

Appendix 19

NES Assessment (Contaminants in Soils to protect human health)



ENGEO

Expect Excellence

Preliminary Environmental Site Investigation

68 Molesworth Drive
Mangawhai Heads

Submitted to:
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Contents

1	Introduction	3
1.1	Objectives of the Assessment	3
1.2	Approach	3
1.2.1	Review of Site Information.....	3
1.2.2	Site Inspection	3
2	Site Description and Setting	3
3	Site History	5
3.1	Review of Kaipara District Council Property Information	5
3.2	Review of Information Provided by Dream Planning Ltd.....	5
3.3	Review of Historical Maps	5
3.4	Review of Aerial Photographs	6
4	Current site conditions.....	7
5	Potential Hail Activities	7
6	Conceptual Site Model	8
7	Conclusions	9
8	Recommendations.....	9
9	References	10
10	Limitations.....	10

Figures

Figure 1: Site Location Plan

Figure 2: Wastewater Treatment Plant and Disposal Area Locations

Appendices

Appendix 1: Information Provided by Dream Planning Limited

Appendix 2: Correspondence with Kaipara District Council

Appendix 3: Site Photographs

Appendix 4: Correspondence with Opus International Consultants Limited

ENGEO Document Control:

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1 Introduction

Dream Planning Ltd (DPL), on behalf of North City Developments Limited, requested that ENGEO Ltd undertake a Preliminary Environmental Site Investigation (PSI) at 68 Molesworth Drive, Mangawhai Heads (herein referred to as *the site*) as part of a proposed zone change from residential land use to commercial land use.

Figure 1 indicates the location of the site. ENGEO understands that the site is to be re-zoned for commercial use (refer to Appendix 1) and requires a PSI to satisfy Kaipara District Council (KDC) requirements according to *the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NES)*¹. This PSI was undertaken in accordance with the Ministry for the Environment (MfE) 2001, *Guidelines for Reporting on Contaminated Sites*².

1.1 Objectives of the Assessment

The objective of this PSI was to assess the potential for contaminants to have been deposited at the site as a result of historical activities undertaken within or in the immediate vicinity of the property and report on the potential risk posed to future site users.

1.2 Approach

To satisfy the objectives, ENGEO undertook the following scope of work.

1.2.1 Review of Site Information

A number of sources were contacted for information relating to the site regarding its past and present uses and to identify any other environmental issues which may be on record. This included a review of the following:

- Information held by KDC, as part of their property file records, relating to potential contamination at the site;
- Historical maps of the area, held by the National Library of New Zealand;
- Historical and current aerial photographs using images from VC Browne, the National Library of New Zealand and Google Earth; and
- Information provided by DPL.

1.2.2 Site Inspection

A site walkover was undertaken on 15 February 2016 by Claire Davies of ENGEO.

2 Site Description and Setting

Site information from the desktop study is summarised in Table 1.

Table 1: Site Information

Item	Description
Location	68 Molesworth Drive, Mangawhai
Legal Description	Lot 1 DP341981
Current Owner	North City Developments Limited
Current Land Use	Not used
Proposed Land Use	Commercial
Site Area	7,863 m ² (0.78 ha)
Building Construction	A disused concrete block shed is located near to the western site boundary.
Territorial Authority	Kaipara District Council
Zoning	Residential (Harbour)

The site setting is summarised in Table 2.

Table 2: Site Setting

Item	Description
Topography	<p>The site generally slopes at an angle of approximately 20° from the north east down towards the south west. Land along the north western site boundary slopes down towards Molesworth Drive.</p> <p>A large sand stockpile, measuring approximately 30 m by 20 m and 2.5 m to 4 m high, is situated in the northern corner of the site. Trace amounts of plastic, concrete, gravel, shells, metal and wood were noted in this stockpile.</p> <p>A smaller (3.5 m by 2.5 m by 1.5 m) sand stockpile, containing trace gravel, shells and plastic, is present towards the south east of the larger stockpile.</p> <p>A pile of green waste with some sand and trace plastic is located towards the south west of the larger stockpile.</p>
Local Setting	<p>The site is located adjacent to a main arterial route (Molesworth Drive) that connects Mangawhai town with Mangawhai Heads. The majority of the surrounding area is used for residential purposes, although a large area of mostly undeveloped recreational land, which contains the Mangawhai Museum, is located north of the site.</p>
Nearest Surface Water & Use	<p>The Mangawhai Estuary is used for recreational purposes and is located approximately 220 m towards the south west.</p>

Item	Description
Geology	<p>The geology³ of the area is part of the Kariotahi Group, described as moderately consolidated to unconsolidated coastal sand deposits of shallow marine, beach and dune origin from the early Pleistocene to Holocene. Material encountered on site was consistent with the description "<i>weakly cemented sand in fixed parabolic dunes</i>".</p> <p>A 1928 geological map⁴ indicates that the site is within an area of "<i>consolidated sands with lignite</i>".</p>
Hydrogeology	<p>A Cook Costello diagram (refer to Appendix 1) indicates that groundwater is likely to flow in a south westerly direction. The diagram is not clear regarding which annotations represent depths to groundwater.</p>

3 Site History

A number of sources were used to investigate the past uses of the site. The findings of these information searches have been summarised in this section.

3.1 Review of Kaipara District Council Property Information

Correspondence with KDC (refer to Appendix 2) indicated that no records of potential contamination or potentially contaminative uses at the site are held by the Council.

3.2 Review of Information Provided by Dream Planning Ltd

Digital copies of documents relating to the installation of a wastewater treatment plant at the site were reviewed (refer to Appendix 1).

A letter from Hynds Environmental, dated 19 April 2005, confirms that the wastewater treatment plan was constructed, on behalf of Metcalf Developments Limited, during February 2005. The system is capable of treating 60 m³ of domestic wastewater effluent per day.

Design plans show that the treatment system involves the use of ultra violet (UV) light to degrade biological contaminants, such as *E. Coli*, prior to disposal of the treated wastewater to ground. The treatment and disposal areas are highlighted on a site plan, with an area of approximately 1,200 m² towards the east and south east of the treatment area being used for disposal via irrigation dripline (refer to Figure 2).

