DETAILED SITE INVESTIGATION (DSI)

55 BROOKVALE ROAD, HAVELOCK NORTH, HASTINGS

REFERENCE NUMBER: REP-H0155/DSI/JUN21

PREPARED FOR: ODERINGS NURSERIES CHCH LTD

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STATEMENT

This site investigation has been prepared in accordance with the Resource Management (*National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*) Regulations 2011. It has been managed by a suitably qualified and experienced practitioner (SQEP); and reported on in accordance with the current edition of the Ministry for the Environment's *Contaminated Land Management Guidelines No.1 – Reporting on Contaminated Sites in New Zealand.*

Report prepared on behalf of GSL by:	Report reviewed and authorised on behalf of GSL by:
	
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Thank you for the opportunity to carry out this investigation. Should you have any queries regarding this report please do not hesitate to contact us on 06 281 2454.

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EXECUTIVE SUMMARY

Geosciences Ltd (GSL) were engaged to undertake a detailed site investigation (DSI) of 55 Brookvale Road, Havelock North, as part of proposed subdivision and development of the site. The DSI comprised of a desktop study and intrusive investigation in accordance with the Ministry for the Environment (MfE) Contaminated Land Management Guidelines (CLMG).

Desktop study identified that the property was the historic location of an orchard and market garden that was then developed into a glasshouse/shadehouse operation in the 1970s. This operation was then further developed into a nursery and garden centre in the late 1990's which remains the current land use. As part of the desktop study, GSL identified the potential historic use of persistent pesticides as part of horticultural operations; the use of asbestos containing materials onsite during construction activities, bulk fuel storage for glasshouse heating; and potential uncertified filling as potentially contaminating activities.

Based on the findings of the desktop study, a judgemental soil sampling regime was developed, targeting the high-risk locations for potential soil contamination, at a sampling density in general accordance with CLMG No. 5. On account of the full impermeable site coverage, soil sampling locations utilised geotechnical boreholes to provide access through concrete coverage.

Analytical results returned heavy metal concentrations which were consistent with the expected naturally occurring soil background range, however trace concentrations of organic compounds were detected within several samples. All analyte concentrations were assessed to not pose a risk to either human health or the receiving environment.

Due to the detection of organic compounds within the soil profile, the regulations of the MfE *National Environment Standard for Assessing and Managing Contaminants in Soil to Protect Human Health* (NES) will apply to the proposed subdivision and development. The proposed subdivision may be regarded as a permitted activity under NES Regulation 8(4). The regulatory status of any development will depend on the volume of soil disturbance and offsite removal, and would be regarded as either a permitted activity under NES Regulation 8(3) or controlled activity under NES Regulation 9. Under either activity status a site management plan commensurate to the risks posed onsite will be required to be prepared and implemented as part of any development or soil disturbance works.

As soil quality has been assessed as not posing a risk to the receiving environment, no further considerations pertaining to the contaminated land provisions of the Hawkes Bay Regional Resource Management Plan are necessary.

1 INTRODUCTION

Geosciences Ltd (GSL) has prepared the following report for Oderings Nurseries ChCh Ltd in accordance with the GSL proposal, Ref: *Pro-2315/Mar21,* dated 3 March 2021.

This report has been prepared in accordance with the Ministry for the Environment (MfE) Contaminated Land Management Guidelines (CLMG): No. 1 - "*Guidelines for Reporting on Contaminated Sites in New Zealand*", and No. 5 – "*Site Investigation and Analysis of Soils*" (References 1 and 2).

2 PROPERTY DETAILS

Location:	55 Brookvale Road, Havelock North
Legal Description:	PT LOT 2 DP 311724 PT LOT 1 DP 8274 -
Size:	2.027 Ha
Zoning:	Plains Production

The property at the above 55 Brookvale Road, hereafter referred to as 'the site' in this report, is located on the north eastern edge of Havelock North township where residential land transitions into production land. The site is flat lying and sits directly adjacent to Guthrie Park on the west, bounded by the Karituwhenua Stream to the east and Brookvale Road to the south (Figure 1). The site is the current location of the Oderings garden centre and associated nursery production areas (shade houses, glasshouses and potting sheds).

2.1 ENVIRONMENTAL CONTEXT

2.1.1 GEOLOGY & GEOHYDROLOGY

The local geology is described by Kingma (Reference 7) as moderately weathered undifferentiated poorly sorted loess-covered alluvial gravel deposits related to Middle-Late Pleistocene River deposits.

2.1.2 TOPOGRAPHY AND DRAINAGE

The site is generally flat lying and elevated approximately 10 m above sea level. The northern and eastern site boundary is formed by the riparian margin of the Karituwhenua Stream and an associated flood plain. However, the majority site is listed as a low flood risk area with the northernmost extent and the eastern boundary listed as a flood risk area on the Hawkes Bay Regional Council's *Hawkes Bay Hazard Portal* map.

2.1.3 EARTHQUAKE LIQUEFACTION AND AMPLIFICATION

The site is listed on the Hawkes Bay Regional Hazard map as medium risk for earthquake liquefaction and a moderate to high risk for earthquake amplification.

2.1.4 AQUIFERS

The site is located within the footprint of the Heretaunga Plains aquifer, which is listed as a confined aquifer system identified on the Hawkes Bay Regional Council *Productive Aquifer System* GIS overlay.

3 PROPOSED CHANGE IN LANDUSE, SUBDIVISION AND DEVELOPMENT

It is proposed to subdivide a portion of the site for residential activities while forming a new distinct title for the garden centre itself. A copy of the proposed development plan is included in Appendix A.

The proposed development therefore involves:

- subdivision of an existing title;
- the change in landuse of portions of the title from production land to residential land; and
- the disturbance of a yet to be confirmed volume of soil for development activities on site.

4 STANDARDS AND REGULATIONS

Because of the change in landuse, subdivision, and proposed development outlined above it will be necessary to address the requirements of the following standards, rules, and regulations applicable for the site.

4.1 NATIONAL ENVIRONMENTAL STANDARD (NES)

The *National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health* (NES) (Reference 3), which came into effect on 1 January 2012, ensures that land affected by contaminants in soil is appropriately identified and assessed when soil disturbance and/or land development activities take place and, if necessary, remediated or the contaminants contained to make the land safe for human use.

Under the NES, land is considered to be actually or potentially contaminated if an activity or industry on the MfE Hazardous Activities and Industries List (HAIL) has been, is, or is more likely than not to have been, undertaken on the land. Consequently, a subdivision or development on HAIL land requires a detailed site investigation (DSI) of the piece of land to determine if there is a risk to human health as a result of the former activities.

The NES defines five standard landuse scenarios for which soil contaminant standards have been derived. The most sensitive landuse scenario applicable to the proposed change in landuse, subdivision and development at this site is defined by the NES as: Residential with 10% homegrown produce.

4.2 HAWKES BAY REGIONAL RESOURCE MANAGEMENT PLAN (RRMP)

Section 30(1)(f) of the Resource Management Act 1991 provides the Hawkes Bay Regional Council with a statutory duty to investigate land for the purpose of identifying and monitoring

contaminated land and for the control of discharges of contaminants into or onto land or water and discharges to air.

With respect to the Regional Plan, Rules 47 – 52 (Chapter 6.6.7 *Generic Discharges of Contaminants – Discharges to Land/Water*) cover the discharges of contaminants to land. The RRMP outlines the classification status of each activity, conditions, standards, and terms to be met and matters for Council's control / discretion.

4.3 PARTLY OPERATIVE HASTINGS DISTRICT PLAN (POHDP)

On 26 February 2020, Hastings District Council partially adopted the District Plan. The exception to the adoption being Section 16.1 Wāhi Taonga District Wide Activity and Appendix 50 (list of Wāhi Taonga sites) and associated maps which remain outstanding as a result of an Environment Court appeal.

Section 27.1.4 of the POHDP delegates the assessment of contamination to the national level by means of the NES (2011) instrument.

5 DSI OBJECTIVES

The objectives of this investigation were to assess:

- the soil quality and associated risk to human health and the environment as a result of potential contamination in soil on the site as a result of former HAIL activities;
- the resulting status of the activity under the NES;
- what, if any, contaminated land rules of the RRMP or POHDP apply to the proposed subdivision and development; and
- any further work that may be required under the NES, the RRMP or the POHDP as a result of the soil quality on site.

6 SCOPE OF WORKS

To achieve the objectives of the DSI, GSL has undertaken the following:

- An historic appraisal of the property by a study of historical aerial photographs;
- A review of the current and historic records of titles of the property;
- A review of the property files held by Hastings District Council;
- A review of the hazard register information held by Hawkes Bay Regional Council;
- A review of geotechnical investigation undertaken on the piece of land;
- A site visit and walkover of the properties;
- The collection of twelve discrete soil samples and their analysis for the contaminants of concern identified in the conceptual site model; and

- The preparation of one inclusive report in accordance with CLMG No.1 *Reporting on Contaminated Sites in New Zealand* (MfE, 2011) detailing the findings of this investigation and the recommendations, if any, for further work.

7 SITE HISTORY

A desktop study of publically available files and photographs was undertaken to determine the history of the site with respect to any current or historic potentially contaminating landuses.

7.1 CERTIFICATE OF TITLE

GSL has reviewed copies of the current and historic certificates of titles for the aforementioned property including any instruments on the title which detail relevant property information such as: current ownership, registered interests, easements, covenants, lease restrictions and transmissions, to determine if pre-existing consent notices or other restrictions / notifications which may be relevant to historic uses or potential soil contamination are held against the property.

No notes of interest were recorded on the titles and copies of these documents are attached in Appendix B.

7.2 HISTORIC AERIAL PHOTOGRAPHS

Historic aerial photographs from 1950, 1964, 1969, 1972, 1988, 1994, 1999, 2004, 2009, 2014, 2017 and 2018 are available for the site from Retrolens, Land Information New Zealand, Hastings District Council and Google Earth. The findings of the historic aerial photograph review are summarised below, while copies of these aerial photographs have been attached in Appendix C.

1950 This is the earliest photograph available for the site and shows the site as being maintained under rough pasture at this time, separated into two distinct paddocks. No features or structures are present on the piece of land itself, while the Karituwhenua Stream is evident on the northern and eastern boundaries while Brookvale Road has been formed on the south. The surrounding landuse are a mix of orchard and pasture at this time.

1964 - 1969 By the time of the 1964 image, approximately two thirds of the piece of land has been planted under orchard cover while the remaining third is under market garden or vine style planting evident from the long windrows of the site. Two structures are evident at this time along the southern boundary, the first in the centre of the southern boundary appears to be a residential dwelling abutting the orchard extents while a small shed or garage is located in the southwestern most extent. Landuses evident in the wider plate continue to be dominated by orchard production activities. Aside from a change in the cropping pattern on the western boundary (which confirms market garden use of this portion), no other changes of note are evident on the imagery from 1969.

1972 Between 1969 and the time of the 1972 aerial image, market garden activities appear to have ceased while the bulk of orchard trees have also been removed. The central part of the site has now been developed with approximately seven glass / shade house structures alongside a central packing shed with a separate access formed from Brookvale Road. The small shed in the south western corner appears to be falling into disrepair at this time.

1988 Imagery from 1988 shows additional expansion of glasshouses and shadehouses on site with an additional six structures constructed as extension to those already on site. Portions of the site appear to be under organised planting with clear distinct rows set out in the northern and southern extents of the site while a shelter belt appears to have been established to separate the glasshouse activities from the residential dwelling remaining on site adjacent to Brookvale Road.

The block immediately west of the site appears to now have been developed into a recreational sports ground with club rooms evident in the southern portion amongst the field uses.

1994 Aerial imagery from 1994 is of much improved contrast and shows that the site development consists of 12 glasshouse / shade house structures alongside a large shade cloth area (likely a simple pole structure) clustered around a central packhouse / workstation area. The previously identified shelterbelts have matured and while the wider area continues to be under production land (orchard etc), those uses are longer evident on the site.

1999 Further redevelopment works are evident in the 1999 aerial image with an expansion of shade house structures undertaken in the western portion of the site and redevelopment activities in the south-eastern portion where a new building has been constructed alongside an apparent concrete slab with a number of distinct plant bays evident. The site access has been reformed to all weather standard and a number of parking spaces are clearly evident. This layout is now consistent with a garden centre with attached nursery.

The small shed in the south western corner has also now been removed and a swimming pool is evident in the rear yard of the dwelling. Orchard activities remain clearly visible to the east of the site while residential activities have encroached from the south and west.

2004 While imagery form 2004 clearly shows the site under the same garden centre / nursery configuration, the previously vacant areas of the site have been redeveloped such that site is now entirely covered by shadehouses & glasshouses amongst parking areas. A number of small bays are evident on the western boundary of the site suggesting that bulk landscape materials are being sold from the site at this time.

To the east, Romanes Drive has now been formed with a roundabout constructed at the intersection with Brookvale Road. Some orchard activities remain evident to the east of Romanes Drive.

2009 - 2018 Between 2009 and 2018, the site remains in the same configuration as described in the 2004 aerial image with the only notable changes being repairs and alterations to the plastic and glasshouse structures on site. No other changes of note are identifiable.

7.2.1 SUMMARY OF AERIAL IMAGERY

Available historically aerial imagery has shown that the piece of land under investigation was initially under pastoral landuses at the time of the earliest available aerial imagery before it was developed into a small orchard and market garden site in the 1960's. Between 1969 and 1972 the site was subject to significant redevelopment with a number of glass and shade houses structures constructed around an apparent central packhouse / workstation. Between 1972 and 1994,

coverage of the site within shadehouses continued to expand before the site was redeveloped into a garden centre by the time of the 1999 aerial image. Between 1999 and 2004, the shade house coverage was expanded to cover the full extent of the site. No significant changes to the site occurred between 2009 and 2018.

GSL notes that the bulk storage and use of persistent pesticides is included under item A.10 of the HAIL as a potentially contaminating activity. Aerial imagery confirms it is more likely than not the piece of land has been subject to such activities.

With respect to potential use of lead based paint, GSL notes that the residential dwelling was constructed between 1950 and 1964 during a time where lead concentrations were being rapidly lowered, until ultimately being phased out by the early 1970's. While lead based paint use could have occurred, it is considered low risk on account of the timing of building construction.

7.3 PROPERTY FILE

GSL reviewed a copy of the property file held by Hastings District Council Copies of relevant historic plans, correspondence, permits, and consents have been attached in Appendix D. The following items of note were held on the supplied file:

1967 An application to construct a greenhouse, storage shed and fowl house is held on file. The notations on the application suggest this was a domestic scale activity associated with the residential dwelling on site.

1969 Application by Mr Alfred Brazier to install a space heater on site is held on file. The application notes that a small 40 gallon oil tank would be required adjacent to the heater to provide the fuel source.

1973 Application form by Plant Propagation Laboratories Ltd is held on file for the construction of a laboratory and office building on site associated with plant propagation. Plans attached

1973 Application form by Plant Propagation Laboratories Ltd is held on file for the construction of three greenhouses / production houses. Design plans note the use of concrete, timber and iron guttering. Within the drawings, a notation is included for the concrete to be poured direct against the ground.

1973 Application form by Plant Propagation Laboratories Ltd is held on file for the construction of one glasshouse on site. Plans associated with the application identify a laboratory and office space adjacent to the glasshouse in the location identified in aerial imagery as a packhouse / work station. In addition, foundation plans identify the use of a flat fibrolite sheet on the concrete pods.

1973 A second application is held on file for the construction of a single glasshouse on site by Plant Propagation Laboratories Ltd, however no plans or additional context are included.

1978 Application by Plant Propagation Laboratories for the construction of a new packing shed on site is held on file. Plans identify that the packing shed is located between existing buildings, being the laboratory & office and existing glasshouse. Specifications identify the use of 6mm 'hardiflex' as external cladding and its construction on a 100mm thick concrete floor.

1978 Further application by Plant Propagation Laboratories is held on file for the construction of a new implement shed and general farm storage. Plans indicate that construction was to be a Skyline double garage and notes that it would be constructed next to the existing boiler room.

1982 A letter from the Chief Planning Officer is held on file to Plant Propagation Laboratories Ltd noting that is in order for the construction of a new shade house in the location shown on the plan. The plan enclosed identifies a boiler shed located at the rear of the office and laboratory building, separated off from the glasshouse edge and set back from the Karituwhenua Stream

1993 Additional design plans are held on file for the construction of polythene clad shade archhouses, constructed of RHS and polythene.

1999 A letter dated 19 February 1999 is held on file noting that conditions associated with Resource Consent RMA 970341 require that Oderings Nurseries ChCh Ltd acknowledges and accepts in writing that horticultural sprays are used on the adjoining site which could adversely affect the nursery operation. The letter confirms that resource consent for the establishment of the Garden Centre was approved on 3 September 1997.

1999 A letter dated 8 July 1999 is held on file from Hastings District Council confirming that the consent conditions had now been fully complied with.

2002 An application document is held on file for the establishment of additional glasshouse / shadehouse structures on site from March 2002. The plan identifies that two 'Arch' shadehouses would be constructed with 4 'sawtooth' structures in the northern edge of the site.

2003 An application checklist is included for the installation of a proposed Diesel Tank. No further information on location or size is included.

2003 A site plan is held on file amongst other development information pertaining to the use of the site for Oderings Garden Centre identifying a 'boiler store' at the rear of the office building and adjacent to the garden centre shop.

7.4 FORMER INVESTIGATIONS

Initia Ltd undertook a geotechnical assessment of the piece of land in February 2021 for the purposes of assessing the proposed residential subdivision development of the piece of land. Geotechnical investigation included:

- Geotechnical desk-study assessment including review of the New Zealand Geotechnical Database;
- Site walkover / field mapping;

- Advancement of 3 machine boreholes to a depth of 10.95m and 13 static cone penetration tests to depths of up to 6m;
- Development of a subsurface model;
- Liquefaction assessment; and
- Assessment of suitable foundation options and derivation of design parameters.

Initia identified that the site contains concrete overlying uncontrolled fill following by Holocene river deposits and Pleistocene alluvium. Depths of fill up to 0.7m was encountered consisting of loose, moist brownish grey silty sandy fine to coarse gravels and some cobbles. BH23 also encountered a 200mm layer of dark grey medium dense, moist, silty sand.

Initia noted that a geological boundary runs through the north west of the site separating the Holocene river deposits from the Pleistocene Alluvium. Both areas of the site had similar stratigraphy pf 4 – 5 m of clayey silts overlying 4.5 – 6.5m of silty gravels with in-situ strength parameters relatively consistent between the units.

Groundwater levels measured on site varied between 2.1 and 3.8 m below ground level (m bgl) within the CPT locations while measurements within the boreholes recorded 2.3 m bgl in BH1 approximately 3 hours after drilling while BH2 and BH3 were measured at 1.8m bgl directly after drilling.

Initia have recommend that all concrete slabs and uncontrolled fill be removed from site for the purposes of establishing raft foundations.

7.5 INTERVIEW WITH LANDOWNER

As part of the site inspection and soil sampling regime, GSL undertook a site walkover with Mr Daniel Hart, a current director of Oderings Nurseries ChCh Ltd to discuss the site history and uses. Mr Hart noted that operations on site had been focussed on growing nursery species for retail sale and consequently, spray operations were generally limited to pesticides and fungicides to maintain plant health. Mr Hart noted that all areas of the site had been developed into concrete surfaces pretty promptly following establishment of the site an that this generally involved localised levelling works followed by track rolling, importation of gravel and subsequent compaction.

Site walkovers identified that the boiler had been historically diesel fuelled before being converted to gas for efficiency. The Diesel tank was located in the eastern extent of the site next to Brookval Road and was wholly within a raised bunded compound with underground service lines to the boiler house.

Similarly, Mr Hart identified an area of residual shallow bunding adjacent to one of the demolished glasshouses had been the primary location and store of agrichemical sprays used on site.

With regard to the current status of the site, GSL queried whether demolition works that had been completed to remove the bulk of the glasshouse and shadehouse structures had identified any asbestos containing materials. Mr Hart noted that the only materials removed by demolition to date had been timber, steel and plastic. Historically, Mr Hart noted a small volume of asbestos sheets were removed from site and disposed of to Omarunui Landfill not long after ownership of the site.

Identified site infrastructure is set out on Figure 2.

8 SITE INSPECTION & INFRASTRUCTURE

GSL staff undertook a visual inspection of the site on 8 June 2021, at which point all commercial areas of the site were accessible. The portion of the site which comprises the existing residential dwelling was not accessible due to existing tenancy arrangements.

The majority of the site was maintained under concrete and asphalt with a small peripheral track under hardstand cover, upon which site infrastructure was developed.

At the time of the inspection, Oderings Nurseries ChCh Ltd had decommissioned nursery operations on site, leaving only a portion of the site operating as the Oderings Garden Centre in the south east quadrant of the site alongside bulk landscape material sales extending across the southern portion towards Brookvale Road. GSL understands that the garden centre itself will be remaining within a reconfiguration of parking spaces only.

Visual inspection of the residential dwelling present adjacent to Brookvale Road did not identify any distinct evidence of actual or potential contamination. GSL understands that this dwelling will be subdivided off from the parent title but left otherwise unchanged.

The rear portion of the site has been altered since the most recent aerial image with the bulk of glass and shade houses now removed from the site, leaving only the concrete foundations. One glasshouse remains on the southern edge of cluster closest to the garden centre itself while shade house structures are present in the north western corner. Some residual stacks of timber and metal were present on site from the demolition activities, however no evidence of any asbestos containing materials was directly observed. Small piles of refuse were noted on the north eastern edge of the glasshouse adjacent to the gravel accessway.

Tied into the concrete slabs, the bunded area of the former agrichemical store was clearly noted. All concrete surfaces were observed to be in sound condition with no cracks or potholes noted in the vicinity. An area of stained concrete was present adjacent to the bunded footprint suggesting that marker spray dye had been spilled at some point in the site's history.

A diesel tank had been present on site to provide fuel source for the boiler room and distribution amongst the glasshouses. Inspection of the area confirmed that the bund remained in place with no distinct evidence of degradation or damage. The area concrete within the bunded footprint was heavily stained and some residual diesel odour was noted. Access to the area of the diesel tank was via a gravel track along the north eastern edge of the site and it was clear that any refuelling activities would have had to have occurred from this location.

Inspection of the boiler house and residual building infrastructure, understood to the be the former Plant Propagation Laboratories lab identified residual flat fibre cement sheeting still present on these buildings. Visual observations did not note any distinct evidence of damage or degradation of these building materials considered to present a risk of soil contamination.

As asbestos containing materials were noted in the property file as being utilised for foundation construction, GSL endeavoured to excavate test pits adjacent to the concrete slab to determine if any residual products could be identified. No evidence of any buried asbestos containing materials were noted, however it appeared that a slab had been repoured across the top of the oldest glasshouse. Excavation on this side wall identified degrading timber foundation poles, but nothing

else of note. An asbestos soil sample was collected from this material to determine if any fibres were present in soil that could not be assessed by visual inspection.

Geotechnical investigations had been completed prior to GSL accessing the site and consequently these residual concrete core cut locations were utilised to conduct the intrusive soil sampling. Each of the boreholes revealed a similar layer of gravel placement overlying soil within each distinct location. No visual or olfactory evidence of contamination was encountered in any of the boreholes.

Site photographs are attached in Appendix E.

9 CONCEPTUAL MODEL OF POTENTIAL CONTAMINATION

Based on the findings of the above desktop investigation and site inspection, GSL considers that the following matters relating to potential contamination within the piece of land under development:

- Historical use of persistent pesticides (HAIL Item A.10).
    - **Contaminants of concern:** Arsenic, copper, lead, and organochlorine pesticides (OCPs)
- Unverified fill material underlying the concrete slab (encompasses by HAIL Item I only where a risk to human or environmental health is present):
    - **Contaminants of concern:** depending on the source of the fill, heavy metals, OCPs polycyclic aromatic hydrocarbons (PAHs), and asbestos used as the standard analytical suite for the classification of fill;
- Discharges from the degradation of exterior building materials, specifically lead based paints and asbestos containing materials (ACM) (HAIL Item E.1 where ACM is in broken or degraded condition only, while potential impacts of lead-based paints are encompassed by Item I where risk to human or environmental health is present only)
    - **Contaminants of concern:** asbestos fibres and lead

9.1 EXPECTED SPATIAL DISTRIBUTION

9.1.1 HISTORICAL USE OF PERSISTENT PESTICIDES

The spray application of persistent pesticides to crops is generally through a uniform application across the full area of cropping / orchard and is generally expected to result in a uniform distribution of contaminants across the surficial topsoil horizon. Due to the relatively low mobility of pesticides in soil due to the strong binding of OCPs to clay particulate in soil, infiltration into deeper soil horizons is not expected, rather, concentrations of contaminants are expected to rapidly attenuate with depth. The use of persistent pesticides is not expected to result in the generation of hotspots of contamination.

9.1.2 UNVERIFIED FILL MATERIAL

With respect to unverified fill, where the source site and provenance of the fill is not known, the potential for a wide range of contaminants of concern is noted. As the process for the excavation, handling, and deposition of fill material will result in a mechanical mixing of the soil, it would be

expected that fill horizons on a small scale such as present on the site would be generally homogenous in nature.

9.1.3 DEGRADATION OF BUILDING PRODUCTS

With respect to the degradation of building products such as ACM and lead based paint on exterior surfaces a similar spatial distribution can be expected from both sources. Concentrations of lead or asbestos fibres can be elevated in the immediate area surrounding structures, with a rapid attenuation to background concentrations with distance from the source. Likewise, concentrations are generally expected to attenuate to background concentrations rapidly with depth as a result of the low mobility of lead and asbestos fibres within the soil matrix. In GSL's experience the impacts of lead based paint and degraded asbestos are limited to within 2-3 m of structures and within 300-500 mm of the surface for lead and the uppermost topsoil horizon for asbestos.

Visual observation of the dwelling from the roadside did not identify any distinct evidence of degradation.

9.2 INTRUSIVE INVESTIGATION REQUIREMENTS

Given the expected uniform distribution of contaminants across the topsoil horizon, a systematic soil sampling approach across formerly cropped areas is considered appropriate, while judgemental, targeted soil sampling should be utilised to investigate the potential hotspots resulting from the horizon of unverified fill material. As nearly the full extent of the site is under impermeable coverage, geotechnical borehole locations were utilised to provide access to the underlying soil conditions.

GSL notes that the residential dwelling and garden centre currently on site are expected to remain under the same unchanged landuse, with a nominal subdivision of the parent title being udnertaekn only. Consequently, no distinct investigation of these footprints ahs been completed.

10 INTRUSIVE INVESTIGATION

To assess the potential soil contamination identified by the conceptual site model above, GSL personnel developed a judgemental soil sampling strategy comprising of twelve discrete sample locations, targeting high risk locations of the site where the soil profile was likely accessible. Two soil sample locations were ultimately abandoned due to extensive hardstand cover preventing access to the underlying surface using hand tools.

Soil samples were collected from the soil surface, or soil/hardstand interface using a stainless steel hand auger following removal of vegetative or hardstand cover. Soil samples were collected directly from the auger spoon and placed directly into resealable plastic bags or laboratory supplied jars labelled with the date, sample identification number, sample depth, location and initials of the sampler noted on the bag. Sampling equipment was decontaminated using a soft soap solution between each sample in accordance with GSL's internal quality control procedures.

Soil sample rationale is provided in Table 1 below, while soil sample locations are shown in Figure 3.

TABLE 1. SOIL SAMPLE RATIONALE

Sample	Location	Analytes
SS1 0-150mm	Soil Surface Adjacent Former Fuel Tank Bund, Former Orchard/Market Garden Footprint	Arsenic, Copper, Lead, TPH, PAH, OCP
SS3 300-400mm, SS5 50-150mm, SS6 100-250mm, SS7 150-300mm, SS8 100-200mm, SS9 0-150mm, SS10 150-300mm, SS11 300-400mm, SS12 150-250mm	Soil/Hardstand Interface Adjacent Glasshouse Footprint, Former Orchard/Market Garden Footprint	Arsenic, Copper, Lead, OCP
SS4 0-100mm	Fibre Cement Fragments	Asbestos
SS2	Glasshouse Footprint, Former Orchard/Market Garden Footprint. Abandoned due to Hardstand Cover	-

Notes:

1. TPH = Total Petroleum Hydrocarbons, PAH = Polycyclic Aromatic Hydrocarbons, OCP = Organochlorine Pesticides

10.1 LABORATORY ANALYSIS AND QUALITY CONTROL

Sample bags and jars were placed in a bag with a chain of custody form (COC) indicating the analysis to be performed. Soil samples were dispatched to Eurofins Environmental Testing NZ Limited in Auckland for analysis of the contaminants of concern as documented above.

Eurofins Environmental Testing NZ Limited are accredited by International Accreditation New Zealand (IANZ) for the analysis undertaken.

10.2 ACCEPTANCE CRITERIA AND RELEVANT GUIDELINES

The NES mandates fourteen soil contaminant standards (SCS) for the protection of human health for organic compounds and inorganic elements for various landuse criteria. The NES human health SCS criteria for residential landuse with 10% homegrown produce have been applied to the proposed change in landuse, subdivision, and development.

The Hawke's Bay Region and Hastings District Council do not define guideline values for the protection of environmental, delegating the assessment of contaminants to the national level by means of the NES soil contaminant standards for the protection of human health. As such, to give an indication of potential risk to environmental health from inorganic elements and persistent pesticides, the results have been compared to the Draft Evo-SGVs defined by Landcare Research in their Contract Report LC2595 *User Guide: Background soil concentrations and soil guideline values for the protection of ecological receptors (Eco-SGVs) – Consultation Draft* (2016).

Results are also compared to the background concentration ranges of inorganic elements in soils in the Hawke's Bay region prepared by Landcare Research in their Contract Report LC1852 for Hawke's Bay Regional Council in Report no. *RM14-03, HBRC plan no. 4611, Hawke's Bay Region: Background Soil concentrations for managing soil quality* (2014)

11 ANALYTICAL RESULTS

A comparison of the analytical results with the relevant guideline criteria is provided in Tables 2a and 2b below. Copies of the laboratory chain of custody document (COC) and analytical transcripts are attached in Appendix F, while a discussion of the results is provided below. No asbestos or polycyclic aromatic hydrocarbons were detected in the samples submitted and have been omitted from the table of results.

11.1 HEAVY METALS

No soil sample returned concentrations of arsenic, copper, or lead in excess of the NES residential SCS or the Eco-SGV criteria for residential / recreational landuse. SS1 returned a concentration of lead marginally in excess of the soil background range for the site, while all other heavy metal concentrations returned were within the expected soil background range.

11.2 ORGANIC COMPOUNDS

Eight of the ten soil samples submitted returned detectable concentrations of OCPs, while SS1 returned a detectable concentration of TPH. None of the organic compound concentrations returned exceed with the NES and Eco-SGV criteria.

11.3 ASBESTOS

No asbestos was detected within the sample submitted.

TABLE 2A: HEAVY METAL ANALYTICAL RESULTS[1]

	Arsenic	Copper	Lead
SS1 (0-150mm)	8.2	31	**27**
SS3 300-400mm	5.6	15	14
SS5 50-150mm	4.5	24	14
SS6 100-250mm	4.6	28	12
SS7 150-300mm	7.5	25	13
SS8 100-200mm	9.6	24	16
SS9 0-150mm	5.7	25	15
SS10 150-300mm	5.3	16	13
SS11 300-400mm	4.8	15	11
SS12 0-150mm	6.7	25	13
NES[2]	20	>10,000	210
Eco-SGV[3]	60	120	900
Background[4]	9.97	48.14	25.83

Notes:

1. All concentrations measured in mg/kg.
2. National Environmental Standards (NES) for assessing and managing contaminants in soil to protect human health – residential landuse with 10% homegrown produce
3. Landcare Research (2016) User Guide: Background soil concentrations and soil guideline values for the protection of ecological receptors (Eco-SGVs);
4. Landcare Research (2014) Hawke's Bay Region: Background soil concentrations for managing soil quality.
5. Values in **BOLD** exceed the NES criteria, values in **BOLD** exceed the Eco-SGV criteria, Values in **BOLD** exceed the Background Ranges.
6. NA = Not applicable / NL = No Limit / ND= not detected

TABLE 2B: ORGANIC COMPOUND ANALYTICAL RESULTS[1]

	∑DDT	Dieldrin	Chlordane (Total)	TPH C15-C36
SS1 (0-150mm)	**0.01**	**0.08**	<0.01	**130**
SS3 300-400mm	**0.01**	<0.01	**0.02**	-
SS5 50-150mm	**0.01**	<0.01	<0.01	-
SS6 100-250mm	<0.01	<0.01	<0.01	-
SS7 150-300mm	**0.03**	<0.01	<0.01	-
SS8 100-200mm	**0.04**	<0.01	<0.01	-
SS9 0-150mm	**0.10**	**0.04**	<0.01	-
SS10 150-300mm	**0.07**	<0.01	<0.01	-
SS11 300-400mm	**0.02**	<0.01	<0.01	-
SS12 0-150mm	<0.01	<0.01	<0.01	-
NES[2]	70	12	200	>20,000[5]
Eco-SGV[3]	4.8	4[4]	4[4]	>20,000[5]

Notes:

1. All concentrations measured in mg/kg.
2. National Environmental Standards (NES) for assessing and managing contaminants in soil to protect human health – residential landuse with 10% homegrown produce
3. Landcare Research (2016) User Guide: Background soil concentrations and soil guideline values for the protection of ecological receptors (Eco-SGVs);
4. Dutch Soil Remediation Circular (2013)
5. MfE (1999) Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand
6. Values in **BOLD** exceed the NES criteria, values in **BOLD** exceed the Eco-SGV criteria, Values in **BOLD** exceed the Background Ranges.
7. NA = Not applicable / NL = No Limit / ND= not detected

12 CONCLUSIONS

GSL has conducted a desktop study and intrusive investigation of the site in accordance with the MfE Contaminated Land Management Guidelines to determine the location and extent of current and / or former HAIL Activities on site and the potential for soil contamination, and the associated risk to human health and the environment, as a result.

The desktop study identified that the site was historically the location of an orchard and market garden prior to being developed into glasshouses, shadehouses, and a packhouse in the 1970s, which were then later developed into a plant nursery and garden centre. The desktop study did identify the potential presence of asbestos containing materials within the glasshouses construction, however no evidence was encountered during the site inspection and soil sampling. In addition, the presence of a small fuel tank utilised to fuel glasshouse heating, and potential uncertified fill material were also noted within the site history.

Based on the findings of the desktop study, GSL developed a conceptual site model and judgment soil sampling regime to assess the potential soil contamination at the site. The results of the intrusive investigation identified that soil onsite has been impacted by low concentrations of organic compounds as a result of site activities, however not to a degree which would pose a risk to human health or the receiving environment.

12.1 NATIONAL ENVIRONMENTAL STANDARD (NES)

Due to the detection of organic compounds within soil onsite, the site meets the definition of land cover by the NES, and as such the regulations of the NES will apply to any change in land use, development or soil disturbance at the site.

The proposed subdivision of the site is highly unlikely to pose a risk to end land users, and therefore may be regarded as a permitted activity under NES Regulation 8(4). However, any future development will be required to address the soil disturbance requirements of the NES, and could be regarded as a permitted activity provided soil disturbance and offsite removal volumes comply with NES Regulation 8(3).

Given the wholesale removal of impermeable surfaces required, as well as the necessary developments of roads and accessways, disturbance volumes are considered likely to exceed Regulation 8(3) and it is likely consent will be required as a controlled activity under NES Regulation 9. Regardless of the activity status, any future soil disturbance works will require an adequately detailed site management plan commensurate to the risks onsite.

12.2 HAWKE'S BAY RRMP

As no soil sample returned concentrations of contaminants in concern in excess of the adopted environmental protection criteria (Eco-SGV's), the proposed development and soil disturbance required is considered highly unlikely to result in any risk to environmental health. Consequently, no further works are considered necessary at this stage under the RRMP.

13 RECOMMENDATIONS

In order to satisfy the requirement of the NES Regulations, a site management plan will be required to be developed and implemented as part of any soil disturbance and development of the site. The site management plan should include:

- Controls to protect site works from the potential mobilisation of soil contaminants;
- Accidental discovery protocols for the asbestos containing materials which may be encountered during the removal of glasshouse structures onsite;

- Accidental discovery protocols for potential hydrocarbon contamination within the footprint of former fuel storage locations.

