

# CONSTRUCTION PLANS FOR LENA ROAD UTILITY RELOCATIONS

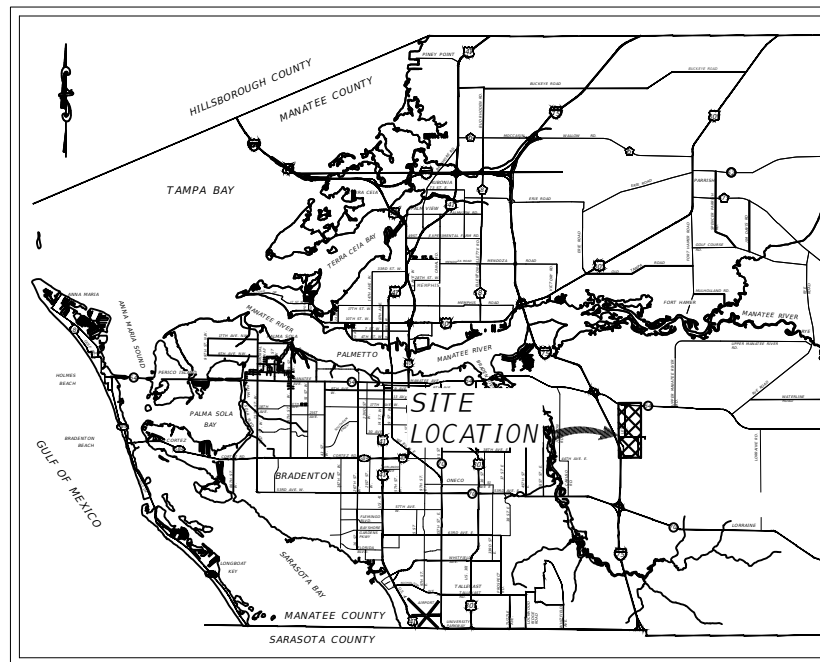
MANATEE COUNTY, FLORIDA  
AUGUST 2023  
MANATEE COUNTY PROJECT #6107560



**PROJECT TEAM:**

**OWNER:**  
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ST PETERSBURG, FL 33701  
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PROJECT VICINITY MAP  
N.T.S.  
90% PLANS SUBMITTAL  
AUGUST 2023

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THE SITE CONSTRUCTION STAKEOUT SHALL BE PERFORMED UNDER THE DIRECTION OF A FLORIDA REGISTERED SURVEYOR. AUTOCAD FILES WILL BE FURNISHED TO AID IN THE SITE CONSTRUCTION STAKEOUT. ANY DISCREPANCIES FOUND BETWEEN AUTOCAD FILES AND SITE CONSTRUCTION PLANS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR CLARIFICATION PRIOR TO THAT STAKEOUT.

PREPARED BY  
**Kimley»Horn**

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No.	REVISIONS	DATE	BY

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DATE AUGUST 2023	KHA PROJECT NO. 148400103	SHEET NUMBER 1
JORDAN W. WALKER, P.E. FLORIDA LICENSE NUMBER: 78652	DATE: 8/2/2023	

**GENERAL**

- ALL CONSTRUCTION ACTIVITIES SHALL BE COORDINATED WITH THE PROJECT MANAGEMENT DIVISION. THE PROJECT MANAGER IS: TONY RUSSO, P.E. AND CAN BE REACHED AT (941) 708-7450 X7349
- IF THE CONTRACTOR WANTS A SITE VISIT PRIOR TO BIDDING, THESE SHALL BE ARRANGED THROUGH THE COUNTY'S PURCHASING DIVISION.
- ALL CONSTRUCTION ON THIS PROJECT SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF MANATEE COUNTY UTILITY AND TRANSPORTATION STANDARDS AND/OR FDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" UNLESS OTHERWISE INDICATED ON THE PLANS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL CONDITIONS AND REQUIREMENTS OF ALL PERMITS AND ALL GOVERNING FEDERAL, STATE, AND LOCAL AGENCIES. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS THAT ARE NOT PROVIDED IN THE BID DOCUMENTS, AT NO ADDITIONAL COST TO THE OWNER.
- THE INFORMATION PROVIDED IN THESE PLANS IS SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF THE CONDITIONS WHICH MAY BE ENCOUNTERED DURING THE COURSE OF WORK. ALL CONTRACTORS ARE DIRECTED, PRIOR TO BIDDING, TO CONDUCT WHATEVER INVESTIGATION THEY MAY DEEM NECESSARY TO ARRIVE AT THEIR OWN CONCLUSIONS REGARDING THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED, AND UPON WHICH THEIR BIDS WILL BE BASED.
- THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS ON THE PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. SHOULD DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO OBTAIN THE ENGINEER'S CLARIFICATION BEFORE COMMENCING WITH CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY SUNSHINE 811 (1-800-432-4770) AT LEAST TWO FULL BUSINESS DAYS PRIOR TO CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL UTILITIES FOR THE POSSIBLE RELOCATION OR THE TEMPORARY MOVEMENT OF ANY EXISTING UTILITIES WITHIN THE RIGHTS-OF-WAY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT EXISTING UTILITIES FROM DAMAGE. EXPLORATORY EXCAVATION MAY BE REQUIRED PRIOR TO CONNECTION TO EXISTING UTILITIES.
- NO WORK, EXCEPT FOR EMERGENCY TYPE, SHALL BE PERFORMED AFTER 7:00 PM AND BEFORE 7:00 AM ON WEEKDAYS. NO WORK SHALL BE PERFORMED ON WEEKENDS WITHOUT COUNTY WRITTEN APPROVAL. FOR ADDITIONAL PROJECT RESTRAINTS, REFER TO SECTION 01310 OF THE SPECIFICATIONS.
- THE CONTRACTOR SHALL PROVIDE CERTIFIED RECORD DRAWINGS AS OUTLINED IN THE SPECIFICATIONS. RED-LINE DRAWINGS SHALL BE CURRENT WITH EACH PAY APPLICATION SUBMITTED AND WILL BE CHECKED AS PART OF THE PAY APPLICATION REVIEW PROCESS. PAYMENT WILL NOT BE MADE TO CONTRACTOR WITHOUT APPROVED RED-LINE DRAWINGS. THE MOST CURRENT SET OF RED-LINE DRAWINGS SHALL ALSO BE BROUGHT TO EACH MONTHLY PROGRESS MEETING.
- THE CONTRACTOR SHALL INCLUDE IN HIS BID-BY-PASS PUMPING FACILITIES, PUMPS, FITTINGS, LABOR, ETC. AS NECESSARY, BASED ON METHOD AND SEQUENCE OF CONSTRUCTION TO COMPLETE ALL WORK WHILE MAINTAINING WATER SERVICE OPERATIONS AT ALL TIMES.
- THE CONTRACTOR SHALL PROVIDE THE OWNER AND ENGINEER WITH A DETAILED CONSTRUCTION PHASING PLAN. EXISTING WATER MAINS SHALL REMAIN IN SERVICE UNTIL ALL CONNECTIONS TO THE PROPOSED WATER MAIN ARE CONSTRUCTED.
- ALL PROPOSED WORK SHALL BE COORDINATED WITH MANATEE COUNTY UTILITIES DEPARTMENT AT LEAST TWO WEEKS IN ADVANCE OF PROPOSED CONSTRUCTION.
- THE CONTRACTOR SHALL FURNISH SHOP DRAWINGS TO THE ENGINEER FOR REVIEW OF ALL PIPE CONNECTIONS, TRANSITIONS, AND SPECIAL APPURTENANCES PRIOR TO FABRICATION OR DELIVERY TO THE JOB SITE.
- UNLESS OTHERWISE INDICATED OR APPROVED, ALL PIPE ON ROADWAY SHALL BE PUSH-ON DUCTILE IRON PIPE CLASS 350 AND ALL PIPE INSTALLED IN GREEN AREAS SHALL BE PUSH-ON C900 PVC DR 18.
- WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 12" BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE. WHERE THIS MINIMUM SEPARATION CANNOT BE MAINTAINED, THE CROSSING SHALL BE ARRANGED SO THAT THE WATER MAIN PIPE JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING WITH NO LESS THAN 10" BETWEEN ANY TWO JOINTS. AS AN ALTERNATIVE, THE WATER MAIN MAY BE PLACED IN A WATERTIGHT CASING PIPE, CONSISTENT WITH F.A.C. RULE 62-553.314.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SECURE PROPERTY FOR STAGING MATERIALS AND EQUIPMENT.
- IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO ACQUIRE, OR ENTER INTO AGREEMENTS, FOR LANDS FOR LAY DOWN AREAS AND STAGING. THE COUNTY WILL COORDINATE AND ADVISE, TO HELP IDENTIFY POSSIBLE PARCELS. IT IS FINALLY THE CONTRACTOR'S RESPONSIBILITY TO SECURE THE NEEDED AREAS, AND THE COUNTY TAKE NO RESPONSIBILITY FOR DELAYS IN THIS REGARD.
- COORDINATION AND PUBLIC INFORMATION FOR AND WITH AREA RESIDENTS ARE OF THE UTMOST IMPORTANCE. CONTRACTOR WILL INSURE ADHERENCE TO THE COUNTY'S NOISE ORDINANCE, HAZARD AND SAFETY, AND NUISANCE ABATEMENT DIRECTIONS, PLANS, OBJECTIONS AND ORDINANCES. THE ENGINEER WILL HAVE THE FINAL DISCRETION IN THIS REGARD, AS REPRESENTED ON-SITE BY THE COUNTY INSPECTOR AND ENGINEER'S STAFF.

**SAFETY**

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE FLORIDA TRENCH SAFETY ACT, 90-96, LAWS OF FLORIDA EFFECTIVE OCTOBER 1, 1990 AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION EXCAVATION SAFETY STANDARDS, 29 CFR 1926.650, SUBPART P, AS AMENDED. THE CONTRACTOR SHALL INCLUDE IN THE TOTAL BID PRICE ALL COSTS FOR COMPLIANCE WITH THESE REGULATIONS.
- THE CONTRACTOR SHALL USE SHEET PILING, SHEETING, BRACING, ETC., AS REQUIRED IN ALL EXCAVATION AREAS AND CONFORM TO ALL OSHA REQUIREMENTS.
- THE CONTRACTOR SHALL USE ALL NECESSARY SAFETY PRECAUTIONS TO AVOID CONTACT WITH OVERHEAD AND UNDERGROUND UTILITIES, POWER LINES, ETC.
- THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. THIS EXCLUSION DOES NOT ALLEVIATE THE CONTRACTOR FOR PROVIDING A CONTINUOUS SAFE WORKSPACE.

**ENVIRONMENTAL**

- THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY STORM WATER, EROSION, AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THE FDEP "FLORIDA STORM WATER, EROSION AND SEDIMENTATION CONTROL INSPECTOR'S MANUAL". IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTROL AND PREVENT EROSION AND TRANSPORT OF SEDIMENT TO SURFACE DRAINS AND TO DITCHES DURING CONSTRUCTION.
- STOCKPILES SHALL BE PROTECTED AT ALL TIMES BY ON-SITE DRAINAGE CONTROLS WHICH PREVENT EROSION OF THE STOCKPILED MATERIAL, CONTROL OF DUST FROM SUCH STOCKPILES IS REQUIRED, DEPENDING UPON THEIR LOCATION AND THE EXPECTED LENGTH OF TIME THE STOCKPILES WILL BE PRESENT. IN NO CASE SHALL ANY STOCKPILED MATERIAL REMAIN AFTER THIRTY (30) CALENDAR DAYS.
- STORM WATER INLETS IN THE VICINITY OF THE PROJECT SHALL BE PROTECTED BY SEDIMENT TRAPS SUCH AS SECURED HAY BALES, SOD, STONE, ETC., WHICH SHALL BE MAINTAINED AND MODIFIED AS REQUIRED BY CONSTRUCTION PROGRESS, AND WHICH MUST BE APPROVED BY THE ENGINEER BEFORE INSTALLATION. THIS WILL BE MAINTAINED TO PREVENT DEGRADATION OF THE WATERS OF THE COUNTY AND STATE.
- SEDIMENT BASINS AND TRAPS, PERIMETER BERMS, SEDIMENT BARRIERS, VEGETATIVE BUFFERS, AND OTHER MEASURES INTENDED TO TRAP SEDIMENT AND/OR PREVENT THE TRANSPORT OF SEDIMENT ONTO ADJACENT PROPERTIES, OR INTO EXISTING BODIES OF WATER, MUST BE INSTALLED, CONSTRUCTED, OR IN THE CASE OF VEGETATIVE BUFFERS, PROTECTED FROM DISTURBANCE, AS A FIRST STEP IN THE LAND ALTERATION PROCESS. SUCH SYSTEMS SHALL BE FULLY OPERATIVE BEFORE ANY OTHER DISTURBANCE OF THE SITE BEGINS. EARTHEN STRUCTURES INCLUDING BUT NOT LIMITED TO BERMS, EARTH FILTERS, DAMS OR DIKES SHALL BE STABILIZED AND PROTECTED FROM DRAINAGE DAMAGE OR EROSION WITHIN ONE (1) WEEK OF INSTALLATION.
- ALL SWALES, DITCHES, AND CHANNELS LEADING FROM THE SITE SHALL BE PROTECTED FROM SILTATION AND EROSION DURING CONSTRUCTION AND BE SODDED WITHIN THREE (3) DAYS OF EXCAVATION.
- SOIL DISPLACED BY CONSTRUCTION WILL BE REMOVED. EROSION CONTROL SHALL BE IMPLEMENTED IN AREAS WHICH ARE CONSIDERED ENVIRONMENTALLY SENSITIVE. EROSION CONTROL SYSTEMS SHALL BE REQUIRED FOR ALL WORK WITHIN JURISDICTIONAL AREAS. THESE SYSTEMS MAY INCLUDE STAKED HAY BALES, SILT SCREENS, FILTER FABRIC, AND TURBIDITY SCREENS.
- ALL EROSION AND POLLUTION CONTROL DEVICES SHALL BE CHECKED REGULARLY, ESPECIALLY AFTER EACH RAINFALL AND SHALL BE CLEANED OUT AND/OR REPAIRED AS REQUIRED.
- THE CONTRACTOR SHALL NOT ENTER UPON OR IN ANY WAY ALTER WETLAND AREAS THAT MAY BE ON OR NEAR THE CONSTRUCTION SITE. ALL WORK IN THE VICINITY OF OPEN WATER AND/OR WETLANDS IS TO BE PERFORMED IN COMPLIANCE WITH THE ENVIRONMENTAL REGULATIONS AND/OR PERMITS FOR THE SITE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY FINES RESULTING FROM HIS VIOLATION OF ANY REGULATIONS OR PERMIT CONDITIONS.
- CONTRACTOR SHALL PROVIDE PROTECTIVE MATTING, FUEL CONTAINMENT AND ALL OTHER MATERIALS, EQUIPMENT AND LABOR TO PROTECT THE STAGING AREA DURING CONSTRUCTION.
- CONTRACTOR SHALL, PRIOR TO BEGINNING CONSTRUCTION, SUBMIT A "FUELING SPILL PREVENTION PLAN" THAT SHALL CLEARLY INDICATE HOW FUEL SPILLS WILL BE PREVENTED WHEN FUELING BOTH WITHIN AND OUTSIDE OF THE STAGING AREA.

**RIGHT-OF-WAY**

- ALL CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO WITHIN THE COUNTY AND FDOT RIGHT-OF-WAY.
- THE CONTRACTOR SHALL EMPLOY A LAND SURVEYOR REGISTERED IN THE STATE OF FLORIDA TO REFERENCE AND RESTORE PROPERTY CORNER MONUMENTS, PINS, AND LANDMARKS THAT MAY BE DISTURBED BY CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR, PRIOR TO CONSTRUCTION AND RESTRICTING ANY TRAFFIC, MUST OBTAIN ANY REQUIRED RIGHTS-OF-WAY USE PERMITS AND A TRAFFIC CONTROL PLAN. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FROM OTHER GOVERNMENTAL AGENCIES HAVING RELEVANT JURISDICTION. ALL MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE CURRENT FLORIDA DEPARTMENT OF TRANSPORTATION "MANUAL OF TRAFFIC CONTROL AND SAFE PRACTICES". A TRAFFIC CONTROL PLAN SHALL BE SUPPLIED BY THE CONTRACTOR AT THE PRE-CONSTRUCTION MEETING.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL DAMAGED STORM WATER STRUCTURES, PIPING, ENTRANCE PIPE AND HEADWALLS WHETHER SHOWN ON THE PLANS OR NOT. THE HEADWALLS SHALL BE REPLACED IN ACCORDANCE WITH F.D.O.T. STANDARDS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH IN THE FIELD THE RIGHT-OF-WAY LINES, BASE LINES, BENCH MARKS (ELEV.), CENTER LINES, AND STATIONING AS REQUIRED TO CONSTRUCT THIS PROJECT.
- THE CONTRACTOR SHALL COORDINATE THE CUTTING OF DRIVEWAYS WITH THE PROPERTY OWNER PRIOR TO CUT. ALL DRIVEWAYS WILL BE IN PASSABLE CONDITION AT THE END OF THE WORK DAY AND FULLY RESTORED PER SECTION 02575.
- A RIGHT OF ENTRY AGREEMENT SHALL BE OBTAINED BY THE CONSTRUCTION MANAGER FROM THE PROPERTY OWNER BEFORE ANY DRIVEWAY CONSTRUCTION WORK IS DONE OUTSIDE OF THE RIGHT-OF-WAY OR EASEMENT.

**UTILITIES**

- LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES ARE SHOWN TO THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THERE MAY BE OTHER IMPROVEMENTS, UTILITIES, ETC. WHICH ARE WITHIN THE PROJECT AREA AND WHICH HAVE NOT BEEN LOCATED OR IDENTIFIED, MAY NOT BE IN THE EXACT LOCATION SHOWN OR RELOCATED SINCE THE PREPARATION OF THESE PLANS. THE CONTRACTOR SHALL VERIFY, PRIOR TO CONSTRUCTION, THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES (WHETHER OR NOT SHOWN ON THE PLANS) THAT MAY AFFECT HIS WORK. ALL EXISTING UTILITIES TO BE EXTENDED, CROSSED OR CONNECTION POINTS SHALL BE EXPOSED PRIOR TO CONSTRUCTION TO VERIFY LOCATION AND ELEVATION. ANY DISCREPANCIES OR CONFLICTS FOUND SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR RESOLUTION.
- THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, WATER AND SEWER LINES, STORM DRAINS, UTILITIES, DRIVEWAYS, SIDEWALKS, SIGNS, MAIL BOXES, FENCES, TREES, LANDSCAPING, AND ANY OTHER IMPROVEMENT OR FACILITY IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY DAMAGED ITEM DUE TO HIS CONSTRUCTION ACTIVITIES TO EQUAL OR BETTER THAN PRE-CONSTRUCTION CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL USE APPROPRIATE TECHNIQUES, AS APPROVED, RECOMMENDED OR OFFERED BY FLORIDA POWER AND LIGHT TO PREVENT UNDERMINING OF POWER POLES DURING CONSTRUCTION. IF HOLDING OF POWER POLES IS RECOMMENDED OR REQUIRED BY THE UTILITY, THE CONTRACTOR SHALL COORDINATE THIS ACTIVITY WITH THE UTILITY AND BEAR ALL RELATED COSTS.
- ANY TEMPORARY SHUTDOWNS FOR MODIFICATIONS OF EXISTING UTILITY SYSTEMS THAT MUST REMAIN IN SERVICE DURING CONSTRUCTIONS SHALL BE KEPT TO A MINIMUM AND SHALL BE COORDINATED WITH AND APPROVED BY THE MANATEE COUNTY UTILITY OPERATIONS DEPARTMENT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. IT IS NOTED THAT TEMPORARY SHUTDOWNS MAY BE RESTRICTED TO CERTAIN HOURS AT ANY TIME OF THE DAY OR NIGHT AND WILL BE COMPLETED AT NO ADDITIONAL COST TO THE OWNER.
- THE ELEVATIONS OF THE UTILITY SERVICES AND LATERALS HAVE BEEN ASSUMED ON THE BASIS OF TYPICAL ANTICIPATED SOIL COVERAGE. CONTRACTOR SHALL NOT RELY ON THIS INFORMATION FOR CONSTRUCTION, BUT SHALL BE RESPONSIBLE FOR FIELD LOCATIONS (HORIZONTAL AND VERTICAL) OF ALL UTILITIES CROSSING THE PROPOSED FORCE MAIN. CONTRACTOR SHALL INCLUDE IN THE UNIT COST OF THE SUBJECT CONSTRUCTION, THE COST OF UTILITY ADJUSTMENTS NECESSARY TO ATTAIN DESIGN MINIMUM SEPARATION FOR UTILITIES CONFLICTING WITH THE CONSTRUCTION OF THE PROPOSED. INTERRUPTIONS OF ANY EXISTING UTILITY SERVICES SHALL BE NOTICED TO EFFECTED CUSTOMERS A MINIMUM OF 48 HOURS IN ADVANCE AND SHALL NOT EXCEED 4 HOURS IN DURATION.

**RESTORATION**

- ALL RESTORATION WORK PERFORMED THROUGHOUT THE PROJECT SHALL CONFORM TO EXISTING LINES AND GRADES UNLESS SHOWN OTHERWISE.
- ALL DISTURBED GRASSED AREAS SHALL BE SODDED UNLESS OTHERWISE INDICATED. THE TYPE OF SOD USED TO REPLACE OWNER MAINTAINED AREAS IN RIGHT-OF-WAY SHALL BE COORDINATED WITH THE PROPERTY OWNER.
- ALL CONCRETE THRUST BLOCKS INSTALLED FOR TESTING PURPOSES AND NOT REQUIRED FOR THE OPERATION OF THE PIPELINE SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR, PRIOR TO FINAL ACCEPTANCE, AT NO ADDITIONAL COST TO THE OWNER.
- ALL DRIVEWAYS UNLESS OTHERWISE INDICATED SHALL BE RESTORED PER DRIVEWAY RESTORATION DETAIL.
- CONCRETE DRIVEWAYS OR SIDEWALKS THAT ARE CUT SHALL BE RESTORED TO MATCH EXISTING ACCORDING TO THE CURRENT EDITIONS OF THE F.D.O.T. SPECIFICATIONS FOR ROAD AND BRIDGE DESIGN, SECTION 310 OF THE F.D.O.T. DESIGN STANDARDS AND MANATEE COUNTY PUBLIC WORKS STANDARD UNLESS SHOWN OTHERWISE.
- WHENEVER A PERMANENT ROADWAY SURFACE IS NOT REPLACED IMMEDIATELY AFTER BACKFILLING AND COMPACTION OF THE NEWLY INSTALLED PIPE LINE IN AREAS WHERE TRAFFIC MUST PASS, THE CONTRACTOR SHALL INSTALL A TEMPORARY SURFACE CONSISTING OF NINE INCHES OF COMPACTED LIME ROCK BASE AND A COAT OF ASPHALT EMULSION. PERMANENT ROADWAY REPAIR SHALL BE PERFORMED A MAXIMUM OF TWENTY-ONE CALENDAR DAYS AFTER THE INITIAL OPEN CUTTING.
- RESTORATION OF CURBS, DRIVEWAYS, SIDEWALKS, AND PLACEMENT OF SOD SHALL BE COMPLETED WITHIN FORTY-FIVE CALENDAR DAYS OF INITIAL DISTURBANCE, OR TWENTY-ONE CALENDAR DAYS OF SUBSTANTIAL COMPLETION, WHICHEVER OCCURS FIRST. THE MINIMUM CURB REPLACEMENT LENGTH IS TEN (10) FEET.
- ALL EXISTING FENCES DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED AND REINSTALLED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER UNLESS SHOWN TO BE REMOVED ON CONSTRUCTION PLANS.
- WHERE CONCRETE REPAIRS ARE NECESSARY AND EXPANSION OR CONTRACTION JOINTS ARE PRESENT, CONTRACTOR SHALL REMOVE AND REPLACE CONCRETE UP TO THE NEXT EXPANSION OR CONTRACTION JOINT.

