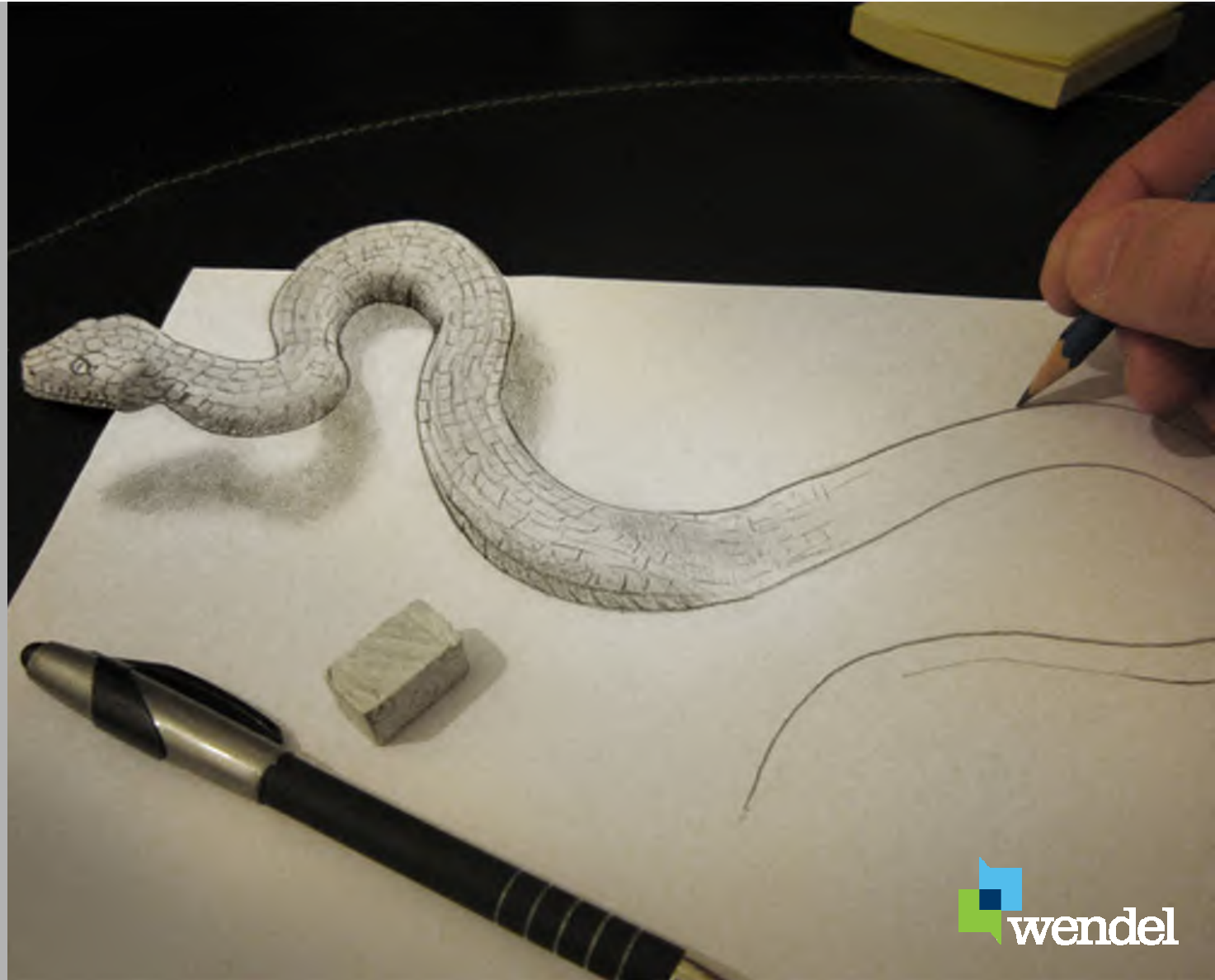


Leveraging 3D Imagery to Facilitate Project Delivery

John Revette, PE, BCEE
November 1, 2018



Presenter



John
Revette, PE, BCEE
Environmental Engineer

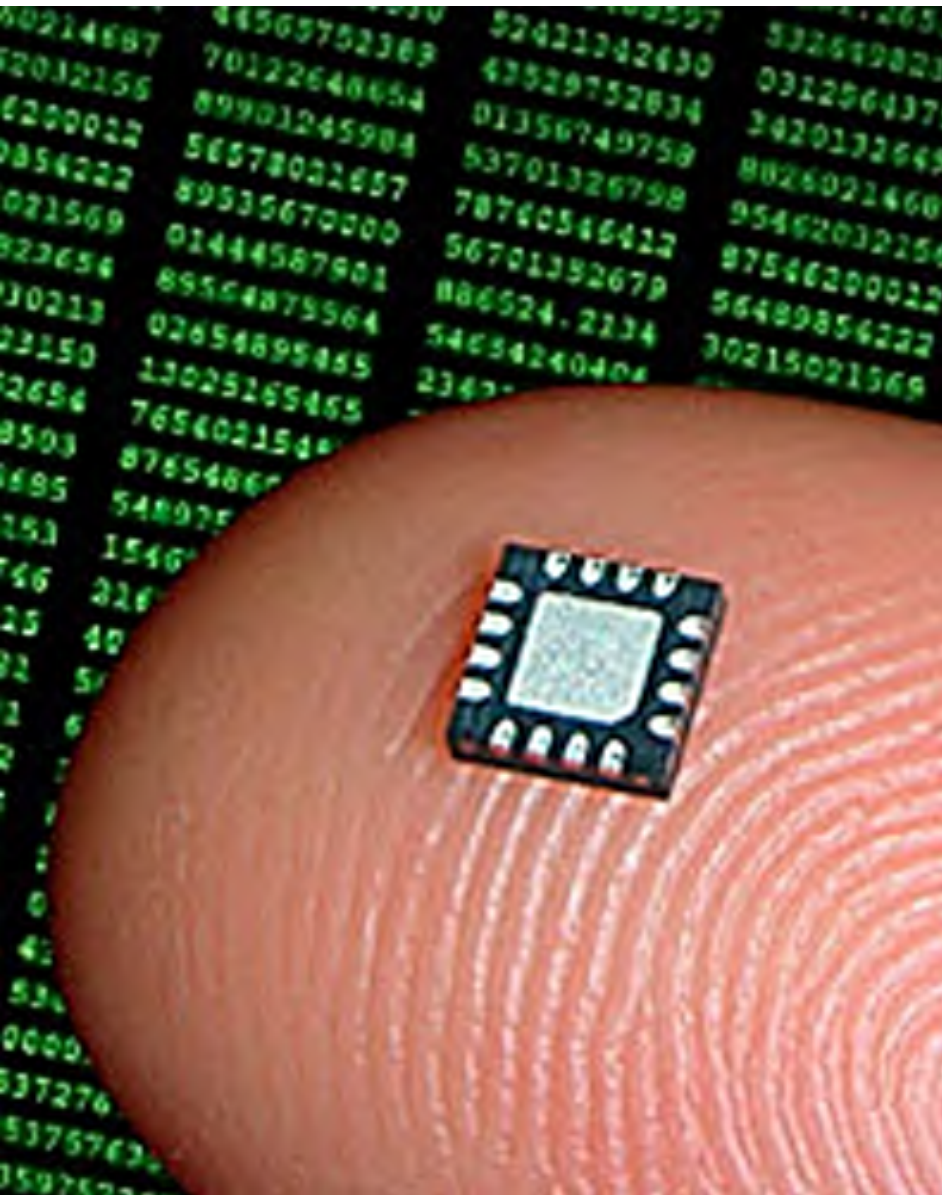
- 14 years Wastewater Treatment Experience
- Education:
 - MS, Johns Hopkins University
 - BS, Clarkson University
- Water Environment Federation (WEF) and the New York Water Environment Association (NYWEA) member
- Father of four





Value Proposition of Technology

- Provide a “better” finished product?
- Improves project delivery?
- Reduces Cost?
- Simplifies Process?



Is More
Detail/Accuracy
Necessary?



Is More Detail Better?





Is More Detail Better?



Is More Detail Better?

Generic - Treatment Plant Project



- Poor (no) As-Builts
- Remote location difficult (costly) for engineering team to access
- Communication Between Owner and Engineer Sometimes Difficult
 - Produce a product that the client can visualize and provide feedback as part of the review process.
- Mitigate Construction Risk



diver (6)

