



**MEETING MINUTES**

**January 12, 2021**

Virtual Meeting

**Attendees:**

<b>Name of Attendee(s)</b>	<b>Company / Agency Name</b>	<b>Email Address</b>
Adam Brown	West Yost	abrown@westyost.com
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Wyatt Nethercott	Armorock	wnethercott@armorock.com

#### **Announcements:**

- ***PUG Annual Sharing Technologies Seminar – Registration will start early January 2021.***
- ***Future Presentations for Monthly Meetings – For future meetings, PUG is open to presentations for future topics.***
- ***NASTT***
  - ***January 12, 2021 - Introduction to Trenchless Technology-Rehabilitation Virtual***  
*Time: 8:00 am to 12:00 pm Pacific*  
*Instruction: Jennifer Glyn of Woodard & Curran and Patrick Moskwa of Robinson*  
*Moderator: Joe Lane of Aegion*
  - ***January 14, 2021 - Introduction to Trenchless Technology-Rehabilitation Virtual***  
*Time: 8:00 am to 12:00 pm Pacific*  
*Instruction: Dr. Sam Ariaratnam of Arizona State University and Matthew Wallin of Bennett Trenchless Engineers*  
*Moderator: Brian Avon of Carollo*
  - ***January 27, 2021 – Fundamentals of Horizontal Directional Drilling by GTI Virtual***
  - ***Time: 6:00 am to 12:00 pm Pacific January 29, 2021 – Free ISTT Webinar with Professor Heh-Jim (Albert) Shou: Estimating the Jacking Forces of Pipejacking***
  - ***March 28 – April 1, 2021: NASTT 2021 Live - No-Dig Show in Orlando, Florida at the Orange County Convention Center.***
    - *Registration is now open.*

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- *Municipal and Public Utility Scholarship are available for applications by January 15, 2021.*
- ***September 27-28, 2021: Live - South Central Trenchless Technology Conference – Sugar Land, TX.***
- ***November 8-10, 2021 LIVE - No-Dig North Vancouver, BC***
- ***UESI (ASCE Pipelines)***
- ***Public Sector Scholarship for Pipelines 2021 Conference - Apply via the on-line application by January 15, 2021.***
- ***UESI Pipelines 2021 Conference LIVE – Calgary, Alberta, Canada – August 3 – 6, 2021***

**General:**

***November 2020 Meeting Minutes:*** An overview of the November meeting was presented.

***Financial Update:*** The current total in the organization account as of December 31 is \$58,942.840 (Dustin La Vallee)

**Project Discussions:**

Andrew Hawksworth with EBMUD has a wastewater collection system in South Shore replacing 18,000 feet of gravity sewer.

Bob Allen with Trident completed the design for West County Wastewater District, Richmond project for 21, 500-ft gravity sewer pipeline. Existing pipe sizes are 6", 8", and 12" VCP. Replacing pipe with one size up via pipe bursting VCP and SDR 17 HDPE. Due to funding issues advertisement are postponed until February.

Adam Brown with West Yost mentioned the company won a project from the City of Sacramento. Project includes a new 108-inch pipeline along 24<sup>th</sup> Street and K and a new storage facility near Highway 50.

Brian Danley with Anchor CM mentioned a few projects in Mill Valley and a storm drain project in a Burlingame neighborhood utilizing 12-inch pipe.

Daniel Rodriguez with Black and Veatch mentioned he continued with another round of pipe inspections in San Jose. Also, San Jose RWF issued a bid for two primary effluents rehabbing 78-inch RCP and 96-inch RCP with a combined length of approximately 500 to 600 feet. Pipes will be rehabilitated with CIPP. Bids due January 21. Non mandatory project walks took place the first week of first January.

Nancy McWilliams announced the PUG Annual Seminar. Virtual via Zoom. Keynote speaker is retired from the United States EPA. Keynote speaker's primary focus is resiliency related to water quality. The presentation will include a discussion of water loss regulations.