**CONSTRUCTION**

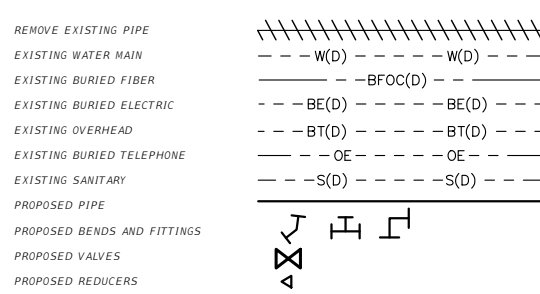
- THE EXHAUST SYSTEM OF ALL GASOLINE AND DIESEL ENGINES SHALL BE EQUIPPED WITH MUFFLERS THAT MEET THE EQUIPMENT MANUFACTURER'S REQUIREMENTS FOR NOISE SUPPRESSION. THE CONTRACTOR SHALL INSTALL NOISE ABATEMENT Baffles POSITIONED TO BREAK LINE-OF-SITE FROM THE NOISE SOURCE TO AFFECTED RESIDENCES, AS APPROVED BY THE ENGINEER.
- NO MATERIAL SHALL BE STOCKPILED IN ROADWAYS. ALL DIRT AND DEBRIS SHALL BE REMOVED FROM THE JOB SITE DAILY. ROADS SHALL BE SWEEP DAILY AS PART OF DAILY CLEAN UP.
- THE CONTRACTOR IS TO CONTROL ALL FUGITIVE DUST ORIGINATING ON THIS PROJECT BY WATERING OR OTHER METHODS AS REQUIRED.
- INGRESS AND EGRESS TO ALL THE PROPERTIES IN THE CONSTRUCTION AREA SHALL BE MAINTAINED AT ALL TIMES.
- PRIOR APPROVAL WILL BE REQUIRED FOR REMOVAL OR TRIMMING OF ANY TREE WITHIN THE CONSTRUCTION AREA.
- THE CONTRACTOR SHALL PROVIDE ALL DEWATERING EQUIPMENT NECESSARY TO KEEP ALL EXCAVATIONS DRY. DEWATERING IS REQUIRED TO 18" BELOW TRENCH BOTTOM.
- ALL PIPING AND FITTINGS USED ON THIS PROJECT SHALL BE AS NOTED ON THE PLANS AND IN THE CONTRACT DOCUMENT AND SHALL BE INSTALLED TO THE LINES AND GRADES SHOWN ON THE PLANS AND PROFILES.
- ALL PIPE SHALL BE COLOR CODED TO CONFORM TO MANATEE COUNTY STANDARDS.
- WHERE IT IS NECESSARY TO DEFLECT PIPE EITHER HORIZONTALLY OR VERTICALLY, PIPE DEFLECTION SHALL NOT EXCEED 75% OF THE MANUFACTURER'S MAXIMUM ALLOWABLE RECOMMENDED DEFLECTION.
- ALL ROCKS OR STONES LARGER THAN SIX INCH DIAMETER SHALL BE REMOVED FROM THE BACKFILL MATERIAL. BACKFILL MATERIAL PLACED WITHIN ONE FOOT OF PIPING AND APPURTENANCES SHALL NOT CONTAIN ANY STONES LARGER THAN TWO INCH DIAMETER.
- ONLY MANATEE COUNTY UTILITY OPERATIONS STAFF ARE AUTHORIZED TO OPERATE VALVES AND PUMP STATIONS ON COUNTY OWNED AND MAINTAINED UTILITY SYSTEMS.
- THE CONTRACTOR, PRIOR TO ANY TEMPORARY WATER SHUT-OFFS DURING WATER MAIN TIE-IN, ETC., SHALL NOTIFY THE

- AFFECTED RESIDENTS BY POSTING INFORMATIONAL SIGNS IN THE NEIGHBORHOOD AT LEAST TWO DAYS (48 HRS) PRIOR TO THE WATER SHUT-OFF. REFERENCE SECTION 01580, PARAGRAPH 1.03 OF THE SPECIFICATIONS. WHEN FEASIBLE, "DOOR HANGERS" SHALL BE DELIVERED TO AFFECTED RESIDENCES AT LEAST TWO DAYS (48 HRS) PRIOR TO WATER SHUT-OFF. FOR LARGE PROJECTS WITH HUNDREDS OF HOMES AFFECTED, THE CONTRACTOR SHALL ALSO MAKE EXTENSIVE USE OF THE MEDIA AND SHALL HAVE PRIOR CONTACT WITH HOMEOWNERS ASSOCIATIONS AND THE RESPECTIVE CITY'S. WRITTEN NOTIFICATIONS SHALL ALSO BE FAXED TO THE TAMPA TRIBUNE, BRADENTON HERALD, AMI SUN, ISLANDER, SARASOTA HERALD TRIBUNE, WBRO RADIO, EMERGENCY COMMUNITY CENTERS, INSPECTIONS, WATER TREATMENT PLANT, WATER MANAGER, HELPLINE, CUSTOMER SERVICE, AND THE MANATEE COUNTY UTILITY OPERATIONS DEPARTMENT.
- ALL TEST POINT PIPING SHALL BE CUT LOOSE FROM THE CORPORATION STOP AND COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE. A CORPORATION STOP PLUG SHALL BE INSTALLED AND THE CORPORATION STOP SHALL REMAIN IN PLACE.
- UNLESS OTHERWISE NOTED, ALL EXISTING MAINS THAT ARE BEING REPLACED SHALL BE ABANDONED IN PLACE UPON ACCEPTANCE AND ACTIVATION OF THE NEW MAINS. ABANDONED MAINS SHALL BE CUT, GROUTED, AND CAPPED. REFER TO SECTION 02064 OF THE SPECIFICATIONS FOR CUT AND CAPPING ABANDONED PIPE.
- FIELD CONDITIONS MAY NECESSITATE MINOR ALIGNMENT AND GRADE DEVIATION OF THE PROPOSED UTILITIES TO AVOID OBSTACLES, AS ORDERED BY THE ENGINEER.
- THE CONTRACTOR SHALL OBTAIN AUTHORIZATION FROM THE MANATEE COUNTY UTILITIES DEPARTMENT (MCUD) OFFICE OF INDUSTRIAL COMPLIANCE PRIOR TO DEWATERING. COMPLETION OF A CONSTRUCTION DEWATERING AUTHORIZATION TO DISCHARGE APPLICATION IS REQUIRED. FILL OUT FORM AS COMPLETELY AS POSSIBLE AS MISSING INFORMATION DELAYS THE APPROVAL PROCESS.
- THE MCUD OFFICE OF INDUSTRIAL COMPLIANCE WILL DETERMINE WHETHER A LETTER OF APPROVAL, A DISCHARGE AUTHORIZATION, OR A DISCHARGE PERMIT IS REQUIRED.
- FOR SITES SUSPECTED OF CONTAMINATED GROUNDWATER MANATEE COUNTY WILL REQUIRE AN APPLICANT TO DEMONSTRATE THAT THE DISCHARGE MEETS THE MANATEE COUNTY SEWER USE ORDINANCE.
- IF ANY RECLAIMED OR WATER MAINS INCLUDING SERVICE LINES ARE DAMAGED DURING CONSTRUCTION, THEY SHALL BE REPLACED FROM THE VALVE TO THE OTHER POINT OF CONNECTION OUTSIDE OF THE ROADWAY PER MANATEE COUNTY'S STANDARDS.

**ADVANCED TRAFFIC MANAGEMENT SYSTEM (ATMS) NOTES:**

- NEW ADVANCED TRAFFIC MANAGEMENT SYSTEM (ATMS) INFRASTRUCTURE SHOULD BE PLACED WHILE LEAVING EXISTING ATMS INFRASTRUCTURE IN PLACE AND INTACT AS LONG AS FEASIBLE TO LIMIT THE DURATION OF SYSTEM DOWN TIME.
- AT LEAST FIVE (5) WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL CONTACT MUKUNDA GOPALAKRISHNA, P.E., PTOE OF THE MANATEE COUNTY TRAFFIC ENGINEERING DIVISION AT (941) 749-3500, EXT. 7813 TO INFORM HIM OF CONSTRUCTION OPERATIONS.
- THE CONTRACTOR MUST PROVIDE A SPICE DIAGRAM FOR THE PROPOSED SPLICE ENCLOSURE.
- THE CONTRACTOR SHALL NOTIFY UTILITY OWNERS OF ANY EXCAVATION OR DEMOLITION ACTIVITY THROUGH SUNSHINE ONE CALL OF FLORIDA INC. (811) AND SHALL ALSO NOTIFY THOSE UTILITY OWNERS/AGENCIES LISTED WITHIN OR IMPACTED BY THESE PLANS, NOT LESS THAN TWO (2) FULL BUSINESS DAYS IN ADVANCE OF BEGINNING CONSTRUCTION ON THE JOB SITE.
- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING RIGHT-OF-WAY USE PERMITS WITH MATT MERUCCI, MANATEE COUNTY PUBLIC WORKS INFRASTRUCTURE INSPECTION OFFICER, AT (941) 708-7450, EXT. 7342. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING BOND REQUIREMENTS WITH BRANDY WILKINS, MANATEE COUNTY PUBLIC WORKS SENIOR ADMINISTRATIVE SPECIALIST, AT (941) 708-7450, EXT. 7215.
- DELIVER THREE HARD-COPY SETS OF AS-BUILT RECORD DRAWINGS THAT ARE SIGNED AND SEALED BY THE ENGINEER OF RECORD, AND ONE COMPACT DISC OF RECORD DRAWINGS IN ADOBE ACROBAT (.PDF) AND AUTOCAD (.DWG) FORMAT TO THE MANATEE COUNTY TRAFFIC ENGINEERING DIVISION (ATTN: MR. MUKUNDA GOPALAKRISHNA, P.E., PTOE) AT 2101 47TH TERRACE EAST BRADENTON, FL 34203. RECORD DRAWINGS MUST BE DELIVERED TO THE COUNTY AT LEAST TWO (2) BUSINESS DAYS PRIOR TO SCHEDULING THE FINAL INSPECTION.
- UPON PASSING THE FINAL INSPECTION, THE CONTRACTOR SHALL SEND A WRITTEN REQUEST TO THE MANATEE COUNTY TRAFFIC OPERATIONS DIVISION, 2904 12TH STREET COURT EAST, BRADENTON, FLORIDA 34208 (ATTN: MR. AARON BURKETT) REQUESTING TO TRANSFER MAINTENANCE FROM THE CONTRACTOR TO MANATEE COUNTY. MANATEE COUNTY WILL RESPOND WITHIN 5 WORKING DAYS TO ESTABLISH A TIME TABLE FOR THE TRANSFER OF MAINTENANCE RESPONSIBILITY.

**LEGEND**



**DISINFECTION AND TESTING**

- ALL PIPES SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C651 (LATEST EDITION).
- ALLOWABLE LEAKAGE FOR PVC PRESSURE MAINS WILL BE IN ACCORDANCE WITH AWWA M23.
- THE CONTRACTOR SHALL PROVIDE AT HIS OWN EXPENSE ALL NECESSARY TEST PUMPING EQUIPMENT, WATER, WATER METERS, PRESSURE GAUGES, AND OTHER EQUIPMENT. MATERIAL AND FACILITIES REQUIRED FOR ALL HYDROSTATIC AND LEAKAGE TESTING. CONTRACTOR SHALL CONTACT THE UTILITY AND ENGINEER IN WRITTEN FORM, SEVENTY-TWO (72) HOURS IN ADVANCE OF PROPOSED TESTING. THE CONTRACTOR SHALL PERFORM SATISFACTORY PRETESTING PRIOR TO NOTIFICATION. NO TESTING WILL BE SCHEDULED ON A MONDAY OR FRIDAY.
- THE WATER SYSTEM SHALL BE TESTED FOR LEAKAGE AT 150 PSI FOR TWO (2) HOURS, WITH ALLOWABLE LEAKAGE IN ACCORDANCE WITH AWWA STANDARD C600 (LATEST EDITION) THERE SHALL BE NO WORK OR ACTIVITY DURING PRESSURE TEST.
- CONTRACTOR SHALL OBTAIN A COPY OF THE FDEP WATER SYSTEM PERMIT AND PULL BACTERIOLOGICAL TEST SAMPLE FROM THE SAMPLE POINTS SPECIFIED IN THAT PERMIT. TESTING SHALL BE PERFORMED IN THE FOLLOWING ORDER.
  - PRESSURE TEST
  - FULL BORE FLUSH
  - DISINFECTION
  - BACTERIOLOGICAL SAMPLES

\*NOTES: THE ELEVATIONS OF THE UTILITIES MARKED WITH AN ASTERISK (\*) HAVE BEEN ASSUMED ON THE BASIS OF TYPICAL ANTICIPATED SOIL COVERAGE. CONTRACTOR SHALL NOT RELY ON THIS INFORMATION FOR CONSTRUCTION, BUT SHALL BE RESPONSIBLE FOR FIELD LOCATIONS (HORIZONTAL AND VERTICAL) OF ALL UTILITIES CROSSING THE PROPOSED WATER MAIN. CONTRACTOR SHALL INCLUDE IN THE UNIT COST OF THE SUBJECT WATER MAIN CONSTRUCTION, THE COST OF UTILITY ADJUSTMENTS NECESSARY TO ATTAIN DESIGN MINIMUM SEPARATION FOR UTILITIES CONFLICTING WITH THE CONSTRUCTION OF THE PROPOSED WATER MAIN. INTERRUPTIONS OF ANY EXISTING UTILITY SERVICES SHALL BE NOTICED TO EFFECTED CUSTOMERS A MINIMUM OF 48 HOURS IN ADVANCE AND SHALL NOT EXCEED 4 HOURS IN DURATION. WHERE CONCRETE REPAIRS ARE NECESSARY AND EXPANSION JOINTS ARE PRESENT, CONTRACTOR TO REMOVE AND REPLACE CONCRETE UP TO THE NEXT EXPANSION JOINT; OTHERWISE, REPLACE CONCRETE AS NECESSARY.

No.	REVISIONS	DATE	BY

**Kimley-Horn**  
 KIMLEY-HORN AND ASSOCIATES, INC.  
 200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701  
 PHONE: (727) 547-3999  
 WWW.KIMLEY-HORN.COM

PROJECT NO. 148400103
DATE 8/3/23
SCALE AS SHOWN
DESIGNED BY JWW
DRAWN BY BMS
CHECKED BY SLB

**Manatee County Utility**

**LENA ROAD UTILITY RELOCATIONS**

MANATEE COUNTY

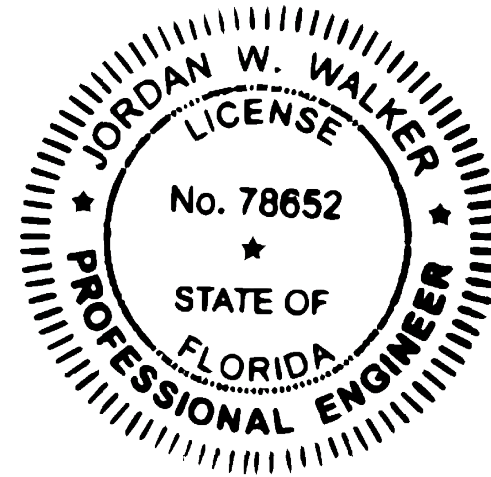
LICENSED PROFESSIONAL
JORDAN W. WALKER, P.E.
FL LICENSE NUMBER 78652
FL DATE:

**GENERAL NOTES**

SHEET NUMBER **2**

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

THIS ITEM HAS BEEN DIGITALLY SIGNED  
AND SEALED BY





ON THE DATE ADJACENT TO THE SEAL

PRINTED COPIES OF THIS DOCUMENT ARE  
NOT CONSIDERED SIGNED AND SEALED  
AND THE SIGNATURE MUST BE VERIFIED  
ON ANY ELECTRONIC COPIES

KIMLEY-HORN AND ASSOCIATES, INC.  
200 CENTRAL AVENUE, SUITE 600,  
ST. PETERSBURG, FL 33701  
JORDAN W. WALKER, P.E. NO.: 78652

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR  
ALL SHEETS IN THIS PLAN SET ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F. A. C.

			 <b>KIMLEY-HORN AND ASSOCIATES, INC.</b> 200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701 PHONE: (727) 547-3999 WWW.KIMLEY-HORN.COM	PROJECT NO. 148400103	 <b>MANATEE COUNTY</b> LENA ROAD UTILITY RELOCATIONS	LICENSED PROFESSIONAL	JORDAN W. WALKER, P.E. FL LICENSE NUMBER 78652	SIGNATURE SHEET	SHEET NUMBER
				DATE 8/3/23		FL DATE:			3
				SCALE AS SHOWN					
				DESIGNED BY JWW					
				DRAWN BY BMS					
No.	REVISIONS	DATE	BY	CHECKED BY SLB	8/3/2023 10:38 AM	DEFAULT			





No.	REVISIONS	DATE	BY

**Kimley-Horn**  
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 200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701  
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148400103  
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8/3/23  
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LENA ROAD UTILITY RELOCATIONS  
 MANATEE COUNTY  
 FL DATE:

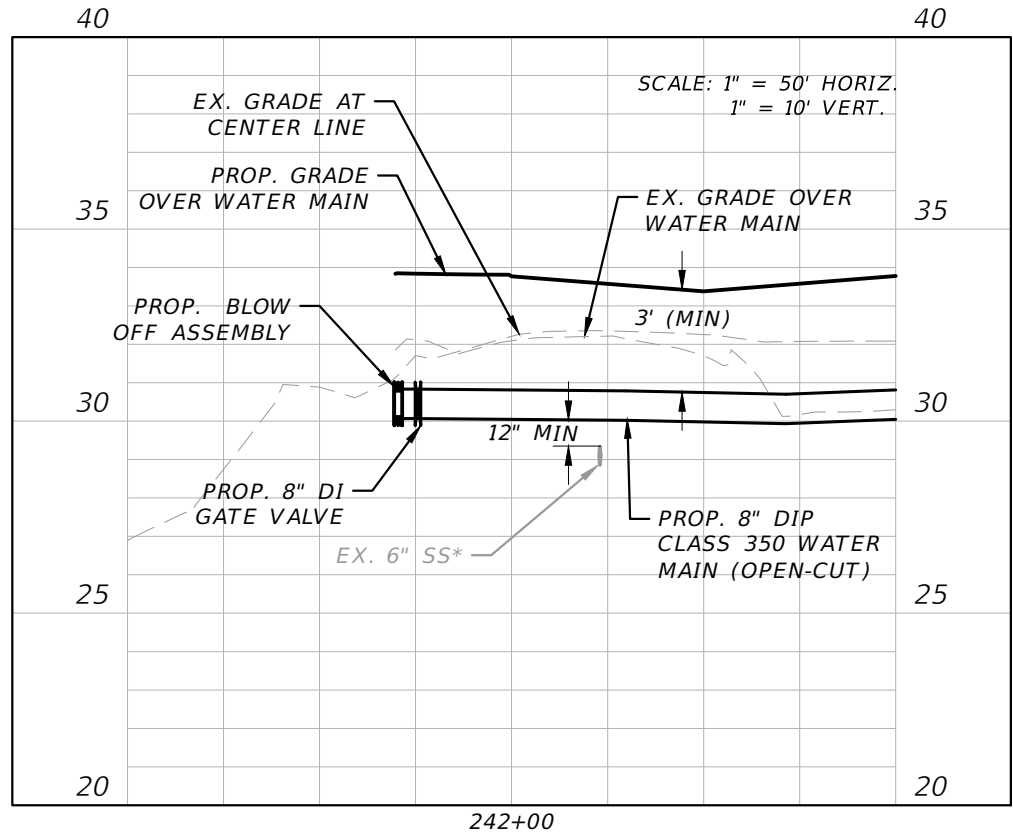
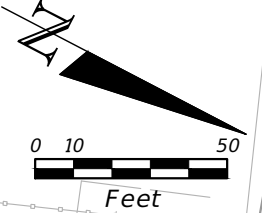
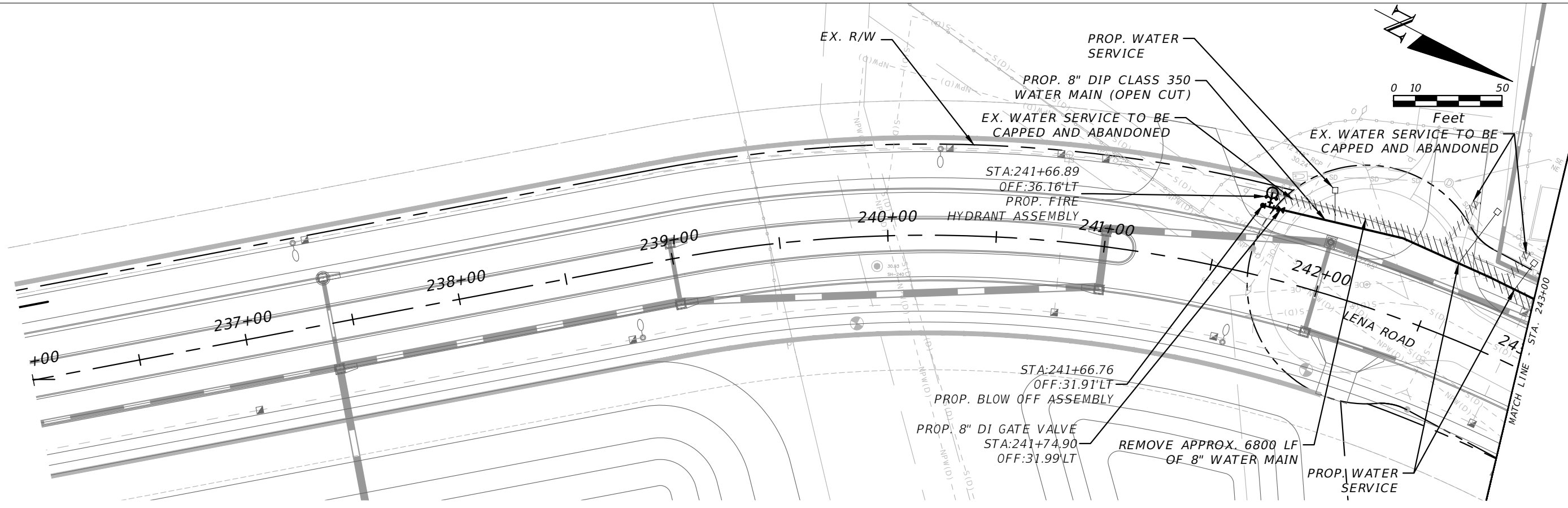
LICENSED PROFESSIONAL  
 JORDAN W. WALKER, P.E.  
 FL LICENSE NUMBER 78652

**KEY SHEET**

SHEET NUMBER  
4

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 200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701  
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PROJECT NO. 148400103
DATE 8/3/23
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**Manatee County Florida**

LENA ROAD UTILITY RELOCATIONS  
 MANATEE COUNTY  
 DEFAULT

LICENSED PROFESSIONAL

JORDAN W. WALKER, P.E.  
 FL LICENSE NUMBER 78652

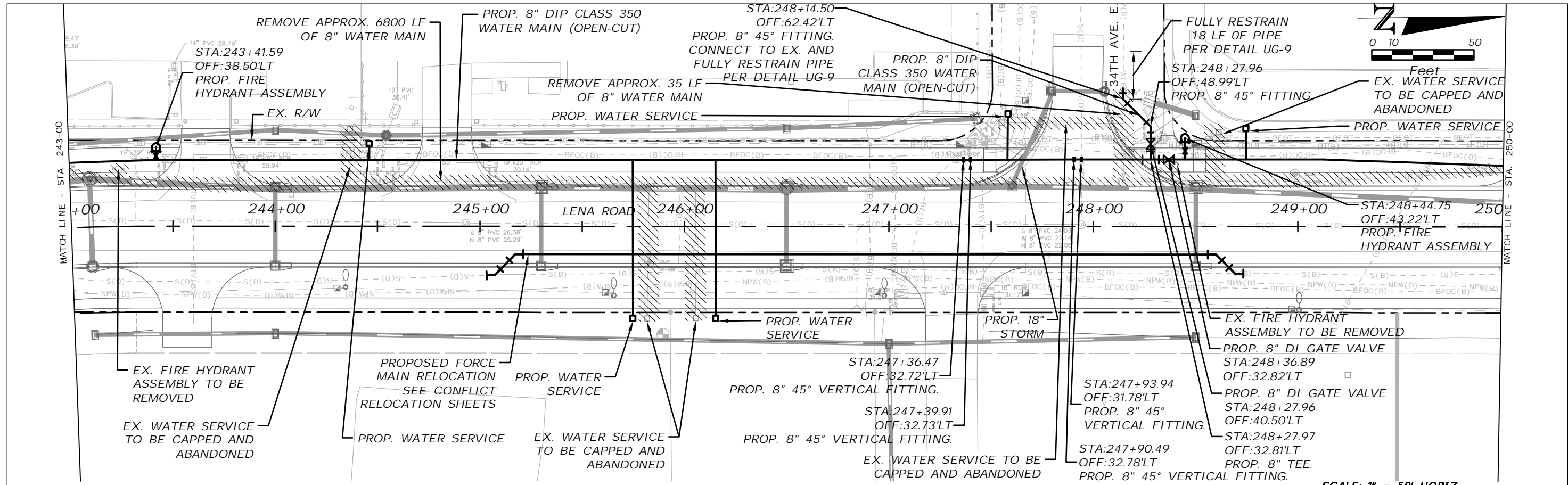
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**WATER MAIN  
 PLAN & PROFILE  
 [236 - 243]**

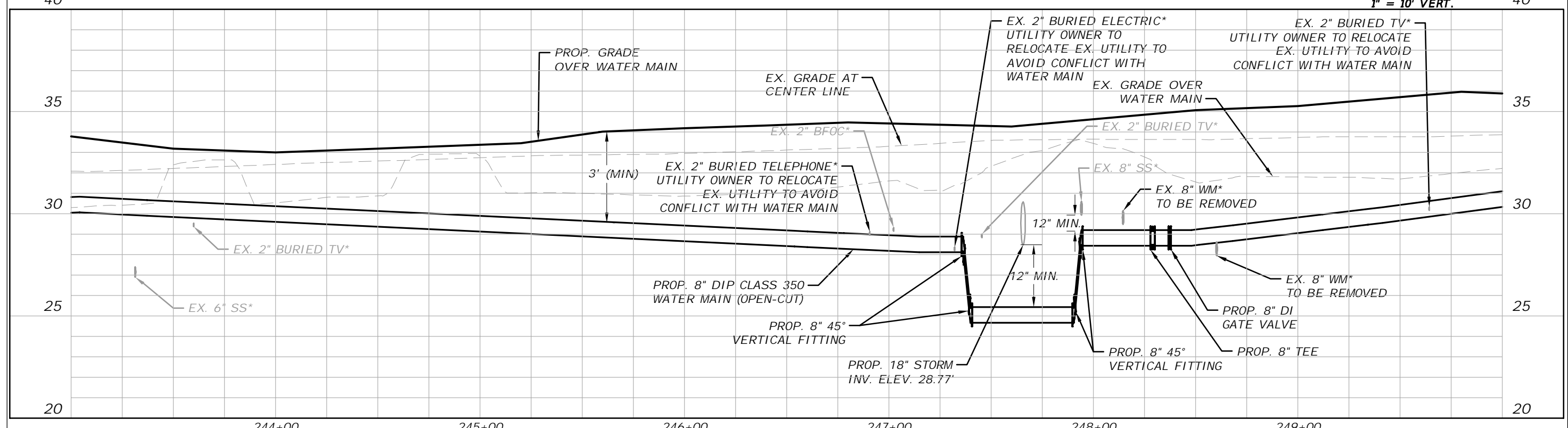
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**Manatee County Florida**

