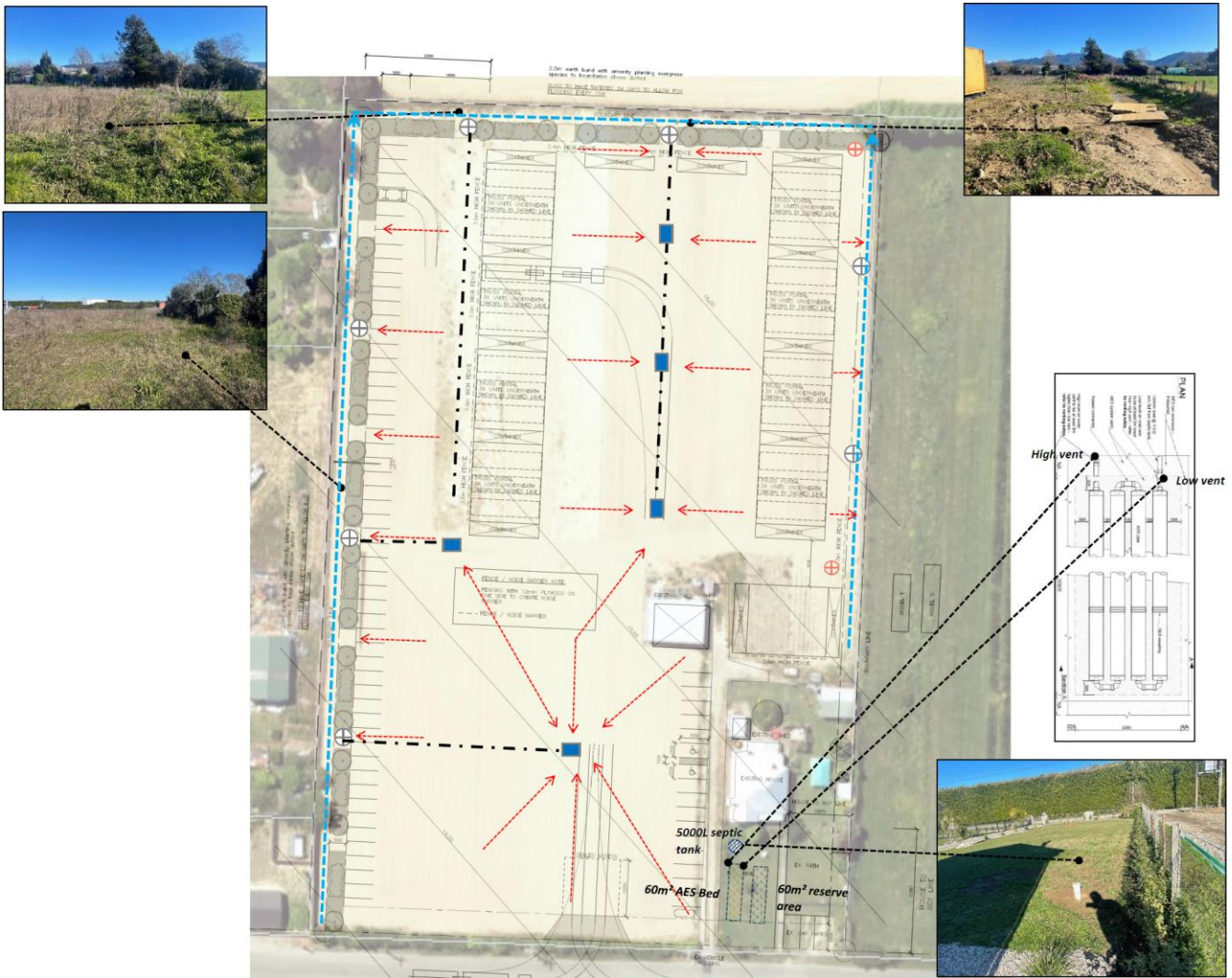



ONSITE WASTEWATER & LAND APPLICATION REPORT FOR 54 Green Lane Motueka (Ruru Homes)



ONSITE WASTEWATER DESIGN REPORT SITE/SOIL EVALUATION

Date:

Ref:21130

<p>1.0 PROJECT</p>	<p>PROJECT LOCATION LEGAL DESCRIPTION SIZE OF LAND (ha) SITE OWNER CONTACT NUMBER EMAIL ADDRESS ARCHITECT/DESIGNER BC/RC REFERENCE PROJECT DESCRIPTION</p>	<p>54 Green Lane Motueka Lot 12 DP 1512 1.3170ha Ruru Homes Ltd TBC franziska@huelsmeyer.co.nz TBC TBC Proposed Construction business with bathroom facilities and proposed onsite wastewater & land application system, and existing altered dwelling to offices with existing wastewater & land application system.</p>
<p>2.0 SYSTEM CAPACITY</p>	<p>WATER SUPPLY <i>Existing Offices</i> AS/NZS1547-2012 Table H4 Permanent Residents Day Staff FLOW ALLOWANCE RESIDENTIAL (L/day) <i>Proposed Commercial Business Staff</i> AS/NZS1547-2012 Table H4 Number of Persons Flow Allowance per Person (L/person) TOTAL FLOW ALLOWANCE RESIDENTIAL (L/day) RECOMMENDED WATER REDUCTION MEASURES SPECIFIED WATER RE-USE MEASURES</p>	<p>Bore 2 x 200L/person/day 4 x 50L/person/day 600L/day (<i>existing system to remain in service</i>) 60 50L/day 3000L/day (<i>proposed new system</i>) No water reduction measures considered. None Specified for this project.</p>
<p>3.0 DESKTOP</p>	<p>RESOURCE MANAGEMENT PLAN RELEVANT SECTION MAP NOTES  GEOTECH REPORT REPORT AUTHOR REPORT REFERENCE</p>	<p>TRMP 36.1.2.4 52 Motueka Rural WW requirements No report reviewed as part of this design n/a n/a</p>

	RAINFALL (NIWA)	
	Rainfall intensity (mm)	90mm
	Rainfall annual - previous 12 months (mm)	<1000mm
4.0 SITE VISIT	DATE	1/07/2021
	Site Exposure	all directions
	LAND USE	
	Previous if known	pasture/orchard
	Ground cover	grass
	Existing Vegetation near LAS Area	None
	Any Proposed Landscaping	None
	SURFACE WATER	
	Directional channelling required?	No
	Potential for flooding of LAS Area?	No
	Highest seasonal groundwater level?	>1.9m
	Groundwater level determined how?	excavation to 2.5m
	IDENTIFIED LAND APPLICATION AREA	
	Slope average (° OR %)	<5%
	Slope Reduction	n/a
	Slope shape Potential LAS Area	flat
	SETBACK DISTANCES MINIMUM ACHIEVED	
	(AS/NZS1547-2012 Appendix R)	
	Property Boundary >1.5m	1.5m minimum
	Buildings/Houses >2m	2m minimum
	Surface Water >20m	20m minimum
	Well/Bore if known >20m	20m minimum
	Recreational Area >3m	3m minimum
	In Ground Water Tank >4m	4m minimum
	Retaining Wall/Embankment >3m	3m minimum
	Ground water >0.6m	0.6m vertical minimum
	Hardpan >0.5m	0.5m vertical minimum
	DESCRIPTION OF ADJACENT WWLA SYSTEM	Existing primary treated wastewater system and effluent trench system on site.
5.0 SOIL TESTING <i>see soil logs for detail</i>	TEST PIT ONE	
	Type of Test Pit	excavation
	Depth of Test Pit (m)	2.0m
	Depth of Topsoil (m)	0.35m
	Recommended Depth of Land Application System	0.9m
	Soil type	SL
	Category	3
	TEST PIT TWO	
	Type of Test Pit	excavation
	Depth of Test Pit (m)	2.5m
	Depth of Topsoil (m)	0.35m
	Recommended Depth of Land Application System	0.9m
	Soil type	SL
	Category	3
	TEST PIT THREE	
	Type of Test Pit	excavation
	Depth of Test Pit (m)	1.8m
	Depth of Topsoil (m)	0.35m
	Recommended Depth of Land Application System	0.9m
	Soil type	SL
	Category	3

SOIL PROFILE PHOTO



RECOMMENDED DESIGN LOADING RATE (mm/day)

50mm/day secondary treatment

**6.0
Design
Calculations**

SYSTEM CAPACITY (New System)

Number of Persons
Flow Allowance/Person (L/Day)
Daily Flow Allowance (L/Day)

60
50L/day
3000L/day

LAS AREA

Daily Flow Allowance (L/Day)
Design Loading Rate (mm/day)
Total Land Application Area (m²)

3000L/day
50mm/day
60m²

**7.0
LAND
APPLICATION
SYSTEM**

SYSTEM TYPE

AES single pass sand filter

NOTES:

LOADED BY
NUMBER OF DOSES
SIZE OF DOSE (litres)

trickle
n/a
n/a

LAS INSTALLATION

Average Depth of LAS (m)
Diameter of effluent lines (mm)
Distance between effluent lines (m)
Distance between emitters (m)
Emitter Flow Rates (l/hr)
Flush Caps/Valves Rqd (Y/N)
Air Inlet/Release Mechanism Rqd (Y/N)

0.9m
300mm
0.15m
n/a
n/a
n/a
low & high vents installed

Land Application Area calculated at (m²)
Reserve Area (m²)

60m²
60m²

RA Notes: 100% reserve area available

Compliance with AS/NZS1547:2012 5.5.3.7

Land Application Area will be installed with traffic loading (detail AES TL03) to permit vehicle and foot traffic.

Land Application Area to be planted (Y/N)
Plant density (per m²)

No
n/a

8.0 WASTE WATER SYSTEM	WASTE WATER SYSTEM PRIMARY TREATMENT SECONDARY TREATMENT TERTIARY TREATMENT DESIGN DAILY FLOW RATE (L/DAY) EFFLUENT QUALITY EXPECTED BOD ₅ mg/L TSS mg/L	5000L Alpha Precast septic tank AES single pass sand filter n/a 3000L/day <30mg/L <45mg/L
9.0 AEE	<p>A description of the sensitivity of the receiving environment, in particular the potential for the proposed system to have any impact on ground and surface water and/or Identify the location of any downstream bores and any potential adverse effects coastal water quality.</p> <p>The effects of discharging domestic wastewater to land will be no more than minor given the wastewater management system has been designed to comply with the requirements of AS/NZS 1547:2012. The no waterbody is within 100 metres, no bore identified within 20 metres of LAS area and groundwater at >1.9 metres. The soil depth and characteristics are sufficient to allow for the breakdown of the wastewater without actual or potential accumulated adverse effects.</p> <p>Details of seasonal fluctuations in flows and how this may affect the seasonal or long term performance or capacity of the system</p> <p>Normal seasonal fluctuations will be experienced with visitors more frequent in warmer months. The system as designed is capable with coping with these varying flows and conditions and will maintain design parameters in regard to effluent treatment and quality.</p> <p>Details of any proposed mitigation/contingency measures to be undertaken to help prevent or reduce the actual or potential effect</p> <p>NO mitigation measures considered necessary as no actual or potential issues identified as part of site and soil investigation.</p> <p>Any possible alternative methods of discharge, including discharge into any other receiving environment</p> <p>No alternative methods considered as best land application for the land has been identified.</p> <p>Where the scale or significance of the activities effect are such that monitoring is required a description of how, once the proposal is approved effects will be monitored and by whom</p> <p>This system only requires an annual health check though should be checked at 3 month & 6 month intervals in it's first year of operation to ensure steady bio-mass growth on any installed effluent filter and any odour or surface ponding issues. These checks can be completed by the owner (as directed by designer) or the owner's contractor.</p>	
10.0 INSTALLATION SUMMARY	Install 5000L Alpha precast septic tank without effluent filter. Discharge to 60m ² (2.88m x 20.9m) AES single pass sand filter. Land Application Area will be installed with traffic loading (detail AES TL03) to permit vehicle and foot traffic.	
11.0 OPERATION & MAINTENANCE SUMMARY	Operate and maintain as per manufacturers recommendations and in accordance with AS/NZS1547:2012 and GSC manual.	

**12.0
REFERENCES**

AS/NZS 1546.1:2008 Onsite Domestic Wastewater Treatment Units Part 1: Septic Tanks
AS/NZS 1546.3:2008 Onsite Domestic Wastewater Treatment Units Part 3: Aerated Wastewater Treatment Systems
AS/NZS 1547:2012 Onsite Domestic Wastewater Management
Onsite Wastewater Systems: Design and Management Manual Third Edition ARC Technical Publication TP58
USEPA Onsite Wastewater Treatment Systems Manual 2002
New Zealand Building Code

**13.0
PHOTOGRAPHS**



TOP PHOTO: looking south over existing septic tank and land application system
BOTTOM PHOTO: looking south over land available for proposed land application system

Gary Stevens Consultant



ATTACHMENTS:

- APPENDIX A Soil Logs
- APPENDIX B Floor Plan, Site Plan, Wastewater System Layout
- APPENDIX C Technical information & LAS System Cross Section
- APPENDIX D System Operation & Maintenance , Maintenance Contract

APPENDIX A

Soil Logs

SSE: G Stevens

Client name:

Ruru Homes Ltd

Legal Descr. Lot 12 DP 1512

Grid reference if known:

Surface level if known:

Project Location:

54 Green Lane Motueka

Date of inspection:

1/07/2021

Pit/borehole no:

1

Slope:

<5 %

Slope shape: flat

Ground cover: grass

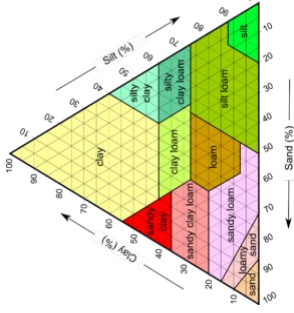
Surface condition: soft

Vegetation: None

Groundwater depth (m): >2m

Verified by: excavation

Indicative drainage: good



Layer	Lower depth mm	Horizon	Moisture condition*	Colour (moist)	Field texture	Coarse fragments % volume	Structure	Modified Emerson	Soil category	Sample taken (Y/N)	Consistency	Permeability	Ribbon Length
1	350		dry	L		<3%		0 NT		3 N	weak	NT	20mm
2	700		dry	ZL		<2%	moderate	NT		3 N	firm	NT	30mm
3	1600		dry	SL		<5%	moderate	NT		3 N	firm	NT	25mm
4	2000		dry	S		<40%	single	NT		2 N	0 NT	0 NT	<5mm
5													

*Describe moisture condition as: dry, moist, very moist, saturated.

