

**MAYOR**  
**Kate Gallego**  
**CITY COUNCIL**

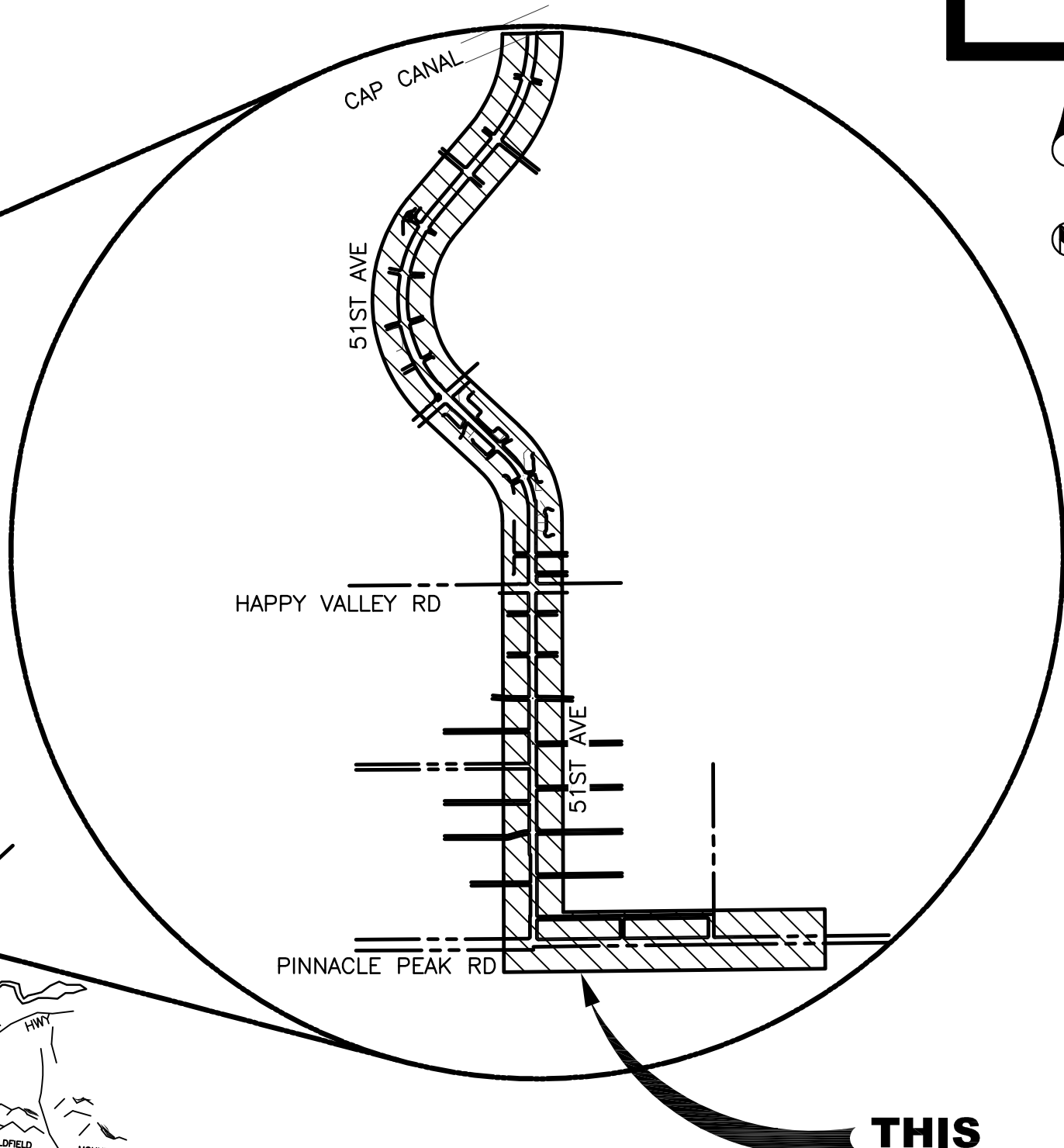
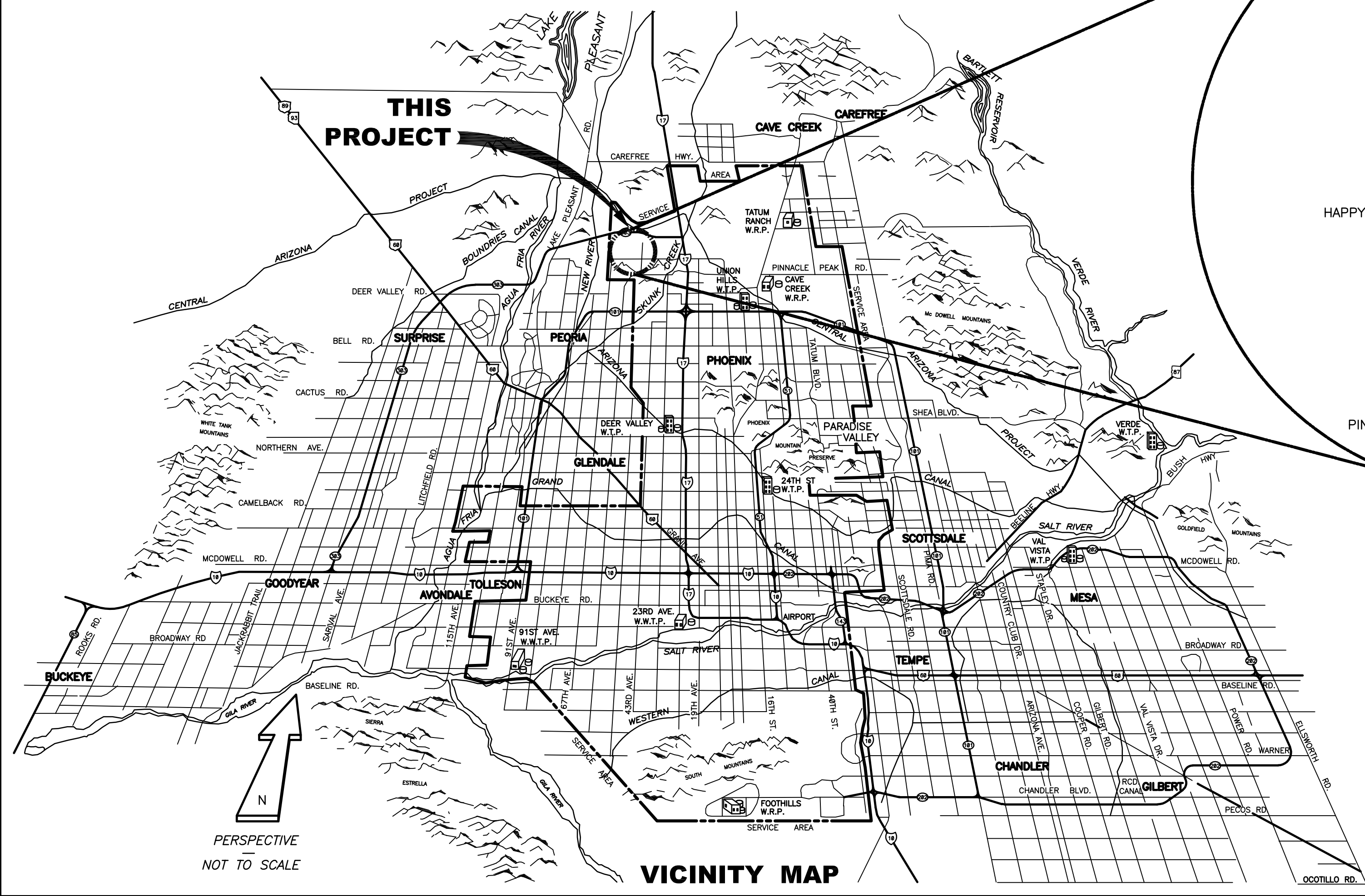
- DISTRICT 1 **Ann O'Brien**
- DISTRICT 2 **Jim Waring**
- DISTRICT 3 **Debra Stark**
- DISTRICT 4 **Laura Pastor**
- DISTRICT 5 **Betty Guardado**
- DISTRICT 6 **Kevin Robinson**
- DISTRICT 7 **Yassamin Ansari**
- DISTRICT 8 **Kesha Hodge Washington**



**City of Phoenix**  
**WATER SERVICES DEPARTMENT**  
**NORTHWEST WASTEWATER**  
**MASTER PLAN**  
**PACKAGE 4B**  
**51ST AVE GRAVITY SEWER**  
**PROJECT NO. WS90500307**  
**OCTOBER 2023**  
**VOLUME 3 OF 3**

**CITY MANAGER**  
**Jeff Barton**  
**CITY ENGINEER**  
**Eric J. Froberg, P.E.**  
**WATER SERVICES DIRECTOR**  
**Troy Hayes, P.E.**

**100% SUBMITTAL**



MATERIAL QUANTITIES		
DESCRIPTION	QUANTITY	UNIT
MANHOLES	48	EA
JUNCTION STRUCTURES	1	EA
36" VCP GRAVITY SEWER	17,550	LF

"AS-BUILT" DRAWINGS  
 This drawing was modified to reflect construction revisions based on the records kept and provided by the Contractor.

Finished as-built measurements and elevations were not obtained by the Engineer. All information reported must be verified by site measurements.

I hereby certify that this as-built was made under my supervision or as noted and is correct to the best of my knowledge and belief.

ENGINEER: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 WILSON ENGINEERS, LLC  
 Phoenix, Arizona

APPROVALS	
WATER SERVICES DEPARTMENT	DATE
WWR-23-00482	
MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPARTMENT	DATE
CENTRAL ARIZONA WATER CONSERVATION DISTRICT	DATE

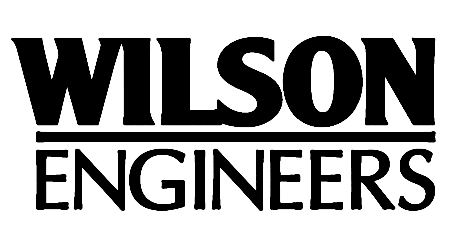
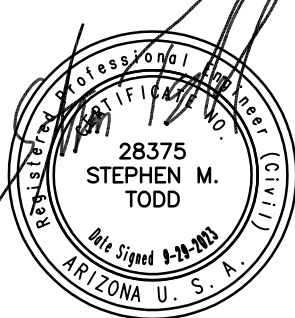
CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

**ARIZONA 811**  
 Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348) IN MARICOPA COUNTY: (602) 263-1100

ALL MATERIALS COMING INTO CONTACT WITH POTABLE WATER MUST MEET NSF STANDARDS 60/61 IN ACCORDANCE WITH A.A.C. R18-4-213.

"PER CITY OF PHOENIX CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX." THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES.



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**GENERAL**

- G-1.0 COVER SHEET
- G-2.0 SHEET INDEX
- G-3.0 SHEET IDENTIFICATION AND CAWCD GENERAL NOTES
- G-4.0 GENERAL NOTES
- G-5.0 SYMBOLS AND LEGEND 1
- G-6.0 SYMBOLS AND LEGEND 2
- G-7.0 ABBREVIATIONS
- G-8.0 OVERALL PROJECT AREA MAP
- G-9.0 SEGMENT 1 KEY MAP
- G-10.0 SEGMENT 2 KEY MAP
- G-12.0 OVERALL GRAVITY SEWER PROFILE 1
- G-13.0 OVERALL GRAVITY SEWER PROFILE 2

**SEGMENT 1-GRAVITY SEWER (PINNACLE PEAK ROAD)**

- C-1 PLAN & PROFILE 1 101+00 - 104+00
- C-2 PLAN & PROFILE 2 104+00 - 108+00
- C-3 PLAN & PROFILE 3 108+00 - 112+00
- C-4 PLAN & PROFILE 4 112+00 - 116+00
- C-5 PLAN & PROFILE 5 116+00 - 120+00
- C-6 PLAN & PROFILE 6 116+00 - 120+00
- C-7 PLAN & PROFILE 7 120+00 - 124+00

**SEGMENT 2-GRAVITY SEWER (51ST AVE/STETSON VALLEY PKWY)**

- C-8 PLAN & PROFILE 8 100+00 - 104+00
- C-9 PLAN & PROFILE 9 104+00 - 108+00
- C-10 PLAN & PROFILE 10 108+00 - 112+00
- C-11 PLAN & PROFILE 11 112+00 - 116+00
- C-12 PLAN & PROFILE 12 116+00 - 120+00
- C-13 PLAN & PROFILE 13 120+00 - 124+00
- C-14 PLAN & PROFILE 14 124+00 - 128+00
- C-15 PLAN & PROFILE 15 128+00 - 132+00
- C-16 PLAN & PROFILE 16 132+00 - 136+00
- C-17 PLAN & PROFILE 17 136+00 - 140+00
- C-18 PLAN & PROFILE 18 140+00 - 144+00
- C-19 PLAN & PROFILE 19 144+00 - 148+00
- C-20 PLAN & PROFILE 20 148+00 - 152+00
- C-21 PLAN & PROFILE 21 152+00 - 156+00
- C-22 PLAN & PROFILE 22 156+00 - 160+00
- C-23 PLAN & PROFILE 23 160+00 - 164+00
- C-24 PLAN & PROFILE 24 164+00 - 168+00
- C-25 PLAN & PROFILE 25 168+00 - 172+00
- C-26 PLAN & PROFILE 26 172+00 - 176+50
- C-27 PLAN & PROFILE 27 176+50 - 181+00
- C-28 PLAN & PROFILE 28 181+00 - 185+00
- C-29 PLAN & PROFILE 29 185+00 - 189+00
- C-30 PLAN & PROFILE 30 189+00 - 193+50
- C-31 PLAN & PROFILE 31 193+50 - 198+00
- C-32 PLAN & PROFILE 32 198+00 - 202+00
- C-33 PLAN & PROFILE 33 202+00 - 206+00
- C-34 PLAN & PROFILE 34 206+00 - 210+00
- C-35 PLAN & PROFILE 35 210+00 - 214+00
- C-36 PLAN & PROFILE 36 214+00 - 218+00
- C-37 PLAN & PROFILE 37 218+00 - 222+00
- C-38 PLAN & PROFILE 38 222+00 - 226+00
- C-39 PLAN & PROFILE 39 226+00 - 230+00
- C-40 PLAN & PROFILE 40 230+00 - 234+00
- C-41 PLAN & PROFILE 41 234+00 - 238+00
- C-42 PLAN & PROFILE 42 238+00 - 242+00
- C-43 PLAN & PROFILE 43 242+00 - 246+00
- C-44 PLAN & PROFILE 44 246+00 - 253+00

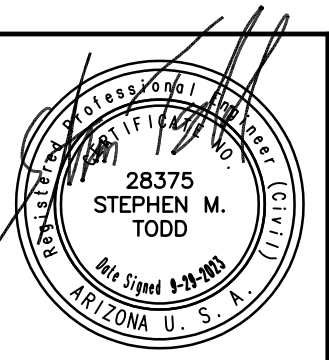
**DETAILS**

- C-100 JUNCTION STRUCTURE PLANS AND SECTION
- C-101 VCP CASING DETAILS
- C-102 MANHOLE DETAILS
- C-103 HDPE PIPE CASING DETAILS
- C-104 TRENCH VITRIFIED CLAY PIPE DETAILS 1
- C-105 TRENCH VITRIFIED CLAY PIPE DETAILS 2

**STRUCTURAL**

- S-001 GENERAL STRUCTURAL NOTES I
- S-002 GENERAL STRUCTURAL NOTES II
- S-003 GENERAL STRUCTURAL NOTES III
- S-004 STANDARD DETAILS I
- S-005 STANDARD DETAILS II
- S-100 JUNCTION STRUCTURE 1 PLAN VIEWS
- S-101 JUNCTION STRUCTURE 1 PLAN AND SECTIONS
- S-102 DEFLECTION MANHOLE OF 1 TO 10 DEGREES PLANS AND SECTIONS
- S-103 DEFLECTION MANHOLE OF 11 TO 40 DEGREES PLANS AND SECTIONS
- S-104 DEFLECTION MANHOLE OF 41 TO 70 DEGREES PLANS AND SECTIONS
- S-105 STRAIGHT RUN MANHOLE PLAN AND SECTION

#	DATE	CAD FILE NAME	DWG NUMBER	REMARKS



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN  
GL  
CKD  
SMT

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
**NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B**

GENERAL  
  
**SHEET INDEX**

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
**G** SHEET 2.0  
CAD FILE: G-2.0

G:\PROJECT\2003A\51ST AVE (PACKAGE 4)\CADD\DESIGN\GENERAL\G-2.0.DWG, 9/29/2023, 6:39:27 AM, gcteek, 1:2.5649

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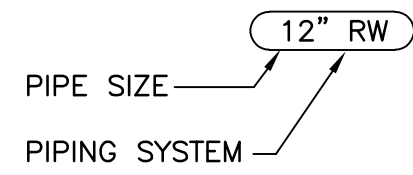
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**PIPE TAG**

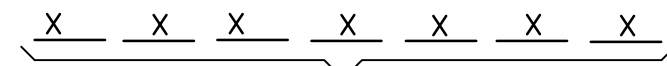


\* PIPING SYSTEM DESIGNATIONS FOR EXISTING PIPE INDICATE TYPE OF SERVICE ONLY AND DO NOT IMPLY PIPE MATERIALS USED.

PIPING IS CALLED OUT BY SIZE FOLLOWED BY PIPING SYSTEM, ENCLOSED AS SHOWN:



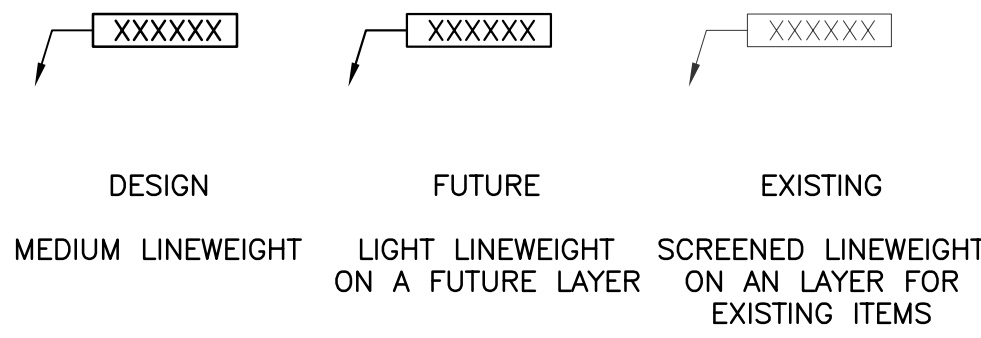
**EQUIPMENT TAG**



7-DIGIT SERIALIZED KEY

ASSIGNED TO PROJECT BY CITY'S PROJECT MANAGER

APPEARANCE



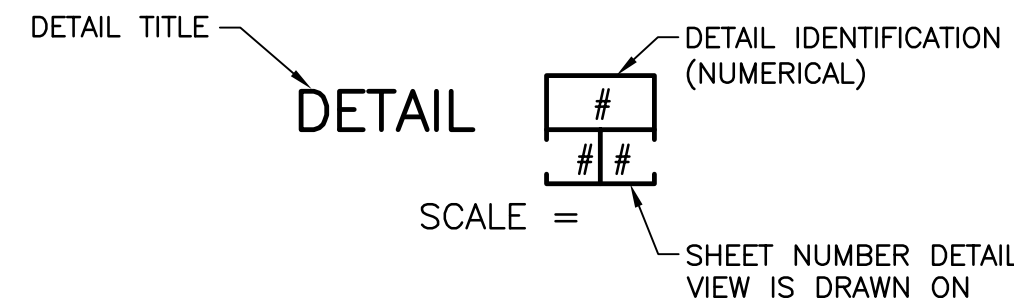
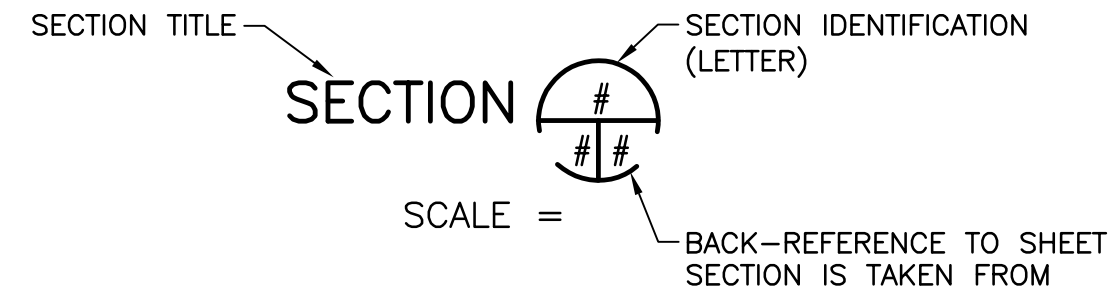
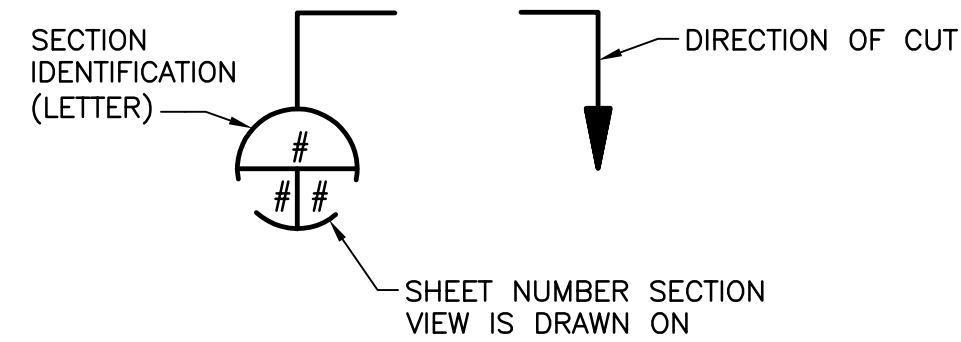
ITEMS TO HAVE EQUIPMENT TAGS:  
ALL MANUAL VALVES FOUR (4) INCHES AND LARGER, ALL VALVES ELECTRICAL OPERATED.  
ALL INSTRUMENTS, MOTORS, AND EQUIPMENT

WHERE THE SAME ITEM IS SHOWN IN SEVERAL DISCIPLINES, THEY SHALL REPEAT IN APPEARANCE IN ALL ELECTRICAL, INSTRUMENTATION, PROCESS MECHANICAL DRAWINGS.

**SHEET IDENTIFICATION**

- G GENERAL (COVER, INDEX, GENERAL ABBREVIATIONS, PROCESS FLOW)
- C CIVIL SITE (DEMOLITION, YARD PIPING AND PAVING AND GRADING)
- M MECHANICAL (PROCESS PIPING & EQUIPMENT)
- S STRUCTURAL (STRUCTURE WALLS, SLABS, REINFORCED BUILDING OR CONCRETE ELEMENTS)
- A ARCHITECTURAL (BUILDING PLAN & ELEVATIONS)
- H HVAC (PLAN AND SCHEDULES)
- E ELECTRICAL (POWER DISTRIBUTION AND ELECTRICAL EQUIPMENT WITHIN STRUCTURES OR ON SITE)
- I INSTRUMENTATION (P&ID'S)

**SECTION/DETAIL MARKERS**



**KEY NOTES**

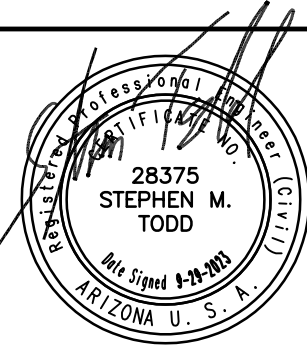
- 1 X
- 2 X

A.A.C. R18-4-213 STANDARDS FOR ADDITIVES, MATERIALS AND EQUIPMENT  
ALL PIPING, VALVES, AND ANY OTHER MATERIALS THAT COME IN CONTACT WITH DRINKING WATER SHALL COMPLY WITH NSF STANDARDS 60 AND 61 IN ACCORDANCE WITH A.A.C. R18-4-213.



**CENTRAL ARIZONA WATER CONSERVATION DISTRICT (CAWCD) GENERAL NOTES:**

- 1. CAWCD RESERVES THE RIGHT TO STOP WORK ON CAWCD'S RIGHT-OF-WAY OR PROPERTY FOR REASONS OF SAFETY OR PROTECTION OF CAWCD FACILITIES. FAILURE TO COMPLY WITH THE CONSTRUCTION CONTRACT REQUIREMENTS OR TERMS OF THE CONSTRUCTION PERIOD LAND USE LICENSE SHALL BE GROUNDS FOR STOPPING WORK AND/OR SUSPENSION OF THE LICENSE.
- 2. UNLESS SPECIFICALLY GRANTED BY CAWCD, WORK SHALL BE GENERALLY PERFORMED DURING NORMAL BUSINESS WORKING HOURS OF 6 A.M. TO 6 P.M., MONDAY THROUGH FRIDAY, EXCEPT AS OTHERWISE INDICATED BY CAWCD. THE LOCAL JURISDICTION'S REQUIREMENTS SHALL PREVAIL, IF MORE STRINGENT.
- 3. PRIOR TO THE START OF ANY WORK ON CAWCD'S RIGHT-OF-WAY OR PROPERTY, THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING:
  - a. AT LEAST 2-WEEKS PRIOR TO THE COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL CONTACT CAWCD AT (623) 869-2555 TO SCHEDULE A CONSTRUCTION COORDINATION MEETING. FAILURE TO SCHEDULE AND HOLD THIS MEETING WILL PREVENT START OF CONSTRUCTION OPERATIONS. MANDATORY ATTENDEES SHALL INCLUDE REPRESENTATIVES FROM ALL PRIME AND SUB-CONTRACT COMPANIES THAT WILL PERFORM WORK WITHIN CAWCD'S RIGHT-OF-WAY OR PROPERTY. THE CONTRACTOR SHALL LEAD DISCUSSIONS COVERING, AT A MINIMUM, THEIR SAFETY PROGRAM, SECURITY AND FENCING CONSIDERATIONS, DUST ABATEMENT PLANS, STORM WATER POLLUTION PROTECTION PLAN, CONSTRUCTION SCHEDULE, COORDINATION ISSUES, AND PLAN OF WORK FOR ALL ITEMS WITHIN CAWCD'S RIGHT-OF-WAY OR PROPERTY.
  - b. AN ON-SITE MEETING WITH CAWCD'S SECURITY PERSONNEL MAY BE REQUIRED AND PROVIDING OF A CAWCD APPROVED SECURITY LOCK (MASTER LOCK NUMBER 5 OR BETTER) WILL BE REQUIRED WHEN GAINING ACCESS TO THE CAWCD OPERATION AND MAINTENANCE ROADS OR CANAL SYSTEM PROPERTY.
  - c. THE CONTRACTOR SHALL PROVIDE TO CAWCD A LIST, WITH APPROPRIATE PHONE NUMBERS AND CONTACT INFORMATION, OF ALL PRIME AND SUB-PRIME CONTRACTORS THAT WILL BE OPERATING WITHIN CAWCD'S PROPERTY OR RIGHT-OF-WAY. THIS LIST SHALL BE UPDATED AND APPROVED BY CAWCD, PRIOR TO ALLOWING ADDITIONAL CONTRACTORS ACCESS TO CAWCD'S PROPERTY OR RIGHT-OF-WAY. ALL NON-APPROVED / NON-LISTED CONTRACTORS WILL BE ESCORTED OFF OF CAWCD PROPERTY OR RIGHT-OF-WAY.
  - d. NO DIGGING, EXCAVATION, OR EARTHWORK OPERATIONS SHALL BE UNDERTAKEN WITHOUT A CAWCD DIG PERMIT. THE CAWCD DIG PERMIT SHALL BE OBTAINED THROUGH THE CAWCD INSPECTION OR ENGINEERING EMPLOYEES ASSIGNED TO THE CONSTRUCTION OPERATIONS AND WILL BE AT NO COST TO THE CONTRACTOR. THE CONTRACTOR SHALL ANTICIPATE TURN AROUND OF THE DIG PERMIT IN NO MORE THAN 10-DAYS (WORKING DAYS).
  - e. THE CONTRACTOR SHALL SUBMIT, AND OBTAIN APPROVAL ON, A DUST CONTROL PLAN. THE DUST CONTROL PLAN SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE ARIZONA COUNTY WHERE THE WORK IS BEING UNDERTAKEN AND SHALL CONTAIN PROVISIONS TO LIMIT THE SPEED ON ALL CAWCD'S OPERATION AND MAINTENANCE ROADS TO LESS THAN 15 MPH. APPLICATION OF ANY DUST PALLIATIVES SHALL ONLY BE UNDERTAKEN AFTER SPECIFIC APPROVAL BY CAWCD.
  - f. THE CONTRACTOR SHALL SUBMIT AN APPROVED STORM WATER POLLUTION PREVENTION (SWPP) PLAN. THE SWPP SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE ARIZONA COUNTY WHERE THE WORK IS BEING UNDERTAKEN. THE PLAN SHALL ADDRESS THE MEANS AND MEASURES BEING UNDERTAKEN TO PREVENT STORM WATER FROM ENTERING INTO THE CAWCD CANAL OR LEAVING THE CONSTRUCTION SITE.
  - g. THE CONTRACTOR SHALL SUBMIT, AND OBTAIN APPROVAL ON, A SAFETY PLAN. WHILE WORKING ON CAWCD'S PROPERTY OR RIGHT-OF-WAY, THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE SAFETY REQUIREMENTS OF THE PLAN, INCLUDING COMPLIANCE WITH THE RECLAMATION SAFETY AND HEALTH STANDARDS AND THE CAWCD'S SAFETY RESOURCE MANUAL. THE SUBMITTED SAFETY PLAN SHALL DEMONSTRATE AN UNDERSTANDING OF, AND COMPLIANCE WITH, THE REQUIREMENTS OF THESE MANUALS. COPIES OF BOTH MANUALS CAN BE OBTAINED ON THE CAWCD'S WEBSITE (WWW.CAP-AZ.COM) UNDER CONTRACTING / SAFETY. THE CONTRACTOR SHALL COMPLY WITH THE MORE STRINGENT OF THE INDICATED SAFETY STANDARDS.
- 4. THE CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO PROVIDE CAWCD ACCESS TO THE CANAL AND CANAL FACILITIES DURING THE ENTIRE CONSTRUCTION PERIOD. ONLY ONE OF THE OPERATION AND MAINTENANCE (O&M) ROADS SHALL BE ALLOWED TO BE CLOSED AT ONE TIME, UNLESS SPECIFIC PERMISSION IS GRANTED BY CAWCD. CLOSURE OF ANY O&M ROAD WILL NEED TO BE COORDINATED WITH CAWCD AT LEAST 2-WORKING DAYS IN ADVANCE OF THE NEEDED CLOSURE. THE CONTRACTOR SHALL PLACE ROAD CLOSURE SIGNS ON BOTH GATES ACCESSING THE CLOSED SECTION OF ROAD. THE CONTRACTOR SHALL ALSO PLACE LIGHTED BARRICADES AND FLAGGING AROUND THE WORK AREA. CAWCD MAY REQUIRE THE SUBMISSION OF A ROAD CLOSURE PLAN.
- 5. CAWCD PROPERTY OR RIGHT-OF-WAY SHALL NOT BE UTILIZED FOR PARKING, MAINTENANCE, OR FUELING OF CONSTRUCTION EQUIPMENT, UNLESS SPECIFIC CONSENT IS PROVIDED BY CAWCD. TO OBTAIN THIS CONSENT, THE CONTRACTOR SHALL SUBMIT, AND OBTAIN APPROVAL ON, A PLAN TO ACCOMMODATE THESE ACTIVITIES. THE PLAN SHALL CLEARLY DEMONSTRATE THE MEASURES TAKEN TO PREVENT CONTAMINATION OF SOIL OR WATER RESULTING FROM THESE ACTIVITIES.
- 6. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT ANY CONSTRUCTION DEBRIS FROM ENTERING THE CAP CANAL SYSTEM. ALL DEBRIS THAT ENTERS THE CANAL SHALL BE REMOVED FROM THE CANAL AT THE EXPENSE OF THE CONTRACTOR. **THE CONTRACTOR WILL BE REQUIRED TO PERFORM PRE-CONSTRUCTION AND POST-CONSTRUCTION UNDERWATER DIVE OPERATIONS TO CONFIRM THE CANAL LINING CONDITION. THE INSPECTION LIMITS SHALL BE 50-FEET ON BOTH SIDES OF THE PROPOSED SEWER PIPE LOCATION.**
- 7. THE CONTRACTOR IS RESPONSIBLE FOR RESTRICTING THE PUBLIC'S ACCESS TO CAWCD'S PROPERTY AND RIGHT-OF-WAY DURING CONSTRUCTION OPERATIONS, INCLUDING BUT NOT LIMITED TO, THE USE OF TEMPORARY FENCING AND GUARDING OF ALL AREAS THAT ARE REQUIRED TO REMAIN UNFENCED. THIS INCLUDES DETOURS OR CLOSURE OF ALL ASSOCIATED TRAILS. THE CONTRACTOR SHALL CLOSE AND LOCK ALL CAWCD SECURITY GATES WHEN THEY ARE NOT BEING UTILIZED FOR ACCESS OR WHEN NOT PRESENT ON SITE.
- 8. THE CONTRACTOR IS RESPONSIBLE TO PROTECT THE CAWCD FACILITIES FROM DAMAGE DUE TO CONSTRUCTION OPERATIONS. ALL DAMAGE TO CAWCD FACILITIES CAUSED DIRECTLY, OR INDIRECTLY, BY CONTRACTOR OPERATIONS SHALL BE REPAIRED TO CAWCD'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.
- 9. MECHANICAL EXCAVATION THAT IS WITHIN 24-INCHES OF ANY MARKED UNDERGROUND UTILITY SHALL NOT PROCEED UNTIL THE UTILITY IS EXPOSED THROUGH VACUUM EXCAVATION. ONCE EXPOSED, THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT AND SUPPORT ALL UTILITIES IN PLACE AND RESTORE PROPER BACKFILL AND SUPPORT.
- 10. UNLESS SPECIFICALLY STATED OTHERWISE, MINIMUM COMPACTION FOR ALL SOIL FILL MATERIALS UTILIZED ON CAWCD'S RIGHT-OF-WAY OR PROPERTY SHALL BE 95% OF THE MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D 1557. ALL SOIL SHALL BE PLACED AT A UNIFORM MOISTURE CONTENT THAT IS WITHIN 2% OF OPTIMUM. SATISFACTORY SOIL FILL MATERIALS SHALL BE GROUPS GW, GP, GM, SW, SP, SM OR A COMBINATION OF THESE GROUPS, AS DEFINED BY ASTM D 2487. ALL FILL SHALL BE FREE OF DEBRIS, WASTE, VEGETATION, AND OTHER DELETERIOUS MATERIAL. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE TO CAWCD FOR APPROVAL INFORMATION ON ALL IMPORTED SOIL TO INDICATE COMPLIANCE WITH THESE REQUIREMENTS. THE CONTRACTOR SHALL SUBMIT TO CAWCD COMPACTION REPORTS INDICATING COMPLIANCE WITH THESE REQUIREMENTS.



REVISIONS					
NO.	BY	DATE	CKD	REMARKS	

DES MS  
DWN  
GL  
CKD  
SMT



CITY OF PHOENIX WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER MASTER PLAN PACKAGE 4B

GENERAL  
SHEET IDENTIFICATION AND CAWCD NOTES

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
G SHEET 3.0  
CAD FILE: G-3.0

REVISION	DATE	BY	DESCRIPTION	REMARKS

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**GENERAL NOTES:**

- THE ELEVATION OF EXISTING TOPOGRAPHY SHOWN MAY VARY. GRADE TOLERANCE IS ± 1 FOOT.
- THE CONTRACTOR SHALL CONTACT THE UTILITY PRIOR TO PROCEEDING WITH WORK WHICH INVOLVES OR AFFECTS EXISTING FEATURES OR AFFECTS EXISTING UTILITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING AND INSTALLING ANY EXISTING SURVEY MONUMENTS REMOVED OR DAMAGED DURING CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS WHICH ARE REQUIRED PRIOR TO CONSTRUCTION, EXCEPT AS DEFINED BY THE SPECIFICATIONS.
- ALL UTILITIES SHALL BE PROTECTED FROM DAMAGE AS A RESULT OF THE WORK. THE CONTRACTOR SHALL RELOCATE, REPAIR OR REPLACE ANY UTILITIES TO THE SATISFACTION OF THE UTILITIES OR THE OWNER.
- PROVIDE TEMPORARY THRUST RESTRAINT FOR EXISTING PIPING WHENEVER THE WORK REQUIRES. CONTRACTOR TO REPLACE OR RESTORE THE EXISTING RESTRAINT SYSTEM TO LIKE NEW CONDITION.
- SUBSURFACE EXPLORATION (SOIL BORINGS SHOWN) WERE PERFORMED BY NINYO AND MOORE (TO BE DETERMINED). SEE LEGEND FOR SYMBOLS AND SITE PLANS FOR LOCATION.
- WORK LIMITS ARE AS SHOWN UNLESS OTHERWISE NOTED.
- (\*) INDICATES DIMENSIONS TO BE DETERMINED BASED UPON EQUIPMENT MANUFACTURER SELECTED.
- (\*\*) INDICATES DIMENSIONS TO BE FIELD VERIFIED.
- EXISTING EQUIPMENT TO BE REMOVED AND SALVAGED WILL BE MARKED BY OWNER PRIOR TO WORK UNLESS OTHERWISE NOTED ON DRAWINGS OR SPECIFICATIONS. CONTRACTOR TO DELIVER SALVAGED EQUIPMENT AS DIRECTED BY ENGINEER.
- CONTRACTOR TO MAINTAIN PLANT ROADWAY ACCESS TO ALL FACILITIES FOR MAINTAINING PLANT OPERATIONS DURING CONSTRUCTION. IF THE WORK REQUIRES INTERRUPTION OF EXISTING ACCESS TO OPERATING PLANT FACILITIES THE CONTRACTOR SHALL PROVIDE TEMPORARY ACCESS (APPROVED BY THE ENGINEER) TO THESE FACILITIES.
- THE CONTRACTOR SHALL BE AWARE THAT THERE ARE EXISTING FACILITIES OWNED AND OPERATED BY OTHERS WITHIN THE CONTRACT LIMITS. THE LOCATION OF THESE FACILITIES HAS BEEN SHOWN ON THE PLANS BASED UPON AVAILABLE RECORD DRAWINGS FOR INFORMATIONAL PURPOSES ONLY, ACTUAL LOCATIONS MAY VARY. THE CONTRACTOR SHALL MAINTAIN ACCESS AS REQUIRED BY OTHERS AS REQUIRED TO MAINTAIN OR REPAIR THESE FACILITIES.
- DEMOLITION WORK WILL REQUIRE STAGED DEMOLITION TO MAINTAIN PLANT OPERATION - SEE SPECIFICATIONS FOR REQUIREMENTS.
- REFERENCES TO M.A.G. STANDARD DETAILS REFER TO THE "UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION" SPONSORED AND DISTRIBUTED BY THE MARICOPA ASSOCIATION OF GOVERNMENT (LATEST VERSION).
- REFERENCES TO C.O.P. STANDARD DETAILS REFER TO THE "PHOENIX SUPPLEMENTAL STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION" ENGINEERING DEPARTMENT, CITY OF PHOENIX, (LATEST VERSION).
- ALL KNOWN EXISTING BURIED PIPING, ELECTRICAL DUCT BANKS AND OTHER BURIED UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION AND ARE FOR INFORMATIONAL PURPOSES TO INDICATE THE EXISTENCE OF SUCH UTILITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND EXPOSING BURIED PIPE, ELECTRICAL DUCT BANK AND OTHER ON SITE UTILITIES PRIOR TO COMMENCING WORK.
- THE CONTRACTOR SHALL ADJUST "ALL" EXISTING MANHOLES, VALVE BOXES, CLEANOUTS, BLIND FLANGED PIPING AND FIRE HYDRANTS WITHIN WORK LIMITS REQUIRED TO MATCH PROPOSED FINAL GRADE ACCORDING TO M.A.G. STANDARD DETAILS NO. 270, 360, 391, AND 422.
- PIPING, ELECTRICAL DUCTBANKS, INSTRUMENTATION AND OTHER FACILITIES TO BE CONTINUED BY OTHER CONSTRUCTION CONTRACTS SHALL: - (IF THE WORK BY OTHERS IS NOT IN PLACE) BE TERMINATED AT THE LIMITS SHOWN, TESTED AND CAPPED WITH AN APPROPRIATE TERMINATION FLANGE OR DEVICE PRIOR TO COMPLETION OF THE WORK. SITE FACILITIES SHALL BE LOCATED (SURVEYED) BY THE PLANT COORDINATES AND ELEVATIONS. MARKERS EXTENDING 4'-0" ABOVE FINISHED GRADE SHALL BE PROVIDED WITH THE ABOVE INFORMATION. PROVIDE THE ENGINEER WITH THE SURVEY NOTES UPON COMPLETION OF THE WORK; OR - (IF THE WORK BY OTHERS IS IN PLACE) BE TERMINATED AND TESTED TO THE LIMIT OF THE WORK. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY APPURTENANCES AND ACCESSORIES, NUTS, BOLTS, ETC. REQUIRED TO COMPLETE THE CONNECTION TO THE WORK BY OTHERS.
- REFER TO C DRAWINGS FOR CONTINUATION OF PIPING AT STRUCTURES.
- ALL BURIED PIPING SHALL BE BACKFILLED ACCORDING TO THE CONTRACT DOCUMENTS AND EXISTING PAVEMENT REPAIRED PER COP STANDARD SPECIFICATION SECTION 336.3, DETAIL P-1200 TYPE A AND TYPE B.
- WHERE BURIED PIPING CROSSES EXISTING BURIED PIPING, CROSSINGS SHALL BE CONSTRUCTED PER M.A.G. STANDARD DETAILS NO. 403, 404 AND 405.
- SEE ELECTRICAL DRAWING FOR SITE LIGHTING REQUIREMENTS.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- WHERE CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART OF THE WORK, DETAILS SHALL BE THE SAME AS FOR OTHER SIMILAR WORK.
- UNLESS DETAILED, SPECIFIED OR INDICATED OTHERWISE, CONSTRUCTION SHALL BE AS INDICATED IN THE APPLICABLE TYPICAL DETAILS AND GENERAL NOTES. TYPICAL DETAILS ARE MEANT TO APPLY EVEN THOUGH NOT REFERENCED AT SPECIFIC LOCATIONS OR IN SPECIFIC DRAWINGS.
- MINIMUM COVER OVER ALL BURIED PIPING SHALL BE 3'-0" UNLESS OTHERWISE SHOWN OR APPROVED BY ENGINEER. LESS THAN 4'-0" COVER SHALL BE CONCRETE ENCASED. SEE TYPICAL DETAIL.
- CLEARING AND GRUBBING OF THE SITE SHALL BE IN ACCORDING WITH SPECIFICATION 02230.

**SITE PLAN NOTES:**

- DEVELOPMENT AND USE OF THIS SITE WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
- THIS PROJECT IS LOCATED IN THE CITY OF PHOENIX WATER SERVICE AREA AND HAS BEEN DESIGNATED AS HAVING AN ASSURED WATER SUPPLY.
- ALL NEW OR RELOCATED UTILITIES WILL BE PLACED UNDERGROUND, UNLESS OTHERWISE NOTED.
- ALL SIGNAGE REQUIRES SEPARATE APPROVALS AND PERMITS.
- ANY LIGHTING WILL BE PLACED AS TO DIRECT LIGHT AWAY FROM ADJACENT RESIDENTIAL DISTRICTS AND WILL NOT EXCEED ONE FOOT CANDLE AT THE PROPERTY LINE. NO NOISE, ODOR, OR VIBRATION WILL BE EMITTED SO THAT IT EXCEEDS THE GENERAL LEVEL OF NOISE, ODOR, OR VIBRATION EMITTED BY USES OUTSIDE OF THE SITE.
- REFER TO THE PROVIDED PLANT INVENTORY BY WESTLAND RESOURCES FOR SPECIES TO BE REPLACED.