LENA ROAD UTILITY RELOCATIONS  
 MANATEE COUNTY

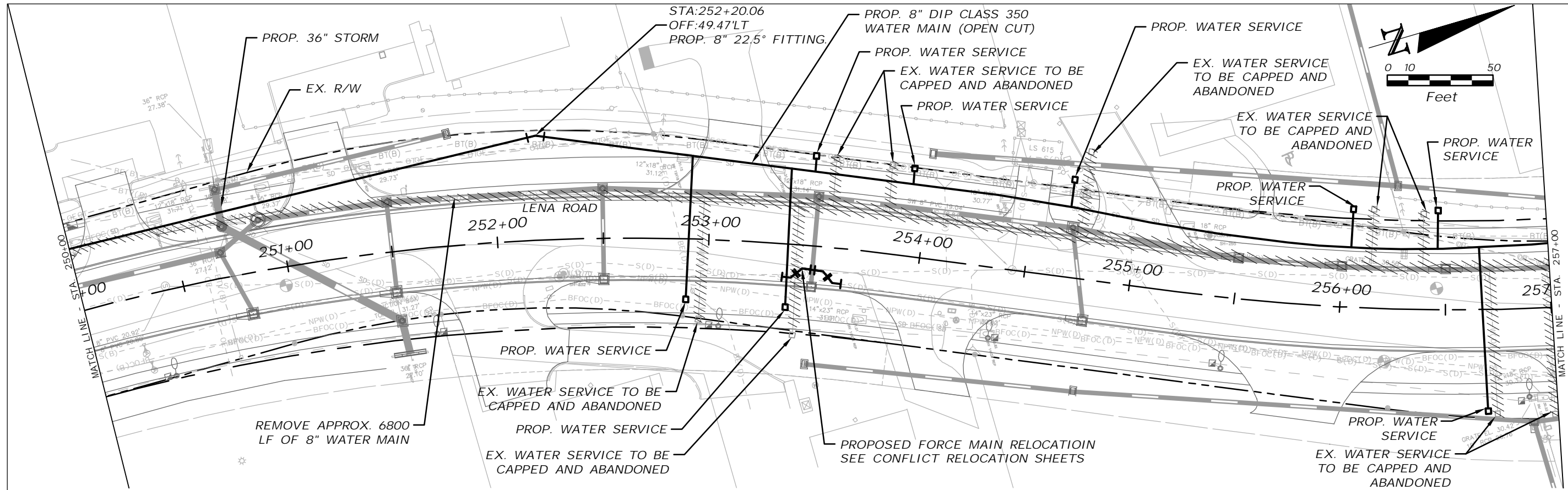
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 JORDAN W. WALKER, P.E.  
 FL LICENSE NUMBER 78652

WATER MAIN  
 PLAN & PROFILE  
 [243 - 250]

SHEET NUMBER  
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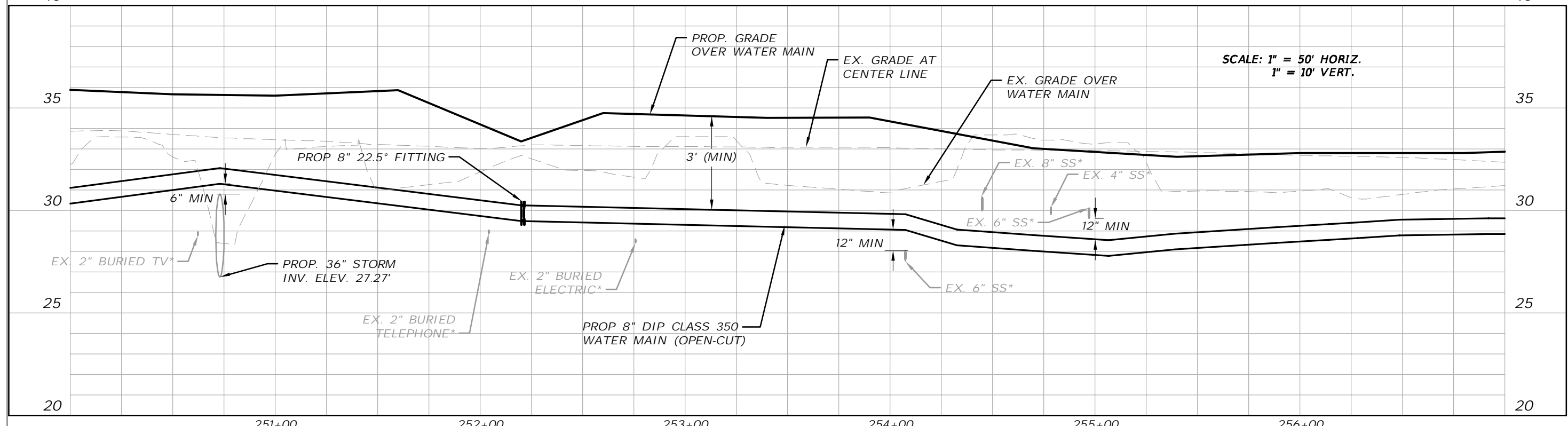
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251+00

252+00

253+00

254+00

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256+00

No.	REVISIONS	DATE	BY

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DATE 8/3/23
SCALE AS SHOWN
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 MANATEE COUNTY  
 8/3/2023 10:38 AM DEFAULT

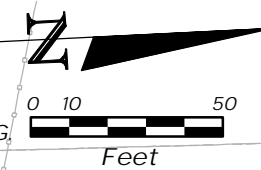
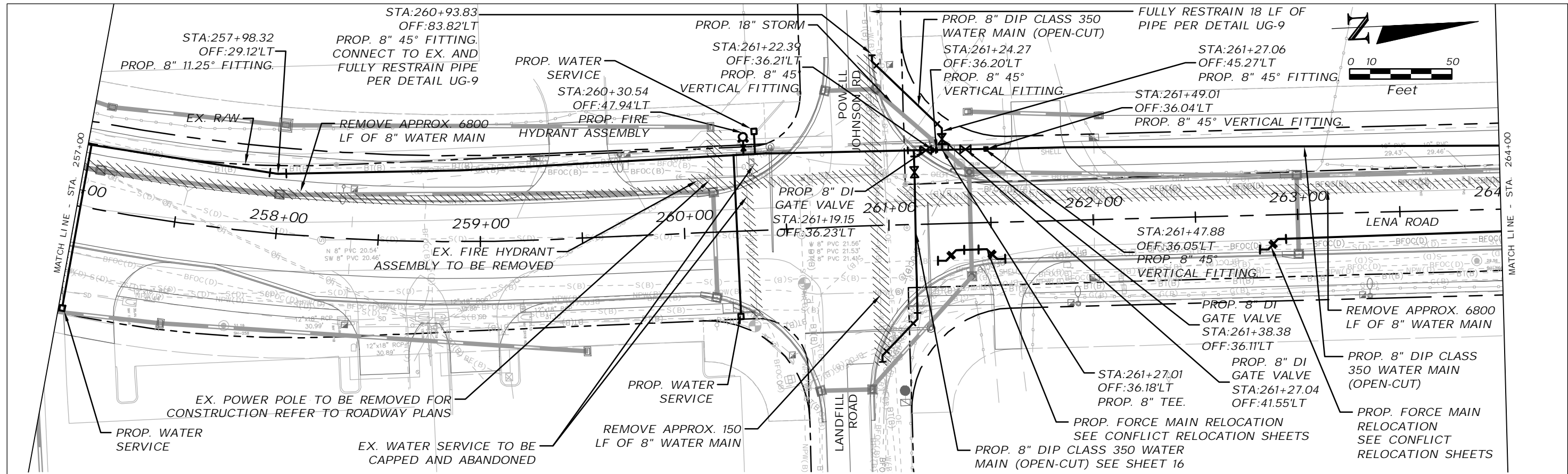
LICENSED PROFESSIONAL  
**JORDAN W. WALKER, P.E.**  
 FL LICENSE NUMBER  
 78652  
 FL DATE:

**WATER MAIN  
 PLAN & PROFILE  
 [250 - 257]**

SHEET NUMBER  
**7**

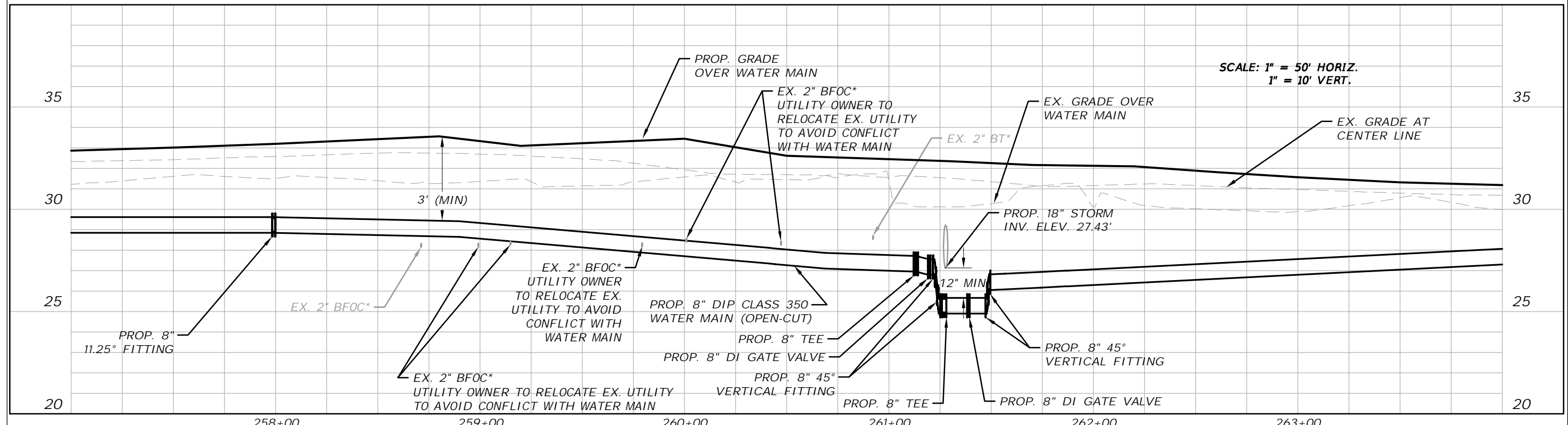
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1" = 10' VERT.

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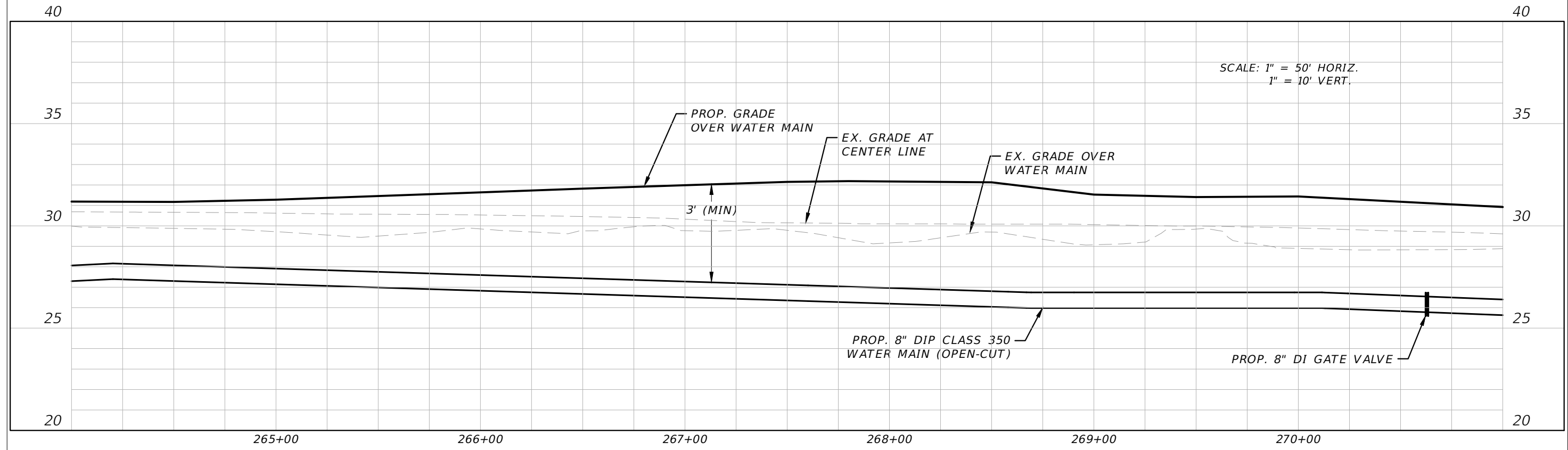
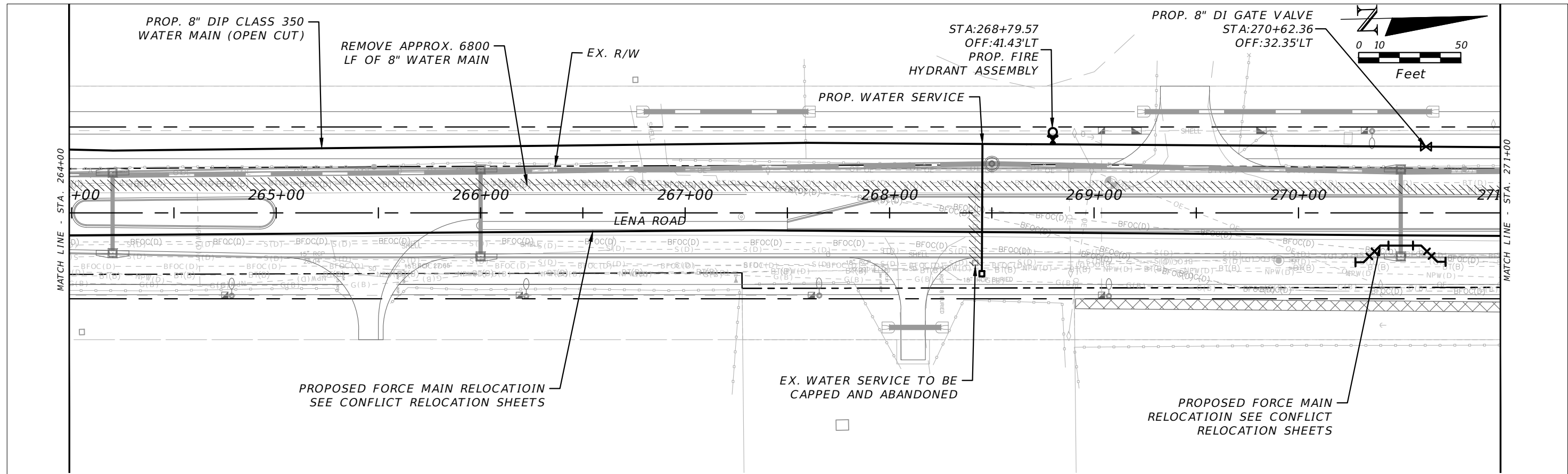
**Manatee County Florida**  
 LENA ROAD UTILITY RELOCATIONS  
 MANATEE COUNTY

LICENSED PROFESSIONAL  
**JORDAN W. WALKER, P.E.**  
 FL LICENSE NUMBER  
 78652

**WATER MAIN  
 PLAN & PROFILE**  
 [257 - 264]

SHEET NUMBER  
**8**

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**Manatee County Florida**

LENA ROAD UTILITY RELOCATIONS  
 MANATEE COUNTY  
 DEFAULT

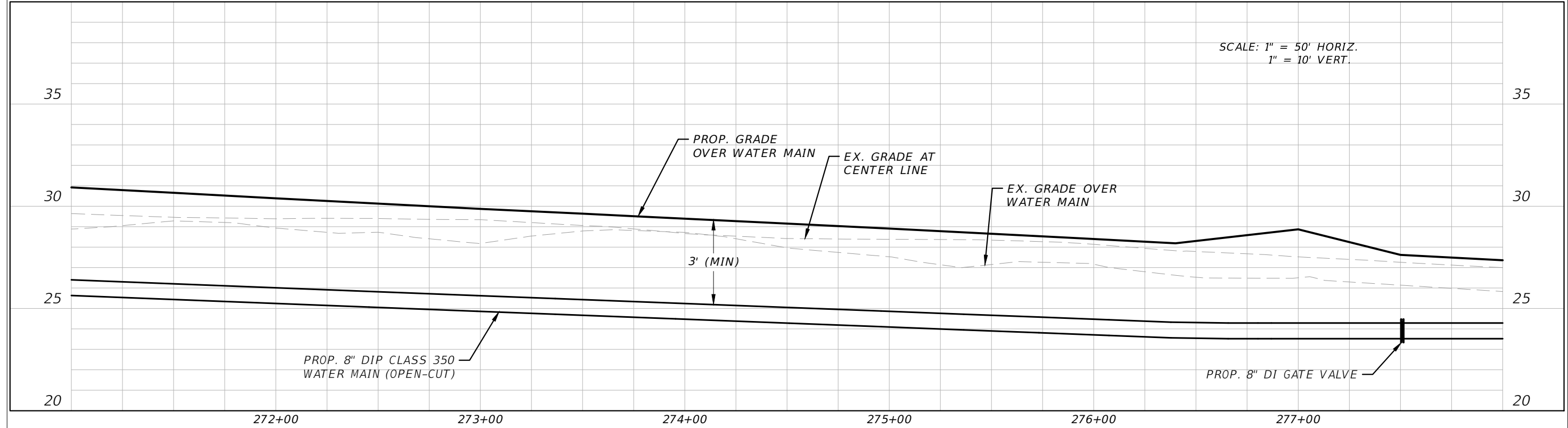
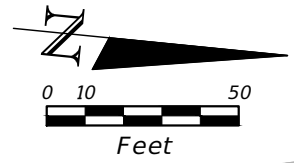
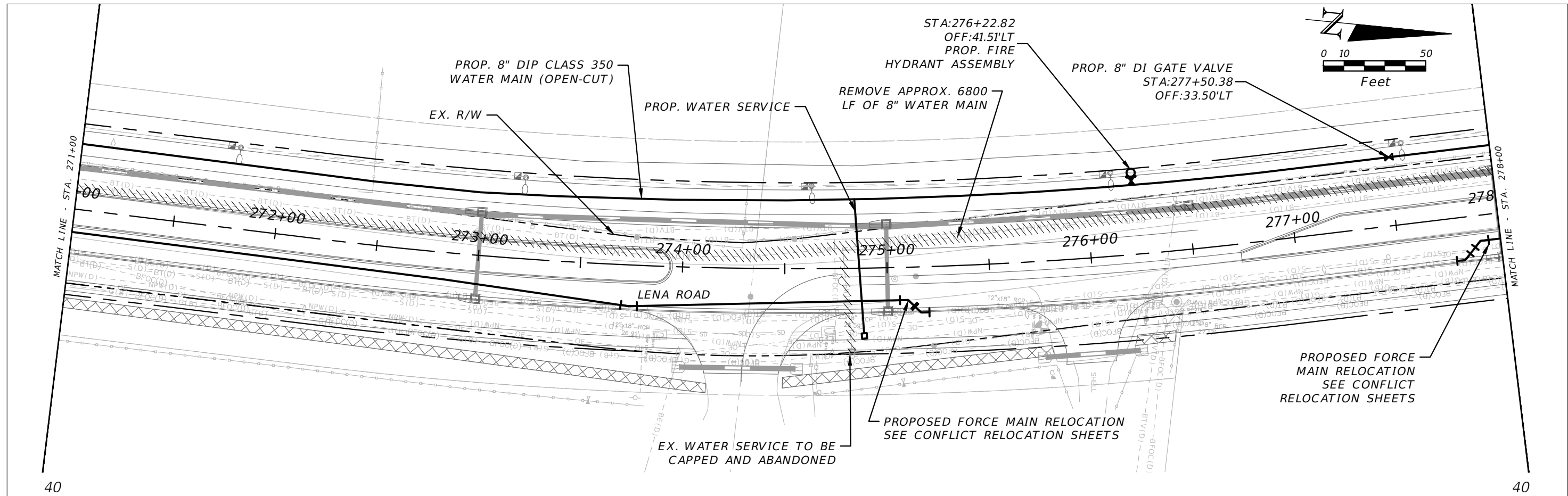
LICENSED PROFESSIONAL  
 JORDAN W. WALKER, P.E.  
 FL LICENSE NUMBER 78652  
 FL DATE:

**WATER MAIN  
 PLAN & PROFILE  
 [264 - 271]**

SHEET NUMBER  
 9

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**Manatee County Florida**

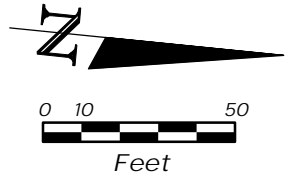
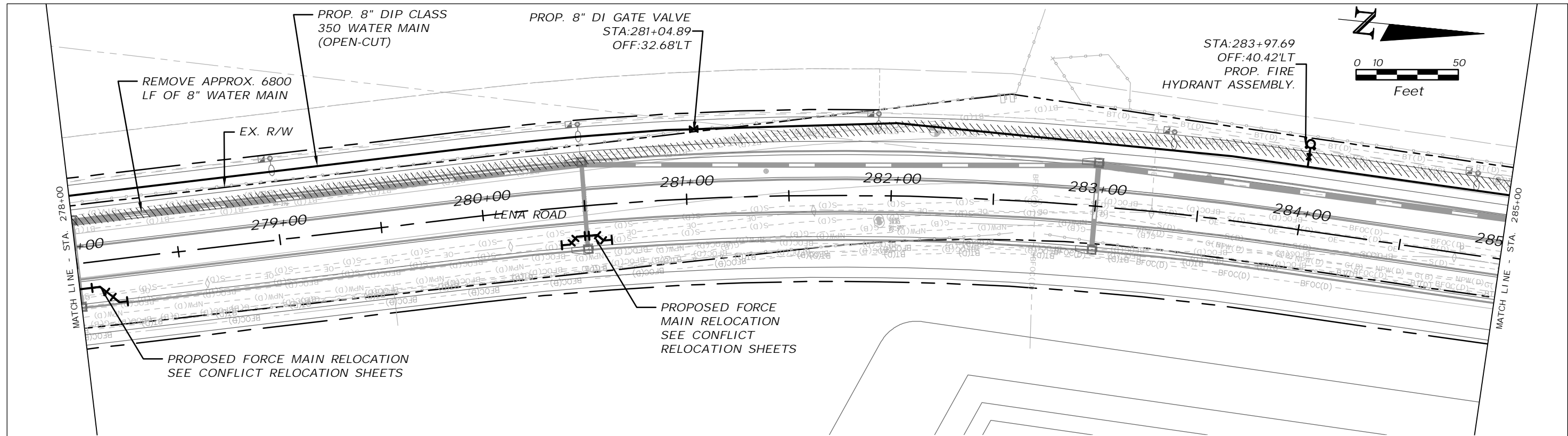
LENA ROAD UTILITY RELOCATIONS  
 MANATEE COUNTY  
 DEFAULT

LICENSED PROFESSIONAL  
 JORDAN W. WALKER, P.E.  
 FL LICENSE NUMBER 78652  
 FL DATE:

**WATER MAIN PLAN & PROFILE [271 - 278]**

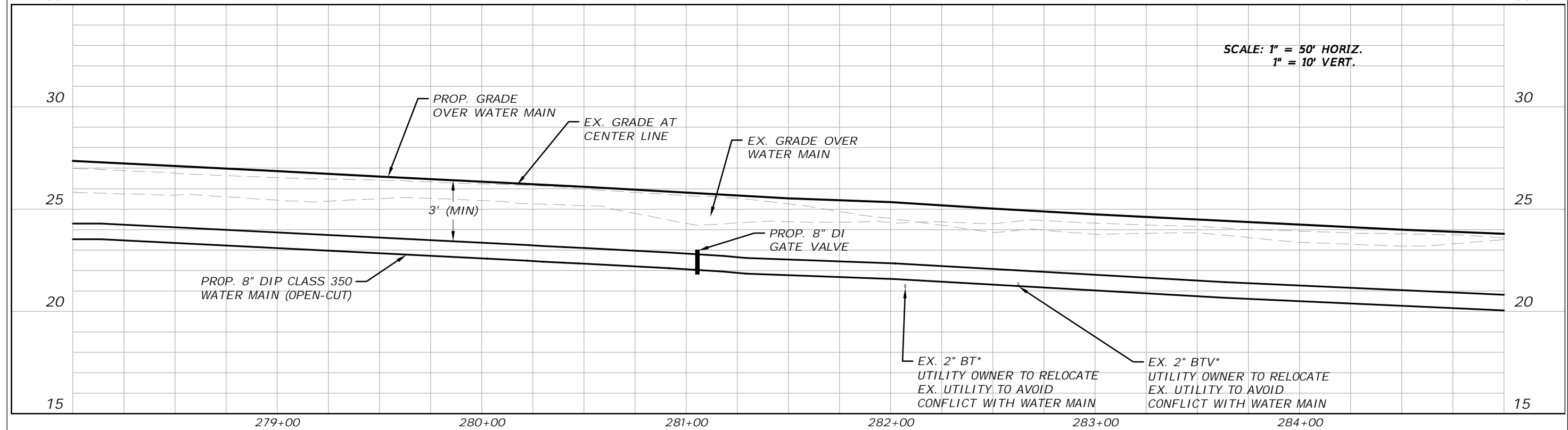
SHEET NUMBER  
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35



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No.	REVISIONS	DATE	BY

**Kimley-Horn**  
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**Manatee County**  
 LENA ROAD UTILITY RELOCATIONS  
 MANATEE COUNTY