Overall Soil Category assigned: Category 3

Maximum depth of system: 1.3m to maintain 600mm setback to GW

Soil appears favourable for (List system types): effluent trench/bed, AES single pass sand filter

Plasticity is low. Hard pan was not discovered at 2.5 metres. Gravels evident at 0.2-2.5 metres being 5-100mm and up to 40%. No vegetation near identified LAS Area is established trees and shrubs bordering stream.

Notes/comments/observations:

Soil Colours	Soil Colours
Pale	may develop from pale rocks, maybe leached from darker minerals, maybe anaerobic
Dark	may develop from dark rocks (basalts), may indicate high levels of decomposing organic materials
Bright Reds	usually well aerated soil, high in iron or aluminium oxide
Dull Yellows	formed when iron rich soils have a higher water content over a long period
Grey Soils	maybe leached off dark minerals, low organic matter levels or maybe anaerobic for long periods
Bleached Soils	usually formed by severe water logging when minerals become soluble and move out of the horizon

SSE: G Stevens

Client name:

Ruru Homes Ltd

Legal Descr. Lot 12 DP 1512

Grid reference if known:

Surface level if known:

Project Location:

54 Green Lane Motueka

Date of inspection:

1/07/2021

Pit/borehole no:

2

Slope:

<5 %

Slope shape: flat

Ground cover: grass

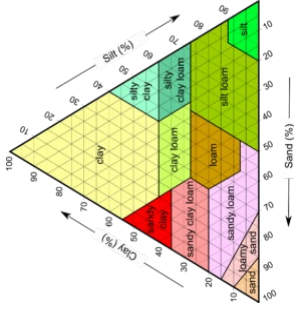
Surface condition: soft

Vegetation: None

Groundwater depth (m): >2.5m

Verified by: excavation

Indicative drainage: good



Layer	Lower depth mm	Horizon	Moisture condition*	Colour (moist)	Field texture	Coarse fragments % volume	Structure	Modified Emerson	Soil category	Sample taken (Y/N)	Consistency	Permeability	Ribbon Length
1	350		dry	L		<3%		0 NT		3 N	weak	NT	20mm
2	700		dry	ZL		<2%	moderate	NT		3 N	firm	NT	30mm
3	1800		dry	SL		<5%	moderate	NT		3 N	firm	NT	25mm
4	2500		dry	S		<40%	single	NT		2 N		0 NT	<5mm
5													

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Bleached Soils	usually formed by severe water logging when minerals become soluble and move out of the horizon

SSE: G Stevens

Client name:

Ruru Homes Ltd

Legal Descr. Lot 12 DP 1512

Grid reference if known:

Surface level if known:

Project Location:

54 Green Lane Motueka

Date of inspection:

1/07/2021

Pit/borehole no:

3

Slope:

<5 %

Slope shape: flat

Ground cover: grass

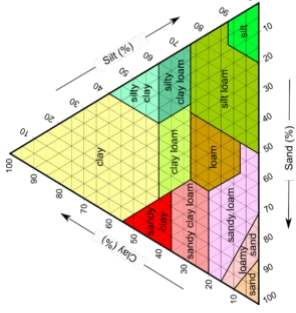
Surface condition: soft

Vegetation: None

Groundwater depth (m): >1.9m

Verified by: excavation

Indicative drainage: good



Layer	Lower depth mm	Horizon	Moisture condition*	Colour (moist)	Field texture	Coarse fragments % volume	Structure	Modified Emerson	Soil category	Sample taken (Y/N)	Consistency	Permeability	Ribbon Length
1	350		dry	L		<3%		0 NT		3 N	weak	NT	20mm
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3	1600		dry	SL		<5%	moderate	NT		3 N	firm	NT	25mm
4	1900		dry	S		<40%	single	NT		2 N		0 NT	<5mm
5													

*Describe moisture condition as: dry, moist, very moist, saturated.

Overall Soil Category assigned: Category 3

Maximum depth of system: 1.3m to maintain 600mm setback to GW

Soil appears favourable for (List system types): effluent trench/bed, AES single pass sand filter

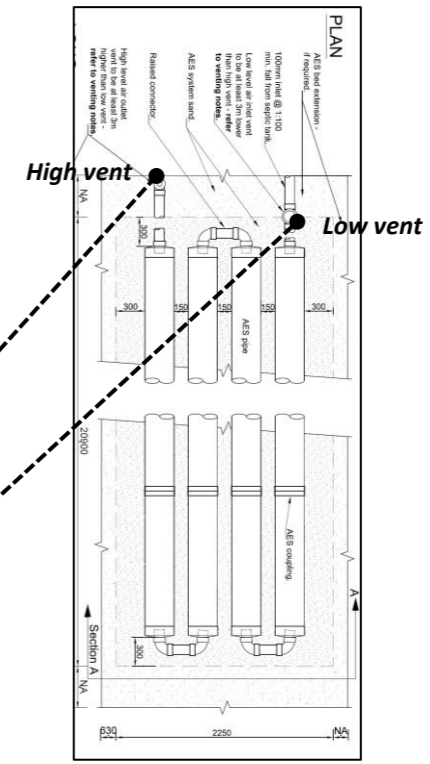
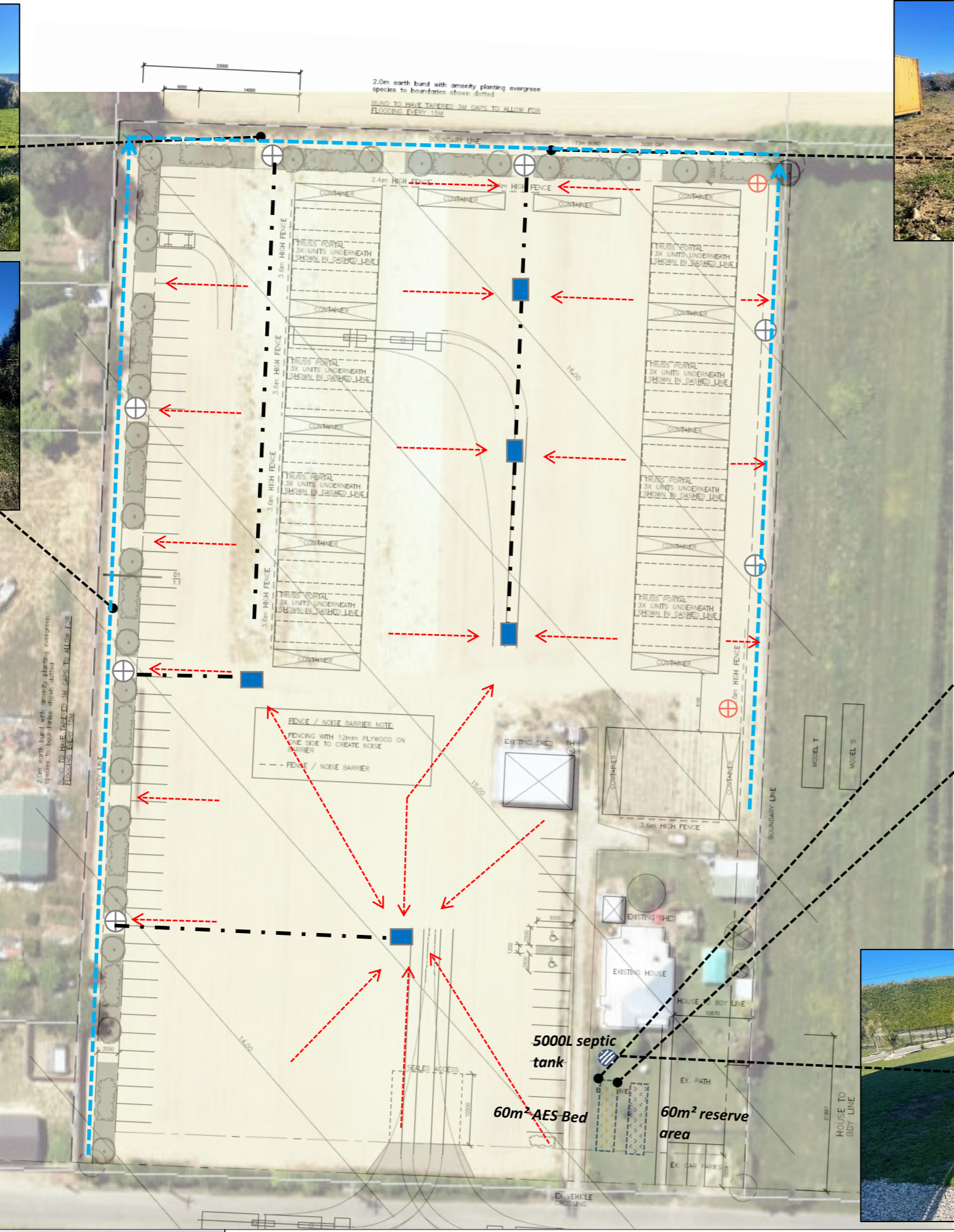
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APPENDIX B

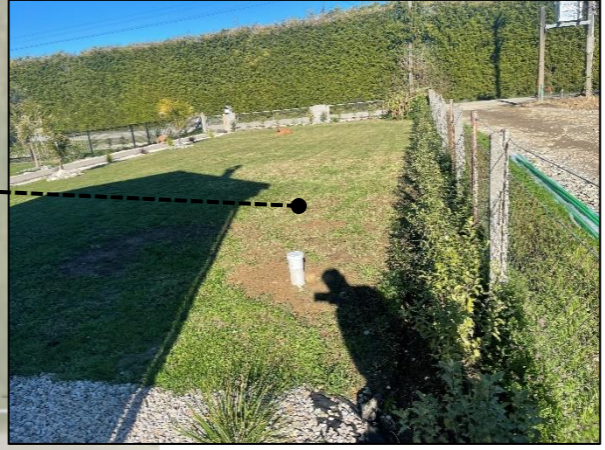
- I. Floor Plan *(to be provided)***
- II. Site Plan**
- III. Wastewater & Land Application System Layout**



- Key:**
- Wastewater Unit
 - Land Application System
 - Reserve Area
 - Test Pits
 - Surface Water Diversion Channel

SETBACK DISTANCES MINIMUM ACHIEVED
 (AS/NZS1547-2012 Appendix R)
 Property Boundary >1.5m
 Buildings/Houses >2m
 Surface Water >20m
 Well/Bore if known >20m
 Recreational Area >3m
 In Ground Water Tank >4m
 Retaining Wall/Embankment >3m
 Ground water >0.6m
 Hardpan >0.5m

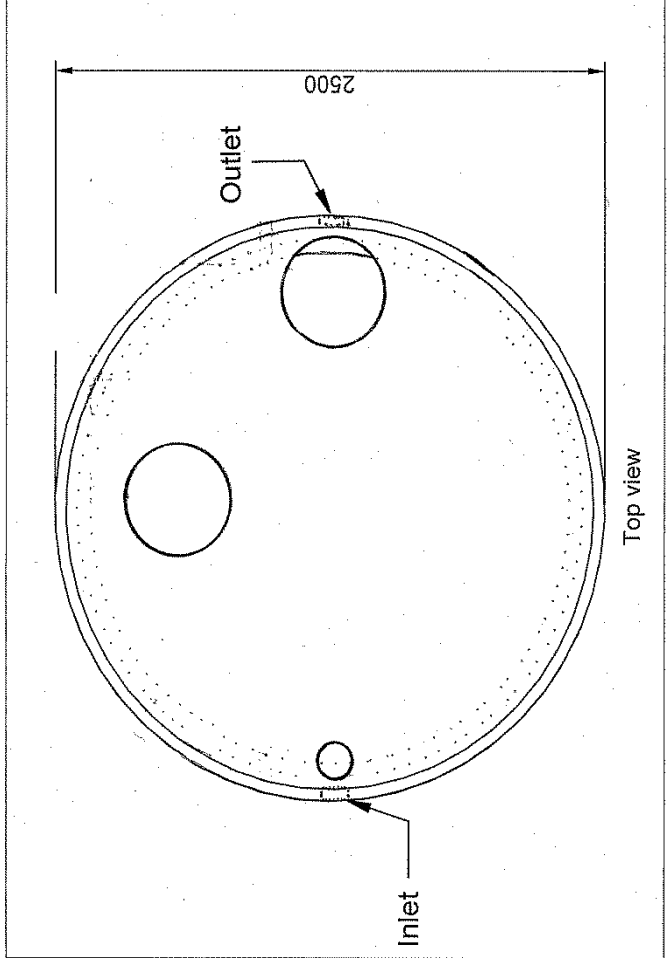
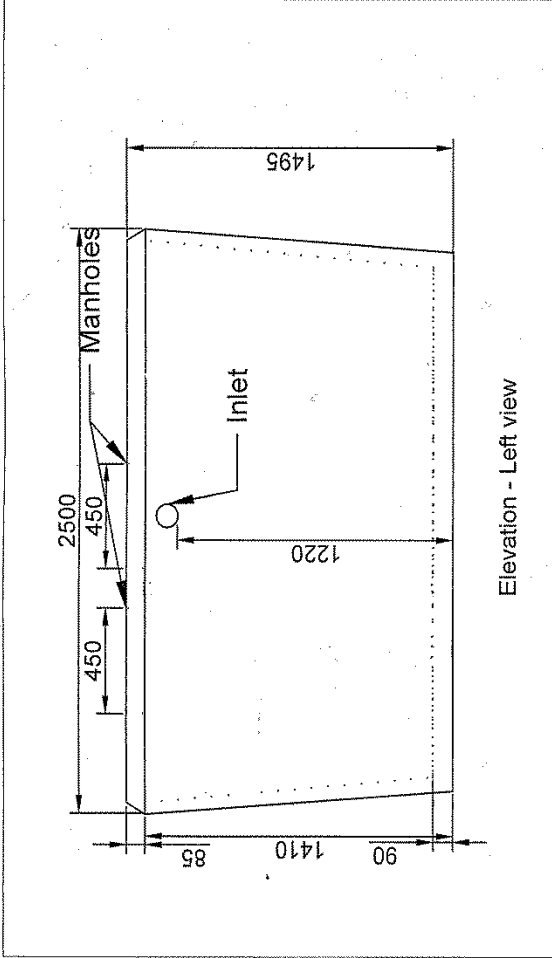
- Notes:**
- I. Install 5000L Alpha precast septic tank without effluent filter.
 - II. Discharge to 60m² (2.88m x 20.9m) AES single pass sand filter.
 - III. Land Application Area will be installed with traffic loading (detail AES TL03) to permit vehicle and foot traffic.
 - IV. Septic tank outlet tee to be capped to isolate AES bed venting, See attached AES VC drawing (AES Bed and Septic Tank Air Venting Detail).
 - V. Base of bed to be scarified to a minimum 150mm depth.



