



# UTILIZING LARGE DIAMETER UNDERGROUND PIPING SYSTEMS FOR CSO STORAGE

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Engineered Products Manager – Northern Ohio





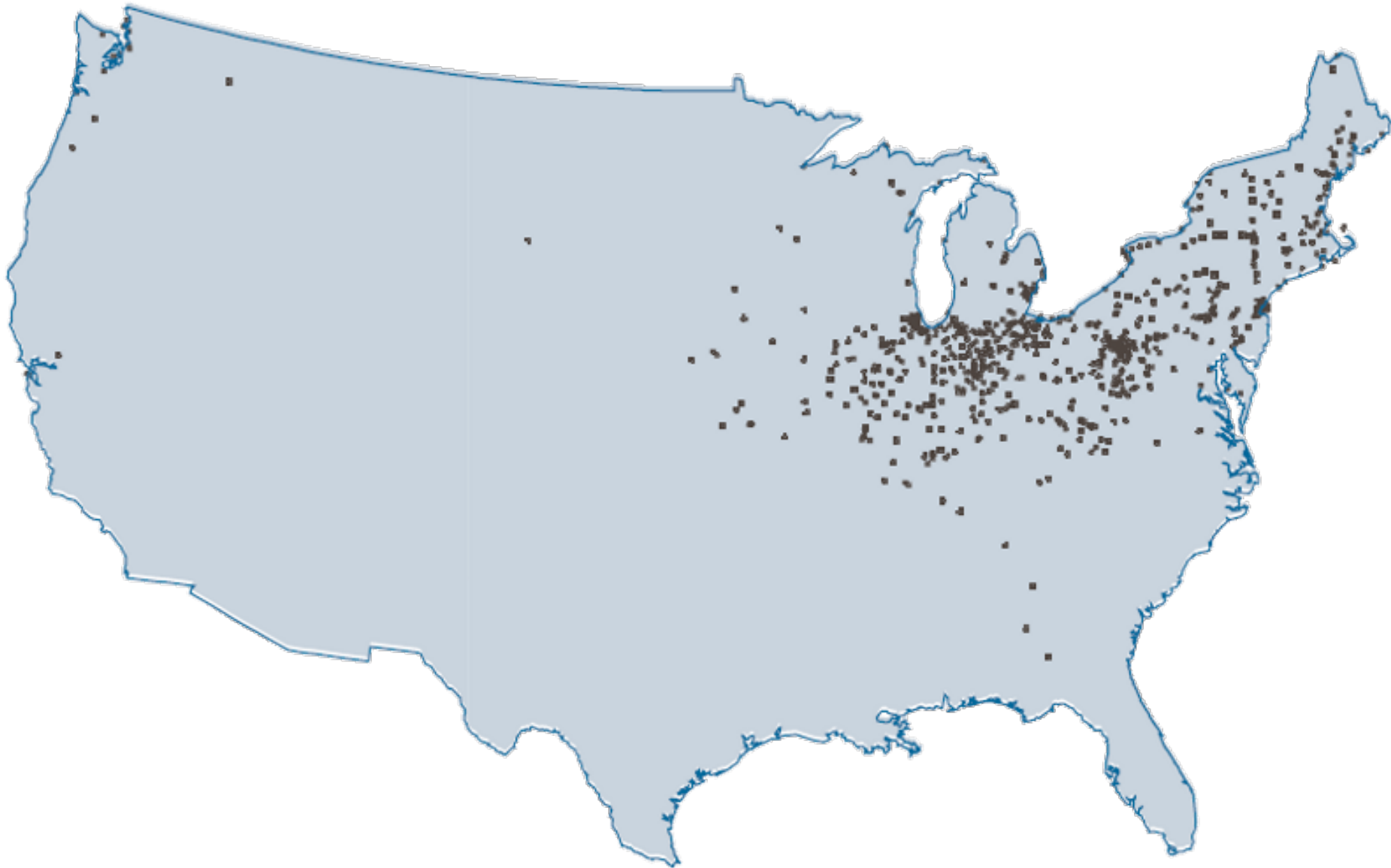




# Urban Wet Weather Flows



# Over 700 CSO Locations





# Typical CSO Control Measures

- **Source Controls**

- Detention/Infiltration
- Green Infrastructure

- **Collection Systems Controls**

- Inflow/Infiltration Countermeasures
- Sewer Separations
- Real-time Controls

- **Storage Techniques**

- In-line Storage
- Off-line Storage
- Lift Stations
- Deep Tunnel Storage

- **Treatment Techniques**

- Equalization / Sedimentation
- Primary / Secondary Treatment















# Advantages of Pipe Storage

A photograph showing several large, corrugated metal pipes stacked in a trench. The pipes are arranged in a row, with some partially buried in the soil. The background shows a residential area with houses and trees.

