

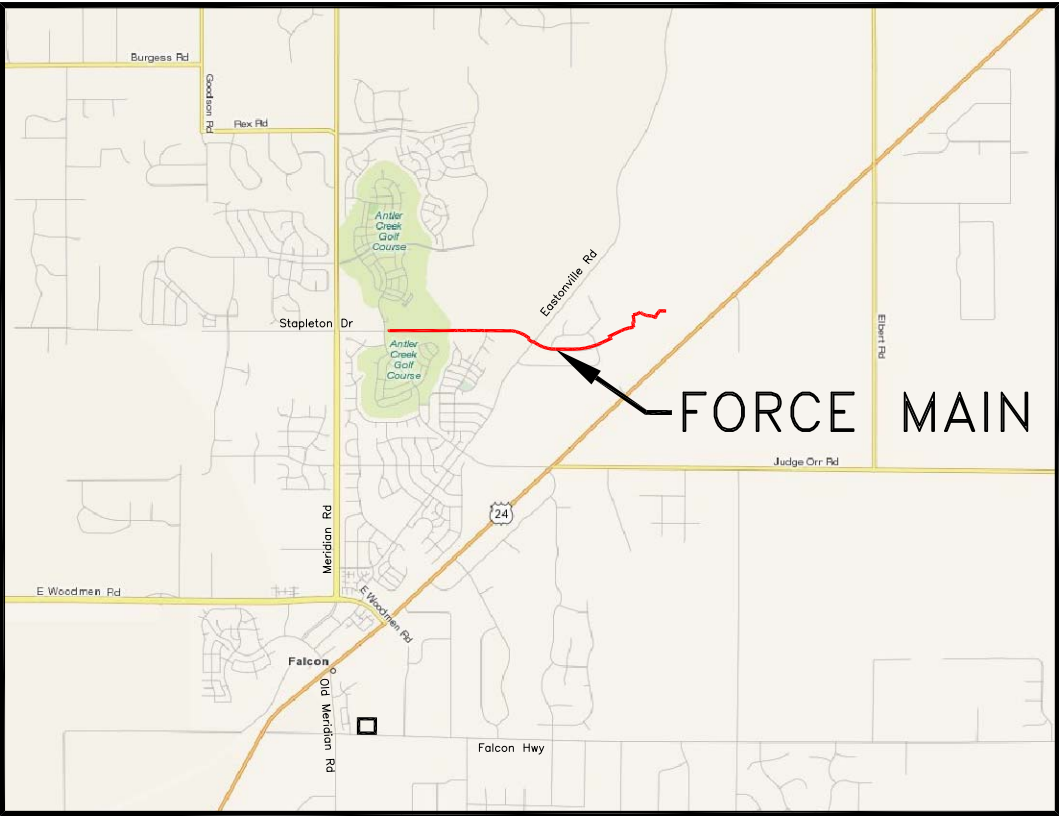
FOUR WAY RANCH METROPOLITAN DISTRICT FORCE MAIN

PLAN SET INFORMATION:
100% DRAWINGS – FOR CDPHE APPROVAL

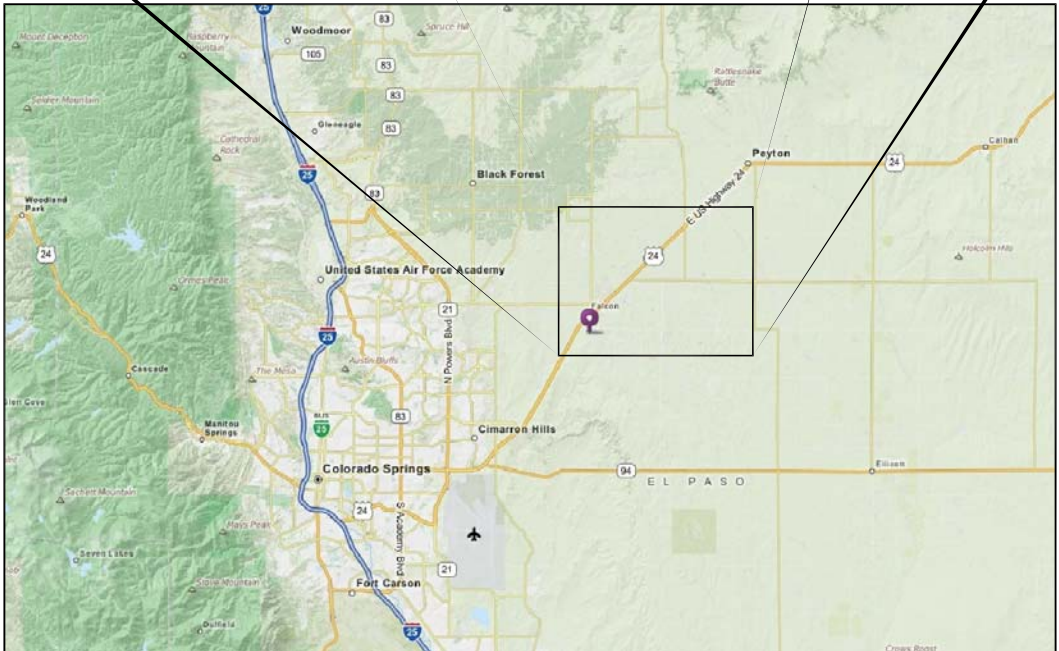
SHEET INDEX

SHEET NO.	DESCRIPTION
GENERAL	
G1	COVER SHEET
G2	GENERAL NOTES
CIVIL	
C1	OVERALL SITE PLAN
C2	PLAN & PROFILE
C3	PLAN & PROFILE
C4	PLAN & PROFILE
C5	PLAN & PROFILE
C6	PLAN & PROFILE
C7	PLAN & PROFILE
C8	PLAN & PROFILE
C9	PLAN & PROFILE
C10	PLAN & PROFILE
C11	PLAN & PROFILE
C12	CIVIL DETAILS 1
C13	CIVIL DETAILS 2
C14	CIVIL DETAILS 3

LOCATION & VICINITY MAPS



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

SIGNATURES

FOUR WAY RANCH DISTRICT APPROVALS:

THE FOUR WAY RANCH METROPOLITAN DISTRICT RECOGNIZES THE DESIGN ENGINEER AS HAVING RESPONSIBILITY FOR THE DESIGN. THE FOUR WAY RANCH METROPOLITAN DISTRICT HAS LIMITED ITS SCOPE OF REVIEW ACCORDINGLY.

DISTRICT MANAGER: _____
 DISTRICT ENGINEER: _____
 DATE: _____
 PROJECT NO. _____

IN CASE OF ERRORS OR OMISSIONS WITH THE DESIGN AS SHOWN ON THIS DOCUMENT, THE STANDARDS AS DEFINED IN THE "GENERAL NOTES" SHALL GOVERN.

WOODMEN HILLS DISTRICT APPROVALS:

THE WOODMEN HILLS METROPOLITAN DISTRICT RECOGNIZES THE DESIGN ENGINEER AS HAVING RESPONSIBILITY FOR THE DESIGN. THE WOODMEN HILLS METROPOLITAN DISTRICT HAS LIMITED ITS SCOPE OF REVIEW ACCORDINGLY.

DISTRICT MANAGER: _____
 DISTRICT ENGINEER: _____
 DATE: _____
 PROJECT NO. _____

IN CASE OF ERRORS OR OMISSIONS WITH THE DESIGN AS SHOWN ON THIS DOCUMENT, THE STANDARDS AS DEFINED IN THE "GENERAL NOTES" SHALL GOVERN.

LEGEND

— — — — —	BOUNDARY / RIGHT-OF-WAY	— GAS —	EXISTING GAS LINE
— W —	EXISTING WATER LINE (W)	— FOP —	EXISTING FIBER OPTIC LINE
— RAW —	EXISTING RAW WATER LINE	⊗	EXISTING VALVE
— SS —	EXISTING SANITARY SEWER LINE	⊙	EXISTING SEWER MANHOLE
	EXISTING STORM SEWER	⊙	EXISTING STORM MANHOLE
— X —	EXISTING FENCE	⊗	EXISTING FIRE HYDRANT
— UGE —	EXISTING UNDERGROUND ELECTRIC	— — — — —	PROPOSED PIPE
— DHE —	EXISTING OVERHEAD ELECTRIC	⊗	PROPOSED VALVE
— PET —	EXISTING HIGH-PRESSURE PETROLEUM		
— TEL —	EXISTING TELEPHONE LINE		

PRE-EXCAVATION CHECKLIST

- PRE-EXCAVATION CHECKLIST
- Gas and Other Utility Lines Shown on Construction Plans
 - Utility Notification Center of Colorado (UNCC)—Call at Least Two (2) Business Days Ahead—1-800-922-1987
 - Utilities Located & Marked on the Ground
 - Employees Briefed on Marking and Color Codes*
 - Employees Trained on Excavation and Safety Procedures for Natural Gas Lines
 - When Excavation Approaches Gas Lines, Employees Must Expose Lines by Careful Probing and Hand-Digging

COLOR CODE FOR MARKING UNDERGROUND UTILITY LINES

WHITE	PROPOSED EXCAVATION
MAGENTA	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC
YELLOW	GAS, OIL, STEAM
ORANGE	COMMUNICATION, CTV
BLUE	POTABLE WATER
PURPLE	IRRIGATION, RECLAIMED WATER, SLURRY LINES
GREEN	SEWER

UNCC
UTILITY NOTIFICATION CENTER OF COLORADO
3 Days Before You Dig:
Call: 1-800-922-1987
Click: www.UNCC.org

ENGINEER'S STATEMENT:

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECTION AND SUPERVISION. SAID DETAILS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE STATE OF COLORADO.

