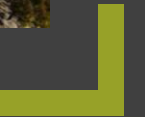




2019

QUALITY ENGINEERING LEADS TO GREAT WATER AND WASTEWATER PROJECTS

Presented by Dave Crouch

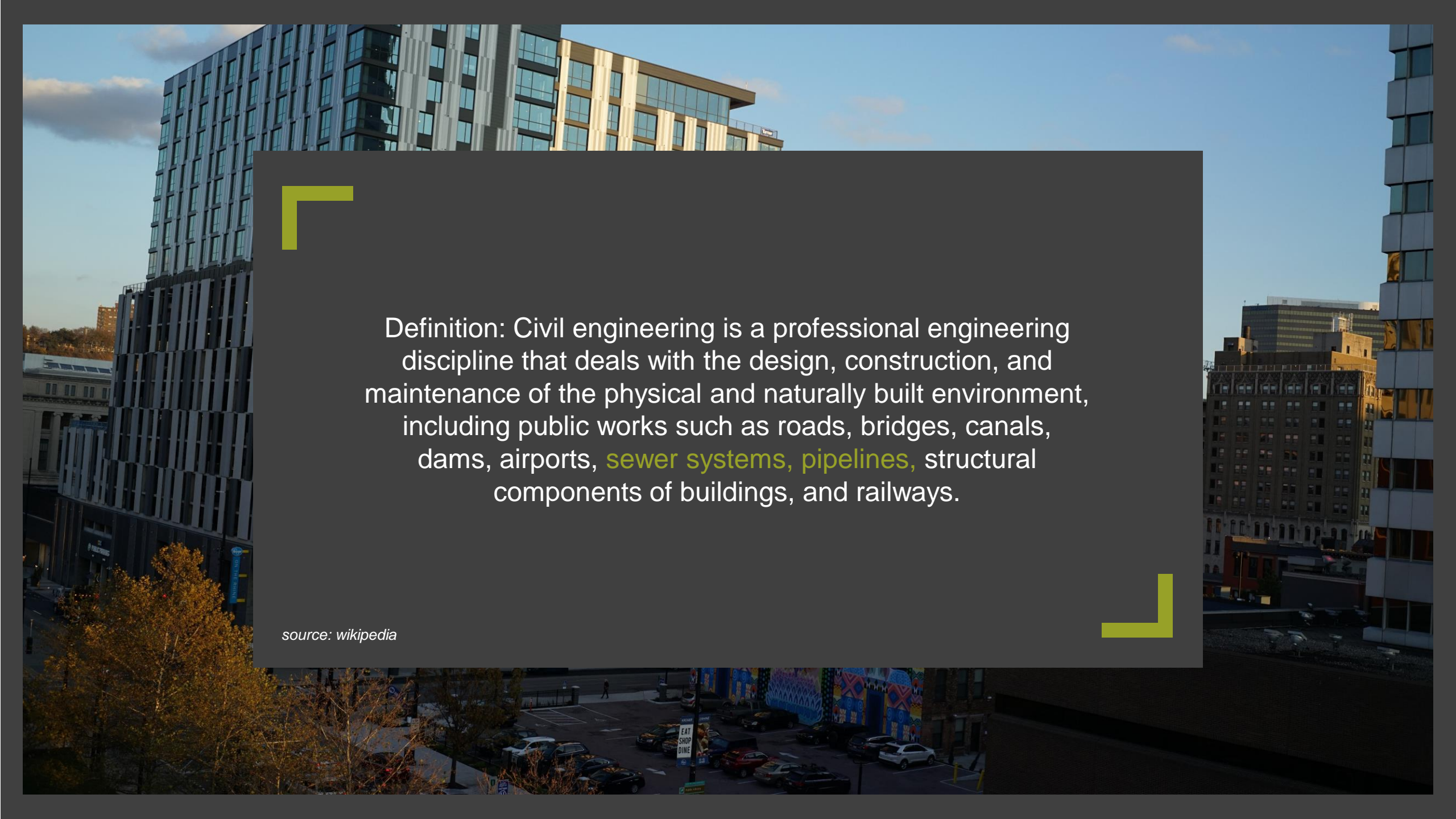




WELCOME

Happy Tuesday





Definition: Civil engineering is a professional engineering discipline that deals with the design, construction, and maintenance of the physical and naturally built environment, including public works such as roads, bridges, canals, dams, airports, **sewer systems**, **pipelines**, structural components of buildings, and railways.