Common Project Issues



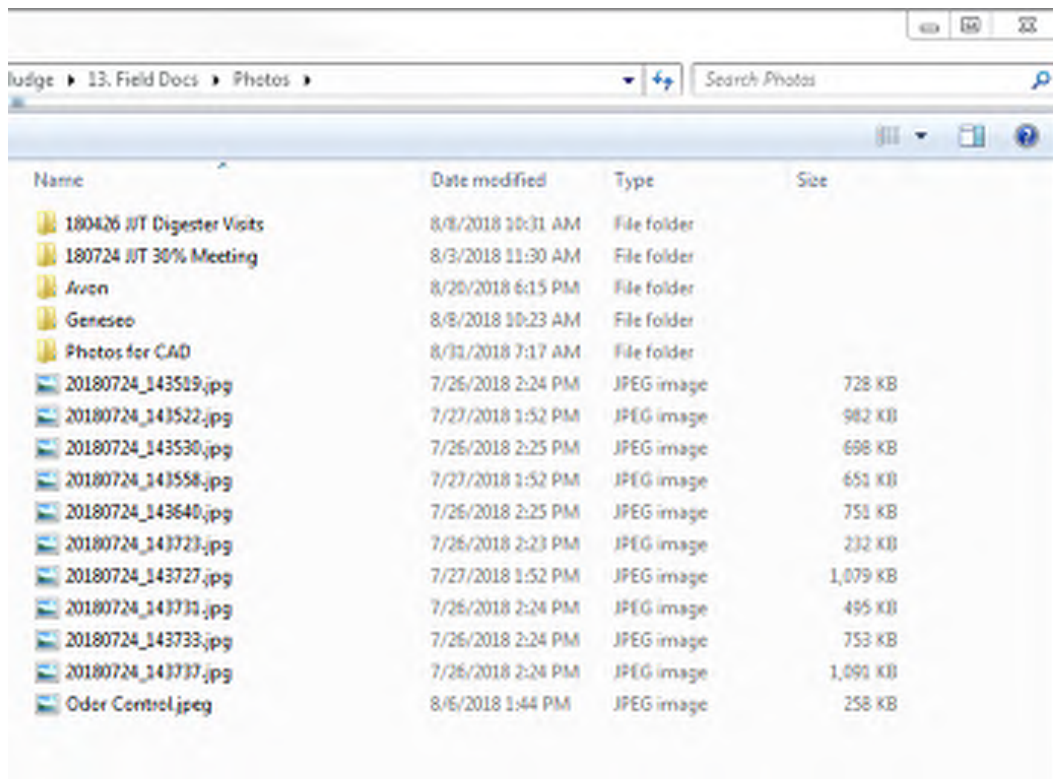
Limitations of Photos and Video



- The “what’s just out of view” Phenomenon
- Scale – is that a 4 inch or 40 inch pipe?
- Quality
- Different people look for different things



Limitations of Photos and Video



The screenshot shows a Windows File Explorer window titled 'Judge > 13. Field Docs > Photos'. The address bar contains 'Search Photos'. The main area displays a list of files and folders with columns for Name, Date modified, Type, and Size.