B. Mangino
 RYAN MANGINO, P.E. #43304
 12/15/17
 COLORADO LICENSED PROFESSIONAL ENGINEER

G1

GENERAL NOTES

1. ALL UTILITY CONSTRUCTION TO BE CONDUCTED IN CONFORMANCE WITH THE CURRENT WOODMEN HILLS METROPOLITAN DISTRICT (WHMD, THE DISTRICT) SPECIFICATIONS.
2. ALL PLANS ON THE JOB SITE SHALL BE SIGNED BY THE DISTRICT AND THE DISTRICT'S ENGINEER. ANY REVISION TO THE PLANS SHALL BE SO NOTED WITH THE OLD DRAWING MARKED NOT VALID.
3. ALL STATIONING IS CENTER LINE UNLESS OTHERWISE NOTED. ALL ELEVATIONS ARE CENTER LINE UNLESS OTHERWISE NOTED.
4. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE DISTRICT. THE DISTRICT RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO ITS STANDARDS AND SPECIFICATIONS.
5. ALL OVER-LOT GRADING MUST BE COMPLETED TO WITHIN ONE (1) FOOT OF FINAL GRADE PRIOR TO INSTALLATION OF WATER AND WASTEWATER INFRASTRUCTURE.
6. ALL WATER AND SEWER SERVICE LOCATIONS SHALL BE CLEARLY MARKED ON EITHER THE CURB HEAD OR THE FACE OF THE CURB, WITH AN "S" FOR SEWER AND A "W" FOR WATER.
7. DUCTILE IRON PIPES, INCLUDING FITTINGS, VALVES AND FIRE HYDRANTS, SHALL BE WRAPPED WITH POLYETHYLENE TUBING, DOUBLE BONDED AT EACH JOINT AND ELECTRICALLY ISOLATED. BONDING AND ANODE CONNECTIONS SHALL BE THOROUGHLY COATED WITH BITUMINOUS COATINGS.
8. ALL DUCTILE IRON PIPE LESS THAN 12 INCHES AND FITTINGS SHALL HAVE CATHODIC PROTECTION USING TWO NO. 6 WIRES WITH 17 LB. MAGNESIUM ANODES EVERY 400 FEET AND 9 LB. MAGNESIUM ANODES AT EACH FITTING. ALL DUCTILE IRON PIPE 12 INCHES AND GREATER AND FITTINGS SHALL HAVE CATHODIC PROTECTION USING TWO NO. 6 WIRES WITH 17 LB. MAGNESIUM ANODES EVERY 300 FEET AND 9 LB. MAGNESIUM ANODES AT EACH FITTING.
9. ALL PIPE MATERIAL, BACKFILL AND INSTALLATION SHALL CONFORM TO THE APPLICABLE SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS, COLORADO DEPARTMENT OF TRANSPORTATION, EL PASO COUNTY DEPARTMENT OF TRANSPORTATION, COLORADO SPRINGS UTILITIES AND THE GEOTECHNICAL ENGINEER.
10. COMPACTION TESTS SHALL BE 95% MODIFIED PROCTOR AS DETERMINED BY ASTM D698, UNLESS OTHERWISE APPROVED BY THE DISTRICT OR HIGHER STANDARD AS IMPOSED BY ANOTHER AGENCIES HAVING RIGHT-OF-WAY JURISDICTION. THIS SHALL INCLUDE ALL VALVES, FIRE HYDRANT RUNS, WATER & SEWER SERVICE LINES AND MANHOLES. ALL REPORTS SHALL BE SUBMITTED TO THE DISTRICT FOR REVIEW AND APPROVAL.
11. THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY. THE LOCATION OF ALL UTILITIES SHALL BE FIELD VERIFIED PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. THE DISTRICT SHALL BE NOTIFIED OF ANY DEVIATIONS TO THE LINE AND/OR GRADE AS DEPICTED ON THE PLANS. CONTRACTOR SHALL SUBMIT TO THE DISTRICT AND THE ENGINEER OF RECORD A REPORT OF THE FIELD VERIFIED INFORMATION PRIOR TO THE START OF CONSTRUCTION.
12. ALL BENDS SHALL BE FIELD STAKED PRIOR TO THE START OF CONSTRUCTION.
13. BENDS, DEFLECTION & CUT PIPE LENGTHS SHALL BE USED TO HOLD HORIZONTAL ALIGNMENT OF SEWER AND WATER LINES TO NO MORE THAN 0.5' FROM THE DESIGNED ALIGNMENT. CONSTRUCTION STAKES TO BE AT 25' INTERVALS ALONG CURVES TO ASSURE LOCATION OF PIPE LINE CONSTRUCTION.
14. AT ALL LOCATIONS WHERE CAP AND STUB IS NOTED ON DRAWINGS, PROVIDE A PLUG AT THE END OF THE PIPE JOINT NEAREST THE SPECIFIED STATION. PROVIDE A REVERSE ANCHOR AT ALL WATER LINE PLUGS.
15. ALL UNUSED SALVAGED WATER UTILITY MATERIAL SHALL BE RETURNED TO THE DISTRICT AS REQUESTED.
16. AT THE CONTRACTOR'S EXPENSE, ALL UTILITY MAINS SHALL BE SUPPORTED AND PROTECTED SUCH THAT THEY SHALL FUNCTION CONTINUOUSLY DURING CONSTRUCTION OPERATIONS. SHOULD A UTILITY MAIN FAIL AS A RESULT OF THE CONTRACTOR'S OPERATION, IT SHALL BE REPLACED IMMEDIATELY BY THE CONTRACTOR OR BY THE DISTRICT AT FULL COST OF LABOR AND MATERIALS TO THE CONTRACTOR/DEVELOPER.
17. PUMPING OR BYPASS OPERATIONS SHALL BE REVIEWED AND APPROVED BY BOTH THE DISTRICT AND THE DISTRICT ENGINEER PRIOR TO EXECUTION.
18. THE CONTRACTOR SHALL REPLACE OR REPAIR DAMAGE TO ALL SURFACE IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO FENCES, LANDSCAPING, CURB AND GUTTER AND/OR ASPHALT THAT MAY BE CAUSED DURING CONSTRUCTION.
19. ALL CONTRACTORS WORKING ON OR NEAR A WATER OR SEWER FACILITY (TO INCLUDE SERVICE LINES) SHALL HAVE LIABILITY INSURANCE NAMING THE DISTRICT AS AN ADDITIONAL INSURED AND SHALL PROVIDE A CURRENT COPY OF WORKERS COMPENSATION INSURANCE ON FILE WITH THE DISTRICT. NO WORK CAN PROCEED WITHOUT CURRENT CERTIFICATES ON FILE AT THE DISTRICTS' OFFICE.
20. THE CONTRACTOR SHALL NOTIFY THE DISTRICT AND ALL AFFECTED UTILITY COMPANIES ADJACENT TO THE PROPOSED UTILITY CONSTRUCTION A MINIMUM OF 48 HOURS AND A MAXIMUM OF 96 HOURS PRIOR TO THE START OF CONSTRUCTION. A WEEKLY CONSTRUCTION MEETING SHALL BE REQUIRED WITH THE CONTRACTOR, DISTRICT ENGINEER AND ALL OTHER PARTIES AS DEEMED NECESSARY BY THE DISTRICT.
21. COMMENCEMENT OF CONSTRUCTION OF WATER/SEWER SYSTEMS WITHIN METROPOLITAN DISTRICT:
 - a) PRIOR TO THE START OF CONSTRUCTION, A PRE-CONSTRUCTION MEETING IS REQUIRED A MINIMUM OF 48 HOURS IN ADVANCE OF COMMENCEMENT OF WORK. A REPRESENTATIVE OF THE OWNER OR DEVELOPER, A REPRESENTATIVE OF THE CONTRACTOR AND DESIGN ENGINEER ARE REQUIRED TO ATTEND. CONTACT THE DISTRICT TO SCHEDULE THE PRE-CONSTRUCTION MEETING. NO PRE-CONSTRUCTION MEETING CAN BE SCHEDULED PRIOR TO FOUR (4) SIGNED/APPROVED PLAN SETS ARE RECEIVED BY THE DISTRICT.
 - b) THE CONTRACTOR IS REQUIRED TO NOTIFY THE DISTRICT A MINIMUM OF 48 HOURS AND A MAXIMUM OF 2 WEEKS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL ALSO NOTIFY AFFECTED UTILITY COMPANIES AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION ADJACENT TO THE KNOWN UTILITY LINES.
22. TESTING OF FACILITIES:
 - a) THE CONTRACTOR SHALL NOTIFY THE DISTRICT A MINIMUM OF 48 HOURS AND A MAXIMUM OF 96 HOURS PRIOR TO THE START OF ANY TESTING.
 - b) ALL SECTIONS OF WATER LINE ARE TO MEET THE FOLLOWING PRESSURE TESTING REQUIREMENTS
 - TEST 100 % OF ALL LINES
 - MUST PASS PRESSURE TEST TO 200 PSI FOR TWO HOURS (UNLESS OTHERWISE APPROVED ON THE PLANS).
 - c) ALL SANITARY SEWER FACILITIES ARE TO MEET THE FOLLOWING TESTING REQUIREMENTS
 - ALL LINES SHALL BE JET CLEANED PRIOR TO VACUUM OR PRESSURE TESTING
 - ALL MANHOLES SHALL BE VACUUM TESTED WITH DISTRICT STAFF PRESENT PRIOR TO CCTV INSPECTION.
 - SEWER MAINS TO BE PRESSURE TEST PRIOR TO CCTV INSPECTION
 - ALL LINES SHALL BE CCTV INSPECTED AND VIDEO SHALL TO BE SUBMITTED TO THE DISTRICT FOR REVIEW AND APPROVAL.
23. PRELIMINARY ACCEPTANCE SHALL BE DEFINED AS THE POINT IN TIME THAT THE DISTRICT ACCEPTS THE FACILITY FOR USE. ALL SURFACE IMPROVEMENTS AND RESTORATION SHALL BE COMPLETED WITHIN 30 DAYS OF COMMENCEMENT. SHOULD THE CONTRACTOR FAIL TO COMPLETE ALL SURFACE IMPROVEMENTS AND RESTORATION WITHIN 30 DAYS OF COMMENCEMENT OF SERVICE, THE DISTRICT, AT THEIR DISCRETION, MAY ELECT TO COMPLETE THE IMPROVEMENTS AT THE CONTRACTORS COST.
24. FINAL ACCEPTANCE BY THE DISTRICT OF ANY LINE OR SYSTEM SHALL NOT OCCUR UNTIL COMPLETION OF FINAL ASPHALT LAYERS AND/OR FINAL COMPLETION AND/OR RESTORATION OF ALL SURFACE IMPROVEMENTS. THE WARRANTY PERIOD FOR ALL FACILITIES PRIOR TO FINAL ACCEPTANCE SHALL BE 24 MONTHS COMMENCING AFTER PRELIMINARY ACCEPTANCE.

25. ACCEPTANCE:

- a) THE DISTRICT MAY GIVE PRELIMINARY ACCEPTANCE ONCE ALL OF THE TESTS ON ALL THE LINES HAVE BEEN COMPLETED AND A WALK-THRU HAS OCCURRED.
 - b) A SECOND ACCEPTANCE MAY OCCUR ONCE FIRST LIFT OF ASPHALT GOES DOWN AND A SECOND WALK-THRU OF THE SYSTEM OCCURS. IF ALL FACILITIES ARE CLEAN AND ACCESSIBLE, A FINAL ACCEPTANCE MAY OCCUR (THE DISTRICT MAY REQUIRE CLEANING AND RE-VIDEO OF THE SYSTEM, DEPENDING ON THE SEVERITY OF THE CONTAMINATION).
26. ALL WATER AND SEWER MAINS, INCLUDING SERVICE LINES, SHALL HAVE "AS-BUILT" DRAWINGS PREPARED AND APPROVED PRIOR TO PRELIMINARY ACCEPTANCE BY THE DISTRICT.
27. ALL COMMERCIAL/BUSINESS DEVELOPMENTS SHALL HAVE AN EIGHT INCH (MIN.) WATER MAIN LOOPED THROUGH THE PROPOSED PROPERTY WITH GATE VALVES LOCATED WHERE THE MAIN ENTERS THE PROPERTY LINE. AN EIGHT INCH SEWER MAIN SHALL BE INSTALLED FOR SERVICE TO COMMERCIAL/BUSINESS DEVELOPMENTS, AND A MANHOLE SHALL BE LOCATED WHERE THE MAIN ENTERS THE PROPERTY. THE END OF THE MAINS SHALL BE MARKED WITH THE APPROPRIATE COLORED CARSONITE MARKER ALONG WITH TRACER WIRE.
28. AFTER REVIEW AND APPROVAL OF PLANS FOR THE EXTENSION OF LINES, FACILITIES AND/OR SERVICES, CONSTRUCTION MUST BE COMMENCED WITHIN 18 MONTHS FOR RESIDENTIAL SUBDIVISIONS AND 12 MONTHS FOR ANY COMMERCIAL INSTALLATIONS.
29. INSPECTION FEES: CALL THE DISTRICT (719-495-2500) FOR FEE SCHEDULE.

WATER SYSTEM INSTALLATION NOTES

30. ALL WATER AND FORCE MAIN PIPE SHALL BE AWWA C900 PVC, OR EQUAL, PRESSURE CLASS 200. ALL WATER AND FORCE MAIN FITTINGS SHALL HAVE MECHANICAL RESTRAINTS AND THRUST BLOCKS. ALL WATER AND FORCE MAIN PIPE SHALL HAVE A MINIMUM COVER DEPTH OF FIVE AND ONE-HALF (5.5) FEET.
31. IN GENERAL, WATER MAINS SHALL BE DESIGNED TO HAVE TEN FEET (10') HORIZONTAL SEPARATION FROM POSSIBLE SOURCES OF POLLUTION. WHEN THE HORIZONTAL SEPARATION IS NOT ACHIEVABLE, THEN THE WATER MAIN SHALL BE DESIGNED SO THAT THE BOTTOM OF THE WATER MAIN IS TWO (2) FEET ABOVE THE TOP OF ANY SEWER PIPE. WHEN TWO FEET OF VERTICAL SEPARATION CANNOT BE ACHIEVED, THEN THE WATER MAIN WILL BE CONSTRUCTED IN TWENTY-FOOT (20') SECTIONS OF DUCTILE IRON WITH NO JOINTS ON THE SEWER PIPE. THE TWENTY-FOOT SECTION SHALL BE CENTERED ABOVE THE SEWER PIPE WITH TEN FEET (10') TO EACH JOINT. WHEN SEPARATION CAN NOT BE ACHIEVED, CASING MAY BE USED UPON WRITTEN REQUEST TO THE DISTRICT ENGINEER FOR CONSIDERATION.
32. ALL WATER VALVES ASSOCIATED WITH THE POTABLE WATER SYSTEM SHALL BE OPEN CLOCKWISE. ALL VALVES INSTALLED IN LANDSCAPED AREAS AND/OR NOT WITHIN PAVED STREETS SHALL BE MARKED WITH CARSONITE MARKERS. ALL VALVES ASSOCIATED WITH THE RAW WATER SYSTEM SHALL BE OPEN COUNTERCLOCKWISE AND MARKED WITH CARSONITE MARKERS AS APPLICABLE.
33. FIRE HYDRANTS SHALL BE OPEN RIGHT WITH 7/8" X 7/8" SQUARE TAPERED ALONG WITH SERVICE CAPS. LUBRICATION TYPE: (GREASE). ACCEPTABLE BRANDS ARE AMERICAN AVK SERIES 2700 (MODERN) AND MUELLER SUPER CENTURION 250.
34. ALL MAIN LINES (PVC & DUCTILE IRON) SHALL BE INSTALLED WITH COATED #12 TRACER WIRE WITH TEST STATIONS AT INTERVALS NO GREATER THAN 500 FT (VALVE BOXES CAN BE USED AT INTERSECTIONS AND SERVICE STUBS).
35. CONTRACTOR SHALL MAKE CONNECTIONS TO EXISTING WATER LINE WITHOUT SHUTDOWN, OR ELSE NOTIFY THE DISTRICT OF ANY SERVICE SHUTDOWNS NECESSARY TO CONNECT TO EXISTING LINES.
36. IRRIGATION SERVICES SHALL HAVE A STOP AND WASTE CURB STOP VALVE INSTALLED ALONG WITH TRACER WIRE EXTENDING BACK TO THE MAIN LINE.
37. COMMENCEMENT OF USE OF WATER LINES AND/OR SYSTEMS:
 - a) NO WATER FACILITY SHALL BE PLACED IN SERVICE UNTIL AFTER THE COMPLETION OF ALL PRESSURE TESTING, FLUSHING, BAC-T TESTING, COMPACTION TESTING, AND AS-BUILT DRAWINGS ARE SUBMITTED AND APPROVED BY THE DISTRICT.
 - b) NO WATER FACILITY SHALL BE PLACED IN SERVICE UNTIL ALL SERVICE LINES ARE COMPLETED AND THE FIRST LIFT OF ASPHALT IS COMPLETED OVER THE LINE. IN THE CASE WHERE NO ASPHALT IS TO BE PLACED OVER THE LINE, SURFACE IMPROVEMENTS SHALL BE COMPLETED PRIOR TO USE OF THE FACILITY.
 - c) ALL EASEMENTS (PLATTED OR DEEDED) ARE DEDICATED, EXECUTED BY THE DISTRICT, AND RECORDED.

WASTEWATER SYSTEM INSTALLATION NOTES

38. SANITARY SEWER LENGTHS ARE MANHOLE CENTER TO MANHOLE CENTER. ALL SANITARY SEWER PIPES SHALL BE SDR 35 PVC OR EQUAL. SEWER LINES MAY NOT EXCEED 7% GRADE FOR ANY SIZE WITHOUT PRIOR APPROVAL OF THE DISTRICT. ALL NEWLY CONSTRUCTED RESIDENTIAL SANITARY SEWER TAPS SHALL USE PRE-MANUFACTURED IN-LINE PVC PUSH-ON WYES. TAPPING SADDLES MAY ONLY BE USED FOR TAPPING PRE-EXISTING MAINS.
39. ALL SANITARY SEWER MANHOLES SHALL BE WRAPPED WITH RU116 - RUBR-NEK JOINT WRAP OR EQUIVALENT AND COATED.
40. COMMENCEMENT OF USE OF SEWER LINES AND/OR SYSTEMS:
 - a) NO SANITARY SEWER FACILITY SHALL BE PLACED IN SERVICE UNTIL THE COMPLETION OF ALL JET CLEANING, PRESSURE TESTING, VACUUM TESTING, CCTV INSPECTION, COMPACTION TESTING, AND AS-BUILT DRAWINGS ARE SUBMITTED AND APPROVED BY THE DISTRICT.
 - b) NO SANITARY SEWER FACILITY SHALL BE PLACED IN SERVICE UNTIL ALL SERVICE LINES ARE COMPLETED AND THE FIRST LIFT OF ASPHALT IS COMPLETED OVER THE LINE. IN THE CASE WHERE NO ASPHALT IS TO BE PLACED OVER THE LINE, ANY REQUIRED SURFACE IMPROVEMENTS SHALL BE COMPLETED PRIOR TO USE OF THE FACILITY.
 - c) ALL NECESSARY EASEMENTS (PLATTED OR DEEDED) ARE DEDICATED, EXECUTED BY THE DISTRICT, AND RECORDED.
 - d) DOWNSTREAM PLUG CAN BE REMOVED ONCE FIRST LIFT OF ASPHALT IS DOWN AND THE ABOVE REQUIREMENTS ARE MET.