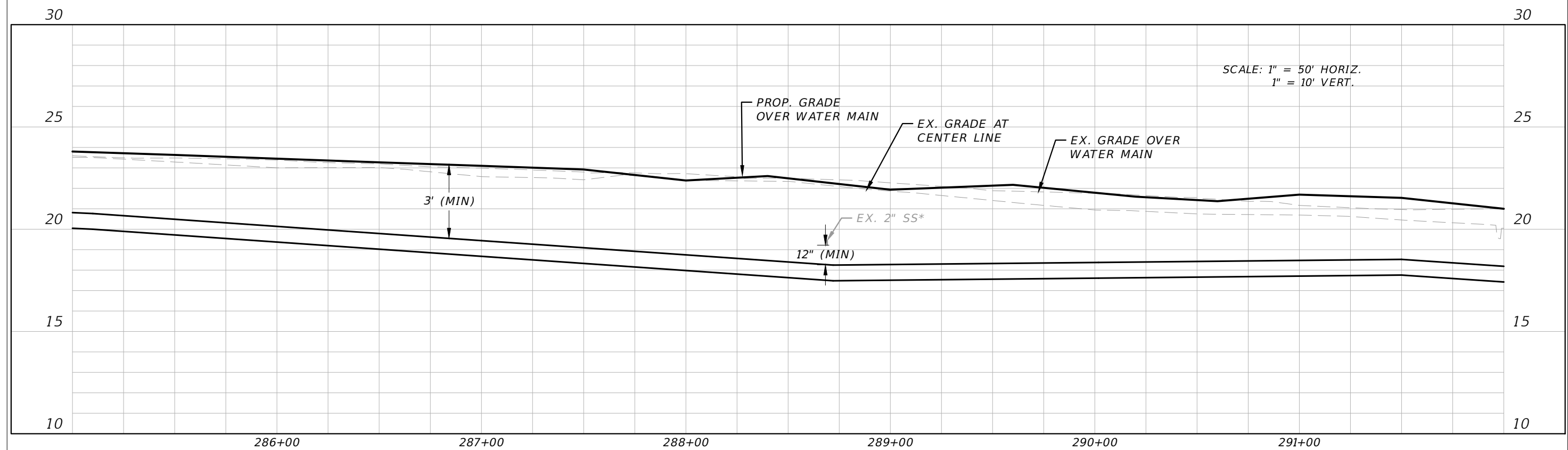
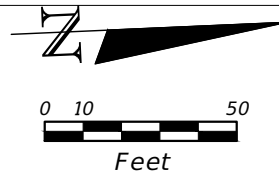
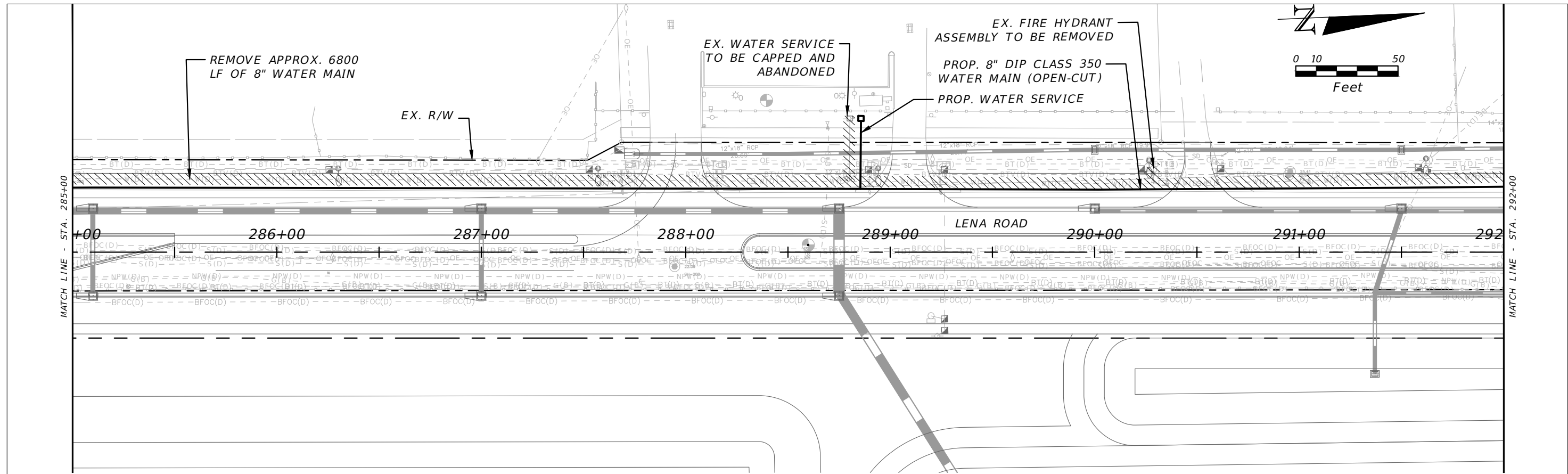
LICENSED PROFESSIONAL  
**JORDAN W. WALKER, P.E.**  
 FL LICENSE NUMBER  
 78652  
 FL DATE:

**WATER MAIN  
 PLAN & PROFILE  
 [278 - 285]**

SHEET NUMBER  
**11**

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**Manatee County Florida**

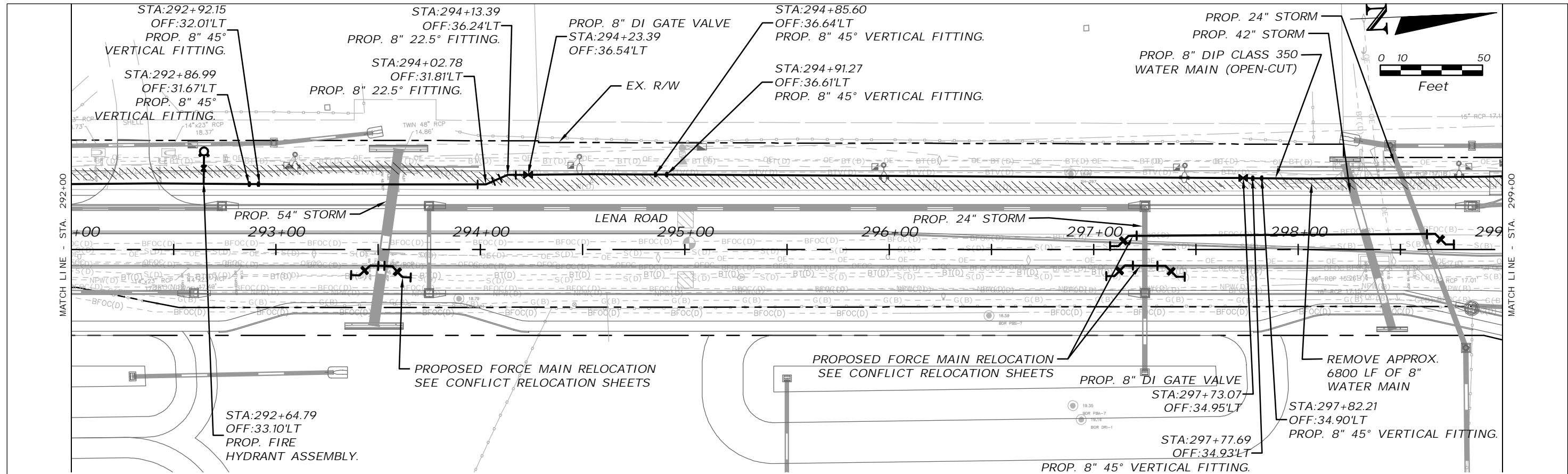
LENA ROAD UTILITY RELOCATIONS  
 MANATEE COUNTY

LICENSED PROFESSIONAL  
 JORDAN W. WALKER, P.E.  
 FL LICENSE NUMBER 78652

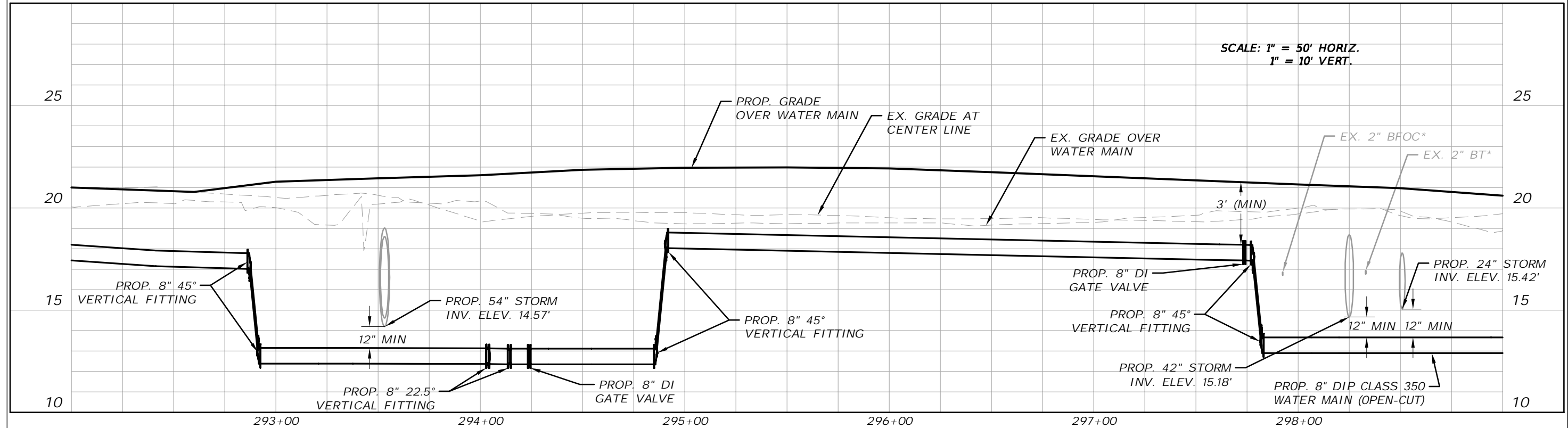
**WATER MAIN  
 PLAN & PROFILE  
 [285 - 292]**

SHEET NUMBER  
 12

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PROJECT NO.  
148400103  
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**Manatee County**  
 MANATEE COUNTY  
 LENA ROAD UTILITY RELOCATIONS  
 FL DATE: 8/3/2023 10:38 AM

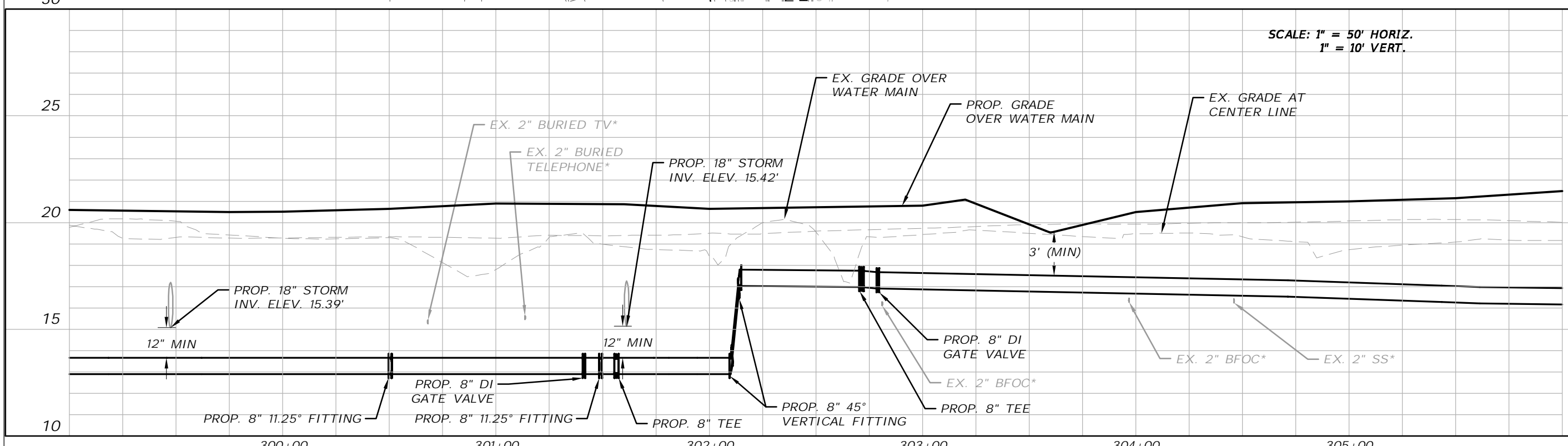
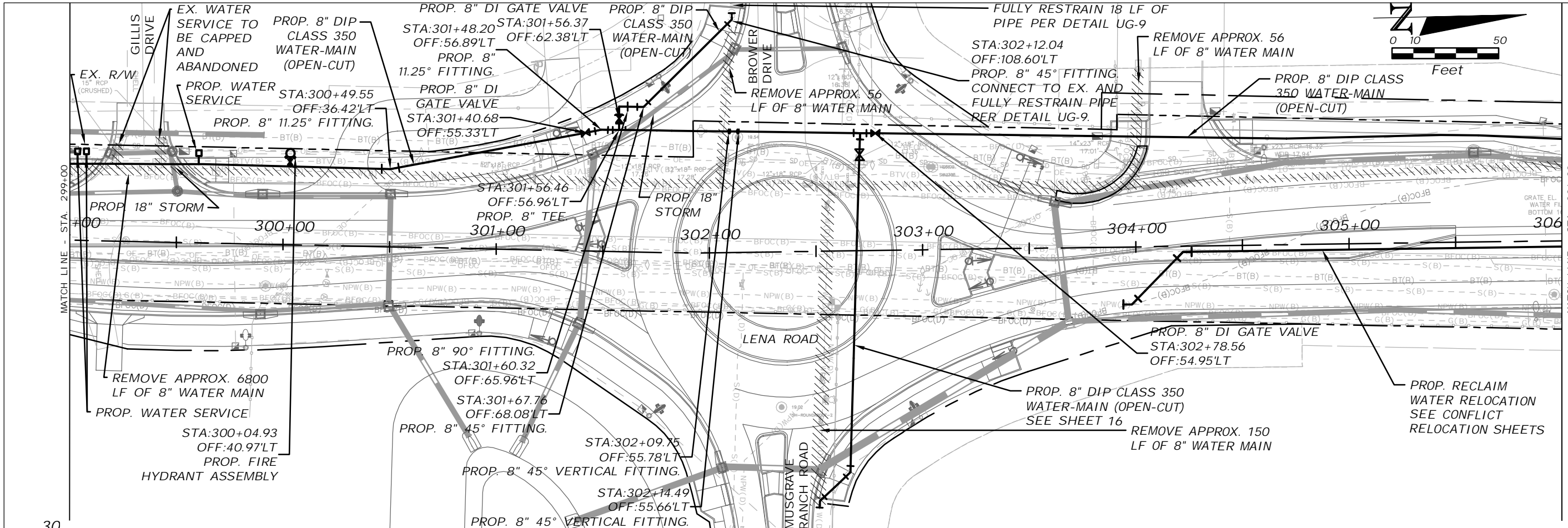
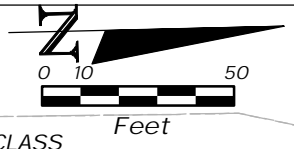
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**JORDAN W. WALKER, P.E.**  
 FL LICENSE NUMBER  
78652

**WATER MAIN  
 PLAN & PROFILE  
 [292 - 299]**

SHEET NUMBER  
13

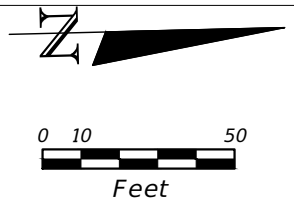
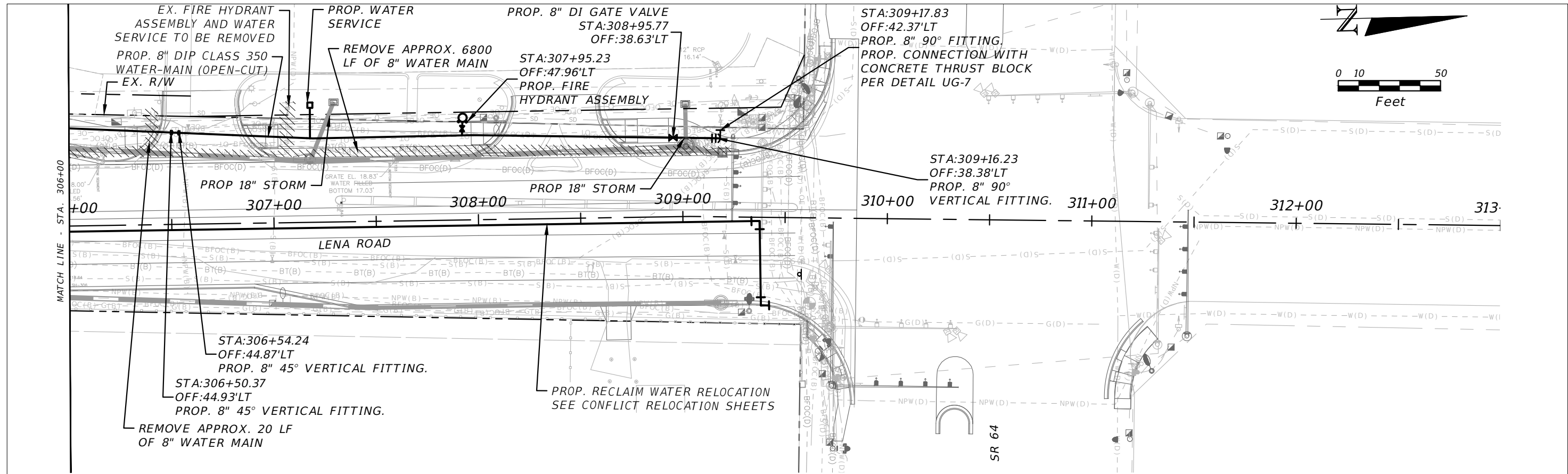
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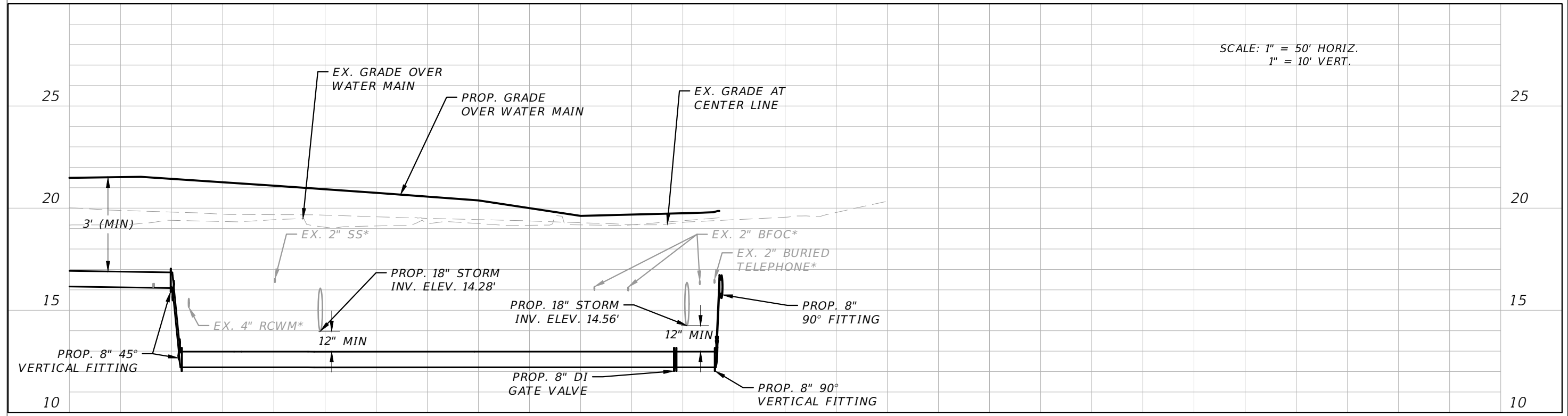
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No.	REVISIONS	DATE	BY	FL DATE:		

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**Kimley Horn**  
 KIMLEY-HORN AND ASSOCIATES, INC.  
 200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701  
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 DRAWN BY BMS  
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**Manatee County Florida**  
 LENA ROAD UTILITY RELOCATIONS  
 MANATEE COUNTY  
 8/3/2023 10:38 AM DEFAULT

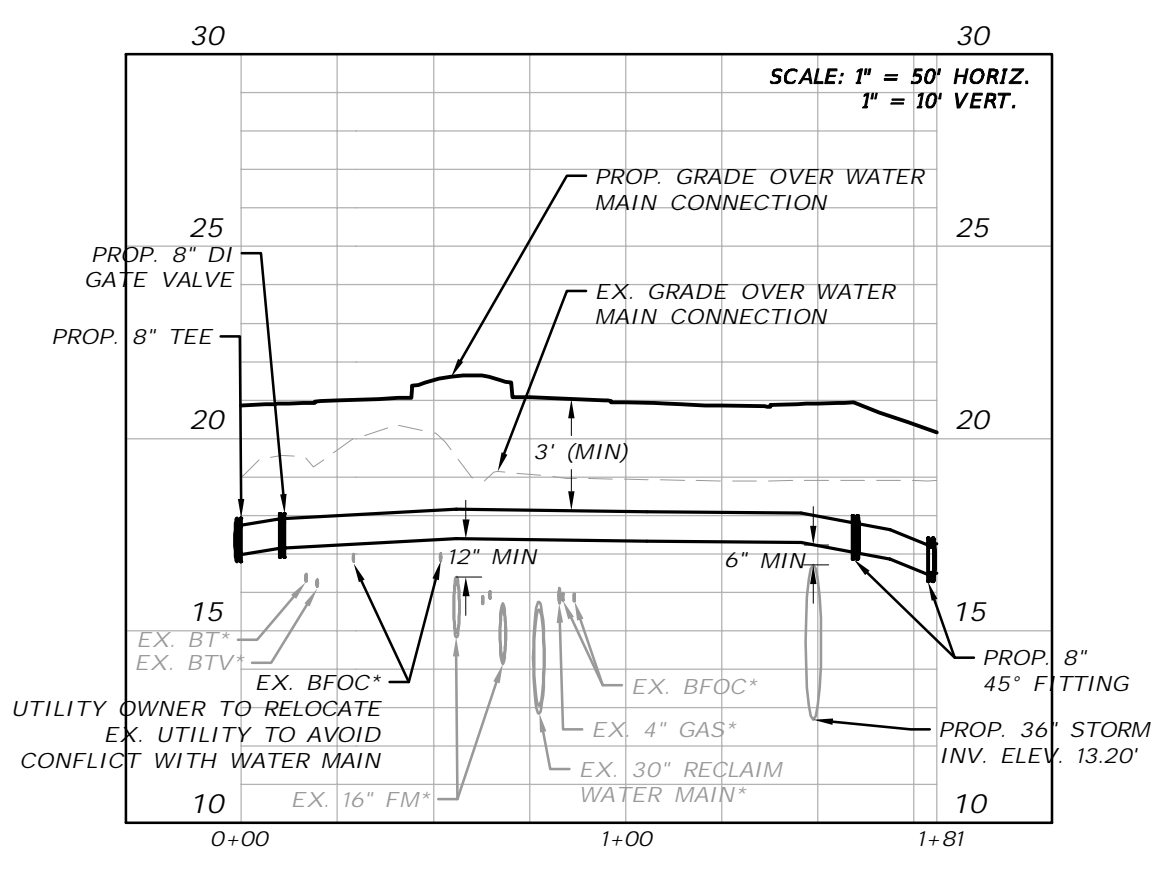
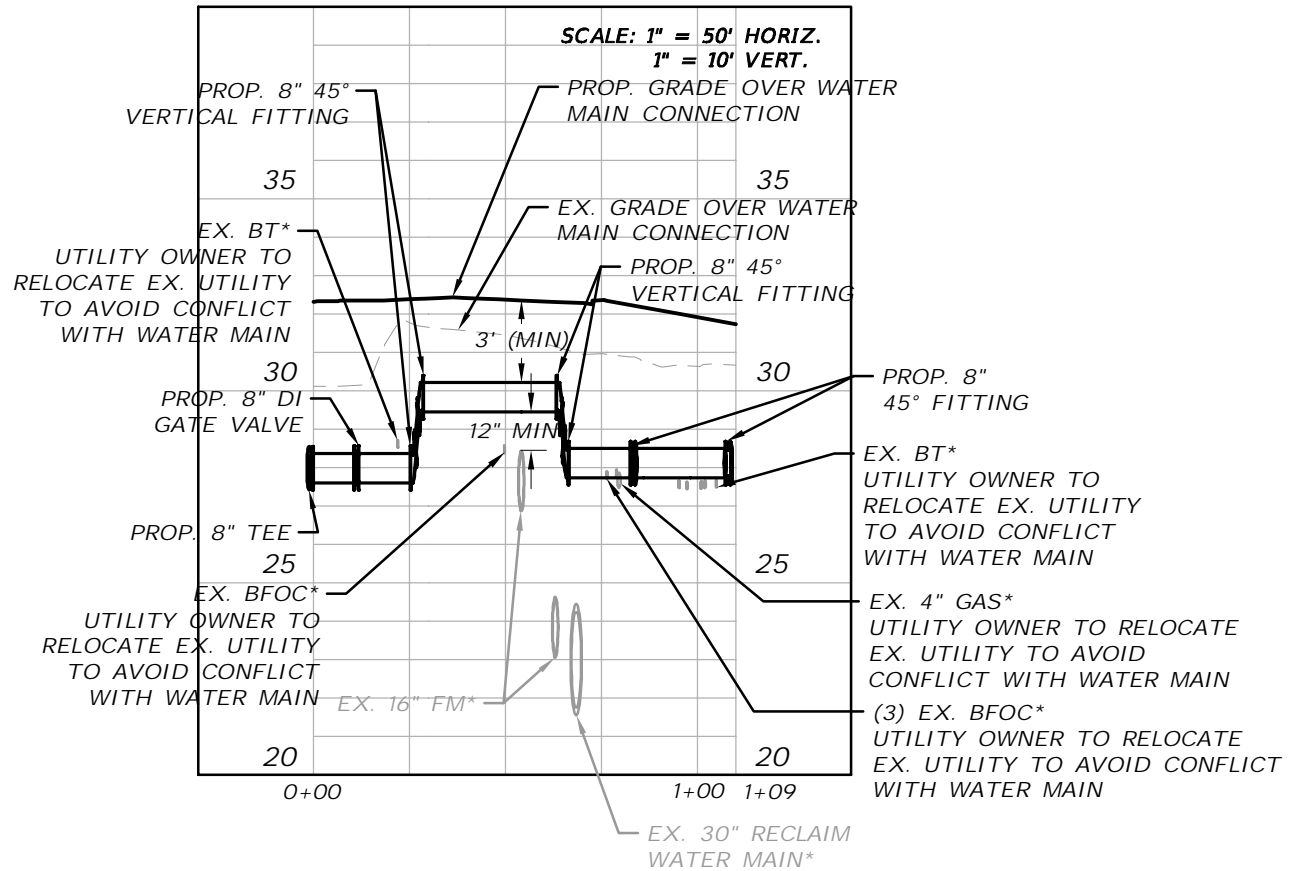
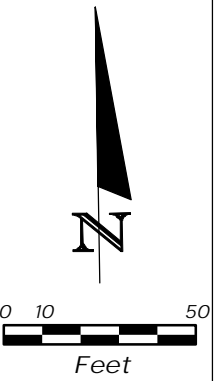
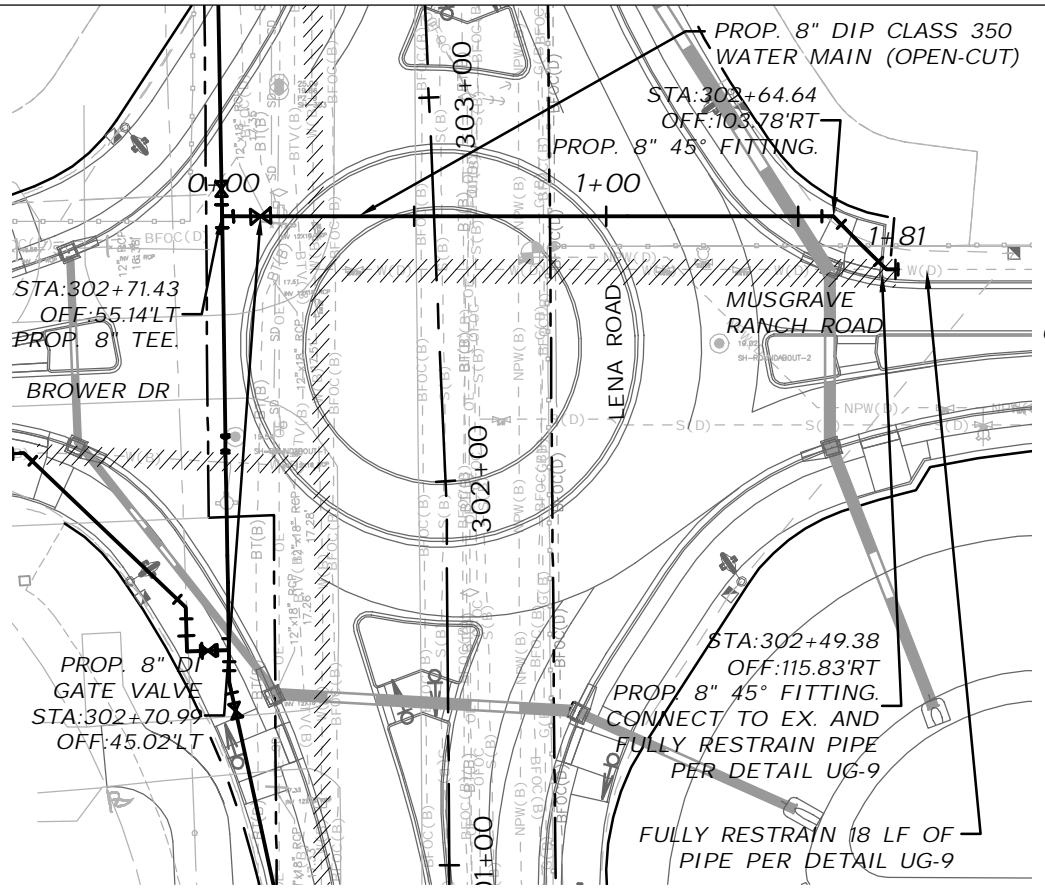
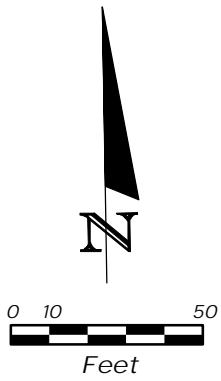
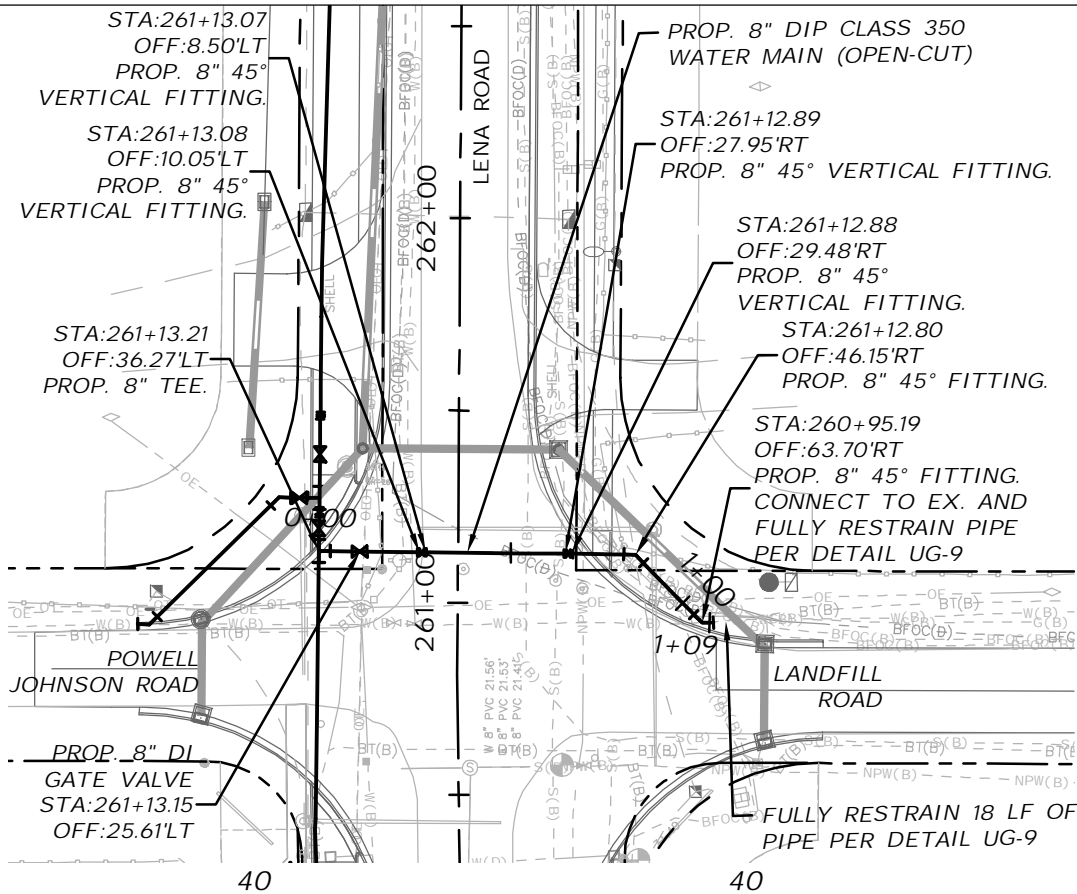
LICENSED PROFESSIONAL  
 JORDAN W. WALKER, P.E.  
 FL LICENSE NUMBER 78652  
 FL DATE:

**WATER MAIN  
 PLAN & PROFILE  
 [306 - 313]**

SHEET NUMBER  
 15

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.





No.	REVISIONS	DATE	BY

**Kimley-Horn**  
 KIMLEY-HORN AND ASSOCIATES, INC.  
 200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701  
 PHONE: (727) 547-3999  
 WWW.KIMLEY-HORN.COM

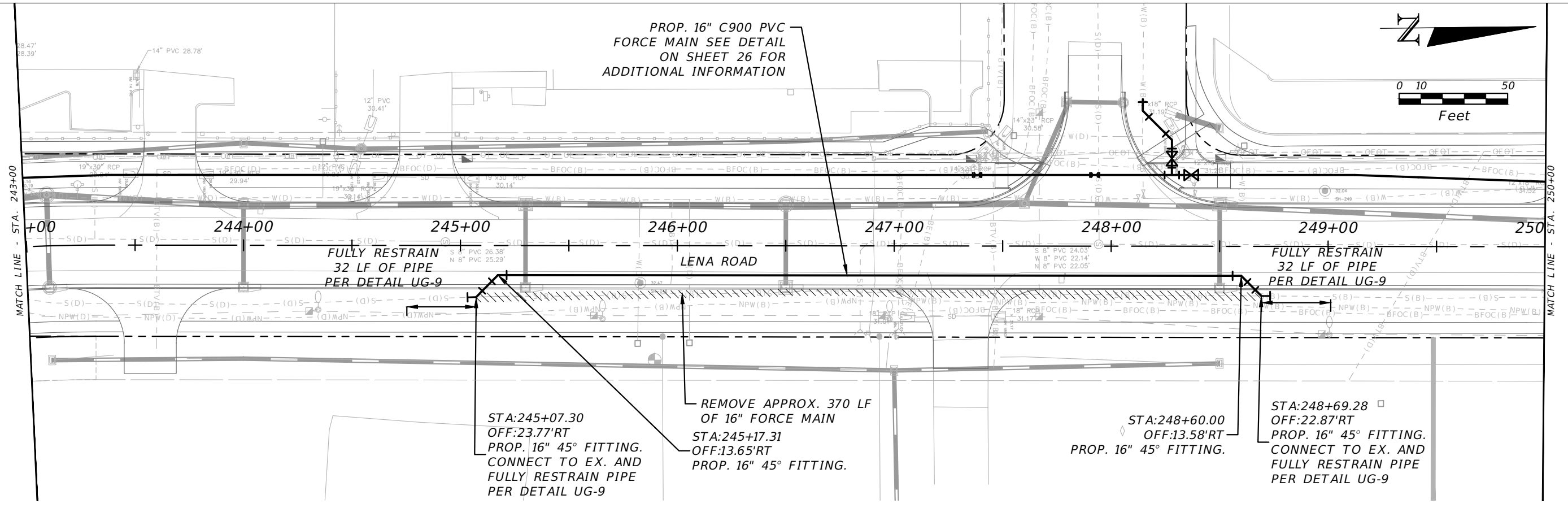
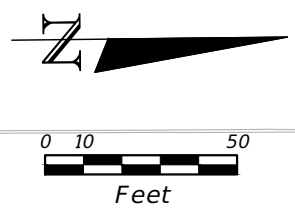
PROJECT NO. 148400103  
 DATE 8/3/23  
 SCALE AS SHOWN  
 DESIGNED BY JWW  
 DRAWN BY BMS  
 CHECKED BY SLB  
 8/3/2023 10:38 AM

LICENSED PROFESSIONAL  
**JORDAN W. WALKER, P.E.**  
 FL LICENSE NUMBER 78652  
 FL DATE:

**WATER MAIN INTERSECTIONS**

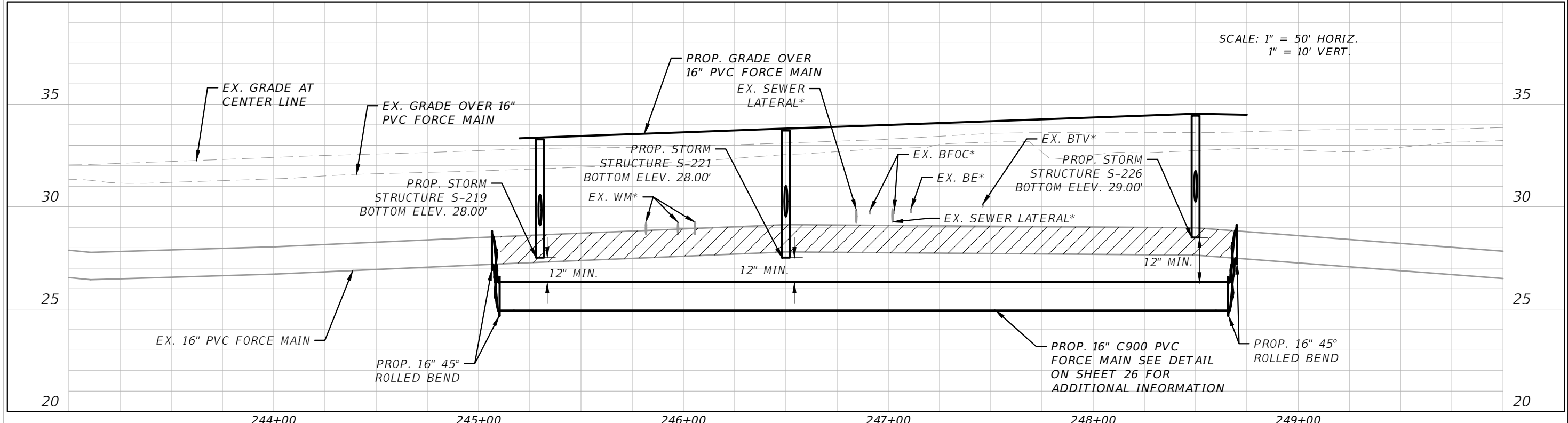
SHEET NUMBER  
**16**

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



40

40



No.	REVISIONS	DATE	BY

**Kimley** **Horn**

KIMLEY-HORN AND ASSOCIATES, INC.  
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PROJECT NO. 148400103
DATE 8/3/23
SCALE AS SHOWN
DESIGNED BY JWW
DRAWN BY BMS
CHECKED BY SLB

**Manatee County Florida**

LENA ROAD UTILITY RELOCATIONS  
 MANATEE COUNTY  
 8/3/2023 10:38 AM      DEFAULT

LICENSED PROFESSIONAL

JORDAN W. WALKER, P.E.  
 FL LICENSE NUMBER 78652

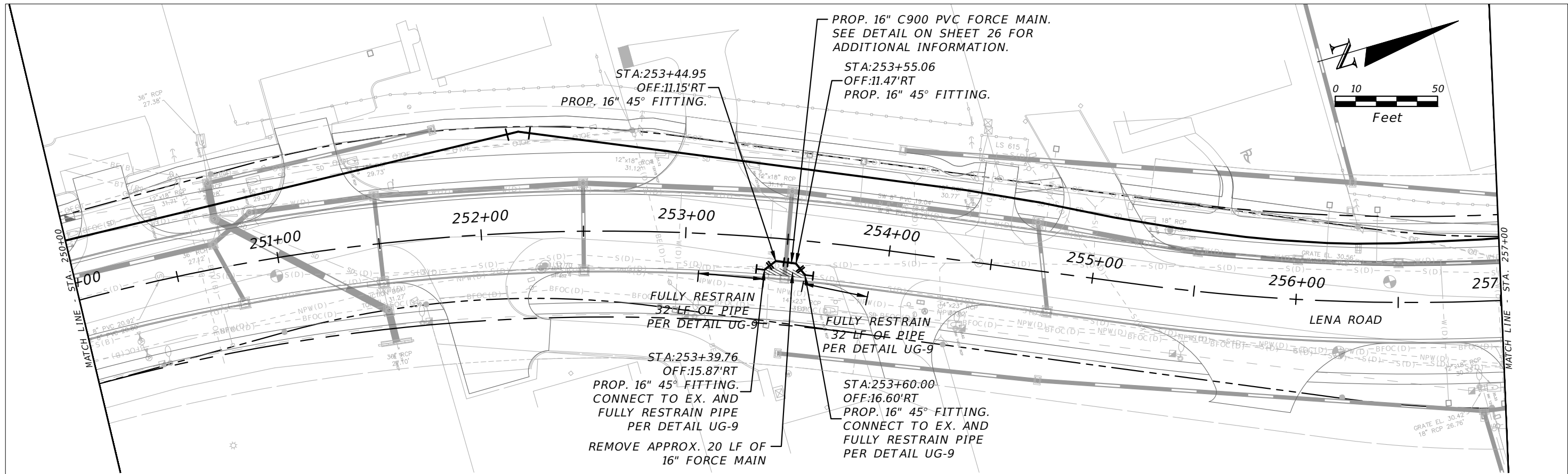
FL DATE:

**CONFLICT RELOCATION**  
 [243+00 - 250+00]

SHEET NUMBER  
 17

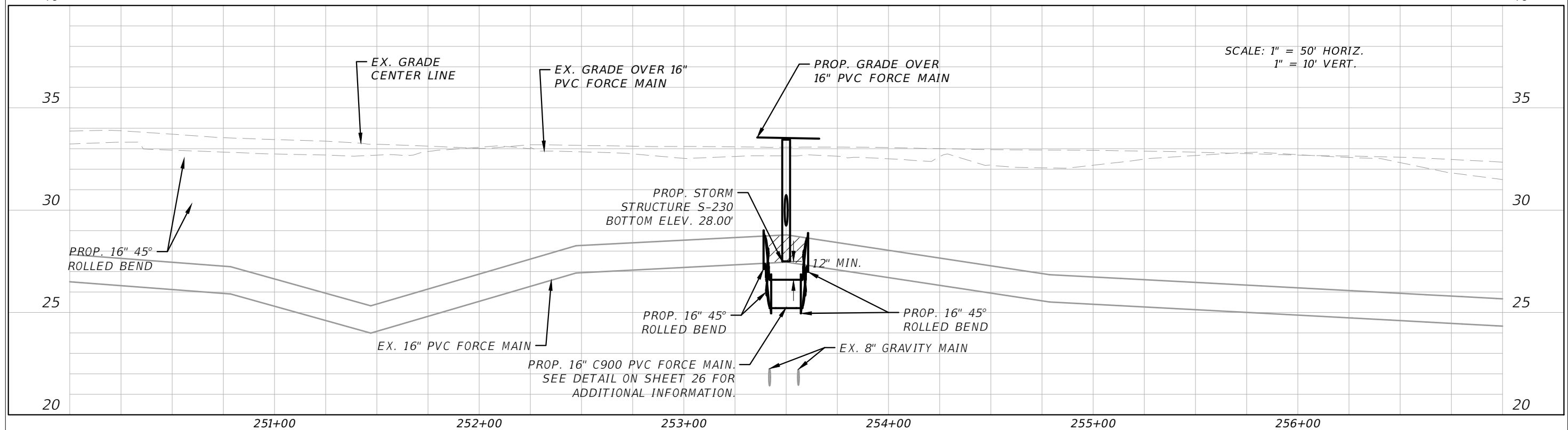
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SCALE: 1" = 50' HORIZ.  
1" = 10' VERT.

No.	REVISIONS	DATE	BY

**Kimley-Horn**  
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**Manatee County Florida**

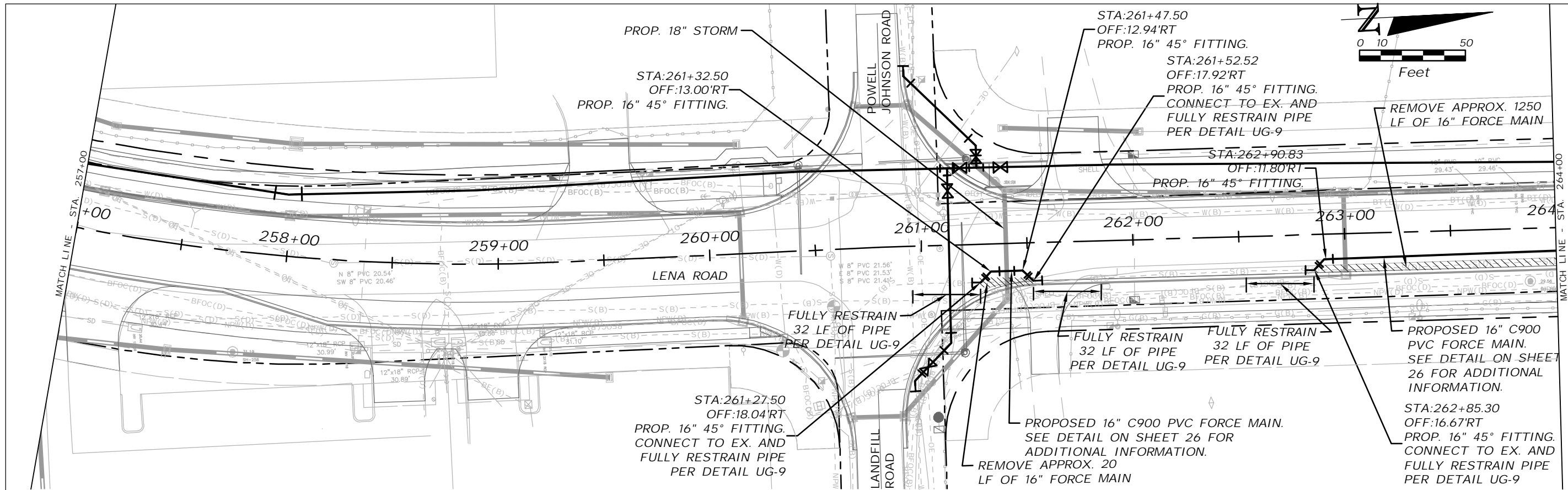
LENA ROAD UTILITY RELOCATIONS  
 MANATEE COUNTY

LICENSED PROFESSIONAL  
 JORDAN W. WALKER, P.E.  
 FL LICENSE NUMBER 78652

**CONFLICT RELOCATION**  
 [250+00 - 257+00]

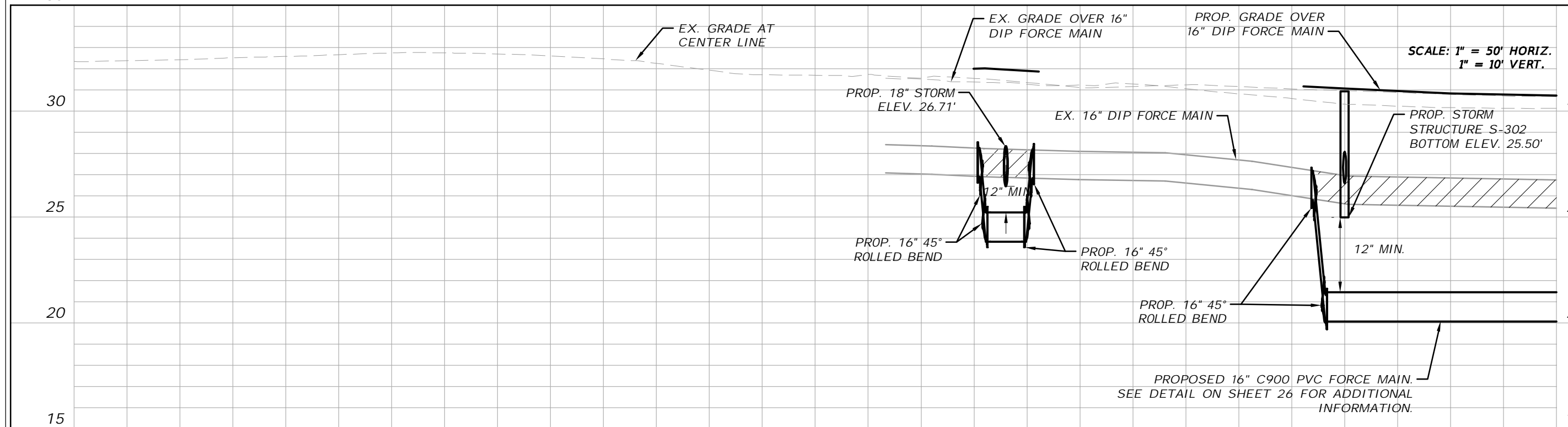
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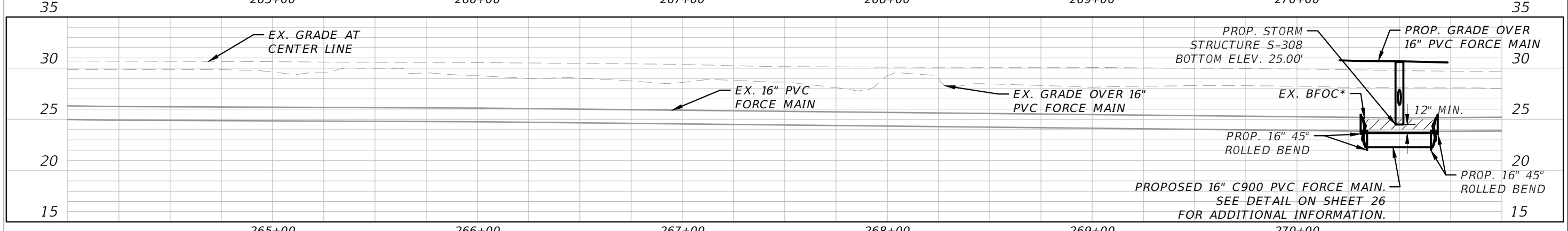
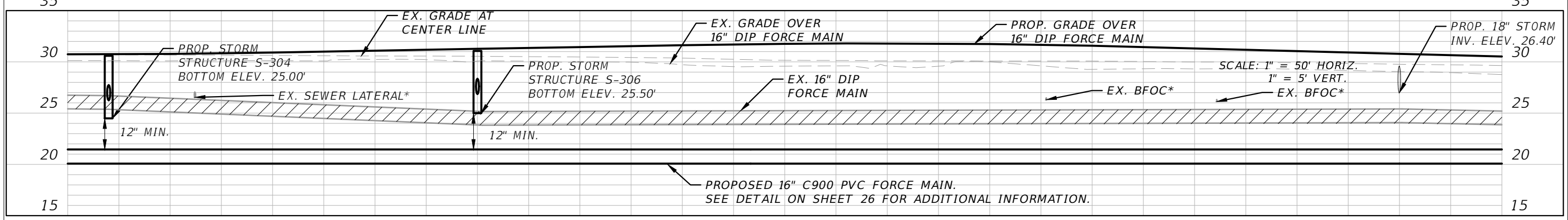
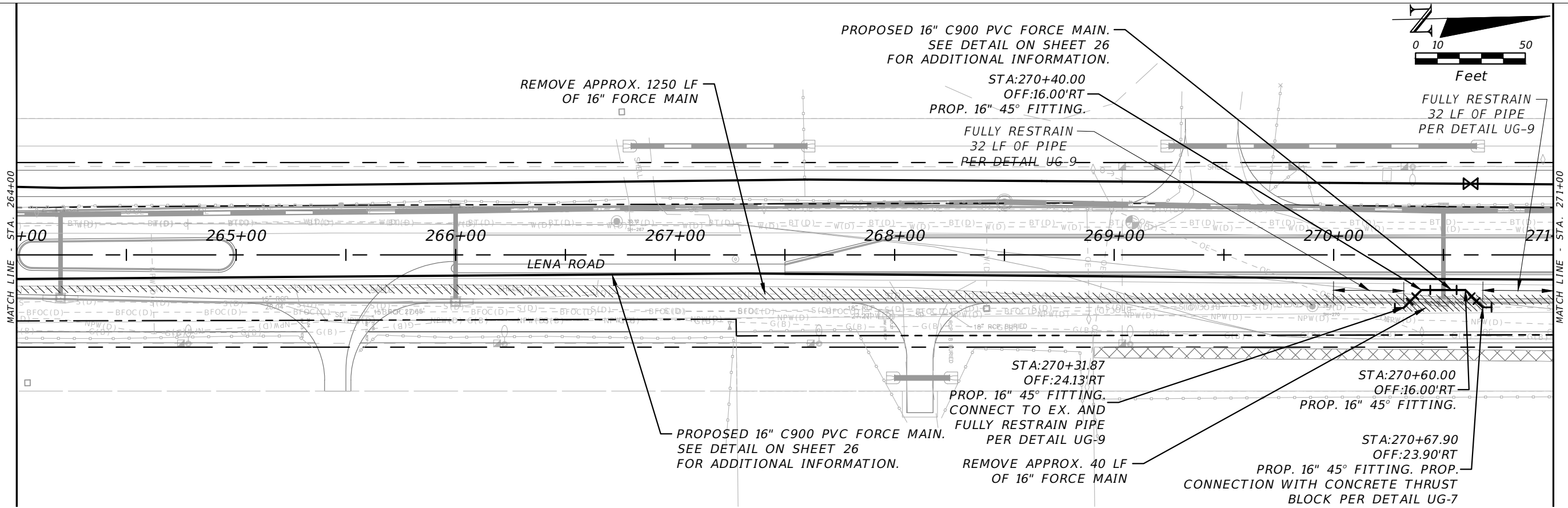
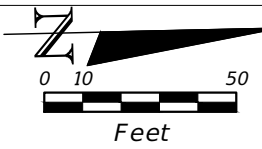



<p><b>Kimley-Horn</b> KIMLEY-HORN AND ASSOCIATES, INC. 200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701 PHONE: (727) 547-3999 WWW.KIMLEY-HORN.COM</p>		<p>PROJECT NO. 148400103</p> <p>DATE 8/3/23</p> <p>SCALE AS SHOWN</p> <p>DESIGNED BY JWW</p> <p>DRAWN BY BMS</p> <p>CHECKED BY SLB</p>	<p>LENA ROAD UTILITY RELOCATIONS MANATEE COUNTY</p>	<p>LICENSED PROFESSIONAL</p> <p>JORDAN W. WALKER, P.E. FL LICENSE NUMBER 78652</p>	<p>CONFLICT RELOCATION [257+00 - 264+00]</p>	<p>SHEET NUMBER 19</p>
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No.	REVISIONS	DATE	BY