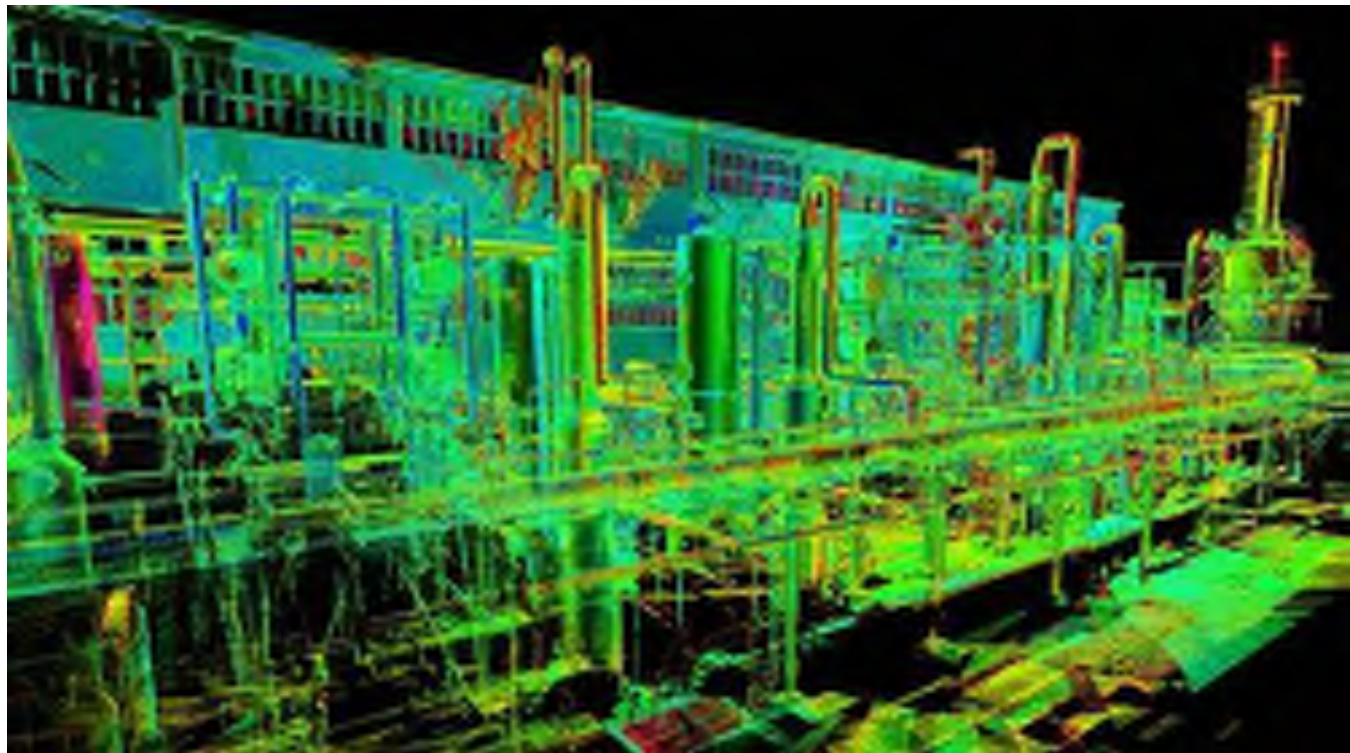
| Name | Date modified | Type | Size |
|----------------------------|-------------------|-------------|----------|
| 180426 J/T Digester Visits | 8/8/2018 10:31 AM | File folder | |
| 180724 J/T 30% Meeting | 8/3/2018 11:30 AM | File folder | |
| Avon | 8/26/2018 6:15 PM | File folder | |
| Geneseo | 8/8/2018 10:23 AM | File folder | |
| Photos for CAD | 8/31/2018 7:17 AM | File folder | |
| 20180724_143519.jpg | 7/26/2018 2:24 PM | JPEG image | 728 KB |
| 20180724_143522.jpg | 7/27/2018 1:52 PM | JPEG image | 982 KB |
| 20180724_143530.jpg | 7/26/2018 2:25 PM | JPEG image | 698 KB |
| 20180724_143558.jpg | 7/27/2018 1:52 PM | JPEG image | 651 KB |
| 20180724_143640.jpg | 7/26/2018 2:25 PM | JPEG image | 751 KB |
| 20180724_143723.jpg | 7/26/2018 2:23 PM | JPEG image | 232 KB |
| 20180724_143727.jpg | 7/27/2018 1:52 PM | JPEG image | 1,079 KB |
| 20180724_143731.jpg | 7/26/2018 2:24 PM | JPEG image | 495 KB |
| 20180724_143733.jpg | 7/26/2018 2:24 PM | JPEG image | 753 KB |
| 20180724_143737.jpg | 7/26/2018 2:24 PM | JPEG image | 1,090 KB |
| Oder Control.jpeg | 8/6/2018 1:44 PM | JPEG image | 258 KB |

- Speed of access to find and open photos
- Data Storage



“Limitations” of Laser Scanning

- Expensive Equipment
- Large Data Files
- Unusable by clients without expensive software packages