THE ABOVE GUIDELINES ARE SUBJECT TO CHANGE AT ANY TIME.

CABLE
FALCON BROADBAND (719) 573-5343
COMCAST (800) 266-2278

ELECTRIC
MOUNTAIN VIEW ELECTRIC ASSOC. (719) 495-2283

GAS
CSU GAS (719) 448-4800

DRAINAGE
EL PASO COUNTY (719) 520-6300

TRANSPORTATION
EL PASO COUNTY PUBLIC WORKS DEPARTMENT
(719) 520-6300

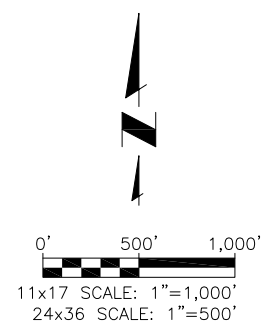
TELEPHONE
ICG (719) 593-2165
AT&T (800) 222-0300
QWEST (800) 244-1111

WATER AND SANITARY SEWER
WOODMEN HILLS METRO DISTRICT (719) 495-2500



FOUR WAY RANCH METROPOLITAN DISTRICT
 FORCE MAIN
 GENERAL NOTES

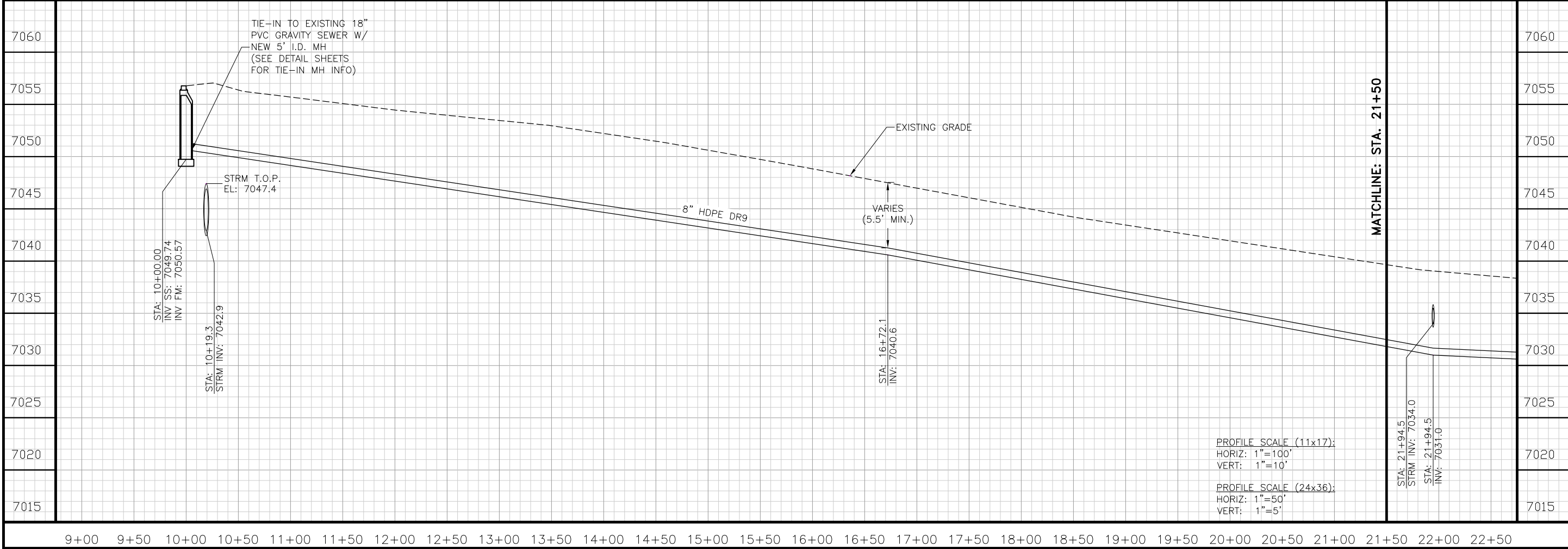
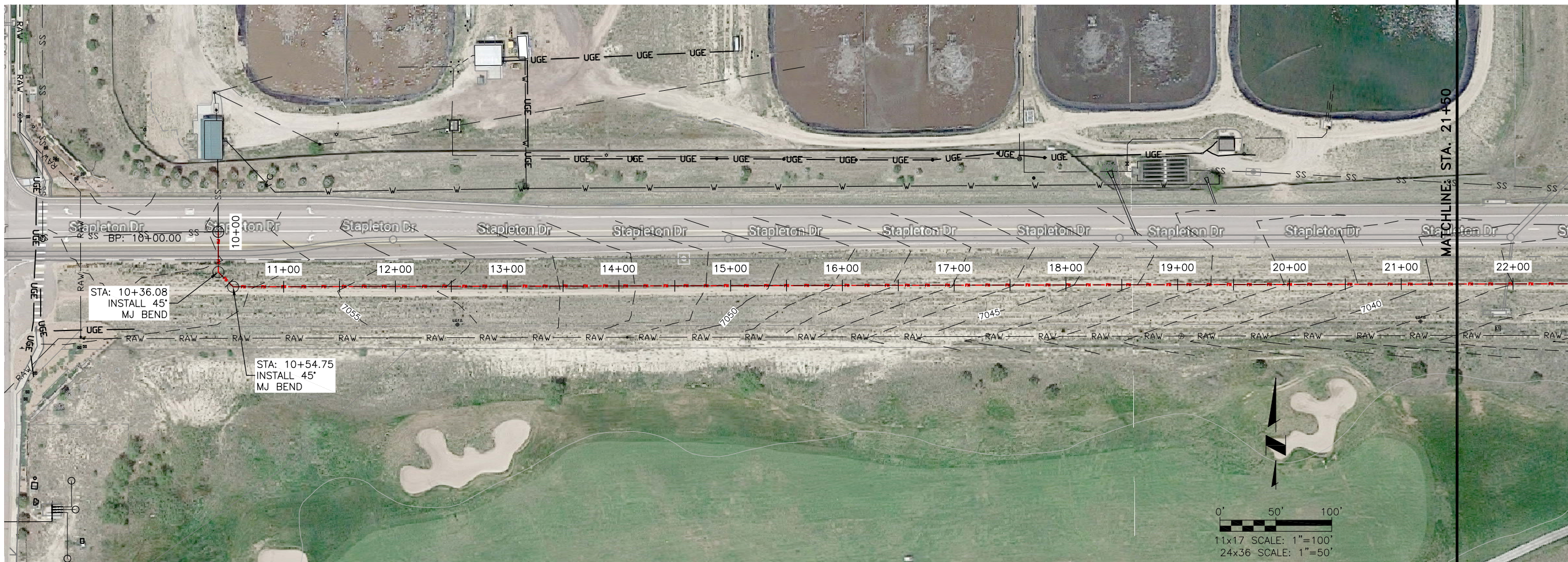
Project No.:	136.12
Scale:	AS NOTED
Date:	12/15/17
Design:	RMM
Drawn:	RMM
Check:	JPM
Revised:	



JDS-HYDRO CONSULTANTS, INC.
 545 EAST PIKES PEAK AVENUE, SUITE 300
 COLORADO SPRINGS, COLORADO 80903
 (719) 227-0072

**FOUR WAY RANCH METROPOLITAN DISTRICT
 FORCE MAIN
 OVERALL SITE PLAN**

Project No.:	136.12
Scale:	AS NOTED
Date:	12/15/17
Design:	RMM
Drawn:	RMM
Check:	JPM
Revised:	

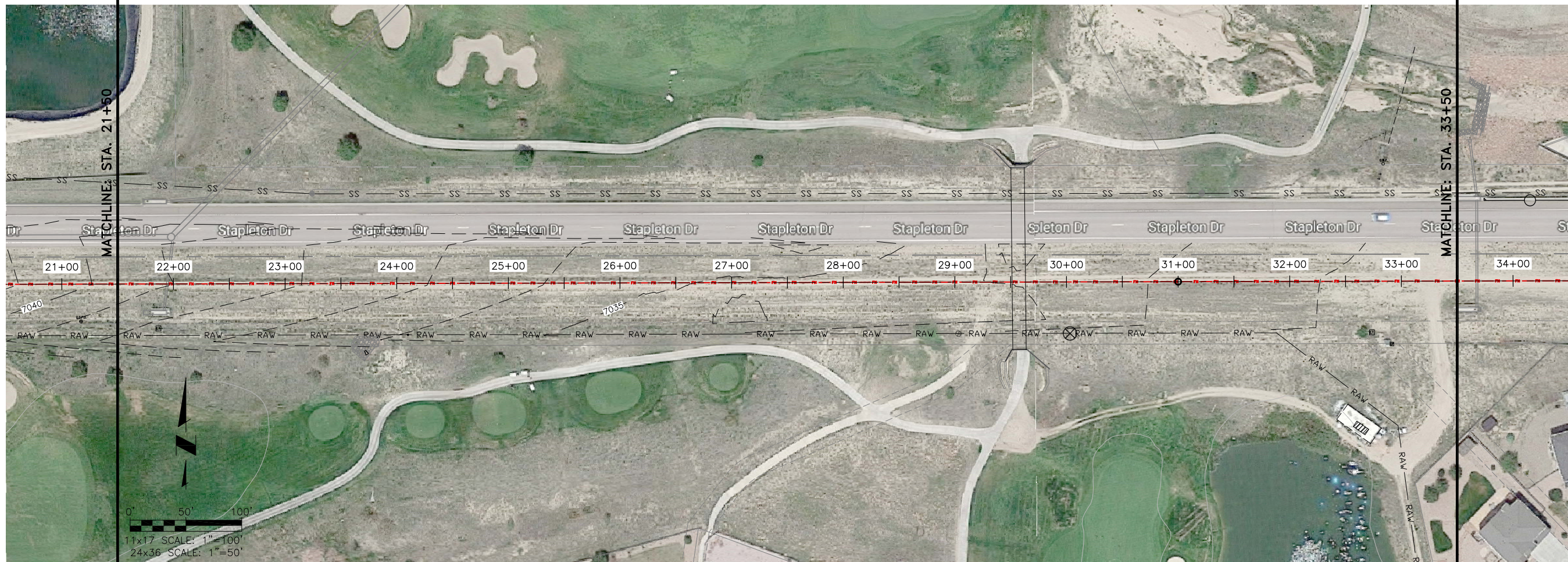


PROFILE SCALE (11x17):
 HORIZ: 1"=100'
 VERT: 1"=10'

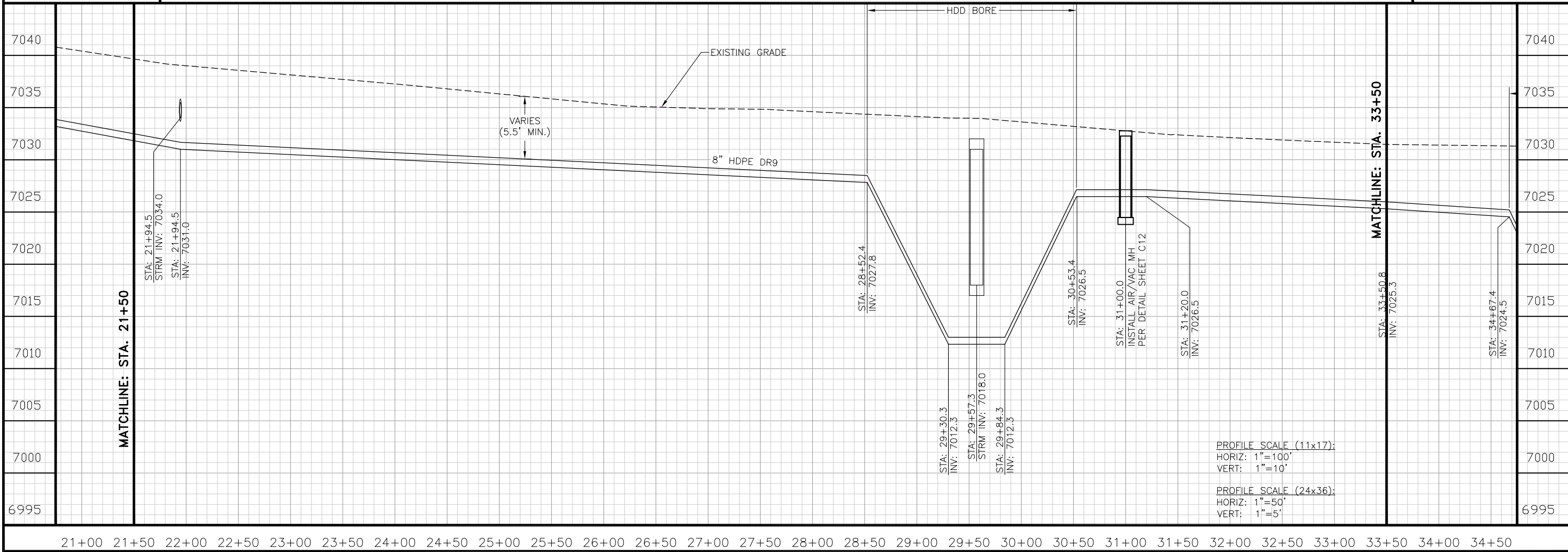
PROFILE SCALE (24x36):
 HORIZ: 1"=50'
 VERT: 1"=5'

**FOUR WAY RANCH METROPOLITAN DISTRICT
 FORCE MAIN
 PLAN & PROFILE**
 STA: 10+00 - 21+50

Project No.: 136.12
Scale: AS NOTED
Date: 02/15/17
Design: RMM
Drawn: RMM
Check: JPM
Revised:



11x17 SCALE: 1"=100'
24x36 SCALE: 1"=50'