***Highlights from the presentation include:***

**Presentation: "The City of Davis Goes Fully Sustainable Using Polymer Concrete Manholes by Wyatt Nethercott, Armorock.**

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The presentation will focus primarily on vertical structures for wastewater applications. Armorock manufactures polymer concrete structures that are 100% corrosion proof throughout the precast. Armorock use a nonreactive sand/aggregate as well as resin instead of cement for the glue.

**Overview:**

Armorock

Sewer slip lining vertical structures such as Manholes inserts and lift stations for the City of Davis Wastewater Treatment Plant

Armorock rehabilitated a total of 6 manholes located right before the City of Davis Wastewater Treatment Plant. Four manholes inserts and 2 new structures.

The polymer concrete structures are corrosion proofed and composed of the following:

- Aggregate: Nonreactive sand which is silica sand and is coarse rock
- High grade resin (no cement)
- Reinforced with Fiberglass (no rebar)

The City of Davis does want to use topical solutions for sewer structure rehabilitation. Armorock does not used any topical solutions like a coating or lining.

Amorock provides a 50-year corrosion free Warranty.

**Rehabilitation Steps:**

- Remove the existing manhole cone.
- Clean the base. Existing manhole base shall be at least 180 degrees base in good conditions for the insert to see on. If base is not suitable a rebuilt is required. Apparently is rare that the base in not suitable.
- Rehabilitate the manhole base with quick concrete.
- Used mastic at the joints.

**Structure Capacity:**

Manhole Capacity is reduced whit manhole inserts such as 48-inch diameter will be reduced to 41-inch and a 60-inch manhole will reduced to 53-inch Diameter.

**Benefits:**

Innovated product to rehab with sustainability, safety, and success. 50-year warranty

**Lessons Learned:**

- Sustainable materials that do not break the budget.
- More sustainable options for rehabilitation in lieu of replacement (Some require more excavation and other replacement in a high traffic area might be challenging and expensive option.
- Sulfide condition: If sulfides are low there is no need for a polymer structures.

**Armorock Catalog**

Structure Inserts

New manholes

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Precast base,  
Lift stations  
Non-circular structures

**Local Agencies in California using the Armorock include:**

- City of Davis
- Sacramento Sewer District requires polymer structures for rehabilitation.
- Davis
- San Mateo
- Santa Rosa
- Napa
- Union San
- Foster City
- Santa Cruz County

Wyatt can provide the product samples, specification and drawings, Life Cycle Cost: where is the savings over the long term. Questions contact Wyatt Nethercott [wnethercott@armorock.com](mailto:wnethercott@armorock.com) (949) 371-3606

**Miscellaneous:**

- Do they check the PH of the existing concrete after it is clean? No.
- Available diameter 4 foot up to 12 foot.
- Square structure if it fits in a truck maximum will be 14 feet wide.
- High limit: not restrictions Compression strength 60,000 psi which is 4 times stronger than traditional concrete and 32,000 in flexural strength which is 6 times more than concrete.
- Example of the deepest manhole is in Minnesota is 68-inch diameter and 80 feet deep.
- Every foot increase in id thickness
- Risers Structures are reinforced with Fiberglass hoops and precast bases have chicken wires fiberglass.
- ASTM governing the design: ASTM D 6783 Standard for Polymer Concrete Pipe ASTM C 478 Precast Reinforced Concrete Manhole Sections.
- Structures are traffic rated.
- Manholes inserts are jointless.
- New manhole has the bell and spigot.

**Product Price** Double the price of a regular manhole however once you include the cost of coating the inside of a regular manhole, they are about the same.

**Next Meeting:**

The next meeting is scheduled for Tuesday, March 9, 2021. The topic will be American Concrete Pipe Association - Gean Na, PE.

**PUG's Annual Sharing Technologies Seminar** will be a Virtual Seminar via Zoom on February 18, 2021. Please call Alexandra Watson at 925-332-5221 or email [pugnorcal@gmail.com](mailto:pugnorcal@gmail.com) for additional information on this month's meeting minutes.

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