8/3/2023 10:38 AM DEFAULT

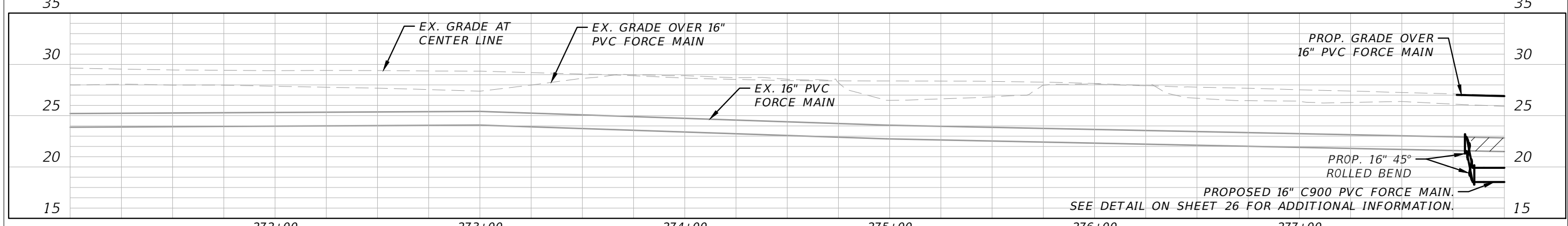
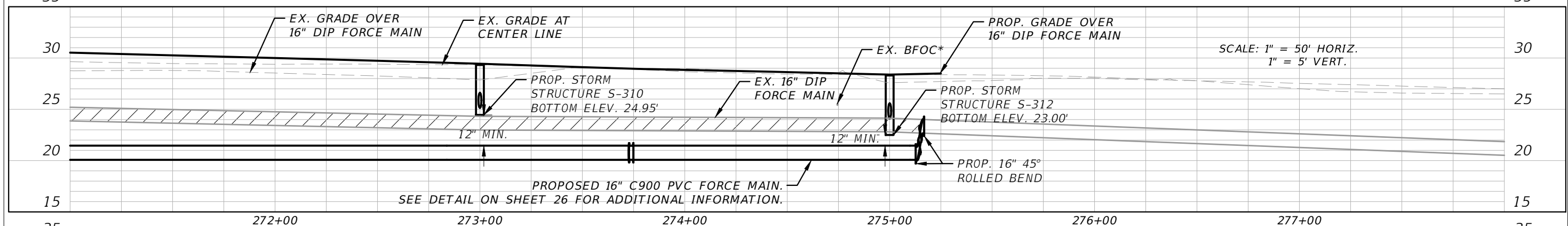
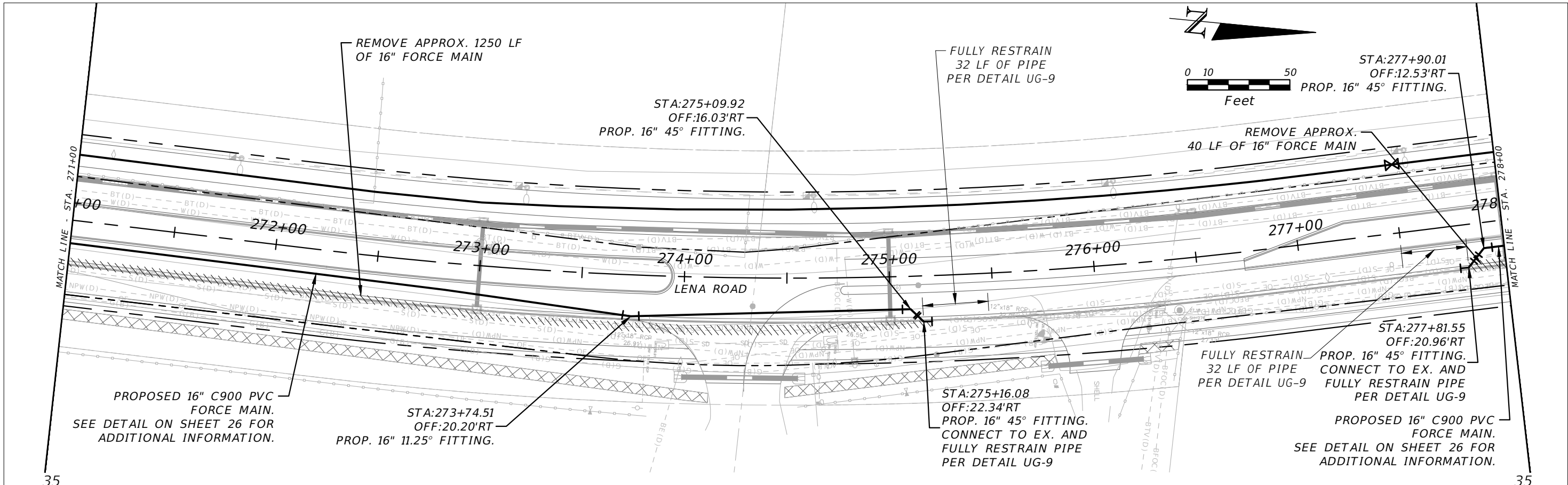
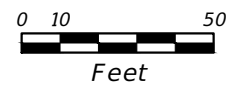
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F. A. C.



	<b>Kimley-Horn</b> <small>KIMLEY-HORN AND ASSOCIATES, INC.          200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701          PHONE: (727) 547-3999          WWW.KIMLEY-HORN.COM</small>	<small>PROJECT NO. 148400103 DATE 8/3/23 SCALE AS SHOWN DESIGNED BY JWW DRAWN BY BMS CHECKED BY SLB</small>	 <b>MANATEE COUNTY</b> LENA ROAD UTILITY RELOCATIONS <small>FL DATE:</small>	<small>LICENSED PROFESSIONAL</small> JORDAN W. WALKER, P.E. <small>FL LICENSE NUMBER 78652</small>	<b>CONFLICT RELOCATION</b> <b>[264+00 - 271+00]</b>	<small>SHEET NUMBER</small> <b>20</b>
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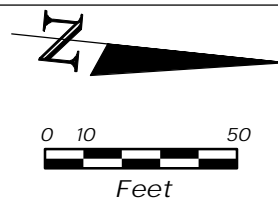
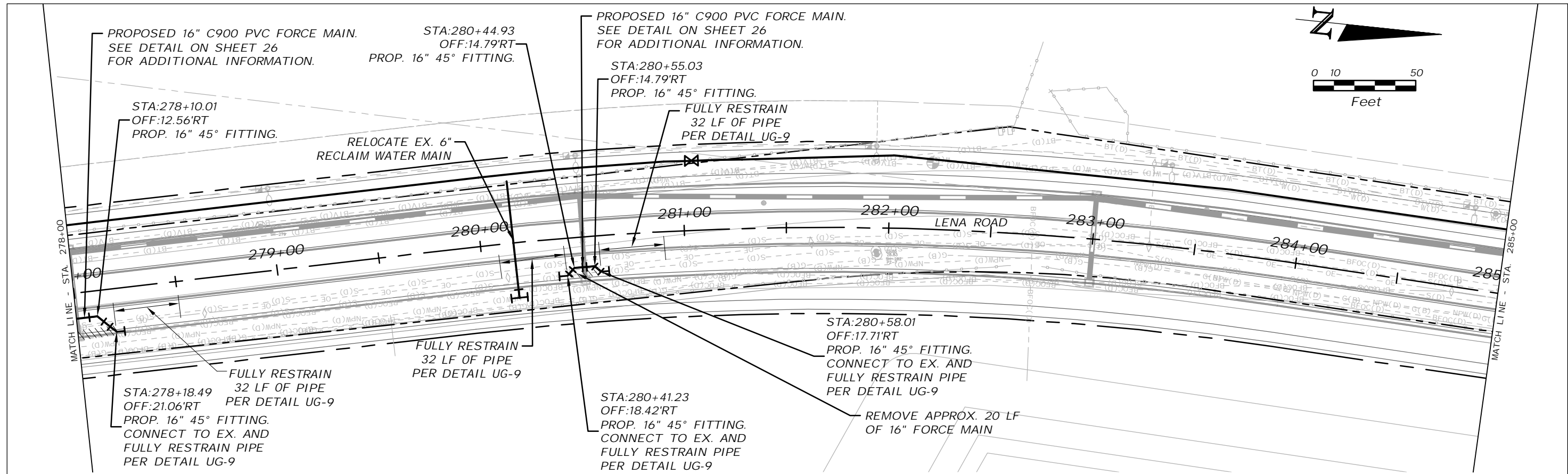
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.





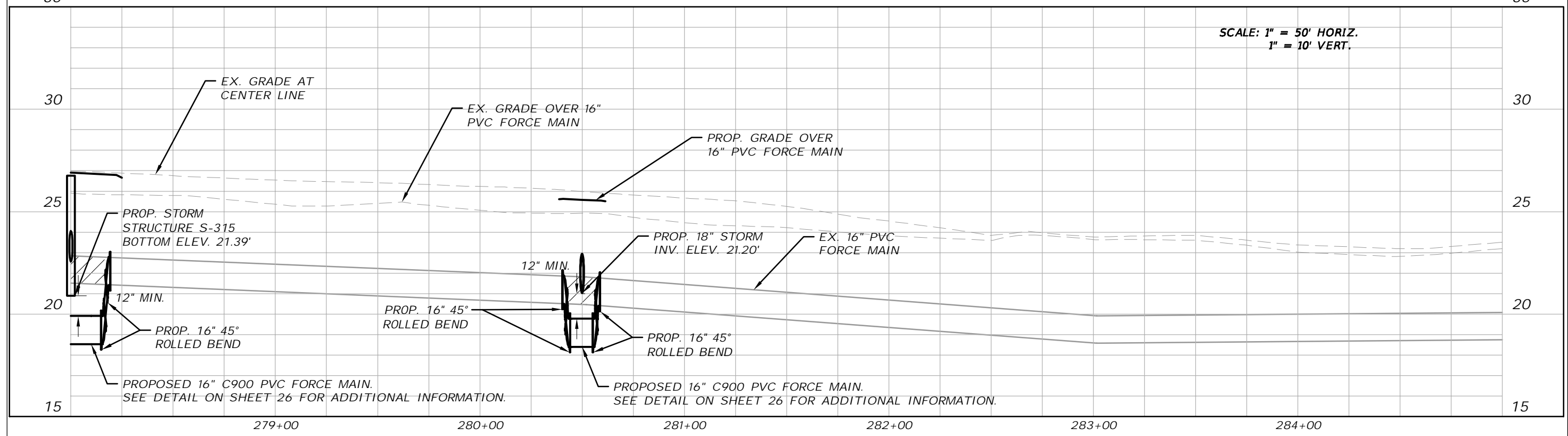
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SCALE: 1" = 50' HORIZ.  
1" = 10' VERT.

No.	REVISIONS	DATE	BY

**Kimley-Horn**  
 KIMLEY-HORN AND ASSOCIATES, INC.  
 200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701  
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PROJECT NO. 148400103  
 DATE 8/3/23  
 SCALE AS SHOWN  
 DESIGNED BY JWW  
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**Manatee County Florida**

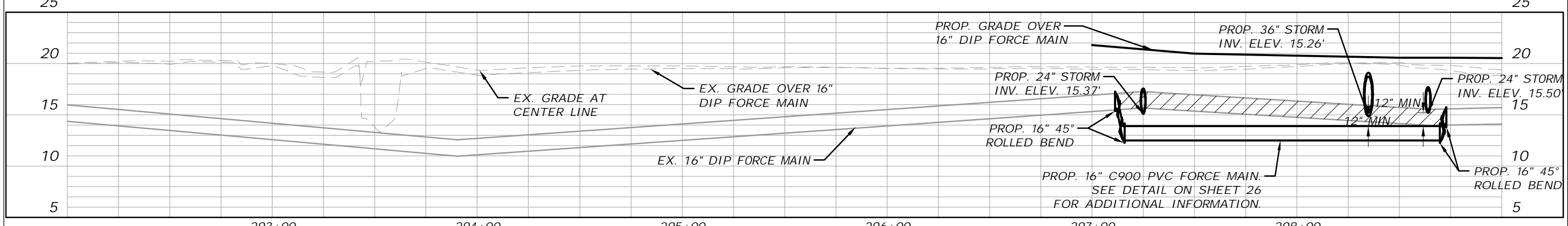
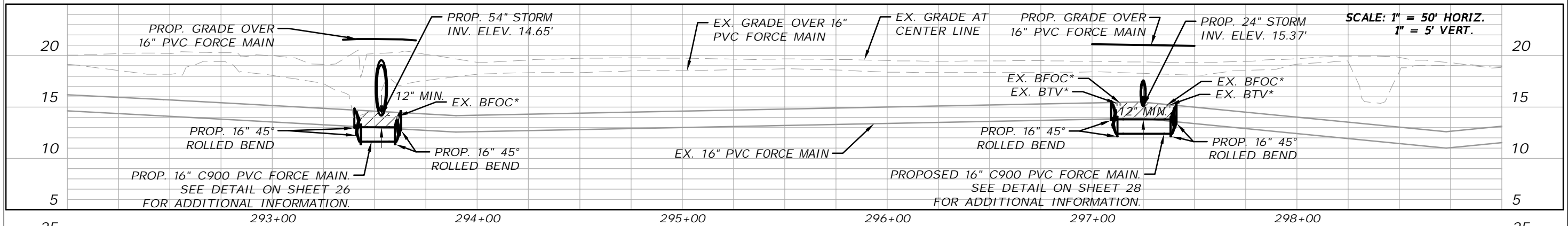
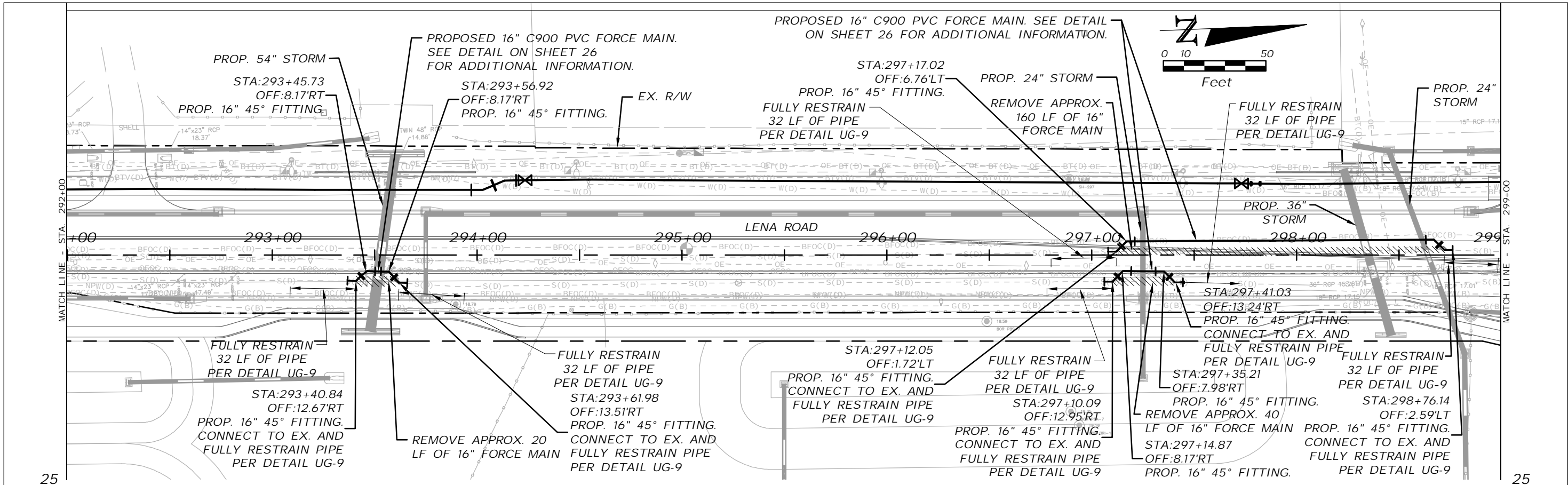
LENA ROAD UTILITY RELOCATIONS  
 MANATEE COUNTY

LICENSED PROFESSIONAL  
**JORDAN W. WALKER, P.E.**  
 FL LICENSE NUMBER 78652

CONFLICT RELOCATION  
 [278+00 - 285+00]

SHEET NUMBER  
 22

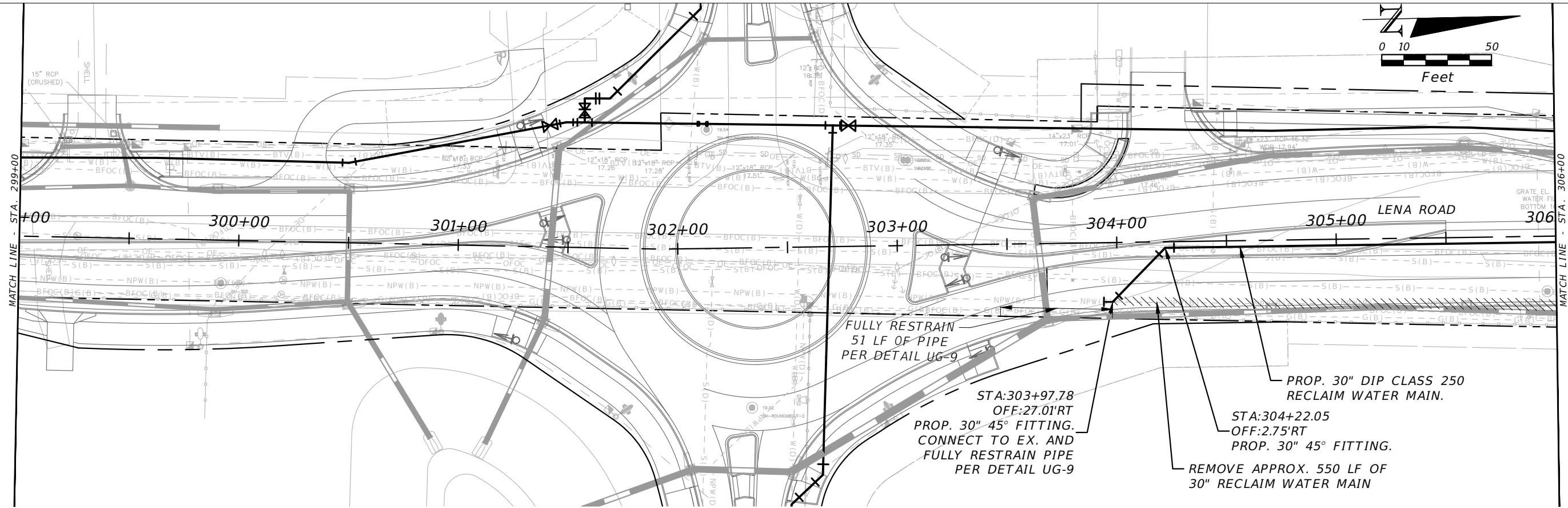
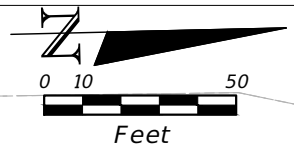
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	<p><b>KIMLEY-HORN AND ASSOCIATES, INC.</b> 200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701 PHONE: (727) 547-3999 WWW.KIMLEY-HORN.COM</p>	<p>PROJECT NO. 148400103</p> <p>DATE 8/3/23</p> <p>SCALE AS SHOWN</p> <p>DESIGNED BY JWW</p> <p>DRAWN BY BMS</p> <p>CHECKED BY SLB</p>	<p>MANATEE COUNTY</p>	<p>LICENSED PROFESSIONAL</p> <p><b>JORDAN W. WALKER, P.E.</b> FL LICENSE NUMBER 78652</p>	<p><b>CONFLICT RELOCATION</b> [292+00 - 299+00]</p>	<p>SHEET NUMBER</p> <p><b>23</b></p>
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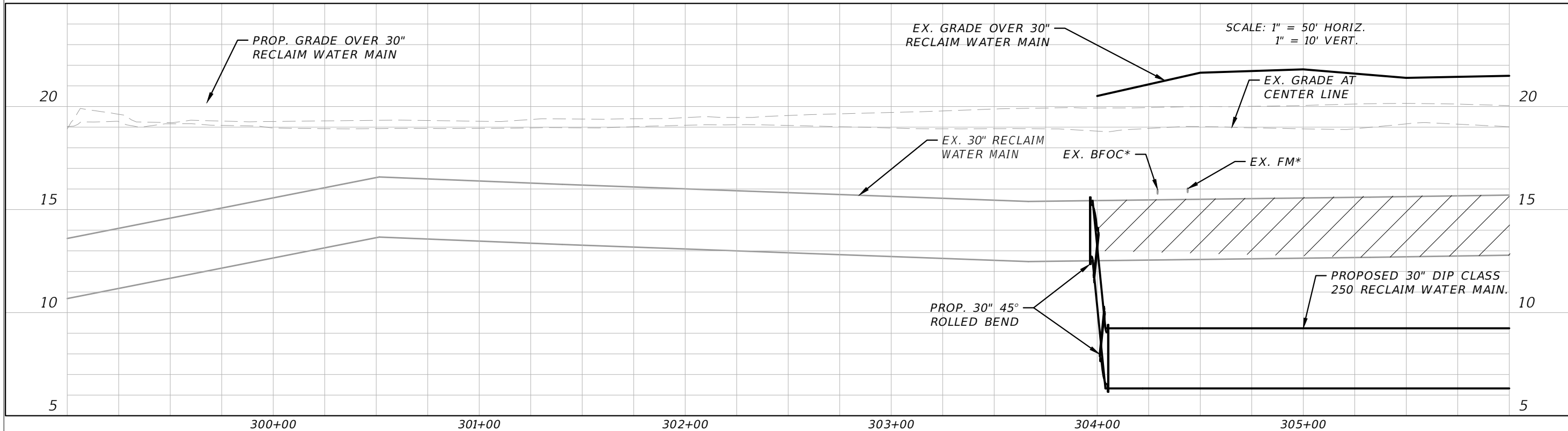
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25

25



No.	REVISIONS	DATE	BY

**Kimley-Horn**  
 KIMLEY-HORN AND ASSOCIATES, INC.  
 200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701  
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PROJECT NO. 148400103  
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**Manatee County Florida**