The wastewater infrastructure was decommissioned in 2010, after the Mangawhai Community Wastewater Scheme (MCWWS) was officially opened. The driplines have been removed and the tanks cleaned out. The tanks remain in place.

3.3 Review of Historical Maps

A geological map⁴ dated 1928 was sourced from the National Library of New Zealand. The map provides information regarding geological units within the area. The map also indicates the locations of dwellings and the names of their owners, as well as other notable features such as a cattle dip.

The map suggests that the site was undeveloped and that the surrounding area towards the south contained only five dwellings.

3.4 Review of Aerial Photographs

Aerial photographs dating from 1947 to 2015 have been reviewed. The relevant visible features are summarised in Table 3.

Table 3: Aerial Photographs

Date	Source	Description
1947	VC Browne ⁵	Although the image resolution is not very clear, it is evident that the site and surrounding area are not developed.
1949	Whites Aviation ⁶	The site and surrounding area are not developed and appear to be vegetated with scrub.
1953	Whites Aviation ⁶	The site and surrounding area are not developed and appear to be vegetated with scrub.
1963	Whites Aviation ⁶	The site and surrounding area are not developed and appear to be vegetated with scrub. An area of lighter coloured vegetation is visible towards the east of the site.
1982	Whites Aviation ⁶	Molesworth Drive is visible in the image. The site and surrounding area are not developed. An area of lighter coloured vegetation, which appears to be turf, is visible towards the east of the site.
2006	Google Earth ⁷	The effluent treatment plant is visible in the southern portion of the site. An area of bare ground is located towards the east of the treatment plant. The remainder of the site appears to be vegetated with relatively dry grass and recently completed earthworks area apparent in the northern portion of the site, as well as in the area towards the north east of the site. Residential dwellings are visible towards the east, south, west and north west of the site. A densely vegetated area is visible on the northern side of Molesworth Drive.
2013	Google Earth ⁷	The formerly bare area, which was located east of the effluent treatment plant, appears to be vegetated with turf. A partly vegetated soil stockpile is visible in the northern corner of the site. Two small stockpiles are visible towards the south east and south west of the large stockpile. Significant residential development has occurred in the area east of the site. A large building has been constructed on the opposite side of Molesworth Drive, north of the site.
2015	Google Earth ⁷	The formerly bare area, which was located east of the effluent treatment plant, appears to be well vegetated with turf, with the grass visibly greener than that in the remainder of the site. No other significant changes are evident at the site or in the surrounding area.

4 Current site conditions

A site inspection was undertaken by Claire Davies of ENGEO on 15 February 2015. Relevant information is summarised in Table 4.

Table 4: Current Inferred Site Conditions

Site Condition	Comments
Visible signs of contamination	No significant indicators of gross contamination were observed.
Surface water appearance	No surface water was present at the site.
Current surrounding land use	Residential towards the south east and north east. Commercial / recreational land towards the south west and north west.
Local sensitive environments	A creek flows from the south side of Estuary Road, opposite the southern corner of the site, to the Mangawhai Estuary approximately 220 m to the south west.
Visible signs of plant stress	Grass cover was noted as particularly sparse in the area known to have been used as the effluent disposal area.
Potential for on or off site migration of contaminants	Considered unlikely.
Additional Observations (if any)	Stockpiles consisting primarily of sand, with minor inclusions of plastic, concrete, metal, wood, gravel and shells were present in the northern portion of the site. Isolated refuse items and small amounts of burnt vegetation were observed. These are considered highly unlikely to pose a risk from a contamination perspective.

5 Potential Hail Activities

Activities included on the Hazardous Activities and Industries List⁸ (HAIL) trigger the requirement for a contaminated land investigation prior to development. The following HAIL-listed activities have been identified at the site:

- Category G5: Waste disposal to land.
- Category G6: Waste recycling or waste or wastewater treatment.

6 Conceptual Site Model

A contamination conceptual site model consists of three primary components to allow the potential for risk to be determined, these are:

- Source of contamination;
- Pathway to allow the contamination to mobilise; and
- Sensitive receptors which may be impacted by the contamination.

