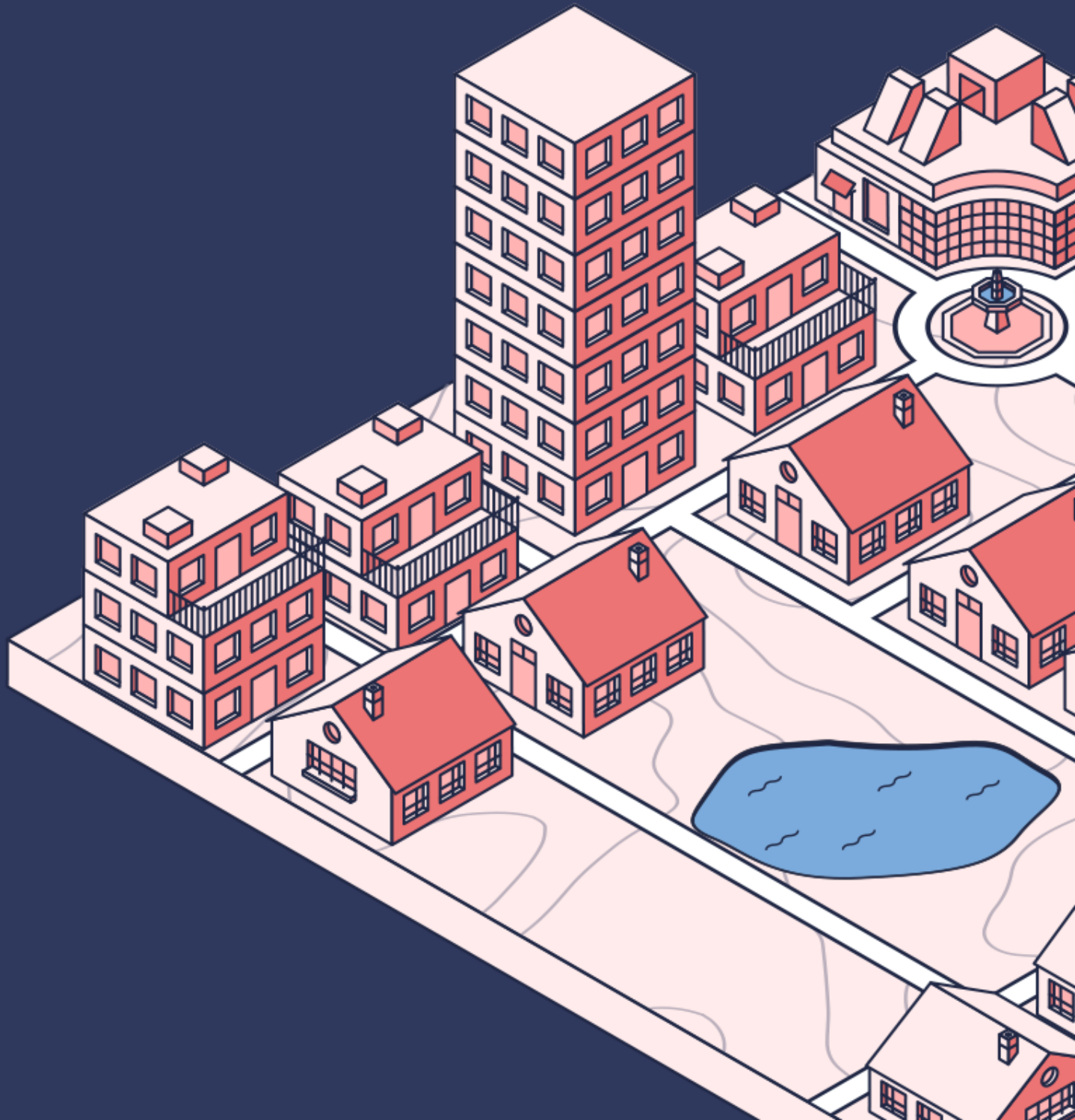
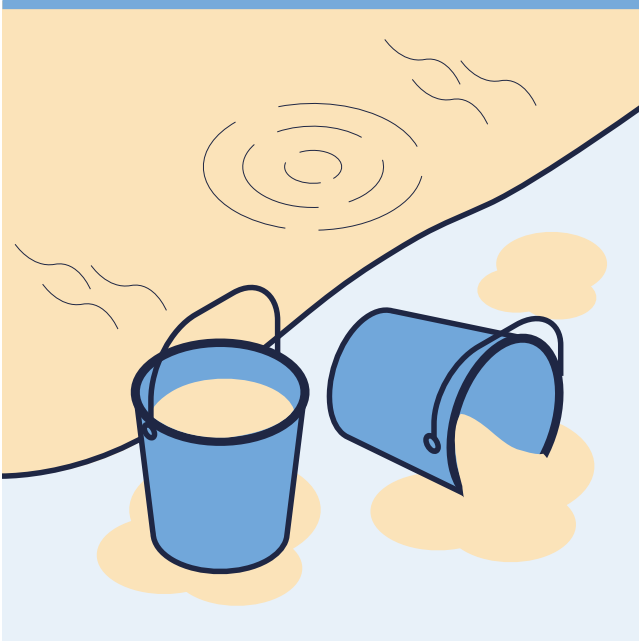