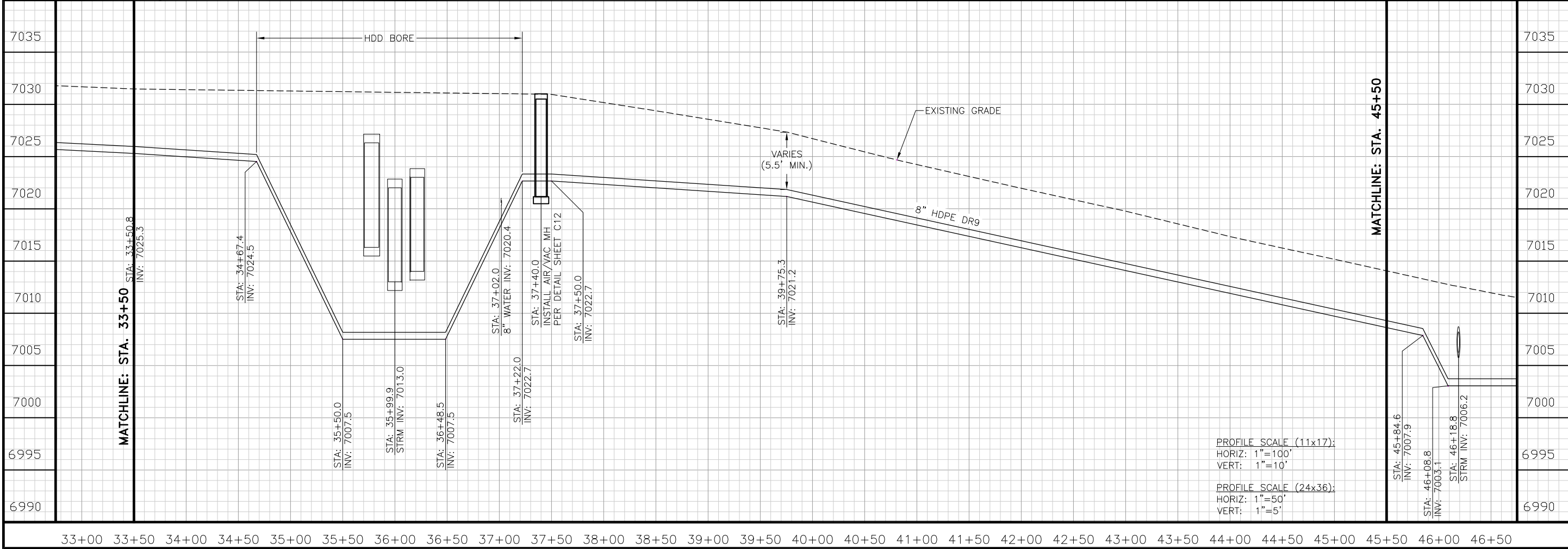
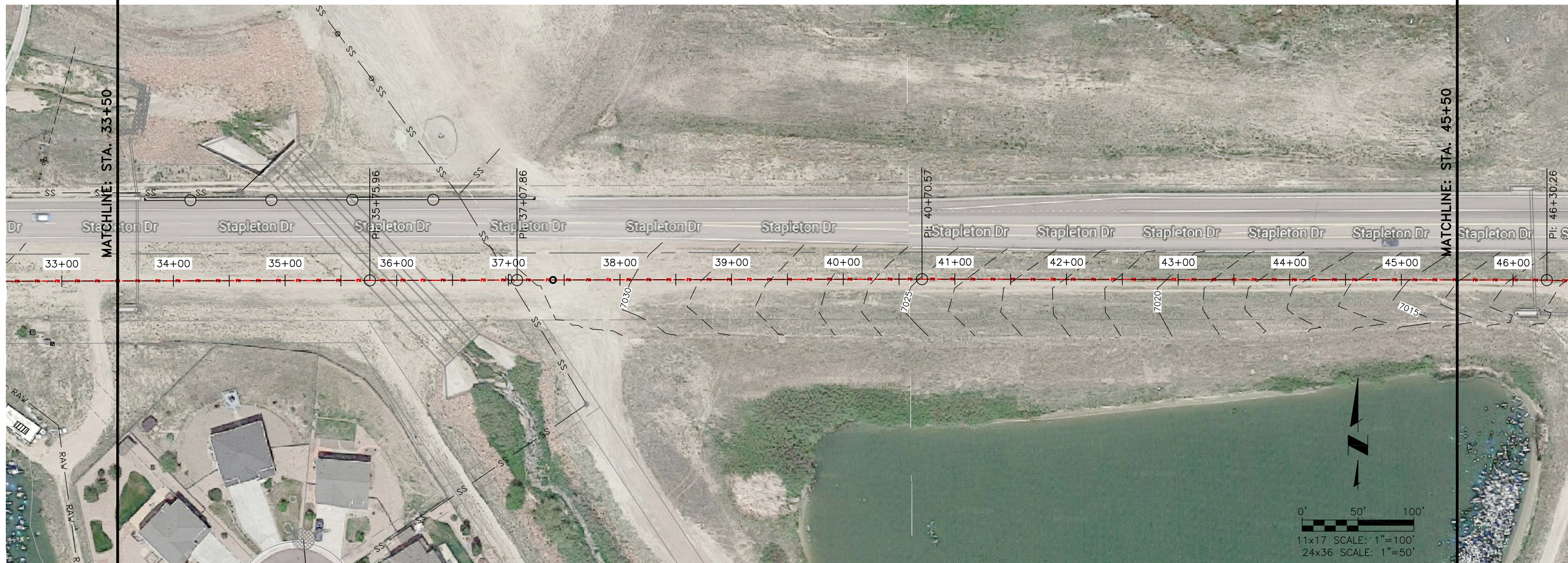
PROFILE SCALE (11x17):
HORIZ: 1"=100'
VERT: 1"=10'

PROFILE SCALE (24x36):
HORIZ: 1"=50'
VERT: 1"=5'

FOUR WAY RANCH METROPOLITAN DISTRICT
FORCE MAIN
PLAN & PROFILE
STA: 21+50 - 33+50

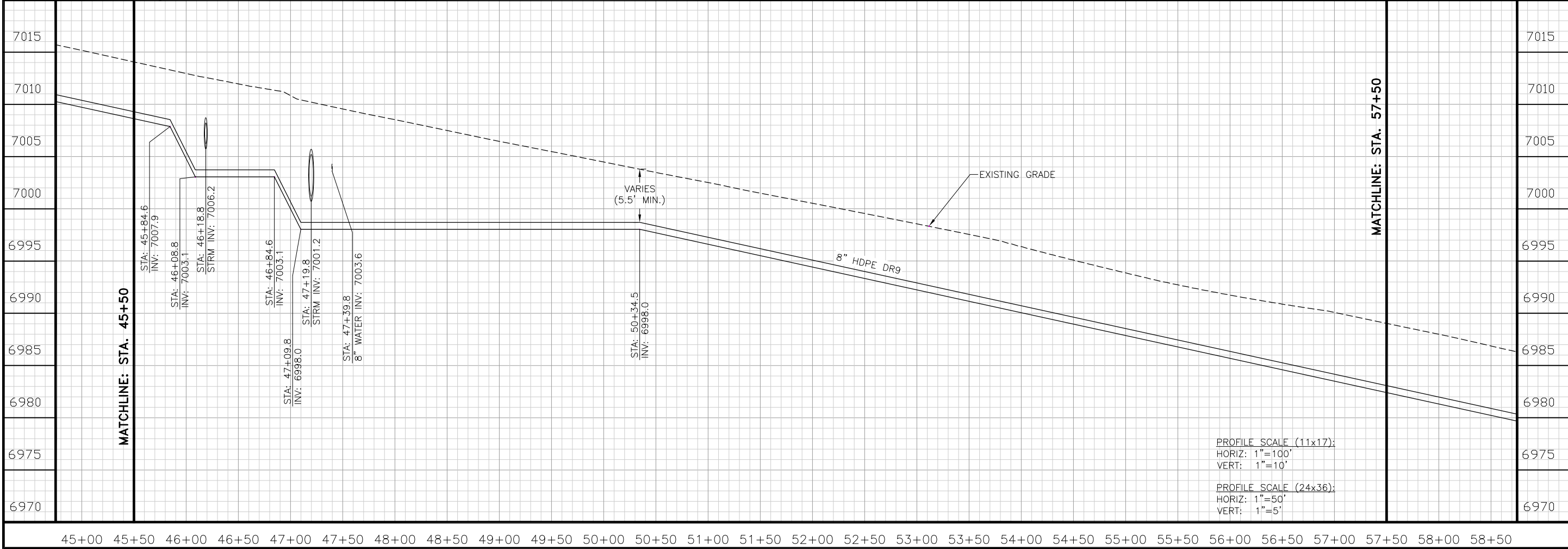
Project No.:	136.12
Scale:	AS NOTED
Date:	12/15/17
Design:	RMM
Drawn:	RMM
Check:	JPM
Revised:	

JDS-HYDRO CONSULTANTS, INC.
545 EAST PIKES PEAK AVENUE, SUITE 300
COLORADO SPRINGS, COLORADO 80903
(719) 227-0072



**FOUR WAY RANCH METROPOLITAN DISTRICT
 FORCE MAIN
 PLAN & PROFILE**
 STA: 33+50 - 45+50

Project No.:	136.12
Scale:	AS NOTED
Date:	12/15/17
Design:	RMM
Drawn:	RMM
Check:	JPM
Revised:	

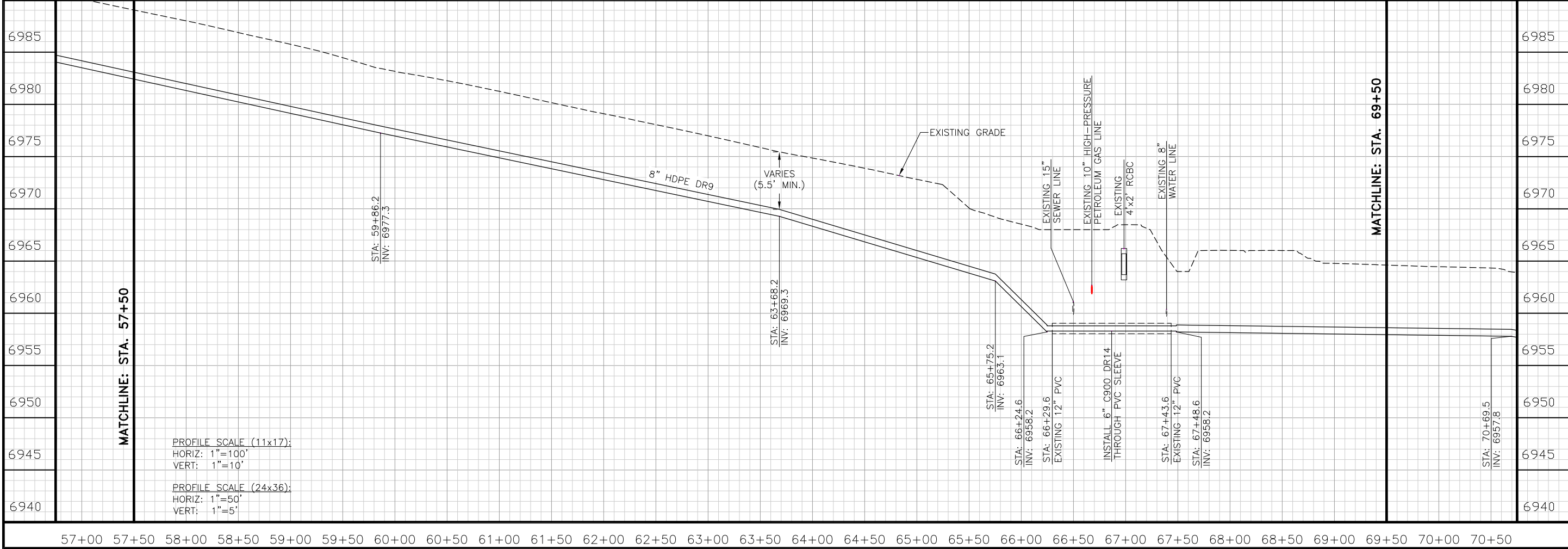
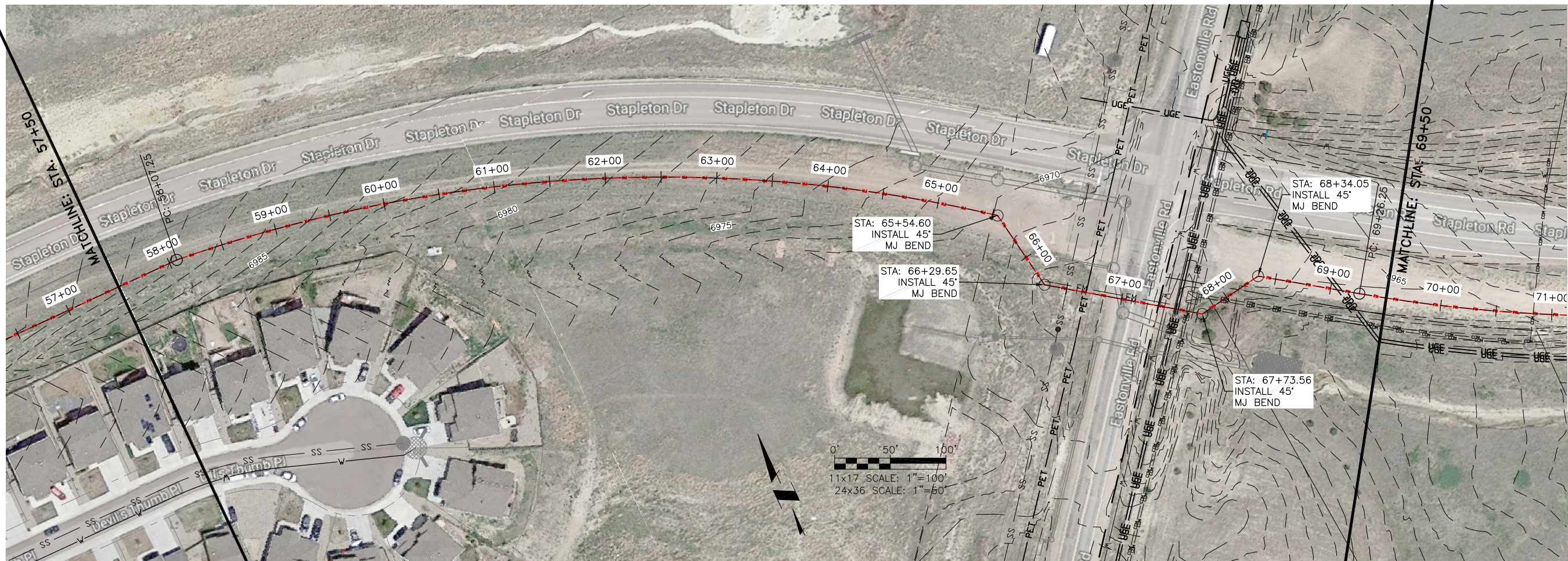


