

cation, BCM demonstrated that “there is no saving to be gained by using trenchless technology”. CIPP, the least expensive and simplest type of trenchless technology, is not suitable for “Truss Pipe”, which is the material used for the vast majority of existing sewers in the Hideout.

The evaluations and estimated costs of the trenchless technology options noted above are beyond the scope of this article but can certainly be made available to interested members for review.

**Was an independent engineering review of the project conducted?**

Yes. Members have expressed perfectly understandable concerns about the recommended approach and costs of the water and sewer piping replacement program. These members wanted (and deserved) an independent “second opinion”.

**PENNVEST**, our financing authority for Stage 1, required an independent review and evaluation of our proposed design by a licensed professional engineer when the design was 20- to 40-percent complete. This review must identify alternatives, if any, for achieving the basic functions of water and wastewater conveyance at lower cost. The review must also determine if we investigated all alternatives thoroughly and if our cost estimates for those alternatives are reasonable.

A selection committee consisting of two POA Board Members and three RS&W Board Members unanimously chose CET Engineering to perform the review following a competitive evaluation process involving over 14 potential firms.

**CET’s final report concluded:** “In summary, we believe RS&W and their engineer have done a thorough job in considering the alternatives and we concur with the overall approach of replacing the water distribution system and sewage collection system ... Although there are some obvious disadvantages with the low pressure sewer alternative, the cost savings achieved with this alternative outweigh the advantages of replacing the existing gravity sewers in-kind. CET’s experience and research done for this review indicate that private and municipal owners of low pressure sewers are satisfied with their performance.”

**Are the grinder pumps that RS&W is installing reliable?**

Yes. Low-pressure systems have a proven track record of good functionality. Please keep in mind that individual home sewage pumps are not new, even in the Hideout. Before Stage 1 construction begin in 2013, sewage pumps have been serving more than 1200 homes in the Hideout successfully for many years.

During the design process in 2011, RS&W staff and its consultant, BCM Engineers, thoroughly investigated the two broad types of grinder pumps used in domestic sewage applications, namely: (1) positive displacement pumps (Manufacturer: *Environment One*); and (2) centrifugal pumps (Manufacturers: *Barnes, Myers; Liberty*). After visiting and intensively interviewing municipal operators of grinder pump installations both locally and out-of-state, the team was satisfied with their findings and chose to design around centrifugal pumps rather than positive displacement pumps for operational reliability, durability, and technical reasons. Ultimately, Barnes (Crane Pumps) and Myers were named in the specifications as equivalent manufacturers, and Barnes eventually won the bid for the pump supply contract.

If properly used and maintained, grinder pumps are very reliable. The largest grinder pump / low-pressure sewer system in the country (22,714 pumps in Port St. Lucie, FL) had an annual failure rate of less than 1-percent. The 20-year “pump survivability” for this system was estimated to be 90.24-percent.

Low-pressure collection systems and grinder pumps are common throughout the country, and are particularly useful in hilly terrain such as that in the Hideout.

**Here are a few examples in Pennsylvania:**

- East Marlborough Twp., Kennett Square, PA
- Mountain Top Sanitary Authority, Mountain Top, PA
- Upper Providence Twp., Media, PA
- Greenfield Twp. Sewer Authority, Greenfield, PA
- Manwalamink Water & Sewer Company, Shawnee, PA

**Are failure alarms linked to the new Stage 1 grinder pumps going off frequently in the Hideout?**

No. RS&W’s staff has responded to a few alarms in the community but we found these to be caused by construction start-up errors (e.g. improperly closed valves) rather than by problems related to the grinder pumps themselves. Once these normal start-up issues were corrected, we encountered no further difficulties. To date, multiple visits to solve problems at the same location have not been necessary.

**Is our water safe to drink?**

Yes. Our drinking water is absolutely safe and consistently meets or exceeds ALL quality standards for drinking water established by our regulatory authorities: the Pennsylvania Department of Envi-

ronmental Protection (PADEP) and the U.S. Environmental Protection Agency (EPA).

