Attachment to item number 5.1 -

Site Investigation Report (Site Classification & Wind Loads for Housing);

Site Investigation Report (On-Site Wastewater Management System Assessment Report);

SITE INVESTIGATION REPORT

AS 2870 SITE CLASSIFICATION &
AS 4055 WIND LOADS FOR HOUSING

CLIENT:
JAMES & JESSICA FISHER

PROJECT ADDRESS:
12 EAST STREET
DODGES FERRY 7173

PROPOSED DEVELOPMENT:
NEW RESIDENTIAL DWELLING

FILE NUMBER:
H2750

DATE:
24 NOVEMBER 2023

Sorell Council
Development Application: 5.2024.266.1 - Reposne to Request for Information P2.pdf
Plans Reference: P2
Date received: 27.02.2025

HED CONSULTING
UNIT 2, 1 LIVERPOOL ST, HOBART 7000
P 03 6146 0334 E info@hed-consulting.com.au

Sorell Council
Development Application: 5.2024.266.1 - Reposne to Request for Information P2.pdf
Plans Reference: P2
Date received: 27.02.2025

MATT KENNEDY DRAFTING & DESIGN
0472 655 173
ADMIN@MATT-KENNEDY.COM.AU
5 MCINTYRE STREET, MORNINGTON

Dear Sorell Council Planning Officer,

We confirm that the siting of the proposed dwelling complies with Section 10.4.3 Setback P2 of the planning scheme and does not cause an unreasonable loss of amenity to adjoining properties.

The site features a natural slope, narrowing at the top and opening out further downslope. The proposed dwelling is located at the higher portion of the site, which is essential to accommodate the wastewater system at the lower end. This positioning is both functional and respectful of the site constraints, ensuring the infrastructure is located away from neighbouring dwellings. The proposed location reflects the established development pattern in the area, where similar topographical challenges have influenced the placement of houses.

The setbacks of the proposed dwelling align with those of surrounding properties, maintaining consistency with the character of the area. The height, bulk, and form of the dwelling have been designed to integrate harmoniously into the sloping landscape. This solution lowers visual impact and ensures the dwelling does not obstruct direct views of neighbouring or adjoining properties. We have utilised the slope, so the design ensures the building blends with the natural terrain without appearing imposing or inconsistent with the area's character.

Shadow diagrams have been prepared and submitted to demonstrate that the proposed dwelling has minimal impact on sunlight to adjoining properties. The shadow diagrams confirm that private open spaces and habitable room windows on neighbouring properties will not be unreasonably affected. The dwelling's orientation and design prioritise sunlight access for adjoining properties while maximising usability for the site itself.

The dwelling’s siting ensures adequate private open space is retained on the property and that the privacy and amenity of adjoining properties are preserved. Furthermore, the proposed development aligns with the established character of the neighbourhood, where dwellings typically make use of sloping sites to accommodate infrastructure such as wastewater systems.

In conclusion, the proposed dwelling is sited to balance the unique constraints of the site with the need to protect the amenity of adjoining properties. The design complies with Section 10.4.3 Setback P2 of the planning scheme by ensuring consistency with the setbacks, scale, and character of the area while minimising impacts on neighbouring properties.

1. Executive Summary

The subject land is located at 12 East Street, Dodges Ferry. The development proposal includes the construction of a residential dwelling. The site investigation has been conducted in accordance with AS2870:2011 *Residential slabs and footings* and AS4055-2021 *Wind Load for housing*. A summary of the report is detailed in the table below.

Analysis	Observations / Results
Site classification	**P (due to erodible soils)**
Surface movement (y_s) range:	**0-20mm (S)**
Geology:	**Triassic dominantly quartz sandstone**
Refusal depth:	**No refusal (2.8m+)**
Soil bearing capacity:	**100 kPa @ 0.6m depth**
Modified Emerson Crumb test:	**Non – dispersive**
Wind classification:	**N3**

2. Client Information and Site Location

	Information
Client name:	**James & Jessica Fisher**
Site address:	**12 East Street Dodges Ferry**
Property ID:	**5914901**
Title Reference:	**79621/6**

3. Site information

Site information	Results
Size of development:	Single residential dwelling
Services available:	Power, telecommunications
Zoning:	Low Density Residential
Tenure:	Private Freehold
Permit Authority:	Sorell Council
Planning Overlays:	Southern Beaches On-site Waste Water and Stormwater Management Specific Area Plan, Airport obstacle limitation area & Low landslip hazard band

4. Site visit

Site investigation	Observations / Results
Date of site investigation:	23/11/2023
Slope:	20 - 30%
Aspect:	South - east
Rainfall:	24.3mm (preceding two weeks)[1]
Drainage:	Well - draining
Vegetation:	Grass and isolated shrubs
Erosion:	No significant erosion was observed

[1] Bureau of Meteorology, http://www.bom.gov.au, Daily Rainfall Sorell (Abbatoirs)

5. Soil Profile

Two bore holes were conducted in the top half of the lot. Both bore holes revealed a deep sandy soil profile. The soil profile and location of the bore holes is shown in the appendix of this report.

6. Site Stability

The proposed dwelling will be located within the Low landslip hazard band. The land has a slope that exceeds the commonly accepted threshold slope angle of 10 degrees for soil derived from Triassic sedimentary bedrock. Bore holes revealed a loose sandy topsoil and would be exposed to wind erosion if disturbed.

The site exhibits no signs of significant erosion or land instability. It should be noted that this report does not include a Landslide Risk Assessment and should not be relied upon for land stability.

Earthworks shall comply with AS3798-2007 Guidelines on earthworks for commercial and residential developments.

The Australian Geomechanics Society Sub-committee on landslide risk management (2007) can be found in the appendix of this report. These guidelines provide information on good hillside practice for construction and should be followed for the construction of the proposed dwelling.

7. AS2870 Site Classification

The site is classified as: P (due to the presence of erodible soils).

The natural soil profile has 0-20 mm y_s surface movement.

Footings shall be bedded / piered to competent natural material. Dense competent sand was identified at 2.1m depth in bore hole BH01 and 2.3m in bore hole BH02.

8. AS4055 Wind Classification

The site is classified as per AS4055 – 2021 Wind loads for housing.

Site information	Results
Geographic region:	**A**
Terrain Category:	**1**
Topographic classification:	**T1**
Shielding:	**NS**
Wind Classification:	**N3**
Wind Speed ($V_{h,u}$):	**50m/s**

9. General notes and limitations

Site Investigation:

Site investigation conducted in accordance with the requirements of clause 2.4 of AS2870:2011. The aim of a site investigation is to obtain information about the soil at the location of the intended building(s). The location of bore holes are based on information supplied from the client and other any other location that is deemed necessary by HED Consulting to provide an accurate report. The investigation only applies to this part of the site and the results and recommendations of this report should not be used for any other part of the site.

HED Consulting aims to provide an accurate report at the time of the investigation however natural variations in soil characteristics and depth can occur over short distances. Soil conditions can also vary over time due to climatic events or earthworks. For example, the bearing capacity of clay soils can vary due to the seasonal climatic events. HED Consulting accepts no responsibility for soil conditions that are different to what was inspected at the time of the investigation. If the soil conditions encountered vary to the results of this report HED Consulting should be contacted for advice. As per clause 2.5.2 of AS2870:2011 the site

may require to be re-classified if a cut exceeds 500mm or depth of fill would result in a P classification (when the earthworks were not known at the time of investigation).

Soil testing:

Soil samples (when collected) are tested in accordance with AS1289.7.1.1 – 2003 *Soil reactivity tests-determination of the shrinkage index of a soil-shrink swell index.* Soil testing is not required for all sites due to previous testing of similar material and/or using professional opinion. Bearing capacity of soil is based on field testing with accordance to clause 6.1.7 of AS1726:2017 and / or pocket penetrometer and / or DCP method. Bearing capacity of clays can vary seasonally. Clay can lose strength with high moisture content and increase in strength when clay dries. Bearing capacity results are estimated and are valid for the time of the investigation only. Emersion testing is conducted in accordance with Dispersive Soils and their Management, Technical Reference Manual, Marcus Hardie – 2009. This test reveals whether a clay is dispersive or not.

Building maintenance notes:

The building foundations shall be designed by an engineer. The builder must ensure that good site drainage is provided during the construction phase. Soil drains shall be constructed before excavation of the footings. Roof water should be diverted away from the footing as soon as the roof is constructed by using temporary pipes if necessary.

The long-term performance of the building is dependent upon satisfactory ongoing maintenance by the owner. The builder and owner should obtain a copy of the notes contained within the CSIRO – Building Technology Services, Foundation Maintenance and Footing Performance. A copy of this manual can be purchased from CSIRO Publishing, http://www.publish.csiro.au. Earthworks shall comply with AS3798-2007 Guidelines on Earthworks for commercial and residential developments.

10. Appendix

10.1 Field photos

Photo 1: Field photo showing the soil profile of bore hole BH01.

Photo 2: Field photo showing the soil profile of bore hole BH02.

10.2 Bore hole logs

See attached.

10.3 Site plan & Goodhillside Construction Guidelines

See attached.

10.4 Form 55

See attached.

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Bore hole No.