source: wikipedia





SUB-DISCIPLINES

- Environmental engineering
- Geotechnical engineering
- Structural engineering
- Transportation engineering
- Municipal or urban engineering
- Water resources engineering
- Materials engineering
- Coastal engineering
- Surveying
- Construction engineering





High level decision makers




Who should be involved?

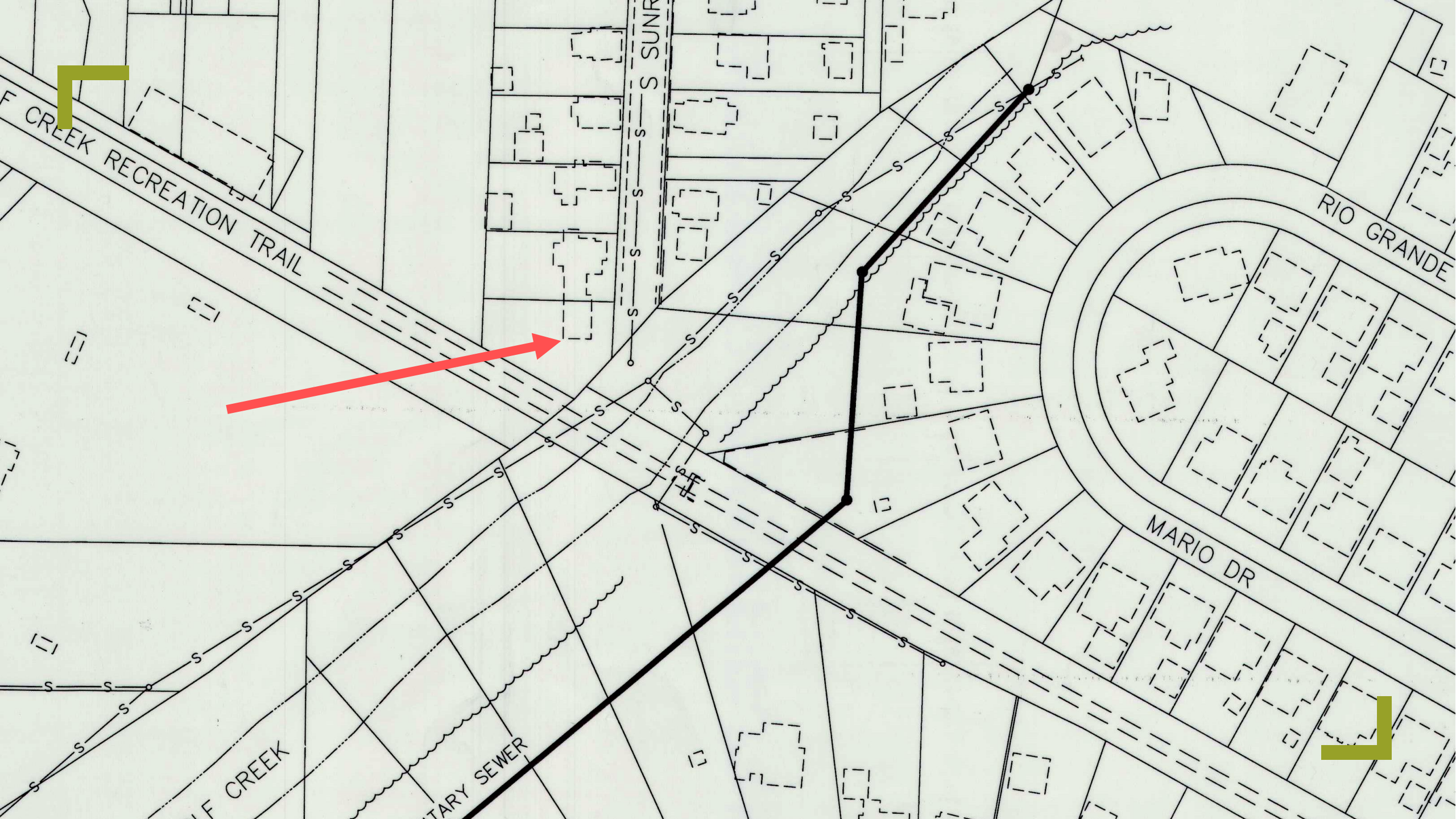


What information to provide?