14 REFERENCES

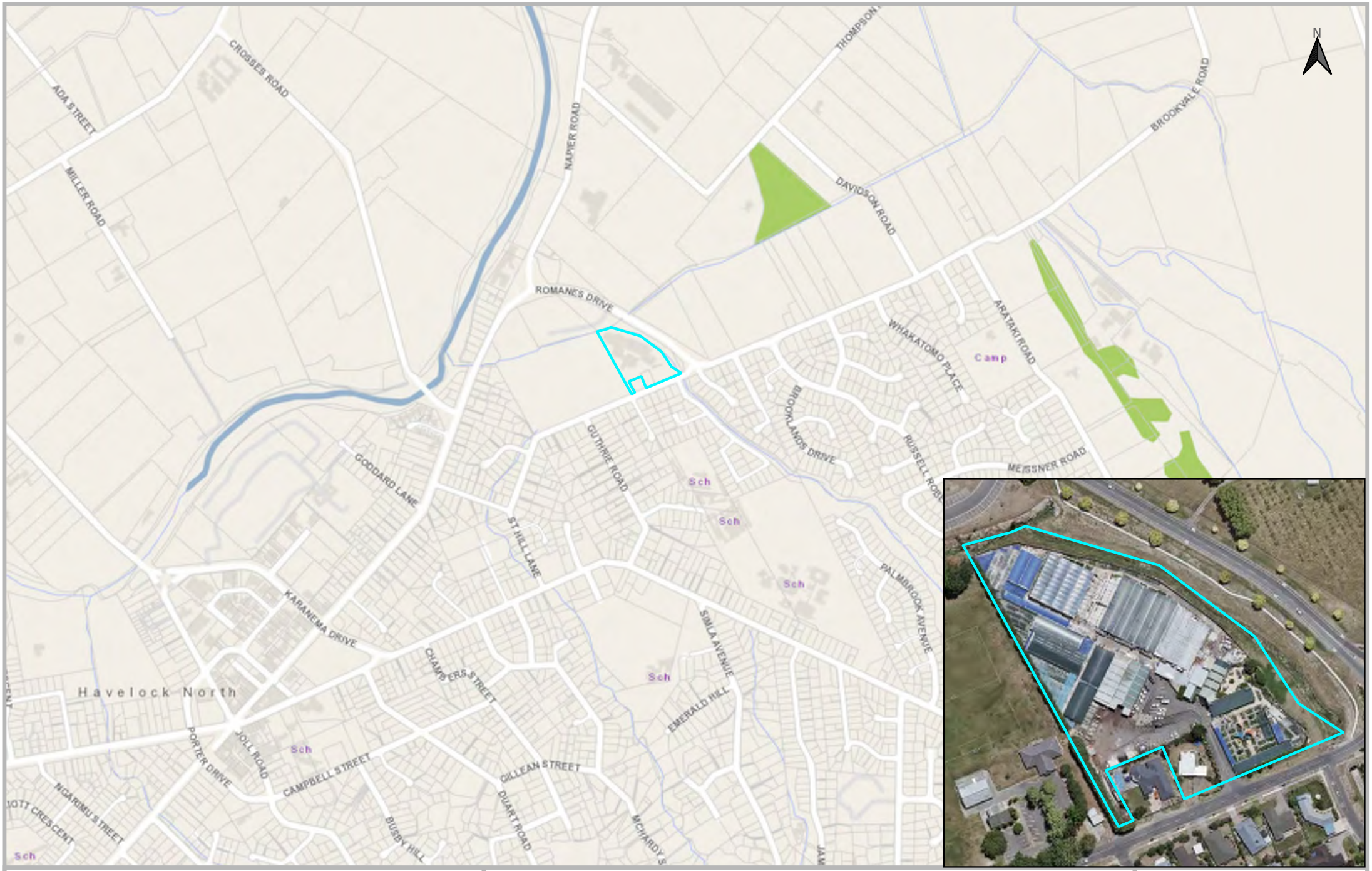
1. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.1: Reporting on contaminated Sites in New Zealand*. Ministry for the Environment, Wellington, New Zealand.
2. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils*. Ministry for the Environment, Wellington, New Zealand.
3. Ministry for the Environment (2012) - Users Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health. Ministry for the Environment, Wellington, New Zealand.
4. Hastings District Council Intramaps https://mapping.hdc.govt.nz/intramaps98/?configId=9cdac7cf-9ff6-4166-95eb-280838423ccc&project=HDC&module=Property
5. Retrolens Historical Image Resource - www.retolens.co.nz
6. Ministry for the Environment (2011) – *Methodology for Deriving Standards for contaminants in Soil to Protect Human Health.* Ministry for the Environment, Wellington, New Zealand.
7. Landcare Research (2016) - *User Guide: Background soil concentrations and soil guidelines values for the protection of ecological receptors (Eco-SGVs) - Consultation draft*.
8. MFE / NZWWA (2003) – *Guidelines for the safe application of biosolids to land in New Zealand*.
9. Landcare Research (2015) – *Background soil concentrations of selected trace elements and organic contaminants in New Zealand*.
10. GNS Science – Geology Web Map Client – Https://data.gns.cri.nz/geology/

15 LIMITATIONS

The conclusions and all information in this Report are given strictly in accordance with and subject to the following limitations and recommendations:

1. The assessment undertaken to form this conclusion is limited to the scope of work agreed between GSL and the client, or the client's agent as outlined in this Report. This report has been prepared for the sole benefit of the client and neither the whole nor any part of this report may be used or relied upon by any other party.
2. The investigations carried out for the purposes of the report have been undertaken, and the report has been prepared, in accordance with normal prudent practice and by reference to applicable environmental regulatory authority and industry standards, guidelines and assessment criteria in existence at the date of this report.
3. This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by GSL for use of any part of this report in any other context.
4. This Report was prepared on the dates and times as referenced in the report and is based on the conditions encountered on the site and information reviewed during the time of preparation. GSL accepts no responsibility for any changes in site conditions or in the information reviewed that have occurred after this period of time.
5. Where this report indicates that information has been provided to GSL by third parties, GSL has made no independent verification of this information except as expressly stated in the report. GSL assumes no liability for any inaccuracies in or omissions to that information.
6. Given the limited Scope of Works, GSL has only assessed the potential for contamination resulting from past and current known uses of the site.
7. Environmental studies identify actual sub-surface conditions only at those points where samples are taken and when they are taken. Actual conditions between sampling locations may differ from those inferred. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from that predicted. Nothing can be done to prevent the unanticipated and GSL does not guarantee that contamination does not exist at the site.
8. Except as otherwise specifically stated in this report, GSL makes no warranty or representation as to the presence or otherwise of asbestos and/or asbestos containing materials ("ACM") on the site. If fill has been imported on to the site at any time, or if any buildings constructed prior to 1970 have been demolished on the site or materials from such buildings disposed of on the site, the site may contain asbestos or ACM .
9. Except as specifically stated in this report, no investigations have been undertaken into any off-site conditions, or whether any adjoining sites may have been impacted by contamination or other conditions originating from this site. The conclusion set out above is based solely on the information and findings contained in this report.
10. Except as specifically stated above, GSL makes no warranty, statement or representation of any kind concerning the suitability of the site for any purpose or the permissibility of any use, development or re-development of the site.
11. The investigation and remediation of contaminated sites is a field in which legislation and interpretation of legislation is changing rapidly. Our interpretation of the investigation findings should not be taken to be that of any other party. When approval from a statutory authority is required for a project, that approval should be directly sought by the client.
12. Use, development or re-development of the site for any purpose may require planning and other approvals and, in some cases, environmental regulatory authority and accredited site auditor approvals. GSL offers no opinion as to whether the current or proposed use has any or all approvals required, is operating in accordance with any approvals, the likelihood of obtaining any approvals, or the conditions and obligations which such approvals may impose, which may include the requirement for additional environmental works.
13. GSL makes no determination or recommendation regarding a decision to provide or not to provide financing with respect to the site. The on-going use of the site and/or planned use of the site for any different purpose may require the owner/user to manage and/or remediate site conditions, such as contamination and other conditions, including but not limited to conditions referred to in this report.
14. Except as required by law, no third party may use or rely on, this report unless otherwise agreed by GSL in writing. Where such agreement is provided, GSL will provide a letter of reliance to the agreed third party in the form required by GSL.
15. To the extent permitted by law, GSL expressly disclaims and excludes liability for any loss, damage, cost or expenses suffered by any third party relating to or resulting from the use of, or reliance on, any information contained in this Report. GSL does not admit that any action, liability, or claim may exist or be available to any third party.
16. Except as specifically stated in this section, GSL does not authorise the use of this report by any third party.

FIGURES



geosciences ltd ENVIRONMENTAL
Level 1, 47 Clyde Road,
Browns Bay, 0630
Tel: (09) 475 0222

Figure 1 - Site Location

57 Brookvale Rd, Havelock North, Hawke's Bay

Reference:	JH0155
Date:	26/05/2021
Drawn:	CD
Approved:	COB

geosciences ltd ENVIRONMENTAL	Title:	Figure 2 - Site Infrastructure	Reference: JH0155
			Date: 24 Jun 2021
Level 1, 47 Clyde Road, Browns Bay, 0630 Tel: (09) 475 0222	Project name:	55 Brookvale Road, Havelock North	Drawn: BR
			Approved: COB

geosciences ltd ENVIRONMENTAL	Title:	Figure 3 - Soil Sample Locations	Reference: JH0155
			Date: 24 Jun 2021
Level 1, 47 Clyde Road, Browns Bay, 0630 Tel: (09) 475 0222	Project name:	55 Brookvale Road, Havelock North	Drawn: BR
			Approved: COB

APPENDIX A PROPOSED SCHEME PLAN

Section 7
SO 330242
0.6745

Lot 1
DP 339158
1.5586

Lot
DP 17
2.023

RES
440m²

EXISTING DRAIN

LOT 11
544m²

LOT 10
502m²

LOT 9
406m²

LOT 8
475m²

LOT 7
423m²

LOT 6
416m²

LOT 5
443m²

Section 10
SO 330242
0.3831

ROMANES DRVE

LOT 4
406m²

RES
1980m²

R10.0

LOT 12
469m²

Lot 2
DP 311724
1.9193

LOT 3
470m²

LOT 19
566m²

LOT 13
483m²

102
2107m²

LOT 2
590m²

LOT 20
464m²

EXISTING DRAIN

Section 11
SO 330242
0.0514

LOT 14
483m²

103
491m²

LOT 18
591m²

12.0

LOT 21
506m²

LOT 15
483m²

6.0

LOT 17
475m²

LOT 1
3097m²

GUTHRIE PARK

LOT 16
512m²

12.0

101 1758m² (INC. PARKING)

11.0

Lot 1
DP 8274
0.1077

LOT 22
890m²

Lot 1
DP 311724
0.1257

BROOKVALE ROAD

Lot 1
DP 327948
0.0738

Lot 2
DP 327948
0.0766

Lot 6
DP 23150
0.0766

Lot 5
DP 23150
0.0700

Lot 4
DP 23150
0.0700

Lot 3
DP 23150
0.0700

Lot 9
DP 23150
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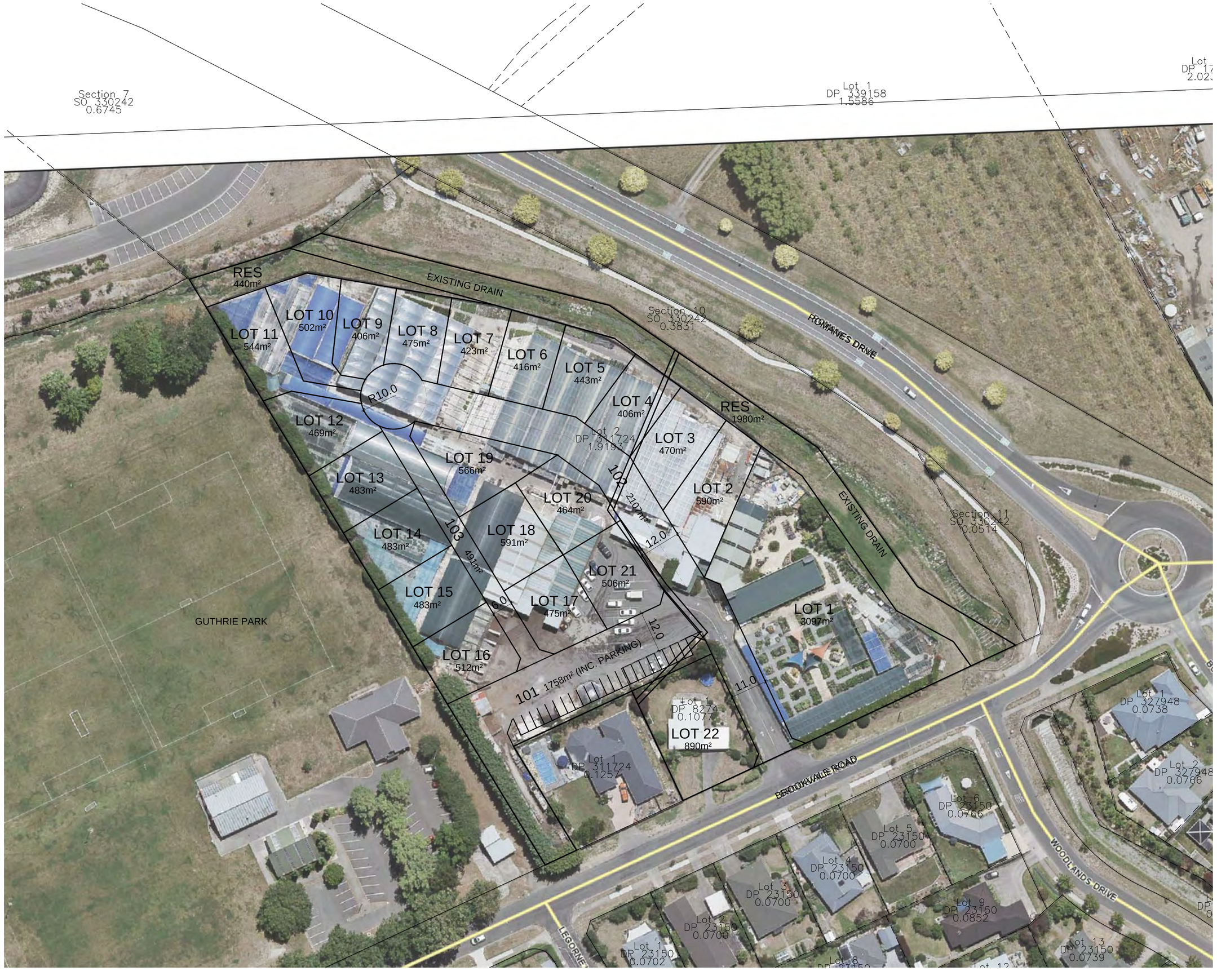
Lot 2
DP 23150
0.0700

Lot 1
DP 23150
0.0702

Lot 13
DP 23150
0.0739


Section 7
SO 330242
0.6745
Lot 1
DP 339158
1.5586
RES
440m²
EXISTING DRAIN
LOT 10
502m²
LOT 9
406m²
LOT 8
475m²
LOT 7
423m²
LOT 6
416m²
LOT 5
443m²
LOT 4
406m²
RES
1980m²
Section 10
SO 330242
0.3831
ROMANES DRIVE
LOT 11
544m²
R10.0
LOT 12
469m²
Lot 2
DP 311724
1.9193
LOT 3
470m²
LOT 19
566m²
LOT 13
483m²
LOT 20
464m²
LOT 2
590m²
EXISTING DRAIN
Section 11
SO 330242
0.0514
LOT 14
483m²
LOT 18
591m²
LOT 21
506m²
LOT 15
483m²
LOT 17
475m²
LOT 1
3097m²
GUTHRIE PARK
LOT 16
512m²
101 1758m² (INC. PARKING)
Lot 1
DP 8274
0.1077
LOT 22
890m²
Lot 1
DP 311724
0.1257
BROOKVALE ROAD
Lot 1
DP 327948
0.0738
Lot 2
DP 327948
0.0766
Lot 6
DP 23150
0.0766
Lot 5
DP 23150
0.0700
Lot 4
DP 23150
0.0700
Lot 3
DP 23150
0.0700
Lot 2
DP 23150
0.0700
Lot 1
DP 23150
0.0702
Lot 9
DP 23150
0.0852
Lot 13
DP 23150
0.0739
WOODLANDS DRIVE
LEGORNE
103
491m²
210m²
12.0
6.0
11.0

APPENDIX B CERTIFICATE OF TITLE

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **46325**

Land Registration District **Hawkes Bay**

Date Issued 22 October 2002

Prior References

HB132/44 HBP1/499

Estate	Fee Simple
Area	2.0270 hectares more or less
Legal Description	Lot 2 Deposited Plan 311724 and Lot 1 Deposited Plan 8274

Original Registered Owners

Orderings Nurseries CHCH Limited

Interests

5346574.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 - 18.9.2002 at 9:00 am (Affects the part formerly in CT P1/499)

Subject to Section 241(2) Resource Management Act 1991 (affects DP 311724)

Subject to a right to drain water over part Lot 1 DP 8274 marked A on DP 311724 and over part Lot 2 DP 311724 marked B on DP 311724 created by Easement Instrument 5379491.4 - 22.10.2002 at 9:00 am

The easements created by Easement Instrument 5379491.4 are subject to Section 243 (a) Resource Management Act 1991

6341038.1 Discharge of Compensation Certificate 5346574.1 - 10.3.2005 at 9:00 am

Subject to a right of way and a right to drain water (in gross) over part marked A on DP 22042 in favour of Hastings District Council created by Gazette Notice 6341038.3 - 10.3.2005 at 9:00 am

11732267.1 Correction of Name of Orderings Nurseries CHCH Limited to Oderings Nurseries ChCh Limited - 29.4.2020 at 11:47 am

11732267.5 Mortgage to ANZ Bank New Zealand Limited - 29.4.2020 at 11:47 am

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **46325**

Land Registration District **Hawkes Bay**

Date Issued 22 October 2002

Prior References

HB132/44 HBP1/499

Estate Fee Simple

Area 2.0270 hectares more or less

Legal Description Lot 2 Deposited Plan 311724 and Lot 1 Deposited Plan 8274

Registered Owners

Oderings Nurseries ChCh Limited

Interests

Subject to Section 241(2) Resource Management Act 1991 (affects DP 311724)

Subject to a right to drain water over part Lot 1 DP 8274 marked A on DP 311724 and over part Lot 2 DP 311724 marked B on DP 311724 created by Easement Instrument 5379491.4 - 22.10.2002 at 9:00 am

The easements created by Easement Instrument 5379491.4 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right of way and a right to drain water (in gross) over part marked A on DP 22042 in favour of Hastings District Council created by Gazette Notice 6341038.3 - 10.3.2005 at 9:00 am

11732267.5 Mortgage to ANZ Bank New Zealand Limited - 29.4.2020 at 11:47 am

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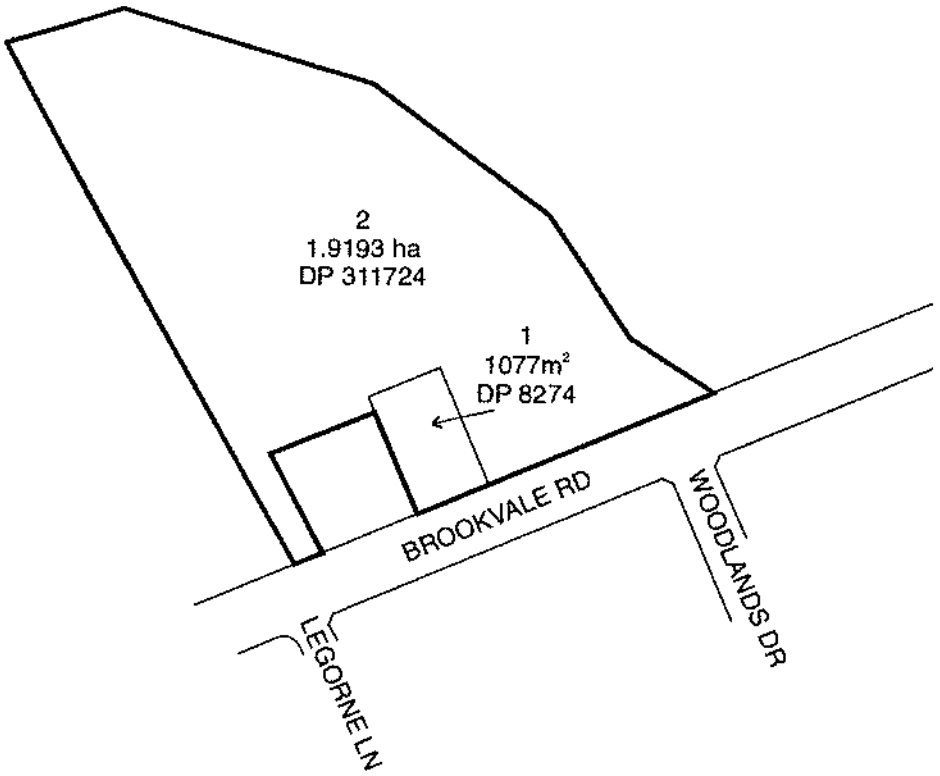

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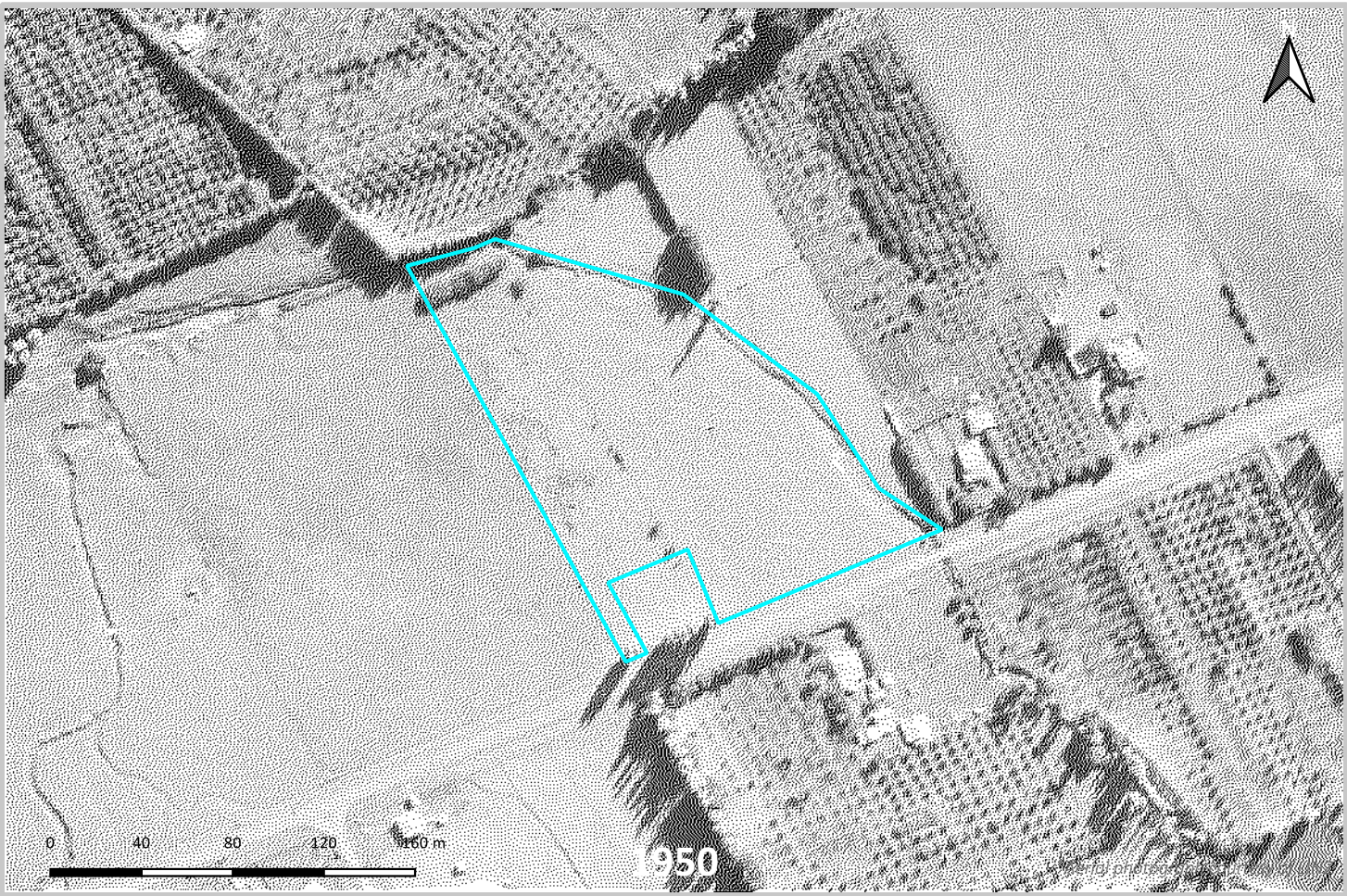
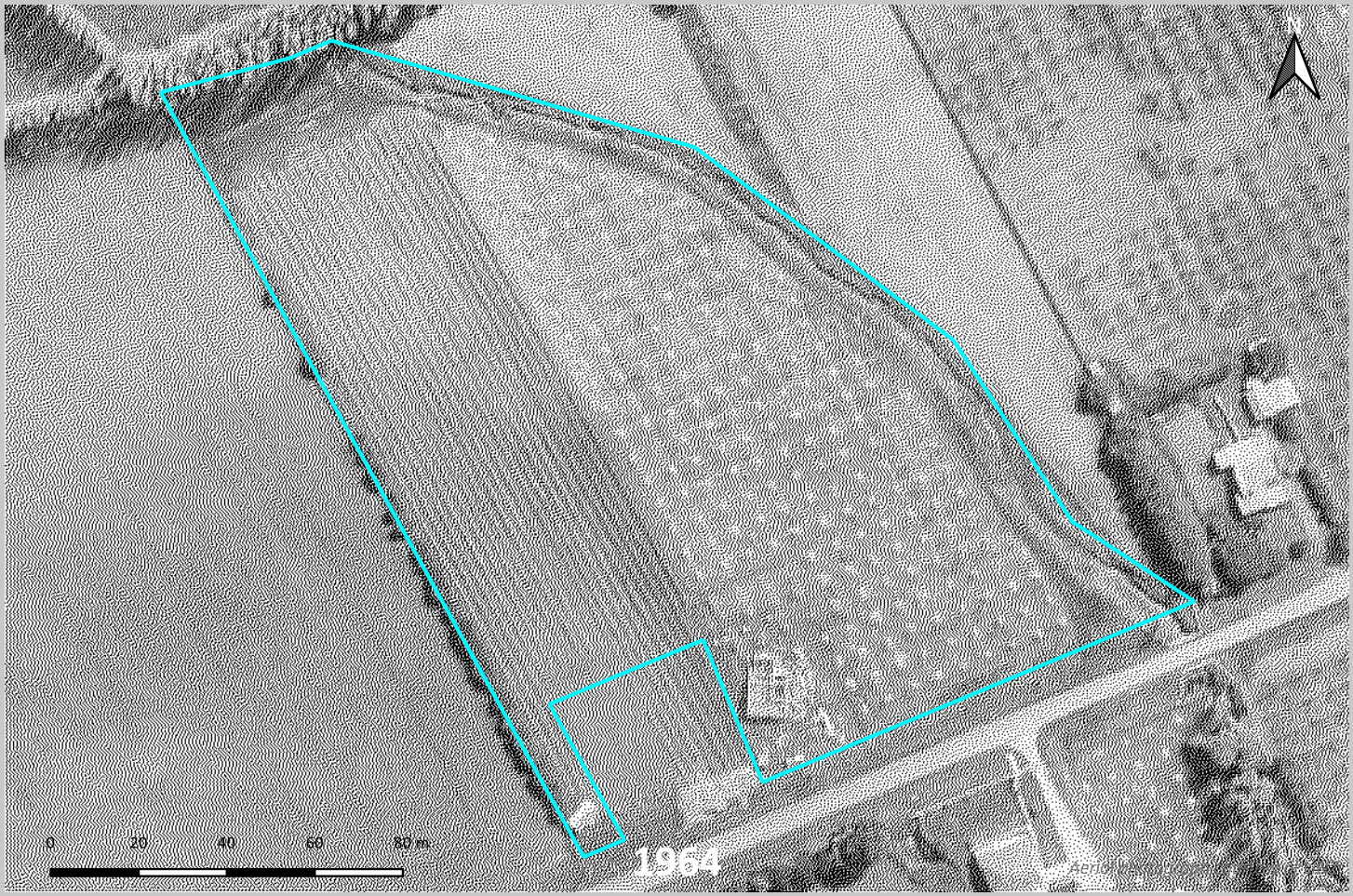
APPENDIX C HISTORICAL AERIAL PHOTOGRAPHS





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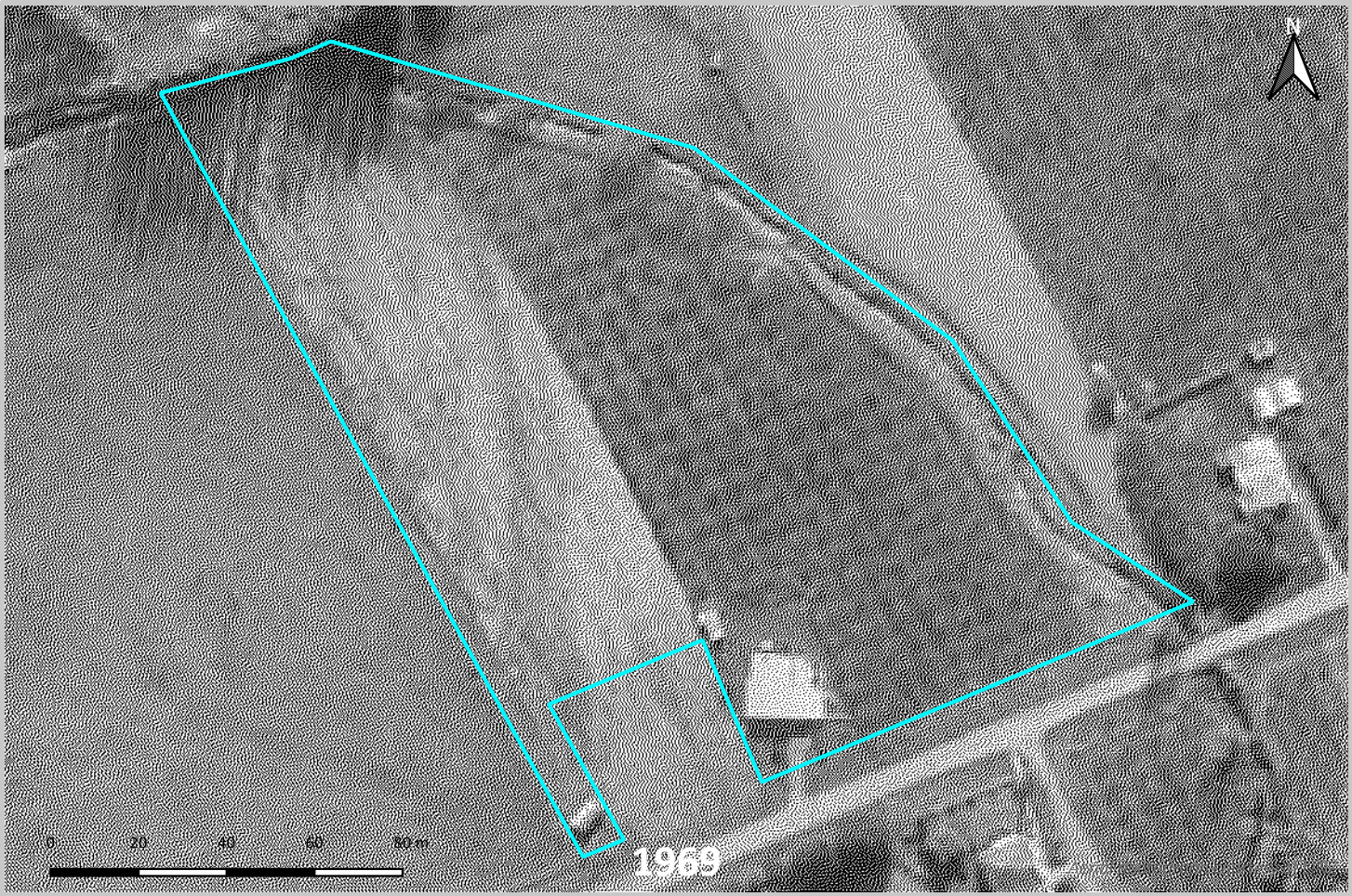
Browns Bay, 0630
Tel: (09) 475 0222

Historic Aerial Photographs

57 Brookvale Rd, Havelock North, Hawke's Bay

Reference: JH0155
Date: 2021/05/26
Drawn: CD
Approved: COB



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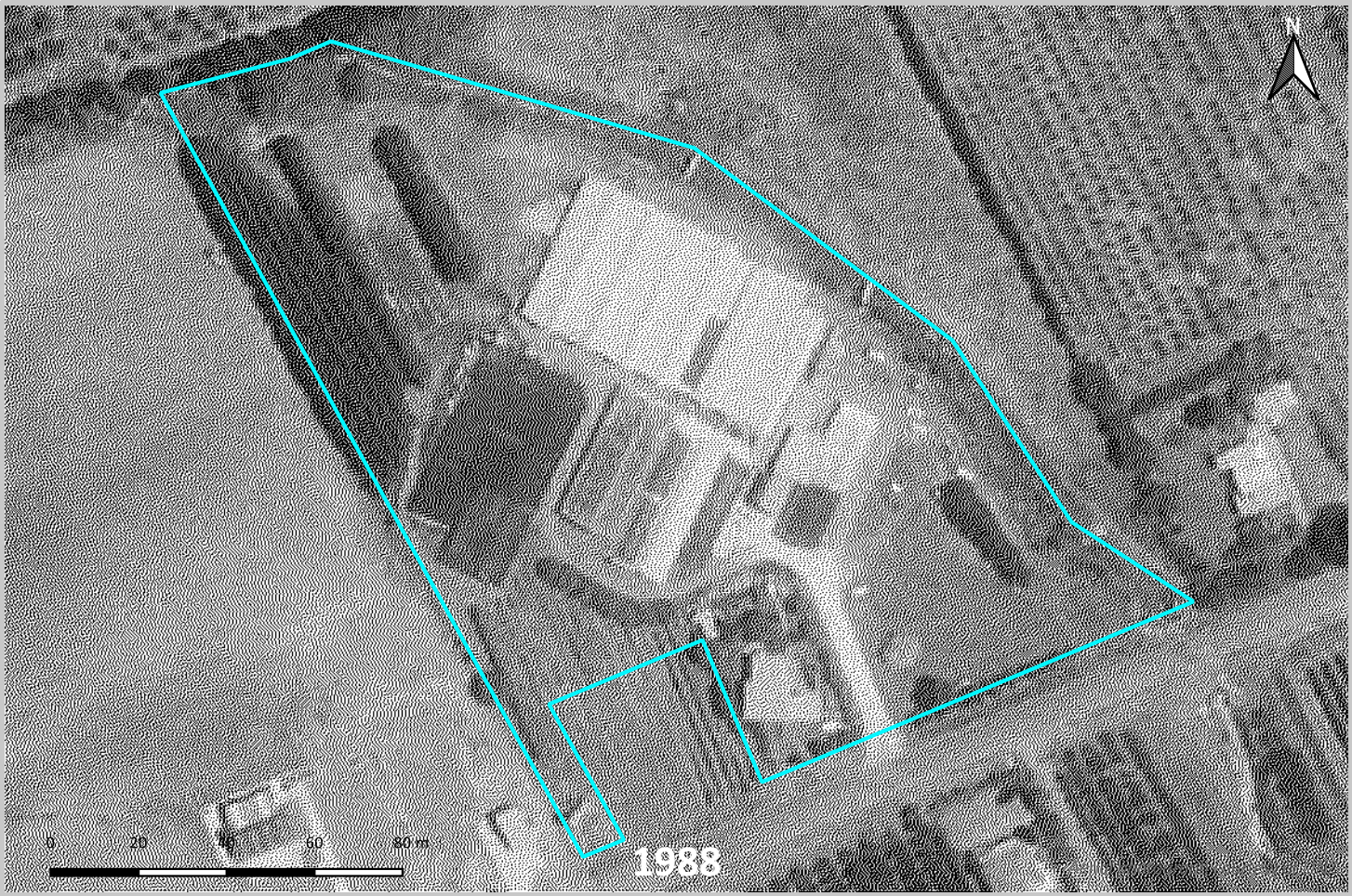
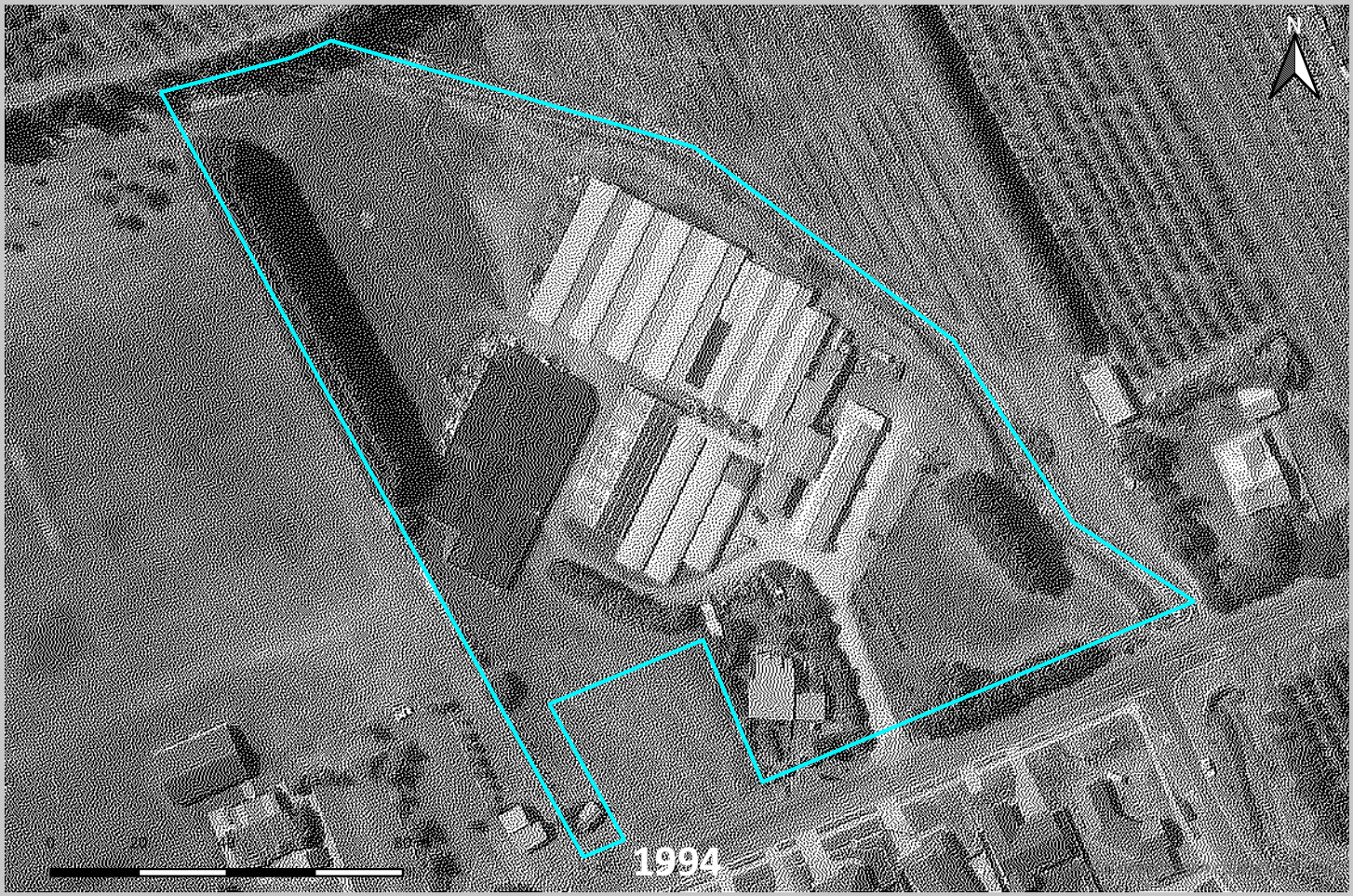
57 Brookvale Rd, Havelock North, Hawke's Bay