BH01

Page 1 of 1

Engineering Log - Bore hole

Project Number : H2750

Client:	James & Jessica Fisher	Date:	23/11/2023
Project Address:	12 East Street Dodges Ferry	Borehole Location:	Lat -042.866152° / Long +147.620042° (±4.7m)
Logged By:	J Hepper	Drilling Method:	55mm Sitech Auger

Drilling Information									*Observation / Notes*
Method	Support	Water	Depth (mm)	Group Symbol	Material Description: Colour, Structural, Fraction, Plasticity, Bedding, Additional	Moisture Condition	Consistency / Relative Density	Insitu testing (Est. KPa)	Structure and Additional Observations
			200	SP	SAND, fine - very fine grained, rounded, trace rootlets, brown - grey	D	L	≤ 50	
			1500	SP	SAND, fine grained, rounded, brown - white	D	MD	≥ 50 - ≤ 100	D
			2100	SP	SAND, medium grained, rounded, brown - white	M	MD	≥ 50 - ≤ 100	D
			2800	SP	SAND, medium grained, rounded, trace clay, grey - brown mottled orange	M	D	≥ 100	
					Limit of bore				

Drilling Method
HA - Hand Auger
E - Excavator
WB - Wash Boring

Water
Level
Inflow
Partial Loss

Support
C- Casing

Sample and Tests
U - Undisturbed Sample
D - Disturbed Sample
PP - Pocket Penetrometer
DCP - Dynamic Cone Penetration Test
SPT - Standard Penetration Test
SV - Shear Vane Test

Classification Symbols and Soil Description
Based on Unified Soil Classification System and in accordance with AS1726

Moisture Condition
W -Wet
M - Moist
D - Dry

Consistency / Relative Density
VS - Very Soft
S - Soft
F - Firm
St - Stiff
Vst - Very Stiff
H - Hard
Fr - Friable
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

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Bore hole No.

BH02

Page 1 of 1

Engineering Log - Bore hole

Project Number : H2750

Client:	James & Jessica Fisher	Date:	23/11/2023
Project Address:	12 East Street Dodges Ferry	Borehole Location:	Lat -042.866183° / Long +147.620249° (±4.8m)
Logged By:	J Hepper	Drilling Method:	55mm Sitech Auger

Drilling Information									*Observation / Notes*
Method	Support	Water	Depth (mm)	Group Symbol	Material Description: Colour, Structural, Fraction, Plasticity, Bedding, Additional	Moisture Condition	Consistency / Relative Density	Insitu testing (Est. KPa)	Structure and Additional Observations
			200	SP	SAND, fine grained, rounded, trace rootlets, grey - brown	D	L	≤ 50	
			2300	SP	SAND, fine grained, rounded, brown - white	D - M	MD	≥ 50 - ≤ 100	
			2800	SP	SAND, medium grained, rounded, brown - white	M	D	≥ 100	
					Limit of bore				

Drilling Method
HA - Hand Auger
E - Excavator
WB - Wash Boring

Water
Level
Inflow
Partial Loss

Support
C- Casing

Sample and Tests
U - Undisturbed Sample
D - Disturbed Sample
PP - Pocket Penetrometer
DCP - Dynamic Cone Penetration Test
SPT - Standard Penetration Test
SV - Shear Vane Test

Classification Symbols and Soil Description
Based on Unified Soil Classification System and in accordance with AS1726

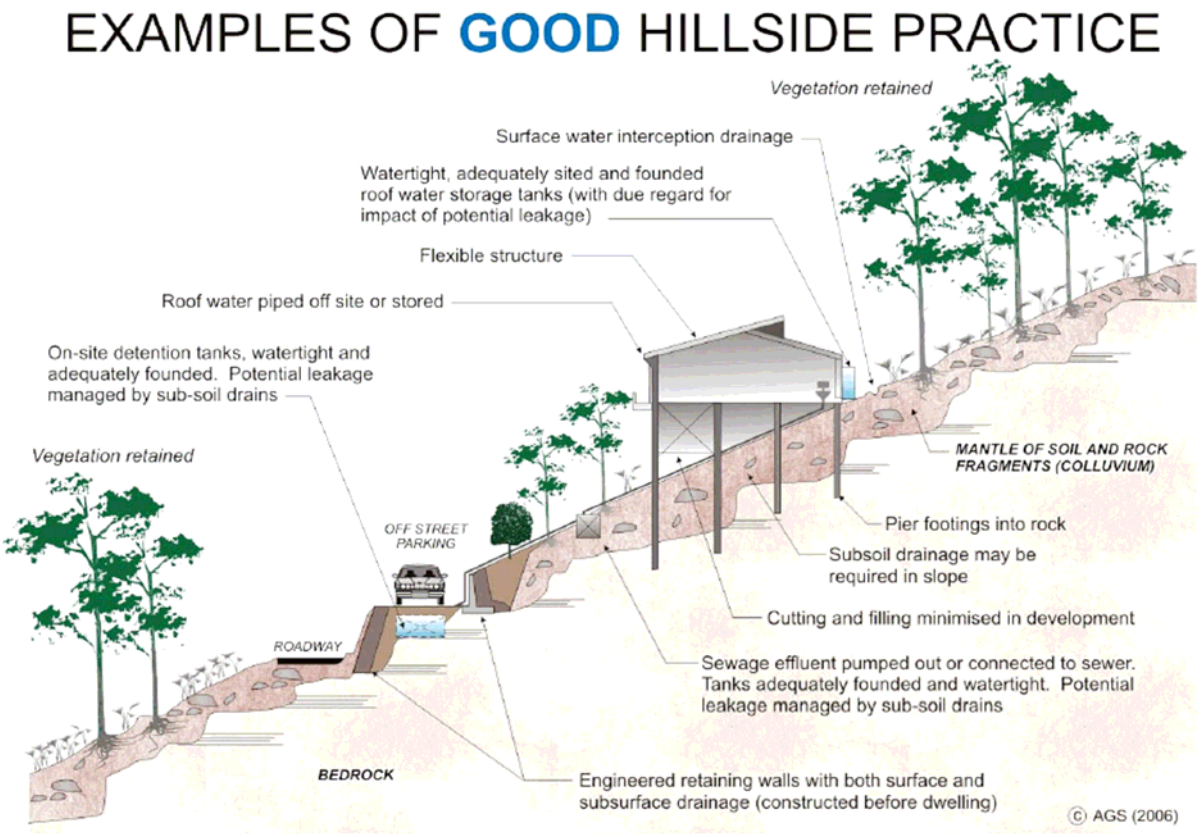
Moisture Condition
W -Wet
M - Moist
D - Dry

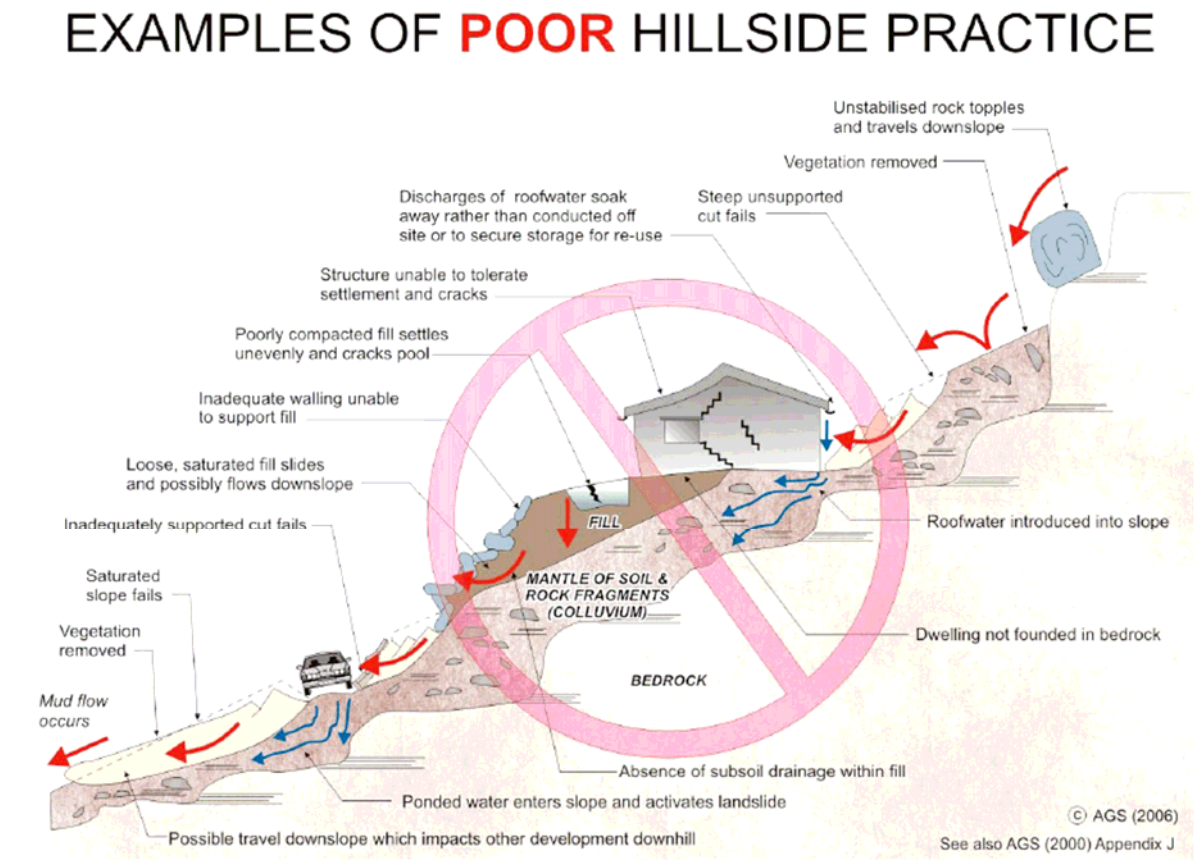
Consistency / Relative Density
VS - Very Soft
S - Soft
F - Firm
St - Stiff
Vst - Very Stiff
H - Hard
Fr - Friable
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense


12 EAST STREET DODGES FERRY
BORE HOLE LOCALITIES
EXISTING OUTBUILDING
BH01
BH02
BH01 - BORE HOLE ID
40
30
25
20

APPENDIX G - SOME GUIDELINES FOR HILLSIDE CONSTRUCTION

	GOOD ENGINEERING PRACTICE	*POOR ENGINEERING PRACTICE*
ADVICE		
GEOTECHNICAL ASSESSMENT	Obtain advice from a qualified, experienced geotechnical practitioner at early stage of planning and before site works.	Prepare detailed plan and start site works before geotechnical advice.
PLANNING		
SITE PLANNING	Having obtained geotechnical advice, plan the development with the risk arising from the identified hazards and consequences in mind.	Plan development without regard for the Risk.
DESIGN AND CONSTRUCTION		
HOUSE DESIGN	Use flexible structures which incorporate properly designed brickwork, timber or steel frames, timber or panel cladding. Consider use of split levels. Use decks for recreational areas where appropriate.	Floor plans which require extensive cutting and filling. Movement intolerant structures.
SITE CLEARING	Retain natural vegetation wherever practicable.	Indiscriminately clear the site.
ACCESS & DRIVEWAYS	Satisfy requirements below for cuts, fills, retaining walls and drainage. Council specifications for grades may need to be modified. Driveways and parking areas may need to be fully supported on piers.	Excavate and fill for site access before geotechnical advice.
EARTHWORKS	Retain natural contours wherever possible.	Indiscriminatory bulk earthworks.
CUTS	Minimise depth. Support with engineered retaining walls or batter to appropriate slope. Provide drainage measures and erosion control.	Large scale cuts and benching. Unsupported cuts. Ignore drainage requirements
FILLS	Minimise height. Strip vegetation and topsoil and key into natural slopes prior to filling. Use clean fill materials and compact to engineering standards. Batter to appropriate slope or support with engineered retaining wall. Provide surface drainage and appropriate subsurface drainage.	Loose or poorly compacted fill, which if it fails, may flow a considerable distance including onto property below. Block natural drainage lines. Fill over existing vegetation and topsoil. Include stumps, trees, vegetation, topsoil, boulders, building rubble etc in fill.
ROCK OUTCROPS & BOULDERS	Remove or stabilise boulders which may have unacceptable risk. Support rock faces where necessary.	Disturb or undercut detached blocks or boulders.
RETAINING WALLS	Engineer design to resist applied soil and water forces. Found on rock where practicable. Provide subsurface drainage within wall backfill and surface drainage on slope above. Construct wall as soon as possible after cut/fill operation.	Construct a structurally inadequate wall such as sandstone flagging, brick or unreinforced blockwork. Lack of subsurface drains and weepholes.
FOOTINGS	Found within rock where practicable. Use rows of piers or strip footings oriented up and down slope. Design for lateral creep pressures if necessary. Backfill footing excavations to exclude ingress of surface water.	Found on topsoil, loose fill, detached boulders or undercut cliffs.
SWIMMING POOLS	Engineer designed. Support on piers to rock where practicable. Provide with under-drainage and gravity drain outlet where practicable. Design for high soil pressures which may develop on uphill side whilst there may be little or no lateral support on downhill side.	
DRAINAGE		
SURFACE	Provide at tops of cut and fill slopes. Discharge to street drainage or natural water courses. Provide general falls to prevent blockage by siltation and incorporate silt traps. Line to minimise infiltration and make flexible where possible. Special structures to dissipate energy at changes of slope and/or direction.	Discharge at top of fills and cuts. Allow water to pond on bench areas.
SUBSURFACE	Provide filter around subsurface drain. Provide drain behind retaining walls. Use flexible pipelines with access for maintenance. Prevent inflow of surface water.	Discharge roof runoff into absorption trenches.
SEPTIC & SULLAGE	Usually requires pump-out or mains sewer systems; absorption trenches may be possible in some areas if risk is acceptable. Storage tanks should be water-tight and adequately founded.	Discharge sullage directly onto and into slopes. Use absorption trenches without consideration of landslide risk.
EROSION CONTROL & LANDSCAPING	Control erosion as this may lead to instability. Revegetate cleared area.	Failure to observe earthworks and drainage recommendations when landscaping.
DRAWINGS AND SITE VISITS DURING CONSTRUCTION		
DRAWINGS	Building Application drawings should be viewed by geotechnical consultant	
SITE VISITS	Site Visits by consultant may be appropriate during construction/	
INSPECTION AND MAINTENANCE BY OWNER		
OWNER'S RESPONSIBILITY	Clean drainage systems; repair broken joints in drains and leaks in supply pipes. Where structural distress is evident see advice. If seepage observed, determine causes or seek advice on consequences.	


EXAMPLES OF GOOD HILLSIDE PRACTICE
Vegetation retained
Surface water interception drainage
Watertight, adequately sited and founded roof water storage tanks (with due regard for impact of potential leakage)
Flexible structure
Roof water piped off site or stored
On-site detention tanks, watertight and adequately founded. Potential leakage managed by sub-soil drains
Vegetation retained
MANTLE OF SOIL AND ROCK FRAGMENTS (COLLUVIUM)
OFF STREET PARKING
Pier footings into rock
Subsoil drainage may be required in slope
Cutting and filling minimised in development
ROADWAY
Sewage effluent pumped out or connected to sewer. Tanks adequately founded and watertight. Potential leakage managed by sub-soil drains
BEDROCK
Engineered retaining walls with both surface and subsurface drainage (constructed before dwelling)
© AGS (2006)


EXAMPLES OF POOR HILLSIDE PRACTICE
Unstabilised rock topples and travels downslope
Vegetation removed
Discharges of roofwater soak away rather than conducted off site or to secure storage for re-use
Steep unsupported cut fails
Structure unable to tolerate settlement and cracks
Poorly compacted fill settles unevenly and cracks pool
Inadequate walling unable to support fill
Loose, saturated fill slides and possibly flows downslope
Inadequately supported cut fails
FILL
Roofwater introduced into slope
Saturated slope fails
MANTLE OF SOIL & ROCK FRAGMENTS (COLLUVIUM)
Vegetation removed
Dwelling not founded in bedrock
BEDROCK
Mud flow occurs
Absence of subsoil drainage within fill
Ponded water enters slope and activates landslide
Possible travel downslope which impacts other development downhill
© AGS (2006)
See also AGS (2000) Appendix J

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form **55**

To: JAMES & JESSICA FISHER *Owner /Agent*

jessbrownmail@gmail.com *Address*

Suburb/postcode

Qualified person details:

Qualified person: JOE HEPPER

Address: UNIT 2, 1 LIVERPOOL STREET

HOBART 7000

Licence No: NA

Phone No: 03 6146 0334

Fax No:

Email address: info@hed-consulting.com.au

Qualifications and Insurance details: BSc. major in geology
ABOUT UNDERWRITING
PN: ENG 20 000459

(description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items

Speciality area of expertise: Foundation classification in accordance with AS2870

(description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)

Details of work:

Address: 12 EAST STREET

DODGES FERRY 7173

Lot No: 6

Certificate of title No: 30982

The assessable item related to this certificate: Geo – technical assessment

(description of the assessable item being certified)
Assessable item includes –
- *a material;*
- *a design*
- *a form of construction*
- *a document*
- *testing of a component, building system or plumbing system*
- *an inspection, or assessment, performed*

Certificate details:

Certificate type: Foundation classification – AS2870

(description from Column 1 of Schedule 1 of the Director's Determination - Certificates by Qualified Persons for Assessable Items n)

This certificate is in relation to the above assessable item, at any stage, as part of - *(tick one)*

building work, plumbing work or plumbing installation or demolition work: ✓

or

a building, temporary structure or plumbing installation:

In issuing this certificate the following matters are relevant –

Documents:	AS2870 Site Classification and AS4055 Wind Classification dated 24 November 2023
Relevant calculations:	
References:	AS2870 – 2011, AS4055 – 2021 Appendix G, Landslide Risk Management, Journal and News of the Australian Geomechanics Society Volume 42 No 1 March 2007

Substance of Certificate: (what it is that is being certified)

Foundation and wind classification

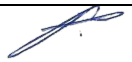
Scope and/or Limitations

Footings to be bedded / piered into competent material as per report.

Footings to inspected by engineer prior to pour.

Limitations as per section 9.0 of site investigation report dated 24 November 2023

I certify the matters described in this certificate.

	Signed:	*Certificate No:*	*Date:*
Qualified person:	JOE HEPPER 	H2750	24/11/2023

SITE INVESTIGATION REPORT

ON-SITE WASTEWATER MANAGEMENT SYSTEM ASSESSMENT REPORT

CLIENT:
J & J FISHER

Sorell Council
Development Application: 5.2024.266.1 - Reposne to Request for Information P2.pdf
Plans Reference: P2
Date received: 27.02.2025

PROJECT ADDRESS:
12 EAST STREET
DODGES FERRY 7173

PROPOSED DEVELOPMENT:
THREE – BEDROOM DWELLING

FILE NUMBER:
H2750

DATE:
20 SEPTEMBER 2024

HED CONSULTING
UNIT 2, 1 LIVERPOOL STREET, HOBART 7000
03 6146 0334 info@hed-consulting.com.au

1. Executive Summary

The subject land is located at 12 East Street, Dodges Ferry. The development proposal includes the construction of a three – bedroom residential dwelling and requires an onsite wastewater management system. The site investigation has been conducted in accordance with AS1547:2012 *On-site domestic-wastewater management.* A summary of the report is detailed in the table below.

