



Track I-C

Sewer Construction & Rehabilitation
(9:00 AM to 9:25 AM)

Maximizing Pipeline Capacities to Address High-Profile, New Development Impacts

PRESENTED BY:

Chris Brooks, P.E.
Robert Saucedo, P.E.



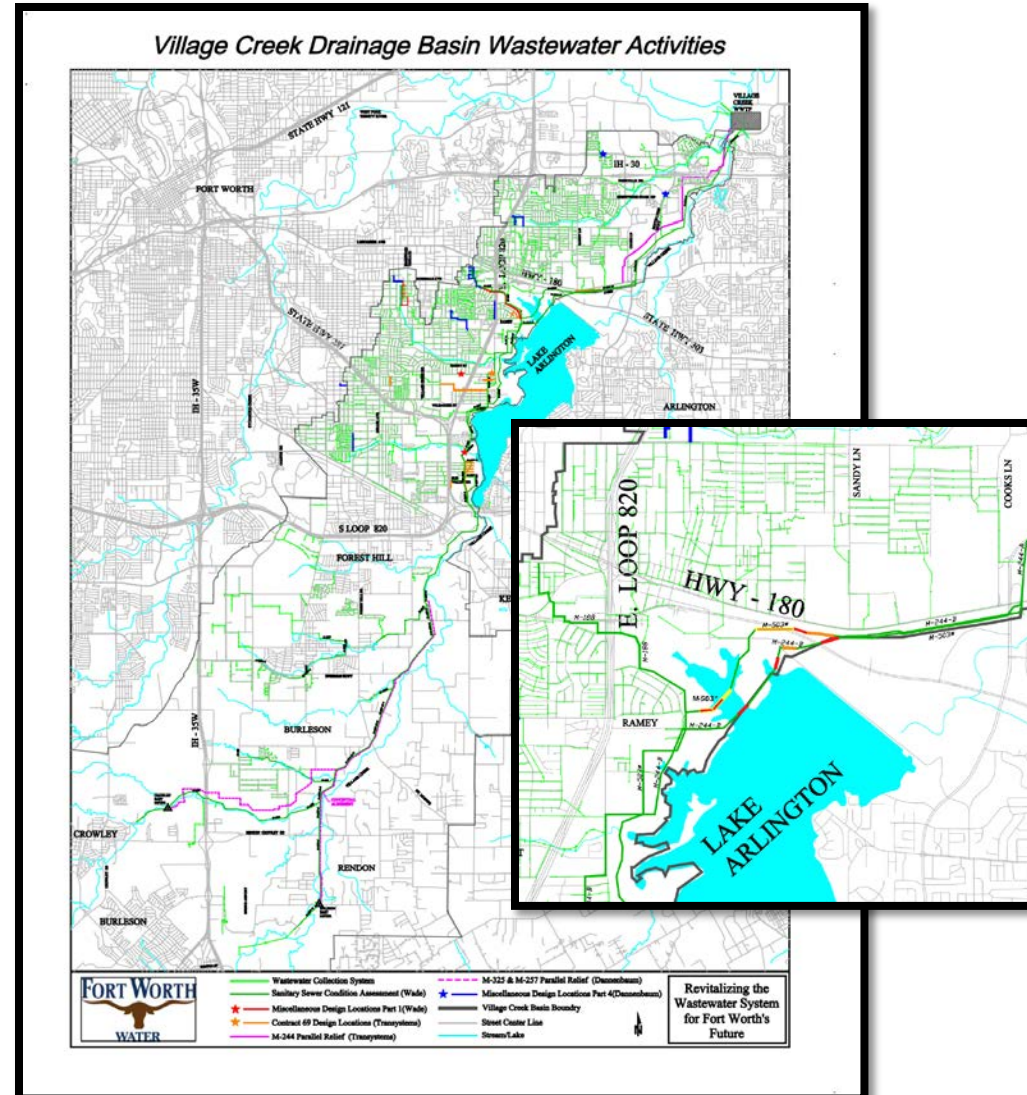
January 31, 2018

rjngroup

The Choice for Collection System Solutions

Fort Worth Village Creek Wastewater Basin Overview

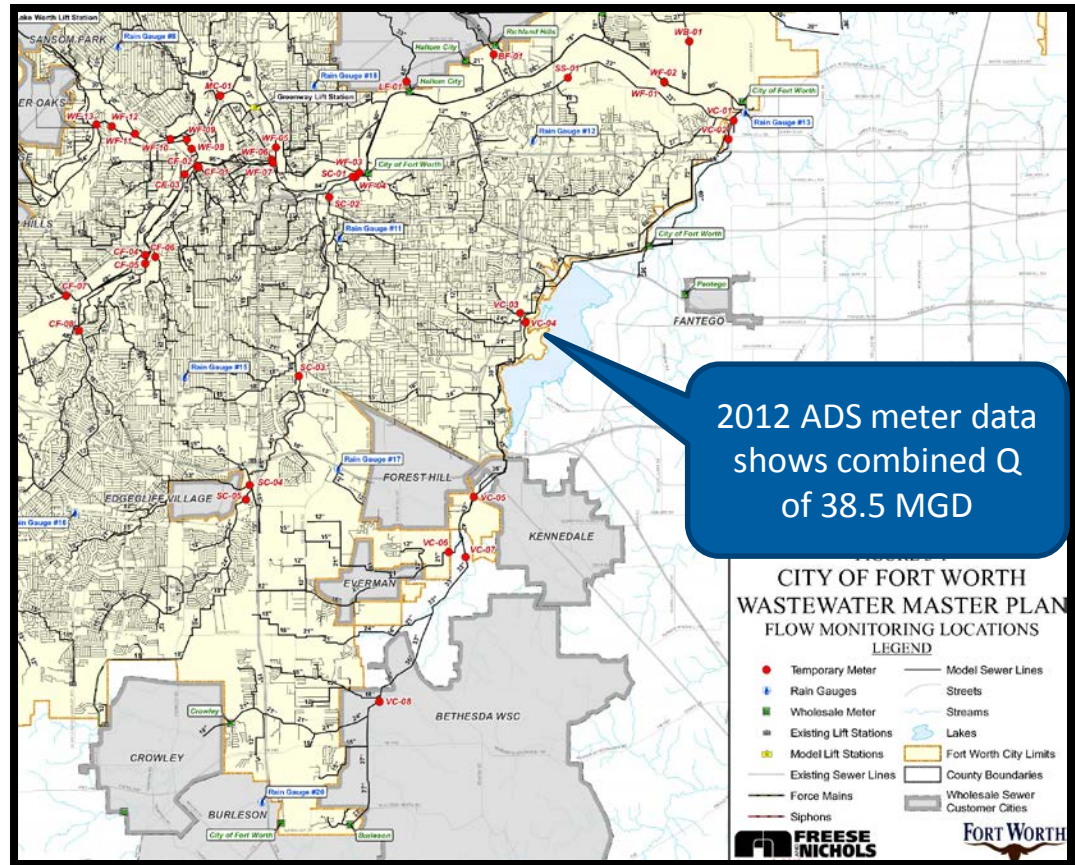
- Largest Drainage Basin in FW Collection System
- M-244B 39" Interceptor (built in 1956)
- Over 55 miles of 21" and larger pipe serving 6 Wholesale Customers
- 54" M-503 Relief Main installed in 1988
- M-503 Matched Crowns with M-244B with Poor Grade Utilization