Since RS&W provides drinking water for public use (as opposed to a private water well, for example), we are required to meet the same stringent drinking water standards as any another other public water supplier in the state. We test our water on multiple schedules as mandated by law (daily for some parameters; quarterly and annually for others). An independent third-party accredited laboratory performs all water testing. This laboratory submits all results directly to the PADEP and to the EPA. As a point of information, RS&W’s 2015 budget for water and wastewater testing is \$35,000, the same as it was in 2014.

Since 1999, RS&W has submitted every Water Quality Report by direct mail to all homeowners in the Hideout. RS&W has had zero violations and is 100-percent compliant with all PADEP and EPA drinking water requirements.

At RS&W’s November 20, 2014 Board of Directors Meeting, a member of the community presented very inflammatory and highly misleading information that he had copied from a website. This website/organization encourages / promotes bottled water services for homes and businesses. The organization lists Alhambra, Belmont Springs, Hinkley Springs, Mount Olympus, and several others as providers of bottled home delivery water on the site.

We investigated the information on this website with senior officials at both the Pennsylvania Rural Water Association (PRWA) and the American Water Works Association (AWWA) and found that it had no merit. We were advised that the owners of this business, in its efforts to sell bottled water, are skilled at misrepresenting public drinking water system information to alarm consumers into making unnecessary purchases of bottled water.

Shortly after we received this water quality report at the November Board Meeting and after investigating this website, the site become “unavailable”. It continues to be unavailable to date (February 6, 2015).

Proposed Board Meetings 2015	
Wed., Jan 28	Wed., Jul 25
Wed., Feb. 25	Wed., Aug. 26
Wed., Mar. 25	Wed., Sept. 23
Wed., Apr. 22	Sat., Oct. 3
Sat., May 23	Wed., Nov. 18
Wed., Jun. 24	Wed., Dec. 22



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- Secretary**  
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James Fleming

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# RS&W News

**2015, 1ST QUARTER**  
**PUBLISHED: APRIL 2015**

This newsletter is mailed 4 times annually, before the 1st of April, July, October, and January.

## Stage 2 of RS&W’s Water & Sewer Replacement Project

**Construction on the Stage 2 Section of the North side is set to begin in May of 2015**

This article introduces the second major phase of RS&W’s ongoing Water-Sewer Replacement Project. Most homeowners will recognize that much of the information presented here is not new. However, we would like to take this opportunity to update our members, reiterate why the work is necessary, and explain what you can expect in the coming months.

Since early 2010, we have presented detailed information on many issues relating to the project in our monthly Hideabout page, in our Quarterly RS&W Newsletters, and on our Website (www.rswanepa.com). All of RS&W’s past and most current Hideabout articles and Newsletters are easily accessible through our website. We encourage our members, especially new members, to visit our website for information and even detailed answers to some of their most common questions.

We would like to start off by reviewing what factors inevitably led to the Pennsylvania Department of Environmental Protection’s (PaDEP) decision to require an entire replacement of the Hideout’s Water-Sewer infrastructure.

By 2009, after almost 40 years of service, RS&W’s water mains and sewers were failing at an alarming rate. By the end of that same year it had been determined that 56 percent of the water pumped from our wells, approximately 99 million gallons, was not reaching our homes. It was simply “lost” due to leaking from our broken and cracked water pipes. Major water main breaks had also increased drastically. During peak demand periods, such as 4<sup>th</sup> of July weekend, our ability to provide water on demand was threatened.

At the same point in 2009, a huge volume of groundwater was found to be leaking into our broken sewers and overwhelming our pumping stations and treatment plant. Approximately three quarters of the flow in our sewers was not domestic sewage, it was nearly 217 million gallons of ground water.

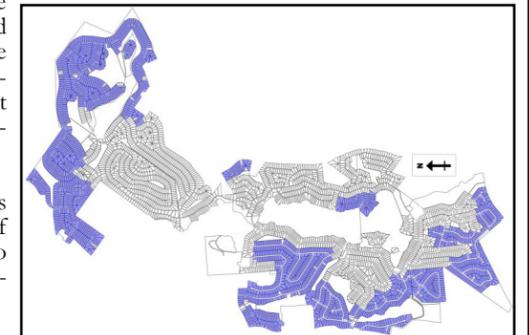
In early 2009, RS&W commissioned its Engineer to prepare a comprehensive Master Plan to remediate our aging and leaking water-mains and sewers. The conclusions, supported by multiple internal and external engineering evaluations since 2006, were unequivocal: we MUST REPLACE the entire system as quickly and cost effectively as possible.

