

FAO: IRISH WATER

LOAD PROJECTIONS FOR ALLENWOOD WASTE WATER TREATMENT PLANT 2019 (Rev. 2)

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Introduction

Allenwood Waste Water Treatment Plant (WWTP) was granted a licence by the EPA in 2011 based on a design capacity of 1500 Population Equivalents (PE). In recent years, that limit has been approached, and it is possible that the limit was exceeded in 2018. New housing developments are now in progress in the village that will see the limit being exceeded in 2019. This report calculates that future load and assesses its impact on the plant.

Calculation of Current Load

The average load for the WWTP is provided each year in the Annual Environment Report (AER) for the plant. Issuing this report was the responsibility of Kildare County Council up to 2012 and since 2013 it is the responsibility of Irish Water.

The load of the plant is described as both Hydraulic Capacity and Organic Capacity. The Organic Capacity is the measurement that the design capacity of the plant relates to and it is this value that is listed below. In the 2011 AER, Organic Capacity was not provided.

Year	Organic Capacity - Current Loading (PE)
2012	560
2013	727
2014	702
2015	947
2016	1237
2017	1233

It can be seen that the load has stabilised at around 1230 PE in the last two years. We can use the 2017 value of **1233 PE** for projections for 2018 and 2019, assuming that the load has not decreased in 2018.

Calculation of Future Load

A number of developments have requested permission to connect to the public sewer in Allenwood as part of the planning process and have been granted permission to do so. The author could not find any consideration of the current load and remaining organic capacity of the WWTP in the documents pertaining to these planning applications.

The author has compiled a list of all approved planning applications and calculated the potential load from each development.

The Population Equivalent used is 3 for a 2 bed home, 4 for a 3 bed home and 5 for a 4 bed home, as was seen to be used in some of the planning documents. Where non-residential buildings are to be built, and the PE could not be found in the planning application documentation, it was estimated by the author and marked with an asterisk.

Currently Building

Work has commenced on the development that was granted permission as per planning reference 081152 and the development with planning reference 171079.

Applicant	Planning Ref.	Status	Units	PE
P.C.	081152	Commenced	45 x 3 Bed	180
			39 x 4 Bed	195
			Creche	32
Kelby	171079	Commenced	8 x 2 Bed	24
			2 x 3 Bed	8
			Shop	15*

** PE estimated by the author as it was not found on the application*

Total additional future load of the units currently being built as per planning references 081152 and 171079 is **454 PE**.

Approved Developments

Several commercial developments have been granted permission in the vicinity of Allenwood but have yet to commence building. The author found that all of these developments intended to connect to the existing public sewer also.

Applicant	Planning Ref.	Status	Units	PE
T.C.	17120	Approved	4 x 2 Bed	12
			24 x 3 Bed	96
			9 x 4 Bed	45
			2 Shops, Cafe / Bar	30*
T.C.	091376	Approved	10 x 4 Bed	50
V & J	07703	Approved	1 x 2 Bed	3
			3 x 3 Bed	12
			7 x 4 Bed	35
			Medical Ctr, Office	10*
L. W.	062677	Approved	3 Shops, 2 Offices	20*
B.C. & M.M.	06609	Approved	4 Shops, 4 Offices	30*
S. Porter Siteworks	062206	Approved	9 x 4 Bed	45

** PE estimated by the author as it was not found on the application*

Total additional potential load of developments that have been granted permission but have yet to commence is **388 PE**.

New Developments

There are presently two new developments seeking permission to connect to the public sewer. One is an amendment of the development that is already in progress and one is an extension of an existing housing estate in the village.

Applicant	Planning Ref.	Status	Units	PE
Awood Homes	181203	Sought	11 x 3 Bed	44
JAJ Construction	18711	Sought	30 x 3 Bed	120
			17 x 4 Bed	85

Total additional potential load of developments that are currently seeking planning permission is **249 PE**.

Summary

The potential future load in Population Equivalents on the Allenwood Waste Water Treatment Plant is at the very least 454 PE from the ongoing housing development. In the worst-case scenario where all developments that have been granted permission, actually proceed and are built and occupied, the future load will be 842 PE.