Diagram 1: Pathways by which contaminants in the soil can affect human health

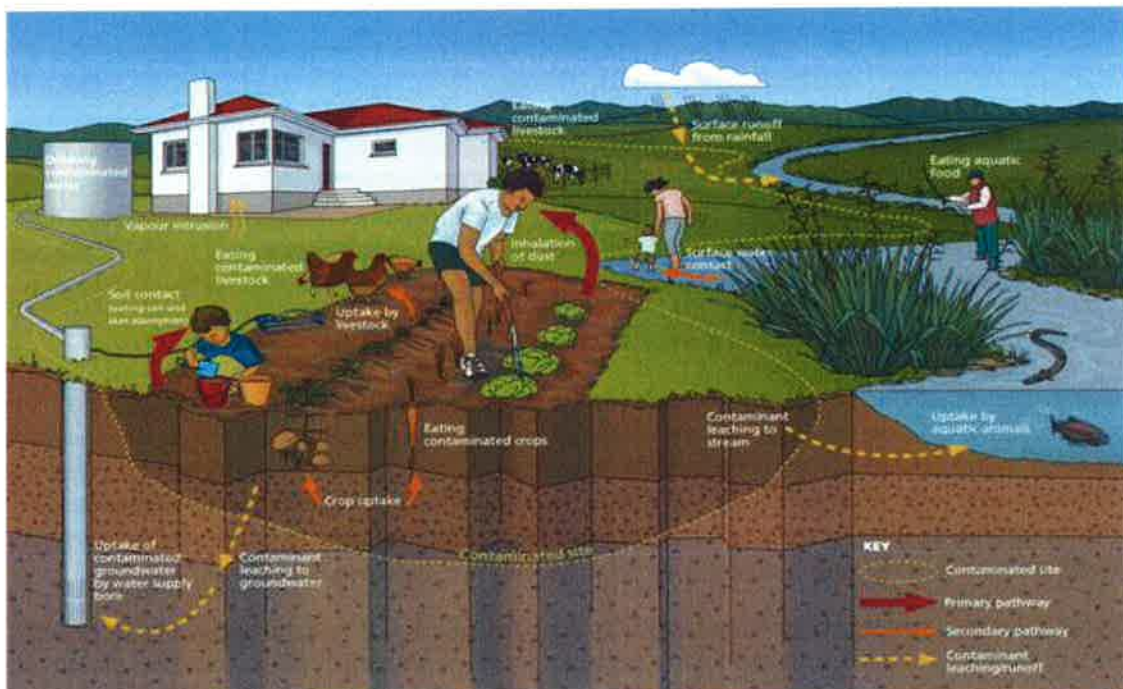


Table 5: Conceptual Site Model

Source	Pathway	Receptor
Effluent disposed of by soakage to ground in the southern portion of the site.	Dermal absorption through direct contact with soil; Inhalation of dust; Ingestion of produce grown within the soil; and Ingestion of soil.	Construction workers; Future workers at the site; and Residents at surrounding properties.
Contaminants within material stockpiled near to the northern corner of the site.	Dermal absorption through direct contact with soil; Inhalation of dust;	Construction workers; Future workers at the site; and Residents at surrounding properties.

	<p>Ingestion of produce grown within the soil; and Ingestion of soil.</p>	
<p>Acceptable Risk of Contamination?</p>	<p>Yes – Biological contaminants associated with effluent disposal to ground are considered highly unlikely to present an unacceptable risk to human health. Other contaminants (if any) are not considered likely to have accumulated to an extent that it would present a risk to human health under the commercial land use exposure scenario.</p> <p>Information reviewed in this investigation regarding historical uses did not provide evidence of potential contamination from other sources at the site or surrounding properties, which could have impacted the material currently stockpiled at the site to an extent that it would present a risk to human health under the commercial land use exposure scenario.</p>	

7 Conclusions

ENGEO has undertaken a PSI as part of a proposed zone change from residential land use to commercial land use. The investigation involved a review of information held by KDC, historical maps of the area, historical and current aerial photographs and information provided by DPL.

Information reviewed indicates that the site was scrub land prior to 2005.

A wastewater effluent treatment plant is known to have operated at the site for some years from approximately 2005, until the plant was decommissioned when the properties served by the plant were connected to the Council wastewater collection infrastructure. Biological contaminants associated with effluent disposal to ground are considered unlikely to present an unacceptable risk to human health. Other contaminants (if any) are not considered likely to have accumulated to an extent that it would present a risk to human health under the commercial land use exposure scenario.

Earthworks undertaken as part of the subdivision and development of the land surrounding the site towards the east and south east appears to have generated excess spoil, which has been placed in a stockpile in the northern corner of the site between 2006 and 2010 (refer to Section 3.4). It is considered unlikely that the material in the stockpile contains concentrations of contaminants (if any) that would present a risk to human health under the commercial land use exposure scenario. Two smaller stockpiles, showing no indications of significant contamination, were also observed in the northern portion of the site.

8 Recommendations

It is recommended that the application to change the land use zone is approved as a Permitted Activity, according to NES¹ Rule 8(4) because:

- A preliminary site investigation of the land or piece of land exists. The report on the preliminary site investigation states that it is highly unlikely that there will be a risk to human health if the activity is done to the piece of land. The report is accompanied by a relevant site plan to which the report is referenced.

If soil disturbance is required as part of future development of the site, the activity can be undertaken as a Permitted Activity as long as the requirements of NES Rule 8(3) are met. If the volume of soil exceeds the Permitted Activity criteria, the activity will require consent as a Controlled Activity under NES Rule 9. Laboratory analysis of the soil will be required to assess potential health risks and determine suitable disposal locations for excess spoil generated at the site (if any).

9 References

1. Ministry for the Environment 2012: *Users' Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*.
2. Ministry for the Environment 2011: *Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand*.
3. Edbrooke, S.W.; Brook, F.J. (compilers) 2009: *Geology of the Whangarei Area*. Institute of Geological and Nuclear Sciences 1:250 000 geological map.
4. 1928 Geology map – NZ National Library link
5. V.C. Browne 2016: *The V.C. Browne and Son Aerial Photograph Collection* viewed at <http://www.vcbrowne.com> – keyword Mangawhai.
6. Whites Aviation Collection, Alexander Turnbull Library 2016: *Whites Aviation Ltd: Photographs*. Viewed at: [http://natlib.govt.nz/items?\[collection\]=Whites+Aviation+Ltd+%3APhotographs&\[primary_collection\]=TAPUHI&\[category\]=Images](http://natlib.govt.nz/items?[collection]=Whites+Aviation+Ltd+%3APhotographs&[primary_collection]=TAPUHI&[category]=Images)
7. Google Earth v7.1.2.2041. Mangawhai Heads, New Zealand. -36.105776° lon, 174.579597° lat, Eye alt 500m. DigitalGlobe 2014. <http://www.earth.google.com>. [February 2016]
8. Ministry for the Environment 2011: *Hazardous Activities and Industries List*.

10 Limitations

- i. We have prepared this report in accordance with the brief as provided. This report has been prepared for the use of our client, North City Developments Limited, their professional advisers and the relevant Territorial Authorities in relation to the specified project brief described in this report. No liability is accepted for the use of any part of the report for any other purpose or by any other person or entity.
- ii. The recommendations in this report are based on the ground conditions indicated from published sources, site assessment and subsurface investigations described in this report based on accepted normal methods of site investigations. Only a limited amount of information has been collected to meet the specific financial and technical requirements of the client's brief and this report does not purport to completely describe all the site characteristics and properties. The nature and continuity of the ground between test

locations has been inferred using experience and judgement and it must be appreciated that actual conditions could vary from the assumed model.

- iii. Subsurface conditions relevant to construction works should be assessed by contractors who can make their own interpretation of the factual data provided. They should perform any additional tests as necessary for their own purposes.
- iv. This Limitation should be read in conjunction with the IPENZ/ACENZ Standard Terms of Engagement.
- v. This report is not to be reproduced either wholly or in part without our prior written permission.

We trust that this information meets your current requirements. Please do not hesitate to contact the undersigned on 09 972 2205 if you require any further information.