APPENDIX C

- I. Wastewater System Technical Detail**
- II. AES Bed Land Application Detail**

ALPHA 5000 Septic Tank



Shown without manhole risers and lids
 Lids come with tanks but risers are available separately if needed
 Optional antifoatation flange can be cast onto the base of the tank - this would make the overall diameter 2700mm
 Manhole configuration can be altered to suit specific requirements

3D view

Standard weight	3700Kg
Weight with antifoatation flange	4300Kg

Lift with 4 x 2.5T Swiftlift lifting eyes



ALPHA 5000 Septic Tank – Single Chamber 4600 Litre Operating Capacity

The ALPHA 5000 Septic tank is robust and of a well proven design.
All ALPHA Tanks are manufactured only from high quality materials.

- * Walls and floor are integral and made in one continuous casting which is inherently waterproof (as required by AS/NZS 1546.1).
- * Specific structural design as required to comply with AS/NZS 1546.1.
- * Tank and lid components are made from high strength reinforced concrete from a certified plant to NZS 3104.
- * The Standard Precast concrete lid will support up to 800mm of soil cover (no vehicle loading).
- * The access hole configuration enables the tank to accept most effluent filters.

Basic Tank dimensions:

Total Internal Capacity is 5500Litres

Total Working Capacity (as set by invert levels) is 4600 Litres

2500mm diameter x 1495mm high (+ manhole risers)

Base of tank to invert of inlet is 1220

Base of tank to invert of outlet is 1170

Weight of the Tank is approximately 3700Kg

The tank is lifted by 4 x 2.5tonne Reid Swiftlift anchors externally near the base of the tank.



All Septic Tanks should be installed by a suitably experienced Registered Drainlayer to the appropriate local authority regulations. See also ALPHA Septic Tanks – Installation Instructions and Guidelines.

The ALPHA 5000 Septic Tank is generally supplied bare (without pipework or access risers). These are available separately and should be sealed into the tank to prevent stormwater ingress as required by AS/NZS 1546.1.

The tank should be filled with water immediately after installation to resist any likelihood of the tank floating.

Vehicle traffic over septic tanks should not be permitted. Tanks should be fenced off or sited to prevent this occurring.

Optional antifoatation lugs should be specified when ordering the septic tank if high groundwater conditions on the site are a possibility.

23 King Edward Street Motueka New Zealand

Phone (03) 528 1018

Fax (03) 528 9362

Email info@alphaprecasts.co.nz

The information in this document is intended as a guide only and Purchases, Specifiers and Users of Alpha Precasts Ltd products must make their own assessment for suitability for their particular use and circumstances and the conditions in which they will be used.

Due to our policy of continued product improvement Alpha Precasts Ltd reserve the right to change specifications, prices and instructions without notice.

01 December 2011

Supply of AES components is based on an ET reviewed and digitally signed Calculator and construction drawings. Any changes to the design during the consent process must be reviewed by ET.

Site Address	54 Green Lane Motueka		
Client Name	Ruru Homes Ltd	Clients Email	franziska@huelsmeyer.co.nz
Designed By	G Stevens	Designer Phone #	021-222-8410
Installer	TBC	Installer Phone #	TBC
Council Area	Tasman District Council	Drainlayer Licence #	TBC
		Date	16.08.21

Receiving soil category, surface waters, depth to water tables & all other site constraints are addressed by the Designer in the accompanying information.

from the **System designer's site and soil data. Enter data in light blue fields.** **NOTES**

Number of bedrooms	0	>> Enter "NA" if this design is for a campground, office, cafe etc without bedrooms.
Number of people	60	>> Enter "1" here if entering total daily design flow below and not a per person amount.
Daily wastewater design flow allowance per person (L/d)	50	
Loading rate for AES pipes (L/m AES pipe/d)	38.0	>> Standard rate is 38 L/m AES pipe/d per OSET-NTP testing . Please justify if not using standard rate in Designers notes below
Do you want to use cut AES pipes - eg. 3.5 AES pipes per row? Y or N	Y	>> Use with 1 - 4 rows; for 5 or more rows using cut pipes contact ET.
AES bed - No. of rows of AES pipes	4	>> Longer AES beds increase contact area with surrounding soil.
Soil Category (per AS/NZS 1547) from site & soil evaluation	3	
Design Loading Rate (DLR) based on soil category (mm/day)	50	
Sand depth beneath AES pipes (mm)	300	>> Standard 300mm achieves 3.5Log reduction for FC**; increase sand depth to further reduce FC. Total expected FC reduction through AES system in this design: 3.5Log***
Is there a pump between the septic tank and the AES bed? Y or N	N	>> Ensure there is 50mm min. fall between septic tank and AES pipes, and pipework laid at 1:100 min.
Is this property/ disposal site sloping? Y or N	Y	>> Ensure subsurface & surface water is diverted away from AES bed.
Is this design vented to the building terminal vent (TV)? Y or N	N	
Diameter of high vent (mm)	65	>> 65mm, 80mm or 100mm, to be supplied with AES components.
Is sampling of the treated effluent required? Y or N	N	
Distribution Box required Y or N	N	Number of ports required, including inlet port, and port for air vent if so designed.

Designers notes (Editable)

- All sloping sites require special consideration regarding design of AES bed, sand extensions, surface water and construction methods as per AS/NZS 1547.
- Drainlayers are reminded to practice good construction techniques as per AS/NZS 1547 and as provided on AES installation instructions supplied with components.

Plan view: AES bed extensions

One side Two sides Surrounding

AES Bed Design Calculator Outcomes		AES Bed dimensions	
Daily design flow (Q)	3000.00 L/d	AES Pipe Bed	AES Bed Extension
Min. length of AES pipe rows	19.74 m	Length (m)	20.85
No. of 3m AES pipes per row	6.75 lths	Width (m)	2.25
Total volume of AES pipes/ total potential buffer capacity	5724.00 L	Sand Depth (m)	0.75
		Area (m ²)	46.91
			13.09

For 'Surrounding' extension or to increase bed length/ decrease width, enter "Y", otherwise leave blank.

If 'Y' enter required width (m) of AES bed, otherwise leave blank. Bed length will calculate automatically.

Length (m)	Width (m)	Minimum AES footprint required 60m2
20.9	x 2.88	= 60.0 m2 total

Total expected FC reduction through AES system in this design: 3.5Log***

AES Bed Schedule of Materials	ET Signature box - ET Use Only
AES 3m length pipes required	<p>Producer Statement PS-2 Design Review - approved by ET. NOTE: - This design review does not include review of the Site and Soil assessment by the Designer</p>
AES couplings required	
AES offset adaptors	
100mm vent cap with mesh	
Vent cowl for high vent	
TV inspection not required	
Sample port not required	
Distribution box not required	
Total AES System Sand Solid Measure (guide only)	31.4 m ³

To be used as a guide only. This AES Design Calculator is an aid to calculate the AES components and their configuration. (Some single AES row layouts may be over-estimated by one coupling. Et will advise if this has occurred when doing the Design Review. Site and Soil conditions as specified in NZS1547:2012 are calibrated by a **Qualified Designer**. Environment Technology accepts no responsibility for this soil evaluation and the subsequent loading calculations or the DLR entered by the designer in this calculator.

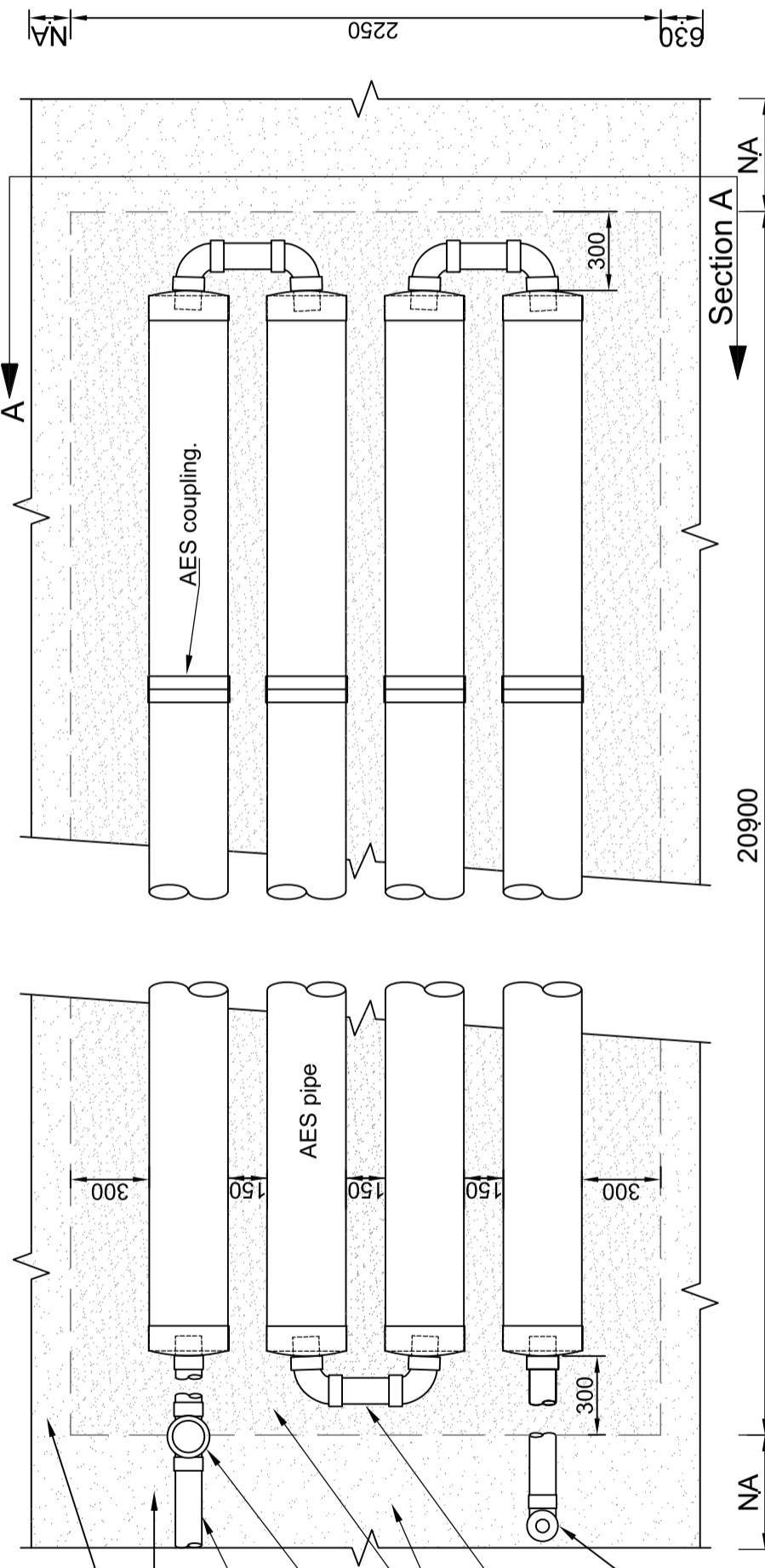
AES pipes can be cut to length on site. AES pipes are supplied in 3 metre lengths only.