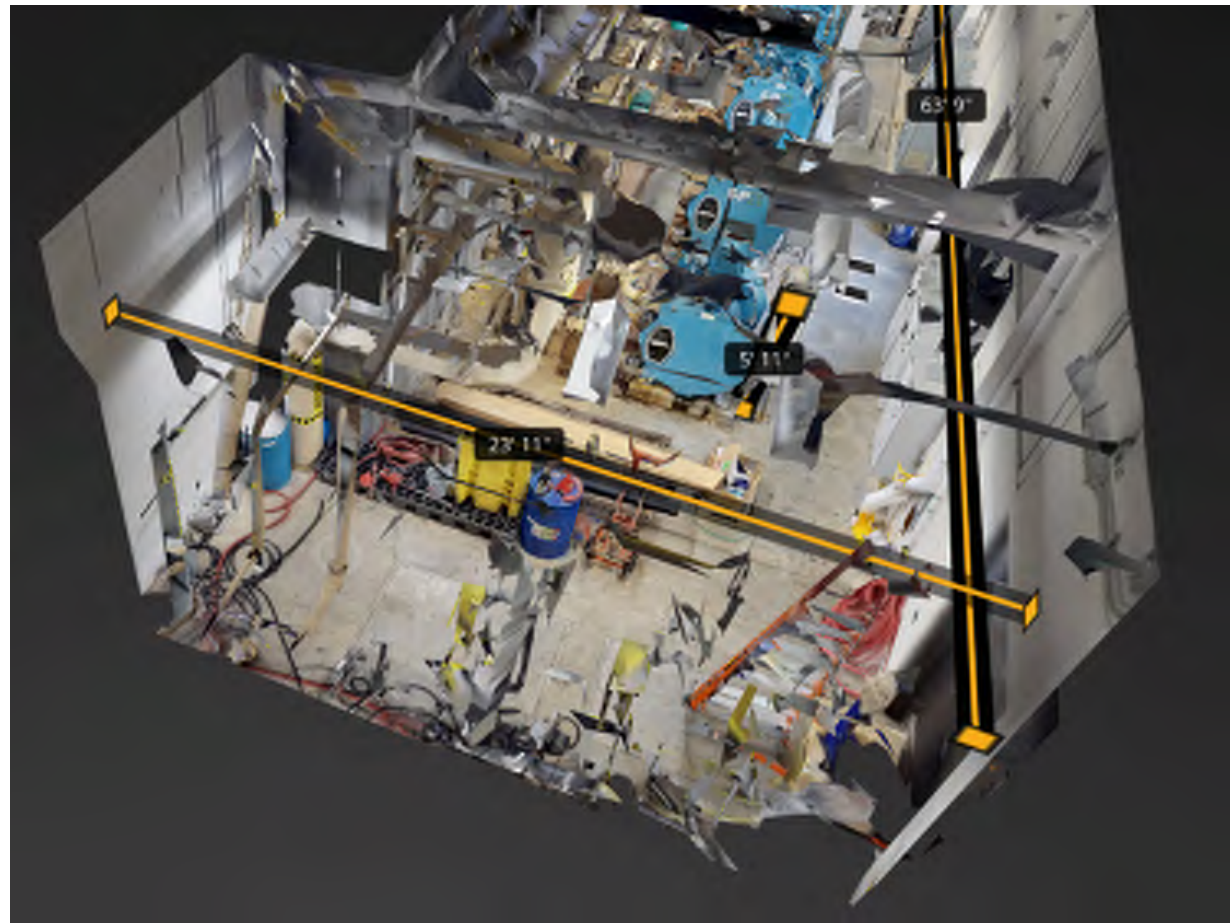


3D Imagery

- Combination of “image stitching” and laser scanning technology to create an alternative user interface for project use and delivery