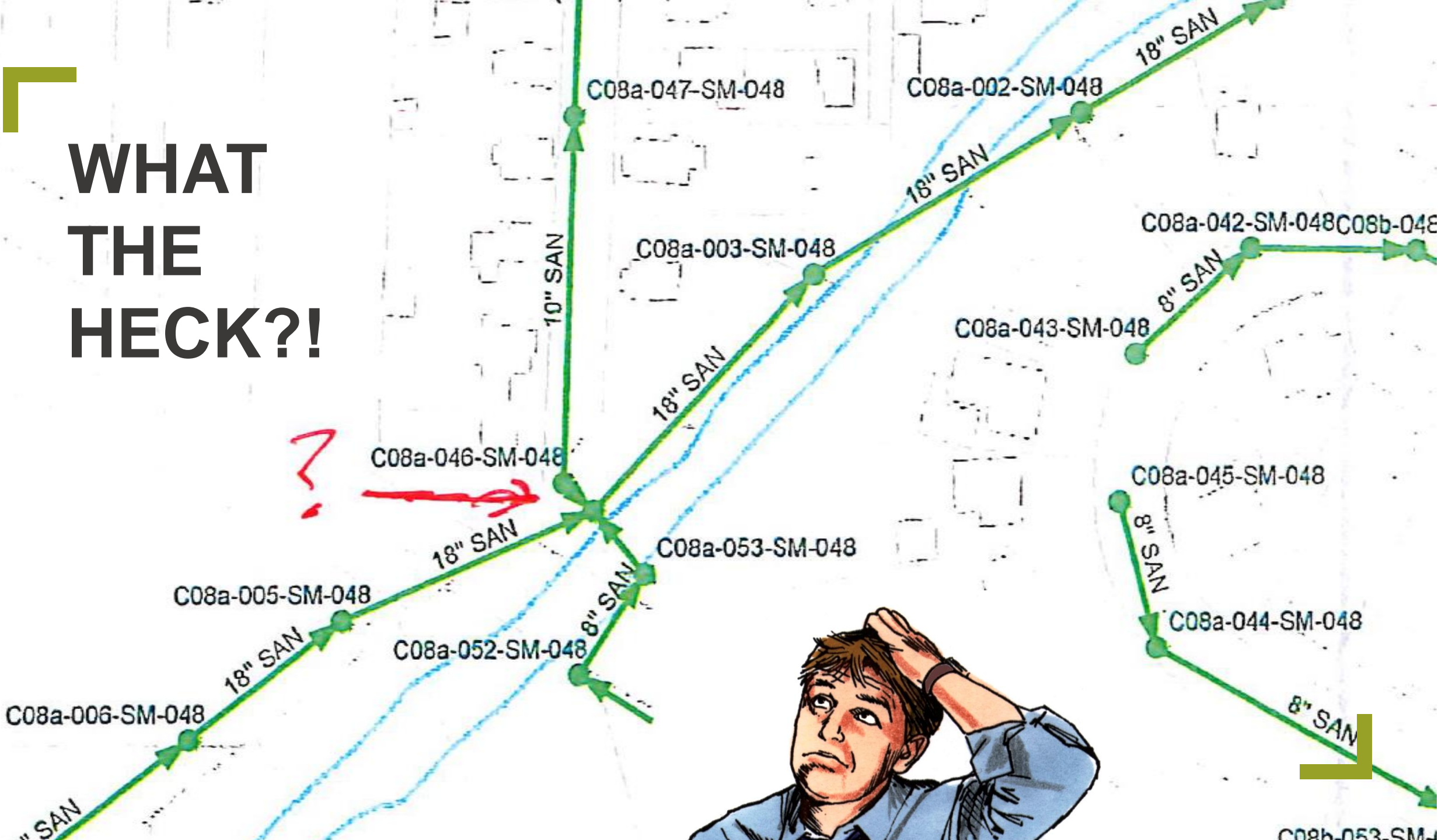




What type of problem?



WHAT
THE
HECK?!