- **Flexible Design Configurations**
  - Tight / Urban Areas
  - Linear
- **Cost Reductions**
  - Capital Costs
  - Simpler Construction
  - Larger Pool of Contractors
  - Less Equipment
- **Speed**
  - Fast Installation
  - Consent Decree Deadline Considerations
- **Corrosion Resistant System**



# PROJECT EXAMPLES





# CSO Lift Station Overflow Tank

North Vernon, Indiana

Installation: 2014















# East Lift Station

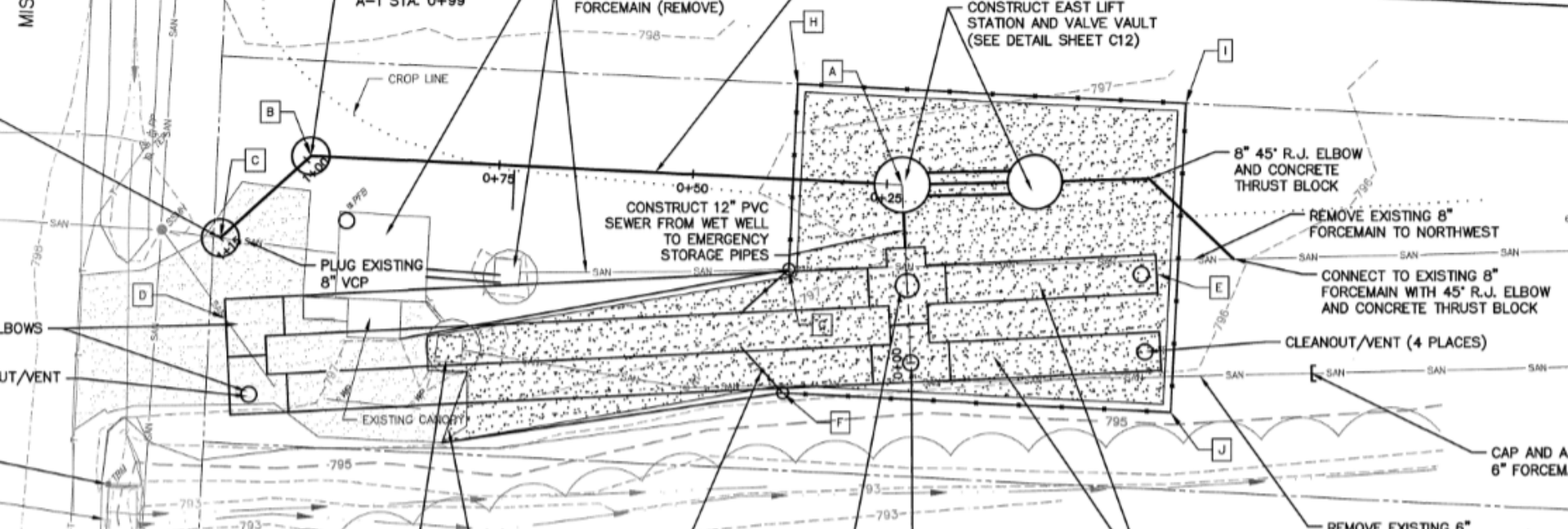
WWTF Improvements Project

Wellsville, MO

Shafer, Kline, and Warren, Inc.