* Residential Effluent is classed as having less than 300mg/L BOD5 plus 350mg/L TSS, a combined total of 650mg/L prior to entering the septic tank, or a combined total of BOD + TSS of < 350mg/L prior to entering the AES bed and not including Industrial Effluent. Contact Et for assistance with high strength, abnormal ph or other parameter influent.
log reduction for Faecal Coliform (FC) in OSET-NTP Trial 12, 2016-17 benchmarking period.
medium sand - Pang (2009). *Microbial Removal Rates in Subsurface Media Estimated From Published Studies of Field Experiments and Large Intact Soil Cores*

** AES-38 single pass system achieved 3.5
*** Microbial removal rates through

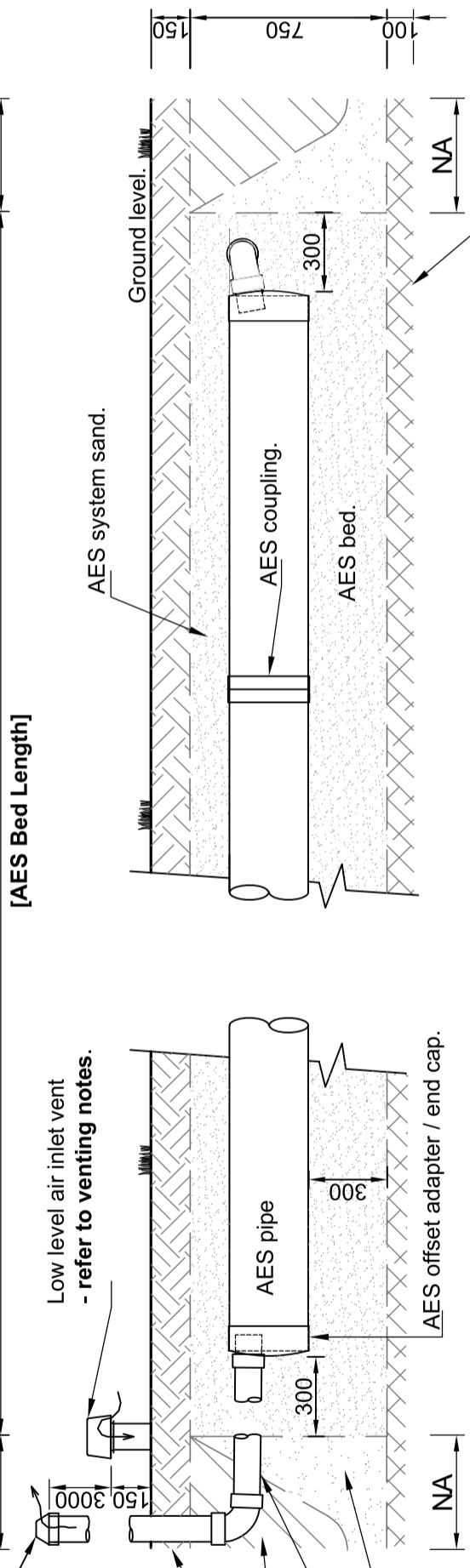
For Design Review: -Email this Design Calculator along with a complete construction drawings to: - design@et.nz
AES Components Order: - Email a signed AES Design Calculator and a copy of the Council Consented Construction plans to: - info@et.nz

PLAN



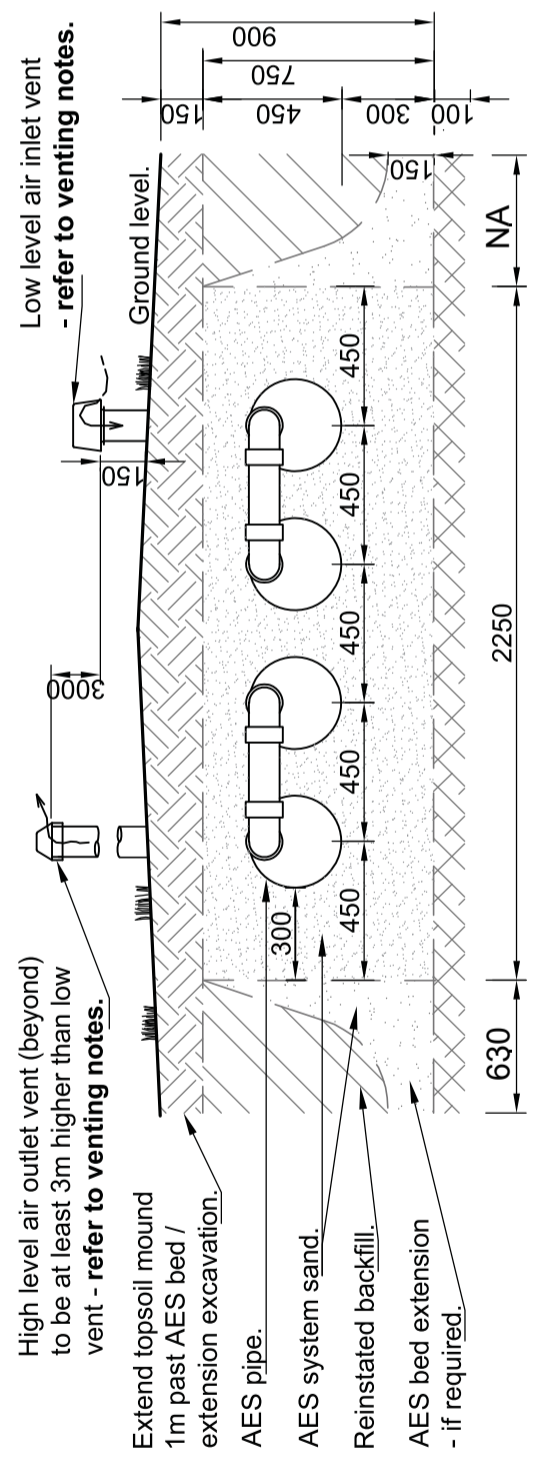
- AES bed extension - if required.
- 100mm inlet @ 1:100 min. fall from septic tank.
- Low level air inlet vent to be at least 3m lower than high vent - refer to venting notes.
- AES system sand.
- Raised connector.
- High level air outlet vent to be at least 3m higher than low vent - refer to venting notes.

LONG SECTION



- Extend topsoil mound 1m past AES bed / extension excavation.
- Reinstated backfill.
- Outlet @ 1:100 min. fall back toward AES bed.
- AES bed extension - if required.
- Low level air inlet vent - refer to venting notes.
- AES offset adapter / end cap.

CROSS SECTION A:A



Scarify base of AES bed to 100mm min. - excl. Cat. 1 & 2 soils.

Dimensions on drawing in millimetres. Table in metres.

Total no. AES pipes	27.066666
Total AES bed, incl. extension:	
Infiltration area	60.19 m ²
Width	2.88 m
Length	20.9 m



NOTES

- General**
- Advanced Enviro-Septic (AES) pipes, fittings and bed to be constructed/installed in accordance with the AES Installation Manual.
 - AES pipes and fittings are supplied by Environment Technology Ltd, Et.
 - All associated pipework to comply with NZ Building Code G13, Foul Water, Acceptable Solutions, relevant standards and local/regional council requirements.
 - Unless otherwise stated all dimensions are in millimetres and all dimensions are minimums except pipe diameters and fittings.
- Venting of AES Pipework to Maintain Aerobic Internal Conditions**
- The high level air outlet vent to be 100, 80, or 65mm diameter DWV pipe, suitably supported on an adjacent building or post, to be 3m vertically elevated above the low level air inlet vent. 2 x 50mm DWV pipe can be used in internal building framing. Support to be provided to 1 meter below the top of the DWV vent pipe.
 - The low level air inlet vent to be 100mm DWV, positioned as close as practical to the AES bed and isolated with respect to air passage wherever practical from upstream influent pipework. Refer to the specific design of each project.
 - The location of air inlet and outlet vents can be remote from the AES bed with additional pipework to suit topography, building structures or landscaping. The high level air outlet vent should be positioned considering potential downdrafts or adjacent disturbed air flows.

- AES Bed Construction**
- An areal extension to the AES bed may be required to suit the permeability of the receiving soil in passive installations. These extensions may be on any or all sides of the bed. Refer to the AES bed dimensions noted on the specific design. N/A or not applicable denotes an extension is not required in this design.
 - A minimum of 50mm of fall is required between the septic tank outlet invert and the invert of the inlet to the AES bed or distribution box.
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 - AES bed 'System Sand' specification is usually met with within the local concrete sand specification. Refer ET website www.et.nz/system-sand-suppliers/ for Et tested AES System Sand suppliers. Et offers cost free sand sieve analysis upon receipt of a two cupful size sample.

Installation Notes:

- Install 5000L Alpha precast septic tank without effluent filter.
- Discharge to 60m² (2.88m x 20.9m) AES single pass sand filter.
- Land Application Area will be installed with traffic loading (detail AES TL03) to permit vehicle and foot traffic.

DESIGNED BY
G Stevens

PROJECT
Ruru Homes
54 Green Lane
Motueka

DRAWING TITLE
Standard AES Bed - Four
ROW

No.	Revision	Date	Name	Scale @A3	Scale @A4	Dwg:
2	Notes added, introduction, introduction from 1:25 to 1:50	26/08/20	HO	1:25	1:50	AES SB04

Environment Technology
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AES Bed Construction