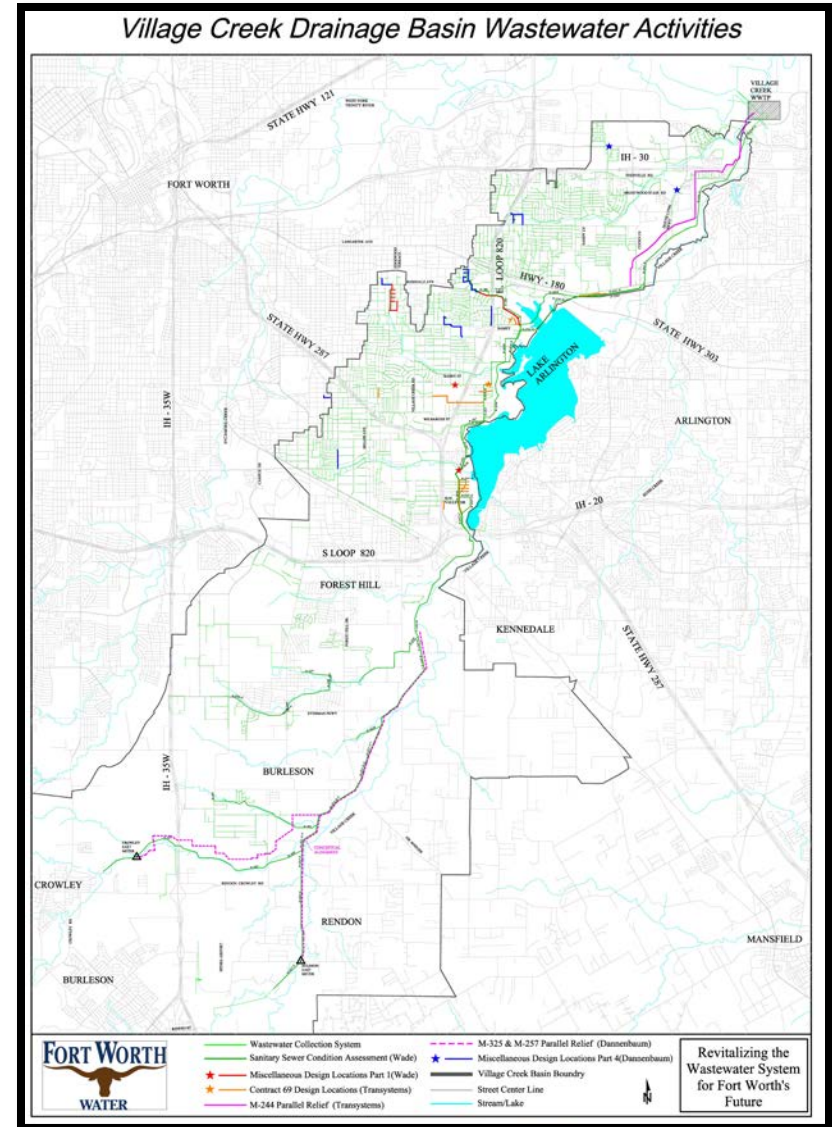
WWMP FACTS - Village Creek Wastewater Basin

- 2010 WWMP assumed 12 MGD basin transfer from ETJ
- Year 2020 “True” Basin Peak Flow is Really Unknown – Why?

Poor VC System Hydraulics caused by design decisions made nearly 30 years ago



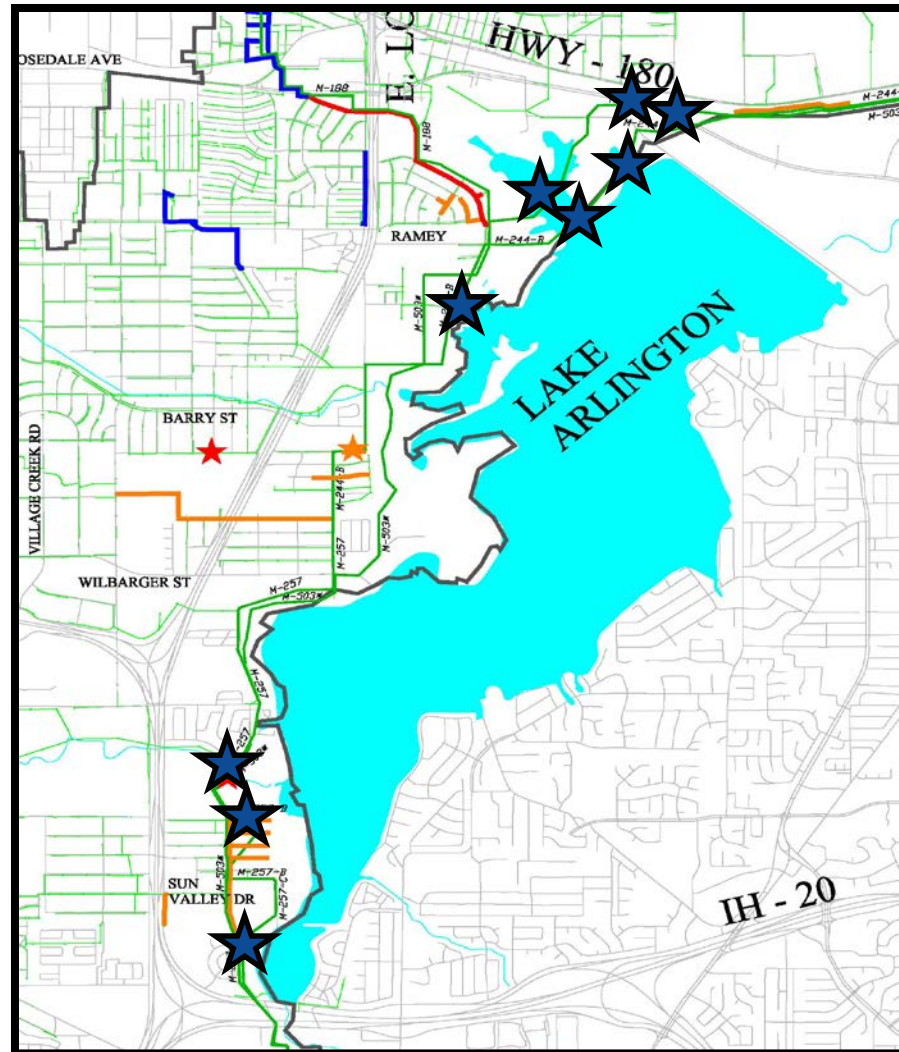
- **Large Diameter Cleaning/Inspection Project began fall of 2000**
- **Cleaned / inspected approx. 236,000 LF out of 292,000 LF of 18 to 54-inch sanitary sewer pipe**
- **Confirmed Substantive VC Collection System Concerns**
(Hydraulic Bottlenecks)
- **FWWD joined Texas SSO Initiative which lead to Large Diameter Interceptor Condition Assessment Program (ICAP)**





Village Creek Large Diameter Cleaning Contract

- Spent nearly \$250,000 on pipeline access for cleaning program
- Ace Pipe hired to finish cleaning project – Bond Claim
- Unusual Project Findings





Village Creek Large Diameter Cleaning Contract

- New terminology learned:
 - Poseidon (Adventure)
 - “Bubba Swab”
- Significant system rehabilitation recommendations were developed
- Lead to current design scope of work

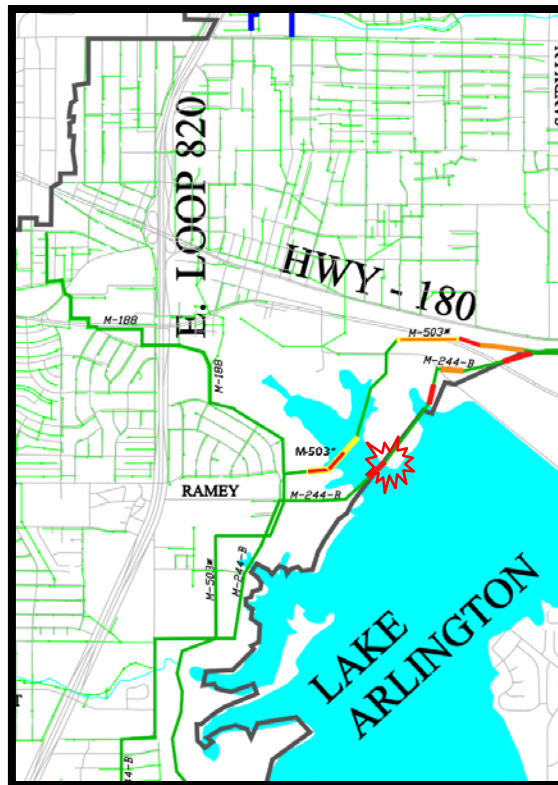


M-503 – Internal Pipe Conditions (2002)