830

820

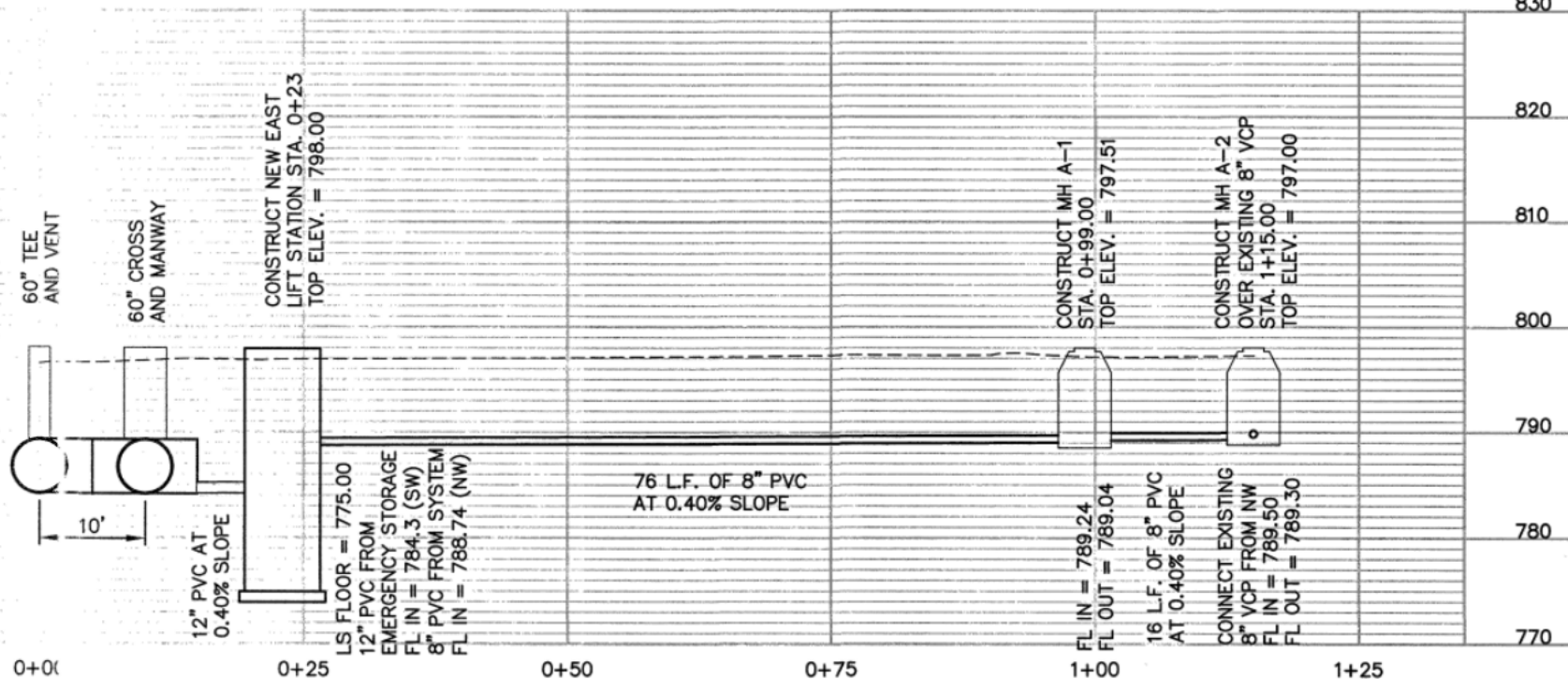
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800

