Wellington, Ministry of Business, Innovation and Employment, 2014.

[12] "Section 4 Stormwater," in *Infrastructure Technical Specifications*, Hamilton, New Zealand, Hamilton City Council, 2015.

Appendix I *Reference Drawings*

Subdivision Plan
Cut/Fill Plan 21879-01-M12-EW1
Site Levels Plan



Testing of Stage 12, area M, involved machine augering each lot to 2.0m to determine the soil profile, then scala test to 1.2m. A second machine auger test to allow for any shear vane testing was done, then a further scala test between 1.1m and 2.0m.

Generally Fill materials to between 700mm and 1.2m BGL were encountered. These were identifiable from the presence of anguar gravels and sometimes residual topsoil content.

No access to a cut/fill plan was possible.

Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	-1.568	-1.250	
2	-1.250	-1.000	
3	-1.000	-0.750	
4	-0.750	-0.500	
5	-0.500	-0.250	
6	-0.250	0.000	
7	0.000	0.250	
8	0.250	0.500	
9	0.500	0.750	
10	0.750	1.000	
11	1.000	1.250	
12	1.250	1.522	

CUT (rows 1–6)
FILL (rows 7–12)

LEGEND

DBCON GEOTECH TEST LOCATIONS

(0.8) DEPTH OF FILL

CUT/FILL CONTOUR INTERVAL: 0.25M

SHERIDAN & LEWIS

Chedworth Properties Limited

GREENHILL

CHEDWORTH PROPERTIES LTD
GREENHILL PARK STAGE 12
CUT / FILL PLAN

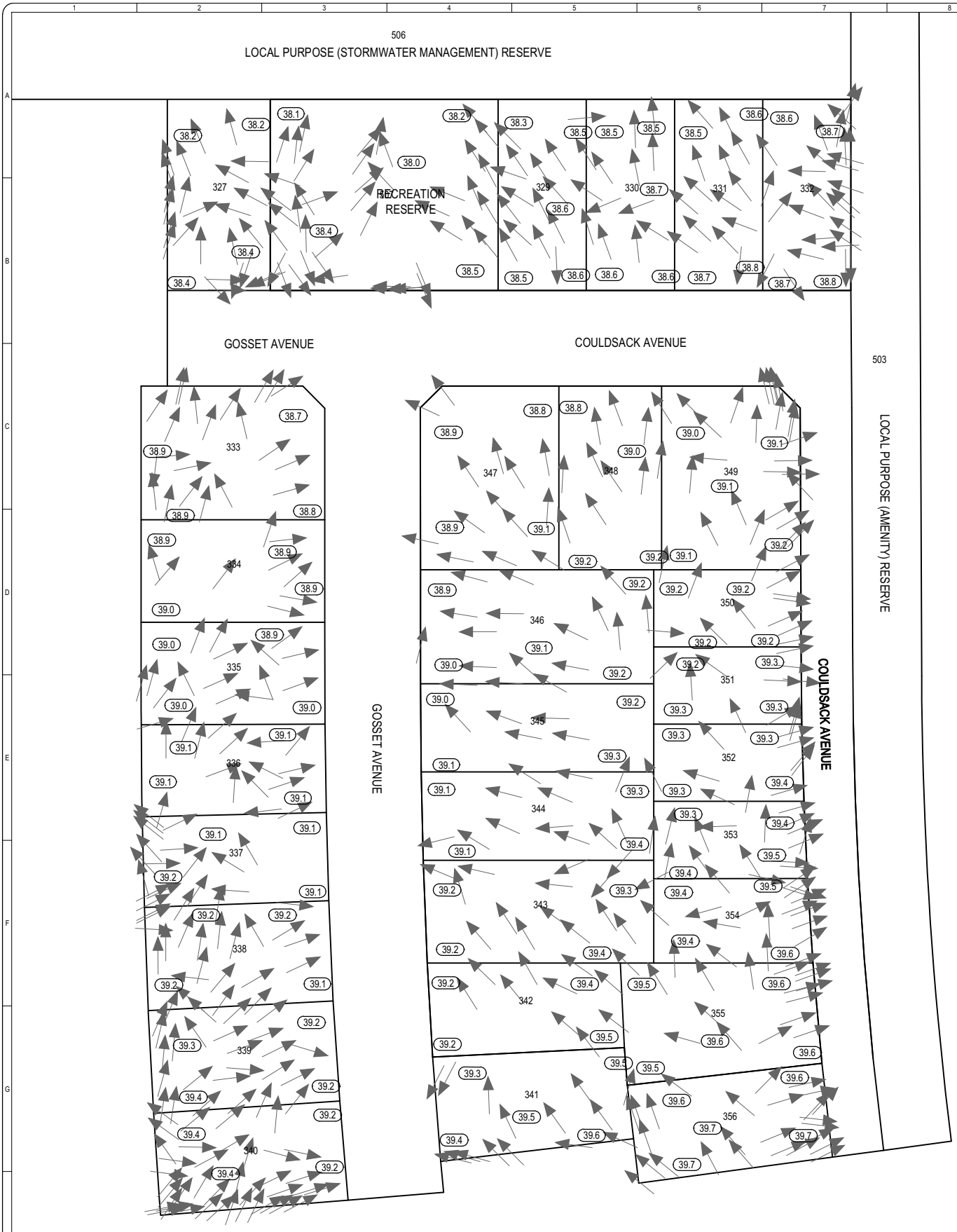
Rev.	Description	Drn	Chd	App	Date
AB	AS-BUILT				
A	PRELIMINARY				

Original Scale @ A3: 1:750

Status: AS-BUILT

Drawing No: 21879-01-M12-EW1

Revision: AB



LEGEND

FLOW ARROW

(39.2) SPOT HEIGHT (GROUND LEVEL)

LEVELS ARE TAKEN ON REPLACED TOPSOIL.
THIS PLAN IS NOT TO BE USED FOR DESIGN PURPOSES

SHRIMPTON & LIPINSKI
LAND DEVELOPMENT & DESIGN SPECIALISTS
Ph. 07 577 6049
Email: info@slt.ga.co.nz
P.O. Box 231, Tauranga 3140
www.slt.ga.co.nz

Chedworth Properties Limited

GREENHILL HOMES

SECTION LEVELS AND FLOW GEOTECHNICAL REQUIREMENT STAGE 12 AREA M

Rev	Description	Drn	Ckd	App	Date
AB	ISSUED FOR GEOTECH	NP	SC	SC	10/20
0	PRELIMINARY	NP	SC	SC	10/20

	Name	Date		Name	Date
Surveyed	SRC	19/10/20	Designed		

Coordinate System: MT EDEN 2000 CIRCUIT
Origin of Coordinates: ALP3 DP 534481
Height Datum: MOTURIKI DATUM
Origin of Height: SS 507 SO 42451 RL = 44.04

Original Scales @ A3: 1:750
Do Not Scale Dimensions

Status: AS-BUILT

Drawing No: 21879-01-M12-G1

Revision: AB

H:\0000 - H Drive\nparkinson\Autocad\30923-01 - CADM - Stage 12 Cut Fill and Geotech Plans - Autocad\30923-01 - CADM - Stage 12 Cut Fill and Geotech Plans.dwg - Plotted: 29/10/2020

Appendix II *Geotechnical Completion Forms*

Checklist 2.2 - Statement of Professional Opinion Summary of Geotechnical Data for Individual Lots
Summary of Geotechnical Data for individual Lots

NZS 4404: 2010 SCHEDULE2A (Checklist 2.2)

STATEMENT OF PROFESSIONAL OPINION AS TO SUITABILITY OF LAND FOR BUILDING CONSTRUCTION

Development: Greenhill Park Stage 12 **Developer:** Chedworth Properties Limited

At Pardoa Boulevard, Chartwell, Hamilton

I, Michael Richardson of DB Consulting Engineers, PO Box 1123, Taupo

Hereby confirm that:

1.0 I am a geo-professional as defined in clause 1.2.2 of NZS 4404:2010 and was retained by the developer as the geo- professional on the above development.

2.0 The extent of my inspections during construction, and the results of all tests carried out are described in my geotechnical completion report for Greenhill Park Area M Stage 12 dated November 2020 (reference 171738-AREA-M-S12-01)

3.0 In my professional opinion, not to be construed as a guarantee, I consider that:

a. The completed works give due regard to land slope and foundation stability considerations.

b. The site ground affected by engineered certified filling is suitable for the erection thereon of buildings designed according to the report recommendations provided that:

i. Lots 327-332 are subject to engineering review of foundations addressing liquefaction settlement for the ULS design case.

ii. All lots are subject to an engineering inspection during foundation excavations unless of further soils testing is carried out for building consent. Previous stages have not required further soils testing, but Council requirements are in the process of changing. Clarification should be sought from Council as to the the need for site specific soil testing. If in doubt, then 4 additional soils tests per lots should be carried out. We recommend construction supervision from an engineer should be carried out to confirm the shallow ground conditions are in accordance with this report and suitable for NZS3604 foundations for bearing strength.

4.0 This professional opinion is furnished to Hamilton City Council and the developer for their purposes alone on the express condition that it will not be relied upon by any other person and does not remove the necessity for the normal inspection of foundation conditions at the time of erection of any dwelling.

5.0 This certificate shall be read in conjunction with my geotechnical completion report referred to in clause 2 above and shall not be copied or reproduced except in conjunction with the full geotechnical completion report.

Signed **……** **Date: November 2020**

Michael Richardson

Chartered Professional Engineer (Geotechnical)

CPEng 1005467

Summary of Geotechnical Data for Individual Lots

DP No:	516275	Property Address	Couldsack Avenue, Gosset Avenue	RC No:	11/2018/6632

Lot No:	Area (m^2)	Subsurface Data						Foundations		Building Restriction Line	S/W Specific Design	S/W Soakage	S/W Reticulated	Designated Building Platform	Minimum Building Platform	Compressible Soils	On-site Effluent Disposal	Consent Notice	Comment
		Shear Strength (kPa)	Subdivision Filling		Natural Topography Unworked	Natural Topography Earthworked		Conventional Shallow Foundation to NZS 3604:2011	Specific Design										
			Y/N	Depth (m)	Y/N	Y/N	Depth (mm)	Y/N/NA	Y/N/NA										
327	364	Note 1	Y	0.3-1.2[2]	N	Y	200[2]	Y	N	Y[3]	Y	Y[4]	N	N	N	N	N	Y	
329	312	Note 1	Y	0.4-0.8[2]	N	Y	200[2]	Y	N	Y[3]	Y	Y[4]	N	N	N	N	N	Y	
330	312	Note 1	Y	0.4-0.5[2]	N	Y	200[2]	Y	N	Y[3]	Y	Y[4]	N	N	N	N	N	Y	
331	312	Note 1	Y	0.2-0.7[2]	N	Y	200[2]	Y	N	Y[3]	Y	Y[4]	N	N	N	N	N	Y	
332	312	Note 1	Y	0.2-0.6[2]	N	Y	200[2]	Y	N	Y[3]	Y	Y[4]	N	N	N	N	N	Y	
333	450	Note 1	Y	0.7-0.8[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
334	348	Note 1	Y	0.9-1.0[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
335	348	Note 1	Y	0.9-1.0[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
336	305	Note 1	Y	1.0-1.1[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
337	305	Note 1	Y	0.9-1.0[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
338	349	Note 1	Y	0.7-1.0[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
339	349	Note 1	Y	0.6-1.0[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
340	349	Note 1	Y	0.7-1.0[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
341	349	Note 1	Y	0.8-1.2[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
342	315	Note 1	Y	0.6-1.1[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
343	435	Note 1	Y	0.9-1.1[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
344	375	Note 1	Y	0.9-1.0[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
345	380	Note 1	Y	0.9-1.0[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
346	490	Note 1	Y	0.9-1.1[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
347	465	Note 1	Y	0.8-1.0[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
348	349	Note 1	Y	0.5-1.0[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
349	465	Note 1	Y	0.9-1.3[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	

NOTES:
1) Testing undertaken with Scala Penetrometer
2) This considers approximately 200mm of topsoil removal across all lots prior to subdivision filling.
3) Setback required for properties adjacent swales. TC2 type foundation to be adopted within 1.5m-5m from top of slope, no foundations to be constructed <1.5m from top of slope, No specific engineer design required >5m from top of slope
4) Soakage testing required on individual lots. Ground soakage and stormwater storage devices required

Summary of Geotechnical Data for Individual Lots

DP No:	516275	Property Address	Couldsack Avenue, Gosset Avenue	RC No:	11/2018/6632

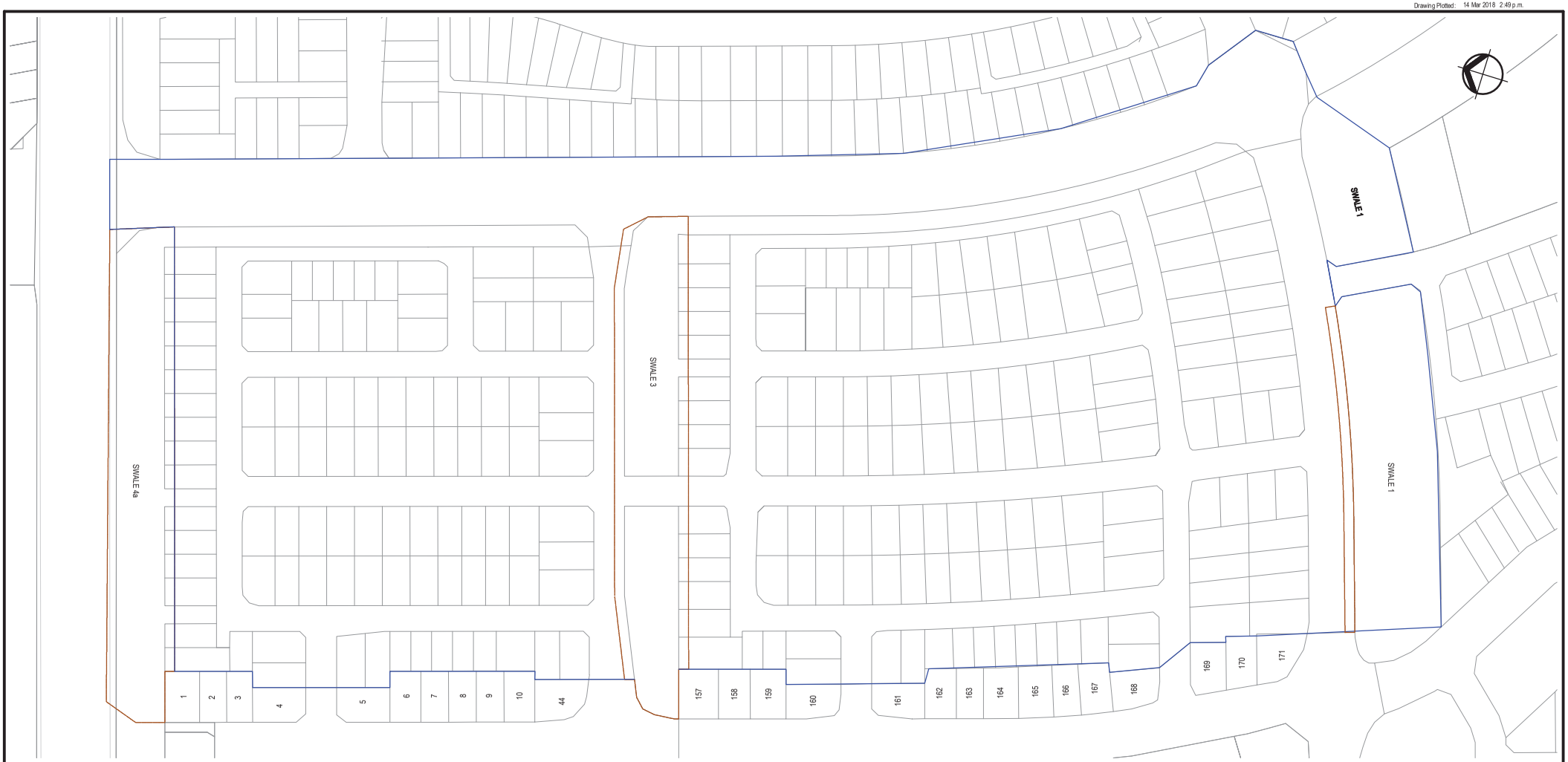
Lot No:	Area (m^2)	Subsurface Data						Foundations		Building Restriction Line	S/W Specific Design	S/W Soakage	S/W Reticulate	Designated Building Platform	Minimum Building Platform	Compressible Soils	On-site Effluent Disposal	Consent Notice	Comment
		Shear Strength (kPa)	Subdivision Filling		Natural Topography Unworked	Natural Topography Earthworked		Conventional Shallow Foundation to NZS 3604:2011	Specific Design										
			Y/N	Depth (mm)	Y/N	Y/N	Depth (mm)	Y/N/NA	Y/N/NA										
350	210	Note 1	Y	0.9-1.0[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
351	211	Note 1	Y	0.9-1.0[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
352	213	Note 1	Y	0.9-1.2[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
353	217	Note 1	Y	1.0-1.1[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
354	245	Note 1	Y	0.8-1.0[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
355	400	Note 1	Y	0.8-1.0[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	
356	349	Note 1	Y	0.8-1.0[2]	N	Y	200[2]	Y	N	N	Y	Y[4]	N	N	N	N	N	Y	

NOTES:

1) Testing undertaken with Scala Penetrometer
2) This considers approximately 200mm of topsoil removal across all lots prior to subdivision filling.
3) Setback required for properties adjacent swales. TC2 type foundation to be adopted within 1.5m-5m from top of slope, no foundations to be constructed <1.5m from top of slope, No specific engineer design required >5m from top of slope
4) Soakage testing required on individual lots. Ground soakage and stormwater storage devices required

Appendix III *Pre-Construction Assessment (exerts)*
BECA Area M Liquefaction Assessment Summary Plan

Drawing Plotted: 14 Mar 2018 2:49 p.m.



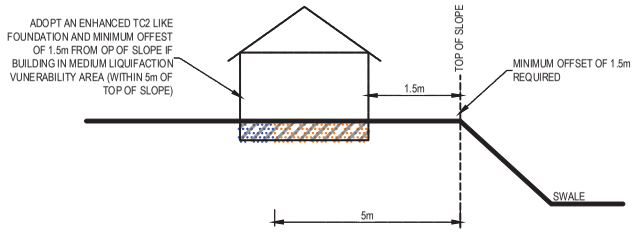
KEY

EXTENT OF AREA M

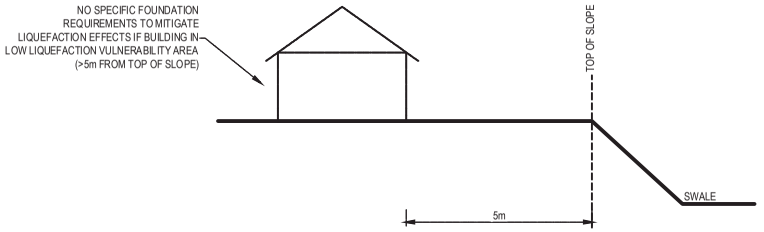
MEDIUM LIQUEFACTION VULNERABILITY
- MINOR TO MODERATE LIQUEFACTION-INDUCED GROUND DAMAGE IN 500 YEAR EARTHQUAKE
- TO MITIGATE LIQUEFACTION AND SEISMIC SLOPE INSTABILITY EFFECTS ADOPT LIQUEFACTION MITIGATION OPTION 1 OR 2.

LOW LIQUEFACTION VULNERABILITY
- NONE TO MINOR LIQUEFACTION-INDUCED GROUND DAMAGE IN 500 YEAR EARTHQUAKE.
- NO SPECIFIC REQUIREMENTS TO MITIGATE LIQUEFACTION EFFECTS.

LIQUEFACTION MITIGATION OPTION 1:



LIQUEFACTION MITIGATION OPTION 2:



FOR INFORMATION
NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
A	FOR INFORMATION	SM	MP	PR	12.03.18

Drawing Originator:

Original Scale (A1) 1:3000
Reduced Scale (A3) 1:6000

Design	MLP	27.09.16	Approved For Construction*
Drawn	SM	12.03.18	
Dsg Verifier	EAR	12.03.18	
Dwg Check			Date

* Refer to Revision 1 for Original Signature

Client: Chedworth Properties Limited

Project: Waterloo

Title: AREA M LIQUEFACTION ASSESMENT SUMMARY PLAN

Discipline: GEOTECHNICAL

Drawing No.: 3411915-GC-K068 Rev: A

Document No.: 3411915-GC-K068.DWG

DO NOT SCALE

IF IN DOUBT ASK

Appendix IV *Post-Construction Test Results*

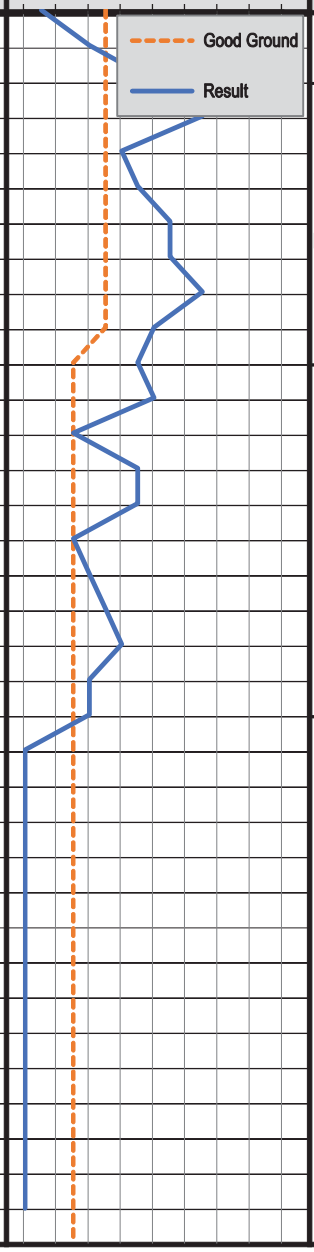
Completion Testing by DCBE Ltd

- See Appendix I for test locations on Cut/Fill Plan

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	1	Lot 327

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		1		FILL, respread topsoil, some gravels	
200		4			
300		8		medium-dense	
400		11		(engineer controlled) FILL, silt, sand	
500		6		creamy light-brown, moist	
600	204+ / -	7			
700		9		becoming minor fine sand, light grey-brown	
800		9			
900		11			
1000		8			
1100		7			
1200	204+ / -	8			
1300		3		Interbedded silty fine SAND and	
1400		7		fine sandy SILT	
1500		7		creamy light-brown, moist	
1600		3			
1700		4			
1800		5		becoming minor pumiceous materials	
1900		6			
2000		4			
2100		4		EOB @ 2000mm	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					



Notes:	EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract
1	Weather leading up to test was generally fine and mild
2	Ground water was not encountered during testing
3	Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4	Shear Vane records include Re-moulded values where possible
5	Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	2	Lot 329

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		3	Good Ground / Results	FILL, respread topsoil, minor gravels	
200		5			
300		7			
400		4		(engineer-controlled) FILL, silt, sand, grey-brown moist	
500		3			
600		1			
700		3		SILT, orange-brown, dry	
800		3			
900	76 / 32	2		becoming yellow-brown with dark orange manganese staining	
1000		6		medium dense becoming loose	
1100		4		SAND, silt, yellow-brown, moist	
1200		4		becoming minor silt	
1300		3		minor fine gravels, grading to grey-brown	
1400		2			
1500		3			
1600		4			
1700		4		grading to mixed greys	
1800		4			
1900		3			
2000		4			
2100				EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					

Notes:	EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract
1	Weather leading up to test was generally fine and mild
2	Ground water was not encountered during testing
3	Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4	Shear Vane records include Re-moulded values where possible
5	Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test site
GetGeo	30/10/2020	3	Lot 330

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		1	Good ground / Result	FILL, respread topsoil, minor gravels	
200		1			
300		4		dense	
400		15		(engineer-controlled) FILL, silt, sand, some gravels	
500		9		grey, moist	
600		4			
700		3			
800		1		stiff	
900	99 / 26	2		SILT, yellow-brown, orange mottling, moist	
1000		1			
1100		1			
1200		1			
1300		2		loose becoming medium dense	
1400		3		SAND, silt, yellow-brown, moist	
1500		3		becoming minor silt, grey-brown	
1600		4			
1700		4		becoming minor fine gravels, grey	
1800		5			
1900		6		grading to light grey	
2000		6			
2100				EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					

Notes:	EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract
1	Weather leading up to test was generally fine and mild
2	Ground water was not encountered during testing
3	Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4	Shear Vane records include Re-moulded values where possible
5	Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	4	Lot 331

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		1	Result / Good Ground	FILL, respread topsoil, minor gravels	
200		1			
300		2		medium dense	
400		6		(engineer-controlled) FILL, silt, sand, some gravels	
500		5		grey, moist	
600		5		very stiff	
700		3		SILT, dark orange, dry	
800	134 / 35	3		some managanese staining	
900		2			
1000		3		loose becoming medium dense	
1100		3		SAND, silt, dark orange-brown, dry	
1200		5		becoming minor silt, yellow-brown, moist	
1300		7		becoming minor fine gravels, mixed greys	
1400		5			
1500		3			
1600		3			
1700		5			
1800		6			
1900		7			
2000		4		becoming very moist	
2100				EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					

Notes: **EOB = End Of Borehole** **UTP = Unable To Penetrate** **UTE = Unable To Extract**

1. Weather leading up to test was generally fine and mild
2. Ground water was not encountered during testing
3. Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4. Shear Vane records include Re-moulded values where possible
5. Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	5	Lot 332

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		1	Good Ground / Result	FILL, respread topsoil, minor gravels	
200		1			
300		3			
400		4		medium dense	
500		6		(engineer-controlled) FILL, silt, sand, some gravels	
600		5		grey, moist	
700		4		SILT, yellow-brown, orange mottling, moist	
800		3		stiff	
900		3		loose becoming medium dense	
1000		4		SAND, silt, yellow-brown, orange-mottling, moist	
1100		6		becoming minor silt, yellow-brown	
1200		3		grading to grey-brown	
1300		6			
1400		5		becoming minor fine gravels	
1500		5		mixed banding of grey, brown and yellow-brown	
1600		6			
1700		5			
1800		4			
1900		5			
2000		6			
2100		5			
2200		6			
2300		5			
2400		6			
2500		4			
2600		3			
2700		2		becoming very moist	
2800		3			
2900		4			
3000		3			
3100		2		EOB @ 3.0m	
3200				Target Depth	
3300					
3400					
3500					

Notes:	EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract
1	Weather leading up to test was generally fine and mild
2	Ground water was not encountered during testing
3	Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4	Shear Vane records include Re-moulded values where possible
5	Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	6	Lot 333

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		5	Good Ground / Result	FILL, respread topsoil, minor gravels	
200		9			
300		14		dense	
400		15		(engineer-controlled) FILL, silt, sand, some gravels, grey, moist	
500		19		becoming some pumiceous materials	
600		18			
700		12		600-800mm some fine to medium angular gravels	
800		7			
900		5		SILT, orange-brown, moist	
1000		3			
1100		3		medium dense	
1200		4		SAND, silt, yellow-brown, moist	
1300		3		minor silt, minor gravels, grey-brown	
1400		4		becoming loose	
1500		3		1500-1600mm some pumiceous Sands, dry	
1600		2		grading to light-grey	
1700		3			
1800		3			
1900		3			
2000		4			
2100				EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					

Notes:	EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract
1	Weather leading up to test was generally fine and mild
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5	Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	7	Lot 334

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100			Result / Good Ground	FILL, respread topsoil, minor gravels	
200					
300		UTP		very dense	
400				(engineer controlled) FILL, silt, sand, some gravels	
500		UTP		grey, moist	
600				becoming some pumiceous materials	
700		UTP		400-700mm significant fine to medium angular gravels	
800	96 / 32			SILT, yellow-brown, orange mottling, moist	
900				stiff	
1000		3		medium-dense	
1100		4		SAND, silt, yellow-brown, moist	
1200		3		becoming minor silt, light yellow-browm	
1300		3			
1400		3		minor fine gravels, light grey-brown	
1500		3			
1600		4			
1700		3		becoming gravelly-Sand, grey, dry to moist	
1800		3			
1900		6			
2000		8			
2100				EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					

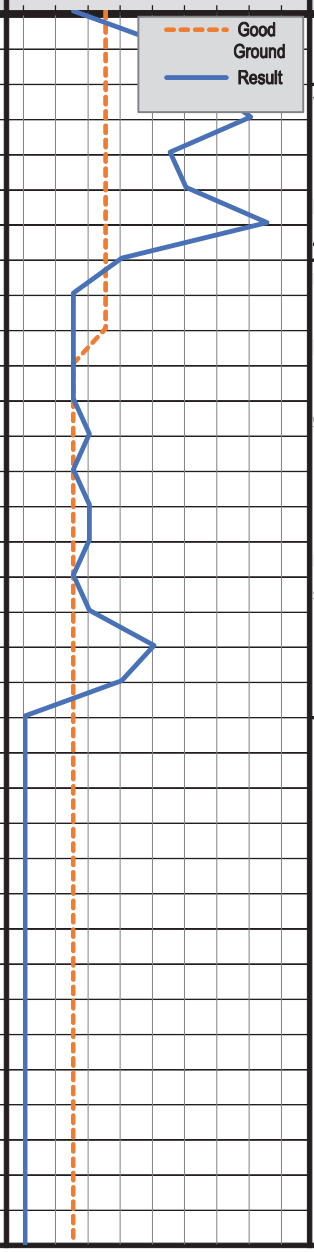
Notes:

1. Weather leading up to test was generally fine and mild
2. Ground water was not encountered during testing
3. Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4. Shear Vane records include Re-moulded values where possible
5. Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	8	Lot 335

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Soil Description	Water Table
100		3	FILL, respread topsoil, minor gravels	
200		9		
300		11	very dense	
400		14	(engineer controlled) FILL, silt, sand, some gravels	
500		9	grey, moist	
600		10	becoming some pumiceous materials	
700		15	400-700mm significant fine to medium angular gravels	
800		6	medium-dense	
900		3	SAND, silt, yellow-brown, orange mottling, moist	
1000		3	becoming minor silt, yellow-brown	
1100		3		
1200		3	grey-brown, minor pumiceous materials	
1300		4		
1400		3		
1500		4		
1600		4	minor fine to medium gravels, grey-brown	
1700		3	some pumiceous materials	
1800		4		
1900		8		
2000		6		
2100			EOB @ 2.0m	
2200			Target Depth	
2300				
2400				
2500				
2600				
2700				
2800				
2900				
3000				
3100				
3200				
3300				
3400				
3500				



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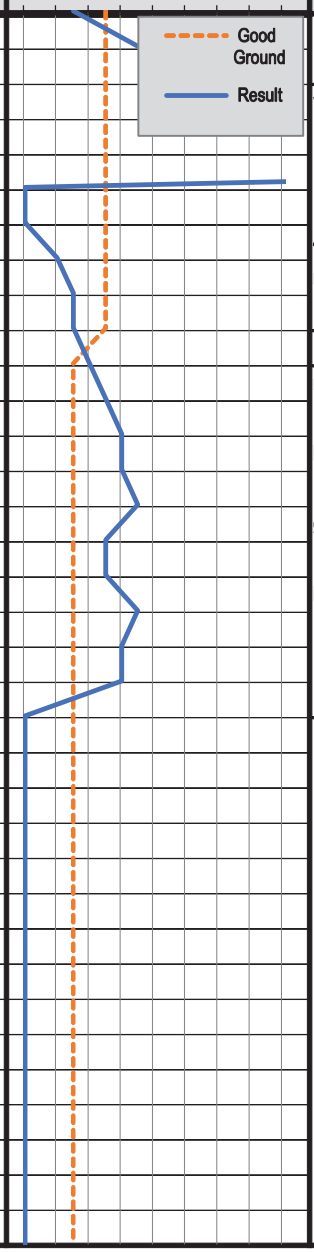
DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	9	Lot 336

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Soil Description	Water Table
100		3	FILL, respread topsoil, minor gravels	
200		7		
300		12	very dense	
400		18	(engineer controlled) FILL, silt, sand, some gravels	
500		UTP	grey, moist	
600				
700			400-600mm significant fine to medium angular gravels	
800		2	minor sand, minor gravels	
900		3		
1000		3	SILT, yellow-brown, orange mottling, moist	
1100		4	medium-dense	
1200		5	SAND, silt, yellow-brown, moist	
1300		6	becoming minor silt, yellow-brown	
1400		6		
1500		7	grey-brown	
1600		5		
1700		5	becoming some gravels, grey	
1800		7		
1900		6		
2000		6		
2100			EOB @ 2.0m	
2200			Target Depth	
2300				
2400				
2500				
2600				
2700				
2800				
2900				
3000				
3100				
3200				
3300				
3400				
3500				

Scala Penetrometer (Blows/100mm)



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1	Weather leading up to test was generally fine and mild
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5	Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	10	Lot 337

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		3	Result / Good Ground	FILL, respread topsoil, minor gravels	
200		6			
300		17		very dense	
400		12		(engineer controlled) FILL, silt, sand, some gravels	
500		UTP		grey, moist	
600				becoming some pumiceous materials	
700				400-600mm significant fine to medium angular gravels	
800		2		minor sand, minor gravels	
900		2		SILT, yellow-brown, moist	
1000		2			
1100		3		medium-dense	
1200		7		SAND, silt, yellow-brown, moist	
1300		6		1200mm becoming minor silt, grey-brown	
1400		7		grading to grey	
1500		6			
1600		6			
1700		8		becoming some fine gravels, minor pumiceous materials	
1800		6			
1900		9			
2000		8			
2100				EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					

Notes: EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract

1. Weather leading up to test was generally fine and mild
2. Ground water was not encountered during testing
3. Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
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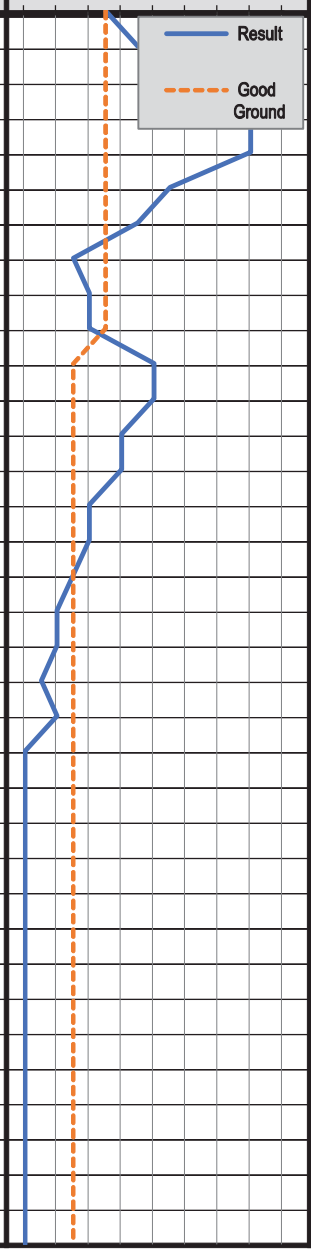
5. Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	11	Lot 338

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Soil Description	Water Table
100		5	FILL, respread topsoil, minor gravels	
200		7		
300		12		
400		14	(engineer controlled) FILL, silt, sand, some gravels	
500		14	grey, moist	
600		9	dense, minor pumiceous materials	
700		7	300-600mm significant fine to medium angular gravels	
800		3	SILT, yellow-brown, minor orange-mottling, moist	
900		4		
1000		4	medium-dense	
1100		8	SAND, minor silt, yellow-brown, moist	
1200		8	grading to grey-brown	
1300		6		
1400		6	grading to grey	
1500		4	becoming loose	
1600		4	minor gravels	
1700		3		
1800		2	some pumiceous materials	
1900		2		
2000		1		
2100		2	EOB @ 2.0m	
2200			Target Depth	
2300				
2400				
2500				
2600				
2700				
2800				
2900				
3000				
3100				
3200				
3300				
3400				
3500				



Notes: EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract

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2. Ground water was not encountered during testing
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4. Shear Vane records include Re-moulded values where possible
5. Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	12	Lot 339

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		7	Good Ground / Result	FILL, respread topsoil, minor gravels	
200		16			
300		UTP		(engineer controlled) FILL, silt, sand, some gravels	
400				grey, moist	
500		9		very dense	
600		UTP		300-600mm significant fine to medium angular gravels	
700				grading to light-grey	
800		1			
900	76 / 18	1		SILT, sand, creamy light-brown, moist	
1000		1			
1100		1		grading to yellow-brown, orange-mottling	
1200		3			
1300		7		dense	
1400		14		SAND, silt, yellow-brown, moist	
1500		12			
1600		7		minor silt	
1700		6		becoming some fine gravels, medium dense	
1800		5		grey-brown	
1900		5			
2000		6			
2100		6		EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					

Notes: **EOB = End Of Borehole** **UTP = Unable To Penetrate** **UTE = Unable To Extract**

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5. Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	13	Lot 340

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		3	Good Ground / Result	FILL, respread topsoil, some gravels	
200		4			
300		UTP		very dense	
400				(engineer controlled) FILL, silt, sand, some gravels	
500		6		grey-brown, moist	
600		UTP			
700		5			
800		1			
900	204+ / -	1		very stiff	
1000		1		SILT, orange-brown, moist	
1100		2		grading to yellow-brown	
1200	64 / 15	1		grading to creamy-brown	
1300		1		stiff	
1400		1			
1500	85 / 32	1			
1600		1			
1700		1			
1800		1			
1900		2		loose becoming medium-dense	
2000		4		SAND, silt, light-brown, moist	
2100		4		becoming minor silt	
2200		5			
2300		6			
2400		6		mixed greys/brown	
2500		7			
2600		5			
2700		5		medium dense	
2800		5		Gravelly SAND, dark grey, very moist	
2900		8			
3000		7			
3100		8		EOB @ 3.0m	
3200				Target Depth	
3300					
3400					
3500					

Notes: **EOB = End Of Borehole** **UTP = Unable To Penetrate** **UTE = Unable To Extract**

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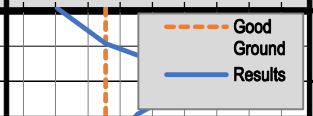
DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	14	Lot 341

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		2		FILL, respread topsoil, some gravels	
200		5			
300		11		dense to medium dense	
400		7		(engineer controlled) FILL, silt, sand	
500		5		some small angular gravels, grey, moist	
600		5			
700		5		grading to light grey-brown	
800		2			
900	120 / 32	1		very stiff	
1000		1		SILT, sand, orange-brown, moist	
1100		2			
1200		3		medium-dense	
1300		6			
1400		9		SAND, minor silt, yellow-brown, moist	
1500		6			
1600		4		minor topsoil, minor angular gravels 1600-1700mm	
1700		5		becoming Sand, minor silt, dark brown	
1800		5			
1900		4			
2000		5			
2100				EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					



Notes:	EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract
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5	Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test site
GetGeo	30/10/2020	15	Lot 342

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		3	Good ground / Result	FILL, topsoil, some gravels	
200		2			
300		8		(engineer controlled) FILL, silt, sand, brown, most 400-600mm some angular gravels, grey-brown becoming minor Sand	
400		7			
500		8			
600		4			
700		4			
800		3			
900	137 / 15	3		very stiff SILT, dark orange-brown, moist	
1000		3			
1100		3			
1200		3			
1300		5		medium-dense SAND, some silt, dark grey-brown, moist some topsoil, minor angular gravels at 1600-1700mm	
1400		5			
1500		4			
1600		5			
1700		5			
1800		5			
1900		4			
2000		4			
2100				EOB @ 2.0m Target Depth	
2200					
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					

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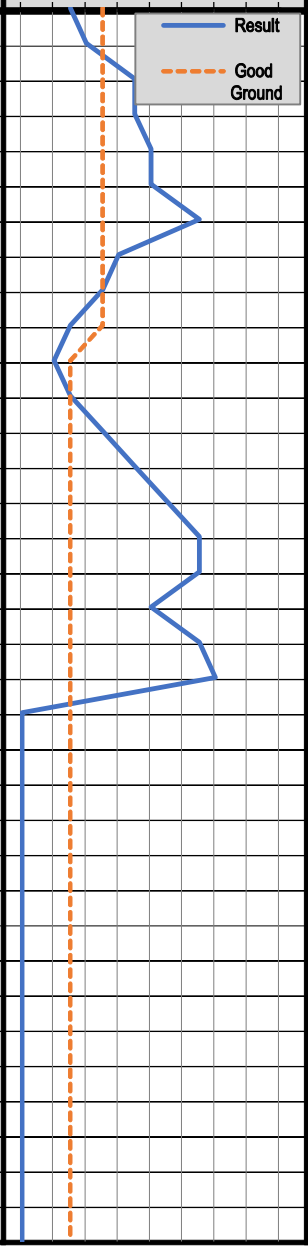
DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	16	Lot 343

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		3		FILL, respread topsoil, minor gravels	
200		4			
300		7		(engineer controlled) FILL, silt, sand	
400		7		grey-brown, moist	
500		8		500-700mm some angular gravels, minor topsoil	
600		8			
700		11			
800		6			
900		5			
1000	105 / 32	3		very stiff	
1100		2		SILT, minor sand, dark orange-brown, moist	
1200		3		grading to yellow-brown	
1300		5		medium dense to dense	
1400		7			
1500		9		SAND, minor silt, grey-brown, moist	
1600		11		becoming some fine gravels	
1700		11			
1800		8			
1900		11		becoming some silt	
2000		12		becoming very moist	
2100				EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					



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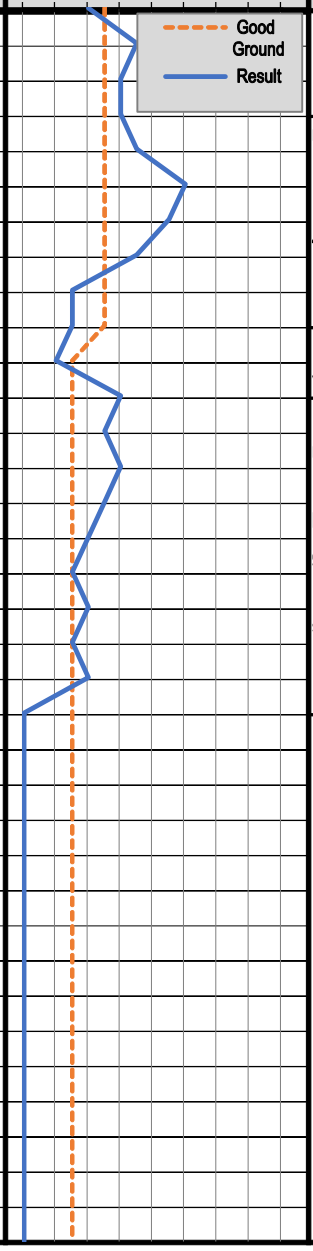
DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	17	Lot 344

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		4		FILL, respread topsoil, minor gravels	
200		7			
300		6			
400		6		medium dense	
500		7		(engineer controlled) FILL, silt, sand	
600		10		minor pumiceous material, grey, moist	
700		9		400-700mm minor angular gravels/topsoil	
800		7			
900		3			
1000		3		SILT, minor sand, dark orange-brown, moist	
1100		2		very stiff	
1200		6			
1300		5		medium dense	
1400		6		SAND, some silt, orange-brown, moist	
1500		5		becoming minor silt, minor fine gravels	
1600		4		grading to grey-brown	
1700		3			
1800		4		some pumiceous materials	
1900		3			
2000		4			
2100				EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					



Notes: EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract

1. Weather leading up to test was generally fine and mild
2. Ground water was not encountered during testing
3. Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4. Shear Vane records include Re-moulded values where possible
5. Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	18	Lot 345

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		2	Good Ground / Result	FILL, respread topsoil, minor gravels	
200		3		medium dense	
300		6		(engineer controlled) FILL, silt, sand, some gravels	
400		4		grey, moist	
500		3			
600		7		600-800mm some fine to medium angular gravels	
700		7			
800		10			
900		7			
1000		3			
1100		3		very stiff	
1200		3		SILT, minor fine sands, dark orange-brown	
1300		5		moist	
1400		7		grading to yellow-brown, some fine sands	
1500		7			
1600		6		SAND, minor silt, grey-brown, moist	
1700		7			
1800		4		trace silt, minor fine gravels, grading to grey	
1900		5			
2000		4			
2100				EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					

Notes:	EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract
1	Weather leading up to test was generally fine and mild
2	Ground water was not encountered during testing
3	Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4	Shear Vane records include Re-moulded values where possible
5	Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	19	Lot 346

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		4	Result / Good Ground	FILL, respread topsoil, minor gravels	
200		4			
300		4		dense	
400		5		(engineer controlled) FILL, silt, sand, some gravels	
500		11		grey, moist	
600		12		minor topsoil	
700		8		400-700mm significant fine to medium angular gravels	
800		5			
900		5			
1000		5			
1100		2			
1200	204+ / -	1		SILT, minor sand, dark orange-brown, moist	
1300		2		very stiff	
1400		3			
1500		3		SAND, minor silt, yellow-brown, moist	
1600		4		grading to grey-brown	
1700		5			
1800		4		grading to grey	
1900		7			
2000		14			
2100		12		EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					

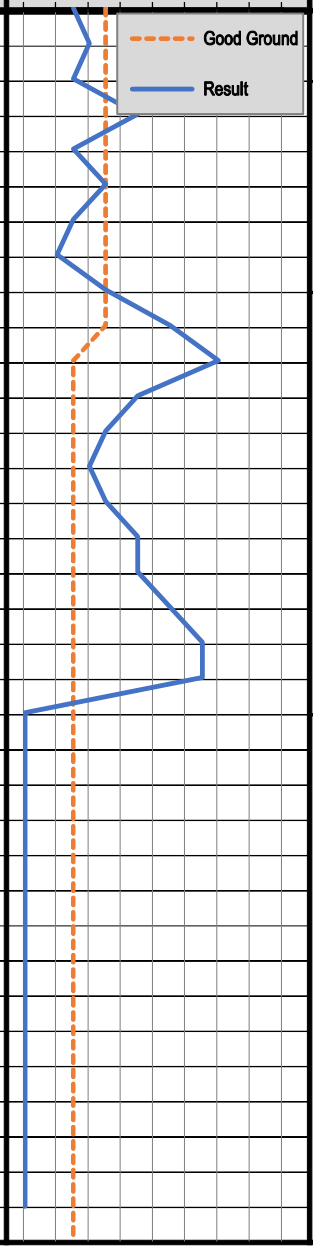
Notes:

1. Weather leading up to test was generally fine and mild
2. Ground water was not encountered during testing
3. Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4. Shear Vane records include Re-moulded values where possible
5. Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	20	Lot 347

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		3		FILL, respread topsoil, some gravels	
200		4			
300		3		dense to medium dense	
400		7		(engineer controlled) FILL, silt, sand, minor gravels	
500		3		some pumice, grey-brown, moist	
600		5		minor topsoil 600mm	
700		3			
800		2			
900		5			
1000		9		SAND, minor silt, light yellow-brown, moist	
1100		12			
1200		7			
1300		5		some silt	
1400		4			
1500		5		minor silt	
1600		7		becoming some fine to medium gravels, dark grey	
1700		7			
1800		9			
1900		11			
2000		11			
2100				EOB @2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					



Notes:	EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract
1	Weather leading up to test was generally fine and mild
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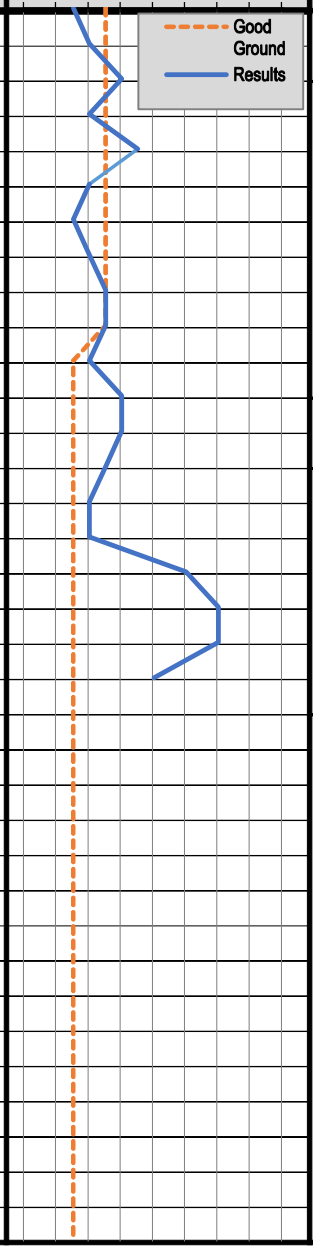
3	Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4	Shear Vane records include Re-moulded values where possible
5	Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	21	Lot 348

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		3		FILL, respread topsoil, some gravels	
200		4			
300		6		medium dense	
400		4		(engineer controlled) FILL, silt, sand	
500		7		some small angular gravels, grey, moist	
600		4		minor topsoil	
700		3		mixed grey-brown	
800		4			
900		5			
1000		5		some angular gravels	
1100		4			
1200		6		SILT, orange-brown, moist	
1300		6		stiff, some sands at 1200mm	
1400		5		medium dense becoming dense	
1500		4		SAND, grey-brown, moist	
1600		4		becoming some gravels, dark grey	
1700		10			
1800		12			
1900		12			
2000		8			
2100				EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					



Notes:	EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract
1	Weather leading up to test was generally fine and mild
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3	Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4	Shear Vane records include Re-moulded values where possible
5	Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test site
GetGeo	30/10/2020	22	Lot 349

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		3	Good ground / Result	FILL, topsoil, some gravels	
200		4			
300		4		medium dense	
400		6		(engineer controlled) FILL, silt, sand, some angular gravels	
500		6		mixed light browns/greys, moist	
600		5			
700		3			
800		5			
900		7		very stiff	
1000		4		SILT, minor sand, orange-brown, moist	
1100		4			
1200		4			
1300		4		SAND, silt, creamy orange-brown, moist	
1400		7		minor silt, yellow-brown	
1500		9			
1600		8			
1700		6			
1800		7		becoming some gravels, grey-brown	
1900		11			
2000		11			
2100				EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					

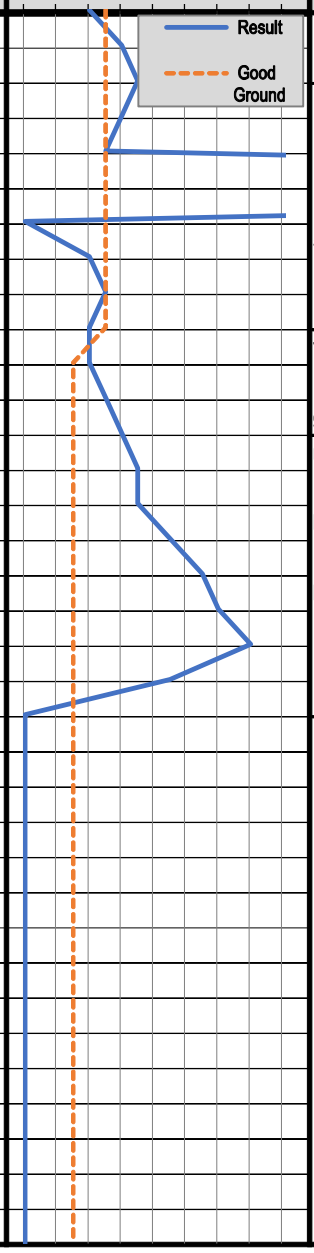
Notes: **EOB = End Of Borehole** **UTP = Unable To Penetrate** **UTE = Unable To Extract**

1. Weather leading up to test was generally fine and mild
2. Ground water was not encountered during testing
3. Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4. Shear Vane records include Re-moulded values where possible
5. Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	23	Lot 350

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		4		FILL, respread topsoil, minor gravels	
200		6			
300		7		(engineer controlled) FILL, silt, sand	
400		6		grey-brown, moist	
500		5		500-700mm somefine to medium angular gravels	
600		UTP			
700					
800		4			
900		5			
1000	105 / 32	4		very stiff	
1100		4		SILT, minor sand, orange-brown, moist	
1200		5		grading to yellow-brown	
1300		6		medium dense to dense	
1400		7		SAND, minor silt, light orange-brown, moist	
1500		7		becoming some fine gravels, minor silt, yellow-brown	
1600		9			
1700		11		becoming gravelly Sand, grey	
1800		12			
1900		14			
2000		9			
2100				EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					

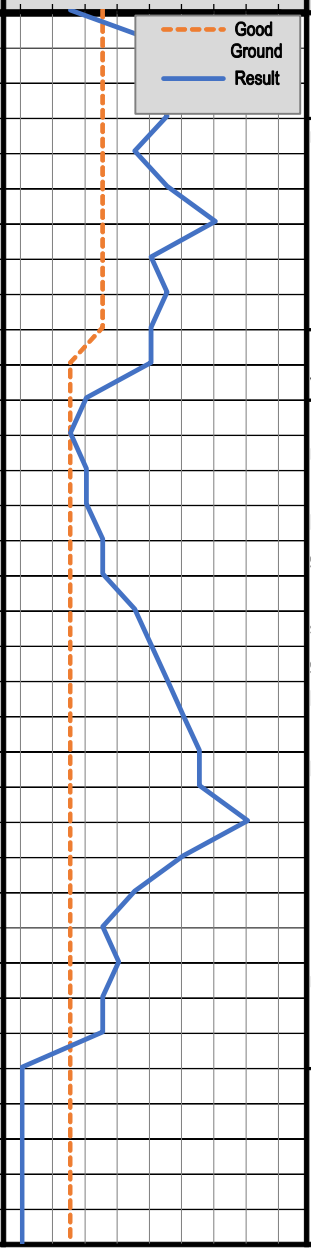


Notes:	EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract
1	Weather leading up to test was generally fine and mild
2	Ground water was not encountered during testing
3	Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4	Shear Vane records include Re-moulded values where possible
5	Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	24	Lot 351

