ONSITE-WASTEWATER ASSESSMENT

532 Adventure Bay Road

Adventure Bay

December 2023

GEO-ENVIRONMENTAL

SOLUTIONS

Investigation Details

Client:	Scott Lawes
Site Address:	532 Adventure Bay Road, Adventure Bay
Date of Inspection:	29/06/2023
Proposed Works:	New house
Investigation Method:	Hand Auger
Inspected by:	M. Campbell

Site Details

Certificate of Title (CT):	179003/1
Title Area:	Approx. 1226 m²
Applicable Planning Overlays:	Bushfire-prone Areas, Biodiversity Protection Area
Slope & Aspect:	7° E facing slope
Vegetation:	Gardens
Ground Surface:	Disturbed

Background Information

Geology Map:	MRT 1:250000
Geological Unit:	Triassic Sandstone
Climate:	Annual rainfall 900mm
Water Connection:	Tank
Sewer Connection:	Unserviced-On-site required
Testing and Classification:	*AS2870:2011, AS1726:2017 & AS1547:2012*

Investigation

A number of bore holes were completed to identify the distribution and variation of the soil materials at the site, bore hole locations are indicated on the site plan. See soil profile conditions presented below. Tests were conducted across the site to obtain bearing capacities of the material at the time of this investigation.

Soil Profile Summary

BH 1 Depth (m)	Horizon	Description
0.50-1.00	A1	**SAND (SP**): Dark grey, slightly moist, loose.
1.00-1.20	A2	**SAND (SP**): Grey, slightly moist, medium dense to dense, no refusal.

Site Notes

The soils on site consist of sandy soils overlying Triassic Sandstone with a characteristic high permeability and low nutrient retention capacity. Permeability is estimated to be greater than 3m/d.

Wastewater Classification & Recommendations

According to AS1547-2012 (on-site waste-water management) the natural soil is classified as **Sand (category 1)**. The site is unsuited to the installation of a traditional septic tank and trenches due to limited space onsite. Secondary treatment of effluent will be required, and it is proposed to install a package treatment system (e.g. Econocycle, Envirocycle, Ozzikleen etc) with treated effluent disposed in a raised absorption bed. A Design Loading Rate (DLR) of 40L/m^2/day has been assigned for this site.

The proposed renovations will result in a one bedroom house and two bedroom equivalent outbuilding. This has a calculated maximum wastewater output of 720L/day. This is based on a tank water supply and a maximum occupancy of 6 people (120L/day/person). With secondary treatment this will require an absorption area of at least 18m^2. This can be accommodated in a raised absorption bed. For all calculations please refer to the Trench summary reports.

Due to the highly permeable topsoil a cut-off drain will not be required. A 100% reserve area should be set aside for future wastewater requirements.

To comply with E23.10.1 of the Interim Planning Scheme 2015;

A1 *Horizontal separation distance from a building to a land application area must comply with one of the following:*

(a) be no less than 6m;	Non-compliance
(b) be no less than; (i) 2m from an upslope or level building; (ii) if primary treated effluent be no less than 4m plus 1m for every degree of average gradient from a downslope building; (iii) if secondary treated effluent and subsurface application, no less than 2m plus 0.25m for every degree of average gradient from a down slope building.	 Complies Complies

A2 *Horizontal separation distance from downslope surface water to a land application area must comply with any of the following:*

(a) be no less than 100m;	Complies with (c) (ii)
(b) if the site is within a high rainfall area or the site soil category is 4, 5 or 6, be no less than the following; (i) if primary treated effluent standard or surface application, 50m plus 7m for every degree of average gradient from downslope surface water; (ii) if secondary treated effluent standard and subsurface application, 50m plus 2m for every degree of average gradient from down slope surface water.	
(c) if the site is not within a high rainfall area or the site soil category is not 4, 5 or 6, be no less than the following; (i) if primary treated effluent 15m plus 7m for every degree of average gradient from downslope surface water; (ii) if secondary treated effluent and subsurface application, 15m plus 2m for every degree of average gradient from down slope surface water.	Complies

A3 *Horizontal separation distance from a property boundary to a land application area must comply with either of the following:*

(a) be no less than 40m from a property boundary;	Non-compliance
(b) be no less than: (i) 1.5m from an upslope or level property boundary; and (ii) if primary treated effluent 2m for every degree of average gradient from a downslope property boundary; or (iii) if secondary treated effluent and subsurface application, 1.5m plus 1m for every degree of average gradient from a downslope property boundary.	Complies Complies

A4

Horizontal separation distance from a downslope bore, well or similar water supply to a land application area must be no less than 50m.	Complies

A5

Vertical separation distance between groundwater and a land application area must be no less than 1.5m.	Complies

A6

Vertical separation distance between a limiting layer and a land application area must be no less than 1.5m.	Non-Compliance see P6

P6 *Vertical separation distance between a limiting layer and a land application area must satisfy all of the following:*

(a) effluent must be no less than secondary treated effluent standard and applied through a subsurface land application system;	Complies
(b) vertical separation distance must be no less than 0.5m, (whether 'in ground' or by use of a raised bed).	Complies

A7 *The arrangement of a land application area must comply with both of the following:*

(a) not include areas beneath buildings, driveways or other hard stand areas;	Complies
(b) have a minimum horizontal dimension of 3m.	Complies

The following setback distances are required to comply with the E23.10.1 of the Interim Planning Scheme 2015

Upslope or level buildings:	2m
Downslope buildings:	3.75m
Upslope or level boundaries:	1.5m
Downslope boundaries:	8.5m
Downslope surface water:	29m

Compliance with Building Act 2016 Guidelines for On-site Wastewater Management Systems is outlined in the attached table.