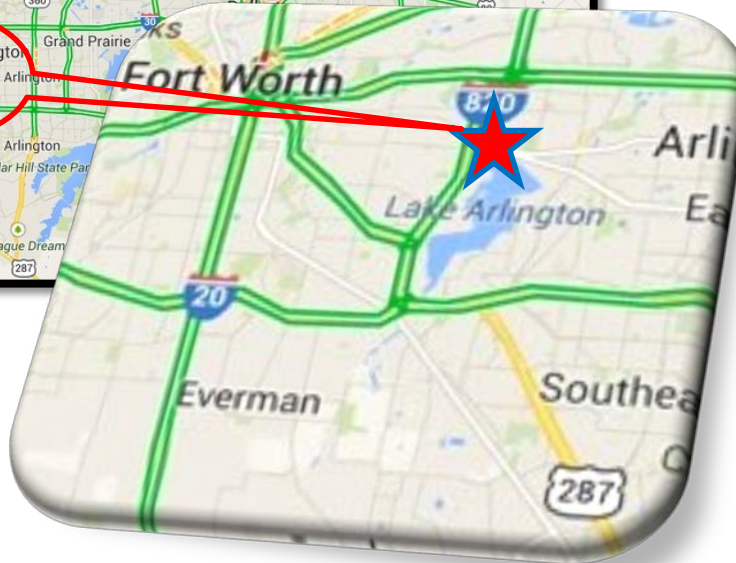
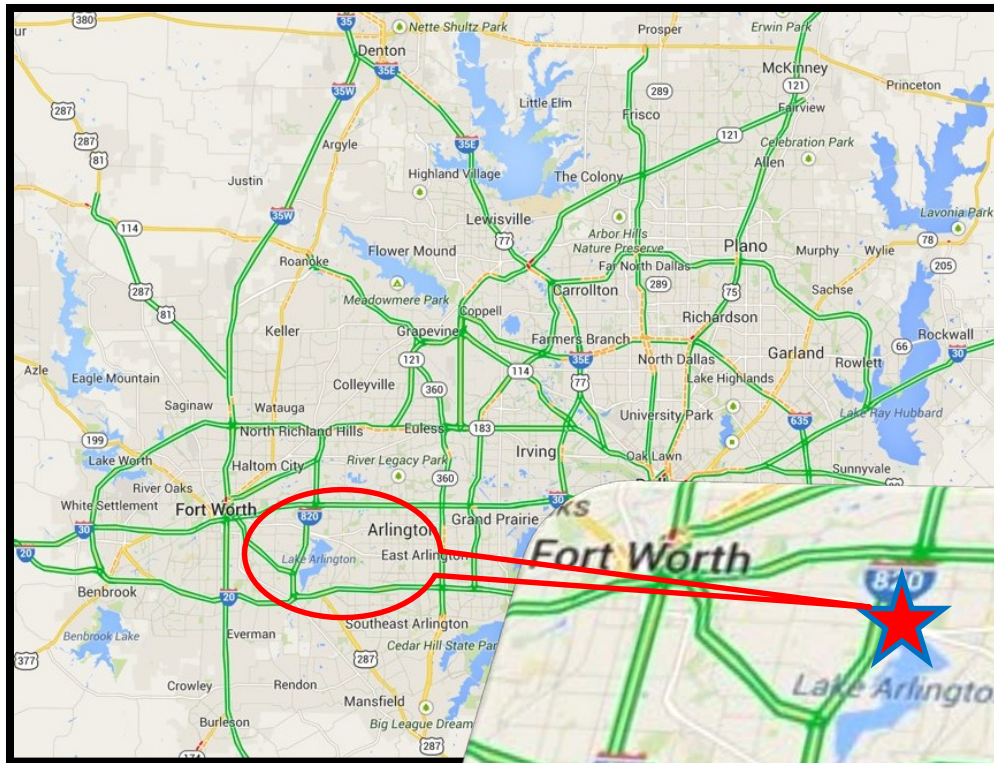
2008 M-244B Emergency Interceptor Improvements

- Major defect identified on M-244B in 2002 VC cleaning program
- Pipeline broke at that location in April 2007
- Over 4,000 LF of 36 to 39-inch pipeline was Slip-lined with DR 11 HDPE or rerouted





Village Creek Parallel Interceptor Project



Location 1: *Exelon Power Plant*

Location 2: *Dan Dipert Travel*

Fort Worth, Texas

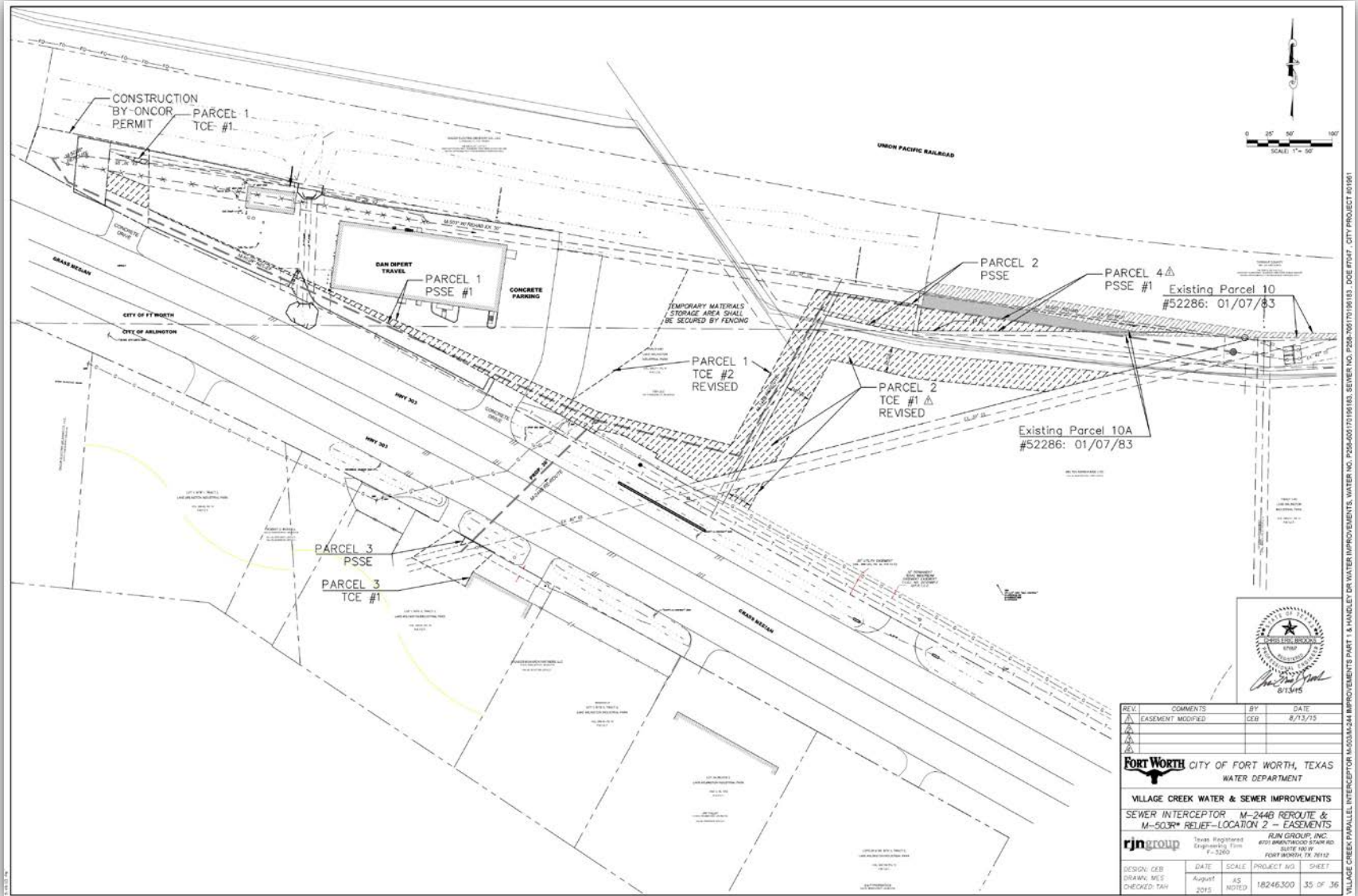


Village Creek Location 2





Village Creek Location 2 – Original Design





Village Creek Project – Location 2 Project Summary

- Proposed 48 to 54-inch sanitary sewer relief interceptor, including a new 30-inch sanitary sewer state highway crossing for future capacity improvements
- Congested project work area, limited ROW/easements, located on city limit lines, varied topography, and multiple common carrier gas line crossings
- Contradictory HDD bore logs for one common carrier (mergers) – Level A SUE locating those mains (two 12" gas mains and one saltwater pipeline) resolved the issue
- The second common carrier for a single 8" gas main was built after conducting original project survey (limited signage visible on project site)
- During the tunneling of a 42-inch casing pipe across the state highway, the contractor discovered the 8-inch common carrier gas main was located 14.5-feet deep - dead center of the proposed casing pipe.