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		3		FILL, respread topsoil, minor gravels	
200		9			
300		8			
400		9		medium dense	
500		7		(engineer controlled) FILL, silt, sand	
600		9		angular gravels, pumiceous materials, grey, moist	
700		12			
800		8			
900		9			
1000		8		SILT, minor sand, dark orange-brown, moist	
1100		8		very stiff	
1200		4			
1300		3		medium dense	
1400		4		SAND, some silt, orange-brown, moist	
1500		4		becoming minor silt, minor fine gravels, yellow-brown	
1600		5		grading to grey-brown	
1700		5			
1800		7		some pumiceous materials	
1900		8		grading to grey	
2000		9		becoming dense	
2100		10			
2200		11		becoming gravelly Sand	
2300		11			
2400		14			
2500		10			
2600		7			
2700		5			
2800		6		medium dense, becoming very moist	
2900		5			
3000		5			
3100				EOB @ 3.0m	
3200				Target Depth	
3300					
3400					
3500					



Notes:	EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract
1	Weather leading up to test was generally fine and mild
2	Ground water was not encountered during testing
3	Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4	Shear Vane records include Re-moulded values where possible
5	Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	25	Lot 352

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		4	Good Ground / Result	FILL, respread topsoil, minor gravels	
200		4			
300		12		medium dense	
400		8		(engineer controlled) FILL, silt, sand, some gravels	
500		6		grey, moist	
600		6			
700		4		600-800mm some fine to medium angular gravels	
800		5			
900		4		minor topsoil	
1000		3			
1100		2		very stiff	
1200		3		SILT, minor fine sands, orange-brown	
1300		4		grading to yellow-brown, some fine sands	
1400		5		medium dense	
1500		6		SAND, minor silt, yellow-brown, moist	
1600		5		trace silt, minor fine gravels, grading to grey	
1700		5			
1800		6		becoming some silt	
1900		7			
2000		7			
2100				EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					

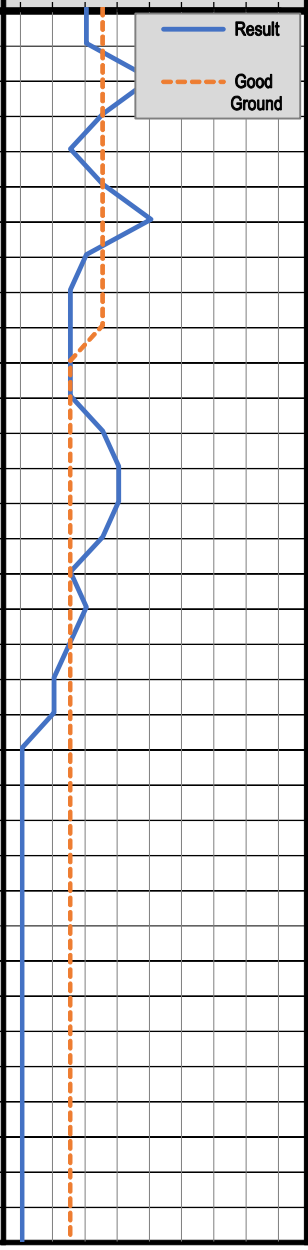
Notes: EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract

1. Weather leading up to test was generally fine and mild
2. Ground water was not encountered during testing
3. Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4. Shear Vane records include Re-moulded values where possible
5. Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	26	Lot 353

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		4		FILL, respread topsoil, minor gravels	
200		4			
300		8		medium dense	
400		5		(engineer controlled) FILL, silt, sand, some gravels	
500		3		grey, moist	
600		5			
700		8		some angular gravels	
800		4			
900		3			
1000		3		very stiff	
1100		3		SILT, minor sand, dark orange-brown, moist	
1200	204+ / -	3		grading to yellow-brown	
1300		5			
1400		6			
1500		6		SAND, minor silt, yellow-brown, moist	
1600		5		minor silt, grading to grey-brown	
1700		3			
1800		4		grading to grey	
1900		3		becoming Pumiceous Sands, light-brown	
2000		2			
2100		2		EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					



Notes:

1. Weather leading up to test was generally fine and mild
2. Ground water was not encountered during testing
3. Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4. Shear Vane records include Re-moulded values where possible
5. Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	27	Lot 354

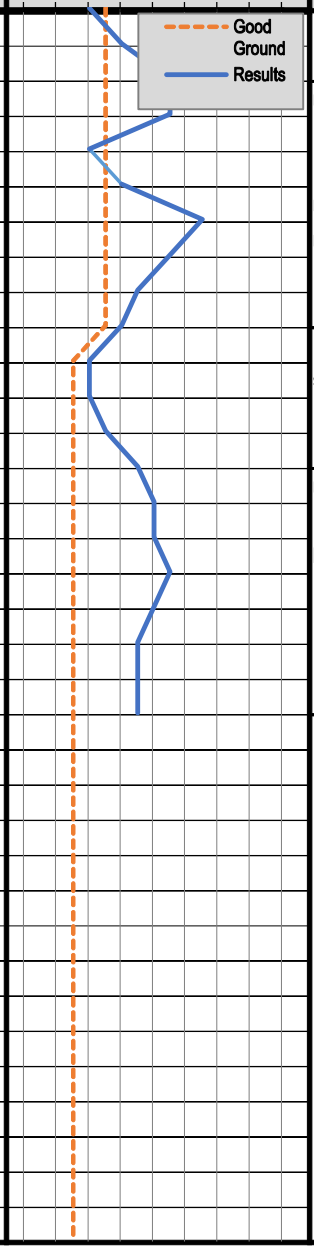
Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		2	Good Ground / Result	FILL, respread topsoil, some gravels	
200		2			
300		6		medium dense	
400		6		(engineer controlled) FILL, silt, sand, minor gravels	
500		7		some pumice, grey-brown, moist	
600		5		interbedded angular gravels, some large	
700		12			
800		5			
900		3			
1000		4		SILT, yellow-brown, orange mottling, moist	
1100		5		very stiff	
1200		4			
1300		4		medium dense	
1400		3		SAND, silt, yellow-brown, moist	
1500		5		minor silt, grey-brown	
1600		5		some pumiceous materials	
1700		6		1600-1700mm some fine to medium gravels	
1800		6			
1900		4		becoming Pumiceous Sand, yellow-brown	
2000		3			
2100				EOB @2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					

Notes:	EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract
1	Weather leading up to test was generally fine and mild
2	Ground water was not encountered during testing
3	Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4	Shear Vane records include Re-moulded values where possible
5	Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test Site
GetGeo	30/10/2020	28	Lot 355

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		4		FILL, respread topsoil, some gravels	
200		6			
300		9		medium dense	
400		9		(engineer controlled) FILL, silt, sand	
500		4		some small angular gravels, grey, moist	
600		6		minor topsoil	
700		11		mixed grey-brown	
800		9			
900		7			
1000		6			
1100		4		stiff	
1200		4		SILT, grey-brown, moist	
1300		5			
1400		7		medium dense becoming dense	
1500		8		SAND, minor silt grey-brown, moist	
1600		8		becoming some fine gravels, dark grey	
1700		9			
1800		8			
1900		7			
2000		7			
2100		7		EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					



Notes: **EOB = End Of Borehole** **UTP = Unable To Penetrate** **UTE = Unable To Extract**

1. Weather leading up to test was generally fine and mild
2. Ground water was not encountered during testing
3. Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4. Shear Vane records include Re-moulded values where possible
5. Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

DB CONSULTING ENGINEERS

Project Name		Job Ref.	
Greenhill, Area M, Section 12		171738-AREA-M-S12-01	
Tested by	Date	Sheet No.	Test site
GetGeo	30/10/2020	29	Lot 356

Depth (mm)	Undrained Shear (kPa)	No of blows /100mm	Scala Penetrometer (Blows/100mm) 0 2 4 6 8 10 12 14 16	Soil Description	Water Table
100		2	Good ground / Result	FILL, topsoil, some gravels	
200		4			
300		3		medium dense	
400		4		(engineer controlled) FILL, silt, sand, minor angular gravels	
500		9		mixed light browns/greys, moist	
600		12		600-800mm some fine to medium angular gravels	
700		12			
800		13			
900		8			
1000		9			
1100		4		very stiff	
1200		3		SILT, minor sand, yellow-brown, moist	
1300		4		orange mottling to 1200mm	
1400		4			
1500		6		medium dense	
1600		5		SAND, silt, yellow-brown, moist	
1700		4			
1800		5			
1900		6		becoming some pumiceous Sands	
2000		3			
2100				EOB @ 2.0m	
2200				Target Depth	
2300					
2400					
2500					
2600					
2700					
2800					
2900					
3000					
3100					
3200					
3300					
3400					
3500					

Notes:	EOB = End Of Borehole UTP = Unable To Penetrate UTE = Unable To Extract
1	Weather leading up to test was generally fine and mild
2	Ground water was not encountered during testing
3	Shear Vane readings are converted readings, as per calibration Certificate. (Values are undrained shear strength)
4	Shear Vane records include Re-moulded values where possible
5	Shear Vane Serial No.: 2086 Exp. Date: 2/06/2021

Appendix V *Stormwater Management*
On-lot Water Efficiency Measures
Lot Levels (Minimum Lot Levels)

ON-LOT WATER EFFICIENCY MEASURES

WATER SUPPLY AND WASTEWATER DISPOSAL

The efficiency of taps, showers and toilets contribute to how much water we use. A reduction in the use of potable water by each house directly relates to the amount of wastewater generated (i.e. reduced water use results in reduced wastewater generation). To reduce potable water demand and the amount of wastewater generated, as a minimum, each house is required to install low demand fittings for kitchen, bathroom and laundry facilities.

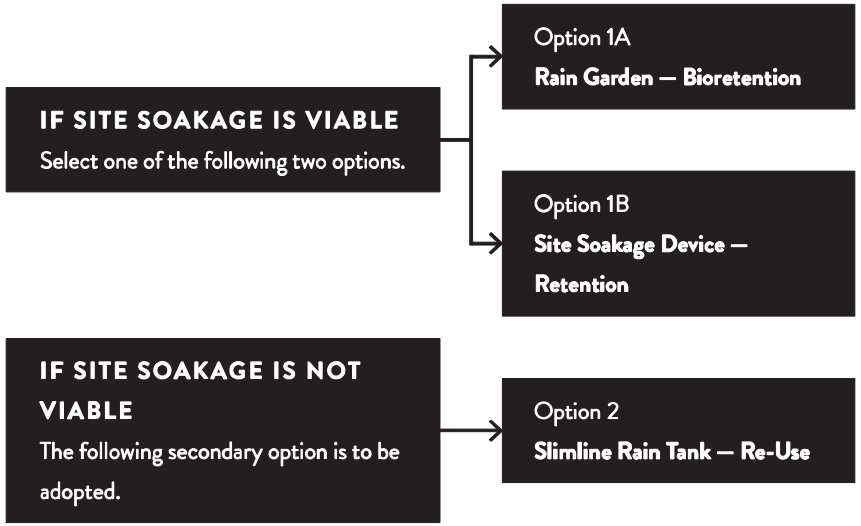
All household fittings are required to have a minimum 3 Star Rating.

STORMWATER DISPOSAL

Each lot is required to adopt an on-lot stormwater efficiency measure to ensure that surface water runoff is appropriately managed.

First, the suitability of the site for soakage needs to be assessed. Soakage is the process of helping stormwater soak into the ground using specially designed soakage devices. Soakage allows for the infiltration of stormwater into the soil which recharges the groundwater table below.

A site infiltration test is mandatory for all lots to confirm the in-situ soils are capable of achieving the minimum percolation rates. Refer to Hamilton City Council 'Three Waters Practice Note HCC 03: Soakage' for guidance on soil testing.



* Other alternative stormwater efficiency options will also be considered subject to approval by Greenhill Park and Hamilton City Council.

The selected option is to be designed by a suitably qualified Engineer and approved by the Hamilton City Council Building Control Unit. Refer to page 33 to 36 of these guidelines for further information of the design requirements for Options 1A, 1B & 2.

Hamilton City Council also encourages the installation of multiple stormwater efficiency options within a property, where practical.

Option 1A

RAIN GARDEN — BIORETENTION

Design to provide minimum 'live storage' retention for runoff from a 10mm rainfall event for trafficked hardstand areas.

The following table outlines indicative storage volumes and estimated rain garden areas for a range of lot sizes.

Lot Area (m^2)	Live Storage Volume (m^3)	Rain Garden Area (m^2)
300	0.8	4.1
350	0.9	4.7
400	1.1	5.4
450	1.2	6.1
500	1.4	6.8
550	1.5	7.4

Based on hardstand coverage equal to 30% of total lot area

KEY REQUIREMENTS

- Rain garden to be located to capture runoff from main hardstand areas within the lot (as much as practical).
- Maximum live storage depth to be 300mm (safety requirements to be considered when device is at maximum storage capacity).
- A channel and grate to be installed across vehicle entrance to capture hardstand run off and direct it to rain garden.
- Rain garden to be integrated with garden design (refer to page 34 for details).
- Overflow to be connected to stormwater connection provided.

FOR MORE INFORMATION

Refer to Hamilton City Council Three Waters Practice Note — HCC04 — Bio-retention (Rain Gardens)' for information on typical design requirements.

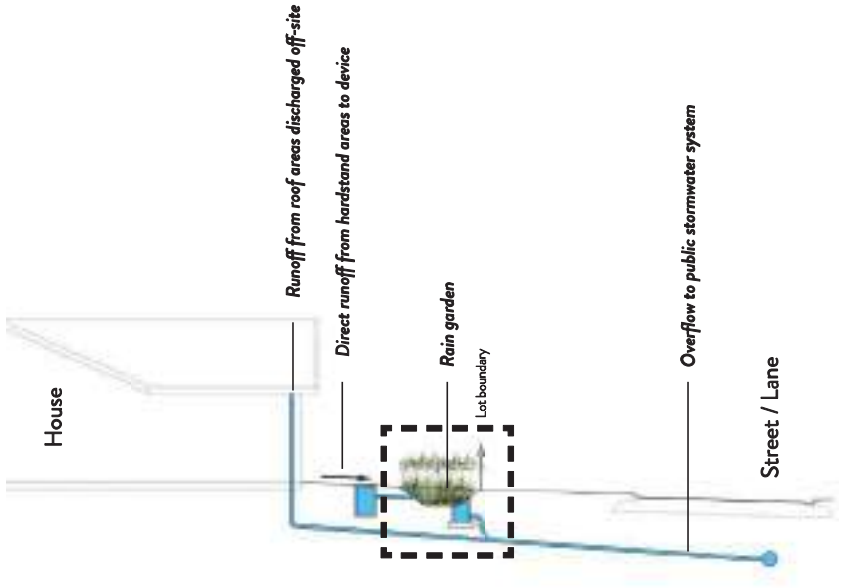


DIAGRAM — **7**
Rain Garden — Bioretention

GREENHILL PARK RAIN GARDEN PLANT LIST

Native plants are encouraged, but other exotic plant species which complement your front yard planting design could be used. Deciduous plants should not be used as their leaf-fall can block the outflow.

The plants selected need to —

- Be able to tolerate short periods of inundation and longer dry periods
- Be perennial rather than annual
- Have deep fibrous root systems and a spreading growth form
- Form a dense, weed-suppressing cover

Botanical Name	Common Name
Apodasmia similis	oioi
Blechnum penna-marina	alpine hard fern
Libertia ixioides	mikoikoi
Carex dipsacea	teasel sedge
Carex secta	purei
Carex virgata	pukio
Dianella nigra	turutu
Libertia grandiflora	mikoikoi
Lobelia angulata	panakenake
Pimelea prostrata	pinatoro

All rain garden plants to be a minimum grade of Pb 8 at the time of planting. * Other plant species can be approved at the discretion of the Design Review Panel.

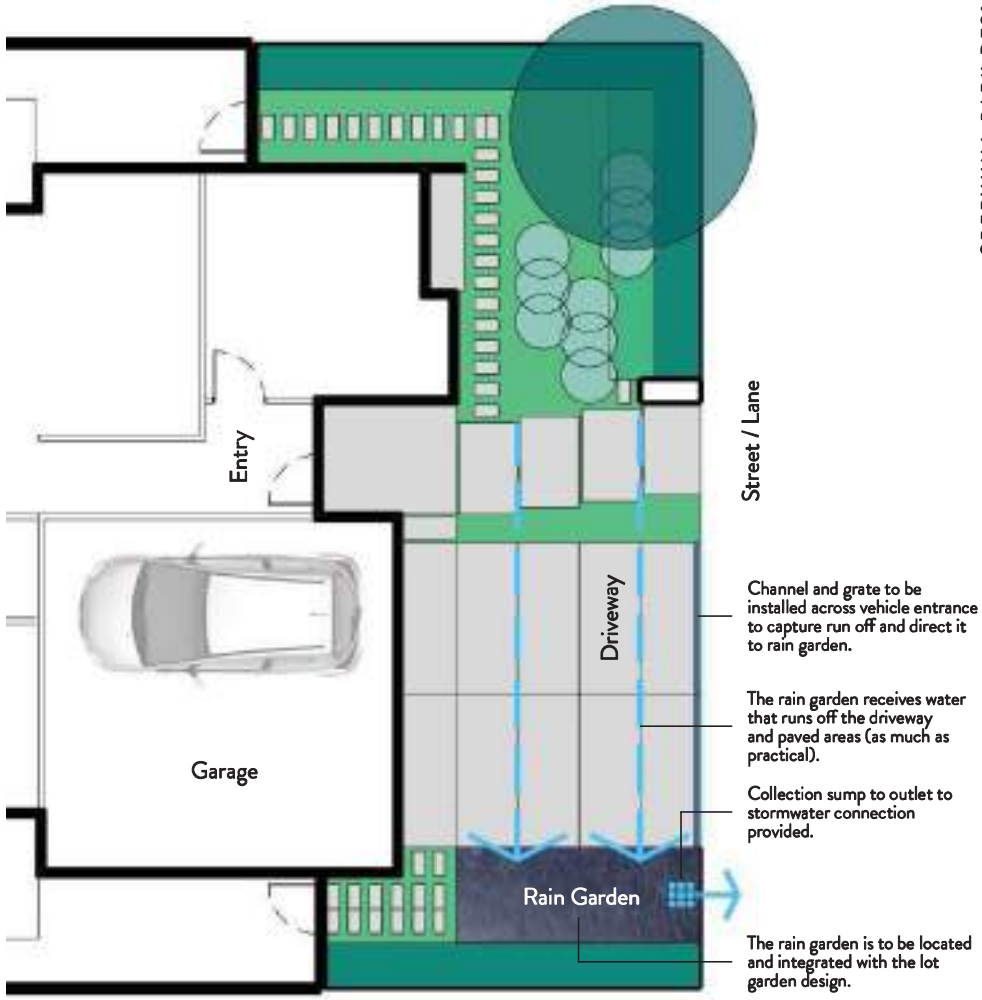


DIAGRAM — 8

Rain Garden Typical Location

Option 1B

SITE SOAKAGE DEVICE – RETENTION

Design to provide minimum 'live storage' retention for runoff from a 10mm rainfall event for roof and trafficked hardstand areas.

The following table outlines indicative storage volumes for a range of lot sizes.

Lot Area (m^2)	Live Storage Volume (m^3)
300	2.2
350	2.6
400	3.0
450	3.4
500	3.7
550	4.1

Based on 80% site coverage (roof and hardstand areas)

KEY REQUIREMENTS

- Soakage device(s) to be located to capture runoff from roof downpipes and hardstand areas (as much as practical).
- A channel and grate to be installed across vehicle entrance to capture hardstand run off and direct it to soakage device.
- Soakage device to be integrated with garden design.
- Overflow to be connected to stormwater connection provided.

FOR MORE INFORMATION

Refer to Hamilton City Council 'Three Waters Practice Note HCC 03: Soakage' for information on typical design requirements.

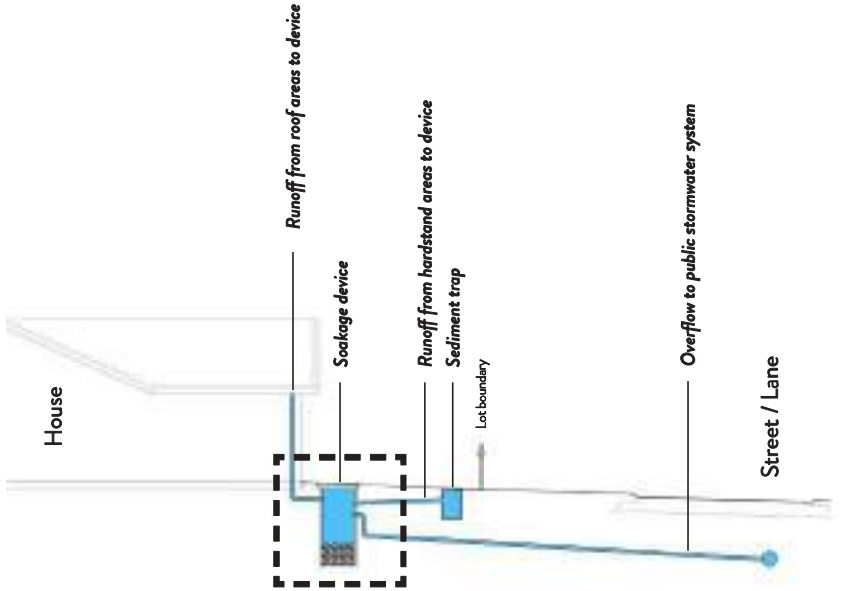


DIAGRAM – **9**

Site Soakage Device – Retention

Option 2

SLIMLINE RAIN TANK — RE-USE

The slimline rain tank is to be connected to a separate grey-water household re-use system with a minimum capacity of 5,000L.

KEY REQUIREMENTS

- Rain tank to be connected into a fully integrated grey-water re-use system within the main dwelling with connections to toilets, laundry and irrigation systems.
- All roof run-off is to be captured by rain tanks and available for re-use. Run-off from hardstand areas (driveways and paving) can be discharged directly into stormwater connection provided.
- A maximum of two (2) tanks may be used to achieve the required storage and align with downpipe locations.
- Overflow to be connected to stormwater connection provided.

LOCATION AND INSTALLATION

Slimline rain tanks should be placed in the rear or side yard of the lot as unobtrusively as possible. Care should be taken, where tanks are placed next to the house, to ensure they are placed adjacent to a blank wall and not infront of a window.

COLOUR

The colour of all rain tanks should match the colour of the homes exterior wall cladding adjacent to the tank.

* Colours that do not match but are complementary to the design and materials of the house can be approved at the discretion of the Design Review Panel.

FOR MORE INFORMATION

Refer to Hamilton City Council 'Three Waters Practice Note — HCC02 —Rainwater Re-use Systems (Rain Tanks)' for information on design requirements.

APPROVED RAIN TANK PRODUCTS

Tanksalot® Slimline Tank www.tanksalot.co.nz

ThinTanks™ NZ Slimline Rainwater Poly Tank www.thintanks.co.nz

* Other rain tank products will also be considered subject to approval by Greenhill Park.

Note below ground tanks (sealed tanks only) are also considered an appropriate design option and are pre-approved for use on this subdivision.

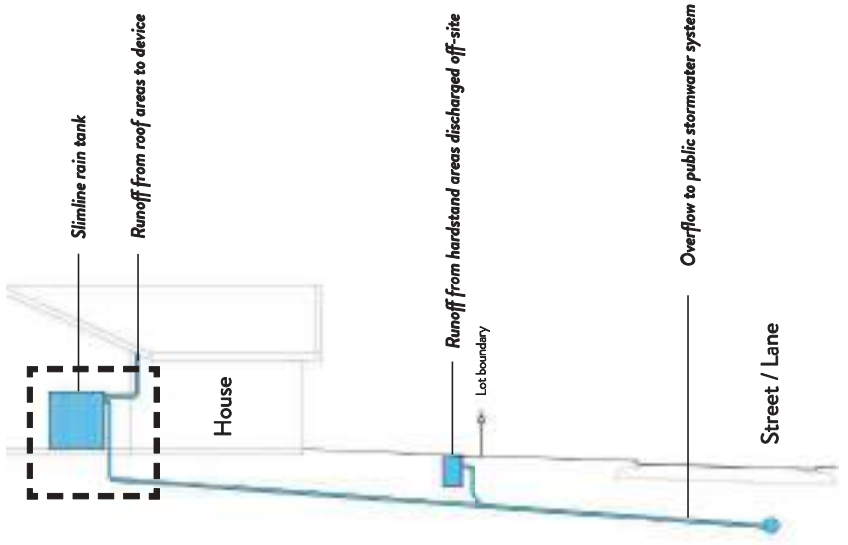


DIAGRAM —**10**

Slimline Rain Tank — Re-use

Lot	Stage	Minimum Lot Level (mRL)	1% AEP Flood Level (mRL)	Flood Level Reference	Calculated Freeboard (to Lot Level)
305	11	38.948	36.40	Swale 3A	2.722
306	11	38.878	36.40	Swale 3A	2.774
307	11	38.806	36.40	Swale 3A	2.826
308	11	38.737	36.40	Swale 3A	2.770
309	11	38.678	36.40	Swale 3A	2.278
310	11	38.662	36.40	Swale 3A	2.262
311	11	38.365	36.40	Swale 3A	1.965
312	11	38.467	36.40	Swale 3A	2.067
313	11	38.557	36.40	Swale 3A	2.157
314	11	38.648	36.40	Swale 3A	2.248
315	11	38.744	36.40	Swale 3A	2.344
316	11	38.841	36.40	Swale 3A	2.441
317	11	38.936	36.40	Swale 3A	2.536
318	11	39.021	36.40	Swale 3A	2.621
319	11	39.042	36.40	Swale 3A	2.642
320	11	38.944	36.40	Swale 3A	2.544
321	11	38.845	36.40	Swale 3A	2.445
322	11	38.730	36.40	Swale 3A	2.330
323	11	38.645	36.40	Swale 3A	2.245
324	11	38.561	36.40	Swale 3A	2.161
325	11	38.463	36.40	Swale 3A	2.063
326	11	38.250	36.40	Swale 3A	1.850
327	12	38.169	36.46	Swale 3B	1.709
329	12	38.082	36.46	Swale 3B	1.622
330	12	38.191	36.46	Swale 3B	1.731
331	12	38.298	36.46	Swale 3B	1.838
332	12	38.406	36.46	Swale 3B	1.946
333	12	38.581	36.46	Swale 3B	2.121
334	12	38.712	36.46	Swale 3B	2.252
335	12	38.806	36.46	Swale 3B	2.346
336	12	39.003	36.46	Swale 3B	2.543
337	12	38.766	36.46	Swale 3B	2.306
338	12	38.814	36.46	Swale 3B	2.354
339	12	38.896	36.46	Swale 3B	2.436
340	12	38.977	36.46	Swale 3B	2.517
341	12	39.065	36.46	Swale 3B	2.605
342	12	38.987	36.46	Swale 3B	2.527
343	12	38.902	36.46	Swale 3B	2.442
344	12	38.835	36.46	Swale 3B	2.375
345	12	38.804	36.46	Swale 3B	2.344
346	12	38.803	36.46	Swale 3B	2.343

Lot	Stage	Minimum Lot Level (mRL)	1% AEP Flood Level (mRL)	Flood Level Reference	Calculated Freeboard (to Lot Level)
347	12	38.703	36.46	Swale 3B	2.243
348	12	38.700	36.46	Swale 3B	2.240
349	12	38.751	36.46	Swale 3B	2.291
350	12	39.039	36.46	Swale 3B	2.579
351	12	39.109	36.46	Swale 3B	2.649
352	12	39.179	36.46	Swale 3B	2.719
353	12	39.248	36.46	Swale 3B	2.788
354	12	39.317	36.46	Swale 3B	2.857
355	12	39.393	36.46	Swale 3B	2.933
356	12	39.486	36.46	Swale 3B	3.026
357	13	38.000	38.00	Swale 1D	0.000
358	13	38.100	38.00	Swale 1D	0.100
359	13	38.263	38.00	Swale 1D	0.263
360	13	38.444	38.00	Swale 1D	0.444
361	13	38.670	38.00	Swale 1D	0.670
362	13	38.696	38.00	Swale 1D	0.696
363	13	38.925	38.00	Swale 1D	0.925
364	13	38.802	38.00	Swale 1D	0.802
365	13	38.681	38.00	Swale 1D	0.681
366	13	38.610	38.00	Swale 1D	0.610
367	13	39.145	38.00	Swale 1D	1.145
368	13	39.300	38.00	Swale 1D	1.300
369	13	39.448	38.00	Swale 1D	1.448
370	13	39.571	38.00	Swale 1D	1.571
371	13	39.713	38.00	Swale 1D	1.713
372	13	39.845	38.00	Swale 1D	1.845
373	13	39.987	38.00	Swale 1D	1.987
374	13	40.120	36.46	Swale 3B	3.660
375	14	39.017	37.24	Swale 1	1.777
376	14	39.095	37.24	Swale 1	1.855
377	14	39.170	36.40	Swale 3A	2.770
378	14	39.226	36.40	Swale 3A	2.826
379	14	39.174	36.40	Swale 3A	2.774
380	14	39.122	36.40	Swale 3A	2.722
381	14	39.069	36.40	Swale 3A	2.669
382	14	39.016	36.40	Swale 3A	2.616
383	14	39.162	36.40	Swale 3A	2.762
384	14	39.223	36.40	Swale 3A	2.823
385	14	39.305	36.40	Swale 3A	2.905
386	14	39.366	36.40	Swale 3A	2.966
387	14	39.427	36.40	Swale 3A	3.027

APPENDIX 2

Roading QA Documentation

Road Subgrade – 2(a)

- Drawing 21879-M-12-BR1 (in lieu of strings)
- Clegg Hammer Tests

Road Basecourse 2(b)

- Nuclear Densometer Results
- Benkelman Beam Test Results
- Basecourse Strings
- GAP40 Material Tests
- S&L/HCC Correspondence regarding kerb and pavement changes

Surfacing & RAMM Data 2(c)

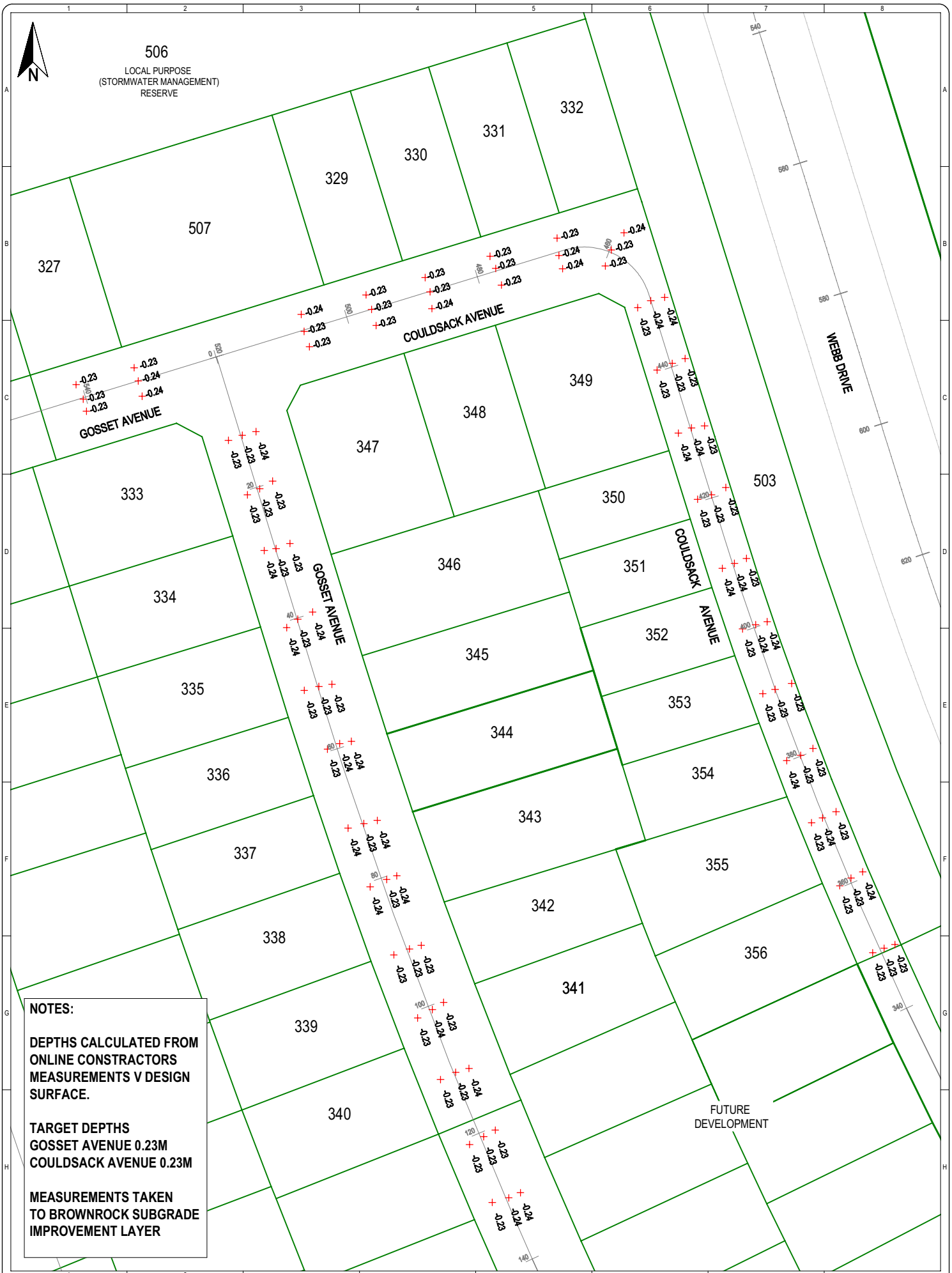
- HCC pavement RAMM data
- Surfacing RAMM data

APPENDIX 2(a)

Roading QA Documentation

Road Subgrade

- Drawing 21879-M-12-BR1 (in lieu of strings)
- Clegg Hammer Tests



NOTES:

DEPTHS CALCULATED FROM ONLINE CONSTRACTORS MEASUREMENTS V DESIGN SURFACE.

TARGET DEPTHS
GOSSET AVENUE 0.23M
COULDSACK AVENUE 0.23M

MEASUREMENTS TAKEN TO BROWNROCK SUBGRADE IMPROVEMENT LAYER

S&L
Land Development
and Design Specialists
Ph. 07 577 6069
Email: info@sltga.co.nz
36 Kereiti Street, Mt Maunganui, Tauranga 3116
P.O. Box 231, Tauranga 3140
www.sltga.co.nz

Title

QUALITY ASSURANCE
COMPARISON OF BROWNROCK V DESIGN
ROADING LAYOUT
STAGE 12 AREA M

Rev	Description	Drn	Ckd	App	Date
AB	ISSUE TO HCC	SRC	KU	NF	10/20
0	INTERNAL REVIEW	SRC	KU	NF	10/20

	Name	Date		Name	Date
Surveyed	Online	10/2020	Designed		

Coordinate System: Mt Eden 2000 Circuit
Origin of Coordinates: ALP 3 DP 534481
Height Datum: Moturiki Vertical Datum 1953
Origin of Height: SS 507 SO 42451 RL = 44.04m

Original Scales @ A3: 1:500
Do Not Scale Dimensions
Status: AS-BUILT

Drawing No: 21879-M-12-BR1
Revision: AB

ONLINE CONTRACTORS

P O Box 21187, Rototuna
Hamilton, 3256
Email: Todd@onlinecontractors.co.nz
Ph: 07 853 9422

COMPACTION - CLEGG TESTS

Contract	GHP Stage 12	**Job No.**	
Site/Chainage	Road 37	**Date**	9/09/2020
		Recorded by	Emil Karlsson
Material	Brownrock SIL		

Chn	1m from kerb - Left	Centre Line	1m from kerb - Right	Notes
350	**26**			
360		**35**		
370			**34**	
380	**32**			
390		**28**		
400			**41**	
410	**42**			
420		**38**		
430			**40**	
440	**26**			
450		**31**		
460			**46**	

Source of conversion: Inferred CBR%=0.07(Impact Value)^2/100

Remarks

ONLINE CONTRACTORS

P O Box 21187, Rototuna
Hamilton, 3256
Email: Todd@onlinecontractors.co.nz
Ph: 07 853 9422

COMPACTION - CLEGG TESTS

Contract	**GHP Stage 12**	**Job No.**	
Site/Chainage	**Road 38**	**Date**	**9/09/2020**
		Recorded by	**Emil Karlsson**
Material	**Brownrock SIL**		

Chn	1m from kerb - Left	Centre Line	1m from kerb - Right	Notes
10	**31**			
20		**36**		
30			**34**	
40	**41**			
50		**45**		
60			**37**	
70	**34**			
80		**39**		
90			**31**	
100	**44**			
110		**46**		
120			**36**	
130	**32**			

Source of conversion: Inferred CBR%=0.07(Impact Value)^2/100

Remarks

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COMPACTION - CLEGG TESTS

Contract	GHP Stage 12	**Job No.**	
Site/Chainage	Road 39	**Date**	9/09/2020
		Recorded by	Emil Karlsson
Material	Brownrock SIL		

Chn	1m from kerb - Left	Centre Line	1m from kerb - Right	Notes
470	**46**			
480		**38**		
490			**42**	
500	**34**			
510		**41**		
530			**29**	
540	**36**			

Source of conversion: Inferred CBR%=0.07(Impact Value)^2/100

Remarks

APPENDIX 2(b)

Roading QA Documentation

Road Basecourse

- Nuclear Densometer Results
- Benkelman Beam Test Results
- Basecourse Strings
- GAP40 Material Tests
- S&L/HCC Correspondence regarding kerb and pavement changes

BASECOURSE COMPACTION CONTROL
TNZ - B2 TEST RESULTS

Project :	Greenhill - Stage 12	Sample description :	WHAP40 (ex Tauhei Quarry)		
Location :	Road 38	Nuclear densometer no :	16523		
Client :	Online Contractors (2016) Limited	Solid density (tested) :	2.73	t/m³	
Contractor :	Online Contractors (2016) Limited	Max dry density (tested) :	2.22	t/m³	
Tested by :	J. Waru-Savage	Opt. water content (tested) :	6.0	%	
Date tested :	12/10/20				

Project No :	2-68015.00
Lab Ref No :	HA6436a_NDM
Client Ref No :	

Nuclear Densometer Test Results

Test Number	1	2	3	4	5	6	7	8	9	10	11	12		
Test Position	CH120	CH110	CH100	CH90	CH80	CH70	CH60	CH50	CH40	CH30	CH20	CH10		
Offset	RHS WT	LHS WT	RHS WT	LHS WT	RHS WT	LHS WT	RHS WT	LHS WT	RHS WT	LHS WT	RHS WT	LHS WT		
Probe Depth (mm)	B/S	B/S	B/S	B/S	B/S	B/S	B/S	B/S	B/S	B/S	B/S	B/S		
Wet Density (t/m³)	2.34	2.29	2.29	2.35	2.31	2.31	2.31	2.31	2.24	2.36	2.39	2.30		
Dry Density (t/m³)	2.26	2.19	2.20	2.24	2.22	2.21	2.22	2.21	2.16	2.25	2.31	2.17		
Water Content (%)	3.6	4.3	4.0	4.7	4.0	4.8	4.3	4.8	3.6	4.7	3.8	5.6		
% of MDD	102	99	99	101	100	99	100	99	97	101	104	98		
% Saturation	47	48	46	59	47	55	51	55	37	60	56	60		

Oven Corrected Test Results

Dry Density (t/m³)					NOT TESTED									
Water Content (%)														
% of MDD														
% Saturation														

Test Methods	Notes
Insitu Density : NZS 4407 : 2015, Test 4.3 for Backscatter Mode	MDD from WSP, Hamilton Lab - Report No. HA6285/2_VHMDD (Sept. 2020)

IANZ Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date reported : 12/10/20

Date : 12/10/20

ACCREDITED IANZ TESTING LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

WSP
Hamilton (Fox St)
Quality Management Systems Certified to ISO 9001

4 Fox Street
Private Bag 3057, Waikato Mail Centre, 3240,
Hamilton, New Zealand

Telephone +64 7 856 2870
Website www.wsp.com/nz

BASECOURSE COMPACTION CONTROL
TNZ - B2 TEST RESULTS

Project :	Greenhill - Stage 12	Sample description :	WHAP40 (ex Tauhei Quarry)		
Location :	Road 37	Nuclear densometer no :	16523		
Client :	Online Contractors (2016) Limited	Solid density (tested) :	2.73	t/m³	
Contractor :	Online Contractors (2016) Limited	Max dry density (tested) :	2.22	t/m³	
Tested by :	J. Waru-Savage	Opt. water content (tested) :	6.0	%	
Date tested :	12/10/20				

Project No :	2-68015.00
Lab Ref No :	HA6436b_NDM
Client Ref No :	

Nuclear Densometer Test Results

Test Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Test Position	CH350	CH360	CH370	CH380	CH390	CH400	CH410	CH420	CH430	CH440	CH450	CH460	CH470	CH480
Offset	LHS WT	RHS WT	LHS WT	RHS WT	LHS WT	RHS WT	LHS WT	RHS WT	LHS WT	RHS WT	LHS WT	RHS WT	LHS WT	RHS WT
Probe Depth (mm)	B/S	B/S	B/S	B/S	B/S	B/S	B/S	B/S	B/S	B/S	B/S	B/S	B/S	B/S
Wet Density (t/m³)	2.37	2.31	2.21	2.23	2.37	2.22	2.38	2.33	2.27	2.21	2.30	2.32	2.25	2.34
Dry Density (t/m³)	2.26	2.21	2.12	2.12	2.27	2.12	2.29	2.23	2.18	2.11	2.22	2.22	2.16	2.25
Water Content (%)	4.5	4.7	4.5	5.0	4.7	4.6	4.2	4.5	4.2	4.7	3.7	4.4	4.5	4.0
% of MDD	102	99	95	95	102	96	103	100	98	95	100	100	97	101
% Saturation	60	54	43	47	63	44	59	54	45	44	44	53	46	51

Oven Corrected Test Results

Dry Density (t/m³)					NOT TESTED									
Water Content (%)														
% of MDD														
% Saturation														

Test Methods	Notes
Insitu Density : NZS 4407 : 2015, Test 4.3 for Backscatter Mode	MDD from WSP, Hamilton Lab - Report No. HA6289/2_VHMOD (Sept. 2020)

IANZ Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date reported : 12/10/20 Date : 12/10/20

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

WSP
Hamilton (Fox St)
Quality Management Systems Certified to ISO 9001

4 Fox Street
Private Bag 3057, Waikato Mail Centre, 3240,
Hamilton, New Zealand

Telephone +64 7 856 2870
Website www.wsp.com/nz

BASECOURSE COMPACTION CONTROL
TNZ - B2 TEST RESULTS

Project :	Greenhill - Stage 12	Sample description :	WHAP40 (ex Tauhei Quarry)		
Location :	Road 39	Nuclear densometer no :	16523		
Client :	Online Contractors (2016) Limited	Solid density (tested) :	2.73	t/m³	
Contractor :	Online Contractors (2016) Limited	Max dry density (tested) :	2.22	t/m³	
Tested by :	J. Waru-Savage	Opt. water content (tested) :	6.0	%	
Date tested :	12/10/20				

Project No :	2-68015.00
Lab Ref No :	HA6436c_NDM
Client Ref No :	

Nuclear Densometer Test Results

Test Number	1	2	3	4	5	6
Test Position	CH490	CH500	CH510	CH520	CH530	CH540
Offset	LHS WT	RHS WT	LHS WT	RHS WT	LHS WT	RHS WT
Probe Depth (mm)	B/S	B/S	B/S	B/S	B/S	B/S
Wet Density (t/m³)	2.32	2.33	2.29	2.27	CONCRETE PAD	2.24
Dry Density (t/m³)	2.20	2.22	2.18	2.16		2.14
Water Content (%)	5.7	4.9	4.8	4.9		4.4
% of MDD	99	100	98	97		97
% Saturation	64	59	52	51		44

Oven Corrected Test Results

Dry Density (t/m³)	NOT TESTED
Water Content (%)	
% of MDD	
% Saturation	

Test Methods	Notes
Insitu Density : NZS 4407 : 2015, Test 4.3 for Backscatter Mode	MDD from WSP, Hamilton Lab - Report No. HA6289/2_VHMDD (Sept. 2020)

IANZ Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date reported : 12/10/20

Date : 12/10/20

ACCREDITED IANZ TESTING LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

WSP
Hamilton (Fox St)
Quality Management Systems Certified to ISO 9001

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Private Bag 3057, Waikato Mail Centre, 3240,
Hamilton, New Zealand

Telephone +64 7 856 2870
Website www.wsp.com/nz

DRY DENSITY / WATER CONTENT RELATIONSHIP
VIBRATING COMPACTION

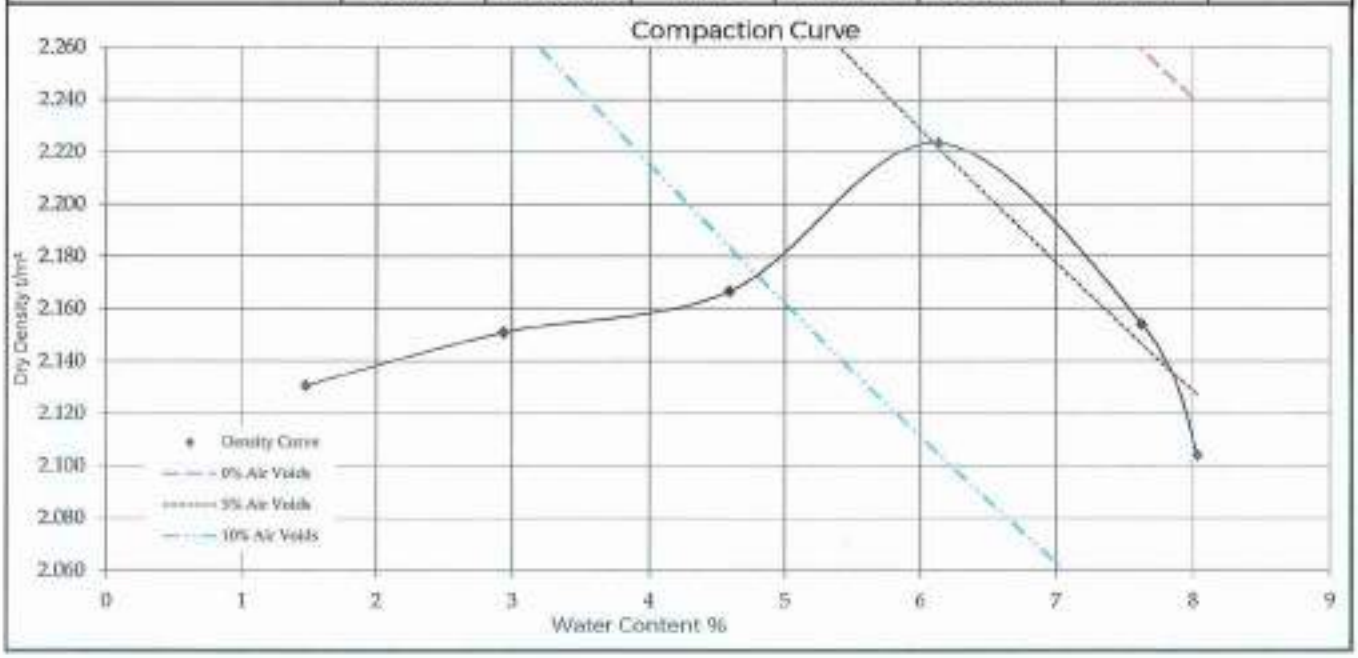
Project :	Quality Assurance
Location :	Stockpile
Client :	Online Contractors (2016) Limited
Contractor :	-
Sampled by :	C. Robertson (WSP Hamilton Lab)
Date sampled :	11/09/2020 @ 11:45am
Sampling method :	NZS 4407:2015:2.4.6.3.2
Sample description :	GAP/WHAP40
Sample condition :	Moist
Solid density :	2.73 t/m³ (Tested)
Source :	Stevensons Tauhei Quarry

Project No :	2-68015.00
Lab Ref No :	HA6289/2_VHMDD
Client Ref No :	

Test Results

Maximum dry density	2.22	t/m³	Natural water content	2.9 %
Optimum water content	6	%	Fraction tested	<37.5mm

Sample ID		-100	Nat	100	200	300	400	
Bulk density	t/m³	2.162	2.214	2.266	2.360	2.318	2.273	
Water content	%	1.5	2.9	4.6	6.1	7.6	8.0	
Dry density	t/m³	2.131	2.151	2.167	2.223	2.154	2.104	
Sample condition		Dry Loose	Moist M Dense	Moist Dense	Wet/Sat. M Dense	Saturated M Dense	Sat Loose	



Test Methods		Notes
Compaction	NZS 4402 : 1986 : Test 4.1.3	Solid density from report HA6289/2_SD

Date tested : 22/09/20
Date reported : 30/09/20

Sampling is covered by IANZ Accreditation
This report may only be reproduced in full

IANZ Approved Signatory

Designation : *Senior Civil Engineering Technician*
Date : 30/09/20

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Website www.wsp.com/nz

GAP 40
TEST REPORT

Project :	Quality Assurance
Location :	Stockpile
Client :	Online Contractors (2016) Ltd
Contractor :	-
Sampled by :	C Robertson (WSP Hamilton Lab)
Date sampled :	11/09/2020 @ 11:45am
Sampling method :	NZS 4407:2015:2.4.6.3.2
Sample description :	GAP/WHAP40
Sample condition :	Moist
Source :	Stevensons Tauhei Quarry

Project No :	2-68015.00
Lab Ref No :	HA6289/2_SA
Client Ref No :	-

Particle Size Distribution

Sieve Size (mm)	Percentage Passing	
	Sample	Limits
63.0	100	-
37.5	99	100 - 100
19.0	80	63 - 81
9.5	53	40 - 60
4.75	36	25 - 45
2.36	22	16 - 35
1.18	15	9 - 27
0.600	10	5 - 20
0.300	7	1 - 15
0.150	5	0 - 10
0.075	4	0 - 7

Result obtained from an oven-dried test sample.