ATKINS
NetCreate

Global
Infrastructure
Competition



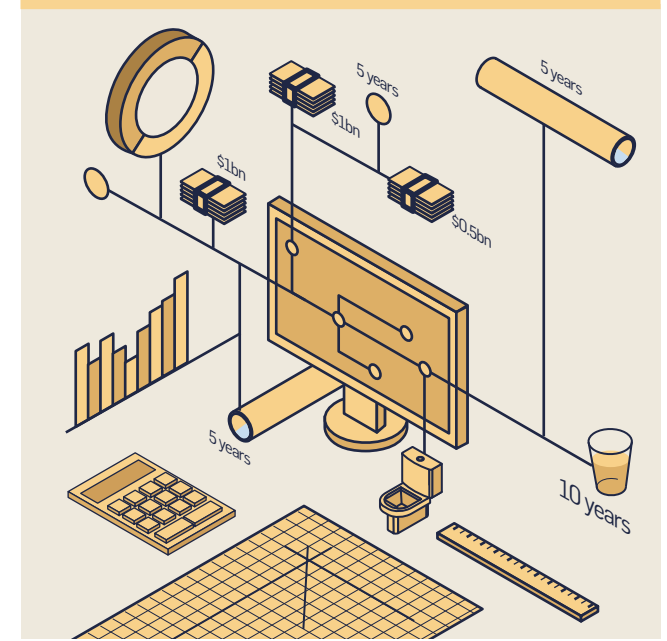
The problem



In 2017, **2 billion people did not have basic sanitation facilities** such as toilets or latrines. This is the equivalent of 2 million towns of 1,000 people.



In 2012 a WHO study calculated that **for every US\$ 1.00 invested in sanitation, there was a return of US\$ 5.50** in lower health costs, increased productivity, and fewer premature deaths.



The planning and design of wastewater collection networks would **cost billions of dollars** and at the current rate of progress, **take decades to complete.**