Reference: JH0155
Date: 2021/05/26
Drawn: CD
Approved: COB





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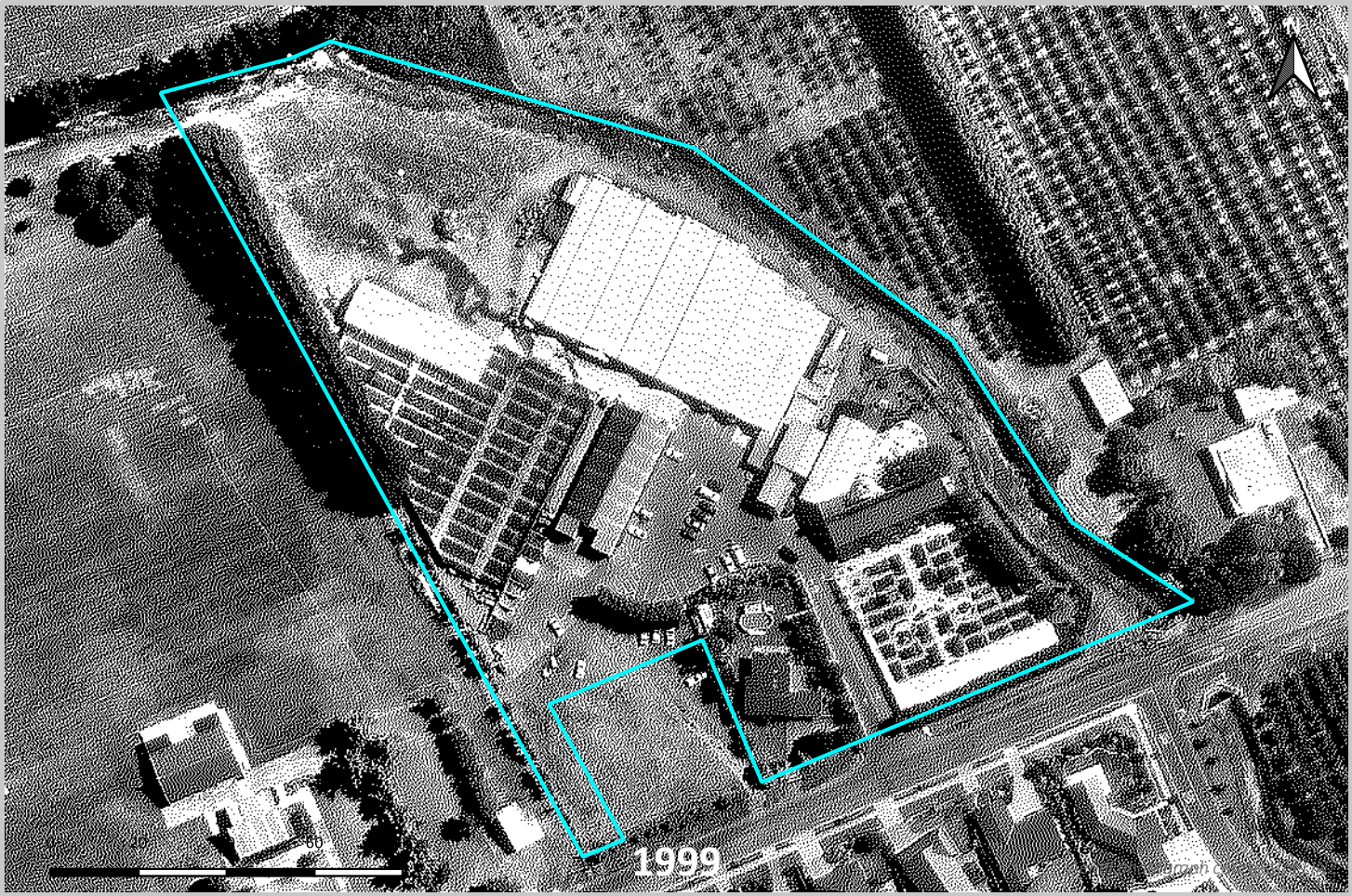

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Historic Aerial Photographs

57 Brookvale Rd, Havelock North, Hawke's Bay

Reference: JH0155
Date: 2021/05/26
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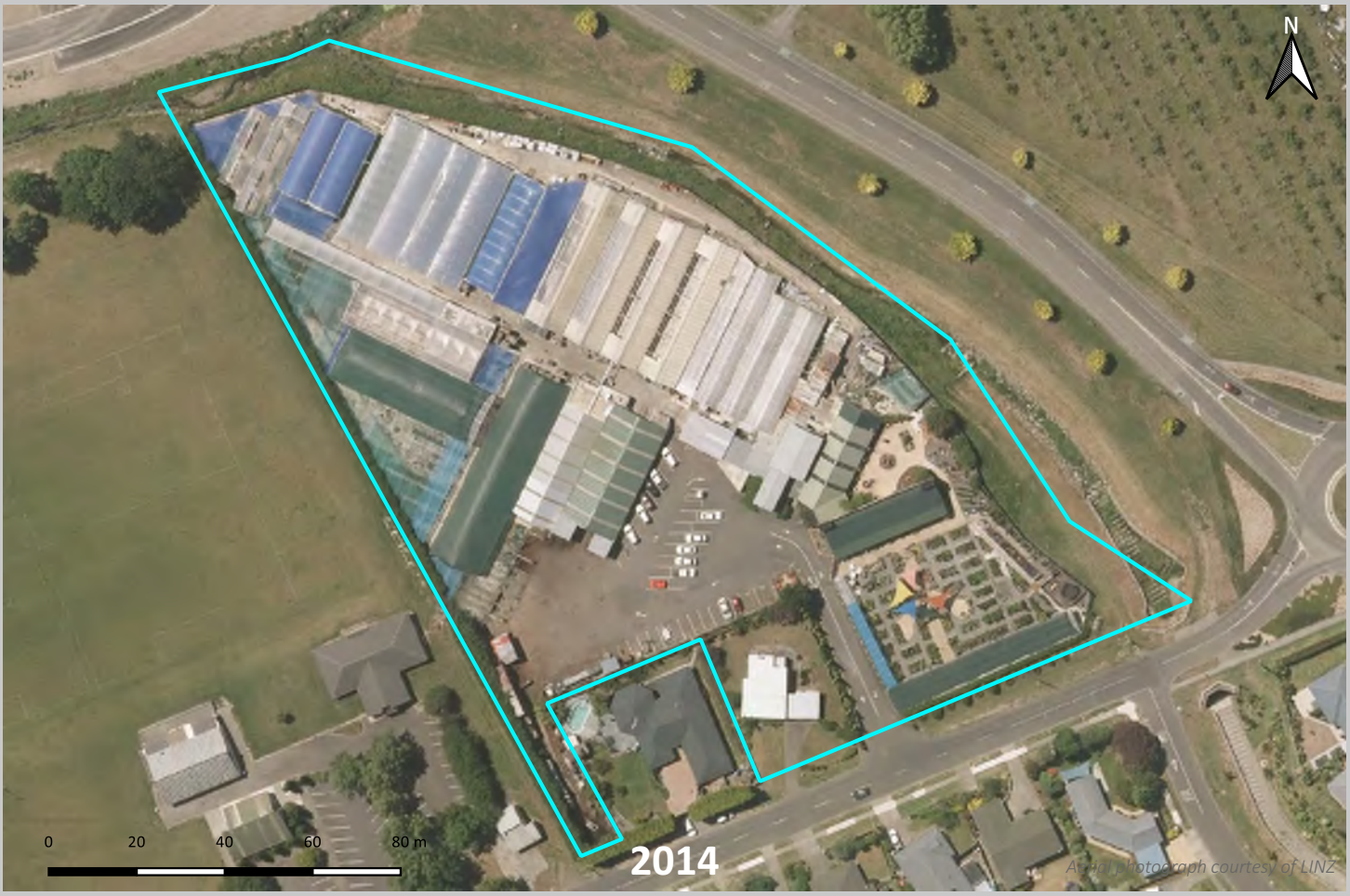

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Browns Bay, 0630
Tel: (09) 475 0222

Historic Aerial Photographs

57 Brookvale Rd, Havelock North, Hawke's Bay

Reference: JH0155
Date: 2021/05/26
Drawn: CD
Approved: COB

APPENDIX D PROPERTY FILE EXTRACTS

APPLICATION FOR BUILDING PERMIT

Receipt No. ..... Permit No. 5018

To the Hawke's Bay County Building Inspector,
P.O. Box 342, Napier

Date: 13-3-78

I hereby apply for permission to erect, ~~alter, repair, shift~~, install, Packing New Shed.

in accordance with the site plan, detailed plans and specifications deposited in duplicate herewith.

Name of Property Owner: Plant Propagation Laboratories

Postal Address of Owner: Brookvale Road H/north.

Address of Building Site: Brookvale Road H/north District

Valuation Roll No. 1688/192 Approximate Area of Property: 3.0463 hectares

Legal description of Building Site: Pt Lot 1 DP. 7965 Blk IV Tamaki SD

Name of Builder: B. W. DRINNAN LTD.

Address of Builder: 79 McHardy St H/north.

If application is for—

(1) A Dwelling:
State number of existing dwellings on this property: .....
or

(2) An outbuilding on a Residential site:
State total floor area of existing outbuildings on this property: ..... sq. m.

State the total floor area of the New Building or extension only: 16 sq. m.

ESTIMATED VALUE:

Building	$ 800 - 00
Plumbing and Drainage	$ 170 - 00
Total Value	**$ 970 - 00**

NOTE: Where the work involves any drainage or sanitary plumbing work a separate application for this work must be made at the same time.

I, the applicant, agree to ensure that the work detailed in the deposited plans will be carried out in accordance with the provisions of the current Hawke's Bay County Building Bylaws.

Applicant B. W. Drinnan Phone Bus: 77853 Pvt: 77853

Postal Address: 79 McHardy street H/North

OFFICE USE ONLY

Planning Officer		31/3/78	Other buildings on site	OB BLDG, Yes/~~No~~.
Health Inspector		6/4/78	Sewer connection fee $ Water connection fee $	2
Building Inspector		5/4/78	P.O. Issued 16/3/78	
A/c Sent		6/4/78		

VW 4476 2000/2/77

APPLICATION FOR SANITARY PLUMBING OR DRAINAGE PERMIT

Receipt No. ..... Permit No. 2341.

To the Hawke's Bay County Council Health Inspector,
P.O. Box 172, Napier.

Date: 13-3-78

I, B.W. DRINNAN

Address 79 McHardy St. H/North.

Hereby apply for permission to carry out the work described herein and set out in plans attached to be carried out in or on the premises situated at:

Brookvale road Havelock North Township

Valuation Roll No. ..... Riding .....

Description of work .....

Name and address of the owner of the property where the work is to be carried out:

Plant Propogation Laboratories
Brookvale Road Havelock North

Name and Address of Registered Plumber entitled to do the work:

J. Serra ✓
5 Greenwood Road H/North

Name and Address of Registered Drainlayer entitled to do the work:

as above ✓

Value of Proposed Work, including Materials:
Estimated Value of —

Plumbing	$ 150 — 00
Drainage	$ 20 — 00
Total	$ 170 — 00

Signature B.W. Drinnan

OFFICE USE ONLY

Examined and Approved

Health Inspector 6/4/78

Account Sent

Health Inspector ...../...../.....

D.T.P.—7088 1000/1/74

HAWKE'S BAY COUNTY COUNCIL

DUPLICATE

P.O. BOX 342
NAPIER, N.Z.

B.W. Drennan Ltd.
79 McHardy St.
Havelock N.

6/4/78

Valuation Roll No: ----------

Your application for a Building Permit for

Add to Packing Shed for
Plant Propagation Lab.

has been checked and on payment of the following fee the necessary Permit(s) will be issued:

FEES PAYABLE:

Building	31104	$ 4-00
Building Research Association Fee		$
Plumbing and/or Drainage	31105	$ 2-00
Clive/Whakatu Sewer Connection Fee		$
Water Connection Fee		$
TOTAL:		$ 6-00

BUILDING INSPECTOR
HAWKE'S BAY COUNTY COUNCIL

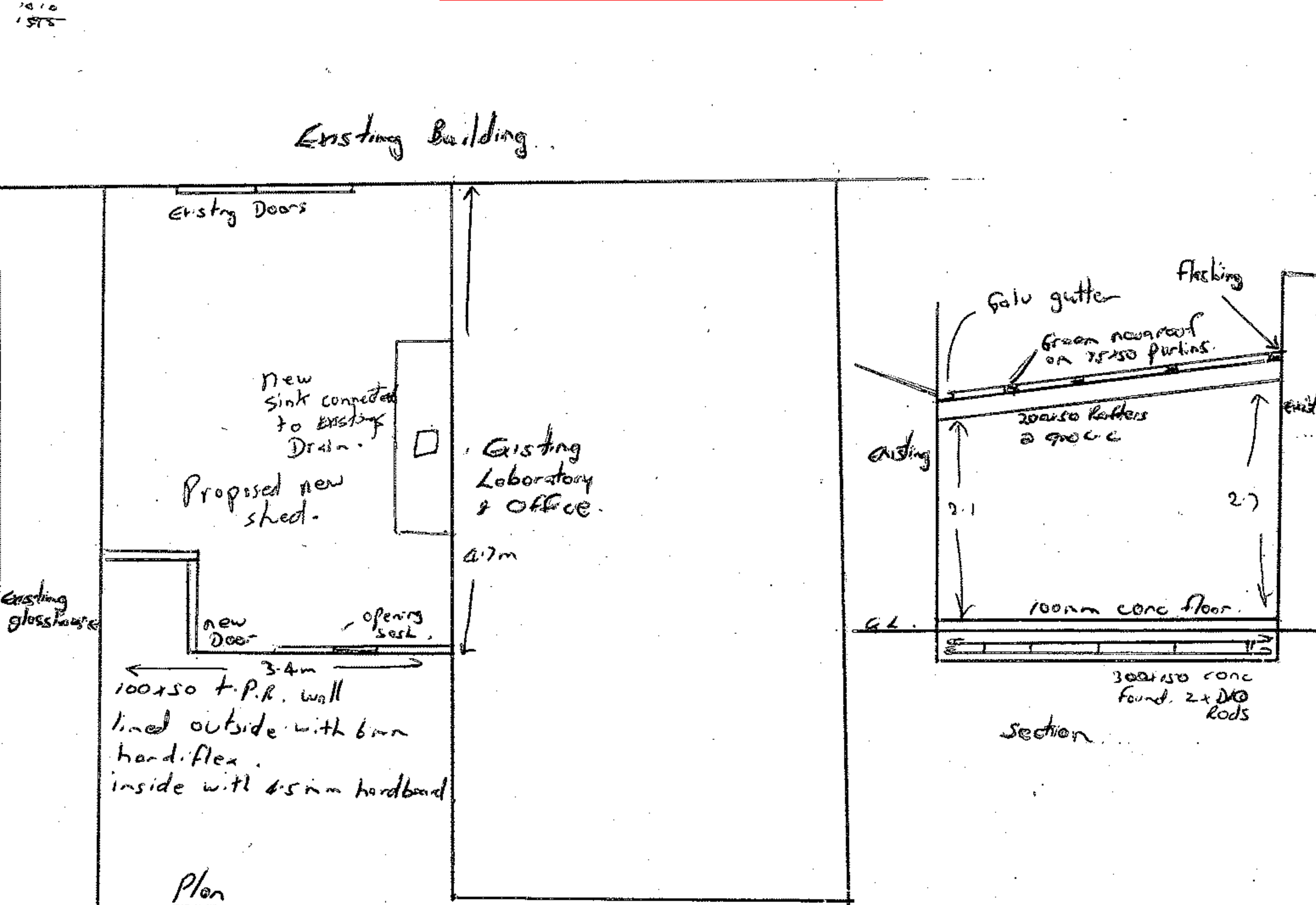
Please Note: No work is to commence until these fees are paid to this office.

THIS FORM MUST BE RETURNED WITH FEE

Office Use Only

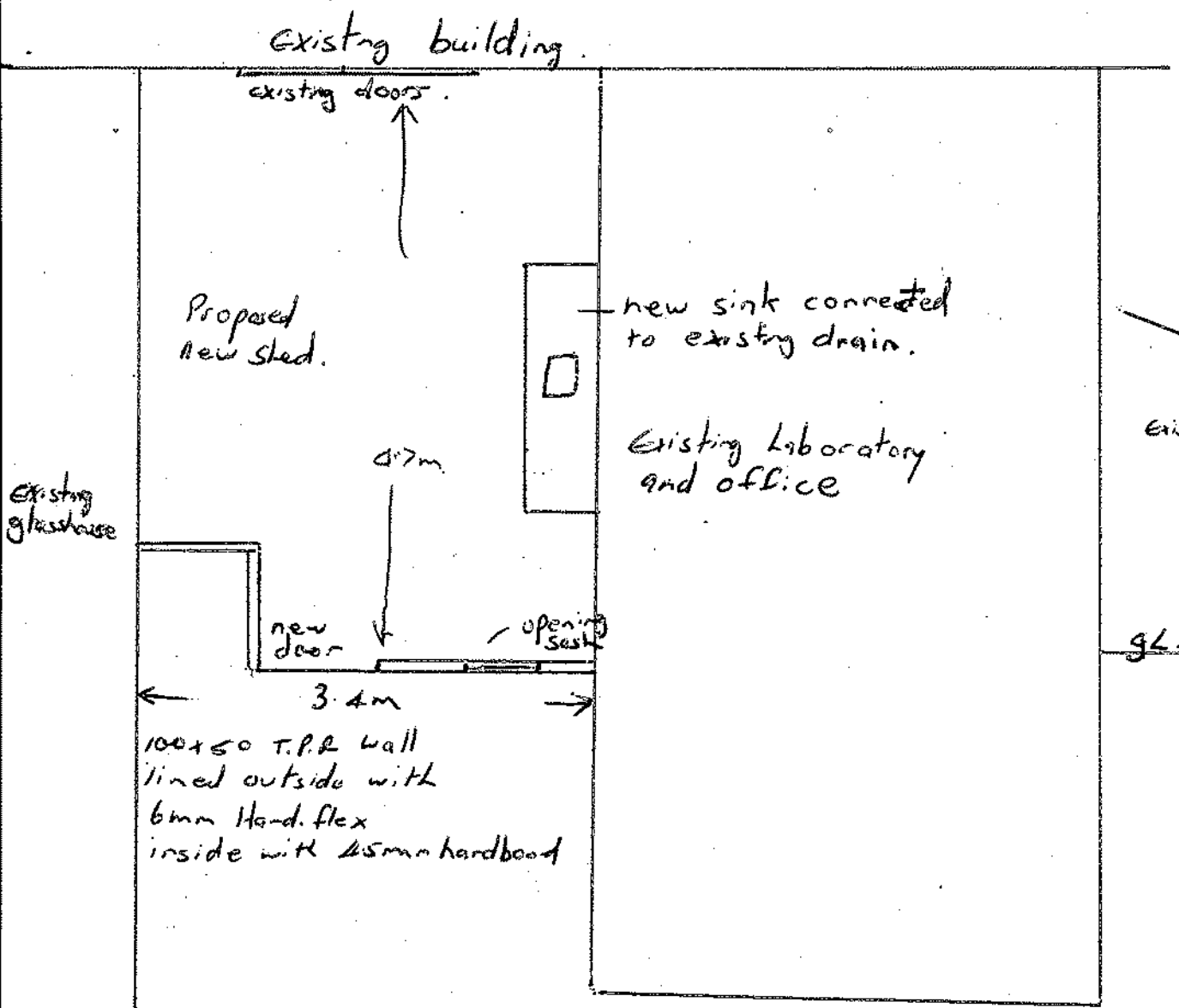
Date of Payment: 21 APR 1978

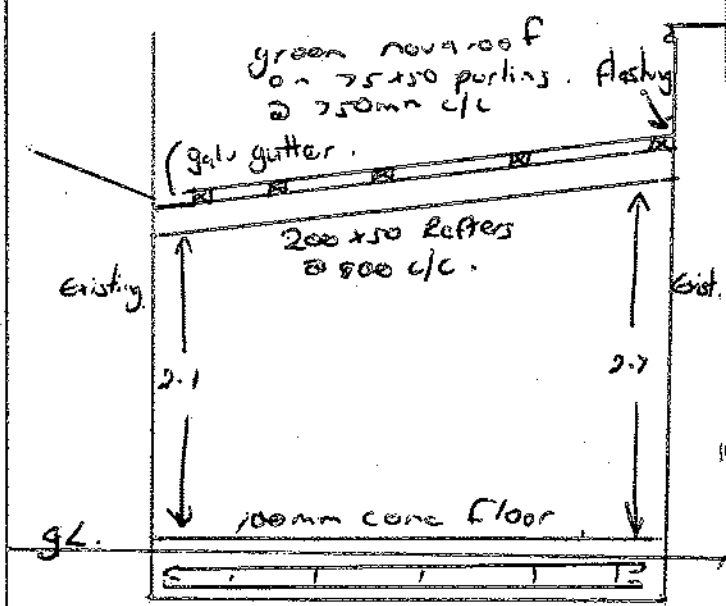
Receipt No: 31104,05


Existing Building.
Existing Doors
New sink connected to Existing Drain.
Proposed new shed.
Existing Laboratory & Office.
4.7m
Existing glasshouse
new Door
opening sash.
3.4m
100x50 T.P.R. wall lined outside with 6mm hardiflex. inside with 4.5mm hardboard
Plan
Galv gutter
Flashing
Green novaroof on 75x50 purlins.
200x50 Rafters @ 900 c.c
existing
2.1
2.7
100mm conc floor.
G.L.
300x150 conc found. 2x D10 Rods
Section

Proposed new shed for Plant Propagation laboratories - Brookvale Road H/north.

scale 1-50





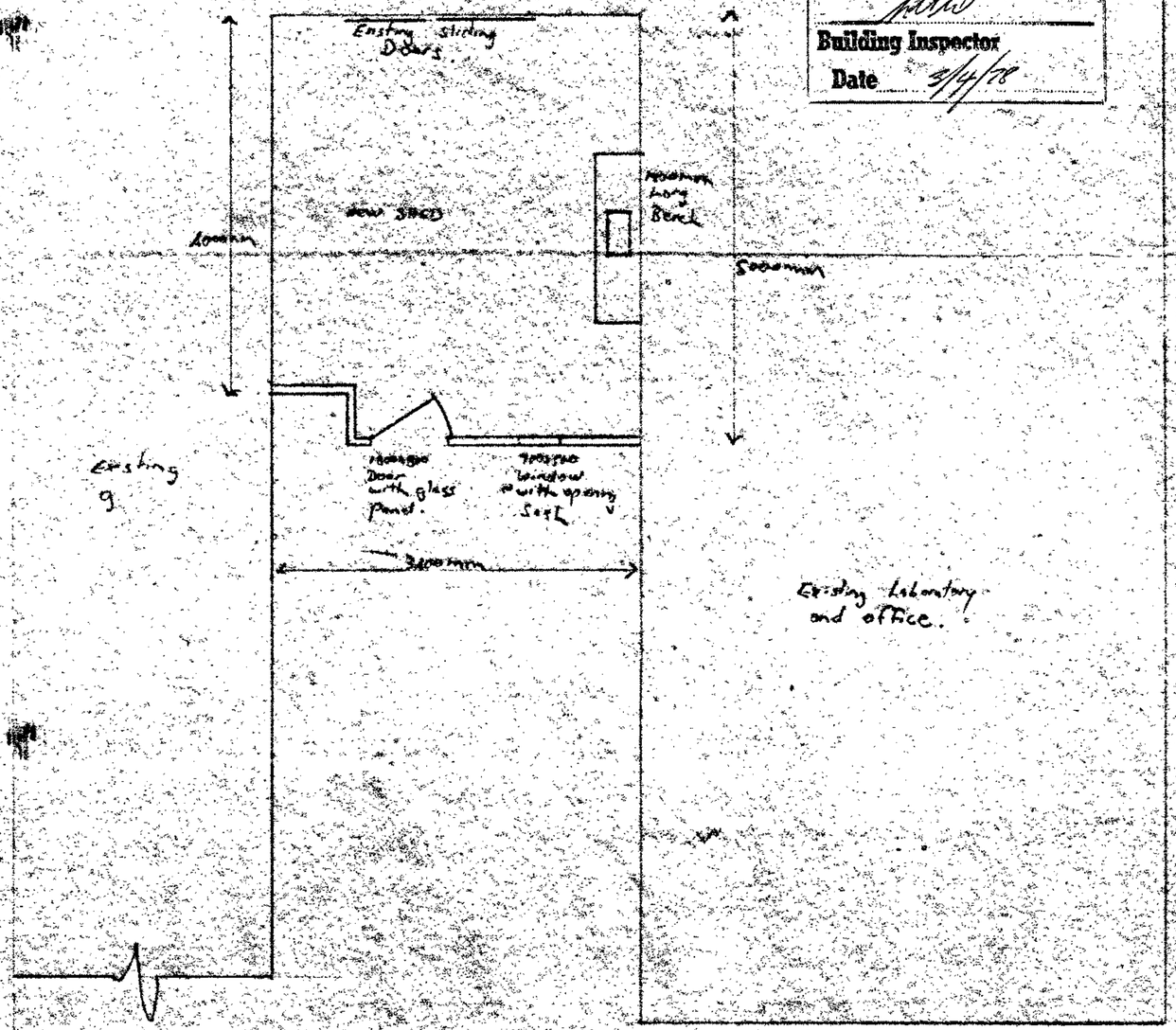
Section.

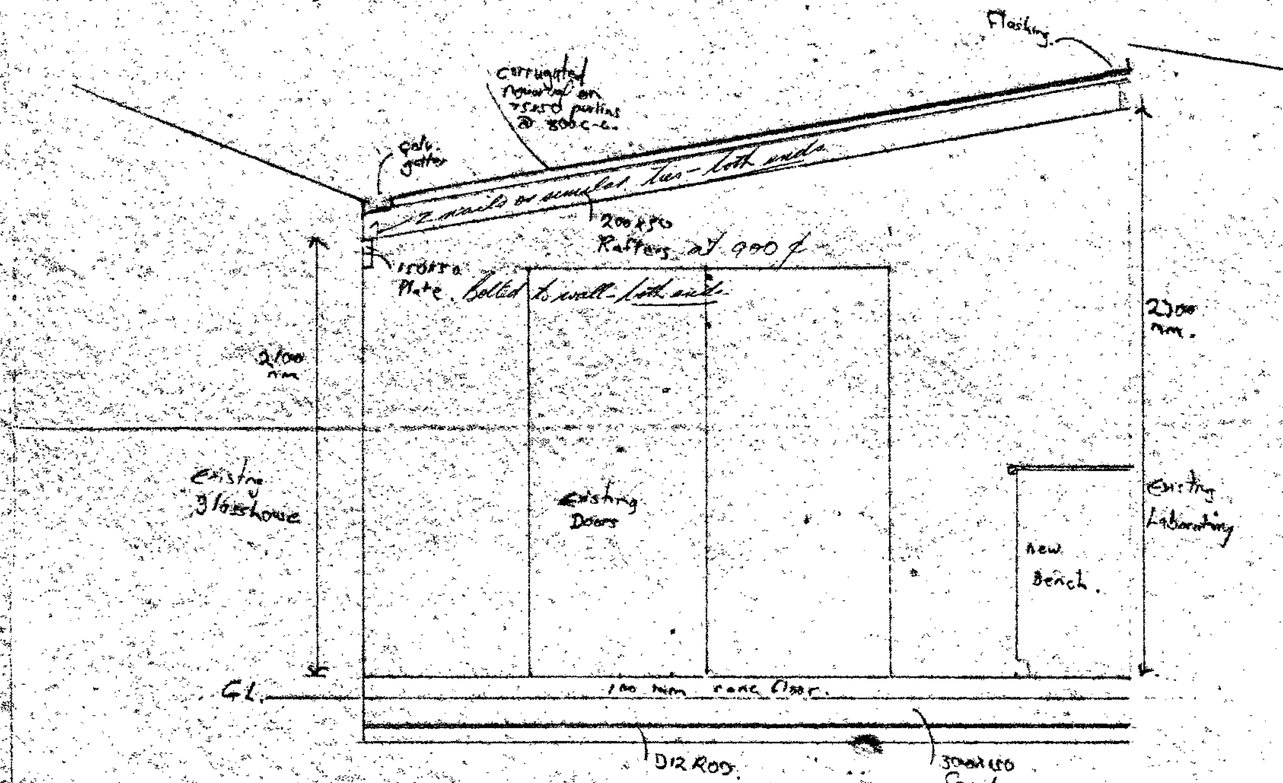
Proposed new shed for Plant Propagation laboratories - Brookvale Road Hworth

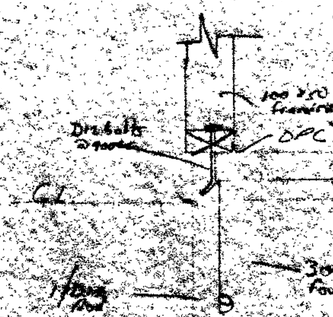
scale 1:50

Existing Building.

H.B.C.C.
Approved by:
Building Inspector
Date 3/4/78







All work to conform to NZSS. 1900.

Plumbing connect cold water to new bench & waste to existing gully trap. Stormwater to soakhole.

Electrical supply & fit one point and one light.

carpentry Pour foundation and

Proposed new shed for Plant Propagation Laboratories Brookvale Road Havelock North. Scales 1:10 1:20 1:50

APPLIC[illegible]RMIT

Receipt No. ..... Permit No. 4904

To the Hawke's Bay County Building Inspector,
P.O. Box 342, Napier

Date: 21/2/78

I hereby apply for permission to erect, ~~alter, repair, shift, install,~~ a ~~[illegible]~~ Implement Shed and general farm Storage

in accordance with the site plan, detailed plans and specifications deposited in duplicate herewith.

Name of Property Owner: Plant Propagation Ltd

Postal Address of Owner: P.O Box 10 Havelock North

Address of Building Site: Brookvale Rd Road Havelock North District

Valuation Roll No. 9680/192 Approximate Area of Property: 3.0463 hectares

Legal description of Building Site: Pt Lot 1 DP 7965 Blk IV Te Mata

Name of Builder: Garage Builders H.B Ltd.

Address of Builder: P.O Box 3019 Napier

If application is for—

(1) A Dwelling:
State number of existing dwellings on this property: .....
or

(2) An outbuilding on a Residential site:
State total floor area of existing outbuildings on this property: ..... sq. m.

State the total floor area of the New Building or extension only: 32.4 sq. m.

ESTIMATED VALUE:

Building	$	1300 ~~1250~~
Plumbing and Drainage	$	~~50~~
Total Value	**$**	1300

NOTE: Where the work involves any drainage or sanitary plumbing work a separate application for this work must be made at the same time.

I, the applicant, agree to ensure that the work detailed in the deposited plans will be carried out in accordance with the provisions of the current Hawke's Bay County Building Bylaws.

Applicant on behalf of Daly N.M. Mosley Phone Bus: 8861 Pvt: 775417

Postal Address: P.O Box 1019 Hastings

OFFICE USE ONLY

Planning Officer	[signature]	28/2/78	Other buildings on site OB BLDG. Yes/~~No~~
Health Inspector			Sewer connection fee $ 2 Water connection fee $
Building Inspector	[signature]	1/3/78	P.D. Iran 23/2/78
A/c Sent	[signature]	1/3/78	

VW 4476 2000/2/77

HAWKE'S BAY COUNTY COUNCIL

P.O. BOX 342
Nnapier, N.Z.

W. M. Mosley
P.O. Box 1019
Hastings

1/3/78

Valuation Roll No: ----------

Your application for a Building Permit for

Steel Farm Storage Shed
for Plant Propagation Ltd

has been checked and on payment of the following fee the necessary Permit(s) will be issued:

FEES PAYABLE:

Building	2869	$ 7-00
Building Research Association Fee		$
Plumbing and/or Drainage		$
Clive/Whakatu Sewer Connection Fee		$
Water Connection Fee		$
TOTAL:		$ 7-00

K Nelson

BUILDING INSPECTOR
HAWKE'S BAY COUNTY COUNCIL

Please Note: No work is to commence until these fees are paid to this office.

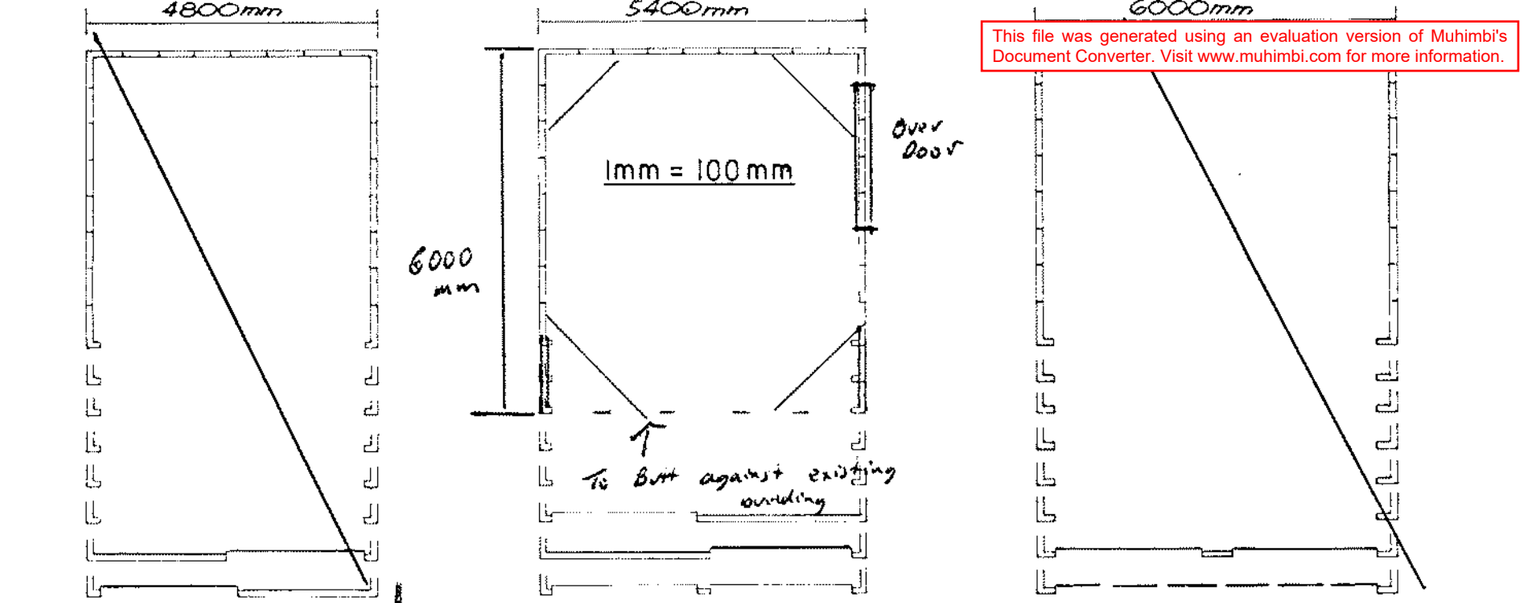
THIS FORM MUST BE RETURNED WITH FEE

Office Use Only

Date of Payment: 6 MAR 1978 Receipt No: 2869

SKYLINE GARAGES

manufactured by Skyline Buildings Ltd,
64A Walls Rd, Penrose, Auckland. Ph. 598.821



TYPE 6A.