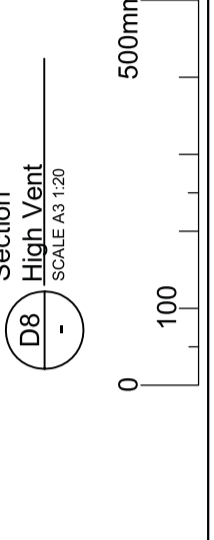
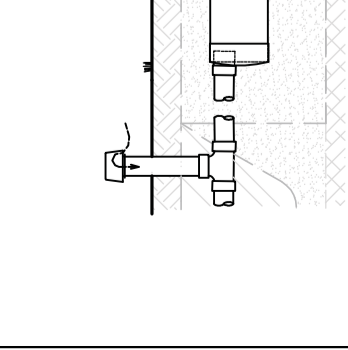
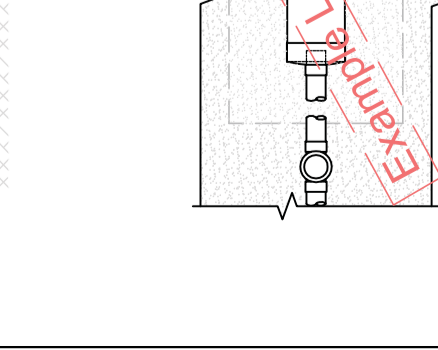
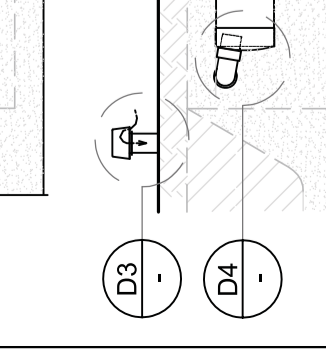
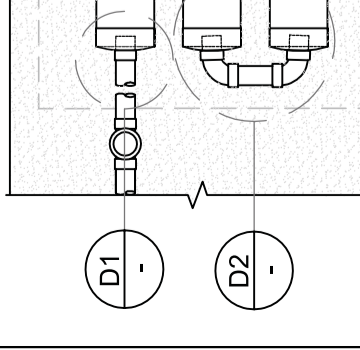
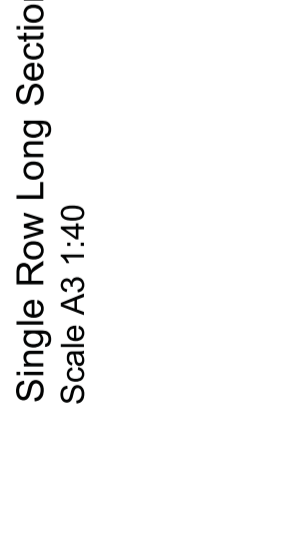
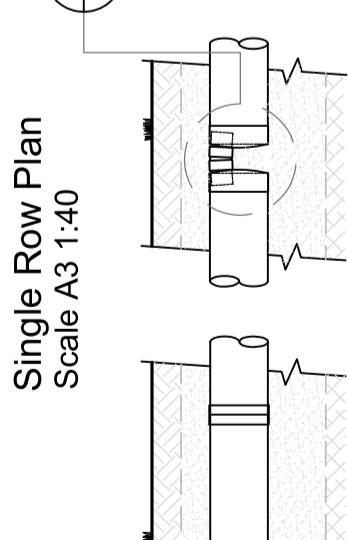
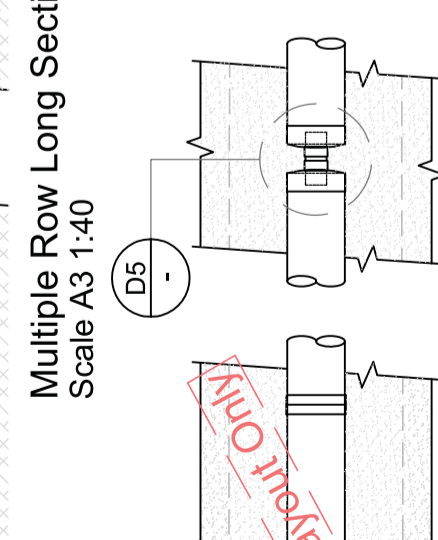
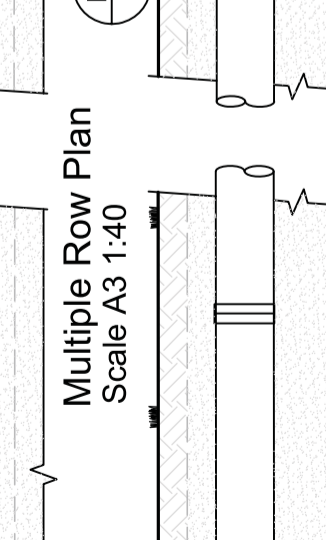
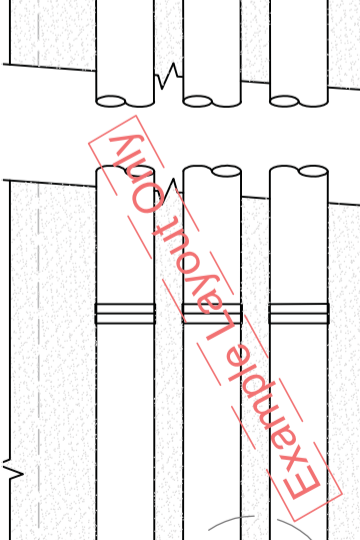
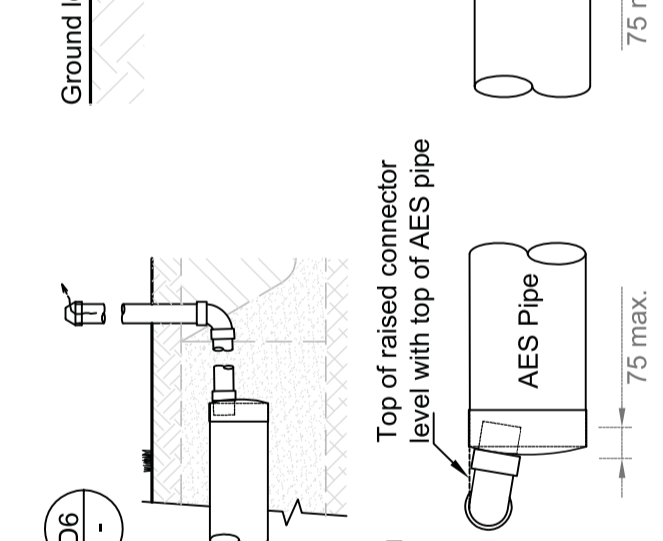
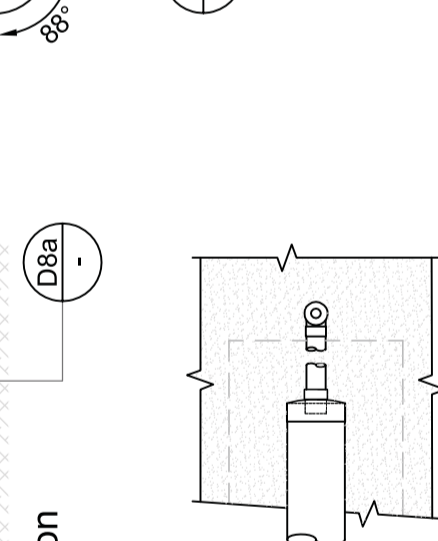
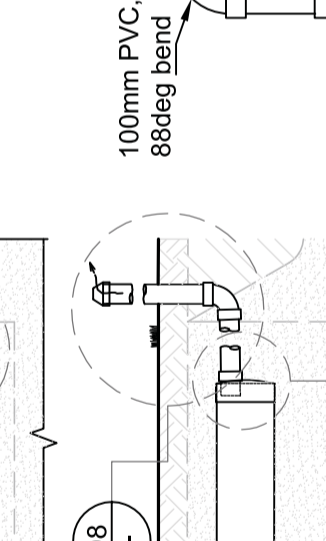
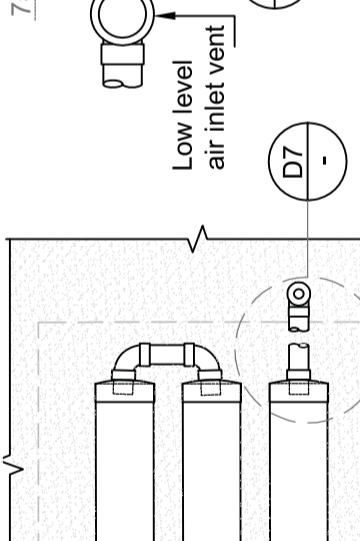
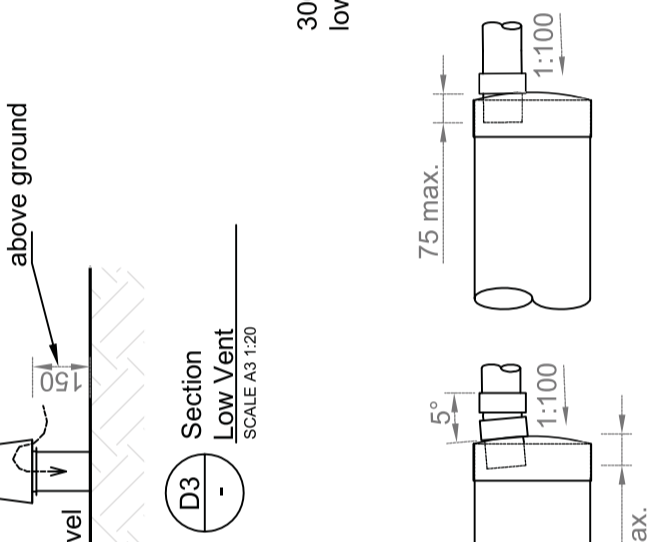
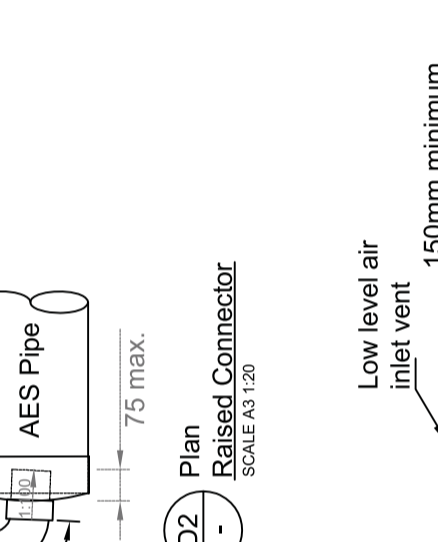
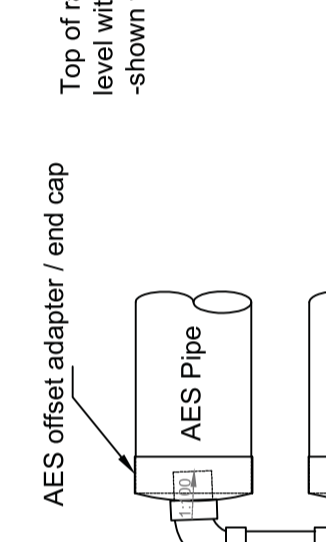
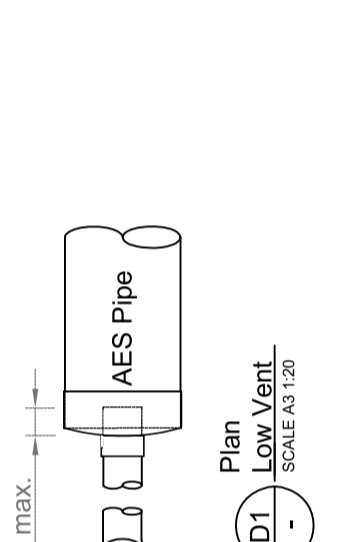
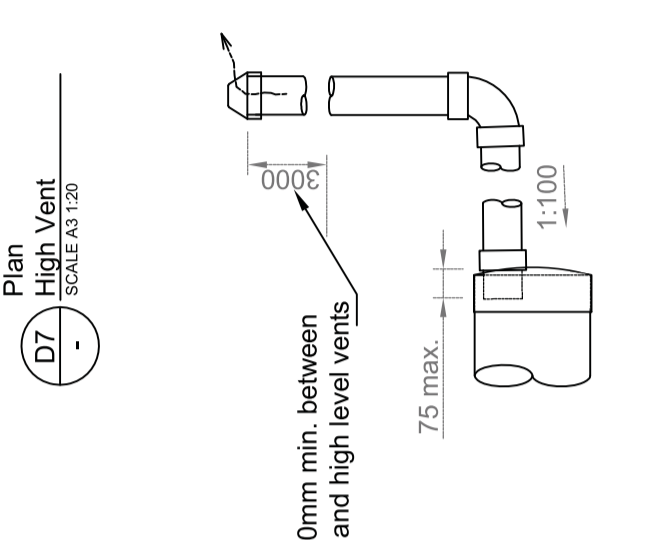
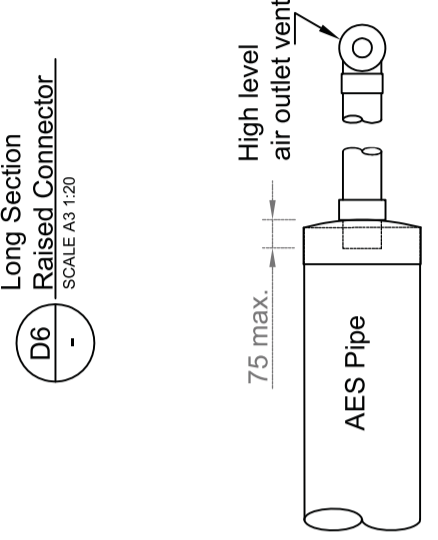
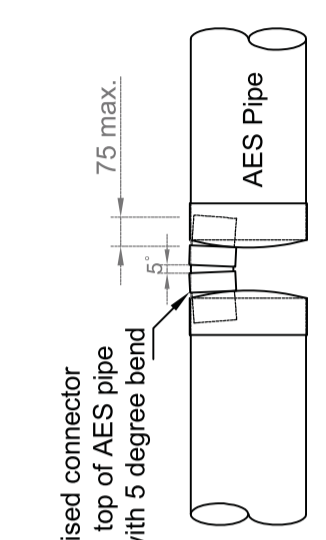
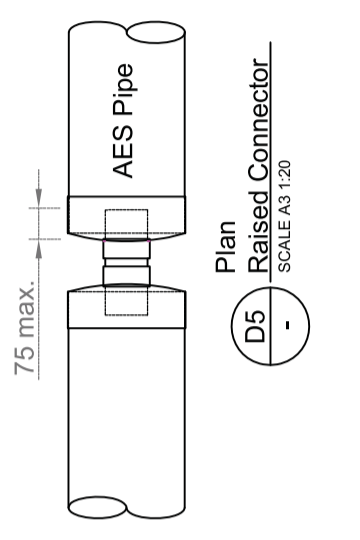
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Installation Notes:

Install 5000L Alpha precast septic tank without effluent filter.

Discharge to 60m² (2.88m x 20.9m) AES single pass sand filter.

Land Application Area will be installed with traffic loading (detail AES TL03) to permit vehicle and foot traffic.



DESIGNED BY
G Stevens

PROJECT
Ruru Homes
54 Green Lane
Motueka

DRAWING TITLE
AES System Details Sheet

No.	Revision	Date	Name	Scale @A3	Scale @A4	Dwg:
2	Changed technical format.	31/03/20	HO	1:40 & 1:20	1:20 & 1:10	AES DET01

Scale @A3 1:40 & 1:20
Scale @A4 1:20 & 1:10
Dwg: AES DET01

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Environment technology
sustainable wastewater treatment

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Riser Systems

- Riser systems come in varying shapes and sizes and can be sourced from a range of manufacturers. Environment Technology stock and recommend Tuf-Tite riser systems.

Installation Notes:

- Install 5000L Alpha precast septic tank without effluent filter.
- Discharge to 60m² (2.88m x 20.9m) AES single pass sand filter.

Land Application Area will be installed with traffic loading (detail AES TL03) to permit vehicle and foot traffic.

High level air outlet vent to be at least 3m higher than low level vent - refer to vent notes.

100mm inlet @ 1:60 min. fall to septic tank.

Capped outlet tee in septic tank to isolate AES bed venting to the AES bed only.

Tuf-Tite riser system of equivalent. Refer to riser systems note.

Capped inspection port.

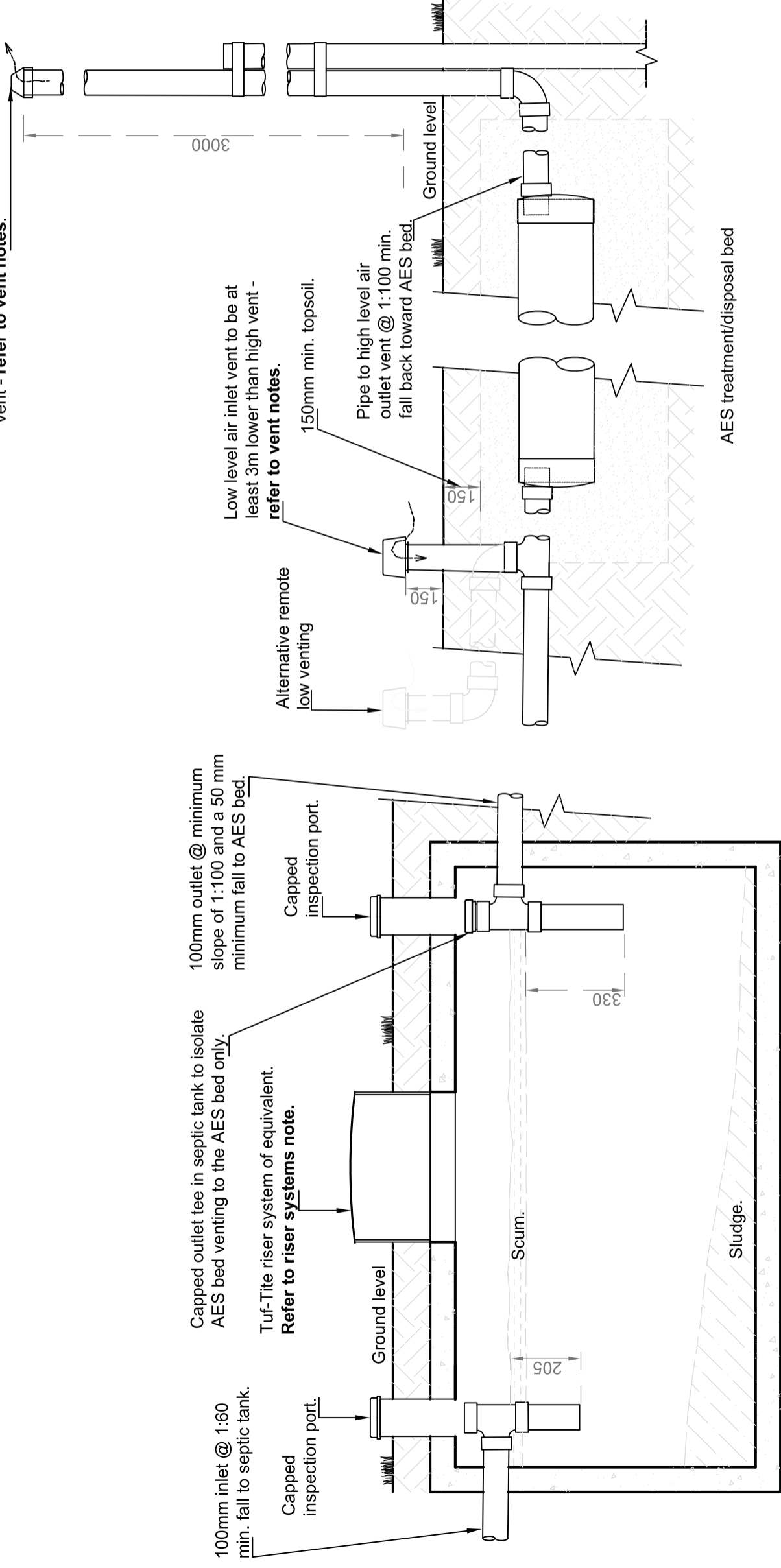
Alternative remote low venting

Low level air inlet vent to be at least 3m lower than high vent - refer to vent notes.

