We can clear it up!

Every day, about 187,000 cubic metres of waste water from the state capital Hanover and a number of adjacent cities and municipalities arrives in our Hanover-Herrenhausen Sewage Works. Of this, about 120,000 cubic metres is immediately pumped on to the Gümmerwald Sewage Works. The remaining 67,000 cubic metres is treated in the Herrenhausen Sewage Works. The two sewage works thus share waste water treatment (Herrenhausen Sewage Works for 300,000 people and Gümmerwald for 420,000 people).

The waste water from approx. 720,000 people and quantities of waste water from industry and commerce are purified by us using the most modern technology and are finally discharged – with a purity of 98 per cent – into the River Leine. After a purification process lasting about 20 hours, the waste water treated in this way attains the quality of river water.

Because of its historical site and its central location in the district of Herrenhausen, large investments have been made in the past for the treatment of exhaust air and for odour reduction specifically at the Herrenhausen Sewage Works in order to avoid nuisance to the local residents.

16

8

10

9

NEW CONSTRUCTION OF
THE SEWAGE WORKS IN 1905

COMPLETED SEWAGE WORKS IN 1908

100 JAHRE

KLÄRWERK
HERRENHAUSEN

Hannover's first sewage works

The planning for the construction of the Herrenhausen Sewage Works began back in 1899. This makes it the oldest sewage works in North Germany. The Herrenhausen Sewage Works started operation in the summer of 1908. The Works then comprised a total of 12 sludge settling tanks and a sludge centrifuge house.

Hannover

Stadtentwässerung Hannover

An agency of the state capital

Wir klären das!

Stadtentwässerung Hannover wish to continue providing clean water, caring for the environment and safeguarding our natural resources in a safe, unobtrusive and cost-effective way for all the inhabitants of our city. In order to satisfy the needs of our customers for information, Stadtentwässerung Hannover are happy to answer your questions on the environment and give advice on how each of us can help to safeguard our water supplies.
Just ask.

Stadtentwässerung Hannover
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D-30165 Hannover

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Internet www.Stadtentwaesserung-Hannover.de

Opening times: Mon. – Thurs. 9 am – 3 pm; Fri. 9 am – 1 pm, or by appointment

24-hour emergency service
... if things aren't flowing as they should:
0511 168 | 4 73 77
0511 168 | 4 73 85
68.Stoerungsannahme@Hannover-Stadt.de

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Sewage Works Herrenhausen

Any more questions? Please contact the Press and PR office of Hannover Sewage Services.
Just phone +49 (0)511 1 68 4 74 60 or email us at 68.Presse@Hannover-Stadt.de.