SCALE 1m = 25m

Detail of 6000mm span truss

Trusses for 5400mm & 4800mm are similar. but reduced to suit and have stiffeners of 50x50mm in lieu of 75 x50mm, When 4500 mm doors are fitted in double garages, the gable end is formed with a similar truss and completely metal lined.

SPECIFICATIONS:

Foundations : 200 x150mm concrete piles at 1200mm & 600mm centres under studs or continuous concrete dwarf walls or complete floors

Dampcourse : 2 ply d.p.c under all plates

Framing : All timber is boric treated machine gauged radiata
All framing is housed i.e studs checked into plates & nogs checked into studs.
Studs at 600mm centres top and bottom plates and nogs - 100 x50mm.

Wall Braces : 75 x 50 mm cut on edge

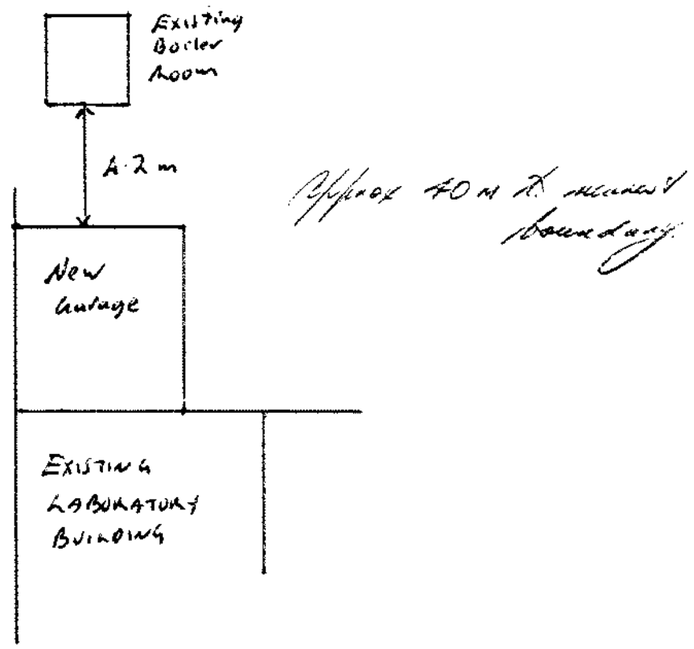
Door Beams : Minimum 150 x 50 mm with minimum of 13mm check in at each end

Roof trusses and purlins as per detail drawing placed over studs at 1800mm and 2400mm centres to suit

Dragon ties : 75 x 50 mm at 45° over top plate to each corner

Roofing : 26 g. galv. corr iron single sheets Ridging : 26g. galv lead edged. Walls : 26 g galv. metal weatherboards.
Spouting : 24 g. galv iron gutters fixed ea. side Downpipes : 75 x 50mm galv. iron Doors : 24g or 26g. metal doors on overhead gear or galv. roller doors.

E.B.C.C.
Approved by:
Building Inspector
Date 1/3/78



SITE PLAN 1mm = 200mm

APPLICATION FOR BUILDING PERMIT

Receipt No. .... Permit No. 144 53

To the Hawke's Bay County Building Inspector,
P.O. Box 172, Napier.

Date: 30th ~~23rd.~~ November 1967

I hereby apply for permission to erect, ~~alter, repair, add~~,
Domestic GREENHOUSE and SHED/FOWLHOUSE

according to site plan and detailed plans, elevations, cross-sections, computations and specifications of buildings deposited herewith.

Name of Owner: ALFRED ROBERT PERCY BRAZIER and DORIS BRAZIER

Address: ~~BROOKVALE ROAD, HAVELOCK NORTH~~ MATAPIRO STATION? P.B.HASTINGS

Situation: BROOKVALE ROAD, HAVELOCK NORTH

Valuation Roll No.: 968/192/1 Approximate Area: ~~83 sq. feet~~ ¼ acre

Name and Address of Builder: SELF

If appplication is for —

(1) ~~A Dwelling:~~
~~State number of existing dwellings on land (if any): ....~~
~~or~~

(2) An Outbuilding on a Residential site:
State total area of existing outbuildings on land (if any): 322 sq. ft.
NOTE: This is the area of the car port and garage built on to the house. I am not sure whether these would be classed as "out buildings"

ESTIMATED VALUE:

Building (£90.0.0) $180.00 144 sq ft.

Plumbing and Drainage £ NIL

And I hereby agree to abide by all the provisions of the Hawke's Bay County Council By-Laws governing and regulating all matters the subject of the foregoing.

NOTE: Where the work involves any drainage or sanitary plumbing work a separate permit for this work must be obtained at the same time.

Owner/Builder: A. Robt. Brazier

Address: Matapiro Station, P.B. Hastings.

Examined	**OFFICE USE ONLY** Account Sent	Approved
[signature]	[signature]	
Planning Officer	Building Inspector	Health Inspector
4/12/67	5/12/67	..../..../....

vw 1227

HAWKE'S BAY COUNTY COUNCIL

P.O. BOX 172,
NAPIER, N.Z.

5/12/67

Mr A.R. Bragues
Matapiro St.
P.B.
Hastings

Your application for a Building Permit for

Greenhouse etc
at Brookvale Road

has been checked and on payment of the following Fee the necessary Permit(s) will be issued.

Fees Payable:

Building $ 1.00

~~Plumbing and/or Drainage~~ £

O H Stansfield

BUILDING INSPECTOR
HAWKE'S BAY COUNTY COUNCIL

RECEIPT: 1232

DATE: -8 DEC. 1967

Please Return this Form with your Fee.

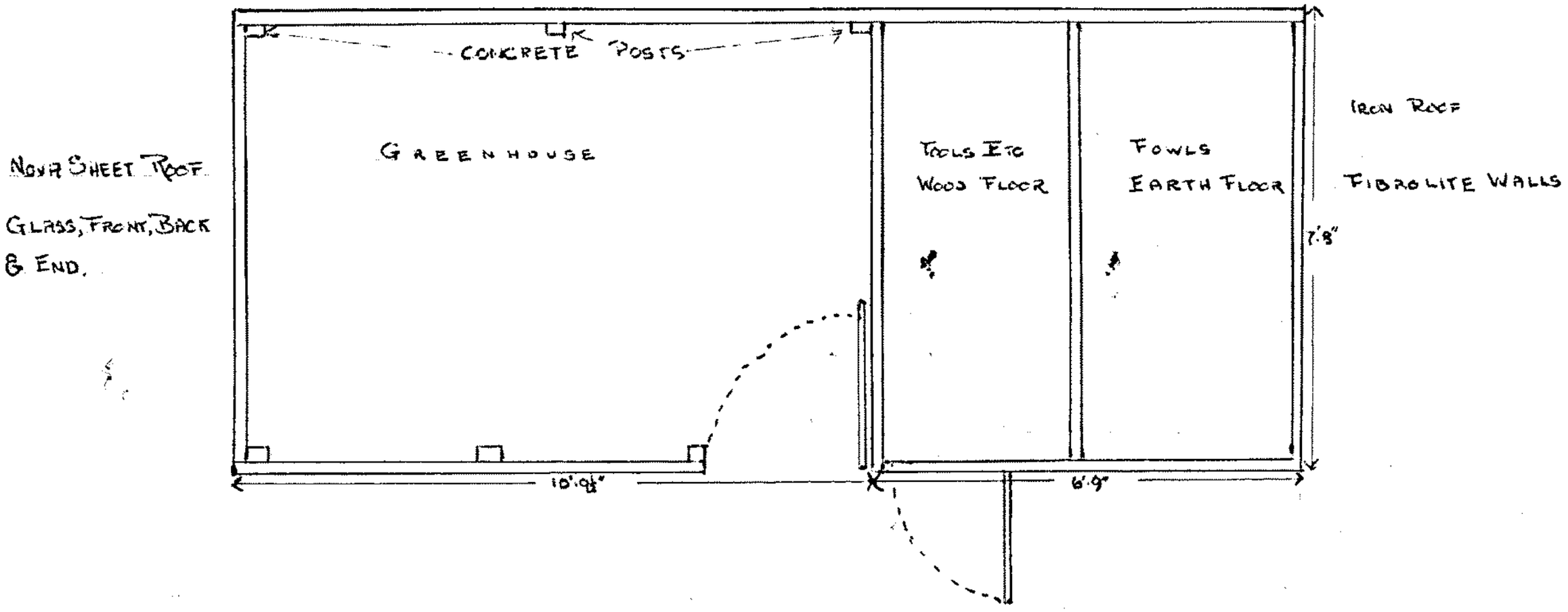
Plan of Greenhouse & Shed/Fowlhouse. Brazier, Brookvale Road, Havelock North. Blk IV. Te Mata S.D.

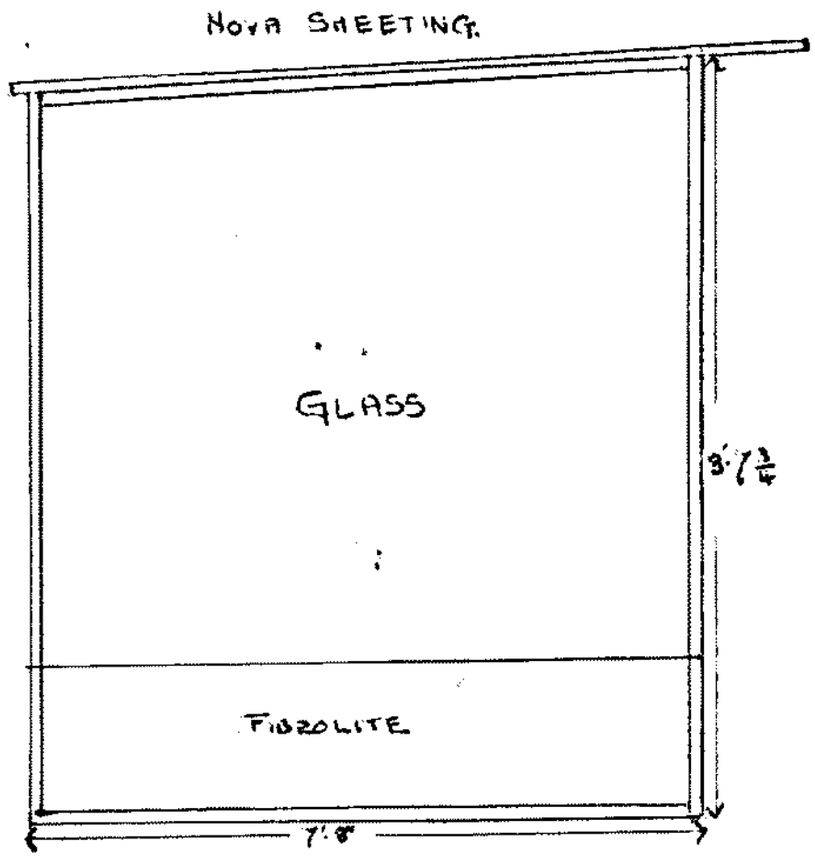
Specification

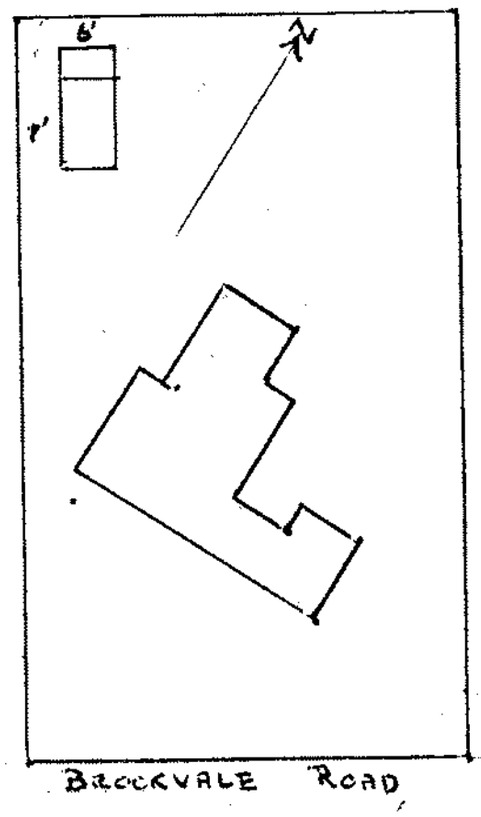
Greenhouse. Concrete posts, supporting wood framework. Glass front, back and one end. Fibrolite panel at base. Nova sheet roof.

Shed/Fowlhouse. Wood frame, faced with fibrolite, iron roof.

All woodwork to be creosoted, sealed and painted.







APPLICATION FOR BUILDING PERMIT

Receipt No. ..... Permit No. 71391

To the Hawke's Bay County Building Inspector,
P.O. Box 172, Napier.

Date: 3rd July 1969

I hereby apply for permission to ~~erect, alter, repair, shift,~~ install, a "Warmaire" spare heater

according to site plan and detailed plans, elevations, cross-sections, computations and specifications of buildings deposited herewith.

Name and Address of Owner: ALFRED ROBERT PERCY BRAZIER

Address of Building Site: BROOKDALE RD, HAVELOCK NTH.

Valuation Roll No.: ..... Approximate Area of Property: ..... acres

Name and Address of Builder: SELF

If application is for —

(1) A Dwelling:
State number of existing dwellings on land (if any): ONE
or

(2) An Outbuilding on a Residential site:
State total floor area of existing outbuildings on land (if any): ..... sq. ft.
or

also state

Floor area of the New Building, addition or extension: ..... sq. ft.

ESTIMATED VALUE:

Building $ 200

Plumbing and Drainage $

NOTE: Where the work involves any drainage or sanitary plumbing work a separate permit for this work must be obtained at the same time.

And I hereby agree to abide by all the provisions of the Hawke's Bay County Council By-Laws governing and regulating all matters the subject of the foregoing.

Owner/~~Builder~~: A. Robt. Brazier

Postal Address: Brookdale Rd. Havelock Nth

OFFICE USE ONLY

Other Buildings on same site — Yes/No

Examined	Account Sent	Approved
		Gabriel Johansen
Planning Officer	Building Inspector	Health Inspector
...../...../.....	...../...../.....	7/7/69

HAWKE'S BAY COUNTY COUNCIL

P.O. BOX 172,
NAPIER, N.Z.

7/7/69

Mr A.L. Brazier
Brookvale Road
Havelock Nth.

Your application for a Building Permit ~~for~~
4 mistral Space Heaters
at Brookvale Road
has been checked and on payment of the following Fee the necessary Permit(s) will be issued.

Fees Payable:

Building $ 1.00

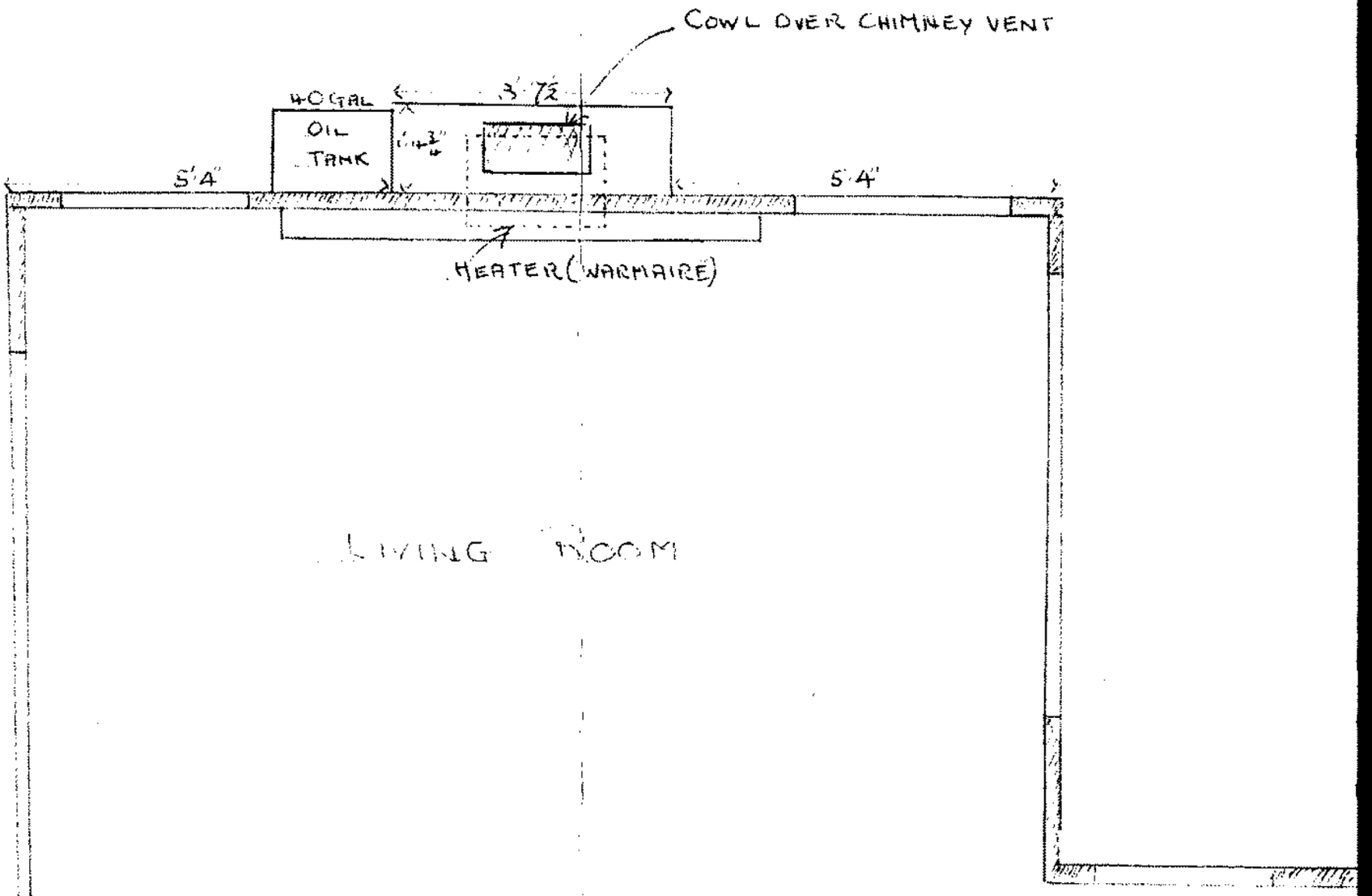
~~Plumbing and/or Drainage~~ $

BUILDING INSPECTOR,
HAWKE'S BAY COUNTY COUNCIL.

RECEIPT: 26225

DATE: 17/7/69.

PLEASE RETURN THIS FORM WITH YOUR FEE



MR & MRS A.R. FRAZIER
BROOKVALE ROAD HAVELOCK NORTH
HASTINGS 78671

SPACE HEATER INSTALATION JULY 1969
WITH KBB FIRE VALVE

APPLICATION FOR BUILDING PERMIT

Receipt No. ..... Permit No. 1162

To tbe Hawke's Bay County Building Inspector,
P.O. Box 172, Napier.

Date: 10-7-73

I hereby apply for permission to erect, ~~alter~~, repair, ~~shift~~, ~~install~~, one Glasshouse

according to site plan and detailed plans, elevations, cross-sections, computations and specifications of buildings deposited herewith.

Name and Address of Owner: Plant Propagation Laboratories Ltd

Address of Building Site: Brookvale Rd Havelock Nth

Valuation Roll No.: Pt 968/192 Pt. 1 D.P. 7965 Approximate Area of Property: 7½ acres

Name and Address of Builder: as above.

If application is for —

(1) A Dwelling:
State number of existing dwellings on land (if any): .....
or

(2) An outbuilding on a Residential site:
State total floor area of existing outbuildings on land (if any): ..... sq. ft.

also state

Floor area of the New Building, addition or extension: 3000 sq. ft.

ESTIMATED VALUE:

Building $ 3000.00

Plumbing and Drainage $ —

NOTE: Where the work involves any drainage or sanitary plumbing work a separate application for this work must be made at the same time.

And I hereby agree to abide by all the provisions of the Hawke's Bay County Council By-Laws governing and regulating all matters the subject of the foregoing.

Owner/~~Builder~~: M.P. Seawright

Postal Address: P.O. 10 Havelock Nth

OFFICE USE ONLY

Other Buildings on same site Yes/~~No~~

See Office for site plan

Examined	Approved	Approved	A/c. Sent
Planning Officer	Building Inspector	Health Inspector	
13/7/73	12/7/73	../../..	16/7/73

vw 5689 5,000/11/71

HAWKE'S BAY COUNTY COUNCIL

P.O. BOX 172,
NAPIER, N.Z.

16/7/73

Mott Seawright
P.O. 10
Havelock Nth.

Your application for a Building Permit for
Plant Prop. Labs. Ltd.
1 Glasshouse
has been checked and on payment of the following fee the necessary Permit(s) will be issued:

Fees Payable:
****

81002	Building	- $ 16.00
	Plumbing ~~and/~~or Drainage	- $
03	Building Research Association Fee	- $ 1.50
	TOTAL	$ 17.50

442

[signature]
BUILDING INSPECTOR
HAWKE'S BAY COUNTY COUNCIL

Please Note: No work is to commence until these fees are paid to this Office.

THIS FORM MUST BE RETURNED WITH FEE.
****

Office Use Only

Receipt No.: 81002-03

Date of Payment: 30 JUL 1973

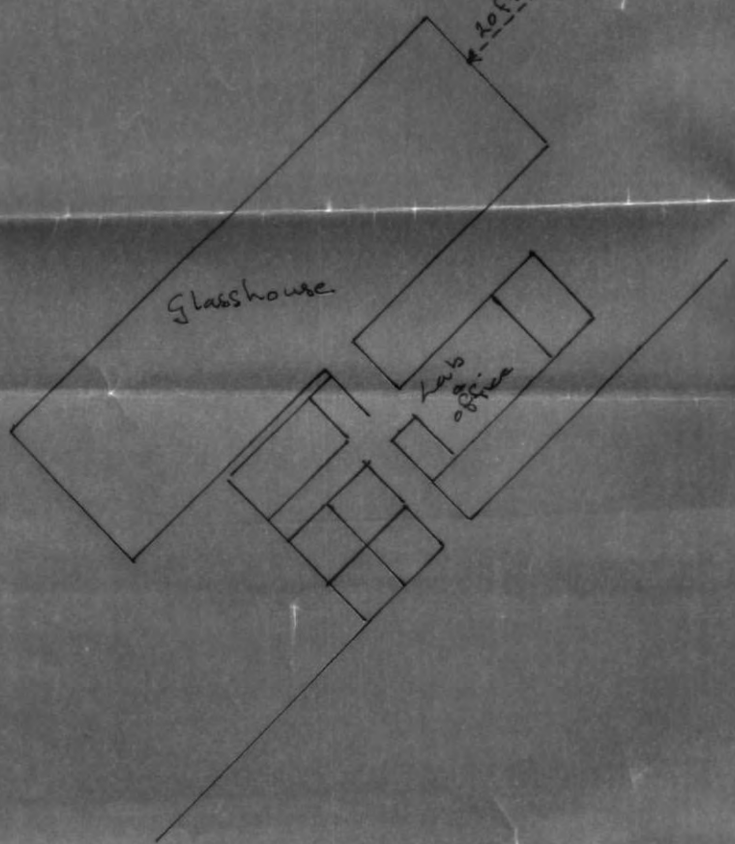
Brookvale Rd.

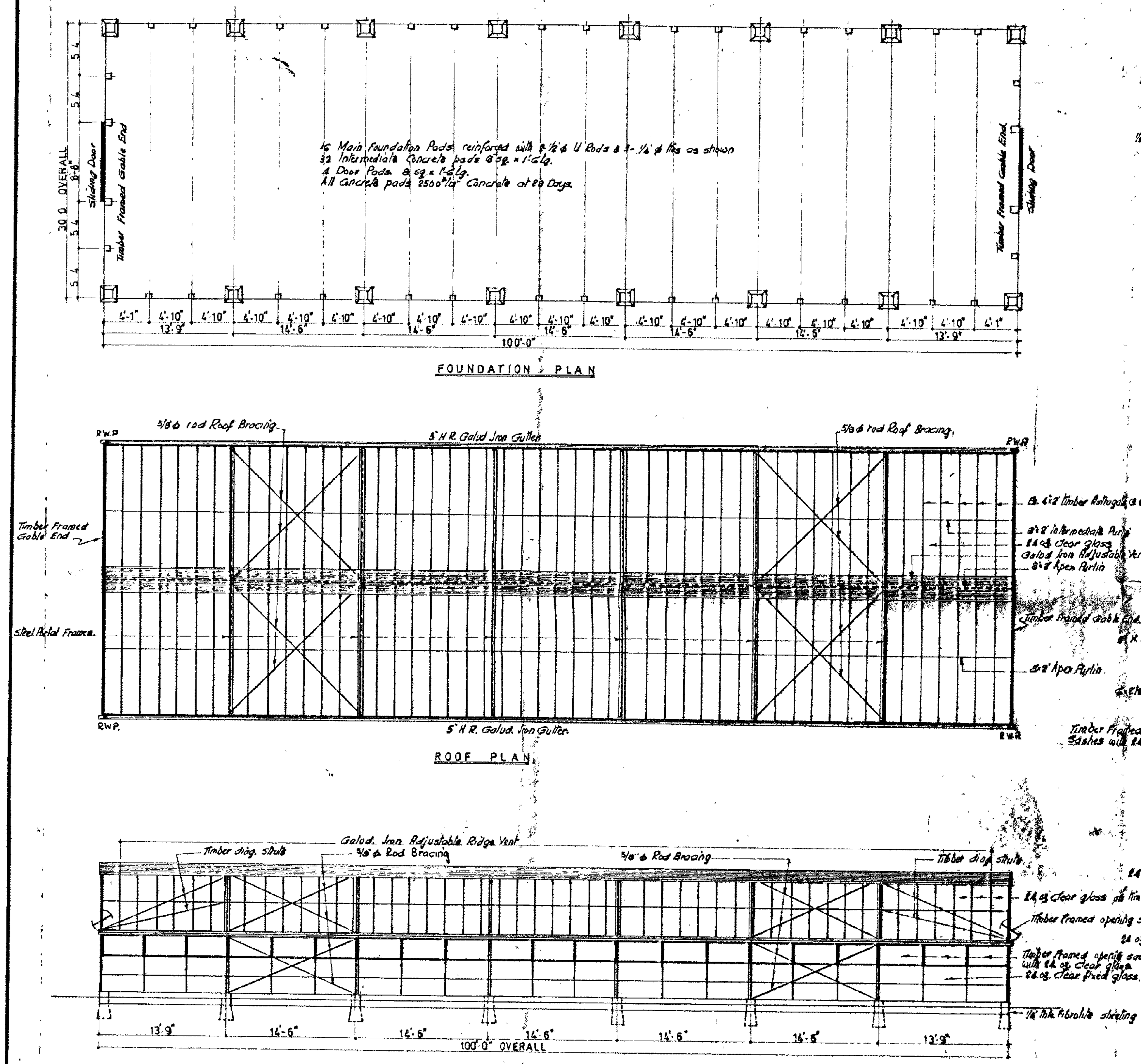
PLANT PROPAGATION LABORATORIES LTD.
BROOKVALE ROAD
HAVELOCK NORTH

D.P. 8274

20 ft

Scale $\frac{1}{32}$" = 1 ft

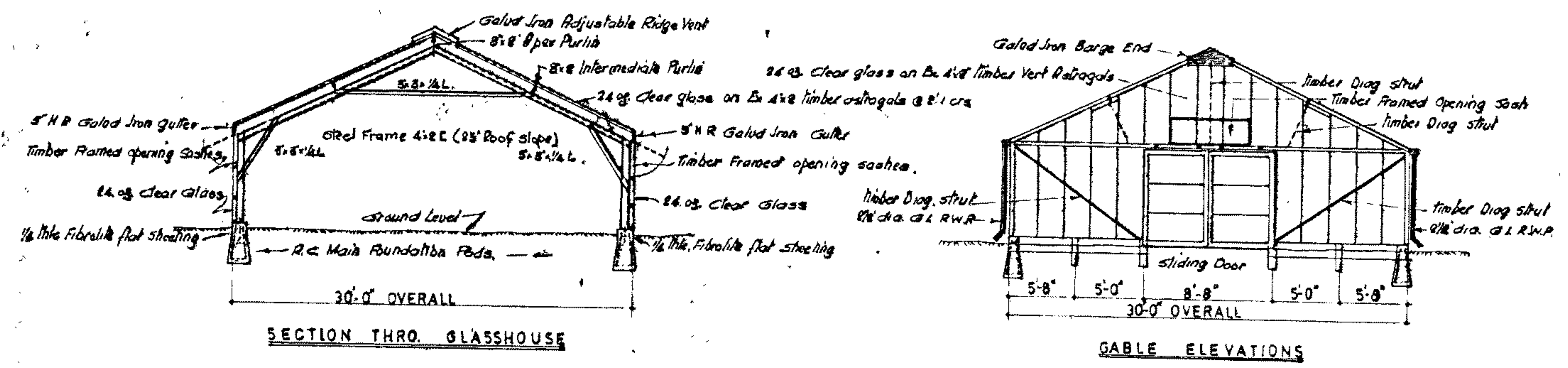




FOUNDATION PLAN

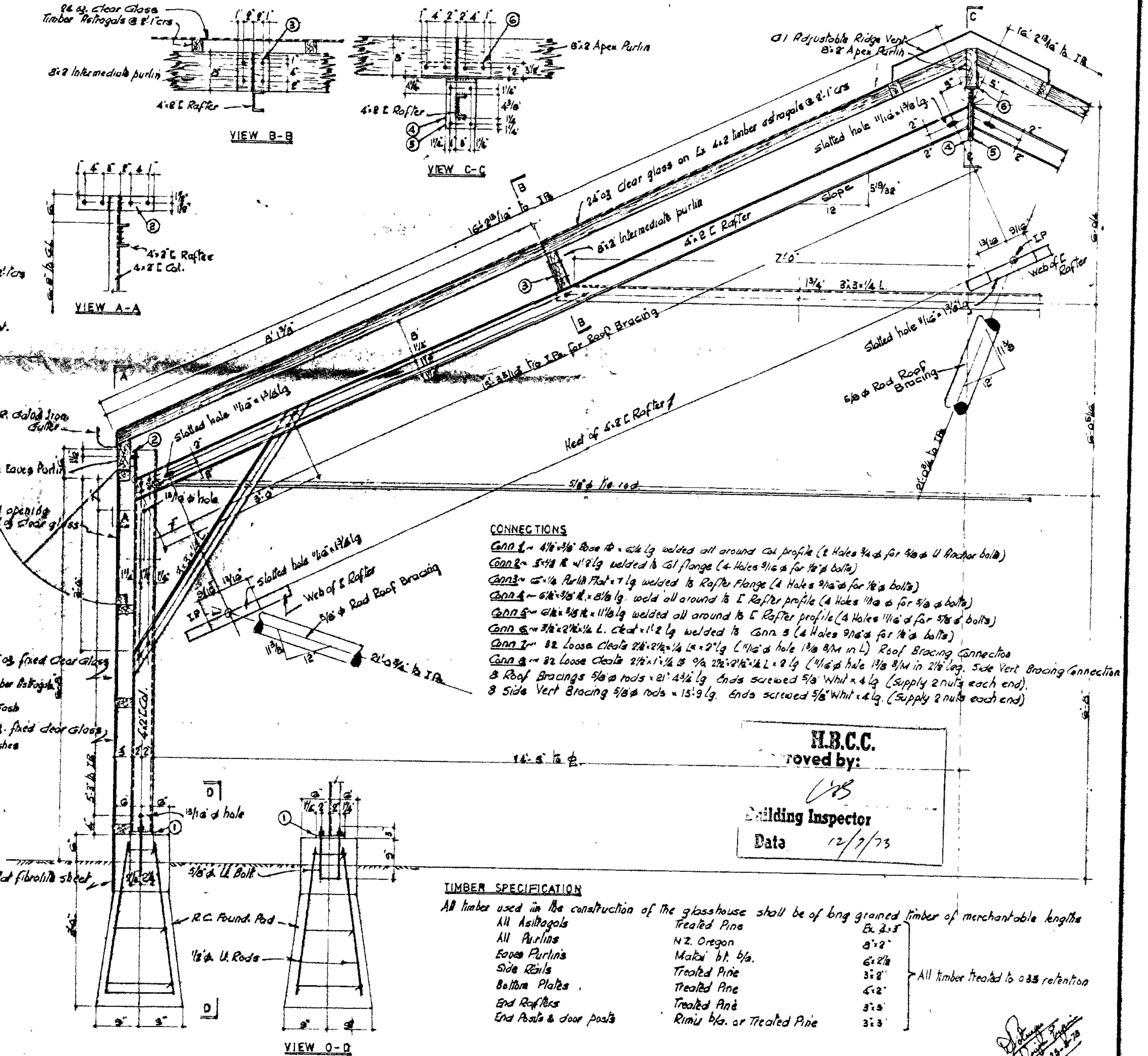
ROOF PLAN

SIDE ELEVATIONS



SECTION THRO. GLASSHOUSE

GABLE ELEVATIONS



CONNECTIONS

Conn 1 ~ 4½"×3/8" Base ℞ × 6¼ lg welded all around Col. profile (2 Holes ¾ ϕ for 5/8 ϕ U Anchor bolts)
Conn 2 ~ 5×4½ ℞ × 1'2 lg welded to Col flange (4 Holes 9/16 ϕ for ½" ϕ bolts)
Conn 3 ~ 6×¼ Purlin Flat × 7 lg welded to Rafter Flange (4 Holes 9/16" ϕ for ½" ϕ bolts)
Conn 4 ~ 6½"×3/8" ℞ × 8⅛ lg. weld all around to C Rafter profile (4 Holes 11/16 ϕ for 5/8 ϕ bolts)
Conn 5 ~ 6½"×3/8 ℞ × 11⅛ lg welded all around to C Rafter profile (4 Holes 11/16" ϕ for 5/8 ϕ bolts)
Conn 6 ~ 3½"×2½"×¼ L. Cleat × 1'2 lg welded to Conn 5 (4 Holes 9/16" ϕ for ½" ϕ bolts)
Conn 7 ~ 32 Loose Cleats 2½"×2½×¼ L × 2" lg (11/16" ϕ hole 1⅜ B/M in L) Roof Bracing Connection
Conn 8 ~ 32 Loose Cleats 2½×1×¼ B ½ 2½×2½×¼ L × 2 lg (11/16 ϕ hole 1⅜ B/M in 2½ leg. Side Vert Bracing Connection
8 Roof Bracings 5/8 ϕ rods × 21' 4¾ lg Ends screwed 5/8 Whit × 4 lg (supply 2 nuts each end).
8 Side Vert Bracing 5/8 ϕ rods × 15'-9 lg. Ends screwed 5/8" Whit × 4 lg. (supply 2 nuts each end)

H.B.C.C.
[App]roved by:
[Bu]ilding Inspector
Date 12/7/73

Loading, stresses & Workmanship in accordance with NZSS 1900. Non residential form buildings.
All steelwork to be wire brushed free of scale & rust before fabrication. After fabrication & before despatch paint steelwork 2 Coats rich Zinc paint & touch up damaged areas due to transit.
All holes 11/16" ϕ for 5/8 ϕ bolts except where noted. Min edge distance 1¼" & 2⅝" crs.
Glasshouse comprises ⓐ Tied steel portal frames with Apex & knee struts, 5/8" ϕ roof & side Bracings. Timber Framed gable ends with 24 oz. clear glass on Ex. 4×2" timber astragals @ 2'-1" crs.
Two leaf timber framed sliding doors in each gable with 24 oz. clear glass complete with rollers & hangers. (Doors 2 leaves of 4'-0" × 8'-0" high)
Galvd Iron ridge adjustable ventilator, 5" half round Galvd Iron Gutters with 4-2½" dia. RWP complete with shoes.
Main foundation pads 1'0 sq. at top, tapered to 1'6" at bottom with 2-½" ϕ U Rods & 3-¼" ϕ ties (Concrete 2500#/" @ 28 days) Pads 3'6" deep.
Intermediate foundation pads 6" sq. × 1'-6" deep, Door pads 8" sq. × 1'-6" deep. (Concrete 2500# at 28 days).