**CITY OF PHOENIX GENERAL NOTES:**

- PER CITY OF PHOENIX ORDINANCE G-4396 THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX.
- ALL CONSTRUCTION SHALL BE PERFORMED IN COMPLIANCE WITH ALL APPLICABLE UNIFORM STANDARD DETAILS AND SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OF MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) AND PHOENIX SUPPLEMENTAL STANDARD DETAILS AND SPECIFICATIONS (NEWEST EDITION).
- ADDITIONALLY, ALL FIRE HYDRANTS INSTALLED ON THIS PROJECT SHALL MEET "THE REQUIREMENTS OF THE PHOENIX FIRE CODE, ARTICLE 9 REVISED".
- ANY AND ALL MORE STRINGENT REQUIREMENTS REQUIRED BY FEDERAL, STATE, COUNTY OR LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- ALL CONSTRUCTION ACTIVITIES SHALL BE CONTAINED WITHIN THE PUBLIC RIGHT OF WAY OR IN EASEMENTS GRANTED FOR THE WATER AND/OR SEWER MAIN INSTALLATION.
- TRAFFIC CONTROL SHALL CONFORM TO THE RIGHT-OF-WAY MANAGEMENT PROGRAM (RMP), ADOPTED BY THE CITY OF PHOENIX AND SHALL ALSO BE SUBJECT TO CITY REVIEW AND APPROVAL.
- FACILITIES WHICH ARE NOT SPECIFICALLY LOCATED WITH HORIZONTAL AND VERTICAL CONTROLS ARE LOCATED APPROXIMATELY TO THE BEST INFORMATION AVAILABLE.
- EXISTING UTILITIES AND OTHER FACILITIES SHOWN ON PLANS ARE BASED ON INFORMATION OBTAINED FROM FIELD SURVEY, EXISTING MAPS AND AS-BUILTS AND OTHER PLANS WITHIN THE AREA OF THIS PROJECT. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION AND/OR ELEVATION OF EXISTING UTILITIES WHICH PERTAIN TO AND MAY AFFECT THE CONSTRUCTION.
- TWO WORKING DAYS PRIOR TO EXCAVATION, THE CONTRACTOR SHALL CALL "BLUE STAKE" 263-1100 FOR THE LOCATION AND IDENTIFICATION OF THE UNDERGROUND UTILITIES.
- THE SEPARATION OF WATER AND SEWER MAINS SHALL CONFORM TO THE REQUIREMENTS OF MAG STANDARD DETAIL 404, AS MODIFIED IN THE WATER SERVICES DEPARTMENT (WSD) DESIGN STANDARDS MANUAL, UNDER 3.C.
- ALL DIMENSIONS SHOWN ARE TO THE MONUMENT LINE IN RIGHT OF WAY, UNLESS NOTED OTHERWISE.
- ALL BURIED VALVES SHALL INCLUDE A VALVE BOX AND COVER UNLESS OTHERWISE NOTED. VALVE BOX AND COVER SHALL BE INSTALLED PER C.O.P. SUPPLEMENT TO MAG STANDARD DETAIL P-1391-1, TYPE A.

**CITY OF PHOENIX SPECIAL NOTES:**

- IN ACCORDANCE WITH AAC R18-4-213, ALL MATERIALS ADDED AFTER JANUARY 1, 1993 WHICH MAY COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO THE NATIONAL SANITATION FOUNDATION (NSF) STANDARDS 60 AND 61.
- CLEARANCE VARIATION - EXCEPTIONS OR DEVIATIONS FROM MINIMUM CLEARANCES MUST BE APPROVED AND SHOWN ON THE APPROVED WATER AND/OR SEWER PLANS. WHEN UTILITY CONFLICTS ARE FOUND DURING CONSTRUCTION, ALL CHANGES AND REVISIONS MUST BE PRECEDED BY AND APPROVED PLAN REVISION.
- SLOPES AND INVERTS - ALL CONSTRUCTION SHALL FOLLOW SLOPES AND INVERTS AS SHOWN ON THE APPROVED PLAN. IF ANY DEVIATION FROM THE PLAN IS REQUIRED THE CONTRACTOR MUST CONTACT THE ENGINEER TO DETERMINE ANY REVISIONS NEEDED PRIOR TO PROCEEDING.
- WATER MAINS - NEW 12-INCH AND SMALLER WATER MAINS SHALL BE DUCTILE IRON PIPE (DIP). 350 PSI PRESSURE CLASS.
- RESTRAINED JOINTS - FOR 24-INCH AND SMALLER DUCTILE IRON PIPE (DIP) - RESTRAINED JOINTS SHALL BE IN ACCORDANCE WITH THE CITY OF PHOENIX SUPPLEMENT TO THE MAG SPECIFICATIONS. SECTION 750.2

**UTILITIES LOCATION:**

UTILITIES LOCATION: THE CONTRACTOR SHALL UNCOVER AHEAD OF CONSTRUCTION, ALL LINES BEING TIED INTO AND ALL INTERSECTING UTILITIES SHOWN ON THE PLANS OR MARKED BY BLUE STAKE TO VERIFY THEIR LOCATION AND DEPTH. UTILITY SERVICES SHALL BE LOCATED AND PROTECTED BY THE CONTRACTOR. ALL PRECAUTIONS SHALL BE USED WHILE WORKING NEAR, ABOVE AND BELOW GROUND UTILITIES, TO AVOID INJURY OR DEATH TO PERSONNEL, PROPERTY DAMAGE AND/OR INTERRUPTION OF SERVICE. (SEE OSHA STD. 1926.651 (b)). INDICATED UTILITY LOCATIONS WERE OBTAINED FROM BLUE STAKE FIELD LOCATIONS AND RECORD DRAWINGS.

**SURVEY NOTES:**

BASIS OF BEARING: THE ARIZONA STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, BASED ON THE NORTH AMERICAN DATUM OF 1983 (2011), EPOCH 2010.00. STATE PLANE COORDINATES HAVE BEEN SCALED USING THE ARIZONA DEPARTMENT OF TRANSPORTATION SCALE FACTOR OF 1.00016 APPLIED AT N 0.00, E 0.00. NO ROTATION APPLIED.

**BENCHMARKS:**

- 51<sup>ST</sup> AVENUE & PINNACLE VISTA ALIGNMENTS (COP PT #1500)  
ALUMINUM WITNESS CORNER (WC) CAP STAMPED RLS 39325 FOUND ABOUT 1000- FEET SOUTH OF CAP CANAL AND 184- FEET EAST OF STETSON VALLEY DRIVE.  
ELEVATION = 1512.864 (NGVD29 DATUM)
- 55<sup>TH</sup> AVENUE & PINNACLE VISTA ALIGNMENTS (COP PT #1493)  
U.S. DEPARTMENT OF INTERIOR BRASS CAP FLUSH ABOUT 12- FEET SOUTH OF FENCE AT CAP CANAL AND ABOUT 0.37 MILES WEST OF BRIDGE AT 51<sup>ST</sup> AVENUE.  
ELEVATION = 1513.286 (NGVD29 DATUM)
- 47<sup>TH</sup> AVENUE & HAPPY VALLEY ROAD (COP PT #1507)  
CITY OF PHOENIX BRASS CAP IN SOUTH HAND HOLE.  
ELEVATION = 1410.728 (NGVD29 DATUM)
- 47<sup>TH</sup> AVENUE & ALAMEDA ROAD (COP PT #1506)  
CITY OF PHOENIX BRASS CAP IN HAND HOLE.  
ELEVATION = 1388.877 (NGVD29 DATUM)
- 55<sup>TH</sup> AVENUE & ALAMEDA ROAD (COP PT #1477)  
MARICOPA COUNTY HIGHWAY DEPARTMENT BRASS CAP IN HAND HOLE.  
ELEVATION = 1398.892 (NGVD29 DATUM)

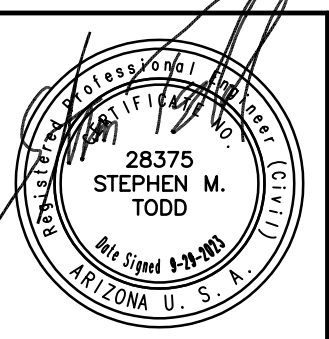
**CITY OF PHOENIX NOTES FOR SEWER:**

- PLANNING & DEVELOPMENT DEPARTMENT'S CIVIL/SITE INSPECTION STAFF SHALL BE NOTIFIED 48 HOURS BEFORE ANY CONSTRUCTION BEGINS, TELEPHONE (602) 262-7811.
- ANY SEWER MAIN 15 INCH IN SIZE OR 12 FEET IN DEPTH, OR GREATER, REQUIRES 5' MANHOLES.
- ALL MANHOLES NEWLY CONSTRUCTED OR EXISTING THAT ARE WORKED IN FOR CONNECTIONS SHALL BE PAINTED WITH INSECTICIDE PAINT PER CITY OF PHOENIX SUPPLEMENT TO M.A.G. SECTION 627.
- MANHOLES WITH 60" DIAMETER AND PIPES GREATER THAN 12" REQUIRE COATING PER C.O.P. SUPPLEMENT 626. ANY EXISTING MANHOLES WITH CORROSION COATING THAT ARE DISTURBED OR ADJUSTED TO NEW FINISH GRADES SHALL HAVE ANY DAMAGED COATING REPAIRED, INCLUDING ALL ADJUSTING RINGS.
- THIS SET OF PLANS HAS BEEN INITIALLY REVIEWED BY THE CITY OF PHOENIX. SUCH REVIEW IS PART OF THE PROCESS THAT DEVELOPER(S)/CONTRACTOR(S) MUST GO THROUGH IN ORDER TO OBTAIN A CONSTRUCTION PERMIT. THE RESULTS OF SUCH INITIAL REVIEW, HOWEVER, SHALL NOT DICTATE THE CITY OF PHOENIX'S FINAL DETERMINATION AS TO THE ACCEPTABILITY OF THE PLANS, NOR SHALL IT PREVENT THE CITY OF PHOENIX FROM REQUIRING THAT ERRORS AND OMISSIONS, AS FOUND ON PLANS, BE ADDRESSED BY DEVELOPER(S)/CONTRACTOR(S), WHERE SUCH ERRORS AND OMISSIONS CAUSE THE PLANS TO BE IN VIOLATION OF OR INADEQUATE UNDER APPLICABLE FEDERAL/STATE/COUNTY/LOCAL CODES, ORDINANCES, REGULATIONS, OR OTHER LAWS. THIS REVIEWED AND STAMPED SET OF PLANS MUST BE KEPT AT THE CONSTRUCTION SITE AT ALL TIMES.
- ALL CONSTRUCTION IN CITY OF PHOENIX RIGHT-OF-WAY, OR EASEMENT, IS TO CONFORM TO M.A.G. SPECIFICATIONS AND DETAILS AND CITY OF PHOENIX SUPPLEMENT TO M.A.G. SPECIFICATIONS AND DETAILS, UNLESS MODIFIED ON THE PLANS.
- ALL SEWER MAINS MUST HAVE A T.V. INSPECTION BEFORE ACCEPTED AS COMPLETE (SEE CITY OF PHOENIX SUPPLEMENT TO M.A.G. SPECIFICATION SECTION 615.11(C)).
- TRAFFIC REGULATIONS: ALL WORK MUST COMPLY WITH REQUIREMENTS OF THE CURRENT CITY OF PHOENIX "TRAFFIC BARRICADE MANUAL".
- THE FOLLOWING M.A.G. DETAILS ARE SPECIFICALLY NOT APPROVED: 425 24" ALUMINUM FRAME AND COVER.
- NEW MANHOLES ARE TO BE BUILT WITHOUT STEPS.
- COMPACTION SHALL COMPLY WITH M.A.G. SECTION 601 & CITY OF PHOENIX SUPPLEMENTS.
- NEW SEWER LINES ARE TO BE BUILT IN ACCORDANCE WITH CITY OF PHOENIX "STANDARD UTILITY LOCATIONS".
- A SIX (6) FOOT MINIMUM HORIZONTAL SEPARATION FROM ANY UNDERGROUND UTILITY SHALL BE PROVIDED FOR SEWER MAINS, SEWER SERVICES, WATER MAINS, AND WATER SERVICES. THE MINIMUM HORIZONTAL SEPARATION IS MEASURED FROM OUTSIDE OF SEWER MAIN, SEWER SERVICE, WATER MAIN, OR WATER SERVICE TO OUTSIDE OF UNDERGROUND UTILITY.
- A ONE (1) FOOT MINIMUM VERTICAL SEPARATION FROM ANY DRY UNDERGROUND UTILITY CROSSING SHALL BE PROVIDED FOR SEWER MAINS, SEWER SERVICES, WATER MAINS, AND WATER SERVICES. THE MINIMUM VERTICAL SEPARATION IS MEASURED FROM OUTSIDE OF SEWER MAIN, SEWER SERVICE, WATER MAIN, OR WATER SERVICE TO OUTSIDE OF DRY UNDERGROUND UTILITY.
- A TWO (2) FOOT MINIMUM VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN ANY SEWER MAIN OR STORM DRAIN MAIN CROSSING A WATER MAIN. THE MINIMUM VERTICAL SEPARATION IS MEASURED FROM OUTSIDE OF WATER MAIN TO OUTSIDE OF SEWER MAIN OR STORM DRAIN MAIN. SEE M.A.G. STANDARD DETAIL 404 FOR ADDITIONAL INFORMATION AND/OR PROVISIONS FOR CLEARANCE.
- EXCEPTIONS OR DEVIATIONS FROM THE ABOVE MINIMUM CLEARANCES MUST BE APPROVED AND SHOWN ON THE APPROVED WATER AND SEWER PLANS. WHEN UTILITY CONFLICTS ARE FOUND DURING CONSTRUCTION, ALL CHANGES AND REVISIONS MUST BE PRECEDED BY AN APPROVED PLAN REVISION.
- ANY AND ALL MORE STRINGENT SEPARATION REQUIREMENTS REQUIRED BY FEDERAL, STATE, COUNTY, OR LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- ANY SEWER LINES THAT ARE INSTALLED WITH LESS THAN .004 FT/FT SLOPE MUST BE INSTALLED USING A LASER.
- WHEN DIP SEWER PIPE IS USED, LINING IS REQUIRED PER CITY OF PHOENIX SUPPLEMENT TO M.A.G. SEC. 750.1.
- CONCRETE OR ASPHALT DAMAGED DURING THE COURSE OF CONSTRUCTION SHALL BE REMOVED AND REPLACED IN KIND PRIOR TO FINAL INSPECTION.
- RECORD DRAWING SUBMITTALS MUST COMPLY WITH WATER SERVICES DEPARTMENT ENGINEERING POLICY P-69.
- PER PHOENIX CITY CODE, CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE FURNISHED FOR INSPECTION OR COPYING, EXCEPT AS SPECIFICALLY STATED IN THE CITY CODE, OR AS REQUIRED BY LAW.

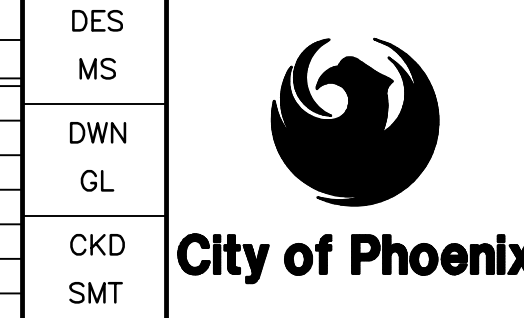
**SEWER NOTES:**

- RIM ELEVATIONS AS SHOWN ON PLANS ARE APPROXIMATE. CONTRACTOR SHALL CONSTRUCT MANHOLE RIMS AT GRADE WITHIN PAVED AREAS AND 3-INCHES ABOVE GRADE IN UNPAVED AREAS.
- VCP SEWER WITH FILL DEPTH GREATER THAN 25' OVER TOP OF PIPE REQUIRES CLSM BEDDING PER CITY OF PHOENIX STANDARD DETAIL P1120 (SHEET C-104 THIS PLAN SET). ABC OR 1/2 SACK CLSM IS NOT APPROVED FOR VCP SEWERS AT THIS DEPTH.

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CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
**NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B**

GENERAL  
**GENERAL NOTES I**

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**LANDSCAPE SYMBOLS**

**VEGETATION**

- BUSH: 3 FT DIA
- BUSH: 4 FT DIA
- BUSH: 5 FT DIA
- BUSH: 6 FT DIA
- BUSH: BIRD OF PARADISE
- BUSH: BRITTLE BUSH
- BUSH: CHUPAROSA
- BUSH: HOP
- BUSH: SAGE
- BUSH: SAGUARO
- TREE: ACACIA
- TREE: MESQUITE
- TREE: MISCELLANEOUS
- TREE: PALM
- TREE: PALO VERDE
- TREE: EXISTING  
NOTE: DIA OF TREE TO VARY PER TREE DIA. THIS SYMBOL DRAWING AT 1FT DIA TREE, SCALE TO FIT CORRECT DIA ACCORDINGLY
- TREE: DESERT SPOON
- TREE: INDIAN FIG PRICKLY PEAR

**IRRIGATION**

- SADDLE TAP TO NPW LINE
- BRASS PRESSURE REGULATOR
- VALVE
- GATE VALVE
- FLUSHING END CAP, INSTALL IN SEPARATE 10" PLASTIC VALVE BOX
- BRASS GATE VALVE (SAME SIZE AS MAINLINE)
- ELECTRONIC REMOTE CONTROL VALVE
- PRESET PRESSURE REGULATOR (INSTALL IN SEPARATE 10" PLASTIC VALVE BOX)
- PVC WIRE SLEEVE, 1 1/2" DIA SCHEDULE 40
- PVC SLEEVE, 2X PIPE DIA SCHEDULE 40
- PVC MAINLINE CLASS 200
- PVC PIPE TO TREE EMITTERS CLASS 200
- PVC PIPE TO SHRUB EMITTERS CLASS 200
- VALVE BOX
- TREE/SHRUBBERY
- SAGUARO CACTUS
- BARREL CACTUS

**SURVEY SYMBOLS**

- BENCHMARK
- MONUMENT
- CONTROL POINT
- MANHOLE
- FIRE HYDRANT (FH)
- BOTTOM OF SLOPE
- RIP-RAP
- SIGN, 1 POST
- SIGN, 2 POST
- CATCH BASIN
- SOILS SYMBOLS**
- BORING
- MONITORING WELL
- PIEZOMETER
- TEST PIT

**FEATURES AND SYMBOLS**

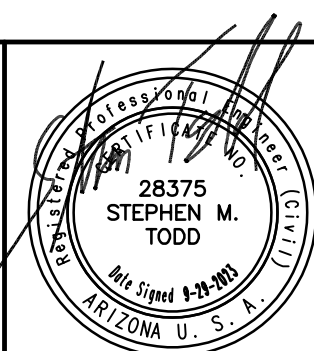
- SAFETY POST (BOLLARD) SEE M.A.G. STD DETAIL NO. 140 UNLESS NOTED OTHERWISE
- CLEAN OUT
- POST HYDRANT (PH) OR HOSE STATION (HS)
- QUICK DISCONNECT AT STORM DRAINAGE STANDPIPE
- ELECTRICAL MANHOLE W/DESIGNATION NO.
- BORING LOCATION AND BORING NUMBER DESIGNATION
- PLANT COORDINATES (FOR STRUCTURES COORDINATE REPRESENTS EDGE OF STRUCTURE OR EXPOSED CONCRETE SLAB)

**LINE LEGEND**

- PRE-CAST SAFETY CURB
- SECURITY FENCE
- STEEL RAILING
- BARRICADE
- EXISTING FENCE
- PROPOSED CHAINLINK FENCE
- EXISTING CHAINLINK FENCE
- LIMITS OF WORK UNDER THIS CONTRACT
- PROPOSED YARD PIPING, SEE ABBREVIATIONS FOR PIPING IDENTIFICATION
- FUTURE YARD PIPING, SEE ABBREVIATIONS FOR PIPING IDENTIFICATION
- SPOT ELEVATION
- EXISTING RIBBON CURB
- EXISTING VERTICAL CURB & GUTTER
- EXISTING VALLEY GUTTER
- EXISTING SINGLE CURB
- RIBBON CURB, PER MAG STD DET NO 220, TYPE - B
- VERTICAL CURB & GUTTER, PER MAG STD DET NO 220, TYPE - A
- VALLEY GUTTER, PER MAG STD DET NO 240
- SINGLE CURB PER MAG STD DET NO 222, TYPE - A
- EXISTING STRUCTURE
- STRUCTURES/EQUIPMENT TO BE REMOVED OR DEMOLISHED
- SITE PLAN - STRUCTURES (BY OTHERS)
- SITE PLAN - NEW STRUCTURES
- RIGHT-OF-WAY LINE
- SECTION LINE
- EASEMENT LINE
- PROPERTY LINE
- PROPOSED UTILITY
- SETBACK
- EXISTING UTILITY
- FUTURE FACILITY
- PROPOSED CONTOUR (INDEX)
- PROPOSED CONTOUR (INTERMEDIATE)
- EXISTING CONTOUR (INDEX)
- EXISTING CONTOUR (INTERMEDIATE)
- DRAINAGE FLOW/SWALE LINE
- MATCH LINE
- BREAK LINE
- EXISTING WALL
- WALL
- SLOPE DIRECTION AND GRADE
- ROAD SURFACE

**HATCH**

- ACCESS HATCH
- ASPHALT - SECTION
- CMU BLOCK
- CONCRETE
- EARTH
- GRATE - PLAN
- GRATE - SECTION
- GRAVEL
- GROUT
- PAVEMENT - PLAN
- REMOVAL/DEMOLITION
- RIPRAP



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CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

GENERAL  
SYMBOLS AND LEGEND 1

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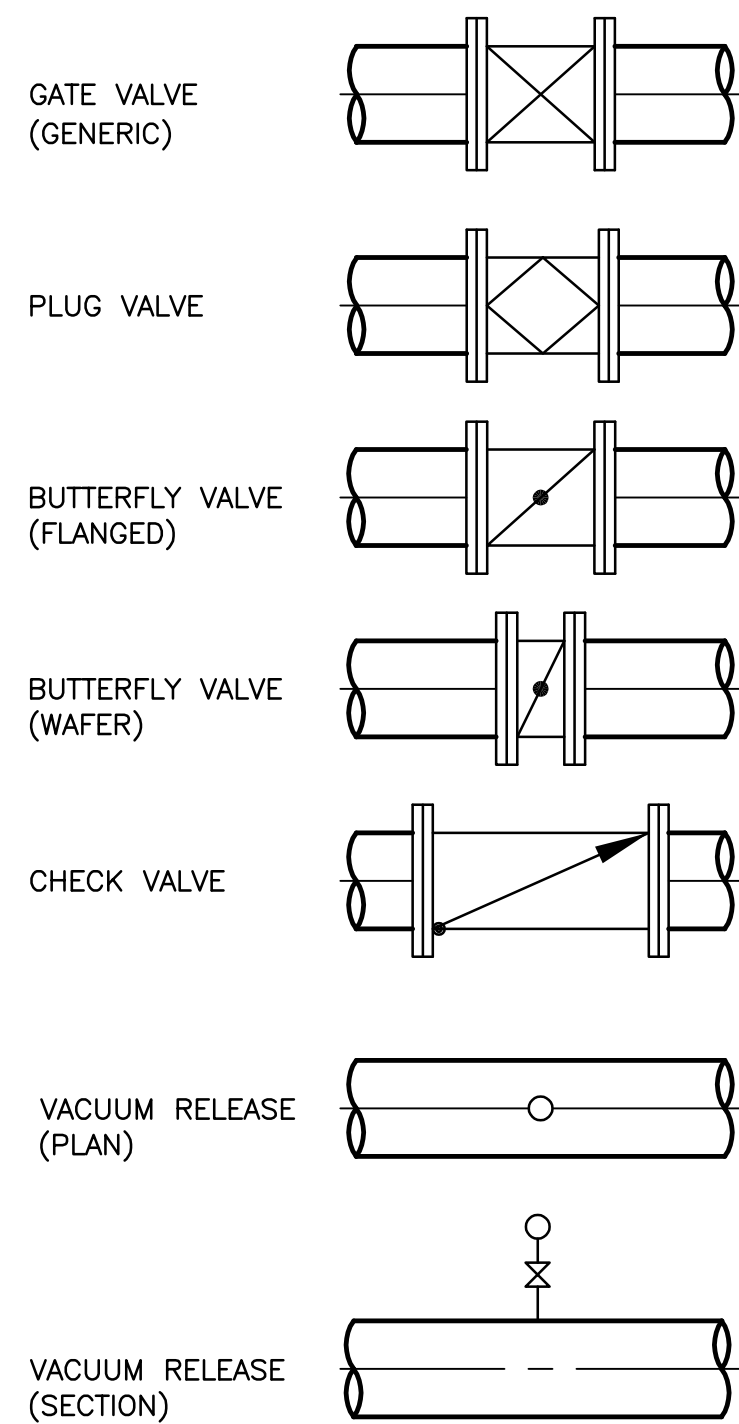
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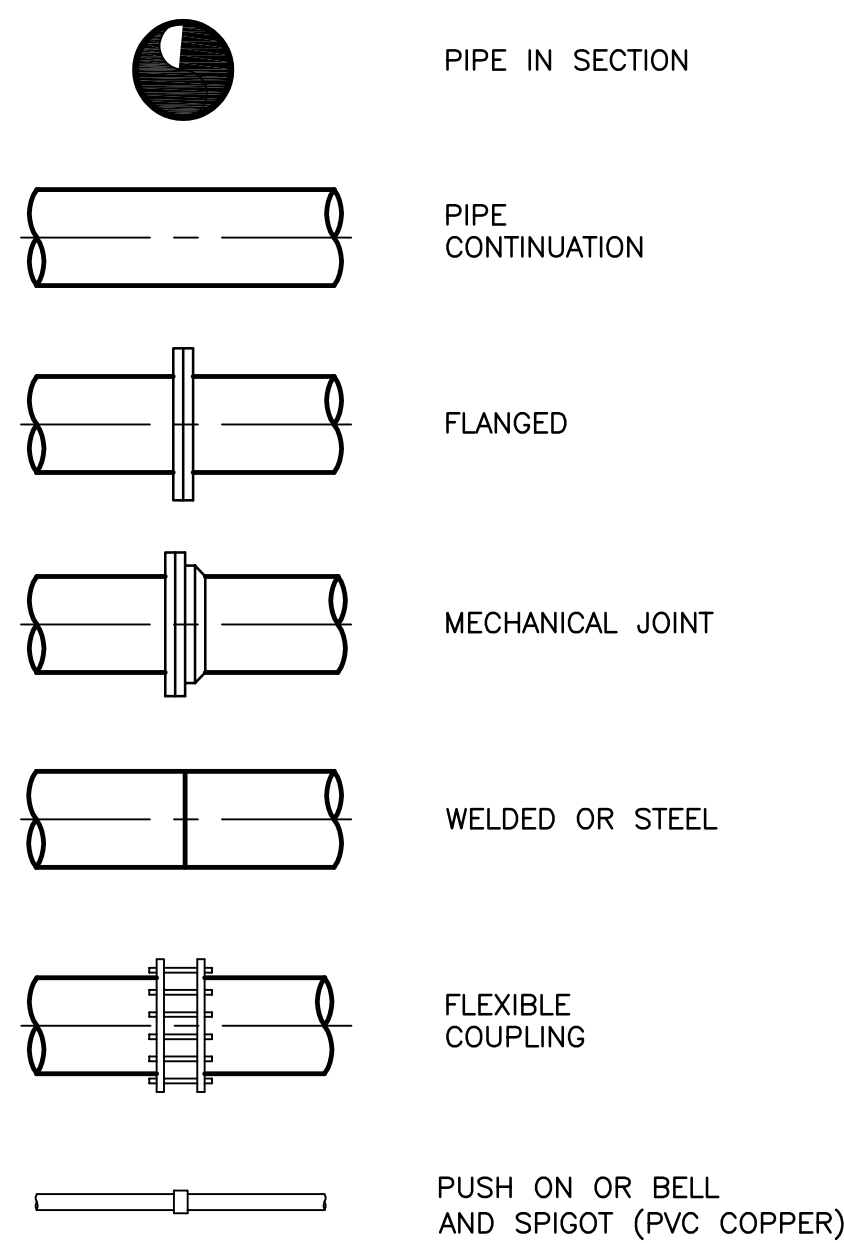
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**PIPE VALVE SYMBOLS DOUBLE LINE**

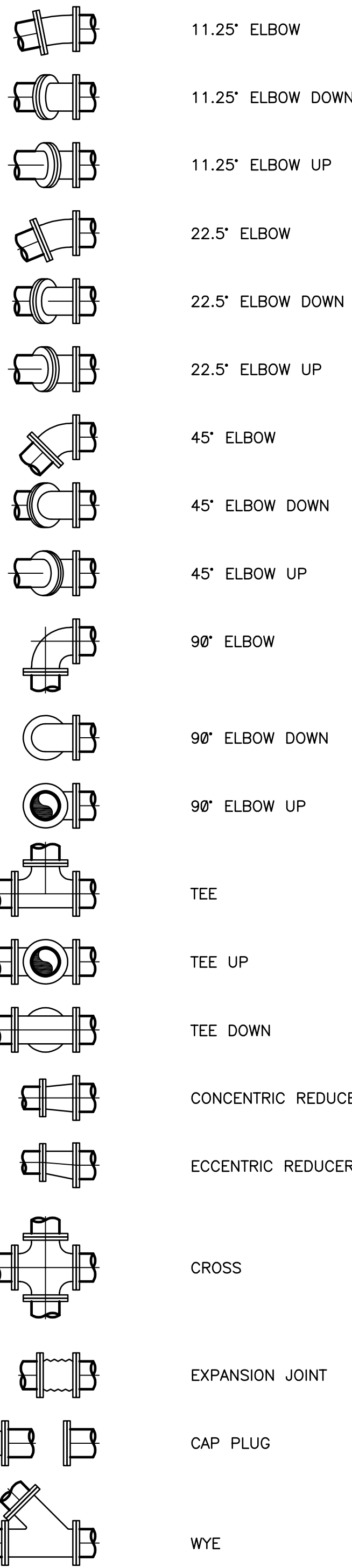
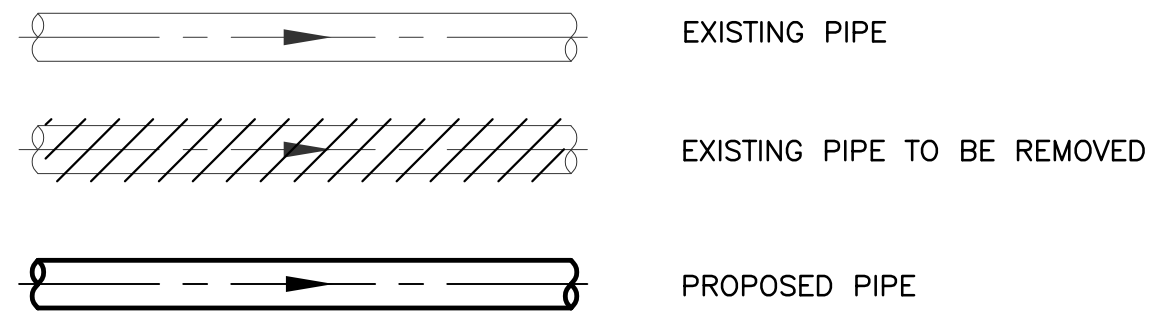


**PIPE JOINTS**

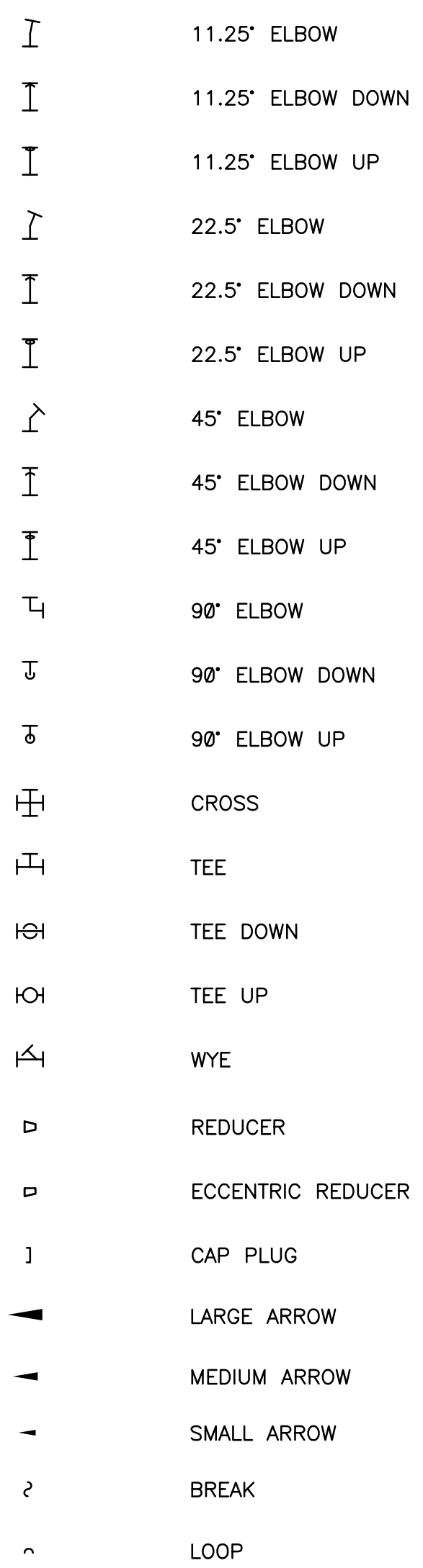
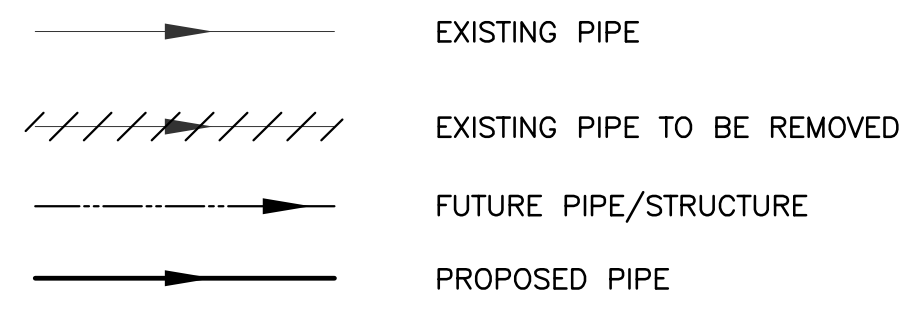


**PIPE FITTING SYMBOLS**

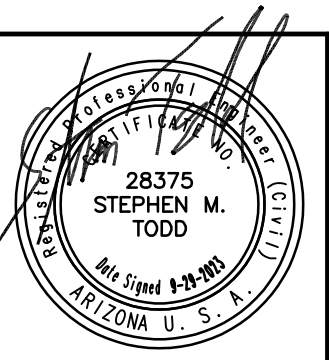
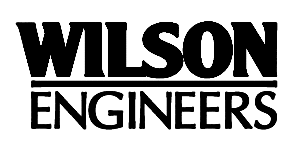
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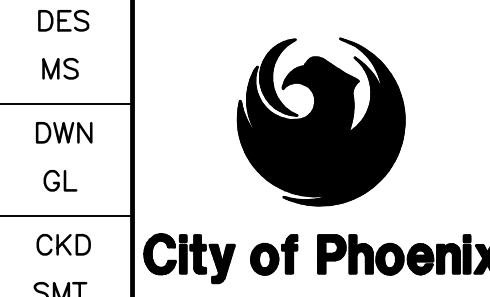
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**PROCESS EQUIPMENT SCHEMATIC**



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CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

GENERAL  
SYMBOLS AND LEGEND 2

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STANDARD ABBREVIATIONS

<b>A</b>	A ARCHITECTURAL AB ANCHOR BOLT ABC AGGREGATE BASE COURSE ASPHALTIC AC CONCRETE AD ACCESS DOOR ADM ADMINISTRATION AFF ABOVE FINISHED FLOOR AG AUTOMATIC GATE AHU-# AIR HANDLING UNIT NO. # ALT ALTERNATE ALUM ALUMINUM AMB AMBIENT ANPP ARIZONA NUCLEAR POWER PLANT APPROX APPROXIMATELY ASP ATM SWITCH ENCLOSURE ATP ASPHALT PAVEMENT ATC AUTOMATIC TEMPERATURE CONTROL ATM ASYNCHRONOUS TRANSFER MODE
<b>B</b>	BC BRASS CAP BCV BALL CHECK VALVE BFV BUTTERFLY VALVE BFP BLIND FLANGE BP BY-PASS BAV BALL VALVE BDD BACKDRAFT DAMPER BDG BRIDGE BDS BUSINESS DATA SERVER BE BEAM BHP BRAKE HORSEPOWER BLD BUILDING BLDG BUILDING BM BENCHMARK BOD BOTTOM OF DUCT BOC BACK OF CURB BOT BOTTOM BOW/BW BOTTOM OF WALL BP BYPASS BUSH BUSHING BVC BEGIN VERTICAL CURVE
<b>C</b>	CC CENTER TO CENTER CCS COMPUTER CONTROL SYSTEM CKV CHECK VALVE CD# CEILING AIR DIFFUSER (#=TYPE A, B...) CFH CUBIC FEET OF STANDARD AIR PER HOUR CFM CUBIC FEET OF STANDARD AIR PER MINUTE CG CONTROL GATE CHR CHLORINATOR CIP CAST IRON PIPE CISP CAST IRON SOIL PIPE CJ CONSTRUCTION JOINT CLR CLEAR OR CLEARANCE CMMS COMPUTER MAINTENANCE MANAGEMENT SYSTEM CMP COMPUTER CMU CEMENT MASONRY UNIT CODP CLEAN OUT DECK PLATE CONC CONCRETE CONN CONNECTION CONT CONTINUOUS OR CONTINUATION COP CITY OF PHOENIX CO CLEANOUT CPLG COUPLING
<b>D</b>	DB DRY BULB DBL DOUBLE DCS DISTRIBUTED CONTROL SYSTEM DCU DISTRIBUTED CONTROL UNIT DMWS DATA MANAGEMENT WORK STATION DEGC DEGREES CENTIGRADE DEGF DEGREES FAHRENHEIT DEGREE ANGULAR DEGREES DG DECOMPOSED GRANITE DI DIAMETER DIP DUCTILE IRON DIA DUCTILE IRON PIPE DMH DRAINAGE MANHOLE DT DAY TANK DTL DETAIL DV DIAPHRAGM VALVE DWG DRAWING DWG DRAWING WEB FORMAT DWL DOWEL
<b>E</b>	EA EACH ECC ECCENTRIC ECV EVAPORATIVE COOLING UNIT EDB ELECTRICAL DUCT BANK EF-# EXHAUST FAN NO. # EF EACH FACE EJ EXPANSION JOINT EL/ELEV ELEVATION EMER EMERGENCY EMH ELECTRICAL MANHOLE EOP EDGE OF PAVEMENT EQUIP EQUIPMENT ER# EXHAUST AIR REGISTER (#=TYPE A,B...) EVC END VERTICAL CURVE EW EACH WAY EWS ENGINEERING WORK STATION EXIST EXISTING

<b>F</b>	FC FLEXIBLE CONNECTOR FCU FIELD CONTROL UNIT FDP FIELD CONTROL PANEL FD FLOOR DRAIN FDDI FIELD DISTRIBUTED DATA INTERFACE FDN FOUNDATION FE FLOW ELEMENT FEH FIELD ETHERNET HUB FF FINISHED FLOOR FH FIRE HYDRANT FHC FIELD HUB CONVERTER FHE FIELD HUB ENCLOSURE FG FINISHED GRADE FIN FINISHED FN FAN FO FOAM FOC FIBER OPTIC CONVERTER FPM FEET PER MINUTE FPP FIELD PANEL PATCH FPS FIRE PROTECTION SYSTEM FRP FIBERGLASS REINFORCED POLYVINYL FT FOOT OR FEET FTG FITTING OR FOOTING FWS FIELD WORKSTATION FLG\FLGD FLANGE/FLANGED
<b>G</b>	GA GAUGE GAL GALLON GALV GALVANIZED GAV GATE VALVE GB GRADE BREAK GBD GRAVITY BACKDRAFT DAMPER GDS GENERAL DATA SERVER GLV GLOBE VALVE GLDI GLASS LINED DUCTILE IRON GMW GROUNDWATER MONITORING WELL GND GROUND GPH GALLONS PER HOUR GPM GALLONS PER MINUTE GR GRINDER GRT GRAVITY THICKENER GRV GROOVED GSP GALVANIZED STEEL PIPE
<b>H</b>	H HIGH HCP HORIZONTAL CONTROL POINT HDP HIGH DENSITY POLYETHYLENE HDS HISTORICAL DATA SERVER HORIZ HORIZONTAL HPMP HEAT PUMP HPT HIGH POINT HP HORSEPOWER
<b>I</b>	IAS INFORMATION ACCESS SYSTEM I/O INPUT/OUTPUT IE INSTRUMENT ELECTRIC INFLUENT IN. INCH/INCHES INSUL INSULATION INVERT INVERT IPH INCHES PER HOUR IPM INCHES PER MINUTE IPS INCHES PER SECOND IRR IRRIGATION ITP INTERMEDIATE TERMINAL PANEL
<b>J</b>	JB JUNCTION BOX JS JUNCTION STRUCTURE JT JOINT
<b>K</b>	KCFM 1000 CUBIC FT. PER MINUTE KGV KNIFE GATE VALVE KSCFM 1000 STD. CUBIC FT. PER MINUTE
<b>L</b>	L LANDSCAPE LB POUND LB/DT POUNDS PER DRY TON LB/D POUNDS PER DAY LB/H POUNDS PER HOUR LCP LOCAL CONTROL PANEL LF LINEAR FEET LGTH LENGTH LI LEVEL INDICATOR LM LOUVER MOTOR LP LOW POINT LSH LEVEL SWITCH HIGH LSL LEVEL SWITCH LOW LSS LANDSCAPING SPRINKLER SYSTEM

<b>M</b>	MAG MAGNETIC MASG MARICOPA ASSOCIATION OF GOV. MAX MAXIMUM MB MACHINE BOLT MCC MOTOR CONTROL CENTER MCS MOTOR CONTROL STATION MFC MICROSCREEN FEED CHANNEL MFR MANUFACTURER MG MANUAL GATE MGD MILLION GALLONS PER DAY MGL MILLIGRAMS PER LITER MH MANHOLE MIN MINIMUM MINS MINUTES MJ MECHANICAL JOINT ML MILLILITER MO MASONRY OPENING MSC MICROSCREEN MTD MOUNTED MV MILLIVOLT MVC MID POINT VERTICAL CURVE MW MEGAWATT
<b>N</b>	NC NORMALLY CLOSED NIC NOT IN CONTRACT NK NECK NO NORMALLY OPEN NOM NOMINAL NLV NEEDLE VALVE
<b>O</b>	OA OUTSIDE AIR OC ON CENTER ODR ODOR ODRC ODOR CONTROL OF OVERFLOW OHE OVERHEAD ELEC. POWER LINES OPCTY PERCENT OPACITY OPNG OPENING OWS OPERATOR WORK STATION
<b>P</b>	PAC POWDER ACTIVATED CARBON P-# PUMP NO. # PCA PLANT COMPRESSED AIR PCCP PORTLAND CEMENT CONCRETE PAVEMENT PCU PROCESS CONTROL UNIT PDR PROCESS DATA ROUTER PSB PRIMARY SEDIMENTATION BASIN PB PULL BOX PE PLAIN END PF POWER FACTOR PH pH, HYDROGEN ION ACTIVITY PHYD POST HYDRANT PLCS PLACES PI PRESSURE INDICATOR PLTE PLATE PL PROPERTY LINE PLC PROGRAMMABLE LOGIC CONTROLLER PMC PROGRAM MANAGEMENT CENTER POSS POSITION SWITCH PPB PARTS PER BILLION PPBV PARTS PER BILLION VOLUME PPD POUNDS PER DAY PPM PARTS PER MILLION PPMV PARTS PER MILLION VOLUME PPSEGG POUNDS PER SQUARE INCH GAUGE PRESSURE PRT PRINTER PS PRESSURE SWITCH PV PUMP VACUUM PVNGS PALO VERDE NUCLEAR GENERATING STATION
<b>Q</b>	QTY QUANTITY
<b>R</b>	R RADIUS RCS REMOTE CONTROL STATION RCP REINFORCED CONCRETE PIPE RED REDUCER, REDUCING REINF REINFORCING, REINFORCEMENT REQ'D REQUIRED RF ROOF RGS RIGID GALVANIZED STEEL RH RELATIVE HUMIDITY RIO REMOTE INPUT/OUTPUT RMS ROOT MEAN SQUARE RO ROOF OPENING ROT ROTARY VALVE RPH REVOLUTIONS PER HOUR RPS REVOLUTIONS PER SECOND RPM REVOLUTIONS PER MINUTE RTU REMOTE TERMINAL UNIT RTV ROTARY VALVE RV-# ROOF VENT NO. # RV RELEASE VALVE