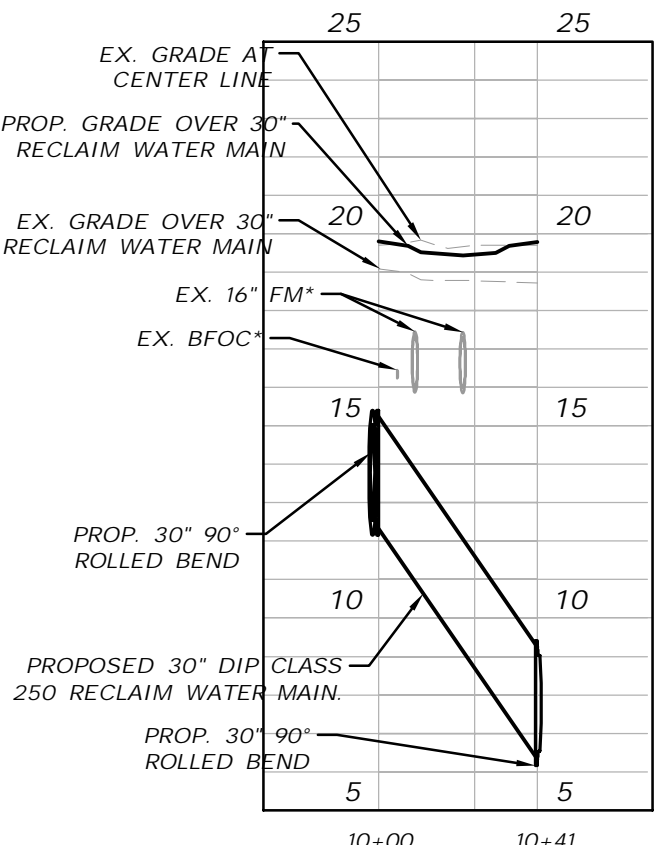
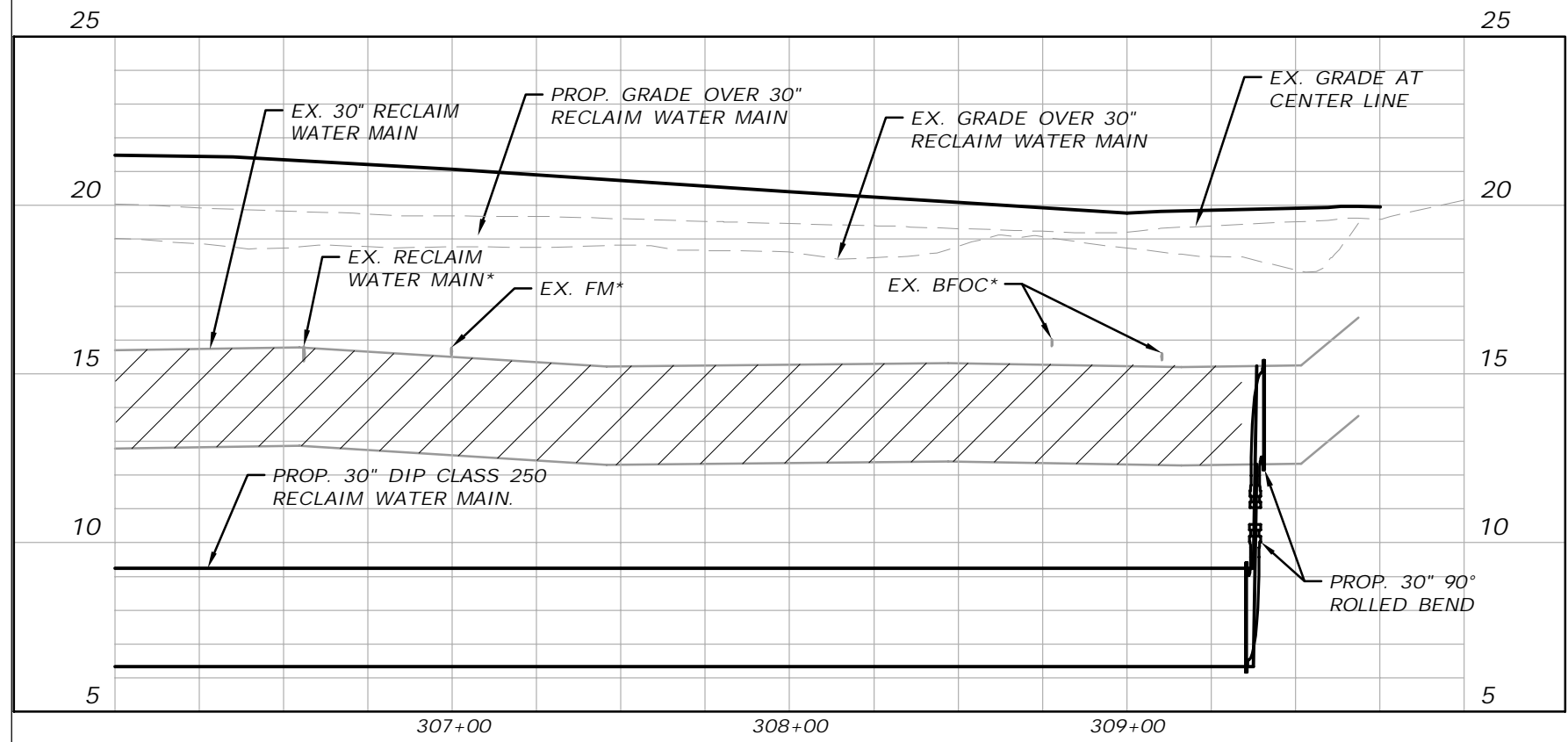
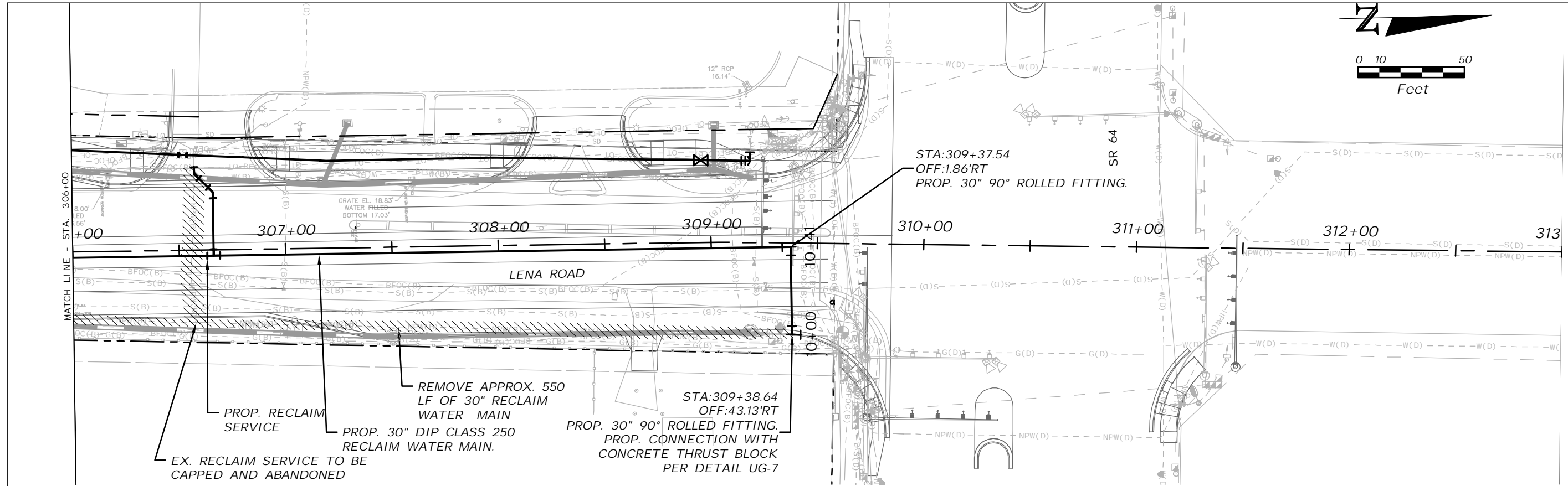
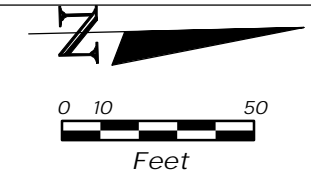
LENA ROAD UTILITY RELOCATIONS  
 MANATEE COUNTY  
 DEFAULT

LICENSED PROFESSIONAL  
 JORDAN W. WALKER, P.E.  
 FL LICENSE NUMBER 78652  
 FL DATE:

**CONFLICT RELOCATION**  
 [299+00 - 306+00]

SHEET NUMBER  
 24

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SCALE: 1" = 50' HORIZ.  
1" = 10' VERT.

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**Manatee County**  
 MANATEE COUNTY  
 LENA ROAD UTILITY RELOCATIONS  
 FL DATE:

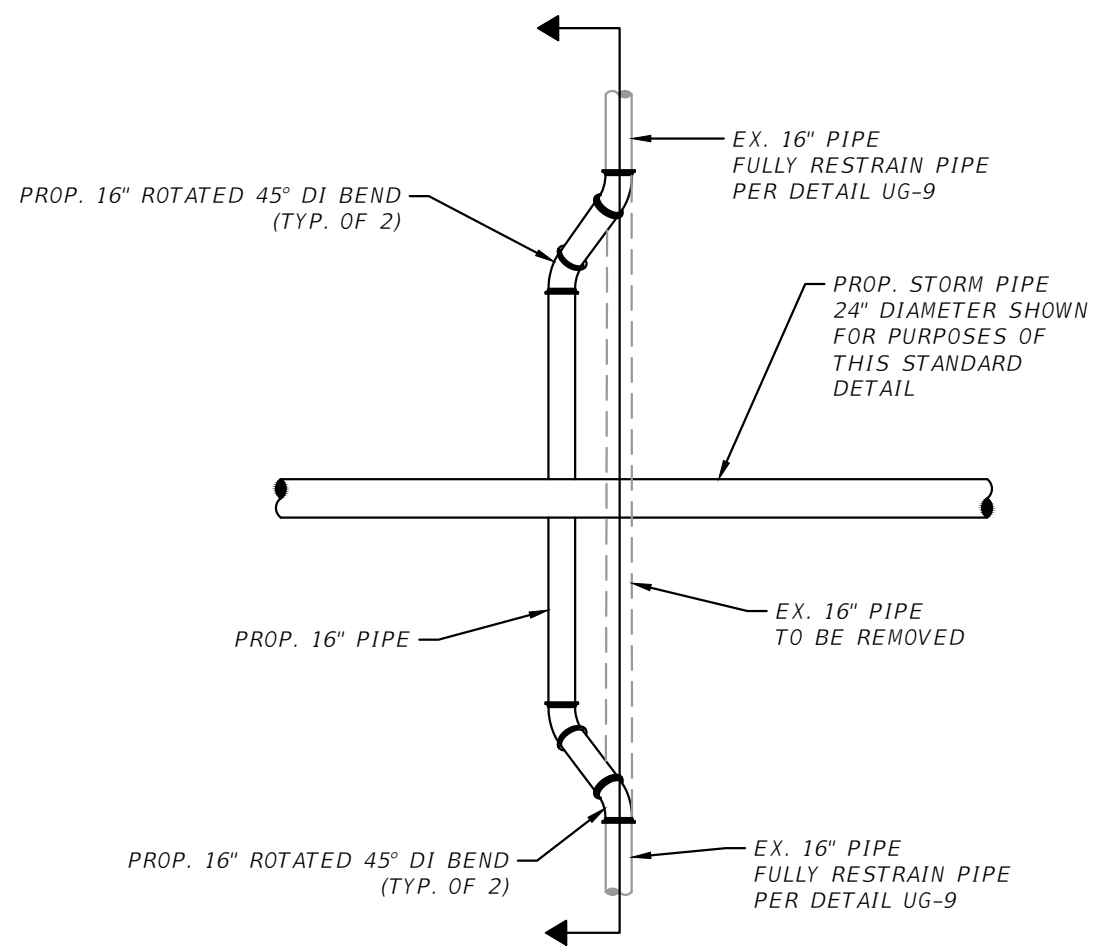
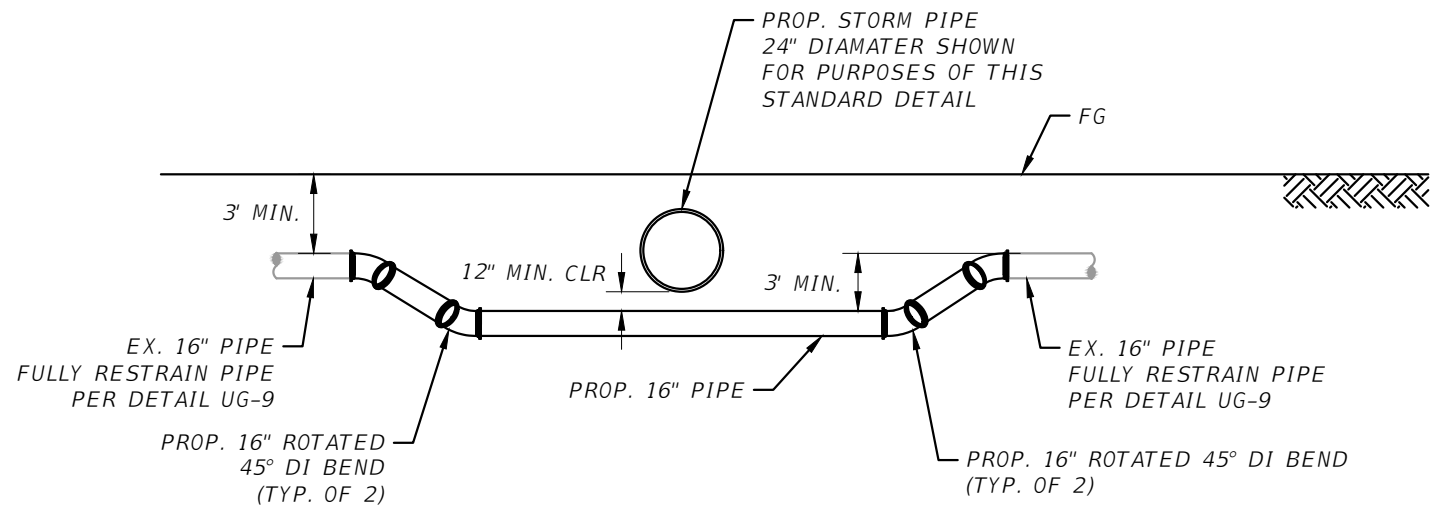
LICENSED PROFESSIONAL  
**JORDAN W. WALKER, P.E.**  
 FL LICENSE NUMBER  
 78652

**CONFLICT RELOCATION**  
 [306+00 - 313+00]



SHEET NUMBER  
 25

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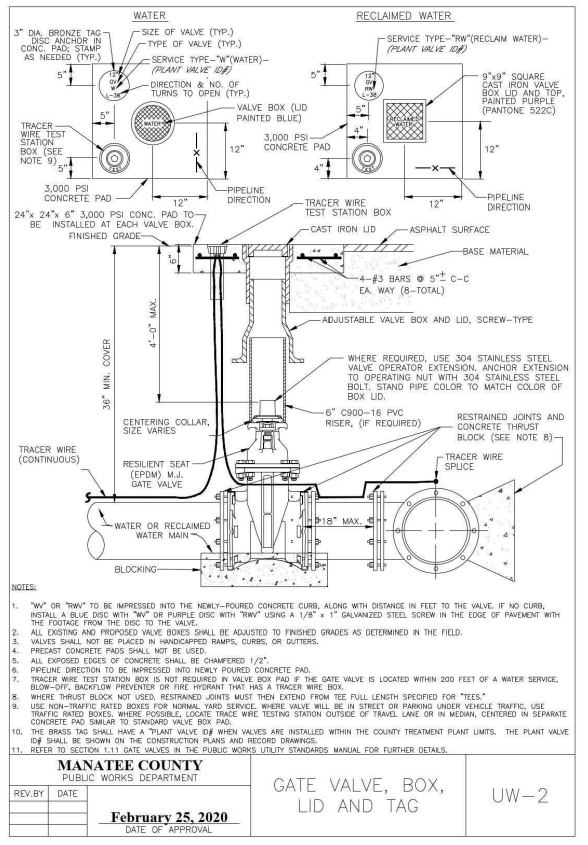
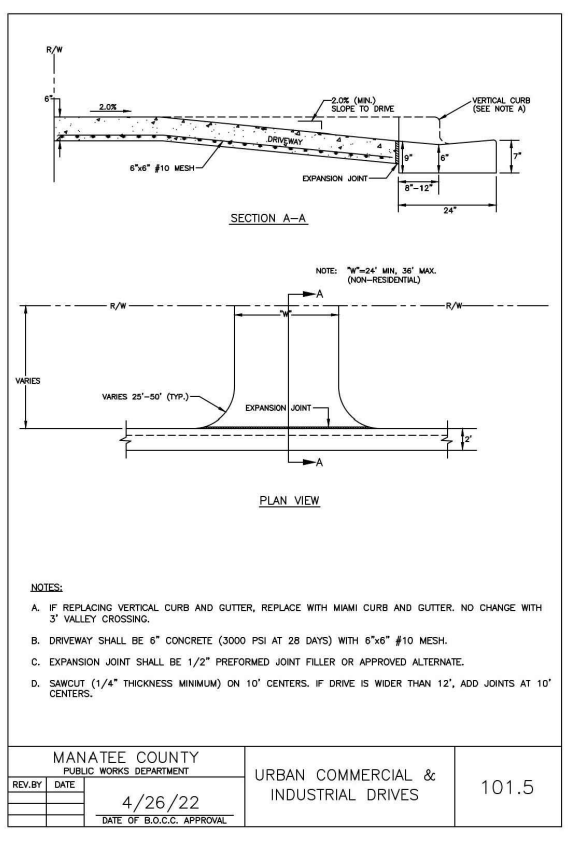
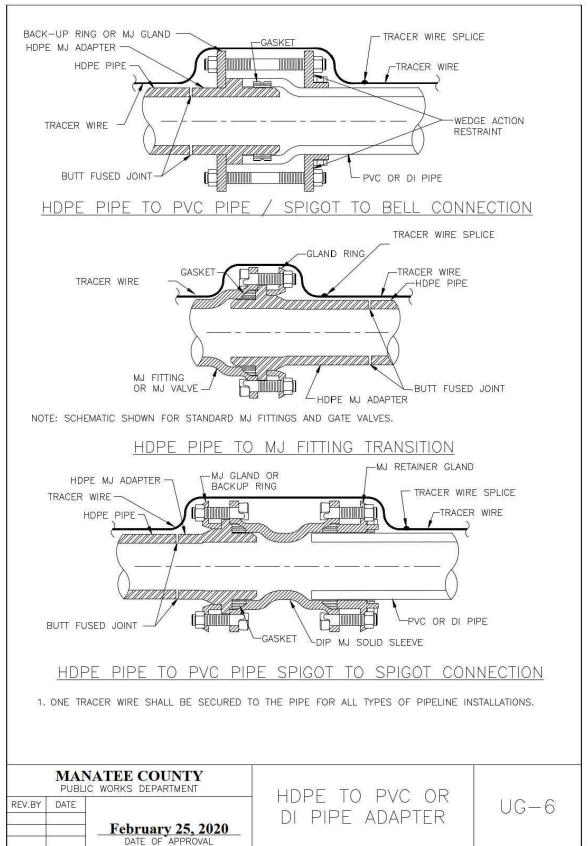
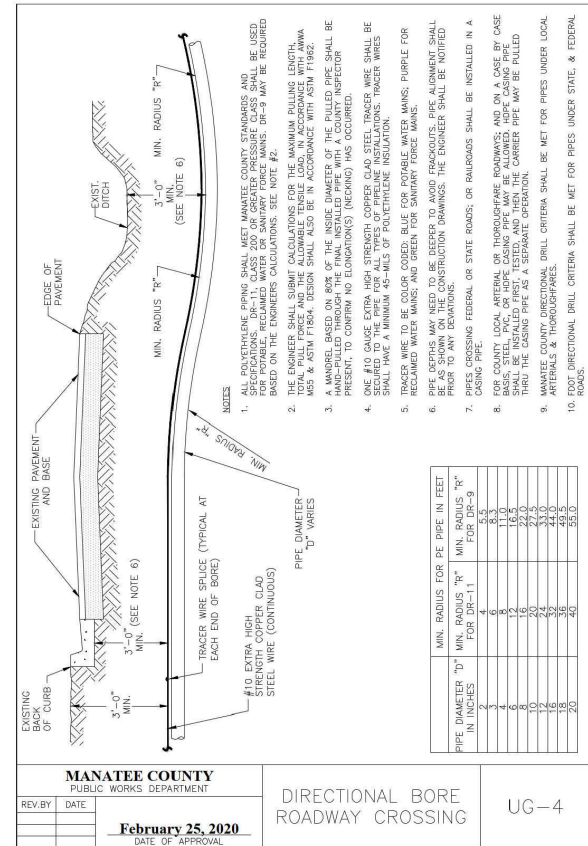
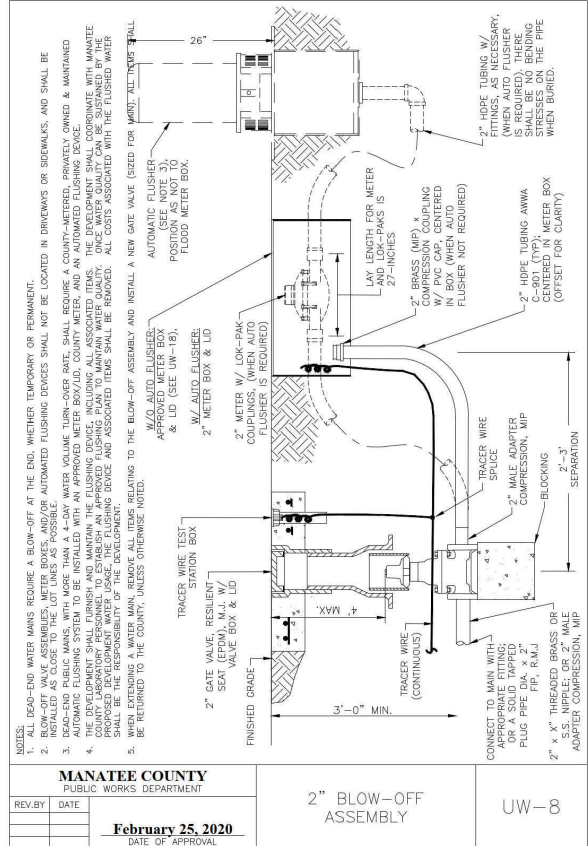
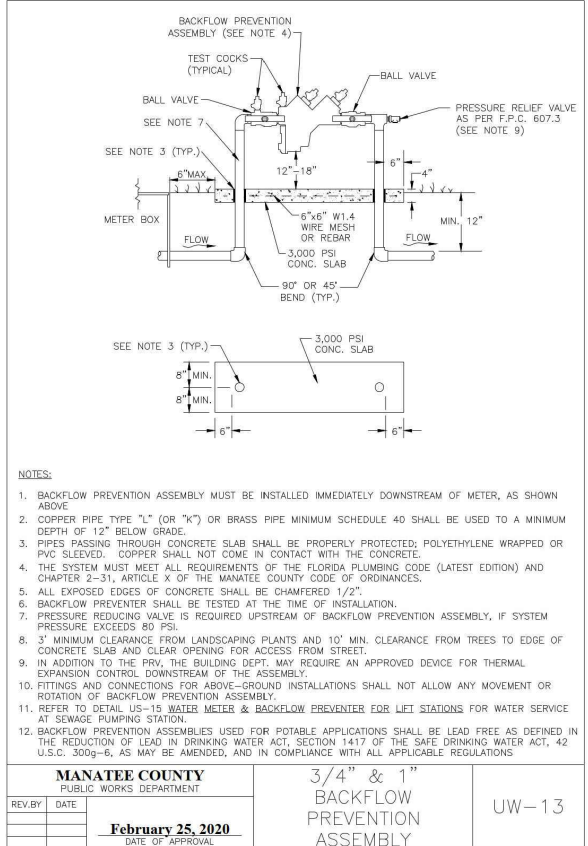


**UTILITY ADJUSTMENT DETAIL (16" PIPE)**  
SCALE: 1" = 10'

	 KIMLEY-HORN AND ASSOCIATES, INC. 200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701 PHONE: (727) 547-3999 WWW.KIMLEY-HORN.COM	PROJECT NO. 148400103 DATE 8/3/23 SCALE AS SHOWN DESIGNED BY JWW DRAWN BY BMS CHECKED BY SLB	 <b>LENA ROAD UTILITY RELOCATIONS</b> MANATEE COUNTY DEFAULT	LICENSED PROFESSIONAL  JORDAN W. WALKER, P.E. FL LICENSE NUMBER 78652 FL DATE:	<b>UTILITY ADJUSTMENT DETAIL</b>	SHEET NUMBER  <b>26</b>	
No.	REVISIONS	DATE	BY				

8/3/2023 10:38 AM





**REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR C900-16 PVC PIPE (DR-18)**

MAIN PIPE SIZE	HORIZ. BENDS	TEES				REDUCERS				PLUGS & VALVES
		SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH	
24	90°	45"	22.5'	K24	K20	K16	K12	K8	K4	214
20	78	32	16	K20	K16	K12	K8	K4	K0	184
16	66	27	13	K16	K12	K8	K4	K0	K0	151
12	52	22	10	K12	K8	K4	K0	K0	K0	118
10	44	18	9	K10	K8	K4	K0	K0	K0	100
8	37	15	7	K8	K4	K0	K0	K0	K0	83
6	29	12	6	K6	K4	K0	K0	K0	K0	63
4	21	8	4	K4	K0	K0	K0	K0	K0	45

**MANATEE COUNTY**  
PUBLIC WORKS DEPARTMENT

RESTRAINED LENGTHS FOR PVC PIPE

REV. BY: DATE: February 25, 2020

UG-8

**MANATEE COUNTY**  
PUBLIC WORKS DEPARTMENT

URBAN COMMERCIAL & INDUSTRIAL DRIVES

REV. BY: DATE: 4/26/22

101.5

**MANATEE COUNTY**  
PUBLIC WORKS DEPARTMENT

REVISIONS

No. DATE BY

**Kimley-Horn**

KIMLEY-HORN AND ASSOCIATES, INC.  
200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701  
PHONE: (727) 547-3999  
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8/3/2023 10:38 AM

**Manatee County Florida**

JORDAN W. WALKER, P.E.  
FL LICENSE NUMBER 78652

LENA ROAD UTILITY RELOCATIONS

MANATEE COUNTY

FL DATE:

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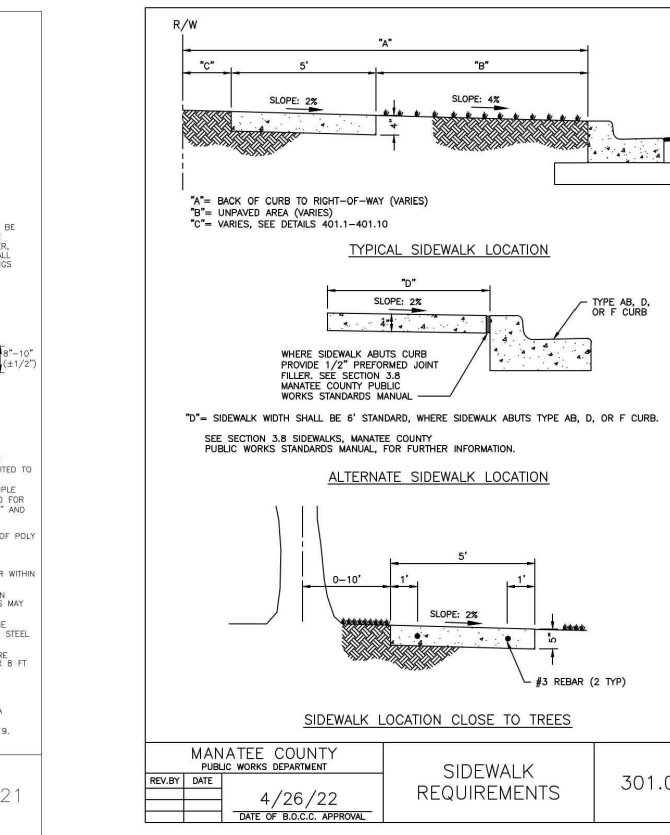
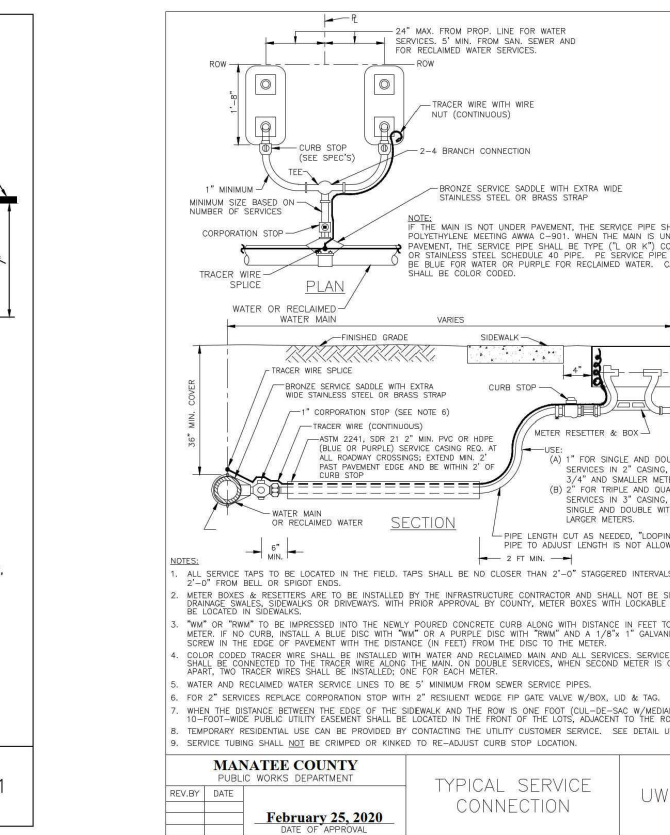
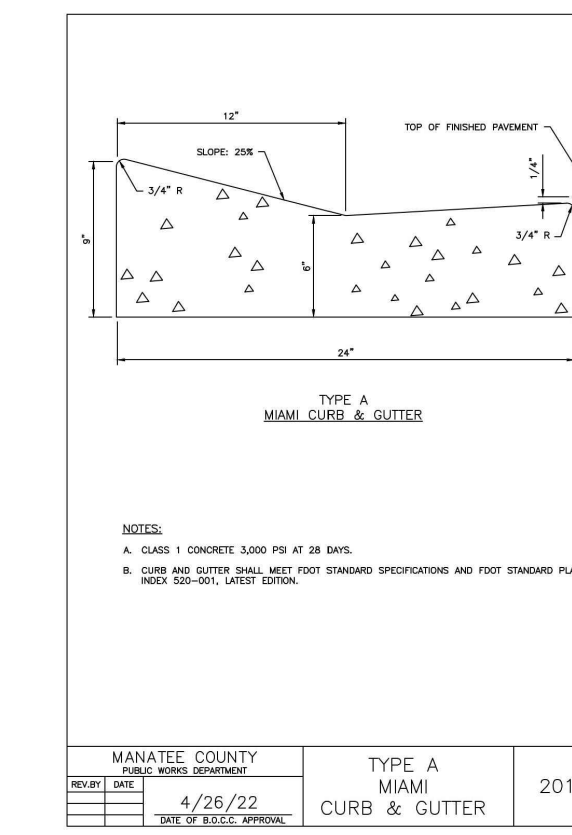
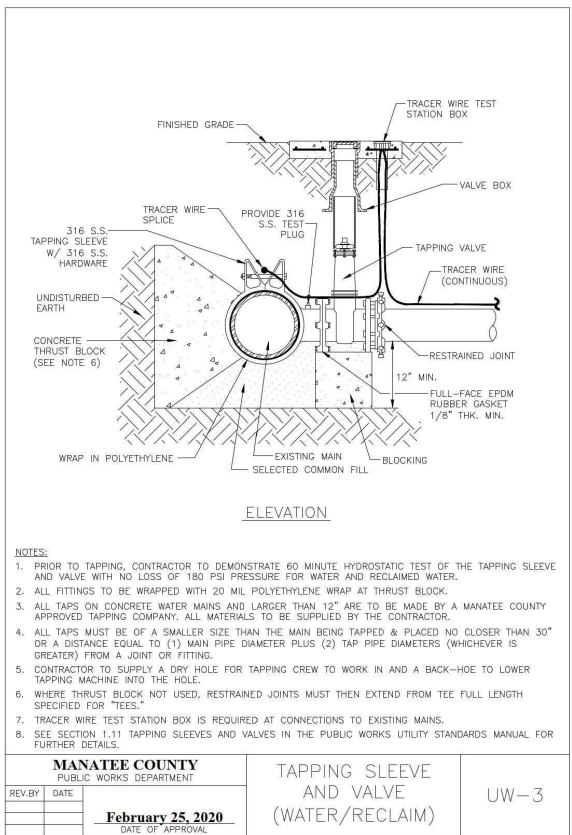
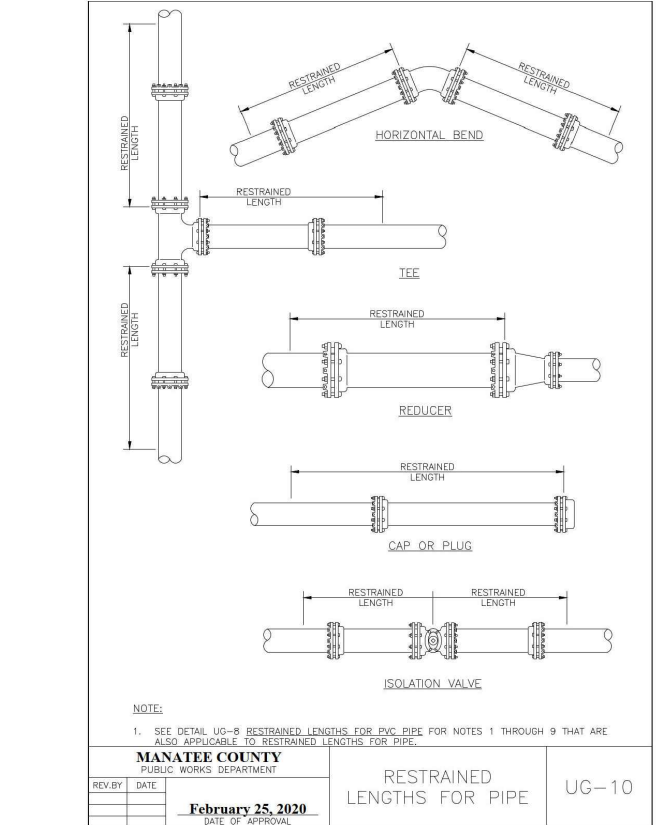
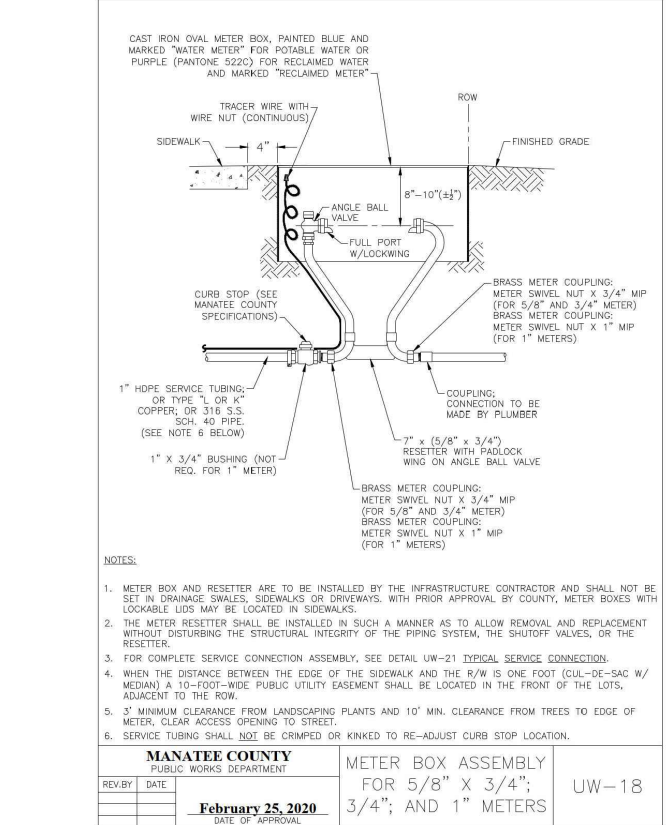
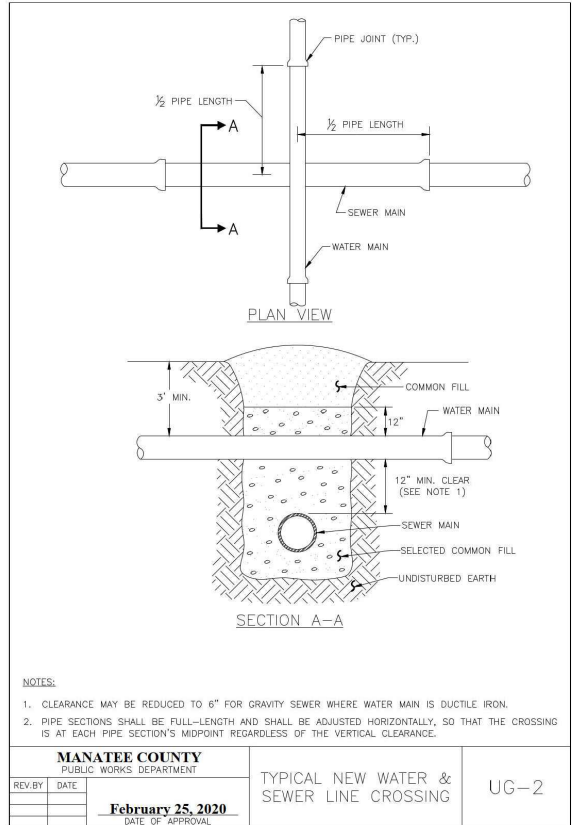


**REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (POLY-WRAPPED)**

MAIN PIPE SIZE	HORIZ. BENDS		TEES												REDUCERS												PLUGS & VALVES				
	90°	45°	SIZE												SIZE																
			LENGTH												LENGTH																
36	142	59	28	X36	X30	X24	X18	X12	X8	X6	X4	X3	X2	X1	X1/2	X1/4	X3/8	X1/2	X3/4	X1	X1 1/4	X1 1/2	X1 3/4	X2	X2 1/4	X2 1/2	X3	X3 1/4	X3 1/2	X4	453
30	124	51	25	X30	X24	X18	X12	X8	X6	X4	X3	X2	X1	X1/2	X1/4	X3/8	X1/2	X3/4	X1	X1 1/4	X1 1/2	X1 3/4	X2	X2 1/4	X2 1/2	X3	X3 1/4	X3 1/2	X4	391	
24	106	44	21	X24	X18	X12	X8	X6	X4	X3	X2	X1	X1/2	X1/4	X3/8	X1/2	X3/4	X1	X1 1/4	X1 1/2	X1 3/4	X2	X2 1/4	X2 1/2	X3	X3 1/4	X3 1/2	X4	327		
20	92	38	18	X20	X15	X12	X9	X6	X4	X3	X2	X1	X1/2	X1/4	X3/8	X1/2	X3/4	X1	X1 1/4	X1 1/2	X1 3/4	X2	X2 1/4	X2 1/2	X3	X3 1/4	X3 1/2	X4	280		
16	77	32	15	X16	X12	X9	X6	X4	X3	X2	X1	X1/2	X1/4	X3/8	X1/2	X3/4	X1	X1 1/4	X1 1/2	X1 3/4	X2	X2 1/4	X2 1/2	X3	X3 1/4	X3 1/2	X4	231			
12	61	25	12	X12	X9	X6	X4	X3	X2	X1	X1/2	X1/4	X3/8	X1/2	X3/4	X1	X1 1/4	X1 1/2	X1 3/4	X2	X2 1/4	X2 1/2	X3	X3 1/4	X3 1/2	X4	181				
10	52	22	10	X10	X8	X6	X4	X3	X2	X1	X1/2	X1/4	X3/8	X1/2	X3/4	X1	X1 1/4	X1 1/2	X1 3/4	X2	X2 1/4	X2 1/2	X3	X3 1/4	X3 1/2	X4	153				
8	44	18	9	X8	X6	X4	X3	X2	X1	X1/2	X1/4	X3/8	X1/2	X3/4	X1	X1 1/4	X1 1/2	X1 3/4	X2	X2 1/4	X2 1/2	X3	X3 1/4	X3 1/2	X4	128					
6	34	14	7	X6	X4	X3	X2	X1	X1/2	X1/4	X3/8	X1/2	X3/4	X1	X1 1/4	X1 1/2	X1 3/4	X2	X2 1/4	X2 1/2	X3	X3 1/4	X3 1/2	X4	98						
4	24	10	5	X4	X3	X2	X1	X1/2	X1/4	X3/8	X1/2	X3/4	X1	X1 1/4	X1 1/2	X1 3/4	X2	X2 1/4	X2 1/2	X3	X3 1/4	X3 1/2	X4	69							

**NOTE:**  
1. SEE UG-8, RESTRAINED LENGTHS FOR PVC PIPE DETAIL FOR NOTES 1 THROUGH 9 THAT ARE ALSO APPLICABLE TO RESTRAINED LENGTHS FOR DIP.

<b>MANATEE COUNTY</b> PUBLIC WORKS DEPARTMENT	RESTRAINED LENGTHS FOR DIP	UG-9
REV. BY: DATE		
	February 25, 2020	
	DATE OF APPROVAL	



No.	REVISIONS	DATE	BY

**Kimley-Horn**

KIMLEY-HORN AND ASSOCIATES, INC.  
200 CENTRAL AVENUE, SUITE 600, ST. PETERSBURG, FL 33701  
PHONE: (727) 547-3999  
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PROJECT NO. 148400103  
DATE 8/3/23  
SCALE AS SHOWN  
DESIGNED BY JWW  
DRAWN BY BMS  
CHECKED BY SLB

8/3/2023 10:38 AM

**Manatee County Florida**

LENA ROAD UTILITY RELOCATIONS

MANATEE COUNTY

FL DATE:

LICENSED PROFESSIONAL

JORDAN W. WALKER, P.E.  
FL LICENSE NUMBER 78652

**DETAILS 02**

SHEET NUMBER 28

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



**NOTES:**

- CONCRETE PAVEMENT SHALL BE REMOVED WITH SAWS EDGES AND CUT AT A MINIMUM DEPTH OF ONE AND ONE-HALF (1-1/2") IF A SAW CUT IN CONCRETE PAVEMENT FALLS WITHIN THREE FEET (3') OF A CONTRACTION JOINT, EXPANSION JOINT OR EDGE. THE CONCRETE SHALL BE REMOVED TO THE JOINT OR EDGE. THE EDGES OF EXISTING CONCRETE PAVEMENT ADJACENT TO TRENCHES, WHICH HAD BEEN DAMAGED SUBSEQUENT TO SAW CUTTING OF PAVEMENT SHALL BE SAW CUT TO NEAT STRAIGHT LINES FOR THE PURPOSE OF REMOVING THE DAMAGED PAVEMENT AREAS.
- USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
- PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
- PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- THICKNESS TO MATCH EXISTING OR BE 8" MINIMUM, WHICHEVER IS GREATER.
- SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISH GRADE OR 12" BELOW SUBGRADE.
- BASE SHALL BE COMPACTED 6" MINIMUM THICKNESS OF APPROVED MATERIAL.
- DRIVEWAYS SHALL BE CONSTRUCTED TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
- IF THE DRIVEWAY IS 12' OR WIDER, SAWCUT AN EXPANSION JOINT ALONG THE CENTER OF THE DRIVEWAY (6" WIDE AND 1/2" DEEP) AFTER THE CONCRETE HAS SET.
- IF THERE IS AN EXISTING EXPANSION JOINT WITHIN 3' OF THE PROPOSED JOINT, EXTEND DRIVEWAY REPLACEMENT TO THE EXISTING JOINT.
- TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.

**MANATEE COUNTY**  
PUBLIC WORKS DEPARTMENT  
February 25, 2020  
DATE OF APPROVAL

TRENCH WITH CONCRETE DRIVEWAY SURFACE TYPE A-1 PIPE BEDDING UG-14

**NOTES:**

- CONCRETE PAVEMENT SHALL BE REMOVED WITH SAWS EDGES AND CUT AT A MINIMUM DEPTH OF ONE AND ONE-HALF (1-1/2") IF A SAW CUT IN CONCRETE PAVEMENT FALLS WITHIN THREE FEET (3') OF A CONTRACTION JOINT, EXPANSION JOINT OR EDGE. THE CONCRETE SHALL BE REMOVED TO THE JOINT OR EDGE. THE EDGES OF EXISTING CONCRETE PAVEMENT ADJACENT TO TRENCHES, WHICH HAD BEEN DAMAGED SUBSEQUENT TO SAW CUTTING OF PAVEMENT SHALL BE SAW CUT TO NEAT STRAIGHT LINES FOR THE PURPOSE OF REMOVING THE DAMAGED PAVEMENT AREAS.
- USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
- PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
- PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- THICKNESS TO MATCH EXISTING OR BE 8" MINIMUM, WHICHEVER IS GREATER.
- SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISHED GRADE OR 12" BELOW SUBGRADE.
- BASE SHALL BE CRUSHED CONCRETE, 8" MIN. THICKNESS, LBR #150.
- TEMPORARY PATCHES WILL BE INSTALLED TO PROVIDE A SMOOTH ALL WEATHER SURFACE AT ALL TIMES. PERMANENT REPLACEMENT TO BE MADE AS SOON AS POSSIBLE.
- TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.
- NOTES 5 THRU 9 ARE MINIMUM REQUIREMENTS. REFER TO MANATEE COUNTY HIGHWAY AND TRAFFIC STANDARDS FOR ADDITIONAL REQUIREMENTS.

**MANATEE COUNTY**  
PUBLIC WORKS DEPARTMENT  
February 25, 2020  
DATE OF APPROVAL

TRENCH WITH CONCRETE DRIVEWAY SURFACE TYPE A-1 PIPE BEDDING UG-13

**NOTES:**

- BITUMINOUS PAVEMENT SHALL BE REMOVED IN CLEAN STRAIGHT LINES BY SAW CUTTING, WHERE BITUMINOUS PAVEMENT ADJONS A TRENCH, THE EDGES ADJACENT TO THE TRENCH SHALL BE TRIMMED TO A NEAT STRAIGHT LINES BEFORE RESURFACING TO ENSURE THAT ALL AREAS TO BE RESURFACED ARE ACCESSIBLE TO ROLLERS OR TAMPERS USED TO COMPACT THE SUB-GRADE OR PAVING MATERIALS.
- USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
- PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
- PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- ASPHALTIC CONCRETE STRUCTURE COURSE WITH PRIME COAT SHALL BE THE SAME DEPTH AND TYPE AS EXISTING OR A MINIMUM OF 1-1/4 INCH 5-1, WHICHEVER IS GREATER.
- MILL 25' BACK FROM TRENCH CROSSING SAW CUTS. ADJUST MILLING PER INDIVIDUAL SITE TO NOT IMPACT BASE, BUT JOINT TO EXIST ASPHALT. FINAL OVERLAY TO MATCH EXISTING WITH NO DISCRETEABLE "BUMP" AT JOINT. MILLING LIMITS THAT IMPACT INTERSECTION SHALL BE ADDRESSED ON A CASE BY CASE BASIS AND APPROVED BY MANATEE COUNTY.
- SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISHED GRADE OR 12" BELOW SUBGRADE.
- NEW BASE SHALL MATCH EXISTING; OR BE CRUSHED CONCRETE, 8" MIN. THICKNESS, LBR #150, WHICHEVER IS GREATER.
- TEMPORARY PATCHES WILL BE INSTALLED TO PROVIDE A SMOOTH ALL WEATHER SURFACE AT ALL TIMES. PERMANENT REPLACEMENT TO BE MADE AS SOON AS POSSIBLE.
- RESTORE SIGNAGE & MARKING WITH THERMOPLASTIC PER FDOT STANDARDS, LATEST EDITION.
- TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.
- NOTES 5, THRU 10, ARE MINIMUM REQUIREMENTS FOR A TRENCH IN A LOCAL ROAD. REFER TO LATEST EDITION OF MANATEE COUNTY HIGHWAY AND TRAFFIC STANDARDS FOR ADDITIONAL REQUIREMENTS.

**MANATEE COUNTY**  
PUBLIC WORKS DEPARTMENT  
February 25, 2020  
DATE OF APPROVAL

TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING (CROSSING) UG-12

**NOTES:**

- USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
- PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
- PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.

**MANATEE COUNTY**  
PUBLIC WORKS DEPARTMENT  
February 25, 2020  
DATE OF APPROVAL

TRENCH WITH UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING UG-11

**MANATEE COUNTY**  
PUBLIC WORKS DEPARTMENT  
February 25, 2020  
DATE OF APPROVAL

TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING (LONGITUDINAL) UG-12B

**MANATEE COUNTY**  
PUBLIC WORKS DEPARTMENT  
February 25, 2020  
DATE OF APPROVAL

PRESSURE PIPE DEFLECTION AT UTILITY CROSSING UG-18

**MANATEE COUNTY**  
PUBLIC WORKS DEPARTMENT  
February 25, 2020  
DATE OF APPROVAL

CASING CROSSING UG-3

PIPE SIZE (N)	THRUST BLOCK DIMENSIONS B ft. x d inches									
	90° BEND	45° BEND	22.5° BEND	1.25° BEND	DEAD END	45° WYE				
B	d	B	d	B	d	B	d			
4	1.5	3 1/2	1.1	3 1/2	0.8	3 1/2	1.3	3 1/2	1.1	3 1/2
6	2.2	5 1/2	1.6	3 3/4	1.2	3 3/4	0.8	3 3/4	1.9	4 1/2
8	2.9	7	2.1	5	1.5	3 3/4	1.1	3 3/4	2.4	5 1/2
10	3.5	8 1/2	2.6	6 1/4	1.9	4 1/2	1.3	3 3/4	3.0	7 1/4
12	4.2	10	3.1	7 1/2	2.2	5 1/4	1.6	3 3/4	3.5	8 1/4
14	4.9	11 3/4	3.6	8 3/4	2.6	6 1/4	1.8	4 1/4	4.1	9 3/4
16	5.5	13 1/4	4.1	9 3/4	2.9	7	2.1	5	4.7	11 1/4
18	6.2	15	4.6	11	3.3	8	2.3	5 1/2	5.2	12 1/2
20	6.9	16 1/2	5.0	12	3.6	8 3/4	2.6	6 1/4	5.8	14
24	8.2	19 3/4	6.0	14 1/2	4.3	10 1/4	3.1	7 1/2	6.9	16 1/2
30	10.1	24 1/4	7.5	18	5.3	12 3/4	3.8	9	8.5	20 1/2
36	12.1	29	8.9	21 1/4	6.4	15 1/4	4.5	10 3/4	10.2	24 1/2

**MANATEE COUNTY**  
PUBLIC WORKS DEPARTMENT  
February 25, 2020  
DATE OF APPROVAL

CONCRETE THRUST BLOCKS UG-7

No.	REVISIONS	DATE	BY

**Kimley-Horn**  
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PROJECT NO. 148400103  
DATE 8/3/23  
SCALE AS SHOWN  
DESIGNED BY JWW  
DRAWN BY BMS  
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**Manatee County Florida**

LENA ROAD UTILITY RELOCATIONS  
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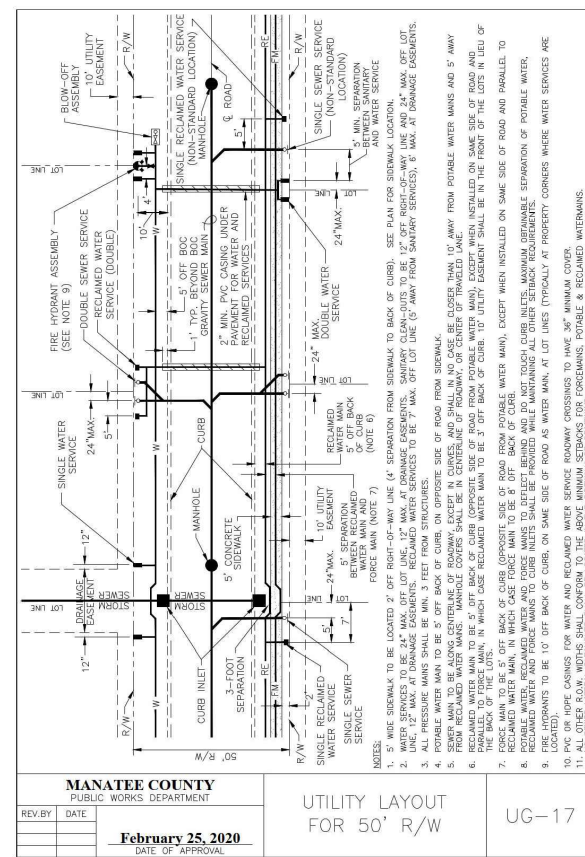
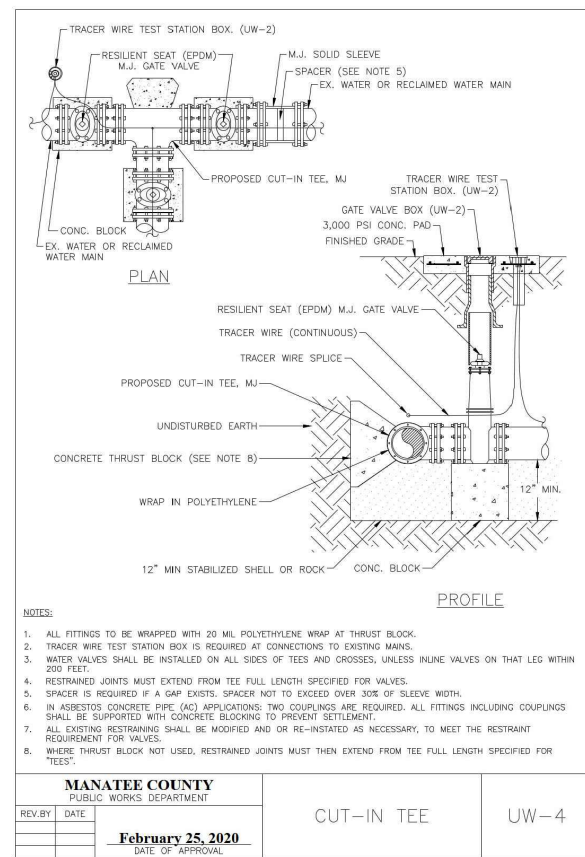
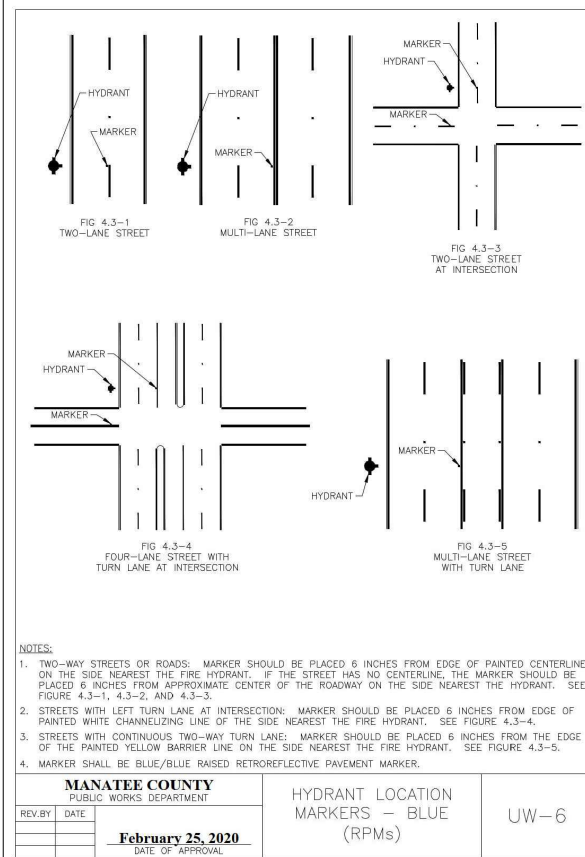
LICENSED PROFESSIONAL  
JORDAN W. WALKER, P.E.  
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**Manatee County Florida**

DETAILS 03

SHEET NUMBER 29





No.	REVISIONS	DATE	BY

**Kimley Horn**

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**Manatee County Florida**

LENA ROAD UTILITY RELOCATIONS

MANATEE COUNTY

DEFAULT

LICENSED PROFESSIONAL

JORDAN W. WALKER, P.E.  
FL LICENSE NUMBER 78652

FL DATE:

DETAILS 04

SHEET NUMBER 30

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