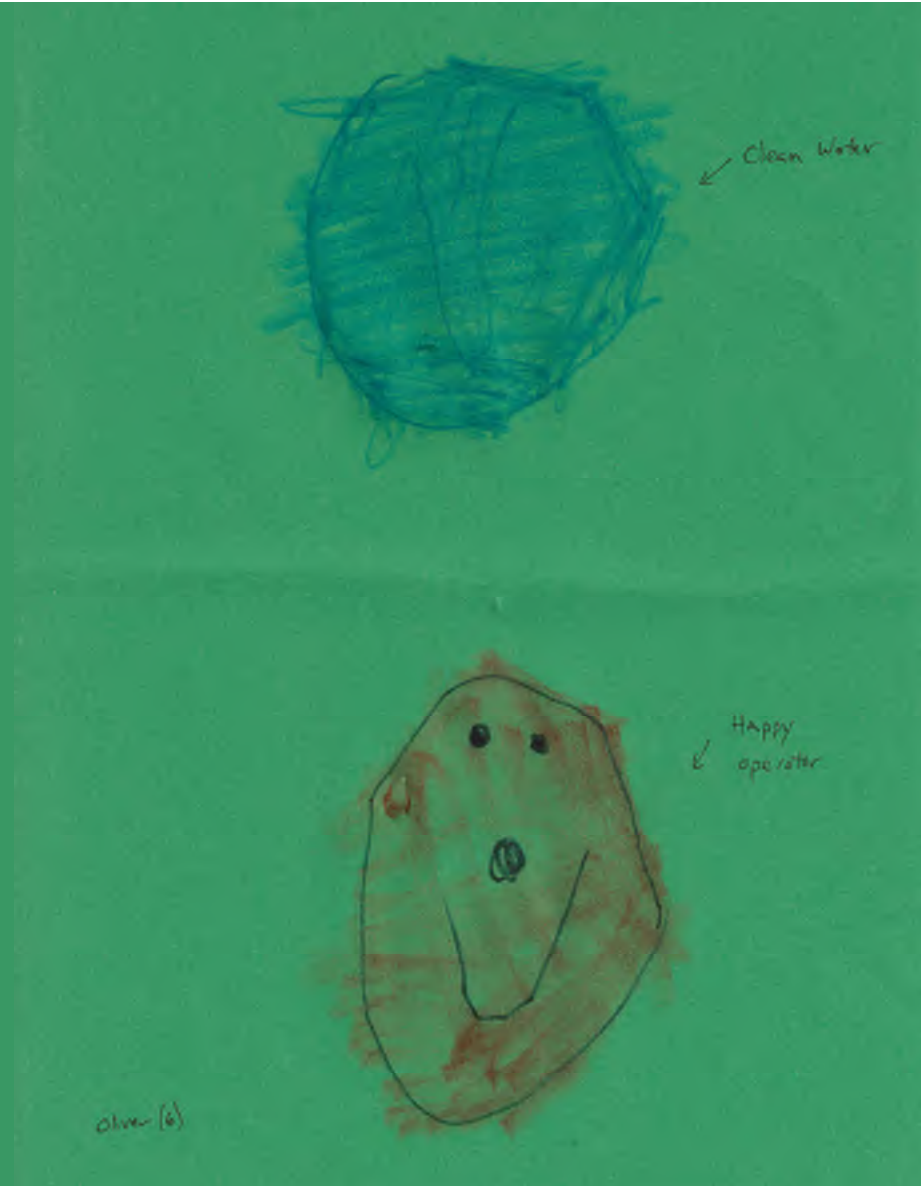


User Interface - Field Measurements

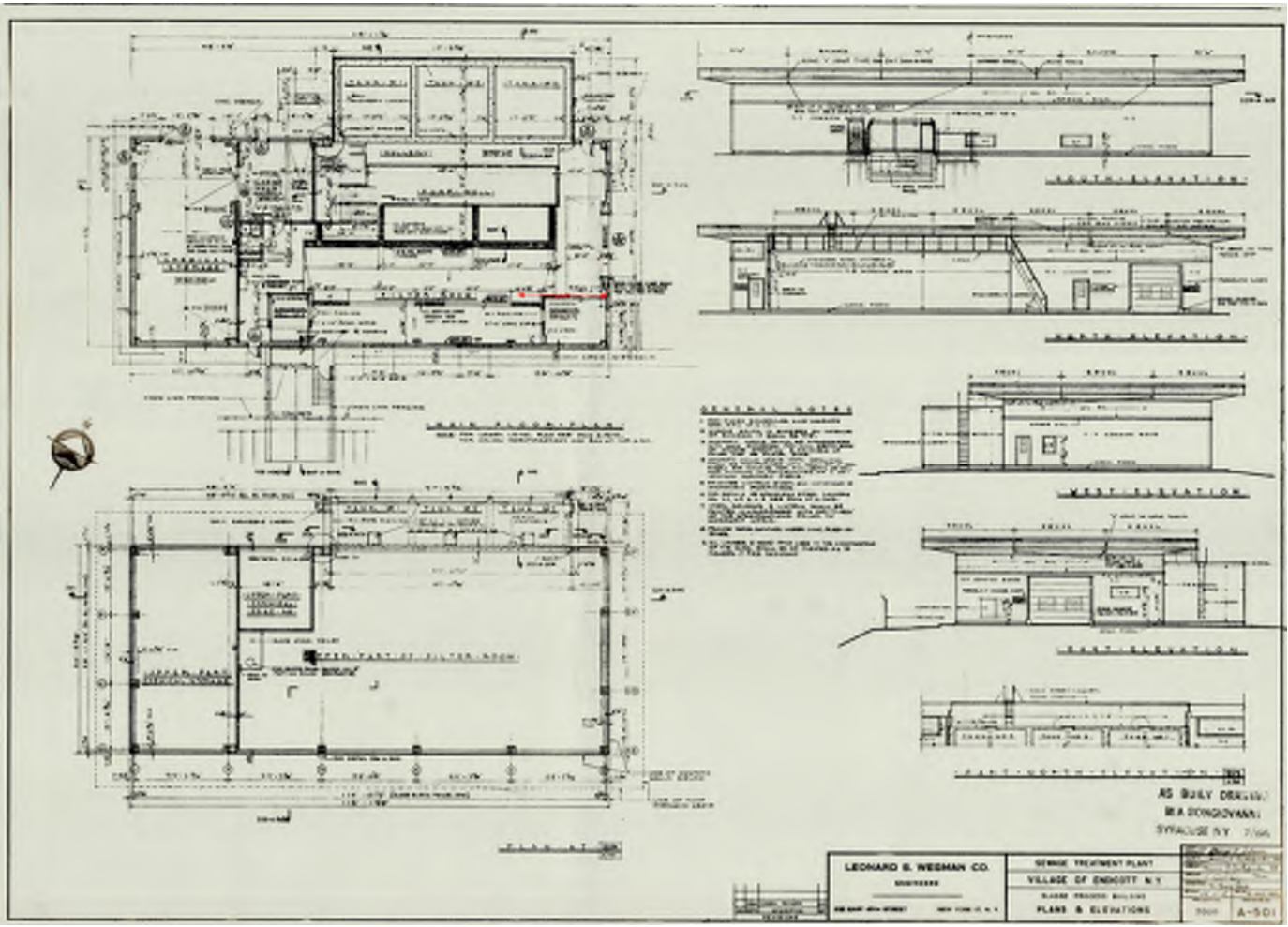


Finished Project

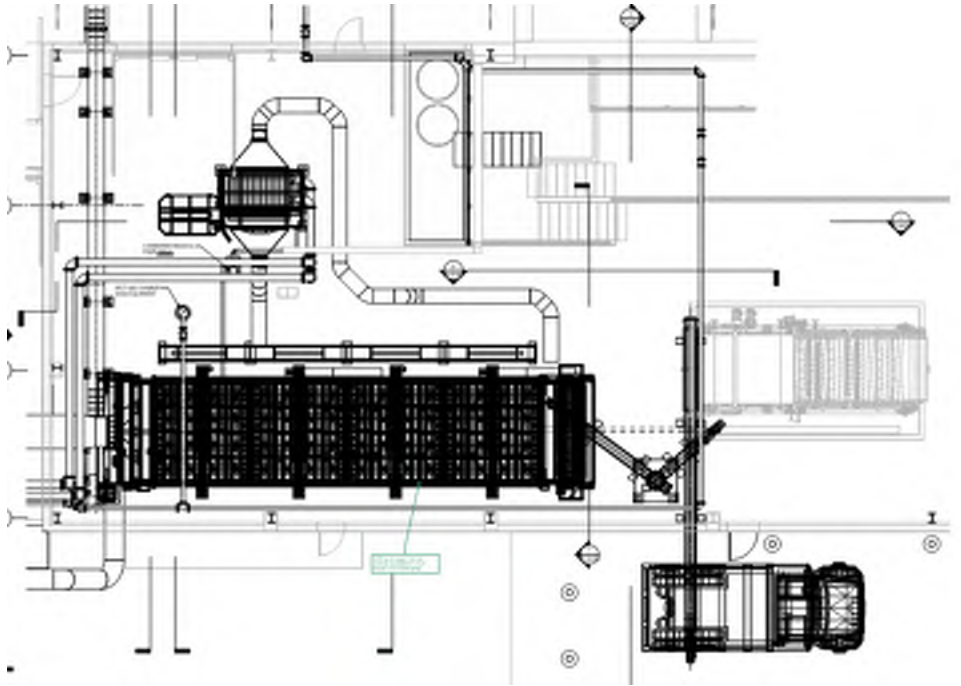
