

Nitrate Calculation For New Dwellings on Land off Elizabeth Road, Waterlooville

Stage 1

Step	Measurement	Value	Unit	Explanation
Development proposals	Development types which would increase the population served by a wastewater system	2	Residential Unit	2 New 3-bed residential units
Step 1	Additional population	4.8	Persons	NE advise using an average household size of 2.4 x 1 house
Step 2	New Wastewater volume generated by new development	528	litres/day	No new persons occupying the dwellings x 110lt/person/day
Step 3	Receiving WwTW environmental permit limit for TN	24.3	mg/l TN	In the example used on page 11 of the EN report the figure is 27 mg/l (x90%). This figure has been used
Step 4b	TN discharged after WwTW treatment	12830.4	mg/TN/day	90% of the consent limit = Step 3(value) mg/lTN x step 2(value)
	Convert mg/TN to kg/TN per day	0.012830	Kg/TN/day	Divide by 1,000,000
	Convert mg/TN per day to kg/TN per year	2.341548	Kg/TN/yr	x 365 days
Wastewater total nitrogen load		4.683	Kg/TN/yr	

Stage 2

Adjust Nitrogen load to offset existing nitrogen from current land use

Step 1	Total area of existing agricultural land	0	Hectares	N/a
Step 2	Identify farm type and confirm nitrate loss	0	Kg/ha/yr	
Step 3	Multiply area by nitrate loss	0	Kg/N/yr	
Nitrogen load for current agricultural land use.		0	Kg/N/yr	

Stage 3

Adjust nitrogen load to account for land uses with the proposed development

Step 1	New Urban area	0	Hectares	Area of Development which will change from agricultural land to urban land use
Step 2	Nitrogen Load from future urban area	0	Kg/N/yr	Ha x 14.3 kg/ha/yr
Step 3	New SANG/open space	0	Hectares	Area of development which will change from Agricultural land to SANG/open space
Step 4	Nitrogen load from SANG/ open space	0	Kg/N/yr	Area of SANG x 5.0 Kg/N/yr
Step 5	Combine Nitrogen load from future land uses	0	Kg/N/yr	Add step 2 plus step 4
Nitrogen Load for future land uses		0	Kg/TN/yr	

Stage 4

Step 1	Identify Nitrogen load from wastewater (Stage1)	4.683	Kg/N/yr	Stage 1
Step 2	Calculate the net change in Nitrogen from land use change by subtracting existing land use nitrogen load (Stage 2) from future land uses Nitrogen load	0	Kg/N/yr	Stage 3 - Stage 2 (may be a negative figure)
Step 3	Determine Nitrogen Budget - the Total Nitrogen wastewater land for the proposed development plus the change in Nitrogen load from land use change	4.683	Kg/N/yr	Step 1 plus step 2

Step 4	Nitrogen Budget without buffer	4.683	Kg/N/yr	Step 3
Step 5	Divide Nitrogen Budget without buffer by 5	0.9366	Kg/N/yr	20% of Step 4
Step 6	Nitrogen Budget with 20% buffer	5.6196	Kg/N/yr	Step 4 plus Step 5
Nitrogen Budget with 20% buffer		5.6196	Kg/N/yr	
If there is a Nitrogen Surplus (a positive figure)		5.6191	Kg/N/yr	