During construction GES will need to be notified of any variation to the soil conditions or wastewater loading as outlined in this report.

Dr John Paul Cumming B.Agr.Sc (hons) PhD CPSS GAICD

Director

GES P/L

Land suitability and system sizing for on-site wastewater management

Trench 3.0 (Australian Institute of Environmental Health)

Assessment Report

Site assessment for on-site waste water disposal

Assessment for	Scott Lawes	Assess. Date	13-Dec-23
		Ref. No.	
Assessed site(s)	532 Adventure Bay Road Adventure Bay	Site(s) inspected	29-Jun-23
Local authority	Kingborough	Assessed by	John Paul Cumming

This report summarises wastewater volumes, climatic inputs for the site, soil characteristics and sustem sizing and design issues. Site Capability and Environmental sensitivity issues are reported separately, where 'Alert' columns flag factors with high (A) or very high (AA) limitations which probably require special consideration for system design(s). Blank spaces on this page indicate data have not been entered into TRENCH.

Wastewater Characteristics

Wastewater volume (L/day) used for this assessment = 720 (using the 'No. of bedrooms in a dwelling' method)
Septic tank wastewater volume (L/day) = 240
Sullage volume (L/day) = 480
Total nitrogen (kg/year) generated by wastewater = 2.6
Total phosphorus (kg/year) generated by wastewater = 1.3

Climatic assumptions for site (Evapotranspiration calculated using the crop factor method)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean rainfall (mm)	47	47	48	61	59	62	72	77	73	69	66	63
Adopted rainfall (R, mm)	47	47	48	61	59	62	72	77	73	69	66	63
Retained rain (Rr, mm)	40	40	41	52	50	53	61	65	62	59	56	54
Max. daily temp. (deg. C)												
Evapotrans (ET, mm)	130	110	91	63	42	29	32	42	63	84	105	126
Evapotr. less rain (mm)	**90**	**70**	**50**	**11**	**-8**	**-23**	**-30**	**-23**	**1**	**25**	**49**	**72**

Annual evapotranspiration less retained rain (mm) = 285

Soil characterisitics

Texture = Sand Category = 1 Thick. (m) = 3
Adopted permeability (m/day) = 3 Adopted LTAR (L/sq m/day) = 40 Min depth (m) to water = 3

Proposed disposal and treatment methods

Proportion of wastewater to be retained on site:	All wastewater will be disposed of on the site
The preferred method of on-site primary treatment:	In a package treatment plant
The preferred method of on-site secondary treatment:	In-ground
The preferred type of in-ground secondary treatment:	Evapotranspiration bed(s)
The preferred type of above-ground secondary treatment:	None
Site modifications or specific designs:	Not needed

Suggested dimensions for on-site secondary treatment system

Total length (m) =	6
Width (m) =	3
Depth (m) =	0.6
Total disposal area (sq m) required =	18
comprising a Primary Area (sq m) of:	18
and a Secondary (backup) Area (sq m) of:	

Sufficient area is available on site

To enter comments, click on the line below 'Comments'. (This yellow-shaded box and the buttons on this page will not be printed.)

Comments

The calculated DLR for the Category 1 soil present is 40L/sq m/day with a required absorption area of 18sq m. Therefore the system will have the capacity to cope with predicted climatic and loading events.

GES P/L

Land suitability and system sizing for on-site wastewater management

Trench 3.0 (Australian Institute of Environmental Health)

Site Capability Report

Site assessment for on-site waste water disposal

Assessment for	Scott Lawes	Assess. Date	13-Dec-23
		Ref. No.	
Assessed site(s)	532 Adventure Bay Road Adventure Bay	Site(s) inspected	29-Jun-23
Local authority	Kingborough	Assessed by	John Paul Cumming

This report summarises data relating to the physical capability of the assessed site(s) to accept wastewater. Environmental sensitivity and system design issues are reported separately. The 'Alert' column flags factors with high (A) or very high (AA) site limitations which probably require special consideration in site acceptability or for system design(s). Blank spaces indicate data have not been entered into TRENCH.

Alert	Factor	Units	Value	Confid level	Limitation Trench	Limitation Amended	Remarks
A	Expected design area	sq m	500	V. high	High		
	Density of disposal systems	/sq km	10	Mod.	Very low		
	Slope angle	degrees	7	High	Low		
	Slope form	Straight simple		High	Low		
	Surface drainage	Mod. good		High	Low		
	Flood potential	Site floods 1 in 75-100 yrs		High	Low		
	Heavy rain events	Infrequent		High	Moderate		
	Aspect (Southern hemi.)	Faces E or W		V. high	Moderate		
	Frequency of strong winds	Infrequent		High	Moderate		
	Wastewater volume	L/day	720	High	Moderate		
	SAR of septic tank effluent		1.0	High	Low		
	SAR of sullage		1.6	High	Low		
	Soil thickness	m	3.0	V. high	Very low		
	Depth to bedrock	m	3.0	V. high	Very low		
	Surface rock outcrop	%	0	V. high	Very low		
	Cobbles in soil	%	0	V. high	Very low		
	Soil pH		5.5	High	Low		
	Soil bulk density	gm/cub. cm	1.4	High	Very low		
	Soil dispersion	Emerson No.	8	V. high	Very low		
AA	Adopted permeability	m/day	3	Mod.	Very high		
	Long Term Accept. Rate	L/day/sq m	40	High	Very high	Moderate	Other factors lessen impact

To enter comments, click on the line below 'Comments' . (This yellow-shaded box and the buttons on this page will not be printed.)