Analysis	Observations / Results
Soil category:	**1**
Estimated permeability:	**3m/day**
Long Term Acceptance Rate:	**20mm/day**
Geology:	**Triassic dominantly quartz sandstone**
Refusal depth:	**No refusal (min. 2.5m)**
Modified Emerson Crumb test:	**Non - dispersive**
Type of OWMS:	**Dual – purpose septic tank & absorption bed**
Land application area required:	**30m^2 (total wetted area)**

2. Client and Site Location

	Information
Client name:	**J & J Fisher**
Site address:	**12 East Street Dodges Ferry**
Property ID:	**5914901**
Title Reference:	**79621/6**

3. Site information

Site information	Results
Size of development:	Three – bedroom dwelling
Services available:	Power & telecommunications
Zoning:	Low Density Residential
Tenure:	Private freehold
Permit Authority:	Sorell Council
Planning Overlays:	Southern Beaches On-site Waste Water and Stormwater Management Specific Area Plan, Airport obstacle limitation area & Low landslip hazard band

4. Site visit

Site investigation	Observations / Results
Date of site investigation:	17/9/2024
Slope:	30-34%
Aspect:	South - east
Rainfall:	14.1mm (preceding two weeks)[1]
Drainage:	Well draining
Vegetation	Grass and minor trees
Erosion:	None

[1] Bureau of Meteorology, http://www.bom.gov.au, Daily Rainfall Sorell (Abbatoirs)

5. Soil Profile

Bore holes were conducted to gather information on the soil characteristics and depth to limiting layer. The below soil profile is typical of the bore holes conducted at the land application area.

BH01 & BH02

Soil depth (mm)	Soil Description	Soil Category
0-300	Brown SAND, trace rootlets, moist, loose.	1 – GRAVELS AND SANDS
300-2500+	Brown – white SAND, medium grained, rounded, moist, medium dense.	1 – GRAVELS AND SANDS

No ground water was observed in any bore hole.

The soil is classed as soil category 1 – Gravels and sands for purposes of AS1547:2012. A long - term acceptance rate (LTAR) of 20mm/day has been adopted. Borehole localities are provided in the appendix of this report.

6. Wastewater Load & Total Wetted Area Required

The wastewater load is calculated from AS1547:2012.

Number of bedroom(s):	3
Number of people:	5
Individual wastewater load:	120 (tank water supply)
Total wastewater load:	600L/day
Long term acceptance rate:	20mm/day (primary treated)
Total wetted area required:	300m^2

7. Site limitations and risks

The attached 'Trench3.0'program site capability and environment sensitivity reports detail several factors and risks associated with onsite wastewater disposal. Alerts will be flagged when some factors are 'high risk.' These factors need to be addressed and decreased to a tolerable risk by implementing design risk reduction measures. These measures are detailed in the text box of both reports and may be expanded upon further in this report.

The limitations of the site include the steep slope angle. These limitations can be overcome by careful installation of the absorption trenches. A bench should be created for the excavator to operate in a safe manner.

8. Onsite wastewater management system

Primary treatment (Min. 3000L dual – purpose septic tank)

All wastewater from the dwelling shall be gravity – fed to a minimum of a 3000-litre dual – purpose septic tank. This is the 'working capacity' not total volume.

Land application area

The primary treated wastewater shall be gravity fed to the land application area. This area shall consist of 30m^2 of total wetted area. This can be achieved by installing a single absorption bed with a length of 15m and width of 2m.

Minimum setbacks of the land application area shown below:

Upslope & cross gradient property boundary:	1.5m
Down slope property boundary:	10m
Down slope surface water:	100m

A further minimum area of 30m^2 shall be a 'reserve' area. Refer to attached construction notes, drawings, and site plan for further information.

The bed shall be installed when the weather is fine. Avoid excavation when the soil is wet to avoid smearing any clay. The excavator should be fitted with 'raker teeth' and excavated in small sections to avoid compaction.

If rain is forecast cover any open parts of the bed. Always excavate perpendicular to the line of fall (parallel to contours) and make sure inverts are level.

9. OMWS Designer Inspection

The OWMS must be inspected by the designer to issue an OWMS Installation Certificate. This inspection is a requirement of the plumbing permit issued by the permit authority.

Please email info@hed-consulting.com.au or phone 03 6146 0334 before works begin on the OWMS to arrange a date and time for the inspection.

10. Operation & Maintenance Guidelines

This OWMS has been assessed to perform in accordance with the attached loading certificate. Regular maintenance is essential for the long-term performance of any OWMS. Maintenance guidelines are shown below. This is not a complete list and other maintenance guidelines should be sought from the manufacturer and the permit authority.

Primary treatment (Septic tank)

- Septic tank must be protected from vehicle traffic to avoid damage.
- Kitchen waste such as grease and fats shall be removed and disposed of into a bin before washing.
- Install sink waste plugs to keep out possible solids entering the OWMS.
- Do not install a garbage grinder.
- Do not dispose of hygiene products into the OWMS.
- Use bio – degradable soaps and low – phosphorus cleaning products.
- Do not put powerful bleachers, chemicals, and paint into the OWMS.
- Try and space out water usage as much as possible to avoid peaks loading.
- Septic tank to be pumped out / de-sludged at a maximum of every 3-5 years.

Land application area (Secondary treatment)

- Land application area to be protected from all vehicle traffic (including ride – on mowers) and regular foot traffic (no paths).
- Access to the land application area shall be discouraged. The land application area is not to be used as a play area for children.
- The reserve area (if required) shall not be built upon and access to this area shall also be discouraged.

11. Report limitations

Site Investigation:

Site investigations are conducted in accordance with clause 2.4 of AS1547:2012. The aim of a site investigation is to obtain information about the soil at the location of the proposed land application area. The location of the bore holes is based on information supplied from the client and where is deemed necessary by HED Consulting. The investigation only applies to this part of the site and the results and recommendations of this report should not be used for any other part of the site.

Soil testing:

Soil samples are collected and tested in accordance with Appendix E of AS1547:2012. Emersion testing is conducted in accordance with Dispersive Soils and their Management, Technical Reference Manual, Marcus Hardie – 2009. This test reveals whether clay is dispersive or not. The test is not always accurate however it is recognized as a reliable and quick way to test for dispersion.

Wastewater load:

The report is based on wastewater load as per the attached loading certificate. HED Consulting accepts no responsibility for the performance of the OWMS if the wastewater load exceeds the amount shown on the loading certificate.

12. Appendix

12.1 OWMS Construction Notes

Primary treatment (Septic tank)

- The septic tank shall be buried with the opening accessible at the natural surface.
- The tank shall also be placed in a location where vehicular access is possible for desludging / pump out purposes.
- The septic tank opening shall be easily accessible for inspection and maintenance requirements.
- The septic tank shall be sealed to prevent stormwater intrusion.

- The septic tank shall have a minimum working volume of 3000 litres.

Land application area (LAA)

The absorption bed has been designed to comply with the performance requirements of AS/NZS147:2012.

- The LAA shall be kept clear of all traffic (including people).
- The LAA shall be prepared by removing tree vegetation and backfilling any holes with sandy topsoil.
- Construction of the absorption bed shall be done when the weather is fine, and the soil is relatively dry.
- The absorption bed shall be constructed parallel to the contours.
- The base of the bed shall be made flat.
- The bed shall be installed as per the attached diagram and at the location as per the attached site plan.
- SITE INSPECTION STAGE – The pipework of the modified bed shall be inspected by the designer before the bed is backfilled with sandy topsoil.
- Topsoil must be good quality with some organic matter to promote vegetation growth.
- Fast growing, shallow root vegetation with a high transpiration capacity shall be planted in the topsoil and the area down slope of the bed.
- A list of suitable vegetation is provided with this report. Your council and local nursery can also advise on suitable plants.

12.2 OWMS Trench Reports, Construction Diagrams, Site Plan, Compliance to OWMS Guidelines & Risk Assessment

See attached.

12.3 OWMS Loading Certificate

See attached.

12.4 Form 55 (Site and Soil Evaluation) & Form 35 (OWMS Design)

See attached.

HED Consulting

Land suitability and system sizing for on-site wastewater management

Trench 3.0 (Australian Institute of Environmental Health)

Assessment Report

Onsite Wastewater Management Assessement

Assessment for	J & J Fisher C/- Matt Kennedy	Assess. Date	20-Sep-24
	admin@matt-kennedy.com.au	Ref. No.	H2750
Assessed site(s)	12 East Street Dodges Ferry	Site(s) inspected	17-Sep-24
Local authority	Sorell Council	Assessed by	J Hepper

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 = 600 (using a method independent of the no. of bedrooms)

Septic tank wastewater volume (L/day) = 200

Sullage volume (L/day) = 400

Total nitrogen (kg/year) generated by wastewater = 7.3

Total phosphorus (kg/year) generated by wastewater = 3.3

Climatic assumptions for site (Evapotranspiration estimated using mean max. daily temperatures)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean rainfall (mm)	40	38	39	43	42	37	45	49	42	49	48	52
Adopted rainfall (R, mm)	44	41	42	47	46	40	49	53	46	53	52	57
Retained rain (Rr, mm)	31	29	29	33	32	28	34	37	32	37	36	40
Max. daily temp. (deg. C)	22	22	21	18	15	13	12	13	15	17	19	21
Evapotrans (ET, mm)	82	69	66	53	43	47	45	48	54	63	68	78
Evapotr. less rain (mm)	**51**	**40**	**36**	**20**	**11**	**19**	**10**	**11**	**22**	**26**	**32**	**38**

Annual evapotranspiration less retained rain (mm) = 317

Soil characterisitics

Texture = Sand Category = 1 Thick. (m) = 3

Adopted permeability (m/day) = 3 Adopted LTAR (L/sq m/day) = 20 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 dual purpose septic tank(s)
The preferred method of on-site secondary treatment:	In-ground
The preferred type of in-ground secondary treatment:	Trench(es)
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) =	15
Width (m) =	2
Depth (m) =	0.25
Total disposal area (sq m) required =	60
comprising a Primary Area (sq m) of:	30
and a Secondary (backup) Area (sq m) of:	30

Sufficient area is available on site

Comments

The three bedroom / five people dwelling will require a minimum total wetted area of 30m^2.