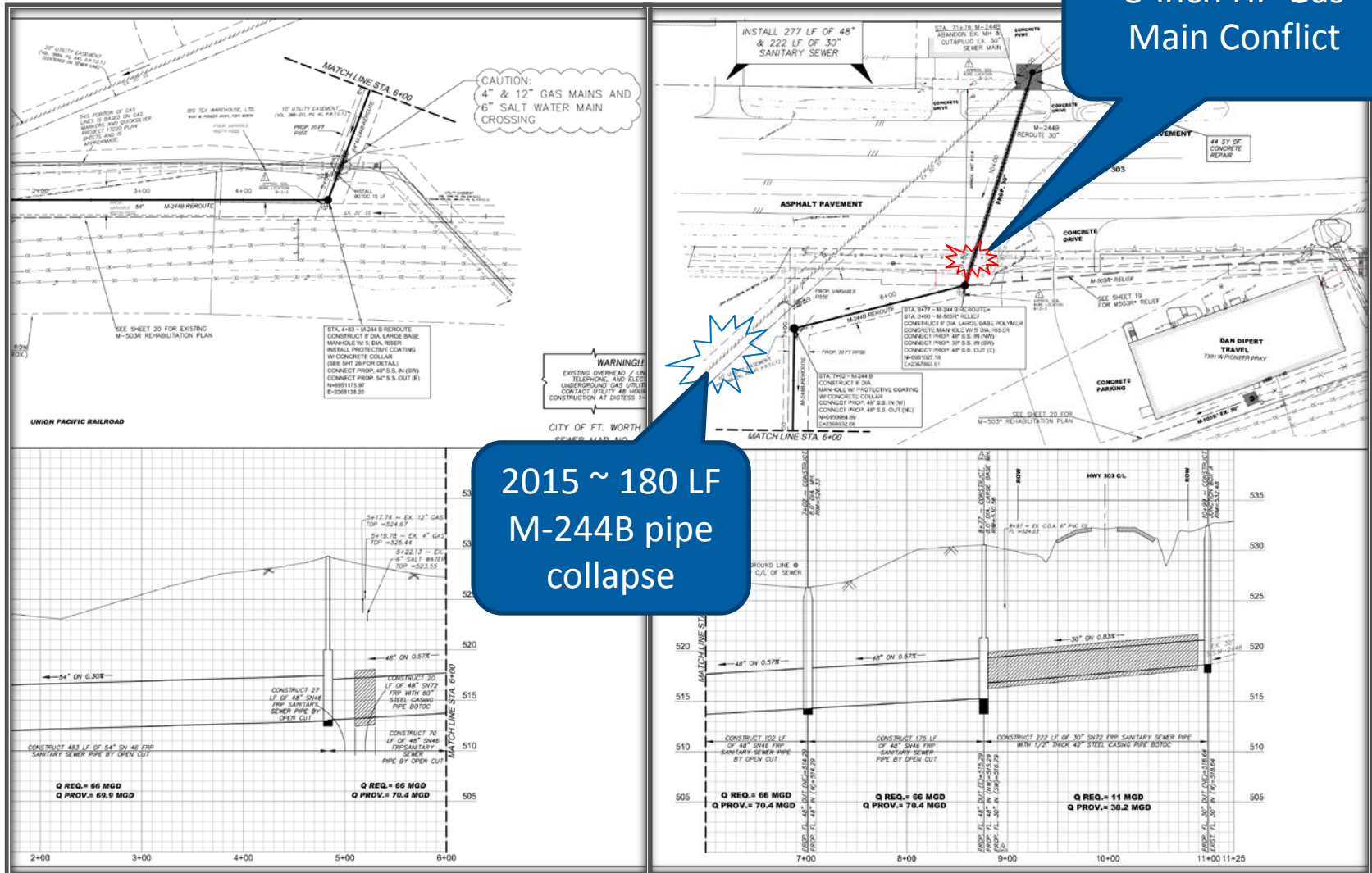


M-503 – Existing
velocities easily
exceed 10 FPS



Village Creek Location 2 – Continued

8-inch HP Gas Main Conflict



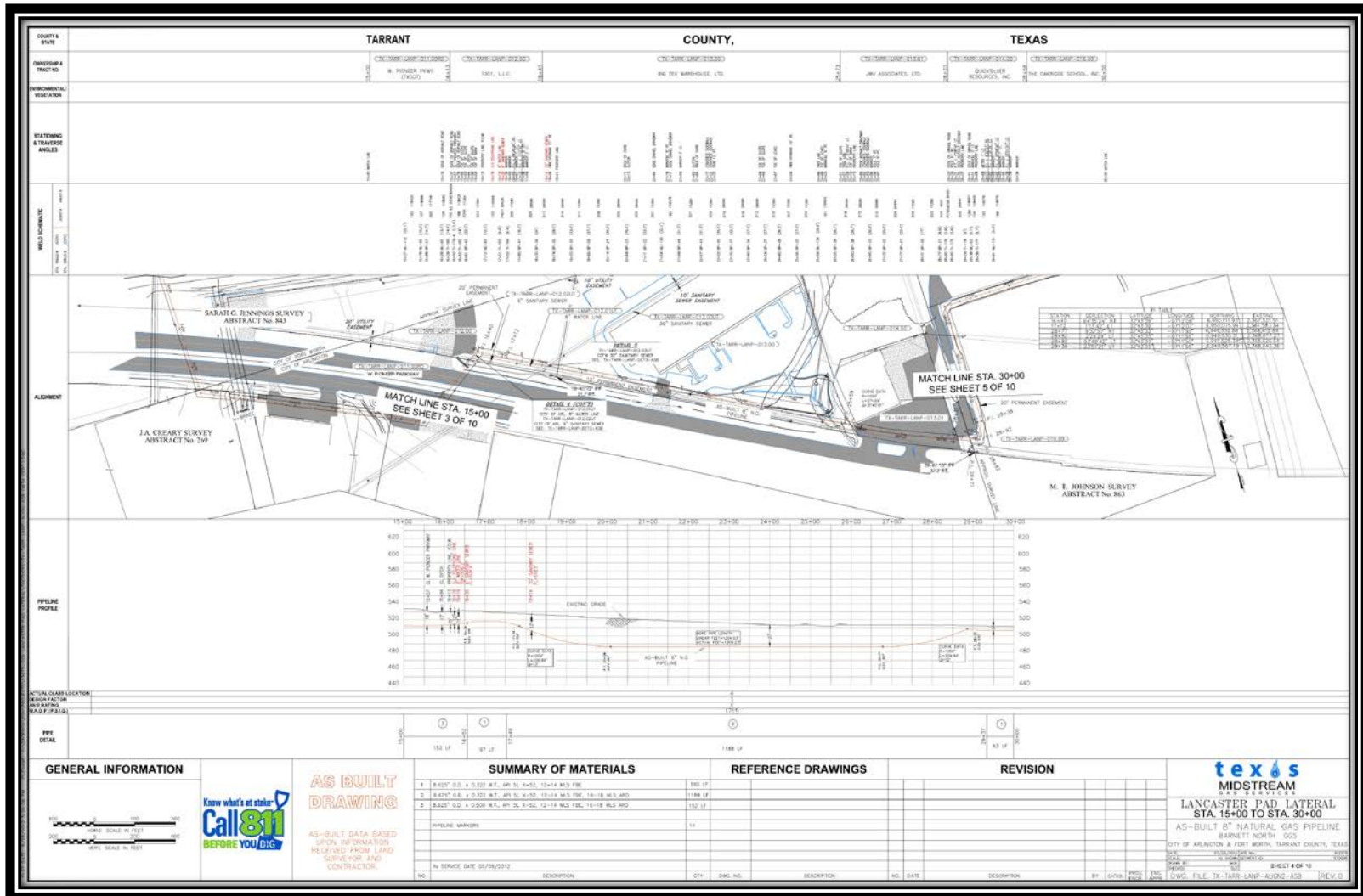
Village Creek Location 2 – Common Carrier Gas Mains