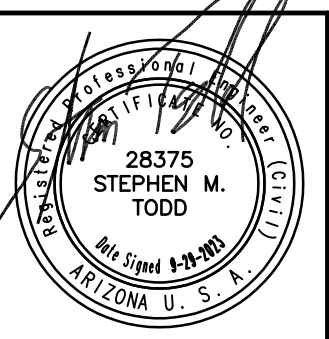
<b>S</b>	S STRUCTURAL SAR SUPPLY AIR REGISTER SC SCREW CONVEYOR SCFH STANDARD CUBIC FEET PER HOUR SCFM STANDARD CUBIC FEET PER MINUTE SCH SCHEDULE SCR SILICON CONTROLLED RECTIFIER SEC SECONDARY SECS SECONDS SED SEDIMENTATION SG SLUICE GATE SH SHIELDED SF-# SUPPLY AIR FAN NO. # SFEF SERVER FAST ETHERNET SWITCH SHF SOLIDS HANDLING FACILITY SHT SHEET SIM SIMILAR SLG SLIDE GATE SP IN WG STATIC PRESSURE INCHES OF WATER GAGE SPECS SPECIFICATIONS SQ SQUARE SRP SALT RIVER PROJECT SRUA SALT RIVER VALLEY USERS ASSOCIATION SS STAINLESS STEEL STA STATION STD STANDARD STL STEEL SU SURGE UNIT SUB SUBSTATION SV-# SOLENOID VALVE NO. # SW SIDEWALK
<b>T</b>	T TELEPHONE T/ TOP OF T&B TOP AND BOTTOM TB TERMINATION BOX TBOC TOP BACK OF CURB TEMP TEMPERATURE OR TEMPORARY THK THICK TMH TELEPHONE MANHOLE TOC TOP OF CONCRETE TOD TOP OF DUCT TOG TOP OF GRATING TOR TOP OF REGISTER TOW TOP OF WALL TOS TOP OF SLAB TPH TONS PER HOUR TR TRANSDUCER TTB TELEPHONE TERMINATION BOARD TYP TYPICAL
<b>U</b>	UG UNDER GROUND UH-# UNIT HEATER NO. # UMHO MICROMHO UON UNLESS OTHERWISE NOTED
<b>V</b>	VAC VACUUM VACBK VACUUM BREAKER VB VALVE BOX VCP VITRIFIED CLAY PIPE VD VOLUME DAMPER VDU VIDEO DISPLAY UNIT VEL VELOCITY VERT VERTICAL VF VACUUM FILTER VFD VARIABLE FREQUENCY DRIVE VG VALVE GUTTER VMS VIBRATION MONITORING SYSTEM VS VIEW STATION
<b>W</b>	W/ WITH WB WET BULB WC WATER COLUMN WD WIDE WP WEATHERPROOF WS WATER SURFACE
<b>X</b>	XP EXPLOSION PROOF XFER TRANSFER XFMR TRANSFORMER
<b>SYMBOLS</b>	
⊙	AT
%	PERCENT

PROCESS ABBREVIATIONS

<b>A</b>	ALM ALUM AMN AMMONIA AR PROCESS AIR AS INSTRUMENT AIR ASL ALTERNATE SLUDGE AW ACID WASTE AWD ACID WASTE DRAIN
<b>B</b>	BLA BLOWER AIR BS BRINE SOLUTION
<b>C</b>	CAS CAUSTIC SODA CD CHLORINATOR DETECTOR CEFF CHLORINATED EFFLUENT CEN CENTRATE CEN-EFF CENTRATE EFFLUENT CEN-ML CENTRATE MIXED LIQUOR CEN-RAS CENTRATE RETURN ACTIVATED SLUDGE CEN-SCUM CENTRATE SCUM CEN-SE CENTRATE SECONDARY EFFLUENT CEN-WAS CENTRATE WASTE ACTIVATED SLUDGE CEND CENTRIFUGE DRAIN CENV CENTRATE VENT CG CHLORINE GAS CGV CHLORINE GAS VACUUM CH20R COOLING WATER RETURN CH20S COOLING WATER SUPPLY CHL CHLORINE LIQUID CHWR CHILLED WATER RETURN CHWS CHILLED WATER SUPPLY CL2 CHLORINE CLS CHLORINE SOLUTION CPVC CHLORINATED POLYVINYL CHLORIDE CV CHLORINATOR VENT CW DOMESTIC COLD WATER CWD CAUSTIC WASTE DRAIN CWR COOLING WATER RETURN CWS COOLING WATER SUPPLY
<b>D</b>	D DRAIN DAF DISSOLVED AIR FLOTATION DCL DIGESTER CLEANING LINE DEC DECAT DEFF DECHLORINATED EFFLUENT DG DIGESTER GAS DISCH DISCHARGE DL DRAIN LINE DP DILUTED POLYMER DS DIGESTED SLUDGE DSF DIESEL FUELDEWATERING DWS DEWATERED SLUDGE DMW DOMESTIC WASTE
<b>E</b>	EFF EFFLUENT EOF EMERGENCY OVERFLOW EPS EFFLUENT PUMP STATION ES EFFLUENT SLUDGE
<b>F</b>	FA FOUL AIR FAD FOUL AIR DUCT FEC FERRIC CHLORIDE FL FLOW LINE FLW FILTERED WASTE FOR FUEL OIL RETURN FOS FUEL OIL SUPPLY
<b>G</b>	GC GRIT CLEANING GCEN GRAVITY CENTRATE GR GRIT GW GROUNDWATER
<b>H</b>	HCL HYDROCHLORIC ACID HPA HIGH PRESSURE AIR HPO HIGH PRESSURE OIL HPS HIGH PRESSURE HSL STREAM HEATED HW SLUDGE HOT WATER HWR HOT WATER RETURN HWS HOT WATER SUPPLY
<b>I</b>	IMLR INTERMEDIATE MIXED LIQUOR RECYCLE INF INFLUENT IPA INTERMEDIATE PRESSURE AIR IR INTERMEDIATE RECYCLE IRG IRRIGATION

<b>L</b>	LO LUBE OIL
<b>M</b>	MA METHYL ALCOHOL (METHANOL) MD MOTORIZED DAMPER MAS METHYL ALCOHOL SOLUTION ML MIXED LIQUOR
<b>N</b>	NAOCL SODIUM HYPOCHLORITE NG NATURAL GAS NPW NON-POTABLE WATER NPR NON-POTABLE WATER RETURN NPS NON-POTABLE WATER SUPPLY NSD NON-SANITARY DRAIN
<b>O</b>	OCD ODOR CONTROL DRAIN
<b>P</b>	PAC POWDER ACTIVATED CARBON PCA POLYMER COAGULANT AID PD PRIMARY SCUM PC PROCESS DRAIN PE PRIMARY EFFLUENT PI PRIMARY INFLUENT PLD PLUMBED DRAIN LINE POLY POLYMER POLS POLYMER SOLUTION PSL PRIMARY SLUDGE PSK PRIMARY SKIMMINGS PW POTABLE WATER PSW PLANT SERVICE WATER
<b>R</b>	RAS RETURNED ACTIVATED SLUDGE RD ROOF DRAIN RECIRC RECIRCULATE/RECIRCULATION RGR RETURNED GRIT RW REUSE WATER RAW RAW WATER RWW RAW WASTE WATER
<b>S</b>	SAS SCRUBBER AIR SAMPLING SB SODIUM BISULFITE SBD SCRUBBER BLOWDOWN SBS SODIUM BISULFITE SOLUTION SC SECONDARY SCUM SKR SLUDGE CAKE SD SCREENINGS SD Sulfur Dioxide Liquid SDF STORM DRAIN ABOVE FLOOR SDBF STORM DRAIN BELOW FLOOR SDG SULFUR DIOXIDE GAS SESL SECONDARY EFFLUENT SLUDGE SMP SAMPLE SNPW SOFTENED NON-POTABLE WATER SNPWN SOFTENED NON-POTABLE WATER VENT SP SPARE PIPE OR FUTURE PIPE SPD SUMP PUMP DISCHARGE SPRW SPRAY WATER SPW SOFTENED POTABLE WATER SR SCRUBBER RECIRCULATION SRV SURGE RELIEF VALVE SRW SERVICE WATER SS SANITARY SEWER SSK SECONDARY SKIMMINGS SSL SECONDARY SLUDGE STM STEAM SU STRUCTURAL UNDERDRAIN/FOOTING DRAIN SW STRUCTURAL UNDERDRAIN COLLECTOR SWR SANITARY WASTE SWR SEAL WATER
<b>T</b>	THK EFF THICKENED EFFLUENT TSL THICKENED SLUDGE TO THICKENER OVERFLOW TPS THICKENED PRIMARY SLUDGE TWAS THICKENED WASTE ACTIVATED SLUDGE
<b>U</b>	UTPS UNTHICKENED PRIMARY SLUDGE
<b>V</b>	V VENT VTR VENT THROUGH ROOF VAC VACUUM
<b>W</b>	WAS WASTE ACTIVATED SLUDGE

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CITY OF PHOENIX  
WATER SERVICES DEPARTMENT

NORTHWEST WASTEWATER  
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GENERAL

ABBREVIATIONS

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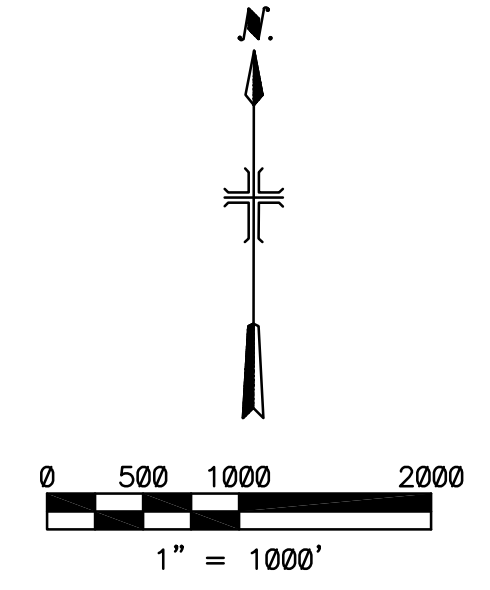
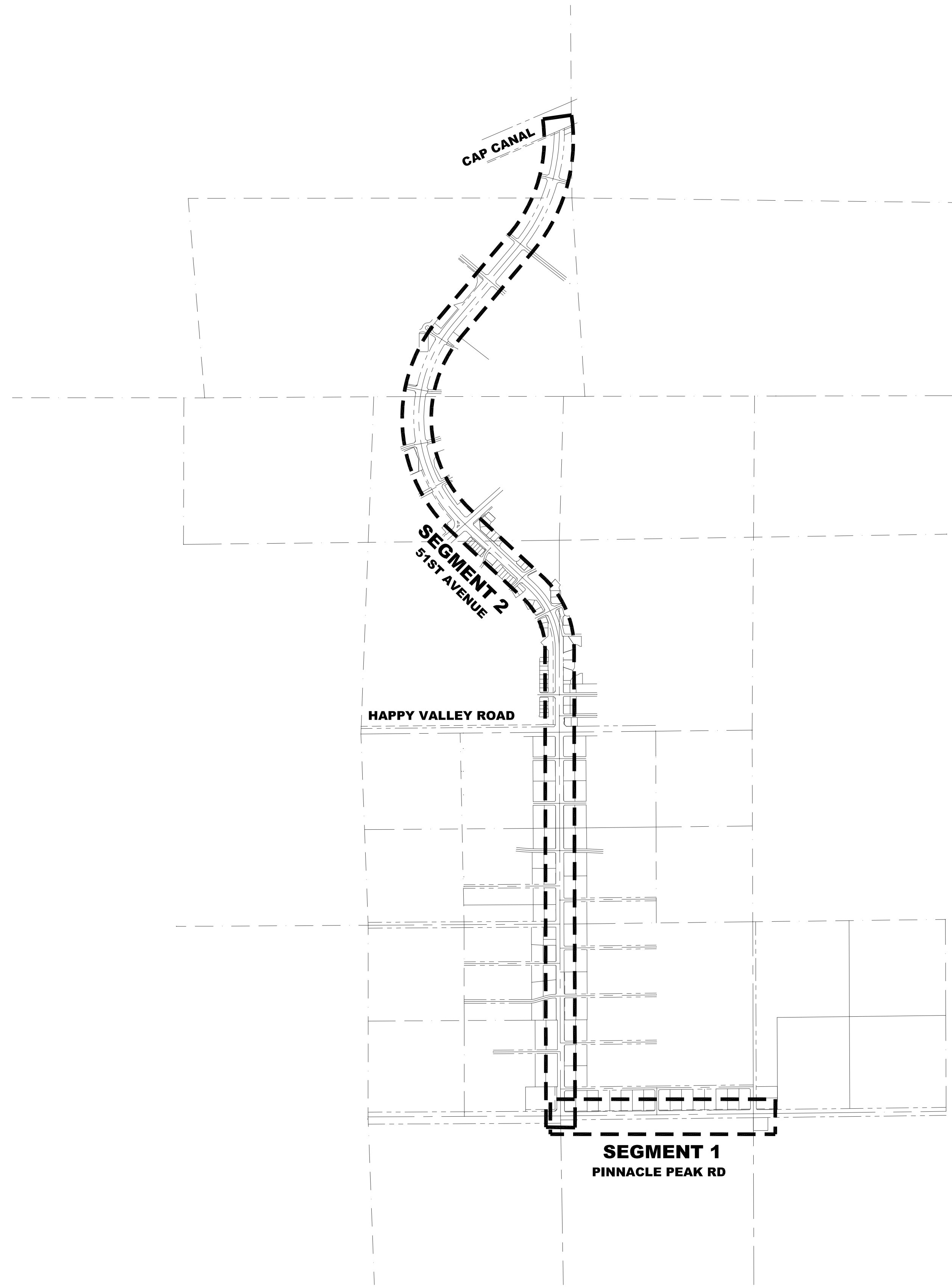
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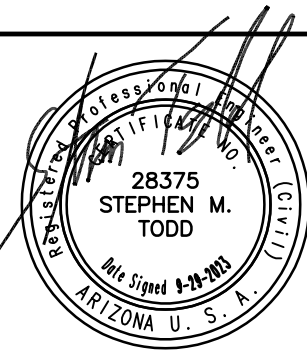
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CIVIL

OVERALL PROJECT AREA MAP

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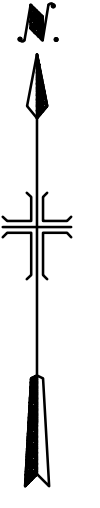
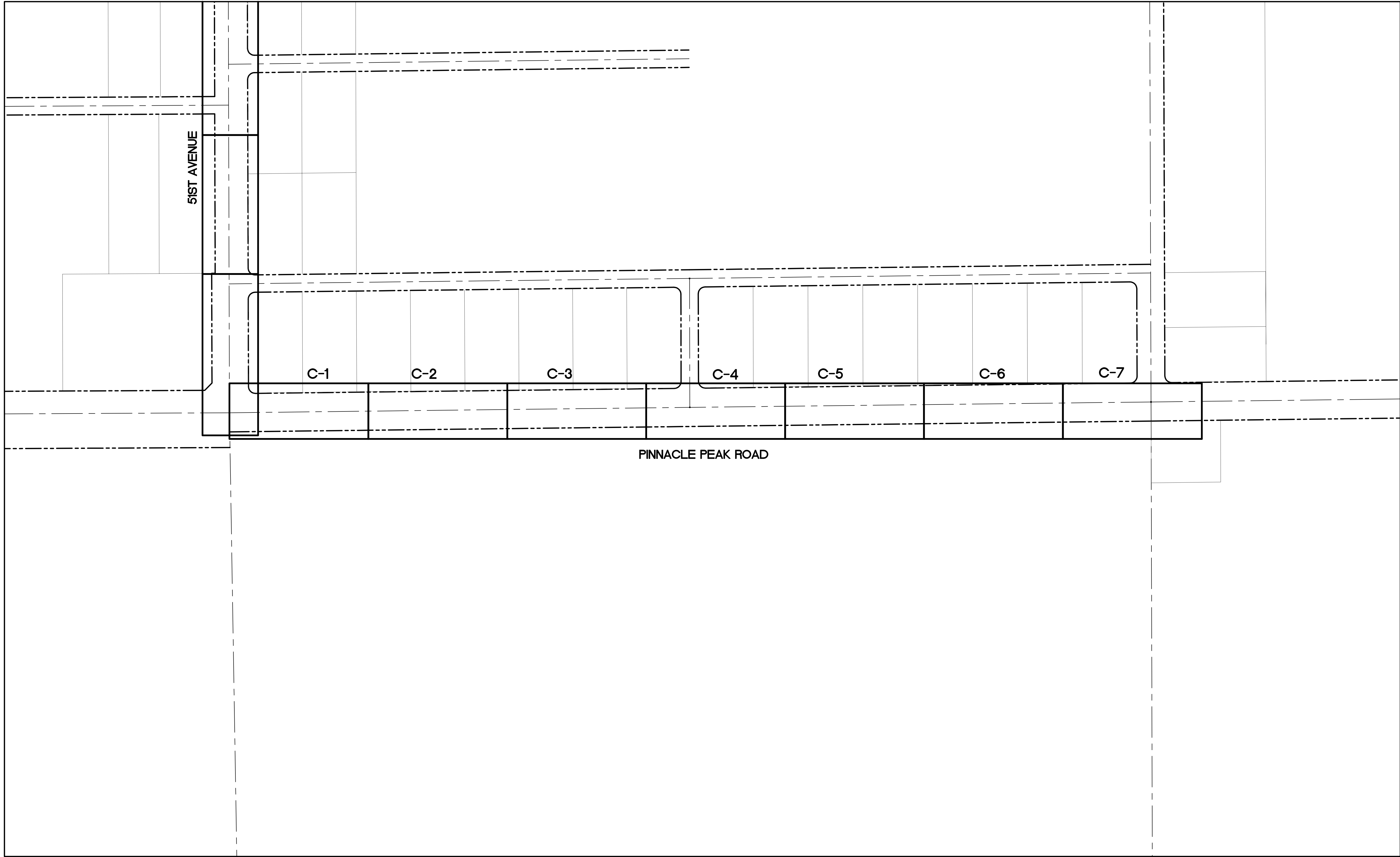
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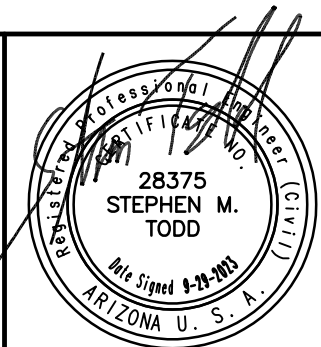
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CITY OF PHOENIX  
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NORTHWEST WASTEWATER  
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PACKAGE 4B

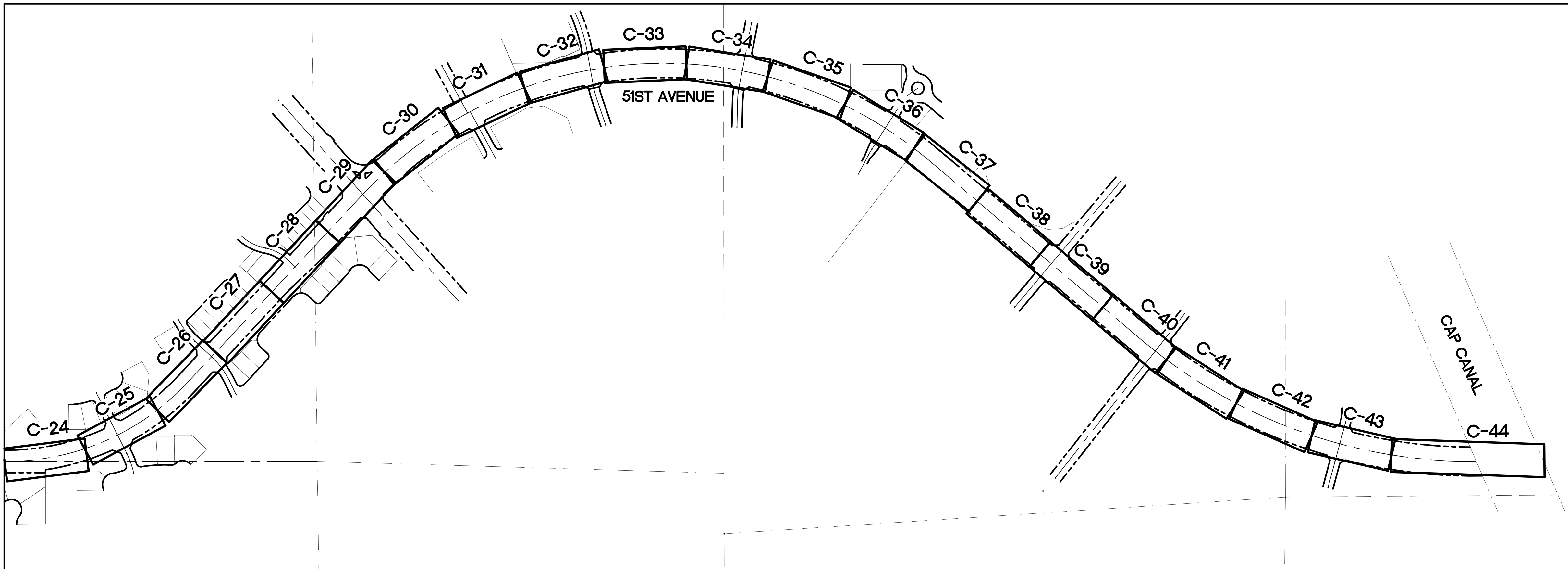
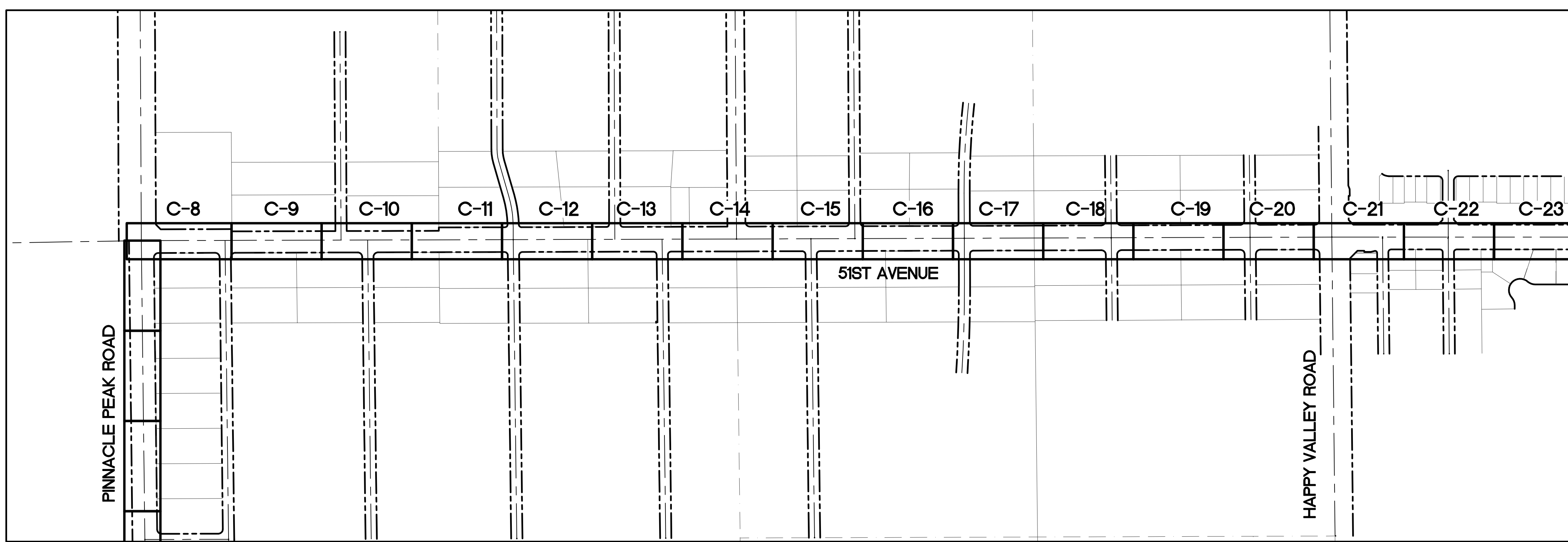
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SEGMENT 1 KEYMAP

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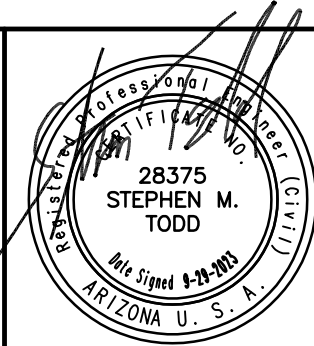
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SHEETS C-8 TO C-45 GRAVITY SEWER



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CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
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MASTER PLAN  
PACKAGE 4B

GENERAL  
PACKAGE 4B  
SEGMENT 2 KEYMAP

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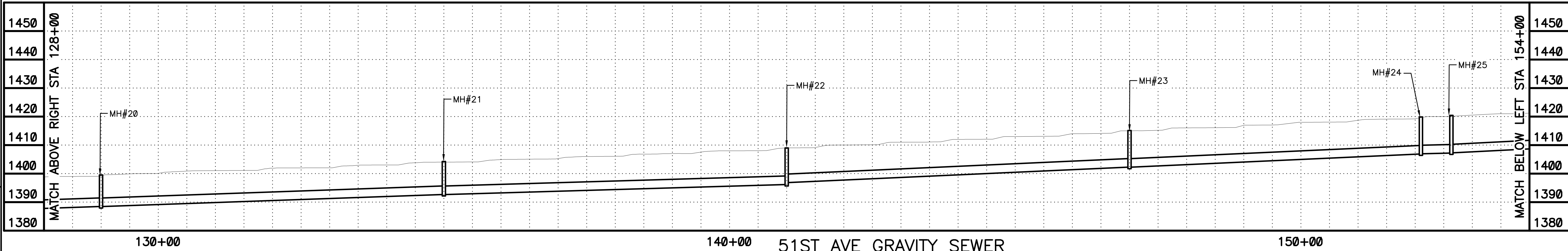
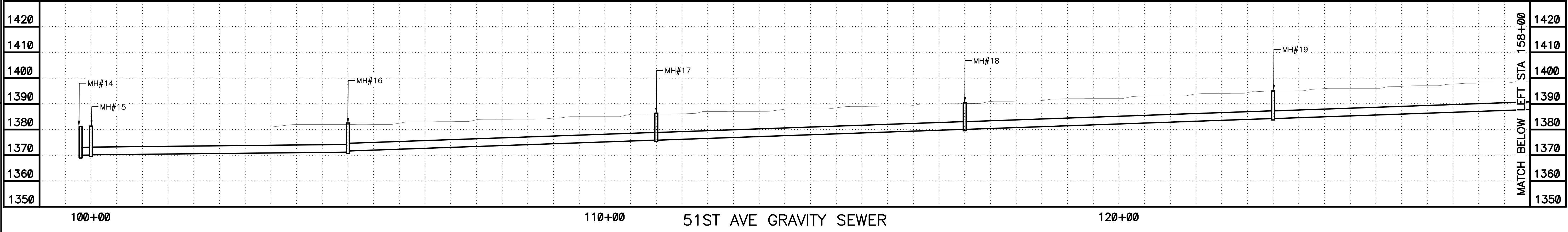
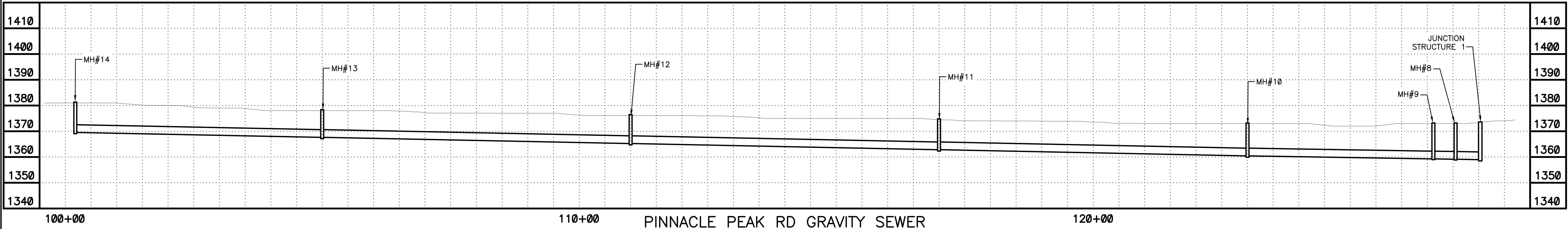
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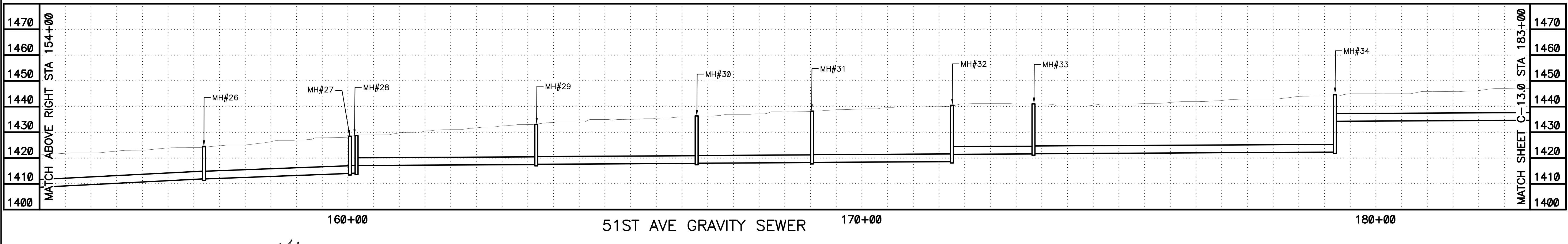
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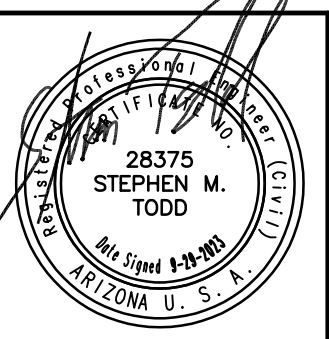
**PROFILE**  
HORIZ: 1"=100'  
VERT: 1"=10'

CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

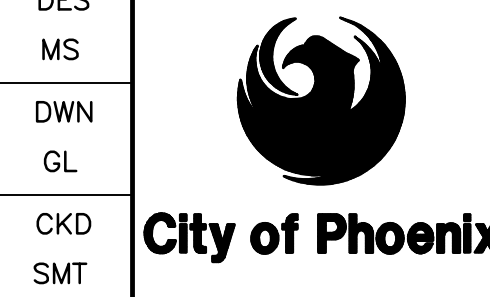
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CITY OF PHOENIX  
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NORTHWEST WASTEWATER  
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PACKAGE 4B

GENERAL  
OVERALL GRAVITY SEWER PROFILE 1  
STA 100+00 - STA 128+00 PINNACLE PEAK  
STA 100+00 - STA 183+00 51ST AVE

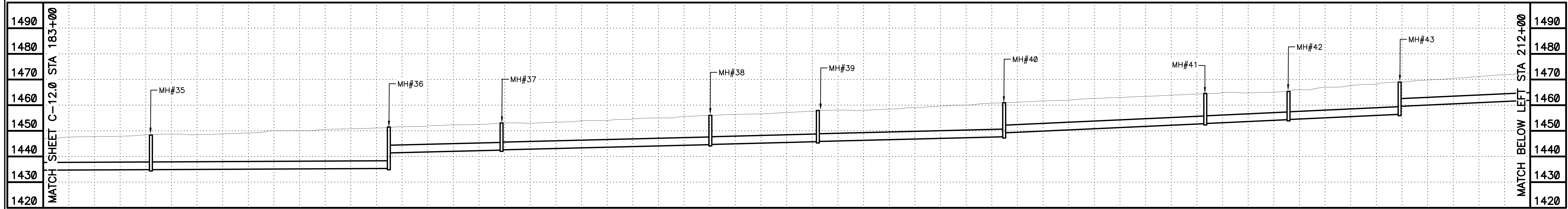
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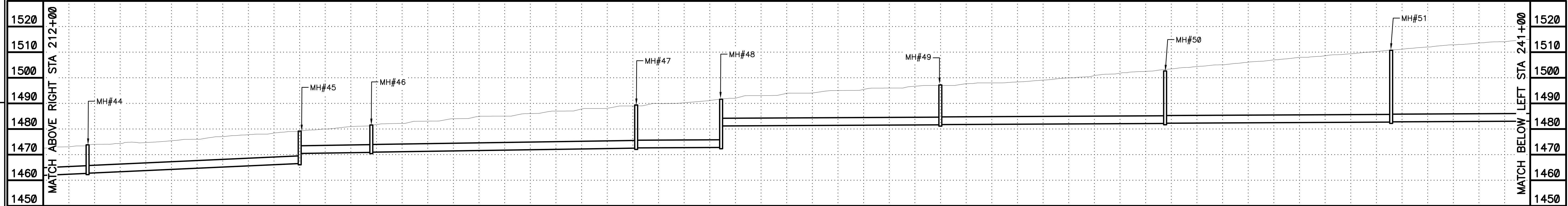
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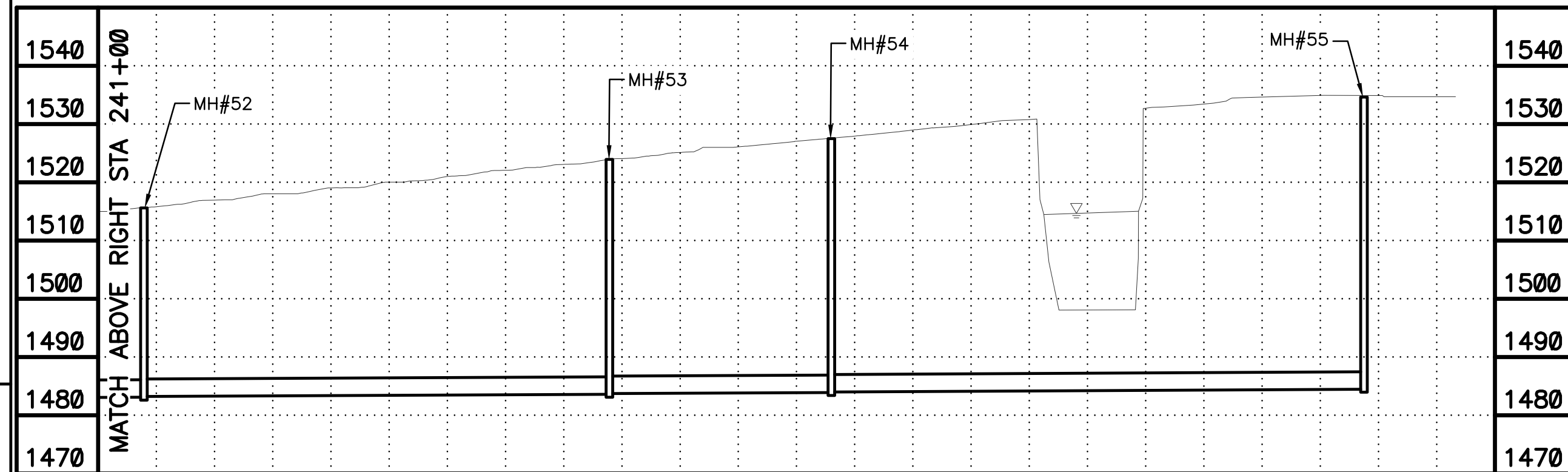
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190+00 51ST AVE GRAVITY SEWER 200+00 210+00



220+00 51ST AVE GRAVITY SEWER 230+00 240+00



51ST AVE GRAVITY SEWER 250+00

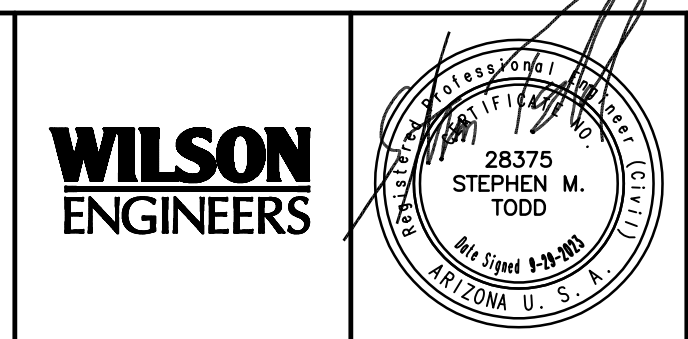
**PROFILE**  
HORIZ: 1"=100'  
VERT: 1"=10'

CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

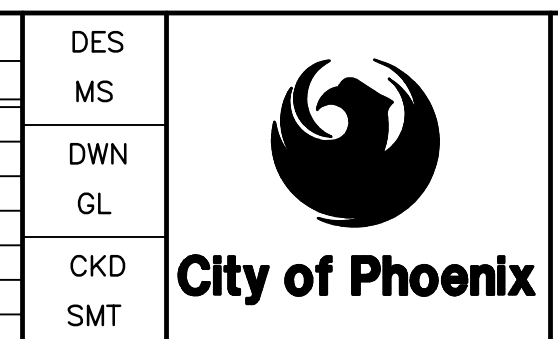
**ARIZONA 811**  
Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

REVISION	DATE	PROJECT NAME	DWG NUMBER	REMARKS



REVISIONS				
NO.	BY	DATE	CKD	REMARKS



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

GENERAL  
OVERALL GRAVITY SEWER PROFILE 2  
STA 183+00 - STA 252+00 51ST AVE

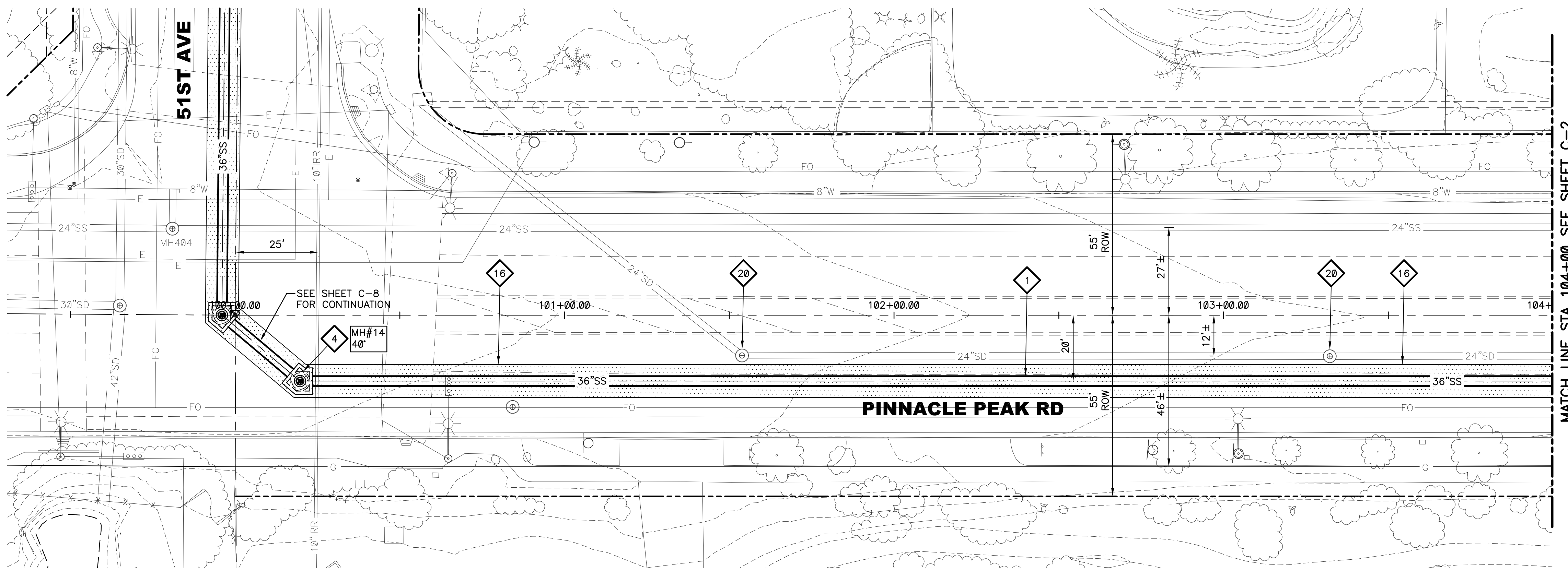
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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
G SHEET 13.0  
CAD FILE: G-13.0

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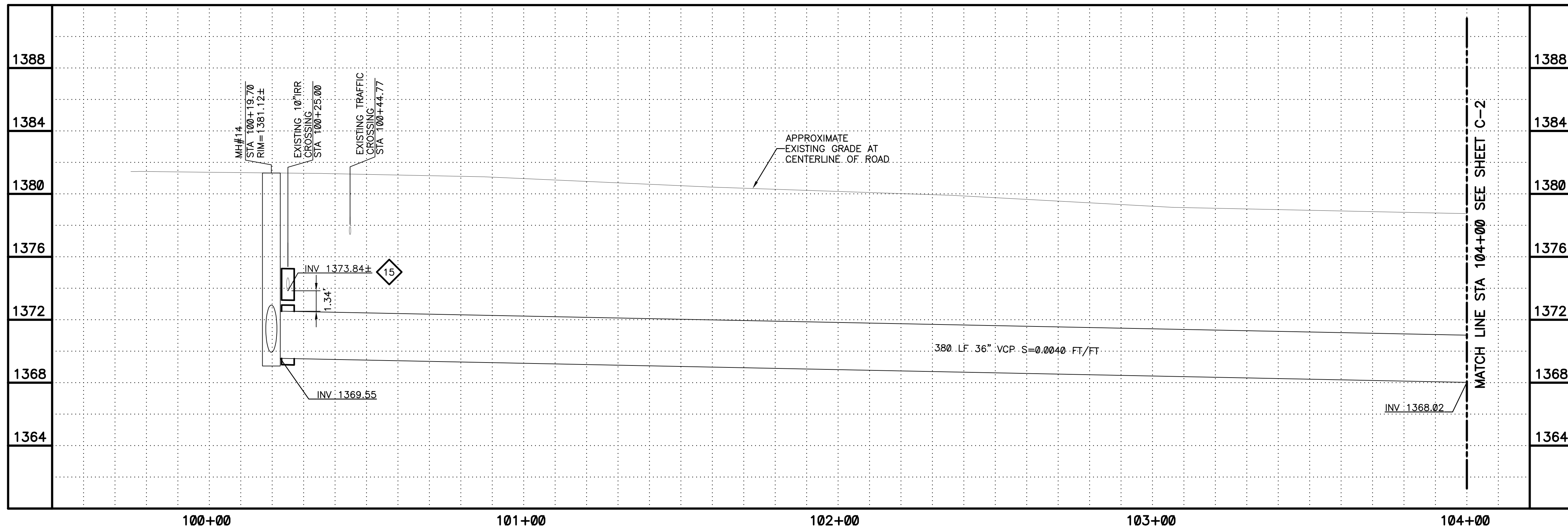
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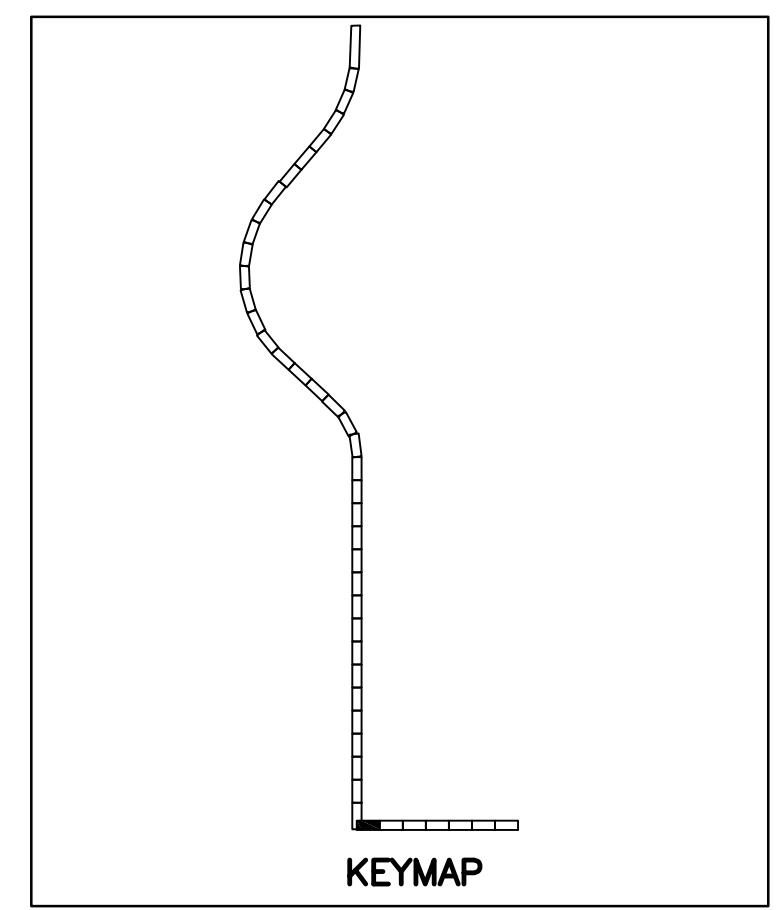
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PLAN  
SCALE: 1"=20'  
0 10 20 40  
1" = 20'



- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 4 DEFLECTION MANHOLE GREATER THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-103
  - 15 CONCRETE ENCASE PIPES PER MAG STD. DTL. 404-3
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
  - 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE.