790

780

770



830

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810

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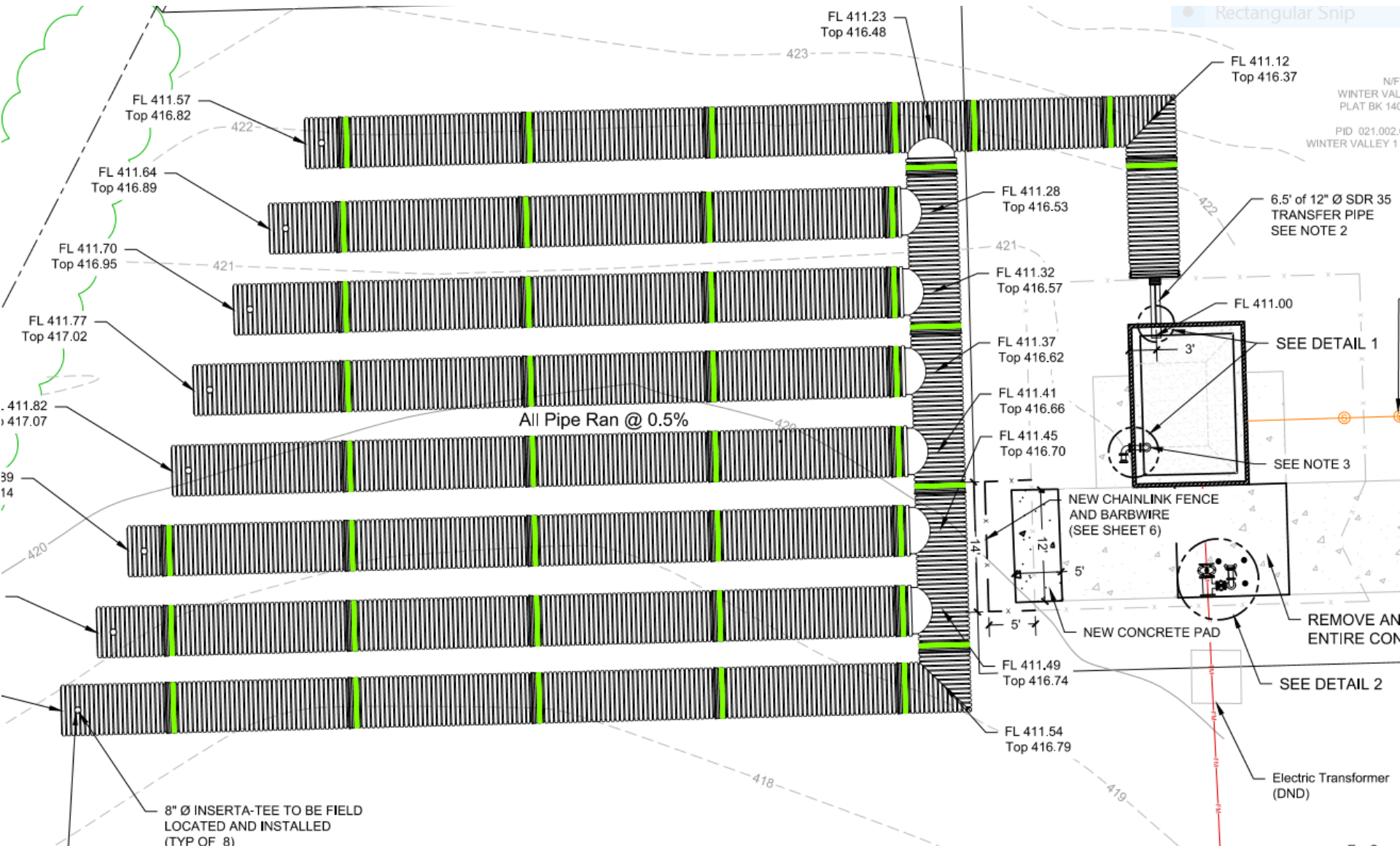
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770



# WINTER VALLEY LIFT STATION

Northeast Public Sewer District  
Jefferson County, MO













# CSO Storage Tank

Triple 60" Diameter SaniTite HP

Ohio River - Worthington, KY

Installed: 2014







**ADS**  
SANITARY

**SaniTite® (HP)**  
HIGH PERFORMANCE



# POLYPROPYLENE



- Strong thermoplastic
- High stiffness
- High tensile strength
- High resistance to crack propagation
- Chemically resistant
- Abrasion resistant





IMPACT RESISTANT MATERIAL



# PREMIUM SANITARY SEWER JOINTS

*Exceeds National Standard ASTM D3212*



**15 PSI  
DOUBLE GASKETED**






# HIGH PIPE STIFFNESS

Exceeds 46 Pii



# UV RESISTANT PIPE

- 
- **Antioxidant Additive Package**
  - **Customized UV Stabilizer Package**
  - **Titanium Dioxide**
  - **Hindered Amine Light Stabilizer**