City of Fort Worth | Permitted Pipelines Map

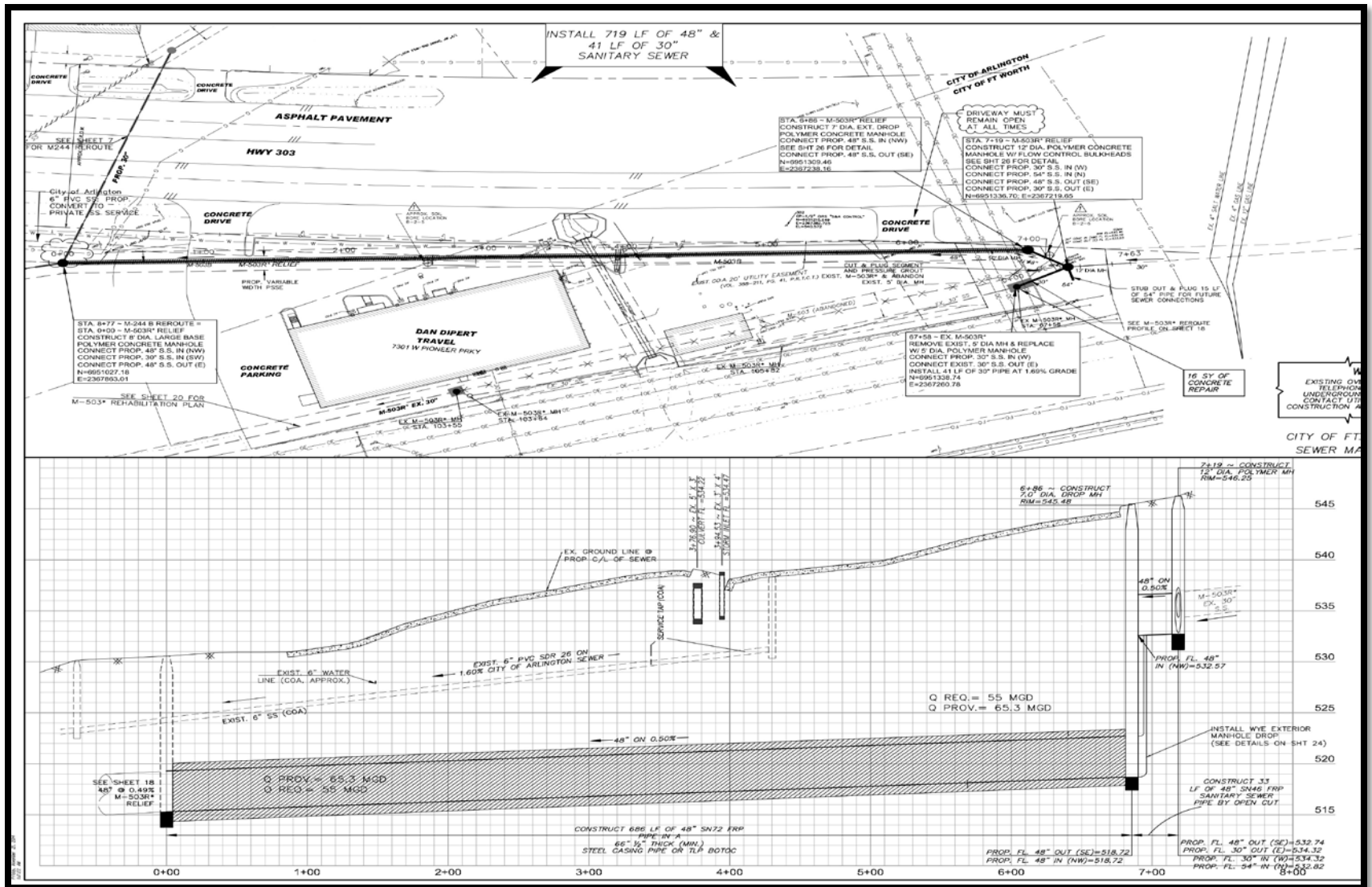




Utility Plans – Common Carrier Utilities

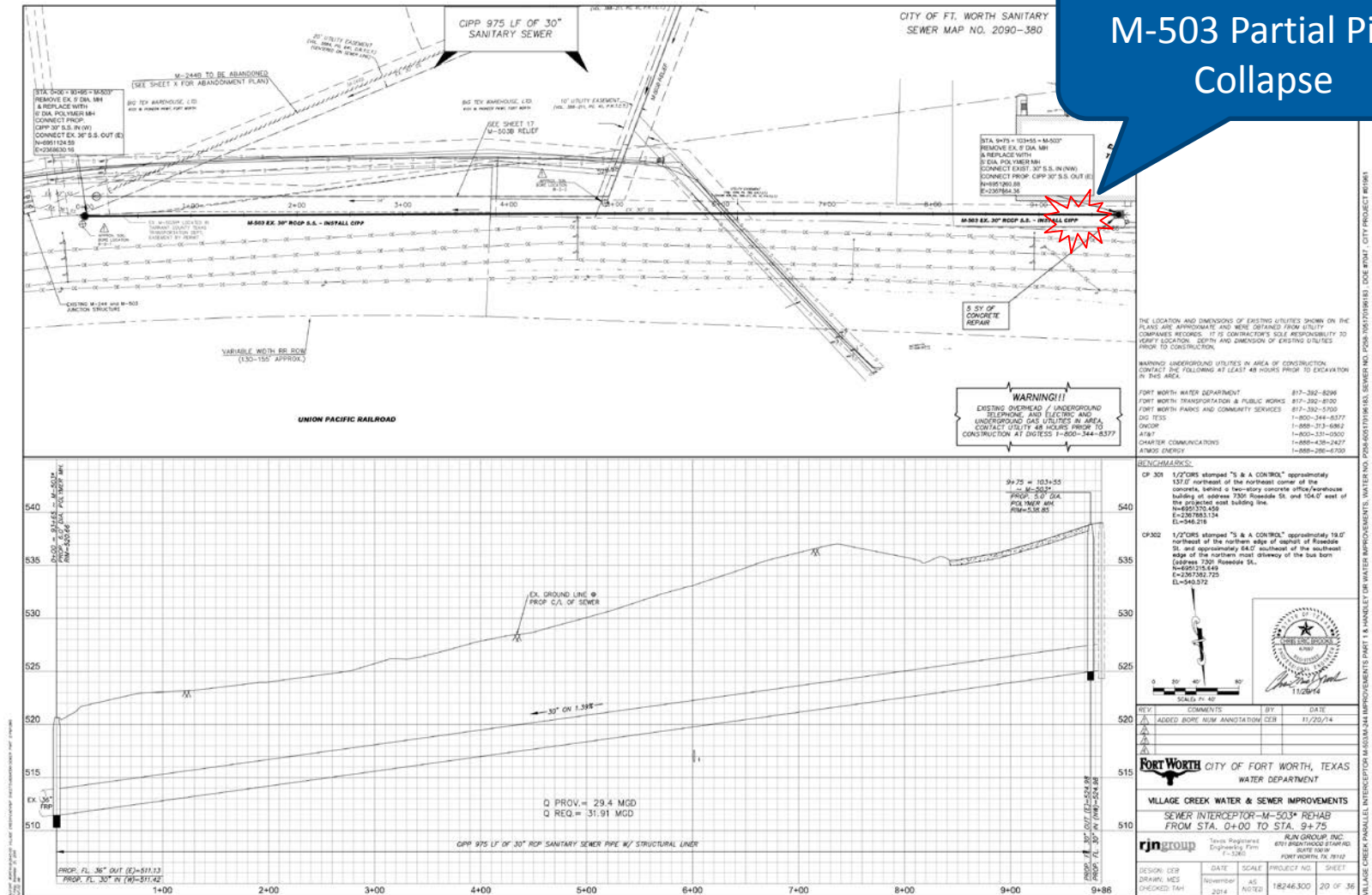


Village Creek Location 2 - Continued

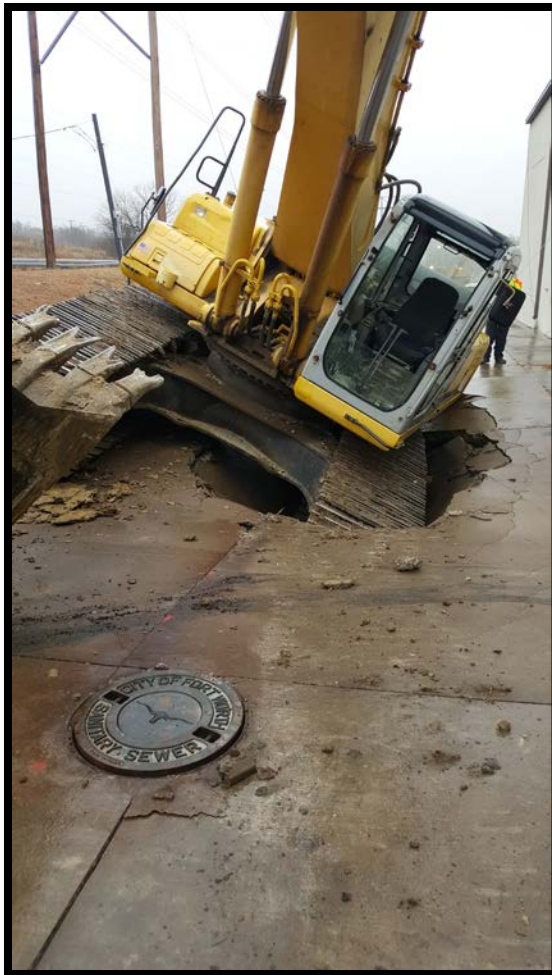


Village Creek Location 2 - Continued

December 22, 2017 M-503 Partial Pipe Collapse



M-503 – Emergency Replacement



M-503 – Emergency Replacement



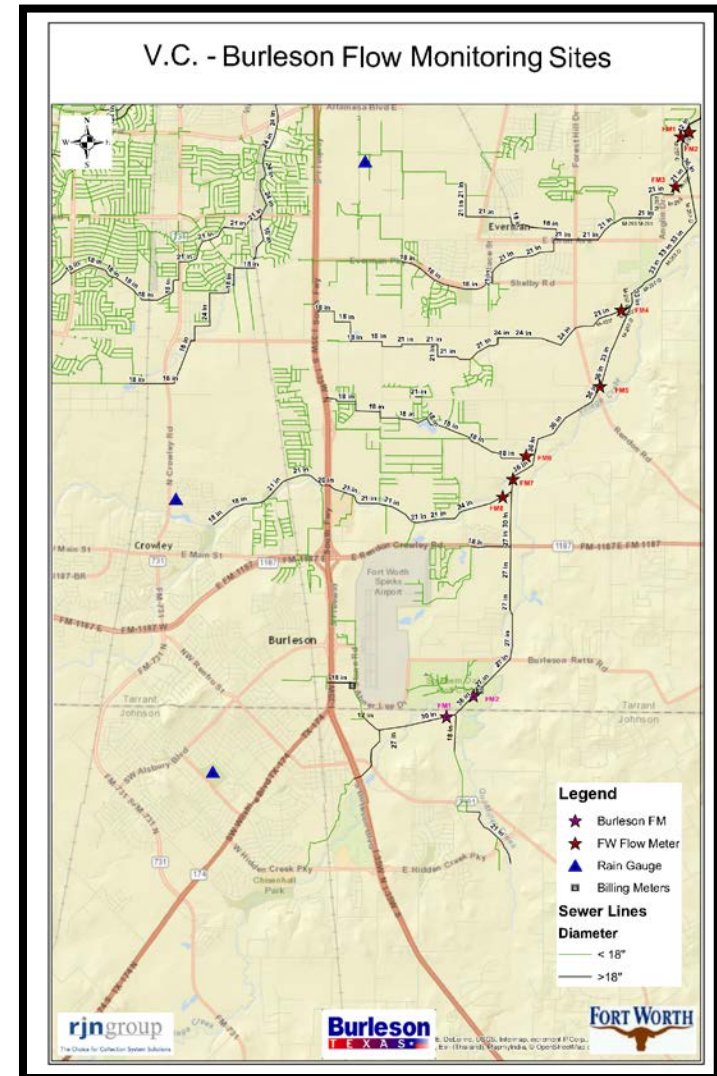


M-503 – Emergency Replacement



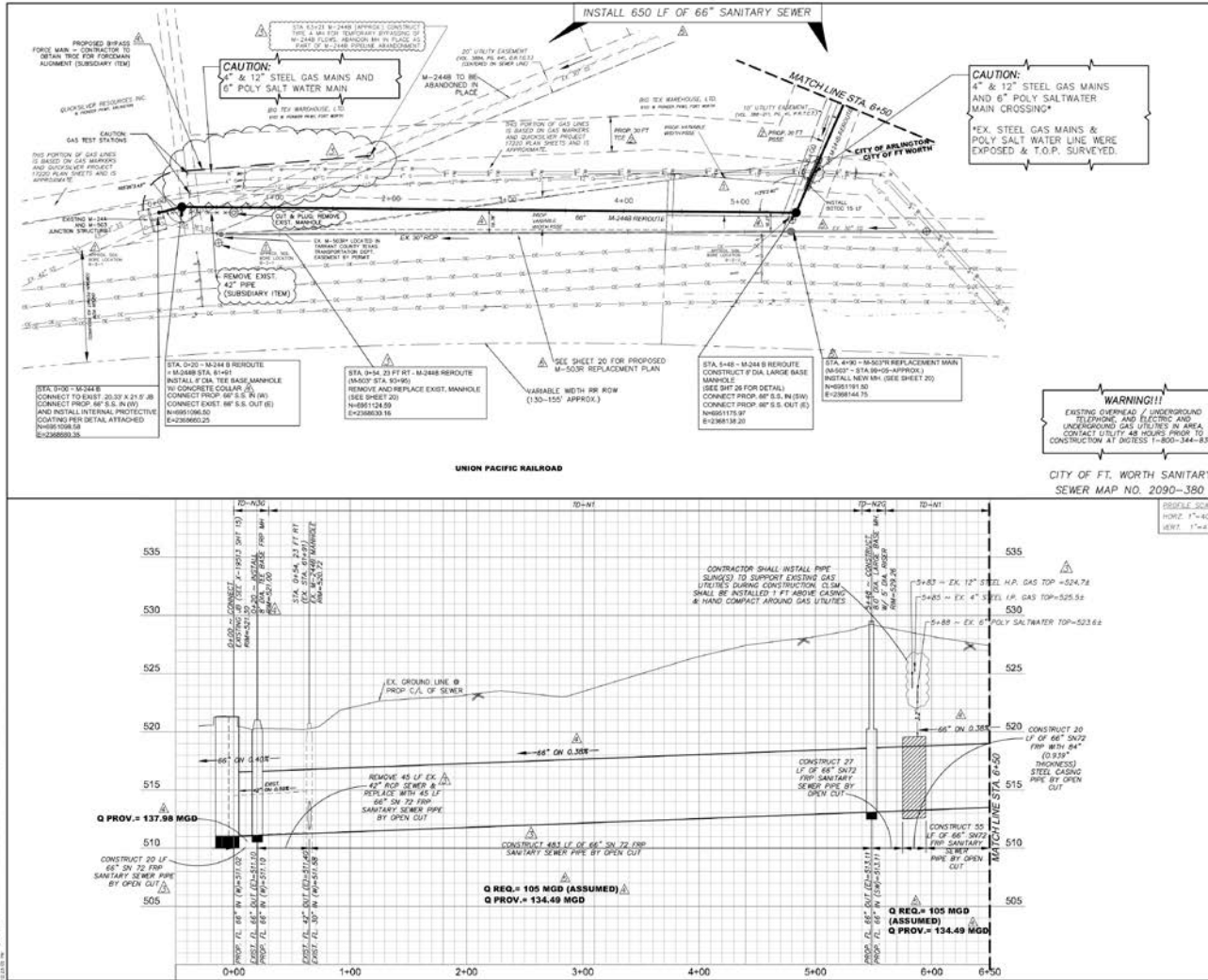
Village Creek Wastewater Basin FACTS

- 2016 Summer Upper Village Creek Flow Monitoring
- Data Needed for VC WWMP Model update to address new Development Impacts
- FM revealed significantly larger peak flows than WWMP
- Tarleton State University – Fort Worth Campus & ETJ Development
- New WWMP basin transfer forecast is now 30 MGD into the VC Basin by Year 2020





VC Location 2 – Revised Design Plans



REVISED LOCATION 2 CONFORMED PLANS

- NOTES:**
1. COORDINATE CONSTRUCTION WITH GAS ORIENT TRAVEL (SEE GAS ORIENT CONTACT: 817-543-3711), TX DOT, BIG TEX WAREHOUSE LTD. AND CITY OF ARLINGTON.