HED Consulting

Land suitability and system sizing for on-site wastewater management

Trench 3.0 (Australian Institute of Environmental Health)

Site Capability Report

Onsite Wastewater Management Assessement

Assessment for	J & J Fisher C/- Matt Kennedy	Assess. Date	20-Sep-24
	admin@matt-kennedy.com.au	Ref. No.	H2750
Assessed site(s)	12 East Street Dodges Ferry	Site(s) inspected	17-Sep-24
Local authority	Sorell Council	Assessed by	J Hepper

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
	Expected design area	sq m	1,185	High	Low		
	Density of disposal systems	/sq km	200	High	Very high	Moderate	Other factors lessen impact
	Slope angle	degrees	18	V. high	Very high	Moderate	Other factors lessen impact
	Slope form	Straight simple		V. high	Low		
	Surface drainage	Good		Mod.	Very low		
	Flood potential	Site floods <1:100 yrs		High	Very low		
	Heavy rain events	Infrequent		Mod.	Moderate		
	Aspect (Southern hemi.)	Faces SE or SW		V. high	High	Moderate	Other factors lessen impact
	Frequency of strong winds	Common		High	Low		
	Wastewater volume	L/day	600	High	Moderate		
	SAR of septic tank effluent		1.6	Mod.	Low		
	SAR of sullage		2.8	High	Moderate		
	Soil thickness	m	3.0	High	Very low		
	Depth to bedrock	m	3.0	V. high	Very low		
	Surface rock outcrop	%	0	High	Very low		
	Cobbles in soil	%	0	High	Very low		
	Soil pH		6.0	Mod.	Low		
	Soil bulk density	gm/cub. cm	1.6	Mod.	Moderate		
	Soil dispersion	Emerson No.	8	Mod.	Very low		
	Adopted permeability	m/day	3	Mod.	Very high	Moderate	Other factors lessen impact
	Long Term Accept. Rate	L/day/sq m	20	Mod.	Low		

Comments

Wastewater to be treated to acceptable level within the property boundaries. The land has a steep slope angle, care should be taken when installing the onsite wastewater management system. The site has a south - east aspect but does receive good wind and sun exposure. Elevated permeability due to deep sandy soil profile.

HED Consulting

Land suitability and system sizing for on-site wastewater management

Trench 3.0 (Australian Institute of Environmental Health)

Environmental Sensitivity Report

Onsite Wastewater Management Assessement

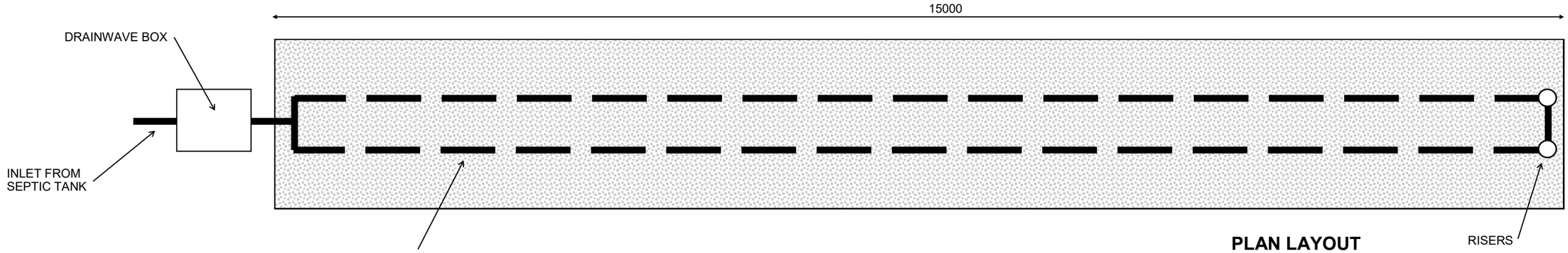
Assessment for	J & J Fisher C/- Matt Kennedy admin@matt-kennedy.com.au	Assess. Date Ref. No.	20-Sep-24 H2750
Assessed site(s)	12 East Street Dodges Ferry	Site(s) inspected	17-Sep-24
Local authority	Sorell Council	Assessed by	J Hepper

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
	Cation exchange capacity	mmol/100g	15	Mod.	Very high	Moderate	Other factors lessen impact
	Phos. adsorp. capacity	kg/cub m	0.2	Mod.	High	Moderate	Other factors lessen impact
	Annual rainfall excess	mm	-317	High	Very low		
	Min. depth to water table	m	3	Mod.	Very low		
	Annual nutrient load	kg	10.6	High	Moderate		
	G'water environ. value	Agric sensit/dom irrig		Mod.	Moderate		
	Min. separation dist. required	m	8	High	Very low		
	Risk to adjacent bores	Very low		Mod.	Very low		
	Surf. water env. value	Recreational		Mod.	High	Moderate	Other factors lessen impact
	Dist. to nearest surface water	m	350	High	Low		
	Dist. to nearest other feature	m	8	High	Very high	Moderate	Other factors lessen impact
	Risk of slope instability	Moderate		High	Moderate		
	Distance to landslip	m	200	Mod.	Low		

Comments

The soil has a low cation exchange and phosphorus adsorption capacity. The planting of vegetation will enhance nutrient uptake. No groundwater was intercepted within 2.5m of the ground surface. 'Trench 3.0' indicates a viral die-off distance of 8m thus distance to nearest surface water and nearest other feature (down slope property boundary) is deemed acceptable.



PLAN LAYOUT

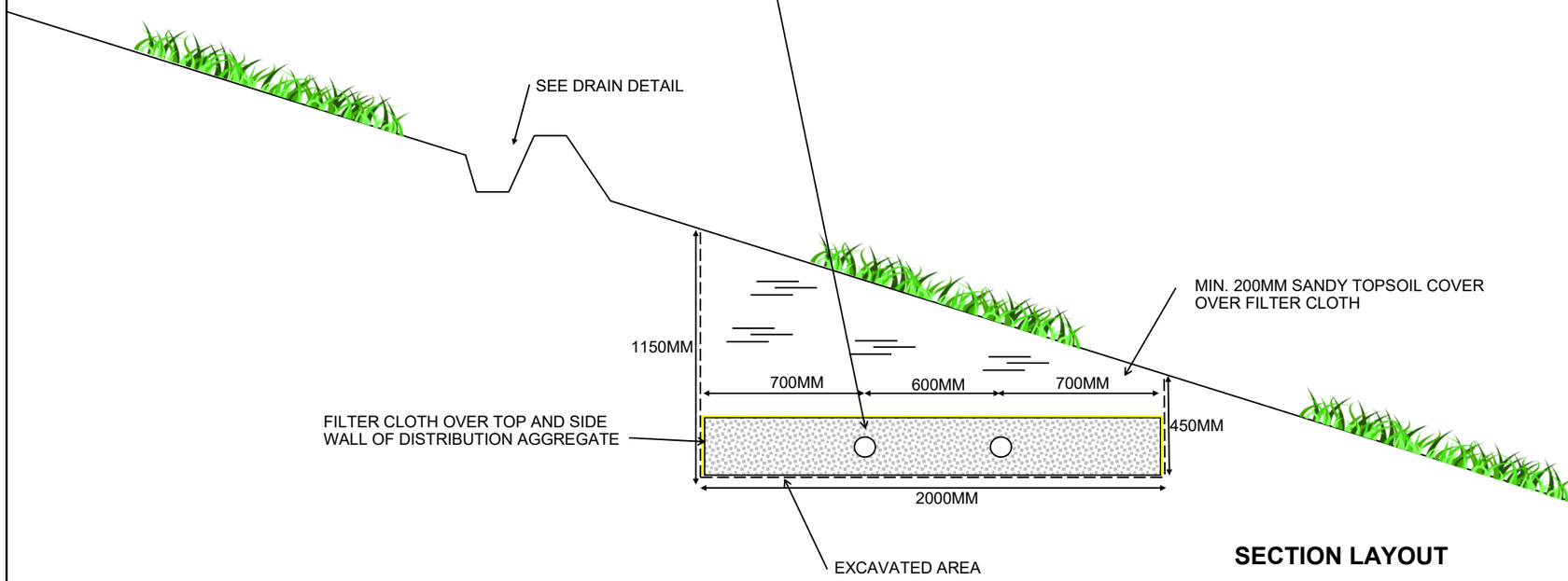
SCALE 1:50 @ A3

DISTRIBUTION PIPEWORK: MIN80MM DIA UPVC PIPE (LATERALS). 6MM DIA PERFORATIONS TO BE DRILLED INTO EACH LATERAL @ 75MM INTERNALS. ALTERNATE EACH SIDE OF PIPE AT OR JUST BELOW MID-HEIGHT.