Comments

The site has the capability to accept secondary treated onsite wastewater disposal.

GES P/L

Land suitability and system sizing for on-site wastewater management

Trench 3.0 (Australian Institute of Environmental Health)

Environmental Sensitivity Report

Site assessment for on-site waste water disposal

Assessment for	Scott Lawes	Assess. Date	13-Dec-23
		Ref. No.	
Assessed site(s)	532 Adventure Bay Road Adventure Bay	Site(s) inspected	29-Jun-23
Local authority	Kingborough	Assessed by	John Paul Cumming

This report summarises data relating to the environmental sensitivity of the assessed site(s) in relation to applied wastewater. Physical capability and system design issues are reported separately. The 'Alert' column flags factors with high (A) or very high (AA) limitations which probably require special consideration in site acceptability or for system design(s). Blank spaces indicate data have not been entered into TRENCH.

Alert	Factor	Units	Value	Confid level	Limitation Trench	Limitation Amended	Remarks
AA	Cation exchange capacity	mmol/100g	25	High	Very high		
A	Phos. adsorp. capacity	kg/cub m	0.3	High	High		
	Annual rainfall excess	mm	-285	High	Very low		
	Min. depth to water table	m	3	High	Very low		
	Annual nutrient load	kg	3.9	High	Very low		
	G'water environ. value	Agric non-sensit		V. high	Low		
	Min. separation dist. required	m	3	High	Very low		
	Risk to adjacent bores	Very low		V. high	Very low		
	Surf. water env. value	Agric non-sensit		V. high	Low		
A	Dist. to nearest surface water	m	80	V. high	High		
AA	Dist. to nearest other feature	m	8.5	V. high	Very high		
	Risk of slope instability	Very low		V. high	Very low		
AA	Distance to landslip	m	25	V. high	Very high		

To enter comments, click on the line below 'Comments'. (This yellow-shaded box and the buttons on this page will not be printed.)

Comments

The planting grass species over the absorption beds is recommended to aid in nutrient absorption. The land application area complies with all requied setback distances therefore there is low risk of environmental harm.

Demonstration of wastewater system compliance to *Building Act 2016 Guidelines for On-site Wastewater*

Acceptable Solutions	**Performance Criteria**	**Compliance**
A1 Horizontal separation distance from a building to a land application area must comply with one of the following: a) be no less than 6m; or b) be no less than: (i) 3m from an upslope building or level building; (ii) If primary treated effluent to be no less than 4m plus 1m for every degree of average gradient from a downslope building; (iii) If secondary treated effluent and subsurface application, no less than 2m plus 0.25m for every degree of average gradient from a downslope building.	P1 a) The land application area is located so that (i) the risk of wastewater reducing the bearing capacity of a building's foundations is acceptably low.; and (ii) is setback a sufficient distance from a downslope excavation around or under a building to prevent inadequately treated wastewater seeping out of that excavation	Complies with E23 of the Interim Planning Scheme 2015 Land application area will be located with a minimum separation distance of 2m from an upslope or level building. Complies with A1 (b) (iii) Land application area will be located with a minimum separation distance of 3.75m of downslope building.
A2 Horizontal separation distance from downslope surface water to a land application area must comply with (a) or (b) (a) be no less than 100m; or (b) be no less than the following: (i) if primary treated effluent 15m plus 7m for every degree of average gradient to downslope surface water; or (ii) if secondary treated effluent and subsurface application, 15m plus 2m for every degree of average gradient to down slope surface water.	P2 Horizontal separation distance from downslope surface water to a land application area must comply with all of the following: a) Setbacks must be consistent with AS/NZS 1547 Appendix R; b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.	Complies with A2 (b) (ii) Land application area will be located a minimum of 29m from downslope surface water

A3 Horizontal separation distance from a property boundary to a land application area must comply with either of the following: (a) be no less than 40m from a property boundary; or (b) be no less than: (i) 1.5m from an upslope or level property boundary; and (ii) If primary treated effluent 2m for every degree of average gradient from a downslope property boundary; or (iii) If secondary treated effluent and subsurface application, 1.5m plus 1m for every degree of average gradient from a downslope property boundary.	P3 Horizontal separation distance from a property boundary to a land application area must comply with all of the following: (a) Setback must be consistent with AS/NZS 1547 Appendix R; and (b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.	Complies with A3 (b) (i) Land application area will be located with a minimum separation distance of 1.5m from an upslope or level property boundary Complies with A3 (b) (i) Land application area will be located with a minimum separation distance of 8.5m of downslope property boundary.
A4 Horizontal separation distance from a downslope bore, well or similar water supply to a land application area must be no less than 50m and not be within the zone of influence of the bore whether up or down gradient.	P4 Horizontal separation distance from a downslope bore, well or similar water supply to a land application area must comply with all of the following: (a) Setback must be consistent with AS/NZS 1547 Appendix R; and (b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 demonstrates that the risk is acceptable	Complies with A4 No bore or well identified within 50m

A5 Vertical separation distance between groundwater and a land application area must be no less than: (a) 1.5m if primary treated effluent; or (b) 0.6m if secondary treated effluent	P5 Vertical separation distance between groundwater and a land application area must comply with the following: (a) Setback must be consistent with AS/NZS 1547 Appendix R; and (b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 that demonstrates that the risk is acceptable	Complies with A5 (b) No groundwater encountered
A6 Vertical separation distance between a limiting layer and a land application area must be no less than: (a) 1.5m if primary treated effluent; or (b) 0.5m if secondary treated effluent	P6 Vertical setback must be consistent with AS/NZS1547 Appendix R.	Complies with A5 (b)
A7 nil	P7 A wastewater treatment unit must be located a sufficient distance from buildings or neighbouring properties so that emissions (odour, noise or aerosols) from the unit do not create an environmental nuisance to the residents of those properties	Complies

AS1547:2012 – Loading Certificate – AWTS Design

This loading certificate sets out the design criteria and the limitations associated with use of the system.