Report prepared by



Claude Midgley, CEnvP

Senior Environmental Scientist

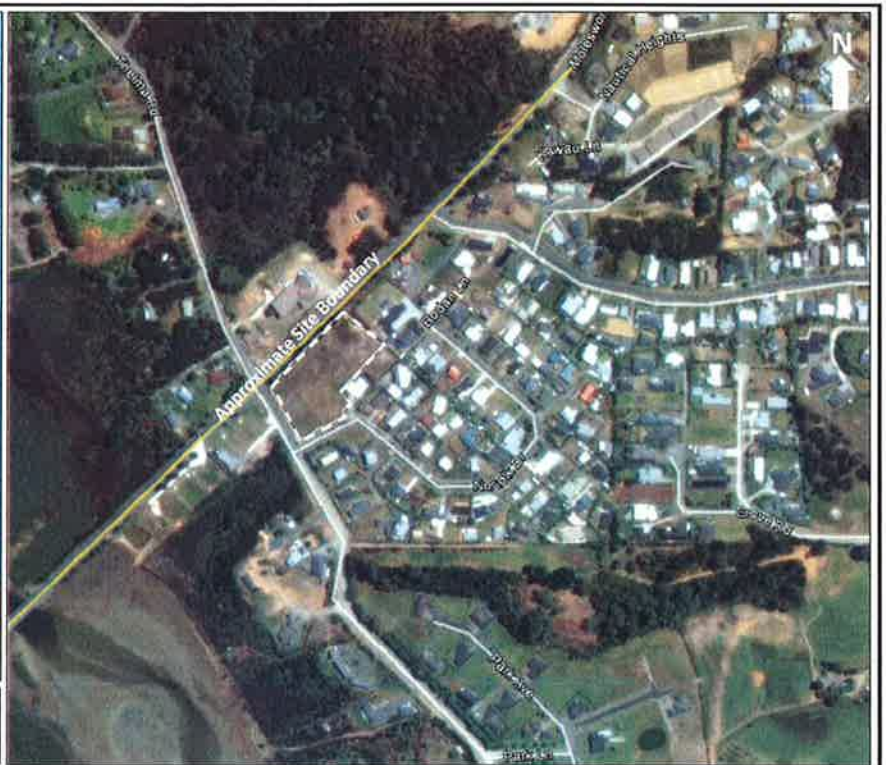
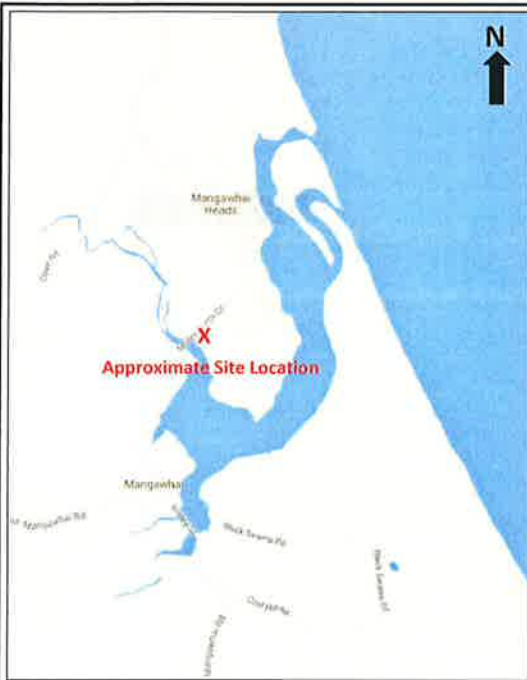
Reviewed by