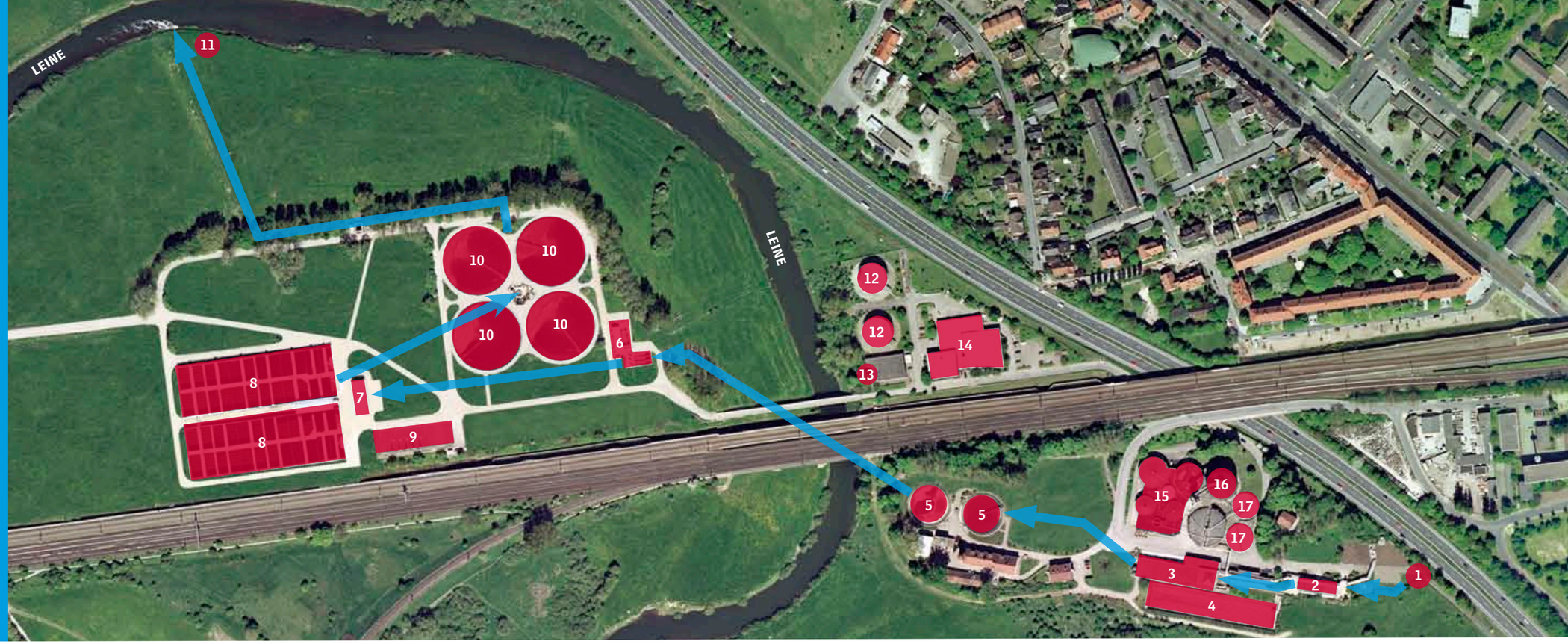
Hannover

Stadtentwässerung Hannover

Wir klären das!

Sewage Works Herrenhausen

1. INLET FROM THE CITY
2. INLET PUMPING STATION
3. SAND TRAP AND GRATINGS
4. RAIN OVERFLOW TANK
5. PRIMARY SEDIMENTATION TANKS
6. SCREW PUMPING STATION
7. CONTROL ROOM
8. ACTIVATION TANKS
9. COMBINED HEAT AND POWER PLANT
10. FINAL SEDIMENTATION TANKS
11. PLANT DISCHARGE INTO THE LEINE
12. GAS TANKS
13. GAS FLARE
14. ADMINISTRATIVE BUILDING AND WORKSHOPS
15. THICKENER
16. SEPTIC TANK
17. SLUDGE RESERVOIRS



The course of waste water

MECHANICAL PURIFICATION

When the water arrives in the sewage works 1, all coarse materials are first filtered out. This reveals again and again how much refuse people dispose of through the sewage system: razor blades, cotton buds, packaging waste, food remnants, hygiene articles, cigarette ends and much more. Such things, of course, do not belong in the toilet, but in the dustbin!

In the first stage of mechanical purification, coarse materials are filtered out by coarse gratings and disposed of at considerable expense. A good tonne of domestic refuse still arrives every day at the grating units 3 in the Herrenhausen Sewage Works. Then the water runs on into the sand trap 3. Here, it flows much more slowly, allowing suspended materials such as sand, grit and stones to settle to the bottom. These are then disposed of as domestic landfill. Fats and oils floating on the surface are also separated here.

At the next stage, the primary sedimentation tank 5, more undissolved substances are then sedimented out. These form the raw sludge that, by means of a scraper bridge, is heaped together and pumped into the septic tank. In the septic tank, the sludge is digested and broken down by bacteria. This process generates sewer gas, which is transformed into power by gas engines 9. The remaining sludge is then dewatered 15. Because of its high nutritional value, this is highly suitable as fertiliser and is used for agricultural and landscaping purposes.

After mechanical purification, the waste water is about a third cleaner.

BIOLOGICAL PURIFICATION

In addition to the mechanical purification, biological purification was started in the 1950s. Here, the remaining two-thirds of the impurities in the waste water are removed.

From the primary sedimentation tanks 5 6, the water from the mechanical purification is pumped by a screw pump into the activation tank 8. Here, millions of bacteria and microorganisms help to break down the substances still dissolved and finely suspended in the water. These are mainly phosphates, carbon and nitrogen compounds. In order to consume the impurities, the different microorganisms require either plenty of oxygen or no oxygen at all, depending on the species. The activation tanks are therefore divided into different zones in which the oxygen supply can be controlled.

Under these optimum living conditions, the bacteria multiply rapidly, forming bacterial colonies, the so-called activated sludge. In the final sedimentation tanks 10, the activated sludge is then separated from the purified waste water. Part is fed back into the activation tank, while the surplus sludge is pumped into the septic tank 16. The purified water is now discharged through a canal into the River Leine 11.

ENERGY RECOVERY

The sewer gas formed by the rotting process in the septic tank 16 is used to fuel a combined heat and power plant 9, where it is converted into electrical power by means of gas engines. In this way, about 60 per cent of the power consumption and 100 per cent of the heating for the sewage works can be covered.

SLUDGE UTILISATION

After dewatering and using special chamber filter presses in the Gümmerwald Sewage Works, the sludge is utilised in a variety of ways. Firstly, because of its very high calorific value, it is suitable for thermal utilisation. In addition, however, the sludge is packed with nutrients and is therefore used as fertiliser.