Site Address: 532 Adventure Bay Road Adventure Bay

System Capacity: 6 persons @ 120L/person/day

Summary of Design Criteria

DLR: 40mm/day.

Irrigation area: 18m^2

Reserve area location /use: Assigned

Water saving features fitted: Standard fixtures

Allowable variation from design flows: 1 event @ 200% daily loading per quarter

Typical loading change consequences: Expected to be minimal due to use of AWTS and large land area

Overloading consequences: Continued overloading may cause hydraulic failure of the absorption area and require upgrading/extension of the area. Risk considered acceptable due to monitoring through quarterly maintenance reports.

Underloading consequences: Lower than expected flows will have minimal consequences on system operation unless the house has long periods of non occupation. Under such circumstances additional maintenance of the system may be required. Long term under loading of the system may also result in vegetation die off in the absorption area and additional watering may be required. Risk considered acceptable due to monitoring through quarterly maintenance reports.

Lack of maintenance / monitoring consequences: Issues of underloading/overloading and condition of the irrigation area require monitoring and maintenance, if not completed system failure may result in unacceptable health and environmental risks. Monitoring and regulation by the permit authority required to ensure compliance.

Other considerations: Owners/occupiers must be made aware of the operational requirements and limitations of the system by the installer/maintenance contractor.

CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94
Section 106
Section 129
Section 155

Form **35**

To: Scott Lawes *Owner name*
532 Adventure Bay Road *Address*
Adventure Bay 7150 *Suburb/postcode*

Designer details:

Name: John-Paul Cumming
Category: Bld. Srvcs. Dsgnr. - Hydraulic
Business name: Geo-Environmental Solutions
Phone No: 03 6223 1839
Business address: 29 Kirksway Place
Battery Point 7004
Fax No: N/A
Licence No: CC774A
Email address: office@geosolutions.net.au

Details of the proposed work:

Owner/Applicant Scott Lawes
Designer's project reference No. J9069
Address: 532 Adventure Bay Road
Lot No: 179003/1
Adventure Bay 7150

Type of work: Building work ☐ Plumbing work ☒ *(X all applicable)*

Description of work:
On-site wastewater management system - design

(new building / alteration / addition / repair / removal / re-erection water / sewerage / stormwater / on-site wastewater management system / backflow prevention / other)

Description of the Design Work (Scope, limitations or exclusions): *(X all applicable certificates)*

Certificate Type:	Certificate	Responsible Practitioner
	☐ Building design	Architect or Building Designer
	☐ Structural design	Engineer or Civil Designer
	☐ Fire Safety design	Fire Engineer
	☐ Civil design	Civil Engineer or Civil Designer
	☒ Hydraulic design	Building Services Designer
	☐ Fire service design	Building Services Designer
	☐ Electrical design	Building Services Designer
	☐ Mechanical design	Building Service Designer
	☐ Plumbing design	Plumber-Certifier; Architect, Building Designer or Engineer
	☐ Other (specify)	

Deemed-to-Satisfy: ☒ Performance Solution: ☐ *(X the appropriate box)*

Other details:

AWTS with raised absorption bed

Design documents provided:

The following documents are provided with this Certificate –

Document description:

Drawing numbers:	Prepared by: Geo-Environmental Solutions	Date: Dec-23
Schedules:	Prepared by:	Date:
Specifications:	Prepared by: Geo-Environmental Solutions	Date: Dec-23
Computations:	Prepared by:	Date:
Performance solution proposals:	Prepared by:	Date:
Test reports:	Prepared by: Geo-Environmental Solutions	Date: Dec-23

Standards, codes or guidelines relied on in design process:

AS1547:2012 On-site domestic wastewater management.

AS3500 (Parts 0-5)-2013 Plumbing and drainage set.

Any other relevant documentation:

Geo-Environmental Assessment - 532 Adventure Bay Road Adventure Bay - Dec-23

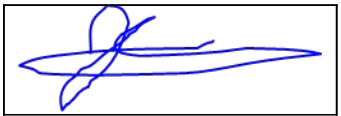
Geo-Environmental Assessment - 532 Adventure Bay Road Adventure Bay - Dec-23

Attribution as designer:

I John-Paul Cumming, am responsible for the design of that part of the work as described in this certificate;

The documentation relating to the design includes sufficient information for the assessment of the work in accordance with the *Building Act 2016* and sufficient detail for the builder or plumber to carry out the work in accordance with the documents and the Act;

This certificate confirms compliance and is evidence of suitability of this design with the requirements of the National Construction Code.

	Name: (print)	*Signed*	*Date*
Designer:	John-Paul Cumming		13/12/2023
Licence No:	CC774A		

Assessment of Certifiable Works: (TasWater)

Note: single residential dwellings and outbuildings on a lot with an existing sewer connection are not considered to increase demand and are not certifiable.

If you cannot check ALL of these boxes, LEAVE THIS SECTION BLANK.

TasWater must then be contacted to determine if the proposed works are Certifiable Works.