TIMBER SPECIFICATION

All timber used in the construction of the glasshouse shall be of long grained timber of merchantable lengths

All Astragals	Treated Pine	Ex. 2×3
All Purlins	N.Z. Oregon	8"×2"
Eaves Purlins	Matai ht. b/a.	6"×2½
Side Rails	Treated Pine	3"×2"
Bottom Plates	Treated Pine	4"×2"
End Rafters	Treated Pine	3"×3"
End Posts & door posts	Rimu b/a. or Treated Pine	3"×3"

All timber treated to 0.35 retention

STANDARD GLASSHOUSE 30' WIDE

FOR MR SEARIGHT—HAVELOCK NORTH

AMENDMENTS
Rev R1 (28-3-73) 5/8" ϕ tie rod added.

SCALES	DRAWING NO.	
⅛" & ¾" = 1 Foot.	30/100 R1	G.W. HOSKINS LTD. BOX 22115 — OTAHUHU. AUCKLAND

APPLICATION FOR BUILDING PERMIT

Receipt No. .... Permit No. 1161

To the Hawke's Bay County Building Inspector,
P.O. Box 172, Napier.

Date: 10 - 7 - 73

I hereby apply for permission to erect, ~~alter, repair~~, ~~shift~~, ~~install~~, one Greenhouse
according to site plan and detailed plans, elevations, cross-sections, computations and specifications of buildings deposited herewith.

Name and Address of Owner: Plant Propagation Laboratories Ltd Havelock NH

Address of Building Site: Brookvale Rd.

Pt 968/192 Valuation Roll No.: Pt 1 D.P. 7965 Approximate Area of Property: 7½ acres

Name and Address of Builder: as above

If application is for —

(1) A Dwelling:
State number of existing dwellings on land (if any): ....
or
(2) An outbuilding on a Residential site:
State total floor area of existing outbuildings on land (if any): .... sq. ft.

also state

Floor area of the New Building, addition or extension: 2000 sq. ft.

ESTIMATED VALUE:

Building $ 1500.00

Plumbing and Drainage $

NOTE: Where the work involves any drainage or sanitary plumbing work a separate application for this work must be made at the same time.

And I hereby agree to abide by all the provisions of the Hawke's Bay County Council By-Laws governing and regulating all matters the subject of the foregoing.

Previous permits — NO. 1080
MAIN DESIGN ON THIS FILE
CB.

Owner/~~Builder~~: [signature]
Postal Address: P.O. Box 10 Havelock NH.

OFFICE USE ONLY

Other Buildings on same site ~~Yes/No~~ Yes — Sell [illegible] for site plan

77726

Examined	Approved	Approved	A/c. Sent
[signature]	[signature]		[signature]
Planning Officer	Building Inspector	Health Inspector	
13/7/73	12/7/73	..../..../....	16/7/73

vw 5689 5,000/11/71

HAWKE'S BAY COUNTY COUNCIL

P.O. BOX 172,
NAPIER, N.Z.

16/3/73

M. & M. Seawright,
P.O. Box 10
Havelock N.

Your application for a Building Permit for

1 greenhouse as per amended plan.

has been checked and on payment of the following fee the necessary Permit(s) will be issued:

Fees Payable:
****

Building	- $ 8.00
Plumbing and/or Drainage	- $
Building Research Association Fee	- $
TOTAL	$ 8.00

1442

BUILDING INSPECTOR
HAWKE'S BAY COUNTY COUNCIL

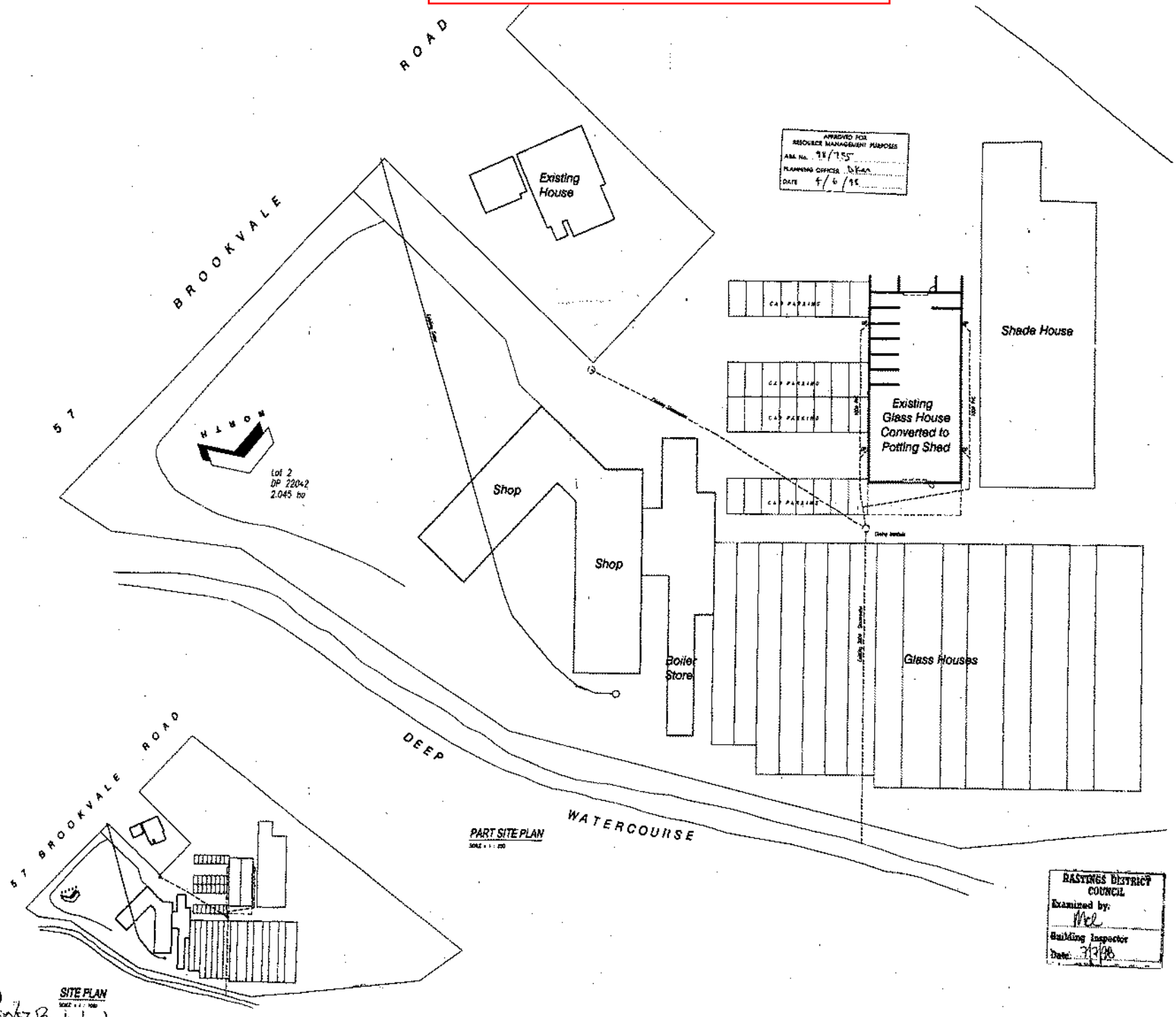
Please Note: No work is to commence until these fees are paid to this Office.

THIS FORM MUST BE RETURNED WITH FEE.
****

Office Use Only

Receipt No.: 81002

Date of Payment: 30 JUL 1973



PART SITE PLAN

SITE PLAN

VERIFY ALL DIMENSIONS BEFORE STARTING WORK

NOTES

GENERAL

No change in variation shall be made to any structural element without the specific instruction being given by the engineer

FOUNDATIONS

Foundations must be taken down 300mm into solid bearing. If soft spots or soil conditions are encountered then notify the engineer for modified details

CONCRETE WORK

All materials & workmanship shall comply with the relevant clauses of NZS 3109 "Concrete Construction".
All concrete shall have a minimum 28 day compressive strength of 20 MPA

REINFORCING

All reinforcing steel shall be to NZS 3402 Grade 300
Reinforcing shall be placed and maintained in position with the covers as shown on the drawing

STEELWORK

The contractor shall adhere to the relevant clauses of NZS 3404 "Steelwork" in the supply of materials both on and off the site. All steel shall be mild steel conforming to BS 4360 Grade 43A (43C for SHS)
All exposed ends of RHS members shall have 3mm endplates welded to.

WELDING

Welding shall be done by qualified operators only & strictly according to NZS 1701.
All weld shall be 5mm fillet weld unless noted otherwise

FIRE PRECAUTIONS

Welding and cutting shall be carried out in accordance with NZS 4781 "Code of Practice for Safety in Welding & Cutting".

BLOCKWORK

All blockwork shall conform to the requirements of NZS 4210. All blocks shall comply with NZS 3102.
The mortar shall be Mix No 1 (20day compressive strength of 12.5MPa
The grout shall be a coarse grout containing 1.25mm to 12.5mm aggregate with a compressive strength of 17.5 MPa after 28 days

TIMBER WORK

All timber used shall comply with NZS 3602. All timber work shall comply with NZS 3604.

A | 22/5/98 | ISSUED FOR BUILDING CONSENT
AMENDMENTS

TYNDALL AND HANHAM LTD
CONSULTING ENGINEERS — CIVIL AND STRUCTURAL

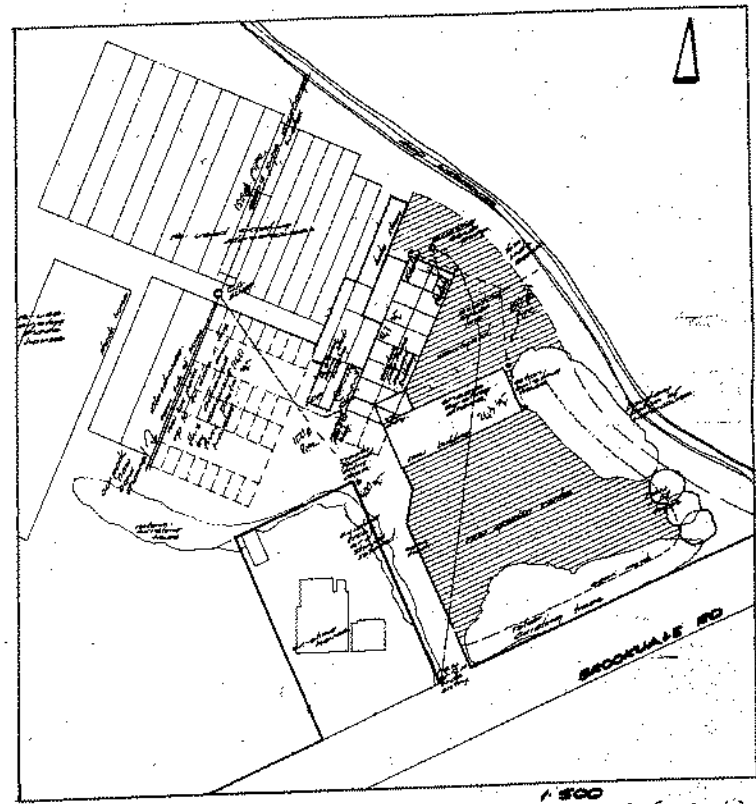
ODERINGS

HAVELOCK NORTH

POTTING SHED

Scales: 1:100 @ A1, 1:50
Sheet No. S1
Rev A
Date: 1850.40

3
610/57 Brookvale rd.



1:500
SITE PLAN. (part only)
ODERINGS
NURSERY
LOTS 1 & 2
Formerly Pt LOT 1 DP 7466
area 3.061 ha.

APPROVED FOR
RESOURCE MANAGEMENT PURPOSES
RMA No. 971123
PLANNING OFFICER
DATE 9/9/97

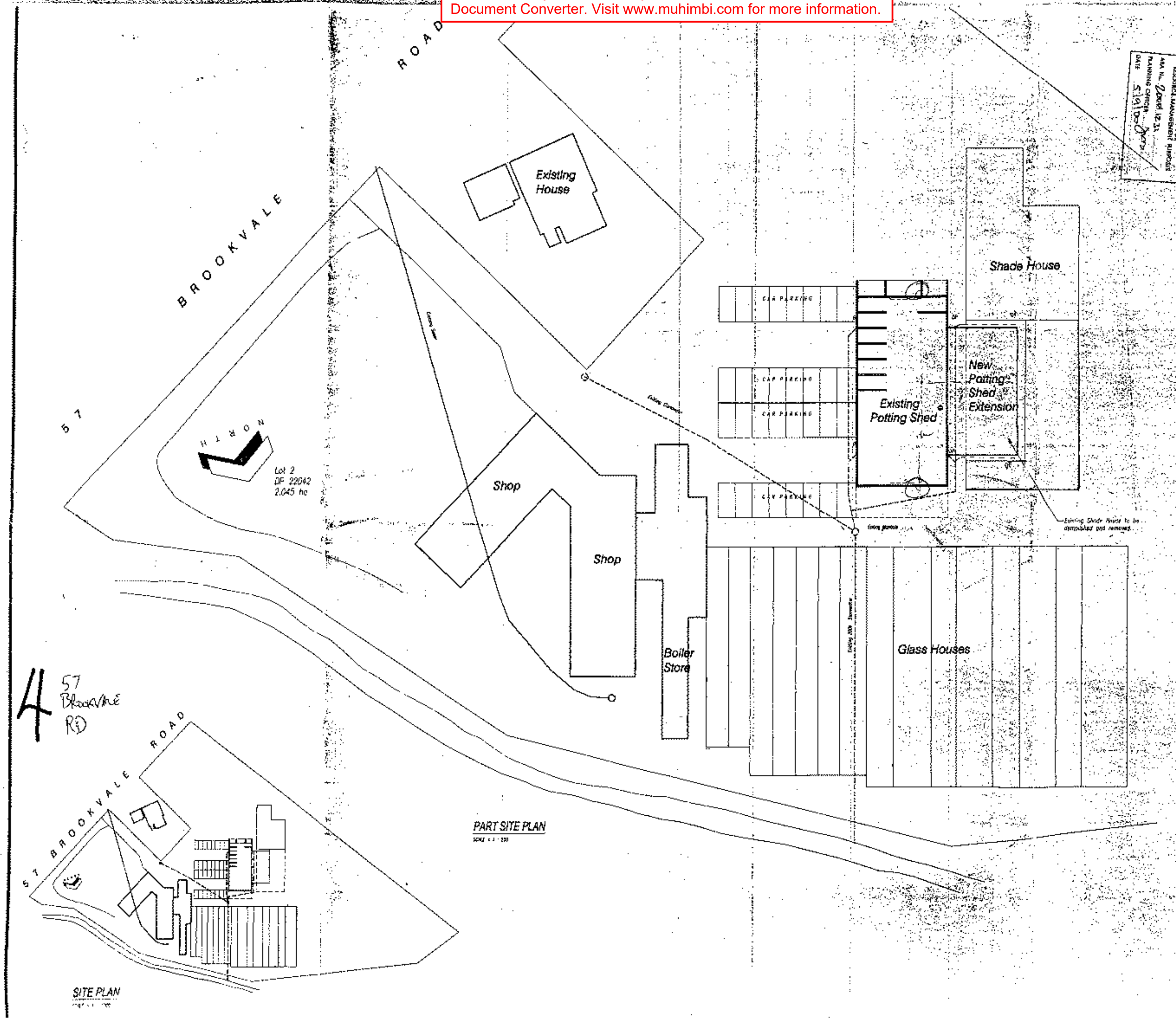
RESOURCE MANAGE...
3 SEP 1997
RECEIVED

Revised Drainage Plans
Aug 21st
June 24

PETER BEAVEN ARCHITECT

POOR ORIGINAL

8 610/57 Brookvale rd.



VERIFY ALL DIMENSIONS BEFORE STARTING WORK

Notes:

General
All work shall be in accordance with the requirements of the New Zealand Building Code.
No change or variation shall be made to any structural element without specific instructions being given by the engineer.

Foundations
The soil shall have an ultimate bearing capacity of 300kPa as defined in NZS3604:1990 section 3.3. Foundations must be taken down a minimum of 200mm into solid bearing. If soft spots or soil conditions are encountered then the engineer shall be notified.

Concrete Work
All materials and workmanship shall comply with the relevant clauses of NZS3109 "Concrete Construction". All concrete shall have a minimum 28 day compressive strength of 25 MPa.

Reinforcing
All main reinforcement except stirrups and ties shall be deformed bars to NZS 3402 Grade 430 (Y) or Grade 300 (C). Stirrups and ties shall be plain bars to Grade 300. Reinforcing shall be placed and maintained in position with the following covers unless noted otherwise.
- Where concrete is cast in formwork the minimum cover shall be 40mm.
- Where concrete is cast on or against ground the minimum cover shall be 75mm or 50mm if using a damp-proof membrane between the ground and the concrete to be cast.

Steel Work
Steel sections shall comply with the relevant requirements of NZS 3404 Section 7 with a minimum yield stress of 300 MPa. Fabrication and erection shall be in accordance with NZS 3404 sections 14 and 15. All interior structural steelwork shall be thoroughly hand or machine wire brushed to remove rust and loose mill scale and given a priming coat of Zinc chromate or Red oxide paint applied in accordance with manufacturers instructions. All exterior structural steelwork shall be sand blasted to Sa 2 1/2 and epoxy painted with Zinc Rich priming coat paint applied in accordance with manufacturers instructions. Bolts in all exterior situations shall be hot dip galvanised.

Welding
Welding shall be done by qualified operators only and in strict accordance to AS/NZS 1554.1. All welds are 6mm fillet welds unless noted otherwise.

APPROVED FOR RESOURCE MANAGEMENT PURPOSES
RMA No. 2000.12.31
PLANNING OFFICER
DATE 5/9/00

Approved by HASTINGS DISTRICT COUNCIL
14.9.00

KEY	DATE	
A	24/8/00	Issued for Consent

AMENDMENTS

TYNDALL AND HANHAM LTD
CONSULTING ENGINEERS — CIVIL AND STRUCTURAL

Oderings
Havelock North
Potting Shed Extension

Sheet: s1 — Rev. A
Job No. 1850-40

28th January 1982

The Director,
Plant Propagation Laboratories Limited,
Box 10,
HAVELOCK NORTH

Dear Sir,

Proposed Shade House

I refer to your letter of 26th January 1982 and to the plan enclosed therewith.

I have to advise that it is in order for you to erect the shade house in the position shown on the plan.

Yours faithfully,

B.T. ELMORE
CHIEF PLANNING OFFICER

Per: R.W. Thornton

P.1340

1442/GW.

PLANT PROPAGATION LABORATORIES LTD.

Brookvale Road, P.O. Box 10, Havelock North, New Zealand.
Telephone 777 721 Hastings — Telegrams: "Proplab"

26th January, 1982.

RECEIVED
27 JAN 1982
H.B.R.C.

The Chief Planning Officer,
Hawkes Bay County Council,
P.O.Box 342,
NAPIER.

Dear Sir,

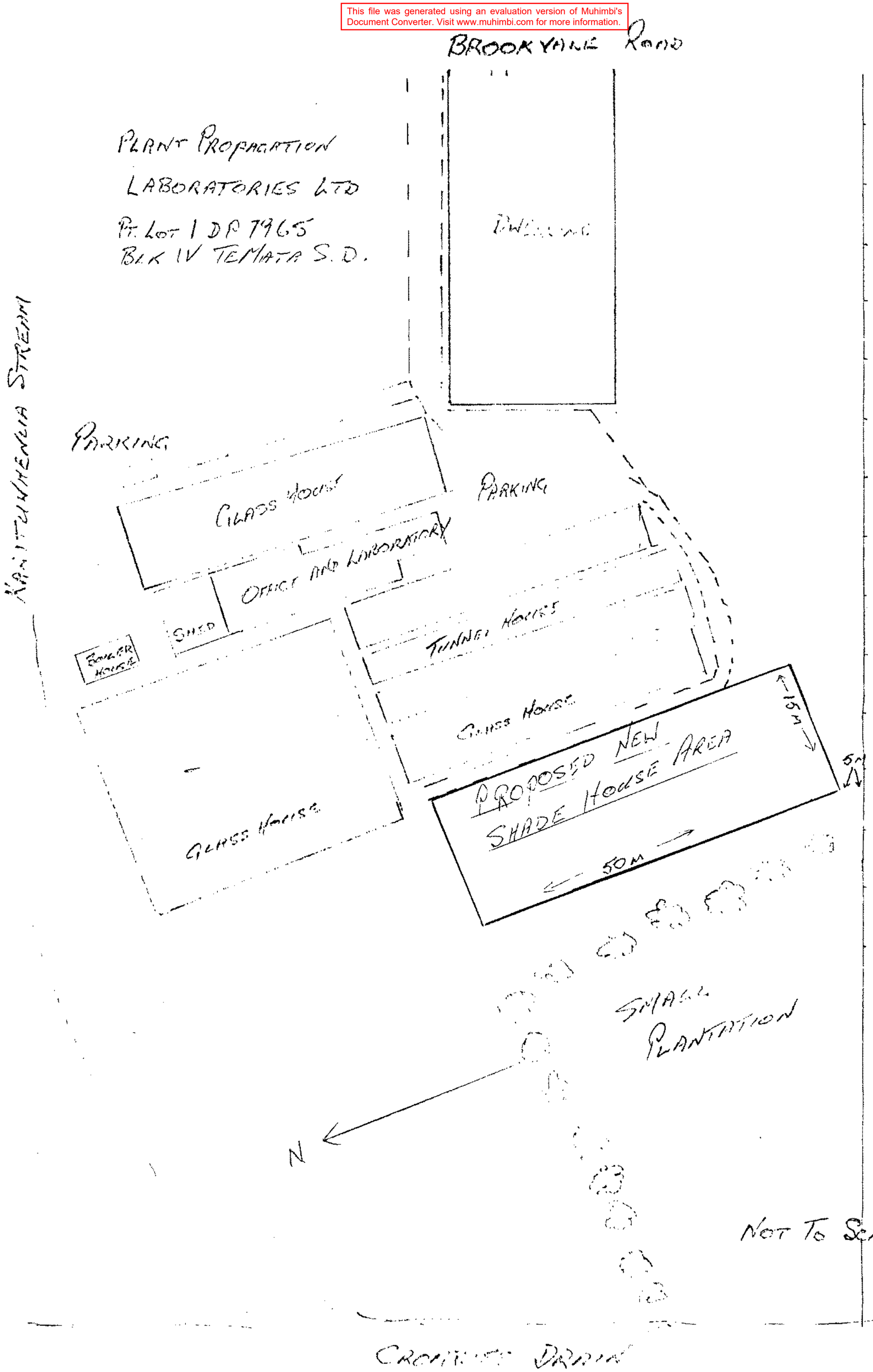
Please find enclosed a site plan for a new shade house which we intend to erect on the Companies property in Brookvale road.

Planning approval is sought from you in respect of this. I have been assured by Mr. Stansfield that a building permit is not required.

Yours faithfully,
PLANT PROPAGATION LABORATORIES LTD.

G.K.WATTIE:
DIRECTOR:

P. 1340.



APPLICATION FOR BUILDING PERMIT

Receipt No. ..... Permit No. 1081

To the Hawke's Bay County Building Inspector,
P.O. Box 172, Napier.

Date: 21-6-73

I hereby apply for permission to erect, ~~alter~~, ~~repair~~, ~~shift~~, install, Laboratory + Office Building + Agricultural Complex for plant propagation

according to site plan and detailed plans, elevations, cross-sections, computations and specifications of buildings deposited herewith.

Name and Address of Owner: Plant Propagation Laboratories Ltd

Address of Building Site: Brookvale Rd Havelock NTH

Valuation Roll No.: Pt. 1 DP 7965 Approximate Area of Property: 7½ acres
Pt. 9608/192

Name and Address of Builder: Thomson & Tapp
33 Parsley St Palmerston NTH

For siting see master site plan P/otfc.

If application is for —

(1) A Dwelling:
State number of existing dwellings on land (if any): .....
or

(2) An outbuilding on a Residential site:
State total floor area of existing outbuildings on land (if any): ..... sq. ft.

also state

Floor area of the New Building, addition or extension: 1320 sq. ft.

ESTIMATED VALUE:

Building $ 9500.00

Plumbing and Drainage $ 803.12.

NOTE: Where the work involves any drainage or sanitary plumbing work a separate application for this work must be made at the same time.

And I hereby agree to abide by all the provisions of the Hawke's Bay County Council By-Laws governing and regulating all matters the subject of the foregoing.

Owner/~~Builder~~: M. [illegible] (Director)

Postal Address: P.O. Box 10 Havelock NTH.

OFFICE USE ONLY

Other Buildings on same site ~~Yes~~/No

Examined	Approved	Approved	A/c. Sent
[signature]	CJS	[signature]	CJS
Planning Officer	Building Inspector	Health Inspector	
28/6/73	29/6/73	29/6/73	29/6/73

vw 5689 5,000/11/71

J. REX ROBERTS AND PARTNERS — ARCHITECTS

5TH FLOOR. B. & A. BUILDING. 79-85 RANGITIKEI STREET. TELEPHONE 74-185

J. REX ROBERTS A.N.Z.I.A., A.I.A.A. A.I.P.I.

P.O. BOX - - 1582
PALMERSTON NORTH

25th. June, 1973

Hawkes Bay County Council,
P. O. Box 172,
NAPIER.

Attention : Mr. Stansfield

Dear Sir,

Please find enclosed amended drawings for Plant Propogation Ltd.'s permit.

Yours faithfully,
J. REX ROBERTS AND PARTNERS.

Brian Elliott.

Brian Elliott

HAWKE'S BAY COUNTY COUNCIL

P.O. BOX 172,
NAPIER, N.Z.

29/6/73

M/r. M. P. Seawright,
P.O. Box 10,
Havelock Nth.

Your application for a Building Permit for Plant Propagation Laboratories Ltd. Laboratory & Office Building.

has been checked and on payment of the following fee the necessary Permit(s) will be issued:

Fees Payable:
****

Building	- $ 56.00
Plumbing and/or Drainage	- $ 7.00
Building Research Association Fee	- $ 5.00
TOTAL	$ 48.00

BUILDING INSPECTOR
HAWKE'S BAY COUNTY COUNCIL

Please Note: No work is to commence until these fees are paid to this Office.

THIS FORM MUST BE RETURNED WITH FEE.
****

Office Use Only

Receipt No.: 14251/2/3

Date of Payment: -2 JUL 1973

APPLICATION FOR SANITARY PLUMBING OR DRAINAGE PERMIT

Receipt No. ..... Permit No. 1148

To the Hawke's Bay County Council Health Inspector,
P.O. Box 172, Napier

Date: 21 - 6 - 73

I, Plant Propagation Laboratories Ltd.

Address P.O Box 10 Havelock NM

Hereby apply for permission to carry out the work described herein and set out in plans attached to be carried out in or on the premises situated at:

Brookvale Rd road Havelock NM Township

Riding .....

Description of work Drainage & Plumbing

Name and address of the owner of the property where the work is to be carried out:

Plant Propagation Laboratories Ltd
P.O Box 10 Havelock NM

Name and Address of Registered Plumber or Drainlayer entitled to do the work:

B. J. O'Neil Ltd. ✓
202 Jervois St Hastings

Value of Proposed Work, including Materials:
Estimated Value of—

Plumbing $ 428·87

Drainage $ 374·25

Total $ 803·12

Signature M. B. Jamieson (Director)

OFFICE USE ONLY

Examined and Approved

Health Inspector 29/6/73

Account Sent

Health Inspector ...../...../.....

D.T.P.—7209

APPLICATION FOR SANITARY PLUMBING OR DRAINAGE PERMIT

Receipt No. ..... Permit No. .....

To the Hawke's Bay County Council Health Inspector,
P.O. Box 172, Napier

Date: 19-6-73

I, Plant Propagation Laboratories Ltd

Address P.O. Box 10 Havelock Nth

Hereby apply for permission to carry out the work described herein and set out in plans attached to be carried out in or on the premises situated at:

Brookvale road Havelock Nth Township

Riding .....

Description of work Plumbing + roof fixing

Name and address of the owner of the property where the work is to be carried out:

Plant Propagation Laboratories Ltd
Brookvale Rd Havelock Nth (Box 10)

Name and Address of Registered Plumber or Drainlayer entitled to do the work:

B.J. O'Neil Ltd
202 Jervois St Hastings

Value of Proposed Work, including Materials:
Estimated Value of—

Plumbing $ 428.87

Drainage $ 374.25

Total $ 803.12 + $603.00 for roof.

Signature M.B. Knight

OFFICE USE ONLY

Examined and Approved

.....

Health Inspector ...../...../.....

Account Sent

.....

Health Inspector ...../...../.....

D.T.P.—7209

PLANT PROPAGATION LABORATORIES
TELEPHONE ~~75-519~~ 77721

10305
1087

~~10 Palm Avenue~~,
~~Palmerston North~~
P.O. Box 10
Havelock N.Z.

Dear Mr Stanfield,

Find enclosed explanations of the amendments we discussed on the phone.

M R Learmonth

Amended Wall Heights
Section A-A'

1) Wall ① from 16 rows of blocks to 12 rows high.

2) Wall ② from 17 rows of blocks to 13 rows high.

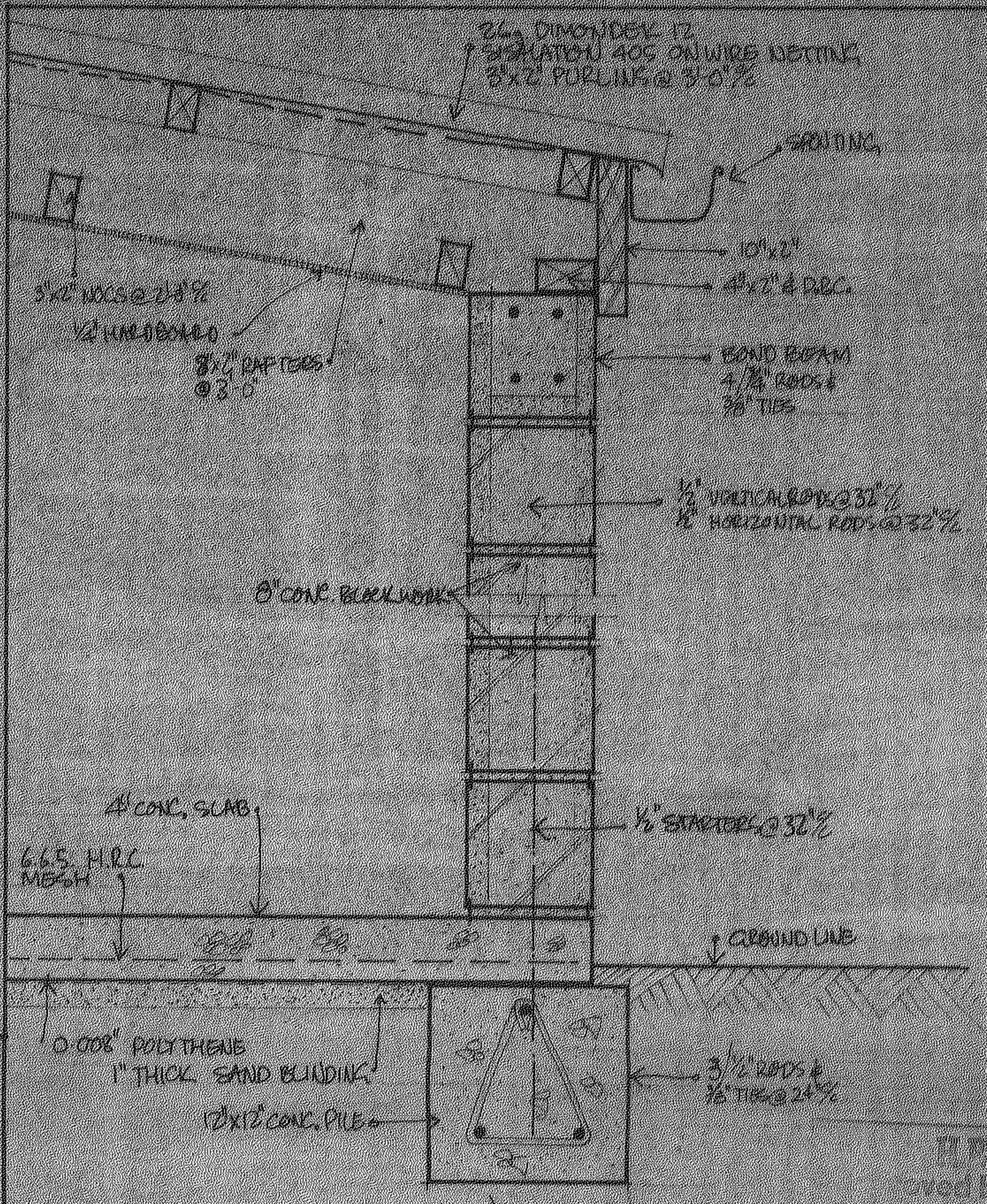
3) Wall ③ from 18 rows of blocks to 14 rows high.

4) Wall ④ from 16 rows -- -- -- 13 rows high (bond beam lintel position as shown) Also need packing.

5) Wall ⑤ from 14½ rows -- -- -- 13 rows high exactly (bond beam lintel as shown)

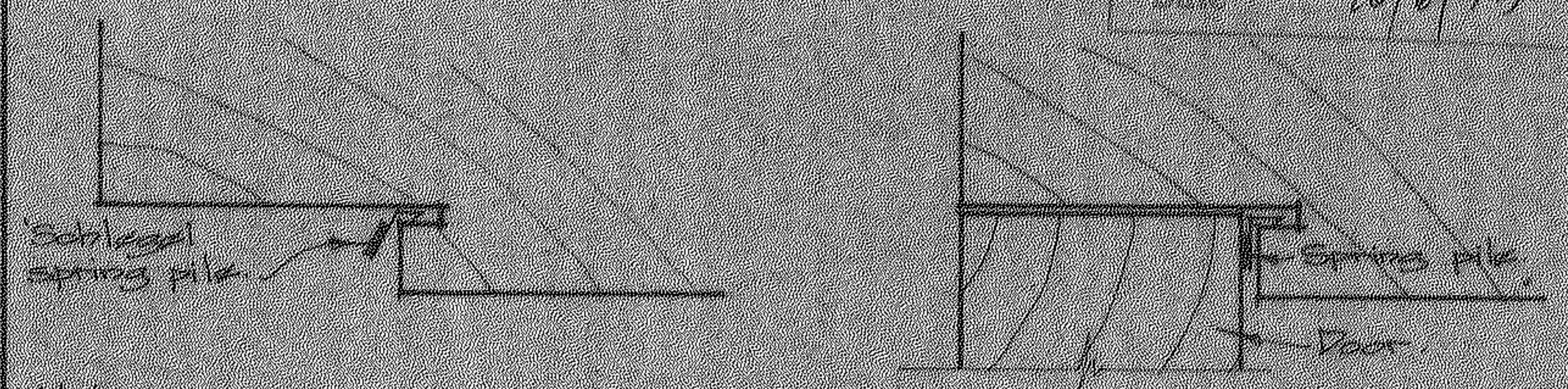
6) Wall ⑥ from 13½ rows -- -- -- 12½ rows (bond beam lintel as shown)

7) Wall ⑦ - stays as is.



TYPICAL WALL SECTION

H.P.C.C.
...ved by:
Building Inspector
Date 20/6/73



Notes:
These spring piles go round the full perimeter of both doors to Air lock.

F.S. DETAILS OF AIR SEALS AROUND AIR LOCK DOORS.

REVISED	20-6-73 SJM
REVISED	25-6-73 SJM

ROOFER.

Cover the whole of the roof with 2" mesh galv. wall stretched and stapled to rafters. Cover mesh with Sisalation 405 neatly laid on with minimum laps of 6" Cover the whole of the roof with 26g galv.iron 'Dimondek 12' trough section steel roofing fixed in accordance with the manufactures instructions.

PLUMBING & DRAINAGE.