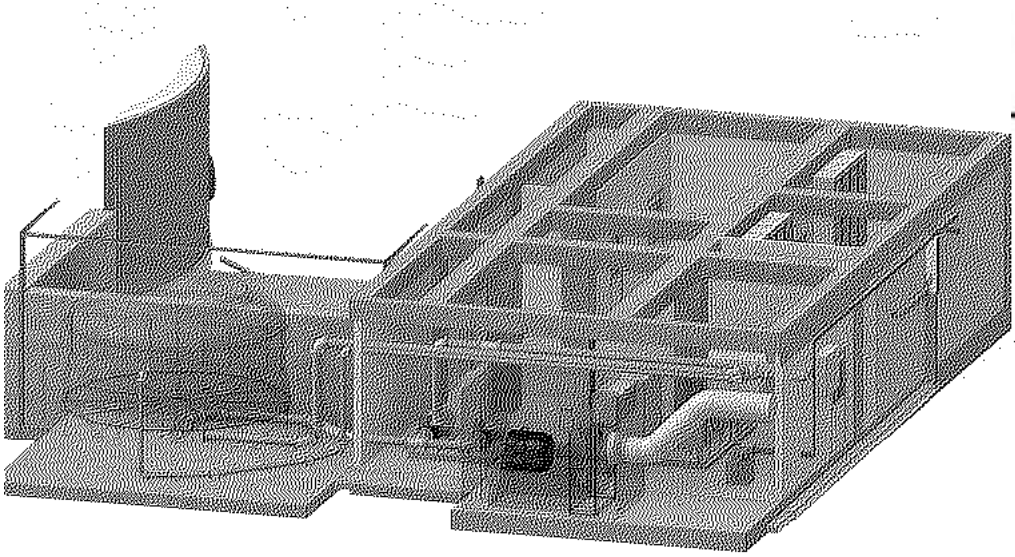
- Minimize Change Orders related to existing field conditions
- Maximize coordination with the Owner/Operators during Design
- Well Documented “As-Builts”