Grading Shape Control

Fraction (mm)	% Within Fraction	
	Sample	Limits
19.0 - 4.75	44	25 - 49
9.5 - 2.36	31	14 - 36
4.75 - 1.18	21	7 - 27
2.36 - 0.600	12	5 - 22
1.18 - 0.300	8	3 - 18
0.600 - 0.150	5	1 - 13

Crushing Resistance

% Fines @ Spec. Load	2.3	%
Specification	<10	%
Crushing Resistance	>100	kN
Nom Aggregate Size	13.2 - 9.5	mm
Specified Load	100	kN

Broken Faces Content of Aggregate

Fraction (mm)	Percentage by Weight	
	Sample	Lower Limit
37.5 - 19.0	-	-
19.0 - 9.5	-	-
9.5 - 4.75	-	-

Plasticity Index

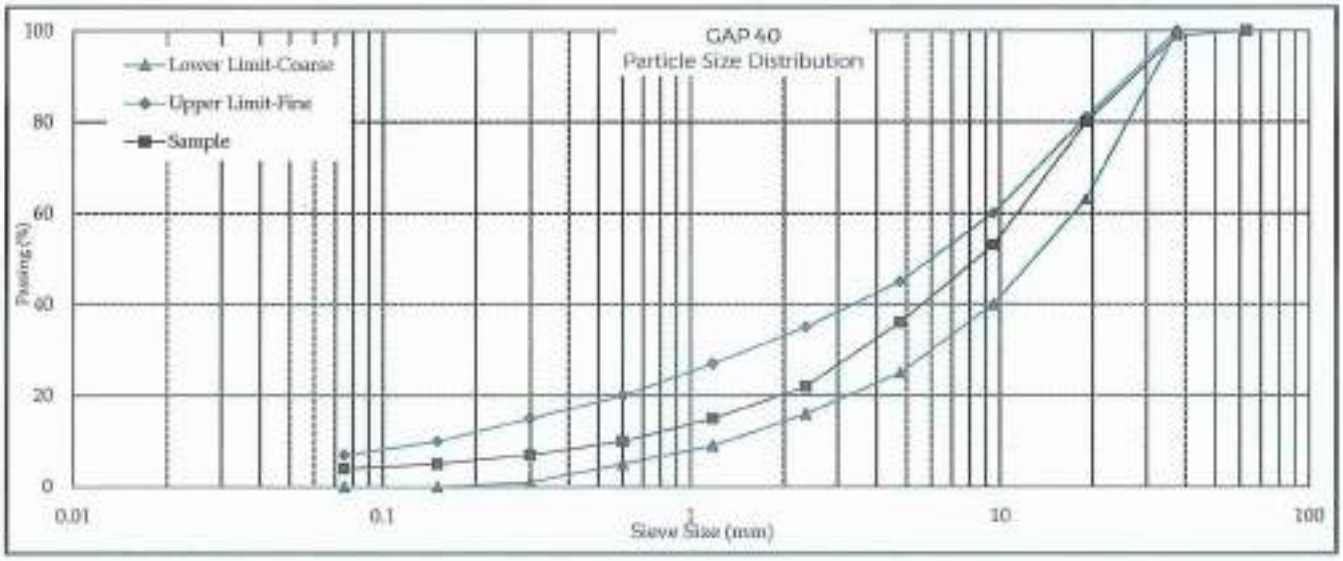
Sample CPL	-
Sample PI	-

Clay Index

Sample CI	-
Specification	-

Sand Equivalent (Washed, Mechanical Shaking)

Sample SE	45
Specified	>= 25



Test Methods

Particle Size Distribution	NZS 4407 : 2015 : Test 3.8.1
Sand Equivalent	NZS 4407 : 2015 : Test 3.6
Crushing Resistance	NZS 4407 : 2015 : Test 3.10

Grading envelope from Waikato Local Authority RITS (2018)

Date tested : 14-28/09/2020 Sampling is covered by IANZ Accreditation

Date reported : 28/09/20 This report may only be reproduced in full

IANZ Approved Signatory

Designation : Senior Civil Engineering Technician

Date : 28/09/20

ACCREDITED IANZ TESTING LABORATORY

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Hamilton (Fox St)
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Hamilton, New Zealand

Telephone +64 7 856 2870
Website www.wsp.com/nz

WEATHERING QUALITY OF COARSE AGGREGATE TEST REPORT

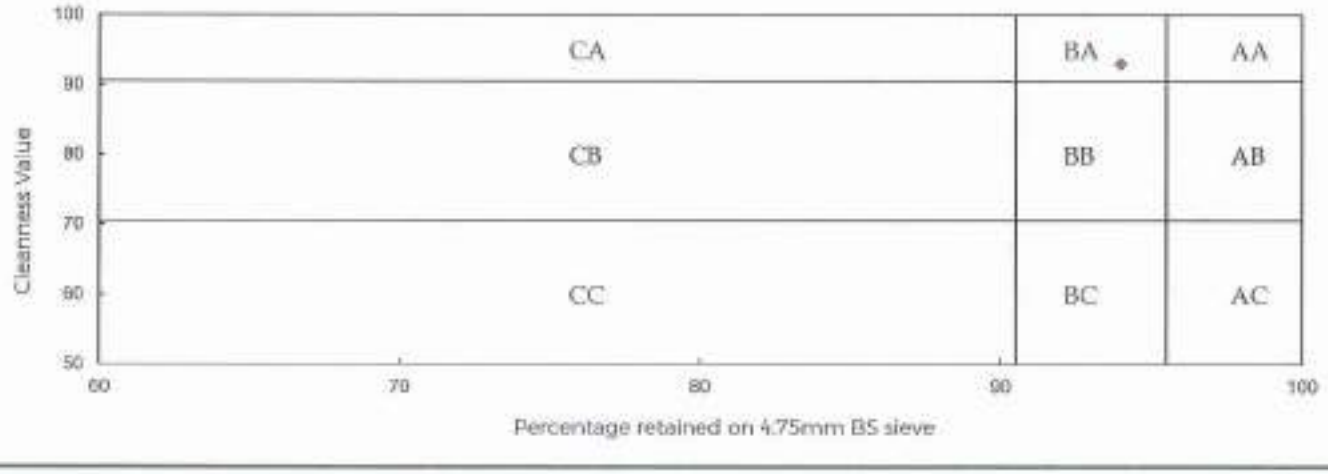
Project :	Quality Assurance
Location :	Stockpile
Client :	Online Contractors (2016) Limited
Contractor :	-
Sampled by :	C. Robertson (WSP Hamilton Lab)
Date sampled :	11/09/20
Sampling method :	NZS4407:2015:2.4.6.3.2
Sample description :	GAP/WHAP40
Sample condition :	Moist
Source :	Stevensons Tauhei Quarry

Project No :	2-68015.00
Lab Ref No :	HA6289/2_WQI
Client Ref No :	-

Test Results

Percentage Retained on 4.75mm BS Sieve After 10 Cycles	: 94
Cleanness Value After 10 Cycles	: 93
Weathering Quality Index (see table below)	: BA

Cleanness Value	Percentage Retained on 4.75mm Sieve			Specified
	96 - 100	91 - 95	up to 90	
91 - 100	AA	BA	CA	AA, AB, AC BA, BB, CA or CB
71 - 90	AB	BB	CB	
up to 70	AC	BC	CC	



Test Method	Notes
Weathering Quality Index, NZS 4407:2015, Test 3.11	◆ Is graphed value of Weathering Quality Index Specification from Waikato Local Authority (RITS) 2018

Date tested : 2/10/2020
Date reported : 5/10/2020

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IANZ Approved Signatory

Designation : *Senior Civil Engineering Technician*
Date : 5/10/2020

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Hamilton, New Zealand

Telephone +64 7 856 2870
Website www.wsp.com/nz

SOLID DENSITY OF AGGREGATE PARTICLES TEST REPORT

Project :	Quality Assurance
Location :	Stevensons Tauhei GAP40 Stockpile
Client :	Online Contractors (2016) Limited
Contractor :	-
Sampled by :	C Robertson (WSP)
Date sampled :	11/09/2020 @ 11:45am
Sampling method :	NZS 4407:2015:2.4.6.3.2
Sample description :	GAP40/WHAP40
Sample condition :	Moist
Source :	Stevensons Tauhei

Project No :	2-68015.00
Lab Ref No :	HA6289/2_SD
Client Ref No :	-

Test Results

Sample Solid Density : 2.73 t/m^3

Test Method	Notes
NZS 4407: 2015 Test 3.7.2	Material tested : Retained on 4.75mm sieve

Date tested : 15/09/20
Date reported : 16/09/20

Sampling is covered by IANZ Accreditation
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All information supplied by Client

IANZ Approved Signatory

Designation : *Senior Civil Engineering Technician*
Date : 16/09/20

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BENKELMAN BEAM TEST REPORT

Project :	Greenhill Stage 12
Location :	Road 37
Client :	Online Contractors (2016) Limited
Contractor :	Online Contractors (2016) Limited
Test method :	TNZ T/1 1977
Pavement type :	WHAP40
Pavement temp °C :	-
Weight on rear axle:	8.2 tonnes
Tested by :	C Brown, C Robertson

Project No :	2-68015.00
Lab Ref No :	HA6447a
Client Ref :	

Test Results

Location	Deflections (mm)				Comments
Metres	Left WT	Right WT			
350		1.16			
360	0.90				
370		1.10			
380	0.96				
390		1.10			
400	1.10				
410		1.20			
420	0.90				
430		1.04			
440	0.90				
450		1.20			
460	1.30				
	1.2				90 Percentile calculated for all data in columns 1 to 2.

Deflection Statistical Analysis (for all deflections)

Maximum (mm): 1.30	Minimum (mm) : 0.90	Average (mm): 1.07

Note: Results in italics have a difference between Intermediate and Final readings that are greater than 3 (refer TNZ T/1 1977).

Date tested : 14/10/2020
Date reported : 14/10/2020

IANZ Approved Signatory

Designation : *Senior Civil Engineering Technician*
Date : 14/10/2020

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BENKELMAN BEAM TEST REPORT

Project :	Greenhill Stage 12
Location :	Road 39
Client :	Online Contractors (2016) Limited
Contractor :	Online Contractors (2016) Limited
Test method :	TNZ T/1 1977
Pavement type :	WHAP40
Pavement temp °C :	-
Weight on rear axle:	8.2 tonnes
Tested by :	C.Brown, C.Robertson

Project No :	2-68015.00
Lab Ref No :	HA6447b
Client Ref :	

Test Results

Location Metres	Deflections (mm) Left WT	Right WT			Comments
470		1.00			
480	1.16				
490		1.00			
500	1.16				
510		1.20			
520	*				* Concrete Pad
530		0.90			
540	1.30				
	1.24				90 Percentile calculated for all data in columns 1 to 2.

Deflection Statistical Analysis (for all deflections)

Maximum (mm): 1.30	Minimum (mm) : 0.90	Average (mm): 1.10

Note: Results in italics have a difference between Intermediate and Final readings that are greater than 5 (refer TNZ T/1 1977)

Date tested : 14/10/2020
Date reported : 14/10/2020

IANZ Approved Signatory

Designation : *Senior Civil Engineering Technician*
Date : 14/10/2020

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BENKELMAN BEAM TEST REPORT

Project :	Greenhill Stage 12
Location :	Road 38
Client :	Online Contractors (2016) Limited
Contractor :	Online Contractors (2016) Limited
Test method :	TNZ T/1 1977
Pavement type :	WHAP40
Pavement temp °C :	-
Weight on rear axle:	8.2 tonnes
Tested by :	C.Brown, C.Robertson

Project No :	2-68015.00
Lab Ref No :	HA6447c
Client Ref :	

Test Results

Location Metres	Deflections (mm) Left WT	Right WT			Comments
10		0.76			
20	1.04				
30		1.16			
40	0.90				
50		1.30			
60	1.16				
70		1.20			
80	1.20				
90		1.00			
100	1.30				
110		1.20			
120	1.00				
	1.29				90 Percentile calculated for all data in columns 1 to 2.

Deflection Statistical Analysis (for all deflections)

Maximum (mm): 1.30 Minimum (mm) : 0.76 Average (mm): 1.10

Note: Results in italics have a difference between Intermediate and Final readings that are greater than 3 (refer TNZ T/1 1977).

Date tested : 14/10/2020
Date reported : 14/10/2020

IANZ Approved Signatory

Designation : *Senior Civil Engineering Technician*
Date : 14/10/2020

ACCREDITED IANZ TESTING LABORATORY

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F3.1 BASECOURSE SHAPE AND RELATIVE HEIGHT / ~~CLEGG HAMMER TEST~~ / NDM (CIRCLE ONE TEST)

SUBDIVISION	Greenhill Park	STAGE	12
PLAN NO.	2031	CH FROM	Stage 12 Full/asked
TEST LOCATION	Top Basecourse	ROAD NAME/NUMBER	37 & 39.
CONTRACTOR	Online Contractors	DATE	14/10/20

CH	1.0M FROM K&C (L)	CENTRELINE	1.0M FROM K&C (R)	KERB SIDE WHEEL TRACKS	
				LEFT	RIGHT
Rd 39 540	235	235	230		
530	235	230	230		
510	230	230	240		
500	230	235	240		
490	235	230	230		
480	230	230	230		
470	235	230	230		
460	230	235	240		
Rd 37 460	230	235	230		
450	240	230	240		
440	235	230	235		
430	235	235	240		
420	240	240	240		
410	235	235	235		
400	235	240	240		
390	240	235	235		
380	240	230	235		
370	240	235	240		
360	235	240	235		
350	240	235	240		

Pavement design 200mm basecourse & 30mm AC
∴ Target 230mm ± - Single crossfall roads

F3.1 BASECOURSE SHAPE AND RELATIVE HEIGHT / ~~CLEGG HAMMER TEST / NDM~~ (CIRCLE ONE TEST)

SUBDIVISION	Greenhill Park	STAGE	12
PLAN NO.	2081	CH FROM	Stage 12
TEST LOCATION	Top Basecourse	ROAD NAME/NUMBER	Rd 38
CONTRACTOR	Online Contractors	DATE	14/10/20

CH	1.0M FROM K&C (L)	CENTRELINE	1.0M FROM K&C (R)	KERB SIDE WHEEL TRACKS	
				LEFT	RIGHT
Rd 38 120	240	240	230		
110	235	230	235		
100	240	240	230		
90	240	240	230		
80	235	235	225		
70	230	230	230		
60	240	235	235		
50	235	235	230		
40	230	225	230		
30	235	230	230		
20	235	235	235		
10	230	230	225		

Pavement design - 200mm basecourse & 30mm AC
∴ Target 230mm - Single coat all roads.

Kurt Uttinger

From: Jonathon Brooke <Jonathon.Brooke@hcc.govt.nz>
Sent: Wednesday, 3 October 2018 9:11 AM
To: Chris Roper
Subject: RE: Greenhill Area M pavements

Hi Chris,

Happy with the proposed changes.

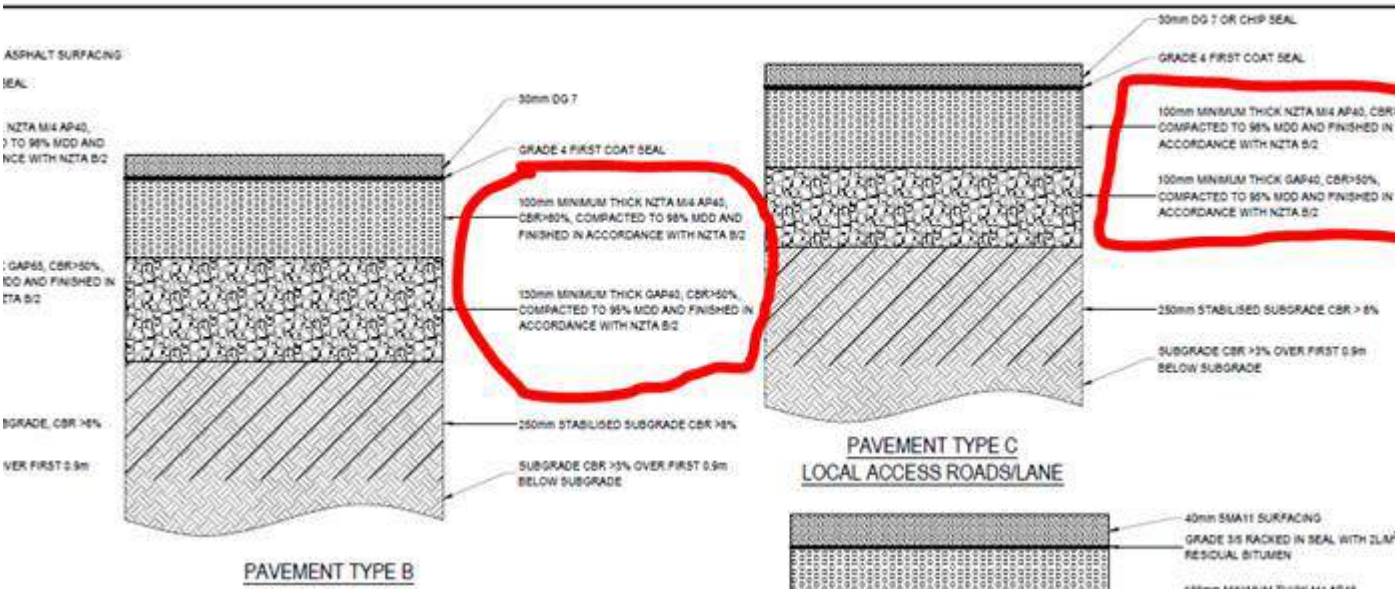
Cheers,
JB

From: Chris Roper <croper@sltga.co.nz>
Sent: Tuesday, 2 October 2018 7:25 PM
To: Jonathon Brooke <Jonathon.Brooke@hcc.govt.nz>
Subject: Greenhill Area M pavements

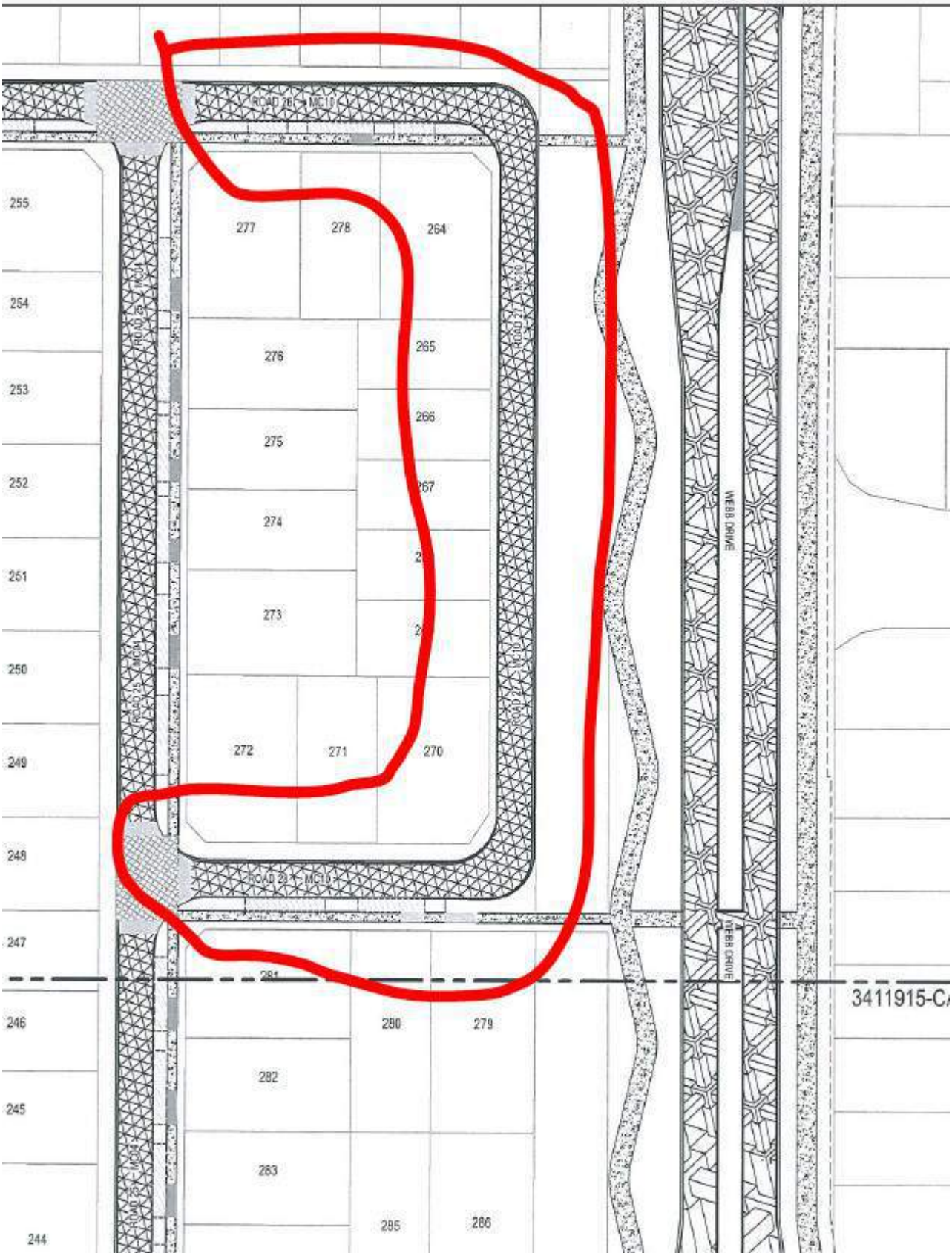
Hi JB

Area M pavements

Can we combine these to single layer TNZAP40 within area M?



Is there a possibility of using 200mm GAP40 within the laneways? Eg Road 27? Similar to Stage 5-7



Cheers

CHRIS ROPER

Surveyor

36 Kereiti St, Mt Maunganui, Tauranga 3116
PO Box 231, Tauranga 3140
07 577 6069 croper@sltga.co.nz
www.sltga.co.nz

Kurt Uttinger

From: Martyn Smith <Martyn.Smith@hcc.govt.nz>
Sent: Thursday, 31 January 2019 4:20 PM
To: Kurt Uttinger
Cc: Tim McBride; Nicholas Fu; Jonathon Brooke
Subject: RE: Greenhill Park Subdivision - Area M Kerb Profiles - Resource Consent # 011.2018.00006632.001
Attachments: 21879 - Greenhill Park - Engineering - Area M Beca Design Drawings- Roading section.pdf; RE: Greenhill Area M pavements

Hi Kurt,

Jonathan and I have discussed these changes and can confirm that these changes are accepted by HCC.

Regards

Martyn Smith
Development Engineer | City Development Unit

DDI: 07 838 6877 | Mob: 021 983 978 | Email: martyn.smith@hcc.govt.nz

Hamilton City Council
Te kaunihera o Kirikiriroa

Hamilton City Council | Private Bag 3010 | Hamilton 3240 | www.hamilton.govt.nz

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From: Kurt Uttinger <kuttinger@sltga.co.nz>
Sent: Thursday, 31 January 2019 3:07 PM
To: Martyn Smith <Martyn.Smith@hcc.govt.nz>
Cc: Tim McBride <tmcbride@sltga.co.nz>; Nicholas Fu <nfu@sltga.co.nz>
Subject: Greenhill Park Subdivision - Area M Kerb Profiles - Resource Consent # 011.2018.00006632.001

Hi Martyn,

Further to discussions with Chris Roper last year (I have taken over his role on the project), regarding the changes to the kerb profiles in Area M of the Greenhill Park subdivision, see attached marked up drawings showing the proposed changes.

Key points to note are:

- Ref drg # 2071 Section 2 and 3 and drg # 2065 Section 3 – On single crossfall roads, flush footpaths have been removed and replaced with mountable kerbs to delineate carpark/road with footpath level.

- Reg drg # 2071 Section 1 and drg # 2065 Section 1– On double crossfall roads, vertical kerb and channel will be used at garden/road interface as per previous stages for simplicity of construction (depressed kerb and channel as shown on drg # 2070 will run along carpark between carpark and road).
- Ref drg # 2065 section # 4 – A vertical nib kerb is proposed to run between the car parks and footpath along road 20/Popham Rd adjoining swale drain – Changed from mountable kerb – There are no driveways along this side of Road 20/Popham Rd
- Ref drg # 2085 – Pavement type B and C – Subbase and basecourse combined with TNZ M4 AP40 material as previously agreed with JB (email attached).

Other minor markups included on the attached drawing #s 2020, 2021, 2022, 2024, 2025, 2038, 2065, 2070, 2071 and 2085 for consistency with above.

I will following this up with a phone call to discuss.

Please can you confirm if these changes are acceptable to HCC.

Regards,

KURT UTTINGER
Engineer

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07 577 6069 022 3209 229
kuttinger@sltga.co.nz
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APPENDIX 2(c)

Roading QA Documentation

Surfacing & RAMM Data

- HCC pavement RAMM data
- Surfacing RAMM data

F3.9 RAMM PAVEMENT DATA

(to be completed for each road section)

Subdivision	Greenhill Park - Stage 12		
Road No / Name	Road 37 - Couldsack Avenue		
Start m	CH 350	Start Description	Stage 15 boundary
End m	CH 460	End Description	Road 39
Width	5.5m		

Basecourse

Date Completed	12/10/2020
Thickness	200mm
Grading	GAP40
Quarry	Stevensons Tauhei

Sub-Base

Date Completed	N/A
Thickness	
Grading	
Quarry	

Undercut / Imported Subgrade (If Required)

Whole Site	Yes / ~~No~~
Length	110m
Width	6.5m
Depth	500mm
Backfill Material	Hard brown rock

Subgrade

CBR Without Stabilisation	15
Material	
Stabilised?	No / ~~Cement~~ / ~~Lime~~
% Stabilising Agent	
Stabilised Depth	
Stabilised CBR	

F3.9 RAMM PAVEMENT DATA

(to be completed for each road section)

Subdivision	Greenhill Park - Stage 12		
Road No / Name	Road 38		
Start m	CH 10	Start Description	Intersection with road 39
End m	CH 130	End Description	Stage 12/15 boundary
Width	5.5m		

Basecourse

Date Completed	12/10/2020
Thickness	200mm
Grading	GAP40
Quarry	Stevensons Tauhei

Sub-Base

Date Completed	N/A
Thickness	
Grading	
Quarry	

Undercut / Imported Subgrade (If Required)

Whole Site	Yes / ~~No~~
Length	120m
Width	5.5m
Depth	500mm
Backfill Material	Hard brown rock

Subgrade

CBR Without Stabilisation	15
Material	
Stabilised?	No / ~~Cement~~ / ~~Lime~~
% Stabilising Agent	
Stabilised Depth	
Stabilised CBR	

F3.9 RAMM PAVEMENT DATA

(to be completed for each road section)

Subdivision	Greenhill Park - Stage 12		
Road No / Name	39		
Start m	CH 460	Start Description	Road 37 intersection
End m	CH 530	End Description	Stage 11/12 boundary
Width	5.5m		

Basecourse

Date Completed	12/10/2020
Thickness	200mm
Grading	GAP40
Quarry	Stevensons Tauhei

Sub-Base

Date Completed	N/A
Thickness	
Grading	
Quarry	

Undercut / Imported Subgrade (If Required)

Whole Site	Yes / ~~No~~
Length	70m
Width	5.5m
Depth	500mm
Backfill Material	Hard brown rock

Subgrade

CBR Without Stabilisation	15
Material	
Stabilised?	No / ~~Cement~~ / ~~Lime~~
% Stabilising Agent	
Stabilised Depth	
Stabilised CBR	

F3.8 RAMM CHIPSEAL DATA

(to be completed for each seal layer on each road section)

Subdivision: Green Hill Stage 12.

Road No / Name:

Start m: Start Description:

End m: End Description:

Width:

Contractor: Higgins

Date of Work: 16-10-20

Seal Type (circle one): (1 Coat) / Racked in Chipseal / 2 Coat / Other:

Seal Reason: Waterproofing First Coat / Second Coat / (Asphalt Membrane)

Area Sealed (m²): 1616m²

Chip Grading (e.g. 3/5): G4

Binder Type (e.g. B180/200): CRS2 - Emulsion

Chip Source Company: J Swap.

Chip Source Quarry: Tauranga Quarry

Total Volume of Binder Used (Hot) (Litres): 1900 litres

Temperature of Binder (°C): 85°

Residual Binder Rate (L/m²): 1.0L/m²

Cutter (e.g. 3 pph Kero): -

Other Additives with concentrations (e.g. Polymer modification RS1, 3%): -

Sealing Notes (e.g. Weather, Temp):

Surfacing Chip PSV testing form attached ☐

F3.7 RAMM ASPHALT DATA

(to be completed for each seal layer on each road section)

Subdivision: Green Hill stage 12

Road No / Name:

Start m: Start Description:

End m: End Description:

Width:

Contractor: Higgins

Date of Work: 16/10/20

Asphalt Type (circle one): (AC) / OGPA / SMA / Other

Grading (e.g. M/10 DG10): DG7

Area Surfaced (m²): 1616m²

Average thickness (mm): 30mm

Laying Temperature (°C): 149

Tack Coat Residual Application Rate (L/m²): 1.0L/m²

Additional Notes (e.g. Weather, Temp, Polymer Modification):

APPENDIX 3

Water Construction QA Documentation

- Pipe Laying Checklists F6.2
- Final Inspection Checklist F6.3
- Laboratory Water Test Results
- Pressure Test Results

Waikato Local Authority SHARED SERVICES

WATER SUPPLY PIPE LAYING CHECKLIST

SITE ADDRESS: GREENHILL PARK STAGE 12

NAME OF DEVELOPER: CHEDWORTH PROPERTIES LTD

NAME OF QUALIFIED WATER SERVICE PERSON: JOSEPH WAITERE

Location: Pipe length *(Intersection to Intersection and side)*						
	FROM	LOT 333 150mm	LOT 341 63mm	LOT 327 150mm		
	TO	LOT 340 125m	LOT 356 260m	LOT 332 80m		
		Tick if satisfactory	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory
Pipe size, pressure rating, material, acceptable products checked *(attach photo of manufacturer's stamp on pipe)*		✔	✔	✔		
Foundation support attached						
Dynamic cone penetrometer (DCP) results available						
If under-cutting required, note metreage and DCP:						
Bedding type and backfill material *(DCP results for road crossings and driveways attached?)* YES ☐ NO ☐		SAND	SAND	SAND		
Valves and hydrants not in carriageway		✔	✔	✔		
Alignment and cover		✔	✔	✔		
All service connections in place *(Table of water meter and backflow preventor numbers with corresponding lot numbers attached?)* YES ☐ NO ☑		✔	✔	✔		
Connections and Toby Box correctly located horizontally and vertically *(as per standard drawings)*		✔	✔	✔		
Hydrants and valves positioned correctly *(as per standard drawings)*		✔	✔	✔		
Thrust blocks installed		✔	✔	✔		
Pipelines flushed		✔	✔	✔		
As-built measurements taken prior to backfill		✔	✔	✔		
Pressure test witnessed and passed by Council representative		✔	✔	✔		

	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory
Bacto sample taken and passed by Council representative PRIOR to connection to the live Council main	✔	✔	✔		
Connection to live main by Council *(unless specifically approved)*	✔	✔	✔		

Main left charged at FAC level of _____ ppm

ONLINE CONTRACTORS 2016 LTD

22/10/20

Developer/Contractor's name *(please print)*	**Developer/Contractor's signature**	**Date signed**

Council Representative's name *(please print)*	**Council Representative's signature**	**Date signed**

F6.3 WATER RETICULATION FINAL INSPECTION CHECKLIST

Site/Location: Greenhill Park - Stage 12	
Developer/Contractor: Chedworth Properties Limited/Online Contractors	
SUB _____ / _____	**Contract No:** 30378

Pre-Meeting Tasks

Developer to verify prior to meeting:	Developer Check	Council Rep Check
21. All lines flushed out	☒	☐
22. All backfilling complete and reinstated	☒	☐
23. Form 6.1 completed	☒	☐
24. Form 6.2 completed	☒	☐
25. Final as-built plans attached for site inspection	☒	☐
26. Connected to existing supply by Council (refer Form 6.2)	☒	☐

Site Meeting

27. Valves and hydrants correctly marked (Refer drawings D6.2 & D6.4 for indicator posts)	☒	☐
28. Pavement markers in place	☒	☐
29. Fire hydrant lids painted	☒	☐
30. Boxes installed correctly (Refer drawings D6.2 & D6.3)	☒	☐
31. All valves checked on/off	☒	☐

Remedial work required? ☐ Yes (please list) ☒ No

Developer/Contractor Chedworth Properties **Council Rep** _____
Date: 22/10/2020 **Date:** _____

Location

Location

Complete

Score	0%	Failed items	0	Actions	0

Location	Chedworth, Hamilton 3210, New Zealand Stage 12 (-37.7510373, 175.2848774)
Conducted on	7th Sep, 2020 11:47 AM NZST
Test type	Water pressure test
Pipe type	150mm - PN12 - mPVC S2 63mm - PN12 - mdpe
MH # tested	Nil
MH # to MH #	Nil

Tested by

Tyler
7th Sep, 2020 11:50 AM NZST

Inspector/Auditor	Lance Parkes

Comments

Stage 12

Photos


Photo 1


Photo 2


Photo 3


Photo 4

Pass/Fail	Pass

Appendix

Photo 1

Photo 2

Photo 3

Photo 4

Kurt Uttinger

From: Lance Parkes <Lance.Parkes@hcc.govt.nz>
Sent: Monday, 14 September 2020 4:31 AM
To: Dan Hopper; Kurt Uttinger
Cc: Martyn Smith; Development QAinspections; Lance Parkes
Subject: Greenhill Stage 12 bacteria water sample results

Morning,

Here are the passed bacteria test results for Greenhill Stage 12 water.

Cheers

Lance Parkes
Development Engineer/Auditor – City Development
DDI: 07 838 6912 | Mob: 021 367 828 | Email: lance.parkes@hcc.govt.nz

Please consider the environment before printing this e-mail

Hi there,

Here are the micro test results for the samples brought in on 10/09/20 by Lance:

Date	Location	Total coliforms (MPN/100mL)	E.coli (MPN/100mL)	Heterotrophic Plate count (cfu/mL)
10/09/20 @10:00	Greenhill Road 30 Lot 345 63mm – bottle 1	<1	<1	est 2
10/09/20 @10:00	Greenhill Road 30 Lot 336 150mm – bottle 2	<1	<1	est <1
10/09/20 @10:10	Greenhill Road 39 Lot 331 150mm- bottle 3	<1	<1	est 2
10/09/20 @10:15	Greenhill Road 37 Lot 353 63mm – bottle 4	<1	<1	est <1

Samples were confirmed on delivery as taken from points **NOT CONNECTED** to the HCC water supply.

For your information:

- Presence of e.coli could indicate faecal contamination.
- Presence of total coliforms indicates contamination, not necessarily faecal.
- cfu/mL = colony forming units per mL of sample

- Plate counts of <20 cfu/mL are generally acceptable; plate counts of >100 cfu/mL indicate non-specific contamination.

Kind regards,

Laboratory Team
Sampling & Analysis Shared Services

APPENDIX 4

Wastewater Construction and QA Records

- Wastewater Pipe Laying Checklist F5.2
- Wastewater Manhole Checklist F5.3
- Wastewater trench Backfill Summary Checklist F5.4
- Wastewater Final Inspection Checklist F5.6
- Pressure Test Results
- CCTV submission email

F5.4 WASTEWATER TRENCH BACKFILL COMPACTION TEST SUMMARY (ATTACH INDIVIDUAL TEST REPORTS)

Technician Carrying out Tests:	West Construction		
Location:	GHP Stage 12		
Plan No(s):	CA 2302		
From MH	17.3	to MH	17.2
Acceptance Criteria:	CBR > 15		
Tests by:	West Construction		

(attached)

Analysis of Results

☑ Trench backfill completed satisfactorily

or

☐ Trench backfill requires remedial work as follows:

•

West Construction 2011 — 30/7/20

Developer/Contractor **Date**

F5.4 WASTEWATER TRENCH BACKFILL COMPACTION TEST SUMMARY (ATTACH INDIVIDUAL TEST REPORTS)

Technician Carrying out Tests:	West Construction		
Location:	Greenhill Park Stage 12		
Plan No(s):	CA 2302		
From MH	17.2	to MH	17.1
Acceptance Criteria:	CBR > 15		
Tests by:	West Construction		

(attached)

Analysis of Results

☑ Trench backfill completed satisfactorily

or

☐ Trench backfill requires remedial work as follows:

•

West Construction 2011 — 30/7/20

Developer/Contractor **Date**

F5.4 WASTEWATER TRENCH BACKFILL COMPACTION TEST SUMMARY (ATTACH INDIVIDUAL TEST REPORTS)

Technician Carrying out Tests:	West Construction		
Location:	Greenhill Park Stage 12		
Plan No(s):	CA 2302		
From MH	17.3	to MH	16.1
Acceptance Criteria:	CBR > 15		
Tests by:	West Construction		

(attached)

Analysis of Results

☑ Trench backfill completed satisfactorily

or

☐ Trench backfill requires remedial work as follows:

•

West Construction 2011 — 20/7/20

Developer/Contractor **Date**

WEST CONSTRUCTION

CLEGG HAMMER RESULT SHEET

TESTED BY: West Construction

DATE: 27–30/7/20

PROJECT NAME: GHP STG 12

Chainage	L	C	R	Remarks
SSMH 17.3	0.5–1.5	1.5–Ex RL		
0	344444444	344444444		Filled to ExRL levels not 700UC
15	334444444	334444444		"
30	344444444	344444444		"
45	344444444	334444444		"
SSMH 17.2	0.5–0.8 Sand → Rock to FL			OSM Rock over insitu Sand
0	NA			"
15	|			"
30	|			"
45	|			"
60	|			"
75	|			"
90	|			"
SSMH 17.1				"
SSMH 17.3	0.5–1.5	1.5–FL UC		Insitu Sand whole length
0	344434444	344444444		"
15	334444444	344444444		"
30	344444444	344344444		"
45	344444444	334444454		"
60	334444544	344444444		"
75	344344444	344444444		"
90	444444444	344444444		"
SSMH 16.1				

F5.2 WASTEWATER PIPE LAYING CHECKLIST

Engineering plan number(s): CA 2302					
Name of certified drainlayer: Ray Wooston					
Location: Pipe length (MH To MH)	2 to 2	2 to 3	3 to 4	to	to
	17 17	17 17	17 16		

Pipe Laying Checks

Trench Safety (d) Shield (e) Batter (f) Other	☑ ☐ ☐	☑ ☐ ☐	☑ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
Pipe size, quality, manufacturer, on acceptable products list	☑	☑	☑	☐	☐
Set out – Surveyors name S&L – Set out checked	☑ ☑	☑ ☑	☑ ☑	☐ ☐	☐ ☐
Foundation support attached – Dynamic cone penetrometer (DCP) results – if under cutting required, note metreage and DCP results.	☑ ☐	☑ ☐	☑ ☐	☐ ☐	☐ ☐
Record daily level check and confirm on grade	☑	☑	☑	☐	☐
Bedding type and surround material: 40/20	☑	☑	☑	☐	☐
Bulk Backfill material: 7 Stone	☑	☑	☑	☐	☐
Bulk backfill compaction (DCP results from pipe to ground level attached)	☐	☑	☑	☐	☐
Alignment – control points identified	☑	☑	☑	☐	☐
Pressure test witnessed and passed by Council representative.	☑	☑	☑	☐	☐

Service connections

All service connections in place, taped, and staked	☑	☑	☑	☐	☐
As-built measurements taken, GPS located	☑	☑	☑	☐	☐
CCTV pipe inspection data and comments supplied	☑	☑	☑	☐	☐

West Construction 2011 — 30/7/20

Developer/Contractor **Date**

F5.3 WASTEWATER MANHOLE CHECKLIST

Engineering Plan Number(s) CA 2302					
Name of certified drainlayer: Ray Woolston					
Location: Pipe length (MH To MH)	17-3 to 17-2	17-2 to 17-1	17-3 to 17-1	to	to
Manhole Construction Checklist	**MH number**				
Manhole size, quality, manufacturer on acceptable materials list	☑	☑	☑	☐	☐
Set out /orientation	☑	☑	☑	☐	☐
Sealing strip between risers	☑	☑	☑	☐	☐
Benching					
• Height	☑	☑	☑	☐	☐
• Alignment and cross section	☑	☑	☑	☐	☐
• Half pipe lining (wastewater only)	☑	☑	☑	☐	☐
• Step recesses (if applicable)	☐	☐	☐	☐	☐
Flexible joints	☑	☑	☑	☐	☐
Cutting and plastering of connections	☑	☑	☑	☐	☐
Access details per drawings (e.g. manhole cover sited over steps).	☑	☑	☑	☐	☐
Step irons including epoxy to outside recesses	☑	☑	☑	☐	☐
Bedding type and surround	☑	☑	☑	☐	☐
Bulk backfill compaction - Dynamic Cone Penetrometer (DCP) results attached	☑	☑	☑	☐	☐
No debris in pipelines	☑	☑	☑	☐	☐
Pipe invert fall through manhole	☑	☑	☑	☐	☐
Pressure test witnessed and passed by Council representative.	☑	☑	☑	☐	☐

West Construction 2011 — **Developer/Contractor**

30/7/20 — **Date**

F5.6 WASTEWATER PIPE NETWORK - FINAL INSPECTION CHECKLIST

Site/Location: Greenhill Park - Stage 12		
Developer/Contractor: Chedworth Properties Ltd/Online Contractors		
SUB _____ / _____ **Contract No:** 30378		
Developer to verify checklist prior to meeting:	**Developer Check**	**Council Rep Check**
6. All checklists completed (add form numbers)	☒	☐
7. All lines flushed out	☒	☐
8. All required CCTV inspections carried out, reviewed and any re-work completed.	☒	☐
9. All manholes checked (eg.infiltration, plastering)	☒	☐
10. All backfilling complete and tidied up	☒	☐
11. Pressure test completed and witnessed	☒	☐
12. Final as-built and operational plans attached for site inspection	☒	☐
Site Meeting		
13. Inspect all lines	☒	☐
14. Inspect all manholes and catchpits	☒	☐
15. Inspect SW inlet and outlet structures	☒	☐
16. Secondary flowpaths and detention ponds	☒	☐
17. Works on third party land completed to satisfaction of owner	N/A ☐	☐
18. Wastewater pumping station data complete and test results (Form F5.7) attached	N/A ☐	☐
19. Overland flow to and from adjoining properties not affected	☒	☐
20. Remedial work required? ☐ Yes (please list) ☒ No		

Chedworth Properties Ltd

Council **Developer**

Location

Location

Complete

Score	0%	Failed items	0	Actions	0
Location				Greenhill Stage 12	
Conducted on				31st Jul, 2020 5:46 AM NZST	
Test type				Wastewater pressure test MH pressure test -	
Pipe type				150mm - SN16 - uPVC 100mm - SN16 - uPVC	
MH # tested				17.2, 17.1, 16.1	
MH # to MH #				16.1 to 17.3 to 17.2 to 17.1	
Tested by					
Ray -- West					
Inspector/Auditor				Lance Parkes	

Comments

MH 17.3 was tested at earlier stage

Photos

Photo 1

Photo 2

Photo 3

Pass/Fail				Pass	

Appendix

Photo 1

Photo 2

Photo 3

Kurt Uttinger

From: Nicholas Fu
Sent: Wednesday, 21 October 2020 4:47 PM
To: Kurt Uttinger
Subject: Document Issue No. 1 - 20-30378-04 - Greenhill Park - STAGE 12
Attachments: 20-30378-04 - Greenhill Park - STAGE 12 - Issue 1.pdf

20-30378-04 - Greenhill Park - STAGE 12 Issue 1

Issued by: Nicholas Fu (Shrimpton and Lipinski Limited Partnership)
On: 21 Oct 2020

Good afternoon,

See attached Greenhill Park Stage 12 SW and WW CCTV for review.

Note that we intend to submit our Greenhill Park stage 12 engineering works completion report to HCC approx. 3rd Nov 2020 for review.

Regards,

Access the documents for this issue

Recipients:

Martyn Smith (Hamilton City Council (Hamilton))
Kurt Uttinger (Shrimpton and Lipinski Limited Partnership (HQ - Tauranga))
Lance Parkes (Hamilton City Council (Hamilton))
Murray Giles (Hamilton City Council (Hamilton))

NICHOLAS FU
Client Principal

S&L
Land Development
and Design Specialists

36 Kereiti Street, Tauranga 3110
PO Box 231, Tauranga 3140
07 577 6069 nfu@sltga.co.nz
www.sltga.co.nz

APPENDIX 5

Stormwater Construction and QA Records

- Stormwater Pipe Laying Checklist F4.11 F5.2
- Stormwater Manhole Checklist F4.12 F5.3
- Trench Backfill Compaction Test Summary F4.13
- Stormwater Backfill Compaction Test Results
- Stormwater Catchpit Checklist F4.14
- Stormwater Final Inspection Checklist F4.6
- CCTV submission email

Waikato Local Authority SHARED SERVICES

STORMWATER PIPE LAYING CHECKLIST

SITE ADDRESS GREENHILL PARK STAGE 12

NAME OF DEVELOPER CHEDWORTH PROPERTIES LTD

ENGINEERING PLAN NUMBER(S) 3411915-CA-2316

NAME OF CERTIFIED DRAINLAYER BEN MAYNE

Location: Pipe length *(MH To MH)* **FROM**	OUTLET 14	SWMH 17.6	SWMH 17.5	SWMH 17.4	SWMH 17.3
TO	SWMH 17.6	SWMH 17.5	SWMH 17.4	SWMH 17.3	SWMH 17.2
	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory
Trench Safety					
(a) Shield	☐	☐	☐	☐	☐
(b) Batter	✔	✔	✔	✔	✔
(c) Other	☐	☐	☐	☐	☐
Pipe size, quality, manufacturer, on acceptable products list	✔	✔	✔	✔	✔
Set out					
Surveyors name: EMIL KARLSSON	✔	✔	✔	✔	✔
Set out checked on:	3/8/20	3/8/20	3/8/20	3/8/20	3/8/20
Foundation support attached	☐	☐	☐	☐	☐
Dynamic cone penetrometer (DCP) results	✔	✔	✔	✔	✔
If under cutting required, note metreage and DCP results:					
Record daily level check and confirm on grade	✔	✔	✔	✔	✔
Bedding type and surround material:	40/20 & SAND	40/20 & SAND	40/20 & SAND	40/20 & SAND	40/20 & SAND
Bulk Backfill material:	SAND & ROCK	SAND & ROCK	SAND & ROCK	SAND & ROCK	SAND & ROCK
Bulk backfill compaction *(DCP results from pipe to ground level attached)*	✔	✔	✔	✔	✔
Alignment – control points identified	☐	☐	☐	☐	☐
Pressure test witnessed and passed by Council representative	☐	☐	☐	☐	☐

Service connections

	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory
All service connections in place, taped, and staked	✔	✔	✔	✔	✔
As-built measurements taken, GPS located	✔	✔	✔	✔	✔
CCTV pipe inspection data and comments supplied	✔	✔	✔	✔	

ONLINE CONTRACTORS 2016 LTD

22/10/20

Developer/Contractor's name *(please print)*	**Developer/Contractor's signature**	**Date signed**

Waikato Local Authority SHARED SERVICES

STORMWATER PIPE LAYING CHECKLIST

SITE ADDRESS GREENHILL PARK STAGE 12

NAME OF DEVELOPER CHEDWORTH PROPERTIES LTD

ENGINEERING PLAN NUMBER(S) 3411915-CA-2316

NAME OF CERTIFIED DRAINLAYER BEN MAYNE

Location: Pipe length *(MH To MH)*	**FROM**	SWMH 17.2	SWMH 17.5	SWMH 17.5		
	TO	SWMH 17.1	SWMH 18.1	SWMH 17.4		
		Tick if satisfactory	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory
Trench Safety						
(a) Shield						
(b) Batter		✔	✔			
(c) Other						
Pipe size, quality, manufacturer, on acceptable products list		✔	✔			
Set out						
Surveyors name: EMIL KARLSSON		✔	✔			
Set out checked on:		3/8/20	3/8/20	3/8/20	3/8/20	3/8/20
Foundation support attached						
Dynamic cone penetrometer (DCP) results		✔	✔			
If under cutting required, note metreage and DCP results:						
Record daily level check and confirm on grade		✔	✔			
Bedding type and surround material:		40/20 & SAND	40/20 & SAND	40/20 & SAND	40/20 & SAND	40/20 & SAND
Bulk Backfill material:		SAND & ROCK	SAND & ROCK	SAND & ROCK	SAND & ROCK	SAND & ROCK
Bulk backfill compaction *(DCP results from pipe to ground level attached)*		✔	✔			
Alignment – control points identified		✔	✔			
Pressure test witnessed and passed by Council representative						

Service connections

	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory
All service connections in place, taped, and staked	✔	✔			
As-built measurements taken, GPS located	✔	✔			
CCTV pipe inspection data and comments supplied	✔	✔			

ONLINE CONTRACTORS 2016 LTD

22/10/20

Developer/Contractor's name *(please print)*	**Developer/Contractor's signature**	**Date signed**

Waikato Local Authority SHARED SERVICES

STORMWATER MANHOLE CONSTRUCTION CHECKLIST

SITE ADDRESS GREENHILL PARK STAGE 12

DEVELOPER / CONTRACTOR ONLINE CONTRACTORS 2016 LTD

ENGINEERING PLAN NUMBER(S) 3411915-CA-2302

NAME OF CERTIFIED DRAINLAYER BEN MAYNE

Location: Manhole *(MH number)*	SWMH 17.6	SWMH 17.5	SWMH 18.1	SWMH 17.3	SWMH 17.2
	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory
Manhole size, quality, manufacturer on acceptable materials list	✔	✔	✔	✔	✔
Set out /orientation	✔	✔	✔	✔	✔
Sealing strip between risers	✔	✔	✔	✔	✔
Benching:					
• Height	✔	✔	✔	✔	✔
• Alignment and cross section	✔	✔	✔	✔	✔
• Step recesses *(if applicable)*	✔	✔	✔	✔	✔
Flexible joints	✔	✔	✔	✔	✔
Cutting and plastering of connections	✔	✔	✔	✔	✔
Access details per drawings *(e.g. manhole cover sited over steps)*	✔	✔	✔	✔	✔
Step irons accepted manufacturer & fixed correctly	✔	✔	✔	✔	✔
Bedding type and surround	✔	✔	✔	✔	✔
Bulk backfill compaction - Dynamic Cone Penetrometer (DCP) results attached	✔	✔	✔	✔	✔
No debris in pipelines	✔	✔	✔	✔	✔
Pipe invert fall through manhole	✔	✔	✔	✔	✔

ONLINE CONTRACTORS 2016 LTD

Developer/Contractor's name *(please print)*

Developer/Contractor's signature

22/10/20

Date signed

Waikato Local Authority SHARED SERVICES

STORMWATER MANHOLE CONSTRUCTION CHECKLIST

SITE ADDRESS GREENHILL PARK STAGE 12

DEVELOPER / CONTRACTOR ONLINE CONTRACTORS 2016 LTD

ENGINEERING PLAN NUMBER(S) 3411915-CA-23002

NAME OF CERTIFIED DRAINLAYER BEN MAYNE

Location: Manhole *(MH number)*	SWMH 17.1	LOT 356 260m	LOT 327 150mm	LOT 332 80m	
	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory	Tick if satisfactory
Manhole size, quality, manufacturer on acceptable materials list	✔				
Set out /orientation	✔				
Sealing strip between risers	✔				
Benching:					
• Height	✔				
• Alignment and cross section	✔				
• Step recesses *(if applicable)*	✔				
Flexible joints	✔				
Cutting and plastering of connections	✔				
Access details per drawings *(e.g. manhole cover sited over steps)*	✔				
Step irons accepted manufacturer & fixed correctly	✔				
Bedding type and surround	✔				
Bulk backfill compaction - Dynamic Cone Penetrometer (DCP) results attached	✔				
No debris in pipelines	✔				
Pipe invert fall through manhole	✔				

ONLINE CONTRACTORS 2016 LTD

22/10/20

Developer/Contractor's name *(please print)*

Developer/Contractor's signature

Date signed

ONLINE CONTRACTORS

P O Box 21187, Rototuna
Hamilton, 3256
Email: Todd@onlinecontractors.co.nz
Ph: 07 853 9422

COMPACTION - CLEGG TESTS

Contract	**GHP Stage 12**	**Job No.**	
Site/Chainage	**SW Line 17/18**	**Date**	**25/08/2020**
		Recorded by	**Emil Karlsson**
Material	**Brown rock**		

Chn	1m from kerb - Left	Centre Line	1m from kerb - Right	Notes
10		**22**		**From SWMH17.1 - 17.2**
20		**25**		
30		**27**		
40		**19**		
50		**21**		
10		**19**		**From SWMH17.2 - 17.3**
20		**18**		
30		**22**		
40		**23**		
10		**23**		**From SWMH17.3 - 17.5**
20		**24**		
30		**19**		
40		**17**		
50		**21**		
10		**19**		**From SWMH18.1 - 17.5**
19		**18**		

Source of conversion: Inferred CBR%=0.07(Impact Value)^2/100

Remarks

Waikato Local Authority SHARED SERVICES

STORMWATER TRENCH BACKFILL COMPACTION TEST SUMMARY

(attach individual test reports)

TECHNICIAN CARRYING OUT TESTS Emil Karlsson

TEST LOCATION Green Hill Park Stage 12, SWMH 17.1 to 17.2

PLAN NO(S) 3411915-CA-2316 21879-M-12-SO2	**METREAGE FROM** 0m	**TO** 56.5m

Acceptance Criteria: *(please specify)*

Clegg Impact Value greater than 15

Tests results attached: YES ☑ NO ☐

Analysis of Results

☒ Trench backfill completed satisfactorily

OR

☐ Trench backfill requires remedial work as follows:

CHEDWORTH PROPERTIES LTD

Developer/Contractor's name *(please print)*	**Developer/Contractor's signature**	**Date signed**

Waikato Local Authority SHARED SERVICES

STORMWATER TRENCH BACKFILL COMPACTION TEST SUMMARY

(attach individual test reports)

TECHNICIAN CARRYING OUT TESTS Emil Karlsson

TEST LOCATION Green Hill Park Stage 12, SWMH 17.2 to 17.3

PLAN NO(S) 3411915-CA-2316 21879-M-12-SO2	**METREAGE FROM** 0m	**TO** 48.6m

Acceptance Criteria: *(please specify)*

Clegg Impact Value greater than 15

Tests results attached: YES ☑ NO ☐

Analysis of Results

☒ Trench backfill completed satisfactorily

OR

☐ Trench backfill requires remedial work as follows:

CHEDWORTH PROPERTIES LTD

Developer/Contractor's name *(please print)*	**Developer/Contractor's signature**	**Date signed**

Waikato Local Authority SHARED SERVICES

STORMWATER TRENCH BACKFILL COMPACTION TEST SUMMARY

(attach individual test reports)

TECHNICIAN CARRYING OUT TESTS Emil Karlsson

TEST LOCATION Green Hill Park Stage 12, SWMH 17.3 to 17.5

PLAN NO(S) 3411915-CA-2316 21879-M-12-SO2	**METREAGE FROM** 0m	**TO** 55m

Acceptance Criteria: *(please specify)*

Clegg Impact Value greater than 15

Tests results attached: YES ☑ NO ☐

Analysis of Results

☒ Trench backfill completed satisfactorily

OR

☐ Trench backfill requires remedial work as follows:

CHEDWORTH PROPERTIES LTD

Developer/Contractor's name *(please print)*	**Developer/Contractor's signature**	**Date signed**

Waikato Local Authority SHARED SERVICES

STORMWATER TRENCH BACKFILL COMPACTION TEST SUMMARY

(attach individual test reports)

TECHNICIAN CARRYING OUT TESTS Emil Karlsson

TEST LOCATION Green Hill Park Stage 12, SWMH 17.5 to 17.6

PLAN NO(S) 3411915-CA-2316 21879-M-12-SO2	**METREAGE FROM** 0m	**TO** 38.6m

Acceptance Criteria: *(please specify)*

Scalar Penetrometer, no less than 3 blows per 100mm or 9 blows over 300mm.