SINGLE 6MM PERFORATION TO BE DRILLED INTO BASE OF EACH LATERAL (LOCATED AT CENTRE OF EACH LATERAL)

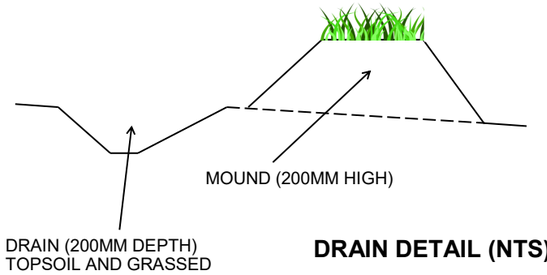
ALL PIPEWORK TO BE LEVEL USING A LASER LEVEL

700MM LATERAL SPACINGS FROM SIDE WALL AND 600MM BETWEEN LATERALS



SECTION LAYOUT

SCALE 1:25 @ A3



DRAIN DETAIL (NTS)

250MM DEPTH DISTRIBUTION AGGREGATE (20-40MM GRAVEL)

SANDY LOAM TOPSOIL

VEGETATION WITH A HIGH TRANSPIRATION CAPACITY AND ABILITY TO TOLERATE WET SOIL CONDITIONS

SEE ATTACHED PLANT LIST

HED CONSULTING
www.hed-consulting.com.au
info@hed-consulting.com.au

CLIENT: J & J FISHER	FILENAME: H2750	DRAWN: J H	COMMENTS
SITE ADDRESS: 12 EAST STREET DODGES FERRY 7173	DATE: 20/9/2024	SCALE: AS SHOWN	CERTIFIED: ENGINEER

List of plants suitable for Aerobic Waste Water Treatment Systems

Common plant name	Soil type							Botanical name
	Wet	Dry	Margin	Clay	Sand	Loam	Salt tolerant	Genus and species
Grasses & sedges								
southern cordrush	✓		✓	✓	✓			*Baloskian australe*
tassel cordrush	✓		✓	✓	✓	✓		*Baloskian tetaphyllum*
tall sedge	✓		✓	✓		✓		*Carex appressa*
tassell sedge	✓		✓	✓		✓		*Carex fascicularis*
curly sedge		✓	✓	✓		✓		*Carex tasmanica*
spreading flaxlily		✓	✓	✓	✓	✓		*Dianella revoluta*
forest flaxlily	✓	✓	✓	✓	✓	✓		*Dianella tasmanica*
western flag-iris	✓		✓	✓	✓	✓		*Diplarrena latifolia*
white flag-iris	✓	✓	✓	✓	✓	✓		*Diplarrena moraea*
knobby clubsedge	✓	✓	✓	✓	✓	✓	✓	*Ficini nodosa*
cutting grass	✓		✓	✓	✓	✓		*Gahnia grandis*
sea rush	✓		✓	✓	✓	✓	✓	*Juncus kraussii*
pale rush	✓		✓	✓	✓	✓		*Juncus pallidus*
sagg		✓	✓	✓	✓	✓		*Lomandra longifolia*
silver tussockgrass	✓	✓	✓	✓		✓		*Poa labillardierei*
velvet tussockgrass		✓	✓	✓		✓		*Poa rodwayi*
Low shrubs (up to 1.5m)								
wiry bauera			✓			✓		*Bauera rubiodes*
hop native-primrose	✓	✓	✓	✓	✓	✓		*Goodenia ovata*
slender honeymyrtle	✓		✓	✓		✓		*Melaleuca gibbosa*
Tall shrubs/trees (2-5m)								
silver wattle		✓	✓	✓	✓	✓		*Acacia dealbata*
blackwood	✓		✓	✓		✓		*Acacia melanoxylon*
arching wattle	✓		✓	✓		✓		*Acacia riceana*
prickly moses			✓	✓	✓	✓		*Acacia verticillata*
yellow bottlebrush		✓	✓	✓		✓		*Callistemon pallidus*
prickly bottlebrush	✓		✓	✓		✓		*Callistemon viridflorus*
native hop		✓	✓	✓	✓	✓		*Dodonaea viscosa*
smoky teatree		✓	✓		✓	✓		*Leptospermum glaucescens*
woolly teatree	✓	✓	✓	✓		✓		*Leptospermum lanigerum*
shiny teatree	✓		✓	✓		✓		*Leptospermum nitidium*
river teatree	✓		✓	✓		✓		*Leptospermum riparium*
common teatree		✓	✓	✓	✓	✓		*Leptospermum scoparium*
warty paperbark	✓		✓	✓		✓		*Melaleuca pustulata*
swamp honeymyrtle	✓		✓	✓		✓		*Melaleuca squamea*
scented paperbark	✓		✓	✓		✓		*Melaleuca squarrosa*
common dogwood	✓		✓	✓		✓		*Pamaderris apetala*
Trees (>10m)								
black gum	✓		✓	✓		✓		*Eucalyptus ovata*
Exotics								
Pittosporum bicolr								
Pittosporum Tenuifolium								
coleonema								
acemena (lillypilly)								
ceanothus								
hebe all varieties are very good with the exception of hebe emerald green								
penstemon								
abelia								
buxus sempervirens								
* Fruit trees are not recommended in an irrigation area.								

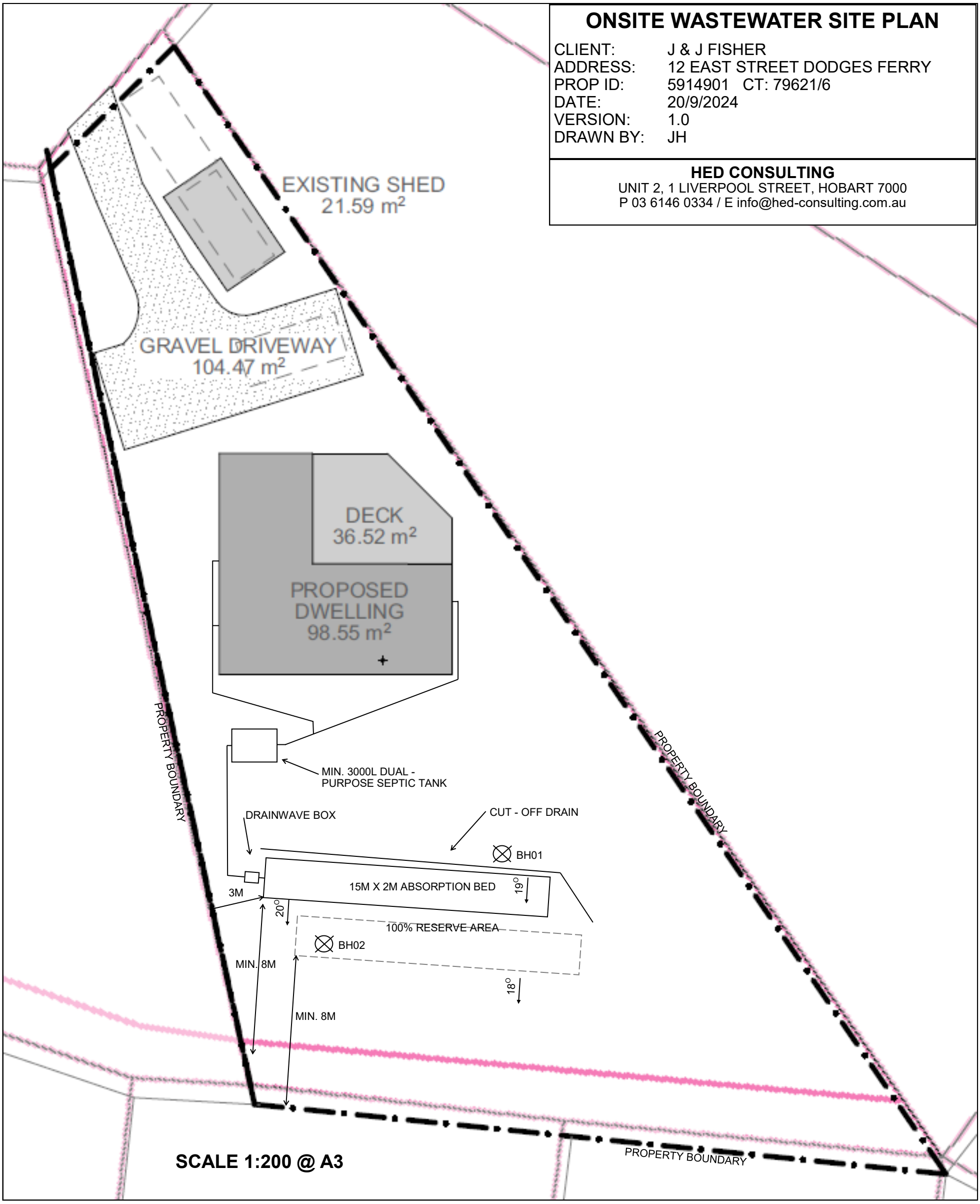
Note: For information only. Please consult your local nursery before finalising the plant choices to suit your locality and site conditions.

