

100 Years

# CAWD Connections



"Protecting your health and the environment since 1908"

CONSUMER NEWS FROM YOUR CARMEL AREA WASTEWATER DISTRICT

FALL/WINTER 2015

## Plant renovation update

### Spirits high as construction begins

We are now in our fourth month of construction for CAWD's Capital Improvement Projects 15-Year Master Plan. On April 30, CAWD awarded a contract to Andersen Pacific Engineering Contractors, Inc. of Santa Clara, a company with 40 years experience specializing in treatment plants. They submitted the lowest responsible bid, \$13.9 million, and were chosen based on their successful track record on many projects for Bay area cities.

There has been much progress since our last newsletter. PG&E is moving the main feed into the plant to prepare for the installation of our new energy efficient transformer, which powers all our systems and is the backbone of the plant. Our new storm drain pump station is nearly complete and will further ensure that the plant is totally self-contained with no discharge leaving the grounds. The new system will automatically pump all storm water to the head of the plant for treatment.

"After so many years of preparation it is truly exciting to come to work each day and see this project coming together," said CAWD Plant Superintendent Jim Pinkevich. "It's also a great opportunity for our employees to see facilities being built from the



**STRONG FOUNDATION** A worker helps position one of the 150 piles that must be driven into the ground to support new plant structures (already driven piles are in the foreground). Pile driving will take place the first three weeks of December.

## MICROORGANISM OF THE MONTH

MEET "GEORGIE"  
GIARDIA LAMBLIA



In its swimming form, Giardia's two nuclei appear like eyes between its flowing flagella.

The wastewater that enters the CAWD treatment plant is teeming with microbes including bacteria, viruses, and parasites like "Georgie" Giardia that end up in human waste. Giardia is known as the bane of hikers, campers, and travelers who ingest contaminated water or food and contract "giardiasis," also known as "Montezuma's Revenge."

Outside of their human host, Giardia can survive for months or even years as an infectious, microscopic cyst. Once the cyst hits the acidic juices of your stomach it only takes a couple hours for it to transform into its swimming "trophozoite" form. Using his four pairs of waving flagella, Georgie swims like a graceful catfish to locate your intestines. He even has (Cont.)

ground up. There's a lot of education and training going on and everyone is eager to be a part of this impressive undertaking that is so important for our community."

### Pardon our dust—and our noise

If you were within earshot of the treatment plant on September 29 and 30 you most likely heard pounding as we installed 20 indicator piles and conducted tests. A Geotechnical Engineer took blow counts and measurements to determine optimal pile length and strength in different construction areas of the plant. Based on these findings, our contractor is casting and curing another 130 concrete and rebar piles, each measuring 65-feet-long—a process which takes approximately 28 days. During the first three weeks of December these (Cont.)

### Call CAWD immediately if you see a spill!

If you see water flowing out of a manhole cover, in the street, through cracks in the road or sidewalk, or coming out of the sewer relief valve in your yard it is an emergency that needs immediate action. Please call CAWD day or night so we can

determine the source of the problem. CAWD crews

continually clean and maintain our community's 84 miles of sewer pipe but you are our eyes and ears in the community, helping to conserve water, and protect property, human health and the environment. Please call CAWD at 624-1248, or 624-6403 after-hours. You can also call the Carmel Police Department and they will relay your call to us.



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## Preparing for El Niño

With predictions of a big El Niño year, we all need to prepare to weather the storm. Now is the time to create an action plan if you live in a flood-prone area, and to refresh your disaster kit so you can be self-sufficient for a 72-hour period. Visit [ready.gov](http://ready.gov) for detailed disaster preparedness information.