Tests results attached: YES ☑ NO ☐

Analysis of Results

☒ Trench backfill completed satisfactorily

OR

☐ Trench backfill requires remedial work as follows:

CHEDWORTH PROPERTIES LTD

Developer/Contractor's name *(please print)*	**Developer/Contractor's signature**	**Date signed**

Waikato Local Authority SHARED SERVICES

STORMWATER TRENCH BACKFILL COMPACTION TEST SUMMARY

(attach individual test reports)

TECHNICIAN CARRYING OUT TESTS Emil Karlsson

TEST LOCATION Green Hill Park Stage 12, SWMH 17.6 to SWOUT 14

PLAN NO(S) 3411915-CA-2316 21879-M-12-SO2	**METREAGE FROM** 0m	**TO** 2.4m

Acceptance Criteria: *(please specify)*

Clegg Impact Value greater than 15

Tests results attached: YES ☑ NO ☐

Analysis of Results

☒ Trench backfill completed satisfactorily

OR

☐ Trench backfill requires remedial work as follows:

CHEDWORTH PROPERTIES LTD

Developer/Contractor's name *(please print)*	**Developer/Contractor's signature**	**Date signed**

Waikato Local Authority SHARED SERVICES

STORMWATER TRENCH BACKFILL COMPACTION TEST SUMMARY

(attach individual test reports)

TECHNICIAN CARRYING OUT TESTS Emil Karlsson

TEST LOCATION Green Hill Park Stage 12, SWMH 18.1 to 17.5

PLAN NO(S) 3411915-CA-2316 21879-M-12-SO2	**METREAGE FROM** 0m	**TO** 21.8m

Acceptance Criteria: *(please specify)*

Clegg Impact Value greater than 15

Tests results attached: YES ☑ NO ☐

Analysis of Results

☒ Trench backfill completed satisfactorily

OR

☐ Trench backfill requires remedial work as follows:

CHEDWORTH PROPERTIES LTD

Developer/Contractor's name *(please print)*	**Developer/Contractor's signature**	**Date signed**

STORMWATER CATCHPIT CONSTRUCTION CHECKLIST

LOCATION: GREENHILL PARK STAGE 12

CATCHPIT NUMBER	DCP105	DCP106	DCPSP 25	CPSP24	CPSP23
Catchpit , type, size, quality, accepted material checked	✔	✔	✔	✔	✔
Set out /orientation	✔	✔	✔	✔	✔
Location checked	✔	✔	✔	✔	✔
Depth of sump below outlet correct	✔	✔	✔	✔	✔
Cutting and plastering of outlet connection	✔	✔	✔	✔	✔
Floating debris baffle installed correctly	✔	✔	✔	✔	✔
Backfill compaction around pit checked	✔	✔	✔	✔	✔
Seating and plastering of surround and grate to sump barrel	✔	✔	✔	✔	✔
All silt and debris removed from sump	✔	✔	✔	✔	✔

ONLINE CONTRACTORS 2016 LTD

22/10/20

Developer/Contractor's name *(please print)*

Developer/Contractor's signature

Date signed

STORMWATER CATCHPIT CONSTRUCTION CHECKLIST

LOCATION: GREENHILL PARK STAGE 12

CATCHPIT NUMBER	DCP104	CP102	CP103	SAND	SAND
Catchpit , type, size, quality, accepted material checked	✔	✔	✔		
Set out /orientation	✔	✔	✔		
Location checked	✔	✔	✔		
Depth of sump below outlet correct	✔	✔	✔		
Cutting and plastering of outlet connection	✔	✔	✔		
Floating debris baffle installed correctly	✔	✔	✔		
Backfill compaction around pit checked	✔	✔	✔		
Seating and plastering of surround and grate to sump barrel	✔	✔	✔		
All silt and debris removed from sump	✔	✔	✔		

ONLINE CONTRACTORS 2016 LTD

22/10/20

Developer/Contractor's name *(please print)*

Developer/Contractor's signature

Date signed

F4.2 STORMWATER PIPE LAYING CHECKLIST

Engineering plan number(s): 3411915-CA-2303					
Name of certified drainlayer: Zane Milker					
Location: Pipe length (MH To MH)	48 to 47	47 to 46	46 to 45	45 to 44	44 to 43

Pipe Laying Checks

Trench Safety (a) Shield (b) Batter (c) Other	☐ ☑ ☐	☐ ☑ ☐	☐ ☑ ☐	☐ ☑ ☐	☐ ☑ ☐
Pipe size, quality, manufacturer, on acceptable products list	☑	☑	☑	☑	☑
Set out – Surveyors name STL – Set out checked M Olsen	☑ ☑	☑ ☑	☑ ☑	☑ ☑	☑ ☑
Foundation support attached – Dynamic cone penetrometer (DCP) results – if under cutting required, note metreage and DCP results.	☑ ☐	☑ ☐	☑ ☐	☑ ☐	☑ ☐
Record daily level check and confirm on grade	☑	☑	☑	☑	☑
Bedding type and surround material: 40/20 Drainage	☑	☑	☑	☑	☑
Bulk Backfill material: P.Sand/Insitu	☑	☑	☑	☑	☑
Bulk backfill compaction (DCP results from pipe to ground level attached)	☑	☑	☑	☑	☑
Alignment – control points identified	☑	☑	☑	☑	☑
Pressure test witnessed and passed by Council representative.	☐	☐	☐	☐	☐

Service connections

All service connections in place, taped, and staked	☑	☐	☐	☐	☐
As-built measurements taken, GPS located	☑	☐	☐	☐	☐
CCTV pipe inspection data and comments supplied	☐	☐	☐	☐	☐

West Construction 2011 LTD — 3/11/20

Developer/Contractor **Date**

F4.2 STORMWATER PIPE LAYING CHECKLIST

Engineering plan number(s): 3411915-CA-2303					
Name of certified drainlayer: Zane Milliken					
Location: Pipe length (MH To MH)	43 to 42	to	to	to	to

Pipe Laying Checks

Trench Safety (a) Shield (b) Batter (c) Other	☐ ☑ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
Pipe size, quality, manufacturer, on acceptable products list	☑	☐	☐	☐	☐
Set out – Surveyors name SJL – Set out checked M Olsen	☑ ☑	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Foundation support attached – Dynamic cone penetrometer (DCP) results – if under cutting required, note metreage and DCP results.	☑ ☑	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Record daily level check and confirm on grade	☑	☐	☐	☐	☐
Bedding type and surround material: 40/20 Drainage	☑	☐	☐	☐	☐
Bulk Backfill material: Dirt and / Insitu	☑	☐	☐	☐	☐
Bulk backfill compaction (DCP results from pipe to ground level attached)	☑	☐	☐	☐	☐
Alignment – control points identified	☑	☐	☐	☐	☐
Pressure test witnessed and passed by Council representative.	☑	☐	☐	☐	☐

Service connections

All service connections in place, taped, and staked	☑	☐	☐	☐	☐
As-built measurements taken, GPS located	☑	☐	☐	☐	☐
CCTV pipe inspection data and comments supplied	☑	☐	☐	☐	☐

West Construction 2011 — 3/11/20

Developer/Contractor **Date**

F4.3 STORMWATER MANHOLE CHECKLIST

Engineering Plan Number(s)	3411915-CA-2303				
Name of certified drainlayer:	Zane Millman				
Location: Pipe length (MH To MH)	4.8	4.7	4.6	4.5	4.3
Manhole Construction Checklist	**MH number**				
Manhole size, quality, manufacturer on acceptable materials list	☑	☑	☑	☑	☑
Set out /orientation	☑	☑	☑	☑	☑
Sealing strip between risers	☑	☑	☑	☑	☑
Benching – Height – alignment and cross section – half pipe lining (wastewater only) – Step recesses (if applicable)	☑☑☑☑	☑☑☑☑	☑☑☑☑	☑☑☑☑	☑☑☑☑
Flexible joints	☑	☑	☑	☑	☑
Cutting and plastering of connections	☑	☑	☑	☑	☑
Access details per drawings (e.g. manhole cover sited over steps).	☑	☑	☑	☑	☑
Step irons including epoxy to outside recesses	☑	☑	☑	☑	☑
Bedding type and surround	☑	☑	☑	☑	☑
Bulk backfill compaction - Dynamic Cone Penetrometer (DCP) results attached	☑	☑	☑	☑	☑
No debris in pipelines	☑	☑	☑	☑	☑
Pipe invert fall through manhole	☑	☑	☑	☑	☑

West Construction 2011 — **Developer/Contractor**

3/11/20 — **Date**

F4.3 STORMWATER MANHOLE CHECKLIST

Engineering Plan Number(s)	3411915-CA-2303				
Name of certified drainlayer:	Zane Milliken				
Location: Pipe length (MH To MH)	4:2				
Manhole Construction Checklist	**MH number**				
Manhole size, quality, manufacturer on acceptable materials list	☑	☐	☐	☐	☐
Set out /orientation	☑	☐	☐	☐	☐
Sealing strip between risers	☑	☐	☐	☐	☐
Benching – Height – alignment and cross section – half pipe lining (wastewater only) – Step recesses (if applicable)	☑☑☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐	☐☐☐☐
Flexible joints	☑	☐	☐	☐	☐
Cutting and plastering of connections	☑	☐	☐	☐	☐
Access details per drawings (e.g. manhole cover sited over steps).	☑	☐	☐	☐	☐
Step irons including epoxy to outside recesses	☑	☐	☐	☐	☐
Bedding type and surround	☑	☐	☐	☐	☐
Bulk backfill compaction - Dynamic Cone Penetrometer (DCP) results attached	☑	☐	☐	☐	☐
No debris in pipelines	☑	☐	☐	☐	☐
Pipe invert fall through manhole	☑	☐	☐	☐	☐

WRST Construction 2011 — 3/11/20

Developer/Contractor **Date**

F4.5 STORMWATER CATCHPIT CHECKLIST

Location: Greenhill Park Stage 12	DCP SP 25	CP SP 24	CP SP 23	CP SP 22	CP SP 17
			Catchpit Number		

Catchpit Construction Checklist

Catchpit , type, size, quality, accepted material checked	☐✓	☐✓	☑	☐✓	☑
Set out /orientation	☐✓	☐	☐✓	☐	☐
Location checked	☑	☑	☐✓	☐	☐
Depth of sump below outlet correct	☑	☑	☐	☐	☐
Cutting and plastering of outlet connection	☐	☐	☐	☐	☐
Floating debris baffle installed correctly	☐	☐	☐	☐	☐
Backfill compaction around pit checked	☐	☐	☐	☐	☐
Seating and plastering of surround and grate to sump barrel	☐	☐	☐	☐	☐
All silt and debris removed from sump	☐	☐	☐	☐	☐

West Construction 2011 — Developer/Contractor

3/11/20 — Date

F4.5 STORMWATER CATCHPIT CHECKLIST

Location: Greenhill Park Stage 12	CP SP 18	CP SP 19	CP SP 20	DCP SP 21	
			Catchpit Number		

Catchpit Construction Checklist

Catchpit , type, size, quality, accepted material checked	☑	☑	☑	☑	☐
Set out /orientation	☑	☑	☑	☑	☐
Location checked	☑	☑	☑	☑	☐
Depth of sump below outlet correct	☑	☑	☑	☑	☐
Cutting and plastering of outlet connection	☑	☑	☑	☑	☐
Floating debris baffle installed correctly	☑	☑	☑	☑	☐
Backfill compaction around pit checked	☑	☑	☑	☑	☐
Seating and plastering of surround and grate to sump barrel	☑	☑	☑	☑	☐
All silt and debris removed from sump	☑	☑	☑	☑	☐

West Construction 2011 — Developer/Contractor

3/11/20 — Date

F4.4 STORMWATER TRENCH BACKFILL COMPACTION TEST SUMMARY

(attach individual test reports)

Technician Carrying out Tests

West Construction

Location: Greenhill Park Stage 12

Plan No(s): 3411915 -CA- 2303

From MH 4.3 to MH 4.2

Acceptance Criteria: Match Existing Dens, 3 blows per 100

Tests by: West Construction (attached)

Analysis of Results

☑ Trench backfill completed satisfactorily or ☐ Trench backfill requires remedial work as follows:

West Construction

Developer/Contractor **Date** 3/11/20

F4.4 STORMWATER TRENCH BACKFILL COMPACTION TEST SUMMARY

(attach individual test reports)

Technician Carrying out Tests
West Construction

Location: Greenhill Park Stage 12

Plan No(s): 3411915-CA-2303

From MH 4.4 to MH 4.3

Acceptance Criteria: Match existing Dens, 3 blows per 100

Tests by: West Construction (attached)

Analysis of Results

☑ Trench backfill completed satisfactorily or ☐ Trench backfill requires remedial work as follows:

West Construction

Developer/Contractor **Date** 3/11/20

F4.4 STORMWATER TRENCH BACKFILL COMPACTION TEST SUMMARY

(attach individual test reports)

Technician Carrying out Tests
West Construction

Location: Greenhill Park Stage 12

Plan No(s): 3411915-CA-2303

From MH 45 to MH 44

Acceptance Criteria: Match existing berm - 3 blows per 100

Tests by: West Construction (attached)

Analysis of Results

☑ Trench backfill completed satisfactorily or ☐ Trench backfill requires remedial work as follows:

West Construction

Developer/Contractor **Date**

F4.4 STORMWATER TRENCH BACKFILL COMPACTION TEST SUMMARY

(attach individual test reports)

Technician Carrying out Tests

West Construction

Location: Greenhill Park Stage 12

Plan No(s): 34119115 - CA - 2303

From MH 4.6 to MH 4.5

Acceptance Criteria: Match existing berm, 3 blows per 100

Tests by: West Construction (attached)

Analysis of Results

☑ Trench backfill completed satisfactorily or ☐ Trench backfill requires remedial work as follows:

West Construction 2011

Developer/Contractor **Date** 3/11/20

F4.4 STORMWATER TRENCH BACKFILL COMPACTION TEST SUMMARY

(attach individual test reports)

Technician Carrying out Tests

West Construction

Location: Greenhill Park Stage 12

Plan No(s): 3411915-CA+ 2303

From MH 4.7 to MH 4.6

Acceptance Criteria: Match existing berm, 3 blows per 100

Tests by: West Construction (attached)

Analysis of Results

☑ Trench backfill completed satisfactorily or ☐ Trench backfill requires remedial work as follows:

West Construction 2021

Developer/Contractor **Date** 3/11/20

F4.4 STORMWATER TRENCH BACKFILL COMPACTION TEST SUMMARY

(attach individual test reports)

Technician Carrying out Tests

West Construction 2011

Location: Greenhill Park Stage 12

Plan No(s): 3411915 - CA - 2303

From MH 4.8 to MH 4.7

Acceptance Criteria: Match berm results, 3 blows per 100

Tests by: West Construction (attached)

Analysis of Results

☑ Trench backfill completed satisfactorily or ☐ Trench backfill requires remedial work as follows:

West Construction

Developer/Contractor **Date** 3/11/20

F4.6 STORMWATER PIPE NETWORK - FINAL INSPECTION CHECKLIST

Site/Location: Greenhill Park - Stage 12	
Developer/Contractor: Chedworth Properties Ltd/Online Contractors	
SUB _____ / _____	**Contract No:** 30378

PRE-MEETING TASKS

Developer to verify checklist prior to meeting:	**Developer Check**	**Council Rep Check**
1. All relevant stormwater checklists completed	☒	☐
2. All lines flushed out	☒	☐
3. All required CCTV inspections carried out, reviewed and any re-work completed.	☒	☐
4. All manholes checked (eg.infiltration, plastering)	☒	☐
5. All backfilling complete and tidied up	☒	☐
6. Final as-built and operational plans attached for site inspection	☒	☐
SITE MEETING		
1. Inspect all lines	☒	☐
2. Inspect all manholes and catchpits	☒	☐
3. Works on third party land completed to satisfaction of owner	N/A ☐	☐
4. Overland flow to and from adjoining properties not affected	☒	☐
5. Remedial work required? ☐ Yes (please list) ☒ No		

Chedworth Properties Ltd.....
Developer

Date 22/10/2020.....

.....
Council

Date.....

Kurt Uttinger

From: Nicholas Fu
Sent: Wednesday, 21 October 2020 4:47 PM
To: Kurt Uttinger
Subject: Document Issue No. 1 - 20-30378-04 - Greenhill Park - STAGE 12
Attachments: 20-30378-04 - Greenhill Park - STAGE 12 - Issue 1.pdf

20-30378-04 - Greenhill Park - STAGE 12 Issue 1

Issued by: Nicholas Fu (Shrimpton and Lipinski Limited Partnership)
On: 21 Oct 2020

Good afternoon,

See attached Greenhill Park Stage 12 SW and WW CCTV for review.

Note that we intend to submit our Greenhill Park stage 12 engineering works completion report to HCC approx. 3rd Nov 2020 for review.

Regards,

Access the documents for this issue

Recipients:

Martyn Smith (Hamilton City Council (Hamilton))
Kurt Uttinger (Shrimpton and Lipinski Limited Partnership (HQ - Tauranga))
Lance Parkes (Hamilton City Council (Hamilton))
Murray Giles (Hamilton City Council (Hamilton))

NICHOLAS FU
Client Principal

S&L
Land Development
and Design Specialists

36 Kereiti Street, Tauranga 3110
PO Box 231, Tauranga 3140
07 577 6069 nfu@sltga.co.nz
www.sltga.co.nz

APPENDIX 6

Landscaping Certifications

- Landscaping final inspection form requested from HCC

APPENDIX 7

Network Utilities Certifications

- Ultrafast Fibre Completion Letter
- First Gas Completion Letter
- Street Light Product Warranty
- WEL Completion Letter
- Street light Suppliers Declaration of Conformity
- Streetlight Producer Statement
- Streetlight COC & ROI Certificates
- HCC Form Street Light RAMM Data

Ref: S&L Consultants, Surveyors & Engineers – 20413-S12
ID: HN-086-15

0800 342 735
info@ultrafast.co.nz
ultrafastfibre.co.nz

27th of October 2020

ACCEPTANCE BY ULTRAFAST FIBRE LIMITED AS TELECOMMUNICATIONS OPERATOR

Subdivision: Ruakura Residential Stage 12 (30 Lots), Lot 702, DP 534481, Chartwell, Hamilton.

1. Ultrafast Fibre Limited (UFF) confirms that UFF will be the telecommunications operator of the telecommunications reticulation in the proposed public roads for the Ruakura Residential Stage 12 Greenhill Park, Hamilton, Subdivision by Chedworth Properties Ltd. (the "**Subdivision**") Lot 702 &, DP 534481, to provide network connections to Lots 327 through to Lot 356, in the Subdivision (the "**Reticulation**").

2. The Reticulation is now installed in accordance with:

   (a) the requirements and standards set by the Hamilton City Council and advised to UFF via the Council's website; and

   (b) the requirements of the Telecommunications Act 2001 and all other applicable laws, regulations and codes (as amended).

3. The Reticulation has been installed by Broadspectrum Limited to UFF's satisfaction, for the specific subdivision lots detailed on the "final" Scheme Plan as attached, with UFF remaining the owner, operator and maintainer of the Reticulation.
4. The attached "final" Scheme Plan must match your submission to the Hamilton City Council and must have the UFF stamp of 'Approval' accompanied by sign-off. Any additional lots created after initial deployment of multi-duct/fibre infrastructure will be chargeable.
5. One or more retail service providers will be available to supply telecommunications services over the completed Reticulation when service is available, provided that UFF shall not be responsible if the retail service provider's offer to supply such telecommunications services or the number of such providers varies from time to time.

SIGNED for and on behalf of
ULTRAFAST FIBRE LIMITED by:

Signature:

Name: Russell Gibson

Date: 27th of October 2020

SEE SHEET < - >
SEE SHEET < - >
SEE SHEET < A2 >
SEE SHEET < B1 >

Gosset Avenue
Ogilvie Avenue
Guillaume Street
Couldsack Avenue
Letford Road
Athier Ave
Recreation Reserve
MHL-HE0496 12x0.6
HE_95775
FDH
ECOD - 7way
100mm
Trench
Haul

UFF Approved
Subdivision Scheme Plan
Approver: Russell Gibson
Date: 27/10/2020
Signature:

EXISTING

SYMBOL	DESCRIPTION
HE_95000 FDH	FDH CABINET
	DUCT OR MULTIDUCT
100mm	100mmØ DUCT
HE0002	MANHOLE
1 24	MULTIDUCT NUMBER / TYPE
542156	POWER / TELCO POLE

PROPOSED

SYMBOL	DESCRIPTION
	MULTIDUCTS
	HAUL THROUGH EXISTING DUCT
	LATERAL TUBE
	50mm DUCT
	100mm DUCT
	FUTURE RETICULATION
PED50002 (1-24)	PEDESTAL FAT
MAX T500	T500 ACTIVE CABINET
HE_95000 FDH	FDH SPLITTER CABINET
FDT50002	FDT (MINI CABINET)
HE0002	ACCESS CHAMBER/MANHOLE
1 24	MULTIDUCT NUMBER / MULTIDUCT TYPE
FAT50001 144F (1-24)	AERIAL FAT
	LATERAL JOINT
6	DUCT END
HME101: 144F	FIBRE OPTIC CABLE ID/SIZE
1	MICRODUCT TUBE NUMBER
1 24	FAT ALLOCATION
100mm	100mmØ DUCT
	150mmØ x 250mm HANDHOLE
	230mmØ x 305mm HANDHOLE
1	STATE HIGHWAY

NOTES:
1. ALIGNMENT OF INSTALLATION SUBJECT TO EXISTING SERVICES.
2. INSTALLATION OF MAIN DUCT LINE GENERALLY BY DIRECTIONAL DRILLING, TYPICALLY AT MIN. 600mm COVER, ROAD CROSSING AT MIN. 1m COVER IN COUNCIL ROADS.
3. DRILLING ACROSS STATE HIGHWAYS AND RAILWAYS TO BE AT MINIMUM 1.5m DEPTH.
4. INSTALLATION OF LATERAL DUCTS TO BOUNDARIES GENERALLY TO BE OPEN CUT SUBJECT TO EXISTING SERVICES AND POSITION OF PATHS AND SEALED SURFACES.
5. ALL UNDERGROUND UFF NETWORK INSTALLATION SUBJECT TO UFF STANDARDS AS PER DOCUMENT REF. UFF-3-001.
6. INSTALLATION OF FIBRE OPTIC CABLE BLOWN BY COMPRESSED AIR THROUGH DUCT LINES.
7. INSTALLATION OF ALL AERIAL HARDWARE AND ADSS CABLE SUBJECT TO LOCAL POWER BOARD FIBRE OPTIC ATTACHMENT TO ASSETS STANDARD.
8. INSTALLERS ARE REQUIRED TO BE SUITABLY QUALIFIED LINESMEN WITH LOCAL POWER BOARDS CERTIFICATION.

ISSUED FOR CONSTRUCTION

VERSION	DESIGNER	DATE	DESCRIPTION
0.9	SN	16/03/20	DRAFT
1.0	SN	29/07/20	APPROVED

SHEET A1

SCALE	ISSUE	P. SIZE	P. NO.
1:1000	1.0	A3	1 OF 1

ultrafast FIBRE civtec

HAMILTON EAST
HE_95775
GREENHILL PARK STAGE 12
UNDERGROUND LAY PLAN
HN-086-15

PROJ. MANAGER	DESIGNER	APPROVED	GIS RECORDS
L. SMITH	S. NARAYAN	R. GIBSON	E. CORONADO

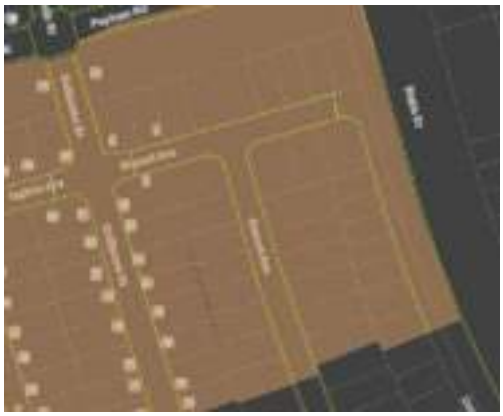
PROJECT NO: 22791 DATE: 16/03/20

Completion Certificate

To:	Chedworth Properties Limited
From:	Paul Bird
Cc:	Kurt Uttinger
Date:	12 October 2020

SUBJECT: Greenhill Park Subdivision – Stage 12

(First Gas Distribution Network)



MESSAGE:

This Completion Certificate confirms that the First Gas Distribution Network installed at the above-mentioned development, has been laid, tested and commissioned in accordance with First Gas Technical Standards and relevant Gas Regulations.

Regards

Paul Bird
Distribution Account Manager

First Gas | Level 6, Resimac House| 45 Johnston St | Wellington | 6011
DDI 04 979 5367 | **M** 027 531 0060 | firstgas.co.nz

Checklist 8.1

WORK CLEARANCE FROM NETWORK OPERATORS

To : **Planning Guidance Manager**
Hamilton City Council

Date: 6 November 2020

Re : **Chedworth Properties Subdivision**
Lots 327, 329-356
Greenhill Park Stage 12, Hamilton

I hereby certify all of the required work in relation to the installation, commissioning and reinstatement of our network services have been satisfactorily completed in this development area.

As built plans have been completed.

Subdivision : Greenhill Park Stage 12, Hamilton - 40057241

Developer's Name : Chedworth Properties

Contractor's Name : ……..

Signed by : ……..
on behalf of WEL Networks Ltd

or

Signed by : ……..
on behalf of Natural Gas Corp of NZ

or

Signed by : ……..
on behalf of Telecom NZ Ltd

(one form required from each network operator)

IBEX 10 Year Limited Warranty – Project Warranty

Date: 06-04-2020

Project: Greenhill Park - Residential Area M, Stage 12 Ref: 7138-00

Issued To: Chedworth Properties Limited

Transfer Provision: Hamilton City Council

a) This limited warranty is provided by Ibex International limited ("Ibex") in relation to the following products;

Luminaire:	Vizulo Mini Stork Lens21 1500 lumens (5 year warranty)
	Vizulo Mini Stork Lens21 2500 lumens (5 year warranty)
	Vizulo Mini Stork (V Category) 9LED 6200 lumens (5 year warranty)
Column:	6m Tapered column with 'Milford' Outreach (10yr Warranty Black paint Finish)
	10m Octagonal Column with double 2m curved Outreach (10yr Warranty Black paint Finish)

b) Ibex warrants to the purchaser that it will deliver the product in new condition in the product's factory packaging. Further, the product will be free of defects in materials and/or workmanship for the warranty period stated.
c) Ibex has sole discretion as to whether any warranty claim shall be valid considering all factors including (without limitation) the operating conditions the product has endured and the overall performance of the product. this warranty is only valid when proof of purchase can be provided and if the product has been operating within New Zealand
d) The warranty period commences from the date of Ibex's invoice or the product's delivery date whichever is the earlier.
e) If Ibex determines that a warranty claim is valid, Ibex will at its sole discretion either refund the purchase price of the product, refund the current market cost of an alternative product, repair the product or replace the product. In case of the repair or replacement the replacement product may not necessary be an identical product but an improved version due to ongoing technological developments and/or supply of original components currently available.
f) Ibex reserve the right to recondition/refurbish any article that is subject to a warranty claim or replace parts with new or used parts in satisfaction of this warranty.

2 - Warranty Exclusions
a) This warranty excludes any costs incurred by the purchaser including (without limitation) equipment hire, labour charges, accommodation charges, transport charges and travel charges.
b) This warranty does not apply to loss or damages to the product caused by one or more of the following:
• Negligence and/or incorrect handling of the product by the buyer, installer, service agent or any other party acting on behalf or for the buyer;
• Improper installation;
• Improper handling;
• the product not being installed or maintained as set out in the installation instruction guide for the product;
• Acts of nature , fire , vandalism;
• Civil disturbances;
• Damages caused by fall or collision

• Installation or operation under environmental conditions beyond the manufacturer's recommendations;
• Power surges;
• Electrical supply fluctuations or faults;
• Mechanical failures as a result of actions not considered by Ibex to be within the normal operating conditions of the product;

Improper service and/or maintenance work carried out by someone not considered by the Ibex as an approved service agent/facilitator; and/or
• any other situation and/or event or circumstance deemed by Ibex as sufficient to render this warranty void.
c) Notwithstanding any other provision of this warranty or any statute or rule of law, to the greatest extent possible Ibex shall have no liability for any costs, damages or other losses directly or indirectly attributable to failure of the product. Further, Ibex shall have no liability for any costs incurred by any party for any maintenance or remedial work.

3 - Product performance
a) Ibex retains the sole discretion to determine whether a product is defective.
b) This warranty shall apply only to the malfunction of products due to defects in material and or workmanship exceeding nominal failure rates. Unless otherwise stipulated in the product and application specifications provided by Ibex, the nominal failure rate for electronic operating devices and components such as LED's shall be set at 0.2% per 1000 operating hours. Furthermore a decrease in luminous flux of up to 0.6% per 1,000 operating hours and colour shift as per the LED Module /chip suppliers technical data information shall be considered normal and is not covered by this warranty.
c) In the event that LED modules/Chips are replaced, lighting properties may vary from the original product.

4 - Warranty Transfers
this warranty may not be transferred to any entity without either the express written consent of Ibex or this being explicitly stated in the cover notes of this document. Ibex may withhold such consent at its sole and absolute discretion.

5 - Warranty Terms and Conditions
a) In the event where a warranty is claimed on a product which is not faulty, Ibex reserves the right to seek compensation from the entity claiming on the warranty for all costs that have been incurred by Ibex including (without limitation) travel, accommodation, costs of access equipment, and third party service agents' costs.
b) The warranty terms are those specified in wiring in this warranty document only.
c) Ibex's warranty is a back-to-base warranty. Ibex shall bear no responsibility of any charges incurred by any entity for transport of the product to Ibex and/or from Ibex to the warranty claimant.
d) Labour and Service charge incurred by Ibex in repairing / refurbishing any product are not covered in this warranty.
e) The warranty shall be void if the product has been tampered with or parts replaced by personnel that have not be previously authorised by Ibex in writing.
Ibex reserves the right to modify this warranty at any time without prior notification and the new warranty terms shall be valid for all orders placed with the Ibex on or after the new issue date, from the date that the new warranty terms are posted on Ibex's website.

15 October 2020 Ref: 7138

PRODUCER STATEMENT FOR STREET LIGHTING

Project: Greenhill Park – Residential Area M Stage 12

Location: Roads 37, 38 and 39 Greenhill Park, Hamilton.

The lighting for this Project has been designed to comply with the New Zealand standard AS/NZS1158.3.1.2020 for PR4 and PR5 using Perfectlite and AGI32 lighting design software and in conjunction with the Taupo District Council Code of Practice requirements

Product The P Category luminaires are Mini Stork 4 LED Optic P, 3000K, and the lighting columns and outreach arms are manufactured from steel which is hot dipped galvanised after fabrication and then coated with a 10 year warranty paint finish

Lifetime The luminaire have an economic life of 15-20 years where normal maintenance is carried out. The pole and outreach have an economic life of 40 years.

Yours Faithfully
IBEX INTERNATIONAL LIMITED

MERRITT STRICKETT
Account Manager - Roadway
M +64 21 220 1291 T +64 9 915 1083
merritts@ibexlighting.com
IBEXLIGHTING.COM

F3.10 RAMM STREETLIGHT DATA

(to be completed for each change in streetlight type)

Subdivision and stage/Contract: Greenhill Park Area M stage 12

Number of street lights of this type: 3

General

Date Installed: 6-10-2020

Control Type: Network Streetlight Feed / (Photocell) / Other:

Origin of Power Supply: (Streetlight Circuit) / Metered Power Supply

Light

Manufacturer: VIZULO

Model: MINI STORK

Total Power Consumption (W): 13.5W

Light Height (m): 6m

Tilt Angle (° Degrees): Zero Degrees

Outreach

Outreach Type: Curved / Mitre / Other Decorative: MILFORD

Outreach Distance (m): 1m

Pole

Manufacturer: IBEX LIGHTING

Type: Octagonal / (Circular) / Power / Other Decorative:

Pole Height (m): 6m

Material: (Galvanised Steel) / Steel / Other:

Coating: N/A / (Painted) / Powder Coated

Colour (if coated): BLACK

Mounting: (Frangible ground plant) / Shear Base

☑ Manufacturer's Warranty documents for Poles, Lights and Coatings attached.

☐ Shown on as-built drawings.

F3.10 RAMM STREETLIGHT DATA

(to be completed for each change in streetlight type)

Subdivision and stage/Contract: GREENHILL PARK Area M Stage 12

Number of street lights of this type: 5

General

Date Installed: 6-10-2020

Control Type: Network Streetlight Feed / (Photocell) / Other:

Origin of Power Supply: (Streetlight Circuit) / Metered Power Supply

Light

Manufacturer: VIZULO

Model: MINI STORK

Total Power Consumption (W): 22.3W

Light Height (m): 6m

Tilt Angle (° Degrees): ZERO degrees

Outreach

Outreach Type: Curved / Mitre / Other Decorative: MUFORD

Outreach Distance (m): 1m

Pole

Manufacturer: IBEX LIGHTING

Type: Octagonal / (Circular) / Power / Other Decorative:

Pole Height (m): 6m

Material: (Galvanised Steel) / Steel / Other:

Coating: N/A / (Painted) / Powder Coated

Colour (if coated): BLACK

Mounting: (Frangible ground plant) / Shear Base

☑ Manufacturer's Warranty documents for Poles, Lights and Coatings attached.

☐ Shown on as-built drawings.

ELECTRICAL CERTIFICATE OF COMPLIANCE AND ELECTRICAL SAFETY CERTIFICATE

Reference/Certificate ID No: NWELCOC1555/

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under Part 1 or Part 2 of AS/NZS 3000 are safe to be connected to the specified system of electrical supply.

Location Details: Subdivision Area M - Stage 9 to 15 Greenhill Park Hamilton #99

Contact Details: (Name and address)

Name of Electrical worker: Yeti Martyn

Registration/Practising licence number: E257490

Organisation/company: Nationwired Ltd

Phone and email: yetimartyn@hotmail.com

Name of person(s) supervised:

CoC

Type of work: ☐ Additions ☐ Alterations ☑ New work

The prescribed electrical work is: ☐ Low risk ☐ General ☑ High risk (Specify):

Reference Standards: ☐ Part 1 of AS/NZS 3000 ☑ Part 2 of AS/NZS 3000

☐ Additional Standards:

Description of Work: (including date/s of work and type of supply system)

Install New Street Column with LED Head
Install MEN Board, Main Earth and Earth Stake, Cad Welded Connection - Light Risk
Mains Cable, Mains Installation by others.
Livened by others.

I certify that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct in that the installation, or part of the installation:

Select those that apply:

- ☐ Has been installed in accordance with the specified certified design[1]
- ☑ Has an earthing system that is correctly rated (where applicable)
- ☑ Contains fittings that are safe to connect to a power supply
- ☐ Relies on a supplier Declaration of Conformity[1]
- ☐ Relies on a manufacturer's instructions[1]
- ☐ Has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010
- ☑ Is safe to connect

Test Results	
Polarity (Independent earth):	
Insulation resistance:	200+mohms
Earth Continuity:	0.1ohms
Bonding:	0.1ohms
Fault Loop impedance	
Other (specify):	

Electronic/Other reference:

Certifier's signature:

Date: 6/10/2020

1 Attach or reference. If it is impractical to attach a copy of a particular manufacturer's instructions, or of any certified design or supplier declaration of conformity, provide a reference to where the documents can be found, in a readily accessible format, by electronic means.

ESC

I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Certifier's name:

Registration/Practising licence number:

Certifier's signature:

Certificate Issue Date:

Connection Date:

CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS

This certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(e) of the Building Act 2004.

ELECTRICAL CERTIFICATE OF COMPLIANCE AND ELECTRICAL SAFETY CERTIFICATE

Reference/Certificate ID No: NWELCOC1555 2

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under Part 1 or Part 2 of AS/NZS 3000 are safe to be connected to the specified system of electrical supply.

Location Details: Subdivision Area M - Stage 9 to 15 Greenhill Park Hamilton #100

Contact Details: (Name and address)

Name of Electrical worker: Yeti Martyn

Registration/Practising licence number: E257490

Organisation/company: Nationwired Ltd

Phone and email: yetimartyn@hotmail.com

Name of person(s) supervised:

CoC

Type of work: ☐ Additions ☐ Alterations ☑ New work

The prescribed electrical work is: ☐ Low risk ☐ General ☑ High risk (Specify):

Reference Standards: ☐ Part 1 of AS/NZS 3000 ☑ Part 2 of AS/NZS 3000

☐ Additional Standards:

Description of Work: (including date/s of work and type of supply system)

Install New Street Column with LED Head
Install MEN Board, Main Earth and Earth Stake, Cad Welded Connection - Light Risk
Mains Cable, Mains Installation by others.
Livened by others.

I certify that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct in that the installation, or part of the installation:

Select those that apply:

- ☐ Has been installed in accordance with the specified certified design[1]
- ☑ Has an earthing system that is correctly rated (where applicable)
- ☑ Contains fittings that are safe to connect to a power supply
- ☐ Relies on a supplier Declaration of Conformity[1]
- ☐ Relies on a manufacturer's instructions[1]
- ☐ Has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010
- ☑ Is safe to connect

Test Results	
Polarity (Independent earth):	
Insulation resistance:	200+mohms
Earth Continuity:	0.1ohms
Bonding:	0.1ohms
Fault Loop impedance	
Other (specify):	

Electronic/Other reference:

Certifier's signature:

Date: 6/10/2020

1 Attach or reference. If it is impractical to attach a copy of a particular manufacturer's instructions, or of any certified design or supplier declaration of conformity, provide a reference to where the documents can be found, in a readily accessible format, by electronic means.

ESC

I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Certifier's name:

Registration/Practising licence number:

Certifier's signature:

Certificate Issue Date:

Connection Date:

CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS

This certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(e) of the Building Act 2004.

ELECTRICAL CERTIFICATE OF COMPLIANCE AND ELECTRICAL SAFETY CERTIFICATE

Reference/Certificate ID No: NWELCOC15553

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under **Part 1 or Part 2 of AS/NZS 3000** are safe to be connected to the **specified** system of electrical supply.

Location Details:	Subdivision Area M - Stage 9 to 15 Greenhill Park Hamilton #101
Contact Details: (Name and address)	

Name of Electrical worker:	Yeti Martyn	Registration/Practising licence number:	E257490
Organisation/company:	Nationwired Ltd		
Phone and email:	yetimartyn@hotmail.com		
Name of person(s) supervised:			

CoC

Type of work: ☐ Additions ☐ Alterations ☑ New work

The prescribed electrical work is: ☐ Low risk ☐ General ☑ High risk (Specify):

Reference Standards: ☐ Part 1 of AS/NZS 3000 ☑ Part 2 of AS/NZS 3000

☐ AdditionalStandards:

Description of Work: (including date/s of work and type of supply system)

Install New Street Column with LED Head
Install MEN Board, Main Earth and Earth Stake, Cad Welded Connection - Light Risk
Mains Cable, Mains Installation by others.
Livened by others.

I certify that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct in that the installation, or part of the installation:

Select those that apply:

- ☐ Has been installed in accordance with the specified certified design[1]
- ☑ Has an earthing system that is correctly rated (where applicable)
- ☑ Contains fittings that are safe to connect to a power supply
- ☐ Relies on a supplier Declaration of Conformity[1]
- ☐ Relies on a manufacturer's instructions[1]
- ☐ Has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010
- ☑ Is safe to connect

Test Results	
Polarity (Independent earth):	
Insulation resistance:	200+mohms
Earth Continuity:	0.1ohms
Bonding:	0.1ohms
Fault Loop impedance	
Other (specify):	

Electronic/Other reference:

Certifier's signature:

Date: 6/10/2020

1 Attach or reference. If it is impractical to attach a copy of a particular manufacturer's instructions, or of any certified design or supplier declaration of conformity, provide a reference to where the documents can be found, in a readily accessible format, by electronic means.

ESC

I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Certifier's name:		Registration/Practising licence number:	
Certifier's signature:		Certificate Issue Date:	Connection Date:

CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS

This certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(e) of the Building Act 2004.

ELECTRICAL CERTIFICATE OF COMPLIANCE AND ELECTRICAL SAFETY CERTIFICATE

Reference/Certificate ID No: NWELCOC15554

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under Part 1 or Part 2 of AS/NZS 3000 are safe to be connected to the specified system of electrical supply.

Location Details:	Subdivision Area M - Stage 9 to 15 Greenhill Park Hamilton #102
Contact Details: (Name and address)	

Name of Electrical worker:	Yeti Martyn	Registration/Practising licence number:	E257490
Organisation/company:	Nationwired Ltd		
Phone and email:	yetimartyn@hotmail.com		
Name of person(s) supervised:			

CoC

Type of work: ☐ Additions ☐ Alterations ☑ New work

The prescribed electrical work is: ☐ Low risk ☐ General ☑ High risk (Specify):

Reference Standards: ☐ Part 1 of AS/NZS 3000 ☑ Part 2 of AS/NZS 3000

☐ Additional Standards:

Description of Work: (including date/s of work and type of supply system)

Install New Street Column with LED Head
Install MEN Board, Main Earth and Earth Stake, Cad Welded Connection - Light Risk
Mains Cable, Mains Installation by others.
Livened by others.

I certify that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct in that the installation, or part of the installation:

Select those that apply:

- ☐ Has been installed in accordance with the specified certified design[1]
- ☑ Has an earthing system that is correctly rated (where applicable)
- ☑ Contains fittings that are safe to connect to a power supply
- ☐ Relies on a supplier Declaration of Conformity[1]
- ☐ Relies on a manufacturer's instructions[1]
- ☐ Has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010
- ☑ Is safe to connect

Test Results	
Polarity (independent earth):	
Insulation resistance:	200+mohms
Earth Continuity:	0.1ohms
Bonding:	0.1ohms
Fault Loop impedance	
Other (specify):	

Electronic/Other reference:

Certifier's signature:

Date: 6/10/2020

1 Attach or reference. If it is impractical to attach a copy of a particular manufacturer's instructions, or of any certified design or supplier declaration of conformity, provide a reference to where the documents can be found, in a readily accessible format, by electronic means.

ESC

I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Certifier's name:		Registration/Practising licence number:	
Certifier's signature:		Certificate Issue Date:	Connection Date:

CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS

This certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(e) of the Building Act 2004.

ELECTRICAL CERTIFICATE OF COMPLIANCE AND ELECTRICAL SAFETY CERTIFICATE

Reference/Certificate ID No: NWELCOC1555 5

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under **Part 1 or Part 2 of AS/NZS 3000** are safe to be connected to the **specified** system of electrical supply.

Location Details:	Subdivision Area M - Stage 9 to 15 Greenhill Park Hamilton #103
Contact Details: (Name and address)	

Name of Electrical worker:	Yeti Martyn	Registration/Practising licence number:	E257490
Organisation/company:	Nationwired Ltd		
Phone and email:	yetimartyn@hotmail.com		
Name of person(s) supervised:			

CoC

Type of work: ☐ Additions ☐ Alterations ☑ New work

The prescribed electrical work is: ☐ Low risk ☐ General ☑ High risk (Specify):

Reference Standards: ☐ Part 1 of AS/NZS 3000 ☑ Part 2 of AS/NZS 3000

☐ Additional Standards:

Description of Work: (including date/s of work and type of supply system)

Install New Street Column with LED Head
Install MEN Board, Main Earth and Earth Stake, Cad Welded Connection - Light Risk
Mains Cable, Mains Installation by others.
Livened by others.

I certify that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct in that the installation, or part of the installation:

Select those that apply:

- ☐ Has been installed in accordance with the specified certified design[1]
- ☑ Has an earthing system that is correctly rated (where applicable)
- ☑ Contains fittings that are safe to connect to a power supply
- ☐ Relies on a supplier Declaration of Conformity[1]
- ☐ Relies on a manufacturer's instructions[1]
- ☐ Has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010
- ☑ Is safe to connect

Test Results	
Polarity (Independent earth):	
Insulation resistance:	200+mohms
Earth Continuity:	0.1ohms
Bonding:	0.1ohms
Fault Loop impedance	
Other (specify):	

Electronic/Other reference:

Certifier's signature:

Date: 6/10/2020

1 Attach or reference. If it is impractical to attach a copy of a particular manufacturer's instructions, or of any certified design or supplier declaration of conformity, provide a reference to where the documents can be found, in a readily accessible format, by electronic means.

ESC

I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Certifier's name:		Registration/Practising licence number:	
Certifier's signature:		Certificate Issue Date:	Connection Date:

CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS

This certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(a) of the Building Act 2004.

ELECTRICAL CERTIFICATE OF COMPLIANCE AND ELECTRICAL SAFETY CERTIFICATE

Reference/Certificate ID No: NWELCOC15556

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under Part 1 or Part 2 of AS/NZS 3000 are safe to be connected to the specified system of electrical supply.

Location Details:	Subdivision Area M - Stage 9 to 15 Greenhill Park Hamilton #104
Contact Details: (Name and address)	
Name of Electrical worker:	Yeti Martyn
Registration/Practising licence number:	E257490
Organisation/company:	Nationwired Ltd
Phone and email:	yetimartyn@hotmail.com
Name of person(s) supervised:	

CoC

Type of work: ☐ Additions ☐ Alterations ☑ New work

The prescribed electrical work is: ☐ Low risk ☐ General ☑ High risk (Specify):

Reference Standards: ☐ Part 1 of AS/NZS 3000 ☑ Part 2 of AS/NZS 3000

☐ Additional Standards:

Description of Work: (including date/s of work and type of supply system)

Install New Street Column with LED Head
Install MEN Board, Main Earth and Earth Stake, Cad Welded Connection - Light Risk
Mains Cable, Mains Installation by others.
Livened by others.

I certify that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct in that the installation, or part of the installation:

Select those that apply:

- ☐ Has been installed in accordance with the specified certified design[1]
- ☑ Has an earthing system that is correctly rated (where applicable)
- ☑ Contains fittings that are safe to connect to a power supply
- ☐ Relies on a supplier Declaration of Conformity[1]
- ☐ Relies on a manufacturer's instructions[1]
- ☐ Has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010
- ☑ Is safe to connect

Test Results	
Polarity (Independent earth):	
Insulation resistance:	200+mohms
Earth Continuity:	0.1ohms
Bonding:	0.1ohms
Fault Loop impedance	
Other (specify):	

Electronic/Other reference:

Certifier's signature:

Date: 6/10/2020

1 Attach or reference. If it is impractical to attach a copy of a particular manufacturer's instructions, or of any certified design or supplier declaration of conformity, provide a reference to where the documents can be found, in a readily accessible format, by electronic means.

ESC

I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Certifier's name:		Registration/Practising licence number:	
Certifier's signature:		Certificate Issue Date:	Connection Date:

CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS

This certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(e) of the Building Act 2004.

ELECTRICAL CERTIFICATE OF COMPLIANCE AND ELECTRICAL SAFETY CERTIFICATE

Reference/Certificate ID No: NWELCOC1555 7

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under **Part 1 or Part 2 of AS/NZS 3000** are safe to be connected to the **specified** system of electrical supply.

Location Details:	Subdivision Area M - Stage 9 to 15 Greenhill Park Hamilton #105
Contact Details: (Name and address)	

Name of Electrical worker:	Yeti Martyn	Registration/Practising licence number:	E257490
Organisation/company:	Nationwired Ltd		
Phone and email:	yetimartyn@hotmail.com		
Name of person(s) supervised:			

CoC

Type of work: ☐ Additions ☐ Alterations ☑ New work

The prescribed electrical work is: ☐ Low risk ☐ General ☑ High risk (Specify):

Reference Standards: ☐ Part 1 of AS/NZS 3000 ☑ Part 2 of AS/NZS 3000

☐ Additional Standards:

Description of Work: (including date/s of work and type of supply system)

Install New Street Column with LED Head
Install MEN Board, Main Earth and Earth Stake, Cad Welded Connection - Light Risk
Mains Cable, Mains Installation by others.
Livened by others.

I certify that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct in that the installation, or part of the installation:

Select those that apply:

- ☐ Has been installed in accordance with the specified certified design[1]
- ☑ Has an earthing system that is correctly rated (where applicable)
- ☑ Contains fittings that are safe to connect to a power supply
- ☐ Relies on a supplier Declaration of Conformity[1]
- ☐ Relies on a manufacturer's instructions[1]
- ☐ Has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010
- ☑ Is safe to connect

Test Results	
Polarity (Independent earth):	
Insulation resistance:	200+mohms
Earth Continuity:	0.1ohms
Bonding:	0.1ohms
Fault Loop Impedance	
Other (specify):	

Electronic/Other reference:

Certifier's signature:

Date: 6/10/2020

1 Attach or reference. If it is impractical to attach a copy of a particular manufacturer's instructions, or of any certified design or supplier declaration of conformity, provide a reference to where the documents can be found, in a readily accessible format, by electronic means.

ESC

I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Certifier's name:		Registration/Practising licence number:	
Certifier's signature:		Certificate Issue Date:	Connection Date:

CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS

This certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(e) of the Building Act 2004.

ELECTRICAL CERTIFICATE OF COMPLIANCE AND ELECTRICAL SAFETY CERTIFICATE

Reference/Certificate ID No: NWELCOC1555

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under **Part 1 or Part 2 of AS/NZS 3000** are safe to be connected to the specified system of electrical supply.

Location Details:	Subdivision Area M - Stage 9 to 15 Greenhill Park Hamilton # 106
Contact Details: (Name and address)	

Name of Electrical worker:	Yeti Martyn	Registration/Practising licence number:	E257490
Organisation/company:	Nationwired Ltd		
Phone and email:	yetimartyn@hotmail.com		
Name of person(s) supervised:			

CoC

Type of work: ☐ Additions ☐ Alterations ☑ New work

The prescribed electrical work is: ☐ Low risk ☐ General ☑ High risk (Specify):

Reference Standards: ☐ Part 1 of AS/NZS 3000 ☑ Part 2 of AS/NZS 3000

☐ Additional Standards:

Description of Work: (including date/s of work and type of supply system)

Install New Street Column with LED Head
Install MEN Board, Main Earth and Earth Stake, Cad Welded Connection - Light Risk
Mains Cable, Mains Installation by others.
Livened by others.

I certify that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct in that the installation, or part of the installation:

Select those that apply:

- ☐ Has been installed in accordance with the specified certified design[1]
- ☑ Has an earthing system that is correctly rated (where applicable)
- ☑ Contains fittings that are safe to connect to a power supply
- ☐ Relies on a supplier Declaration of Conformity[1]
- ☐ Relies on a manufacturer's instructions[1]
- ☐ Has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010
- ☑ Is safe to connect

Test Results	
Polarity (Independent earth):	
Insulation resistance:	200+mohms
Earth Continuity:	0.1ohms
Bonding:	0.1ohms
Fault Loop impedance	
Other (specify):	

Electronic/Other reference:

Certifier's signature:

Date: 6/10/2020

1 Attach or reference. If it is impractical to attach a copy of a particular manufacturer's instructions, or of any certified design or supplier declaration of conformity, provide a reference to where the documents can be found, in a readily accessible format, by electronic means.

ESC

I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Certifier's name:		Registration/Practising licence number:	
Certifier's signature:		Certificate Issue Date:	Connection Date:

CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS

This certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(a) of the Building Act 2004.

Electrical Workers Registration Board

SAFETY | COMPETENCE | COMPLIANCE

Record of Inspection (ROI) of High-Risk Prescribed Electrical Work

(Pursuant to the Electricity (Safety) Regulations 2010)

Reference/Record Number:

nationwired greenhill

Issuer (Inspector) details:

Name of Inspector	Gavin Bodey	Registration #:	1260728
Email Address:	gavin@bodeyspark.co.nz	Telephone:	021 428 820

Location of installation:

Location details: Streetlight 99, Greenhill park Subdivision Area "M" Stage 9-15, Chartwell 3210

Location Type: ☐ Domestic ☐ Non-Domestic Accommodation ☐ Industrial ☐ Commercial ☐ Educational ☐ Healthcare ☑ Miscellaneous (other)

Certifying Electrical Worker Certificate of Compliance (CoC) details:

Name of Electrical worker(s):	Yeti Martyn	Registration #:	257490
CoC details:	MWELCOC 35551	☑ CoC(s) attached	

Certifying Electrical Work and CoC details:

What was inspected:

Streetlight. New Main Earth system, M.E.C stake, Earth and Neutral bars. M E N. link, New circuit protection

Specify the regulation(s) and companion standard(s), or identify the certified design, followed when carrying out the inspection:

AS/ NZS 3000 Part 2.

What are the results of the inspection:

M.E.C Impedance < 5 Ohm
Visual
Bonding Worksafe EGHR Record Number 18616H2K

High Risk Category:

☐ Not to AS/NZS 3000 Part 2 – 6A(2)(a)(i) ☐ Photovoltaic system – 6A(2)(a)(iv) ☐ Electrical medical area – 6A(2)(a)(v)
☐ High voltage installation – 6A(2)(a)(ii) ☐ Hazardous area – 6A(2)(a)(iv) ☑ Mains work – 6A(2)(b)
☐ Mains parallel generation – 6A(2)(a)(iii) ☐ Animal stunning or meat conditioning – 6A(2)(c)
☐ Other – please describe:

Declaration:

I hereby confirm that the work described above has been done *in / not in* accordance with the regulations, and the ~~installation~~ / *part installation* on which the work has been done is, and *will be / ~~will not be~~* when enlivened, electrically safe.

(Note: Strike out or delete the inapplicable words highlighted in red above.)

Signature: Date: 11/10/2020

Electrical Workers Registration Board

SAFETY | COMPETENCY | COMPLIANCE

Record of Inspection (ROI) of High-Risk Prescribed Electrical Work

(Pursuant to the Electricity (Safety) Regulations 2010)

Reference/Record Number:

nationwired greenhill

Issuer (Inspector) details:

Name of Inspector:	Gavin Bodey	Registration #:	1250728
Email Address:	gavin@bodeyspark.co.nz	Telephone:	021 428 820

Location of Installation:

Location details: Streetlight 100, Greenhill park Subdivision Area "M" Stage 9-15, Chartwell 3210

Location Type: ☐ Domestic ☐ Non-Domestic Accommodation ☐ Industrial ☐ Commercial ☐ Educational ☐ Healthcare ☑ Miscellaneous (other)

Certifying Electrical Worker and Certificate of Compliance (CoC) details:

Name of Electrical worker(s):	Yeti Martyn	Registration #:	257490
CoC details:	NWELCOC 15652	☑ CoC(s) attached	

Certifying Electrical Work and CoC details

What was inspected:

Streetlight. New Main Earth system, M E C stake, Earth and Neutral bars. M E.N. link, New circut protection

Specify the regulation(s) and companion standard(s), or identify the certified design, followed when carrying out the inspection:

AS/ NZS 3000 Part 2.