In March of 2011, the PaDEP REQUIRED RS&W to implement the recommendations of the Master Plan. RS&W’s engineer estimated the modern low pressure system as the lowest cost alternative for

replacing all water-mains and sewer to be approximately \$80 million, as opposed to replacing our current gravity sewers in the same manner, at a total project cost of about \$125 million. RS&W not having had the resources to implement this entire project at one time; decided to divide the project into priority stages. Low interest loans and grants have been secured to finance these stages.

**STAGE 1 CONSTRUCTION**

Stage 1 areas are shown in blue on the Hideout map below. This work began in the summer of 2013 and is now nearing completion; the work is on budget and ahead of schedule.



New water-mains have been installed roughly parallel to the existing main. The new system, in keeping with a high standard of quality, as well as affordability, is a modern low pressure (LP) sewer system with grinder pumps at each home.

As Stage 1 begins to wind down, final paving in areas already completed and running on the new system are set to begin in the spring of 2015. In addition, positive results are already being seen: fewer breaks throughout the community; reduced flows at the treatment plant; and reduced power consumption with 10 pump stations now offline.

Stage 1 is anticipated to be complete by: Spring 2016

**STAGE 2 FUNDING AND RATES**

In an event held at the Hideout Main Lodge, the U.S. Department of Agriculture announced it was providing a total of \$20,403,200 in funding for Stage 2. This funding consists of a long-term fixed-rate loan for \$13,008,000 and a grant for \$7,395,200. To pay for the loan portion of this funding, RS&W raised its rates 15% and has announced an increase of 10% for 2015. It is anticipated that the rates will need to be raised in both 2016 and 2017 by about 10% each year.

## STAGE 2 NORTH (PART A) CONSTRUCTION

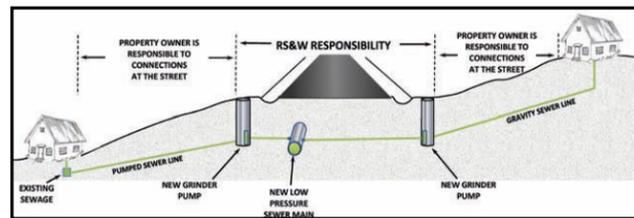
Stage 2 areas are shown in green on the map to the right. Work is scheduled to begin in May of 2015 and be substantially completed by November 2016. Final paving is expected to be complete by Spring 2017.

Preliminary construction preparation activities are already taking place in the Stage 2 areas. RS&W representatives are currently visiting each property within Stage 2 to finalize the individual work needed at that particular property. This scope of work varies with each home and depends on the configuration of the property in question (e.g. location and orientation of the home; driveway type and layout; obstructions such as boulders, trees, storm drain pipes or swales) and on whether the home is currently served by a gravity service sewer or by an existing sewage pump system.

In addition to seeking written permission from each homeowner to enter the property during construction, RS&W's representatives are visiting to determine the following, as applicable, in consultation with the homeowner:

- Location of the home's existing gravity service sewer or sewage pump discharge pipe on the lot
- Location of the new water and sewer service laterals on the lot that will connect the home to the new water-main and low-pressure sewer pipes under the street
- Location of the new grinder pump basin (for gravity sewer homes and for homeowners that elect to keep their existing sewage pump)
- Location of the electrical panel inside the home and the location where the electrical service will penetrate the building wall, as well as the type of electrical modifications needed for the new pump and control panel
- Location of the pump control panel and routing of buried electrical cable on the property

The project requires that wastewater from each home be pumped to the new low-pressure sewer main located in the street. The "RS&W Responsibility for Low-Pressure Sewer" diagram, illustrates the work that will take place at each home, based on sewer service type.



After the contractors have completed work on a given property, they will clean the site, and provide for any necessary site restoration required by the construction activities, including repaving damaged areas of driveways, and seeding and mulching disturbed earth areas.

The remaining work areas after Stage 2 construction is completed are indicated in white on the Hideout map. The nature and scope of the remaining work will be the same as that described for Stages 1 and 2 above.