The problem



Coverage of basic sanitation by country



UNICEF data

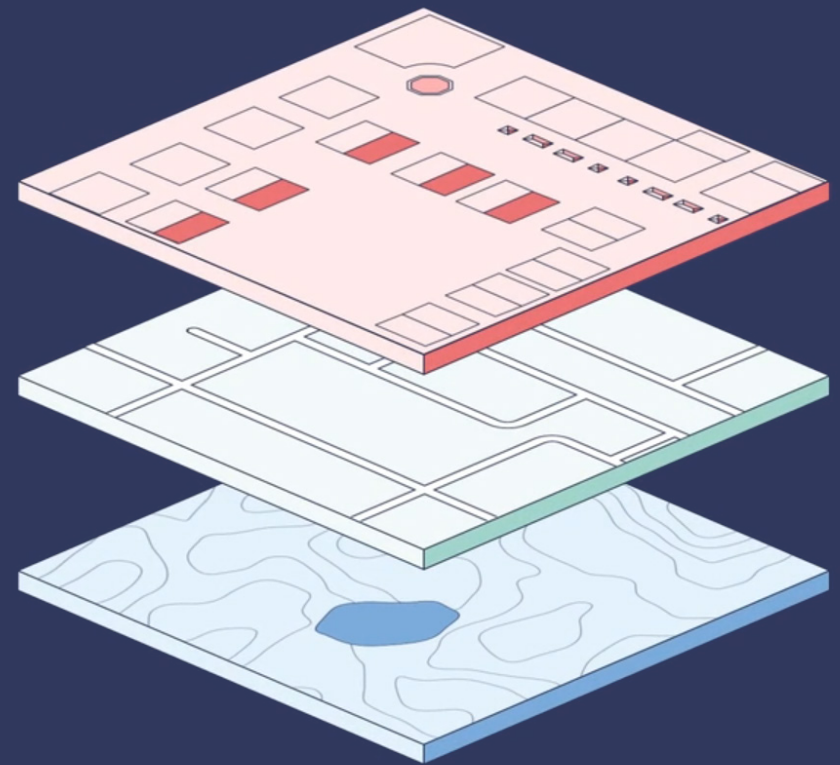
The solution

Atkins NetCreate is a digital tool which uses global open source GIS datasets to create a coarse wastewater network for master planning purposes on a repeatable basis. The minimum data sets required are:

Population distribution

Road layout

Digital Terrain Model

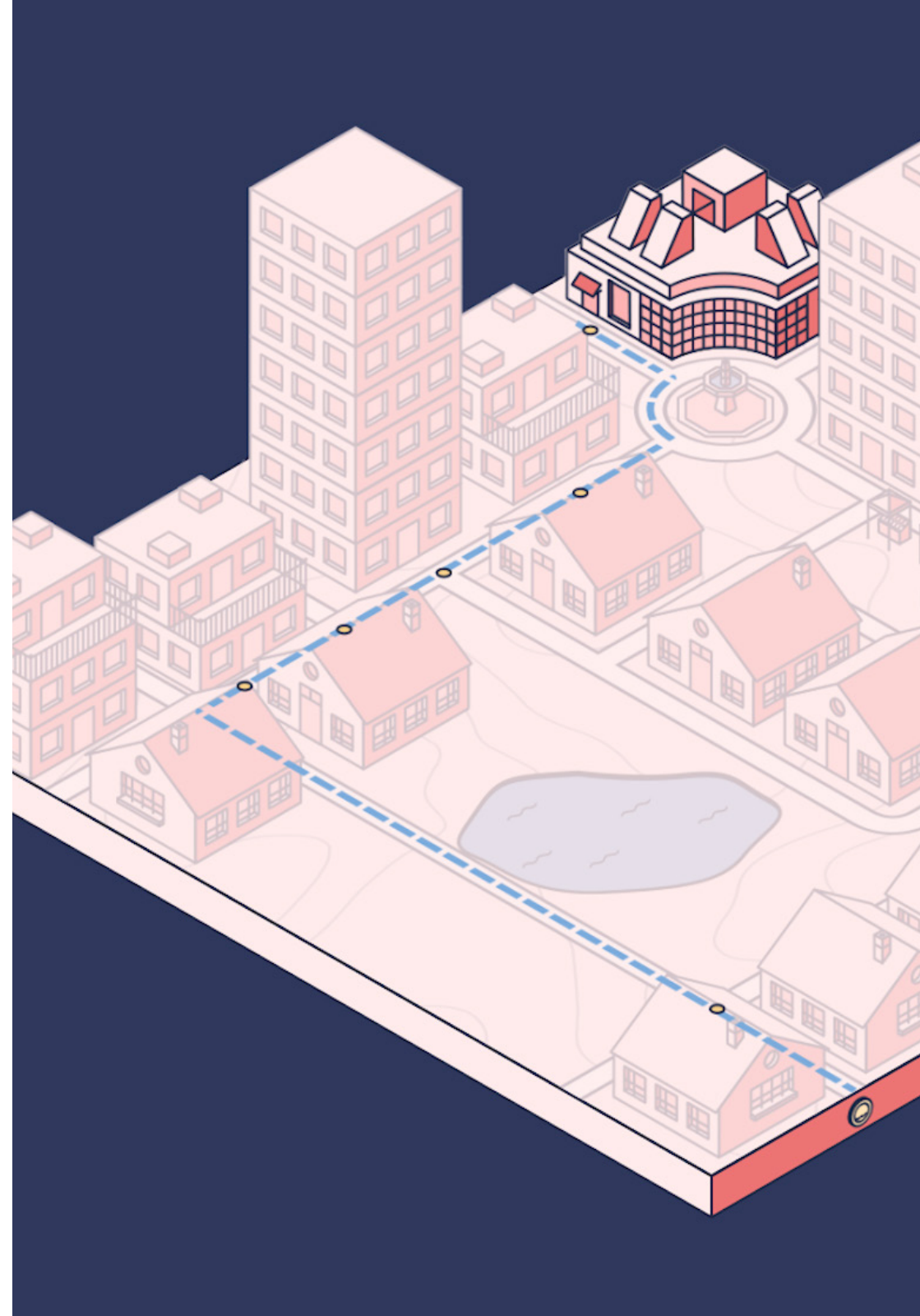


Creating a network

Atkins NetCreate uses the datasets to assign the route of least resistance from each property to the lowest point in the catchment along defined roads.

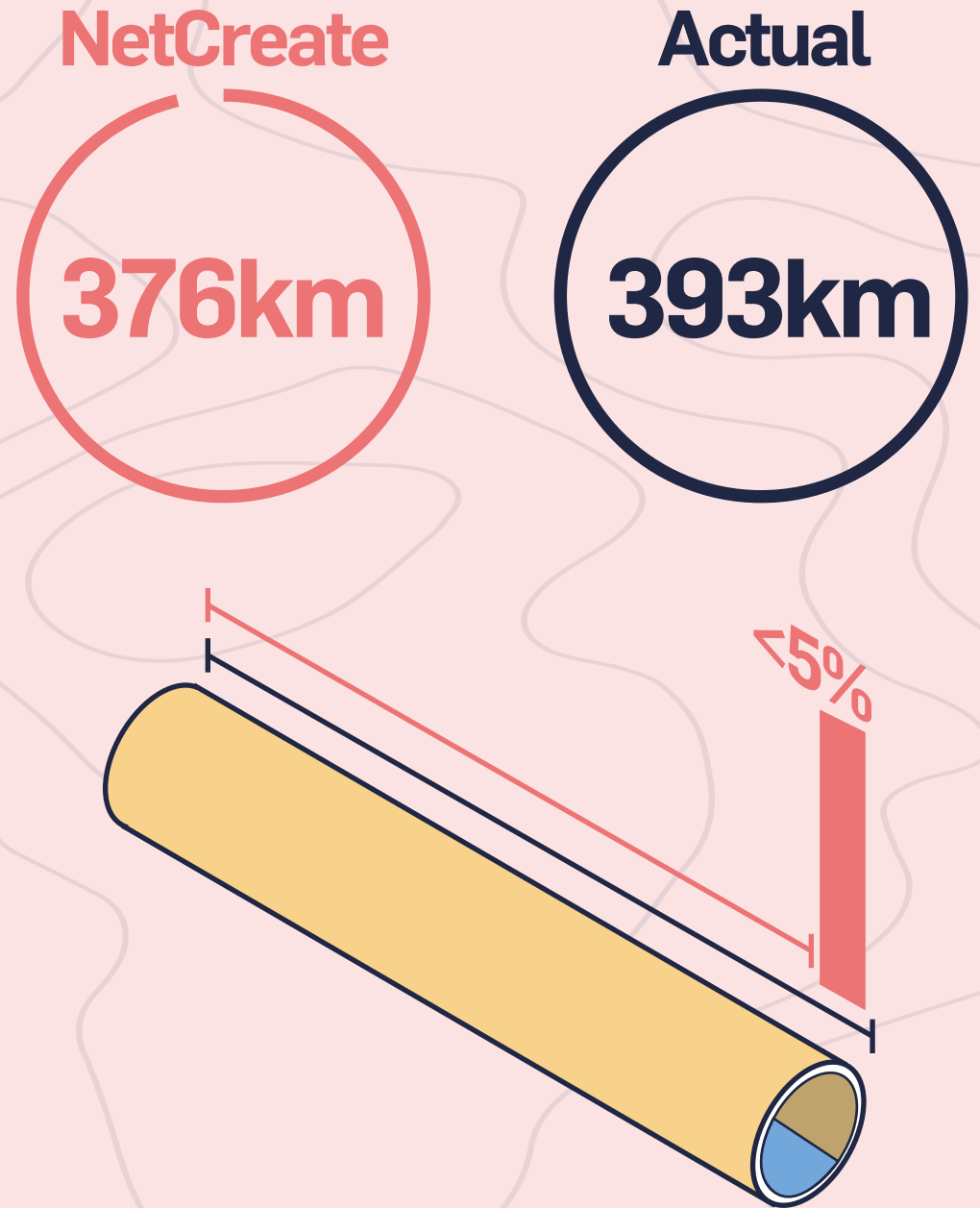
Pipe sizes are assigned based on the number of customers; manholes are inserted at junctions and defined intervals on straight pipes.