What are the results of the inspection:

M.E C Impedence < .5 Ohm
Visual
Bonding Worksafe EGHR Record Number 18618Z6Y

High Risk Category:

☐ Not to AS/NZS 3000 Part 2 – 6A(2)(a)(i)	☐ Photovoltaic system – 6A(2)(a)(iv)	☐ Electrical medical area – 6A(2)(a)(vi)
☐ High voltage installation – 6A(2)(a)(ii)	☐ Hazardous area – 6A(2)(a)(v)	☑ Mains work – 6A(2)(b)
☐ Mains parallel generation – 6A(2)(a)(iii)	☐ Animal stunning or meat conditioning – 6A(2)(c)	
☐ Other – please describe:		

Declaration

I hereby confirm that the work described above has been done ~~in accordance~~ with the regulations; and the ~~installation~~/part installation on which the work has been done is, and ~~will be~~ /~~was to be~~, when enlivened, electrically safe.

(Note: Strike out or delete the inapplicable words highlighted in red above.)

Signature: [signature] Date: 11/10/2020

MBI 0132 04/17

Electrical Workers Registration Board

SAFETY | COMPETENCY | COMPLIANCE

Record of Inspection (ROI) of High-Risk Prescribed Electrical Work

(Pursuant to the Electricity (Safety) Regulations 2010)

Reference/Record Number:

nationwired greenhill

Issuer (Inspector) details:

Name of Inspector:	Gavin Bodey	Registration #:	E250728
Email Address:	gavin@bodeyspark.co.nz	Telephone:	021 428 820

Location of installation:

Location details: Streetlight 101, Greenhill park Subdivision Area "M"Stage 9-15, Chartwell 3210

Location Type: ☐ Domestic ☐ Non-Domestic Accommodation ☐ Industrial ☐ Commercial ☐ Educational ☐ Healthcare ☑ Miscellaneous (other)

Certifying Electrical Worker and Certificate of Compliance (CoC) details:

Name of Electrical worker(s):	Yeti Martyn	Registration #:	257490
CoC details:	NWELCOC 15653	☑ CoC (s) attached	

Certifying Electrical Worker and CoC details:

What was inspected.

Streetlight. New Main Earth system, M.E.C stake, Earth and Neutral bars, M.E.N. link, New circuit protection

Specify the regulation(s) and companion standard(s), or identify the certified design, followed when carrying out the inspection:

AS/ NZS 3000 Part 2.

What are the results of the inspection:

M.E.C Impedence < .5 Ohm
Visual
Bonding Worksafe EGHR Record Number 18620H1N

High Risk Category:

☐ Not to AS/NZS 3000 Part 2 – 6A(2)(a)(i) ☐ Photovoltaic system – 6A(2)(a)(iv) ☐ Electrical medical area – 6A(2)(a)(vi)
☐ High voltage installation – 6A(2)(a)(ii) ☐ Hazardous area – 6A(2)(a)(v) ☑ Mains work – 6A(2)(b)
☐ Mains parallel generation – 6A(2)(a)(iii) ☐ Animal stunning or meat conditioning – 6A(2)(c)
☐ Other – please describe:

Declaration

I hereby confirm that the work described above has been done *in / ~~not in~~* accordance with the regulations; and the ~~installation~~/ *part installation* on which the work has been done is, and *will be / ~~will not be~~*, when enlivened, electrically safe.

(Note: Strike out or delete the inapplicable words highlighted in red above.)

Signature: Date: 11/10/2020

Electrical Workers Registration Board

SAFETY | COMPETENCY | COMPLIANCE

Record of Inspection (ROI) of High-Risk Prescribed Electrical Work

(Pursuant to the Electricity (Safety) Regulations 2010)

Reference/Record Number:

nationwired greenhill

Issuer / Inspector details

Name of Inspector:	Gavin Bodey	Registration #:	1250728
Email Address:	gavin@bodeyspark.co.nz	Telephone:	021 428 820

Location of Installation

Location details: Streetlight 102 , Greenhill park Subdivision Area "M"Stage 9-15, Chartwell 3210

Location Type: ☐ Domestic ☐ Non-Domestic Accommodation ☐ Industrial ☐ Commercial ☐ Educational ☐ Healthcare ☑ Miscellaneous (other)

Certifying Electrical Work and Certificate of Compliance (CoC) details

Name of Electrical worker(s):	Yeti Martyn	Registration #:	257490
CoC details:	NWELCOC 15554	☑ CoC(s) attached	

Certifying Electrical Work and CoC details

What was inspected:

Streetlight. New Main Earth system, M E C stake, Earth and Neutral bars, M.E.N. link. New circuit protection

Specify the regulation(s) and companion standard(s), or identify the certified design, followed when carrying out the inspection:

AS/ NZS 3000 Part 2.

What are the results of the inspection:

M.E.C Impedence < .5 Ohm
Visual
Bonding Worksafe EGHR Record Number 16522N6B

High Risk Category:

☐ Not to AS/NZS 3000 Part 2 – 6A(2)(a)(i) ☐ Photovoltaic system – 6A(2)(a)(iv) ☐ Electrical medical area – 6A(2)(a)(v)
☐ High voltage installation – 6A(2)(a)(ii) ☐ Hazardous area – 6A(2)(a)(iii) ☑ Mains work – 6A(2)(b)
☐ Mains parallel generation – 6A(2)(a)(iii) ☐ Animal stunning or meat conditioning – 6A(2)(c)
☐ Other – please describe:

Declaration

I hereby confirm that the work described above has been done in / ~~not in~~ accordance with the regulations: and the ~~installation~~ / part ~~installation~~ on which the work has been done is, and will be / ~~will not be~~, when enlivened, electrically safe.

(Note: Strike out or delete the inapplicable words highlighted in red above.)

Signature: [signature] Date: 11/10/2020

MBI-1132 04/17

Electrical Workers Registration Board

SAFETY | COMPETENCY | COMPLIANCE

Record of Inspection (ROI) of High-Risk Prescribed Electrical Work

(Pursuant to the Electricity (Safety) Regulations 2010)

Reference/Record Number:

nationWired greenhill

Issuer (Inspector) details:

Name of Inspector:	Gavin Bodey	Registration #:	1250728
Email Address:	gavin@bodeyspark.co.nz	Telephone:	021 428 820

Location of Installation:

Location details: Streetlight 103 , Greenhill park Subdivision Area "M" Stage 9-15, Charlwell 3210

Location Type: ☐ Domestic ☐ Non-Domestic Accommodation ☐ Industrial ☐ Commercial ☐ Educational ☐ Healthcare ☑ Miscellaneous (other)

Certifying Electrical Worker and Certificate of Compliance (CoC) details:

Name of Electrical worker(s):	Yeti Martyn	Registration #:	257490
CoC details:	NWELCOC 15555	☑ CoC(s) attached	

Certifying Electrical Work and Test details:

What was inspected

Streetlight. New Main Earth system, M.E.C stake, Earth and Neutral bars, M.E.N. link, New circuit protection

Specify the regulation(s) and companion standard(s), or identify the certified design, followed when carrying out the inspection:

AS/NZS 3000 Part 2.

What are the results of the inspection:

M.E.C Impedence < .5 Ohm
Visual
Bonding Worksafe EGHR Record Number t8626V6N

High Risk Category:

☐ Not to AS/NZS 3000 Part 2 – 6A(2)(a)(i) ☐ Photovoltaic system – 6A(2)(a)(iv) ☐ Electrical medical area – 6A(2)(a)(vi)
☐ High voltage installation – 6A(2)(a)(ii) ☐ Hazardous area – 6A(2)(a)(v) ☑ Mains work – 6A(2)(b)
☐ Mains parallel generation – 6A(2)(a)(iii) ☐ Animal stunning or meat conditioning – 6A(2)(c)
☐ Other – please describe:

Declaration:

I hereby confirm that the work described above has been done in / ~~on~~ accordance with the regulations, and the ~~installation~~ / part installation on which the work has been done is, and will be / ~~shall be~~, when energised, electrically safe

(Note: Strike out or delete the inapplicable words highlighted in red above.)

Signature: [signature] Date: 11/10/2020

MBIE4132 04/17

Electrical Workers Registration Board

SAFETY | COMPETENCY | COMPLIANCE

Record of Inspection (ROI) of High-Risk Prescribed Electrical Work

(Pursuant to the Electricity (Safety) Regulations 2010)

Reference/Record Number

nationwired greenhill

Issuer (Inspector) details:

Name of Inspector:	Gavin Bodey	Registration #:	1250728
Email Address:	gavin@bodeyspark.co.nz	Telephone:	021 426 820

Location of Installation:

Location details: Streetlight 104 , Greenhill park Subdivision Area "M" Stage 9-15. Chartwell 3210

Location Type: ☐ Domestic ☐ Non-Domestic Accommodation ☐ Industrial ☐ Commercial ☐ Educational ☐ Healthcare ☑ Miscellaneous (other)

Certifying Electrical Work and Certificate of Compliance (CoC) details:

Name of Electrical worker(s):	Yeb Martyn	Registration #:	257490
CoC details:	NWELCOC 16656	☑ CoC(s) attached	

Certifying Electrical Work and CoC details:

What was Inspected:

Streetlight. New Main Earth system, M.E.C stake, Earth and Neutral bars, M.E.N. link. New circuit protection

Specify the regulation(s) and compliance standard(s), or identify the certified design, followed when carrying out the inspection:

AS/ NZS 3000 Part 2.

What are the results of the inspection:

M E C Impedance < .5 Ohm
Visual
Bonding Worksafe EGHR Record Number 18627K7R

High-Risk Category

☐ Not to AS/NZS 3000 Part 2 – 6A(2)(a)(i) ☐ Photovoltaic system – 6A(2)(a)(iv) ☐ Electrical medical area – 6A(2)(a)(vi)
☐ High voltage installation – 6A(2)(a)(ii) ☐ Hazardous area – 6A(2)(a)(v) ☑ Mains work – 6A(2)(b)
☐ Mains parallel generation – 6A(2)(a)(iii) ☐ Animal stunning or meat conditioning – 6A(2)(c)
☐ Other – please describe:

Declaration

I hereby confirm that the work described above has been done in ~~/ accordance~~ with the regulations; and the ~~installation / part installation~~ on which the work has been done is, and ~~will be / when~~ enlivened, electrically safe.

(Note: Strike out or delete the inapplicable words highlighted in red above.)

Signature: [signature]

Date: 11/10/2020

MR | 4131 04/17

Electrical Workers Registration Board

SAFETY | COMPETENCY | COMPLIANCE

Record of Inspection (ROI) of High-Risk Prescribed Electrical Work

(Pursuant to the Electricity (Safety) Regulations 2010)

Reference/Record Number:

nationwired greenhill

Issuer (Inspector) details:

Name of Inspector:	Gavin Bodey	Registration #:	1250728
Email Address:	gavin@bodeyspark.co.nz	Telephone:	021 428 820

Location of Installation:

Location details: Streetlight 105 , Greenhill park Subdivision Area "M"Stage 9-15, Chartwell 3210

Location Type: ☐ Domestic ☐ Non-Domestic Accommodation ☐ Industrial ☐ Commercial ☐ Educational ☐ Healthcare ☑ Miscellaneous (other)

Certifying Electrical Worker and Certificate of Compliance (CoC) details:

Name of Electrical worker(s):	Yeti Martyn	Registration #:	257490
CoC details:	NWELCOC 15557	☑ CoC(s) attached	

Certifying Electrical Work and CoC details:

What was inspected:

Streetlight New Main Earth system, M.E.C stake, Earth and Neutral bars, M.E.N. link, New circuit protection

Specify the regulation(s) and companion standard(s), or identify the certified design, followed when carrying out the inspection:

AS/ NZS 3000 Part 2.

What are the results of the inspection:

M.E.C impedence < .5 Ohm
Visual
Bonding Worksafe EGHR Record Number 18629X7N

High Risk Category

☐ Not to AS/NZS 3000 Part 2 – 6A(2)(a)(i) ☐ Photovoltaic system – 6A(2)(a)(iv) ☐ Electrical medical area – 6A(2)(a)(vi)
☐ High voltage installation – 6A(2)(a)(ii) ☐ Hazardous area – 6A(2)(a)(v) ☑ Mains work – 6A(2)(b)
☐ Mains parallel generation – 6A(2)(a)(iii) ☐ Animal stunning or meat conditioning – 6A(2)(c)
☐ Other – please describe

Declaration

I hereby confirm that the work described above has been done in / ~~not in~~ accordance with the regulations; and the *installation / part installation* on which the work has been done is, and will be / ~~will not be~~ when enlivened, electrically safe.

(Note: Strike out or delete the inapplicable words highlighted in red above.)

Signature: [signature]

Date: 11/10/2020

MB14152 04/17

Electrical Workers Registration Board

SAFETY | COMPETENCY | COMPLIANCE

Record of Inspection (ROI) of High-Risk Prescribed Electrical Work

(Pursuant to the Electricity (Safety) Regulations 2010)

Reference/Record Number: nationwired greenhill

Issuer | Inspector details:

Name of Inspector	Gavin Bodey	Registration #:	I250728
Email Address:	gavin@bodeyspark.co.nz	Telephone:	021 428 820

Location of Installation:

Location details: Streetlight 106 , Greenhill park Subdivision Area "M" Stage 9-15, Charnwell 3210

Location Type: ☐ Domestic ☐ Non-Domestic Accommodation ☐ Industrial ☐ Commercial ☐ Educational ☐ Healthcare ☑ Miscellaneous (other)

Certifying Electrical Worker and Certificate of Compliance (CoC) details:

Name of Electrical worker(s):	Yeti Martyn	Registration #:	257490
CoC details:	NWELCOC 15558	☑ CoC(s) attached	

Certifying Electrical Work and CoC details

What was inspected:

Streetlight New Main Earth system, M.E.C stake, Earth and Neutral bars, M.E.N. link, New circuit protection

Specify the regulation(s) and companion standard(s), or identify the certified design, followed when carrying out the inspection:

AS/ NZS 3000 Part 2.

What are the results of the inspection:

M.E.C impedence < .5 Ohm

Visual

Bonding Worksafe EGHR Record Number 1863084884

High Risk Category:

☐ Not to AS/NZS 3000 Part 2 – 6A(2)(a)(i) ☐ Photovoltaic system – 6A(2)(a)(iv) ☐ Electrical medical area – 6A(2)(a)(vi)

☐ High voltage installation – 6A(2)(a)(ii) ☐ Hazardous area – 6A(2)(a)(v) ☑ Mains work – 6A(2)(b)

☐ Mains parallel generation – 6A(2)(a)(iii) ☐ Animal stunning or meat conditioning – 6A(2)(c)

☐ Other – please describe:

Declaration:

I hereby confirm that the work described above has been done in / ~~not in~~ accordance with the regulations; and the *installation / part installation* on which the work has been done is, and *will be / ~~may be~~* when enlivened, electrically safe.

(Note: Strike out or delete the inapplicable words highlighted in red above.)

Signature: [signature]

Date: 11/10/2020

MBI4133 04/17

Supplier's Declaration of Conformity (in accordance with ISO/IEC 17050-1)

Number:	9277700073387
Issuer's Name:	Ibex International Ltd.
Issuer's Address:	PO BOX 9077 Greerton Tauranga 3142

Object of the Declaration: We declare that the items described are Electrically Safe as required in the Electricity (Safety) Regulations 2010 Regulation 80.

MINI STORK 1500Lm Lens21 S-CAP BLACK 3000K

The Object of the Declaration described above is in conformity with the requirements of the following documents:

Document Number:	Title	Edition / Date of Issue
AS/NZS 3820	Essential Safety Requirements For Electrical Equipment	2009/AMD 1

Additional information

Signed for and on behalf of: Ibex International Ltd.
Tauranga

Date: 6/04/2020

Kingsley Holt

Kingsley Holt Supply Chain & Innovation Manager

Supplier's Declaration of Conformity (in accordance with ISO/IEC 17050-1)

Number:	9277700060912
Issuer's Name:	Ibex International Ltd.
Issuer's Address:	PO BOX 9077 Greerton Tauranga 3142

Object of the Declaration: We declare that the items described are Electrically Safe as required in the Electricity (Safety) Regulations 2010 Regulation 80.

MINI STORK 2500Lm 22W Lens21 S-CAP BLACK - 3000k

The Object of the Declaration described above is in conformity with the requirements of the following documents:

Document Number:	Title	Edition / Date of Issue
AS/NZS 3820	Essential Safety Requirements For Electrical Equipment	2009/AMD 1

Additional information

Signed for and on behalf of: Ibex International Ltd.
Tauranga

Date: 6/04/2020

Kingsley Holt

Kingsley Holt Supply Chain & Innovation Manager

Supplier's Declaration of Conformity (in accordance with ISO/IEC 17050-1)

Number:

Issuer's Name: Ibex International Ltd.

Issuer's Address: PO BOX 9077 Greerton
Tauranga
3142

Object of the Declaration: We declare that the items described are Electrically Safe as required in the Electricity (Safety) Regulations 2010 Regulation 80.

MINI STORK (V)-6.2kLm, 9LED, Optic 20,53W 3000K, BLK, S-Cap

The Object of the Declaration described above is in conformity with the requirements of the following documents:

Document Number:	Title	Edition / Date of Issue
AS/NZS 3820	Essential Safety Requirements For Electrical Equipment	2009/AMD 1

Additional information

Signed for and on behalf of: Ibex International Ltd.
Tauranga

Date: 6/04/2020

Kingsley Holt

Kingsley Holt Supply Chain & Innovation Manager

APPENDIX 8

Miscellaneous Check Lists and Producer Statements

- Subdivision Works Clearance Application Form
- Subdivision Certification Application Form
- Contractor Producer Statement Form
- Land Transfer Plan LT 548658
- Schedule of Engineering Value
- Developers Tax Invoice
- Consultant Certification Statement Form
- Asbuilt Statement Form

Hamilton City Council
Te kaunihera o Kirikiriroa

Subdivision Works Clearance Application Form

Agent details (where an agent is applying on behalf of the consent holder)

Agent name:	Kurt Uttinger
Agent company:	S&L
Postal address:	PO Box 231, Tauranga, 3140
Telephone:	022 320 9229
Email:	kuttinger@sltga.co.nz

Subject Site

Site address:	Popham Road, Greenhill Park, Hamilton		
Legal description:	DP548658 Lots 327, 329-356, 503, 506, 507, 606 & 705 Being a subdivision of Lot 74 DP543413		
Resource consent number:	011.2018.6632	Date consent issued:	05/09/2018
Stage (if applicable):	12	No. of lots (excluding roads/reserves):	29

Clearances required

Certification required: (●) Engineering ( ) Landscaping ( ) Other (please specify)

Works Clearance

Fees and payment

You will be charged for the time spent by staff in preparing for and undertaking engineering works clearance site visits. Refer to Fees and Charges, as set out on our website at www.hamilton.govt.nz for costs.

Payment of fees is due upon invoice which will be issued at s224c subdivision certification stage.

Agent declaration

As a registered professional surveyor/planner, I confirm that:

(●) I am satisfied that the engineering and landscaping physical works have been completed in accordance with the Resource Consent

( ) I accept that my application may be returned if there are outstanding agreements relating to development contribution remissions or valuation of land, or if all information required for works clearance is not submitted

Hamilton City Council
Te kaunihera o Kirikiriroa

Subdivision Certification Application Form

Agent details (where an agent is applying on behalf of the consent holder)

Agent name:	Kurt Uttinger
Agent company:	S & L
Postal address:	PO Box 231, Tauranga, 3140
Telephone:	022 320 9229
Email:	kuttinger@sltga.co.nz

Preferred means of contact: ○ Mail ○ Email ● Phone

Consent holder name

Consent holder name:	Chedworth Properties Limited
Postal address:	PO Box 132, Waikato Mail Centre, 3240
Telephone:	07 838 0659
Email:	jon.webb@jonwebb.co.nz

Debtor details (for invoicing)

Debtor is: ○ Agent ● Owner ○ Other (please specify)

Debtor's Name:	Chedworth Properties Ltd
Postal address:	C/- S & L, PO Box 231, Tauranga

Subject Site

Site address:	Popham Road, Greenhill Park, Hamilton
Legal description:	LT548658 Lots 327, 329-356, 503, 506, 507, 606 and 705 Being a subdivision of lot 704 DP543413
Resource consent number:	011.2018.6632
Stage Number:	12

Certification required

Certification required: ○ s223 ○ s224(c) ○ s224(f) ○ s32(2)(a)

● Other (please specify) Works Clearance

Condition(s) of consent requirements

As a registered professional surveyor/planner, I confirm that:

1. For larger/complex consents, I have attended a pre-application meeting with Hamilton City Council staff to review my draft s224c application.
2. I hereby attach all information required to satisfy Hamilton City Council that all conditions specified in the subdivision consent referenced above (in terms of certification required) have been met.
3. I accept that where it is found that not all information required under clause 2 above is provided, this application shall be returned to the address for re-lodgement.
4. Where an engineering or similar professionally prepared plan and supporting information (such as landscaping or ecological plan) has to be approved by council, I have attached written evidence of such approval.
5. Where evidence of completion and approval of all physical works is required (e.g. construction of services, landscape planting). I have attached written evidence of such approval.
6. The required Landonline electronic certification documentation have been prepared and submitted to Hamilton City Council for approval.

Acceptance

☑ I confirm that all of the above have been satisfied.

Name: Kurt Uttinger Date: 29/10/2020

Send

Send applications to subdivision@hcc.govt.nz, drop off via the duty planner at the Municipal Building Garden Place, between 8am – 4.45pm, Monday to Friday or post to **Planning Guidance Subdivisions, Hamilton City Council, Private Bag 3010, Hamilton 3240**.

Remember to attach:

- ☐ Conditions of subdivision consent documentation
- ☐ Works clearance certificate

Send

Send applications to subdivision@hcc.govt.nz, drop off via the duty planner at the Municipal Building Garden Place, between 8am – 4.45pm, Monday to Friday or post to Planning Guidance Subdivisions, Hamilton City Council, Private Bag 3010, Hamilton 3240.

Documentation to provide:

- ◯ The attached checklist
- ◯ All required information listed in the checklist

OFFICE USE ONLY ◯ Documentation saved to TRIM ◯ Authority updated ◯ Acknowledgement sent

Works Clearance Checklist

PART A - QA DOCUMENTATION:

a. General

	Received	Date
Easements required		
Consent notices required		
Power, telecommunication, gas connections certification		
Contractor Certificate		
Producer Statement		

b. Parks

◯ Landscaping Plans Accepted Date:

	Approved by	Date
Final Inspection Checklist		

c. Roading

◯ Engineering Plans Accepted Date:

	Approved by	Date
Subgrade Compaction/Relative Height		
Subbase Compaction/Relative Height		
Basecourse Compaction/Relative Height		
Penetrometer Results		
Clegg Hammer Results		
Benkelman Beam Results		

d. Stormwater

◯ Engineering Plans Accepted Date:

	Approved By	Date
Wetlands and Ponds Management Checklist		
Wetlands and Ponds Inspection Checklist		
Pipe Laying Checklist		
Manhole Checklist		
Trench Backfill Compaction Test		
Catchpit Checklist		
Final Inspection Checklist		
Stormwater device Operations and Maintenance Manual supplied		

e. Wastewater

◯ Engineering Plans Accepted Date:

	Approved By	Date
Pipe Laying Checklist		
Manhole Checklist		
Trench Backfill Compaction Test		
Final Inspection Pipe Network		
Pumping Station Check Forms		
Pressure Test Results		

f. Water

◯ Engineering Plans Accepted Date:

Form/Process	Approved By	Date
Pipe Laying Checklist		
Final Inspection Checklist		
Pressure Test Results		
Bacteriological Test Results		

PART B - ASBUILT DATA:

a. Roading

Data	Received	Checked
RAMM data		
Streetlight Data		
Asbuilt Plans		
DXF Files		

b. Stormwater

Data	Received	Checked
Datasheets		
Asbuilt Plans		
DXF Files		

c. Wastewater

Data	Received	Checked
Datasheets		
Asbuilt Plans		
DXF Files		

d. Water

Data	Received	Checked
Datasheets		
Asbuilt Plans		
DXF Files		

e. Parks

Data	Received	Checked
Datasheets		
Asbuilt Plans		
DXF Files		

f. Finance

Data	Received	Checked
GST Values		
Land Values		
Asset Quantities		

PART C – CONDITIONS/BONDS:

Documentation	Received	Checked
Engineering conditions attached and completed		
Bond requested and quote attached		

NZS 3910:2013 Conditions of contract for building and civil engineering construction

SCHEDULE 6 – FORM OF PRODUCER STATEMENT - CONSTRUCTION

ISSUED BY	ONLINE CONTRACTORS 2016 LTD
TO	CHEDWORTH PROPERTIES LTD
IN RESPECT OF	GREENHILL PARK STAGE 12 INCLUDING: SUBDIVISION CIVIL WORKS, ROADING AND EARTHWORKS
AT	GREENHILL PARK, HAMILTON

ONLINE CONTRACTORS 2016 LTD has contracted to *CHEDWORTH PROPERTIES LTD* to carry out and complete certain building works in accordance with a Contract titled *GREENHILL PARK STAGE 12.*

I Daniel Hopper a duly authorised representative of *ONLINE CONTRACTORS 2016 LTD* believe on reasonable grounds that *ONLINE CONTRACTORS 2016 LTD* as carried out and completed:

☑ All

☐ Part only as specified in the attached particulars of the contract works in accordance with the Contract.

Dan Hopper — 22nd October 2020

Signature of Authorised Agent on behalf of — *Date*

ONLINE CONTRACTORS 2016 LTD
PO BOX 21187
ROTOTUNA
HAMILTON 3256

APPENDIX 4 ii)

PRODUCER STATEMENT — CONSTRUCTION

CONTRACTOR'S CERTIFICATE UPON COMPLETION OF SUBDIVISIONAL WORK

ISSUED BY : Online Contractors 2016 Ltd
(Contractor)

TO : Chedworth Properties Ltd
(Principal)

TO BE SUPPLIED TO: Hamilton City Council
(Territorial Authority)

IN RESPECT OF : Greenhill Park Stage 12
(Description of subdivisional work)

AT : Gosset Ave and Couldsack Ave, Greenhill Park
(Address)

Online Contractors 2016 Ltd has contracted to Chedworth Properties Ltd
(Contractor) *(Principal)*

to carry out and complete certain subdivisional work in accordance with a contract, titled Contract No. ……
for Earthworks and subdivision civil works ("the contract")

I Dan Hopper a duly authorised representative of Online Contractors 2016 Ltd
(Duly Authorised Agent) *(Contractor)*

hereby certify that Onlne Contractors 2016 Ltd

has carried out and completed the subdivisional works, other than those outstanding works listed below, in accordance with the contract.

Dan Hopper Date 22nd October 2020
(Signature of Authorised Agent on behalf of)

Online Contractors 2016 Ltd
(Contractor)

PO Box 21187, Rototuna, Hamilton
(Address)

Outstanding Works

Title Plan - LT 548658

Survey Number	LT 548658
Surveyor Reference	21879 - Greenhill Park - Stage 12
Surveyor	Scott Rodney Carley
Survey Firm	Shrimpton and Lipinski Limited Partnership
Surveyor Declaration	

Survey Details

Dataset Description	Lots 327, 329-356, 503, 506, 507, 606 and 705 Being a Subdivision of Lot 704 DP 543413		
Status	Initiated		
Land District	South Auckland	**Survey Class**	Class A
Submitted Date		**Survey Approval Date**	
		Deposit Date	

Territorial Authorities

Hamilton City

Comprised In

RT 918286

Created Parcels

Parcels	Parcel Intent	Area	RT Reference
Lot 327 Deposited Plan 548658	Fee Simple Title	0.0364 Ha	940100
Lot 329 Deposited Plan 548658	Fee Simple Title	0.0312 Ha	940101
Lot 330 Deposited Plan 548658	Fee Simple Title	0.0312 Ha	940102
Lot 331 Deposited Plan 548658	Fee Simple Title	0.0312 Ha	940103
Lot 332 Deposited Plan 548658	Fee Simple Title	0.0312 Ha	940104
Lot 333 Deposited Plan 548658	Fee Simple Title	0.0450 Ha	940105
Lot 334 Deposited Plan 548658	Fee Simple Title	0.0348 Ha	940106
Lot 335 Deposited Plan 548658	Fee Simple Title	0.0348 Ha	940107
Lot 336 Deposited Plan 548658	Fee Simple Title	0.0306 Ha	940108
Lot 337 Deposited Plan 548658	Fee Simple Title	0.0305 Ha	940109
Lot 338 Deposited Plan 548658	Fee Simple Title	0.0348 Ha	940110
Lot 339 Deposited Plan 548658	Fee Simple Title	0.0349 Ha	940111
Lot 340 Deposited Plan 548658	Fee Simple Title	0.0349 Ha	940112
Lot 341 Deposited Plan 548658	Fee Simple Title	0.0349 Ha	940113
Lot 342 Deposited Plan 548658	Fee Simple Title	0.0317 Ha	940114
Lot 343 Deposited Plan 548658	Fee Simple Title	0.0435 Ha	940115
Lot 344 Deposited Plan 548658	Fee Simple Title	0.0377 Ha	940116
Lot 345 Deposited Plan 548658	Fee Simple Title	0.0380 Ha	940117
Lot 346 Deposited Plan 548658	Fee Simple Title	0.0491 Ha	940118
Lot 347 Deposited Plan 548658	Fee Simple Title	0.0466 Ha	940119
Lot 348 Deposited Plan 548658	Fee Simple Title	0.0349 Ha	940120
Lot 349 Deposited Plan 548658	Fee Simple Title	0.0467 Ha	940121
Lot 350 Deposited Plan 548658	Fee Simple Title	0.0210 Ha	940122
Lot 351 Deposited Plan 548658	Fee Simple Title	0.0211 Ha	940123

Title Plan - LT 548658

Created Parcels

Parcels	Parcel Intent	Area	RT Reference
Lot 352 Deposited Plan 548658	Fee Simple Title	0.0213 Ha	940124
Lot 353 Deposited Plan 548658	Fee Simple Title	0.0217 Ha	940125
Lot 354 Deposited Plan 548658	Fee Simple Title	0.0245 Ha	940126
Lot 355 Deposited Plan 548658	Fee Simple Title	0.0401 Ha	940127
Lot 356 Deposited Plan 548658	Fee Simple Title	0.0349 Ha	940128
Lot 503 Deposited Plan 548658	Vesting on Deposit for Local Purpose Reserve	0.1515 Ha	940129
Lot 506 Deposited Plan 548658	Vesting on Deposit for Local Purpose Reserve	0.3242 Ha	940130
Lot 507 Deposited Plan 548658	Vesting on Deposit for Recreation Reserve (Territorial Authority)	0.0806 Ha	940131
Lot 606 Deposited Plan 548658	Vesting on Deposit for Road	0.3391 Ha	
Lot 705 Deposited Plan 548658	Fee Simple Title	5.5980 Ha	940132
Area F Deposited Plan 548658	Easement		
Area G Deposited Plan 548658	Easement		
Total Area		7.4826 Ha	

S&L
Land Development
and Design Specialists

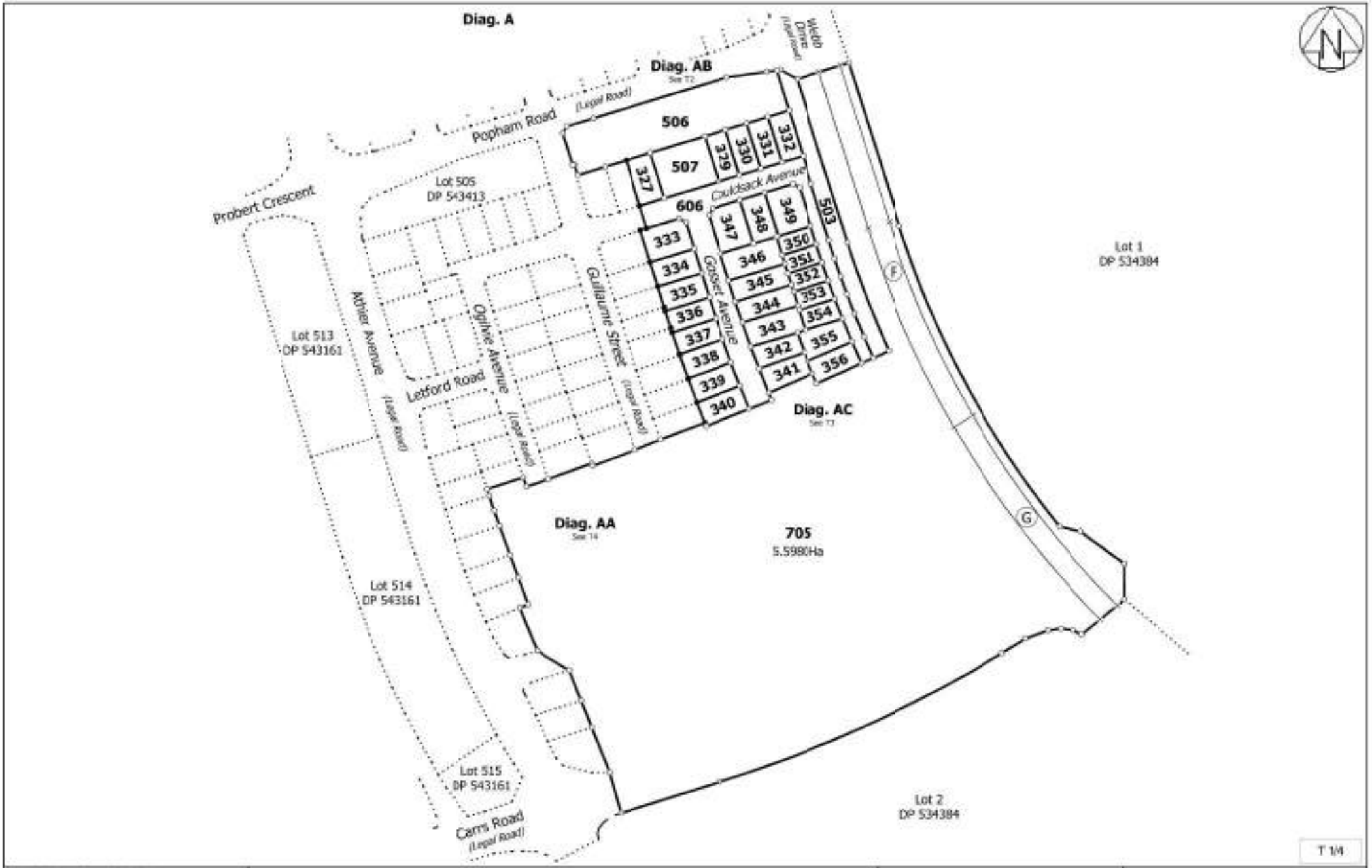
S&L File: 21879 – Stage 12

Land Registration District
South Auckland

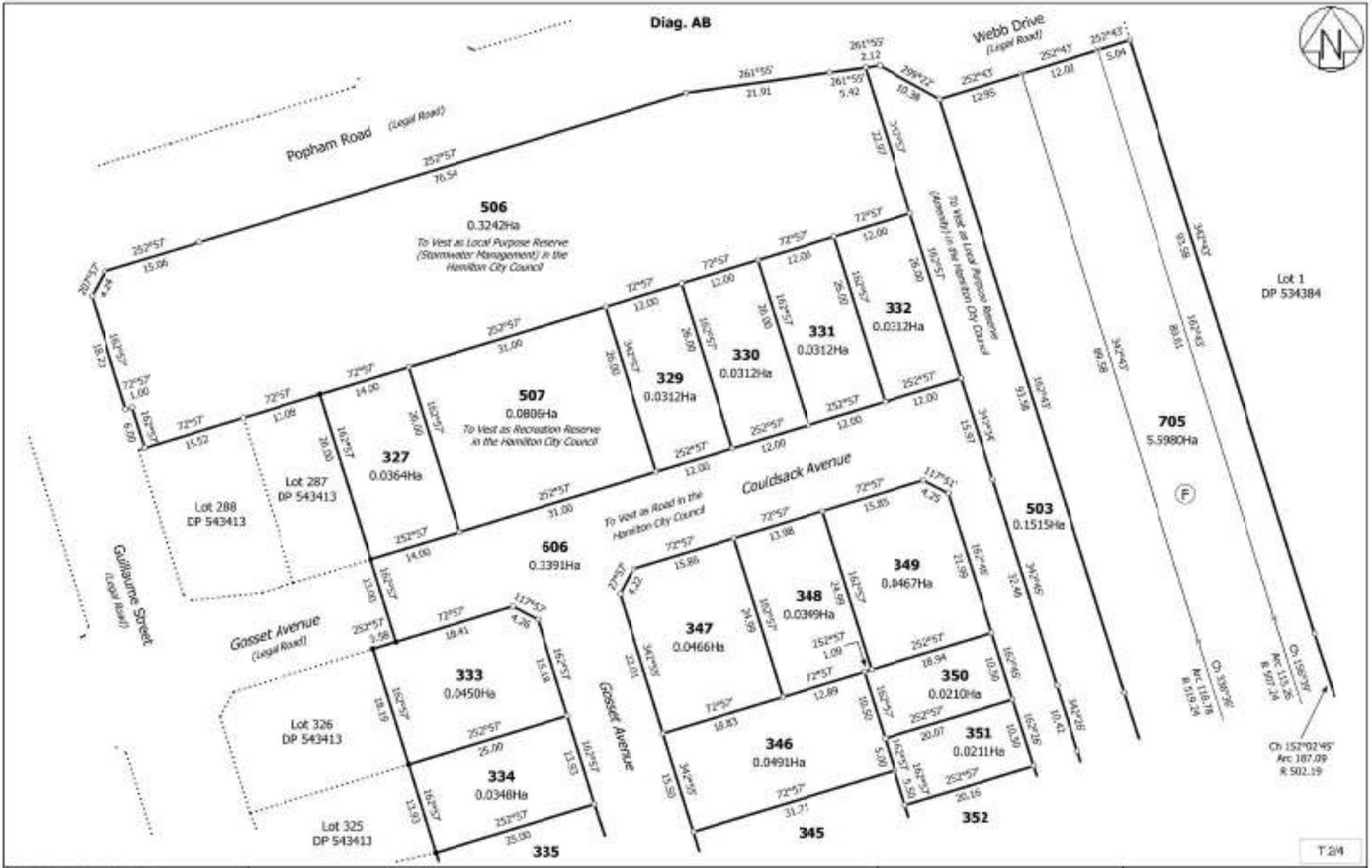
Plan Number
DP 548658

Territorial Authority (the Council)
Hamilton City Council

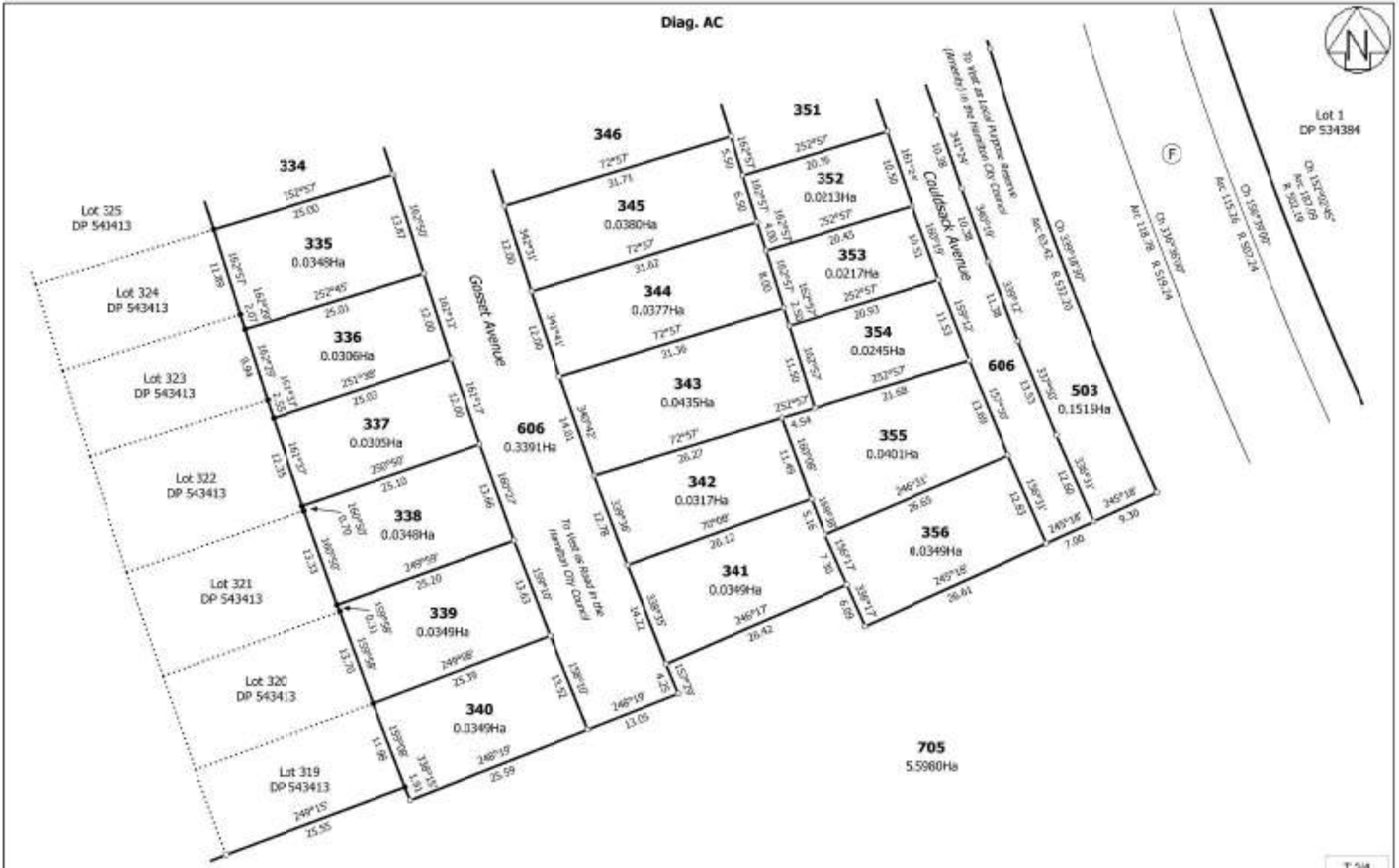
Schedule of Existing Easements In Gross			
Purpose	**Shown**	**Burdened Land**	**Creating Document Reference**
Right to Convey Electricity, Telecommunications	F	Lot 705	EI 10700635.2
	G	Lot 705	EI 10700635.1



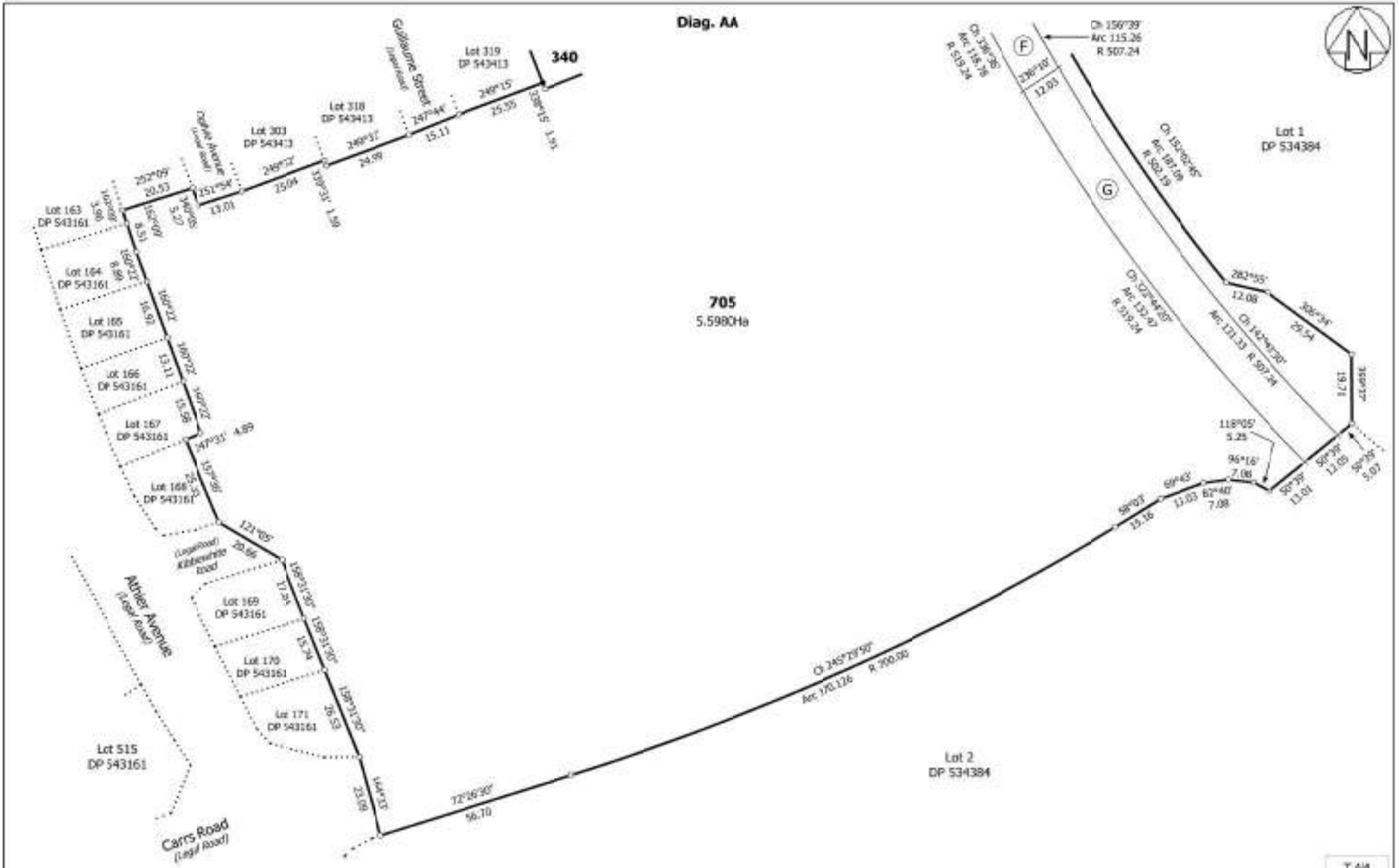
Land District: South Auckland Digitally Generated Plan Generated on 15/7/2020 7:53pm Page 4 of 7	Lots 327, 329-356, 503, 506, 507, 606 and 705 Being a Subdivision of Lot 704 DP 543413	Surveyor: Scott Rodney Carley Firm: Shrimpton and Lipinski Limited Partn	Title Plan LT 548658 DRAFT



Land District: South Auckland Digitally Generated Plan Generated on 15/7/2020 7:53pm Page 5 of 7	Lots 327, 329-356, 503, 506, 507, 606 and 705 Being a Subdivision of Lot 704 DP 543413	Surveyor: Scott Rodney Carley Firm: Shrimpton and Lipinski Limited Partn	Title Plan LT 548658 DRAFT



Land District: South Auckland Digitally Generated Plan Generated on 15/7/2020 7:53pm Page 6 of 7	Lots 327, 329-356, 503, 506, 507, 606 and 705 Being a Subdivision of Lot 704 DP 543413	Surveyor: Scott Rodney Carley Firm: Shrimpton and Lipinski Limited Partn	Title Plan LT 548658 DRAFT



Land District: South Auckland Digitally Generated Plan Generated on 15/7/2020 7:53pm Page 7 of 7	Lots 327, 329-356, 503, 506, 507, 606 and 705 Being a Subdivision of Lot 704 DP 543413	Surveyor: Scott Rodney Carley Firm: Shrimpton and Lipinski Limited Partn	Title Plan LT 548658 DRAFT

SCHEDULE OF LAND AND ASSETS TO VEST IN COUNCIL

Hamilton City Council will use these values to record the assets once ownership has transferred following approval of s224c certification.

GENERAL DETAILS

Subdivision name: Greenhill Park - Stage 12

Site address: Popham Road, Greenhill Park, Hamilton

HCC application number: 011.2018.6632

DPS number(s): DP548658

Developer name: Chedworth Properties Limited

Postal address: PO Box 132

Suburb: Waikato Mail Centre

City: Hamilton Postal code: 3240

This information is certified as being true and correct

Completed by: ☐ Land owner ☑ Agent ☐ Other (please specify) _____

Name: Kurt Uttinger

Signature: _____ Date signed: 05/11/2020

SEND

Email this to subdivision@hcc.govt.nz. Alternatively, if you are attending a works clearance pre-application meeting, please bring this completed form with you.

SUMMARY OF LAND AND ASSETS TO VEST IN COUNCIL (excluding GST)

ASSET TYPE		TOTAL VESTED
Land	(A)	$ 1,880,340.00
Water supply	(B)	$ 59,072.00
Wastewater	(C)	$ 110,808.00
Stormwater	(D)	$ 211,323.00
Roading	(E)	$ 299,636.18
Parks	(F)	$ 123,121.00
Other	(G)	$ 0.00
TOTAL (excluding GST)		$ 2,684,300.18

PLANNING GUIDANCE

For general planning guidance enquiries, contact the duty planner weekdays 8am - 4.45pm.
Email: planning.guidance@hcc.govt.nz **Phone:** 07 838 6699

Hamilton City Council
Te kaunihera o Kirikiriroa

SCHEDULE OF LAND AND ASSETS TO VEST IN COUNCIL

LAND, WATER SUPPLY, WASTEWATER AND STORMWATER (All values are to be exclusive of GST)

LAND (A)	DPS	MEASURE (AREA M2)	COST/VALUE
Roading	548856	3391	$ 712,110.00
Recreation reserve	548856	806	$ 169,260.00
Local purpose reserve	548856	4757	$ 998,970.00
Other - please specify			
		TOTAL	$ 1,880,340.00

WATER SUPPLY (B)	MEASURE		COST/VALUE
Mains	Metres	250.8	$ 13,042.00
Ridermains	Metres	289.3	$ 6,365.00
Services	No.	29	$ 15,312.00
Hydrants	No.	3	$ 7,671.00
Sluice and peat values	No.	10	$ 16,682.00
Other - please specify			
	TOTAL		$ 59,072.00

WASTEWATER (C)	MEASURE		COST/VALUE
Mains	Metres	253.6	$ 85,688.00
Manholes	No.	3	$ 13,334.00
Connections	No.	29	$ 11,786.00
Other - please specify			
	TOTAL		$ 110,808.00

STORMWATER (D)	MEASURE		COST/VALUE
Mains	Metres	416.1	$ 107,315.00
Manholes	No.	10	$ 77,518.00
Connections	No.	30	$ 25,054.00
Outfalls (inlet/outlet structures)	No.	1	$ 1,436.00
Wetland/rain garden planting	Area (m²)		
Other - please specify			
	TOTAL		$ 211,323.00

PLANNING GUIDANCE

For general planning guidance enquiries, contact the duty planner weekdays 8am - 4.45pm.
Email: planning.guidance@hcc.govt.nz **Phone:** 07 838 6699

Hamilton City Council
Te kaunihera o Kirikiriroa

SCHEDULE OF LAND AND ASSETS TO VEST IN COUNCIL

ROADING, PARKS AND OTHER (All values are to be exclusive of GST)

ROADING (E)	MEASURE		COST/VALUE
Pavement	Area (m^2)	1766	$ 74,454.88
Surfacing	Area (m^2)	1616	$ 53,537.00
Kerb and channel (full height)	Metres	669.4	$ 30,127.30
Berms	Area (m^2)	1463	$ 4,230.00
Footpaths (inc. walkways & cycleways)	Area (m^2)	420	$ 28,980.00
Vehicle crossings (excl. residential)	Area (m^2)	110	$ 11,000.00
Road drainage (catchpits & leads)	No.	8	$ 25,521.00
Street lighting	No.	8	$ 25,952.00
Signage	No.	1	$ 232.00
Subsoil drains	Metres	637.9	$ 23,602.00
Tactile pavers	No.	0	$ 0.00
Parking and bus bays	Area (m^2)	220	$ 22,000.00
Sundries (bridges/culverts/walls/etc)	No.		
Other - please specify			
	TOTAL		$ 299,636.18

PARKS (F)	MEASURE		COST/VALUE
Bollards	No.	19	$ 4,727.00
Landscaping (trees, shrubs)	Area (m^2)	3504	$ 105,120.00
Paths	Area (m^2)	0	$ 0.00
Fencing	Metres	0	$ 0.00
Play equipment	No.	0	$ 0.00
Seats/benches/tables	No.	2	$ 13,274.00
Other - please specify			
	TOTAL		$ 123,121.00

OTHER (G)	MEASURE		COST/VALUE
Buildings	No.	0	$ 0.00
Other - please specify			
	TOTAL		$ 0.00

PLANNING GUIDANCE

For general planning guidance enquiries, contact the duty planner weekdays 8am - 4.45pm.
Email: planning.guidance@hcc.govt.nz **Phone:** 07 838 6699

Hamilton City Council
Te kaunihera o Kirikiriroa

APPENDIX 4 I)

CERTIFICATION UPON COMPLETION OF ROADS, PIPELINES AND OTHER SERVICES

ISSUED BY: Kurt Uttinger
(suitably qualified professional)

TO: Chedworth Properties Limited
(Development Owner)

TO BE SUPPLIED TO: Hamilton City Council
(Territorial Authority)

IN RESPECT OF: Greenhill Park - Stage 12
(Description of Development Project)

AT: Popham Road, Greenhill Park, Hamilton, New Zealand

(Address)

S&L has been engaged by Chedworth Properties Limited
(Survey Firm) *(Development Owner)*

to provide construction observation, review and certification services in respect of the above development which is described in the specification and shown on the drawings numbered 3411915-CA-2000 to 3411915-CA-2516 approved by Hamilton City Council
(Territorial Authority)

I have sighted the Hamilton City Council consent and conditions of consent to the
(Territorial Authority)
Development and the approved specification and drawings.