RS&W's plan is to complete all remaining work as quickly as funding permits. Ideally, all of this work will be executed under a final "Stage

3", but this may not be possible for a variety of reasons, such as the availability of adequate financing, including additional grants.

We anticipate that the surveying and final engineering design, including construction cost estimates, for all remaining work after Stage 2 will take place in 2016. If that happens as planned, competitive bids for work might be opened as early as the spring of 2017.

RS&W's plan for completing the community relies a great deal on the finance availability. It is the hope of Roamingwood's Board to secure more Grants and low interest loans as we have in the last 2 stages to help relieve some of the rate increases to finish the balance of the new system.

### What is the chronology of RS&W's Water and Sewer Replacement Project?

The following list presents key highlights of the project to date. We hope that members will gain a better appreciation of the overall program after reviewing the milestones below:

- One major stimulus for this project has been the increasing number of water line breaks that our staff must fix each year. From 2003 through 2010, the number of breaks increased more than 350 percent. In addition to the huge volume of water lost through broken pipes, the sheer number and unpredictability of the leaks was rapidly overwhelming the ability of RS&W's staff to respond. By 2010, on average, we were experiencing one water line break every 64 hours. These breaks were widely distributed; if they were concentrated in only a few areas, our water leakage problem would be much easier to solve.
- During the same period, we recorded increasingly large and unacceptable volumes of clean groundwater leaking into our wastewater collection system as a result of broken and leaking sewers, house service laterals, and manholes. Since 2006, we have been measuring wastewater flow rates throughout our system, and have been using our CCTV video camera inside the sewers to identify the sources of these leaks. Although some areas are certainly worse than others, we found that this "infiltration" was unfortunately widespread rather than concentrated in only a few areas.
- **Early 2009:** RS&W hires BCM Engineers to prepare a comprehensive Water and Wastewater Master Plan to address these problems.
- **November 2010:** The Master Plan is completed. Given the extent of piping breaks and the magnitude of leaks throughout the Hideout, this plan concluded that we must REPLACE ALL of our water mains and sewers as quickly and cost-effectively as possible.
- **November 13, 2010:** RS&W makes formal presentation about the proposed project to the Hideout's POA Board.
- **December 2010:** First major article about the proposed project appears on RS&W's page in the Hideabout. Many others project-related articles to follow in the months and years ahead.
- **December 18, 2010:** In a public meeting at the Hideout's Main Lodge, RS&W introduces the Master Plan Project to members in a detailed PowerPoint presentation that includes the reasons for the project, proposed solutions, implementation plan, costs, financing, and rates.
- **March 16, 2011:** The Pennsylvania Department of Environmental Protection (PADEP) indicates that it will require RS&W to implement a "Corrective Action Plan" (CAP) due to the severity of our sewer problems.
- **April-May 2011:** As required by law, the RS&W and the

South Wayne County Water and Sewer Authority Boards created the CAP in cooperation with the PADEP and put themselves on voluntary restrictions with future connections to its sewer system. This CAP, which in essence comprises the recommendations in the Master Plan, publicly documented the corrections that we must make to meet our permit requirements.

- **August 2011:** BCM Engineers completes preparation of planning and preliminary design documents for an *independent* "Second Opinion Review". The review package includes the Master Plan (Volume 1), the Trenchless Technologies Analysis, grinder pump vendor submittals, water and sewer system hydraulic models, and cost estimates.
- **September 2011:** Salem and Lake Townships adopt the CAP (also known as a "537 Plan") at public meetings after it was duly advertised and a 30-day comment period expired; no comments, either written or verbal, were submitted during the public meetings or during the comment period. The Plan was then submitted to PADEP for comment and approval, and was approved several months later.
- **September 2011:** Independent "Second Opinion" Review Report of the project is completed and presented to a Joint POA/RS&W Committee for approval.
- **April 12, 2012:** In the second public meeting at the Hideout's Main Lodge, RS&W presents a detailed project update to the Hideout Adult Social Group (HASG).
- **October 23, 2012:** After conducting its own review of the project, PENNVEST (Pennsylvania Infrastructure Investment Authority) awards a total of \$19.86 million in low-interest loans to help pay for Stage 1: \$10 million for sewer line replacement and \$9.86 million for water line replacement.
- **January – March 2013:** RS&W opens competitive bids for eleven Stage 1 construction contracts, which covers approximately half of the Hideout. In each case, RS&W awarded contracts to the lowest responsive, responsible bidders.
- **April 24, 2014:** After conducting its own separate review of the project, the Office of Rural Development, U.S. Department of Agriculture (USDA), announces that it was providing a total of \$20,403,200 in funding for Stage 2. This funding

consists of a long-term, fixed-rate loan for \$13,008,000 and a grant for \$7,395,200.

