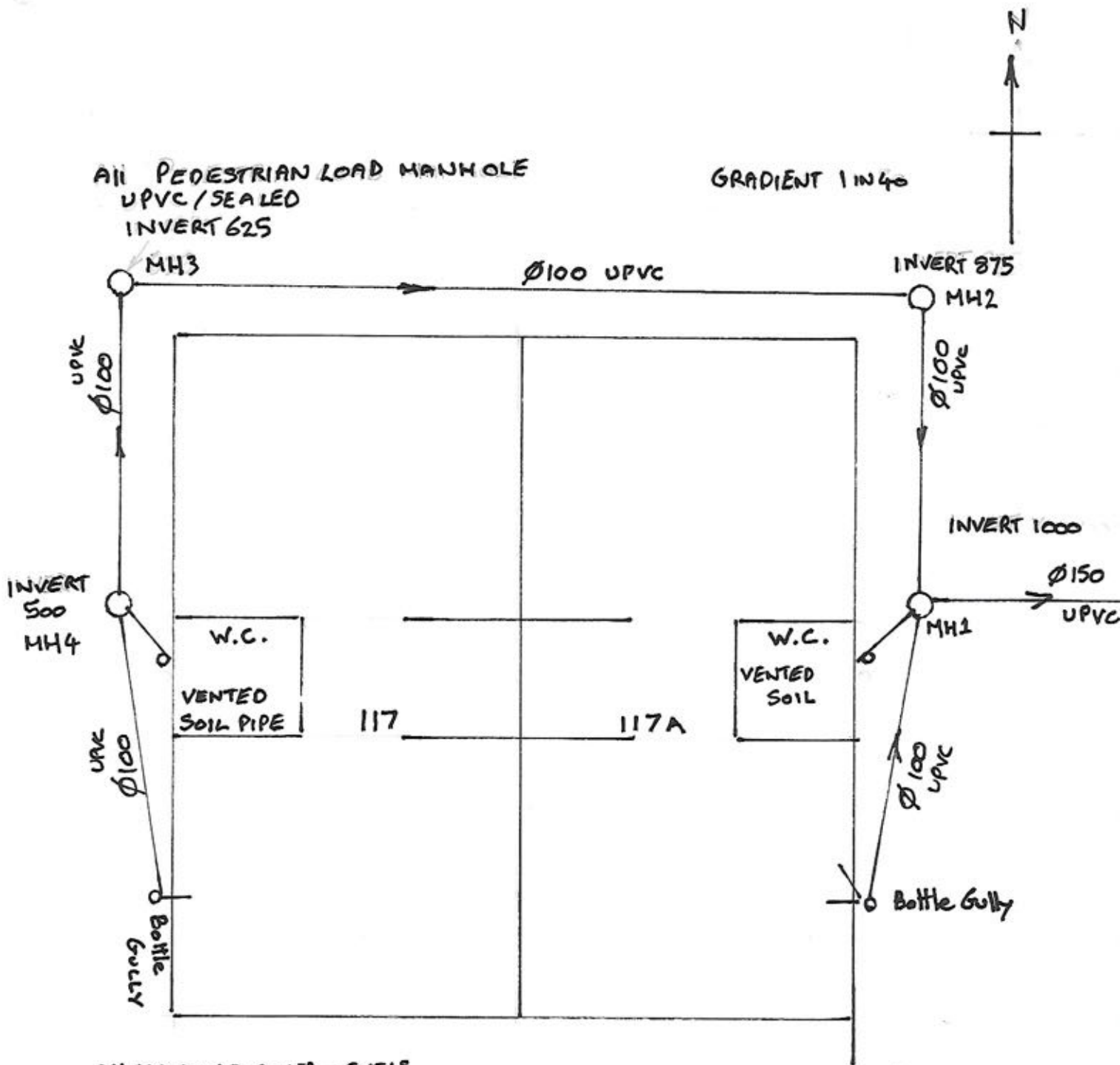




ALL MANHOLE COVER LEVELS
 TO BE 100mm above B/L
 TO ACCOMMODATE PERMEABLE
 PATHWAYS

FOUL WATER DRAINAGE
 117 ELMER RD
 SCALE 1:100

Proposed Method of Surface Water Disposal

8	Infiltration on-site, via soakaway structures.	Yes	☒	No	
9	If on-site infiltration is not to be used, has justification for this decision been provided? Note 'e'	Yes		No	☒
10	Attenuation (on-site) with a restricted discharge to a watercourse on, or adjacent to, the site.	Yes		No	☒
11	Attenuation (on-site) with a restricted discharge to a surface water sewer on, or adjacent to, the site.	Yes		No	☒
12	Attenuation (on-site) with a restricted discharge to a foul water or combined sewer on, or adjacent to, the site.	Yes		No	☒