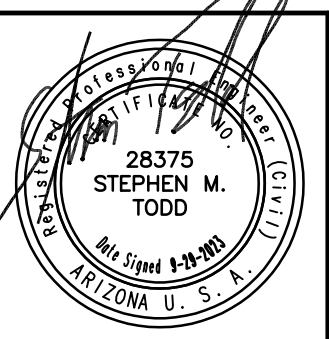
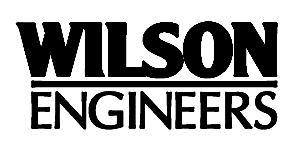
CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

**ARIZONA 811**  
Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

PLAN  
SCALE:  
1"=20'

PROFILE  
HORIZ: 1"=20'  
VERT: 1"=4'



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN GL  
CKD  
SMT

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 1  
STA: 100+00 - STA: 104+00

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DATE: SEPTEMBER 2023  
C SHEET 1  
CAD FILE: PKG4B-C01

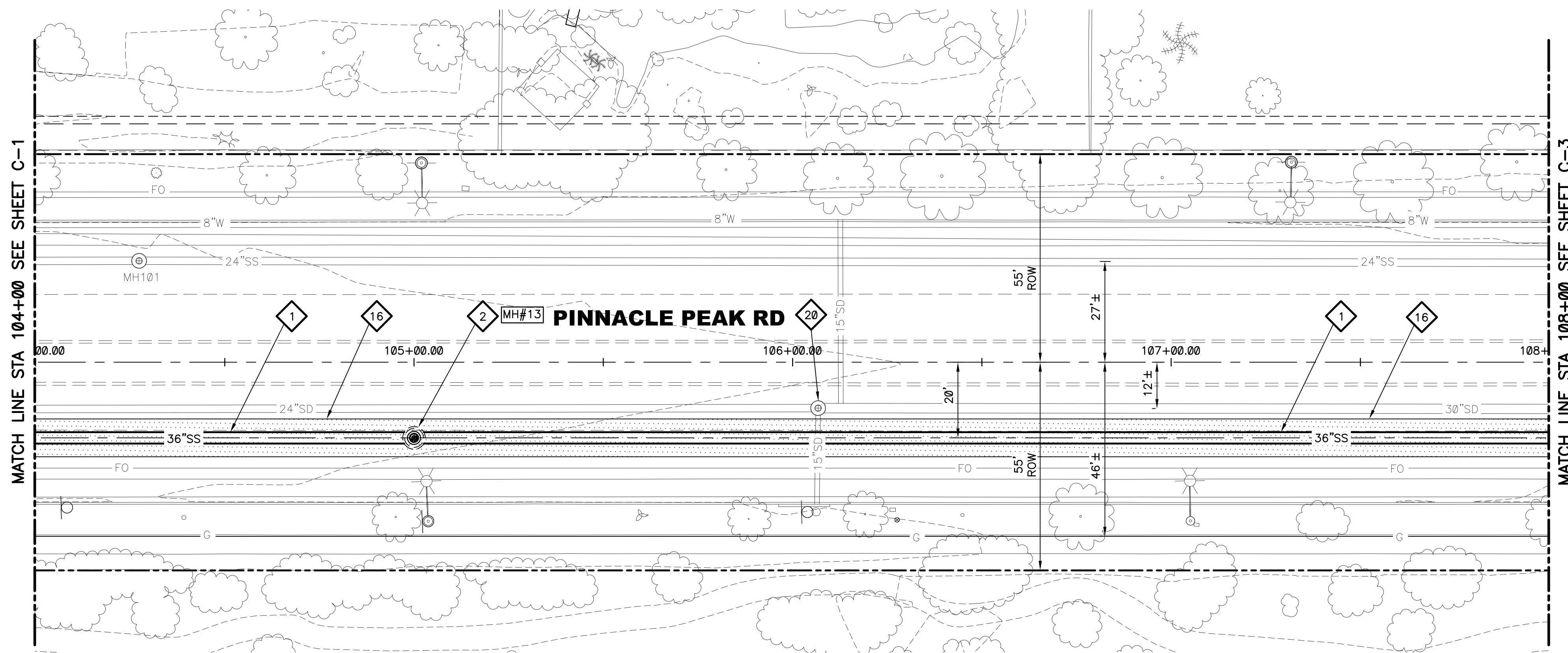
REVISION	DATE	PROJECT NAME	DWG NUMBER	REMARKS

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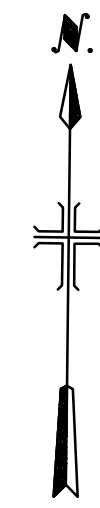
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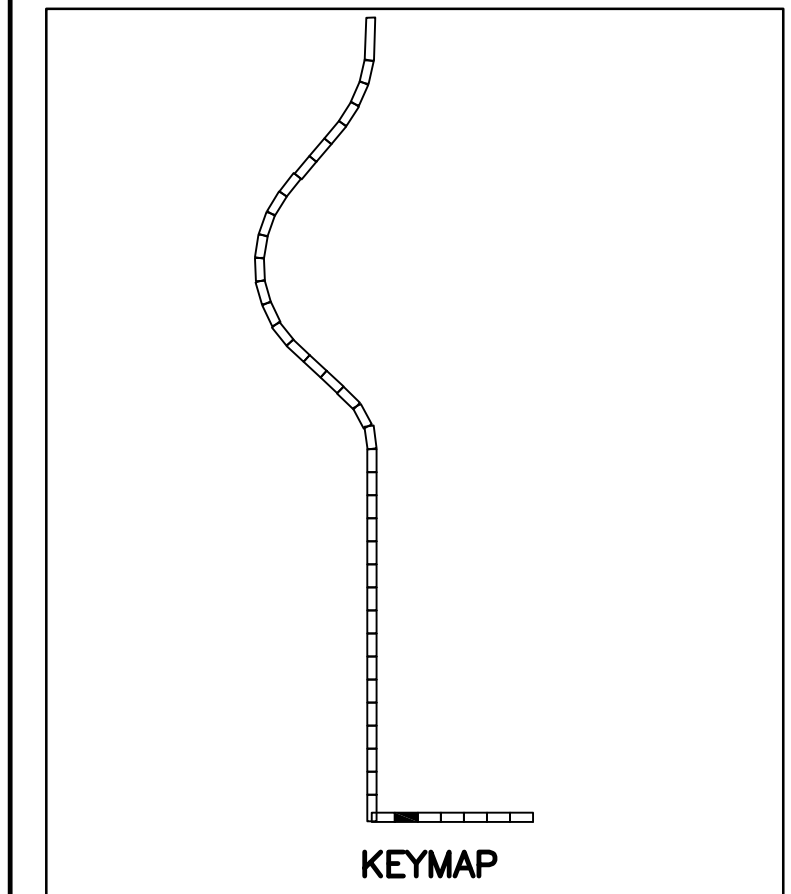
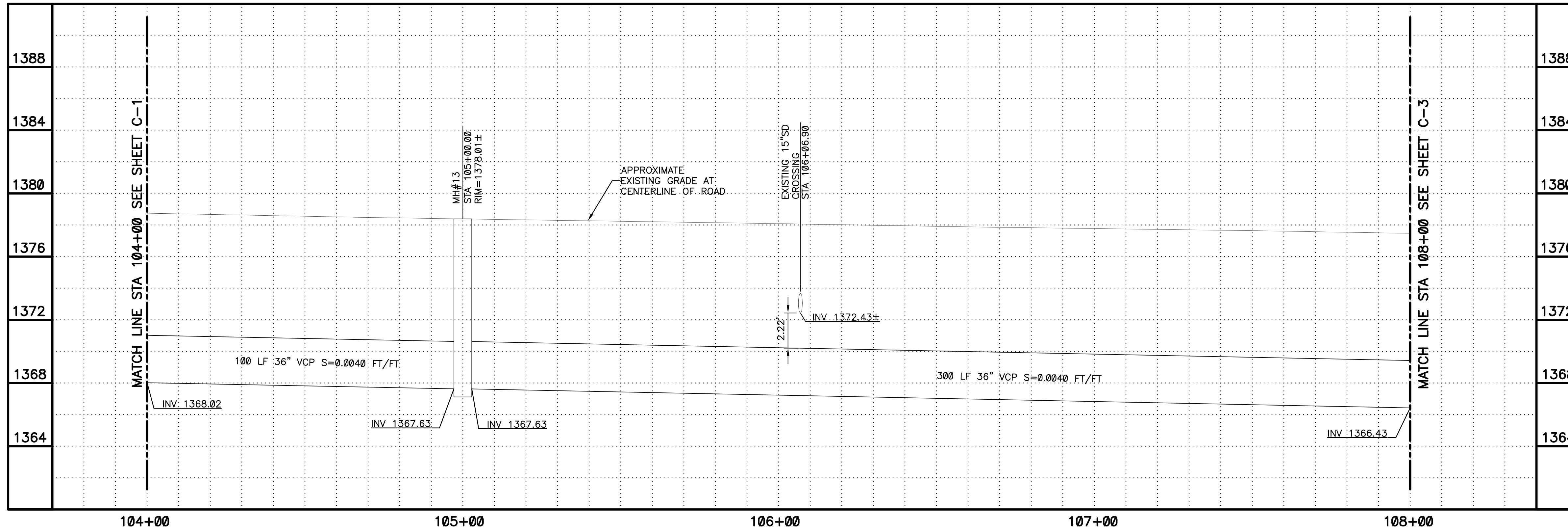


**PLAN**  
SCALE: 1"=20'  
0 10 20 40  
1" = 20'



**KEYED NOTES**

- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
- 2 60" LINED SEWER MANHOLE PER DETAIL 302 SHEET C-102 AND SHEET S-105
- 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
- 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE



CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

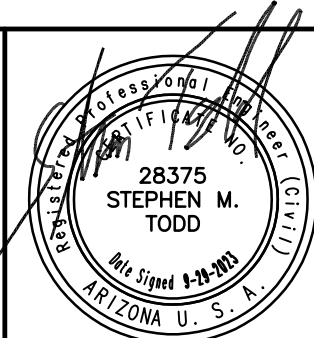
**ARIZONA 811**  
Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

**PLAN**  
SCALE:  
1"=20'

**PROFILE**  
HORIZ: 1"=20'  
VERT: 1"=4'

NO.	BY	DATE	CKD	REVISIONS	REMARKS



NO.	BY	DATE	CKD	REVISIONS	REMARKS

DES MS  
DWN  
GL  
CKD  
SMT

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL

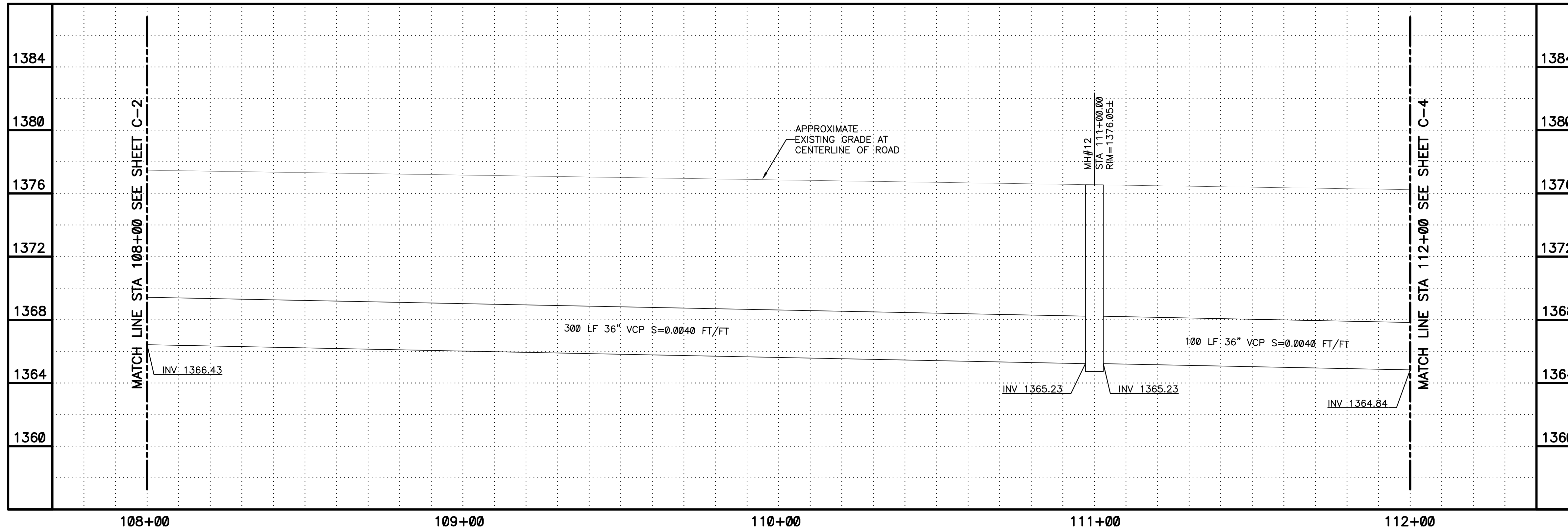
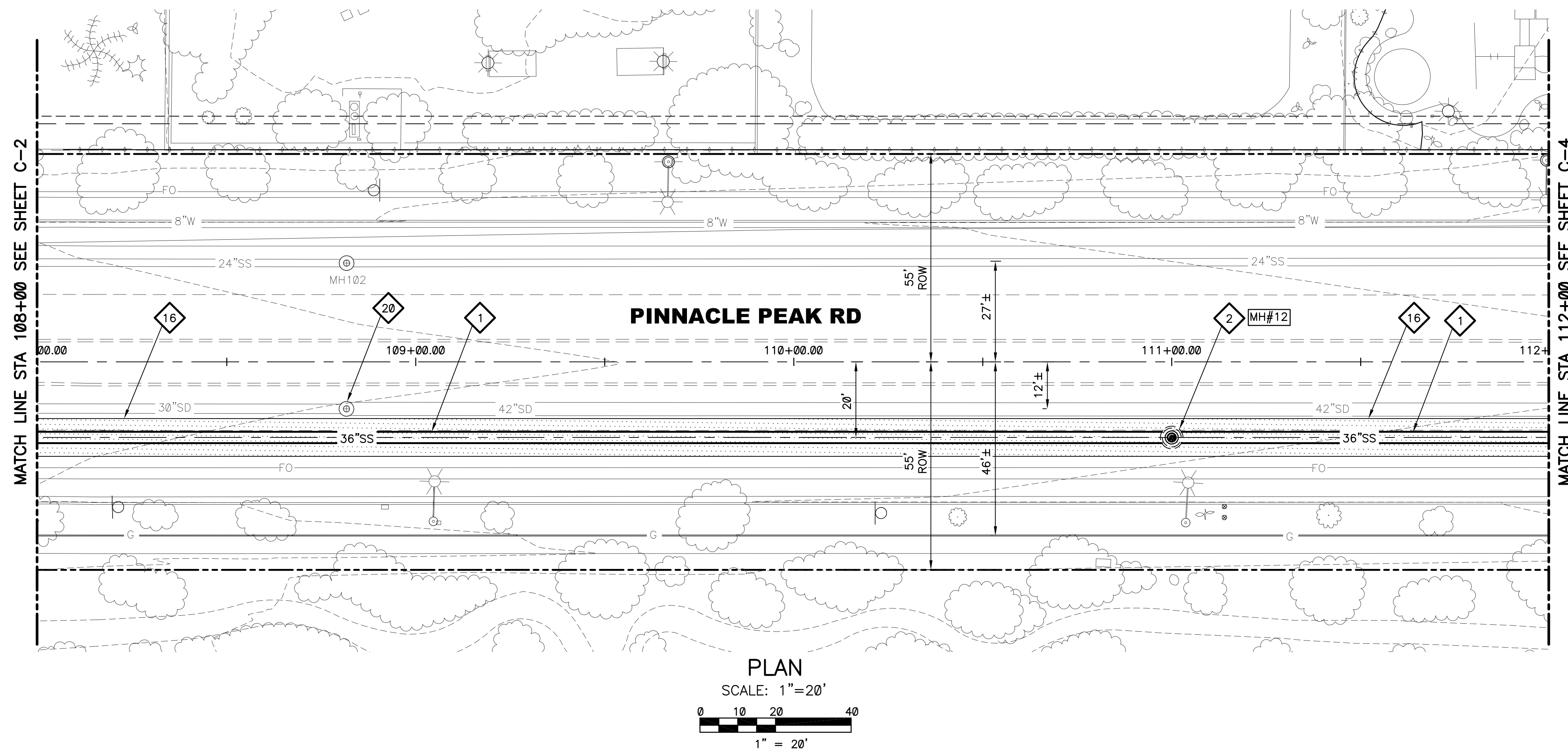
PLAN AND PROFILE 2  
STA: 104+00 - STA: 108+00

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 2  
CAD FILE: PKG4B-C02

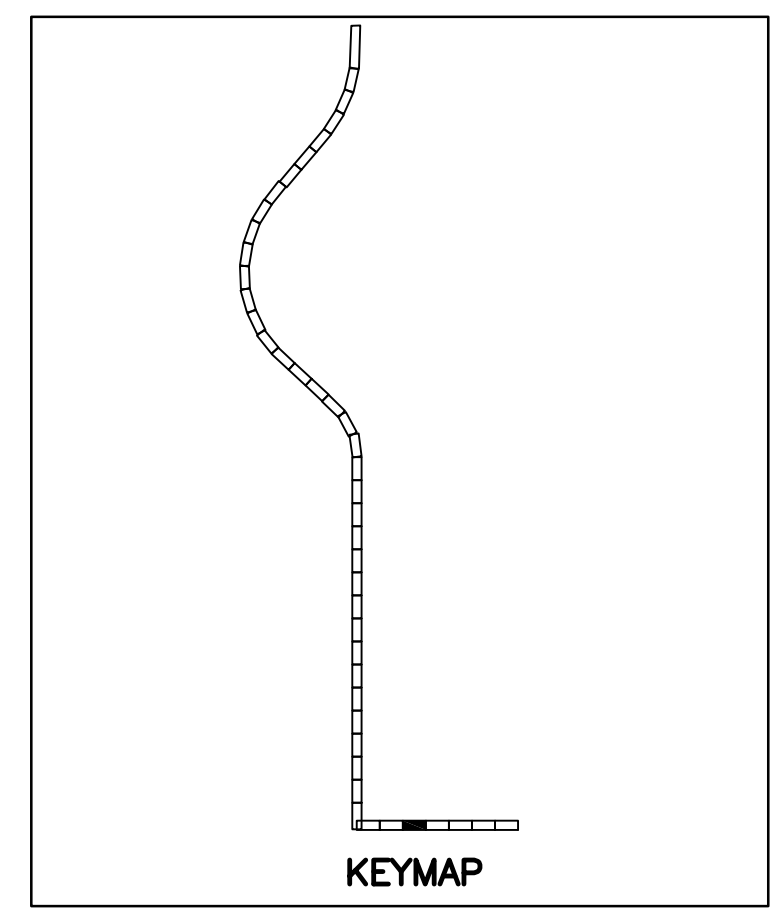
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- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 2 60" LINED SEWER MANHOLE PER DETAIL 302 SHEET C-102 AND SHEET S-105
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
  - 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE

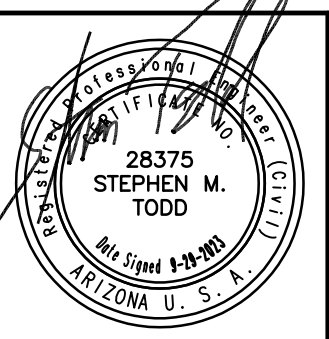
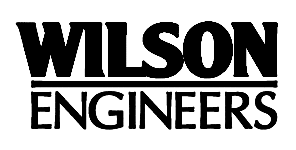


CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

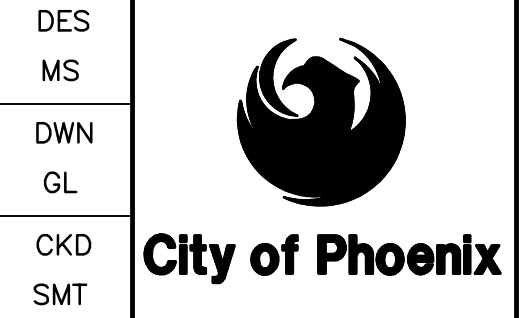
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Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

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REVISIONS				
NO.	BY	DATE	CKD	REMARKS



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 3  
STA: 108+00 - STA: 112+00

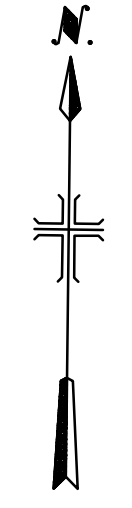
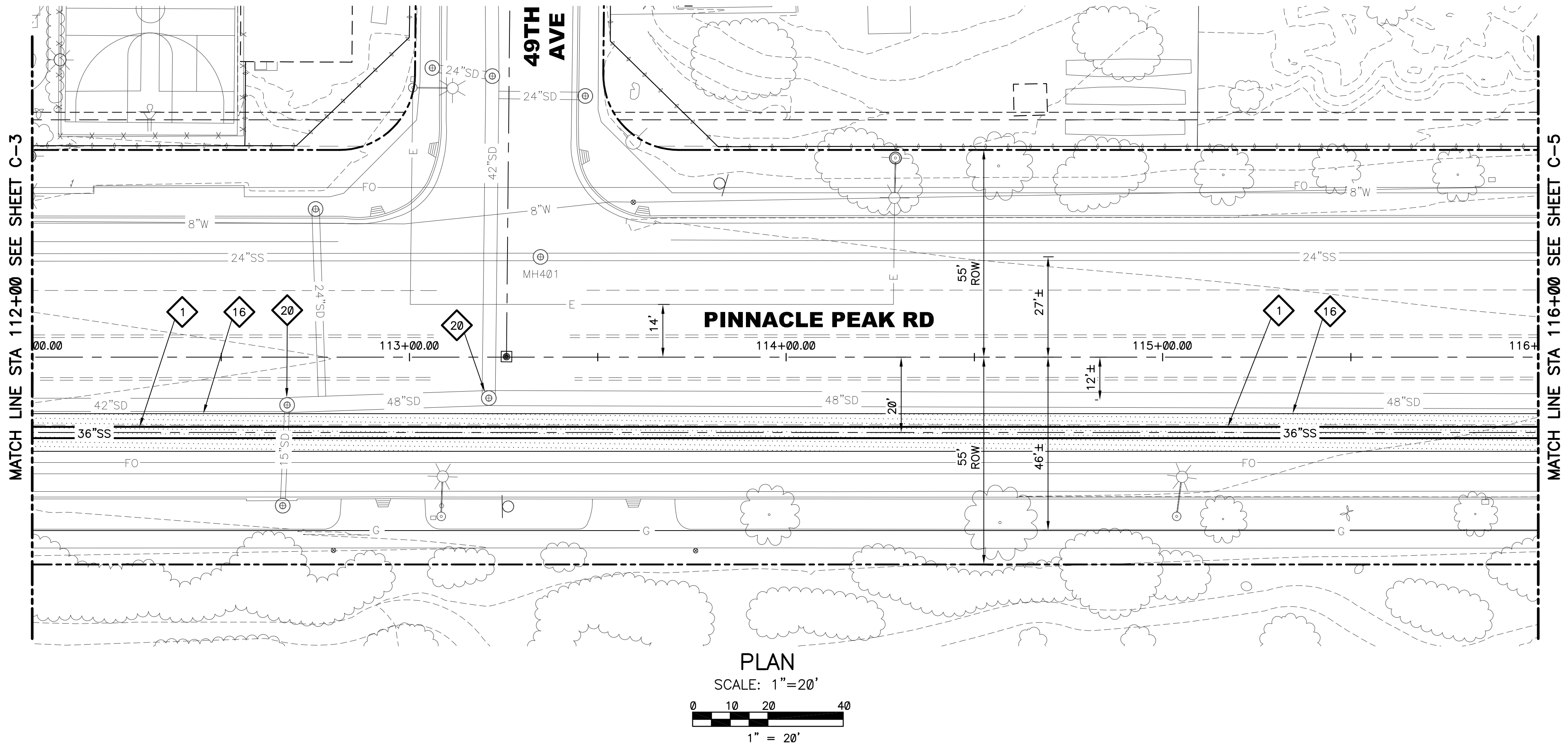
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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 3  
CAD FILE: PKG4B-C03

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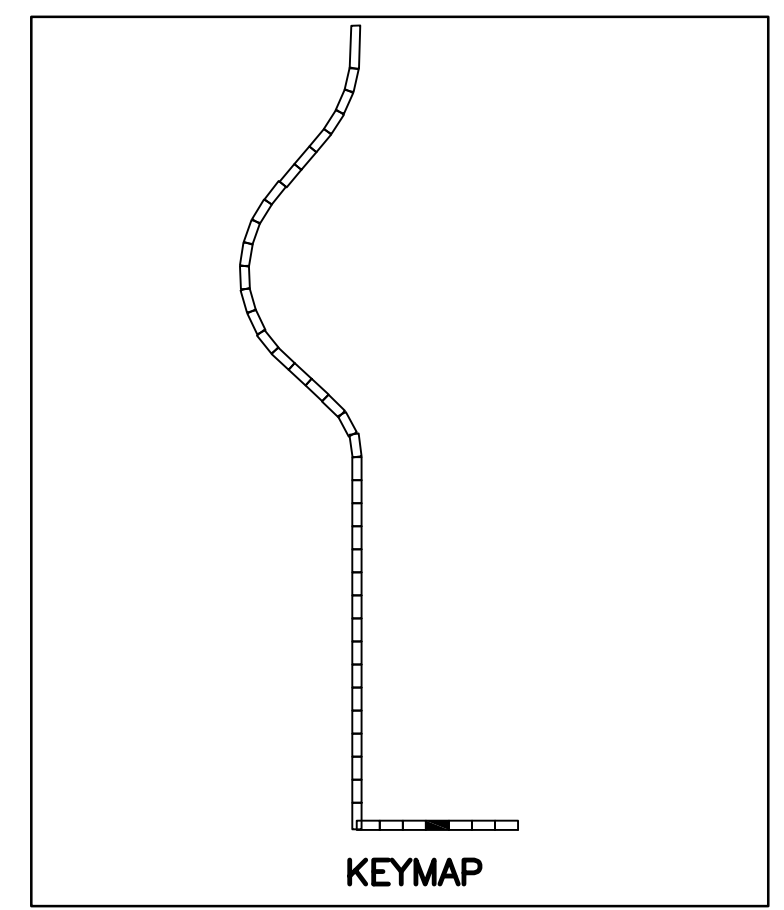
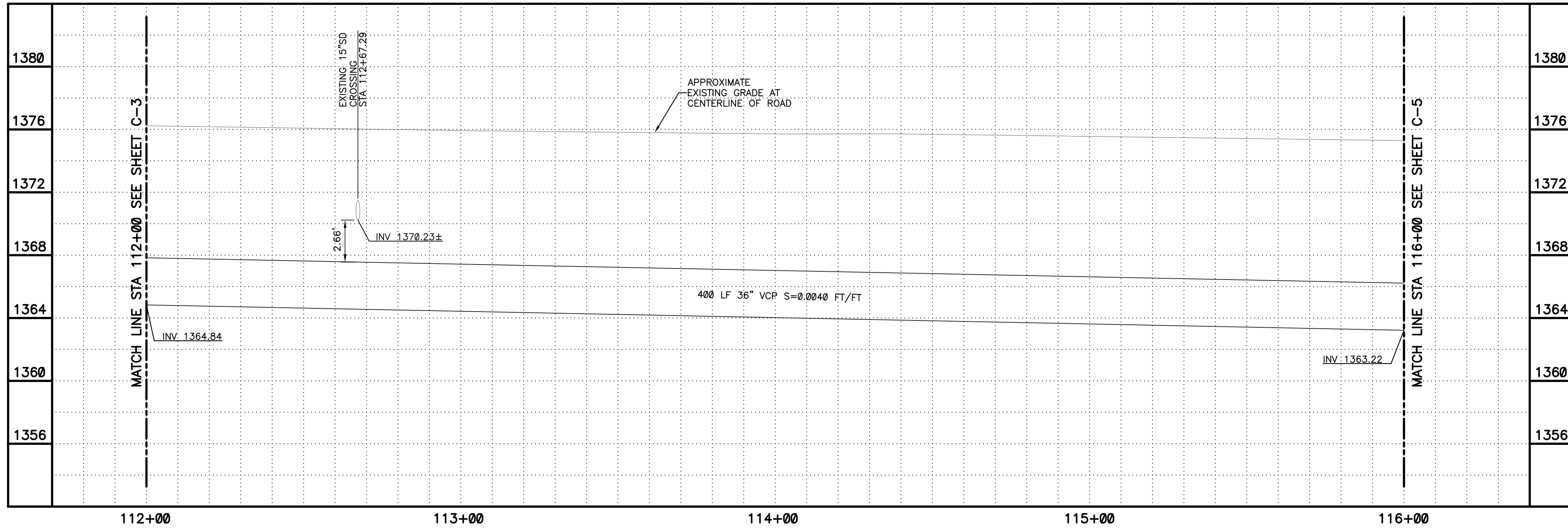
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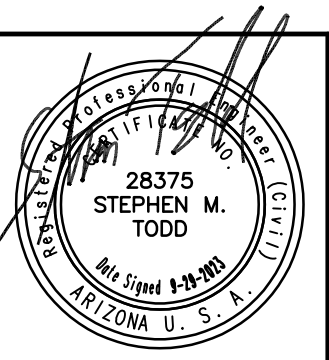
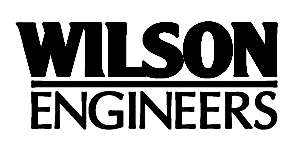
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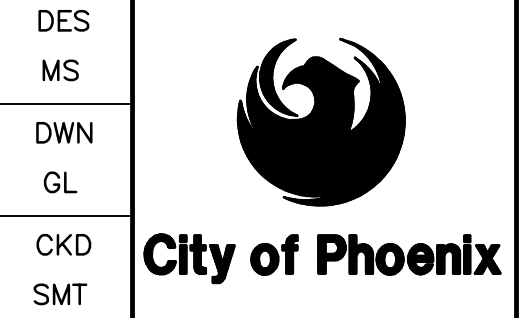
- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
  - 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE.



PLAN SCALE: 1"=20'  
PROFILE HORIZ: 1"=20'  
VERT: 1"=4'



REVISIONS				
NO.	BY	DATE	CKD	REMARKS



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL

PLAN AND PROFILE 4  
STA: 112+00 - STA: 116+00

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CITY PROJECT NO. WS90500307

DATE: SEPTEMBER 2023

C SHEET 4

CAD FILE: PKG4B-C04

REVISION	DATE	PROJECT NAME	DWG NUMBER	REMARKS

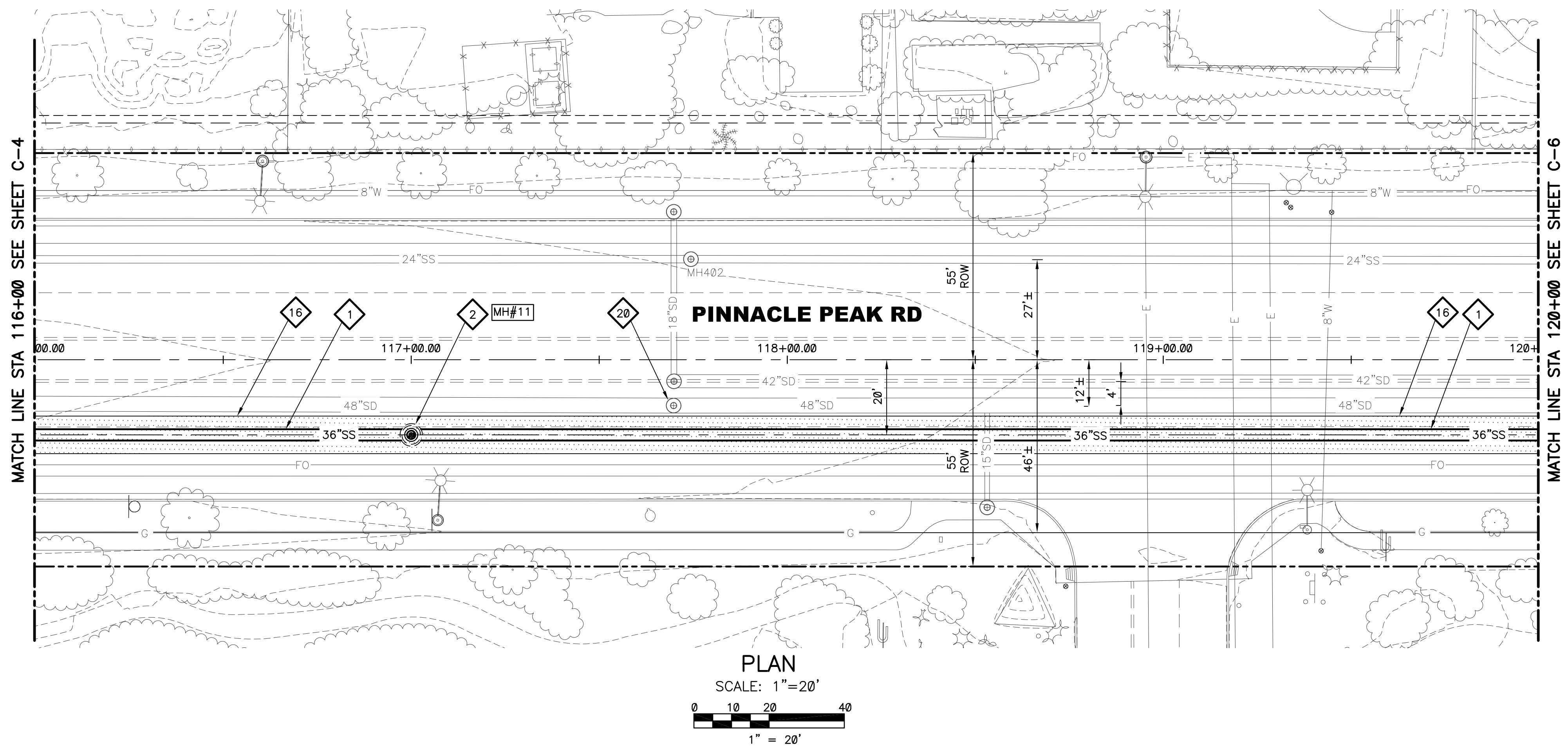
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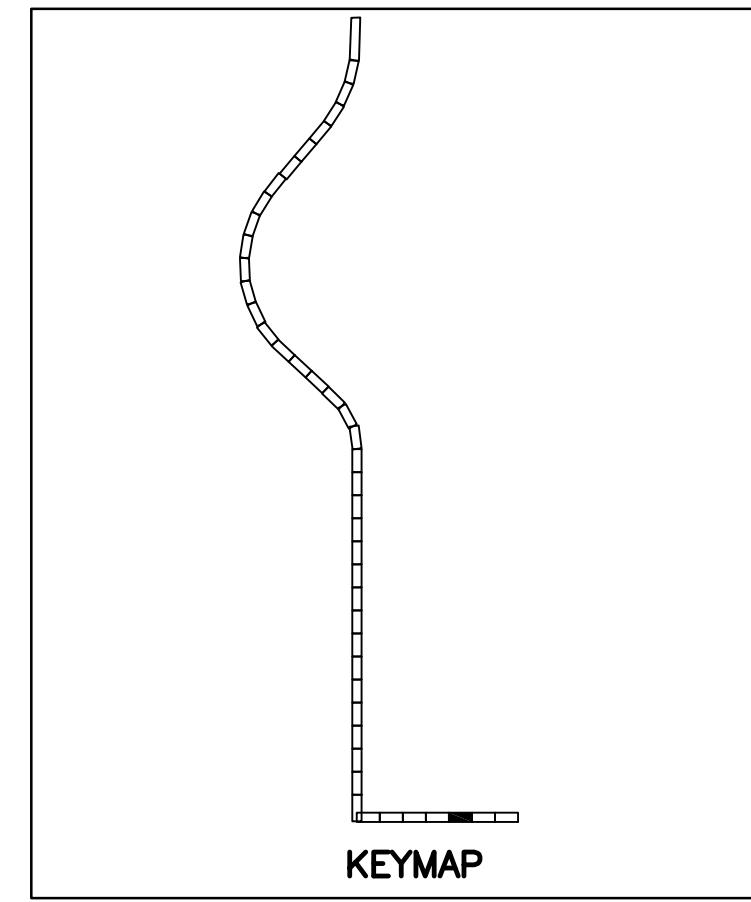
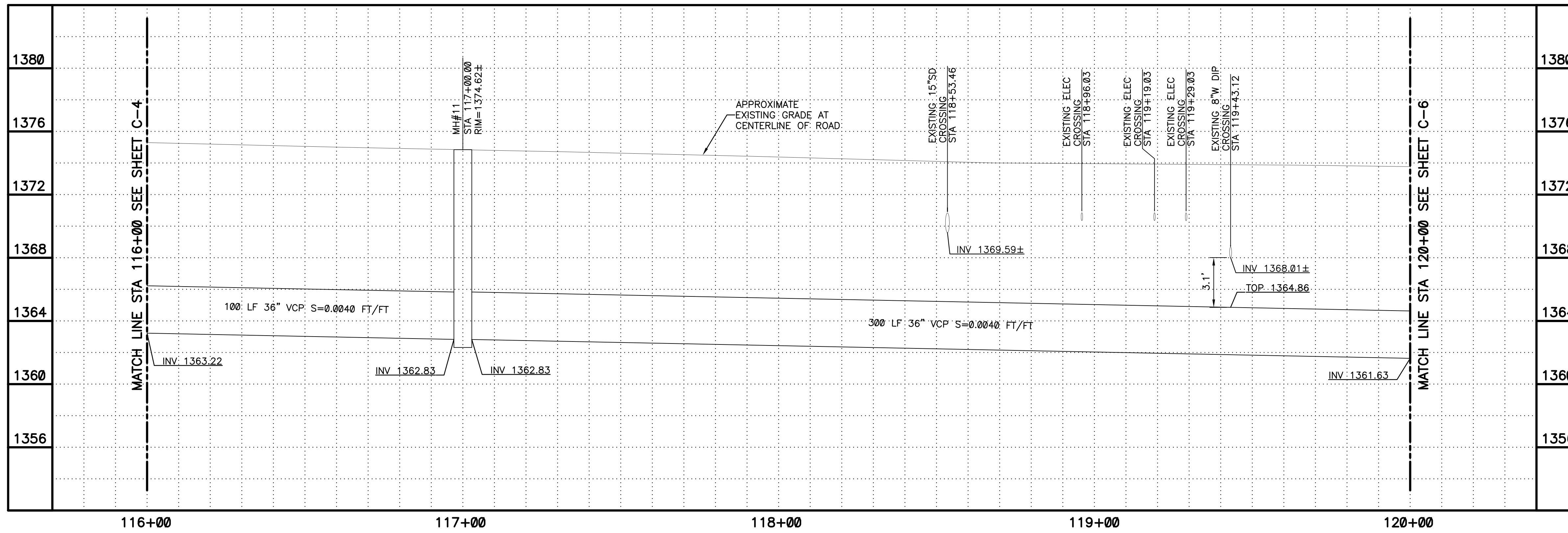
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PLAN  
SCALE: 1"=20'  
1" = 20'



CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

**ARIZONA 811**  
Arizona Blue Stake, Inc.

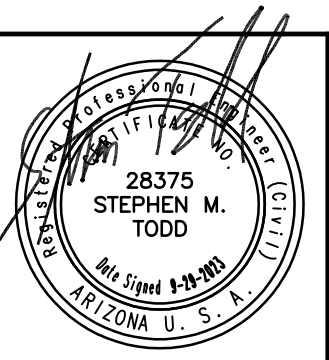
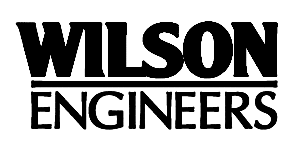
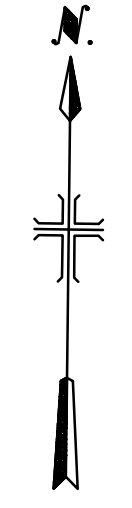
DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

PLAN  
SCALE:  
1"=20'

PROFILE  
HORIZ: 1"=20'  
VERT: 1"=4'

**KEYED NOTES**

- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
- 2 60" LINED SEWER MANHOLE PER DETAIL 302 SHEET C-102 AND SHEET S-105
- 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
- 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN GL  
CKD  
SMT

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 5  
STA: 116+00 - STA: 120+00

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 5  
CAD FILE: PKG4B-C05

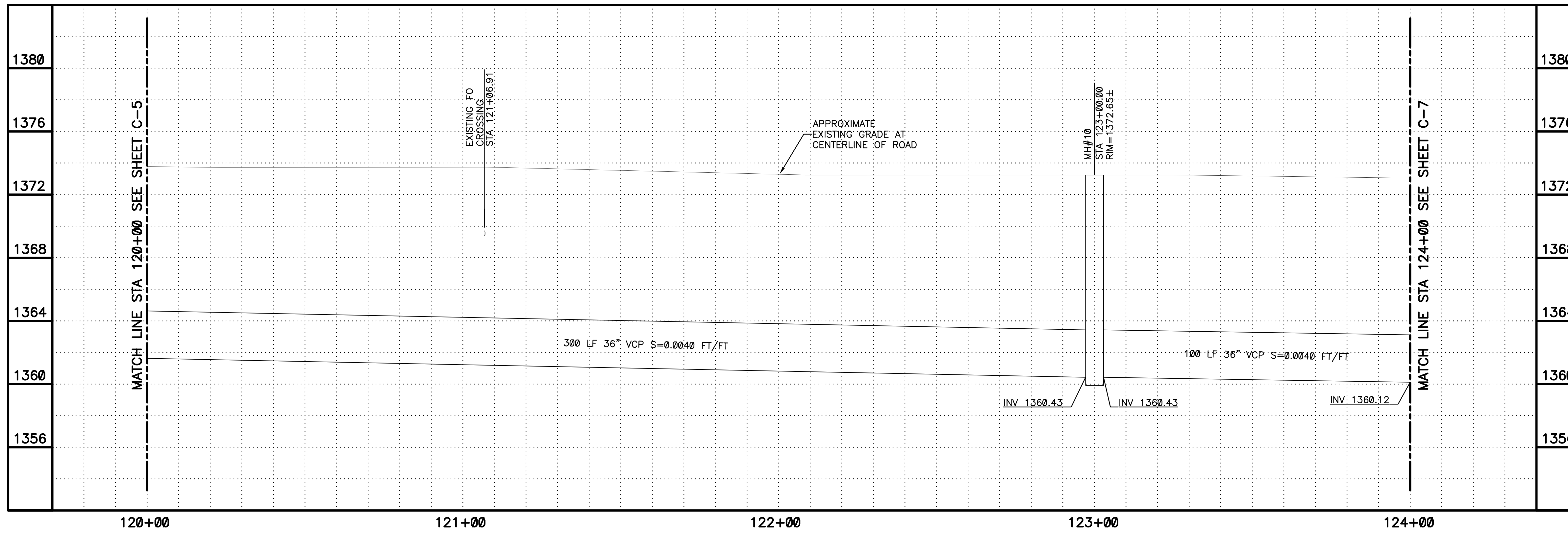
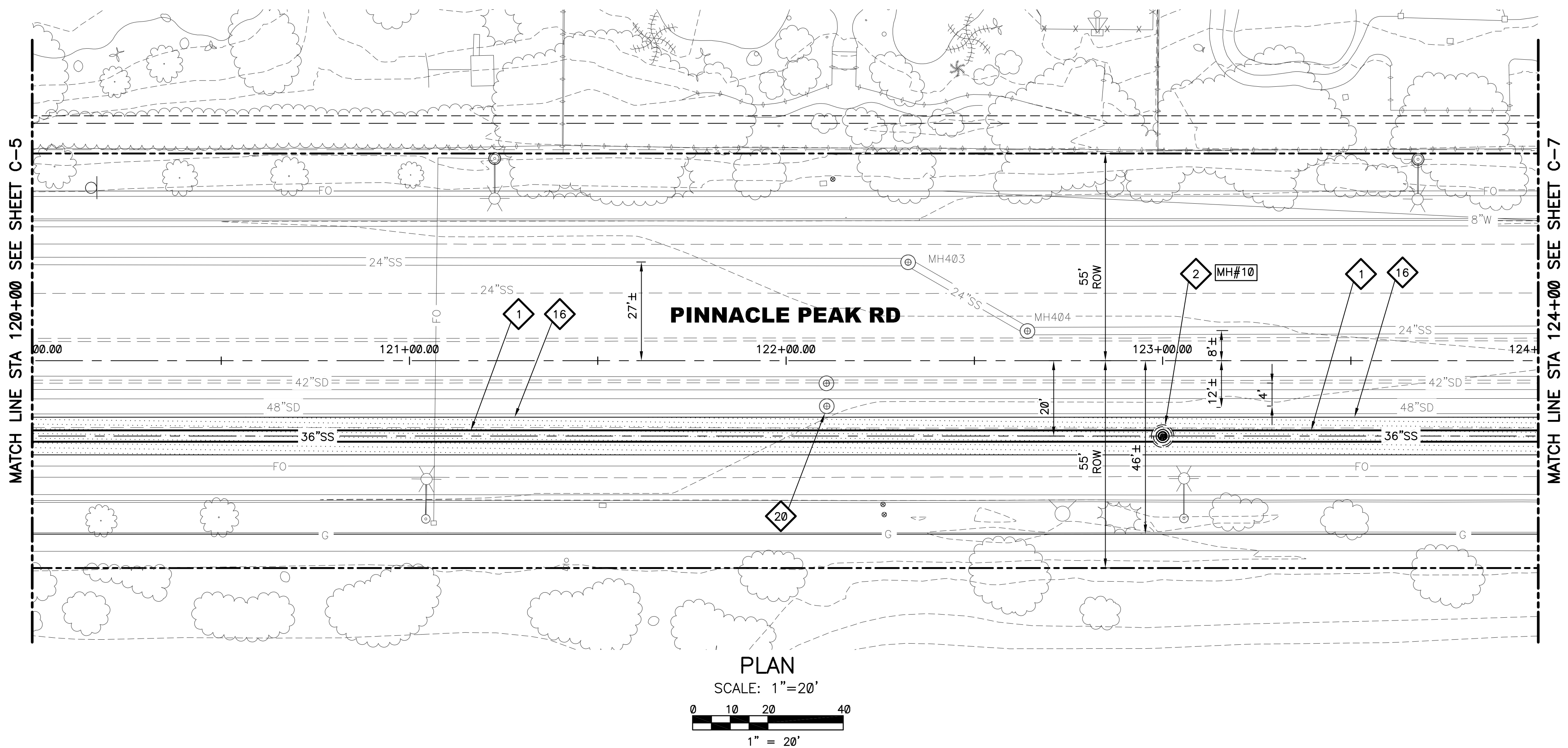
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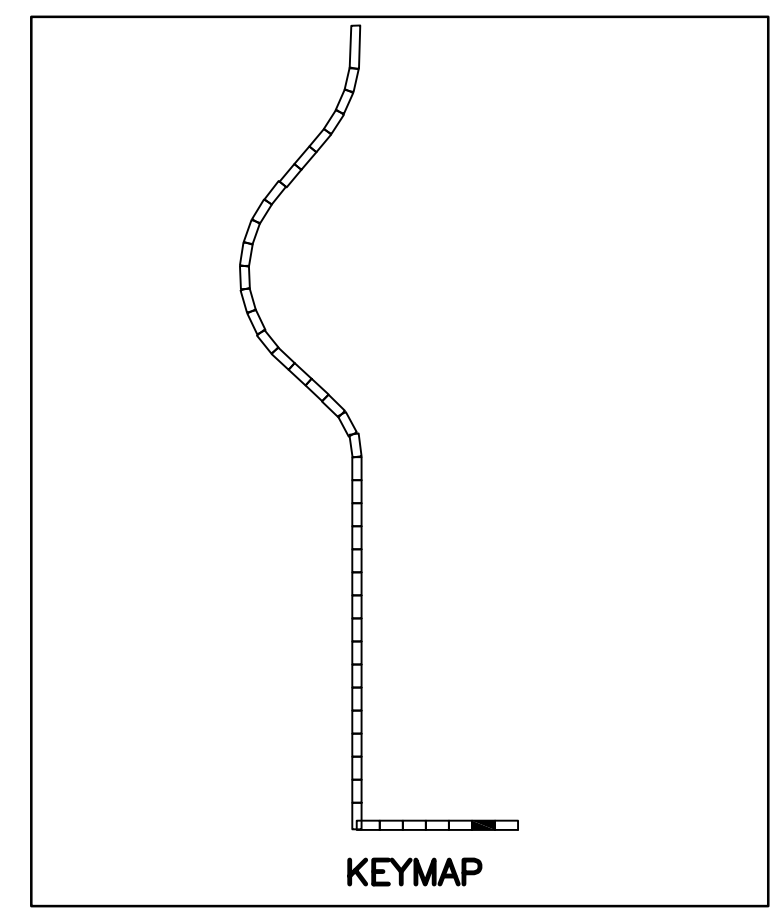
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- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 2 60" LINED SEWER MANHOLE PER DETAIL 302 SHEET C-102 AND SHEET S-105
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
  - 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE



CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

**ARIZONA 811**  
Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN  
GL  
CKD  
SMT

**City of Phoenix**

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 6  
STA: 120+00 - STA: 124+00

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 6  
CAD FILE: PKG4B-C06

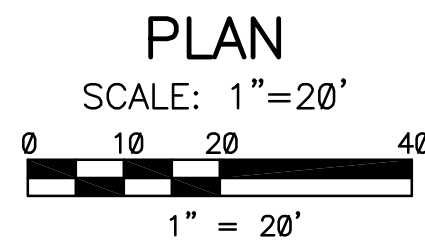
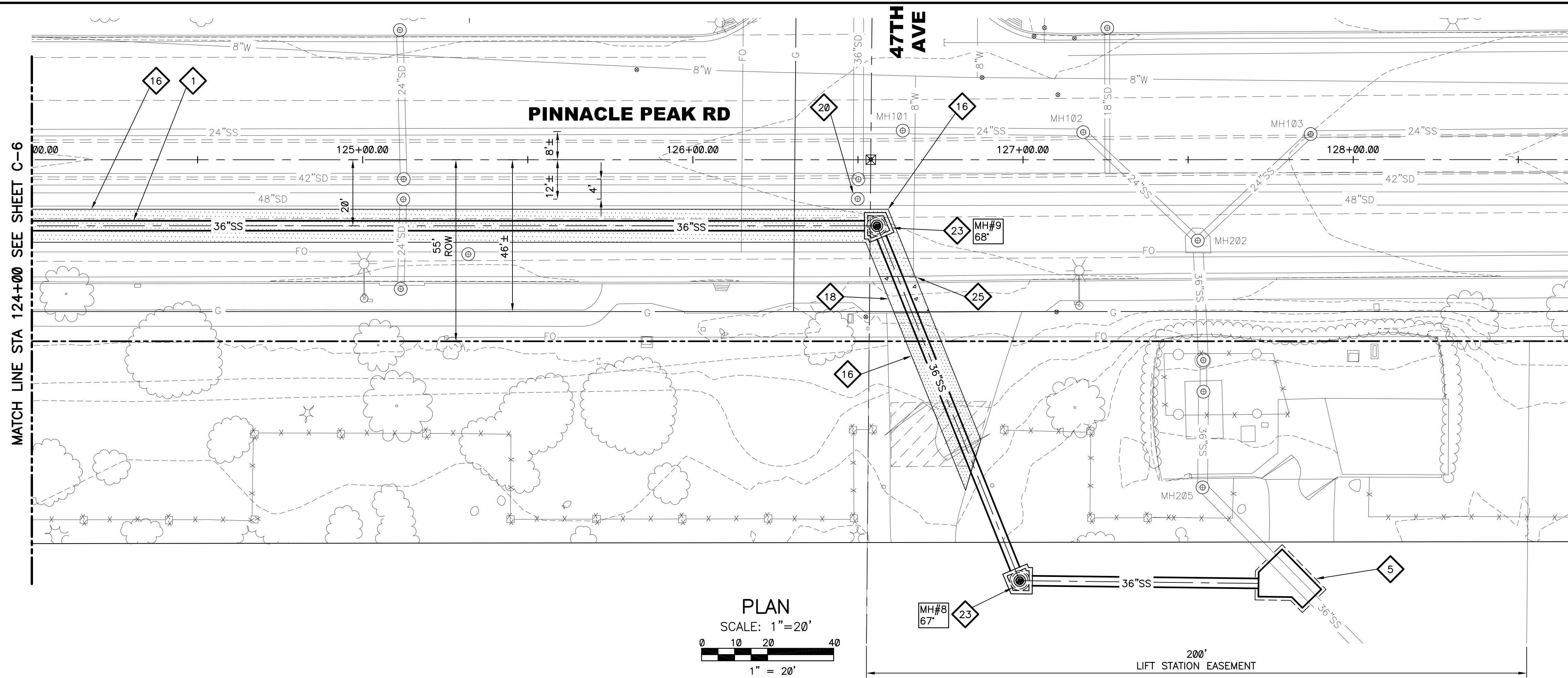
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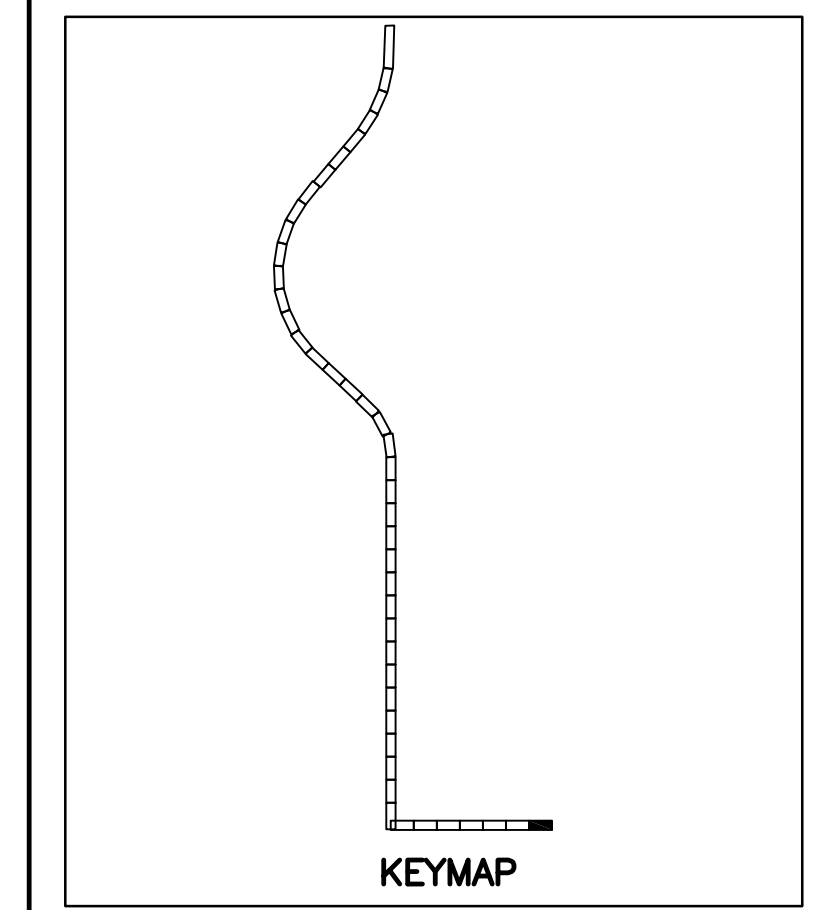
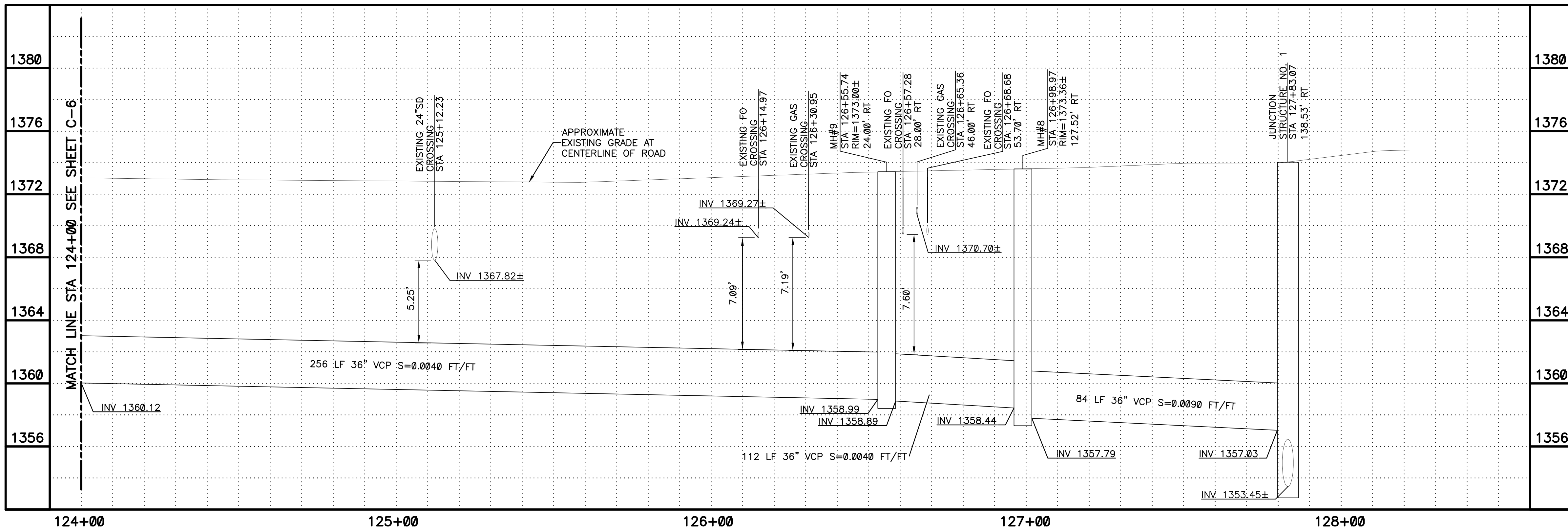
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- ### KEYED NOTES
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 5 JUNCTION STRUCTURE NO. 1 PER SEE SHEET C-100 AND S-100
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
  - 18 REMOVE AND REPLACE DRIVEWAY PER COP STD. DTL. P1243
  - 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE
  - 23 DEFLECTION MANHOLE GREATER THAN 40 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-104
  - 25 POSSIBLE WATERLINE STUB OUT. CUT AND PLUG PER COP STANDARD DETAIL P1343



CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

**ARIZONA 811**  
Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

**PLAN**  
SCALE: 1"=20'

**PROFILE**  
HORIZ: 1"=20'  
VERT: 1"=4'

NO.	BY	DATE	CKD	REVISIONS	REMARKS



NO.	BY	DATE	CKD	REVISIONS	REMARKS

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT

**NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B**

CIVIL

PLAN AND PROFILE 7  
STA: 124+00 - STA: 128+00

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CITY PROJECT NO. WS90500307

DATE: SEPTEMBER 2023

C SHEET 7

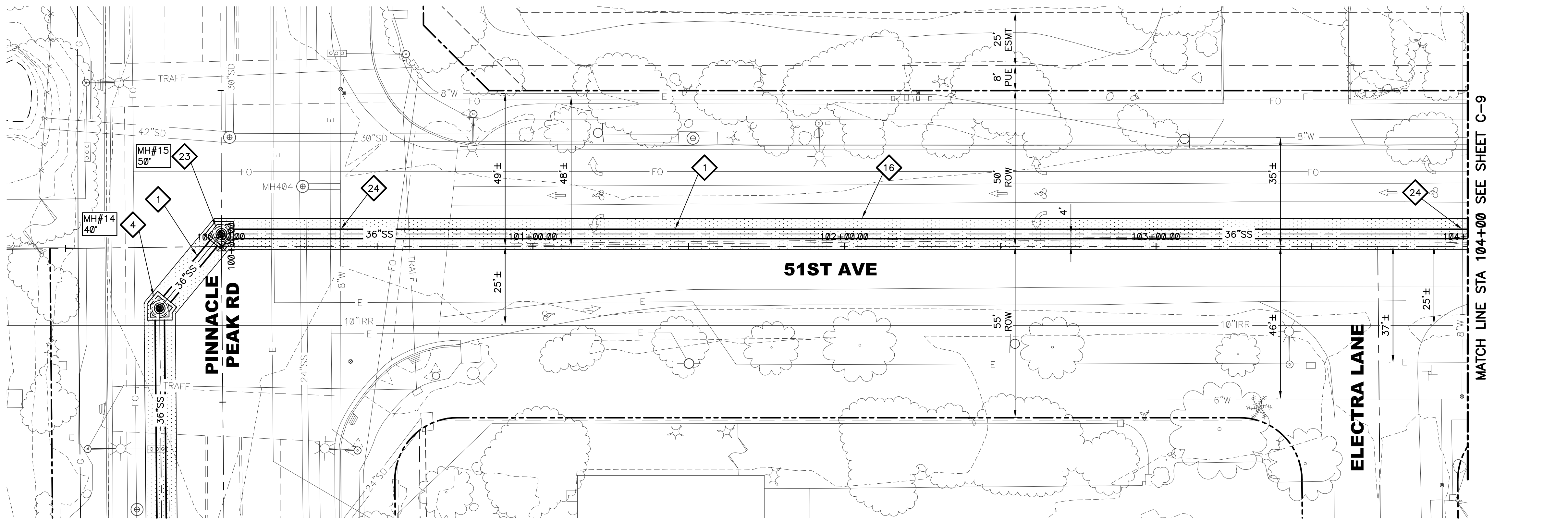
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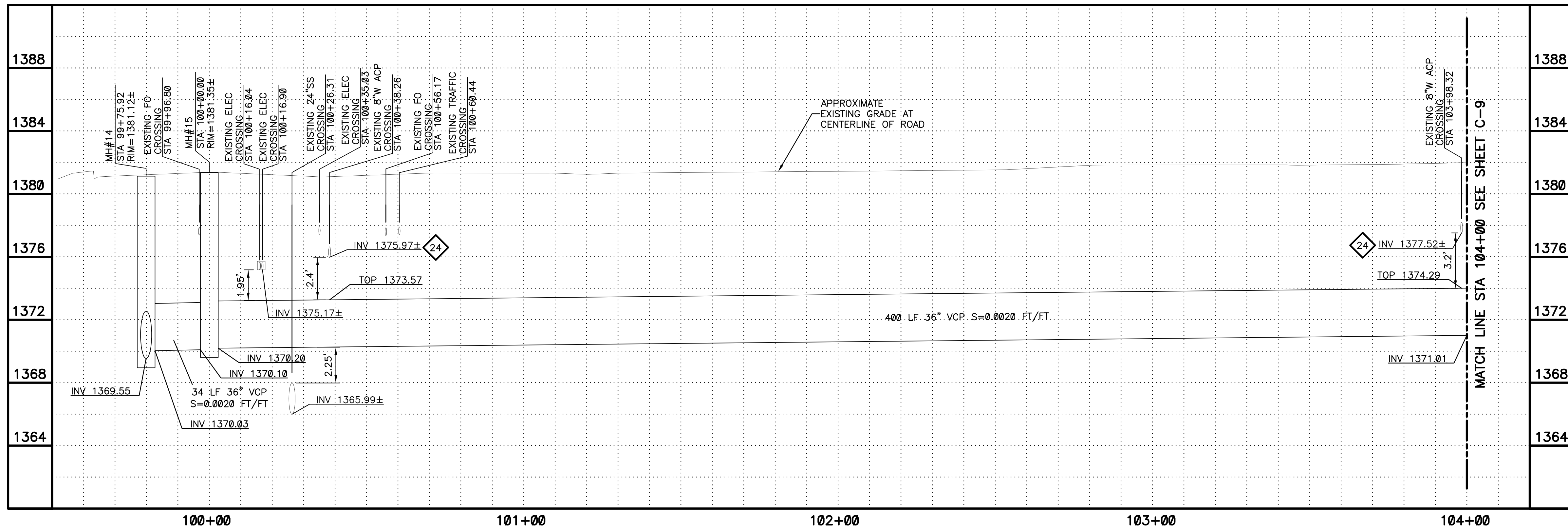
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PLAN  
SCALE: 1"=20'  
0 10 20 40  
1" = 20'

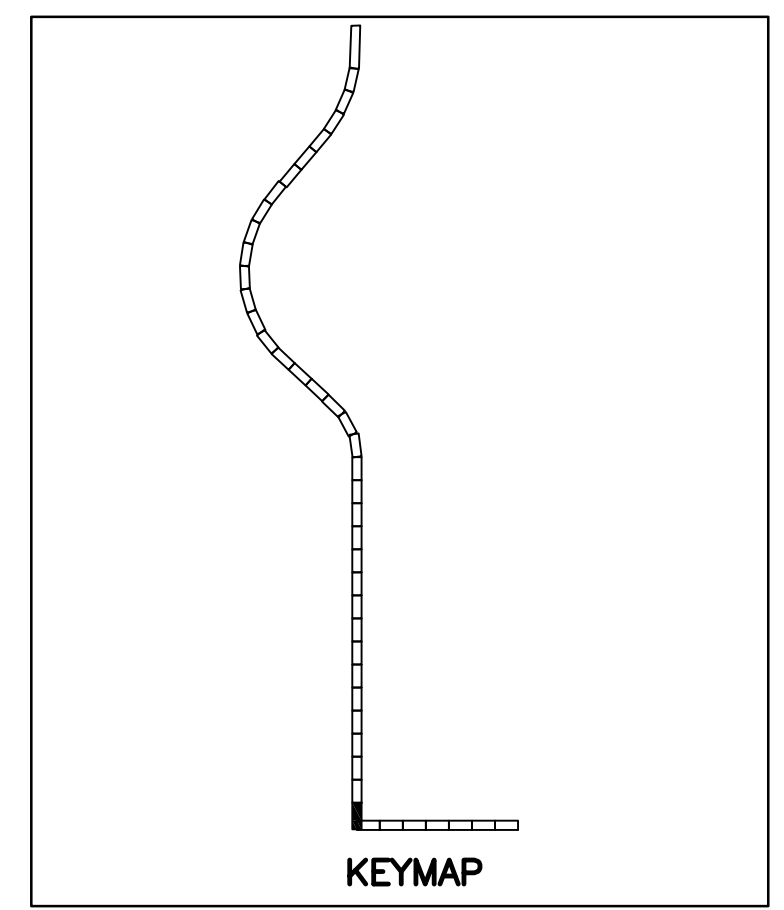


PLAN  
SCALE:  
1"=20'

PROFILE  
HORIZ: 1"=20'  
VERT: 1"=4'

KEYED NOTES

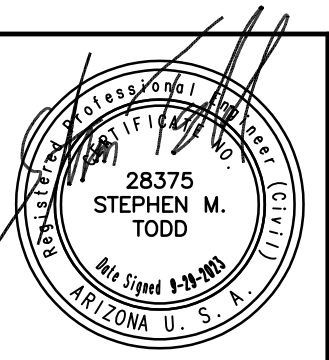
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
- 4 DEFLECTION MANHOLE GREATER THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-103
- 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
- 23 DEFLECTION MANHOLE GREATER THAN 40 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-104
- 24 REPLACE ACP WATER LINE PER COP STANDARD SPEC. 601.2.8



CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

**ARIZONA 811**  
Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN GL  
CKD  
SMT

City of Phoenix

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 8  
STA: 100+00 - STA: 104+00

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 8  
CAD FILE: PKG4B-C08

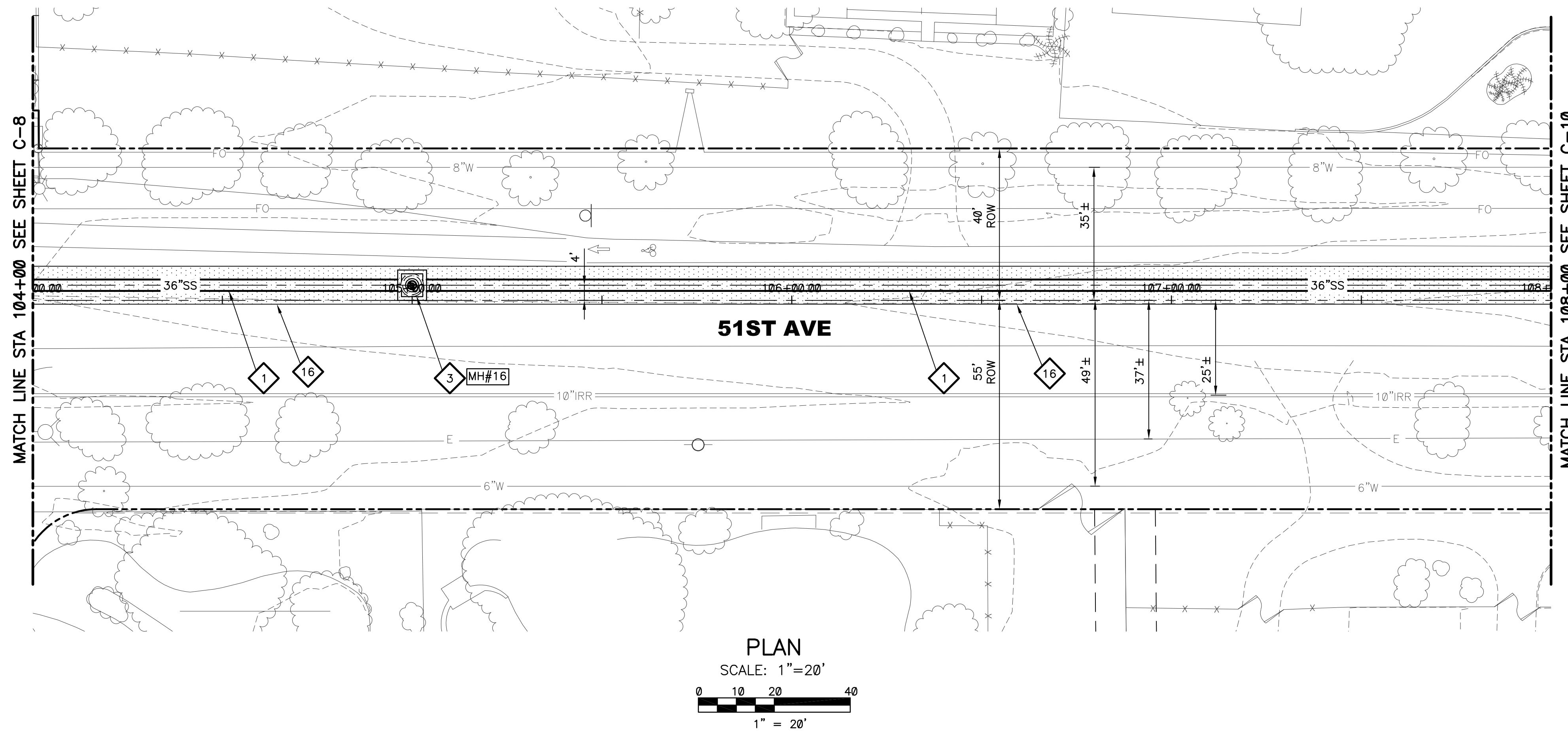
REVISION	DATE	PROJECT NAME	DWG NUMBER	REMARKS

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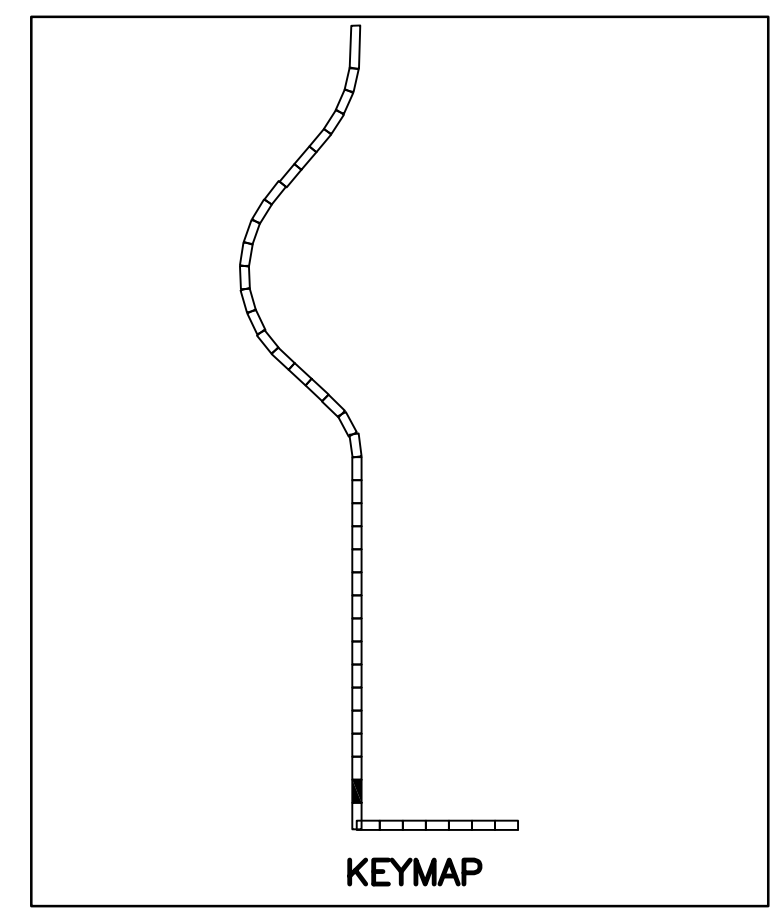
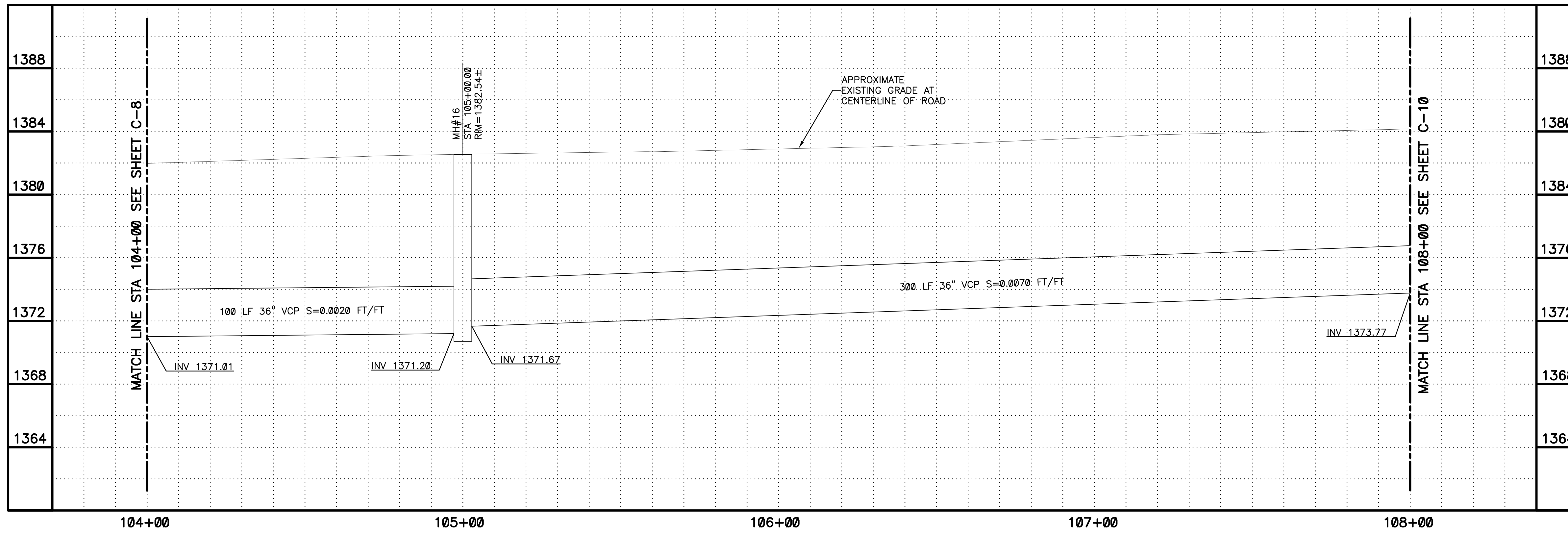
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PLAN  
SCALE: 1"=20'  
1" = 20'



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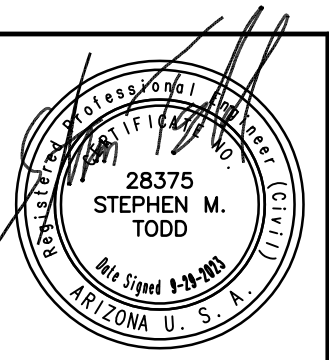
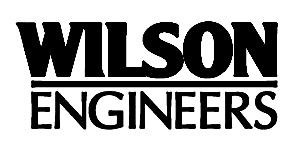
**ARIZONA 811**  
Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

PLAN SCALE: 1"=20'

PROFILE HORIZ: 1"=20'  
VERT: 1"=4'

- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 3 DEFLECTION MANHOLE LESS THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-102
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN GL  
CKD  
SMT

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 9  
STA: 104+00 - STA: 108+00

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 9  
CAD FILE: PKG4B-C09

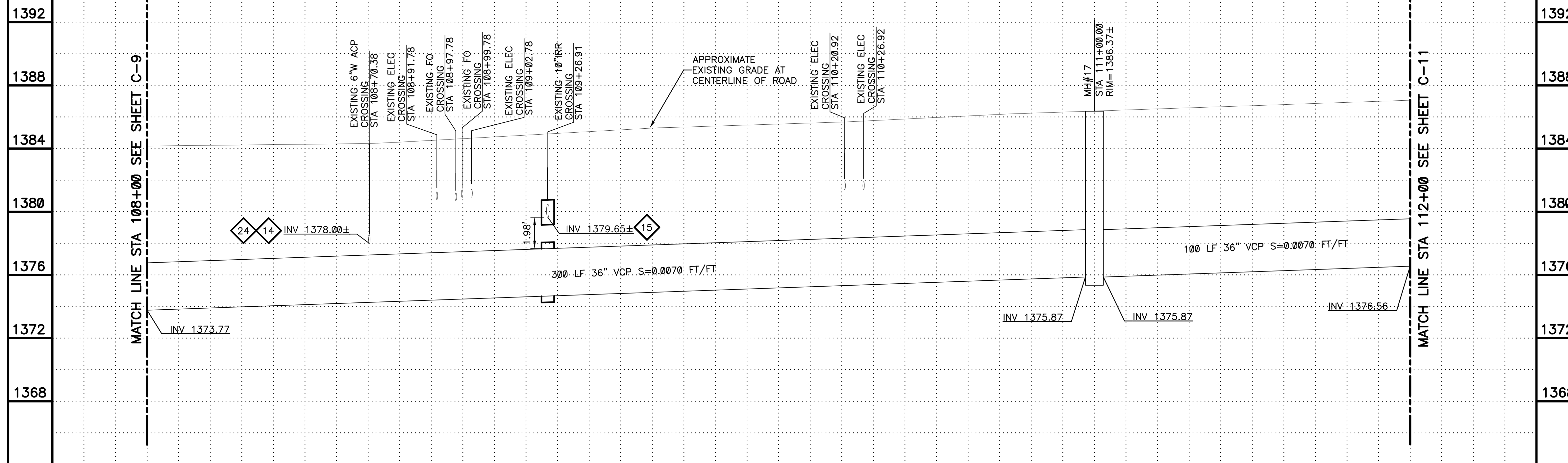
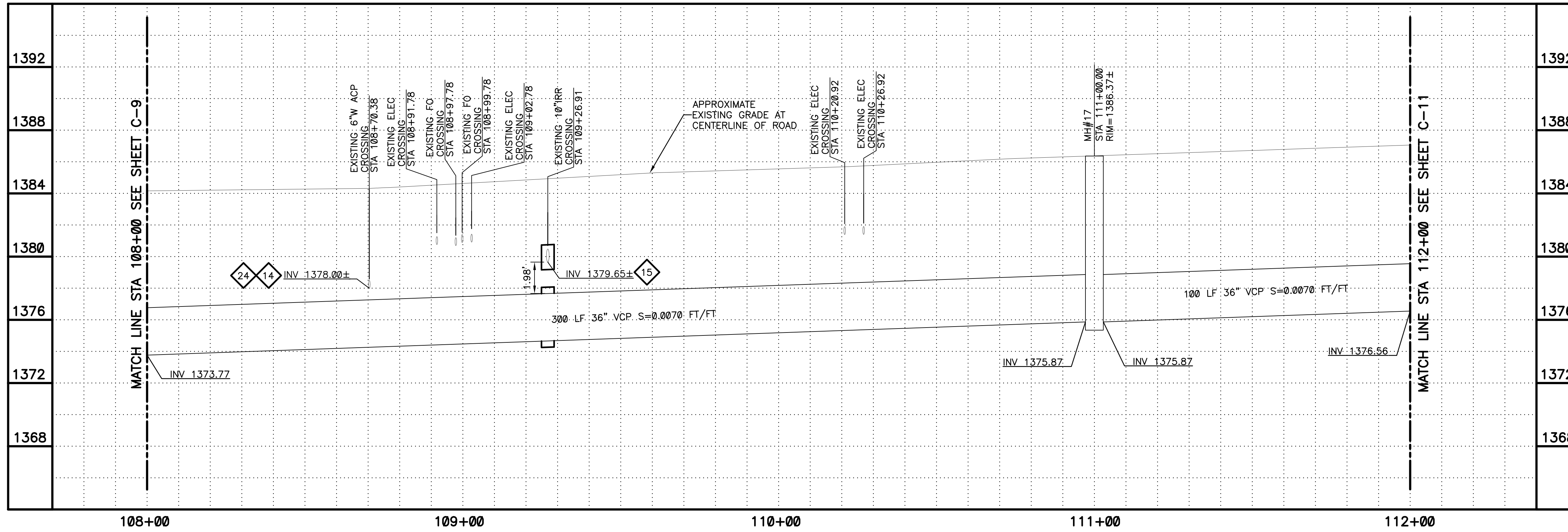
FOR CITY OF PHOENIX USE ONLY - REFERENCE CID NUMBER:	PROJECT NO.	PROJECT NAME	DATE	CAD FILE NAME	DWG NUMBER	REMARKS

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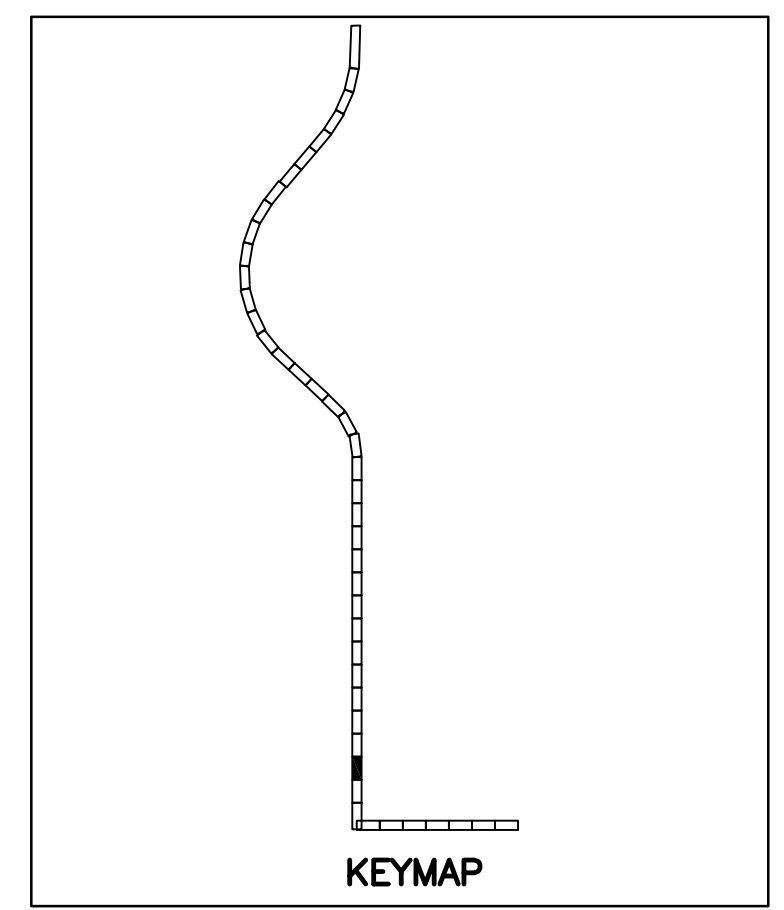
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PLAN  
SCALE: 1"=20'  
1" = 20'

KEYED NOTES

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- 2 60" LINED SEWER MANHOLE PER DETAIL 302 SHEET C-102 AND SHEET S-105
- 14 VERTICALLY REALIGN WATERLINE PER COP STD. DTL. P1370. KEEP 2' MIN DISTANCE FROM SEWER
- 15 CONCRETE ENCASE PIPES PER MAG STD. DTL. 404-3
- 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
- 24 REPLACE ACP WATER LINE PER COP STANDARD SPEC. 601.2.8

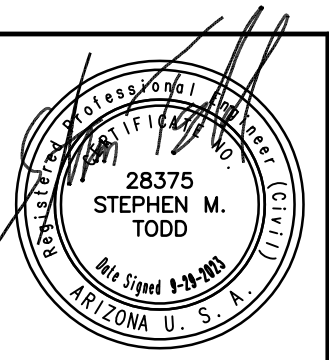
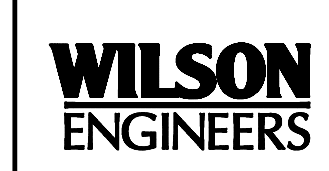


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Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

PLAN SCALE: 1"=20'  
PROFILE HORIZ: 1"=20'  
VERT: 1"=4'



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN GL  
CKD  
SMT

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 10  
STA: 108+00 - STA: 112+00

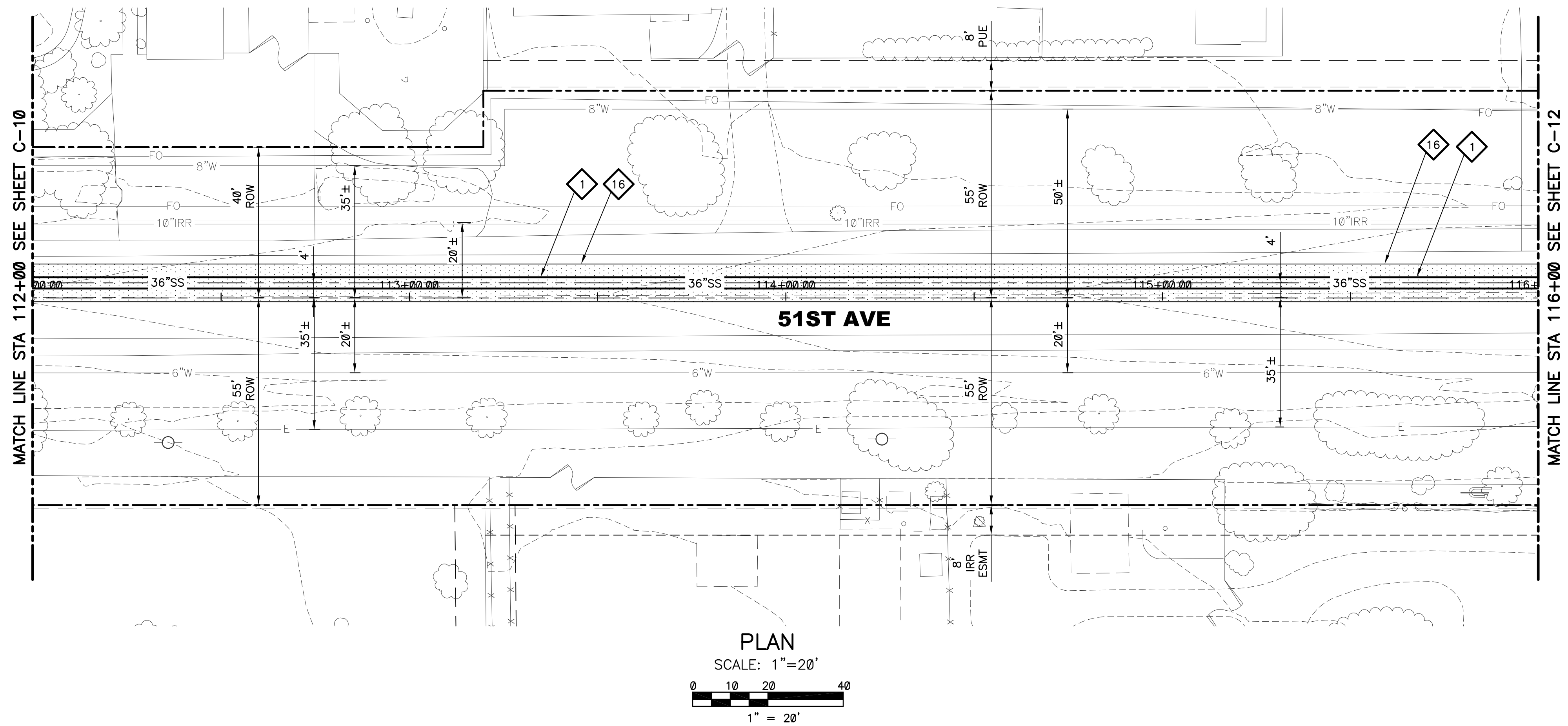
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DATE: SEPTEMBER 2023  
C SHEET 10  
CAD FILE: PKG4B-C10