150mm min. topsoil.

Pipe to high level air outlet vent @ 1:100 min. fall back toward AES bed.

AES treatment/disposal bed



Septic tank and dimensions as specified in AS/NZS1546.1:2008.

LONG SECTION

DESIGNED BY
G Stevens

PROJECT
Ruru Homes
54 Green Lane
Motueka

DRAWING TITLE
AES Bed and Septic Tank Air
Venting Detail

No.	Revision	Date	Name
2	Additional notes added.	03/04/20	HO

Scale @A3 1:20
Scale @A4 1:40
Dwg: AES VC

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Traffic Loading Guidelines

- AP40 base course compacted to 100mm over AP65 subbase course compacted to 200mm over AES system sand cover compacted to a uniform, dense, stable condition to a minimum of 150mm above AES pipes prior to application of base course. Structural material to extend to a minimum of 450mm beyond AES bed excavation (including bed extension, if required) to provide 'bridging'.
- Surface cover GAP20 or similar acceptable top course or local material free of organics, large stones and building debris.
- All base course and top course to be specified and applied as per Transit NZ TNZ B/02:2005 Specification for Construction of Unbound Granular Pavement Layers.

Installation Notes:

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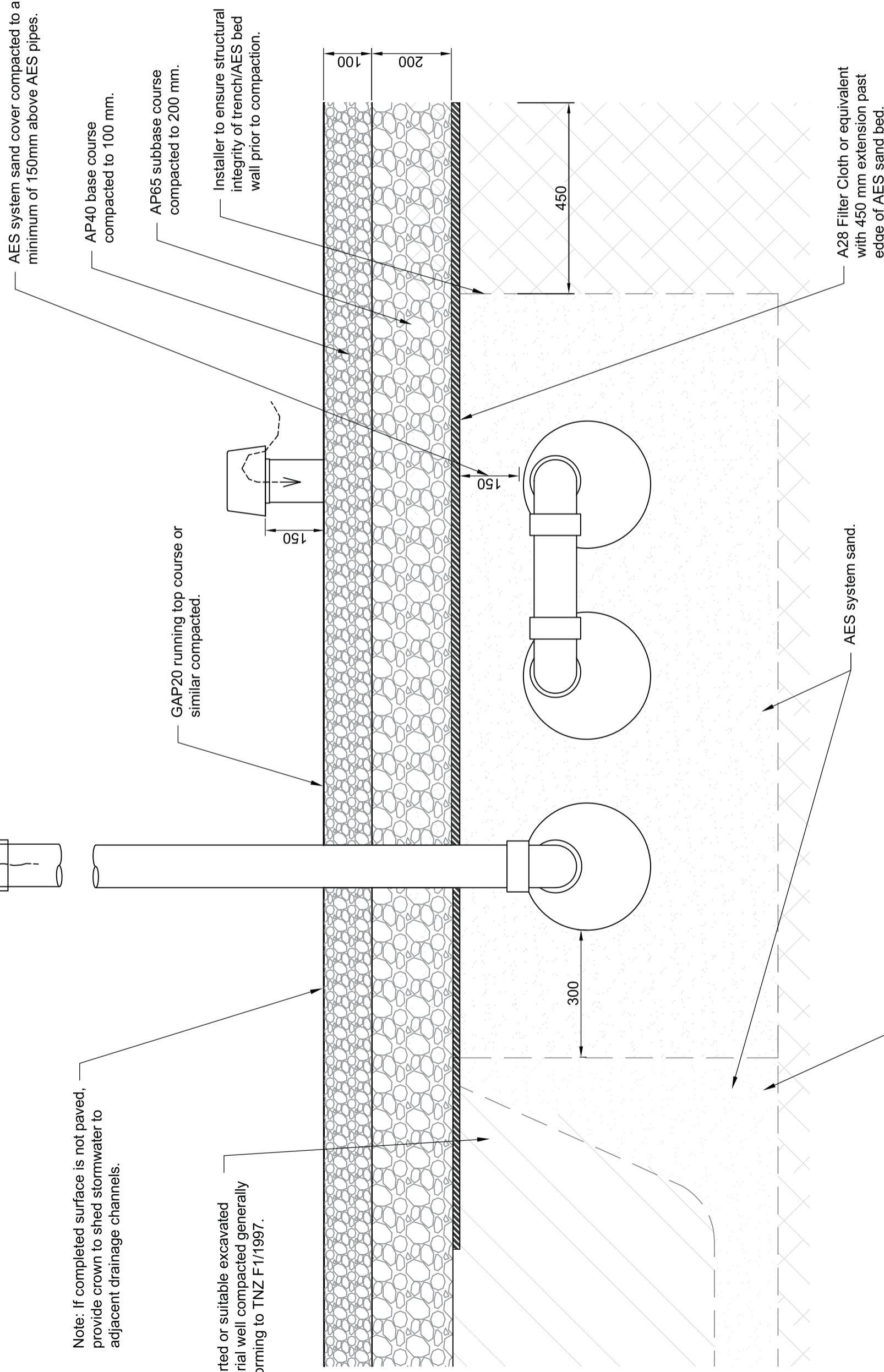
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No.	Revision	Date	Name	Scale @A3	1:10
2	Filter depth + single side bed added	29/01/20	HO	Scale @A4	1:20
3	Notes fixed and right side taken out.	20/04/20	HO	Dwg: AES TL03	

DRAWING TITLE	AES Bed Traffic Loading Pavement Detail
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PROJECT	Ruru Homes 54 Green Lane Motueka
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DESIGNED BY	G Stevens
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Note: If completed surface is not paved, provide crown to shed stormwater to adjacent drainage channels.

Imported or suitable excavated material well compacted generally conforming to TNZ F1/1997.

AES bed extension - if required. Bed extensions can be positioned on both sides of the bed.

CROSS SECTION

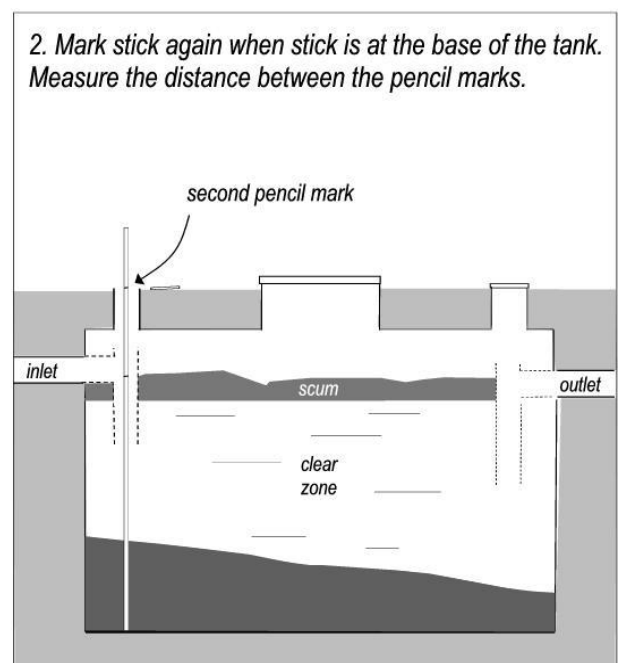
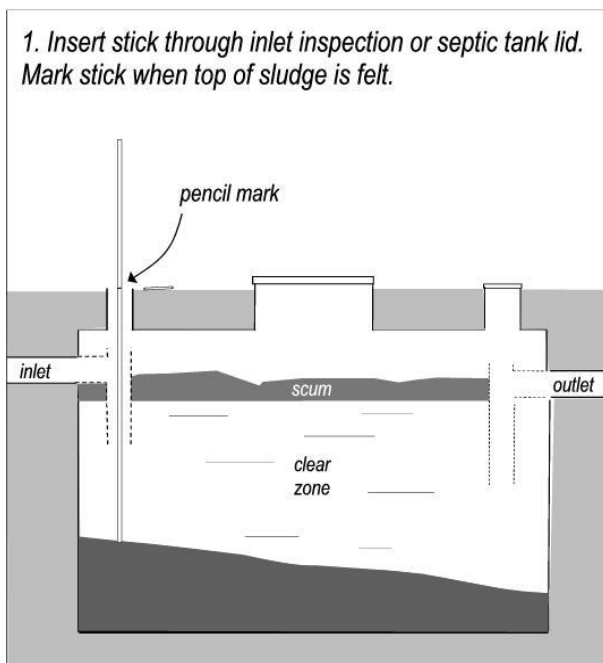
APPENDIX D

- I. Operation & Maintenance Information**
- II. Maintenance Contract *(to be completed by installer)***
- III. Installation Certificate *(to be completed by installer)***

Management & Maintenance of your Septic Tank & AES System

1. **Ensure lids of the wastewater treatment system are readily accessible at all times;**
2. **Visually inspect the proprietary effluent filter if fitted;**
Clean, repair or replace as required
3. **Check you septic tank sludge level;**

This can be achieved by inserting a suitable stick into the inlet vent and measuring the level at which resistance is felt as the probe enters the bottom sludge, and again when it stops on the tank base.



4. **Pumping out the septic tank;**

If solids and scum layers combined are greater than one half the depth of the wastewater treatment tank. Pump-outs should be undertaken only when necessary as they disrupt the efficient working of the bacteria in the tank.

*As the outlet usually draws from halfway down the tank we recommend the more conservative $\frac{1}{2}$ the tank volume; some literature recommends pumping out when sludge occupies $\frac{2}{3}$ the volume of the tank

5. **Air Vent (Low Vent) at AES bed;**

It is the owner's responsibility to keep vegetation away from the low vent in order to maintain a free flow of air into the vent. Check low level air inlet vent at the AES bed is clear of vegetation and the insect screen inside the vent is clear. Check also that the high level vent at the dwelling is clear.

Water reduction fixtures

The daily wastewater flow has been calculated based on the following water reduction features remaining in place in the house. If any of these features are removed a new wastewater design may need to be completed.

- Dual flush (11/5.5 litre maximum flush volume) toilet/s
- Aerator taps
- Any shower head with a WELS 2 star rating or greater, or any combination of shower head and flow
- Restrictor that produces a flow of 12L/minute or less.
- Water conserving automatic washing mashine.

Indicators of system failure

In the unlikely event that the AES pipes become anaerobic due to a lack of oxygen, a system Rejuvenation will be required to return the system's bacteria to an aerobic state. Contact your AES Certified servicer if you detect the following: A foul odour, or pooling of water at ground level, or if System Sand around the pipes turns a darker colour.

Care of your Septic Tank Wastewater Disposal System

Maintenance of a septic tank system is important. The quantity of sludge in the base of the tank must not exceed 2/3 of the tank working volume. With care in not flushing insoluble material into the wastewater system this level of sludge may take some years to develop. Annual inspection of the level of sludge in the tank is recommended. This can be achieved by inserting a suitable stick into the inlet inspection/ access and measuring the level at which resistance is felt as the probe enters the bottom sludge.

Your wastewater disposal system depends for its satisfactory operation on providing a suitable environment for 2 types of bacteria to live and thrive – anaerobic (without oxygen) bacteria in the primary treatment aspect/ septic tank of your system and aerobic (with air or oxygen) in the secondary treatment aspect/ discharge to land of your system. You **must** consider the effects on this bacterial life when you are choosing cleaning and disinfecting products as all these products will kill the bacteria in your system.

Potential indicators of performance problems are odour, overflow and wet patches on the disposal field.