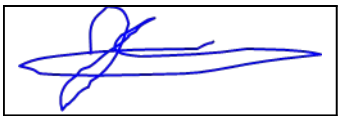
I confirm that the proposed works are not Certifiable Works, in accordance with the Guidelines for TasWater CCW Assessments, by virtue that all of the following are satisfied:

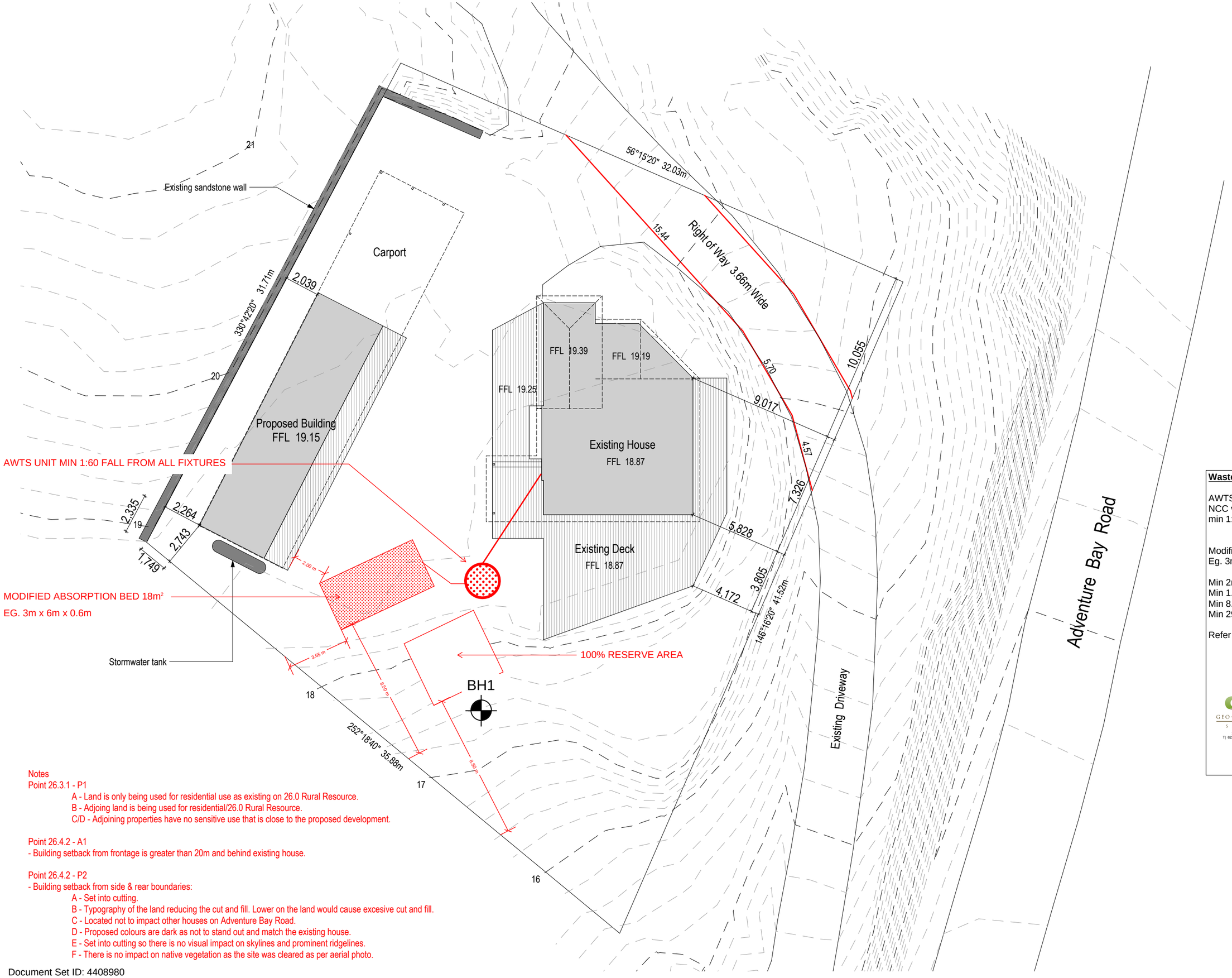
- [x] The works will not increase the demand for water supplied by TasWater
- [x] The works will not increase or decrease the amount of sewage or toxins that is to be removed by, or discharged into, TasWater's sewerage infrastructure
- [x] The works will not require a new connection, or a modification to an existing connection, to be made to TasWater's infrastructure
- [x] The works will not damage or interfere with TasWater's works
- [x] The works will not adversely affect TasWater's operations
- [x] The work are not within 2m of TasWater's infrastructure and are outside any TasWater easement
- [x] I have checked the LISTMap to confirm the location of TasWater infrastructure
- [x] If the property is connected to TasWater's water system, a water meter is in place, or has been applied for to TasWater.

Certification:

I ..... John-Paul Cumming..... being responsible for the proposed work, am satisfied that the works described above are not Certifiable Works, as defined within the *Water and Sewerage Industry Act 2008,* that I have answered the above questions with all due diligence and have read and understood the Guidelines for TasWater CCW Assessments.

Note: the Guidelines for TasWater Certification of Certifiable Works Assessments are available at: www.taswater.com.au

	Name: (print)	*Signed*	*Date*
Designer:	John-Paul Cumming		13/12/2023



Notes

Point 26.3.1 - P1

A - Land is only being used for residential use as existing on 26.0 Rural Resource.
B - Adjoing land is being used for residential/26.0 Rural Resource.
C/D - Adjoining properties have no sensitive use that is close to the proposed development.

Point 26.4.2 - A1

- Building setback from frontage is greater than 20m and behind existing house.