Cover levels are taken from topographic data; minimum gradients and pipe depths are based on good engineering practice.



Blind testing of Atkins NetCreate

Testing **Atkins NetCreate** on a UK catchment of 134,000 population generated a total network length of 376km, that's within **just 5% of the actual network length of 393km.**

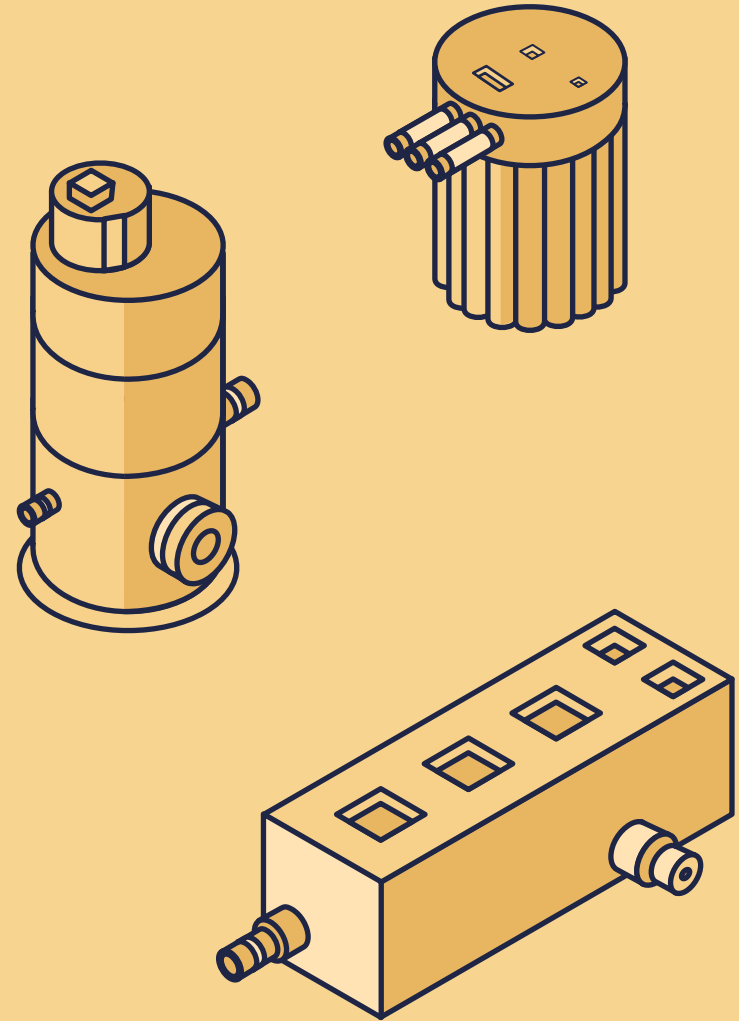


Designing a network

Following refinement of the hydraulic design using third party modelling software, **Atkins Dynamic Objects** could be used for the standard automated design of manholes, pumping stations and other structures to client specifications.

Where pumping mains are required **Atkins Pipeline Studio** could be used for alignment optimisation by automatically testing thousands of possible routes against geographical, geological, asset, constraint and topographical information to generate heat mapped corridors of possibilities.

For the finalised option all quantities could be extracted for pricing.



Potential scalability

Atkins NetCreate has the potential to be developed for:

Stormwater Networks

Water Supply Systems

Treated Sewage Effluent

Communications

Energy Networks

If all utilities are designed together it would ensure a **fully coordinated, BIM compliant,** combined utility layout for a catchment; repeatable and scalable for 1,000s of other catchments at **a fraction of the cost and time.**



Conclusions

Atkins NetCreate could be the first step in providing basic sanitation for all, thus helping to achieve **UN Sustainable Development Goal No. 6**, and contribute to achieving a number of other goals.