Dave Robotham, CEnvP

Principal Environmental Consultant

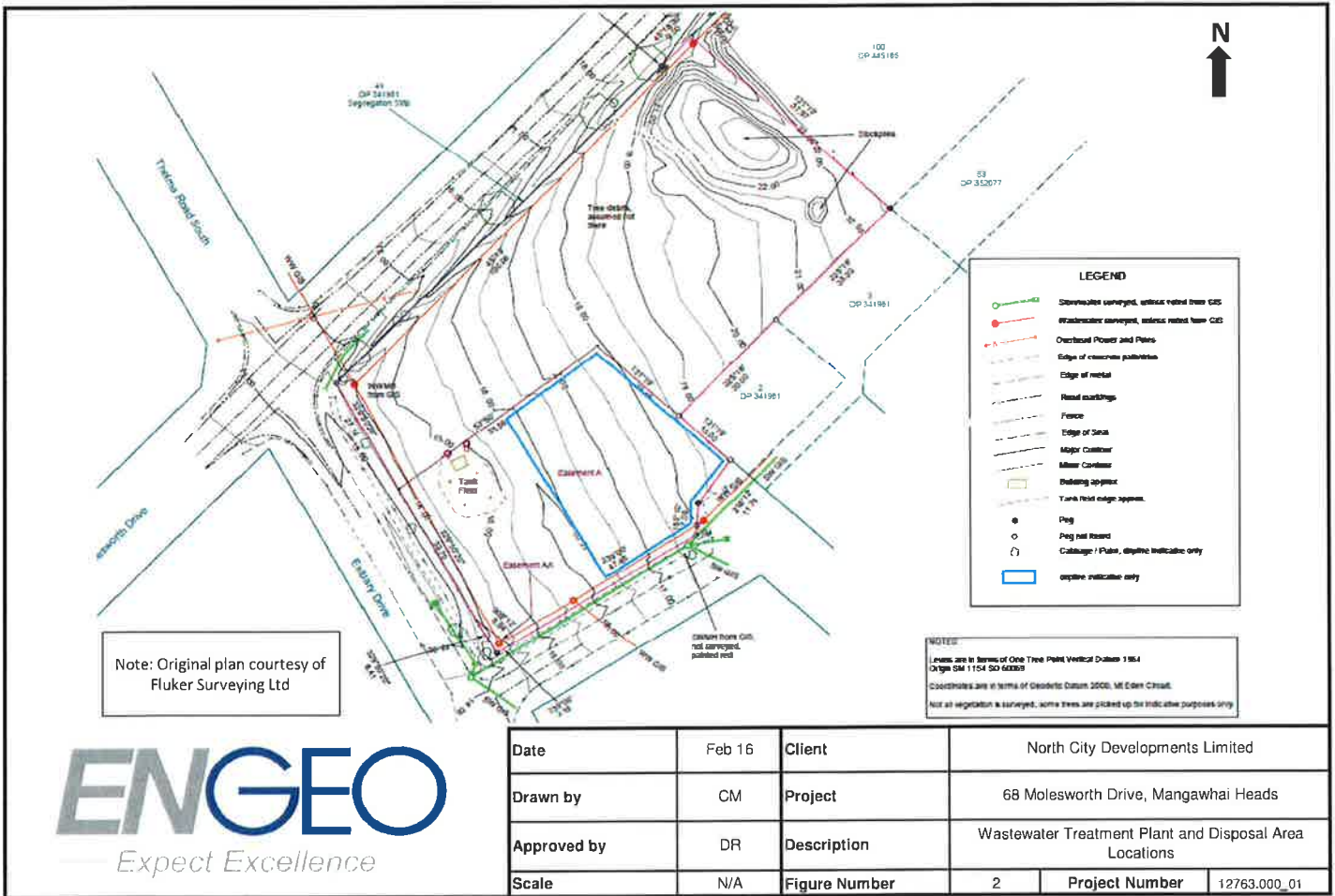
FIGURES



Note: Map and aerial photo courtesy of Google



Date	Feb 16	Client	North City Developments Limited	
Drawn by	CM	Project	68 Molesworth Drive, Mangawhai Heads	
Approved by	DR	Description	Site Location Plan	
Scale	N/A	Figure Number	1	Project Number 12763.000_01



Note: Original plan courtesy of
Fluker Surveying Ltd

LEGEND

- GNSS surveyed, unless noted from GIS
- Total station surveyed, unless noted from GIS
- Overhead Power and Poles
- Edge of concrete path/s
- Edge of road
- Road markings
- Fence
- Edge of Seta
- Major Contour
- Minor Contour
- Building approx.
- Tank hold edge approx.
- Pile
- Pile not fixed
- ⊕ Collapsed / Piles, ellipse indicates only
- (blue) (blue) indicate only

NOTES:
 1. Plans are in terms of One True Vertical Datum 1984
 2. Origin One (1) of 500 Metres
 3. Coordinates are in terms of Geoid to Datum 2000, MLD Elevation
 4. Not all vegetation is surveyed, some trees are picked up for indicative purposes only

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Date	Feb 16	Client	North City Developments Limited		
Drawn by	CM	Project	68 Molesworth Drive, Mangawhai Heads		
Approved by	DR	Description	Wastewater Treatment Plant and Disposal Area Locations		
Scale	N/A	Figure Number	2	Project Number	12763.000_01



APPENDIX 1

Information Provided by Dream Planning Limited



Hynds Environmental Systems Limited
Suite 2, 37 Wilkinson Road, Eborakie
PO Box 17388, Greenlane
Auckland, New Zealand
Telephone: +64 9 571 0090
Facsimile: +64 9 571 0091
Email: sales@hyndsenv.co.nz
www.hynds.co.nz

19th April 2005

Cook Costello
2 Norfolk St
WHANGAREI

Attention: Hamish Peters

Dear Hamish

RE: COMPLETION OF WASTEWATER TREATMENT PLANT

Hynds Environmental can confirm that the wastewater treatment plant constructed on behalf of Metcalf Developments Limited in Mangawhai Heads has been completed and successfully commissioned during the month of February.

The plant is designed and constructed to treat 60m³ per day of domestic wastewater effluent and dispose of through 1,200 m² of irrigation dripline.

If you have any questions in regards to the design of this treatment system please contact the undersigned.

Kind Regards

A handwritten signature in black ink, appearing to read 'Niki Johnstone', written over a horizontal line.

Niki Johnstone
Engineering Manager

Package UV systems for small wastewater treatment plants

Contamination Control Technologies offer a range of package open channel and pressurised chamber disinfection systems, developed in New Zealand to meet the requirements of small wastewater treatment systems. The most convenient design for small sites uses UV lamps in an open channel as these are easy to keep clean. For pressurised flows or installations where a horizontal channel is not appropriate there is a range of cylindrical chamber units which can be installed horizontally or vertically.

The range covers basic low cost systems intended for single household use through to multilamp channel units with a comprehensive electrical specification for larger treatment plants serving subdivisions, small townships, campgrounds, motels and facilities such as motorway service centres or industrial domestic sewage plants.

Wastewater quality.

The capacity of a given UV steriliser depends on a number of factors, the quality of the pretreatment being the most important as this determines the clarity of the wastewater (%UV transmission) as well as parameters like suspended solids and BOD. Measurement of the UV transmission is a free service, a 50mL sample is required.

Service requirements

The major service requirement for UV systems used in the disinfection of sewage is cleaning which is required at intervals determined by the quality of the wastewater. There is a gradual accumulation of foulants on the quartz sleeve around the lamp - dead bacteria, grease, iron and other minerals. Channel system sleeves can be cleaned in a few moments after the removal of the cover whereas pressurised chambers require disassembly with removal of the seals and quartz sleeve from the system for cleaning, followed by re-assembly. In-place acid cleaning of the treatment chamber can be appropriate for larger units.

Lamp changing is usually an annual task. In chamber systems and small channels replacement takes seconds. In larger channels lamp replacement takes up to 30 minutes depending on the number of lamps.

Quartz sleeves

Quartz is the preferred material for the sleeves around the lamp as it is easier to return to its original cleanliness than the fluoropolymer alternative (USEPA finding). In addition quartz based designs are more efficient resulting in fewer lamps being required to disinfect a given flow.