Plumbing and drainage shall be carried out in accordance with the Local Body Regulations and Health Act and its subsequent amendments.
All water piping within building shall be 19 gauge hard drawn copper, with all joints brazed. Pipes outside the building shall be buried 12" min below ground.
Provide (2) two 18" x 12" x 7", 19 g. s.s. sinks in Main laboratory complete with 1½" waste and plug.
Provide and fit where shown (3) three 22" x 16" x 7" s.s. basins. Provide and fix (2) two white 18" pedestal pan fitted with a Mattamite double flap solid white plastic seat, also provide and fix to WC pan a wood cased syphonic low level three gallon 22 g copper cistern.
All drains shall be first quality glazed earthenware pipe with rubber ring joints. Drains shall be 4" dia. Provide a Septic tank where shown to the Local Authorities approval. Provide a 6'0" dia x 6'0" deep soakpit where shown and fill to within 9" of the top then lay a 6'0" dia x ⅜ piece of asbestos and then finish off with topsoil.

ELECTRICIAN.

The whole of the electrical installation shall be carried out in strict accordance with the Electrical Supply and Wiring Regulations 1935. PVC or VIR cable shall be used. All switches and power points shall be flush type white plastic. All switches shall be 4'3" above floor. All power points shall be set 12" above floor and shall be positioned where required. The neutral at the switchboard shall be bonded to the water system. Provide and fix where shown on wall a ⅝" thick 'Sindaye' switchboard of sufficient size to take all the required main switches, fuses etc. Provide and fix meters for lighting, power and hot water circuits as required by the Local Power Board.

PAINTER.

Paints shall conform to the standards prescribed by the Standards Association of N.Z. Colours shall be as later selected by the Architect. Priming, undercoats and finishing paints shall be of the same brand.

SPECIFICATION.

PRELIMINARIES.

The provisions of the following documents shall form part of and be incorporated in this contract.
Sheet 1. Plans Elevations and Section Etc.
2. Details.

Provide on the job at least one copy of each of the relevant N.Z.S.S to complete this contract.

CONCRETOR.

Cement, aggregate and water shall comply with the provisions of NZSS 1900 ch 9.3.
All concrete shall be ordinary grade with a crushing strength of 2,500 p.s.i. Reinforcement shall consist of round mild steel rods complying with NZSS 197 and welded wire fabric complying with NZSS 1255.
Cover shall be as set out in NZSS 1900 ch 9.3.
Build in to the tops of foundation walls 9" x ½" dia holding down bolts 6" from each angle the thereafter at 3'6" crs max.
Exposed surfaces shall be kept continuously damp for seven (7) day by an approved method.

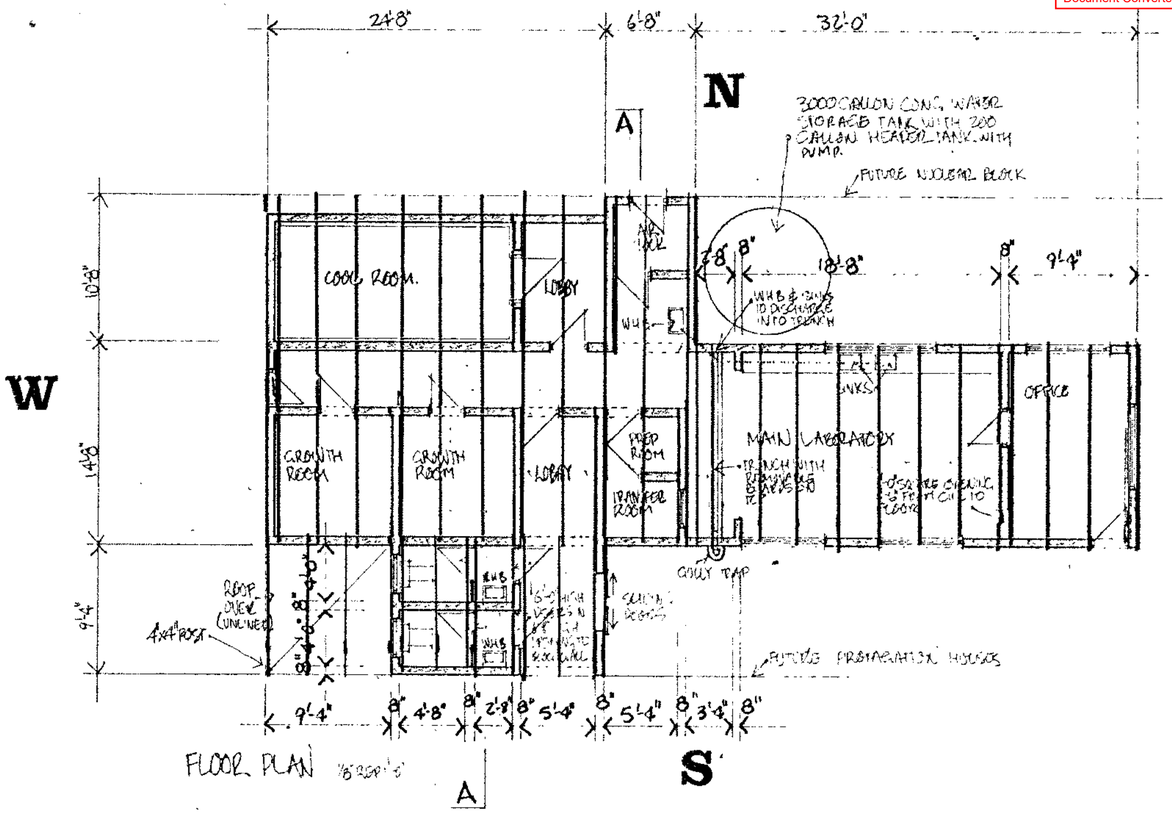
CARPENTER & JOINER.

Timber shall be the best available and in accordance with NZSS 169 Second Revision 1956. Timbers shall be seasoned, either in the open air or in Kiln by approved processes. Timbers for joinery and dressing shall be reduced to a moisture content of from 12% to 18% based on oven dry weight. Other timbers shall be reduced to a moisture content of not more than 25%. Timbers shall be treated as a minimum requirement in accordance with the Timber Preservations Regulations 1955 and subsequent notices, appendices and amendments thereto. Timber work shall be framed fixed and fitted together in a workmanlike manner in accordance with best trade practice. Punch nails where exposed for later stopping. Wherever woodwork is fixed to or adjoins concrete, a continuous strip of three ply bituminous damp proof course shall be fixed to the full width of the faces in contact. Framing timbers to wall and partitions including dwangs shall be thicknessed through approved gauging machine. ~~Cover the whole of the external walls with 'Denod' lightweight building paper.~~ Finish the external walls with all necessary facings, fillets and beads in accordance with the drawing and best trade practice. Take delivery and install true to line all windows and door frames. Line inside walls with 3/16" hardboard fixed in accordance with the manufactures instructions, all ceilings shall be ¼" hardboard sheets.
Supply and fix hinges and any other necessary hardware. All doors shall comply with the requirements of NZSS 1158.

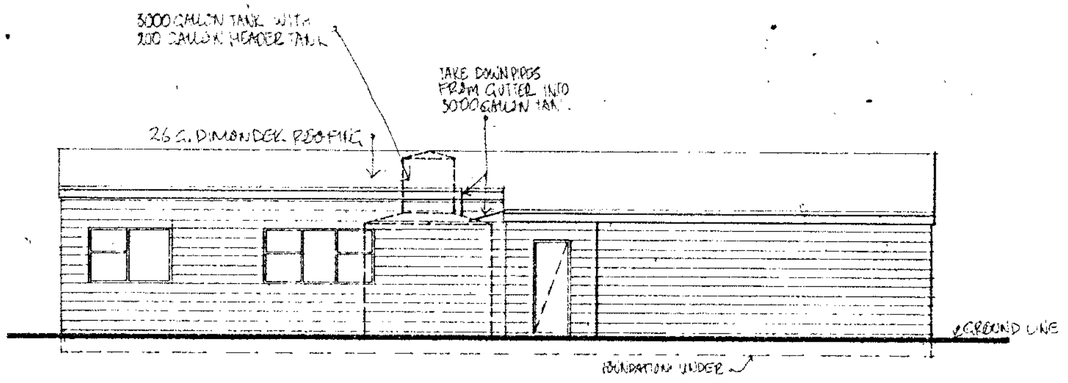
BLOCKWORK.

Blocks shall be hollow concrete blocks complying with N.Z.S.S. 595, Class A quality. They shall be fully cured before being brought onto job. Materials for mortar, and its mixing and testing, shall comply with N.Z.S.S. 1900, Chapter 6.2 "Construction Requirements for Buildings Not Requiring Specific Design - Masonry".
Reinforcing shall be of the quality specified under the "Concretor" section of this specification.
Concrete materials shall be as specified under "Concretor" section of this specification. All joints, both bedding and vertical shall be filled solid for full thickness of face shells, and edge thickness shall be ⅜". All workmanship in connection with reinforced blockwork shall conform to the relevant clauses of N.Z.S.S. 1900, Chapter 6.2, "Construction Requirements for Buildings Not Requiring Specific Design - Masonry".

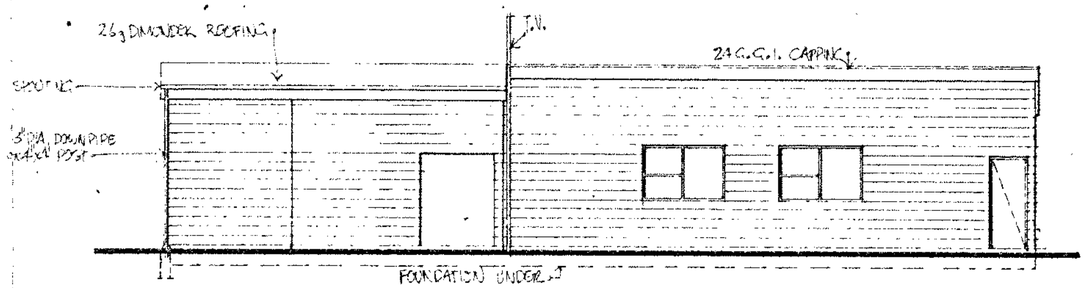
PROPOSED LABORATORIES & OFFICES FOR PLANT PROPAGATION LABS. LTD. — HAWKES BAY — J. ROY ROBERTS & PARTNERS — ARCHITECTS — Palm. Nth.



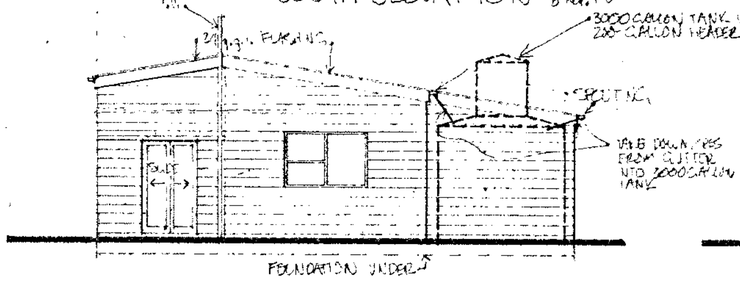
FLOOR PLAN 1/8"=1'0"



NORTH ELEVATION 1/8"=1'0"

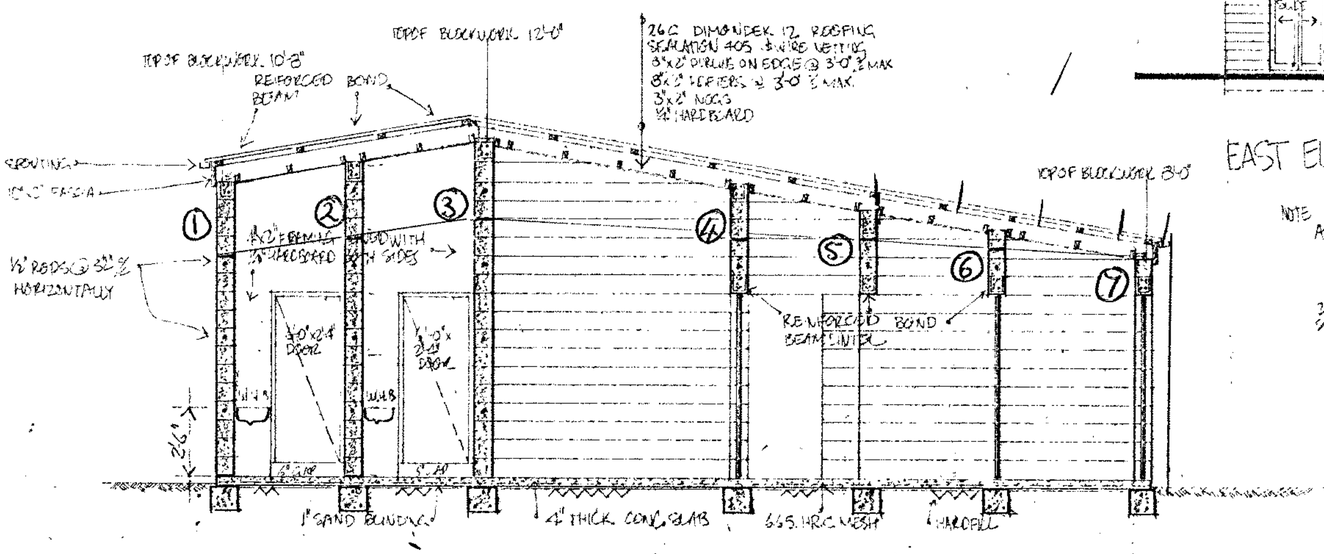


SOUTH ELEVATION 1/8"=1'0"



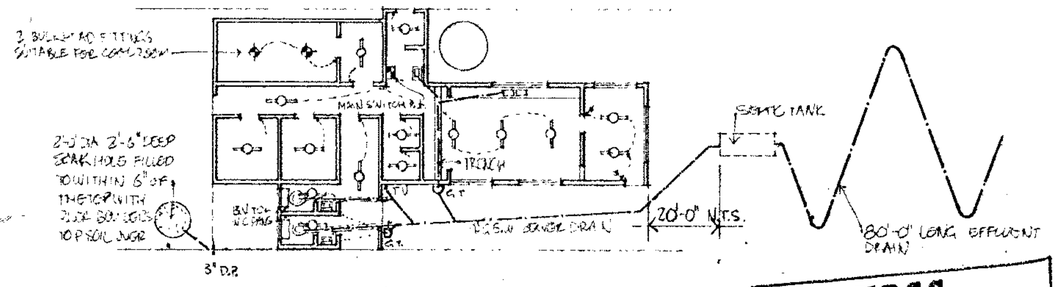
EAST ELEVATION 1/8"=1'0"

WEST ELEVATION 1/8"=1'0"



SECTION A-A. 1/2"=1'0"

NOTE ALL WINDOWS TO BE STANDARD SIZE ALUMINIUM WINDOWS WHERE POSSIBLE



NOTE. ALL FLUORESCENT FITTINGS ARE 4'0" LONG FLOURESCENT FITTINGS

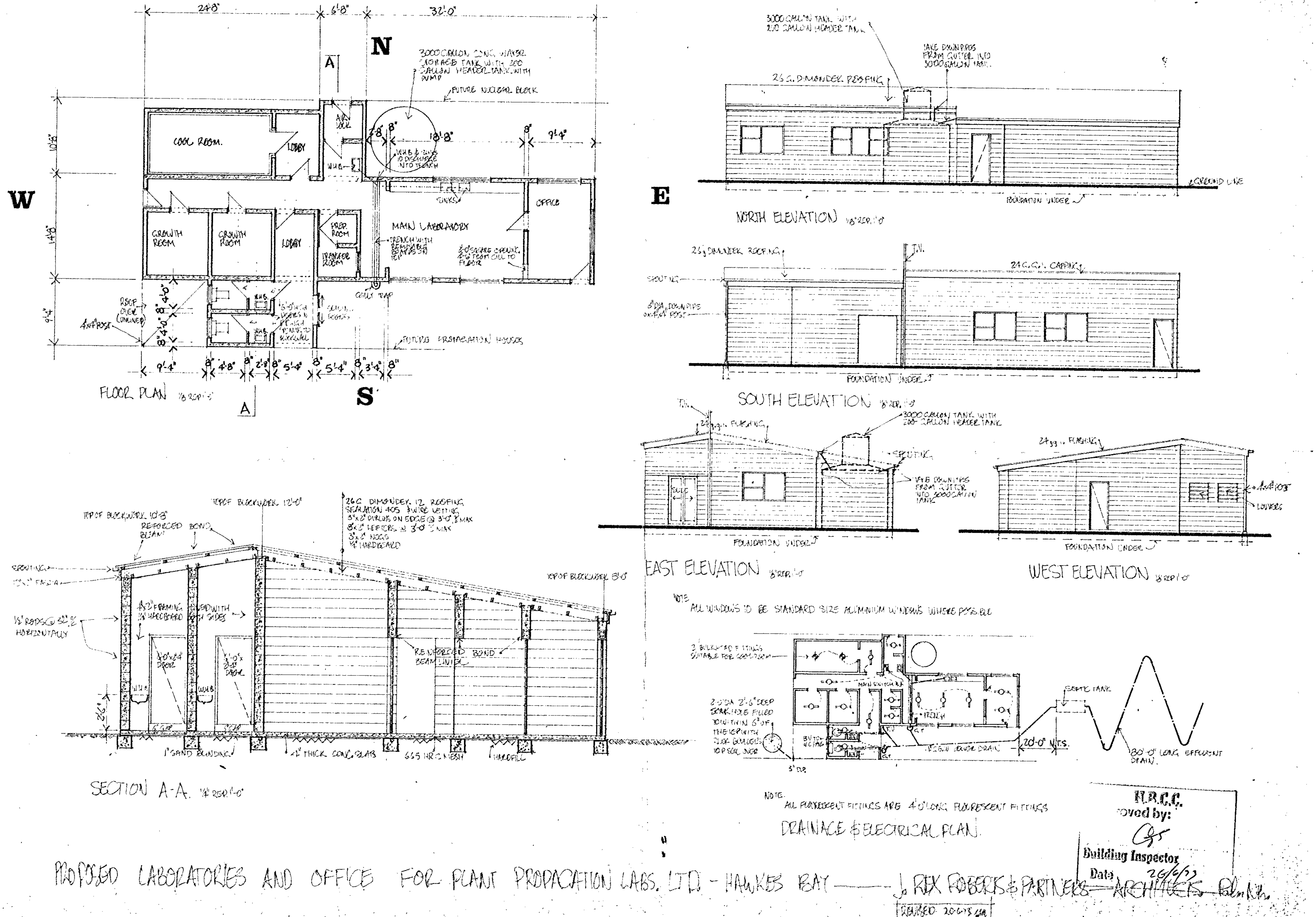
DRAINAGE & ELECTRICAL PLAN

H.B.C.C.
Approved by:
Building Inspector
Date 8/8/73

PROPOSED LABORATORIES AND OFFICE FOR PLANT PROPAGATION LABS. LTD. - HAWKES BAY

REX FOBBES & PARTNERS ARCHITECTS. Palmerston

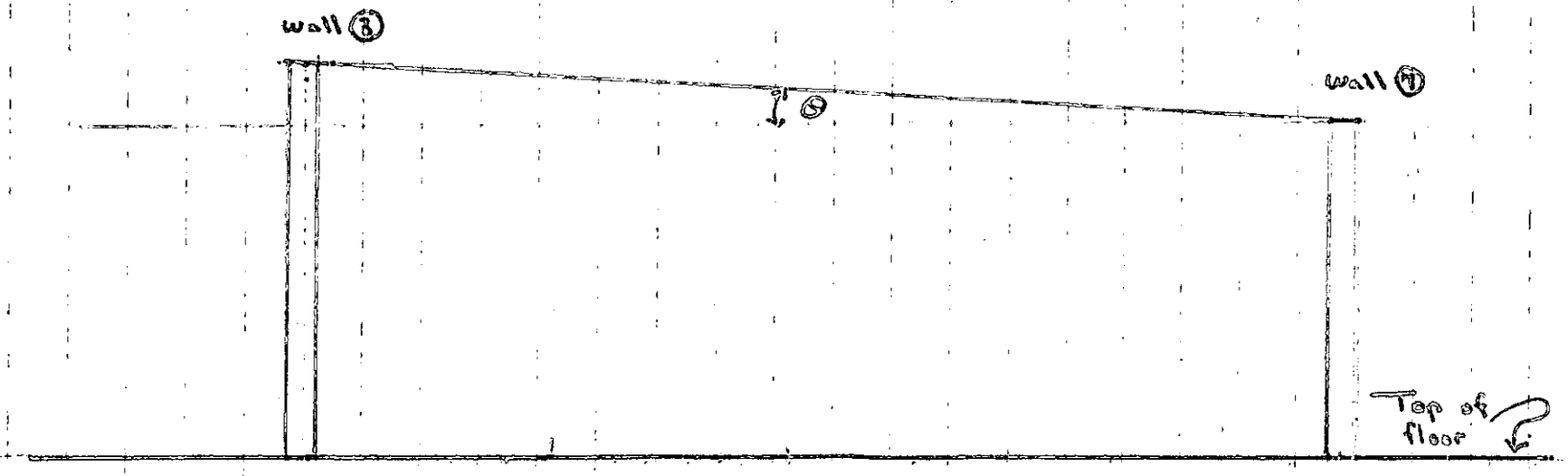
REVISED 20-6-73



N
W
E
S
COOL ROOM
LOBBY
GROWTH ROOM
GROWTH ROOM
LOBBY
PREP. ROOM
TRANSFER ROOM
MAIN LABORATORY
OFFICE
SINKS
GULLY TRAP
FUTURE NUCLEAR BLOCK
FUTURE PROPAGATION HOUSES
FLOOR PLAN
NORTH ELEVATION
SOUTH ELEVATION
EAST ELEVATION
WEST ELEVATION
FOUNDATION UNDER
GROUND LINE
SECTION A-A
NOTE
ALL WINDOWS TO BE STANDARD SIZE ALUMINIUM WINDOWS WHERE POSSIBLE
NOTE
ALL FLUORESCENT FITTINGS ARE 4'0" LONG FLUORESCENT FITTINGS
DRAINAGE & ELECTRICAL PLAN
SEPTIC TANK
PROPOSED LABORATORIES AND OFFICE FOR PLANT PROPAGATION LABS. LTD - HAWKES BAY
J. REX ROBERTS & PARTNERS ARCHITECTS
H.B.C.C.
Building Inspector
Date

Angle of roof.

angle θ = 3.5°



APPLICATION FOR BUILDING PERMIT

Receipt No. ..... Permit No. 1080

To the Hawke's Bay County Building Inspector,
P.O. Box 172, Napier.

RECEIVED
26 JUN 1973
H. B. C. C.

Date: 22-6-73.

I hereby apply for permission to erect, ~~alter~~, ~~repair~~, ~~shift~~, ~~install~~, Greenhouses

according to site plan and detailed plans, elevations, cross-sections, computations and specifications of buildings deposited herewith.

Name and Address of Owner: Plant Propagation Laboratories Ltd.

Address of Building Site: Brookvale Rd Havelock Nth

Valuation Roll No.: Pt 10.07965 Approximate Area of Property: 7½ acres
Pt. 968/192

Name and Address of Builder: Plant Propagation Laboratories Ltd
P.O. Box 10 Havelock Nth

For setting see Master site plan with Pd/Offs.

If application is for —

(1) A Dwelling:
State number of existing dwellings on land (if any): .....
or

(2) An outbuilding on a Residential site:
State total floor area of existing outbuildings on land (if any): ..... sq. ft.

also state

Floor area of the New Building, addition or extension: ~~2000 ft²~~ 6000 sq. ft. per unit

ESTIMATED VALUE:

Building $ 45-00 ~~1500~~/unit

Plumbing and Drainage $

NOTE: Where the work involves any drainage or sanitary plumbing work a separate application for this work must be made at the same time.

And I hereby agree to abide by all the provisions of the Hawke's Bay County Council By-Laws governing and regulating all matters the subject of the foregoing.

Owner/~~Builder~~: M.B. Leamight (Director)

Postal Address: P.O. Box 10 Havelock Nth.

OFFICE USE ONLY

Other Buildings on same site ~~Yes~~/No

Examined	Approved	Approved	A/c. Sent
Planning Officer	Building Inspector	Health Inspector	
28/6/73	26/6/73	../../..	28/6/73

vw 5689 5,000/11/71

APPLICATION FOR BUILDING PERMIT

18 JUN 1973
H. B. C. C

Receipt No. ..... Permit No. .....

To the Hawke's Bay County Building Inspector,
P.O. Box 172, Napier.

Date: 15-6-73

I hereby apply for permission to erect, ~~alter~~, repair, ~~shift~~, ~~install~~, 3 Greenhouses according to site plan and detailed plans, elevations, cross-sections, computations and specifications of buildings deposited herewith.

Name and Address of Owner: Plant Propagation Laboratories Ltd.

Address of Building Site: Brookvale Rd Havelock NZL.

Valuation Roll No.: ..... Approximate Area of Property: 7½ acres

Name and Address of Builder: Plant Propagation Laboratories Ltd Box 10 Havelock NZL.

If application is for —

(1) A Dwelling:
State number of existing dwellings on land (if any): .....
or

(2) An outbuilding on a Residential site:
State total floor area of existing outbuildings on land (if any): ..... sq. ft.

also state

Floor area of the New Building, addition or extension: ..... sq. ft.

ESTIMATED VALUE:

Building $

Plumbing and Drainage $

NOTE: Where the work involves any drainage or sanitary plumbing work a separate application for this work must be made at the same time.

And I hereby agree to abide by all the provisions of the Hawke's Bay County Council By-Laws governing and regulating all matters the subject of the foregoing.

Owner/~~Builder~~: M B Seawright

Postal Address: Box 10 Havelock NZL.

77721 2

OFFICE USE ONLY			
Other Buildings on same site	Yes/No		77713 wife
Examined	Approved	Approved	A/c. Sent
Planning Officer ...../...../.....	Building Inspector ...../...../.....	Health Inspector ...../...../.....	...../...../.....

vw 5689 5,000/11/71

E. G. S. POWELL, B.E., C.Eng., M.I.C.E., M.N.Z.I.E.
C. E. FENWICK, M.Sc., B.E., C.Eng., F.I.E.E., F.I.Mech.E., F.N.Z.I.E., M.I.C.E., F.I.Nuc.E.
JAN H. HAVENAAR, M.N.Z.I.H.V.E.
B. M. A. JOHNSON, B.E., M.N.Z.I.E.
B. F. MARINO, B.E. (Hons.), M.N.Z.I.E.
R. G. A. NICOLL, B.E., M.N.Z.I.E.
S. REX ROBSON, B.E., M.N.Z.I.E.
D. L. SCOTT, B.E. (Hons.), B.Sc., M.N.Z.I.E.
W. J. van der LINDEN, M.N.Z.I.E., A.M.I.T.E.
M. J. WELLS, D.F.M., C.Eng., M.I.Struct.E., M.N.Z.I.E.
H. L. WILLIAMS, B.E., B.Sc., C.Eng., M.I.E.E., M.N.Z.I.E.

RBR:IDS:4406

POWELL, FENWICK & PARTNERS
CONSULTING ENGINEERS
CIVIL, ELECTRICAL, MECHANICAL, ACOUSTICAL, STRUCTURAL
HEAD OFFICE: 137 VICTORIA STREET, CHRISTCHURCH, 1.
P.O. BOX 25-108 TELEPHONE 64-342

OFFICES:
AUCKLAND 378-260
75-333
NAPIER 53-352
WELLINGTON 558-872
INVERCARGILL 3-751
CHRISTCHURCH 64-342

11 May 1973

The County Engineer,
Hawkes Bay County Council,
P. O. Box 172,
NAPIER

DESIGN CERTIFICATE

I, RICHARD BARRY RAMSAY, Civil Engineer,

HEREBY CERTIFY that I have carried out the structural design for the "Proposed Production Houses for Plant Propagation Laboratories Limited, Hawkes Bay" in accordance with sound and accepted Engineering principles.

I FURTHER CERTIFY that the structure has been designed to withstand loads as specified in N.Z.S.S. 1900, Chapter 8 at stresses not exceeding those allowed in N.Z.S.S. 1900, Chapter 11.2.

R. B. RAMSAY, M.Sc.,D.I.C.,B.E.(hons)

E G S POWELL, B E, C Eng, F I C E, M N Z I E.
C E FENWICK, M Sc, B E, C Eng, F I E E,
F I Mech E, F N Z I E, M I C E, F I Nuc E.
B M A JOHNSON, B E, M N Z I E
J H HAVENAAR, A M N Z I H V E
B F MARINO, B E (Hons), M N Z I E
R G A NICOLL, B E, M N Z I E
S REX ROBSON, B E, M N Z I E
D L SCOTT, B E (Hons), B Sc, M N Z I E
W J van der LINDEN, M N Z I E, A M I T E
M J WELLS, D F M, C Eng, M I Struct E, M N Z I E
H L WILLIAMS, B E, B Sc, C Eng, M I E E, M N Z I E

POWELL, FENWICK & JOHNSON

CONSULTING ENGINEERS: Acoustical, Building Services, Civil, Electrical, Foundation Investigations, Mechanical and Structural.

DESCO CENTRE, 59 TENNYSON STREET, NAPIER, NEW ZEALAND.

TELEPHONE: 53-352

ACENZ

BRANCHES CHRISTCHURCH — 64-342
WELLINGTON — 558-872
NAPIER — 53-352
AUCKLAND — 378-260
75-333

Telephones

10 July 1973

The Building Inspector,
H.B. County Council,
NAPIER.

Dear Sir,

(H1986) PLANT PROPOGATION LABORATORIES LTD

PROPOGATION HOUSE

The owners inform me that they cannot put external buttresses each end in all cases. I have accordingly added an amending note to the plans which will enable them to have buttresses at one end only if they so wish.

Two prints of H1986/1A are enclosed for your records.

Yours faithfully,
POWELL FENWICK & JOHNSON

B.M.A. Johnson.

E. G. S. POWELL, B.E., C.Eng., M.I.C.E., M.N.Z.I.E.
C. E. FENWICK, M.Sc., B.E., C.Eng., F.I.E.E., F.I.Mech.E., F.N.Z.I.E., M.I.C.E., F.I.Mun.E.
JAN H. HAVENAAR, M.N.Z.I.M.V.E.
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B. F. MARINO, B.E. (Hons.), M.N.Z.I.E.
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W. J. van der LINDEN, M.N.Z.I.E., A.M.I.T.E.
M. J. WELLS, Dip.M., C.Eng., M.I.Struct.E., M.N.Z.I.E.
H. L. WILLIAMS, B.E., B.Sc., C.Eng., M.I.E.E., M.N.Z.I.E.

RBR:IDS:4406

POWELL, FENWICK & PARTNERS

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75-333
NAPIER 53-352
WELLINGTON 558-872
INVERCARGILL 3-751
CHRISTCHURCH 64-342

11 May 1973

The County Engineer,
Hawkes Bay County Council,
P. O. Box 172,
NAPIER

DESIGN CERTIFICATE

I, RICHARD BARRY RAMSAY, Civil Engineer,

HEREBY CERTIFY that I have carried out the structural design for the "Proposed Production Houses for Plant Propagation Laboratories Limited, Hawkes Bay" in accordance with sound and accepted Engineering principles.

I FURTHER CERTIFY that the structure has been designed to withstand loads as specified in N.Z.S.S. 1900, Chapter 8 at stresses not exceeding those allowed in N.Z.S.S. 1900, Chapter 11.2.

R. B. RAMSAY, M.Sc., D.I.C., B.E. (hons)

HAWKE'S BAY COUNTY COUNCIL

P.O. BOX 172,
NAPIER, N.Z.

28/6/73

Mr. M. P. Seawright
P.O. Box 10
Havelock Nth.

Your application for a Building Permit for

3 Greenhouses.

has been checked and on payment of the following fee the necessary Permit(s) will be issued:

Fees Payable:
****

Building	- $ 21.00
Plumbing ~~and/or~~ Drainage	- $
Building Research Association Fee	- $ 2.50
TOTAL	$ 23.50

BUILDING INSPECTOR
HAWKE'S BAY COUNTY COUNCIL

Please Note: No work is to commence until these fees are paid to this Office.

THIS FORM MUST BE RETURNED WITH FEE.
****

Office Use Only

Receipt No.: 14249/50

Date of Payment: -2 JUL 1973

Lee. 16/5

E. G. S. POWELL, B.E., C.Eng., M.I.C.E., M.N.Z.I.E.
C. E. FENWICK, M.Sc., B.E., C.Eng., F.I.E.E., F.I.Mech.E., F.N.Z.I.E., M.I.C.E., F.I.Mun.E.
JAN H. HAVENAAR, M.N.Z.I.N.V.E.
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B. F. MARINO, B.E. (Hons.), M.N.Z.I.E.
R. G. A. NICOLL, B.E., M.N.Z.I.E.
S. REX ROBSON, B.E., M.N.Z.I.E.
D. L. SCOTT, B.E. (Hons.I, B.Sc., M.N.Z.I.E.
W. J. van der LINDEN, M.N.Z.I.E., A.M.I.T.E.
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NAPIER 53-352
WELLINGTON 558-872
INVERCARGILL 3-751
CHRISTCHURCH 64-342

11 May 1973

RBR:IDS:4406

The County Engineer,
Hawkes Bay County Council,
P. O. Box 172,
NAPIER

Dear Sir,

re Proposed Production Houses for Plant Propagation Laboratories Ltd.

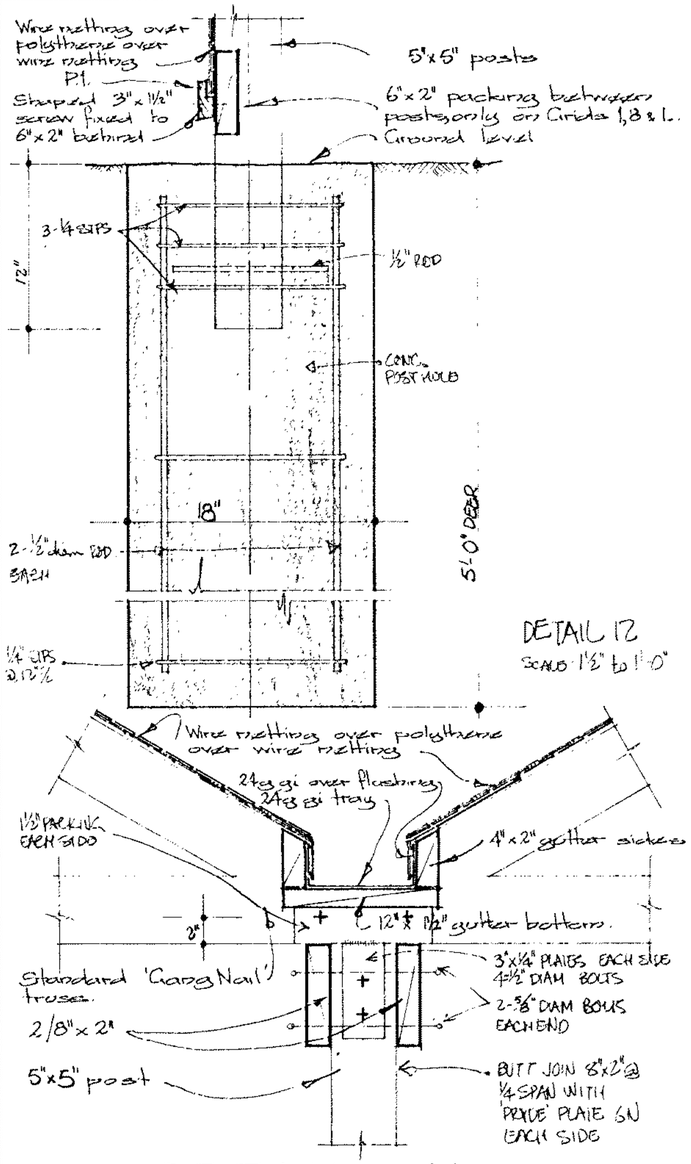
Enclosed are two copies of the plans plus a Design Certificate for the above job. We trust that this now meets your requirements and that a Building Permit may be issued.

Yours faithfully,
POWELL FENWICK & PARTNERS,

R. B. Ramsay

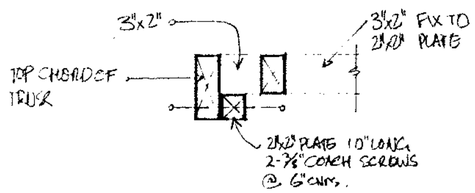
Encls.