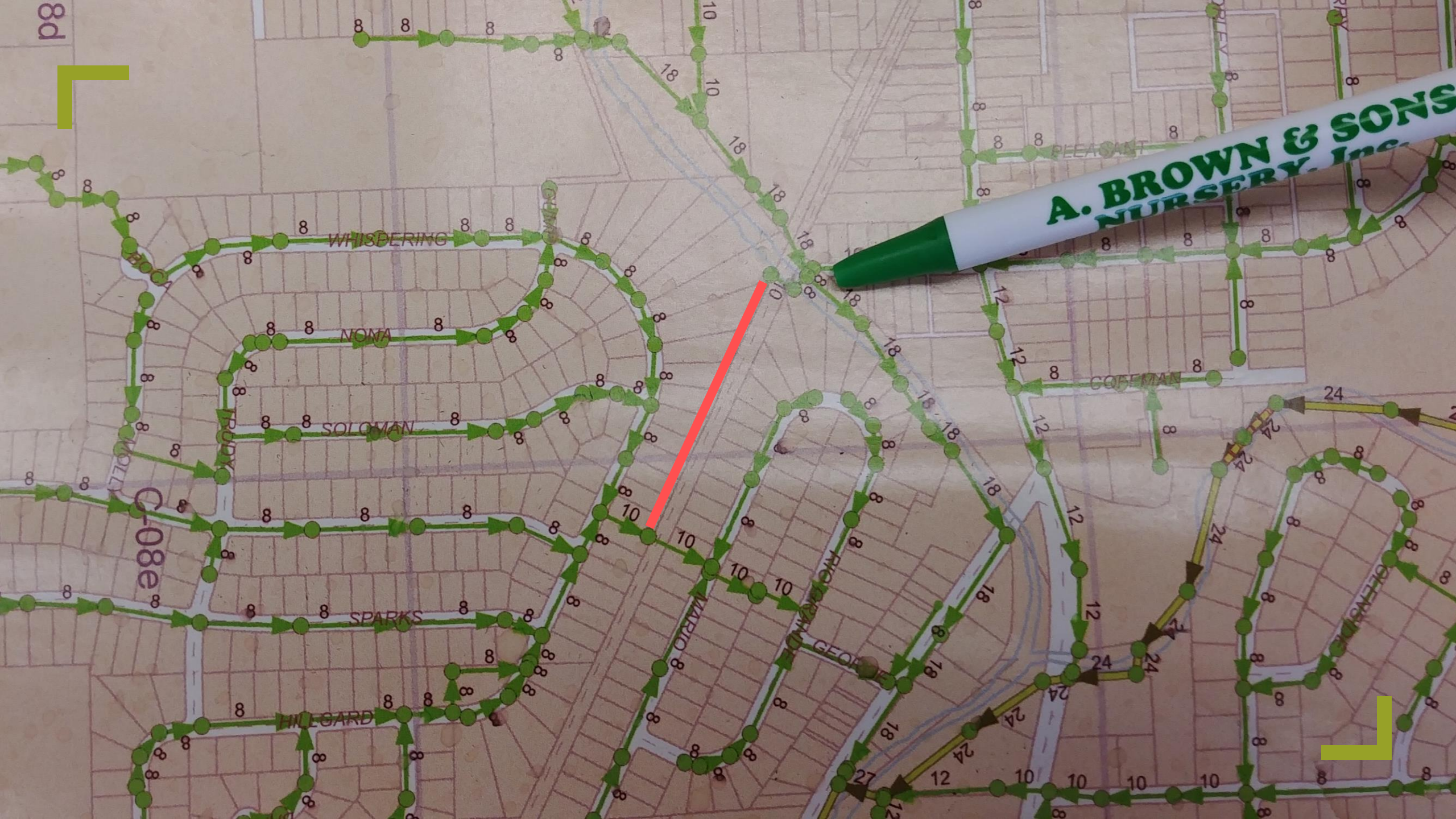
ACTUAL

8 inch reverse flow relief sewer





8d



A. BROWN & SONS
 NURSERY, Inc.





ARE THERE COMPLIANCE ISSUES?



SURVEY & BASE MAP

Locate property lines, boundaries, ROW, easements, monuments, markers, pins and bench marks for measuring topographical points.