PROFILE SCALE (11x17):
 HORIZ: 1"=100'
 VERT: 1"=10'

PROFILE SCALE (24x36):
 HORIZ: 1"=50'
 VERT: 1"=5'

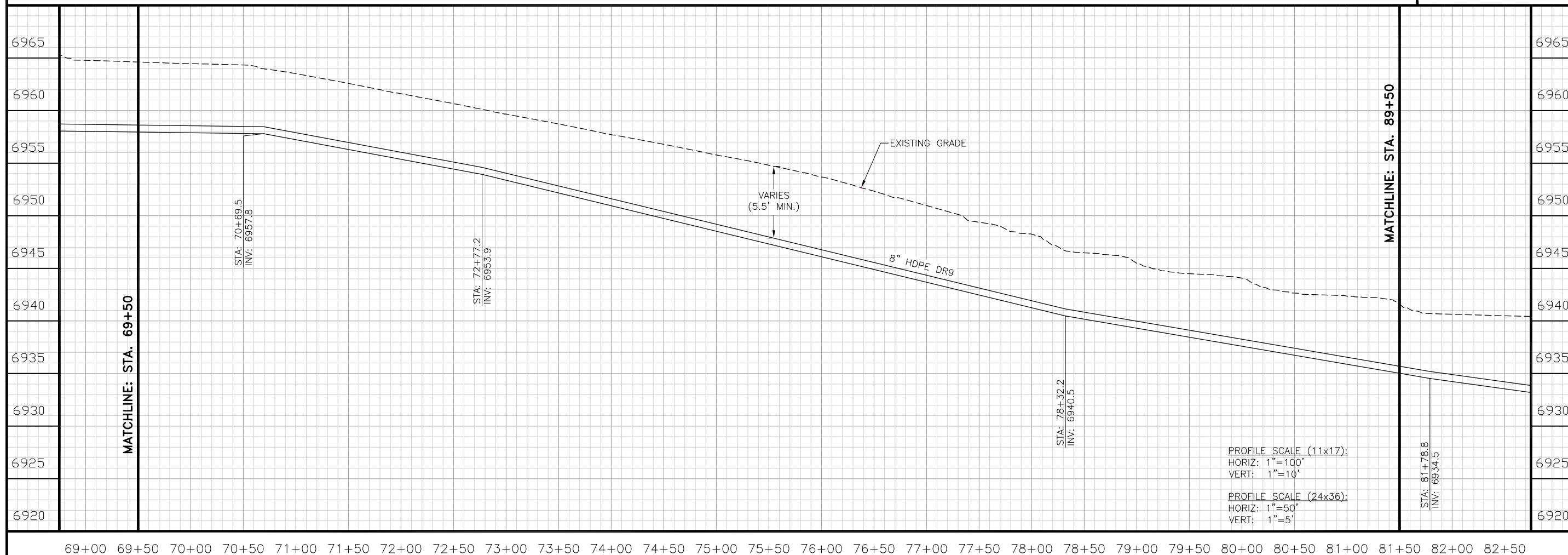
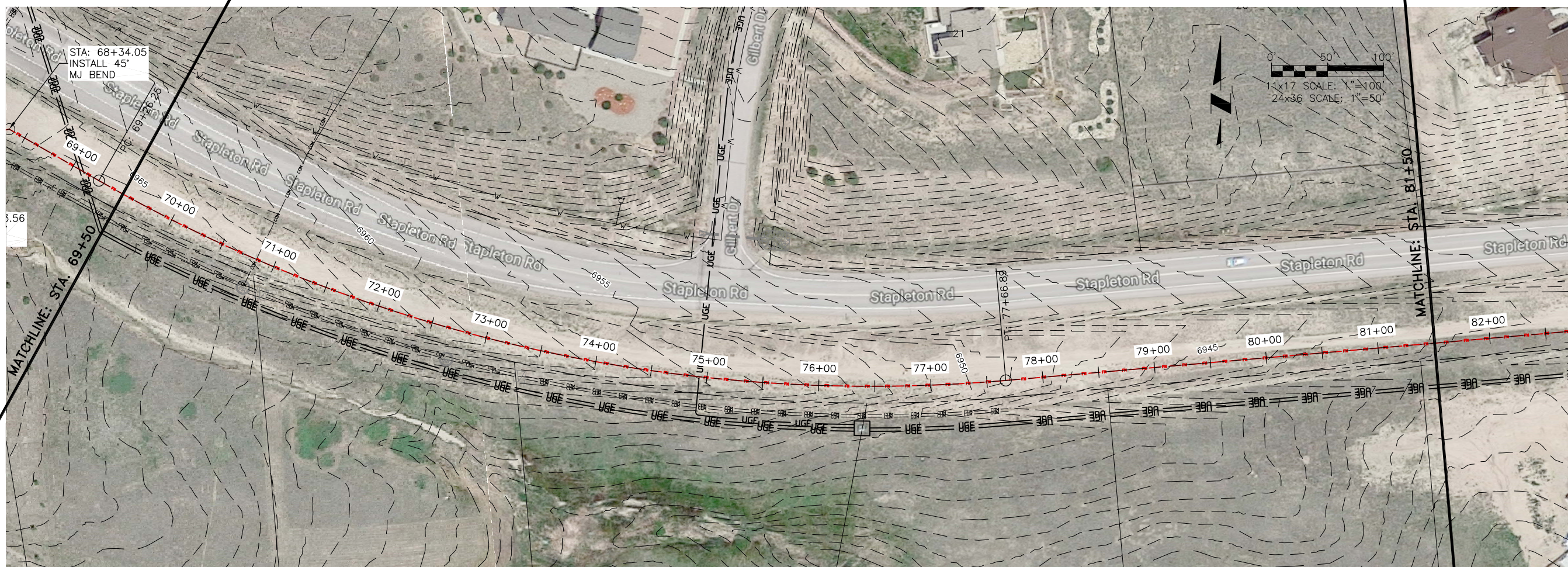
**FOUR WAY RANCH METROPOLITAN DISTRICT
 FORCE MAIN
 PLAN & PROFILE**
 STA: 45+50 - 57+50

Project No.: 136.12
 Scale: AS NOTED
 Date: 12/15/17
 Design: RMM
 Drawn: RMM
 Check: JPM
 Revised:



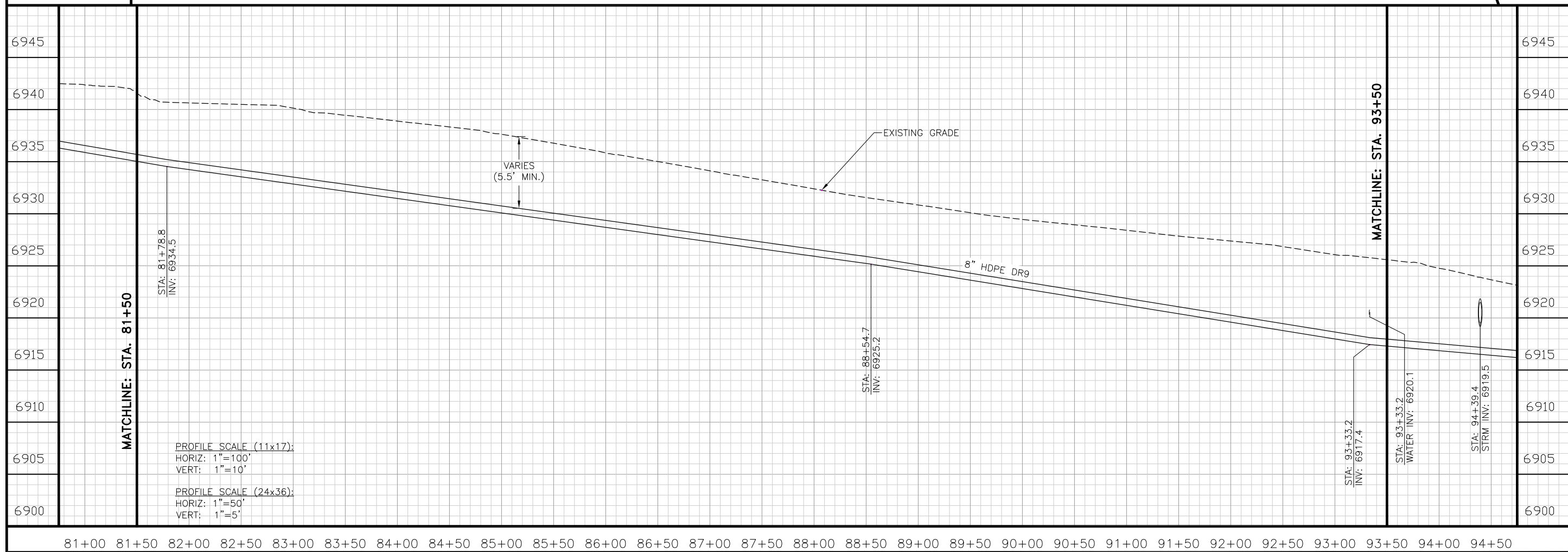
**FOUR WAY RANCH METROPOLITAN DISTRICT
FORCE MAIN
PLAN & PROFILE**
STA: 57+50 - 69+50

Project No.: 136.12
Scale: AS NOTED
Date: 12/15/17
Design: RMM
Drawn: RMM
Check: JPM
Revised:



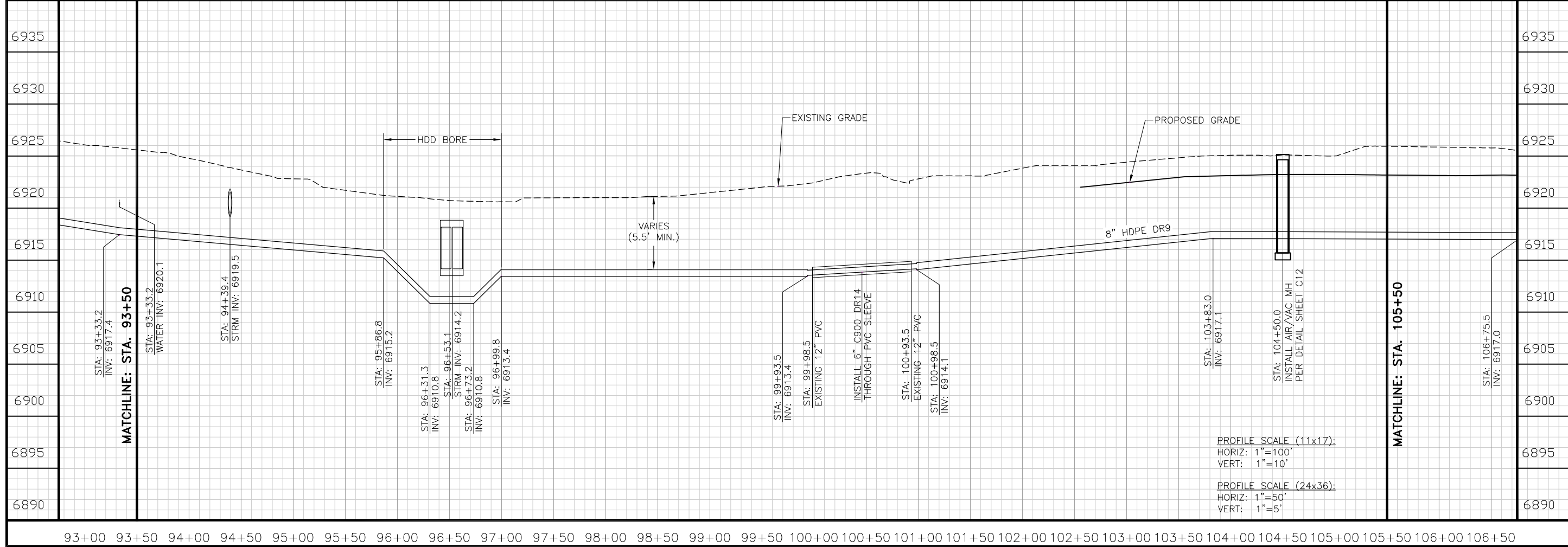
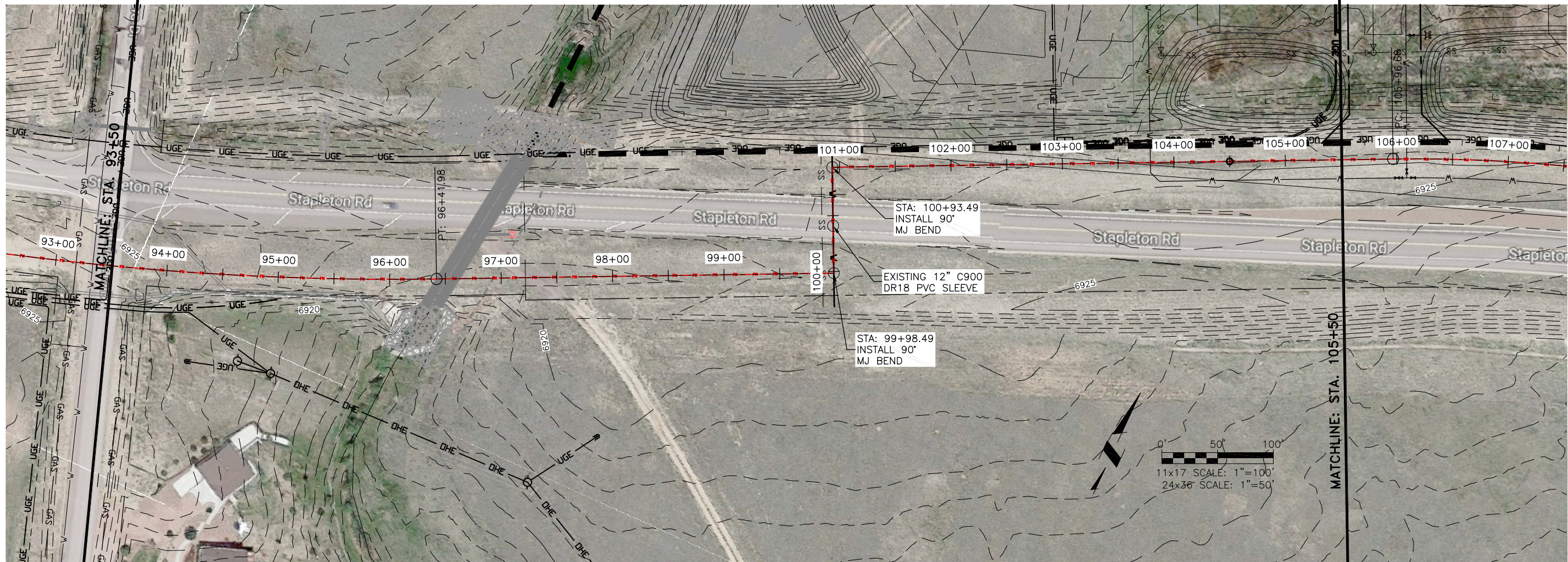
**FOUR WAY RANCH METROPOLITAN DISTRICT
 FORCE MAIN
 PLAN & PROFILE**
 STA: 69+50 - 81+50