 2. QUICKLY OVER CROSSING PERMIT & CONSTRUCTION COORDINATION IS REQUIRED (TEMPORARY-ROST-OF-2019).
 3. CONTRACTOR SHALL STAGE CONSTRUCTION TO MINIMIZE THE TIME THAT M-2448 BYPASS IS OPERATED. FLOW DIVERSION NEAR M-501 STA 170+00 OFF DUAL LANE MAY BE REQUIRED FOR SHORT PERIODS OF TIME. CONTRACTOR TO SUBMIT A DETAILED BYPASS PLAN AND CALCULATIONS FOR A 12 MO. 2 HR PEAK FLOW RATE FOR REVIEW AND APPROVAL PRIOR TO RE-WITING CONSTRUCTION AT THIS LOCATION.
 4. DUE TO EMERGENCY LINE BREAK ON M-501, THE PROPOSED CIP OF M-501 (SEE SHT 20) HAS BEEN CHANGED TO OPEN CUT CONSTRUCTION.

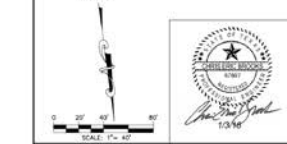
THE LOCATION AND DIMENSIONS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND HAVE OBTAINED FROM THE CITY OF ARLINGTON RECORDS. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO VERIFY LOCATION, DEPTH AND DIMENSION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.

WARNING: UNDERGROUND UTILITIES IN AREA OF CONSTRUCTION. CONTRACT THE FOLLOWING AT LEAST 48 HOURS PRIOR TO EXCAVATION IN THIS AREA.