# CUSTOM FAB







ASTM INTERNATIONAL



US Army Corps  
of Engineers®







## Lateral Connections



- Rubber Sleeve
- PVC Hub
- Stainless Steel Band





# North Mansion Block Redevelopment

Adjacent to Illinois State Capitol Building

Springfield, Illinois

Installation: 2018



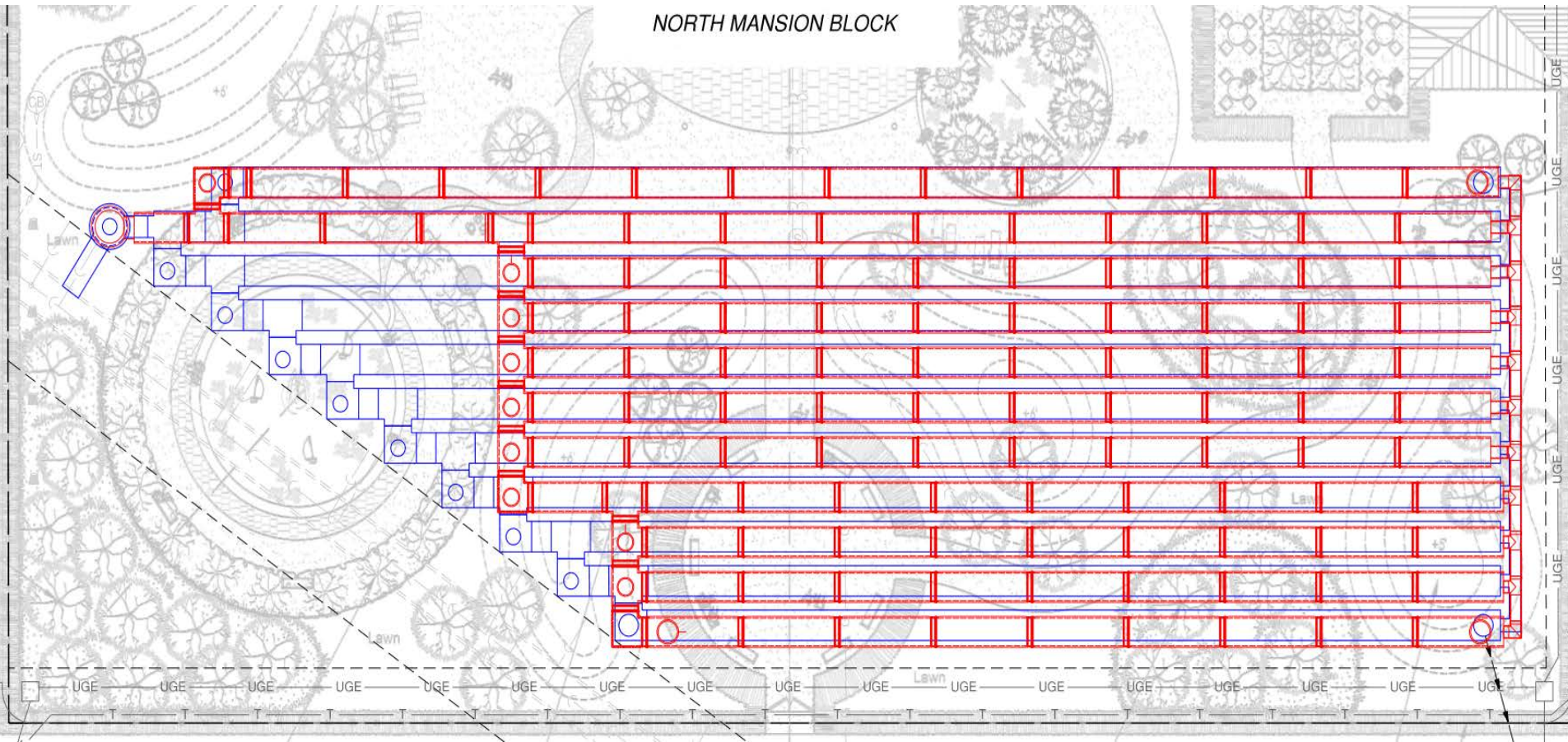


# North Mansion Block Redevelopment

Adjacent to Illinois State Capitol Building

Springfield, Illinois