As an independent professional, I or personnel under my control, have carried out periodic reviews of the works appropriate to the engagement and based upon these reviews, information supplied by the contractor during the course of the works and the contractor's certification upon completion of the works (copy attached) **I BELIEVE ON REASONABLE GROUNDS** that the works, other than those outstanding works listed below, have been completed in accordance with the above consent and sound engineering practice.

..... Date 23/10/2020
(Signature suitably qualified Professional)

CPEng, NZDE, NZDB Member CSNZ ☐ NZIS ☐
(Professional Qualifications)

36 Kereiti Street, Mount Maunganui ACENZ ☐ IPENZ ☐
(Address)

CPEng ☒

Outstanding Works

.....

.....

.....

APPENDIX 4 iii)

HAMILTON CITY COUNCIL

CERTIFICATE FOR AS-BUILT DRAWINGS

Greenhill Park - Stage 12 ..... **DEVELOPMENT**

I, Kurt Uttinger _____, Chartered Professional Engineer/~~Surveyor~~, hereby certify that all of the information shown on the "as built" drawings and spreadsheets is correct as to location (x, y and z co-ordinates), size, materials. This applies to the following "as built" drawings:

Drawing No.	**Title**
21879-M-12-WW1 Rev AB	- Stage 12 Wastewater Asbuilt Plan
21879-M-12-W1 Rev AB	- Stage 12 Water Reticulation Asbuilt Plan
21879-M-12-SW1 Rev AB	- Stage 12 Stormwater Asbuilt Plan
21879-M-12-R1 Rev AB	- Stage 12 Roading Asbuilt Plan

_____

Chartered Professional Engineer/~~Surveyor~~

30/10/2020

_____

Date

Strategic Development Unit
Works Clearance Checklist

Note: Please refer to the Regional Infrastructure Technical Specifications for testing requirements and guidelines.

Consent Ref: 11.2018.6632 **Site Address: Webb Drive, Greenhill Park**

New Street Name: Stage 12 – Greenhill Park **Development Engineer:**

Documentation	Completed	Date	Notes
General			
GST register for all vested asset (PG L4 and PG L5)			
Upsize contribution documentation	N/A		
WEL completion certificate	Y	06/11/2020	Attached
Gas completion certificate (where necessary)	Y	23/10/2020	Attached
UFF completion certificate	Y	23/10/2020	Attached
Roading			
Completion Certificate (PS4 or similar)	Y	23/10/2020	Attached
Subgrade			
- Stringing (relative shape and height)	Y	23/10/2020	Attached
- Compaction (natural subgrade – Scala, SIL sand-Scala, SIL brown rock – Clegg)	Y	23/10/2020	Attached
Subbase			
- Stringing (relative shape and height)	N/A		
- Compaction (clegg)	N/A		
- Nuclear densometer (NDMS)	N/A		
Basecourse			
- Stringing (relative shape and height)	Y	23/10/2020	Attached

- Compaction (clegg)	Y	23/10/2020	Attached
- Nuclear densometer (NDMS)	Y	23/10/2020	Attached
- Benkelman beam test	Y	23/10/2020	Attached
RAMM Pavement	Y	23/10/2020	Attached
RAMM Surfacing	Y	30/10/2020	Attached
Streetlight			
Asbuilt Plan			
RAMM Streetlight	Y	23/10/2020	Attached
Copy of approved application for new connection	Y	30/10/2020	Light live. Email confirmation attached.
Producer Statement	Y	23/10/2020	Attached
CoC or ESC signed by authorised person	Y	23/10/2020	Attached
Asbuilt in format approved by WEL	Y	23/10/2020	Attached
Confirmation of practical completion or 224c sign off	Y	23/10/2020	PC awarded 23/10/2020
WEL Networks approval sheet (Written confirmation from WEL for the acceptance of all underground cabling and circuitry)	Y	23/10/2020	Attached
Manufacturer's Warranty Documents	Y	23/10/2020	Attached
Road Drainage			
Asbuilt plan (subsoil/catchpit/leads	Y	06/11/2020	Attached
Secondary flow path	Y	06/11/2020	Attached
Signage and Marking Asbuilt Plan	Y	06/11/2020	Attached
Water			
Water as-built plan	Y	06/11/2020	Attached
Data Sheet	Y	06/11/2020	Attached
Pressure test certificate	Y	23/10/2020	Attached
DXF (if >2 lots)	Y	06/11/2020	Attached
Bacteriological test result	Y	23/10/2020	Attached

Hydrant test (where necessary)	N/A		
RITS checklists			
- F6.1 Water reticulation design confirmation,	N/A		Beca design
- F6.2 Water reticulation pipe laying checklist,	Y	23/10/2020	Attached
- F6.3 Water reticulation final inspection checklist	Y	23/10/2020	Attached
Wastewater			
Wastewater as-built plan	Y	06/11/2020	Attached
Data sheet	Y	06/11/2020	Attached
DXF (if >2 lots)	Y	06/11/2020	Attached
CCTV investigation	Y	23/10/2020	Submission email attached
Pipe Pressure test	Y	23/10/2020	Attached
Manhole pressure test	Y	30/10/2020	Attached
Trench backfill	Y	23/10/2020	Attached
RITS checklist			
- F5.1 wastewater design confirmation,	N/A		Beca design
- F5.2 Wastewater pipe laying checklist,	Y	23/10/2020	Attached
- F5.3 Wastewater manhole checklist,	Y	23/10/2020	Attached
- F5.4 Wastewater trench backfill test summary,	Y	23/10/2020	Attached
- F5.6 Wastewater pipe network- final inspection checklist,	Y	23/10/2020	Attached
- F5.7 Pump station control programming checklist	N/A		
Stormwater			
Stormwater as-built plan	Y	06/11/2020	Attached
Data sheet	Y	06/11/2020	Attached

DXF (if >2 lots)	Y	06/11/2020	Attached
Wetland as-built plan (see RITS for minimum details required)	N/A		
Completed planting plan (confirmation that plants are in accordance with the accepted plan)	Y	06/11/2020	Attached
Proprietary device completion certificate	N/A		
Final operation and maintenance manual	N/A		
CCTV investigation	Y	23/10/2020	Submission email attached.
Trench backfill	Y	02/11/2020	Attached
RITS checklist			
- F4.1 Stormwater design checklist,	N/A		Beca design
- F4.2 Stormwater pipe laying checklist,	Y	23/10/2020	Attached
- F4.3 Stormwater manhole checklist,	Y	23/10/2020	Attached
- F4.4 Stormwater trench backfill compaction test summary,	Y	03/11/2020	Attached
- F4.5 Stormwater catchpit checklist,	Y	23/10/2020	Attached
- F4.6 Stormwater pipe network final inspection checklist,	Y	23/10/2020	Attached
- F4.7 Wetland construction inspection checklist,	N/A		
- F4.8 Wetland and inspection/Sign off checklist	N/A		
- Final Operation and Maintenance Manual	N/A		
- Final Water Impact Assessment	N/A		
Parks and Open Spaces Street trees/planting sign off			To be supplied from HCC

Bond			
Quote	N/A		
Signed bond form			To be supplied from HCC
Other:	N/A		

APPENDIX 9

As Built Drawings

- 21879-M-WW1 Rev AB – Stage 12 Wastewaer Asbuilt Plan
- 21879-M-12-W1 Rev AB – Stage 12 Water Reticulation Asbuilt Plan
- 21879-M-12-SW1 Rev AB – Stage 12 Stormwater Asbuilt Plan
- 21879-M-12-Rev AB – Stage 12 Roading Asbuilt Plan

STREETLIGHT COORDINATES		
NAME	EASTING	NORTHING
SL99	447343.91	703068.94
SL100	447361.67	703052.41
SL101	447377.21	703004.85
SL102	447306.68	703058.01
SL103	447281.39	703050.22
SL104	447297.77	703046.16
SL105	447302.26	703004.16
SL106	447314.70	702967.71

506
LOCAL PURPOSE RESERVE
(STORMWATER MANAGEMENT)

327 507 329 330 331 332

RL 38.31
150mm

RL 38.30
190mm

GOSSET AVENUE

COULDSACK AVENUE

SL103 SL102 SL99

RL 38.41
190mm

SL104

333 334 335 336 337 338 339 340 705

347 348 349 346 350 345 351 344 352 343 353 354 342 355 341 356

SL105 SL106 SL100 SL101

GOSSET AVENUE

COULDSACK AVENUE

503

NOTES:

1. HCC REF: 011.2018.00006632.001

ROADING LEGEND:

- ABUTTAL
- BOUNDARY
- EDGE OF SEAL
- VERTICAL KERB
- MOUNTABLE KERB
- SUBSOIL DRAIN
- FLOW PATH
- STAGE PERIMETER
- FOOTPATH
- RAISED CONCRETE
- PONDING
- STREETLIGHT
- TREE

SHRIMPTON & LIPINSKI
LAND DEVELOPMENT & DESIGN SPECIALISTS
Ph. 07 577 6069
Email: info@sltga.co.nz
P.O. Box 231, Tauranga 3140
www.sltga.co.nz

Chedworth Properties Limited

GREENHILL PARK

STAGE 12
ROADING
AS-BUILT PLAN

Rev	Description	Drn	Ckd	App	Date
AB	AS-BUILT	NP	SRC	NF	11/20
0	PRELIMINARY	NP	SRC	NF	10/20

	Name	Date		Name	Date
Surveyed	SRC	10/20	Designed	BECA	08/18

Coordinate System: MT EDEN 2000 CIRCUIT
Origin of Coordinates: ALP 4 DP 534481
Height Datum: MOTURIKI DATUM 1953
Origin of Height: SS 507 SO 42451 RL = 44.04m

Original Scales @ A3: 1:500
Do Not Scale Dimensions

Status: AS-BUILT

Drawing No: 21879-M-12-R1

Revision: AB

H:\0000 - H Drive\nparkinson\Autocad\21879-M-12 - CADM - As-Built Plans - Autocad\21879-M-12 - CADM - As-Built Plans.dwg - Plotted: 5/11/2020

STORM WATER PIPELINES

UPSTREAM MH	DOWNSTREAM MH	PIPE DIA	MATERIAL	CLASS	PIPE LENGTH	PIPE GRADE	UPSTREAM IL	DOWNSTREAM IL
SWMH 17.6	SWOUT 14	600	RCRRJ	4	3.2	1:160	35.84	35.82
SWMH 17.5	SWMH 17.6	600	RCRRJ	4	39.7	1:99	36.32	35.92
SWMH 17.3	SWMH 17.5	600	RCRRJ	4	56.2	1:165	36.71	36.37
SWMH 17.2	SWMH 17.3	450	RCRRJ	4	49.2	1:214	36.97	36.74

EXTG. SWM25004 OUT

Ø450mm RCRRJ CLASS 4 - 62.4m - EXISTING

EXTG. SWM25004

SWOUT 14

Ø600mm RCRRJ CLASS 4 - 3.2m

SWMH 17.6

506

LOCAL PURPOSE RESERVE (STORMWATER MANAGEMENT)

Ø600mm RCRRJ CLASS 4 - 39.7m

507

Ø450mm RCRRJ CLASS 4 - 45.2m

327 329 330 331 332

DP 105 DP 106

SWMH 17.5

SWMH 18.1

Ø300mm uPVC SN16 - 23.1m

GOSSET AVENUE

COULDSACK AVENUE

DP SP 25

SWMH SP 4.7

CP 104

333 334 335 336 337 338 339 340 705

Ø600mm RCRRJ CLASS 4 - 56.2m

347 348 349 350 346 345 344 343 342 341

STORM WATER MANHOLES COORDINATES

MH ID	DIA	EASTING	NORTHING	LID LEVEL	INVERT OUT	INVERT IN	INVERT IN	INVERT IN	INVERT IN
SWMH 17.1	1050	447344.38	702905.62	TBC	37.31				
SWMH 17.2	1050	447321.49	702957.90	38.87	36.97	37.01	37.39		
SWMH 17.3	1050	447304.73	703004.19	38.57	36.71	36.74	37.01		
SWMH 17.5	1800	447288.58	703058.07	38.32	36.32	36.46	36.34	36.37	36.41
SWMH 17.6	1050	447278.72	703096.56	36.88	35.84	35.92			
SWMH 18.1	1050	447310.79	703064.57	38.31	36.79	37.10			
SWMH SP 4.3	1050	447407.60	702946.78	TBC	38.13	38.36	38.19	38.47	
SWMH SP 4.5	1050	447381.34	703000.72	TBC	37.52	37.89	37.53	37.78	
SWMH SP 4.6	1050	447368.36	703046.36	TBC	37.00	37.33	37.06	37.59	
SWMH SP 4.7	1050	447357.90	703079.80	TBC	36.65	36.66	37.02		
SWM25004	1050	447342.00	703122.13	38.40	36.21	36.34	36.22		

SWMH 17.3

CP 103

GOSSET AVENUE

Ø450mm RCRRJ CLASS 4 - 49.2m

SWMH 17.2

CP 102

Ø375mm RCRRJ CLASS 4 - 57.1m

TO SWMH 17.1

CP SP 24

SWMH SP 4.6

Ø450mm RCRRJ CLASS 4 - 35.0m

503

Ø375mm RCRRJ CLASS 4 - 47.4m

COULDSACK AVENUE

CP SP 23

SWMH SP 4.5

Ø375mm RCRRJ CLASS 4 - 60.0m

TO SWMH SP 4.3

NOTES:

1. HCC REF: 011.2018.00006632.001
2. DCP'S CONNECTED TO MANHOLES BY Ø300 uPVC SN16 UNLESS OTHERWISE STATED
3. CP'S CONNECTED TO MANHOLES BY Ø225 DIA uPVC SN16 UNLESS OTHERWISE STATED
4. LOT CONNECTIONS ARE Ø100 FOR SINGLE AND Ø150 FOR DOUBLE UNLESS OTHERWISE STATED
5. LOT CONNECTIONS AND LATERALS LINE PLOTTED FROM DATA SUPPLIED BY WEST CONSTRUCTION & ONLINE CONTRACTORS

LEGEND:

- ABUTTAL
- BOUNDARY
- STAGE PERIMETER
- STORMWATER MAIN
- STORMWATER CONNECTION
- STORMWATER EXISTING
- FLOW ARROWS
- SW MANHOLE NEW
- SW MANHOLE EXISTING
- SW CONNECTION
- OUTLET
- DOUBLE CATCHPIT
- CATCHPIT

STORM WATER PIPELINES

UPSTREAM MH	DOWNSTREAM MH	PIPE DIA	MATERIAL	CLASS	PIPE LENGTH	PIPE GRADE	UPSTREAM IL	DOWNSTREAM IL
SWMH 17.1	SWMH 17.2	375	RCRRJ	4	57.1	1:190	37.31	37.01
SWMH 18.1	SWMH 17.5	300	uPVC	SN16	23.1	1:51	36.79	36.34
SWMH SP 4.7	SWM25004	450	RCRRJ	4	45.2	1:105	36.65	36.22
SWMH SP 4.6	SWMH SP 4.7	450	RCRRJ	4	35.0	1:103	37.00	36.66
SWMH SP 4.5	SWMH SP 4.6	375	RCRRJ	4	47.4	1:103	37.52	37.06
SWMH SP 4.3	SWMH SP 4.5	375	RCRRJ	4	60.0	1:100	38.13	37.53

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Chedworth Properties Limited

GREENHILL PARK

STAGE 12 STORMWATER AS-BUILT PLAN

Rev	Description	Drn	Ckd	App	Date
AB	AS-BUILT	NP	SRC	NF	11/20
0	PRELIMINARY	NP	SRC	NF	10/20

	Name	Date		Name	Date
Surveyed	SRC	10/20	Designed	BECA	08/18

Coordinate System: MT EDEN 2000 CIRCUIT
Origin of Coordinates: ALP 4 DP 534481
Height Datum: MOTURIKI DATUM 1953
Origin of Height: SS 507 SO 42451 RL = 44.04m

Original Scales @ A3: 1:500
Do Not Scale Dimensions

Status: AS-BUILT

Drawing No: 21879-M-12-SW1

Revision: AB

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FIRE HYDRANT COORDINATES

HYDRANT ID	EASTING	NORTHING
FH1	447276.45	703046.70
FH2	447355.96	703081.87
FH3	447324.06	702942.77

SLUICE VALVE COORDINATES

VALVE ID	EASTING	NORTHING
SV1	447271.46	703055.51
SV2	447272.89	703056.29
SV3	447355.27	703081.69
SV4	447277.65	703047.02
SV5	447297.85	703016.74
SV6	447324.56	702941.71

PEET VALVE COORDINATES

VALVE ID	EASTING	NORTHING
PV1	447307.49	703020.98
PV2	447306.95	703022.74
PV3	447340.24	703066.00
PV4	447342.14	703066.69

506
LOCAL PURPOSE RESERVE
(STORMWATER MANAGEMENT)

327 507 329 330 331 332

RM1 150Ø PVC-M-PN12 8.7m
RM2 150Ø PVC-M-PN12 - 86.2m
RM3 150Ø PVC-M-PN12 7.1m
RM4 150Ø PVC-M-PN12 24.0m
SV1 SV2
SV3 FH2
FH1 SV4
GOSSET AVENUE
COULDSACK AVENUE
RM9 63Ø PE80 SDR11 PN12.5 - 73.5m
RM10 63Ø PE80 SDR11 PN12.5 12.5m
PV3 PV4

333 334 335 336 337 338 339 340

RM5 150Ø PVC-M-PN12 - 45.1m
RM6 150Ø PVC-M-PN12 - 79.7m
RM8 63Ø PE80 SDR11 PN12.5 - 12.2m
PV2 PV1
SV5
GOSSET AVENUE

347 348 349 346 345 344 343 342 341

RM7 63Ø PE80 SDR11 PN12.5 - 77.8m
RM11 63Ø PE80 SDR11 PN12.5 - 113.3m
COULDSACK AVENUE

350 351 352 353 354 355 356

503

705

FH3
SV6

NOTES:

1. HCC REF: 011.2018.00006632.001
2. WATERMAINS PLOTTED FROM DATA SUPPLIED BY ONLINE CONTRACTORS

LEGEND:

- ABUTTAL
- BOUNDARY
- STAGE PERIMETER
- WATER MAIN
- EXISTING WATER MAIN
- RIDERMAIN
- WATER METER
- VALVE - NEW
- VALVE - EXISTING
- FIRE HYDRANT - NEW

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GREENHILL PARK

STAGE 12
WATER RETICULATION
AS-BUILT PLAN

Rev	Description	Drn	Ckd	App	Date
AB	AS-BUILT	NP	SRC	NF	11/20
0	PRELIMINARY	NP	SRC	NF	10/20

	Name	Date		Name	Date
Surveyed	SRC	10/20	Designed	BECA	08/18

Coordinate System: MT EDEN 2000 CIRCUIT
Origin of Coordinates: ALP 4 DP 534481
Height Datum: MOTURIKI DATUM 1953
Origin of Height: SS 507 SO 42451 RL = 44.04m

Original Scales @ A3: 1:500
Do Not Scale Dimensions
Status: AS-BUILT

Drawing No: 21879-M-12-W1
Revision: AB

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WASTE WATER MANHOLES COORDINATES

MH ID	DIAMETER	EASTING	NORTHING	LID LEVEL	INVERT OUT	INVERT IN	INVERT IN	INVERT IN
WWMH 16.1	1050	447322.01	702963.39	38.93	36.40	36.47	36.52	
WWMH 17.1	1050	447380.45	702984.17	39.37	37.83	37.78		
WWMH 17.2	1050	447349.22	703074.40	38.66	36.83	36.92	36.86	
WWMH 17.3	1050	447292.01	703056.99	38.36	35.40	36.38	35.44	
WWM24074	1050	447229.05	703037.52	38.18	34.89	35.03	35.02	34.92

WASTE WATER PIPELINES

UPSTREAM MH	DOWNSTREAM MH	PIPE DIA	MATERIAL	CLASS	PIPE LENGTH	PIPE GRADE	UPSTREAM IL	DOWNSTREAM IL
WWMH 17.3	WWM24074	150	uPVC	SN16	65.9	1:178	35.40	35.03
WWMH 17.2	WWMH 17.3	150	uPVC	SN16	59.8	1:133	36.83	36.38
WWMH 17.1	WWMH 17.2	150	uPVC	SN16	95.5	1:98	37.83	36.86
WWMH 16.1	WWMH 17.3	150	uPVC	SN16	98.3	1:102	36.40	35.44

506
LOCAL PURPOSE RESERVE
(STORMWATER MANAGEMENT)

327 507 329 330 331 332

TO EXTG. WWM24074
Ø150mm uPVC SN16 - 65.9m - EXISTING
WWMH 17.3
Ø150mm uPVC SN16 - 59.8m
WWMH 17.2

GOSSET AVENUE
COULDSACK AVENUE

333 334 335 336 337 338 339 340 705
347 348 349 346 350 351 345 352 344 353 343 354 342 355 341 356

Ø150mm uPVC SN16 - 98.3m
Ø150mm uPVC SN16 - 95.5m
503

WWMH 16.1
WWMH 17.1

NOTES:

1. HCC REF: 011.2018.00006632.001
2. LOT CONNECTIONS AND LATERAL LINES PLOTTED FROM DATA SUPPLIED BY WEST CONSTRUCTION
3. LOT CONNECTIONS ARE Ø100 uPVC SN16 RR UNLESS SHOWN OTHERWISE

LEGEND:

- ABUTTAL
- BOUNDARY
- STAGE PERIMETER
- WASTEWATER MAIN - NEW
- WASTEWATER CONNECTION
- WASTEWATER - EXISTING
- WW MANHOLE - NEW
- WW MANHOLE - EXISTING
- WASTEWATER CONNECTION

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STAGE 12 WASTEWATER AS-BUILT PLAN

Rev	Description	Drn	Ckd	App	Date
AB	AS-BUILT	NP	SRC	NF	11/20
0	PRELIMINARY	NP	SRC	NF	10/20

	Name	Date		Name	Date
Surveyed	SRC	10/20	Designed	BECA	08/18

Coordinate System: MT EDEN 2000 CIRCUIT
Origin of Coordinates: ALP 4 DP 534481
Height Datum: MOTURIKI DATUM 1953
Origin of Height: SS 507 SO 42451 RL = 44.04m

Original Scales @ A3: 1:500
Do Not Scale Dimensions
Status: AS-BUILT

Drawing No: 21879-M-12-WW1
Revision: AB

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GENERAL NOTES

ALL SET OUT MUST BE CHECKED AND APPROVED BY THE LANDSCAPE ARCHITECT ON SITE.

THE CONTRACTOR SHALL REQUEST, AND HAVE UNDERTAKEN, AN INSPECTION OF ALL SET OUT PRIOR TO ANY CONCRETE BEING PLACED OR PAVING LAID.

THE CONTRACTOR SHALL REQUEST, AND HAVE UNDERTAKEN, AN INSPECTION OF THE SET OUT OF ALL CONTROL JOINTS PRIOR TO COMMENCING SAW CUTTING.

All drawings shall be read in conjunction with the landscape specifications.

Drawings not to be scaled, use dimensioned measurements only.

SITE FURNITURE NOTES

All timber to have a graffiti guard applied in accordance with the manufacturers specifications.

SOFT LANDSCAPE NOTES

All grass areas to be finished 25mm higher than adjoining surface to allow for settlement.

All trees to be inspected and approved by the Landscape Architect prior to delivery to site.

Planting numbers are indicative. Contractor to ensure sufficient stock to achieve the specified planting densities.

All areas of open space planting, amenity planting and berm planting to be mulched in accordance with the specifications and drawings.

Refer to specifications for requirements on the preparation of planting and grass areas.

PLANTING

PLANT LAYOUT

PLANT SPECIES UP TO 0.5M HIGH AT MATURITY
The Contractor shall ensure the planting pit is setback 0.45m (minimum) from the edge of all footpaths and road edges.

PLANT SPECIES 0.5M HIGH OR GREATER AT MATURITY
The Contractor shall ensure the planting pit is setback 1m (minimum) from the edge of all footpaths and road edges.

PAVING

P03 INSITU CONCRETE PAVING
Surface finish: U5 soft bristled broom finish in general accordance with NZS 3114, ensure the aggregate is not exposed.
Aggregate: 13mm Greywacke.
Oxide: 8% Black 330 Oxide.
All concrete finishes shall be in accordance with NZS 3114:1987.
Control joints: 5mm wide, formed by sawcutting in accordance with the drawings and specifications.
All insitu concrete paving to include control joints, construction joints and expansion joints in accordance with the drawings and specifications to Engineer's approval.
Compaction of subbase to be inspected by Engineer prior to commencement of paving.

P04 INSITU CONCRETE MOWING STRIP
Note width varies.
Surface finish: U5 soft bristled broom finish in general accordance with NZS 3114, ensure the aggregate is not exposed.
Aggregate: 13mm Greywacke.
Oxide: 8% Black 330 Oxide.
All concrete finishes shall be in accordance with NZS 3114:1987.
Control joints: 5mm wide, formed by sawcutting in accordance with the drawings and specifications.
All insitu concrete paving to include control joints, construction joints and expansion joints in accordance with the drawings and specifications to Engineer's approval.
Compaction of subbase to be inspected by Engineer prior to commencement of paving.

SITE FURNITURE, SPECIAL FEATURES AND STRUCTURES

S01 SEAT
Type: Santa & Cole Trapecio Seat.
Manufacturer: Fel Group Street Furniture NZ.
Contact: Jordan Manfield <jordan@felgroup.co.nz>
Size: L 4000mm with back.
Material: Laminated pine, galvanised mild steel frame.
Finish: Resene Furniture and Decking Oil or equal. Refer Data Sheet D503.
Graffiti guard: Graffiti-Guard™ Shearcote Plus.
Fixing: Surface mount to timber decking.
Sub surface mount into concrete paving.
Installation: In accordance with manufacturer's instructions.
Mowing strip: P04 insitu concrete mowing strip 6100 x 1510mm (minimum 350mm concrete all round seat).
Maintenance: Reapply Resene Furniture and Decking Oil and Graffiti-Guard™ Shearcote Plus every 2 years in accordance with the manufacturer's instructions.

S02 LITTER BIN
Type: Milford Bin.
Manufacturer: Fel Group Street Furniture NZ.
Contact: Jordan Manfield <jordan@felgroup.co.nz>
Size: 100 Litre.
Material: Eucalyptus saligna timber slats with brass fixings, polished stainless steel lid and lock.
Finish: Resene Furniture and Decking Oil or equal. Refer Data Sheet D503.
Graffiti guard: Graffiti-Guard™ Shearcote Plus.
Fixing: Plant mounted.
Installation: In accordance with manufacturer's instructions.

S03 BOLLARD
Type: HCC RITS D7.7 Timber Bollard.
Installed at 1.5m centres maximum. No chain.

S04 REMOVABLE LOCKABLE BOLLARD
Type: Removable lockable bollard to match HCC RITS D7.7 Timber Bollard.
Installed at 1.5m centres maximum. No chain.

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NOTES

CONTRACTORS TO VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK;

CONTRACTORS ARE RESPONSIBLE FOR CONFIRMING THE LOCATION OF ALL UNDERGROUND SERVICES ON SITE PRIOR TO COMMENCING WORK;

FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.

KEY

REV	DATE	DESCRIPTION
0	21.06.19	ISSUED FOR CONSTRUCTION
1	06.11.20	AS BUILT

CLIENT
Chedworth Properties Ltd

CONSULTANTS
S & L Consultants
Beca
Kendelier Lighting

AS BUILT

GREENHILL PARK
AREA M
STAGE 12

GENERAL ARRANGEMENT
KEY SHEET AND NOTES

Design	ARo	Scale	NTS
Drawn	ARo	Date	21.06.19
Check	MHu		
Appv'd			

DRAWING NO. H18006_130

REVISION 1

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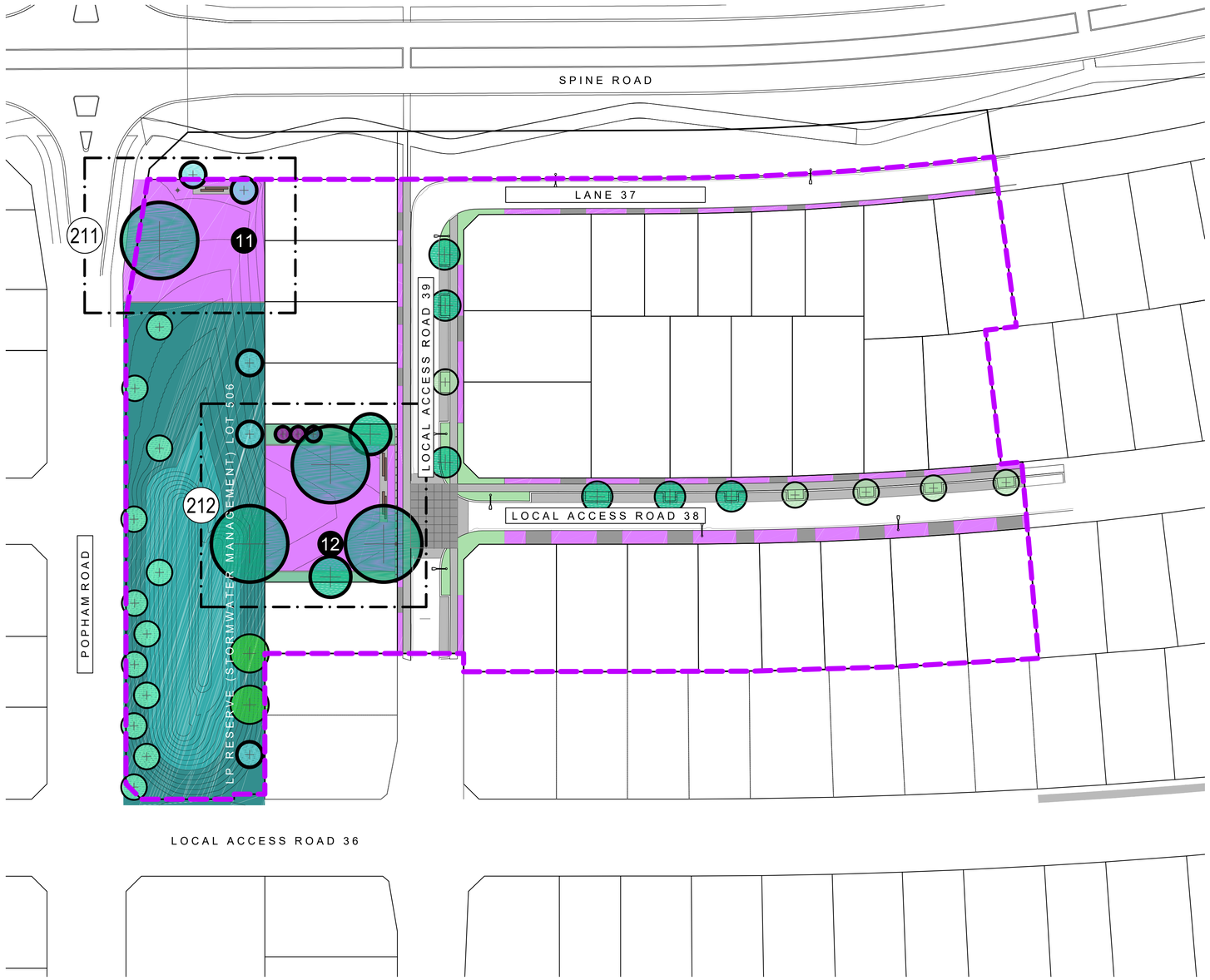

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NOTES

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FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.

KEY

REFER TO DRAWING NUMBER H18006_130 GENERAL ARRANGEMENT KEY SHEET AND NOTES

- STAGE 12
- PLANTING
- LAWN

REV	DATE	DESCRIPTION
0	21.06.19	ISSUED FOR CONSTRUCTION
1	31.07.20	PLANTING SUBSTITUTIONS, BACK BERM PLANTING AREAS SUBSTITUTED WITH LAWN
2	06.11.20	AS BUILT

CLIENT
Chedworth Properties Ltd

CONSULTANTS
S & L Consultants
Beca
Kendelier Lighting

AS BUILT

GREENHILL PARK
AREA M
STAGE 12

GENERAL ARRANGEMENT
SHEET LOCATIONS

Design	ARo	Scale	Date
Drawn	ARo	1:500 @ A1	21.06.19
Check	MHu	1:1000 @ A3	
Appv'd			

DRAWING NO. H18006_200

REVISION 2

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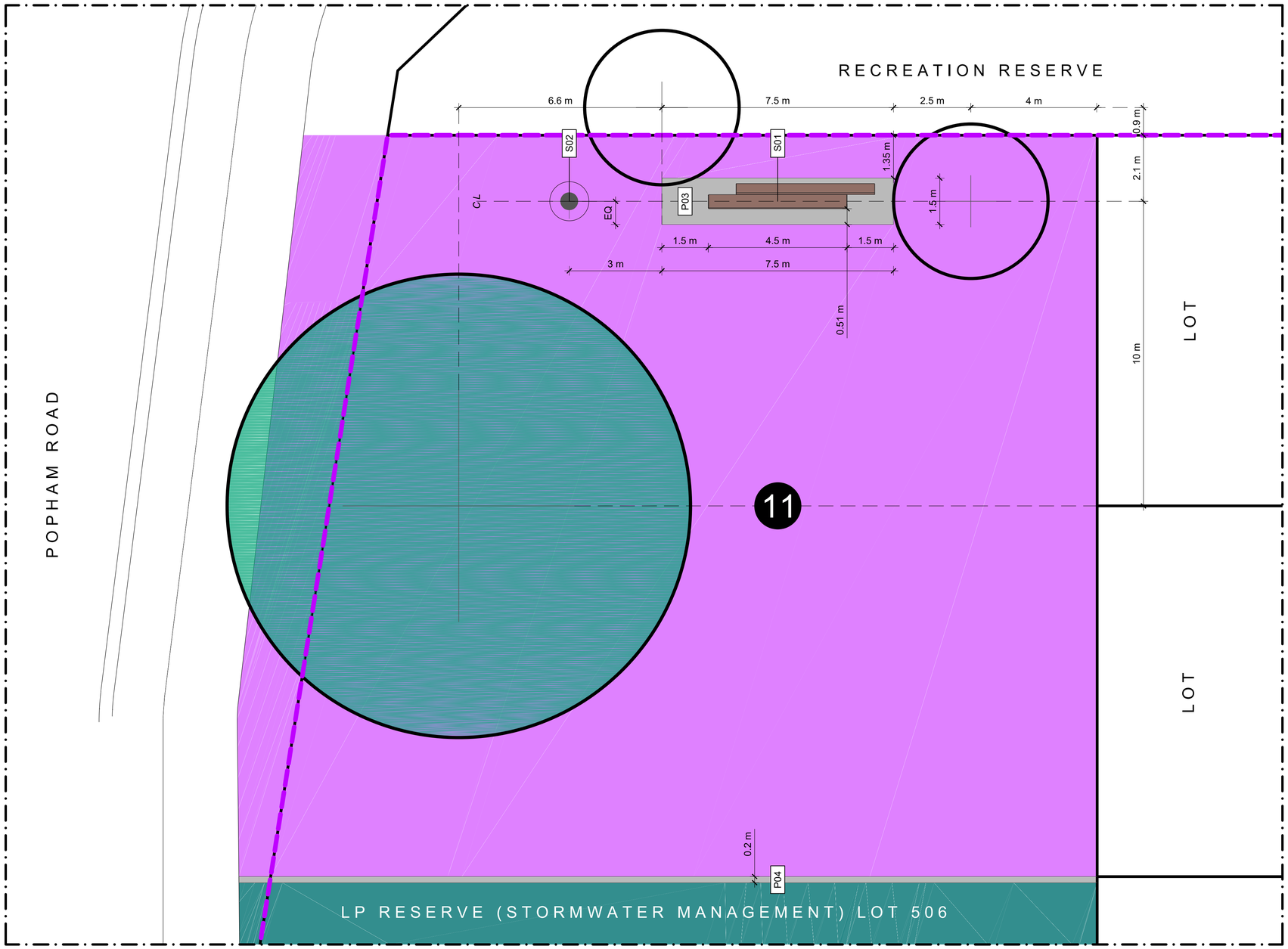

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NOTES

CONTRACTORS TO VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK;

CONTRACTORS ARE RESPONSIBLE FOR CONFIRMING THE LOCATION OF ALL UNDERGROUND SERVICES ON SITE PRIOR TO COMMENCING WORK;

FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.

KEY

REFER TO DRAWING NUMBER H18006_130 GENERAL ARRANGEMENT KEY SHEET AND NOTES

- 11 PARK 11
- PLANTING
- LAWN

REV	DATE	DESCRIPTION
0	21.06.19	ISSUED FOR CONSTRUCTION
1	06.11.20	AS BUILT

CLIENT
Chedworth Properties Ltd

CONSULTANTS
S & L Consultants
Beca
Kendelier Lighting

AS BUILT

GREENHILL PARK
AREA M
STAGE 12

GENERAL ARRANGEMENT
SHEET 01 OF 02

Design	ARo	Scale	Date
Drawn	ARo	1:75 @ A1	21.06.19
Check	MHu	1:150 @ A3	
Appv'd			

DRAWING NO. H18006_211

REVISION 1

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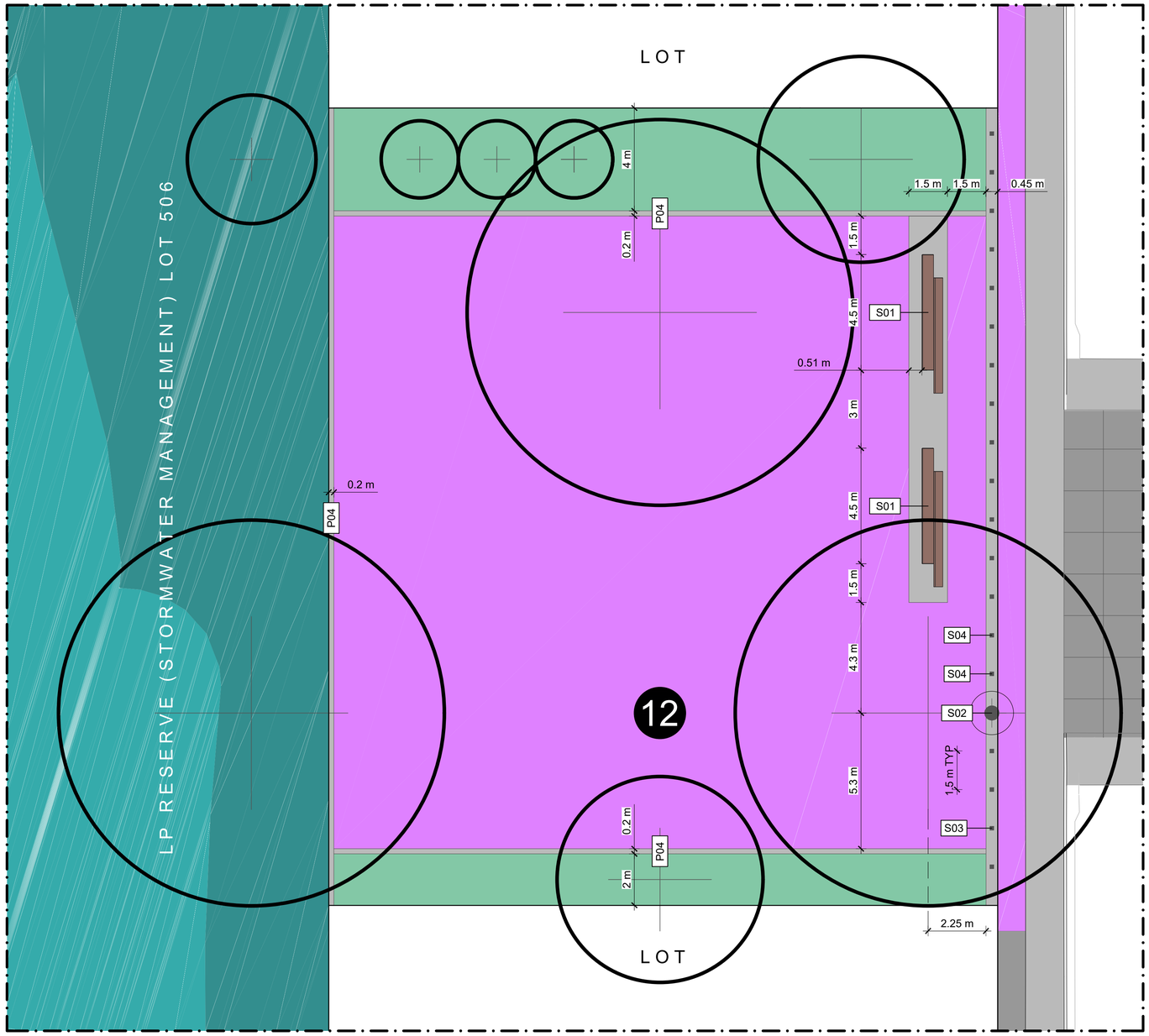

NOTES

CONTRACTORS TO VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK;

CONTRACTORS ARE RESPONSIBLE FOR CONFIRMING THE LOCATION OF ALL UNDERGROUND SERVICES ON SITE PRIOR TO COMMENCING WORK;

FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.

KEY

REFER TO DRAWING NUMBER H18006_130 GENERAL ARRANGEMENT KEY SHEET AND NOTES

12 PARK 12

PLANTING

LAWN

REV	DATE	DESCRIPTION
0	21.06.19	ISSUED FOR CONSTRUCTION
1	06.11.20	AS BUILT

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CLIENT
Chedworth Properties Ltd

CONSULTANTS
S & L Consultants
Beca
Kendelier Lighting

AS BUILT

GREENHILL PARK
AREA M
STAGE 12

GENERAL ARRANGEMENT
SHEET 02 OF 02

Design	ARo	Scale	Date
Drawn	ARo	1:100 @ A1	21.06.19
Check	MHu	1:200 @ A3	
Appv'd			

DRAWING NO. H18006_212

REVISION 1

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GENERAL NOTES

All drawings shall be read in conjunction with the landscape specifications.

Drawings not to be scaled, use dimensioned measurements only.

Setout to be checked and approved by the Landscape Architect on site.

SOFT LANDSCAPE NOTES

All trees to be inspected and approved by the Landscape Architect prior to delivery to site.

Planting numbers are indicative. Contractor to ensure sufficient stock to achieve the specified planting densities.

All areas of amenity planting and berm planting to be mulched in accordance with the specifications and drawings.

Refer to specifications for requirements on the preparation of planting and grass areas.

PLANT LAYOUT

PLANT SPECIES UP TO 0.5M HIGH AT MATURITY

The Contractor shall ensure the planting pit is setback 0.45m (minimum) from the edge of all footpaths and road edges.

PLANT SPECIES 0.5M HIGH OR GREATER AT MATURITY

The Contractor shall ensure the planting pit is setback 1m (minimum) from the edge of all footpaths and road edges.

Planting Schedule

Local Access Road

Botanical Name	Common Name	Size	Centres (m)	Quantity
Specimen Trees				
Alectryon excelsus	titoki	100-180L	As shown	5
Cornus 'Eddies White Wonder'	flowering dogwood	100-180L	As shown	6
Berm Planting				
Carex dipsacea	teasel sedge	1L	0.5	333
Libertia grandiflora	mikoikoi, New Zealand iris	1L	0.4	179
Phormium tenax 'Jack Spratt'	flax cultivar	1L	0.3	98
Mulch				23 m3

LP Reserve (Stormwater Management) Lot 506

Botanical Name	Common Name	Size	Centres (m)	Quantity
Specimen Trees				
Fagus sylvatica	european beech	100-180L	As shown	2
Knightia excelsa	rewarewa	100-180L	As shown	5
Podocarpus totara	totara	100-180L	As shown	2
Sophora microphylla	kowhai	100-180L	As shown	12
Upper Bank Planting | Soft-fine Leaved Grasses				
Carex dipsacea	teasel sedge	0.5L	0.5	2725
Carex diesita	forest sedge	0.5L	0.5	2044
Carex virgata	pukio/swamp sedge	0.5L	0.75	909
Total area 1,703 m2				
Lower Bank Planting				
Bolboschoenus fluviatilis	kukuraho	0.5L	0.75	92
Carex geminata	cutty grass	0.5L	0.75	184
Carex lessoniana	rautahi	0.5L	0.75	184
Carex secta	purei/makura	0.5L	0.75	92
Carex virgata	pukio	0.5L	0.75	92
Cordyline australis	cabbage tree	0.5L	1	52
Cyperus ustulatus	giant umbrella sedge	0.5L	0.5	206
Eleocharis acuta	spike rush	0.5L	0.5	413
Juncus edgariae	wiwi	0.5L	0.5	413
Juncus pallidus	giant rush wiwi	0.5L	0.75	276
Machaerina articulata	jointed twig-rush	0.5L	0.75	184
Machaerina rubiginosa	orange nut sedge	0.5L	0.5	413
Total area 1,032 m2				

Note - Plant species are indicative only based on assumed soil moisture levels. Species to be reviewed following finalisation of groundwater levels and design.

Other Waikato lowland species as appropriate.

Recreation Reserve

Botanical Name	Common Name	Size	Centres (m)	Quantity
Specimen Trees				
Fagus sylvatica	european beech	100-180L	As shown	2
Magnolia soulangeana x liliiflora 'Genie'	magnolia	100-180L	As shown	3
Pyrus calleryana 'Aristocrat'	ornamental pear	100-180L	As shown	2
Amenity Planting				
Anemanthele lessoniana	wind grass	1L	0.75	8
Carex dipsacea	teasel sedge	1L	0.5	51
Carex testacea	orange sedge	1L	0.5	84
Libertia grandiflora	mikoikoi. New Zealand iris	1L	0.4	254
Phormium tenax 'Purple Haze' PVR	flax cultivar	1L	1.5	18
Mulch				16 m3

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KEY

REV	DATE	DESCRIPTION
0	21.06.19	ISSUED FOR CONSTRUCTION
1	31.07.20	PLANTING SUBSTITUTIONS, BACK BERM PLANTING AREAS SUBSTITUTED WITH LAWN
2	06.11.20	AS BUILT

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Beca
Kendelier Lighting

AS BUILT

GREENHILL PARK
AREA M
STAGE 12

PLANTING SCHEDULE
GENERAL ARRANGEMENT NOTES

Design	ARo	Scale	NTS
Drawn	ARo	Date	21.06.19
Check	MHu		
Appv'd			

DRAWING NO. H18006_500

REVISION 2

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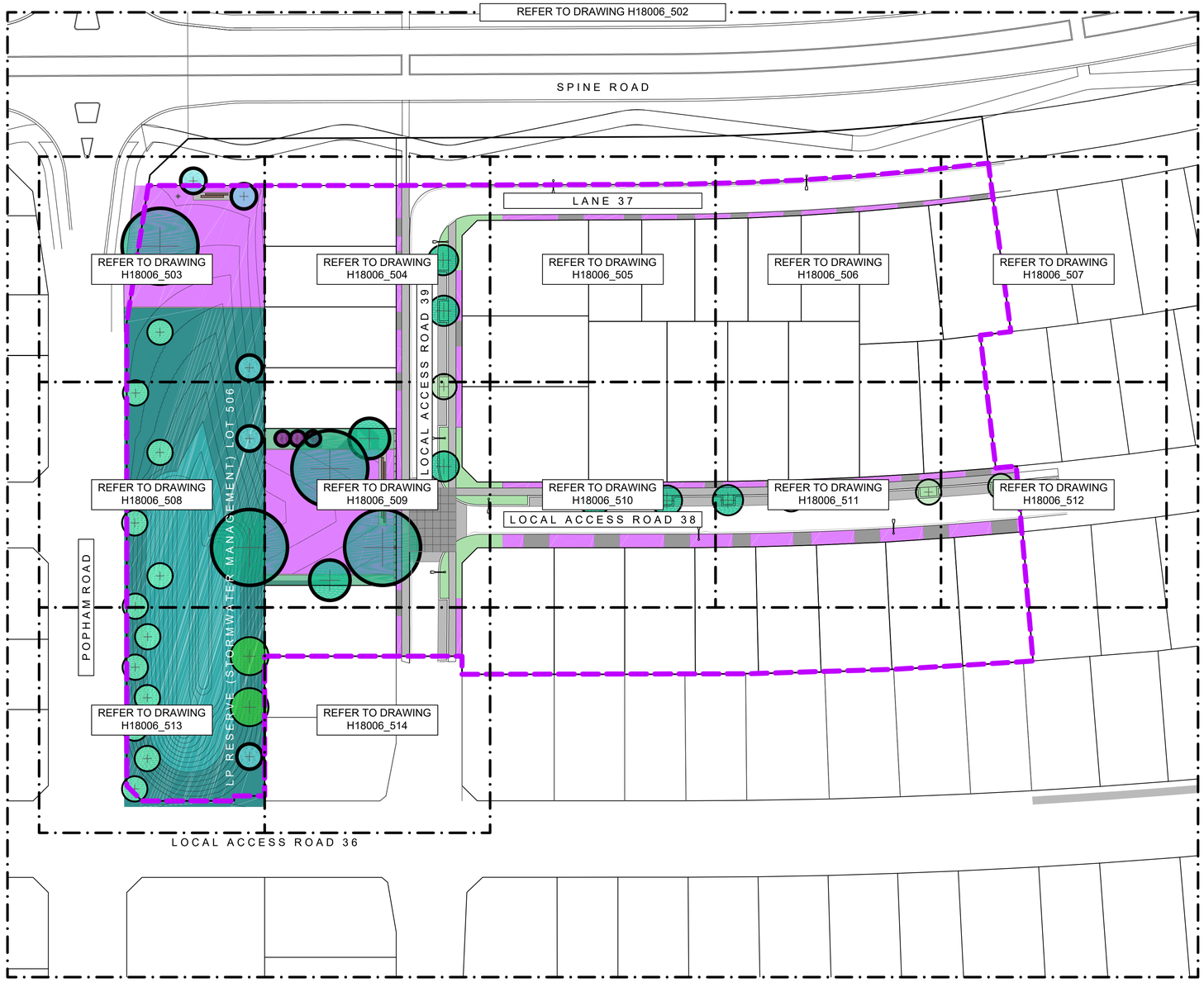

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KEY

REFER TO DRAWING NUMBER H18006_130 GENERAL ARRANGEMENT KEY SHEET AND NOTES

- STAGE 12
- PLANTING
- LAWN

REV	DATE	DESCRIPTION
0	21.06.19	ISSUED FOR CONSTRUCTION
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2	06.11.20	AS BUILT

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GREENHILL PARK
AREA M
STAGE 12

PLANTING PLAN
SHEET LOCATIONS

Design	ARo	Scale	Date
Drawn	ARo	1:500 @ A1	21.06.19
Check	MHu	1:1000 @ A3	
Appv'd			

DRAWING NO. H18006_501

REVISION 2

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Key

LOCAL ACCESS ROAD

Alectryon excelsus (titoki)

Cornus florida 'Eddies White Wonder' (flowering dogwood)

Berm Planting

Lawn

LP RESERVE (STORMWATER MANAGEMENT) LOT 505

Fagus sylvatica (european beech)

Knightia excelsa (rewarewa)

Podocarpus totara (totara)

Sophora microphylla (kowhai)

Swale Upper Bank Planting

Swale Lower Bank Planting

RECREATION RESERVE

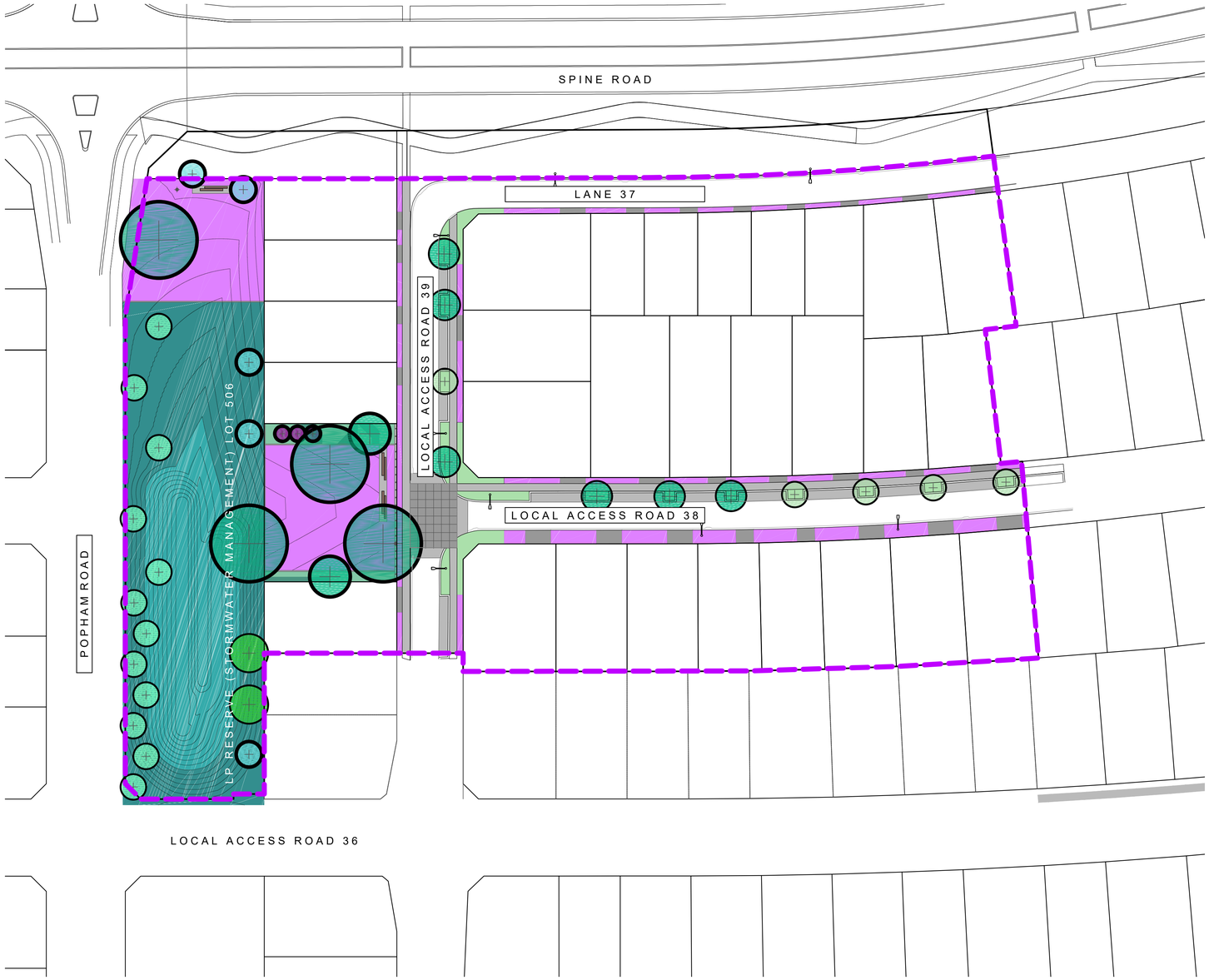
Fagus sylvatica (european beech)