FORT WORTH WATER DEPARTMENT 817-392-8286
FORT WORTH TRANSPORTATION & PUBLIC WORKS 817-392-8100
FORT WORTH PARKS AND COMMUNITY SERVICES 817-392-8300
BIG TEX 1-800-344-8377
DUG TEST 1-800-313-8862
4747 1-800-313-8862
CHARTER COMMUNICATIONS 1-800-438-2427
AT&T 1-800-388-6120

BENCHMARKS:

- CP 300 1/2" ODS stamped "S & A CONTROL" approximately 128.7' northeast of the northern edge of asphalt of Flower Pkwy and 66.0' southeast of eastside of a driveway (Address: 5000 Flower Pkwy, Ft. Worth, TX 76104) E-5145823
- CP 301 1/2" ODS stamped "S & A CONTROL" approximately 137.2' northeast of the northeast corner of the concrete, below a two-story concrete office/warehouse building of address 5000 Flower Pkwy, Ft. Worth, TX 76104 (Address: 5000 Flower Pkwy, Ft. Worth, TX 76104) E-5145823



REV.	COMMENTS	BY	DATE
1	ADDED BENCHMARK ANNOTATION	CEB	11/20/14
2	UPDATED EASEMENTS	CEB	8/13/15
3	REVISED CONFORMED PLANS	CEB	12/15/16
4	REVISED CONFORMED PLANS	CEB	10/17/17
5	REVISED CONFORMED PLANS	CEB	1/3/18

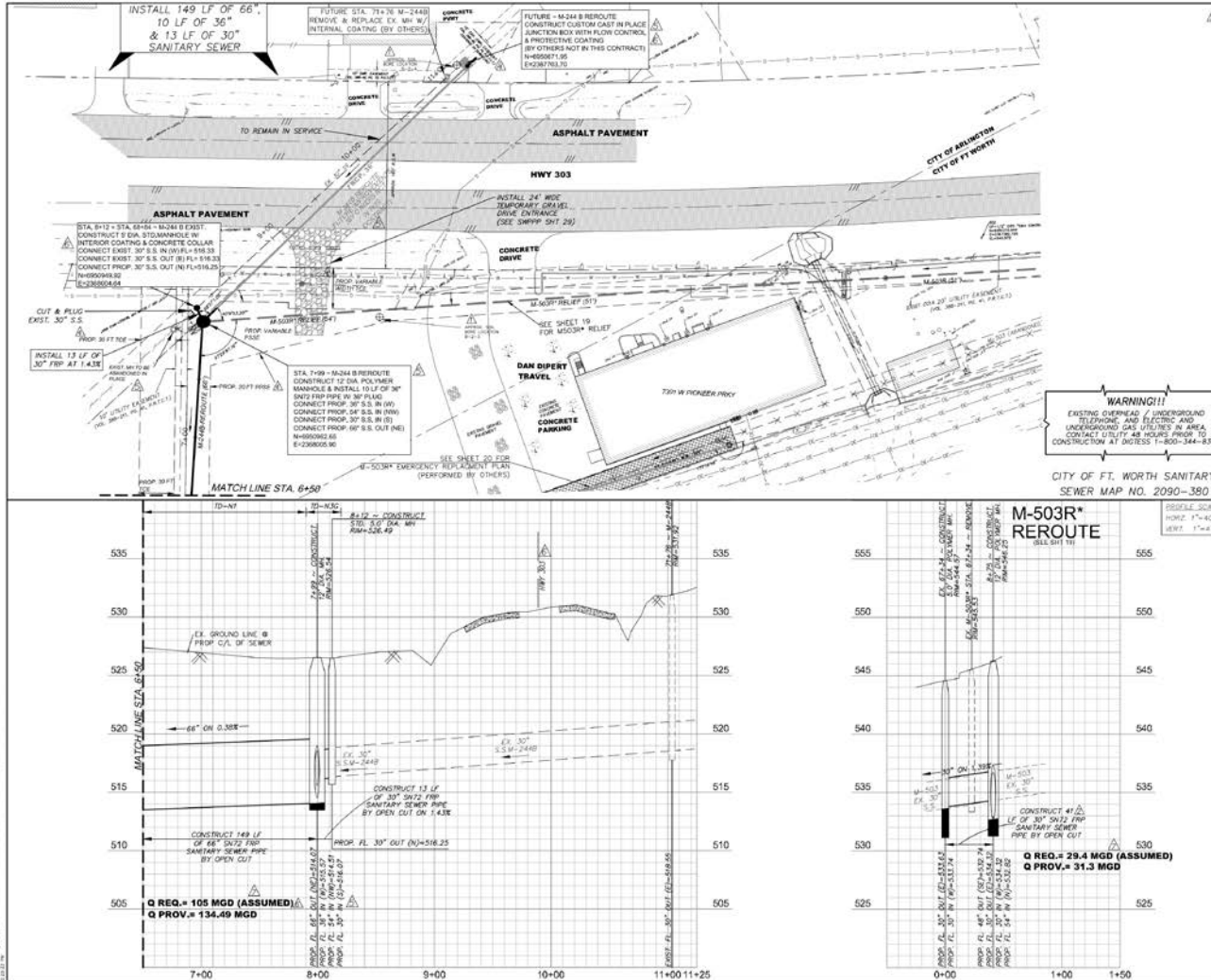
FORT WORTH CITY OF FORT WORTH, TEXAS
WATER DEPARTMENT

VILLAGE CREEK WATER & SEWER IMPROVEMENTS
SEWER INTERCEPTOR-M-2448-REROUTE
FROM STA. 0+00 TO STA. 6+50

DESIGN: CEB	DATE: January 2018	SCALE: AS NOTED	PROJECT NO.: 18264-S00	SHEET: 17 OF 36
DRAWN: VES	CHECKED: TMB			



VC Location 2 – Revised Design Plans



REVISED LOCATION 2 CONFORMED PLANS

NOTES:

1. COORDINATE CONSTRUCTION WITH DAN DEPT. TRAVEL (SEE DAN DEPT. CONTACT: 817-342-3711), TX DOT, AND CITY OF ARLINGTON.
2. TX DOT PERMIT WILL BE REQUIRED FOR W-2448 RE-ROUTE AND TRAFFIC CONTROL.
3. CORRECTION OF THE EXISTING LINE AT STA. 11+15 PROPOSED JUNCTION BOX WILL REQUIRE BYPASS DURING INSTALLATION.
4. PROP. 12" DIA POLYMER PIPE @ STA. 7+99 W-2448 RE-ROUTE - FLOW CHANNELS ARE OFFSET BY 1 FOOT FROM THE CENTER OF THE STRUCTURE.

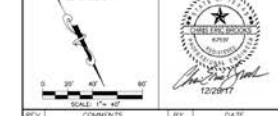
THE LOCATION AND DIMENSIONS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND HAVE OBTAINED FROM UTILITY COMPANIES RECORDS. IT IS CONTRACTOR'S SOLE RESPONSIBILITY TO VERIFY LOCATION, DEPTH AND DIMENSION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.

WARNING: UNDERGROUND UTILITIES IN AREA OF CONSTRUCTION. CONTACT THE FOLLOWING AT LEAST 48 HOURS PRIOR TO EXCAVATION IN THIS AREA.

FORT WORTH WATER DEPARTMENT 817-392-8286
FORT WORTH TRANSPORTATION & PUBLIC WORKS 817-392-8100
FORT WORTH PARKS AND COMMUNITY SERVICES 817-392-3300
DOD TESS 1-800-344-8377
DODOR 1-800-313-6862
AT&T 1-800-331-0000
CHARTER COMMUNICATIONS 1-800-438-2427
AT&T 1-800-388-6720

BENCHMARKS:

- OP 300 1/2" TOWNSHIP STAMPED "S & A CONTROL" APPROXIMATELY 128.0' NORTHEAST OF THE NORTHERN EDGE OF (SOUTH) OF Pioneer Pkwy and 66.0' SOUTHWEST OF INTERSECTION OF a driveway (Address 6101 W. Pioneer Pkwy).
- OP 301 1/2" TOWNSHIP STAMPED "S & A CONTROL" APPROXIMATELY 137.0' NORTHEAST OF THE NORTHEAST CORNER OF the concrete, behind a two-story concrete office/apartment building at address 7301 Roadside St. and 104.0' east of the project east building line.
- W-2448 155
E-238337 882
E-238337 134
E-238337 216



REV.	COMMENTS	BY	DATE
1	ADDED BORE HOLE ANNOTATION	CEB	11/20/14
2	ADDED IN NUMBER	CEB	11/20/14
3	ADDED P.W. & SHORT ELEV.	CEB	12/22/14
4	UPDATED EASEMENTS	CEB	8/13/15
5	REVISED CONFORMED PLANS	CEB	12/15/16
6	REVISED CONFORMED PLANS	CEB	12/17/17
7	REVISED CONFORMED PLANS	CEB	12/29/17