Project No.: 136.12
Scale: AS NOTED
Date: 12/15/17
Design: RMM
Drawn: RMM
Check: JPM
Revised:



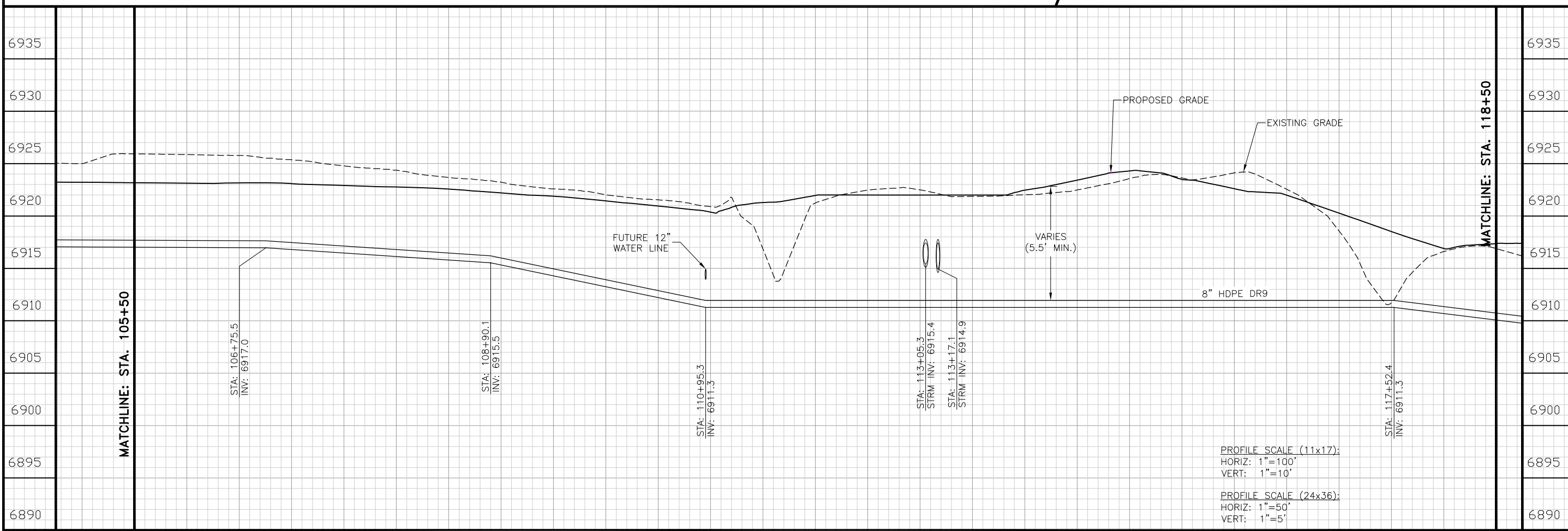
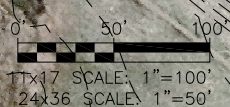
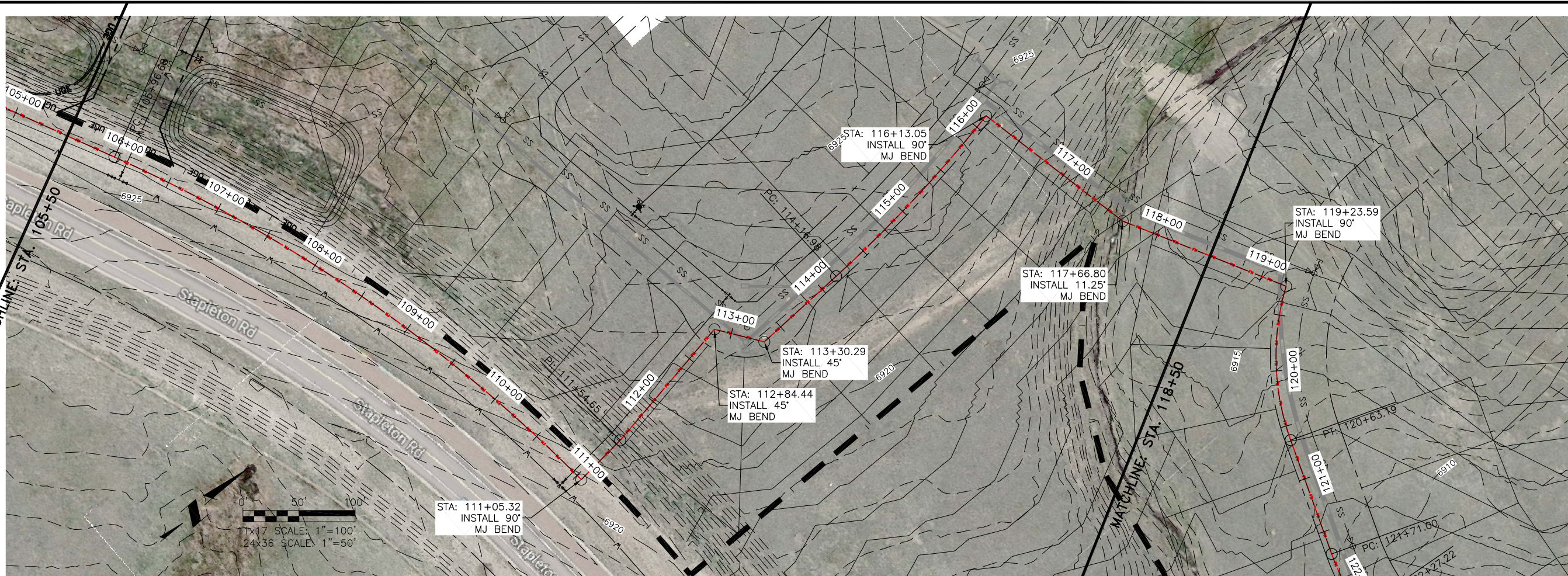
FOUR WAY RANCH METROPOLITAN DISTRICT
FORCE MAIN
PLAN & PROFILE
 STA: 81+50 - 93+50

Project No.: 136.12
Scale: AS NOTED
Date: 12/15/17
Design: RMM
Drawn: RMM
Check: JPM
Revised:



**FOUR WAY RANCH METROPOLITAN DISTRICT
 FORCE MAIN
 PLAN & PROFILE
 STA: 93+50 - 105+50**

Project No.:	136.12
Scale:	AS NOTED
Date:	12/15/17
Design:	RMM
Drawn:	RMM
Check:	JPM
Revised:	

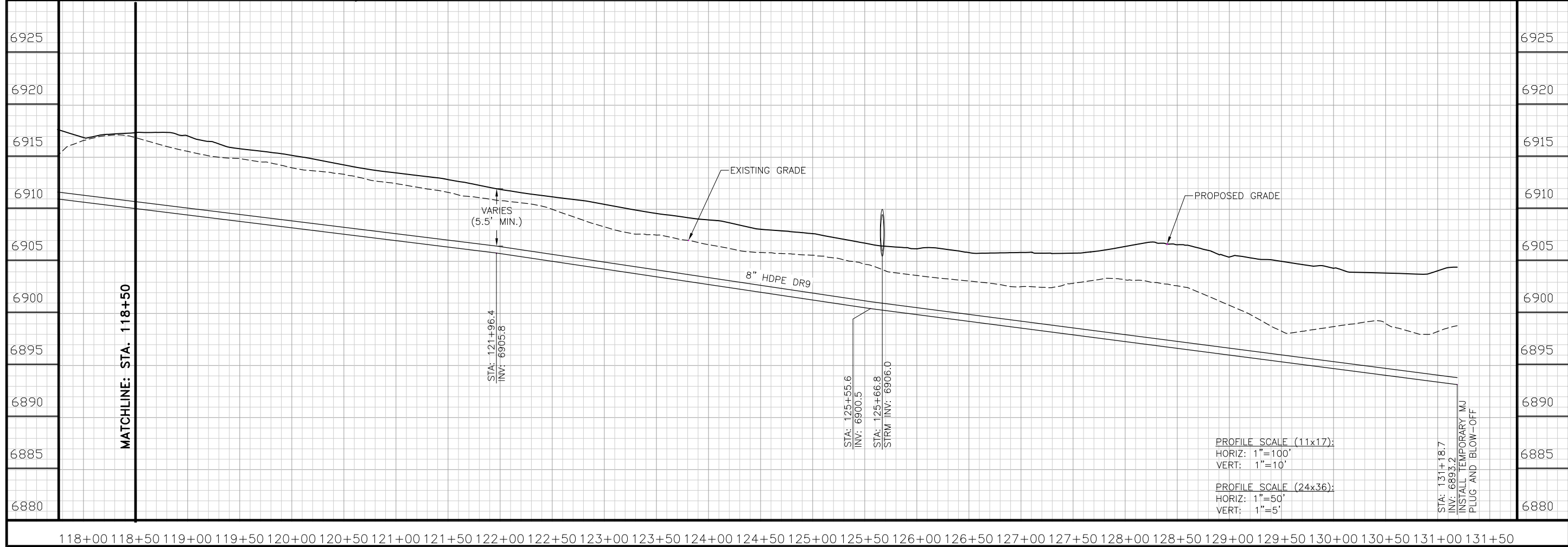
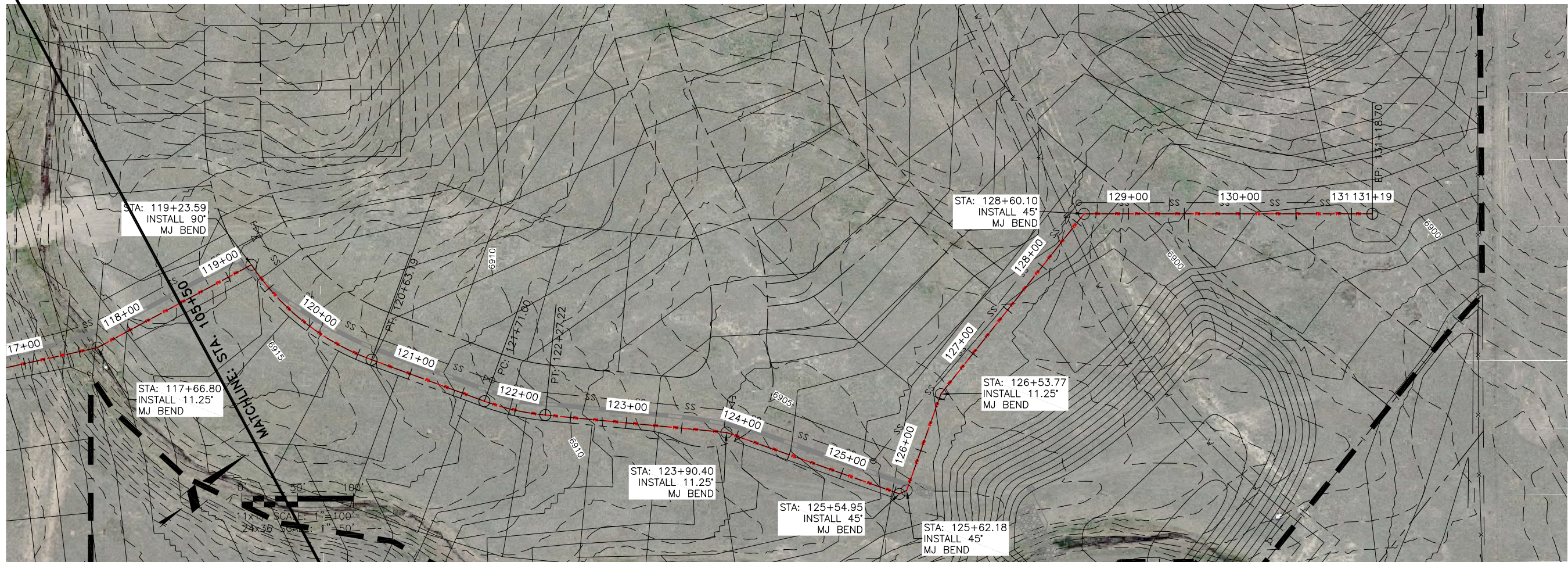


105+00 105+50 106+00 106+50 107+00 107+50 108+00 108+50 109+00 109+50 110+00 110+50 111+00 111+50 112+00 112+50 113+00 113+50 114+00 114+50 115+00 115+50 116+00 116+50 117+00 117+50 118+00 118+50

JDS-HYDRO CONSULTANTS, INC.
 545 EAST PIKES PEAK AVENUE, SUITE 300
 COLORADO SPRINGS, COLORADO 80903
 (719) 227-0072

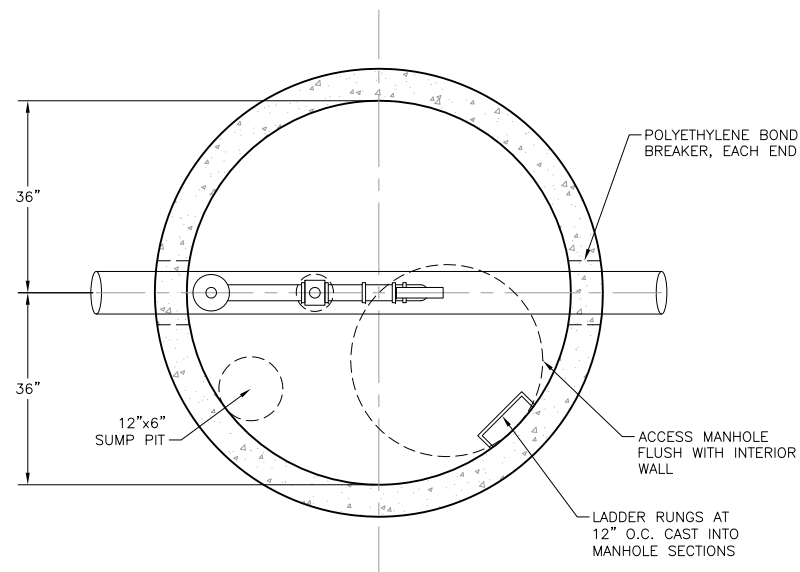
**FOUR WAY RANCH METROPOLITAN DISTRICT
 FORCE MAIN
 PLAN & PROFILE**
 STA: 105+50 - 118+50