Installation: 2018





**135,000 GAL  
Total Volume Storage**





















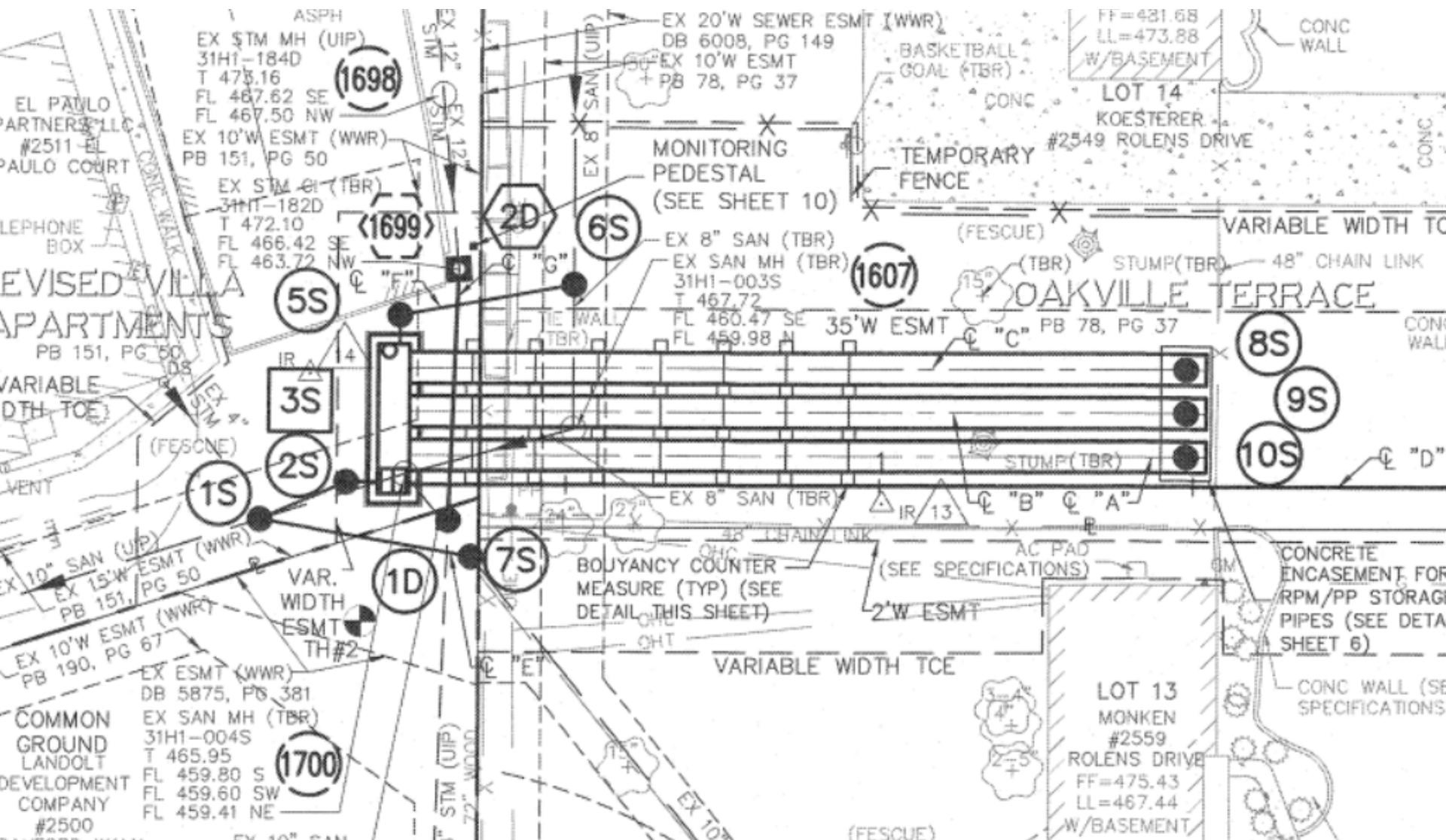








**Engineer: Burns & McDonnell**  
**Installation: 2017**

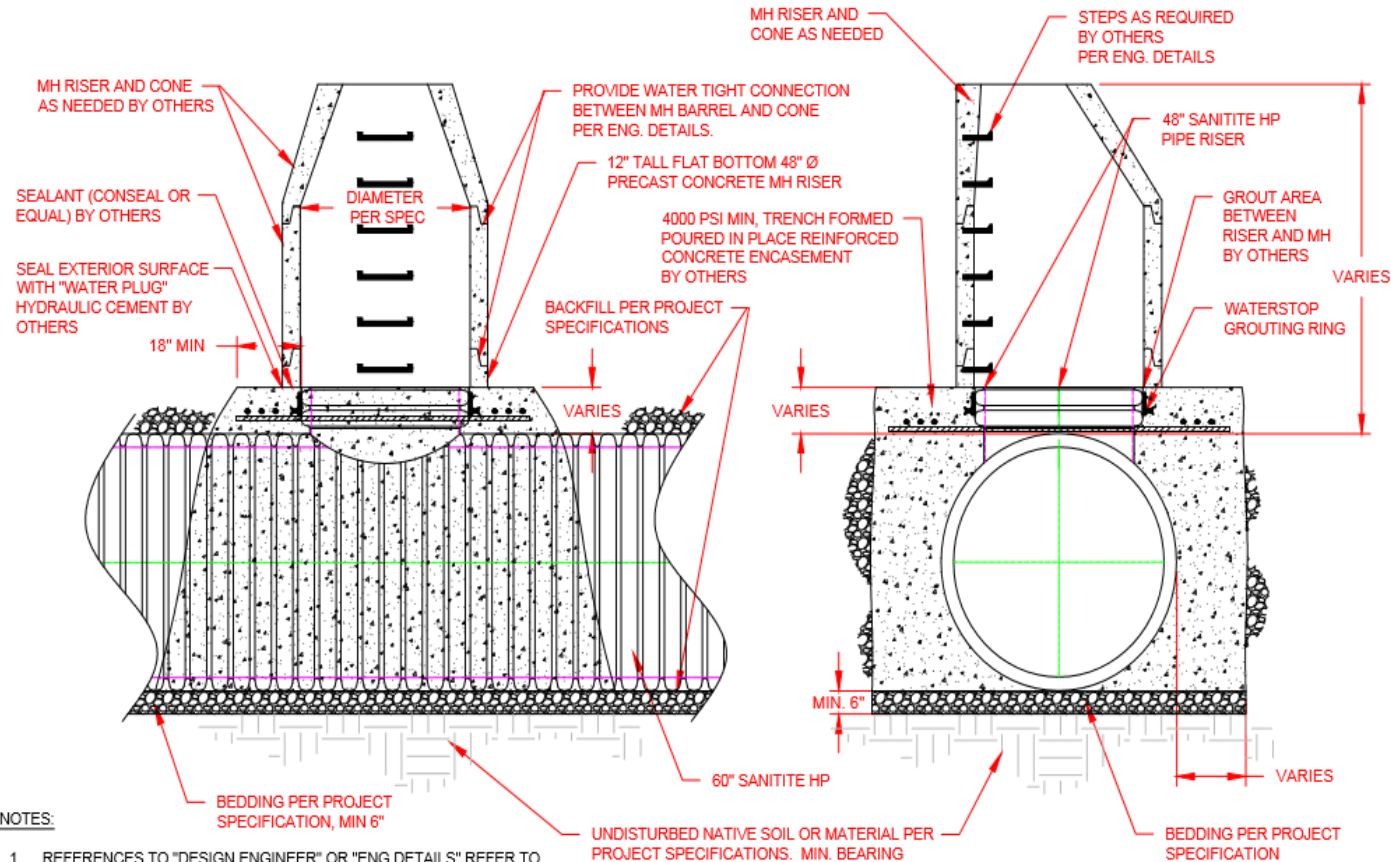








## SANITITE HP TEE BASE WITH PRECAST RISER




NOTES:

1. REFERENCES TO "DESIGN ENGINEER" OR "ENG DETAILS" REFER TO THE ENGINEER OF RECORD AND PROJECT PLANS FOR THE SPECIFIC SANITARY SEWER PROJECT.
2. STEEL REINFORCING AND CONCRETE ENCASEMENT SHALL BE DESIGNED BY OTHERS (ENGINEER OF RECORD, CONTRACT ENGINEER, ETC.) FOR THE SPECIFIC PROJECT AND SITE CONDITIONS
3. SANITITE HP PIPE RISER (48") WILL BE SHIPPED 24" TALL.

UNDISTURBED NATIVE SOIL OR MATERIAL PER -  
PROJECT SPECIFICATIONS. MIN. BEARING  
CAPACITY DEPENDENT ON COVER HEIGHT AND  
AMOUNT OF CONCRETE BASE. SEE  
REINFORCING DESIGN AND DETAIL "BY OTHERS"  
FOR MINIMUM REQUIRED BEARING PRESSURES.