Case Study: ENDICOTT NY



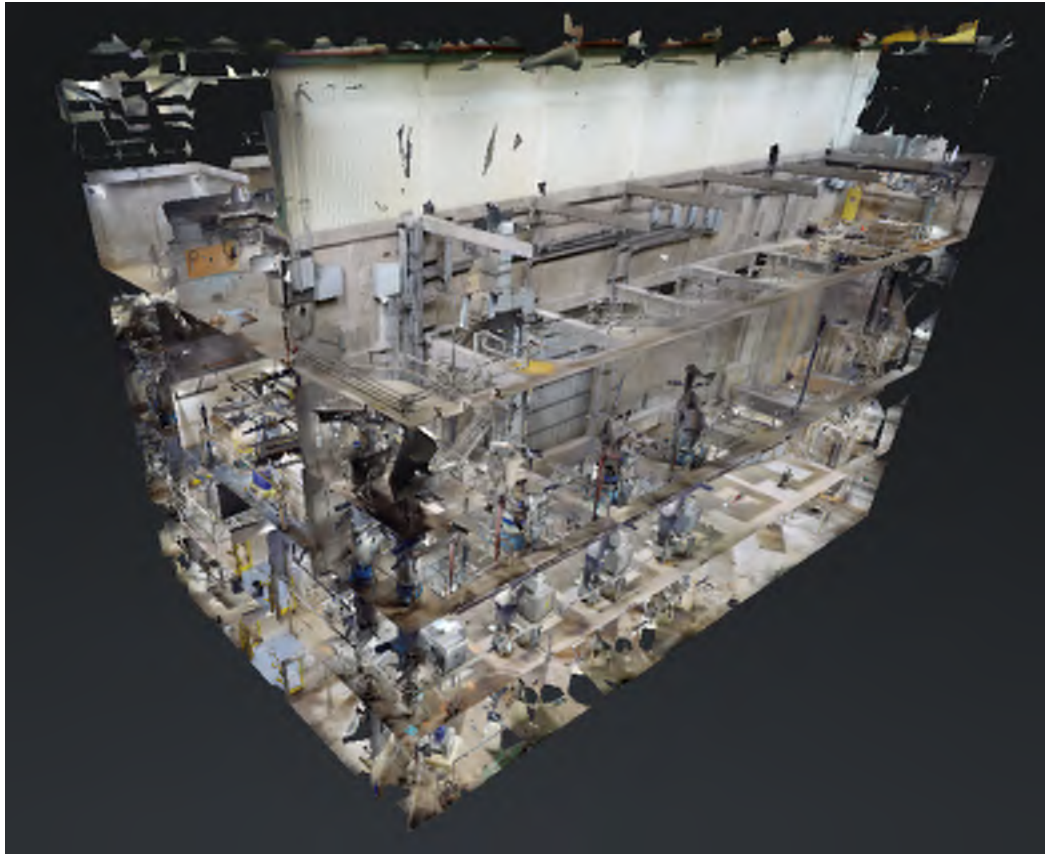
Case Study: ENDICOTT NY



Case Study:

MONROE COUNTY NY

How many photos would it take to capture 7 floors of data?





User Interface - Export Video

User Interface - Export GIF



What to Retain

- Consider adding 3D imagery to your toolbox
- Understand your clients needs and how they perceive value in technology
- Think about ways to use technology effectively and efficiently
- 3D technology is really cool



Thank you.

For more information,
please contact me:

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