Below is a table of how to best operate a septic tank and things to avoid:

DO ✓	AVOID / DON'T ✗	NOTE
<p>Minimise Water Use</p> <ul style="list-style-type: none"> • Install water saving fixtures • Use showers instead of baths • Spread laundry activities across the week • Fix any leaking taps/running toilets immediately 	<ul style="list-style-type: none"> • High organic loading wastewater production fixtures such as garbage grinders • Spa baths and multi-head showers • Ingress of groundwater into septic tank through cracks in the tank or fittings 	<p>Surges of wastewater should be avoided as they can stir up settled solids within the septic tank, reduce the quality of treated wastewater flowing to the disposal field and lead to the overloading of the disposal field – which can result in wastewater breakout at the ground surface and increased potential for adverse health and environmental effects.</p>
<p>Use bio-degradable soaps and cleaners</p> <ul style="list-style-type: none"> • Minimise use of strong toilet cleaners and bleach • Use phosphate free/ low phosphorous based laundry detergents • Use liquid based organic washing liquids in preference to sodium based washing powder 	<ul style="list-style-type: none"> • Pouring toxic/strong chemicals down any drains e.g. paint, oil, grease, pesticides and bleach • Tipping chlorine or disinfectant products into wastewater system • Discarding pharmaceuticals down sink or toilet • Avoid washing powder with significant sodium content 	<p>Some soaps and cleaners contain chemicals that can kill the bacteria within the septic tank, greatly impairing treatment quality.</p> <p>Detergents with high sodium content can destroy the effectiveness of your disposal field by altering the composition of clays in the soil</p>
<p>Reduce Fats/Grease Inputs</p> <p>Scrape all plates and dishes to remove as much fat and grease as possible.</p>	<ul style="list-style-type: none"> • Discharging oils/fats down the kitchen sink 	<p>Excess fats and grease in the septic tank can lead to filter blockages or impairment of the disposal field function.</p>
<p>Avoid discharging unnecessary solids to the septic tank</p> <ul style="list-style-type: none"> • Compost any food scraps for use on the garden 	<p>Flushing any products down the toilet except toilet paper</p> <ul style="list-style-type: none"> • Putting coffee grinds down the sink – they add to the solids level and may affect the bacterial colonies living in the septic tank 	<p>The addition of unnecessary solids to the septic tank will result in the faster build up of sludge levels and the need for more frequent pumping out.</p>

AES (Advanced Enviro-Septic™) Owners Manual



New Zealand Distributors
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Nelson 7010
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info@et.nz



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Advanced Enviro-Septic™ U.S. Brevet nos. 6,461,078; 5,954,451; 6,290,429; 6,899,359; 6,792,977; 7,270,532 and 5,606,786. Other patent pending.
Advanced Enviro-Septic™ is a trademark of Presby Environmental, Inc.
Bio-Accelerator is a trademark of Presby Environmental, Inc.

Technical support

Environment Technology provides technical support to all individuals and companies using AES and other Presby Environmental products. For questions about products or information in this manual please contact us at 03 9707 979, info@et.nz

Important Safety Information

- Please ensure that the cover/s of the septic tank, the pumping station and sampling device if installed, are always in place and that they remain accessible at all times for periodic inspections and interventions when necessary.
- Ensure you receive an accurate As-Built plan of your system from your installer. Pipes are buried near your septic installation. Please speak to your installer or consult the as-built plan prior to digging or excavating near your septic system.
- It can be dangerous even potentially deadly to open a septic tank, pumping station or any enclosed space that is part of a wastewater treatment system. The action of the bacteria on the organic matter present in the wastewater produces gases such as carbon dioxide (CO₂), methane (CH₄) and hydrogen sulphide (H₂S). The H₂S present in the septic tank or a pumping station can cause the death of an individual in a matter of minutes. A well-maintained ventilation system will reduce the risk of toxic gases build up, however work in this area must be carried out by competent personnel.

Introduction

Thank you for choosing the AES system for your septic installation. This system was developed to efficiently treat domestic wastewater. Instructions must be followed in order to maintain its treatment performance so that you can make use of it for many years. Carefully read through this entire document and retain it in your files for future reference.

The purpose of this document

This user guide explains the proper use, procedures and inspections required in order to ensure the proper operation of your AES system for residential wastewater treatment.

It is the owner's responsibility to ensure that the system is used properly and according to its treatment capacity. It is also their responsibility to respect the rules and regulations in effect regarding associated council and government regulations.

Designation of the AES System

Name: AES Wastewater System

Application Domain: Residential Wastewater (sewage).

Class and treatment type: The AES system meets all the performance criteria requirements of both the Australian/ New Zealand Standard AS/NZS 1546.3: 2008, and the Queensland Plumbing and Wastewater Code: 2011 (for both Secondary and Advanced Secondary treatment). In 2017 AES completed Trial 12 of the Onsite Effluent Treatment System (OSET) National Testing Facility in Rotorua which certified secondary treatment quality.

The system cannot be used to treat wastewater to make it consumable. It is made to treat residential wastewater, and some commercial wastewater to an acceptable level for it to be reintroduced into the environment.

Definition of the AES System

The AES system is composed primarily of two inseparable components: the rows of AES pipe and a layer of system sand.

The AES system must be preceded by a septic tank or equivalent primary treatment system. The treated water is generally drained directly into the soil beneath the treatment system through a soil absorption system.

What to do if a problem occurs?

If in the course of normal use of your septic system you notice any of the following problems:

- Abnormally wet soil, presence of persistent puddles or odours in the area of the septic tank or the AES system,
- Slow flushing toilets or other plumbing in the home,
- Presence of abnormally abundant vegetation on the surface or around the septic tank or the AES system installation,
- Flooding in the area where the AES system is installed,
- Erosion of the land fill on or around the AES system,
- Alarm from the pumping station if such a device is part of your installation.

Please contact your AES certified contractor or Environment Technology. There are often simple remedies.

Customer Service and Technical Support information

Please do not hesitate to contact us if you need further information.
Environment Technology can be contacted at:
Telephone: 03 970 7979
Email: info@et.nz
Website: www.et.nz
Address: 14 Onekaka Iron Works Rd, Takaka 7182

Certified Contractor

The AES System must be installed by a licensed drainlayer with AES certification. Certification is obtained by successfully completing the online AES Certification Course. This course can be accessed at www.et.nz
Environment Technology can provide the name of drainlayers having the proper certification to install AES systems. This information is also available on our website <http://www.et.nz/installers/>

AES System Capacity

The capacity of the AES System depends on two elements:

- The number of AES Pipes
- The capacity of the underlying soil to evacuate the treated water

The total volume of wastewater fed to the system must not be more than what is shown in the design. The design flow is generally a weekly average.

The system may also be limited by the capacity of the underlying soil to permit the infiltration and evacuation of wastewater. This value is evaluated by the designer who created the plans and estimate for your septic installation. The design should take into account whether the capacity of the soil is a potential limiting factor.

Warranty certificate

AES comes with a 20 year manufacturer's limited warranty. The warranty details are presented in Appendix A (page 16)

Functioning of the AES System

The AES system is a passive technology which facilitates the proliferation of the aerobic bacteria responsible for wastewater treatment. It is comprised mainly of two inseparable components: the rows of AES pipes and a layer of system sand.

The AES system must be preceded by a septic tank or equivalent primary treatment system.

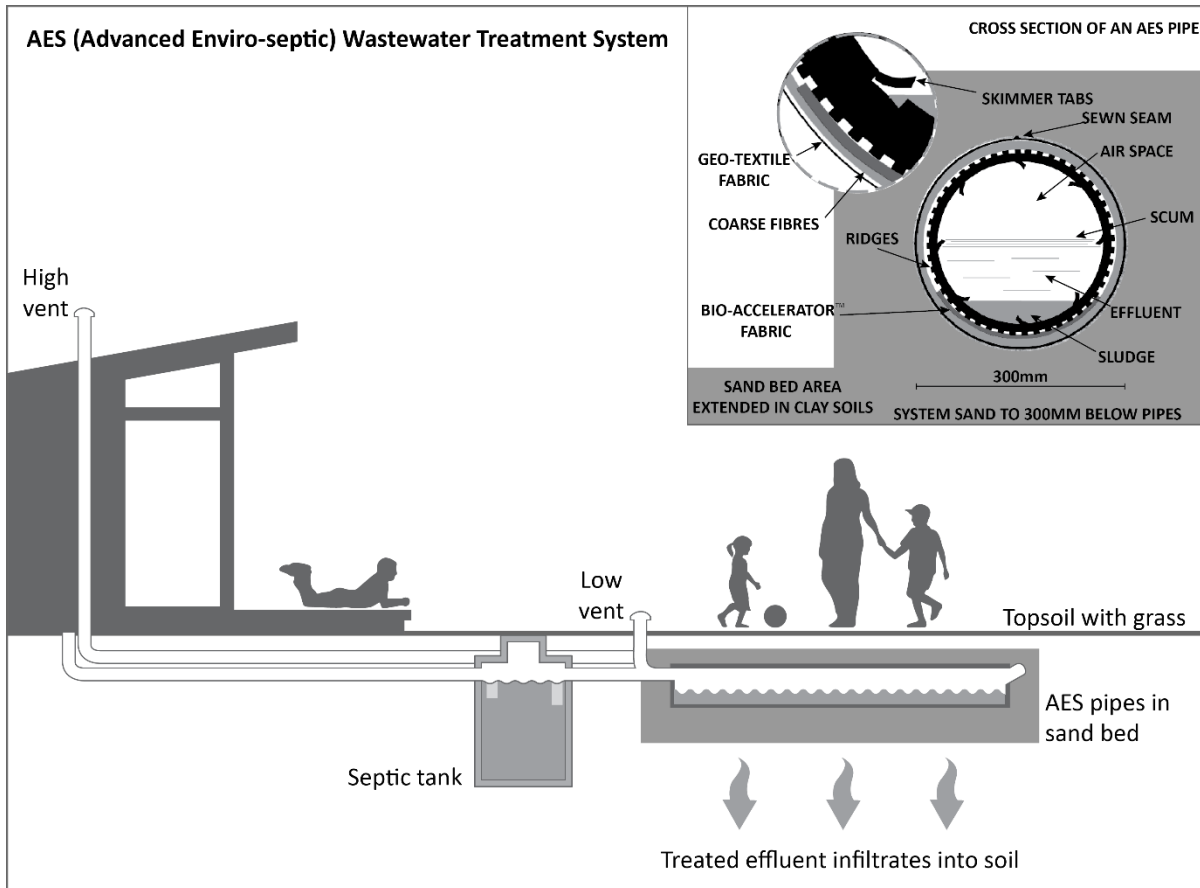
Treatment process of AES

The rows of AES pipes and system sand permit the treatment and distribution of wastewater on the surface of the receiving soil.

The pipes support, first of all, the separation of particles through flotation and decantation. The water is then evacuated through perforations situated around the pipes and through the pores of the two layers of synthetic media covering the pipes. These membranes facilitate the fixation of the microbial cultures which support wastewater treatment, as well as longitudinal distribution of the effluent.

The layer of sand continues the treatment process and helps to disperse the water before it infiltrates into the natural soil.

Diagram of the AES system



AES system components

Your septic installation includes several components. All of these components are parts of the chain of



treatment of your installation. The following table presents a list of these elements. However, it should be noted that some of these are only used when site conditions require them. The table also presents a summary of inspections required for each component. More detailed information on this subject is presented in the sections that follow.

Table: AES System Components

Component of the septic system	Function	Follow-up needed	Frequency	Responsible for follow-up
Septic tank	Primary wastewater treatment	Periodic emptying	According to standards and regulations in effect	Owner is responsible to have work done by qualified person
Septic Tank Effluent Filter*	Retention of solids in low pressure pumped applications.	According to manufacturer's instructions.		
Distribution systems if required for larger dual bed systems. 3 options A) Gravity Distribution box and flow equalizers B) Pressure distribution (pump) system C) Automatic distributing valve	Distributes the septic tank effluent to the rows of AES	A) According to the water level in the inspection port	A) As needed	A) Owner
		B) According to the manufacturer's directions.		→
		C) According to the manufacturer's directions.		→
Rows of AES pipes	Treat and distribute effluent			
Sampling device	To verify the treatment performance of the AES System	Ensure that there is access to this device	Optional	Qualified person
Vent	To allow the circulation of air in the AES System	Ensure that the opening is not blocked	As needed	Owner
System sand	To complete the water treatment process and to improve the drainage	No		
Pumping station (optional)	Lift septic tank effluent to the AES System	According to supplier's specifications		

*The effluent filter is necessary whenever the septic tank is followed by a pump distribution system.

Operating the AES System

Initial Use	<p>At the time of installation the septic tank should be filled with clear water.</p> <p>If a pumping station is used, the contractor will verify that it is functioning properly at the time of installation. The home owner must make sure that there is adequate electricity to safely operate the equipment as well as the alarm component.</p> <p>The AES system is now ready for use.</p>
Intermittent Use or Prolonged Absences	<p>The AES system is a passive wastewater treatment system. When properly installed, it requires no particular attention even if you are away for periods of time.</p>

AES System Operating Instructions

The use and maintenance of AES Systems are relatively simple. In general, respecting the following rules will allow you use of your system without problems for years to come.

Wastewater Volume	<p>Excessive quantities of water that leave the house and enter the AES System in a short period of time could have a negative impact on the effectiveness of the treatment and the infiltration of wastewater causing agitation in the septic tank. A quantity of sludge or scum is likely to be put into suspension and be brought towards the system and the infiltration bed.</p> <p>After the installation, if changes are made to the residence (eg. addition of a bedroom), please contact the designer of the AES System. Make sure that the septic system is inspected by a qualified person to determine that it has the necessary capacity to treat and infiltrate the new daily design flow of wastewater being generated.</p>
In the bathroom	<p><u>Do:</u></p> <ul style="list-style-type: none">• Immediately repair any leaking tap or toilet,• Use a reasonable quantity of toilet paper.• Minimise or avoid bleach, antiseptic disinfectants, and ammonia acids in the system <p><u>Do not :</u></p> <ul style="list-style-type: none">• Use disinfectant in tablet (puck) form, whether it is placed in the basin or the tank,• Throw cigarettes, cigarette butts or medication in the toilet,• Throw paper towels, paper napkins or other personal hygiene products in the toilet.
In the kitchen	<p><u>Do:</u></p> <ul style="list-style-type: none">• Repair any leaking tap,• Use dish soap or dishwasher soap that is low in phosphate (0-5%),• Use the necessary quantity of soap to do the work. Take note that the necessary quantity is often less than suggested by the manufacturer.• Use biodegradable soap, low-phosphorus or phosphorus free detergents.