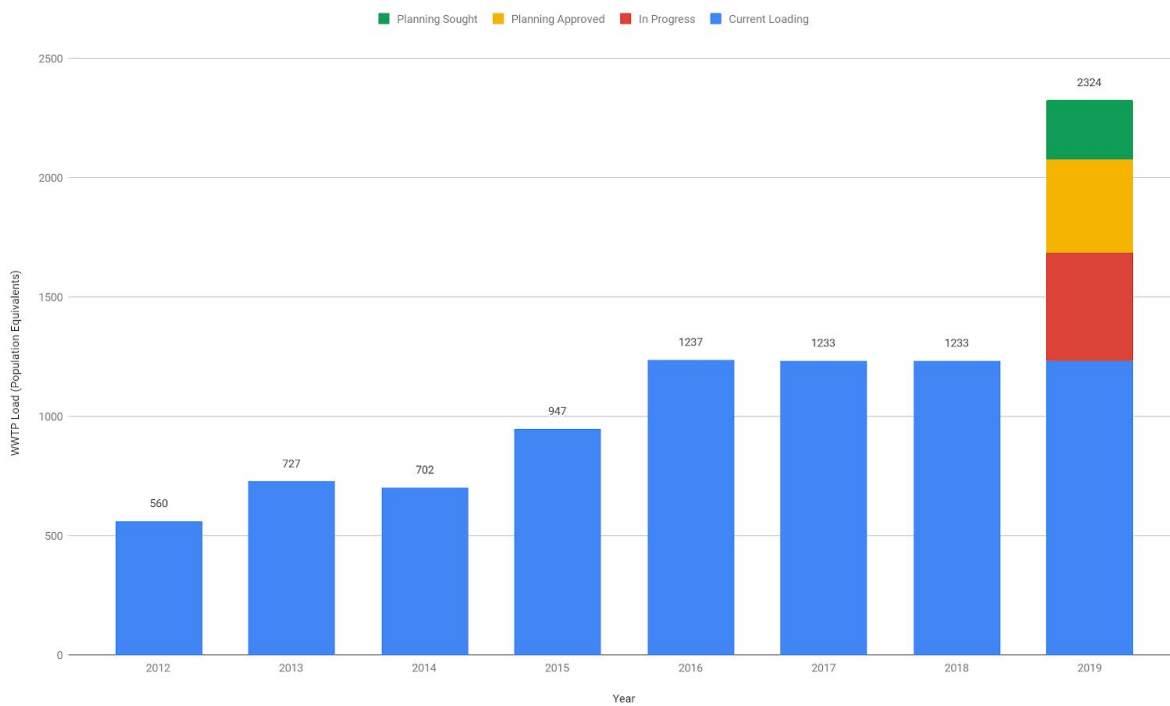
Projection of Future Load

Assuming the load in 2018 has remained unchanged from 2017 at 1233 PE, and accounting for the load of the housing development currently underway (454 PE), the load on the WWTP will be 1687 PE, or 187 PE over capacity, when that development has completed and is fully occupied.

Given the worst-case scenario of all approved developments proceeding in the next year and being completed and occupied in 2019, there would be an additional load of 388 PE on top of this. Potentially increasing the load on the plant to 2028 PE.

If the developments currently seeking permission are granted permission and eventually come to fruition, an additional load of 249 PE will be added. This is a potential future total load of 2324 PE. This exceeds the design capacity of the plant by 824PE or 55%.

None of the calculations above account for one off houses currently being built, of which there are a number, and one off houses to be built in the future. The figures can be represented using a chart as shown below.



Conclusion

Current housing developments in Allenwood will see the Waste Water Treatment Plant become overloaded when the residences are completed and occupied. If any number of the remaining approved developments are completed then they will only exacerbate the capacity loading problem.

Residents of the The Willows housing estate in the village have already reported incidents of sewage overflowing into their gardens and in cases, back into the house. Several AERs for the system report Organic Loading maximums exceeding the design limit on a daily basis since 2014. It is likely that the system has already reached its capacity even without this incoming additional load in the near future.

It should be noted that the Treatment Capacity Report in the 2017 AER does ask the question, 'Will the capacity be exceeded in the next three years?'. This question was answered 'No' in the report and this was incorrect. Anyone familiar with the oncoming developments in the area would be aware that the capacity is most definitely going to be exceeded in the next three years.

The reason the question asks if the capacity will be reached within the time frame of three years is very likely because the EPA require a review of the discharge licence if it is anticipated that the capacity will be exceeded in the next three years. It is most certainly the case that the capacity will be exceeded in the next three years but it is not known if such a review was requested.