R. B. Ramsay

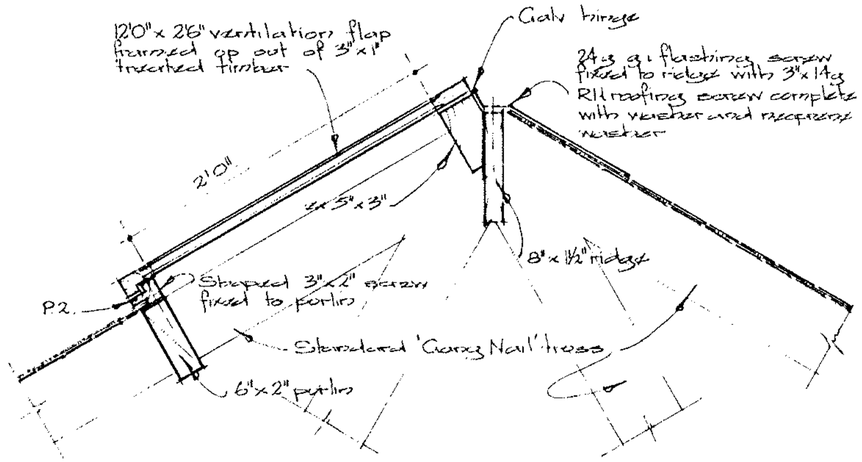


DETAIL 12
SCALE 1½" to 1'0"

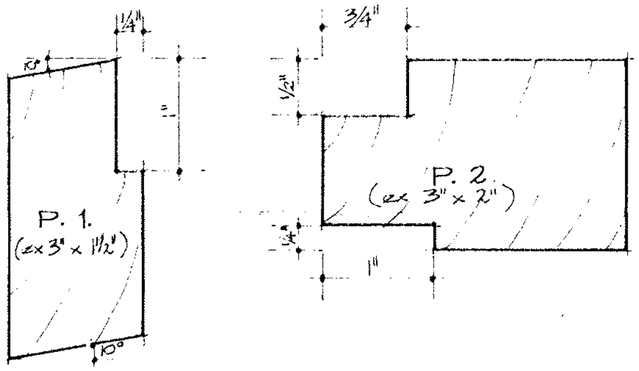
DETAIL 11.
Scale 1½" to 1'0"



DETAIL 13
SCALE 1½" DEP 1'0"



DETAIL 10
Scale: 1½" to 1'0"



SPECIFICATION

PRELIMINARIES:

The provisions of the followings documents shall form part of and be incorporated in this contract.
Sheet 1 Plans, Elevations, Section and Details
2 Details and Specification

Provide on the job at least one copy of each of the relevant NZS to complete this contract.

CONCRETOR:

Cement, aggregate and water shall comply with the provisions of NZS 1900 chapter 9.3.
All concrete shall be ordinary grade with a crushing strength of 2,500 p.s.i. Reinforcing shall consist of round mild steel rods complying with NZSS 197. Cover shall be as set out in NZS 1900 chapter 9.3.

CARPENTER:

Timber shall be the best available and in accordance with NZSS 160 second revision 1956. Timber shall be seasoned by an approved method. Timber posts must be treated in accordance with Commodity Specification C.3 but excluding Formulation F1 (oil type preservatives) and excluding Processes P1, P2 and P11.

The contractor shall provide and erect in position shown on floor plan. Seventy seven (77) only Standard 'Carag Nail' trusses as supplied by 'Carter Merchants'. Trusses shall be erected true and plumb.
Provide on North face of each bank of trusses a 12'0" x 2'6" ventilation flap as detailed. Flap shall hinge on 4" butt hinges at 3'0" crs. Hinges shall be hot dip galv.
Cover the whole of the roof and walls except the west wall with 2" chicken mesh wire netting then by .008" black polythene over this and then another layer of wire nettings all stretched tight and securely stapled at 8" crs. All boards etc. shall be screw fixed.

PLUMBING and DRAINAGE:

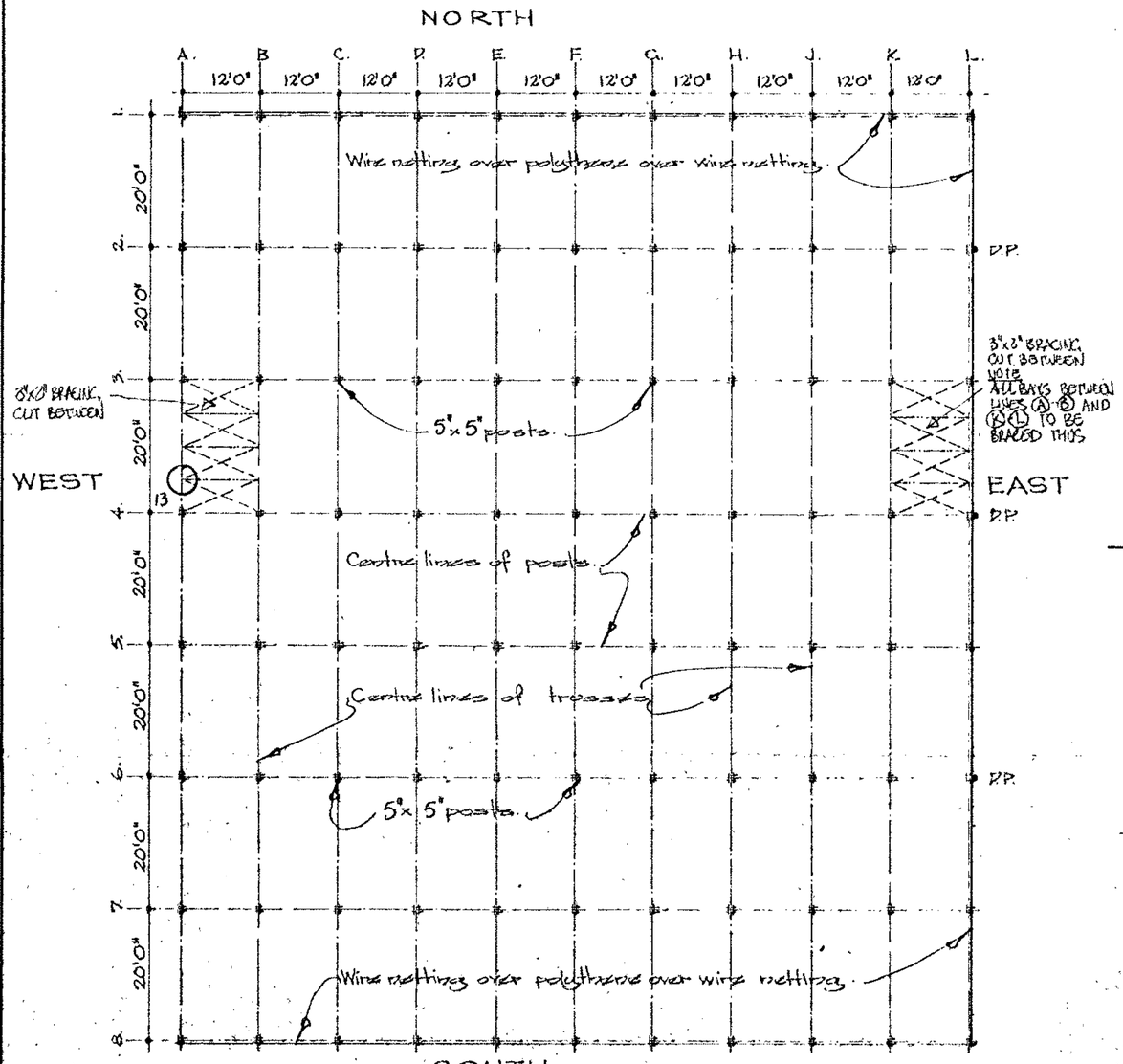
Provide 24 sg. galv iron internal gutter as detailed and where shown on floor plans.
From 3" dia galv iron downpipe provide 4" dia. first quality glazed earthenware stormwater drain which shall discharge into a 6'0" dia x 6'0" deep soakpit positioned where directed by the Architect. Soakpit shall be in accordance with the Local Authorities requirements.

PAINTER:

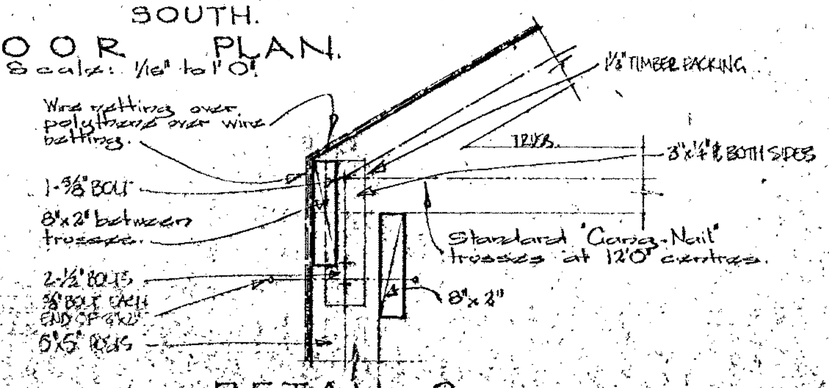
Paints shall conform to the standards prescribed by the Standards Association of N.Z.
Colours shall be as later selected by the Architect. Priming, undercoats and finishing coats shall be of the same brand.

H.B.C.C.
Approved by:
Building Inspector
Date 22/5/73

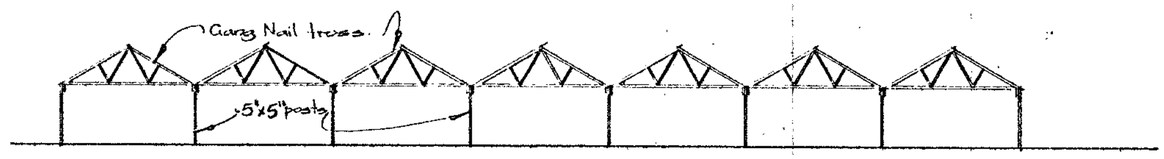
PROPOSED PRODUCTION HOUSES FOR [illegible] LABS. LTD. — HAWKES BAY — [illegible] FOX FISHER & PARTNERS — ARCHITECTS, [illegible]



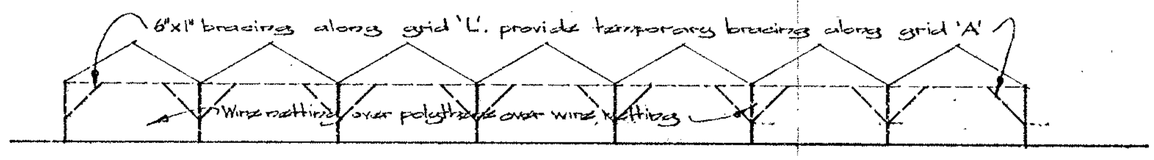
FLOOR PLAN.
Scale: 1/16" to 1'0"



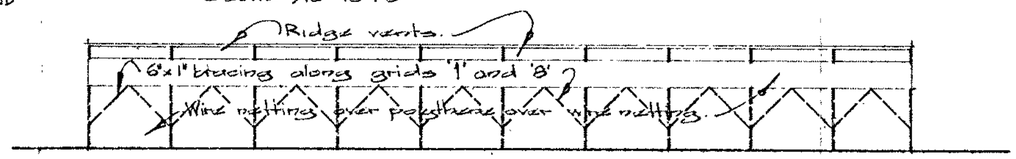
DETAIL. 9.
Scale 1½" to 1'0"



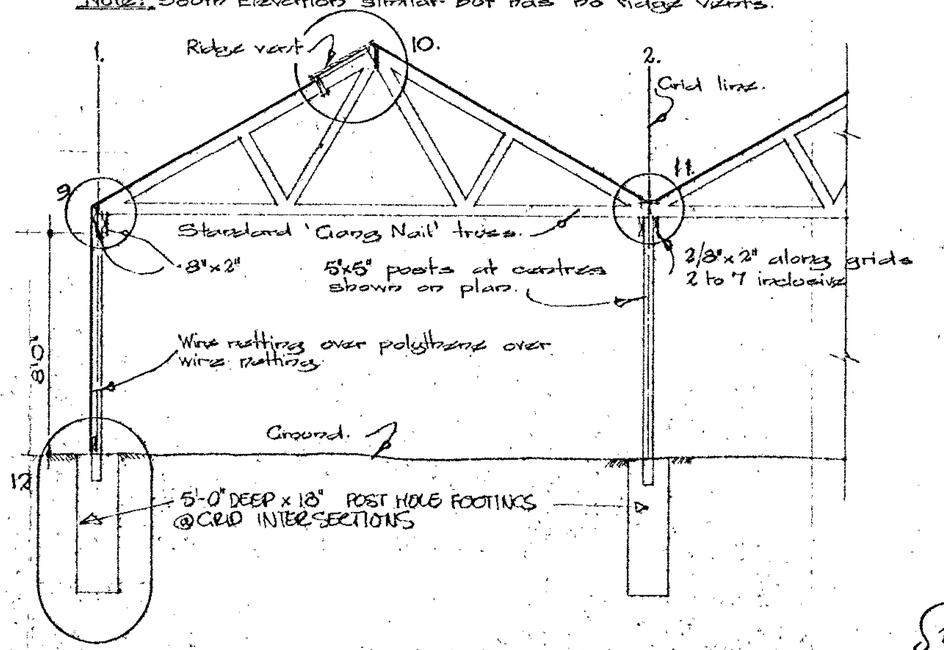
WEST ELEVATION
Scale: 1/16" to 1'0"



EAST ELEVATION
Scale 1/16" to 1'0"



NORTH ELEVATION
Note: South Elevation similar but has no ridge vents.



PART SECTION ALONG GRID '8'
SCALE: ½" REP. 1'-0"

Subject to attached amended Dwg.

H.B.C.C.
Approved by:
Building Inspector
Date 22/5/73

PROPOSED PRODUCTION HOUSES FOR PLANT PROPAGATORS LTD. HAMILTON BAY — J. ROY ROBERTS & PARTNERS ARCHITECTS, Falmouth.

E. G. S. POWELL, B.E., C.Eng., F.I.C.E., M.N.Z.I.E.
C. E. FENWICK, M.Sc., B.E., C.Eng., F.I.E.E., F.I.Mech.E., F.N.Z.I.E., M.I.C.E., F.I.Nuc.E.
B. M. A. JOHNSON, B.E., M.N.Z.I.E.
J. H. HAVENAAR, A.M.N.Z.I.H.V.E.
B. F. MARINO, B.E. (Hons.), M.N.Z.I.E.
R. G. A. NICOLL, B.E., M.N.Z.I.E.
S. REX ROBSON, B.E., M.N.Z.I.E.
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W. J. van der LINDEN, M.N.Z.I.E., A.M.I.T.E.
M. J. WELLS, D.F.M., C.Eng., M.I.Struct.E., M.N.Z.I.E.
H. L. WILLIAMS, B.E., B.Sc., C.Eng., M.I.E.E., M.N.Z.I.E.

POWELL, FENWICK & JOHNSON

CONSULTING ENGINEERS: Acoustical, Building Services, Civil, Electrical, Foundation Investigations, Mechanical and Structural.

DESCO CENTRE, 59 TENNYSON STREET, NAPIER, NEW ZEALAND.
TELEPHONE: 53-352

BRANCHES: CHRISTCHURCH — 64-342
WELLINGTON — 858-872
NAPIER — 53-352
AUCKLAND — 378 260
75-333

19 June 1973

The Building Inspector,
H.B. County Council,
P.O. Box 172,
NAPIER.

Dear Sir,

(H1986) Productions Houses for
Plant Propagation Laboratories Ltd.

As you know the owners could not obtain treated 5" x 5" timber for posts.

Enclosed please find 2 prints showing revisions to use 4" x 4" posts with lateral loading resistance changed to a buttress system instead of post action as shown on plans prepared by J. Rex Roberts. The original plans are to be read in conjunction with the revisions.

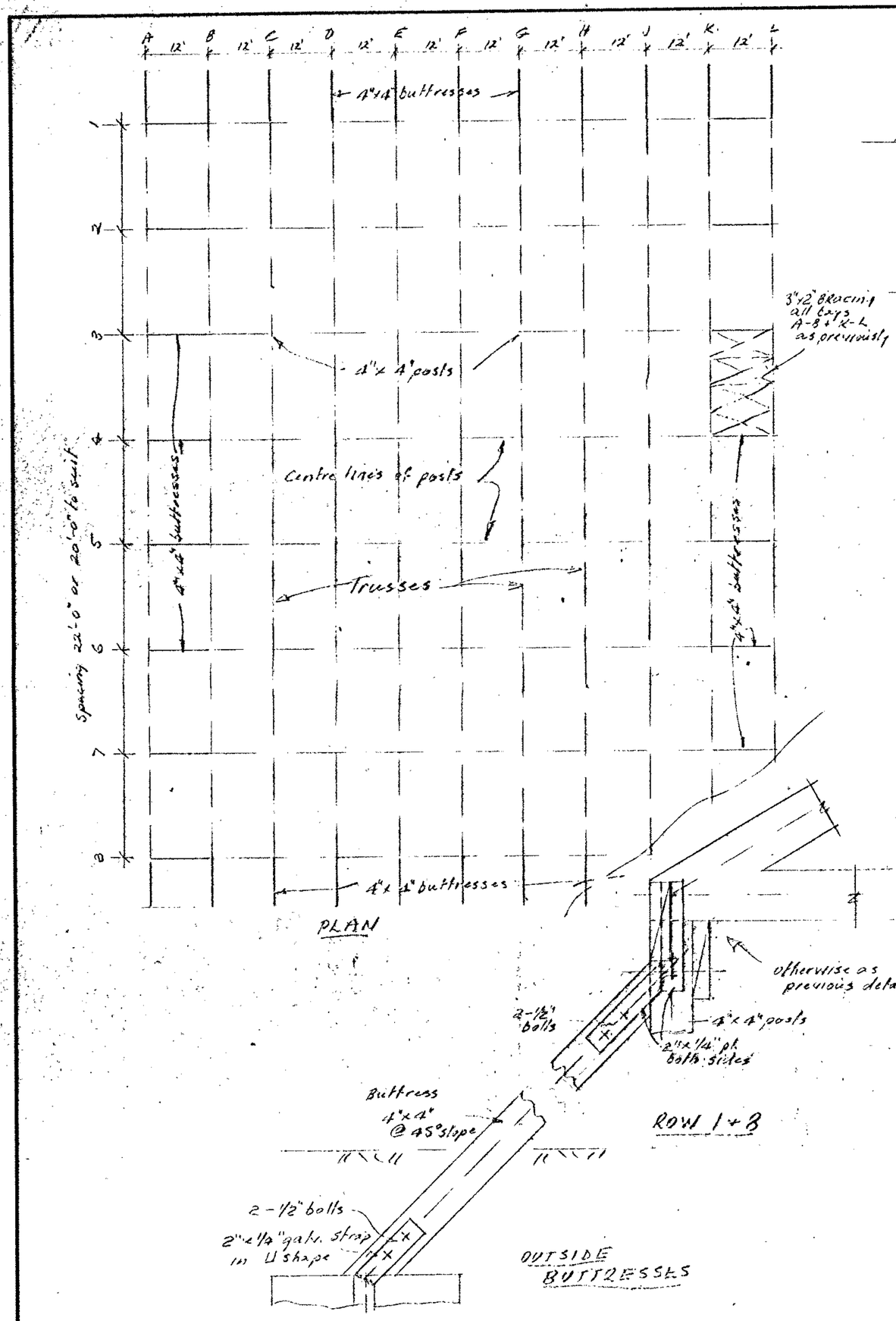
The design is in accordance with N.Z.S.S. 1900 Chapter 8 and 11.2.

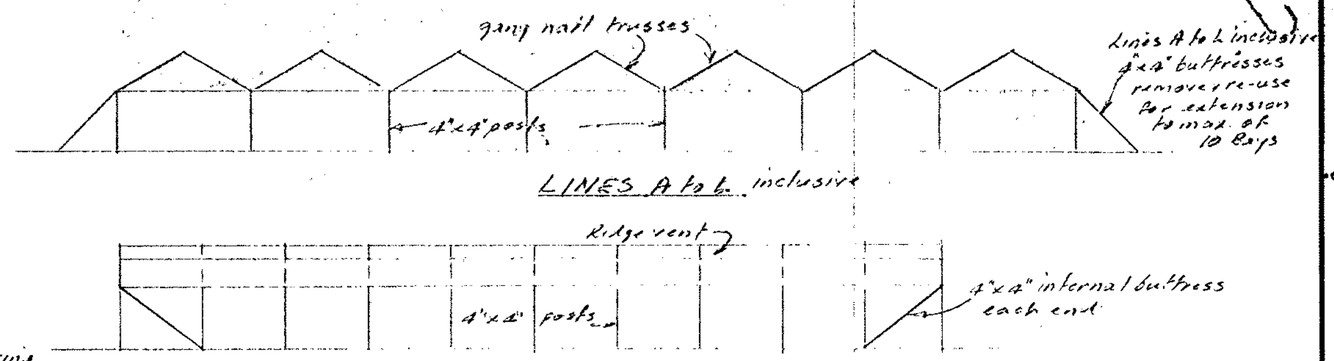
Your record plan is returned herewith.

Yours faithfully,
POWELL FENWICK & JOHNSON

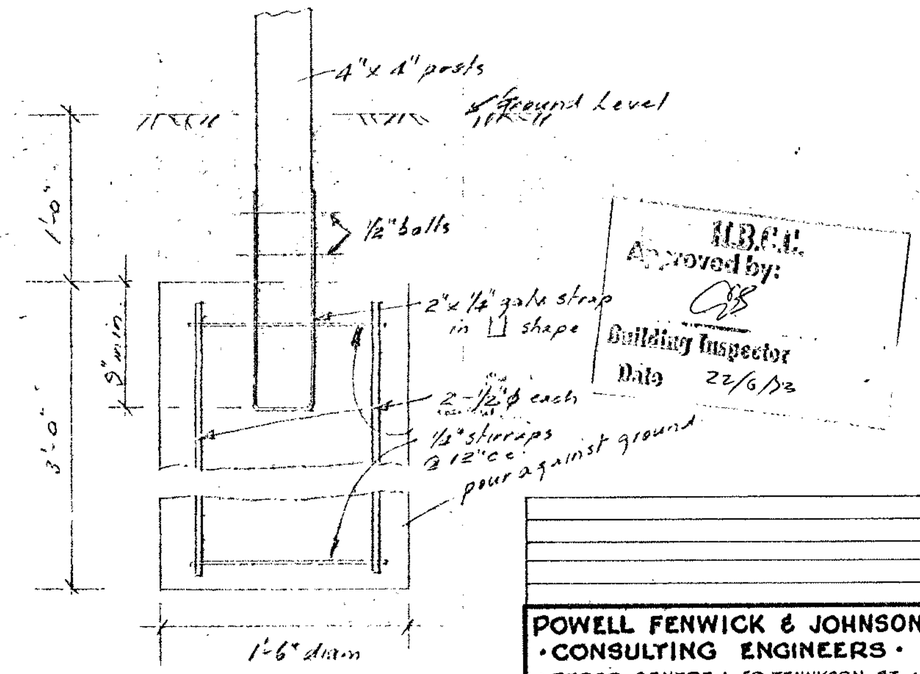
B.M.A. Johnson.

c.c. Plant Propagation Labs. Ltd.

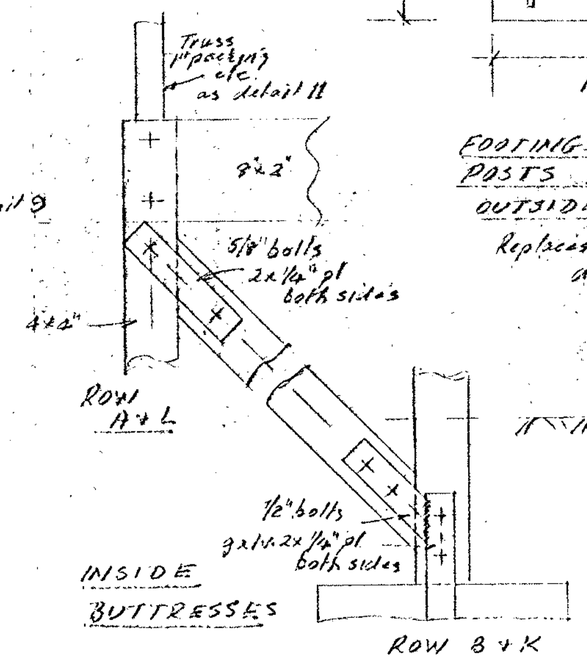




NOTE: 6"x1" bracing previously shown on elevations can be omitted.



H.B.C.C.
Approved by:
Building Inspector
Date 22/6/73



FOOTINGS FOR ALL POSTS AND OUTSIDE BUTTRESSES.
Replaces previous detail 12.

NOTE
Details to be read in conjunction with previous plan prepared by J. Rex Roberts.

POWELL FENWICK & JOHNSON
• CONSULTING ENGINEERS •
• DESCO CENTRE | 59 TENNYSON ST. •
• NAPIER •• PHONE 5072 •

PLANT PROPAGATION LABORATORIES LTD

PROPOSED PRODUCTION HOUSES

Amendments to plan by J. Rex Roberts to use 4"x4" posts (5"x5" not available)

CONTRACTOR MUST VERIFY ALL DIMENSIONS ON JOB

SCALES :	DESIGN :	B.N.A.S.
1/16" = 1'-0"	DRAWN :	"
1/8 F.S	TRACED :	
	CHECKED :	
	DATE :	18-6-73

SET Nº :	JOB Nº :	SHEET Nº :
	H 1986	1

DATE PRINTED : 19 JUN 1973

PROPERTY INFORMATI

Property ID: 58894

Address: 55 Brookvale Rd
Havelock North

Lot/DP No: Lot 2 DP 31724 Lot 1 DP 8274

Valuation No: 0968019201

CT No:

Rapid Rural No:

Parent Property ID:

repared: 26/7/06

Prepared by: RL

Checked by:

Date:

Date Scanned

Scanned by:

E-Checked by:

☐ Old Building Packets
#

Sections within File

Confidential Property Information

☐ **LIM Reports**

LIM No:..... Date:.....
LIM No:..... Date:.....

☐ **Complaints**

Details. ..... Date:.....
Details. ..... Date:.....

Important File Information

☐ **Consent Notices**

RMA..... Date.....

☐ **Fill / Flooding / Other**

Details..... .Date.....

☐ **Licences - Public/Confidential**

Details..... .Date.....
Details..... .Date.....

NOTES

Public Documents

☐ **Subdivision Consents**

RMA No:..... Date:.....
RMA No..... .... Date:.....
RMA No..... Date.....

☑ **Resource Consents**

RMA No. 2002 0155 Date 5/6/02
RMA No. 2002 0078 Date 21/3/02.
RMA No..... Date.....

☑ **Building Consents / PIM Reports**

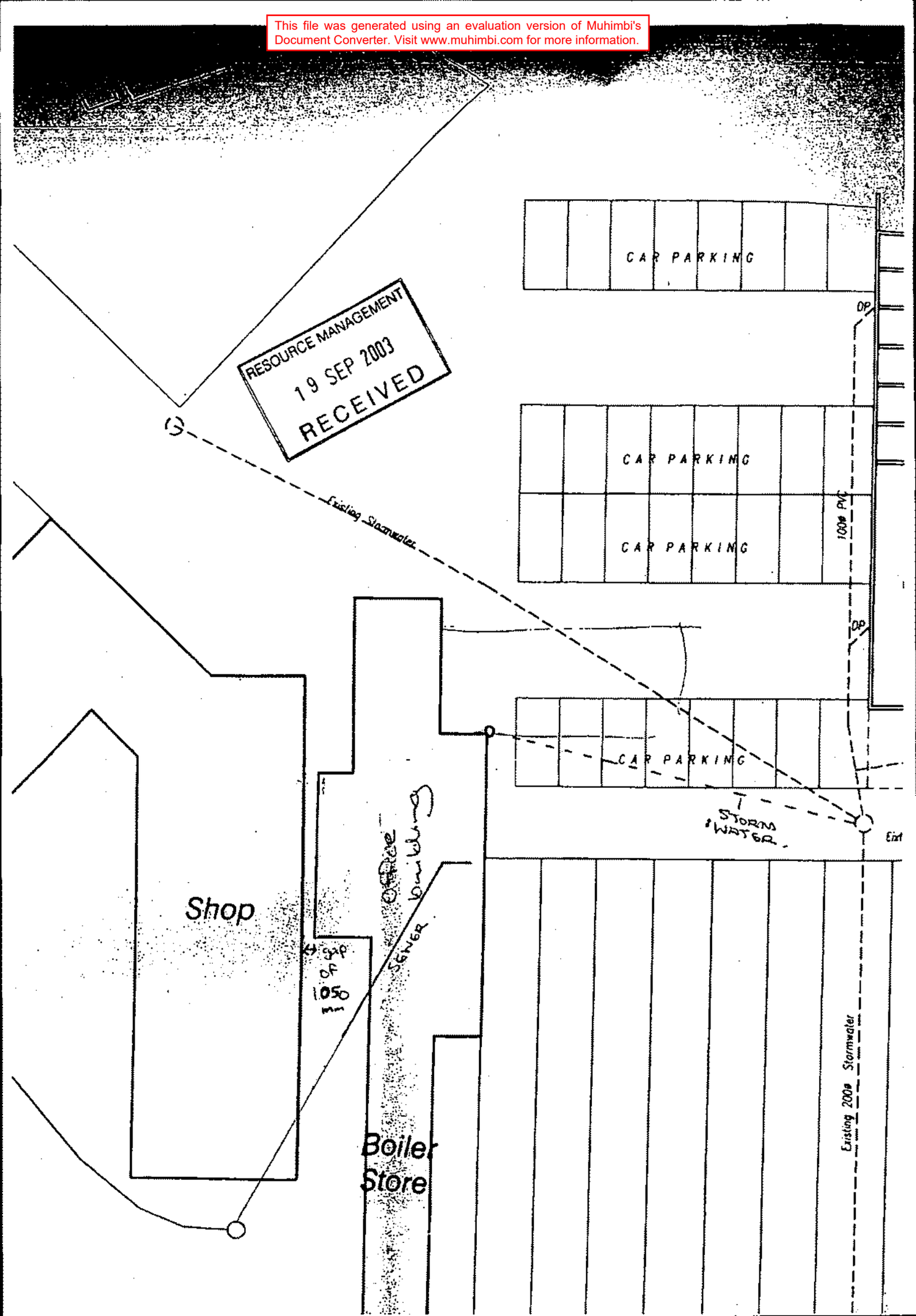
ABA No. 20020237 Date 28/3/02.
ABA No..... Date.....
ABA No..... Date.....

☐ **Enquiries/ Drainage Letters**

Details. ..... Date.....
Details. ..... Date.....

☑ **General**

Details. Aproval Dizal Tank Date 5/2/03
Details..... Date.....



RESOURCE MANAGEMENT DIVISION

Heretaunga Haro te Kahu

Lyndon Road East
Private Bag 9002
HASTINGS

DX 13220

Telephone: (06) 8780 500
Fax: (06) 8780 515

8 July, 1999

If Calling Ask For: KATHRYN WALKER
Our Reference: RMA 970341
G:\Template\Letters\Letterhead.Dot:KAW

Mr Daniel Hart
Oderings Garden Centre
57 Brookvale Road
HAVELOCK NORTH

Dear Mr Hart,

RE: MONITORING OF RESOURCE CONSENT RMA 970341

A building check / monitoring visit to your property at 57 Brookvale Road, Havelock North was carried out by Mr George Astridge, on the 7th July 1999.

This visit found that the conditions of Resource Consent RMA 970341 (dated 3rd September 1997) to establish and operate a commercial garden centre have been complied with.

Thank you for your co-operation in this matter.

Yours sincerely

Kathryn Walker
DEVELOPMENT PLANNER

Hastings District Council

RESOURCE MANAGEMENT DIVISION

Heretaunga Haro te Kahu

Lyndon Road East
Private Bag 9002
HASTINGS

DX 13220

Telephone: (06) 8780 500
Fax: (06) 8780 515

19 February 1999

If Calling Ask For: TRACEY HOLFORD
Our Reference: RMA 970341
MONITORING LETTER/970341/TMH

Stephen Odering / Daniel Hart
Oderings Nurseries
57 Brookvale Road
HAVELOCK NORTH

Dear Mr Odering / Mr Hart

RE: MONITORING OF RESOURCE CONSENT RMA 970341

Your application to establish and operate a commercial garden centre from Brookvale Road, Havelock North, was granted on 3rd September 1997.

There were conditions attached to this consent that were to be met before the consent was given effect to. These conditions require monitoring by the Hastings District Council. I have attached a copy of these conditions for your information. I will contact Mr Hart shortly so that I can arrange a site visit to your property to monitor these conditions of consent.

Please note that condition (8)(iii) states that the applicant shall:

> *acknowledge in writing to the Council that it recognises and accepts horticultural sprays are used on the adjoining site which could adversely affect the proposed nursery operation.*

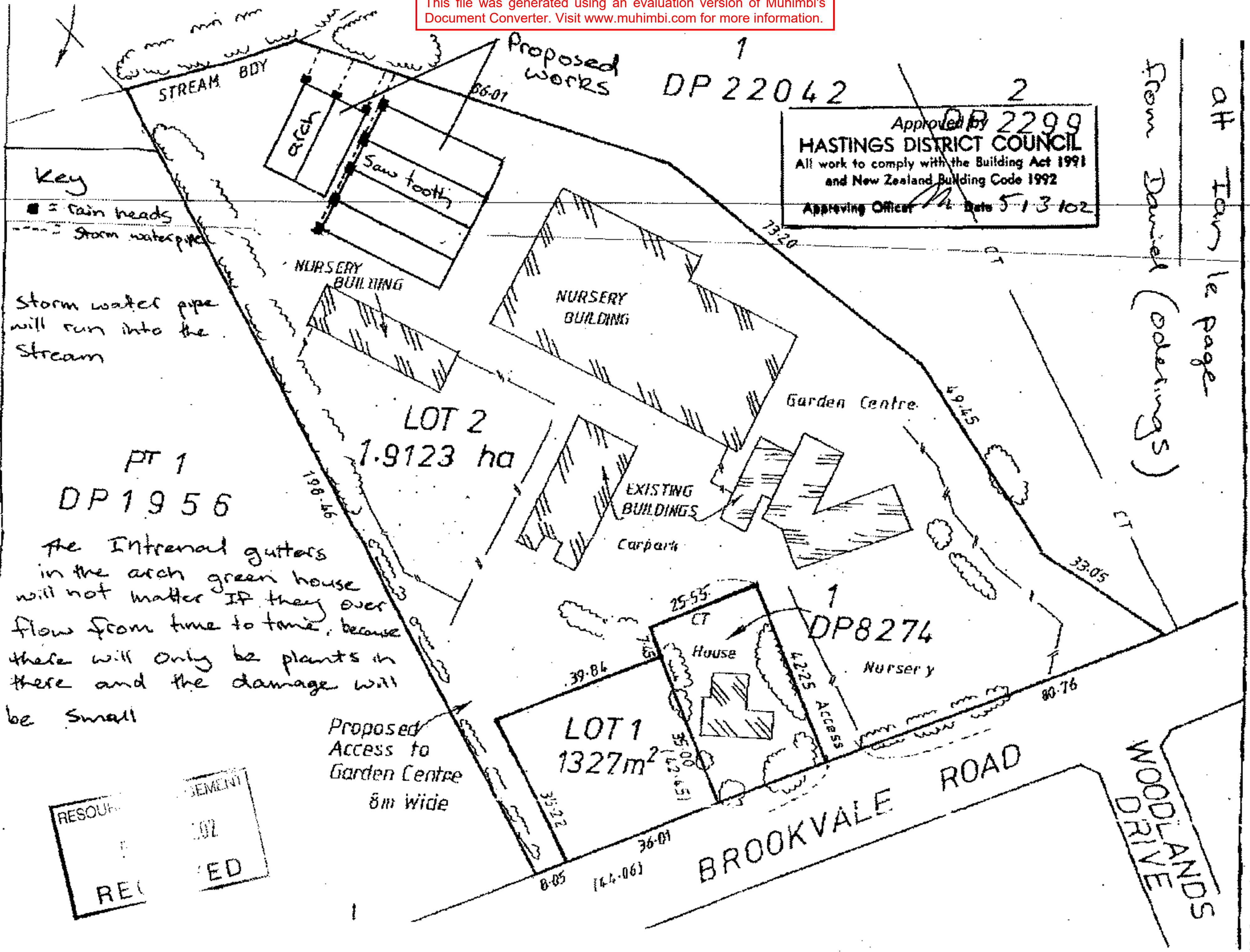
A written statement recognising and accepting the above condition is therefore required from you. This statement should be sent to the Council so that it can be attached to the Council property file for the garden centre.

Your co-operation on this matter is appreciated. Please do not hesitate to contact me if you have any questions regarding this letter.