REVISION	DATE	CAD FILE NAME	DWG NUMBER	REMARKS

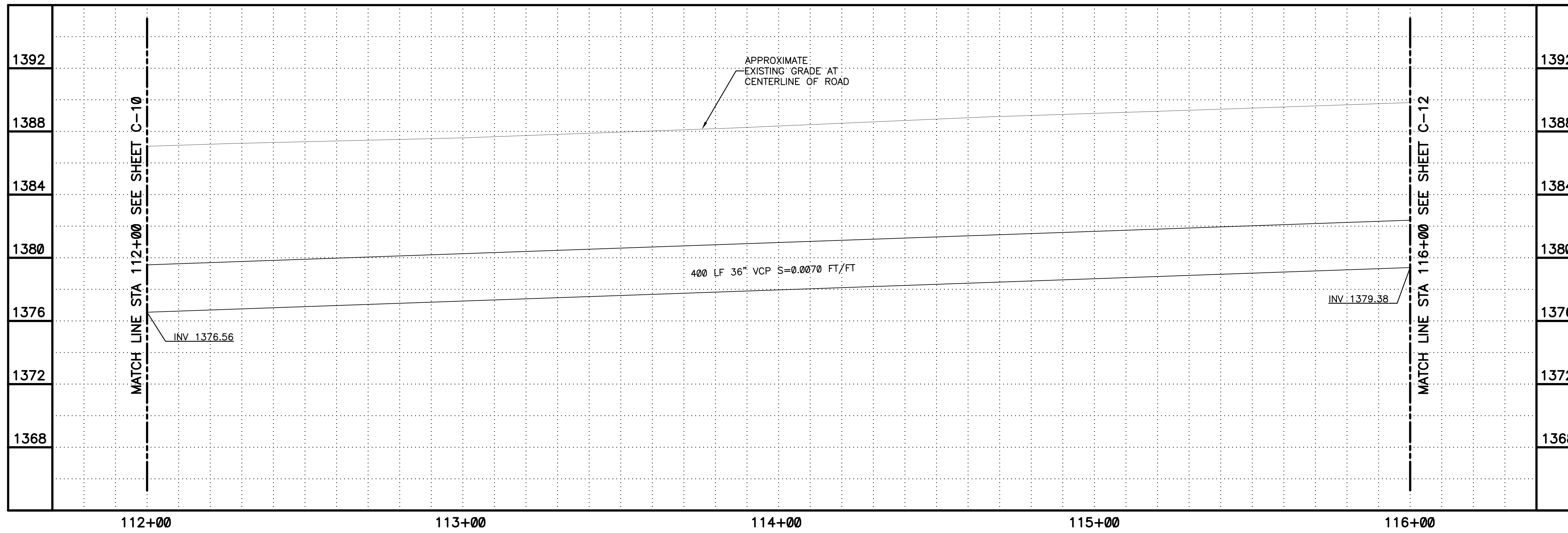
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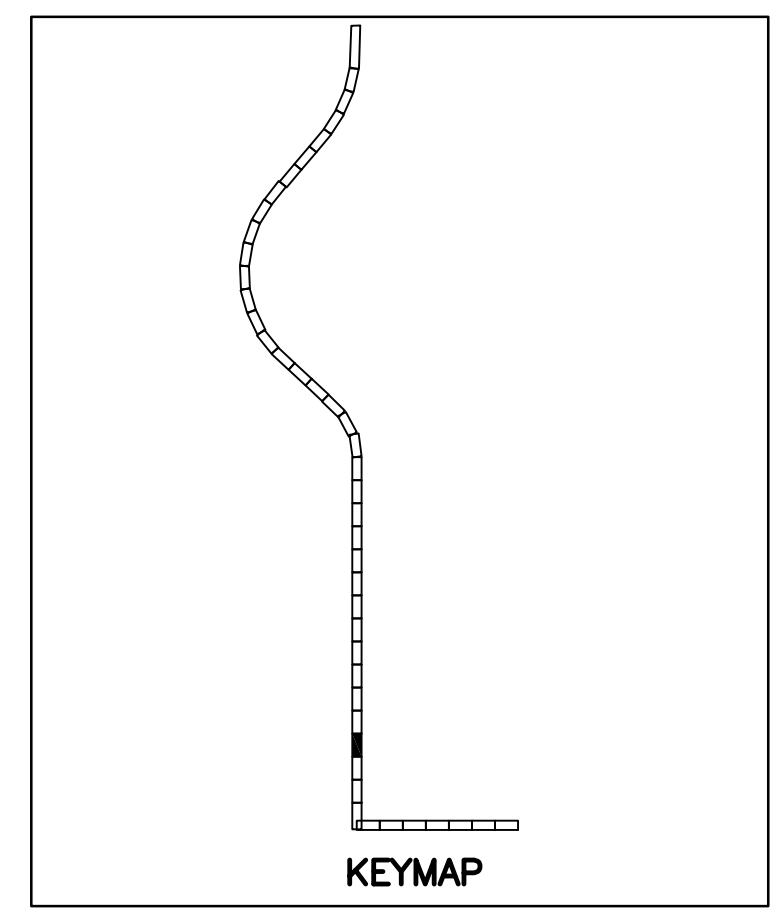
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PLAN  
SCALE: 1"=20'  
0 10 20 40  
1" = 20'



- KEYED NOTES**
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  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A

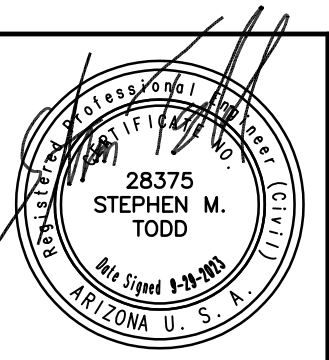
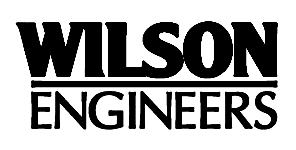


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Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

PLAN SCALE: 1"=20'  
PROFILE HORIZ: 1"=20'  
VERT: 1"=4'



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN GL  
CKD SMT

City of Phoenix

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 11  
STA: 112+00 - STA: 116+00

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 11  
CAD FILE: PKG4B-C11

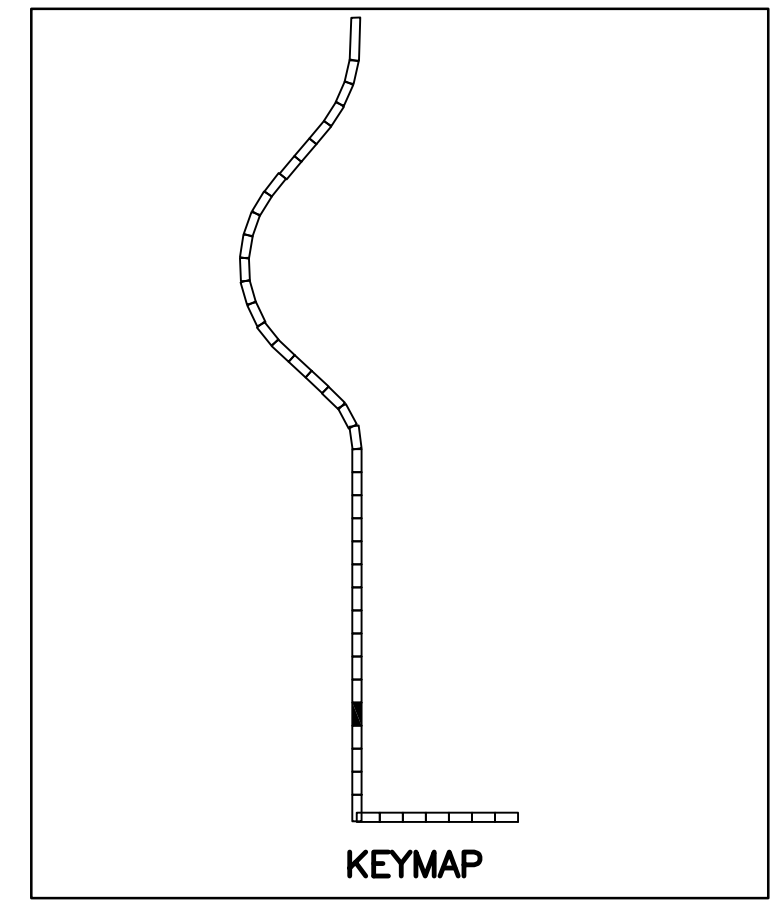
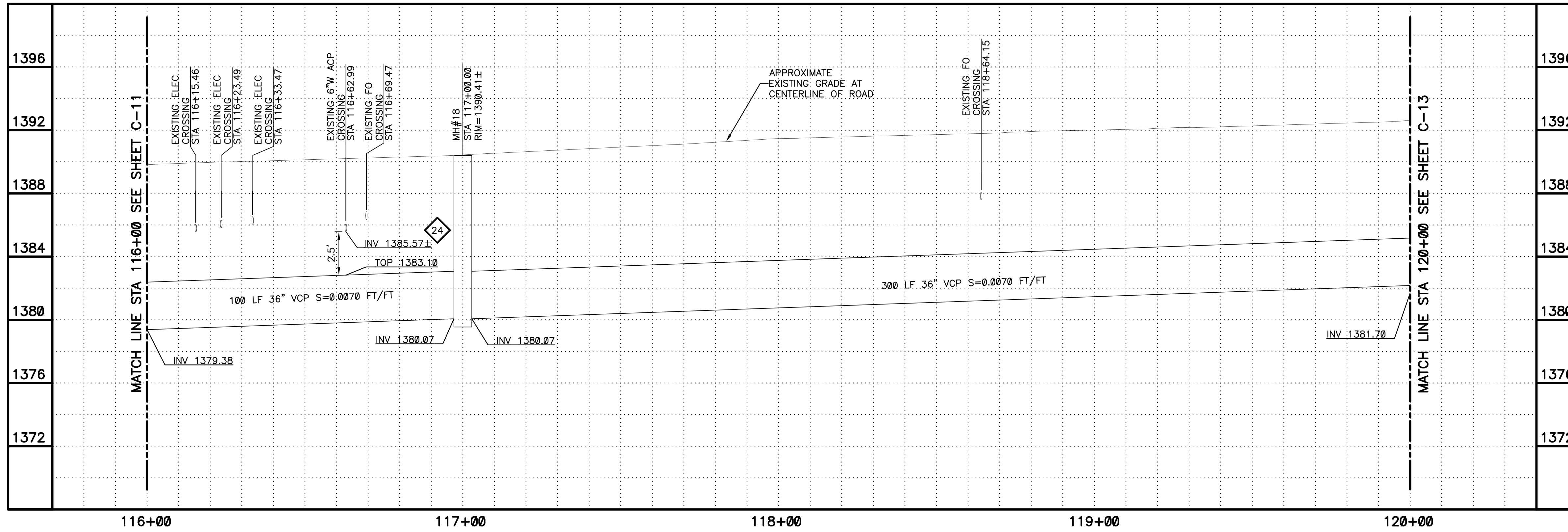
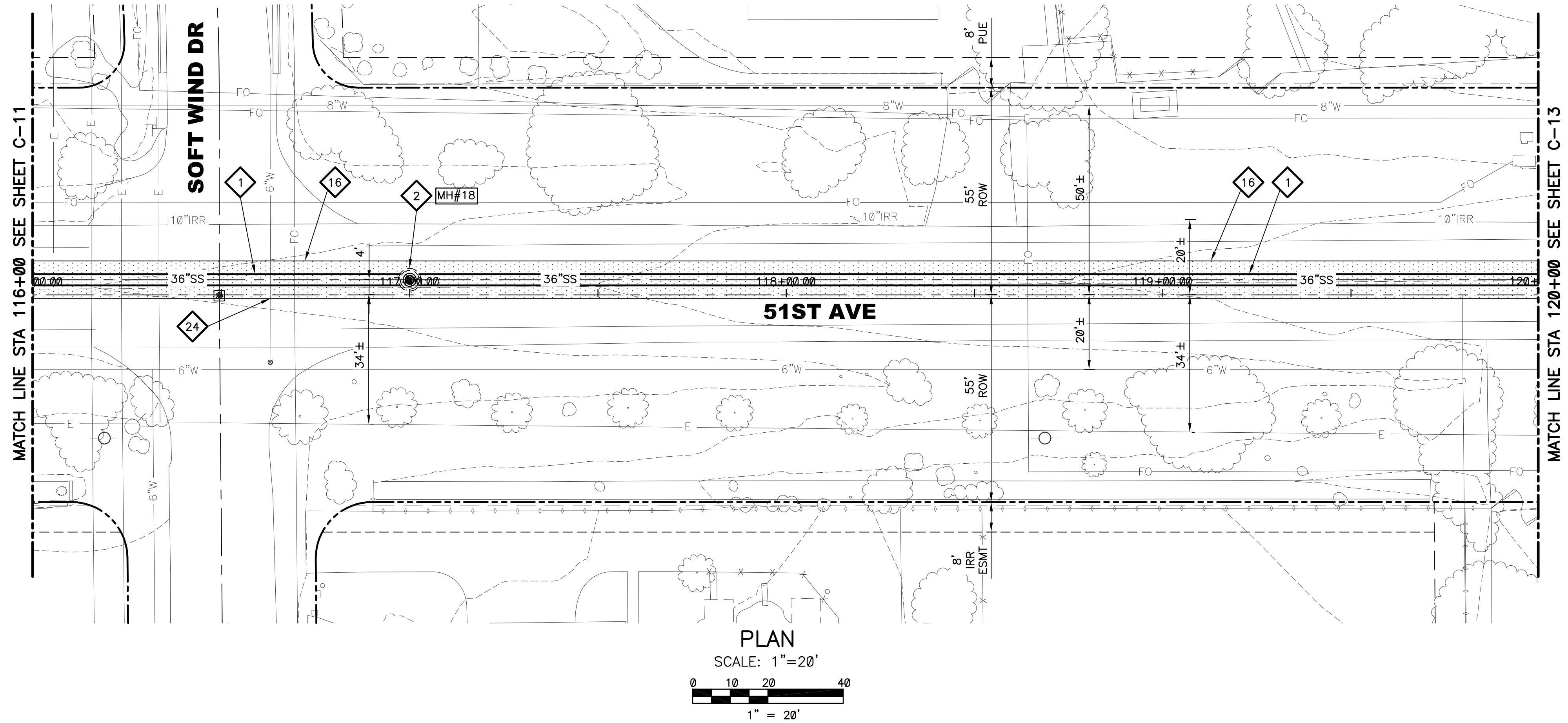
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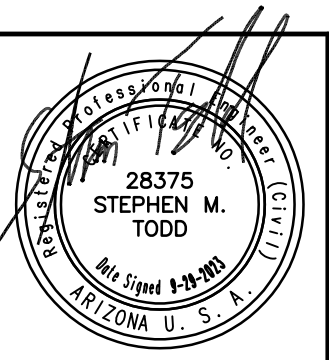
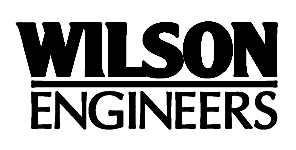
DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

PLAN  
SCALE:  
1"=20'

PROFILE  
HORIZ: 1"=20'  
VERT: 1"=4'

KEYED NOTES

- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
- 2 60" LINED SEWER MANHOLE PER DETAIL 302 SHEET C-102 AND SHEET S-105
- 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
- 24 REPLACE ACP WATER LINE PER COP STANDARD SPEC. 601.2.8



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN DWN  
GL  
CKD  
SMT

City of Phoenix

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 12  
STA: 116+00 - STA: 120+00

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DATE: SEPTEMBER 2023  
C SHEET 12  
CAD FILE: PKG4B-C12

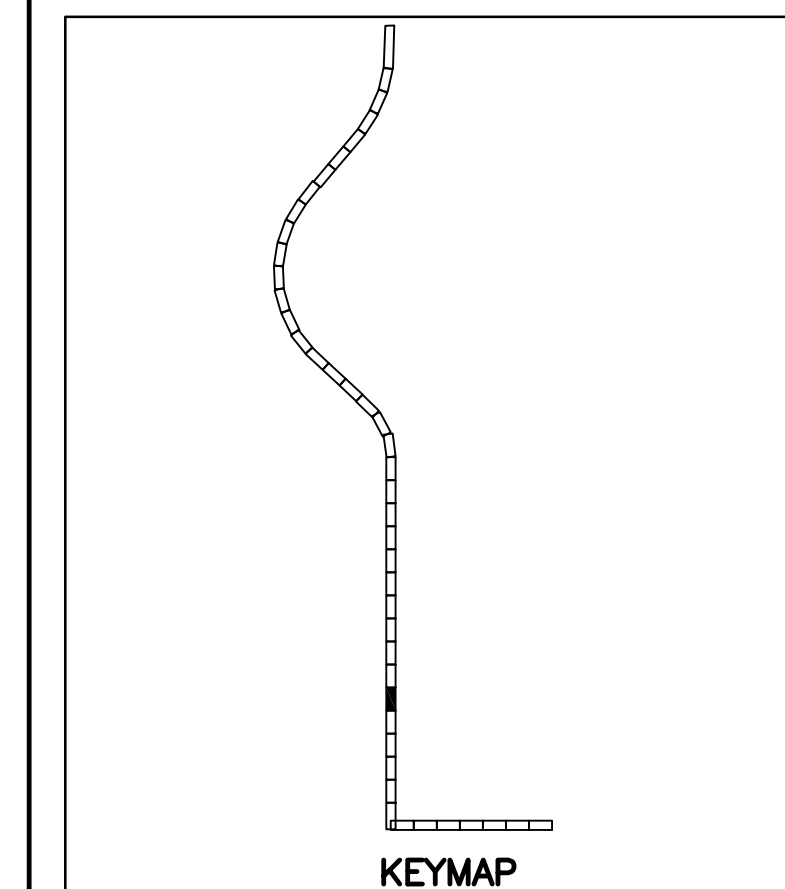
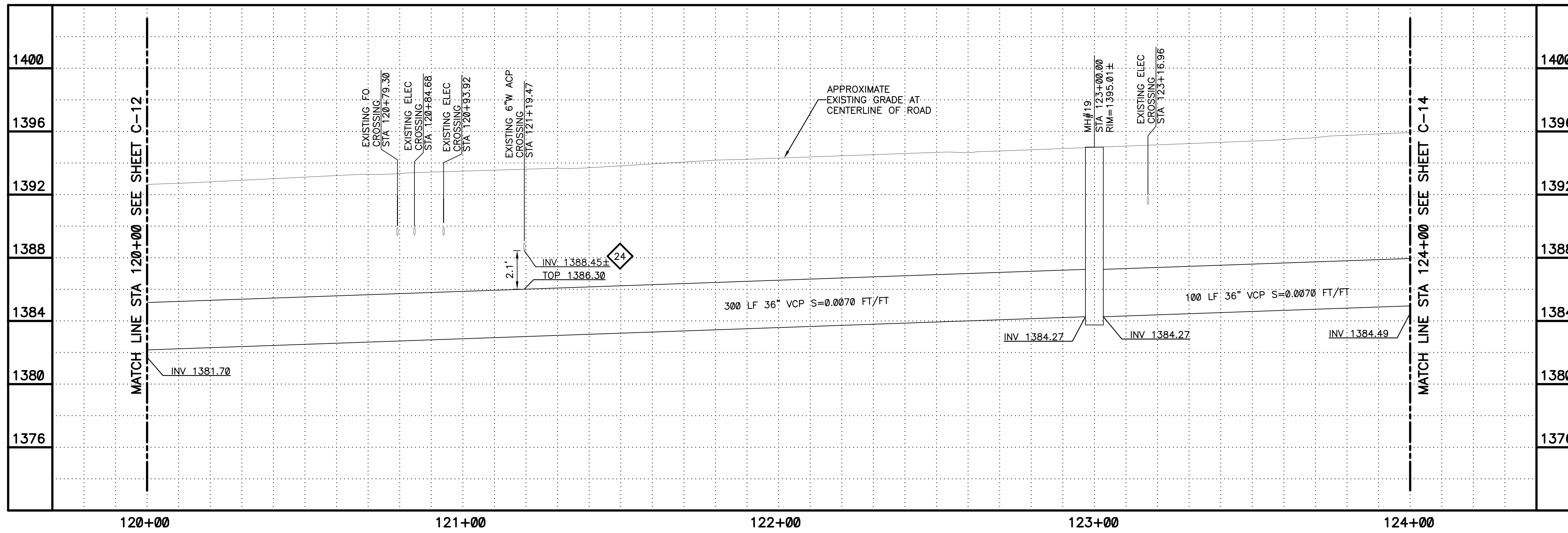
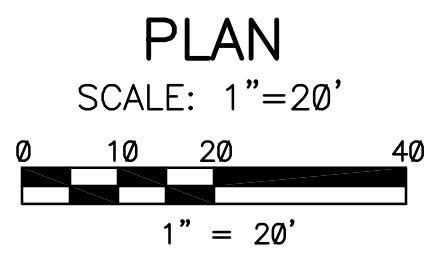
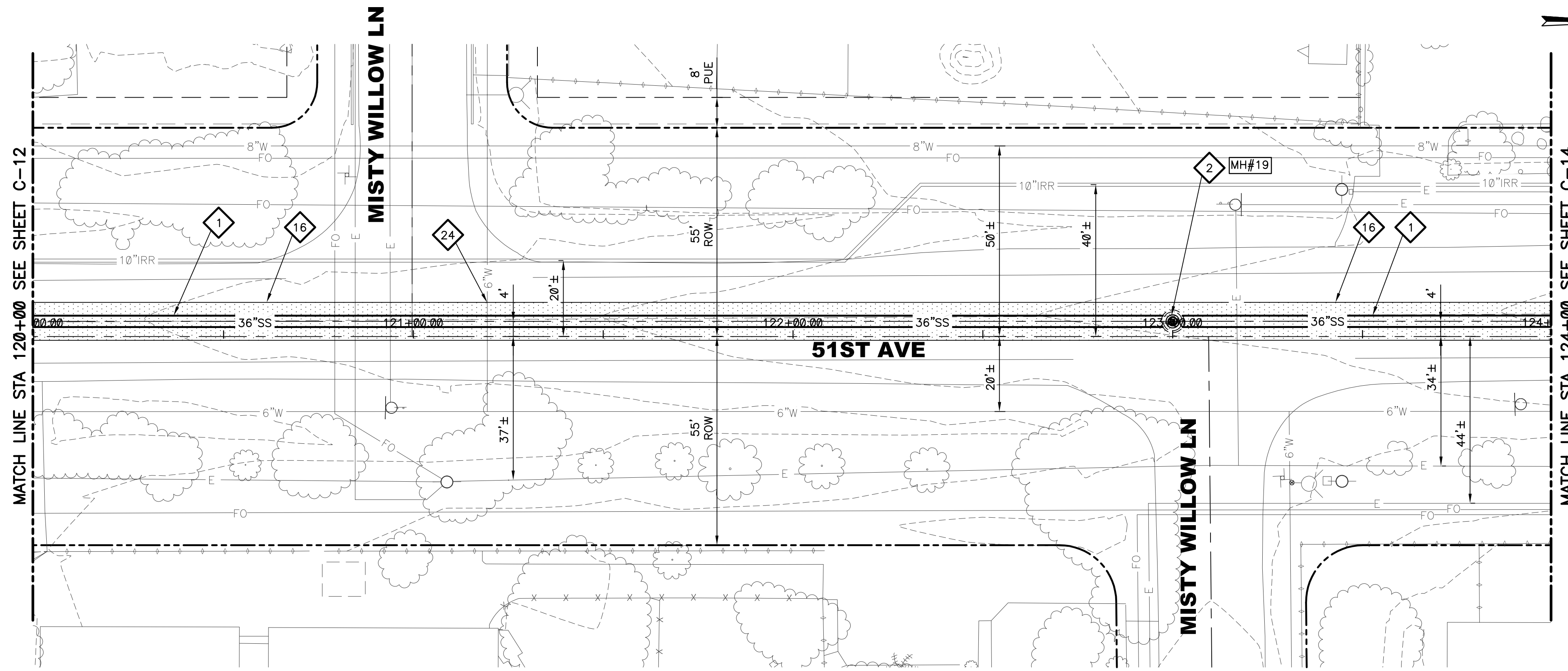
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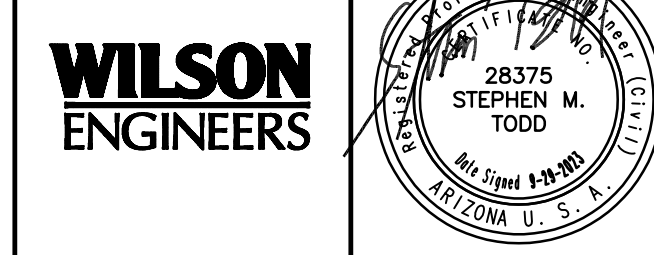


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Arizona Blue Stake, Inc.  
DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

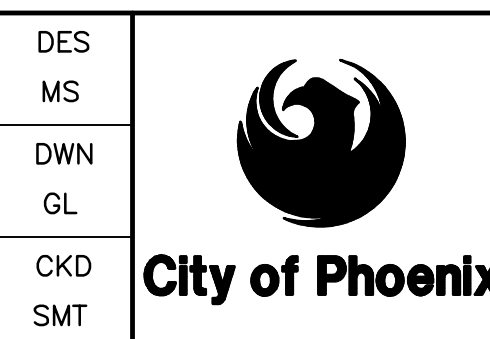
PLAN SCALE: 1"=20'  
PROFILE HORIZ: 1"=20'  
VERT: 1"=4'

KEYED NOTES

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- 24 REPLACE ACP WATER LINE PER COP STANDARD SPEC. 601.2.8



REVISIONS				
NO.	BY	DATE	CKD	REMARKS



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 13  
STA: 120+00 - STA: 124+00

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DATE: SEPTEMBER 2023  
C SHEET 13  
CAD FILE: PKG4B-C13

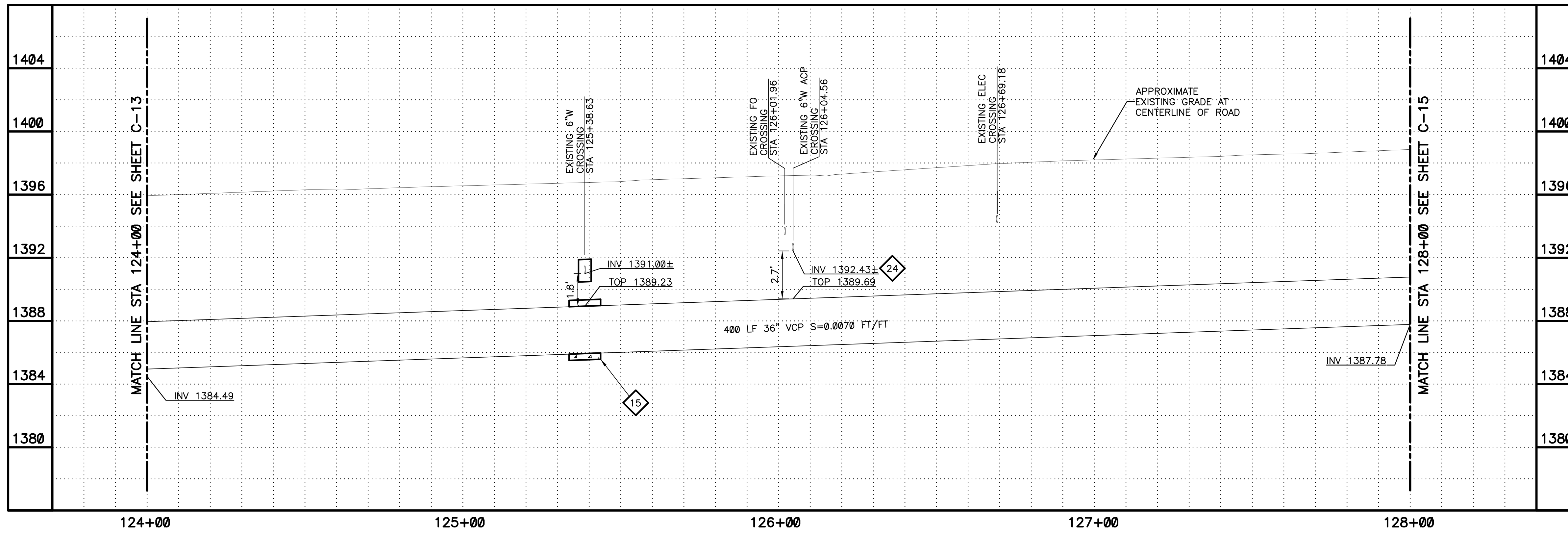
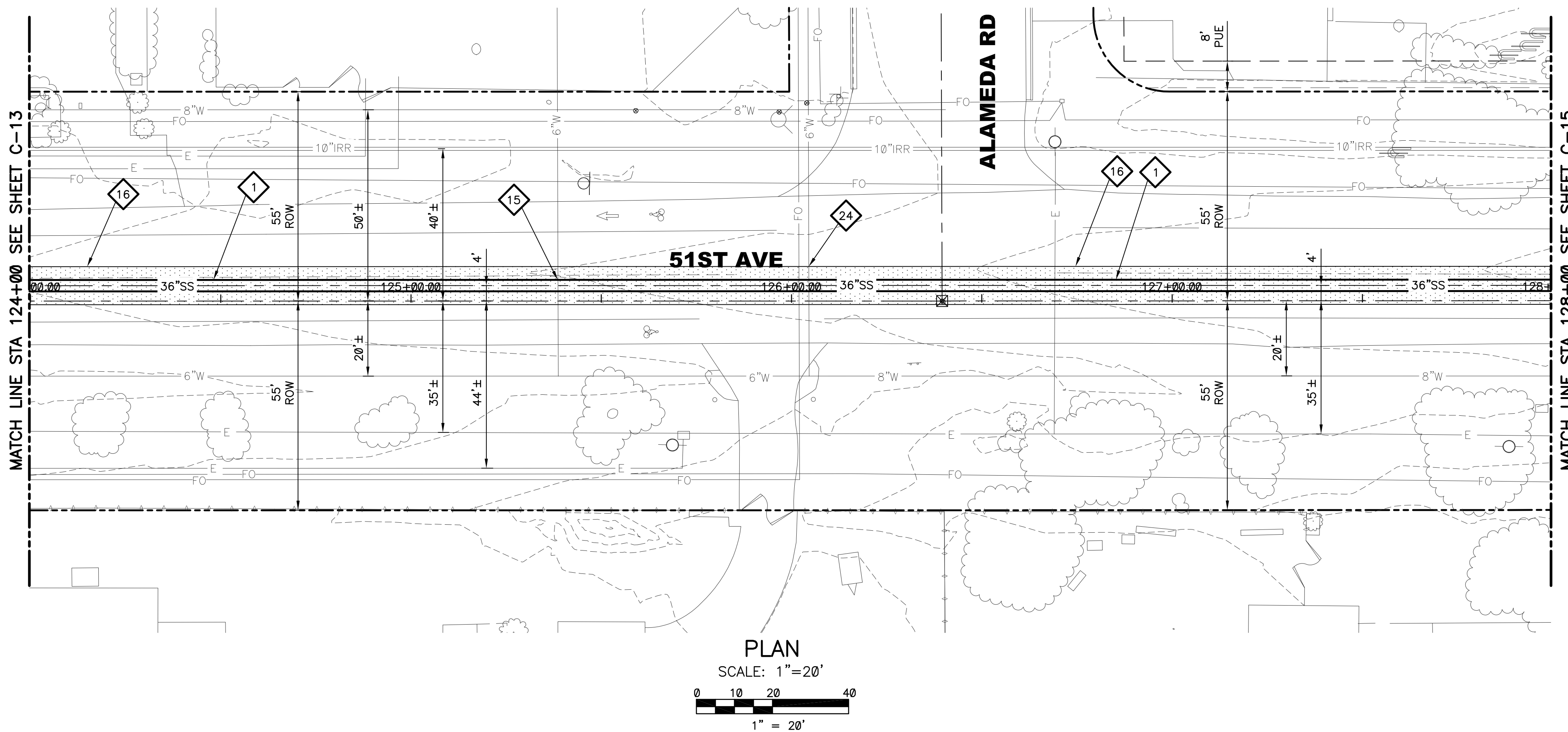
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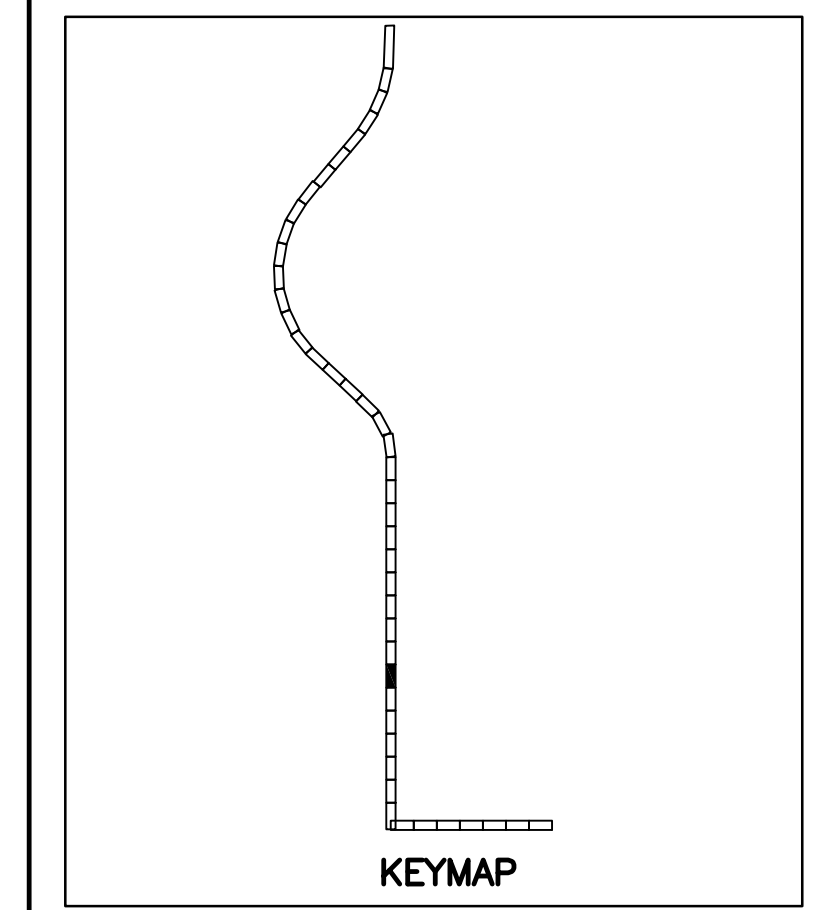
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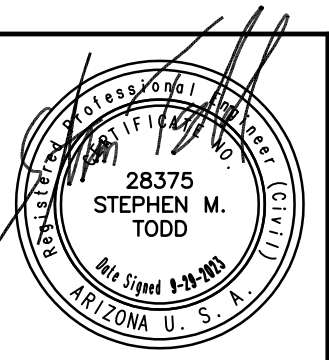
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Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

**PLAN**  
SCALE: 1"=20'

**PROFILE**  
HORIZ: 1"=20'  
VERT: 1"=4'



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN  
GL  
CKD  
SMT

**City of Phoenix**

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT

**NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B**

CIVIL

**PLAN AND PROFILE 14**  
STA: 124+00 - STA: 128+00

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CITY PROJECT NO. WS90500307

DATE: SEPTEMBER 2023

C SHEET 14

CAD FILE: PKG4B-C14

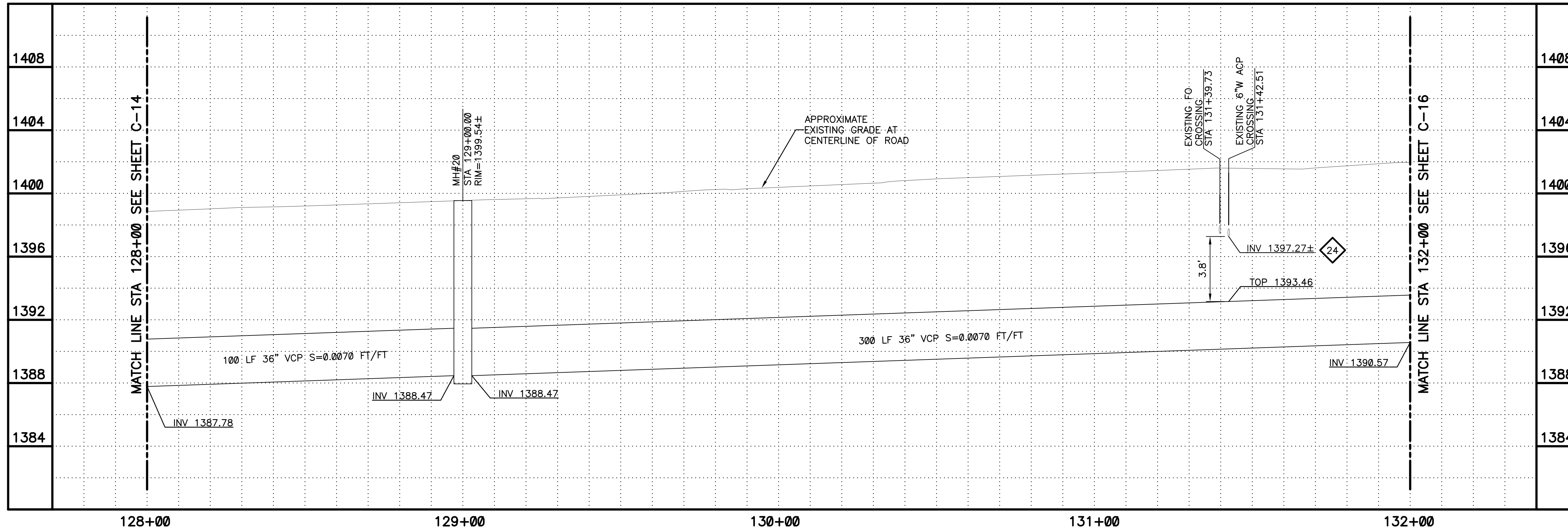
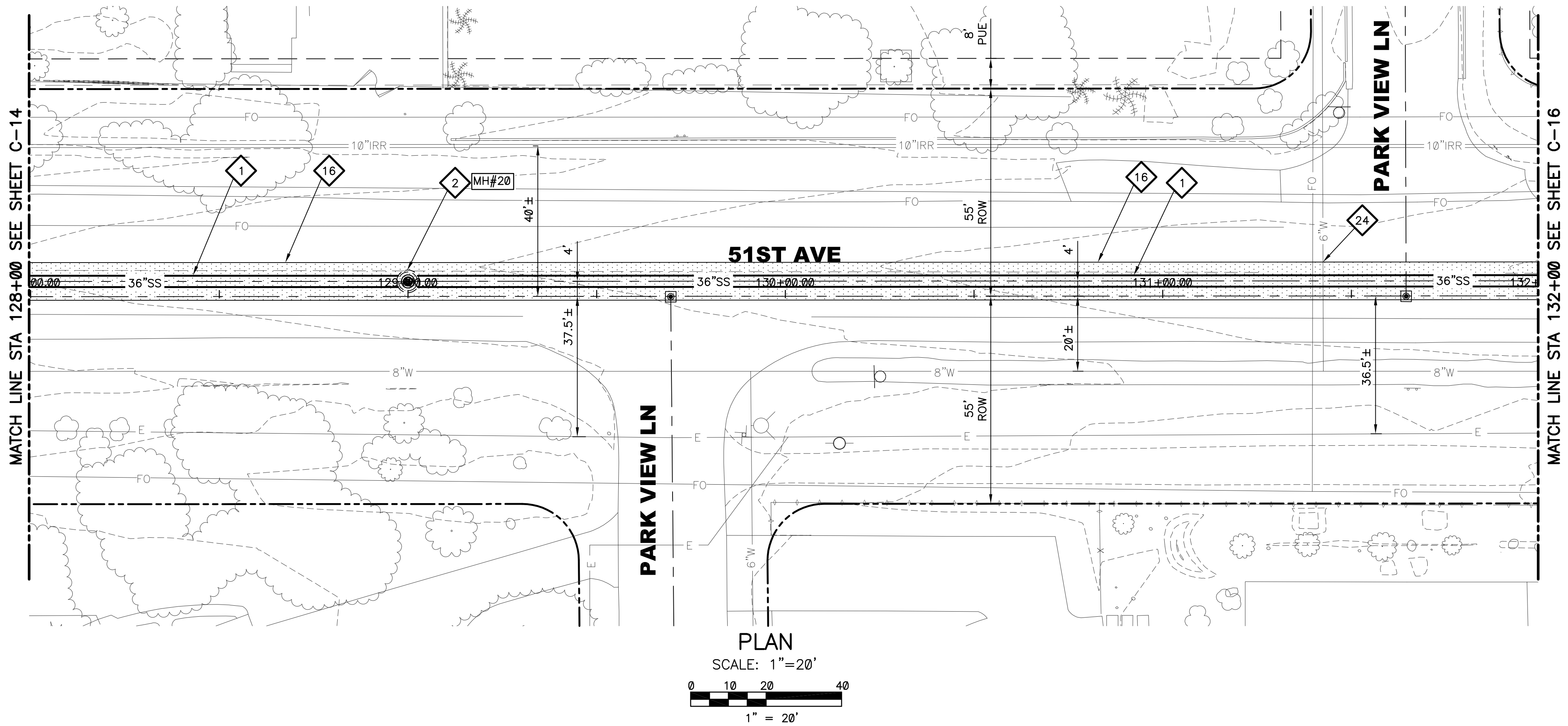
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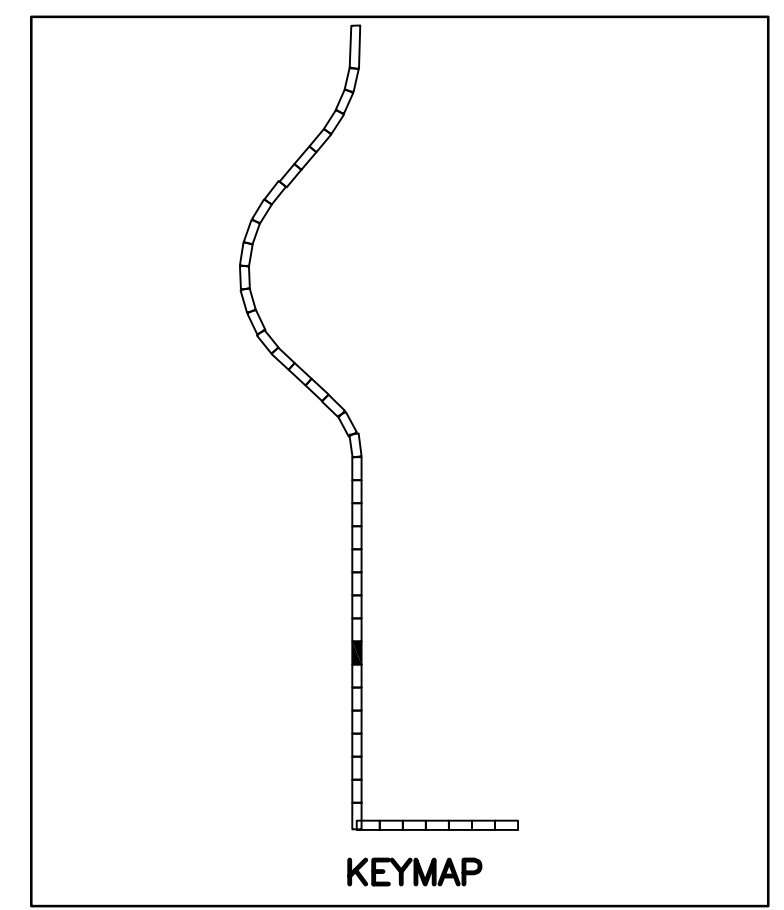
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**PLAN**  
SCALE: 1"=20'

**PROFILE**  
HORIZ: 1"=20'  
VERT: 1"=4'

NO.	BY	DATE	CKD	REVISIONS	REMARKS

**WILSON ENGINEERS**

28375 STEPHEN M. TODD

NO.	BY	DATE	CKD	REVISIONS	REMARKS

**City of Phoenix**

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT

**NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B**

CIVIL

**PLAN AND PROFILE 15**  
STA: 128+00 - STA: 132+00

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CITY PROJECT NO. WS90500307

DATE: SEPTEMBER 2023

C SHEET 15

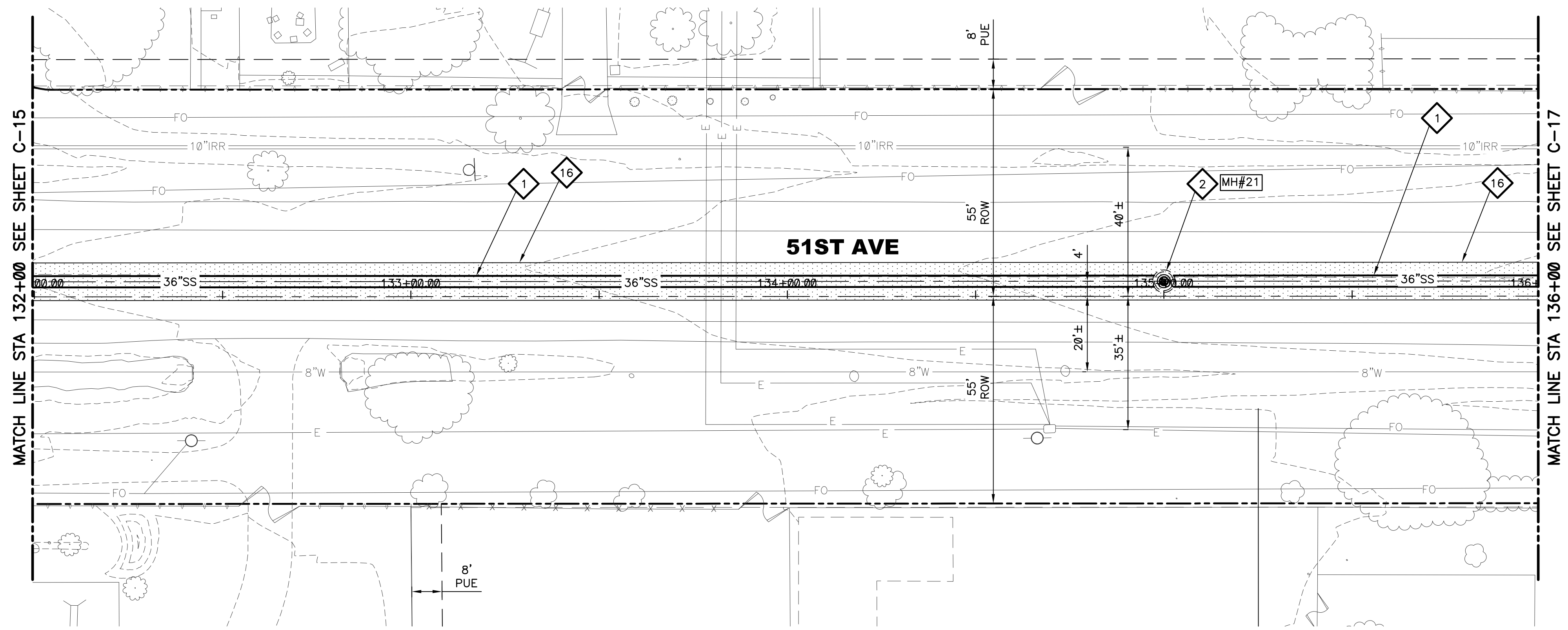
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G:\PROJECT\2003A\51ST AVE (PACKAGE 4)\CADD\DESIGN\CIVIL\PKG4B-C15.DWG; 9/26/2023 9:23:25 AM; gelsak; 1:2.5849