Project No.:	136.12
Scale:	AS NOTED
Date:	12/15/17
Design:	RMM
Drawn:	RMM
Check:	JPM
Revised:	

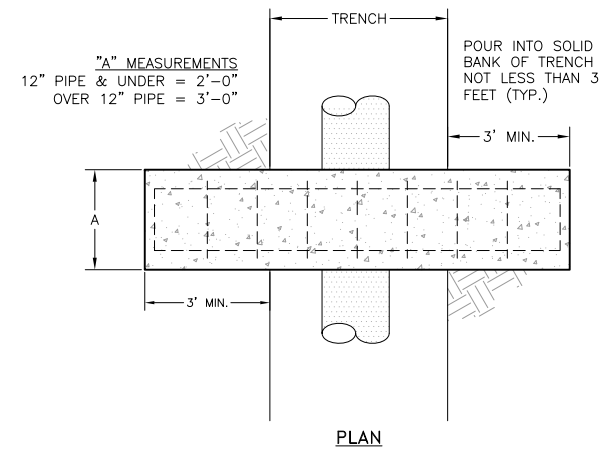


**FOUR WAY RANCH METROPOLITAN DISTRICT
 FORCE MAIN
 PLAN & PROFILE**
 STA: 118+50 - END

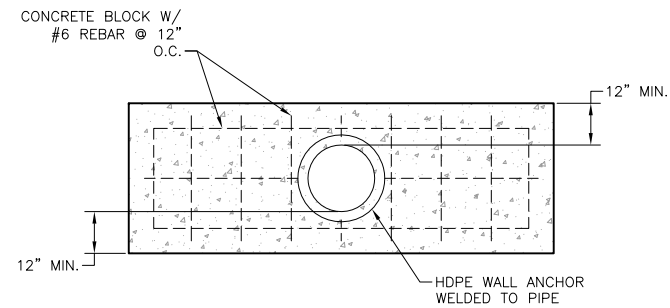
Project No.:	136.12
Scale:	AS NOTED
Date:	12/15/17
Design:	RMM
Drawn:	RMM
Check:	JPM
Revised:	



AIR/VAC VAULT PLAN
SCALE: N.T.S.

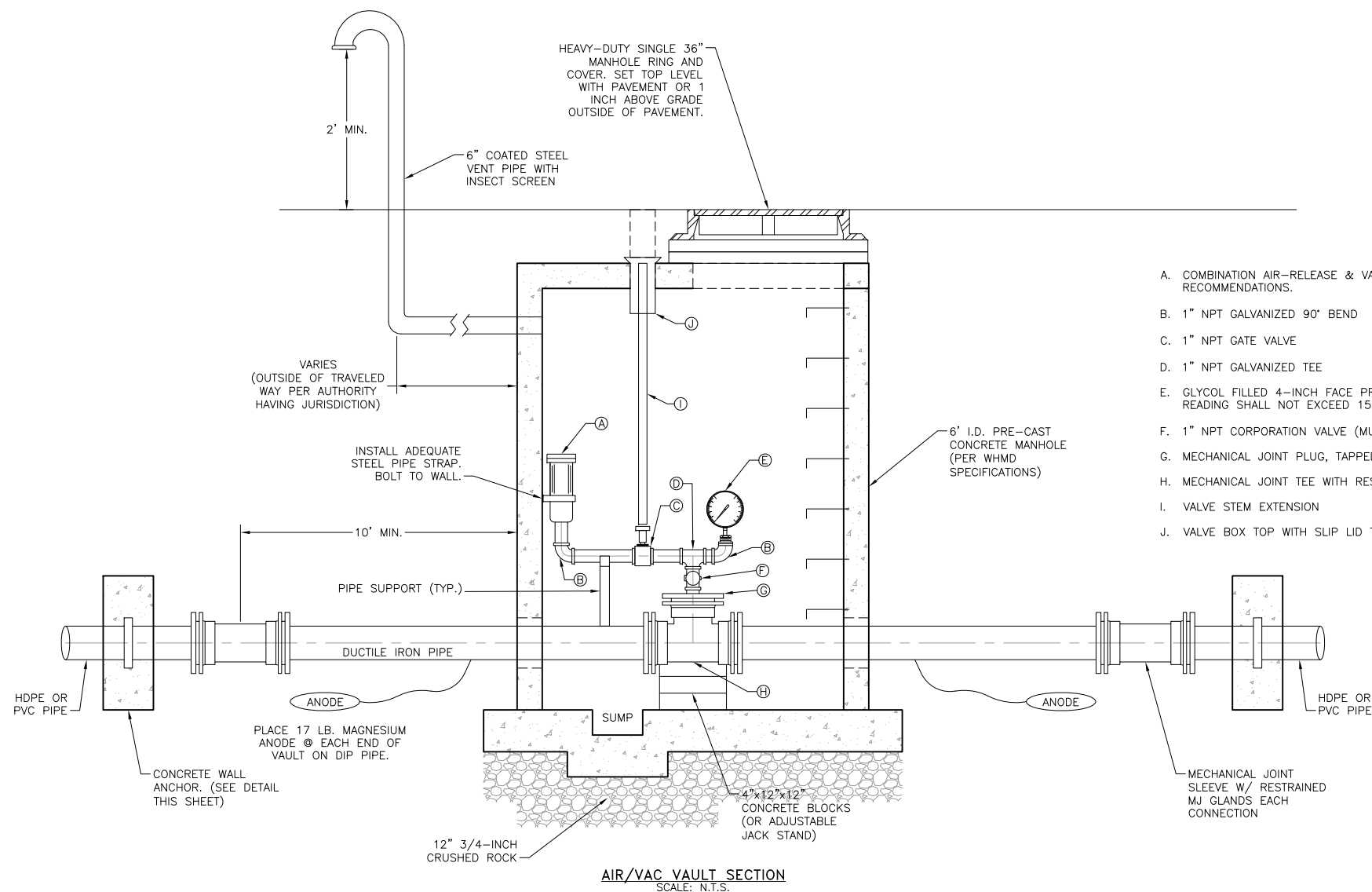


PLAN



ELEVATION

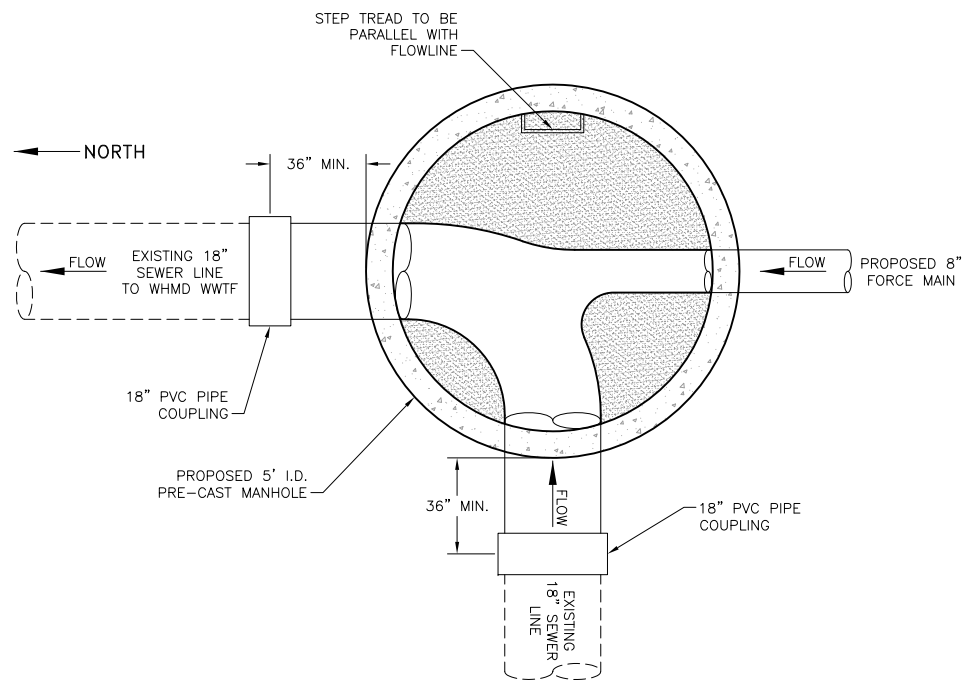
CONCRETE ANCHOR DETAIL
SCALE: N.T.S.



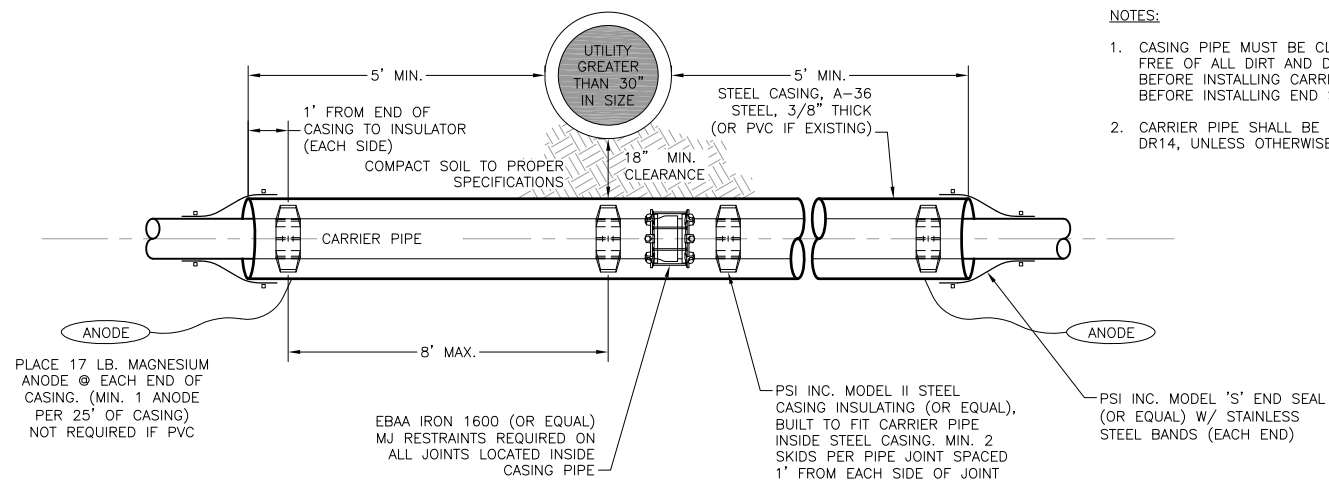
AIR/VAC VAULT SECTION
SCALE: N.T.S.

- A. COMBINATION AIR-RELEASE & VACUUM BREAK VALVE FOR WASTEWATER APPLICATION. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- B. 1" NPT GALVANIZED 90° BEND
- C. 1" NPT GATE VALVE
- D. 1" NPT GALVANIZED TEE
- E. GLYCOL FILLED 4-INCH FACE PRESSURE GAUGE WITH DIAPHRAGM SEAL PRIOR TO CONNECTION OF GAUGE. MAX PRESSURE READING SHALL NOT EXCEED 150% OF WORKING PRESSURE.
- F. 1" NPT CORPORATION VALVE (MUELLER OR FORD)
- G. MECHANICAL JOINT PLUG, TAPPED TO MATCH AIR-RELEASE & VACUUM BREAK VALVE.
- H. MECHANICAL JOINT TEE WITH RESTRAINED MJ GLANDS EACH CONNECTION.
- I. VALVE STEM EXTENSION
- J. VALVE BOX TOP WITH SLIP LID TO BE CAST INTO VAULT.

Project No.: 136.12
Scale: AS NOTED
Date: 12/15/17
Design: RMM
Drawn: RMM
Check: JPM
Revised:

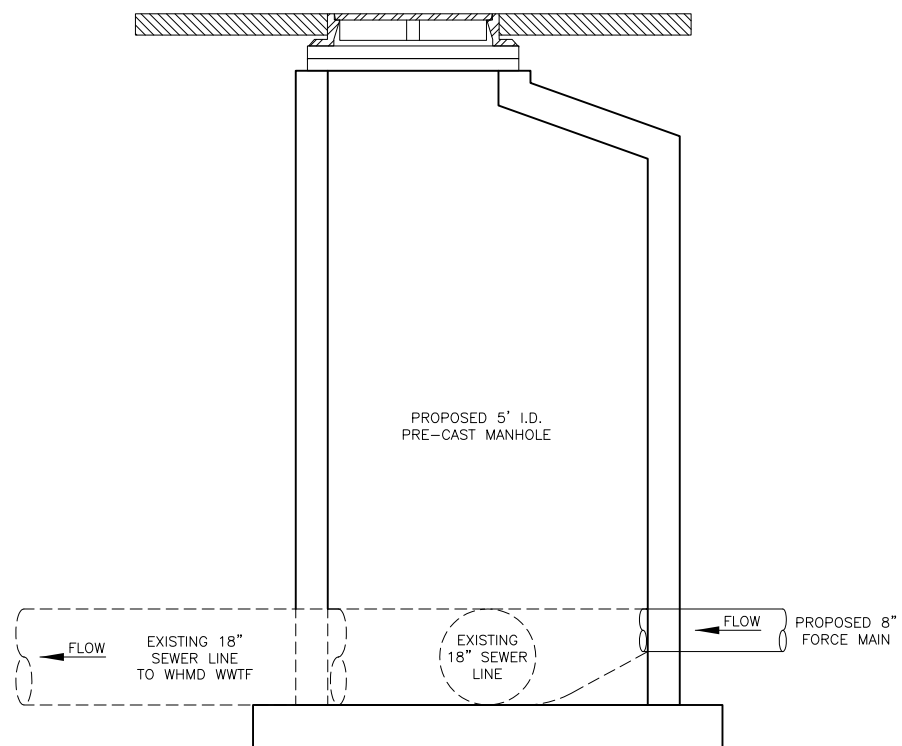


PROPOSED TIE-IN MANHOLE PLAN
SCALE: N.T.S.