Source: Clarence City Council Infosheet, Plants suitable for Aerobic Waste water Treatment Systems

ONSITE WASTEWATER SITE PLAN

CLIENT:	J & J FISHER
ADDRESS:	12 EAST STREET DODGES FERRY
PROP ID:	5914901 CT: 79621/6
DATE:	20/9/2024
VERSION:	1.0
DRAWN BY:	JH

HED CONSULTING
UNIT 2, 1 LIVERPOOL STREET, HOBART 7000
P 03 6146 0334 / E info@hed-consulting.com.au



SCALE 1:200 @ A3

SOR – S2.0 Southern Beaches On-site Waste Water and Stormwater Management Specific Area Plan

…SOR – S2.7 Development Standards for Buildings and Works

SOR-S2.7.1 On-site waste water

Objective:	That the site has a sufficient and suitable area of land available for on-site waste water management.	
Acceptable Solutions	**Performance Criteria**	Development Response to Achieve Compliance
A1 Development must: (a) not cover less than 20% of the site; (b) not located on land shown on an overlay map in the relevant Local Provisions Schedule, as within; (i) a flood-prone hazard area; (ii) a landslip hazard area; (iii) a coastal erosion hazard area; (iv) a waterway and coastal protection area; or (v) a coastal inundation hazard area; (c) be located on a site with a soil depth of at least 1.5m; (d) be located on a site where the average gradient of the land does not exceed 10%; and (e) in the case of a dwelling, provide 65m^2 of land for wastewater land application area per bedroom	**P1** The site must provide sufficient area for management of on-site waste water, having regard to: (a) the topography of the site; (b) the capacity of the site to absorb wastewater; (c) the size and shape of the site; (d) the existing buildings and any constraints imposed by existing development; (e) the area of the site to be covered by the proposed development; (f) the provision for landscaping, vehicle parking, driveways and private open space;	Proposed LAA complies with P1. The Onsite Wastewater Management System Report satisfies the performance criteria.

which is located at least 1.5m from an upslope or side slope boundary and 5m from a downslope boundary.	(g) any adverse impacts on the quality of ground surface and coastal waters; (h) any adverse environmental impact on surrounding properties and the locality; and (i) any written advice from a suitably qualified person (onsite waste water management) about the adequacy of the on-site waste water management system.	
A2 An outbuilding, driveway or parking area or addition or alteration to a building must not encroach onto an existing land application area.	**P2** An outbuilding, driveway or parking area or addition or alteration to a building must demonstrate that there is sufficient suitable area of land available for a new on-site waste water management system.	Not applicable.

WASTEWATER DESIGN COMPLIANCE TO DIRECTOR'S GUIDELINES FOR ON-SITE WASTEWATER MANAGEMENT SYSTEMS

3. Standards for Wastewater Land Application Areas

3.1 Objective – PCA FP1.5 (a)-(c)

Acceptable Solutions	**Performance Criteria**	**Development Response to Achieve Compliance**
A1 Horizontal separation distance for a building to a land application area must comply with one of the following: (a) be no less than 6m; (b) be no less than: (i) 3m from an upslope or level building: (ii) if primary treated effluent to be no less than 4m plus 1m for every degree of average gradient from a down slope 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	**P1** The land application area (LAA) is located so that the risk of wastewater reducing the bearing capacity of a building's foundations is acceptably low.	Proposed LAA complies with A1. The LAA is a minimum 6m from any building.
A2 Horizontal separation distance from down slope 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:	**P2** Horizontal separation distance from down slope surface water to a land application area must comply with all of the following: (a) setbacks must be consistent with AS/NZS1547 Appendix R;	Proposed LAA complies with A2(a). The LAA is a minimum 100m from the down slope surface water.

(i) if primary treated effluent 15m plus 7m for every degree of average gradient to down slope 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.	(b) a risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.	
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/NZS1547 has been completed that demonstrates that the risk is acceptable	Proposed LAA complies with P3. The setback is consistent with AS/NZS 1547 Appendix R. A risk assessment in accordance with Appendix A of AS/NZS1547 has been completed that demonstrates that the risk is acceptable (see appendix of this report).

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.	Proposed LAA complies with A4. The LAA is a minimum 50m from a downslope bore, well or similar water supply and not within the zone of influence of any bore.
A5 Vertical separation distance between the 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.	Proposed LAA complies with A5. The LAA has a minimum 1.5m vertical separation distance between the groundwater and LAA.
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) 0.6m if secondary treated effluent	**P6** Vertical setback must be consistent with AS/NZS 1547 Appendix R.	Proposed LAA complies with A6. The LAA has a minimum 1.5m vertical separation distance between the limiting layer and LAA.

A7 None.	**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. Note: Part 6 of the Building Act 2016 specifies requirements for protection work which apply to plumbing work including a wastewater treatment unit.	Proposed wastewater design complies with P7.

HORIZONTAL AND VERTICAL SETBACK DISTANCES ASSESSMENT

ADAPTED FROM TABLE R1 OF AS1547:2012 - THIS TABLE TO BE USED IN CONJUNCTION WITH TABLE R2

Site feature	Setback distance range (m)	Site constraint items of specific concern (See table R2)	Site specific assessment	Minimum setback distance required
	Horizontal setback distance (m)			
Property boundary	1.5 - 50	A, D, J	8m	8m
Buildings / houses	2 - 6	A, D, J	>6m	6m
Surface water	15 - 100	A, B, D, E, F, G, J	>100m	100m
Bore, well	15 - 50	A, C, H, J	>50m	50m
Recreational areas (Children's play areas, swimming pools etc.)	3 - 15	A, E, J	>15m	10m
In-ground water tank	4 - 15	A, E, J	>15m	10m
Retaining wall and Embankments, escarpments, cuttings	3.0m or 45^{o} angle from toe of wall (whichever is greatest)	D, G, H	>3m	3m
	Vertical setback distance (m)			
Groundwater	0.6 – 1.5	A, C, F, H, I, J	>1.5m	1.5m
Hardpan or bedrock	0.5 – 1.5	A, C, J	>1.5m	1.5m

SITE CONSTRAINT SCALE FOR DEVELOPMENT OF SETBACK DISTANCES

ADAPTED FROM TABLE R2 OF AS1547:2012 - THIS TABLE TO BE USED IN CONJUNCTION WITH TABLE R1

Item	Site/system feature	Constraint scale **Lower** ◄——► **Higher** Examples of constraint factors		Sensitive features	Site specific assessment	Constraint assessment
A	Microbial quality of effluent	Effluent quality consistently producing ≤ 10 cfu/100 mL *E. Coli* (secondary treated effluent with disinfection	Effluent quality consistently producing ≥ 10^6 cfu/100 mL *E. Coli* (for example, primary treated effluent)	Groundwater and surface pollution hazard, public health hazard	Primary treated effluent	**Medium**
B	Surface water	Category 1 to 3 soils, no surface water down gradient within >100m, low rainfall area	Category 4 to 6 soils, permanent surface water <50m down gradient, high rainfall area, high resource/environmental value	Surface water pollution hazard for low permeable soils, low lying and poorly draining areas	Category 1 soils, down slope surface water >100m down gradient.	Low
C	Groundwater	Category 5 and 6 soils, low resource /environmental value	Category 1 and 2 soils, gravel aquifers, high resource/environmental value	Groundwater pollution hazard	Category 1 soils, no groundwater within 2.5m of surface	Low
D	Slope	0 – 6% (surface effluent application) 0 – 10% (subsurface effluent application)	>10% (surface effluent application) >30% (subsurface effluent application)	Off – site export of effluent, erosion	30% slope and subsurface application	**Medium**

Item	Site/system feature	Constraint scale **Lower** ⟷ **Higher** Examples of constraint factors		Sensitive features	Site specific assessment	Constraint assessment
E	Position of land application area in landscape	Downgradient of surface water, property boundary, recreational area	Upgradient of surface water, property boundary, recreational area	Surface water pollution hazard, off – site export of effluent	Property boundary min 9m.	**Medium**
F	Drainage	Category 1 and 2 soils, gentle sloping area	Category 6 soils, sites with visible seepage, moisture tolerant vegetation, low lying area	Groundwater pollution hazard	Category 1 soils, moderate - steep sloping land	Low
G	Flood potential	Above 1 in 20 year flood contour	Below 1 in 20 year flood contour	Off – site export of effluent, system failure, mechanical faults	Above 1 in 20 year flood contour	Low
H	Geology and soils	Category 3 and 4 soils, low porous regolith, deep, uniform soils	Category 1 and 6 soils, fractured rock, gravel aquifers, highly porous regolith	Groundwater pollution hazard for porous regolith and permeable soils	Category 1 soils, permeable soils	**Medium**
I	Landform	Hill crests, convex side slopes and plains	Drainage plains and incise channels	Groundwater pollution hazard, resurfacing hazard	Moderate - steep slope, straight simple drainage pattern	Low
J	Application method	Drip irrigation or subsurface application of effluent	Surface/above ground application of effluent	Off – site export of effluent, surface water pollution	Subsurface application of effluent	Low

Note: Constraint assessment of Medium and High are discussed in the attached risk assessment.

RISK ASSESSMENT (IN ACCORDANCE TO APPENDIX A OF AS1547 : 2012)

CLIENT: J & J FISHER

SITE ADDRESS: 12 EAST STREET DODGES FERRY

PROPOSED TYPE OF WASTEWATER SYSTEM: DUAL PURPOSE SEPTIC TANK AND ABSORPTION BED

Cause	Likelihood	Consequence	Risk	Factors that increase likelihood	Design risk reduction measures
Wastewater system hydraulic failure	Possible	Medium	Moderate	• Excess solids discharged • Inadequate hydraulic design of treatment plant of land application system	The installation of water saving fixtures in the dwelling is recommended. Food waste disposal units should not be installed. The land application area has been designed for a wastewater load of 600L/day (5 people).
Biological failure from power outage causing cessation of pumps and aerators	NA	NA	NA	• Remote or poorly serviced power areas • Faulty wiring	Gravity – fed system.
Wastewater biological failure from washout of bacteria	Unlikely	Minor	Low	• Inadequate septic tank capacity • Hydraulic overload	The septic tank shall have sufficient capacity for daily wastewater loads and potential shock loads.
Soil system failure in dispersive soils	Unlikely	Minor	Low	• Clay	Non – dispersive soils.
Marginal soil conditions (Constraint assessment A, D, E & H)	Possible	Major	High	• Poor draining medium to heavy clays • Inadequate topsoil • Inadequate vegetation • South facing, poor exposure to sunlight • Non – conservative design loading rate for soil type	Vegetation shall be planted in the raised bed and surrounding area to enhance evapo – transpiration Topsoil has adequate depth and quality. Good exposure to sunlight and wind. Conservative DLR has been adopted.
Limited available area (Constraint assessment E)	Possible	Minor	Low	• Small lot size • Steep slopes	Permeable soils.