Point 26.4.2 - P2

- Building setback from side & rear boundaries:

A - Set into cutting.
B - Typography of the land reducing the cut and fill. Lower on the land would cause excesive cut and fill.
C - Located not to impact other houses on Adventure Bay Road.
D - Proposed colours are dark as not to stand out and match the existing house.
E - Set into cutting so there is no visual impact on skylines and prominent ridgelines.
F - There is no impact on native vegetation as the site was cleared as per aerial photo.

draftone TASMANIA
building design ● drafting
ABN: 18 220 805 074
Compliance No: CC 1159 Q
m: 0409 432 670
e: clint.draftone@bigpond.com

Client
Veronica Lawes

Job
Home & Store/Rumpus

Job address
532 Adventure Bay Road,
Adventure Bay

Drawing
Scale: A3 - 1:200
DWG: 3 of 12
Date: 12 October 2023
Job No: 2023-01

New Site Plan

Wastewater system:

AWTS unit vented according to
NCC vol 3 Tas H101.2
min 1:60 fall from all fixtures

Modified absorption bed - 18m²
Eg. 3m x 6m x 0.6m

Min 2m from buildings
Min 1.5m from upslope or level boundaries
Min 8.5m from downslope boundary
Min 29m from downslope surface water

Refer to GES report

GES GEO-ENVIRONMENTAL SOLUTIONS
29 Kirkeway Place Battery Point
T| 62231839 E| office@geosolutions.net.au

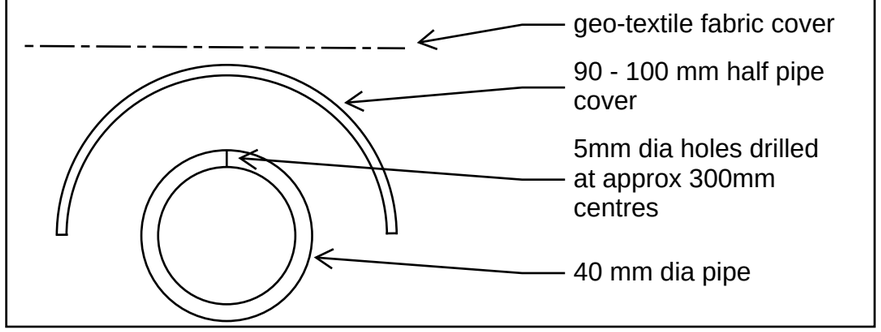
Dr. John Paul Cumming
Building Services Designer-Hydraulic
CCC774A
13/12/2023

Amendments

Date	By
12-10-2023	CW

Builders,Tradesmen,Sub-contractors and Prefabricators to verify all dimensions and levels prior to commencing any building works. Use written dimensions only. Do not scale from drawings.

Distribution pipe detail



Note: min 0.5m required between end of absorption bed and retaining wall

GES
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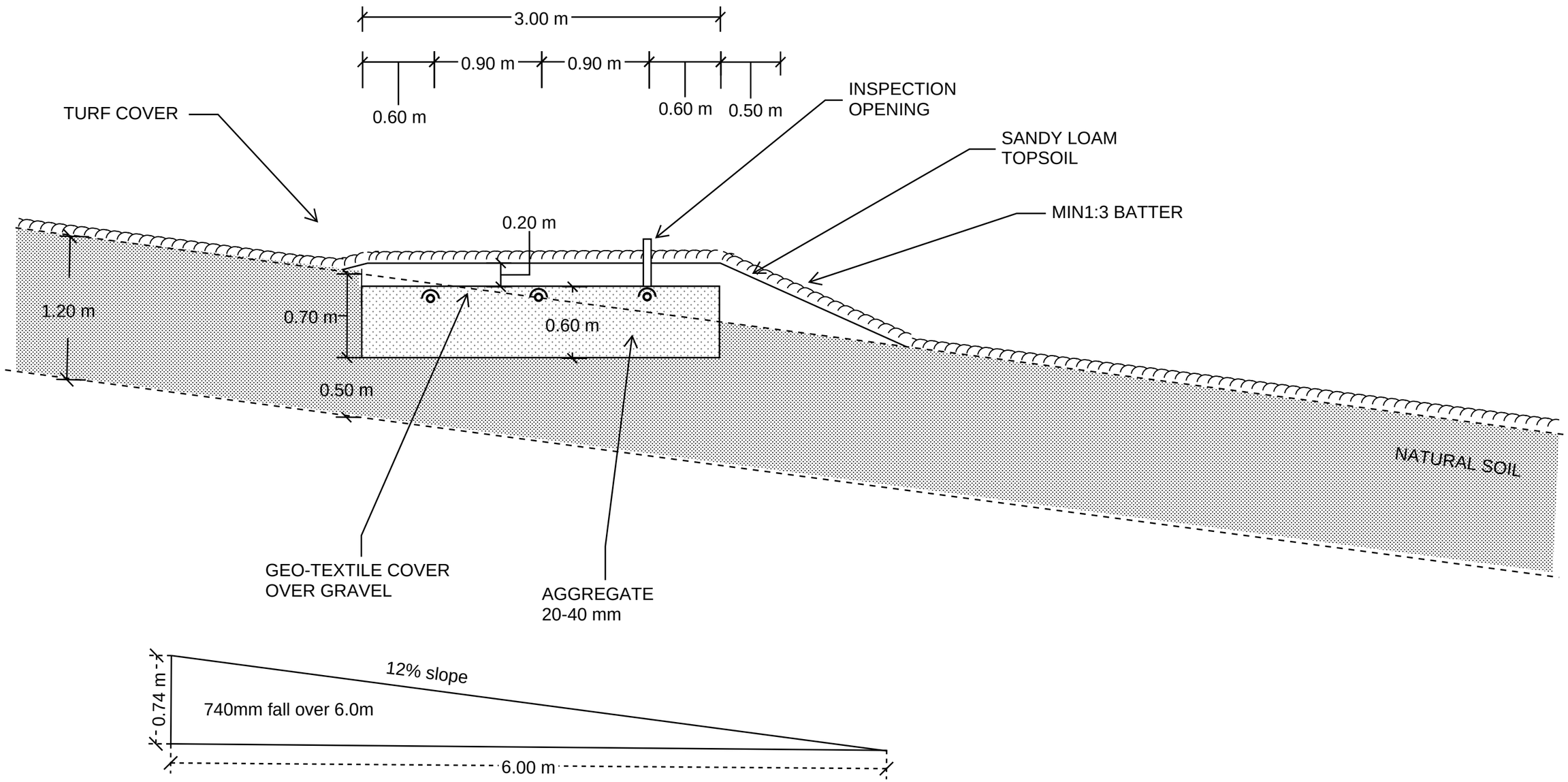
29 Kirksway Place Battery Point
T| 62231839 E| office@geosolutions.net.au