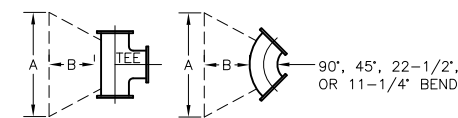


STEEL CASING DETAIL BORES AND OPEN-TRENCH
SCALE: N.T.S.

- NOTES:**
- CASING PIPE MUST BE CLEAN AND FREE OF ALL DIRT AND DEBRIS BEFORE INSTALLING CARRIER PIPE AND BEFORE INSTALLING END SEALS.
 - CARRIER PIPE SHALL BE C900 PVC DR14, UNLESS OTHERWISE APPROVED.



PROPOSED TIE-IN MANHOLE SECTION
SCALE: N.T.S.

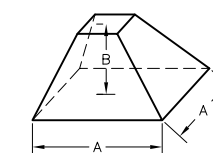


DIMENSIONS AND VOLUMES (SEE ISOMETRIC VIEW)

SIZE	TEE			90°			45°			22 1/2°			11 1/4°		
	A	B	VOL	A	B	VOL	A	B	VOL	A	B	VOL	A	B	VOL
4"	1'-6"	1'-6"	1/8	1'-6"	1'-6"	1/8	1'-6"	1'-6"	1/8	1'-6"	1'-6"	1/8	1'-6"	1'-6"	1/8
6"	2'-0"	2'-0"	1/4	2'-3"	2'-3"	1/4	1'-8"	1'-8"	1/8	1'-6"	1'-6"	1/8	1'-6"	1'-6"	1/8
8"	2'-6"	2'-6"	1/3	2'-10"	2'-10"	1/2	2'-2"	2'-2"	1/4	1'-6"	1'-6"	1/8	1'-6"	1'-6"	1/8
10"	3'-0"	3'-0"	1/2	3'-6"	3'-0"	3/4	2'-8"	2'-8"	1/3	1'-10"	1'-10"	1/8	1'-6"	1'-6"	1/8
12"	3'-6"	3'-0"	3/4	4'-3"	3'-6"	1	3'-2"	3'-0"	1/2	2'-3"	2'-3"	1/4	1'-8"	1'-8"	1/4
18"	5'-7"	3'-1"	7/4	5'-10"	3'-3"	2	5'-3"	2'-2"	6/4	4'-4"	2'-7"	1	4'-0"	2'-2"	3/4
24"	6'-10"	3'-9"	3	7'-3"	3'-9"	2	6'-3"	3'-4"	9/4	5'-3"	2'-11"	6/4	4'-10"	2'-9"	5/4

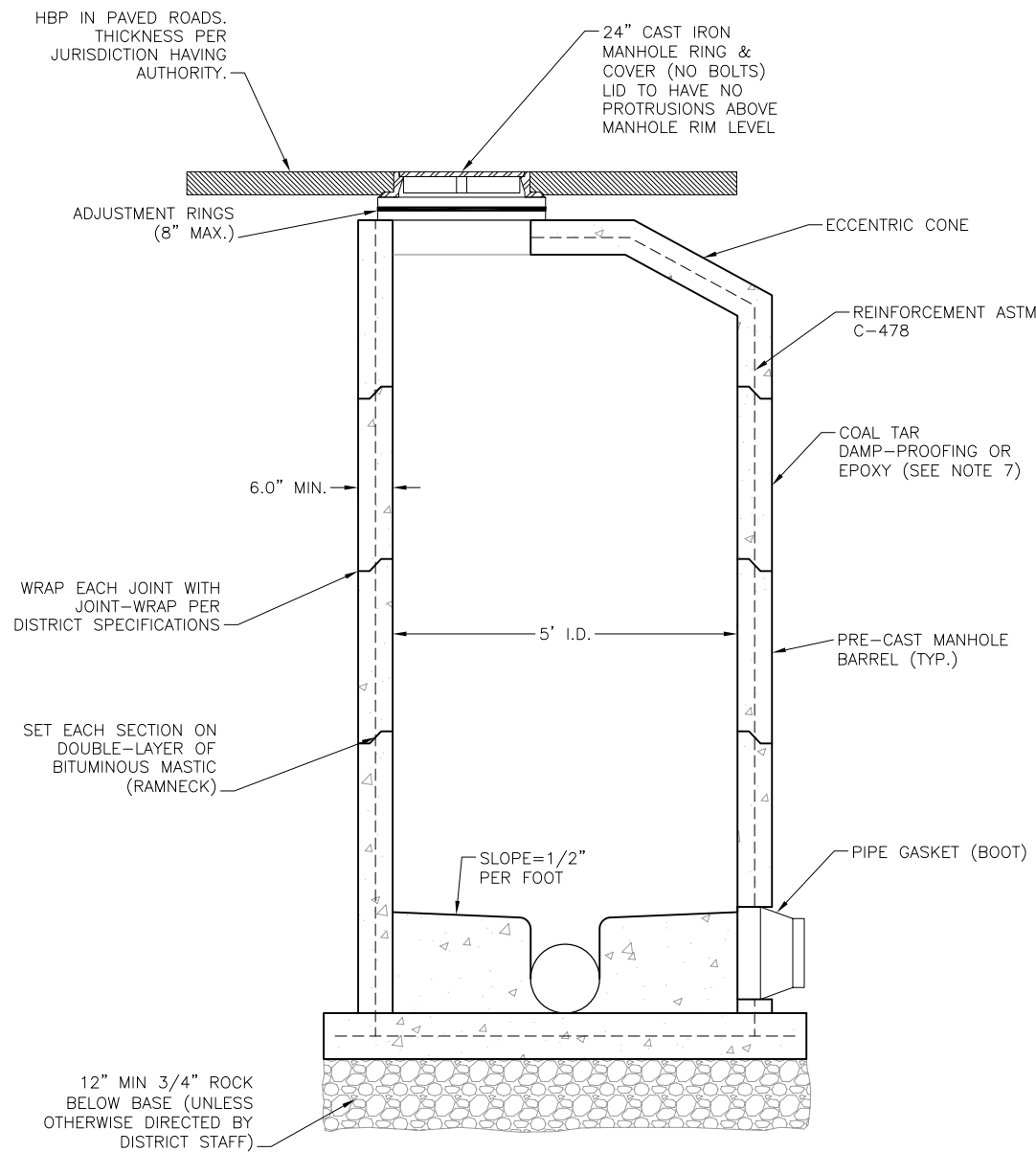
- NOTES:**
- THE MINIMUM A AND B DIMENSIONS FOR ANY BLOCK IS 1'-6".
 - THRUST BLOCK DIMENSIONS AND VOLUMES FOR DEAD ENDS SHALL BE THE SAME AS FOR TEE'S.
 - THE ABOVE VOLUMES ARE ROUNDED TO THE NEAREST PORTION OF A CUBIC YARD.
 - NUTS AND BOLTS SHALL REMAIN ACCESSIBLE AND FREE OF SPLASHED CONCRETE. A BOND BREAKER IS REQUIRED BETWEEN FITTINGS AND CONCRETE.

ISOMETRIC VIEW SHOWING A AND B DIMENSIONS



THRUST BLOCK DETAIL
SCALE: N.T.S.

Project No.:	136.12
Scale:	AS NOTED
Date:	12/15/17
Design:	RMM
Drawn:	RMM
Check:	JPM
Revised:	



MANHOLE DETAIL
SCALE N.T.S.

1. MANHOLE I.D. SHALL BE MINIMUM 5 FEET.
2. SHAPING FOR SMOOTH MANHOLE INVERTS MUST BE DONE BY FORMING/SHAPING CONCRETE BASE.
3. PRE-CAST SECTIONS TO CONFORM TO ASTM C-478
4. STUB-OUTS SHALL EXTEND A MINIMUM OF 6 FEET OUTSIDE OF MANHOLE AND BE SATISFACTORILY PLUGGED.
5. CONCRETE MANHOLES MAY BE POURED IN PLACE ONLY WITH PRIOR DESIGN AND INSPECTION APPROVAL.
6. ALL MORTOR GROUT SHALL BE TYPE V CEMENT.
7. APPLY COAL TAR EPOXY DAMP-PROOFING TO ALL EXTERIOR CONCRETE SURFACES.
8. CENTER REINFORCING IN BASE POUR BELOW PIPE O.D. AT FLOWLINE.
9. ALL EXTERIOR JOINTS SHALL RECEIVE BUTYL RUBBER JOINT WRAP.

TRENCH TO BE BRACED OR SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKMEN AND THE PROTECTION OF OTHER UTILITIES.

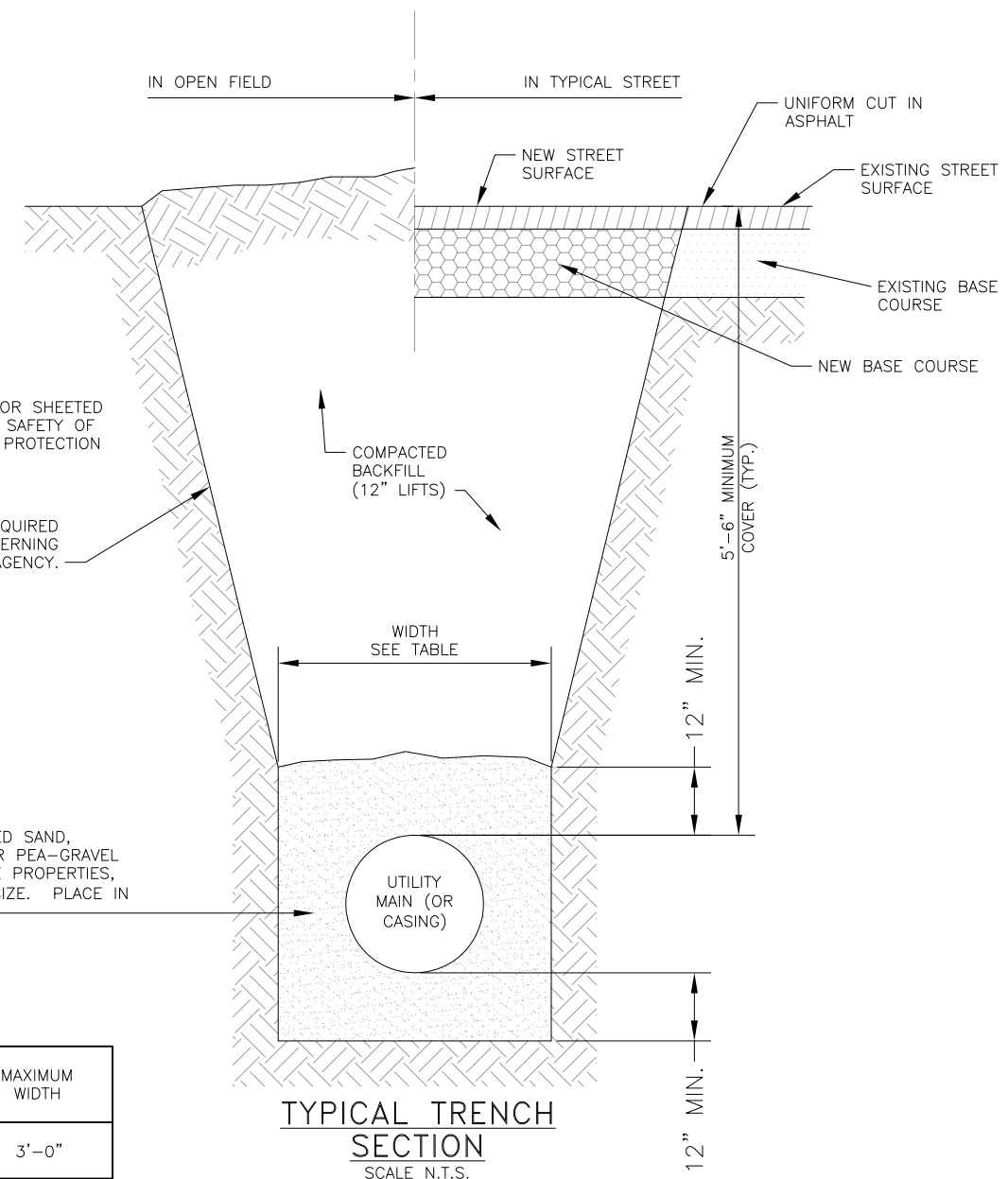
SLOPE AS REQUIRED BY GOVERNING AGENCY.

BEDDING MATERIAL:

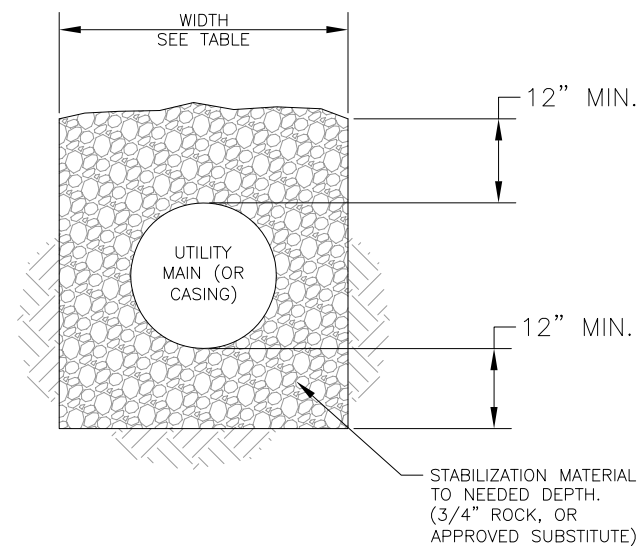
CLEAN, WELL-GRADED SAND, SQUEEGEE SAND, OR PEA-GRAVEL FREE OF CORROSIVE PROPERTIES, 3/4" MAX. STONE SIZE. PLACE IN MAX. 12" LIFTS.

PIPE DIAMETER	MINIMUM WIDTH	MAXIMUM WIDTH
4"	2'-2"	3'-0"
6"	2'-2"	3'-0"
8"	2'-2"	3'-0"
10"	2'-4"	3'-0"
12"	2'-6"	3'-6"
18"	2'-10"	3'-9"
24"	3'-2"	4'-3"

NOTE:
AN OVER-EXCAVATED TRENCH SHALL BE REFILLED WITH BEDDING MATERIAL AND THOROUGHLY COMPACTED AS PER THE SPECIFICATIONS.



TYPICAL TRENCH SECTION
SCALE N.T.S.



UNSTABLE TRENCH BEDDING DETAIL
SCALE N.T.S.