Magnolia soulangeana x liliiflora 'Genie (rewarewa)

Pyrus calleryana 'Aristocrat'

Amenity Planting

Lawn



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REFER TO DRAWING NUMBER H18006_130 GENERAL ARRANGEMENT KEY SHEET AND NOTES

STAGE 12

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GREENHILL PARK
AREA M
STAGE 12

PLANTING PLAN
GENERAL ARRANGEMENT

Design	ARo	Scale	Date
Drawn	ARo	1:500 @ A1	21.06.19
Check	MHu	1:1000 @ A3	
Appv'd			

DRAWING NO. H18006_502

REVISION 2

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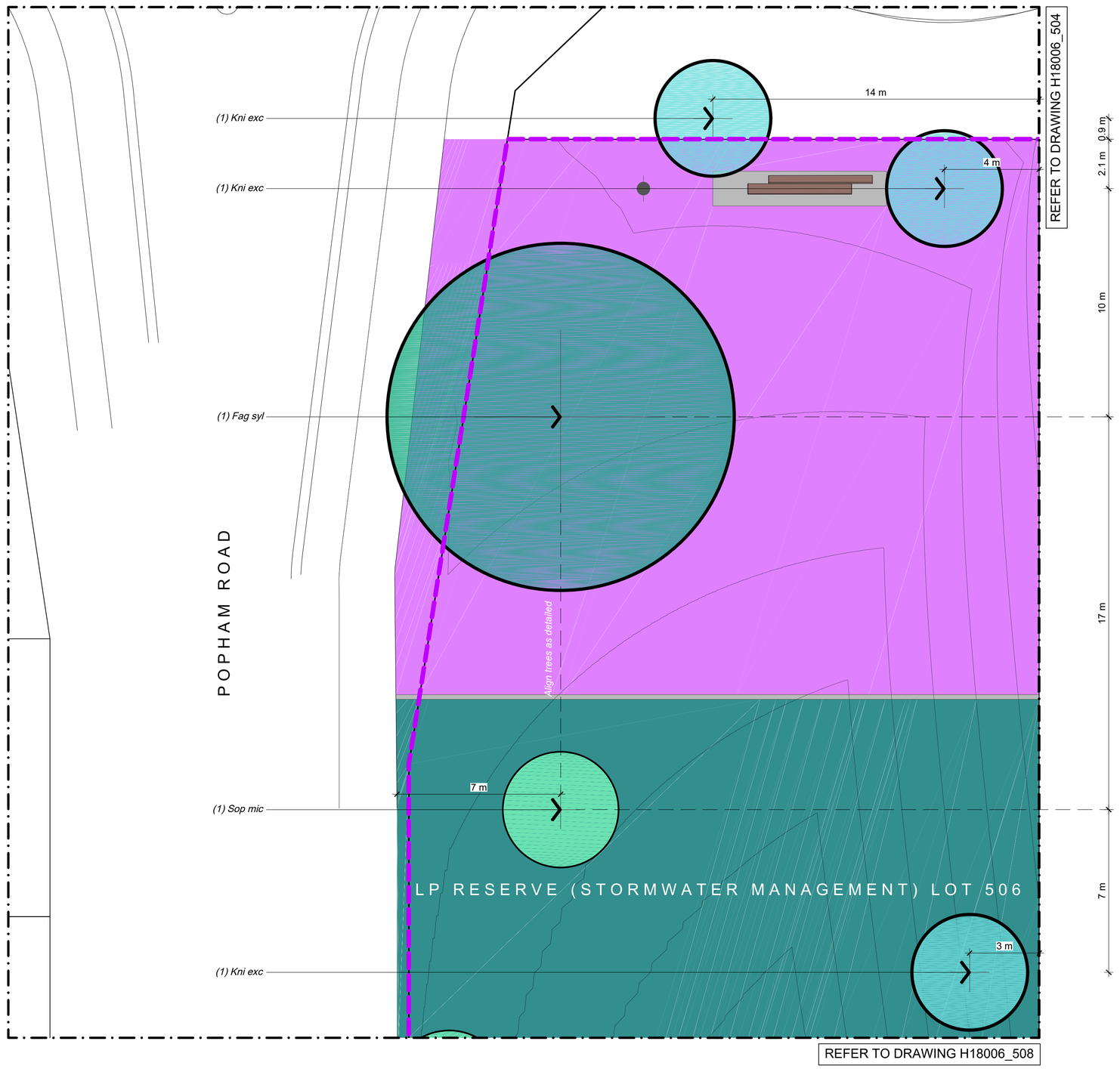
Key

Tree

Swale Upper Bank Planting
Soft-fine leaved grasses

Lawn



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2	06.11.20	AS BUILT

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GREENHILL PARK
AREA M
STAGE 12

PLANTING PLAN
SHEET 01 OF 12

Design	ARo	Scale	Date
Drawn	ARo	1:100 @ A1	21.06.19
Check	MHu	1:200 @ A3	
Appv'd			

DRAWING NO. H18006_503

REVISION 2

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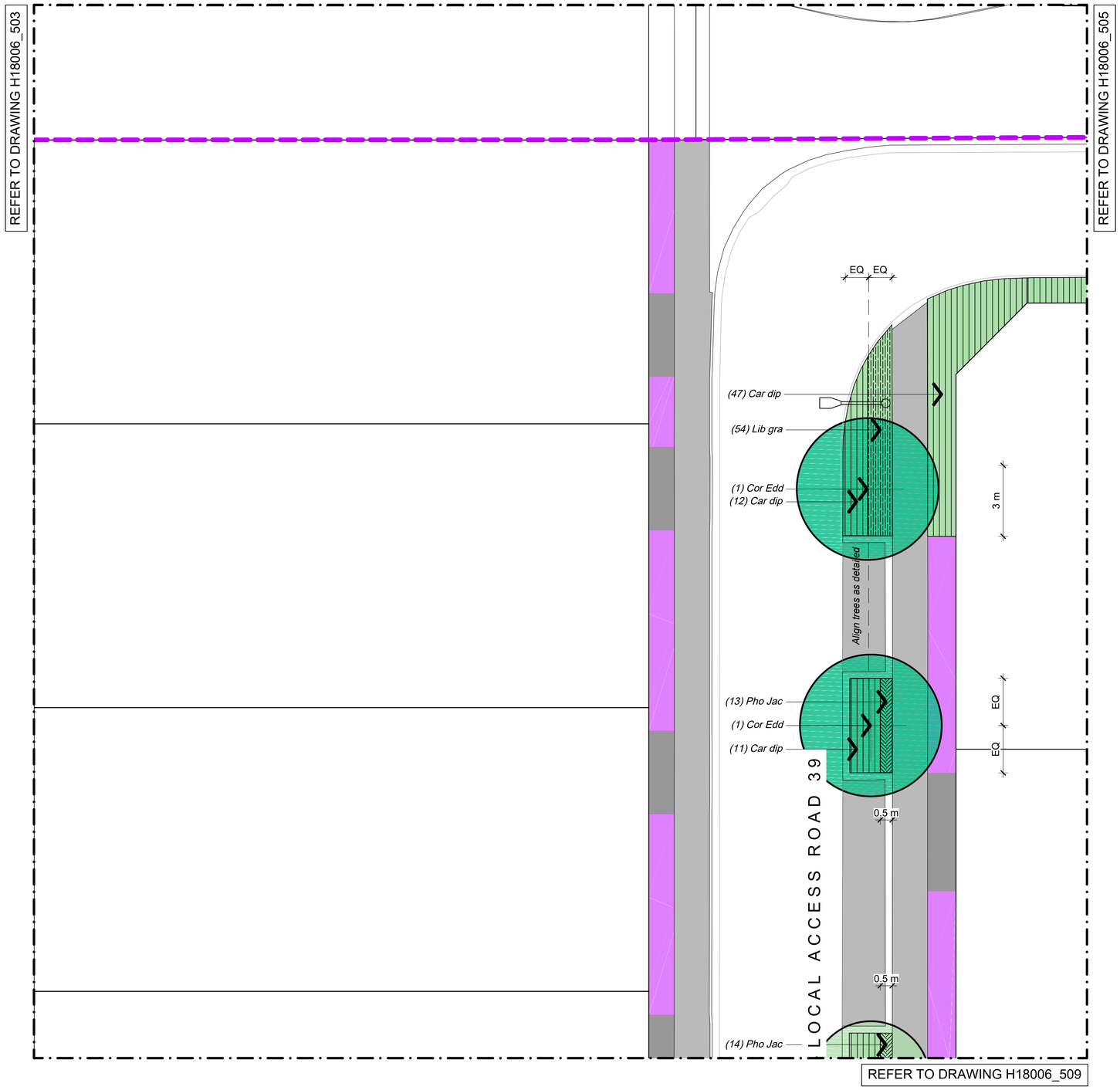
Key

Tree

Local Access Road Berm Planting

Lawn



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2	06.11.20	AS BUILT

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GREENHILL PARK
AREA M
STAGE 12

PLANTING PLAN
SHEET 02 OF 12

Design	ARo	Scale	Date
Drawn	ARo	1:100 @ A1	21.06.19
Check	MHu	1:200 @ A3	
Appv'd			

DRAWING NO. H18006_504

REVISION 2

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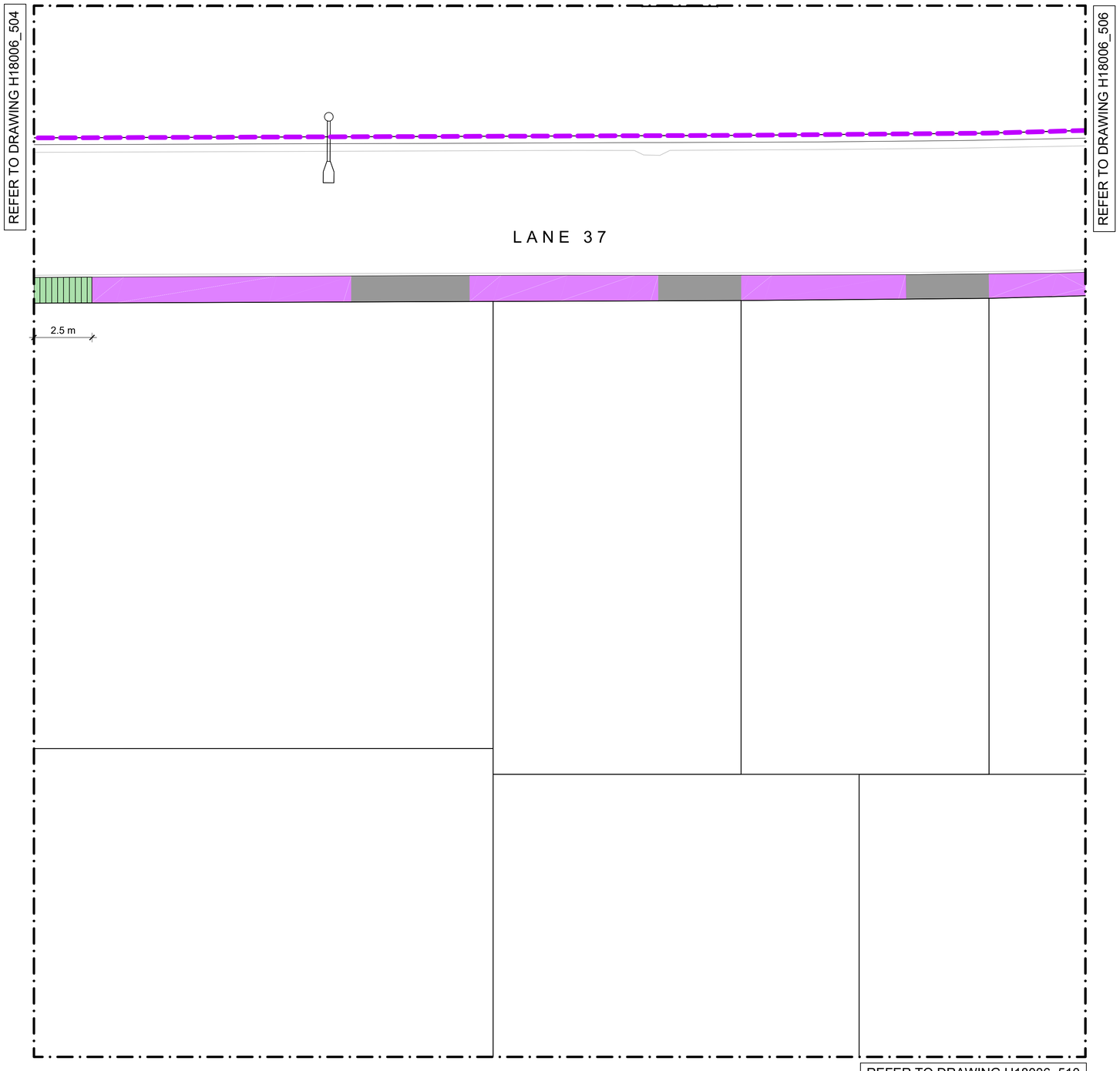
Key

Tree

Local Access Road Berm Planting

Lawn



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GREENHILL PARK
AREA M
STAGE 12

PLANTING PLAN
SHEET 03 OF 12

Design	ARo	Scale	1:100 @ A1	Date	21.06.19
Drawn	ARo		1:200 @ A3		
Check	MHu				
Appv'd					

DRAWING NO. H18006_505

REVISION 2

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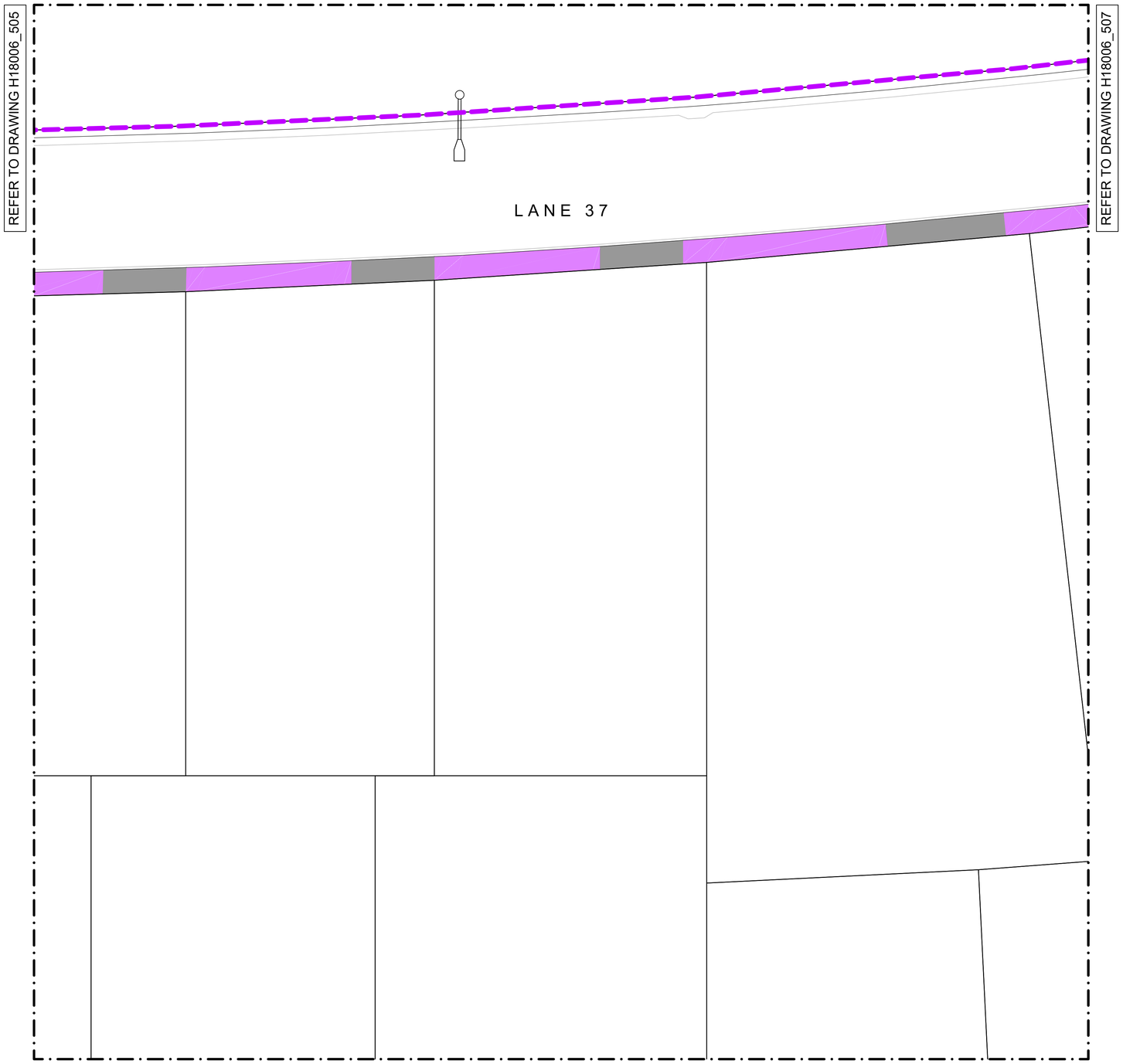
Key

Tree

Lawn



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GREENHILL PARK
AREA M
STAGE 12

PLANTING PLAN
SHEET 04 OF 12

Design	ARo	Scale	Date
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Check	MHu	1:200 @ A3	
Appv'd			

DRAWING NO. H18006_506

REVISION 2

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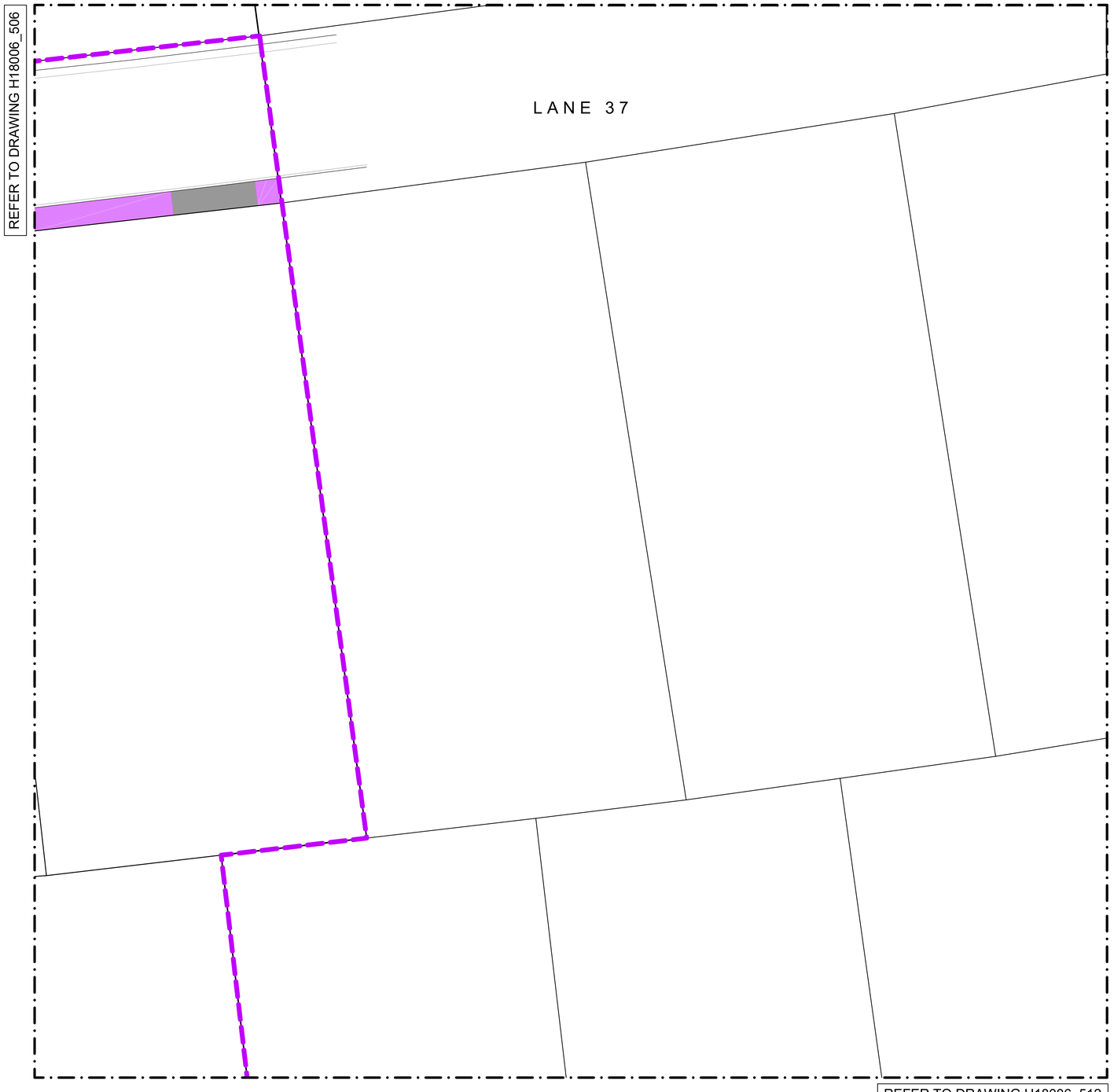
Key

Tree

Lawn



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AS BUILT

GREENHILL PARK
AREA M
STAGE 12

PLANTING PLAN
SHEET 05 OF 12

Design	ARo	Scale	Date
Drawn	ARo	1:100 @ A1	21.06.19
Check	MHu	1:200 @ A3	
Appv'd			

DRAWING NO. H18006_507

REVISION 2

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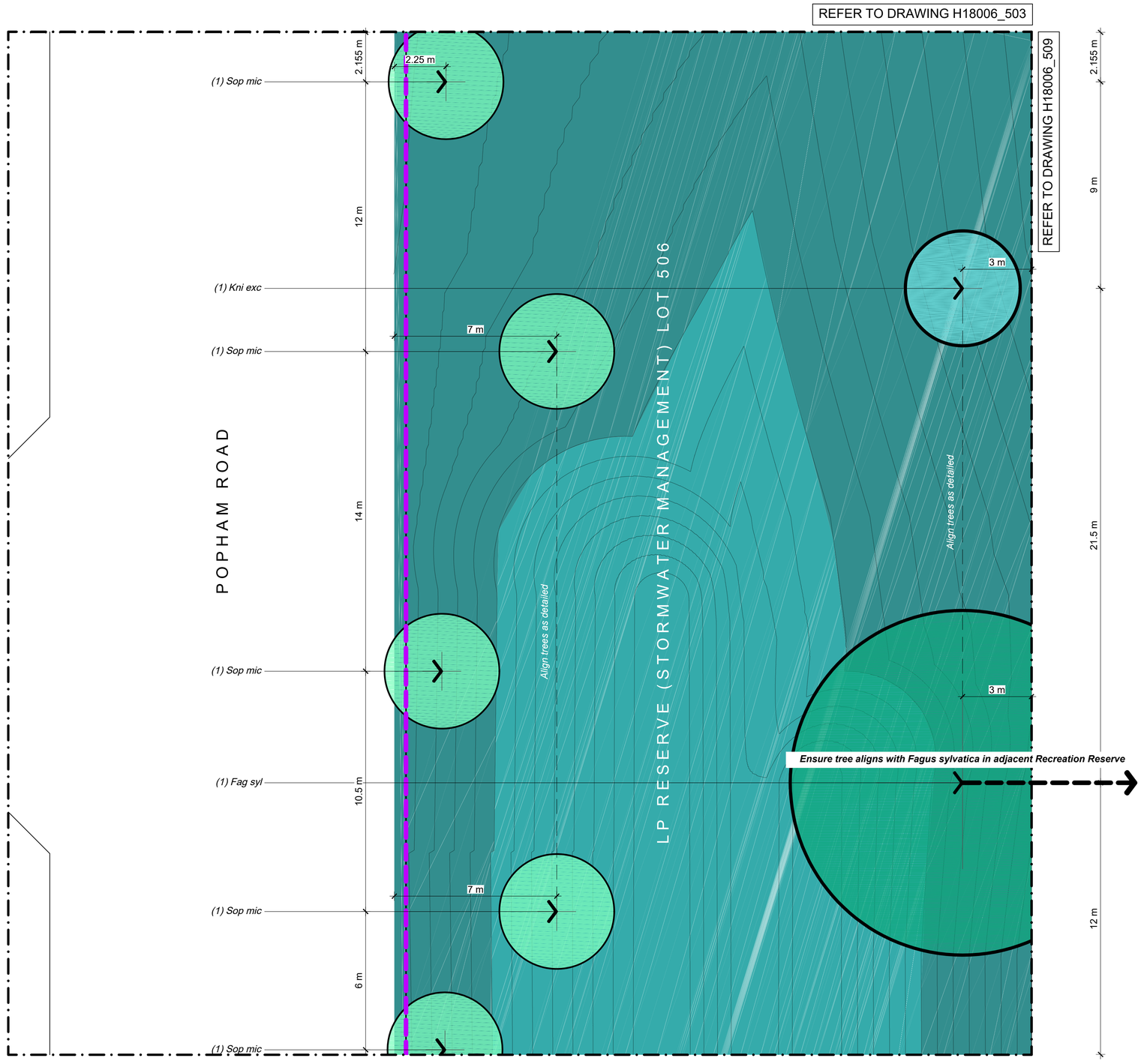
Key

Tree

Swale Upper Bank Planting
Soft-fine leaved grasses

Swale Lower Bank Planting



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2	06.11.20	AS BUILT

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GREENHILL PARK
AREA M
STAGE 12

PLANTING PLAN
SHEET 06 OF 12

Design	ARo	Scale	Date
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Check	MHu	1:200 @ A3	
Appv'd			

DRAWING NO. H18006_508

REVISION 2

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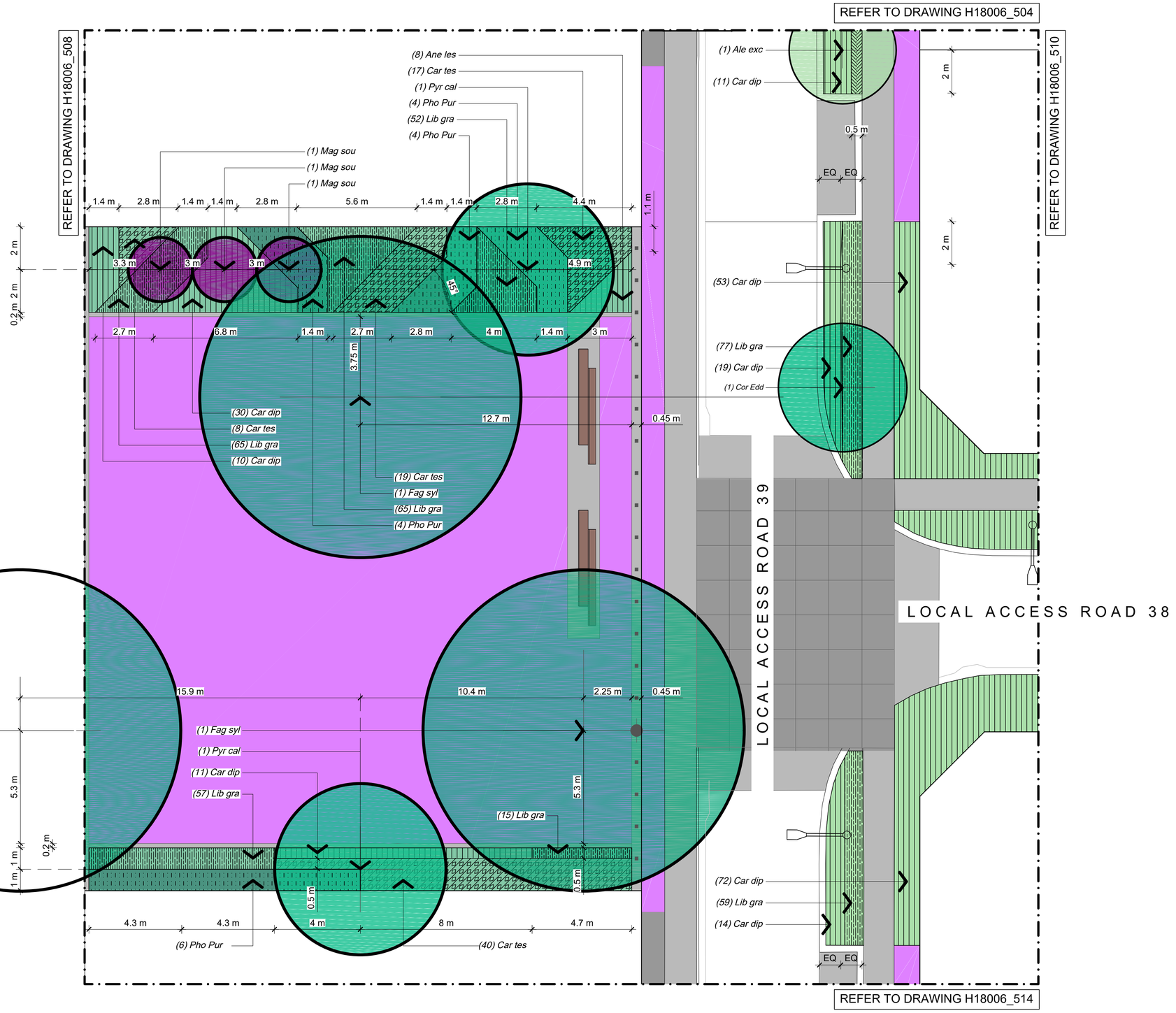
Key

Tree

Amenity Planting

Local Access Road Berm Planting

Lawn



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AS BUILT

GREENHILL PARK
AREA M
STAGE 12

PLANTING PLAN
SHEET 07 OF 12

Design	ARo	Scale	Date
Drawn	ARo	1:100 @ A1	21.06.19
Check	MHu	1:200 @ A3	
Appv'd			

DRAWING NO. H18006_509

REVISION 2

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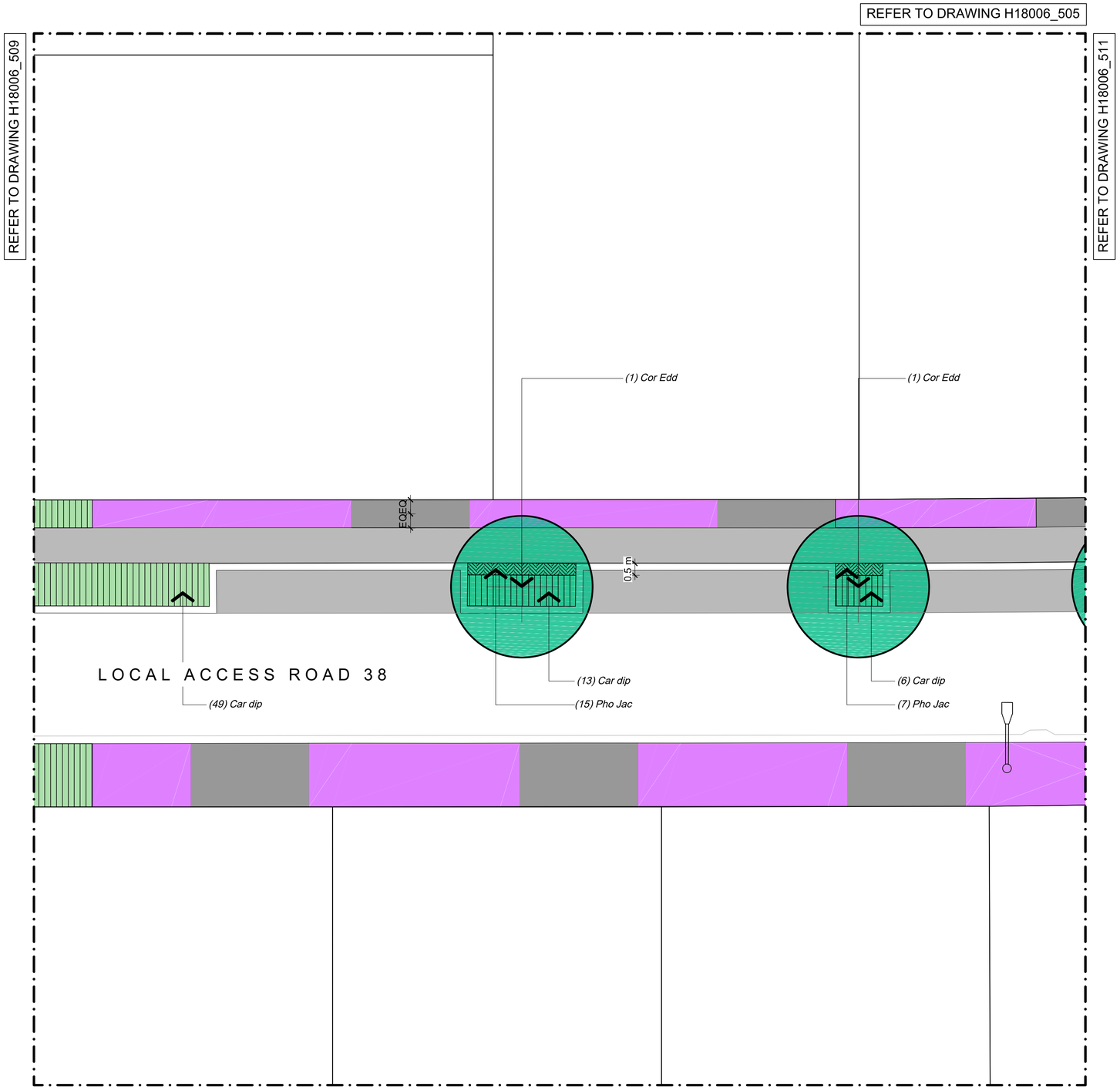
Key

Tree

Local Access Road Berm Planting

Lawn



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STAGE 12

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AS BUILT

GREENHILL PARK
AREA M
STAGE 12

PLANTING PLAN
SHEET 08 OF 12

Design	ARo	Scale	Date
Drawn	ARo	1:100 @ A1	21.06.19
Check	MHu	1:200 @ A3	
Appv'd			

DRAWING NO. H18006_510

REVISION 2

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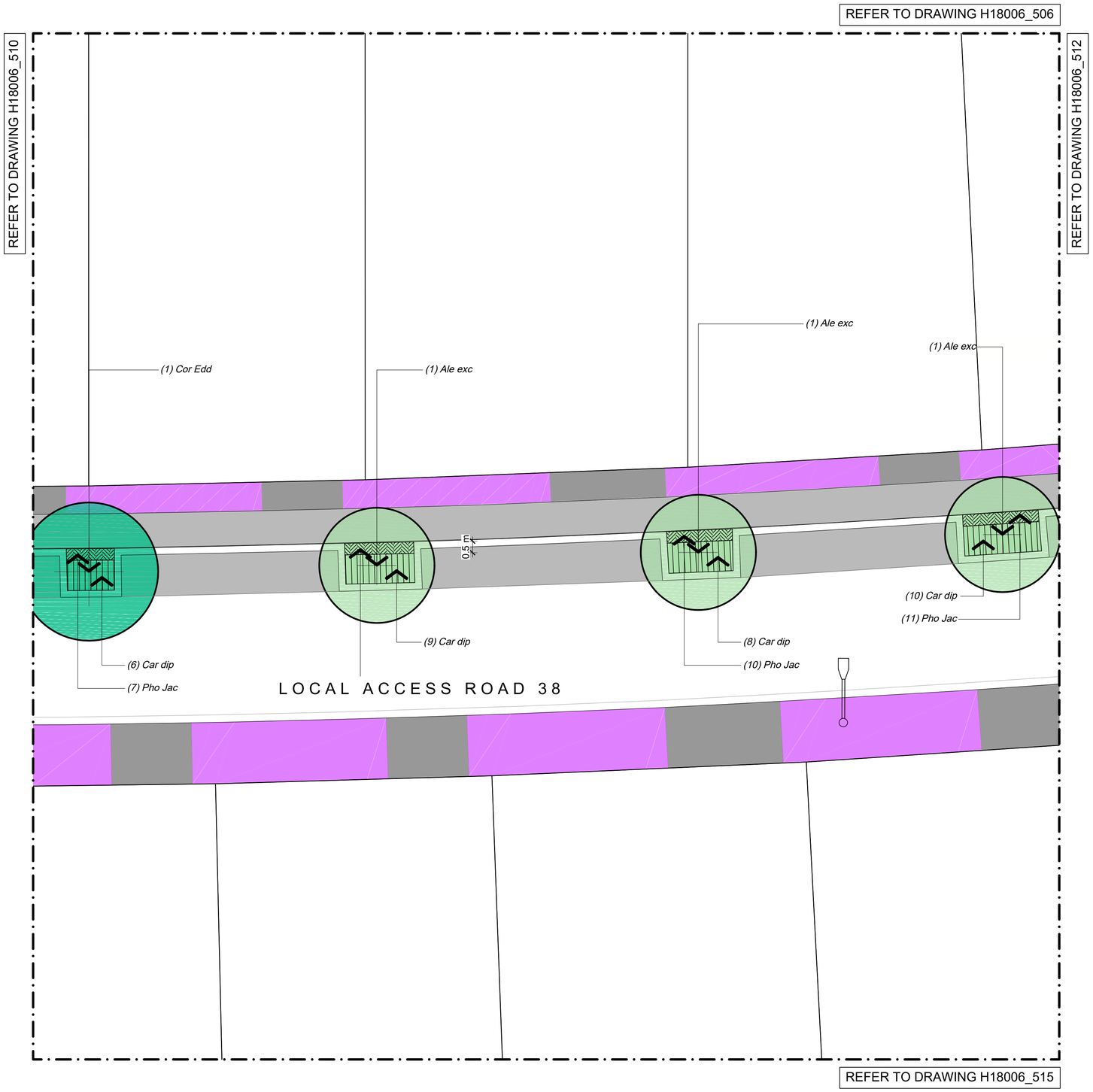
Key

Tree

Local Access Road Berm Planting

Lawn



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STAGE 12

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GREENHILL PARK
AREA M
STAGE 12

PLANTING PLAN
SHEET 09 OF 12

Design	ARo	Scale	Date
Drawn	ARo	1:100 @ A1	21.06.19
Check	MHu	1:200 @ A3	
Appv'd			

DRAWING NO. H18006_511

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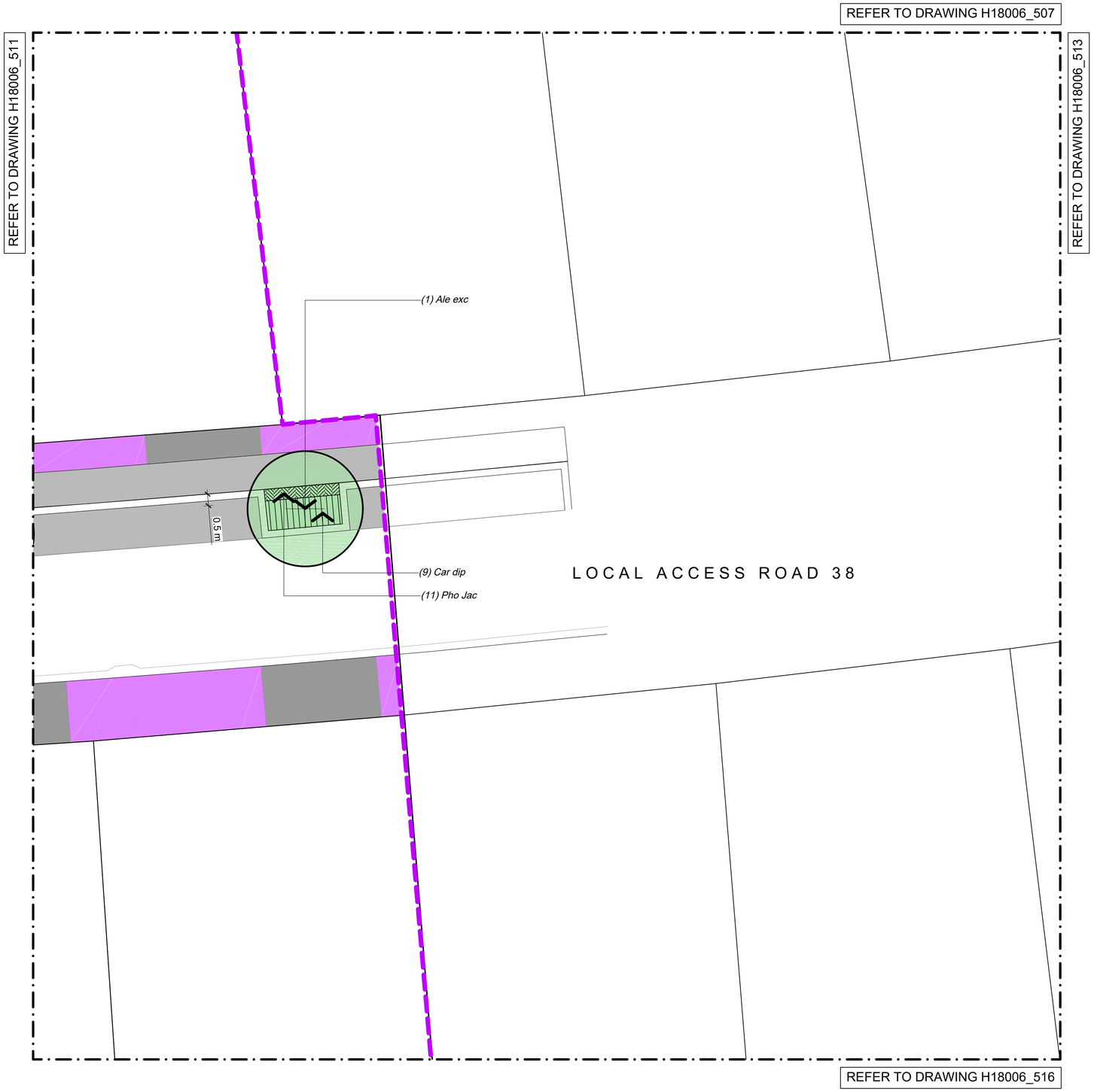
Key

Tree

Local Access Road Berm Planting

Lawn



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AREA M
STAGE 12

PLANTING PLAN
SHEET 10 OF 12

Design	ARo	Scale	Date
Drawn	ARo	1:100 @ A1	21.06.19
Check	MHu	1:200 @ A3	
Appv'd			

DRAWING NO. H18006_512

REVISION 2

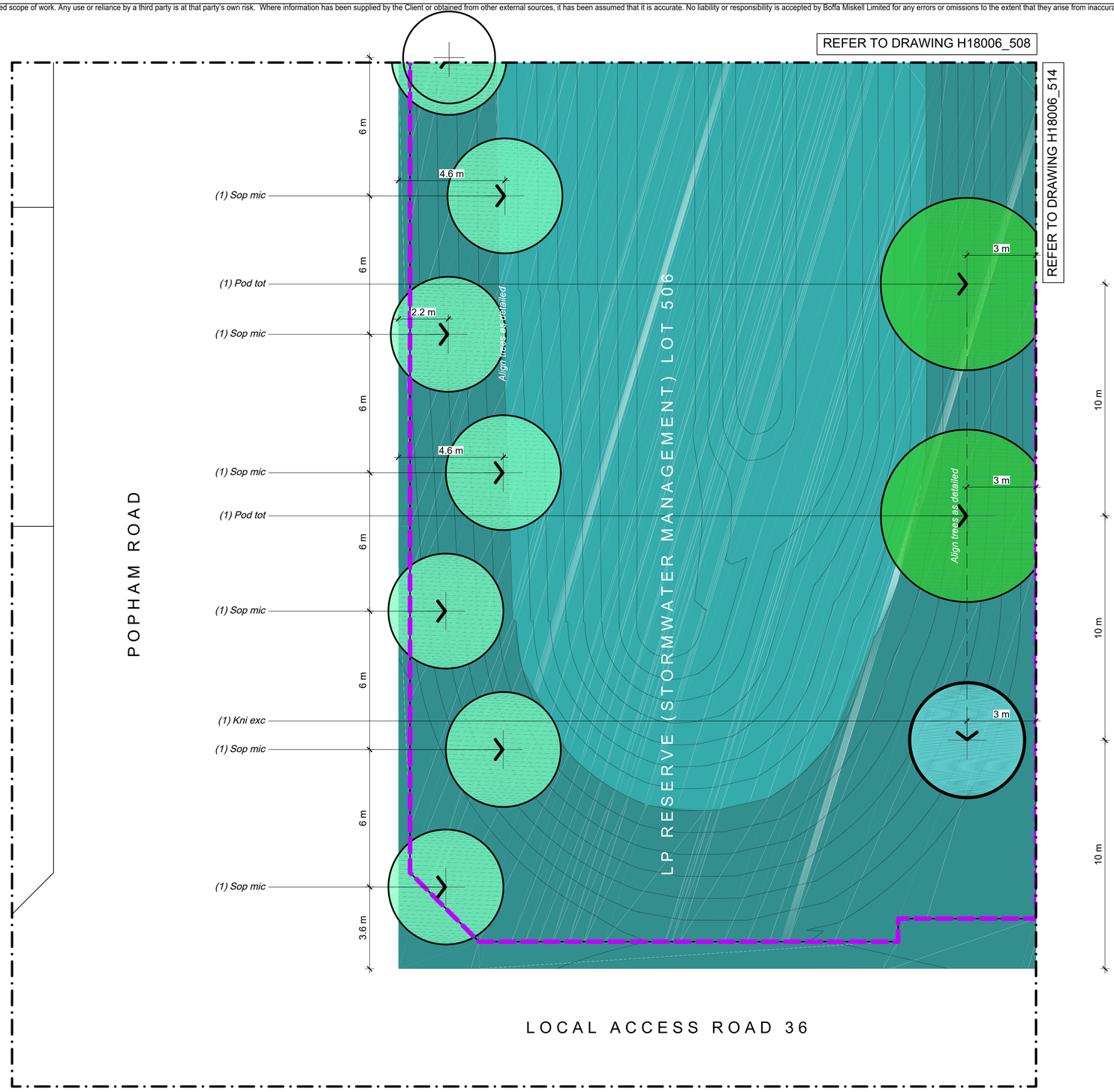
U:\2018\H18006_ARo_Greenhill_Park_Area_M_Detailed_Design\CAD\As_Built_Drawings\Stage_12\H18006_as_built_stage_12_txt_500.dwg

Key

Tree

Swale Upper Bank Planting
Soft-fine leaved grasses

Swale Lower Bank Planting



Boffa Miskell Limited
Level 3, SouthBloc
19 Knox Street
PO Box 1094, Hamilton 3240, New Zealand
Tel: +64 7 960 0006
www.boffamiskell.co.nz

Printed 6/11/2020 2:53:00 PM

NOTES

CONTRACTORS TO VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK;

CONTRACTORS ARE RESPONSIBLE FOR CONFIRMING THE LOCATION OF ALL UNDERGROUND SERVICES ON SITE PRIOR TO COMMENCING WORK;

FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.

KEY

STAGE 12

REV	DATE	DESCRIPTION
0	21.06.19	ISSUED FOR CONSTRUCTION
1	31.07.20	PLANTING SUBSTITUTIONS
2	06.11.20	AS BUILT

CLIENT
Chedworth Properties Ltd

CONSULTANTS
S & L Consultants
Beca
Kendelier Lighting

AS BUILT

GREENHILL PARK
AREA M
STAGE 12

PLANTING PLAN
SHEET 11 OF 12

Design	ARo	Scale	Date
Drawn	ARo	1:100 @ A1	21.06.19
Check	MHu	1:200 @ A3	
Appv'd			

DRAWING NO. H18006_513

REVISION 1

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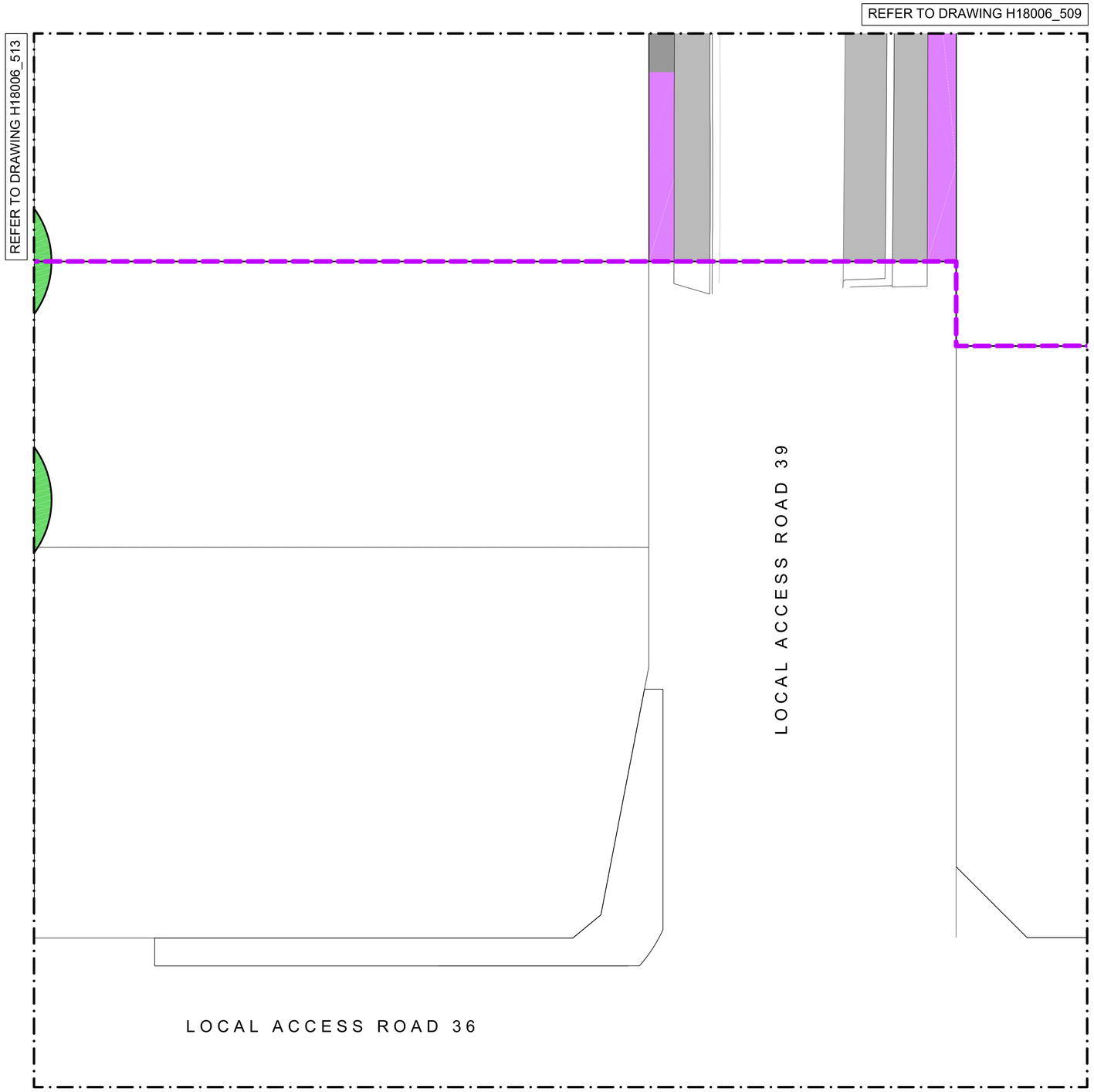
Key

Tree

Lawn



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NOTES

CONTRACTORS TO VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK;

CONTRACTORS ARE RESPONSIBLE FOR CONFIRMING THE LOCATION OF ALL UNDERGROUND SERVICES ON SITE PRIOR TO COMMENCING WORK;

FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.