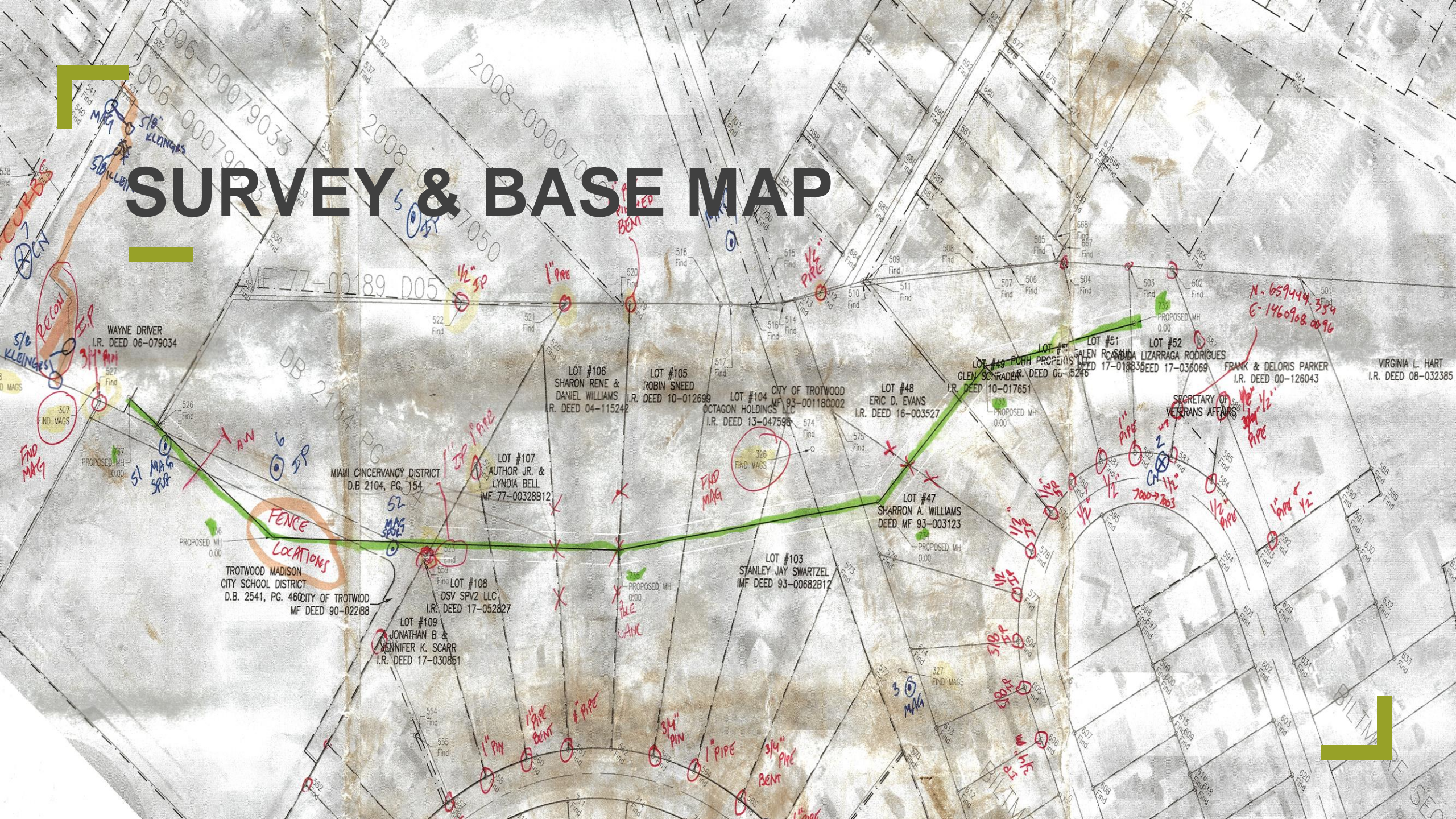
Survey crews collect information about the project area which includes: elevations “TOPO”, interfering utilities, pipe inverts, pipe diameters, materials, water services, sewer laterals, valve boxes, meter pits/vaults, and can provide valuable information about the area environment too.