Guidance Note

- e. If on-site infiltration is deemed unviable; evidence supporting the move to the next step(s) of the drainage hierarchy must be provided, to the satisfaction of the LPA's Engineer.

Drainage Design: Supporting Calculations

	No.	Requirement	Provided?			
Infiltration Structures	13	Calculations demonstrating the 1 in 10 year event, plus climate change allowance (CCA), can be accommodated below the lowest incoming pipe within each structure. Notes 'f' and 'g'.	Yes	☒	No	
	14	Calculations demonstrating the 1 in 100 year event, plus CCA can be accommodated on-site. Notes 'f' and 'g'.	Yes	☒	No	
	15	Lowest base level of any infiltration structure	12.00 MAOD mBGL			
	16	Half-drain time for 10 year event (plus CCA)	Yes	☒	No	
	17	Half-drain time for 100 year event (plus CCA)	21.12 Hours			
	18	Has the design sought to provide treatment of potential contaminants? E.g. hydrocarbons.	Yes	☒	No	☒
Attenuation / Restricted Discharge	19	Pre-development run-off rate calculations Note 'h'	Yes		No	
	20	Proposed discharge rate Note 'h'	I/s			
	21	Calculations demonstrating the 1 in 100 year event, plus CCA can be accommodated on-site. Note 'g' and 'h'	Yes		No	
	22	Has the design sought to provide treatment of potential contaminants? E.g. hydrocarbons.	Yes		No	
	23	If the proposed scheme incorporates any impermeable lined attenuation features; calculations are required to demonstrate that appropriate resistance to floatation (due to groundwater levels) is catered for in the design.	Yes		No	
	24	Is a discharge into, or an alteration to, an ordinary watercourse is proposed? (If so, Ordinary Watercourse/ Land Drainage Consent will be required). Note 'i'	Yes		No	
	25	If discharging to a watercourse, piped system or the sea, has the proposed drainage network been modelled against predicted top water levels for the 1 in 100 year storm event, plus CCA, within the existing system? Note 'j'	Yes		No	

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Plans/Drawings/Diagrams					
No.	Requirement	Provided?			
26	Plan detailing the location of groundwater monitoring and infiltration testing	Yes	✓	No	
27	Detailed drainage layout plan Note 'k'	Yes	✓	No	
28	Construction detail plans Note 'l'	Yes	✓	No	
29	Exceedance flow route plans Note 'm'	Yes	✗	No	
30	Impermeable area plan	Yes	✓	No	
31	If ground levels are being raised $\geq 300\text{mm}$ above existing levels and is unavoidable, have fully detailed plans been provided, together with drainage proposals, to address any potential drainage related issues.	Yes	✗	No	

Guidance Notes

- k. Drainage layout plans should include:
- All surface water drainage pipes labelled with: diameters, pipe materials, gradients and invert levels.
 - All infiltrating and attenuating structures (including permeable paving) labelled with: dimensions, invert/base and cover levels.
 - All manholes labelled with: a reference number, cover levels, invert levels, cover loading grade.
 - All silt traps clearly labelled with sump depths.
 - Control structures with discharge rates, hydraulic head and invert levels.
 - Proposed/existing levels of any areas subject to ground raising, together with suitable measures/detailed drawings for the associated management of surface water runoff. **Please note that ground raising should be avoided unless there are exceptional circumstances.** In any instances where this is envisaged early consultation with the Council Engineer is recommended.
- l. Site specific construction detail plans should be supplied. The following elements must be included (where applicable): infiltrating structures; attenuating structures; manholes; catch-pits/silt traps; flow control devices; permeable paving; headwalls; channel drains; gullies; pipe bedding and surround, etc.
- m. Unless specifically requested by the Council's drainage Engineers 'Exceedance Flow Route Plans' are only required for developments of more than 10 residential properties or more than 0.5ha of commercial development.