Fort Worth CITY OF FORT WORTH, TEXAS
WATER DEPARTMENT

VILLAGE CREEK WATER & SEWER IMPROVEMENTS

SEWER INTERCEPTOR

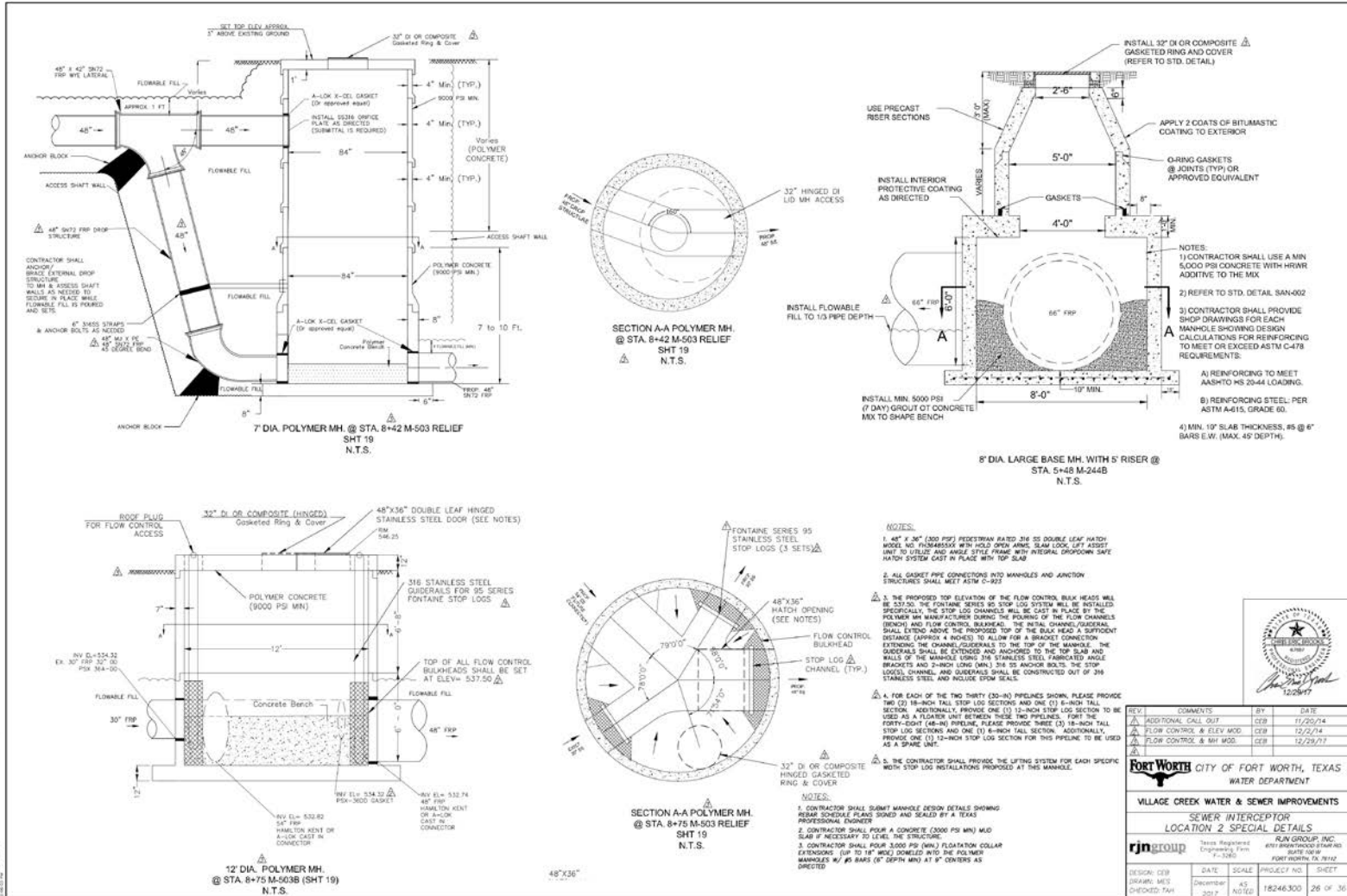
M-2448 RE-ROUTE FROM STA. 6+50 TO STA. 6+12

KLING GROUP, INC. 4801 BISHOP ROAD, SUITE 100
F-3360 FORT WORTH, TX 76112

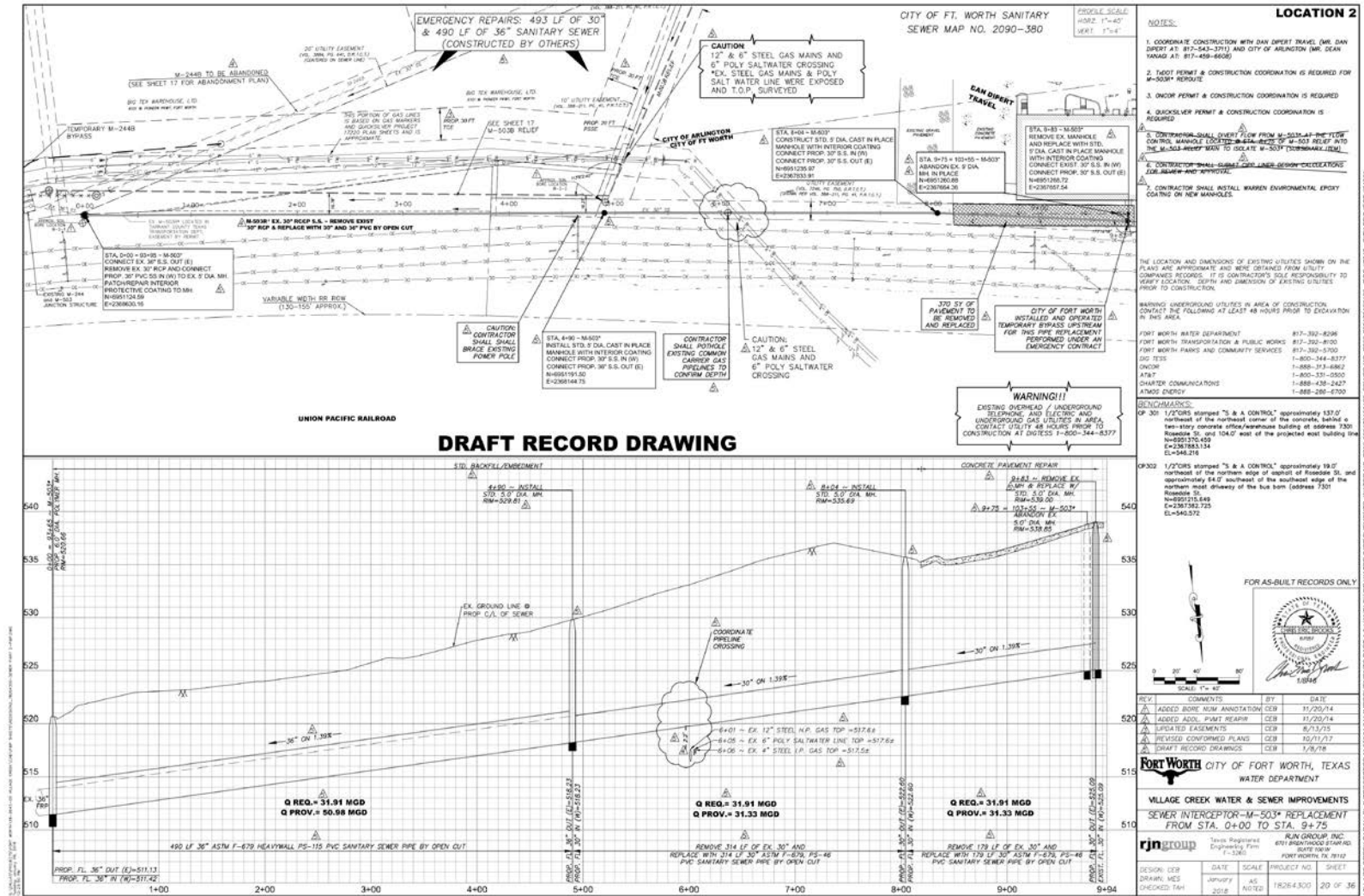
DESIGN: CEB
DRAWN: VES
CHECKED: TAD
DATE: January 2018
SCALE: AS NOTED
PROJECT NO.: 18264300
SHEET: 18 OF 36



VC Location 2 – Revised Design Plans



VC Location 2 – Revised Design Plans





Village Creek Location 2 – Revised Design Status

- **Sewer Bypass Costs have exceeded \$250,000 (Approx. 2,000 LF of 18" & 1,000 LF of 12" HDPE lines with 3 pumping units)**
- **Original Change Order Request (for capacity improvements) was greater than \$1.1 Million**
- **Assisted City in negotiating a significantly reduced C.O. amount of \$366,460**
- **Design provides more than 130 MGD of carrying capacity**
- **Contractor will remobilize on the job by April and anticipates completion by the 4th of July.**

Village Creek Parts 2 and 3

•What's next.....





Questions?

Contact Information:

Chris Brooks, P.E.
cbrooks@rjnmail.com

Robert Saucedo, P.E.
Robert.Sauceda@fortworthtexas.gov

