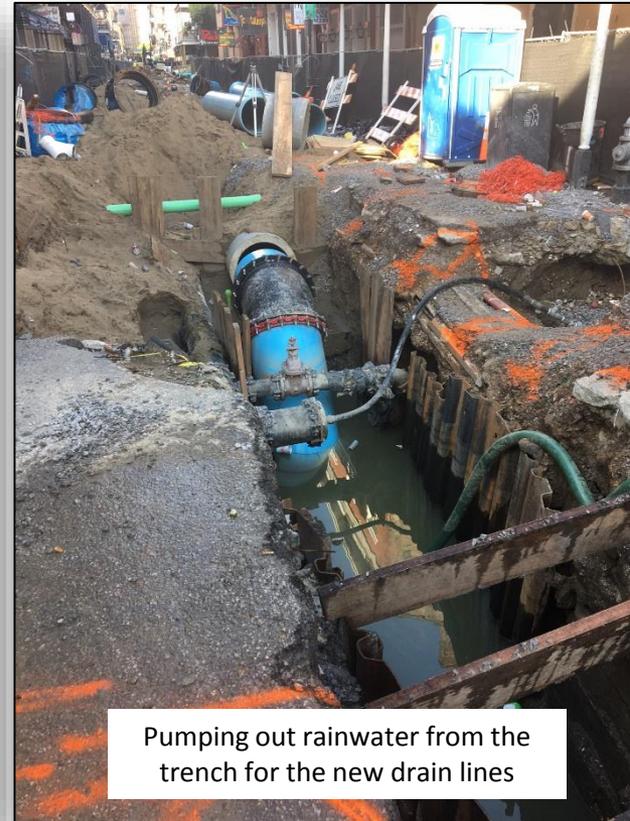


Top 5 Lessons Learned

1. The aggressive project schedule put almost every activity on the critical path, with almost no time built into the schedule for rain delays.
 - June 2017 was third wettest month on record, with over double the average annual rainfall
 - 15 work days have been lost so far due to weather delays



Unable to chlorinate new water line and complete drain line excavation until rainwater is removed.

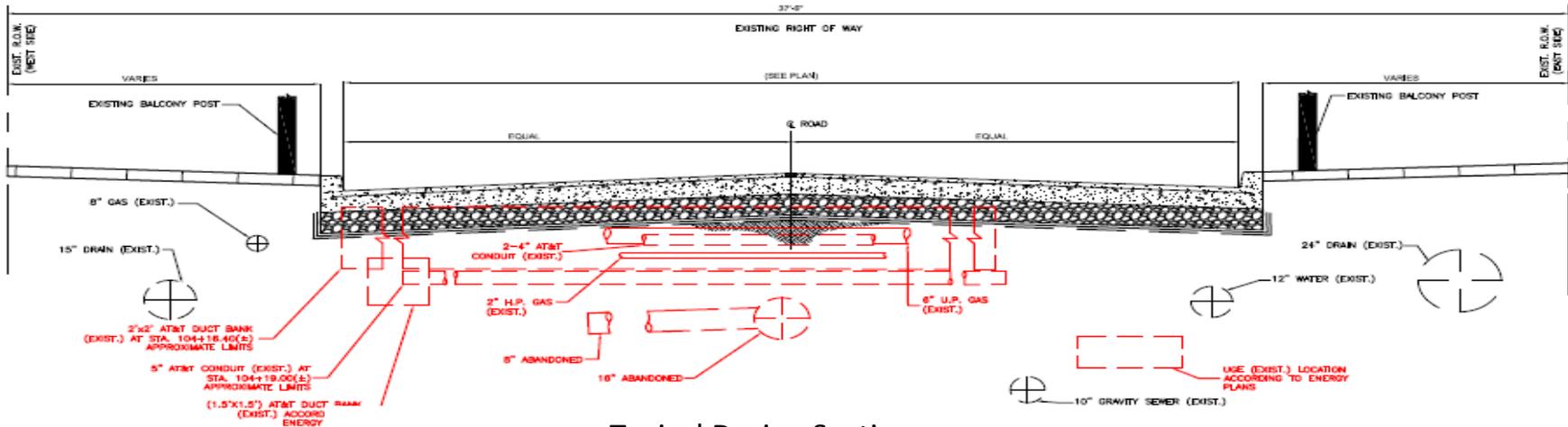


Pumping out rainwater from the trench for the new drain lines



Top 5 Lessons Learned

2. The exact locations and size of almost all of the utility lines underneath Bourbon St are either missing or inaccurately depicted on our available as built plans.
 - Exploratory trenching in multiple locations in each block is the only reliable way to verify where the utility lines are buried, how deep they are buried, and how big they are.
 - A conventional design-bid-build process would have resulted in an excessive amount of change orders and lost time during construction.
 - 3 work days have been lost due to necessary exploratory trenching to support field design and safe construction, but have had **no** major water, sewer, gas, or electrical outages due to damage during construction. Have experienced some limited AT&T service outages due to a line that was damaged during excavation work in the 100 block that have been resolved.