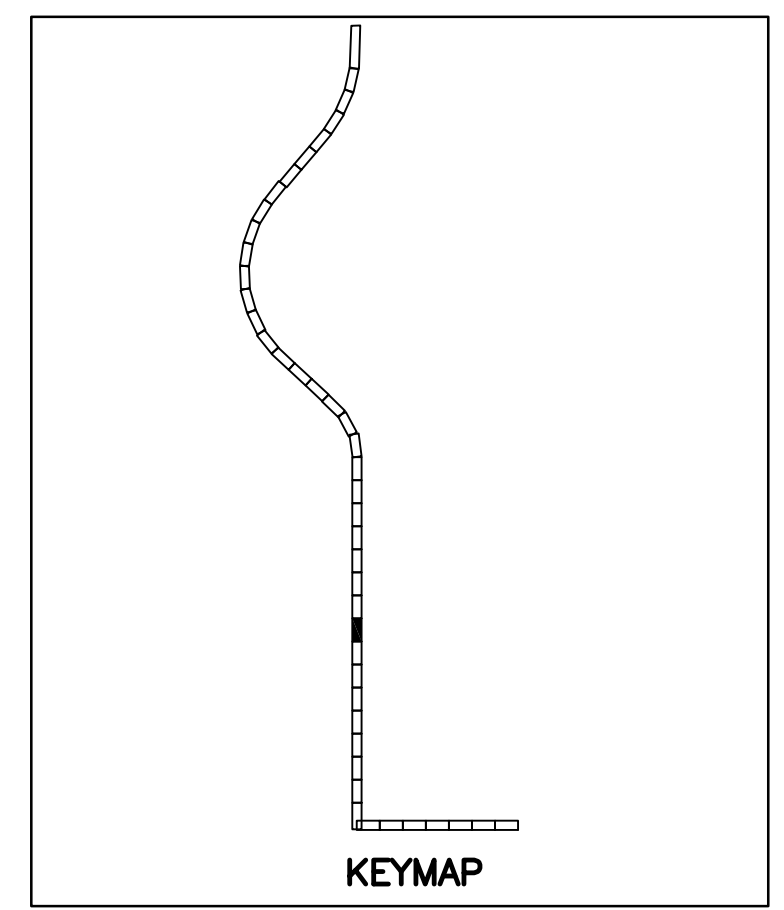
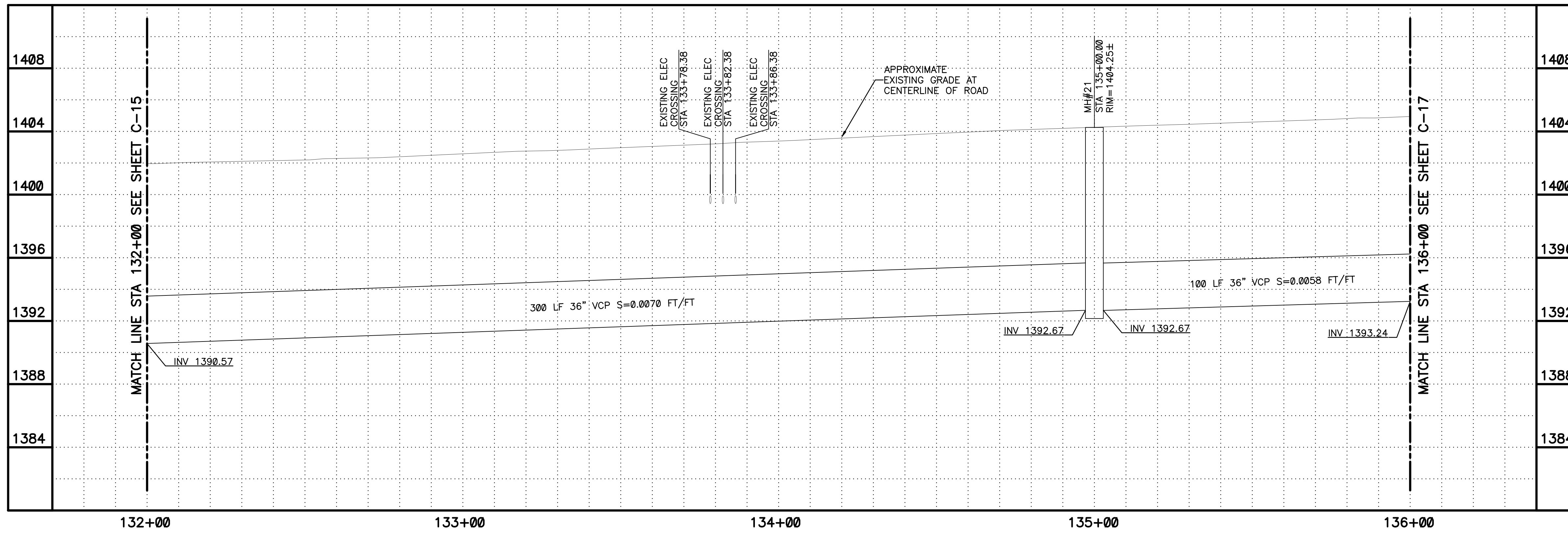
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PLAN  
SCALE: 1"=20'  
1" = 20'



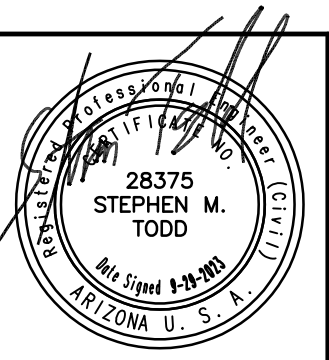
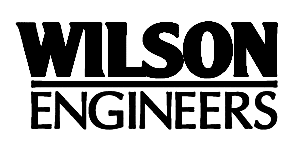
CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.  
**ARIZONA 811**  
Arizona Blue Stake, Inc.  
DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

PLAN  
SCALE:  
1"=20'

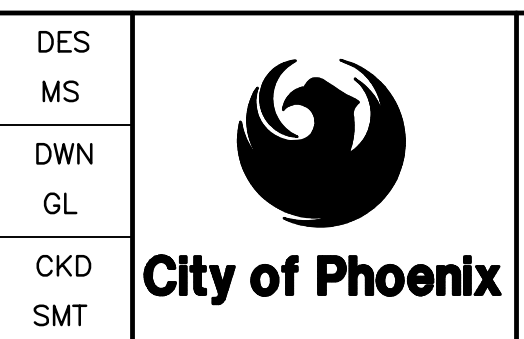
PROFILE  
HORIZ: 1"=20'  
VERT: 1"=4'

**KEYED NOTES**

- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
- 2 60" LINED SEWER MANHOLE PER DETAIL 302 SHEET C-102 AND SHEET S-105
- 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A



REVISIONS				
NO.	BY	DATE	CKD	REMARKS



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL

PLAN AND PROFILE 16  
STA: 132+00 - STA: 136+00

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CITY PROJECT NO. WS90500307

DATE: SEPTEMBER 2023

C SHEET 16

CAD FILE: PKG4B-C16

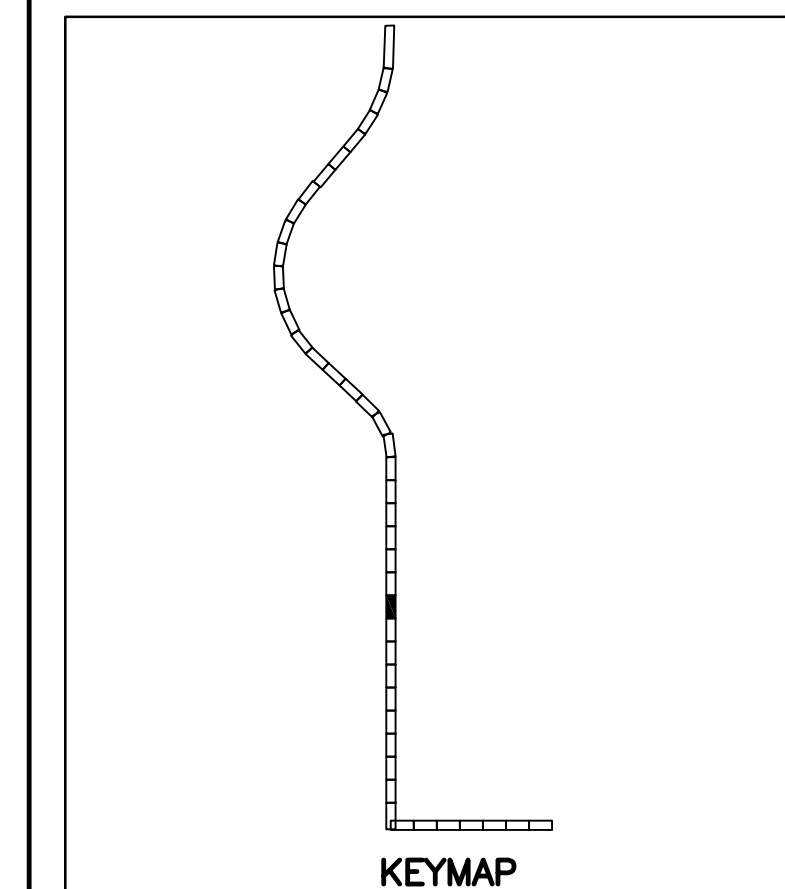
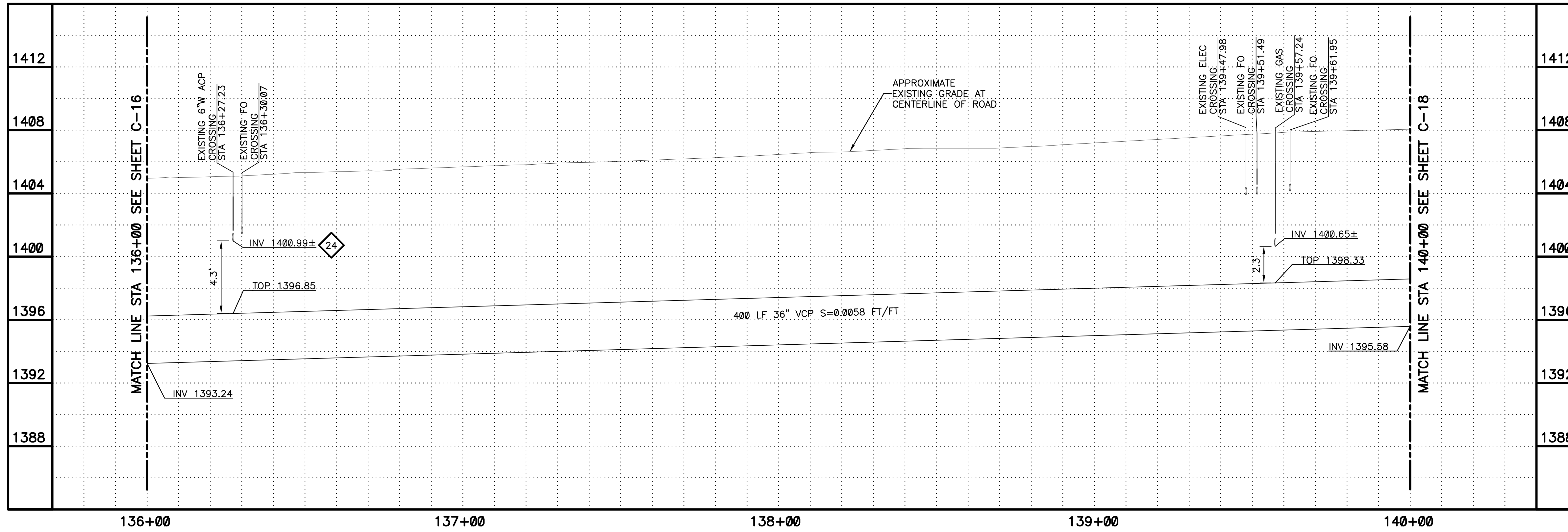
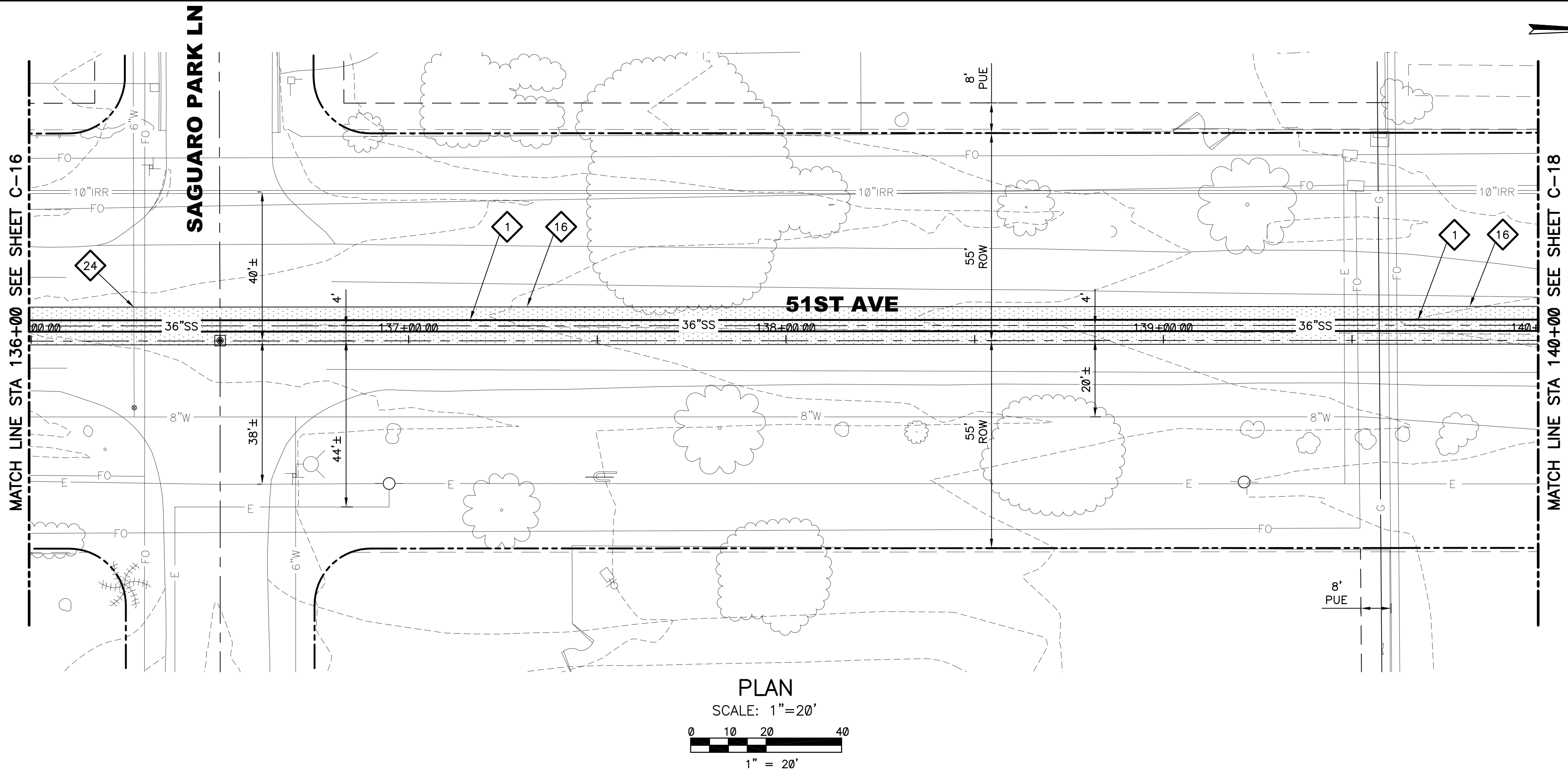
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**ARIZONA 811**  
Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

**PLAN**  
SCALE: 1"=20'

**PROFILE**  
HORIZ: 1"=20'  
VERT: 1"=4'

**KEYED NOTES**

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- 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
- 24 REPLACE ACP WATER LINE PER COP STANDARD SPEC. 601.2.8

**WILSON ENGINEERS**

28375 STEPHEN M. TODD

REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN GL  
CKD  
SMT

**City of Phoenix**

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT

**NORTHWEST WASTEWATER MASTER PLAN PACKAGE 4B**

CIVIL

**PLAN AND PROFILE 17**  
STA: 136+00 - STA: 140+00

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CITY PROJECT NO. WS90500307

DATE: SEPTEMBER 2023

C SHEET 17

CAD FILE: PKG4B-C17

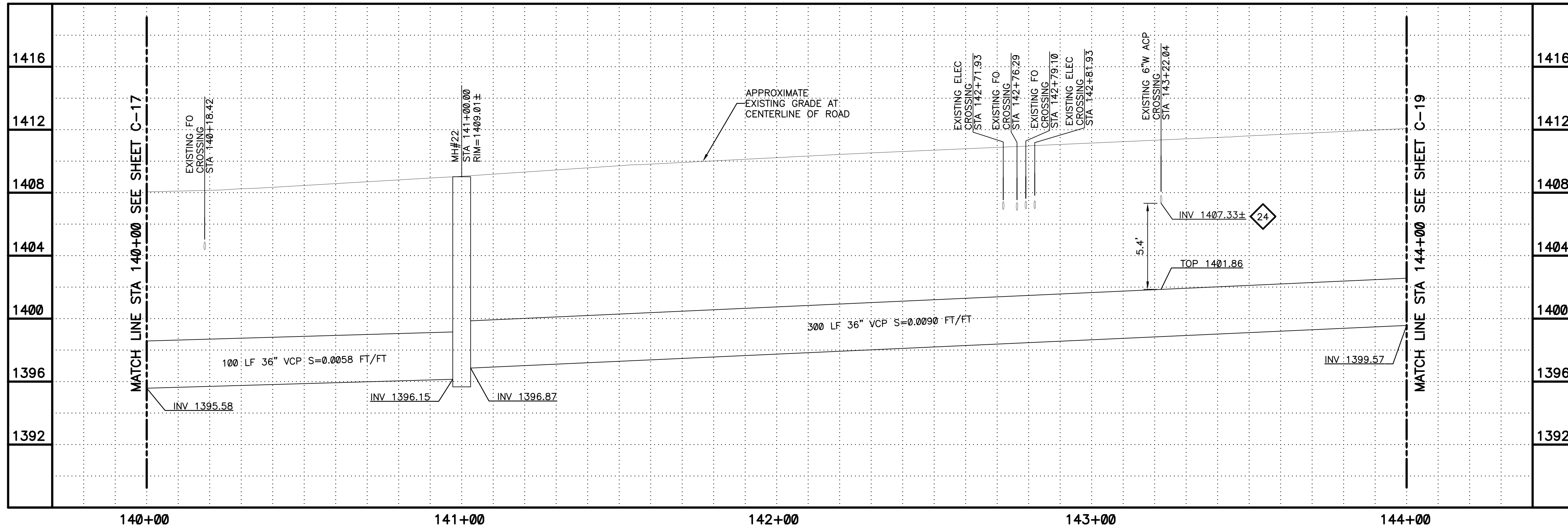
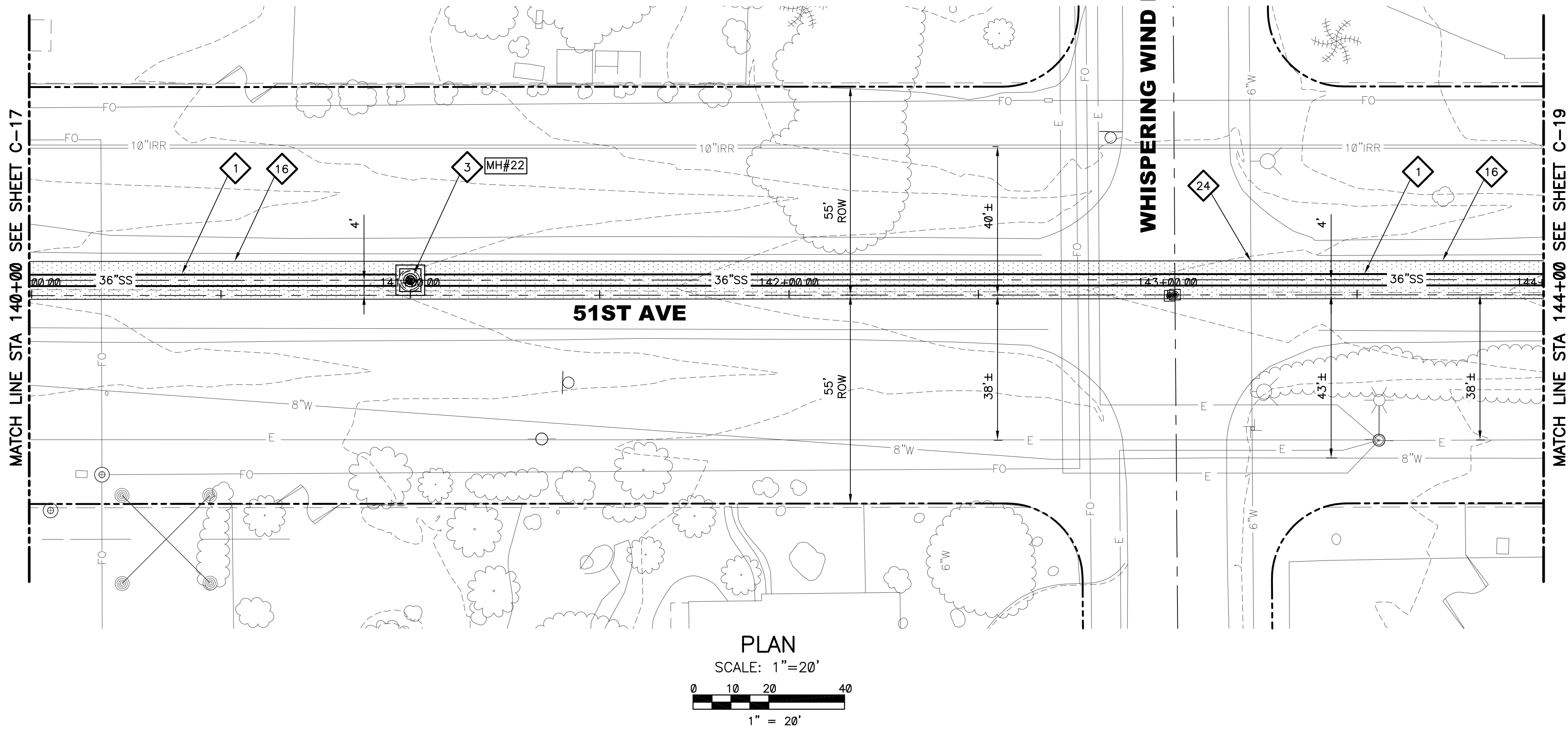
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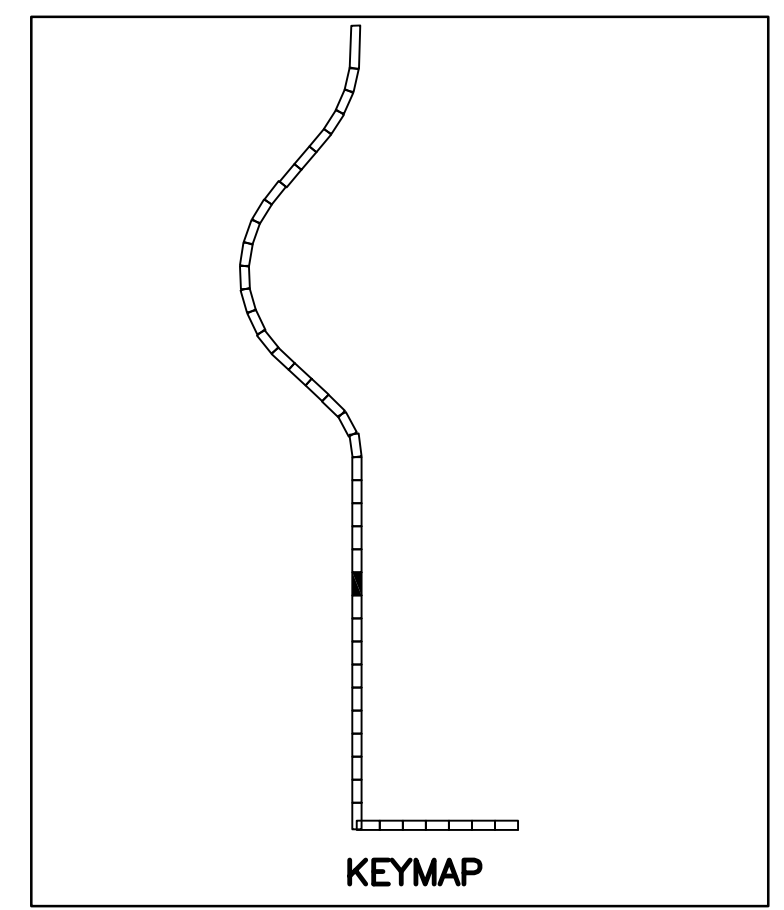
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KEYED NOTES

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- 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
- 24 REPLACE ACP WATER LINE PER COP STANDARD SPEC. 601.2.8



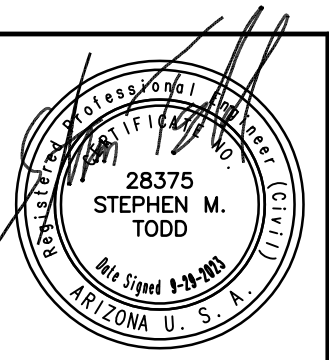
CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

**ARIZONA 811**  
Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

PLAN SCALE: 1"=20'

PROFILE HORIZ: 1"=20'  
VERT: 1"=4'



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN  
GL  
CKD  
SMT

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL

PLAN AND PROFILE 18  
STA: 140+00 - STA: 144+00

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CITY PROJECT NO. WS90500307

DATE: SEPTEMBER 2023

C SHEET 18

CAD FILE: PKG4B-C18

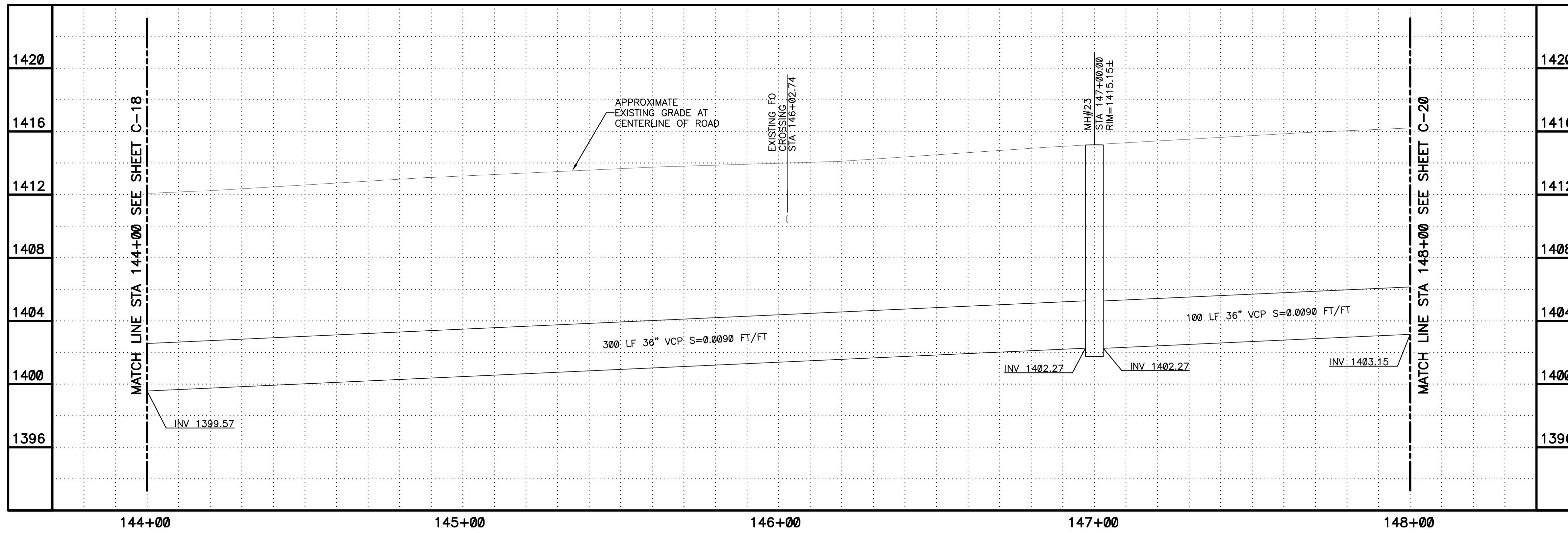
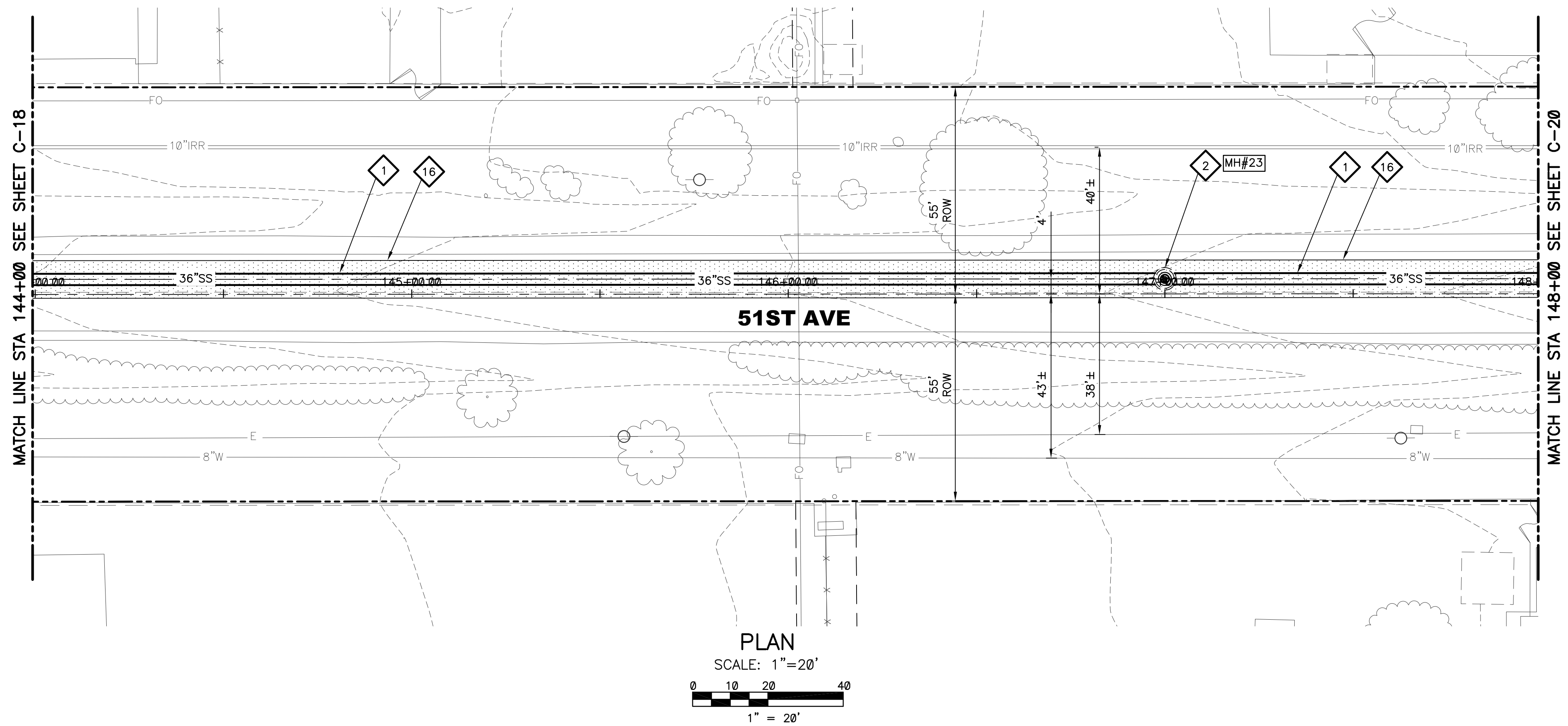
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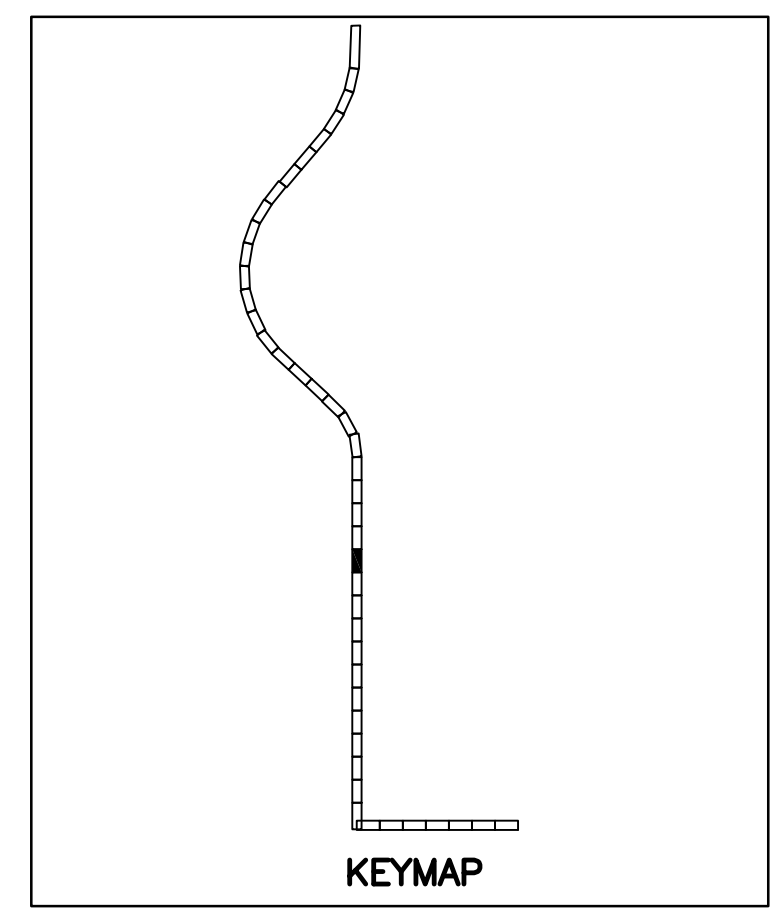
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  - 2 60" LINED SEWER MANHOLE PER DETAIL 302 SHEET C-102 AND SHEET S-105
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A



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Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

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REVISION ENGINEERING COMPANY	PROJECT NO.	PROJECT NAME		

**WILSON ENGINEERS**

28375  
STEPHEN M. TODD  
Arizona U.S.

REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN GL  
CKD  
SMT

**City of Phoenix**

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT

**NORTHWEST WASTEWATER MASTER PLAN PACKAGE 4B**

CIVIL

**PLAN AND PROFILE 19**  
STA: 144+00 - STA: 148+00

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CITY PROJECT NO. WS90500307

DATE: SEPTEMBER 2023

C SHEET 19

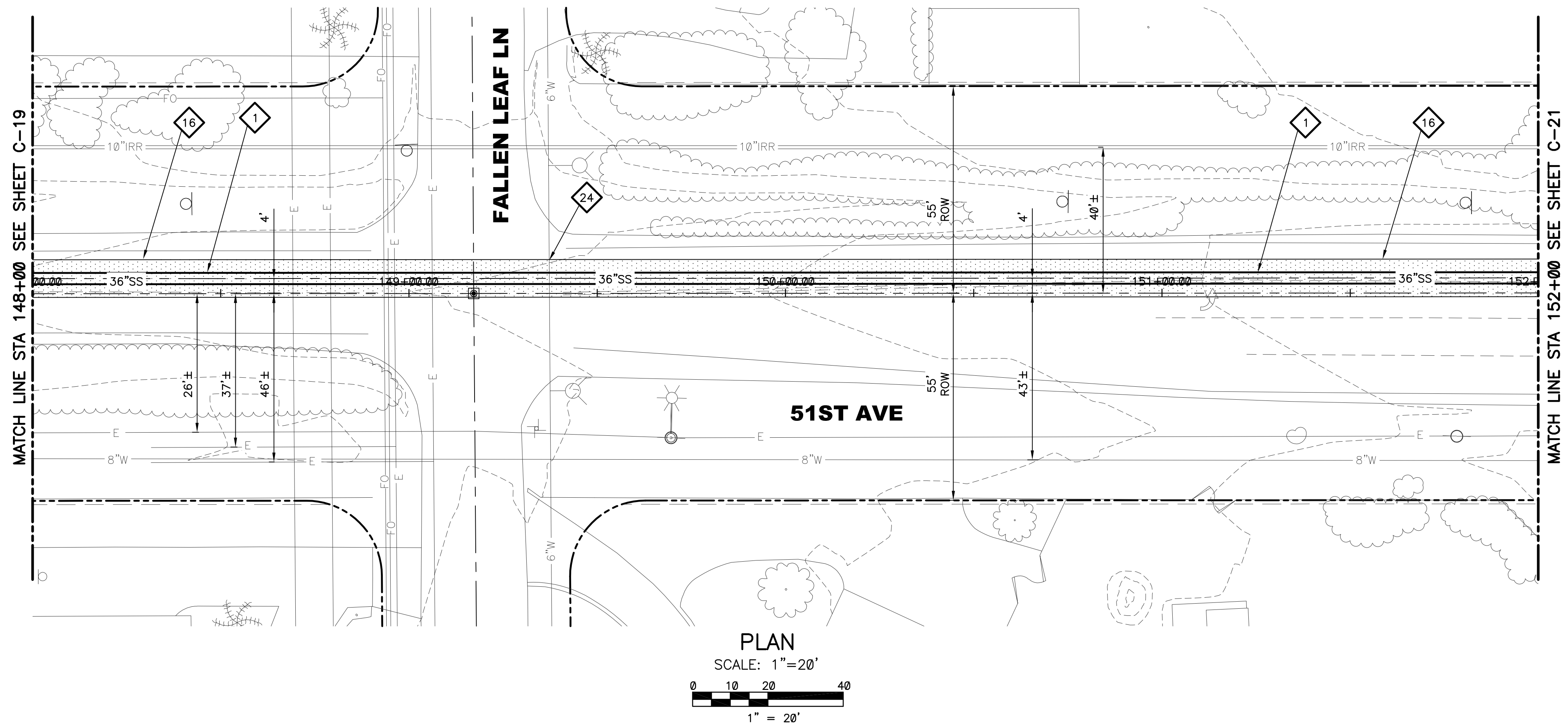
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100% SUBMITTAL

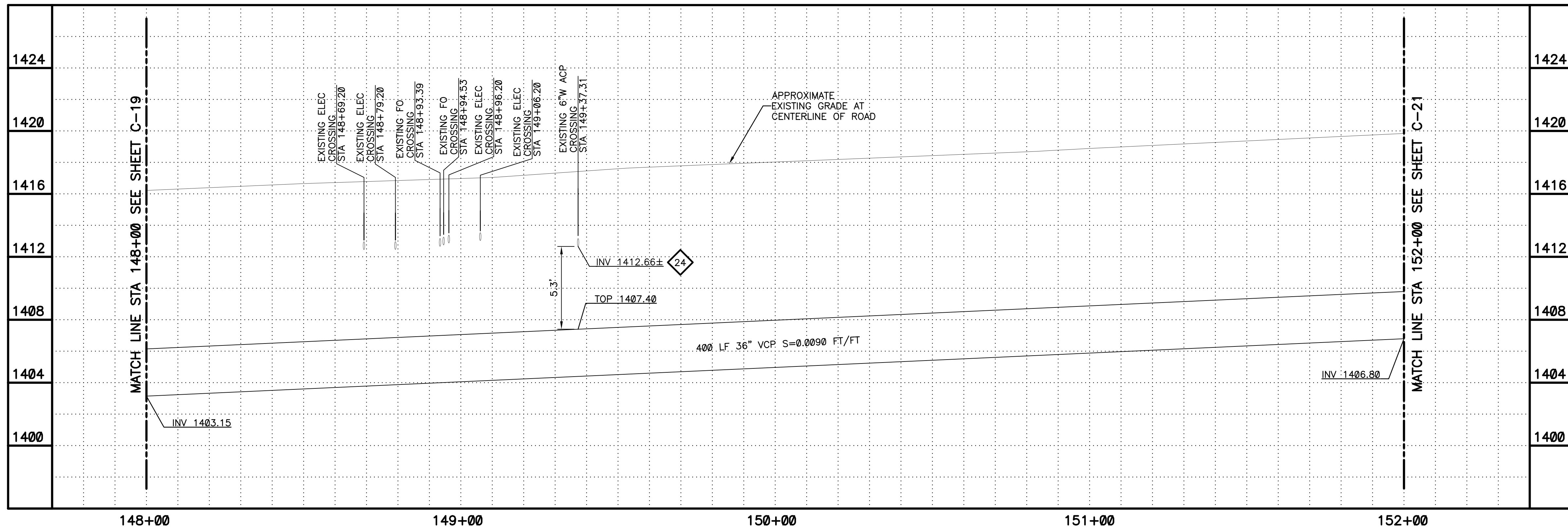
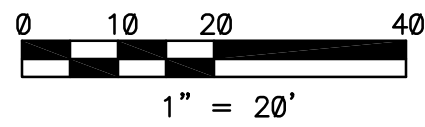
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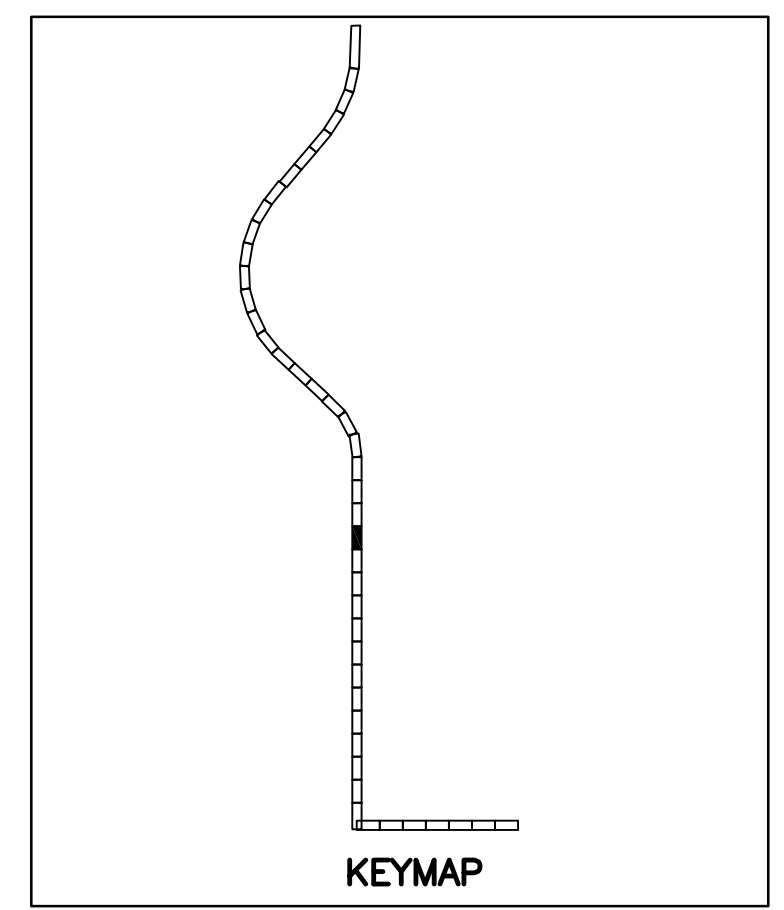
PLAN