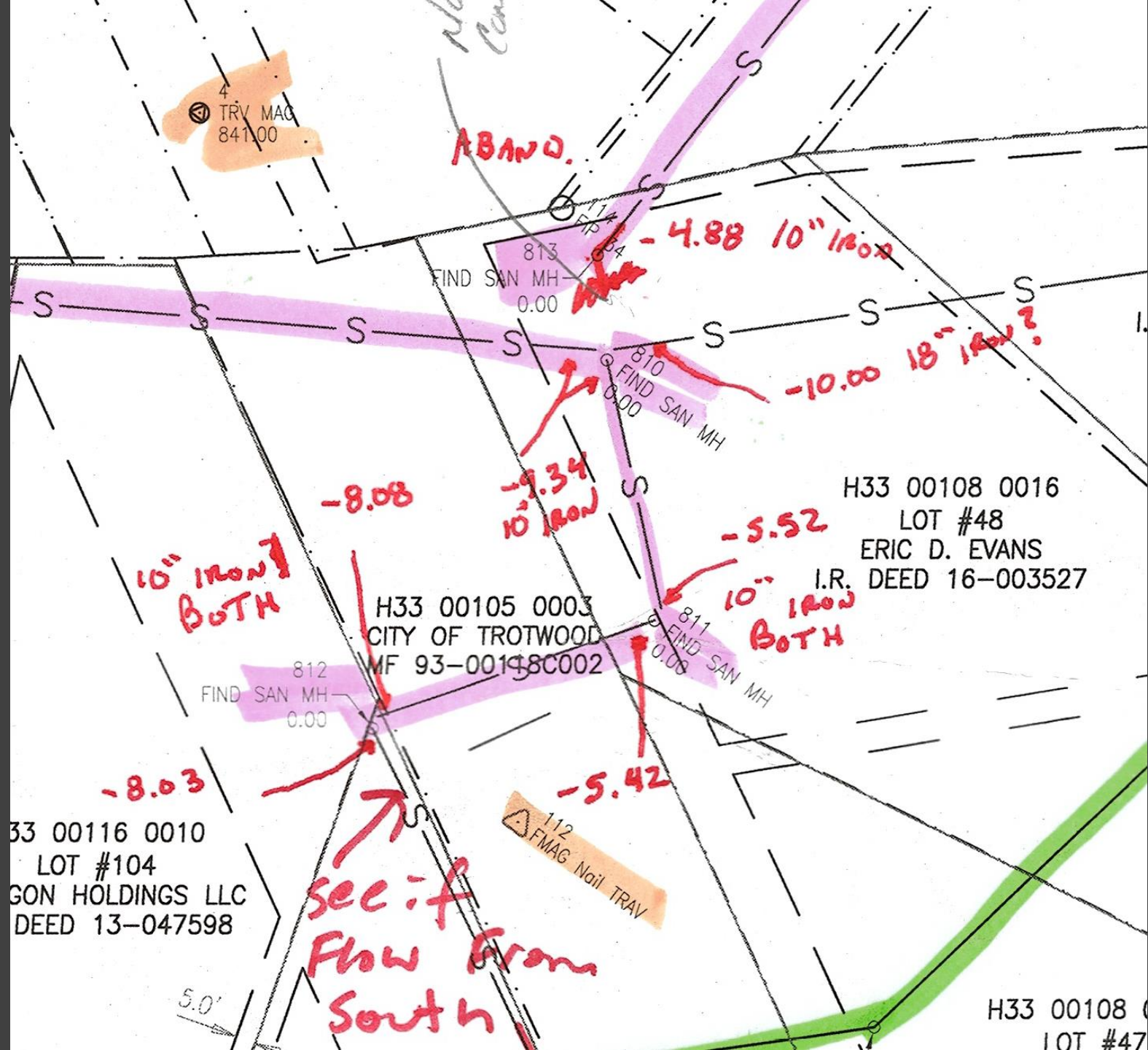
Using this information a project base map is developed and used for design work.