For larger scale wastewater disinfection see the leaflet

Effective

Low maintenance

No moving parts

Single dwelling to subdivision sizes available

No chemicals

Channel or pressurised chamber options

STERIFLO

WASTEWATER UV DISINFECTION

CONTAMINATION CONTROL TECHNOLOGIES LIMITED

Channel Models (C1 and C1H)

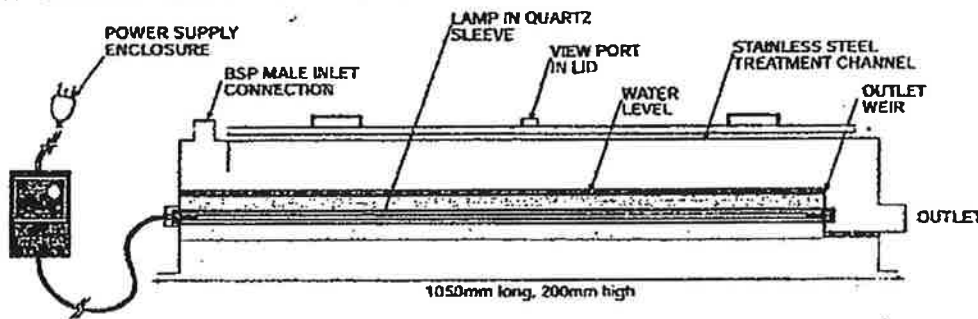
These units feature a compact single lamp design with lamp viewing port and audible lamp failure alarm. Steriflo C1 systems are intended for lower flow applications such as single dwellings or small package wastewater plants. The channel is 316L stainless steel and is suitable for outdoor use. The control

panel should be installed under cover. As an option the C1 units can be supplied with industrial specification IP65 power supplies suitable for use outdoors. The comprehensive specification of these units includes UV intensity meter, hours counter and alarm with remote contacts.

The channel includes an inspection window and level control weir.

Model	Power consumption (Watts)	Lamp life (hours)	Treatment capacity (litres/h)	Control panel dimensions (h x w x d (mm))	Channel dimensions (h x w x d (mm))	Connection size (Ømm)
C1	60	8500	600-1000	155 x 100 x 60	180 x 1050 x 85	40
C1H	85	6000	1200-2200	300 x 180 x 180	200 x 1050 x 105	50

*Capacities are approximate and depend on wastewater quality.



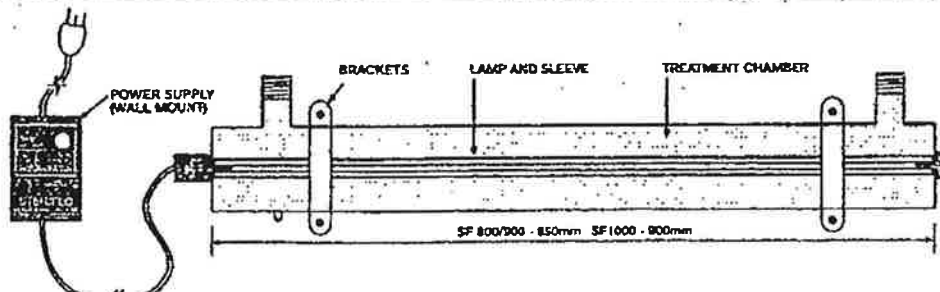
Pressurised Chamber Models (SF Series)

In wastewater systems that are pressurised for irrigation purposes or recycling, or if lack of space requires a vertical installation then pressurised treatment chambers are appropriate. This avoids repumping which may be required with a channel system. All models use short (840mm) UV lamps resulting in compact installations. Disassembly for cleaning of quartz sleeves is simple but consideration should be given during installation to valving for isolation and depressurisation of the treatment chamber for service.

Using a compact single lamp design SF models are intended to deliver performance at an economical price. These units use lamps proven in many hundreds of installations. Treatment chambers are 304 stainless steel with the option of black polypropylene. Standard features include a lamp failure alarm with the option of remote alarm contacts and viewport (not polypropylene models).

SF Series units are intended for use under cover.

Model	Power consumption (Watts)	Lamp life (hours)	Treatment capacity (litres/h)	Control panel dimensions (h x w x d (mm))	Overall height (mm)	Connection size (mm)
SF800	60	8500	up to 600	155 x 100 x 60	850	20
SF900	60	8500	600-1000	155 x 100 x 60	850	20
SF1000	85	6000	1200-2200	300 x 180 x 180	895	40



From: Kylie McLaughlin-Brown [mailto:kylie@dream-inc.co.nz]
Sent: Friday, 18 December 2015 11:21 a.m.
To: David Brodie
Subject: fee estimate NES Assessment - Mangawhai

Hi David,

Jackson passed on your contact details.

We are doing a private plan change for a site in Mangawhai rezoning the site from Residential to Commercial.

The site currently has a decommissioned wastewater treatment plant which has serviced the surrounding residential subdivision prior to Eco-Care community wastewater scheme being established. The dripper lines have been removed and the tanks remain however they have been cleaned.

Council require an NES Assessment.

Below is email correspondence from Hynds who installed the treatment plant. (in blue) I have also provided below a snapshot (not very clear) of the old disposal field.

From: Kylie McLaughlin-Brown [mailto:kylie@dream-inc.co.nz]
Sent: Tuesday, December 15, 2015 1:28 PM
To: Rod Murray
Subject: query previous system

Hi there

Hynds constructed a wastewater treatment plant for a residential development in Mangawhai, Hynds reference "Hynds Commercial Wastewater Treatment System" Ref ENV563 Metcalf Developments, the site was 68 Molesworth Drive, Mangawhai Legal Description Lot 1 DP 341981. The plant is not in use as Mangawhai has a community wastewater system in place. The dripper lines have been removed and the tanks have been cleaned, however they still remain in place. This occurred a few years ago.

We have prepared a private plan change to rezone this site from Residential to Commercial. As part of this Private Plan Change, Council want an NES Assessment (Resource Management National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health Regulations) to determine that there are any potential contaminants that will require treatment.