For the laundry	<u>Do not :</u>
	<ul style="list-style-type: none"> • Use a food waste disposal unit in your sink that is connected to your septic installation. If you do have a waste disposal unit, your septic tank may require more frequent pump out to remove sludge build up. • Dispose of vegetables, meats, fat, oil, coffee beans, citrus products or other products into the septic system.
Elsewhere in and around the house	<u>Do:</u>
	<ul style="list-style-type: none"> • Use phosphate free detergent, preferably in liquid form. If it is not possible, use biodegradable powder detergent, • Use the necessary quantity of soap to do the work. Take note that the necessary quantity is often less than that suggested by the manufacturer, • Minimize the volume of water used for the laundry according to the quantity of clothing to wash, • If possible spread your loads of laundry throughout the week • Prevent harsh chemicals entering the system (e.g. paint, nappies)
	<u>Do:</u>
Chemicals for septic installation	<ul style="list-style-type: none"> • Divert drainage and rain water away from the surface of the AES system. • Roof and surface water should be redirected away from absorption trenches.
	<u>Do not :</u>
Ventilation	<ul style="list-style-type: none"> • Discharge water softener backwash into your septic system, • Discharge any water from swimming pool filters, spas or other appliances that discharge chlorinated water into your septic system. • Let water from sump pumps, gutters and drainage pipes discharge into the septic system, • Dispose of solvents, paints, antifreeze, engine oil or other chemicals in the septic installation. This includes water used to wash brushes or rollers that were used with latex paint (latex paint contains elements that are harmful to septic system), • Dispose of animal litter in the septic installation. <p>Your AES system does not require any starting chemical, cleaning or other additives. The bacteria that carry out the treatment are naturally present in raw domestic sewage. Any chemicals or additives added to the AES System could possibly kill these bacteria.</p> <p>It is very important to ensure that good ventilation occurs so that the septic system functions correctly. The vent(s) installed at the ends of the septic system encourage this air circulation. It is important to make sure that the opening is not blocked and that air can circulate freely at all times. Air enters through the low vent, circulates through the rows of pipes and exits through the high vent.</p> <p>The owner must be sure to have a roof vent and to keep it clear at all times. When a pumping station is used, a bypass pipe or an extra vent must be used to ensure proper ventilation of the system.</p>
Heavy machinery & motorized vehicle traffic	<p>No vehicles or heavy machinery must be driven over a septic tank. Heavy machinery or motorized vehicle traffic on the soil around the AES bed closes the natural pores of the soil which reduces its permeability and allows for ponding and the accumulation of water.</p>

Vegetation

The surface of the AES system must be planted with grass or other vegetation that forms a thick turf. This will encourage surface water runoff from the bed surface. The vegetation must be cut regularly in order to encourage growth without the use of fertilisers. Vegetation cover contributes to the elimination of nitrogen and phosphorus.

It is important **not** to plant trees or other plants with invasive roots such as figs, willows, blackwood and many others within 3 metres of the AES system installation footprint.

AES System Maintenance

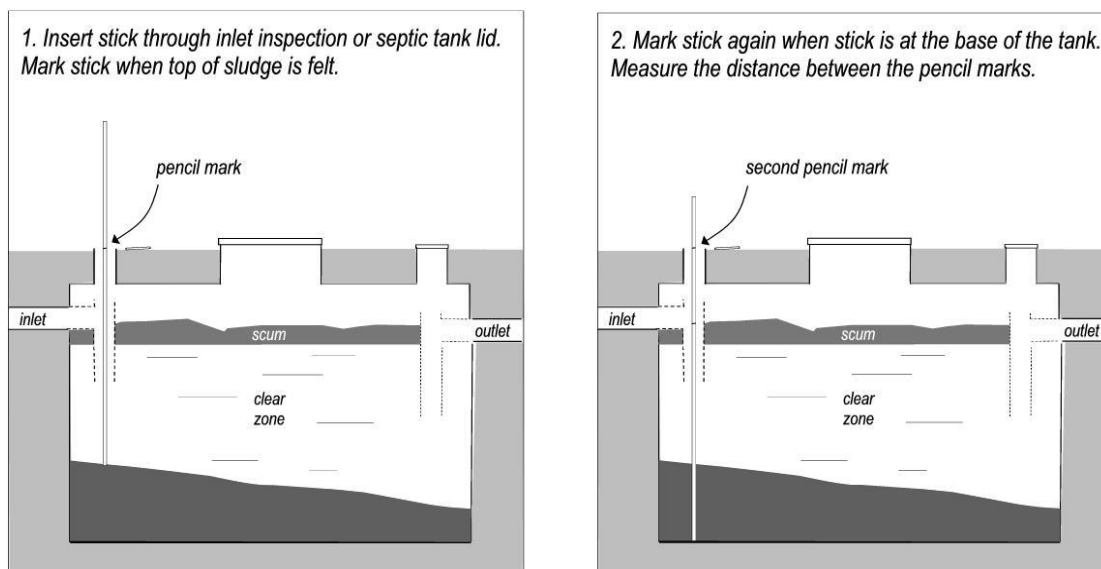
Septic Tank Maintenance

The septic tank preceding the AES System must be pumped out regularly (every 3-5 years for normal residential use or when sludge exceeds 1/3 of the tank volume).

If the septic tank is not emptied regularly, an increasing amount of solids and grease in suspension will leave the septic tank and end up in the treatment system and in time the performance of the AES System may be affected.

The owner must ensure their septic tank is pumped out according to council regulations, if any. This work should always be done by a qualified person.

Note: It is the home owner's responsibility to make sure that at all times the septic tank lids are in their proper position and securely fastened.



Septic tank outlet (effluent filter)

An outlet filter is not necessary at the exit of the septic tank in a gravity system. However it must be installed before a pump, for example when pumped effluent is between the septic tank and the AES pipes.

If installed the effluent filter must be cleaned according to the maintenance and inspection procedures provided by the manufacturer.

AES Pipe Rows

Under normal use, the rows of AES pipe do not require maintenance. It is normal to find fluctuation of the water level in the pipes. In many installations water level in the pipes can be measured by removing the low vent.

Vent	The owner must ensure that nothing prevents the circulation of air. There must also be a difference of at least 3 metres, at all times, between the entry vent situated at the extremity of the AES system and the high vent.
System Sand	There is no maintenance to be done on the system sand during normal use of the AES System.
Pumping station or low pressure distribution system	In certain cases, the site constraints require the use of a pumping station or a low-pressure distribution system to evenly dispose of the treated effluent. The owner is then responsible to comply with the manufacturer's scheduled maintenance requirements of this equipment.
Embankment surface above the AES System	The surface located above the AES system must be covered with herbaceous vegetation. A slight slope must be given to the surface in order to help the drainage of rainwater towards the outside of the system. The grass must also be cut regularly. Finally, any depression that could be created with time must be filled in order to avoid any accumulation of water above the system and to prevent erosion.

Owner's Responsibilities

Owner's Responsibilities	<p>The owner is responsible for:</p> <ul style="list-style-type: none"> • Using the AES System according to the instructions presented in this user guide • Pumping out the septic tank according to the regulations in effect • Maintaining the effluent filter (if present), the pumping station, the pressure distribution system or the automatic wastewater distributing valve according to manufacturer's specifications and recording the information if this equipment is part of the system • Ensuring that the vent openings are clear of any obstacle • Adhering to the requirements of the applicable rules and regulations
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Qualified Person	Any maintenance of an AES System must be undertaken by a person trained to carry out the inspections of the system, perform adjustments to the equalizers and/or carry out a rejuvenating procedure.
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To obtain the name of a qualified person in your area, contact:

Environment Technology
14 Onekaka Iron Works Rd, Takaka 7182
info@et.nz
03 970 7979

Information on installers is also available on our website
<http://www.et.nz/installers/>

For maintenance of the pumping station and the low pressure distribution system, if installed, the owner must refer to the user guide specified by the manufacturer of these systems.

The pumping out of the septic tank must be performed by a company specializing in that field.

Maintenance Sheet

AES On-site Wastewater Treatment – Passive system

Address: _____ Date: _____

Name of AES qualified servicer: _____ Consent No: _____

Septic Tank

Ensure lids of the wastewater treatment system are readily accessible at all times

Measure depth of scum and solids in the septic tank:

Depth of scum: _____

Depth of solids: _____

Depth of tank: _____

Pumping out the septic tank is necessary if solids and scum layers combined are greater than one half the depth of the septic tank.

AES Bed Venting

Ensure low vent and high vent are free of vegetation/ restrictions. Yes No

Notes

Overall condition of wastewater system, including disposal field:

This report shall be kept by the consent holder. In addition, the consent holder shall also keep written records of all repairs made to any part of the wastewater treatment and land application system.

Appendix A- Presby Twenty Year Limited Warranty



PRESBY ENVIRONMENTAL, INC. *INNOVATIVE SEPTIC TECHNOLOGIES*

This Twenty Year Limited Manufacturer's Warranty is provided by the Manufacturer, Presby Environmental, Inc., a New Hampshire corporation having a mailing address of 143 Airport Rd., Whitefield, New Hampshire, 03598 (hereinafter called "Presby"). This Warranty applies only to Presby Products sold by or through its duly authorized distributor Chankar Environmental an Australian corporation having a mailing address of Unit 6-62 Rene St, Noosaville, Qld 4566 (hereinafter called the "Distributor"). "Presby Products" means Presby's Advanced Enviro-Septic™ leaching systems and Presby Maze® with the required accessories (couplings, offset adaptor).

Warranty: Presby warrants that Presby Products are free from defect for twenty years from the date of installation but in no event more than twenty-one years from the date of manufacture. Product Defects means defects or damage to the Products caused by or occurring during the manufacturing process. This Warranty does not cover or apply to damages to the Products caused by or resulting from transit or from accident, misuse, abuse, neglect, storage, installation, repair, maintenance or from use other than normal and ordinary use of the Products. This Warranty does not apply to damages to the Products caused by or resulting from failure to install or use the Products in accordance with distributor's instructions which have been approved by Presby or failure to properly inspect and maintain the Products.

Warranty Registration, Claim Process and Remedy: Any claim under the Warranty must be in writing and received by the distributor within thirty days of the date when the facts giving rise to such claim under this Warranty become known or are otherwise discovered. The distributor must be provided with an opportunity to inspect the Products as installed. Failure to comply with these requirements renders the Warranty null and void. If, during the Warranty period, the distributor and Presby find and determine that defects in Products exist, then the distributor and Presby's sole and exclusive obligation is to either repair the Products or provide replacement Products. The distributor and Presby, in their discretion, shall determine whether to repair the Products or provide replacement Products. The distributor and Presby shall have no obligation to remove any defective Products or to install any replacement Products. The distributor and Presby shall not be liable or responsible for any other damages or claims arising from or relating to defective Products, including but not limited to claims for general, consequential, or incidental damages, lost profits, or attorney fees.

Disclaimer: The distributor and Presby otherwise make no express warranty concerning the Products and the distributor and Presby disclaims any and all warranties, express or implied. Except as stated herein, there are no warranties express or implied, and the distributor and Presby do not warrant that the goods are merchantable or fit for any particular purpose. Any claim or controversy relating to this Warranty, or to matters of place of contracting, interpretation, performance or breach thereof, shall be brought in and adjudged in accordance with the applicable laws of state of New Hampshire.

ONSITE WASTEWATER AND LAND APPLICATION SYSTEM MANAGEMENT CONTRACT

OWNER	
ADDRESS OF SYSTEM	
POSTAL ADDRESS (if different from above)	
PHONE CONTACT DETAILS	
TERRITORIAL AUTHORITY	
INSTALLER/MAINTENANCE CONTRACTOR	
DESIGNER	<i>Gary Stevens Consultant</i>
MAINTENANCE INTERVAL	<i>6 Monthly Checks</i>

1. Inspections as detailed by designer, resource consent and manufacturers operating instructions will be carried out at required intervals by the authorised service agent.
2. The inspections will include but are not limited to the following:
 - (a) All components of the installation to have visual inspection.
 - (b) Visual inspection of downstream of system.
 - (c) Adjustment to any electrical controls and testing for correct operation.
 - (d) Check effluent filter and clean where required as per manufacturer's instructions.
 - (e) Visual and where required sample analysis of discharged effluent and reporting on the same.
3. Complete any repairs/replacement of system components.
4. All emergency repairs labour and parts outside of warranty period are to be paid for on completion of work.
5. Provide report with compliances and any issues and work completed to owner.

The above Service Contract is hereby AGREED by:

Owners Signature	Date
Service Agent Signature	Date

MAINTENANCE REPORT

Owner:

Address:

Date:

Checked	Not Checked	Component	Maintenance Notes <i>(Done/Required/Due) additional notes use back of this form</i>
		Wastewater System ✓ Filter as required by manufacturer ✓ Surrounding Vegetation health ✓ Odour ✓ Surface Ponding ✓ Air Release Valve – operating and clear of obstruction	
		Land Application System ✓ Surrounding Vegetation health ✓ Odour ✓ Surface Ponding ✓ Air Release Valve – operating and clear of obstruction	

Notes to include:

- (i) any maintenance undertaken during the visit or still required, and a timetable for the expected completion of this work;
- (ii) a description of the appearance of the filter/s and tanks;
- (iii) the location and source of any odour detected from the system; and
- (iv) a description of the appearance of the land application area (ponding, vegetation growth, etc).

Contractor Name:

Signature:

19 August 2021

The producer statement construction does not replace the requirement for any scheduled inspection required by the Territorial Authority. This producer statement construction may be an additional requirement to the scheduled inspection.

Issued to:

Issued by:
(Contractor)

Being a suitably qualified person:
(Registration #)

Address: _____

Contact No. _____

In respect of: _____
(Project) _____

Location: _____

Building/Resource Consent number: _____

I, _____ being the

- | | |
|--------------------------|--|
| <input type="checkbox"/> | Tradesperson; |
| <input type="checkbox"/> | Approved installer; or |
| <input type="checkbox"/> | Suitably qualified/experienced practitioner. |

Responsible for the work's identified above, declare that;

This work has been carried out in accordance with New Zealand Building Code Clause G13 and/or standard NZS AS/NZS1547:2012

Signed by:

(The above named person)