Do not scale from these drawings. Dimensions to take precedence over scale.				On-site Wastewater Cross-Section	Sheet 1 of 2

Design notes:

1.Absorption bed dimensions of up to 20m long by 0.60m deep by 3m wide.

2. Base of bed to be excavated level max 750mm into natural soils and smearing and compaction avoided.

3. Bed to be filled with 20-40mm aggregate and drilled 40mm distribution pipes packed into upper 100mm.

4. 40mm distribution pipes drilled with sufficient 5mm holes in the top of the pipe (approx spacing 300mm) to distribute the effluent and half circle 90-100mm UPVC pipe, un-perforated, laid over each 40mm perforated lateral to direct water jet downwards.

5. One 5 mm hole at centre of invert of each pipe to allow for drainage between pump cycles.

6. Geotextile or filter cloth to be placed over the distribution pipes to prevent clogging of the pipes and aggregate - the sides of the bed should also be lined.

7. Final finished surface with sandy loam to be a minimum of 150 mm above aggregate with turf cover or mulched with appropriate vegetation (eg native grasses and small shrubs at 1 plant per 1 m2)

8. The turf or vegetation is an essential component of the system and must be maintained with regular mowing and or trimming as appropriate

9. The distribution pipe grid must be absolutely level to allow even distribution of effluent around the absorption area – it is recommended that the level be verified by running water into the system before backfilling and commissioning the trench

10.All works on site to comply with AS3500 and Tasmanian Plumbing code.

The pump must be capable of delivering the total flow rate required for all laterals whilst providing a 1.5m residual head (ie squirt height) at the highest orifice (with no more than 15% variation in squirt height across the whole bed).

For beds with individual laterals, no more than 15m long, it is acceptable to adopt a flow rate of 4-5L/min/lineal metre. Total dynamic head (including friction loss) will need to be determined on a site-specific basis.

Individual flush points must be installed for each lateral. This may be a screw cap fitting on a 90 degree elbow level with the bed surface or a pressure controlled flush valve inside an irrigation control box.

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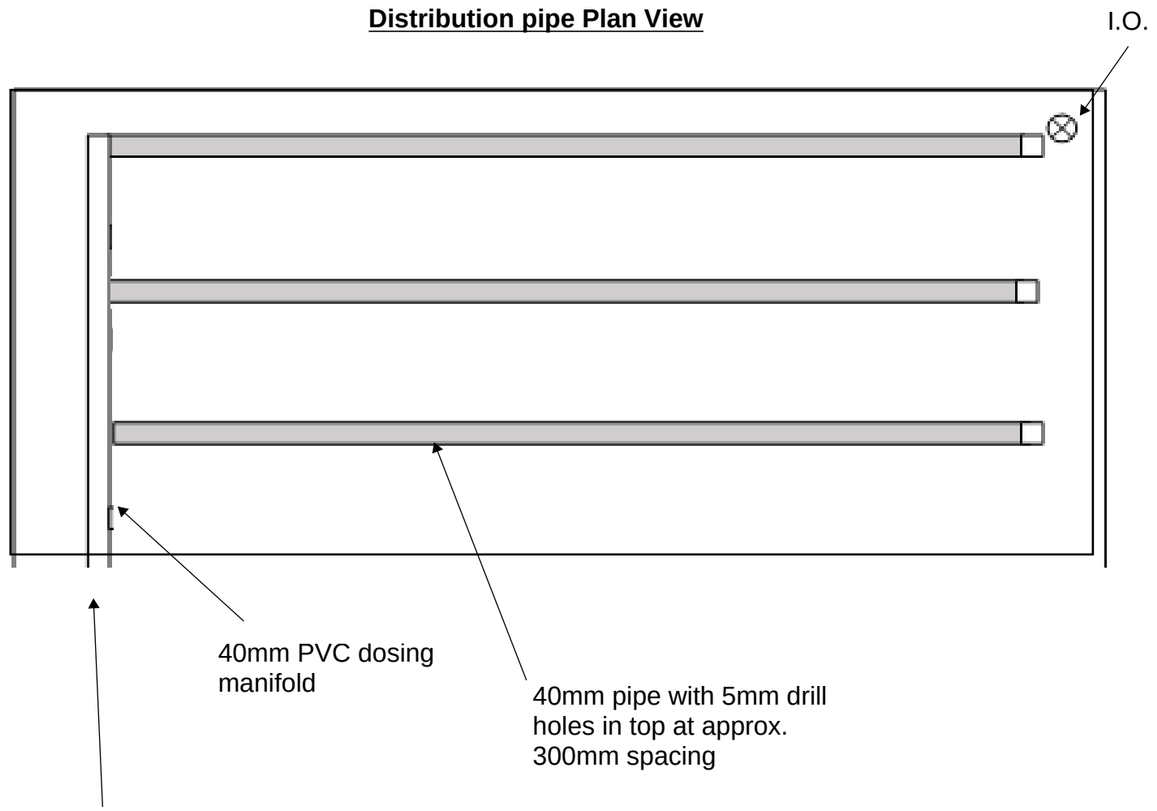
Distribution pipe Plan View