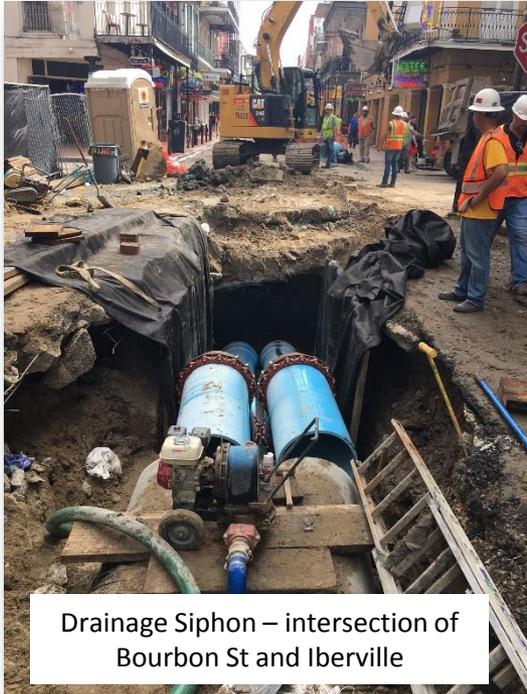


Typical Design Section
(Everything shown in Red was not located on existing plans
and was found during exploratory trenching)

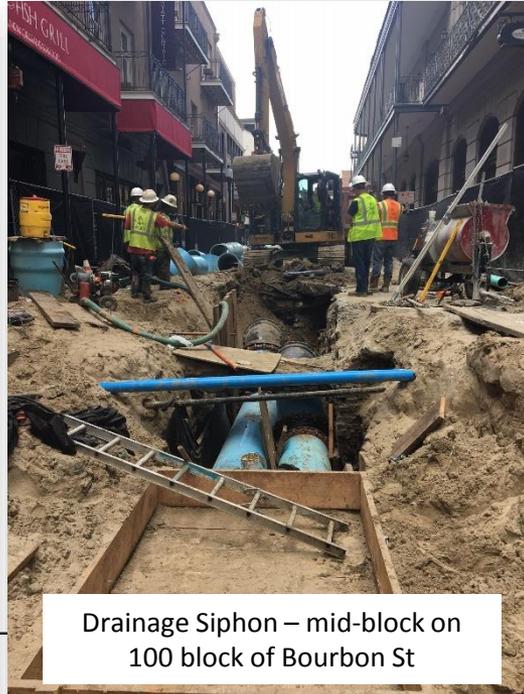


Top 5 Lessons Learned

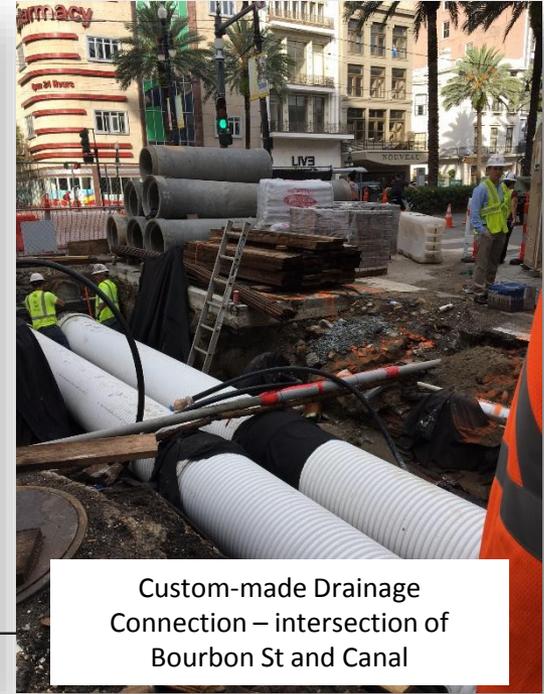
3. Space underneath Bourbon St is even more limited than anticipated to support the installation of new underground utility lines that are in most cases larger to meet current design standards.
 - Due to conflicts underground with multiple utility lines in a very limited space, there are no straight, standard utility line installations.
 - Special utility line installations take longer and cost significantly more (3-4 times as much) than originally anticipated.
 - 8 additional work days have been needed so far to resolve unforeseen sight conditions (i.e., utility conflicts with off-sets, siphons, custom-built manholes, and other engineering measures.)



Drainage Siphon – intersection of Bourbon St and Iberville



Drainage Siphon – mid-block on 100 block of Bourbon St



Custom-made Drainage Connection – intersection of Bourbon St and Canal



Top 5 Lessons Learned

4. The condition of the underground utility lines/duct banks is even worse than anticipated and this is our one opportunity to get it right.
 - Discovered sewer service connections from businesses connected to the drain lines and grease globs in the drain lines. This is a violation of the sanitary code and we are dealing with fixing these and in some extreme cases have had the businesses fined to get in compliance. These service connections will be cleaned and connected to the sewer main as appropriate.
 - Discovered roof drain lines from buildings terminating underneath the street, but not connected to the drainage system this is prevalent in about 20% of the businesses (in some cases allowing runoff to flow into utility manholes). This is a violation of the plumbing code. These roof drain lines will be connected to the new drain lines.
 - Currently, in some cases, the nearest closure valve for the water lines is located on N Rampart St (3 blocks away). Installing additional water valves to allow work to install a new water service connection for a business or address a leak on a block to only impact service on that specific block instead of multiple blocks as is currently the case.
 - 11 work days have been lost do to unforeseen site conditions



Top 5 Lessons Learned

5. Continuous outreach during all phases of the project to set expectations, immediately address concerns, and communicate changes as they occur on site is critical to our success.
 - Bi-weekly 10 am Thursday "Conversations on the Corner" meetings with businesses and residents on site.
 - Weekly project updates distributed via email to over 350 stakeholders.
 - Dedicated Bourbon St. project webpage on roadwork.nola.gov.
 - Flyers/door hangers distributed prior to planned service connection work.
 - Conversations with individual businesses and property owners as issues come up.
 - News releases for temporary intersection/street closures distributed as needed, often weekly.