Yours sincerely

T. M. Holford.

Tracey Holford
MONITORING PLANNER


Proposed works
1
DP 22042
2
DP 2299
Approved by
HASTINGS DISTRICT COUNCIL
All work to comply with the Building Act 1991
and New Zealand Building Code 1992
Approving Officer
Date 5 / 3 / 02
STREAM BDY
66·01
arch
Saw tooth
Key
■ = rain heads
---- = Storm waterpipe
NURSERY BUILDING
NURSERY BUILDING
73·20
CT
Storm water pipe will run into the Stream
Garden Centre
49·45
LOT 2
1·9123 ha
PT 1
DP 1956
198·46
EXISTING BUILDINGS
Carpark
CT
33·05
The Internal gutters in the arch green house will not matter IF they over flow from time to time, because there will only be plants in there and the damage will be small
25·55
CT
1
DP 8274
House
Nursery
7·45
42·25
39·84
Access
80·76
LOT 1
1327m²
35·00
(42·45)
35·22
36·01
8·05
(44·06)
Proposed Access to Garden Centre 8m Wide
BROOKVALE ROAD
WOODLANDS DRIVE
RESOU
EMENT
ED
RE
Att Ian le Page from Daniel (Oderings)

PETER CLARK CONSULTING ENGINEERS

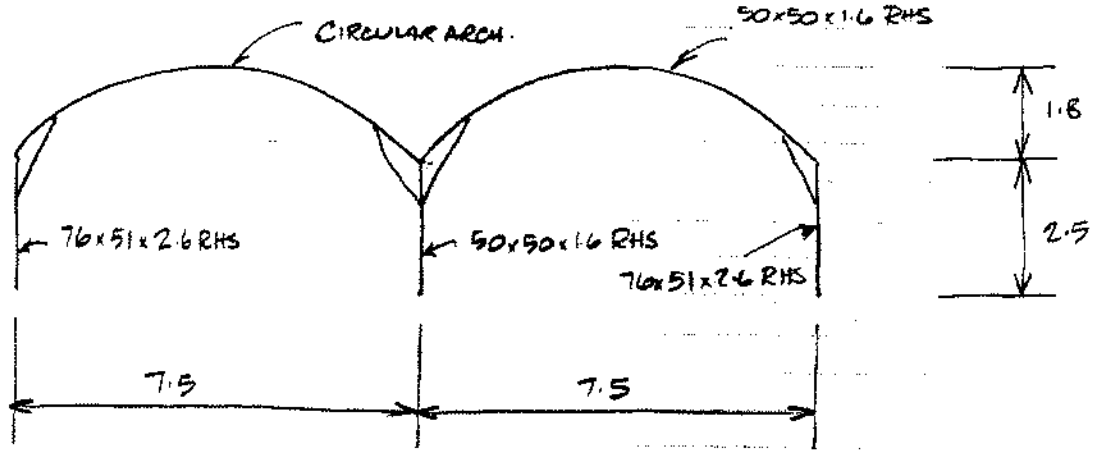
◆ CIVIL AND STRUCTURAL ENGINEERS ◆

Project No: 3081
Page: 1
By: PE
Date: July '93

Project: EDWARDS & WILLIAMS
7.5m STEEL ARCH RAIN CAGE

The structure consists of light gauge galvanised arches and purlins supporting polythene sheet cladding. The arches span 7.5 m and the structure is a two bay structure in the basic form. Bays are spaced at 3.0m centres.

The polythene sheet cladding is fixed to the structure only at the eaves and central gutter.



DESIGN CRITERIA.

Loading

Basic Wind Speed V = 45 m/sec

25 year return period

Ground roughness 3.0 (Sheltered location)

Material

Steel – RHS Grade 350

APPENDIX E SITE PHOTOGRAPHS

PLATE 1: REAR OF SITE WITH RESIDUAL CONCRETE AND MINOR SHADE HOUSE REMNANTS.

PLATE 2: EDGE OF OLDEST GLASSHOUSE SHOWING FOUNDATIONS WITHIN TEST PIT.

PLATE 3: FORMER DIESEL TANK BUND WITH STAINING EVIDENT IN FOREGROUND.

PLATE 4: AREA OF STORAGE BEHIND RESIDUAL GLASSHOUSE.

PLATE 5: REAR OF BOILER HOUSE SHOWN RIGHT OF FRAME WITH FORMER LABORATORY CENTRE AND OPERATIONAL GARDEN CENTRE LEFT.

PLATE 6: RESIDUAL CONCRETE FOUNDATIONS WITH FIBREGLASS PRESENT ON EDGES.

APPENDIX F LABORATORY TRANSCRIPTS

Certificate of Analysis

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

Geosciences Ltd
First Floor, 47 Clyde Road
Browns Bay
Auckland NZ 0630

Attention:	Carl O'Brien
Report	801640-AID
Project Name	55 BROOKVALE ROAD
Project ID	JH0155
Received Date	Jun 09, 2021
Date Reported	Jun 16, 2021

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w). The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence IANZ Accreditation does not cover the performance of this service (non-IANZ results shown with an asterisk). *NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos".This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.*

Project Name 55 BROOKVALE ROAD
Project ID JH0155
Date Sampled Jun 08, 2021
Report 801640-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
SS4 (0-100MM)	21-Jn17606	Jun 08, 2021	Approximate Sample 308g Sample consisted of: Fine grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Auckland	Jun 09, 2021	Indefinite

eurofins | Environment Testing

NZBN: 9429046024954 web: www.eurofins.com.au email: EnviroSales@eurofins.com

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35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Australia

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

Company Name: Geosciences Ltd
Address: First Floor, 47 Clyde Road
Browns Bay
Auckland NZ 0630

Project Name: 55 BROOKVALE ROAD
Project ID: JH0155

Order No.: JH0155
Report #: 801640
Phone: 0011 64 9 4760 454
Fax:

Received: Jun 9, 2021 8:00 AM
Due: Jun 14, 2021
Priority: 3 Day
Contact Name: Carl O'Brien

Eurofins Analytical Services Manager : Karishma Patel

Sample Detail						Asbestos - AS4964	Moisture Set	Eurofins Suite B4B-NZ: TPH, PAH (NZ MfE)	Eurofins Suite B22-NZ: OCP, Metals (As,Cu,Pb) (NZ MfE)
Auckland Laboratory - IANZ# 1327						X	X	X	X
Christchurch Laboratory - IANZ# 1290									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	SS1 (0-150MM)	Jun 08, 2021		Soil	K21-Jn17604		X	X	X
2	SS3 (300-400MM)	Jun 08, 2021		Soil	K21-Jn17605		X		X
3	SS4 (0-100MM)	Jun 08, 2021		Soil	K21-Jn17606	X			
4	SS5 (50-150MM)	Jun 08, 2021		Soil	K21-Jn17607		X		X
5	SS6 (100-250MM)	Jun 08, 2021		Soil	K21-Jn17608		X		X
6	SS7 (150-300MM)	Jun 08, 2021		Soil	K21-Jn17609		X		X
7	SS8 (100-200MM)	Jun 08, 2021		Soil	K21-Jn17610		X		X

eurofins | Environment Testing

NZBN: 9429046024954 web: www.eurofins.com.au email: EnviroSales@eurofins.com

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35 O'Rorke Road
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IANZ # 1327

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Rolleston, Christchurch 7675
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Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

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Sample Detail						Asbestos - AS4964	Moisture Set	Eurofins Suite B4B-NZ: TPH, PAH (NZ MfE)	Eurofins Suite B22-NZ: OCP, Metals (As,Cu,Pb) (NZ MfE)
Auckland Laboratory - IANZ# 1327						X	X	X	X
Christchurch Laboratory - IANZ# 1290									
External Laboratory									
8	SS10 (150-300MM)	Jun 08, 2021		Soil	K21-Jn17611		X		X
9	SS11 (300-400MM)	Jun 08, 2021		Soil	K21-Jn17612		X		X
10	SS12 (150-250MM)	Jun 08, 2021		Soil	K21-Jn17613		X		X
11	SS9 (0-150MM)	Jun 08, 2021		Soil	K21-Jn17614		X		X
Test Counts						1	10	1	10

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

Katyana Gausel	Senior Analyst-Asbestos (Key Technical Personnel) (NSW)

Authorised by:

Destiny Cruickshanks	Senior Analyst-Asbestos (NZS)

Katyana Gausel
Senior Analyst-Asbestos (Key Technical Personnel)

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates ISO/IEC 17025:2017 accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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

Geosciences Ltd
First Floor, 47 Clyde Road
Browns Bay
Auckland NZ 0630

Attention: **Carl O'Brien**

Report **801640-S**
Project name 55 BROOKVALE ROAD
Project ID JH0155
Received Date Jun 09, 2021

Client Sample ID			SS1 (0-150MM)	SS3 (300-400MM)	SS5 (50-150MM)	SS6 (100-250MM)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**K21-Jn17604**	**K21-Jn17605**	**K21-Jn17607**	**K21-Jn17608**
Date Sampled			**Jun 08, 2021**	**Jun 08, 2021**	**Jun 08, 2021**	**Jun 08, 2021**
Test/Reference	LOR	Unit				
Total Petroleum Hydrocarbons (NZ MfE 1999)						
TPH-SG C7-C9	5	mg/kg	< 5	-	-	-
TPH-SG C10-C14	10	mg/kg	< 10	-	-	-
TPH-SG C15-C36	20	mg/kg	130	-	-	-
TPH-SG C7-C36 (Total)	35	mg/kg	130	-	-	-
Organochlorine Pesticides (NZ MfE)						
2.4'-DDD	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
2.4'-DDE	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
2.4'-DDT	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
4.4'-DDD	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
4.4'-DDE	0.01	mg/kg	< 0.01	0.01	0.01	< 0.01
4.4'-DDT	0.01	mg/kg	0.01	< 0.01	< 0.01	< 0.01
DDT + DDE + DDD (Total)*	0.01	mg/kg	0.01	0.01	0.01	< 0.01
a-BHC	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
b-BHC	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Chlordanes - Total	0.01	mg/kg	< 0.01	0.02	< 0.01	< 0.01
cis-Chlordane	0.01	mg/kg	< 0.01	0.01	< 0.01	< 0.01
d-BHC	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Dieldrin	0.01	mg/kg	0.02	< 0.01	< 0.01	< 0.01
Endosulfan I	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan II	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan sulphate	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin	0.01	mg/kg	0.06	< 0.01	< 0.01	< 0.01
Endrin aldehyde	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin ketone	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
g-BHC (Lindane)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor epoxide	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Methoxychlor	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
trans-Chlordane	0.01	mg/kg	< 0.01	0.01	< 0.01	< 0.01
Dibutylchlorendate (surr.)	1	%	INT	94	72	101
Tetrachloro-m-xylene (surr.)	1	%	107	104	92	100

Client Sample ID			SS1 (0-150MM)	SS3 (300-400MM)	SS5 (50-150MM)	SS6 (100-250MM)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			K21-Jn17604	K21-Jn17605	K21-Jn17607	K21-Jn17608
Date Sampled			Jun 08, 2021	Jun 08, 2021	Jun 08, 2021	Jun 08, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons (NZ MfE)						
Acenaphthene	0.03	mg/kg	< 0.03	-	-	-
Acenaphthylene	0.03	mg/kg	< 0.03	-	-	-
Anthracene	0.03	mg/kg	< 0.03	-	-	-
Benz(a)anthracene	0.03	mg/kg	< 0.03	-	-	-
Benzo(a)pyrene	0.03	mg/kg	< 0.03	-	-	-
Benzo(a)pyrene TEQ (lower bound)*	0.03	mg/kg	< 0.03	-	-	-
Benzo(a)pyrene TEQ (medium bound)*	0.03	mg/kg	0.04	-	-	-
Benzo(a)pyrene TEQ (upper bound)*	0.03	mg/kg	0.08	-	-	-
Benzo(b&j)fluoranthene[N07]	0.03	mg/kg	< 0.03	-	-	-
Benzo(g.h.i)perylene	0.03	mg/kg	< 0.03	-	-	-
Benzo(k)fluoranthene	0.03	mg/kg	< 0.03	-	-	-
Chrysene	0.03	mg/kg	< 0.03	-	-	-
Dibenz(a.h)anthracene	0.03	mg/kg	< 0.03	-	-	-
Fluoranthene	0.03	mg/kg	< 0.03	-	-	-
Fluorene	0.03	mg/kg	< 0.03	-	-	-
Indeno(1.2.3-cd)pyrene	0.03	mg/kg	< 0.03	-	-	-
Naphthalene	0.1	mg/kg	< 0.1	-	-	-
Phenanthrene	0.03	mg/kg	< 0.03	-	-	-
Pyrene	0.03	mg/kg	< 0.03	-	-	-
p-Terphenyl-d14 (surr.)	1	%	99	-	-	-
2-Fluorobiphenyl (surr.)	1	%	73	-	-	-
Heavy Metals						
Copper	0.1	mg/kg	31	15	24	28
Metals M8 (NZ MfE)						
Arsenic	0.1	mg/kg	8.2	5.6	4.5	4.6
Lead	0.1	mg/kg	27	14	14	12
% Moisture	1	%	5.6	14	17	37

Client Sample ID			SS7 (150-300MM)	SS8 (100-200MM)	SS10 (150-300MM)	SS11 (300-400MM)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			K21-Jn17609	K21-Jn17610	K21-Jn17611	K21-Jn17612
Date Sampled			Jun 08, 2021	Jun 08, 2021	Jun 08, 2021	Jun 08, 2021
Test/Reference	LOR	Unit				
Organochlorine Pesticides (NZ MfE)						
2.4'-DDD	0.01	mg/kg	< 0.01	< 0.01	< 0.01	0.01
2.4'-DDE	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
2.4'-DDT	0.01	mg/kg	< 0.01	0.01	0.01	< 0.01
4.4'-DDD	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
4.4'-DDE	0.01	mg/kg	0.03	0.03	0.06	0.01
4.4'-DDT	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
DDT + DDE + DDD (Total)*	0.01	mg/kg	0.03	0.04	0.07	0.02
a-BHC	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
b-BHC	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Chlordanes - Total	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
cis-Chlordane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01

Client Sample ID			SS7 (150-300MM)	SS8 (100-200MM)	SS10 (150-300MM)	SS11 (300-400MM)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			K21-Jn17609	K21-Jn17610	K21-Jn17611	K21-Jn17612
Date Sampled			Jun 08, 2021	Jun 08, 2021	Jun 08, 2021	Jun 08, 2021
Test/Reference	LOR	Unit				
Organochlorine Pesticides (NZ MfE)						
d-BHC	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Dieldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan I	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan II	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan sulphate	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin aldehyde	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin ketone	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
g-BHC (Lindane)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor epoxide	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Methoxychlor	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
trans-Chlordane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Dibutylchlorendate (surr.)	1	%	92	82	93	84
Tetrachloro-m-xylene (surr.)	1	%	100	88	99	108
Heavy Metals						
Copper	0.1	mg/kg	25	24	25	16
Metals M8 (NZ MfE)						
Arsenic	0.1	mg/kg	7.5	9.6	5.7	5.3
Lead	0.1	mg/kg	13	16	15	13
% Moisture	1	%	28	23	21	18

Client Sample ID			SS12 (150-250MM)	SS9 (0-150MM)
Sample Matrix			Soil	Soil
Eurofins Sample No.			K21-Jn17613	K21-Jn17614
Date Sampled			Jun 08, 2021	Jun 08, 2021
Test/Reference	LOR	Unit		
Organochlorine Pesticides (NZ MfE)				
2.4'-DDD	0.01	mg/kg	< 0.01	< 0.01
2.4'-DDE	0.01	mg/kg	< 0.01	< 0.01
2.4'-DDT	0.01	mg/kg	< 0.01	0.03
4.4'-DDD	0.01	mg/kg	< 0.01	< 0.01
4.4'-DDE	0.01	mg/kg	< 0.01	0.07
4.4'-DDT	0.01	mg/kg	< 0.01	< 0.01
DDT + DDE + DDD (Total)*	0.01	mg/kg	< 0.01	0.10
a-BHC	0.01	mg/kg	< 0.01	< 0.01
Aldrin	0.01	mg/kg	< 0.01	< 0.01
b-BHC	0.01	mg/kg	< 0.01	< 0.01
Chlordanes - Total	0.01	mg/kg	< 0.01	< 0.01
cis-Chlordane	0.01	mg/kg	< 0.01	< 0.01
d-BHC	0.01	mg/kg	< 0.01	< 0.01
Dieldrin	0.01	mg/kg	< 0.01	< 0.01
Endosulfan I	0.01	mg/kg	< 0.01	< 0.01
Endosulfan II	0.01	mg/kg	< 0.01	< 0.01

Client Sample ID			SS12 (150-250MM)	SS9 (0-150MM)
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**K21-Jn17613**	**K21-Jn17614**
Date Sampled			**Jun 08, 2021**	**Jun 08, 2021**
Test/Reference	LOR	Unit		
Organochlorine Pesticides (NZ MfE)				
Endosulfan sulphate	0.01	mg/kg	< 0.01	< 0.01
Endrin	0.01	mg/kg	< 0.01	0.04
Endrin aldehyde	0.01	mg/kg	< 0.01	< 0.01
Endrin ketone	0.01	mg/kg	< 0.01	< 0.01
g-BHC (Lindane)	0.01	mg/kg	< 0.01	< 0.01
Heptachlor	0.01	mg/kg	< 0.01	< 0.01
Heptachlor epoxide	0.01	mg/kg	< 0.01	< 0.01
Hexachlorobenzene	0.01	mg/kg	< 0.01	< 0.01
Methoxychlor	0.01	mg/kg	< 0.01	< 0.01
Toxaphene	0.1	mg/kg	< 0.1	< 0.1
trans-Chlordane	0.01	mg/kg	< 0.01	< 0.01
Dibutylchlorendate (surr.)	1	%	61	93
Tetrachloro-m-xylene (surr.)	1	%	84	102
Heavy Metals				
Copper	0.1	mg/kg	15	25
Metals M8 (NZ MfE)				
Arsenic	0.1	mg/kg	4.8	6.7
Lead	0.1	mg/kg	11	13
% Moisture	1	%	23	19

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Petroleum Hydrocarbons (NZ MfE 1999)	Auckland	Jun 09, 2021	14 Days
- Method: LTM-ORG-2010 TRH and BTEX in Soil and Water by GC FID and PT GCMS			
Polycyclic Aromatic Hydrocarbons (NZ MfE)	Auckland	Jun 09, 2021	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water by GC MSMS			
Organochlorine Pesticides (NZ MfE)	Auckland	Jun 09, 2021	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water by GCMSMS			
Heavy Metals	Auckland	Jun 09, 2021	6 Months
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Metals M8 (NZ MfE)	Auckland	Jun 09, 2021	6 Months
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Auckland	Jun 09, 2021	14 Days
- Method: LTM-GEN-7080 Moisture Content in Soil by Gravimetry			

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Company Name: Geosciences Ltd
Address: First Floor, 47 Clyde Road
Browns Bay
Auckland NZ 0630

Project Name: 55 BROOKVALE ROAD
Project ID: JH0155

Order No.: JH0155
Report #: 801640
Phone: 0011 64 9 4760 454
Fax:

Received: Jun 9, 2021 8:00 AM
Due: Jun 14, 2021
Priority: 3 Day
Contact Name: Carl O'Brien

Eurofins Analytical Services Manager : Karishma Patel

Sample Detail						Asbestos - AS4964	Moisture Set	Eurofins Suite B4B-NZ: TPH, PAH (NZ MfE)	Eurofins Suite B22-NZ: OCP, Metals (As,Cu,Pb) (NZ MfE)
Auckland Laboratory - IANZ# 1327						X	X	X	X
Christchurch Laboratory - IANZ# 1290									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	SS1 (0-150MM)	Jun 08, 2021		Soil	K21-Jn17604		X	X	X
2	SS3 (300-400MM)	Jun 08, 2021		Soil	K21-Jn17605		X		X
3	SS4 (0-100MM)	Jun 08, 2021		Soil	K21-Jn17606	X			
4	SS5 (50-150MM)	Jun 08, 2021		Soil	K21-Jn17607		X		X
5	SS6 (100-250MM)	Jun 08, 2021		Soil	K21-Jn17608		X		X
6	SS7 (150-300MM)	Jun 08, 2021		Soil	K21-Jn17609		X		X
7	SS8 (100-200MM)	Jun 08, 2021		Soil	K21-Jn17610		X		X

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Sample Detail						Asbestos - AS4964	Moisture Set	Eurofins Suite B4B-NZ: TPH, PAH (NZ MfE)	Eurofins Suite B22-NZ: OCP, Metals (As,Cu,Pb) (NZ MfE)
Auckland Laboratory - IANZ# 1327						X	X	X	X
Christchurch Laboratory - IANZ# 1290									
External Laboratory									
8	SS10 (150-300MM)	Jun 08, 2021		Soil	K21-Jn17611		X		X
9	SS11 (300-400MM)	Jun 08, 2021		Soil	K21-Jn17612		X		X
10	SS12 (150-250MM)	Jun 08, 2021		Soil	K21-Jn17613		X		X
11	SS9 (0-150MM)	Jun 08, 2021		Soil	K21-Jn17614		X		X
Test Counts						1	10	1	10

General Glossary - Mould

SPORE CLASSIFICATION

WATER INDICATOR: Most commonly associated with indoor mould growth in buildings with long-term water intrusion issues.

BACKGROUND DEBRIS: Background debris is the amount of non-fungal particulate present in the trace including dust, fibres, skin cells, dust mites, and insect parts. A debris rating is assigned each trace from 0 (lowest) to 5 (highest). A higher debris rating means samples are more difficult to analyse, and spores, especially smaller spores like Aspergillus/Penicillium, may be obscured. Counts with debris ratings of 4 or 5 should be regarded as minimal counts with actual counts assumed to be significantly higher. A further explanation of the debris rating is listed below:

1) None Detected. No debris observed.
2) Trace. Field of view obscured < 5%. Counts unaffected.
3) Light. Field of view obscured 5% to 25%. Counts slightly affected.
4) Moderate. Field of view obscured 25% to 75%. Actual counts may be higher than reported counts.
5) Heavy. Field of view obscured 75% to 90%. Actual counts may be significantly higher than reported counts.
6) Very Heavy. Field of view obscured > 90%. Actual counts may be significantly higher than reported counts.

TERMS

COC	Chain of Custody
fs	Fungal Structures. A collective term for a fragment; or groups of fragments from fungi, including but not limited to conidia, conidiophores, hyphae and spores.
Hyphal Structures	Hyphae, mycelia or fruiting bodies – fragmented or intact
Smut/myxo/peri.	Smuts / myxomycetes / periconia
-like	Spores lacking distinguishable characteristics from other similar spores
N/A	Not applicable
NS	Non-specified
Un-ID	Unidentified Fungal Particulate
Set	Set of 4 agar plates per sample
TNTC	Too Numerous to Count
LOR	Limit of Reporting

DEFINITION OF TERMS

Raw Counts	The number of spores counted by the analyst.
% Analysed	The amount of the trace that was analysed for each individual spore type. If large amounts of any spore type(s) exist, counts may be estimated.
LOR	LOR for Spore Trap is 13 fs/m^3 at 100% trace analysis.

UNITS:

fs/m^3	Fungal Structure per cubic metre
fs/cm^2	Fungal Structure per square centimetre
cfu	Colony Forming Units
L/min	Litres per minute
g	Gram
min	Minute
%	Percentage

INDOOR AND OUTDOOR COMPARISONS:

There are no current industrial standards regarding permissible levels of airborne fungi that may be present in buildings. It is common for fungal spores to be present in a normal indoor environment. A general guideline that is widely accepted in the industrial hygiene industry is that the types and numbers of mould spores present in the indoor environment should be similar to those present in the outdoor environment. If inside spore counts are significantly higher than outside counts, this may indicate a potential mould problem. The comparison of outdoor and indoor spore types and concentrations is a useful tool in assessing abnormal mould contamination; however, it should not be the sole determining factor in evaluating health risks and remediation strategies.

All samples received in acceptable condition. Information provided by customer includes customer sample ID, location, flow rate and volume. Analytical results are not corrected for field and laboratory blanks. Test results relate only to the items tested and cannot be extrapolated to anything larger than their original intent. This report may not be reproduced, except in full, without written approval by Eurofins Environment Testing Australia Pty Ltd. Eurofins bears no responsibility for client sampling methods and makes no warranty representation regarding the accuracy of client-supplied information in preparing and presenting analytical results. Eurofins maintains liability limited to the cost of analysis; except for Eurofins own wilful misconduct or gross negligence. Interpretation of the analytical results is the sole responsibility of the customer.

Other:

1. Samples were analysed on an “as received” basis.
2. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on results.
3. Spores of *Aspergillus, Penicillium*, and others are small with few distinguishing features and therefore can be difficult to differentiate.
4. If % analysed is <100%, spores per m^3 is based on extrapolation and not actual count.
5. This report replaces any interim results previously issued.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Petroleum Hydrocarbons (NZ MfE 1999)							
TPH-SG C7-C9	mg/kg	< 5			5	Pass	
TPH-SG C10-C14	mg/kg	< 10			10	Pass	
TPH-SG C15-C36	mg/kg	< 20			20	Pass	
TPH-SG C7-C36 (Total)	mg/kg	< 35			35	Pass	
Method Blank							
Organochlorine Pesticides (NZ MfE)							
2.4'-DDD	mg/kg	< 0.01			0.01	Pass	
2.4'-DDE	mg/kg	< 0.01			0.01	Pass	
2.4'-DDT	mg/kg	< 0.01			0.01	Pass	
4.4'-DDD	mg/kg	< 0.01			0.01	Pass	
4.4'-DDE	mg/kg	< 0.01			0.01	Pass	
4.4'-DDT	mg/kg	< 0.01			0.01	Pass	
a-BHC	mg/kg	< 0.01			0.01	Pass	
Aldrin	mg/kg	< 0.01			0.01	Pass	
b-BHC	mg/kg	< 0.01			0.01	Pass	
Chlordanes - Total	mg/kg	< 0.01			0.01	Pass	
cis-Chlordane	mg/kg	< 0.01			0.01	Pass	
d-BHC	mg/kg	< 0.01			0.01	Pass	
Dieldrin	mg/kg	< 0.01			0.01	Pass	
Endosulfan I	mg/kg	< 0.01			0.01	Pass	
Endosulfan II	mg/kg	< 0.01			0.01	Pass	
Endosulfan sulphate	mg/kg	< 0.01			0.01	Pass	
Endrin	mg/kg	< 0.01			0.01	Pass	
Endrin aldehyde	mg/kg	< 0.01			0.01	Pass	
Endrin ketone	mg/kg	< 0.01			0.01	Pass	
g-BHC (Lindane)	mg/kg	< 0.01			0.01	Pass	
Heptachlor	mg/kg	< 0.01			0.01	Pass	
Heptachlor epoxide	mg/kg	< 0.01			0.01	Pass	
Hexachlorobenzene	mg/kg	< 0.01			0.01	Pass	
Methoxychlor	mg/kg	< 0.01			0.01	Pass	
Toxaphene	mg/kg	< 0.1			0.1	Pass	
trans-Chlordane	mg/kg	< 0.01			0.01	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons (NZ MfE)							
Acenaphthene	mg/kg	< 0.03			0.03	Pass	
Acenaphthylene	mg/kg	< 0.03			0.03	Pass	
Anthracene	mg/kg	< 0.03			0.03	Pass	
Benz(a)anthracene	mg/kg	< 0.03			0.03	Pass	
Benzo(a)pyrene	mg/kg	< 0.03			0.03	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.03			0.03	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.03			0.03	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.03			0.03	Pass	
Chrysene	mg/kg	< 0.03			0.03	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.03			0.03	Pass	
Fluoranthene	mg/kg	< 0.03			0.03	Pass	
Fluorene	mg/kg	< 0.03			0.03	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.03			0.03	Pass	
Naphthalene	mg/kg	< 0.1			0.1	Pass	
Phenanthrene	mg/kg	< 0.03			0.03	Pass	
Pyrene	mg/kg	< 0.03			0.03	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Heavy Metals							
Copper	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Metals M8 (NZ MfE)							
Arsenic	mg/kg	< 0.1			0.1	Pass	
Lead	mg/kg	< 0.1			0.1	Pass	
LCS - % Recovery							
Total Petroleum Hydrocarbons (NZ MfE 1999)							
TPH-SG C7-C9	%	102			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides (NZ MfE)							
2.4'-DDD	%	78			70-130	Pass	
2.4'-DDE	%	89			70-130	Pass	
2.4'-DDT	%	79			70-130	Pass	
4.4'-DDD	%	79			70-130	Pass	
4.4'-DDE	%	81			70-130	Pass	
4.4'-DDT	%	72			70-130	Pass	
a-BHC	%	88			70-130	Pass	
Aldrin	%	83			70-130	Pass	
b-BHC	%	73			70-130	Pass	
Chlordanes - Total	%	83			70-130	Pass	
cis-Chlordane	%	72			70-130	Pass	
d-BHC	%	83			70-130	Pass	
Dieldrin	%	93			70-130	Pass	
Endosulfan I	%	81			70-130	Pass	
Endosulfan II	%	86			70-130	Pass	
Endosulfan sulphate	%	79			70-130	Pass	
Endrin	%	90			70-130	Pass	
Endrin aldehyde	%	125			70-130	Pass	
Endrin ketone	%	73			70-130	Pass	
g-BHC (Lindane)	%	86			70-130	Pass	
Heptachlor	%	86			70-130	Pass	
Heptachlor epoxide	%	104			70-130	Pass	
Hexachlorobenzene	%	97			70-130	Pass	
Methoxychlor	%	76			70-130	Pass	
trans-Chlordane	%	93			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons (NZ MfE)							
Acenaphthene	%	88			70-130	Pass	
Acenaphthylene	%	85			70-130	Pass	
Anthracene	%	80			70-130	Pass	
Benz(a)anthracene	%	91			70-130	Pass	
Benzo(a)pyrene	%	90			70-130	Pass	
Benzo(b&j)fluoranthene	%	85			70-130	Pass	
Benzo(g.h.i)perylene	%	81			70-130	Pass	
Benzo(k)fluoranthene	%	88			70-130	Pass	
Chrysene	%	84			70-130	Pass	
Dibenz(a.h)anthracene	%	79			70-130	Pass	
Fluoranthene	%	86			70-130	Pass	
Fluorene	%	95			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	85			70-130	Pass	
Naphthalene	%	93			70-130	Pass	
Phenanthrene	%	91			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Pyrene			%	87			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Copper			%	102			80-120	Pass	
LCS - % Recovery									
Metals M8 (NZ MfE)									
Arsenic			%	106			80-120	Pass	
Lead			%	108			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Total Petroleum Hydrocarbons (NZ MfE 1999)				Result 1					
TPH-SG C7-C9	K21-Jn17768	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides (NZ MfE)				Result 1					
4.4'-DDD	K21-Jn17588	NCP	%	70			70-130	Pass	
4.4'-DDT	K21-Jn09761	NCP	%	87			70-130	Pass	
Methoxychlor	K21-Jn17588	NCP	%	70			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons (NZ MfE)				Result 1					
Benzo(g.h.i)perylene	K21-Jn17588	NCP	%	73			70-130	Pass	
Dibenz(a.h)anthracene	K21-Jn23432	NCP	%	96			70-130	Pass	
Indeno(1.2.3-cd)pyrene	K21-Jn09761	NCP	%	70			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides (NZ MfE)				Result 1					
2.4'-DDD	K21-Jn17605	CP	%	105			70-130	Pass	
2.4'-DDE	K21-Jn17605	CP	%	96			70-130	Pass	
2.4'-DDT	K21-Jn17605	CP	%	110			70-130	Pass	
4.4'-DDE	K21-Jn17605	CP	%	90			70-130	Pass	
a-BHC	K21-Jn17605	CP	%	92			70-130	Pass	
Aldrin	K21-Jn17605	CP	%	79			70-130	Pass	
b-BHC	K21-Jn17605	CP	%	74			70-130	Pass	
Chlordanes - Total	K21-Jn17605	CP	%	100			70-130	Pass	
cis-Chlordane	K21-Jn17605	CP	%	111			70-130	Pass	
d-BHC	K21-Jn17605	CP	%	84			70-130	Pass	
Dieldrin	K21-Jn17605	CP	%	79			70-130	Pass	
Endosulfan I	K21-Jn17605	CP	%	115			70-130	Pass	
Endosulfan II	K21-Jn17605	CP	%	99			70-130	Pass	
Endosulfan sulphate	K21-Jn17605	CP	%	86			70-130	Pass	
Endrin	K21-Jn17605	CP	%	109			70-130	Pass	
Endrin aldehyde	K21-Jn17605	CP	%	82			70-130	Pass	
Endrin ketone	K21-Jn17605	CP	%	91			70-130	Pass	
g-BHC (Lindane)	K21-Jn17605	CP	%	90			70-130	Pass	
Heptachlor	K21-Jn17605	CP	%	89			70-130	Pass	
Heptachlor epoxide	K21-Jn17605	CP	%	111			70-130	Pass	
Hexachlorobenzene	K21-Jn17605	CP	%	103			70-130	Pass	
trans-Chlordane	K21-Jn17605	CP	%	89			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons (NZ MfE)				Result 1					
Acenaphthene	K21-Jn17605	CP	%	84			70-130	Pass	
Acenaphthylene	K21-Jn17605	CP	%	79			70-130	Pass	
Anthracene	K21-Jn17605	CP	%	77			70-130	Pass	
Benz(a)anthracene	K21-Jn17605	CP	%	88			70-130	Pass	
Benzo(a)pyrene	K21-Jn17605	CP	%	92			70-130	Pass	
Benzo(b&j)fluoranthene	K21-Jn17605	CP	%	99			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(k)fluoranthene	K21-Jn17605	CP	%	93			70-130	Pass	
Chrysene	K21-Jn17605	CP	%	84			70-130	Pass	
Fluoranthene	K21-Jn17605	CP	%	90			70-130	Pass	
Fluorene	K21-Jn17605	CP	%	91			70-130	Pass	
Naphthalene	K21-Jn17605	CP	%	88			70-130	Pass	
Phenanthrene	K21-Jn17605	CP	%	89			70-130	Pass	
Pyrene	K21-Jn17605	CP	%	99			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Copper	K21-Jn17608	CP	%	94			75-125	Pass	
Spike - % Recovery									
Metals M8 (NZ MfE)				Result 1					
Arsenic	K21-Jn17608	CP	%	106			75-125	Pass	
Lead	K21-Jn17608	CP	%	99			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Petroleum Hydrocarbons (NZ MfE 1999)				Result 1	Result 2	RPD			
TPH-SG C7-C9	K21-Jn17767	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
TPH-SG C10-C14	K21-Jn17767	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
TPH-SG C15-C36	K21-Jn17767	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TPH-SG C7-C36 (Total)	K21-Jn17767	NCP	mg/kg	< 35	< 35	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides (NZ MfE)				Result 1	Result 2	RPD			
2.4'-DDD	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
2.4'-DDE	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
2.4'-DDT	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
4.4'-DDD	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
4.4'-DDE	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
4.4'-DDT	K21-Jn17604	CP	mg/kg	0.01	0.01	10	30%	Pass	
a-BHC	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Aldrin	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
b-BHC	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Chlordanes - Total	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
cis-Chlordane	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
d-BHC	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Dieldrin	K21-Jn17604	CP	mg/kg	0.02	0.01	74	30%	Fail	Q15
Endosulfan I	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Endosulfan II	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Endosulfan sulphate	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Endrin	K21-Jn17604	CP	mg/kg	0.06	0.04	37	30%	Fail	Q15
Endrin aldehyde	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Endrin ketone	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
g-BHC (Lindane)	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Heptachlor	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Heptachlor epoxide	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Hexachlorobenzene	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Methoxychlor	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Toxaphene	K21-Jn17604	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
trans-Chlordane	K21-Jn17604	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons (NZ MfE)				Result 1	Result 2	RPD			
Acenaphthene	K21-Jn17604	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Acenaphthylene	K21-Jn17604	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Anthracene	K21-Jn17604	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benz(a)anthracene	K21-Jn17604	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benzo(a)pyrene	K21-Jn17604	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benzo(b&j)fluoranthene	K21-Jn17604	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benzo(g.h.i)perylene	K21-Jn17604	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Benzo(k)fluoranthene	K21-Jn17604	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Chrysene	K21-Jn17604	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Dibenz(a.h)anthracene	K21-Jn17604	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Fluoranthene	K21-Jn17604	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Fluorene	K21-Jn17604	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	K21-Jn17604	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Naphthalene	K21-Jn17604	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Phenanthrene	K21-Jn17604	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Pyrene	K21-Jn17604	CP	mg/kg	< 0.03	< 0.03	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	K21-Jn17604	CP	%	5.6	6.5	16	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Copper	K21-Jn17607	CP	mg/kg	24	24	1.0	30%	Pass	
Duplicate									
Metals M8 (NZ MfE)				Result 1	Result 2	RPD			
Arsenic	K21-Jn17607	CP	mg/kg	4.5	4.5	1.0	30%	Pass	
Lead	K21-Jn17607	CP	mg/kg	14	14	2.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Karishma Patel	Analytical Services Manager
Michael Ritchie	Senior Analyst-Organic (NZN)
Shasti Ramachandran	Senior Analyst-Metal (NZN)

Michael Ritchie
Head of Semi Volatiles (Key Technical Personnel)

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates IANZ accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.