High rainfall or torrential downpours	Possible	Medium	Moderate	• Inappropriate type of land application system • Stormwater ingress / ponding • Poor draining soils • Inadequate topsoil and assimilation capacity	Design based on rainfall data. Subsurface method of disposal maximise evapo – transpiration and limits absorption into the subsoil. Cut – off drain to be installed upslope of the LAA.
Salinisation	Unlikely	Medium	Low	• High groundwater table	No groundwater intercepted.
Highly permeable soils or soils with preferential pathways	Possible	Medium	Moderate	• High groundwater table • Permeable gravel soils • Fissures in clay soils • Inadequate design of land application system	No groundwater intercepted.

Sorell Council
Development Application: 5.2024.266.1 - Reposne to Request for Information P2.pdf
Plans Reference: P2
Date received: 27.02.2025

HED CONSULTING

AHEAD OF THE BUILD

PRE-CONSTRUCTION SERVICES FOR TASMANIAN HOMES

ONSITE WASTEWATER MANAGEMENT SYSTEM **LOADING CERTIFICATE as per clause 7.4.2 (d) of AS1547:2012**	
Client:	J & J Fisher.
Site Address:	12 East Street Dodges Ferry.
Permit Authority:	Sorell Council.
(i) System Capacity:	Individual person daily flow: 120 litres (tank water supply). Three bedroom / 5 people: 5 x 120 = 600 litres per day.
(ii) Summary of design criteria:	Effluent quality: Primary treated (dual – purpose septic tank). Land application system: Absorption bed.
(iii) The location and use of the 'reserve area'	There is room on the existing lot to provide a reserve land application area. See site plan for location.
(iv) Use of water efficient fittings, fixtures or applicances	It is recommended that water efficient fittings, fixtures and appliances are utilised. These includes maximum 4.5/3L toilets, 9L/min shower heads, aerator faucets and water conserving dishwashes and washing machines.
(v) Allowable variation from design flows (peak loading events)	The septic tank can accommodate variation in flows (peak and under loading) from normal domestic use.
(vi) Consequences of changes in loading	The Onsite Wastewater Management System (OWMS) can cope with a wastewater load from domestic use only. Additional organic loading from sink garbage grinders should be avoided. Use 'septic – safe' detergents and disinfectants and dilute to recommended levels. Bio - degradable soaps and low – phosphorus products are preffered.
(vii) Consequences of overloading the system	The OWMS is designed for a domestic wastewater loading of 600L / per day. Excessive loading (>600L/day) may result in failure of the system. This can include blockage of pipework, mechanical and / or pump failure, flooding of system, runoff from land application area and pooling of effluent. These failures may cause public health and / or environmental nuisance.

HED CONSULTING
www.hed-consulting.com.au
info@hed-consulting.com.au
03 6146 0334
GROUND FLOOR, THE SANDSTONE BUILDING
1 LIVERPOOL STREET, HOBART
ABN:16 650 393 409

(viii) Consequences of underloading the system	Nil.
(ix) Consequences of lack of operation, maintenance, and monitoring attention	All OWMS require maintenance and monitoring to ensure the system is working effectively. The septic tank should be de-sludged / pumped out every three to five years. The lack of maintenance and monitoring of the OWMS may cause public health and environmental nuisances such as foul odour, increase in likelihood of spreading infectious diseases, polluting surface and ground waters.
(x) Any other relevant considerations related to the use of the system	The OWMS shall be fenced if livestock has access to the site. Vehicle access over the OWMS is prohibited. Pedestrian access of the land application area shall be discouraged (no pathsover the area). The OWMS is not a play area for children. The land application area should kept weed free.

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form 55

To: J & J FISHER *Owner /Agent*

C/- admin@matt-kennedy.com.au *Address*

Suburb/postcode

Qualified person details:

Qualified person: JOE HEPPER

Address: UNIT 2, 1 LIVERPOOL STREET

HOBART 7000

Phone No: 03 6146 0334

Fax No:

Licence No: NA

Email address: info@hed-consulting.com.au

Qualifications and Insurance details: BSc. major in geology and experience in environmental geology
PI Insurance - ABOUT UNDERWRITING
PN: ENG 20 000459

(description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items

Speciality area of expertise: Site and soil evaluation (and land application system design)

(description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)

Details of work:

Address: 12 EAST STREET

DODGES FERRY 7173

Lot No: 6

Certificate of title No: 79621

The assessable item related to this certificate: Site and soil evaluation

(description of the assessable item being certified)
Assessable item includes –
- *a material;*
- *a design*
- *a form of construction*
- *a document*
- *testing of a component, building system or plumbing system*
- *an inspection, or assessment, performed*

Certificate details:

Certificate type: On-site wastewater management – *Site and soil evaluation (and land application system design)*

(description from Column 1 of Schedule 1 of the Director's Determination - Certificates by Qualified Persons for Assessable Items n)

This certificate is in relation to the above assessable item, at any stage, as part of - *(tick one)*

building work, plumbing work or plumbing installation or demolition work: ✓

or

a building, temporary structure or plumbing installation:

In issuing this certificate the following matters are relevant –

Documents:	Site Investigation Report, Site and Soil Evaluation dated 20 September 2024.
Relevant calculations:	
References:	AS1547: 2012

Substance of Certificate: (what it is that is being certified)

Site and soil evaluation for proposed onsite wastewater management system.

Scope and/or Limitations

I certify the matters described in this certificate.

	Signed:	*Certificate No:*	*Date:*
Qualified person:	JOE HEPPER	H2750	20/9/2024

CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94
Section 106
Section 129
Section 155

Form **35**

To: J & J FISHER *Owner name*

C/- admin@matt-kennedy.com.au *Address*

Suburb/postcode

Designer details:

Name: MANIKANDAN MUTHIAH

Category: ENGINEER

Business name: HED CONSULTING

Phone No: 03 6146 0334

Business address: UNIT 2, 1 LIVERPOOL STREET

HOBART 7000

Fax No:

Licence No: 064518368

Email address: info@hed-consulting.com.au

Details of the proposed work:

Owner/Applicant J & J FISHER

Designer's project reference No. H2750

Address: 12 EAST STREET

Lot No: 6

DODGES FERRY 7173

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

Description of work:

On-site wastewater management system

(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
	X Plumbing design	Plumber-Certifier; Architect, Building Designer or Engineer
	☐ Other (specify)	

Deemed-to-Satisfy: X

Performance Solution: ☐ (*X the appropriate box*)

Other details:

Design documents provided:

The following documents are provided with this Certificate –

Document description:

Drawing numbers: V1.0	Prepared by: HED Consulting	Date: 20/9/2024
Schedules: V1.0	Prepared by: HED Consulting	Date: 20/9/2024
Specifications: V1.0	Prepared by: HED Consulting	Date: 20/9/2024
Computations:	Prepared by:	Date:
Performance solution proposals:	Prepared by:	Date:
Test reports: V1.0	Prepared by: HED Consulting	Date: 20/9/2024

Standards, codes or guidelines relied on in design process:

AS1547: 2012

Director's Guidelines for On-site Wastewater Management Systems, Building Act 2016, 20 November 2017, version 2.0

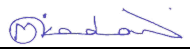
Any other relevant documentation:

Attribution as designer:

I, Manikandan Muthiah, 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:	MANIKANDAN MUTHIAH		20/9/2024
Licence No:	064518368		

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.

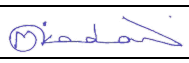
I confirm that the proposed works are not Certifiable Works, in accordance with the Guidelines for TasWater CCW Assessments, by virtue that all of the following are satisfied:

- [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, Manikandan Muthiah 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:	MANIKANDAN MUTHIAH		20/9/2024

CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94
Section 106
Section 129
Section 155

Form **35**

To: Jessica & James Fisher *Owner name*

c/o matt@matt-kennedy.com.au *Address*

Suburb/postcode

Designer details:

Name: Manikandan Muthiah

Category: Civil Engineer

Business name: HED Consulting

Phone No: 03 6146 0334

Business address: 1 Liverpool Street

Hobart 7000

Fax No: -

Licence No: 06451868

Email address: mani@hed-consulting.com.au

Details of the proposed work:

Owner/Applicant Jessica & James Fisher

Designer's project reference No. H2750

Address: 12 East Street

Lot No: 79621/6

Dodges Ferry 7173

Type of work: Building work [X] Plumbing work [ ] *(X all applicable)*

Description of work:

Proposed dwelling

(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: This certificate covers the hydraulic design, onsite stormwater management of proposed development.

Design documents provided:

The following documents are provided with this Certificate –

Document description:

Drawing numbers:	Prepared by:	Date:
H2750 Sheets 50-A-101, 50-A-102	D.C	30/01/2025
Schedules:	Prepared by:	Date:
Specifications:	Prepared by:	Date:
Computations:	Prepared by:	Date:
Performance solution proposals:	Prepared by:	Date:
Test reports:	Prepared by:	Date:

Standards, codes or guidelines relied on in design process:

AS3500..3; Australian Rainfall and Runoff
HED Consulting Site Investigation report dated 24 November 2023.

Any other relevant documentation:

Attribution as designer:

I, Manikandan Muthiah, 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:	Manikandan Muthiah		19/02/2025
Licence No:	06451868		