Do not scale from these drawings. Dimensions to take precedence over scale.				On-site Wastewater Design Notes	Sheet 2 of 2

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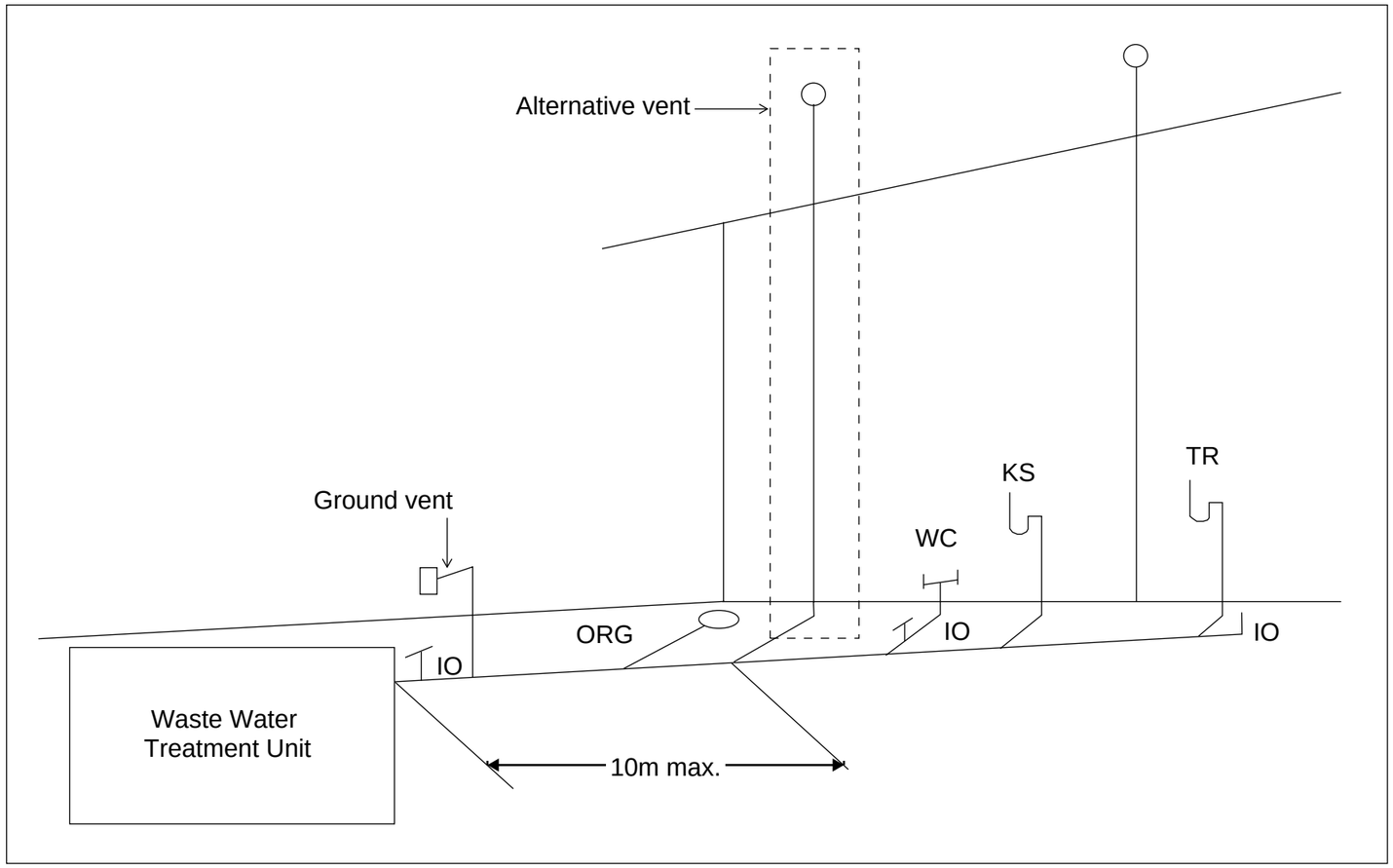

Tas Figure H101.2 Alternative Venting Arrangements

Vents must terminate in accordance with AS/NZS 3500.2

Alternative venting to be used by extending a vent to terminate as if an upstream vent, with the vent connection between the last sanitary fixture or sanitary appliance and the on-site wastewater management system. Use of a ground vent in not recommended

Inspection openings must be located at the inlet to an on-site wastewater management system treatment unit and the point of connection to the land application system and must terminate as close as practicable to the underside of an approved inspection opening cover installed at the finished surface level

Access openings providing access for desludging or maintenance of on-site wastewater management system treatment unites must terminate at or above finished surface level

Alternative vent is the preferred arrangement where possible.

Do not scale from these drawings. Dimensions to take precedence over scale.				Tas Figure H101.2 Alternative Venting Arrangements		Sheet 1 of 1