- BEDDING PER PROJECT SPECIFICATION



**4DS**  
ADVANCED SPANWISE SYSTEMS, INC.

4640 TRUEMAN BLVD  
HILLIARD, OH 43026  
1-800-733-7473

ROLENS DR. AND TELEGRAPH RD.  
ST. LOUIS, MO

											DATE:	10/26/15	DRAWN:	WCM
											PROJECT #:	61188	CHECKED:	KUJ





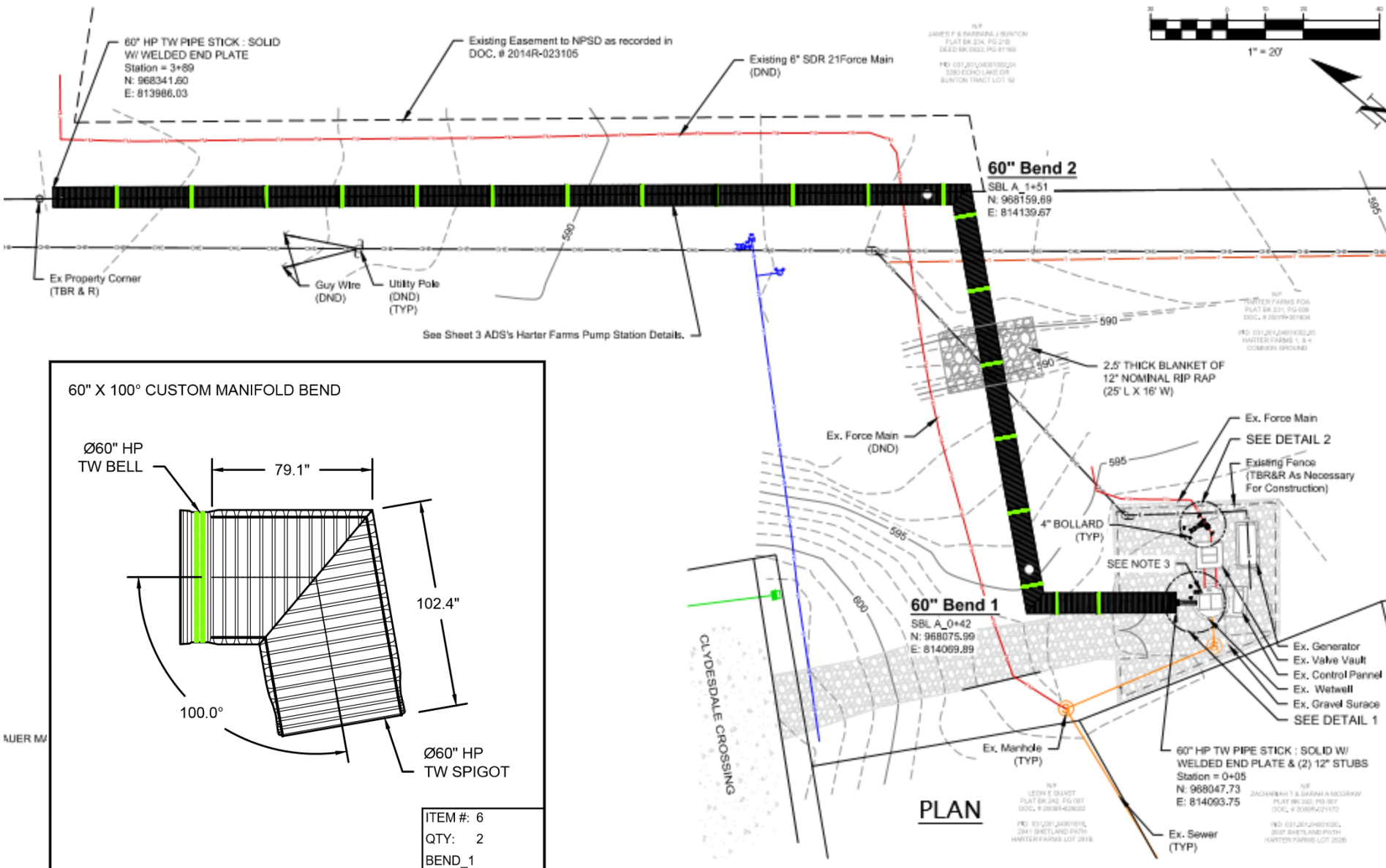






# Northeast Public Sewer District

## Jefferson County, MO





# LESS THAN 3 DAY INSTALLATION







CASE WESTERN RESERVE  
UNIVERSITY EST. 1826

think beyond the possible™



**Cleveland Clinic**



# Advantages of Pipe Storage

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  - **Linear**
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