Here are just a few of the ongoing actions CAWD is taking to ensure safety during this year's rainy season:

- Installation of power plugs at pump stations to create a third fail-safe in case of power outages/breakdowns. If a gas line failure prevents a back-up generator from working we can now plug in portable generators. Staff will also receive refresher training for pump station emergency bypass procedures.
- Clearing downed trees/vegetation, and cleaning sewer lines in remote easements.
- Load testing of all stand-by generators and portable pumps, and inspection of electrical panels at all lift stations. Fuel for all generators will be monitored and topped off at all times.
- Emergency inventory inspected and replaced as needed: rain gear and hip waders, lighting and battery back-up systems, onsite food rationing, sleeping bags, camping equipment, extra sandbags, etc.
- All conferences and non vital training on-hold from November through March to ensure extra staffing in case of emergency.



**Carmel Area  
Wastewater  
District**

3945 Rio Road, Carmel, CA 93923  
831 . 624 . 1248  
[cawd.org](http://cawd.org)

**Free 24-hour sewer back-up service:**  
If water is backing up in your tub or toilet it is an emergency. Call us immediately: 624-1248, or 624-6403 after-hours.

CAWD is a special district dedicated to protecting public health and the environment with the cost-effective collection and treatment of wastewater and the return of clean water to the environment. We invite the public to attend CAWD board meetings, held the fourth Thursday of each month at 9:00 am at the CAWD office.

### Board of Directors

Greg D'Ambrosio Charlotte Townsend  
Michael Rachel Ken White  
Robert Siegfried

**General Manager**  
Barbara Buikema

## Construction begins *(Cont. from page one)*

piles will be pounded into place to create the solid foundation for CAWD's new digester and digester control building, disinfection station, and electrical transformer.

"Pile driving will be noisy, but that is the sound of our community's future being secured," said CAWD General Manager Barbara Buikema. "We ask for everyone's forbearance, and we have scheduled the work to begin after Thanksgiving and before Christmas to minimize impact on nearby neighborhoods.

"Careful orchestration of each stage of the construction sequence is vital to keep on-time and on-budget," said Barbara. "We know weather may impact schedules, but we are managing the timeline as diligently as possible to minimize cost overruns. We want to thank the community for all the support we've received so far, and for the positive comments we've heard at our public meetings."

*As construction progresses we will continue to provide updates on the many improvements we are making to create the most energy efficient and cost-effective treatment plant possible for our community's investment. To view our master plan, please visit [cawd.org](http://cawd.org).*

## Microorganism *(Cont. from page one)*

an impressive sucker plate he attaches to the surface cells, where he drinks in nutrients, mostly glucose. There Giardia multiplies and covers the intestines, preventing water absorption and causing the diarrhea he is known for. Georgie can then pass to the colon, magically transform back into a cyst, and find his way to the treatment plant after someone flushes him away.

### Master of disguise

Georgie's claim to fame is his ability to change his surface proteins to fool our immune systems. Just when the immune system goes in to attack, Georgie switches to another protein and becomes invisible. This amazing discovery has been compared to a gang of thieves who can instantly change disguises to evade capture—and Georgie has 200 protein "coats" at his disposal!

Hugo Luján, a researcher in Argentina, found that when Giardia was genetically engineered to express all its 200 surface proteins at once it could be used as an oral vaccine to prevent giardiasis. Currently, oral vaccines for parasites are not possible because the antigens cannot withstand our acidic digestive systems. But Giardia's hardy proteins thrive in these conditions, and scientists believe that attaching vaccines to this protective "armor" could allow them to survive long enough to trigger the immune system. When fully developed, these first purely protein vaccines could be stored at room temperature and taken orally, making it easier to help people in the developing world where there is little sanitation and Giardia is a serious problem, especially for children. The proteins also hold promise for treating other parasitic diseases such as malaria.

At CAWD we use giant blowers to oxygenate our community's wastewater, allowing the microbes to multiply quickly as they eat the plentiful organic waste—and each other. We depend on the many beneficial microorganisms in wastewater to eat microbes that can harm the health of people and our environment. This, along with filtration and disinfection, allows us to transform wastewater into clean, safe water for return into the environment.



Giardia uses an impressive sucker plate to attach to the small intestine. Below left: numerous Giardia nearly cover an intestinal wall.



## CARMEL AREA WASTEWATER DISTRICT PROPOSED BUDGET

July 1, 2015-June 30, 2016