Thanks

Kind regards

Kylie

Kylie McLaughlin-Brown
Planner / Landscape Architect
BLA, MPLANPRAC (hon)
MNZILA (grad) MNZPI (grad)

Phone (09) 431 4568

Email from Hynds:

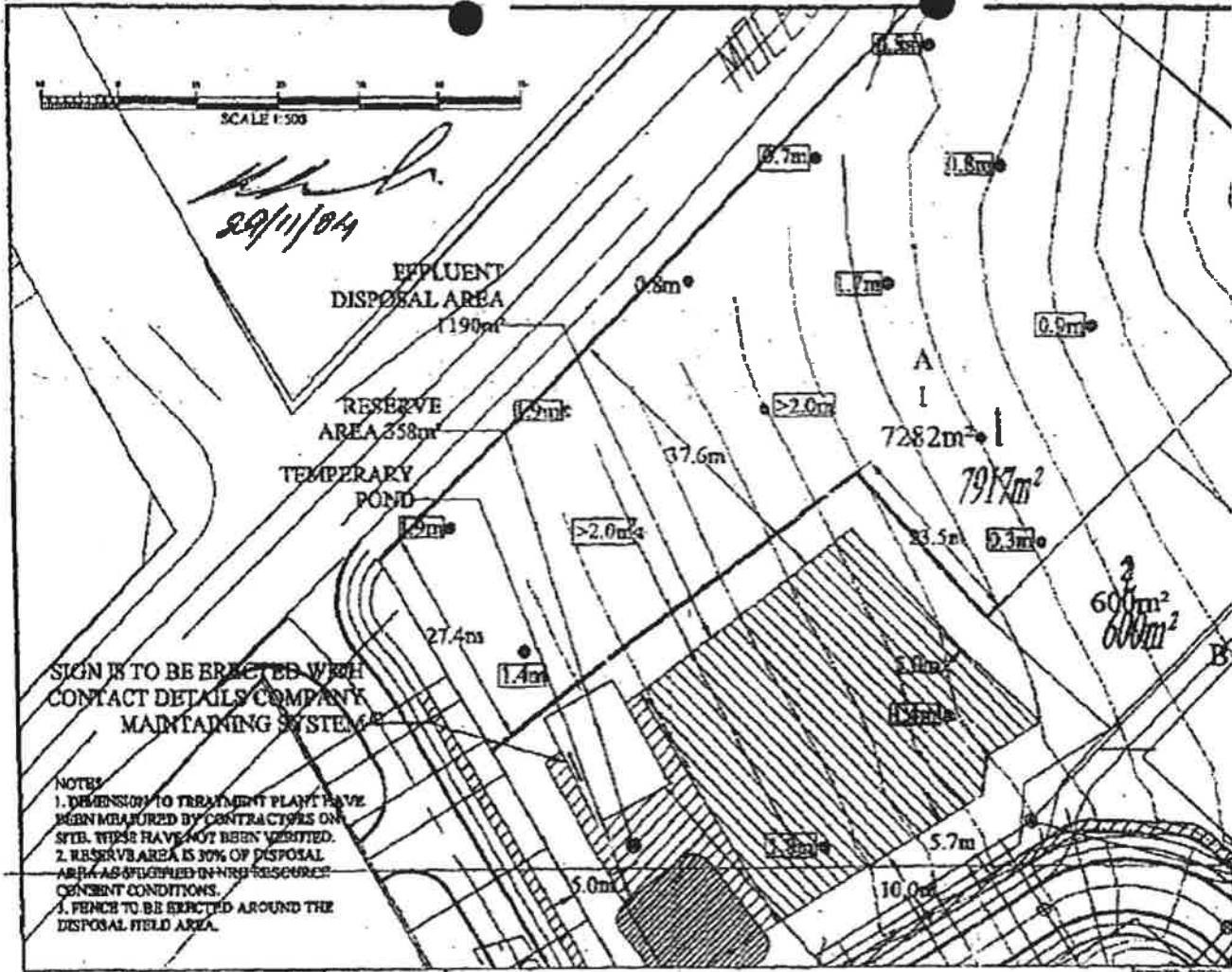
Hi Kylie

The treatment plant is designed to treat to secondary effluent levels so the ground disposal element is pretty much a volumetric discharge method such that the daily demand can be incrementally dumped to land, and provide tertiary treatment for removal of faecal coliforms (FC).

They may be residual cBOD5 that is discharged via dripper irrigation lines but this is likely to be low. Nitrates and phosphorus can be masked by natural processes. There are no defined levels of residual effluent traces as system design varies from site to site, as does hydraulic and biological loadings. Soil profiles and application rates are also variable.

If there are residual traces of FC from historic effluent disposal then they will leach through the soil profile over time. Bugs will however usually become inactive without a food source so there shouldn't be any FC present given the length of time since the plant was in service.

Rod Murray ME, Dip Bus, MIPENZ, MEIANZ, CEnvP
Chief Engineer / Category Manager
DDI: (+64) 9 271 9540 M: (+64) 27 623 2460