- **February 2015:** Stage 1 construction is nearing completion; it is on budget and ahead of schedule. Stage 1 should be 100-percent complete when ALL final paving is completed in the spring of 2016; most final paving in Stage 1 construction areas will be completed in the spring/summer of 2015.
- **Next Steps:** Stage 2 construction is scheduled to begin May 2015 following competitive bid openings in March 2015. Stage 2 should be substantially complete by November 2016 and fully complete after final paving in Stage 2 areas is placed in the spring of 2017.

### Is RS&W's project necessary?

ABSOLUTELY. Our current aging water and sewer systems are failing and must be replaced. As noted in the project chronology above, the project as defined in the Master Plan is NOT AN OPTION. It is required by the PADEP.

### What options were considered to solve the problems?

Continuing to repair segments of water and sewer piping as they failed (as we had in the past) was also not an option. We have neither the manpower nor the resources to "keep up" with line breaks and leaks as they occur because our infrastructure is simply too old to do this successfully.

In addition to considering "trenchless technologies" for refurbishing existing sewers in place (see more below), the Master Plan covered two broad options for replacing the existing sewer infrastructure:

**Gravity System:** Replace the existing gravity sewers and manholes "in kind". This means that new sewers and manholes would be installed in the same locations and at the same depths as the existing sewers and manholes.

### Low-Pressure System:

Replace the existing gravity sewers and manholes with a modern "low pressure sewer system".

The Master Plan recommended a pressure sewer system because it was a proven and reliable solution that was considerably less expensive than replacing the existing gravity system "in kind". Mostly due to the size and depth of the existing lines.

### How much more would it have cost us for a GRAVITY sewer system?

RS&W's consultant, BCM Engineers, estimated the total cost of replacing gravity sewers "in kind" throughout the Hideout to be approximately \$25.5 million more than changing to a low-pressure sewer system. We simply could not afford (nor would our funding agencies have financed!) such a large difference in costs.

New low-pressure sewers can be installed at shallower depths because they are pressurized. Replacing our gravity sewers would have required much deeper excavations and therefore much higher costs. With gravity sewers, we would also have had to replace or upgrade all 29 of the wastewater pumping stations in the community. Using low-pressure sewers eliminates these pumping stations entirely.

When the gravity sewers were initially installed here in the early 1970s, we did not have the thousands of homes and miles of road paving that we have now. While all utility replacement is disruptive and costly, the difference between the very deep trenches needed to replace our gravity sewers now and the much shallower trenches needed for low-pressure sewers is very significant.

### Were special techniques for repairing ("re-lining") our existing sewers considered?

Yes. Our engineers prepared a separate special report on this very issue.

Several Members have asked if some form of "trenchless technology" might be employed to refurbish the existing gravity system more economically than providing new low-pressure sewers. A February 2009 article published in *LJWorld.com* that described a low-cost sewer-relining project in Lawrence, Kansas, apparently prompted these questions.

### The following trenchless technologies are widely available and proven for selected sewer repair applications:

- Cast In Place Pipe (CIPP) ... employed in the 2009 Lawrence, Kansas Project
- Fold and Form Pipe
- Pipe Lining
- Pipe Bursting

Trenchless Technology was NOT recommended for use in the Hideout. BCM Engineers, our Master Plan Consultant, contacted the vendors and evaluated the costs, advantages, and disadvantages of each technology thoroughly as a potential alternative to low-pressure sewers. BCM concluded: "*While Trenchless Technologies for pipe repair are available and are proven to be cost effective and practical in some situations, it is clear that the sanitary sewer system in the Hideout is not a good candidate*". When all cost components of trenchless technologies are considered for our Hideout appli-