SURVEY & BASE MAP





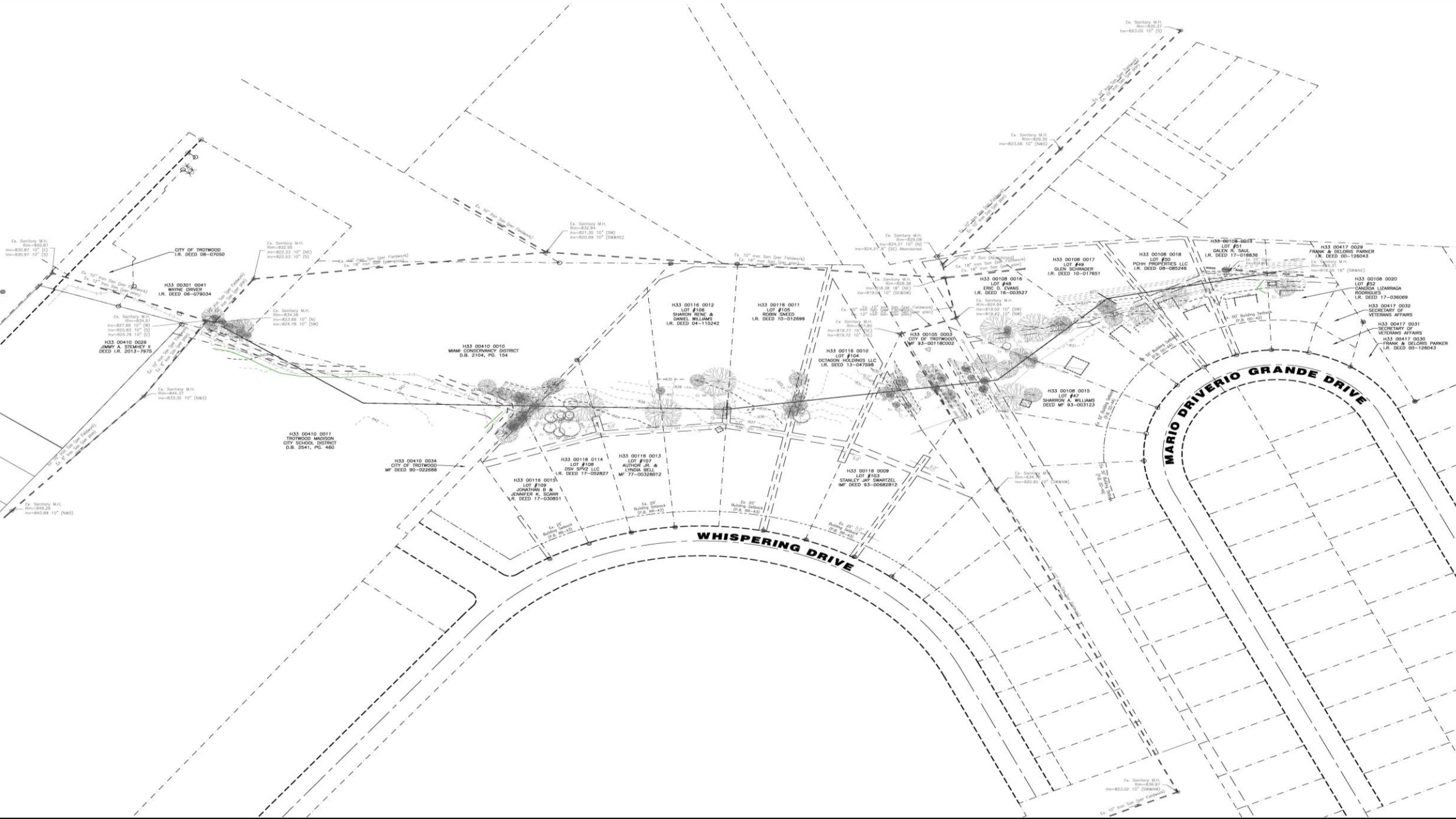


State of Ohio
State Plane NAD83 (2011)

0 60 90

SCALE: 1" = 60'

	WOLF CREEK SANITARY SEWER REPLACEMENT SECTION 15, TOWN 4, RANGE 5 EAST MADISON TOWNSHIP MONTGOMERY COUNTY, OHIO BASEMAP
	Drawing: 17-0286 BM Drawn by: DDB Checked by: BRJ Issue Date: 12-22-17 Project:
	PRELIMINARY
	Reviewer Description:
	Date:
	Date:
	Date:
	Date:
	Date:
	Date:
Date:	



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DESIGN STAGES & REVIEW



DESIGN STAGES & REVIEW



Usually a kickoff meeting to convey information and ask questions about the project area/route, easements, ROW, look over as-builts especially for plant projects.

Then 50% and 90% review. What are you going to look for?

Valves, hydrants, manholes, slope, invert elevations, horizontal and vertical separation from other utilities, safety, environmental impacts, traffic impact, boring and directional drilling verses open cut, interfering utilities especially low hanging overhead conductors, gas lines, stormwater issue's and erosion control, staging areas, service interruption plan, WTP/WWTP must stay in compliance during the project, who opens an closes valves, etc.





RECOMMENDED STANDARDS FOR WATER WORKS

8.3 VALVES

A sufficient number of valves shall be provided on water mains to minimize inconvenience and sanitary hazards during repairs. Valves should be located at not more than 500 foot intervals in commercial districts and at not more than one block or 800 foot intervals in other districts. Where systems serve widely scattered customers and where future development is not expected, the valve spacing should not exceed one mile.

8.4 HYDRANTS

8.4.1 Location and spacing

a. Fire hydrants should be provided at each street intersection and at intermediate points between intersections as recommended by the State Insurance Services Office. Generally, fire hydrant spacing ranges from 350 to 600 feet depending on the area being served.





Similar steps for water & wastewater



QUESTIONS?



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CONTACT ME