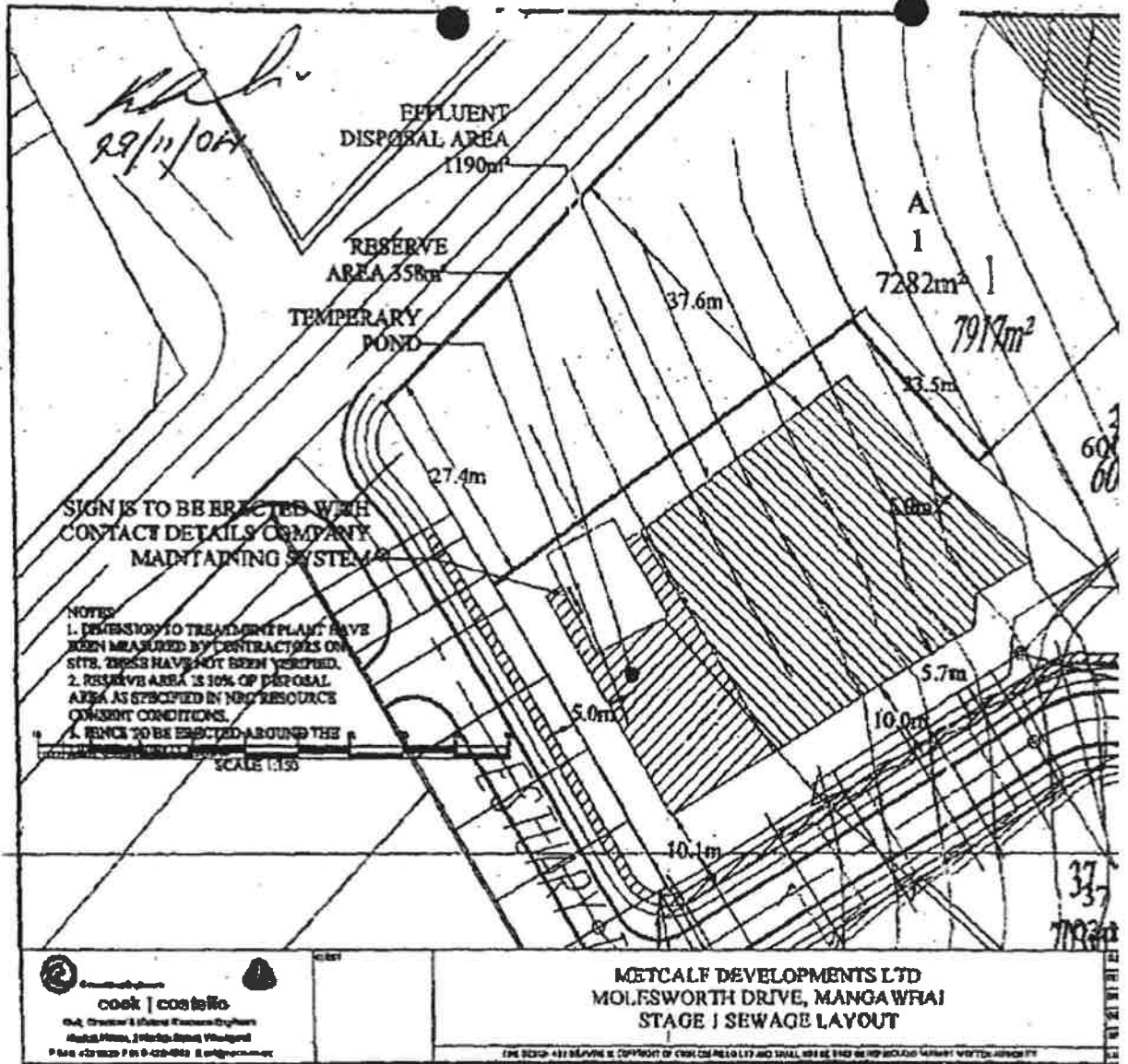


COOK | CASTELLO
 Civil Engineers
 One, Moorfield & Norfolk Waterworks Buildings
 Norfolk House, 7 Norfolk Street, Worthing
 PO12 6 456 0208 F 01 9 439 4342 E c.c@cc1.co.uk

METCALF DEVELOPMENT LTD
MOLESWORTH DRIVE
DISPOSAL FIELDS IN RELATION TO GROUND WATER TABLE

DATE:	27/01/04
BY:	HP
CHECKED:	HP
APPROVED:	
SCALE:	
NO. OF SHEETS:	1
TOTAL SHEETS:	1

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APPENDIX 2

Correspondence with Kaipara District Council

Claude Midgley

From: Council <Council@kaipara.govt.nz>
Sent: Tuesday, 16 February 2016 8:15 a.m.
To: Claude Midgley
Subject: RE: Corner of Molesworth and Estuary Drive

Hello Claude

Thank you for your email. I have looked through the property file and have found no reference to any contamination to Lot 1 DP 341981.

If you require any further assistance please email council@kaipara.govt.nz or phone 0800 727 059 Monday to Friday 8 am to 4.30 pm.

Regards Kylie



Kylie Flood | Kaitiaki Kalutu | Customer Services
Kaipara te Oranganui | Kaipara District Council, Private Bag 1001, Dargaville 0340
Freephone: 0800 727 059 | 09 439 3123
council@kaipara.govt.nz | www.kaipara.govt.nz
Dargaville Office: 42 Hokianga Road, Dargaville 0310
Mangawhai Office: Unit 6, The Hub, 6 Molesworth Drive, Mangawhai 0505
Opening Hours: Monday - Friday 8 am to 4.30 pm

APPENDIX 3
Site Photographs



Photo 1: South west of stockpiles, facing north east



Photo 2: Former wastewater treatment plant



Photo 3: Former wastewater disposal area



Photo 4: Material in stockpile 1



Photo 5: Material in stockpile 2



Photo 6: Material in stockpile 3



Date taken	15/02/16	Client	North City Developments Limited		
Taken by	CD	Project	68 Molesworth Drive, Mangawhai Heads		
Approved by	CM	Description	Site Photographs		
Scale	N/A	Photo No.	1 to 6	Project Number	12763.000.000/01

APPENDIX 4

Correspondence with Opus International Consultants Limited

Claude Midgley

From: Chris Parkyn <Chris.Parkyn@opus.co.nz>
Sent: Monday, 22 February 2016 11:07 a.m.
To: Claude Midgley
Subject: 30598 OPUS PHOTOSALES Available Surveys - Mangawhai
Attachments: Quickmap.JPG

Hi Claude,

We have the following surveys covering your area of interest – as attached. I have sighted a couple of surveys only at this stage.

SN 212 flown 20/05/1963 at 1:17000 scale – earliest photography
SN 5027 flown 15/01/1977 at 1:49000 scale
SN 6698 flown 22/11/1986 at 1:9100 scale - mostly vegetation
SN 8104 flown 10/01/1983 at 1:25000 scale
SN 9482 flown 2/05/1996 at 1:50000 scale
SN 50364c flown 11/01/2004 at 1:30000 scale – earthworks

We can supply any of the following product options.

Contact prints at the flown scales are \$68.00 + GST each.

A4 enlargements - \$165.00 + GST each

A3 enlargements - \$225.00 + GST each

A2 enlargements - \$285.00 + GST each

A1 enlargements - \$325.00 + GST each

Digital image scanned from the negative uploaded or on CD

1-4 Frames- \$225.00 ea. + GST

5-9 Frames- \$185.00 ea. + GST

10+ Frames- \$150.00 ea. + GST

(Where prints are the customer's preferred end product, we encourage our high quality printing services, to provide you with a TRUE colour print on archival quality papers and with UV protective archival inks.)

Orthorectified georeferenced digital ortho image - as quoted + GST

An archive fee of \$50.00 + GST applies per survey pre 2000. Handling Fee of \$20.00 + GST applies once per order also.

Research is complementary for the first hour, a fee of \$105/hr applies where necessary as arranged with client.

Please allow around 5-7 working days for production and delivery. A 50% urgency fee is charged for order turnaround in less than 3 business days.

Quotes valid for 30 days unless otherwise stated.

Kind Regards