KEY

STAGE 12

REV	DATE	DESCRIPTION
0	21.06.19	ISSUED FOR CONSTRUCTION
1	31.07.20	PLANTING SUBSTITUTIONS, BACK BERM PLANTING AREAS SUBSTITUTED WITH LAWN
2	06.11.20	AS BUILT

CLIENT
Chedworth Properties Ltd

CONSULTANTS
S & L Consultants
Beca
Kendelier Lighting

AS BUILT

GREENHILL PARK
AREA M
STAGE 12

PLANTING PLAN
SHEET 12 OF 12

Design	ARo	Scale	Date
Drawn	ARo	1:100 @ A1	21.06.19
Check	MHu	1:200 @ A3	
Appv'd			

DRAWING NO. H18006_514

REVISION 2

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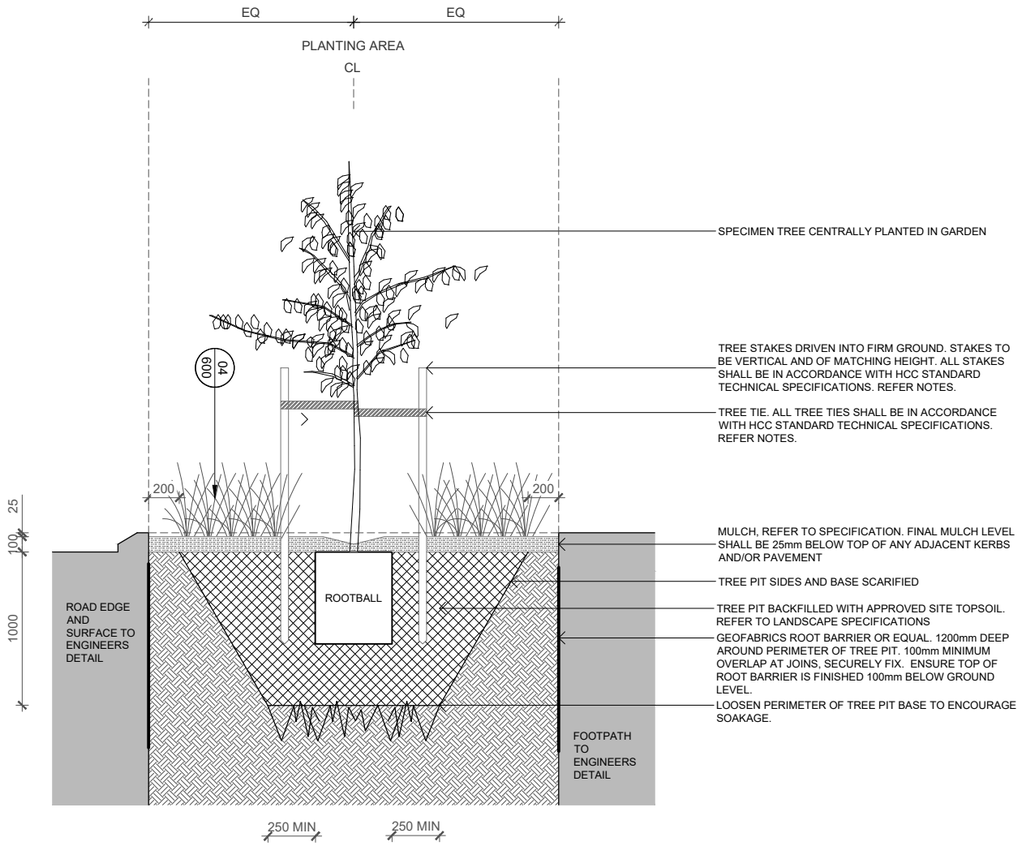
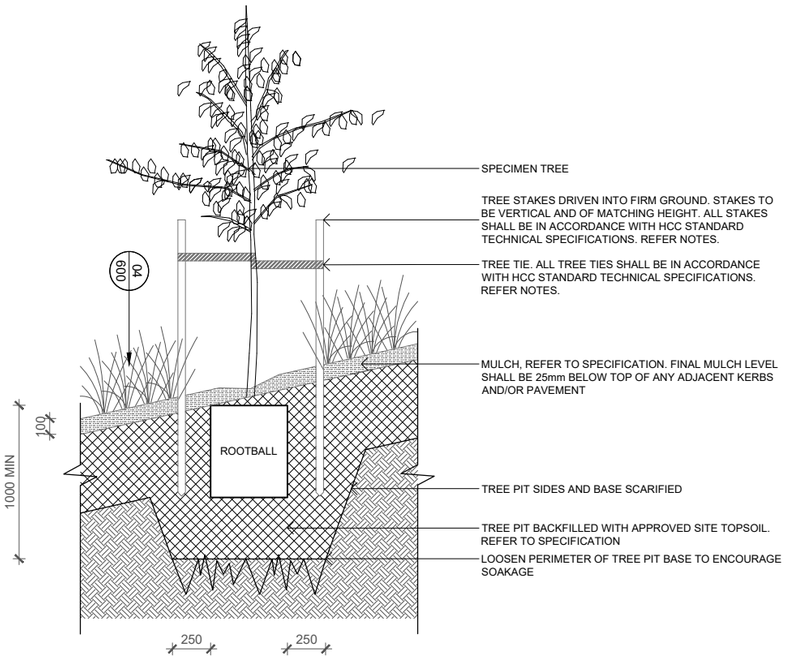


01 600 DETAIL | PROPOSED STREET TREE
Scale: 1:20 @ A1 1:40 @ A3

NOTES:
PLANT GRAPHICS AND SIZE ARE INDICATIVE ONLY
ENSURE TREE PIT IS FREE DRAINING THROUGH HOSE TESTING



02 600 DETAIL | TREE PIT IN STORMWATER PARK
Scale: 1:20 @ A1 1:40 @ A3

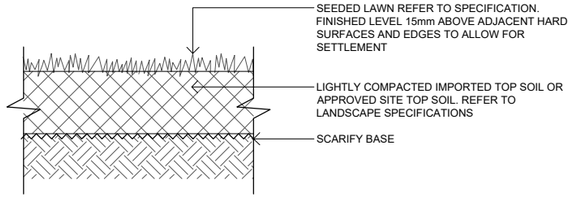
NOTES

PLANT GRAPHICS AND SIZE ARE INDICATIVE ONLY
ENSURE TREE PIT IS FREE DRAINING THROUGH HOSE TESTING

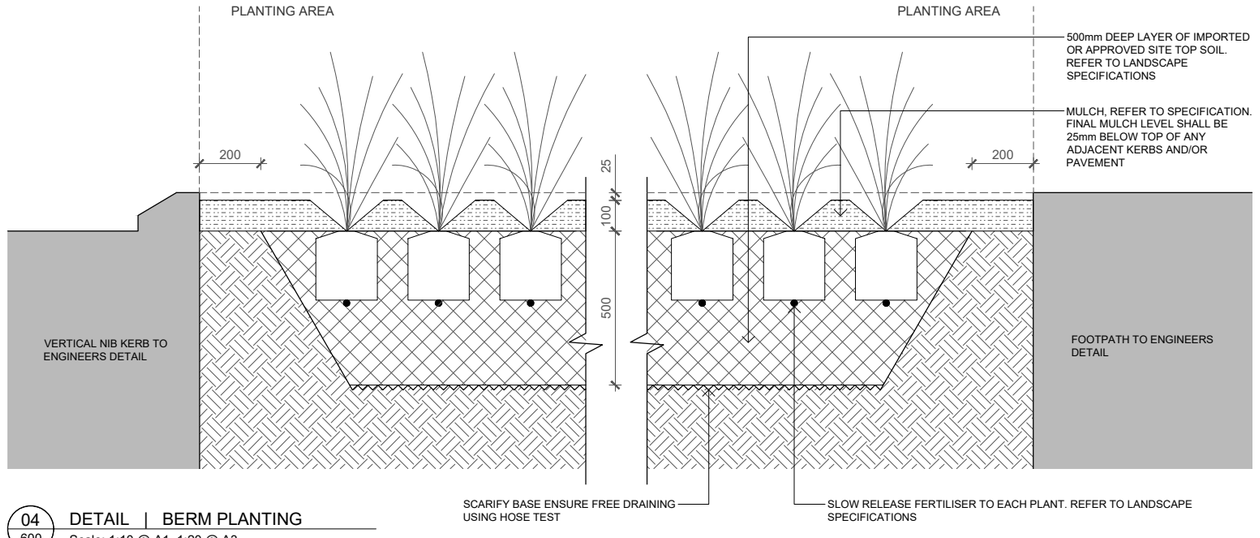
TREE STAKES AND TIES

ALL TREE STAKES AND TIES SHALL BE IN ACCORDANCE WITH THE FOLLOWING HAMILTON CITY COUNCIL STANDARD TECHNICAL SPECIFICATIONS:

TWO NO. 50MM X 50MM X 1.8M HIGH ROUGH SAWN H4 PINUS RADIATA STAKES WITH AT LEAST ONE-THIRD OF THEIR LENGTH (600MM) IN THE GROUND AND AT LEAST 1M ABOVE GROUND LEVEL.
ALL STAKES SHALL BE INSERTED TO AVOID HITTING THE ROOT BALL.
STAKES SHALL BE OFFSET AT LEAST 400MM FROM THE TREE TRUNK AND NO MORE THAN 500MM.
THE FLEXIBLE TREE TIES SHALL BE MADE OF BIO DEGRADABLE HESSIAN AND SHALL BE FIXED TO THE STAKES ON THE OUTER FACE WITH A MINIMUM OF FOUR STAPLES IN A SQUARE PATTERN.
ALL TREE TIES SHALL BE POSITIONED ONE-THIRD OF THE HEIGHT OF THE TREE.
ALL NURSERY BAMBOO STAKES SHALL BE REMOVED FROM ALL TREES AND ASSOCIATED PLASTIC TIES ALSO REMOVED.



03 600 DETAIL | LAWN - SEEDED
Scale: 1:10 @ A1 1:20 @ A3



04 600 DETAIL | BERM PLANTING
Scale: 1:10 @ A1 1:20 @ A3

Boffa Miskell

Printed 31/05/2019 11:11:32 AM

NOTES

CONTRACTORS TO VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK;

CONTRACTORS ARE RESPONSIBLE FOR CONFIRMING THE LOCATION OF ALL UNDERGROUND SERVICES ON SITE PRIOR TO COMMENCING WORK;

FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.

KEY

REFER TO DRAWING NUMBER H18006_130
GENERAL ARRANGEMENT KEY SHEET AND NOTES

REV	DATE	DESCRIPTION
0	08.08.18	ISSUED FOR CONSTRUCTION
1	31.05.19	AS BUILT

CLIENT
Chedworth Properties

CONSULTANTS
S&L Consultants
Beca
Kendelier Lighting

AS BUILT

GREENHILL PARK AREA M

PLANTING DETAILS - SHEET 01

Design	ARo	Scale	As shown
Drawn	ARo	Date	08.08.18
Check	MHu		
Appv'd			

DRAWING NO. H18006_600
REVISION 1

U:\2018\H18006_ARo_Greenhill_Park_Area_M_Detailed_Design\CAD\As_Built_Drawings\H18006_as_built_all_stages_600.dwg

APPENDIX 10

Asset Spreadsheets – Hard copy

- Water asset sheets
- Wastewater asset sheets
- Stormwater asset sheets

As Built Datasheet (to accompany As Built Plans) **Waikato Regional ITS**

WATER CONNECTION/SERVICE LINE

Form Version 1 - July 2017

Developer/Contractor: Chedworth Properties Ltd / Online Contractors

Development/Subdivision/Job: Greenhill Park

Stage: Stage 12

Prepared by: S & L

Date: Nov-20

Plan ID	Pipe ID	Property ID (Lot No. or Address)	Street Name	Street Type	Physical Location (where necessary)	Service Pipe Diam (mm)	Service Pipe Length (m)	Service Pipe Material	Easting Coordinate	Northing Coordinate	Distance from left (LB) or right (RB) boundary (m)	Meter Installed (Y/N)	Service Status	Install Date	Asset Value	Comments
21879-M-12-W1	RM1	LOT 327	GOSSET	AVE	BERM	25	0.9	MDPE	447263.65	703054.37	0.9LB	N	N	Aug-20	$528	
21879-M-12-W1	RM2	LOT 329	COULDSACK	AVE	BERM	25	0.9	MDPE	447307.42	703067.77	1.6LB	N	N	Aug-20	$528	
21879-M-12-W1	RM2	LOT 330	COULDSACK	AVE	BERM	25	0.8	MDPE	447318.45	703071.16	1.2LB	N	N	Aug-20	$528	
21879-M-12-W1	RM2	LOT 331	COULDSACK	AVE	BERM	25	0.9	MDPE	447329.95	703074.72	1.2LB	N	N	Aug-20	$528	
21879-M-12-W1	RM2	LOT 332	COULDSACK	AVE	BERM	25	0.7	MDPE	447350.71	703081.06	1.1RB	N	N	Aug-20	$528	
21879-M-12-W1	RM5	LOT 333	GOSSET	AVE	BERM	25	0.7	MDPE	447288.68	703044.58	4.1RB	N	N	Aug-20	$528	
21879-M-12-W1	RM5	LOT 334	GOSSET	AVE	BERM	25	0.7	MDPE	447293.18	703029.82	1.4RB	N	N	Aug-20	$528	
21879-M-12-W1	RM5	LOT 335	GOSSET	AVE	BERM	25	0.7	MDPE	447296.99	703017.22	0.6RB	N	N	Aug-20	$528	
21879-M-12-W1	RM6	LOT 336	GOSSET	AVE	BERM	25	0.8	MDPE	447301.35	703003.31	1.3RB	N	N	Aug-20	$528	
21879-M-12-W1	RM6	LOT 337	GOSSET	AVE	BERM	25	0.7	MDPE	447305.19	702991.58	1.6RB	N	N	Aug-20	$528	
21879-M-12-W1	RM6	LOT 338	GOSSET	AVE	BERM	25	0.7	MDPE	447309.13	702979.96	1.9RB	N	N	Aug-20	$528	
21879-M-12-W1	RM6	LOT 339	GOSSET	AVE	BERM	25	0.7	MDPE	447313.91	702966.91	2.2RB	N	N	Aug-20	$528	
21879-M-12-W1	RM6	LOT 340	GOSSET	AVE	BERM	25	0.7	MDPE	447318.37	702954.87	1.4RB	N	N	Aug-20	$528	
21879-M-12-W1	RM7	LOT 341	GOSSET	AVE	BERM	25	0.7	MDPE	447327.32	702964.67	0.6LB	N	N	Aug-20	$528	
21879-M-12-W1	RM7	LOT 342	GOSSET	AVE	BERM	25	0.7	MDPE	447323.21	702975.78	1.5LB	N	N	Aug-20	$528	
21879-M-12-W1	RM7	LOT 343	GOSSET	AVE	BERM	25	0.8	MDPE	447318.27	702989.98	0.5LB	N	N	Aug-20	$528	
21879-M-12-W1	RM7	LOT 344	GOSSET	AVE	BERM	25	0.7	MDPE	447314.66	703000.79	1.1LB	N	N	Aug-20	$528	
21879-M-12-W1	RM7	LOT 345	GOSSET	AVE	BERM	25	0.9	MDPE	447311.08	703012.12	1.2LB	N	N	Aug-20	$528	
21879-M-12-W1	RM9	LOT 346	GOSSET	AVE	BERM	25	0.6	MDPE	447306.55	703027.05	1.1LB	N	N	Aug-20	$528	
21879-M-12-W1	RM9	LOT 347	GOSSET	AVE	BERM	25	0.7	MDPE	447300.05	703047.65	4.5LB	N	N	Aug-20	$528	
21879-M-12-W1	RM9	LOT 348	COULDSACK	AVE	BERM	25	0.6	MDPE	447318.18	703058.66	1.0RB	N	N	Aug-20	$528	
21879-M-12-W1	RM9	LOT 349	COULDSACK	AVE	BERM	25	0.9	MDPE	447331.87	703062.74	1.3RB	N	N	Aug-20	$528	
21879-M-12-W1	RM11	LOT 350	COULDSACK	AVE	BERM	25	0.8	MDPE	447357.03	703042.24	1.4RB	N	N	Aug-20	$528	
21879-M-12-W1	RM11	LOT 351	COULDSACK	AVE	BERM	25	0.8	MDPE	447360.16	703032.29	1.3RB	N	N	Aug-20	$528	
21879-M-12-W1	RM11	LOT 352	COULDSACK	AVE	BERM	25	0.9	MDPE	447363.26	703022.27	1.3RB	N	N	Aug-20	$528	
21879-M-12-W1	RM11	LOT 353	COULDSACK	AVE	BERM	25	1.0	MDPE	447366.87	703011.72	2.0RB	N	N	Aug-20	$528	
21879-M-12-W1	RM11	LOT 354	COULDSACK	AVE	BERM	25	0.8	MDPE	447370.06	703002.68	1.1RB	N	N	Aug-20	$528	
21879-M-12-W1	RM11	LOT 355	COULDSACK	AVE	BERM	25	0.8	MDPE	447374.37	702991.74	1.3RB	N	N	Aug-20	$528	
21879-M-12-W1	RM11	LOT 356	COULDSACK	AVE	BERM	25	0.8	MDPE	447379.80	702978.47	2.0RB	N	N	Aug-20	$528	

As Built Datasheet (to accompany As Built Plans) **Waikato Regional ITS**

WATER HYDRANTS

Form Version 1 - July 2017

Developer/Contractor: Chedworth Properties Ltd / Online Contractors **Prepared by:** S & L

Development/Subdivision/Job: Greenhill Park **Date:** Nov-20

Stage: Stage 12

Plan ID	Hydrant ID	Pipe ID	Property ID (Lot No. or Address)	Street Name	Street Type	Hydrant Size (mm)	Physical Location (where necessary)	Easting Coordinate	Northing Coordinate	Service Status	Install Date	Asset Value	Comments
21879-M-12-W1	FH1	RM4	LOT 333	GOSSET	AVE	150	FOOTPATH	447276.45	703046.70	N	Aug-20	$2,557	
21879-M-12-W1	FH2	RM3	LOT 503	COULDSACK	AVE	150	FOOTPATH	447355.96	703081.87	N	Aug-20	$2,557	
21879-M-12-W1	FH3	RM6	LOT 705	GOSSET	AVE	150	BERM	447324.06	702942.77	N	Aug-20	$2,557	

As Built Datasheet (to accompany As Built Plans)

Waikato Regional ITS

WATER PIPELINES

Form Version 1 - July 2017

Developer/Contractor: Chedworth Properties Ltd / Online Contractors

Development/Subdivision/Job: Greenhill Park

Stage: Stage 12

Prepared by: S & L

Date: Nov-20

Plan ID	Pipe ID	Pipe Diameter (mm)	Pipe Length (m)	Laying Depth (m)	Pipe Material	Joint Type	Service Status	Install Date	Asset Value	Comments
21879-M-12-W1	RM1	150	8.7	1.2	PVC-M PN12	RRJ	N	Aug-20	$452	
21879-M-12-W1	RM2	150	86.2	1.2	PVC-M PN12	RRJ	N	Aug-20	$4,482	
21879-M-12-W1	RM3	150	7.1	1.2	PVC-M PN12	RRJ	N	Aug-20	$369	
21879-M-12-W1	RM4	150	24.0	1.2	PVC-M PN12	RRJ	N	Aug-20	$1,248	
21879-M-12-W1	RM5	150	45.1	1.2	PVC-M PN12	RRJ	N	Aug-20	$2,345	
21879-M-12-W1	RM6	150	79.7	1.2	PVC-M PN12	RRJ	N	Aug-20	$4,144	
21879-M-12-W1	RM7	63	77.8	1.2	PE80 SDR11 PN12.5	RRJ	N	Aug-20	$1,712	
21879-M-12-W1	RM8	63	12.2	1.2	PE80 SDR11 PN12.5	RRJ	N	Aug-20	$268	
21879-M-12-W1	RM9	63	73.5	1.2	PE80 SDR11 PN12.5	RRJ	N	Aug-20	$1,617	
21879-M-12-W1	RM10	63	12.5	1.2	PE80 SDR11 PN12.5	RRJ	N	Aug-20	$275	
21879-M-12-W1	RM11	63	113.3	1.2	PE80 SDR11 PN12.5	RRJ	N	Aug-20	$2,493	

As Built Datasheet (to accompany As Built Plans) **Waikato Regional ITS**

WATER VALVES

Form Version 1 - July 2017

Developer/Contractor: Chedworth Properties Ltd / Online Contractors

Development/Subdivision/Job: Greenhill Park

Stage: Stage 12

Prepared by: S & L

Date: Nov-20

Plan ID	Valve ID	Pipe ID	Property ID (Lot No. or Address)	Street Name	Street Type	Valve Size (mm)	Valve Manufacturer	Easting Coordinate	Northing Coordinate	Service Status	Install Date	Asset Value	Comments
21879-M-12-W1	SV1	RM1	LOT 327	GOSSET	AVE	150	HAWLE	447271.46	703055.51	N	Aug-20	$2,191	
21879-M-12-W1	SV2	RM2	LOT 327	GOSSET	AVE	150	HAWLE	447272.89	703056.29	N	Aug-20	$2,191	
21879-M-12-W1	SV3	RM3	LOT 503	COULDSACK	AVE	150	HAWLE	447355.27	703081.69	N	Aug-20	$2,191	
21879-M-12-W1	SV4	RM4	LOT 333	GOSSET	AVE	150	HAWLE	447277.65	703047.02	N	Aug-20	$2,191	
21879-M-12-W1	SV5	RM5	LOT 335	GOSSET	AVE	150	HAWLE	447297.85	703016.74	N	Aug-20	$2,191	
21879-M-12-W1	SV6	RM6	LOT 705	GOSSET	AVE	150	HAWLE	447324.56	702941.71	N	Aug-20	$2,191	
21879-M-12-W1	PV1	RM7	LOT 346	GOSSET	AVE	63	HAWLE	447307.49	703020.98	N	Aug-20	$929	
21879-M-12-W1	PV2	RM9	LOT 346	GOSSET	AVE	63	HAWLE	447306.95	703022.74	N	Aug-20	$929	
21879-M-12-W1	PV3	RM9	LOT 349	COULDSACK	AVE	63	HAWLE	447340.24	703066.00	N	Aug-20	$929	
21879-M-12-W1	PV4	RM11	LOT 349	COULDSACK	AVE	63	HAWLE	447342.14	703066.69	N	Aug-20	$929	

As Built Datasheet (to accompany As Built Plans) **Waikato Regional ITS**

WASTEWATER CONNECTION/SERVICE LINE

Form Version 1 - July 2017

Developer/Contractor: Chedworth Properties Ltd / Online Contractors
Development/Subdivision/Job: Greenhill Park
Stage: Stage 12
Prepared by: S & L
Date: Nov-20

Plan ID	Upstr MH/ Asset ID	Dwnstr MH/ Asset ID	Property ID (Lot No. or Address)	Street Name	Street Type	Physical Location (where necessary)	Service Pipe Diam (mm)	Service Pipe Length (m)	Service Pipe Material	Invert Level At Private End (m) OR Depth (m)	Easting Coordinate	Northing Coordinate	Distance from left (LB) or right (RB) boundary (m)	Distance from front (FB) or back (BB) boundary (m)	Service Status	Install Date	Asset Value	Comments
21879-M-12-WW1	WWMH 17.3	WWM24074	LOT 327	GOSSET	AVE	BERM	100	7.6	uPVC SN16	1.2	447274.58	703059.52	1.2RB	1.3FB	N	Jul-20	$471	
21879-M-12-WW1	WWMH 17.2	WWMH 17.3	LOT 329	COULDSACK	AVE	BERM	100	8.2	uPVC SN16	1.2	447312.12	703071.72	4.7RB	2.0FB	N	Jul-20	$508	
21879-M-12-WW1	WWMH 17.2	WWMH 17.3	LOT 330	COULDSACK	AVE	BERM	100	4.2	uPVC SN16	1.2	447326.54	703074.94	2.0RB	0.8FB	N	Jul-20	$260	
21879-M-12-WW1	WWMH 17.2	WWMH 17.3	LOT 331	COULDSACK	AVE	BERM	100	7.9	uPVC SN16	1.2	447329.11	703076.52	0.9LB	1.6FB	N	Jul-20	$490	
21879-M-12-WW1	-	WWMH 17.2	LOT 332	COULDSACK	AVE	BERM	100	8.1	uPVC SN16	1.2	447349.07	703082.53	2.2RB	1.5FB	N	Jul-20	$502	
21879-M-12-WW1	WWMH 16.1	WWMH 17.3	LOT 333	GOSSET	AVE	BERM	100	9.8	uPVC SN16	1.2	447290.03	703031.16	0.9LB	2.1FB	N	Jul-20	$608	
21879-M-12-WW1	WWMH 16.1	WWMH 17.3	LOT 334	GOSSET	AVE	BERM	100	4.9	uPVC SN16	1.2	447291.82	703028.38	2.3RB	1.2FB	N	Jul-20	$304	
21879-M-12-WW1	WWMH 16.1	WWMH 17.3	LOT 335	GOSSET	AVE	BERM	100	4.3	uPVC SN16	1.2	447298.90	703006.18	2.2LB	1.0FB	N	Jul-20	$267	
21879-M-12-WW1	WWMH 16.1	WWMH 17.3	LOT 336	GOSSET	AVE	BERM	100	8.7	uPVC SN16	1.2	447300.01	703003.32	0.9RB	0.8FB	N	Jul-20	$539	
21879-M-12-WW1	WWMH 16.1	WWMH 17.3	LOT 337	GOSSET	AVE	BERM	100	5.5	uPVC SN16	1.2	447305.78	702983.45	2.5LB	1.5FB	N	Jul-20	$341	
21879-M-12-WW1	WWMH 16.1	WWMH 17.3	LOT 338	GOSSET	AVE	BERM	100	9.9	uPVC SN16	1.2	447306.35	702979.90	1.1RB	2.1FB	N	Jul-20	$614	
21879-M-12-WW1	-	WWMH 16.1	LOT 339	GOSSET	AVE	BERM	100	4.0	uPVC SN16	1.2	447315.68	702956.47	1.1LB	1.5FB	N	Jul-20	$248	
21879-M-12-WW1	-	WWMH 16.1	LOT 340	GOSSET	AVE	BERM	100	10.3	uPVC SN16	1.2	447317.49	702954.14	1.8RB	0.6FB	N	Jul-20	$639	
21879-M-12-WW1	-	WWMH 16.1	LOT 341	GOSSET	AVE	BERM	100	7.4	uPVC SN16	1.2	447329.23	702964.85	1.0LB	1.1FB	N	Jul-20	$459	
21879-M-12-WW1	WWMH 16.1	WWMH 17.3	LOT 342	GOSSET	AVE	BERM	100	7.2	uPVC SN16	1.2	447325.09	702977.43	0.5LB	1.7FB	N	Jul-20	$446	
21879-M-12-WW1	WWMH 16.1	WWMH 17.3	LOT 343	GOSSET	AVE	BERM	100	4.9	uPVC SN16	1.2	447323.87	702980.57	2.9RB	1.6FB	N	Jul-20	$304	
21879-M-12-WW1	WWMH 16.1	WWMH 17.3	LOT 344	GOSSET	AVE	BERM	100	4.0	uPVC SN16	1.2	447316.98	703000.25	2.3LB	1.4FB	N	Jul-20	$248	
21879-M-12-WW1	WWMH 16.1	WWMH 17.3	LOT 345	GOSSET	AVE	BERM	100	6.6	uPVC SN16	1.2	447316.10	703003.17	0.7RB	1.5FB	N	Jul-20	$409	
21879-M-12-WW1	WWMH 16.1	WWMH 17.3	LOT 346	GOSSET	AVE	BERM	100	6.5	uPVC SN16	1.2	447308.38	703027.44	1.3LB	1.3FB	N	Jul-20	$403	
21879-M-12-WW1	WWMH 16.1	WWMH 17.3	LOT 347	GOSSET	AVE	BERM	100	4.5	uPVC SN16	1.2	447307.07	703030.56	2.1RB	1.0FB	N	Jul-20	$279	
21879-M-12-WW1	WWMH 17.2	WWMH 17.3	LOT 348	COULDSACK	AVE	BERM	100	8.3	uPVC SN16	1.2	447329.68	703059.79	1.7LB	1.6FB	N	Jul-20	$515	
21879-M-12-WW1	WWMH 17.2	WWMH 17.3	LOT 349	COULDSACK	AVE	BERM	100	5.7	uPVC SN16	1.2	447333.31	703061.26	2.2RB	1.3FB	N	Jul-20	$353	
21879-M-12-WW1	WWMH 17.1	WWMH 17.2	LOT 350	COULDSACK	AVE	BERM	100	5.4	uPVC SN16	1.2	447357.53	703034.03	1.1LB	1.6FB	N	Jul-20	$335	
21879-M-12-WW1	WWMH 17.1	WWMH 17.2	LOT 351	COULDSACK	AVE	BERM	100	5.7	uPVC SN16	1.2	447358.83	703030.73	2.4RB	1.3FB	N	Jul-20	$353	
21879-M-12-WW1	WWMH 17.1	WWMH 17.2	LOT 352	COULDSACK	AVE	BERM	100	6.1	uPVC SN16	1.2	447363.53	703014.55	1.7LB	1.9FB	N	Jul-20	$378	
21879-M-12-WW1	WWMH 17.1	WWMH 17.2	LOT 353	COULDSACK	AVE	BERM	100	6.8	uPVC SN16	1.2	447365.46	703010.60	2.6RB	1.4FB	N	Jul-20	$422	
21879-M-12-WW1	WWMH 17.1	WWMH 17.2	LOT 354	COULDSACK	AVE	BERM	100	5.3	uPVC SN16	1.2	447371.68	702993.39	1.1LB	1.5FB	N	Jul-20	$329	
21879-M-12-WW1	WWMH 17.1	WWMH 17.2	LOT 355	COULDSACK	AVE	BERM	100	5.4	uPVC SN16	1.2	447372.82	702990.13	2.4RB	1.6FB	N	Jul-20	$335	
21879-M-12-WW1	-	WWMH 17.1	LOT 356	COULDSACK	AVE	BERM	100	6.9	uPVC SN16	1.2	447378.54	702977.59	2.3RB	1.1FB	N	Jul-20	$428	

As Built Datasheet (to accompany As Built Plans) **Waikato Regional ITS**

WASTEWATER PIPELINES

Form Version 1 - July 2017

Developer/Contractor: Chedworth Properties Ltd / Online Contractors
Development/Subdivision/Job: Greenhill Park
Stage: Stage 12
Prepared by: S & L
Date: Nov-20

Plan ID	Upstr MH/ Asset ID	Dwnstr MH/ Asset ID	Street Name	Street Type	Physical Location (where necessary)	Pipe Diameter (mm)	Pipe Length (m)	Pipe Material	Joint Type	Invert Level Upstr (m)	Invert Level Dwnstr (m)	Service Status	Install Date	Asset Value	Comments
21879-M-12-WW1	WWMH 17.3	WWM24074	GOSSET	AVE	ROADWAY	150	65.9	uPVC SN16	RR	35.40	35.03	N	Jul-20	N/A	Existing line. Costed as part of stage 11 works
21879-M-12-WW1	WWMH 17.2	WWMH 17.3	COULDSACK	AVE	ROADWAY	150	59.8	uPVC SN16	RR	36.83	36.38	N	Jul-20	$13,156	
21879-M-12-WW1	WWMH 17.1	WWMH 17.2	COULDSACK	AVE	ROADWAY	150	95.5	uPVC SN16	RR	37.83	36.86	N	Jul-20	$21,010	
21879-M-12-WW1	WWMH 16.1	WWMH 17.3	GOSSET	AVE	ROADWAY	150	98.3	uPVC SN16	RR	36.40	35.44	N	Jul-20	$15,256	

As Built Datasheet (to accompany As Built Plans) **Waikato Regional ITS**

WASTEWATER MANHOLES

Form Version 1 - July 2017

Developer/Contractor: Chedworth Properties Ltd / Online Contractors **Prepared by:** S & L

Development/Subdivision/Job: Greenhill Park **Date:** Nov-20

Stage: Stage 12

(North Rim) (Centre) (Centre)

Plan ID	Manhole ID	Property ID (Lot No. or Address)	Street Name	Street Type	Lid Level (m)	Invert Level (m)	MH Width/Diam (mm)	Easting Coordinate	Northing Coordinate	Service Status	Install Date	Asset Value	Comments
21879-M-12-WW1	WWMH 16.1	LOT 339	GOSSET	AVE	38.93	36.40	1050	447322.01	702963.39	N	Jul-20	$4,624	
21879-M-12-WW1	WWMH 17.1	LOT 355	COULDSACK	AVE	39.37	37.83	1050	447380.45	702984.17	N	Jul-20	$4,355	
21879-M-12-WW1	WWMH 17.2	LOT 332	COULDSACK	AVE	38.66	36.83	1050	447349.22	703074.40	N	Jul-20	$4,355	
21879-M-12-WW1	WWMH 17.3	LOT 507	GOSSET	AVE	38.36	35.40	1050	447292.01	703056.99	N	Dec-19	N/A	EXISTING MH FROM STAGE 11 (NO HCC NAME YET)

As Built Datasheet (to accompany As Built Plans) **Waikato Regional ITS**

STORMWATER CATCHPITS

Form Version 1 - July 2017

Developer/Contractor: Chedworth Properties Ltd / Online Contractors **Prepared by:** S & L

Development/Subdivision/Job: Greenhill Park **Date:** Nov-20

Stage: Stage 12

Plan ID	Catchpit ID	Property ID (Lot No. or Address)	Street Name	Street Type	Catchpit Type	Grate Level (m)	Easting Coordinate	Northing Coordinate	Service Status	Install Date	Asset Value	Comments
21879-M-12-SW1	CP 102	LOT 340	GOSSET	AVE	SINGLE SUMP	38.81	447320.73	702955.66	N	Aug-20	$1,840	
21879-M-12-SW1	CP 103	LOT 336	GOSSET	AVE	SINGLE SUMP	38.50	447304.00	703003.28	N	Aug-20	$1,840	
21879-M-12-SW1	CP 104	LOT 333	GOSSET	AVE	SINGLE SUMP	38.22	447290.44	703046.94	N	Aug-20	$1,840	
21879-M-12-SW1	CP SP 23	LOT 354	COULDSACK	AVE	SINGLE SUMP	39.18	447379.39	702995.07	N	Aug-20	$1,840	
21879-M-12-SW1	CP SP 24	LOT 350	COULDSACK	AVE	SINGLE SUMP	38.87	447364.33	703038.91	N	Aug-20	$1,840	
21879-M-12-SW1	DCP 105	LOT 507	GOSSET	AVE	DOUBLE SUMP	38.16	447281.14	703057.12	N	Aug-20	$3,036	
21879-M-12-SW1	DCP 106	LOT 507	COULDSACK	AVE	DOUBLE SUMP	38.11	447297.33	703062.08	N	Aug-20	$3,036	
21879-M-12-SW1	DCP SP 25	LOT 332	COULDSACK	AVE	DOUBLE SUMP	38.58	447350.84	703076.28	N	Aug-20	$3,036	

As Built Datasheet (to accompany As Built Plans) **Waikato Regional ITS**

STORMWATER CATCHPIT LEADS

Form Version 1 - July 2017

Developer/Contractor: Chedworth Properties Ltd / Online Contractors
Development/Subdivision/Job: Greenhill Park
Stage: Stage 12
Prepared by: S & L
Date: Nov-20

Plan ID	Catchpit ID	Dwnstr MH/ Asset ID	Property ID (Lot No. or Address)	Street Name	Street Type	Physical Location (where necessary)	Catchpit Lead Pipe Diam (mm)	Catchpit Lead Pipe Length (m)	Catchpit Lead Pipe Material	Invert Level at Dwnstrm end	Service Status	Install Date	Asset Value	Comments
21879-M-12-SW1	CP 102	SWMH 17.2	LOT 340	GOSSET	AVE	ROADWAY	225	2.4	uPVC SN16	37.39	N	Aug-20	$355	
21879-M-12-SW1	CP 103	SWMH 17.3	LOT 336	GOSSET	AVE	ROADWAY	225	1.2	uPVC SN16	37.01	N	Aug-20	$178	
21879-M-12-SW1	CP 104	SWMH 17.5	LOT 333	GOSSET	AVE	ROADWAY	225	1.4	uPVC SN16	36.37	N	Aug-20	$207	
21879-M-12-SW1	CP SP 23	SWMH SP 4.5	LOT 354	COULDSACK	AVE	BERM	225	6.0	uPVC SN16	37.78	N	Aug-20	$888	
21879-M-12-SW1	CP SP 24	SWMH SP 4.6	LOT 350	COULDSACK	AVE	BERM	225	8.5	uPVC SN16	37.59	N	Aug-20	$1,258	
21879-M-12-SW1	DCP 105	SWMH 17.5	LOT 507	GOSSET	AVE	ROADWAY	300	7.5	uPVC SN16	36.41	N	Aug-20	$1,298	
21879-M-12-SW1	DCP 106	SWMH 17.5	LOT 507	COULDSACK	AVE	ROADWAY	300	9.6	uPVC SN16	36.46	N	Aug-20	$1,661	
21879-M-12-SW1	DCP SP 25	SWMH SP 4.7	LOT 332	COULDSACK	AVE	BERM	300	7.9	uPVC SN16	37.02	N	Aug-20	$1,367	

As Built Datasheet (to accompany As Built Plans) **Waikato Regional ITS**

STORMWATER PIPELINES

Form Version 1 - July 2017

Developer/Contractor: Chedworth Properties Ltd / Online Contractors **Prepared by:** S & L

Development/Subdivision/Job: Greenhill Park **Date:** Nov-20

Stage: Stage 12

Plan ID	Upstr MH/ Asset ID	Dwnstr MH/ Asset ID	Street Name	Street Type	Physical Location (where necessary)	Pipe Diameter (mm)	Pipe Length (m)	Pipe Material	Joint Type	Invert Level Upstr (m)	Invert Level Dwnstr (m)	Service Status	Install Date	Asset Value	Comments
21879-M-12-SW1	SWMH 17.6	SWOUT 14	N/A	N/A	RESERVE	600	3.2	RC	RR	35.84	35.82	N	Aug-20	$1,098	
21879-M-12-SW1	SWMH 17.5	SWMH 17.6	N/A	N/A	RESERVE	600	39.7	RC	RR	36.32	35.92	N	Aug-20	$13,617	
21879-M-12-SW1	SWMH 17.3	SWMH 17.5	GOSSET	AVE	ROADWAY	600	56.2	RC	RR	36.71	36.37	N	Aug-20	$19,277	
21879-M-12-SW1	SWMH 17.2	SWMH 17.3	GOSSET	AVE	ROADWAY	450	49.2	RC	RR	36.97	36.74	N	Aug-20	$12,940	
21879-M-12-SW1	SWMH 17.1	SWMH 17.2	GOSSET	AVE	ROADWAY/PRIVATE PROPERTY	375	57.1	RC	RR	37.31	37.01	N	Aug-20	$12,219	
21879-M-12-SW1	SWMH 18.1	SWMH 17.5	COULDSACK	AVE	ROADWAY	300	23.1	uPVC	SN16	36.79	36.34	N	Aug-20	$4,089	
21879-M-12-SW1	SWMH SP 4.7	SWM25004	N/A	N/A	RESERVE	450	45.2	RC	RR	36.65	36.22	N	Aug-20	$11,888	
21879-M-12-SW1	SWMH SP 4.6	SWMH SP 4.7	N/A	N/A	RESERVE	450	35.0	RC	RR	37.00	36.66	N	Aug-20	$9,205	
21879-M-12-SW1	SWMH SP 4.5	SWMH SP 4.6	N/A	N/A	RESERVE	375	47.4	RC	RR	37.52	37.06	N	Aug-20	$10,144	
21879-M-12-SW1	SWMH SP 4.3	SWMH SP 4.5	N/A	N/A	RESERVE/PRIVATE PROPERTY	375	60.0	RC	RR	38.13	37.53	N	Aug-20	$12,840	

As Built Datasheet (to accompany As Built Plans) **Waikato Regional ITS**

STORMWATER MANHOLES

Form Version 1 - July 2017

Developer/Contractor: Chedworth Properties Ltd / Online Contractors **Prepared by:** S & L

Development/Subdivision/Job: Greenhill Park **Date:** Nov-20

Stage: Stage 12

(North Rim) (Centre) (Centre)

Plan ID	Manhole ID	Property ID (Lot No. or Address)	Street Name	Street Type	Lid Level (m)	Invert Level (m)	MH Width/Diam (mm)	Easting Coordinate	Northing Coordinate	Service Status	Install Date	Asset Value	Comments
21879-M-12-SW1	SWMH 17.1	LOT 705	N/A	N/A	TBC	37.31	1050	447344.38	702905.62	N	Aug-20	$3,450	Lid Level to be provided in Stage 15 Area M
21879-M-12-SW1	SWMH 17.2	LOT 339	GOSSET	AVE	38.87	36.97	1050	447321.49	702957.90	N	Aug-20	$4,250	
21879-M-12-SW1	SWMH 17.3	LOT 336	GOSSET	AVE	38.57	36.71	1050	447304.73	703004.19	N	Aug-20	$4,196	
21879-M-12-SW1	SWMH 17.5	LOT 507	GOSSET	AVE	38.32	36.32	1800	447288.58	703058.07	N	Aug-20	$4,250	
21879-M-12-SW1	SWMH 17.6	LOT 506	N/A	N/A	36.88	35.84	1050	447278.72	703096.56	N	Aug-20	$3,450	
21879-M-12-SW1	SWMH 18.1	LOT 329	COULDSACK	AVE	38.31	36.79	1050	447310.79	703064.57	N	Aug-20	$4,096	
21879-M-12-SW1	SWMH SP 4.3	LOT 705	N/A	N/A	TBC	38.13	1050	447407.60	702946.78	N	Aug-20	$4,096	Lid Level to be provided in Stage 13 Area M
21879-M-12-SW1	SWMH SP 4.5	LOT 503	N/A	N/A	TBC	37.52	1050	447381.34	703000.72	N	Aug-20	$4,196	Lid Level to be provided in Stage 13 Area M. Located in LOT 503 (Local Purpose (Amenity) Reverse)
21879-M-12-SW1	SWMH SP 4.6	LOT 503	N/A	N/A	TBC	37.00	1050	447368.36	703046.36	N	Aug-20	$4,250	Lid Level to be provided in Stage 13 Area M. Located in LOT 503 (Local Purpose (Amenity) Reverse)
21879-M-12-SW1	SWMH SP 4.7	LOT 503	N/A	N/A	TBC	36.65	1050	447357.90	703079.80	N	Aug-20	$4,250	Lid Level to be provided in Stage 13 Area M. Located in LOT 503 (Local Purpose (Amenity) Reverse)

As Built Datasheet (to accompany As Built Plans) **Waikato Regional ITS**

STORMWATER CONNECTION/SERVICE LINE

Form Version 1 - July 2017

Developer/Contractor: Chedworth Properties Ltd / Online Contractors
Development/Subdivision/Job: Greenhill Park
Stage: Stage 12
Prepared by: S & L
Date: Nov-20

Plan ID	Upstr MH/ Asset ID	Dwnstr MH/ Asset ID	Property ID (Lot No. or Address)	Street Name	Street Type	Physical Location (where necessary)	Service Pipe Diam (mm)	Service Pipe Length (m)	Service Pipe Material	Invert Level At Private End (m) OR Depth (m)	Easting Coordinate	Northing Coordinate	Distance from left (LB) or right (RB) boundary (m)	Distance from front (FB) or back (BB) boundary (m)	Service Status	Install Date	Asset Value	Comments
21879-M-12-SW1	-	SWALE DRAIN	LOT 327	N/A	N/A	RESERVE	100	8.0	uPVC SN16	1.2	447267.86	703081.95	1.0RB	1.3BB	N	Aug-20	$735	
21879-M-12-SW1	SWM25004	SWM25004-OUT	LOT 329	N/A	N/A	RESERVE	100/150	17.6	uPVC SN16	1.2	447300.23	703091.45	1.7LB	1.7BB	N	Aug-20	$1,637	PIPE SIZE: 4.7m = 100mm; 12.9m = 150mm
21879-M-12-SW1	SWM25004	SWM25004-OUT	LOT 330	N/A	N/A	RESERVE	100/150	17.3	uPVC SN16	1.2	447319.62	703097.42	2.0RB	1.7BB	N	Aug-20	$1,609	PIPE SIZE: 4.9m = 100mm; 12.4m = 150mm
21879-M-12-SW1	SWM25004	SWM25004-OUT	LOT 331	N/A	N/A	RESERVE	100	7.1	uPVC SN16	1.2	447324.41	703098.51	2.9LB	2.0BB	N	Aug-20	$660	
21879-M-12-SW1	SWM25004	SWM25004-OUT	LOT 332	N/A	N/A	RESERVE	100	17.7	uPVC SN16	1.2	447334.40	703101.40	1.3LB	2.2BB	N	Aug-20	$1,646	
21879-M-12-SW1	SWMH 17.3	SWMH 17.5	LOT 333	GOSSET	AVE	BERM	100	6.2	uPVC SN16	1.2	447286.37	703043.94	4.1RB	1.9FB	N	Aug-20	$577	
21879-M-12-SW1	SWMH 17.3	SWMH 17.5	LOT 334	GOSSET	AVE	BERM	100/150	7.5	uPVC SN16	1.2	447293.96	703018.62	1.6LB	2.1FB	N	Aug-20	$698	PIPE SIZE: 4.7m = 100mm; 2.8m = 150mm
21879-M-12-SW1	SWMH 17.3	SWMH 17.5	LOT 335	GOSSET	AVE	BERM	100	7.6	uPVC SN16	1.2	447295.95	703014.03	3.3RB	1.5FB	N	Aug-20	$707	
21879-M-12-SW1	SWMH 17.2	SWMH 17.3	LOT 336	GOSSET	AVE	BERM	100/150	5.6	uPVC SN16	1.2	447302.35	702994.27	1.8LB	1.3FB	N	Aug-20	$521	PIPE SIZE: 4.4m = 100mm; 1.2m = 150mm
21879-M-12-SW1	SWMH 17.2	SWMH 17.3	LOT 337	GOSSET	AVE	BERM	100	5.0	uPVC SN16	1.2	447304.20	702991.25	1.7RB	0.5FB	N	Aug-20	$465	
21879-M-12-SW1	SWMH 17.2	SWMH 17.3	LOT 338	GOSSET	AVE	BERM	100	5.1	uPVC SN16	1.2	447310.36	702970.28	2.2LB	1.6FB	N	Aug-20	$474	
21879-M-12-SW1	SWMH 17.2	SWMH 17.3	LOT 339	GOSSET	AVE	BERM	100/150	6.1	uPVC SN16	1.2	447311.70	702967.21	1.1RB	1.4FB	N	Aug-20	$567	PIPE SIZE: 4.2m = 100mm; 1.9m = 150mm
21879-M-12-SW1	SWMH 17.1	SWMH 17.2	LOT 340	GOSSET	AVE	BERM	100/150	9.7	uPVC SN16	1.2	447318.98	702945.94	3.6LB	2.3FB	N	Aug-20	$902	PIPE SIZE: 7.0m = 100mm; 2.7m = 150mm
21879-M-12-SW1	SWMH 17.1	SWMH 17.2	LOT 341	GOSSET	AVE	BERM	100/150	9.5	uPVC SN16	1.2	447333.69	702953.13	0.6RB	1.0FB	N	Aug-20	$884	PIPE SIZE: 3.1m = 100mm; 6.4m = 150mm
21879-M-12-SW1	SWMH 17.2	SWMH 17.3	LOT 342	GOSSET	AVE	BERM	100	9.2	uPVC SN16	1.2	447327.35	702968.67	3.2RB	0.7FB	N	Aug-20	$856	
21879-M-12-SW1	SWMH 17.2	SWMH 17.3	LOT 343	GOSSET	AVE	BERM	100	4.5	uPVC SN16	1.2	447319.92	702988.85	2.1LB	0.6FB	N	Aug-20	$419	
21879-M-12-SW1	SWMH 17.2	SWMH 17.3	LOT 344	GOSSET	AVE	BERM	100/150	9.5	uPVC SN16	1.2	447319.28	702991.92	1.1RB	1.0FB	N	Aug-20	$884	PIPE SIZE: 3.5m = 100mm; 6.0m = 150mm
21879-M-12-SW1	SWMH 17.3	SWMH 17.5	LOT 345	GOSSET	AVE	BERM	100	5.6	uPVC SN16	1.2	447312.72	703011.89	1.9LB	0.9FB	N	Aug-20	$521	
21879-M-12-SW1	SWMH 17.3	SWMH 17.5	LOT 346	GOSSET	AVE	BERM	100/150	10.3	uPVC SN16	1.2	447311.76	703015.60	1.9RB	1.0FB	N	Aug-20	$958	PIPE SIZE: 4.4m = 100mm; 5.9m = 150mm
21879-M-12-SW1	-	SWMH 18.1	LOT 347	COULDSACK	AVE	BERM	100/150	10.4	uPVC SN16	1.2	447316.70	703056.03	1.2LB	1.4FB	N	Aug-20	$967	PIPE SIZE: 4.2m = 100mm; 6.2m = 150mm
21879-M-12-SW1	-	SWMH 18.1	LOT 348	COULDSACK	AVE	BERM	100	6.0	uPVC SN16	1.2	447320.04	703057.85	2.5RB	0.6FB	N	Aug-20	$558	
21879-M-12-SW1	SWMH SP 4.6	SWMH SP 4.7	LOT 349	COULDSACK	AVE	BERM	100/150	13.9	uPVC SN16	1.2	447354.45	703044.10	1.1LB	1.5FB	N	Aug-20	$1,293	PIPE SIZE: 4.3m = 100mm; 9.6m = 150mm
21879-M-12-SW1	SWMH SP 4.6	SWMH SP 4.7	LOT 350	COULDSACK	AVE	BERM	100	5.3	uPVC SN16	1.2	447355.74	703040.93	2.3RB	1.2FB	N	Aug-20	$493	
21879-M-12-SW1	SWMH SP 4.5	SWMH SP 4.6	LOT 351	COULDSACK	AVE	BERM	100/150	14.2	uPVC SN16	1.2	447360.23	703024.20	1.4LB	1.9FB	N	Aug-20	$949	PIPE SIZE: 4.2m = 100mm; 10.0m = 150mm
21879-M-12-SW1	SWMH SP 4.5	SWMH SP 4.6	LOT 352	COULDSACK	AVE	BERM	100	5	uPVC SN16	1.2	447362.54	703021.39	2.0RB	0.6FB	N	Aug-20	$465	
21879-M-12-SW1	SWMH SP 4.5	SWMH SP 4.6	LOT 353	COULDSACK	AVE	BERM	100/150	12.8	uPVC SN16	1.2	447366.94	703004.78	1.9LB	1.9FB	N	Aug-20	$1,190	PIPE SIZE: 4.7m = 100mm; 8.1m = 150mm
21879-M-12-SW1	SWMH SP 4.5	SWMH SP 4.6	LOT 354	COULDSACK	AVE	BERM	100	5.9	uPVC SN16	1.2	447369.24	703000.83	2.6RB	1.1FB	N	Aug-20	$549	
21879-M-12-SW1	SWMH SP 4.3	SWMH SP 4.5	LOT 355	COULDSACK	AVE	BERM	100	12.5	uPVC SN16	1.2	447372.79	702989.55	2.9RB	1.9FB	N	Aug-20	$1,163	
21879-M-12-SW1	SWMH SP 4.3	SWMH SP 4.5	LOT 356	COULDSACK	AVE	BERM	100/150	13.3	uPVC SN16	1.2	447381.88	702969.13	1.5LB	1.4FB	N	Aug-20	$1,246	PIPE SIZE: 4.3m = 100mm; 9.0m = 150mm
21879-M-12-SW1	SWM25004	SWM25004-OUT	LOT 507	N/A	N/A	RESERVE	100	5.0	uPVC SN16	1.2	447296.27	703091.56	2.0RB	0.4BB	N	Aug-20	$465	

As Built Datasheet (to accompany As Built Plans) **Waikato Regional ITS**

STORMWATER SUBSOIL DRAIN

Form Version 1 - July 2017

Developer/Contractor: Chedworth Properties Ltd / Online Contractors
Development/Subdivision/Job: Greenhill Park
Stage: Stage 12
Prepared by: S & L
Date: Nov-20

Plan ID	Dwnstr Asset ID	Street Name	Street Type	Physical Location (where necessary)	Pipe Diameter (mm)	Pipe Length (m)	Pipe Material	Invert Level Upstr (m)	Invert Level Dwnstr (m)	Easting Coordinate Inlet	Northing Coordinate Inlet	Easting Coordinate Outlet	Northing Coordinate Outlet	Service Status	Install Date	Asset Value	Comments
21879-M-12-SW1	CP 102	GOSSET	AVE	BERM	100	20.9	NOVA	38.21	38.06					N	Aug-20	$773	
21879-M-12-SW1	CP 103	GOSSET	AVE	BERM	100	104.1	NOVA	38.39	37.75					N	Aug-20	$3,852	
21879-M-12-SW1	CP 104	GOSSET	AVE	BERM	100	48.3	NOVA	37.76	37.47					N	Aug-20	$1,787	
21879-M-12-SW1	CP SP 23	COULDSACK	AVE	BERM	100	29.1	NOVA	38.66	38.43					N	Aug-20	$1,077	
21879-M-12-SW1	CP SP 24	COULDSACK	AVE	BERM	100	100.6	NOVA	38.79	38.12					N	Aug-20	$3,722	
21879-M-12-SW1	DCP 105	GOSSET	AVE	BERM	100	46.4	NOVA	37.75	37.41					N	Aug-20	$1,717	
21879-M-12-SW1	DCP 106	COULDSACK	AVE	BERM	100	249.5	NOVA	38.47	37.36					N	Aug-20	$9,232	
21879-M-12-SW1	DCP SP 25	COULDSACK	AVE	BERM	100	39.0	NOVA	38.15	37.83					N	Aug-20	$1,443	

As Built Datasheet (to accompany As Built Plans) **Waikato Regional ITS**

STORMWATER OUTLETS

Form Version 1 - July 2017

Developer/Contractor: Chedworth Properties Ltd / Online Contractors **Prepared by:** S & L

Development/Subdivision/Job: Greenhill Park **Date:** Nov-20

Stage: Stage 12

Plan ID	Outlet ID	Upstr MH/ Asset ID	Property ID (Lot No. or Address)	Street Name	Street Type	Structure Type	Structure Material	Discharges To	Easting Coordinate	Northing Coordinate	Service Status	Install Date	Asset Value	Comments
21879-M-12-SW1	SWOUT14	SWMH 17.6	LOT 506	N/A	N/A	WINGWALL	RC	SWALE DRAIN	447275.71	703095.43	N	Aug-20	$1,436	