SCALE: 1"=20'



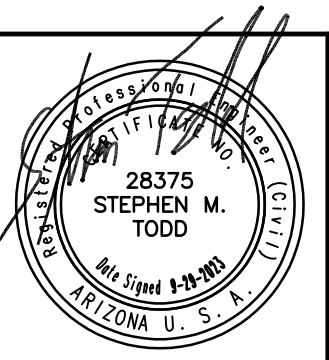
PLAN SCALE: 1"=20'

PROFILE HORIZ: 1"=20' VERT: 1"=4'

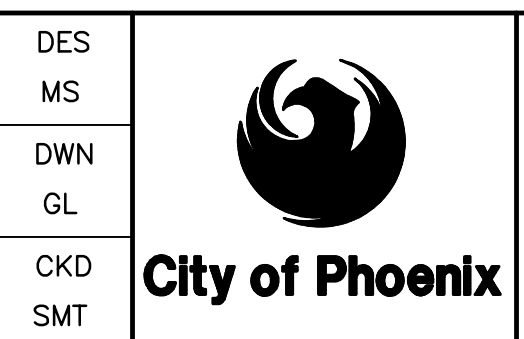


KEYED NOTES

- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
- 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
- 24 REPLACE ACP WATER LINE PER COP STANDARD SPEC. 601.2.8



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CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL

PLAN AND PROFILE 20  
STA: 148+00 - STA: 152+00

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CITY PROJECT NO. WS90500307

DATE: SEPTEMBER 2023

C SHEET 20

CAD FILE: PKG4B-C20

REVISION	DATE	CAD FILE NAME	DWG NUMBER	REMARKS

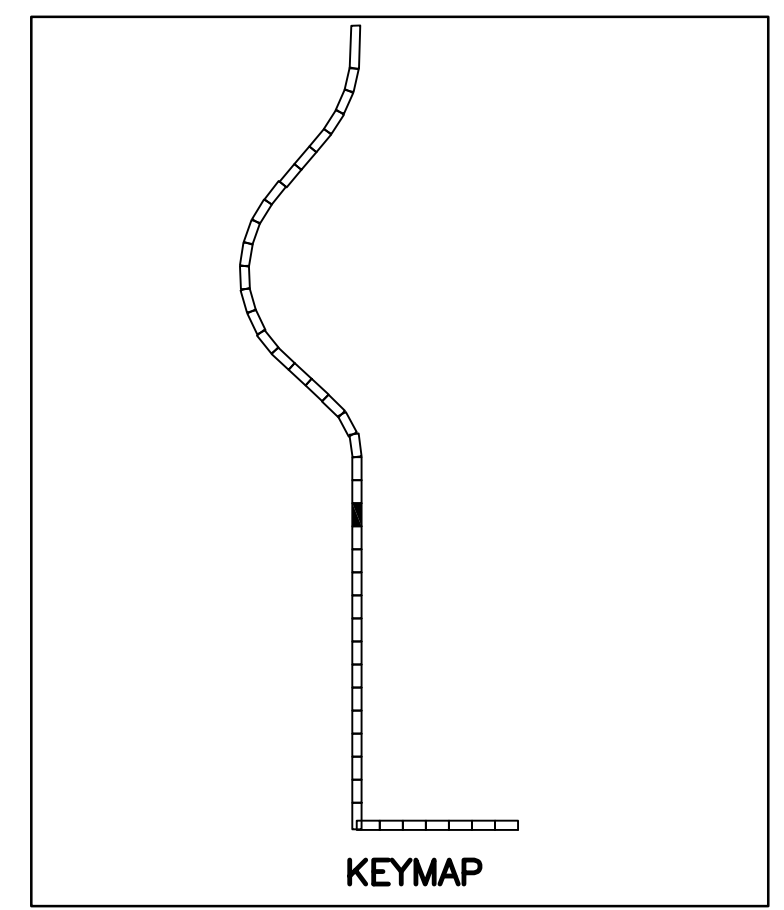
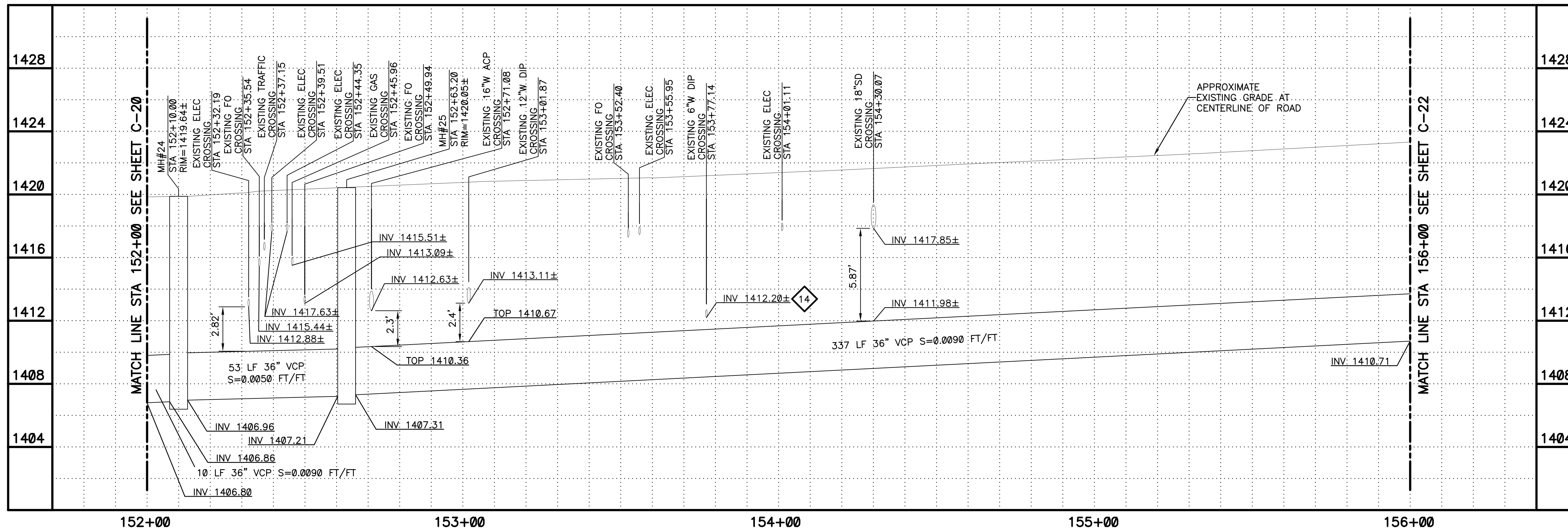
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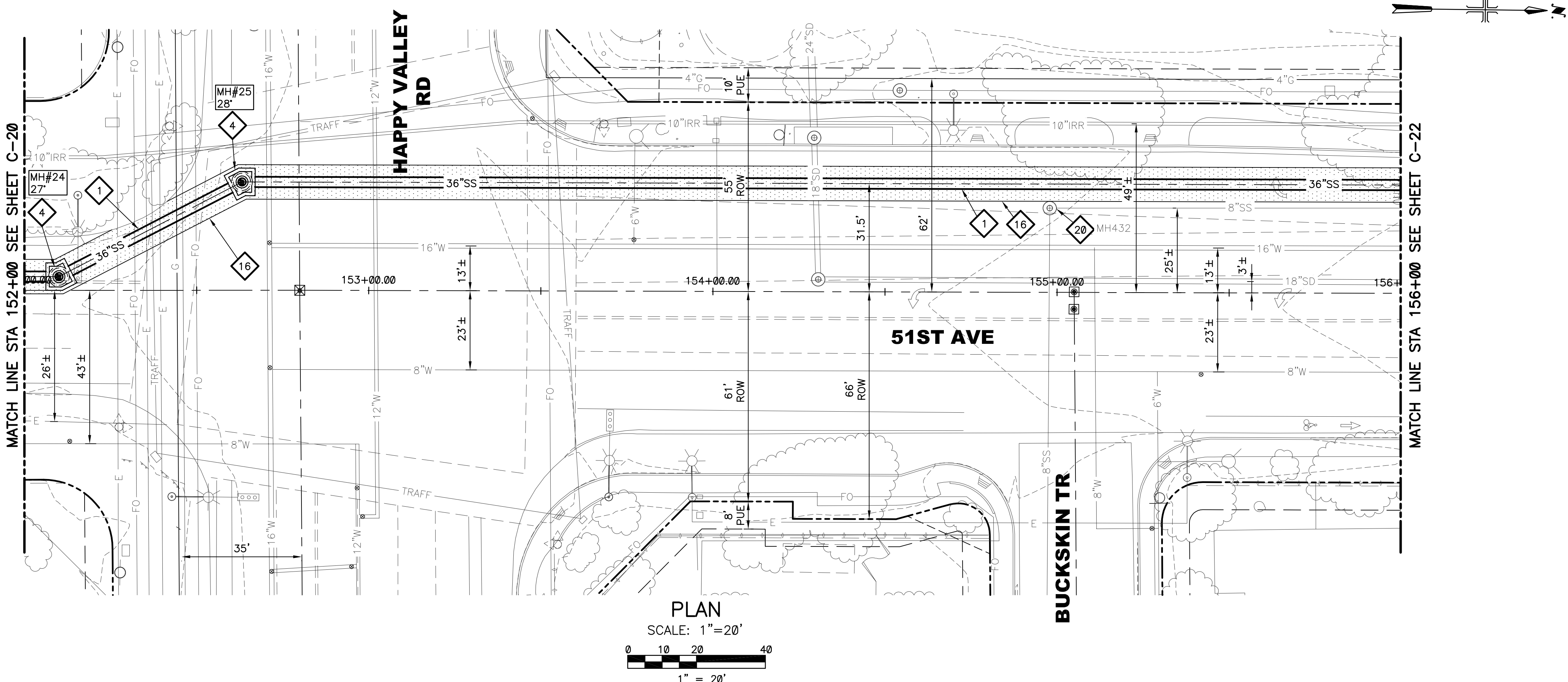
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**ARIZONA 811**  
Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

**PLAN**  
SCALE: 1"=20'

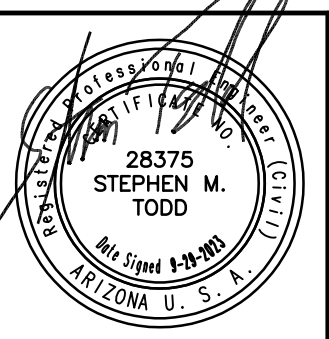
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HORIZ: 1"=20'  
VERT: 1"=4'



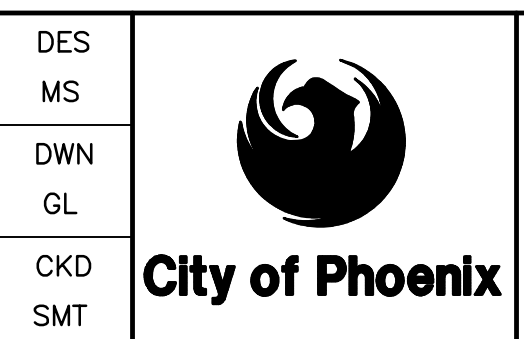
**PLAN**  
SCALE: 1"=20'

1" = 20'

- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 4 DEFLECTION MANHOLE GREATER THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-103
  - 14 VERTICALLY REALIGN WATERLINE PER COP STD. DTL. P1370. KEEP 2' MIN DISTANCE FROM SEWER. SEE DETAIL 701 SHEET C-106 FOR LOCATION
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
  - 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE.



REVISIONS				
NO.	BY	DATE	CKD	REMARKS



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 21  
STA: 152+00 - STA: 156+00

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 21  
CAD FILE: PKG4B-C21

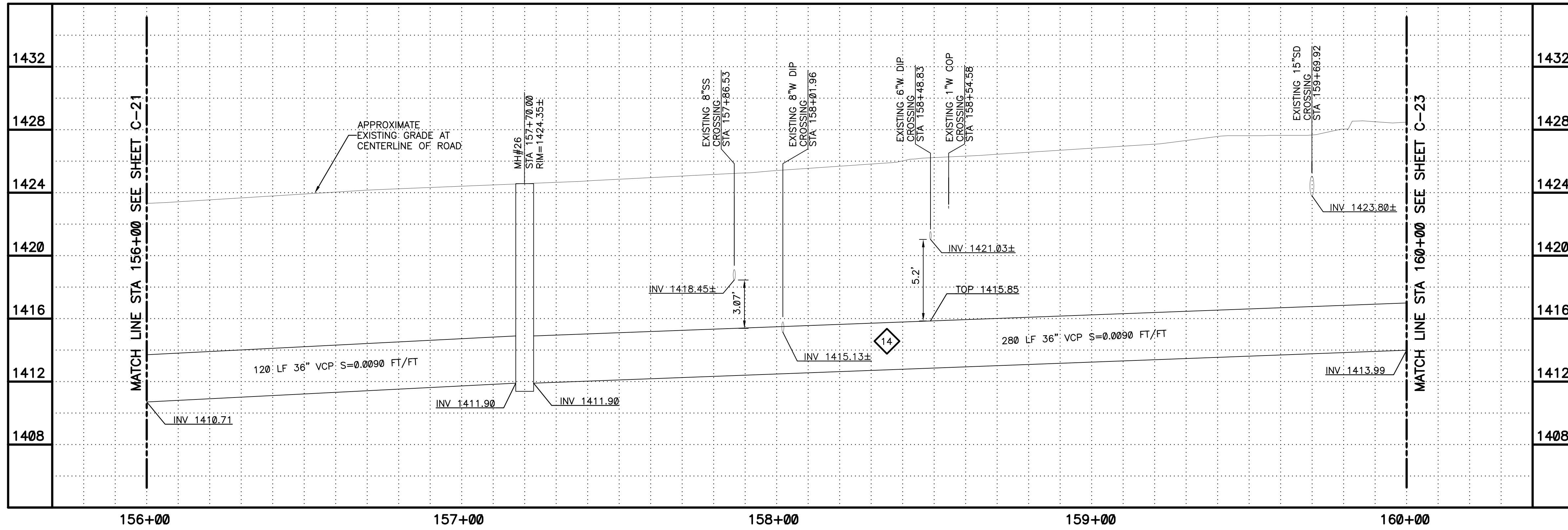
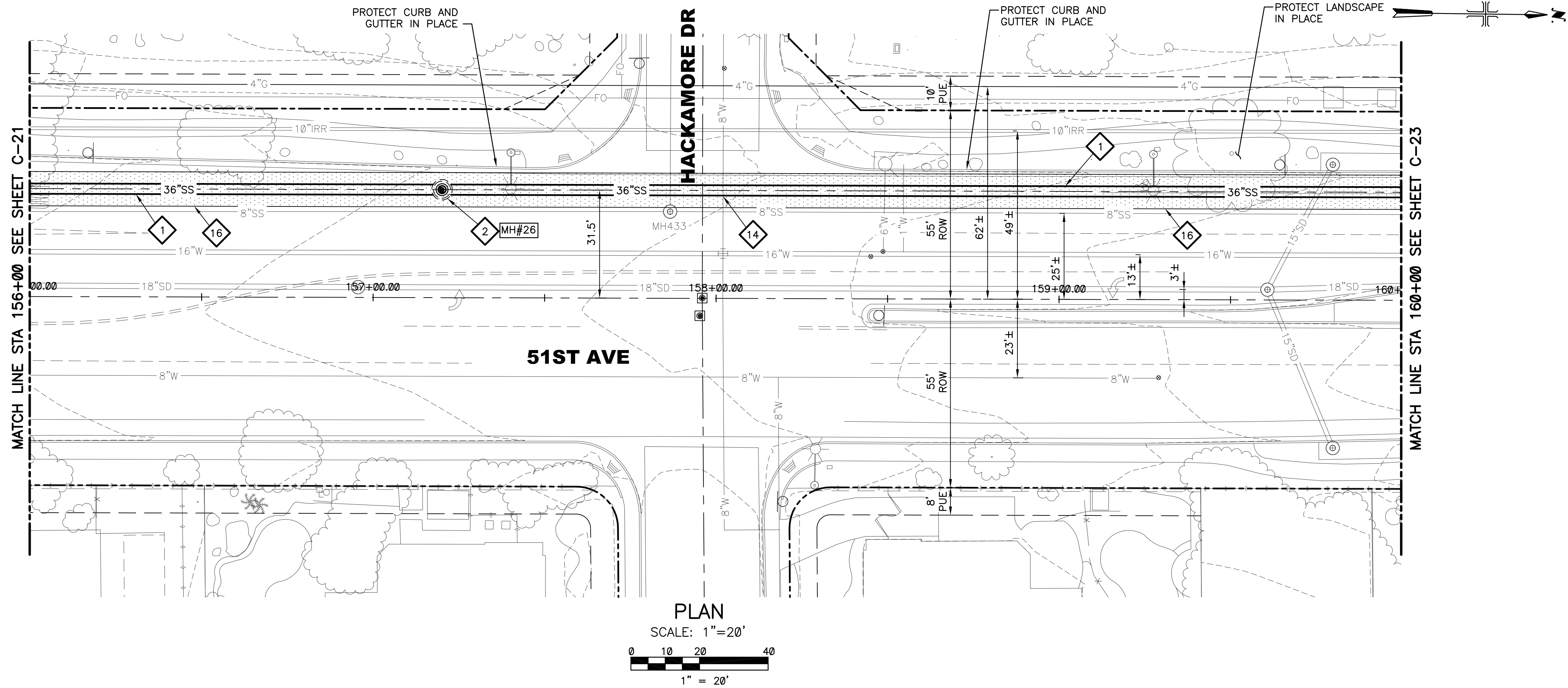
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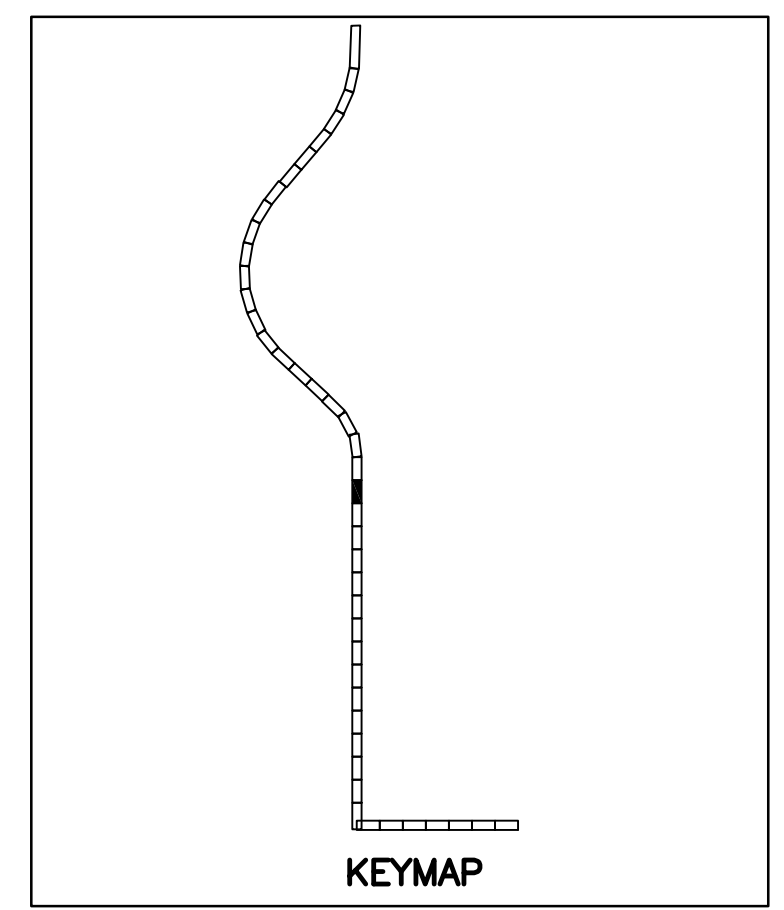
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  - 2 60" LINED SEWER MANHOLE PER DETAIL 302 SHEET C-102 AND SHEET S-105
  - 14 VERTICALLY REALIGN WATERLINE PER COP STD. DTL. P1370. KEEP 2' MIN DISTANCE FROM SEWER. SEE DETAIL 702 SHEET C-106 FOR LOCATION
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DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

**PLAN**  
SCALE: 1"=20'

**PROFILE**  
HORIZ: 1"=20'  
VERT: 1"=4'

REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN GL  
CKD  
SMT

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 22  
STA: 156+00 - STA: 160+00

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 22  
CAD FILE: PKG4B-C22

28375  
STEPHEN M. TODD

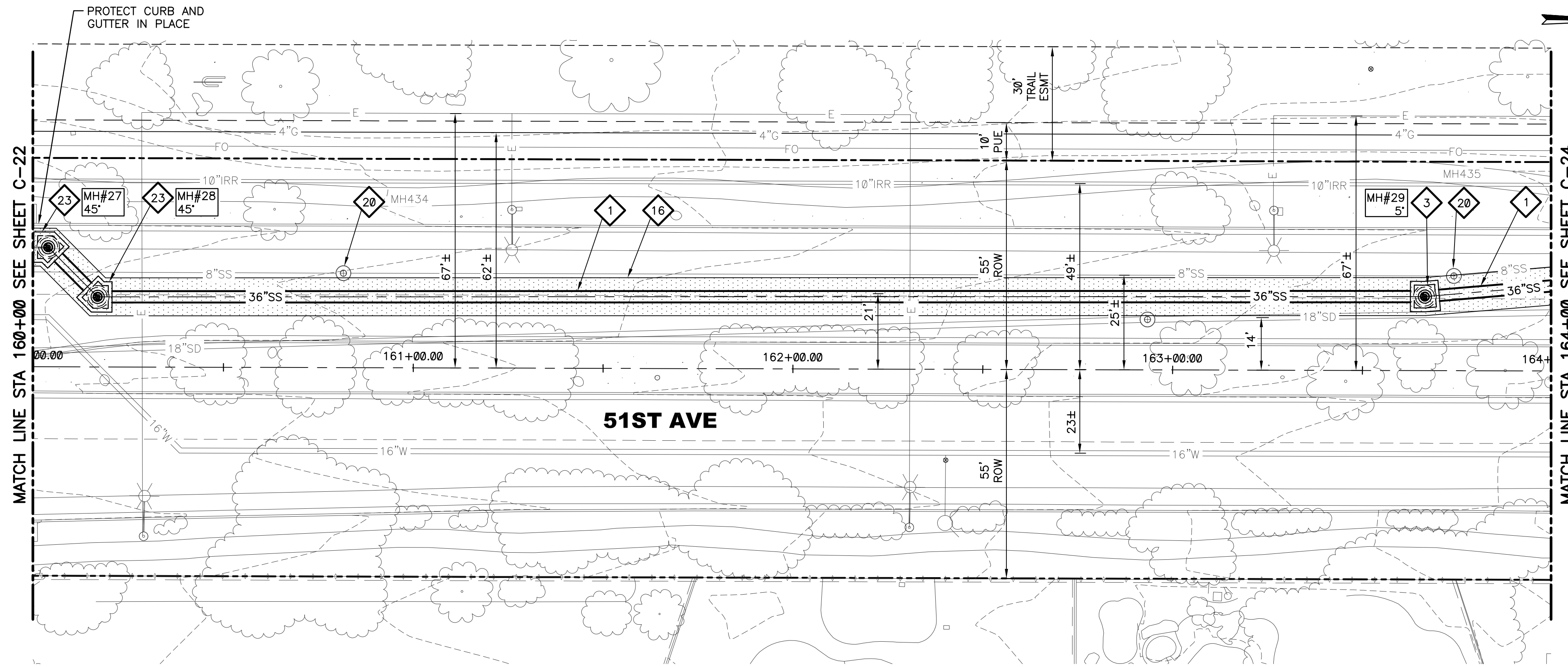
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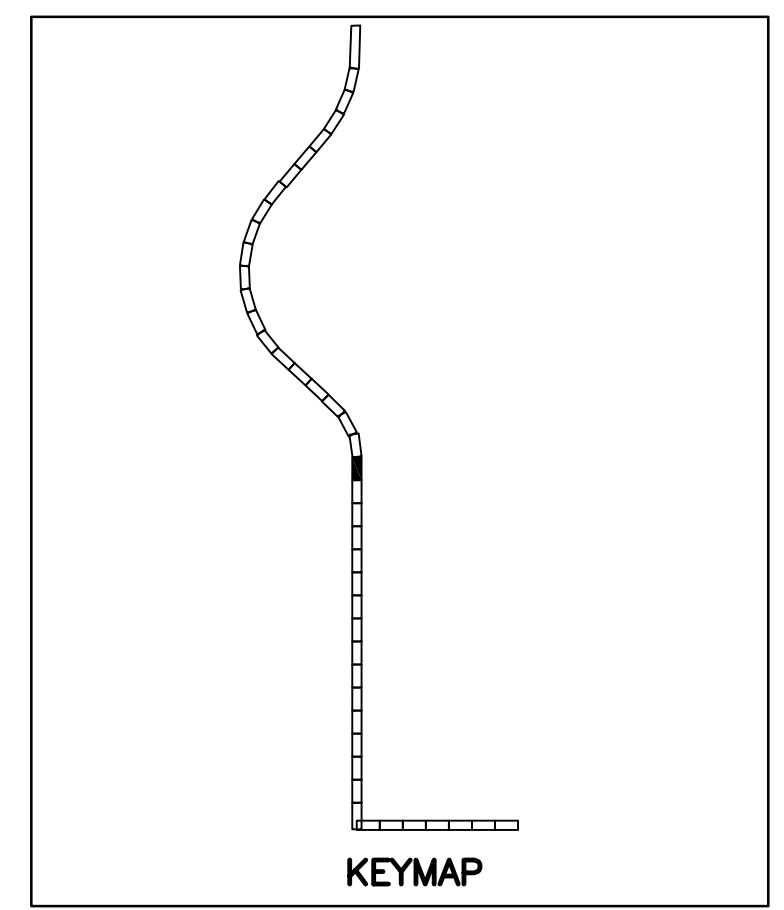
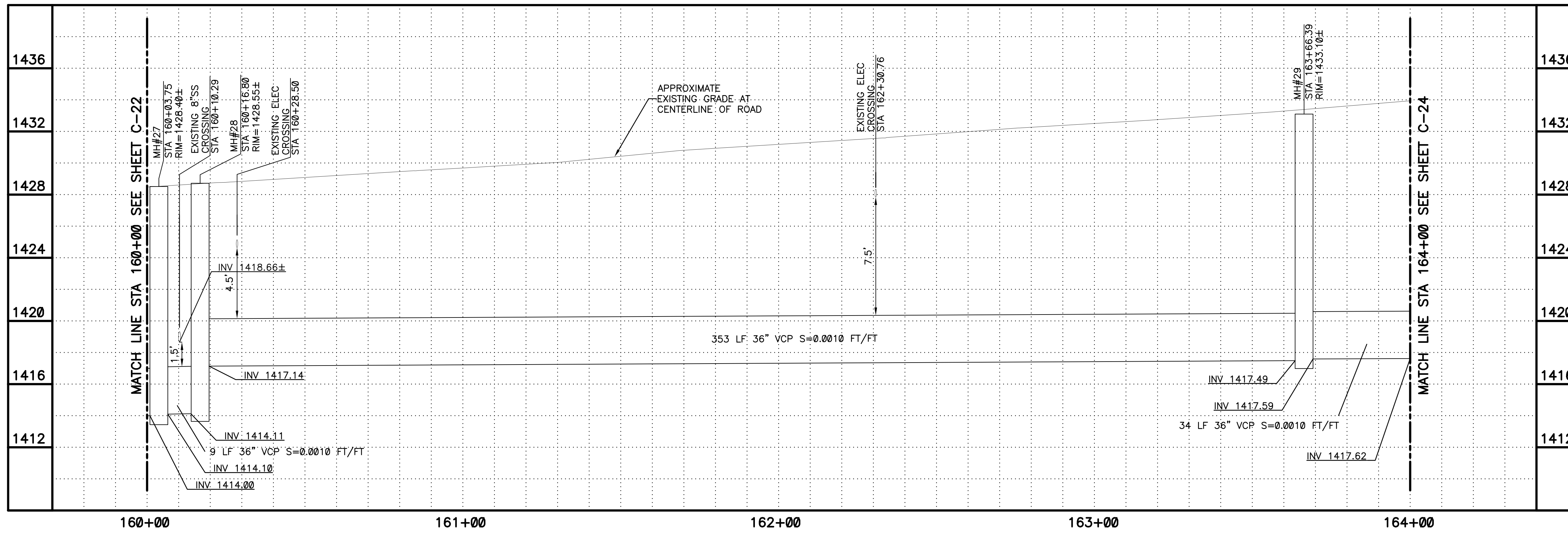
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PLAN  
SCALE: 1"=20'  
1" = 20'

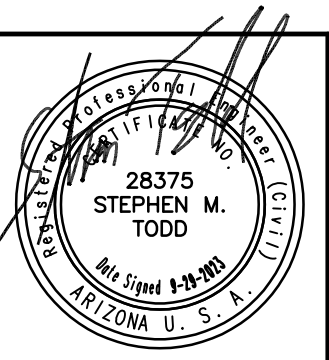
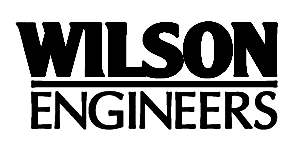


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PLAN SCALE: 1"=20'  
PROFILE HORIZ: 1"=20'  
VERT: 1"=4'

KEYED NOTES

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- 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE
- 23 DEFLECTION MANHOLE GREATER THAN 40 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-104



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN  
GL  
CKD  
SMT

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 23  
STA: 160+00 - STA: 164+00

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DATE: SEPTEMBER 2023  
C SHEET 23  
CAD FILE: PKG4B-C23

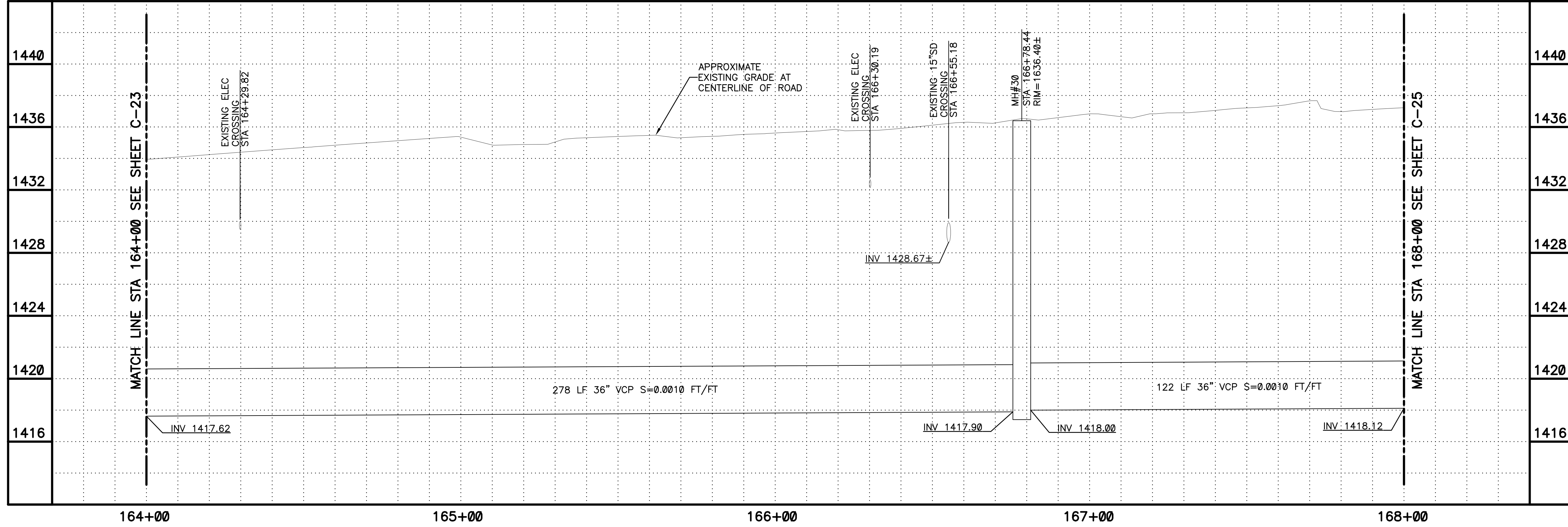
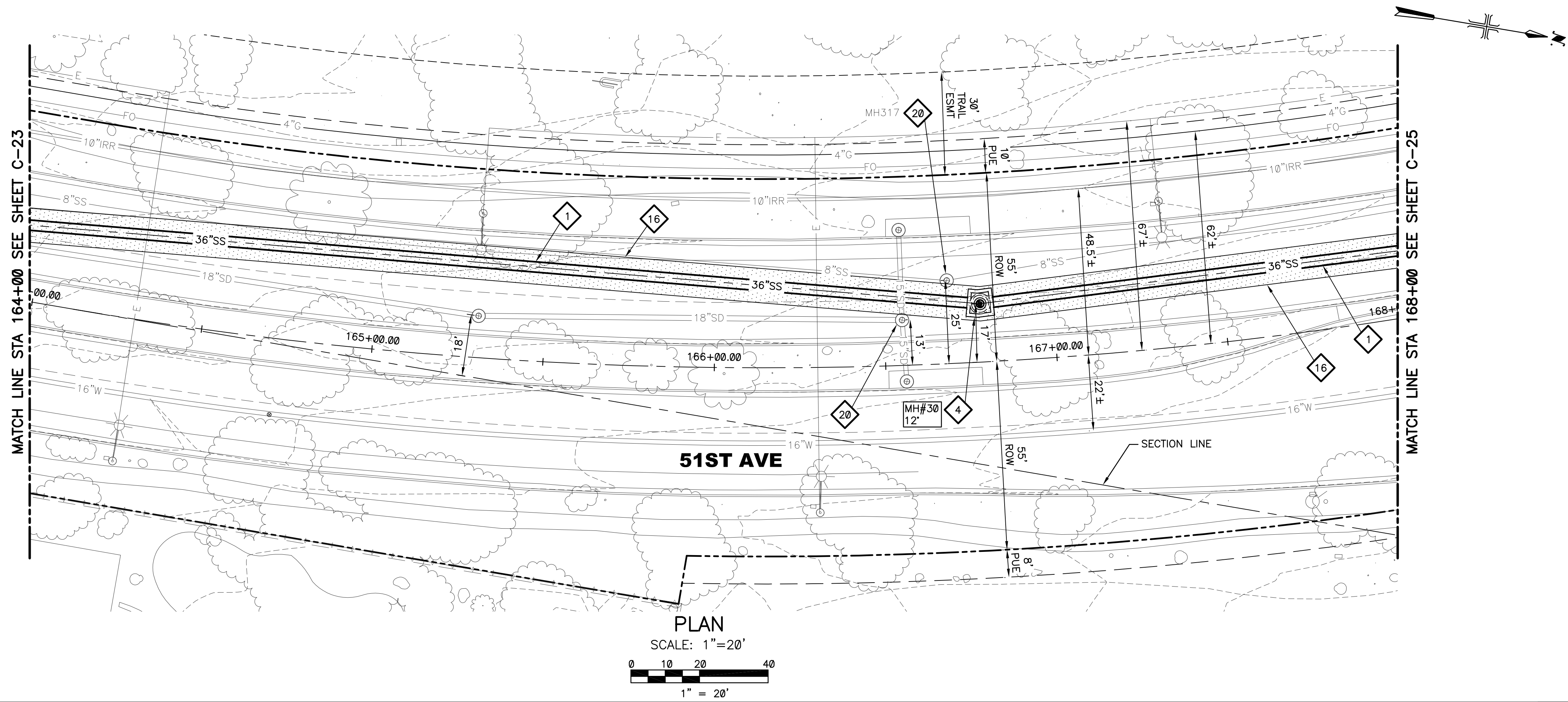
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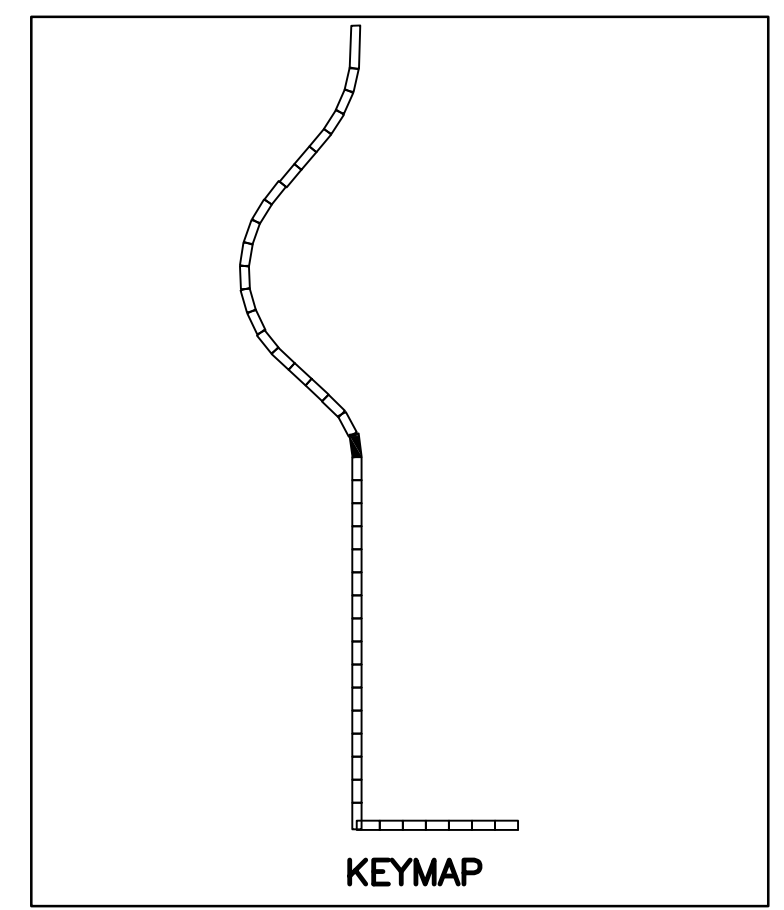
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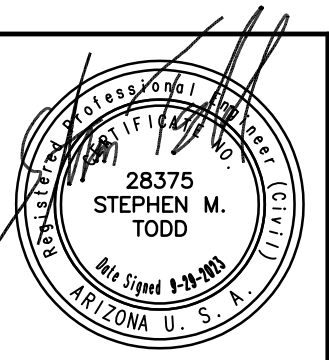
- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 4 DEFLECTION MANHOLE GREATER THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-103
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
  - 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE



CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

**ARIZONA 811**  
Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN  
GL  
CKD  
SMT

**City of Phoenix**

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL

PLAN AND PROFILE 24  
STA: 164+00 - STA: 168+00

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CITY PROJECT NO. WS90500307

DATE: SEPTEMBER 2023

C SHEET 24

CAD FILE: PKG4B-C24

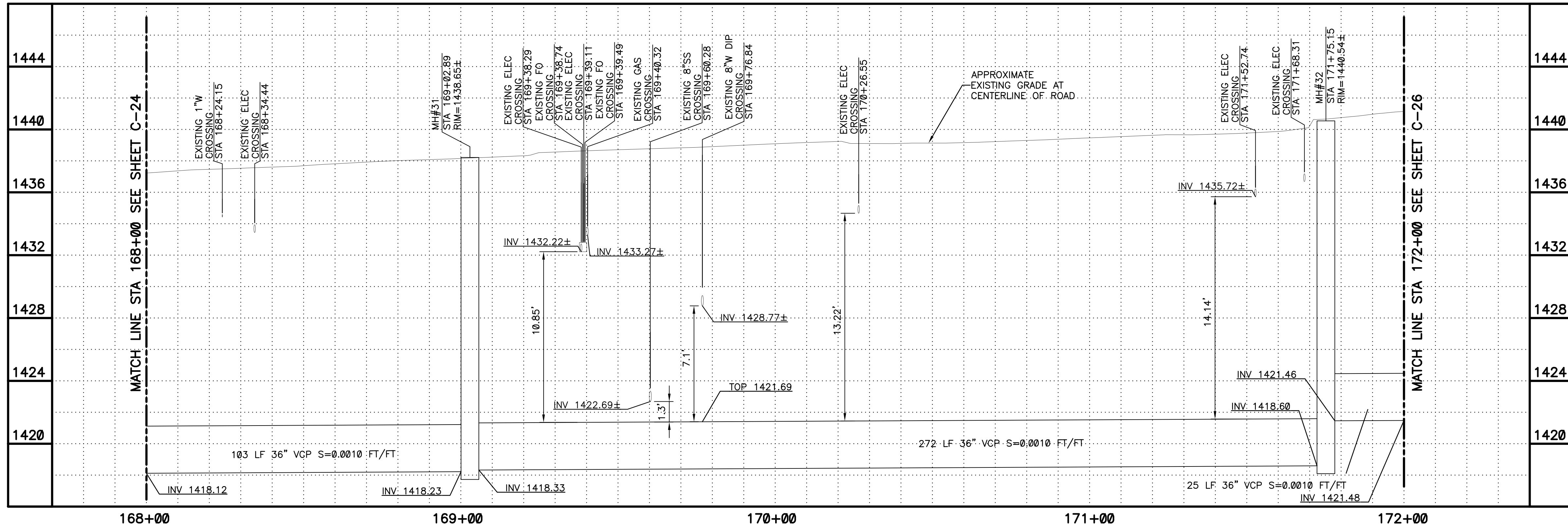
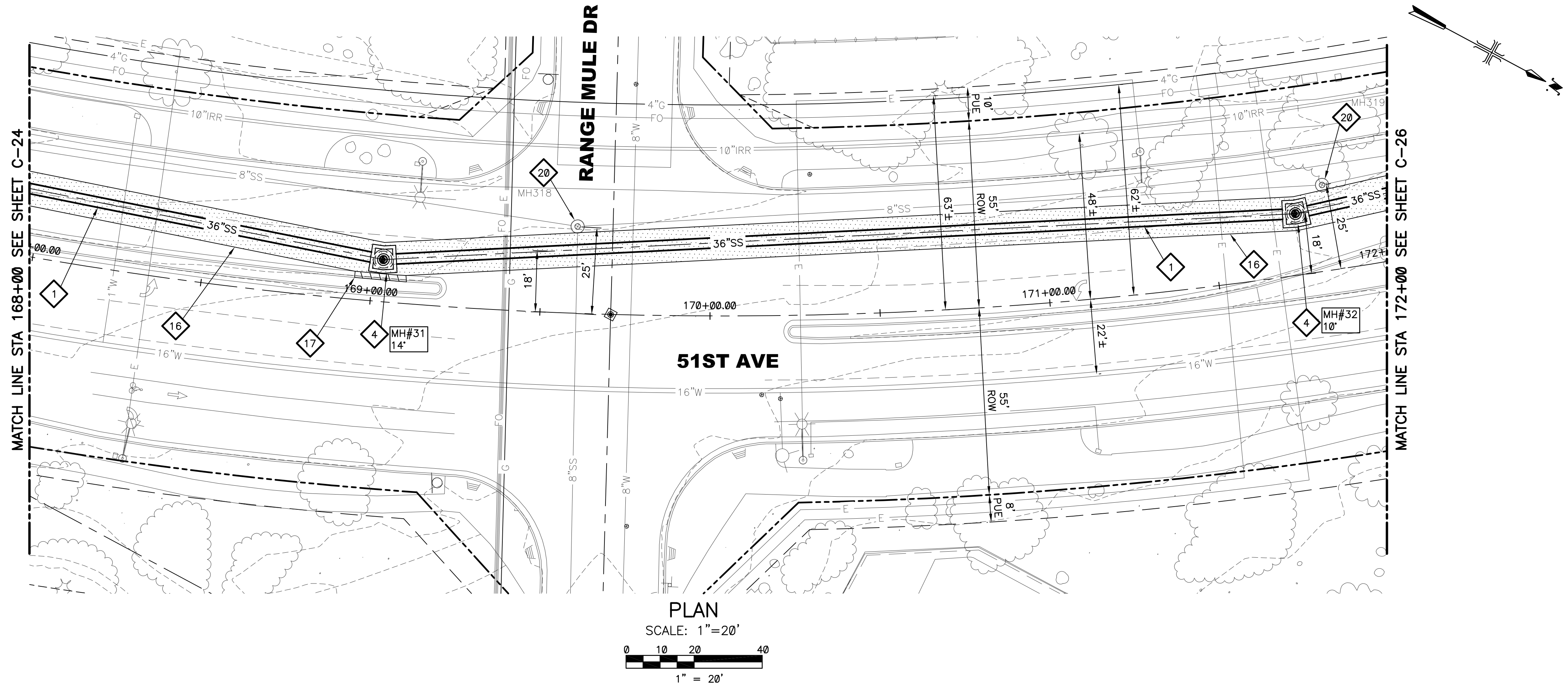
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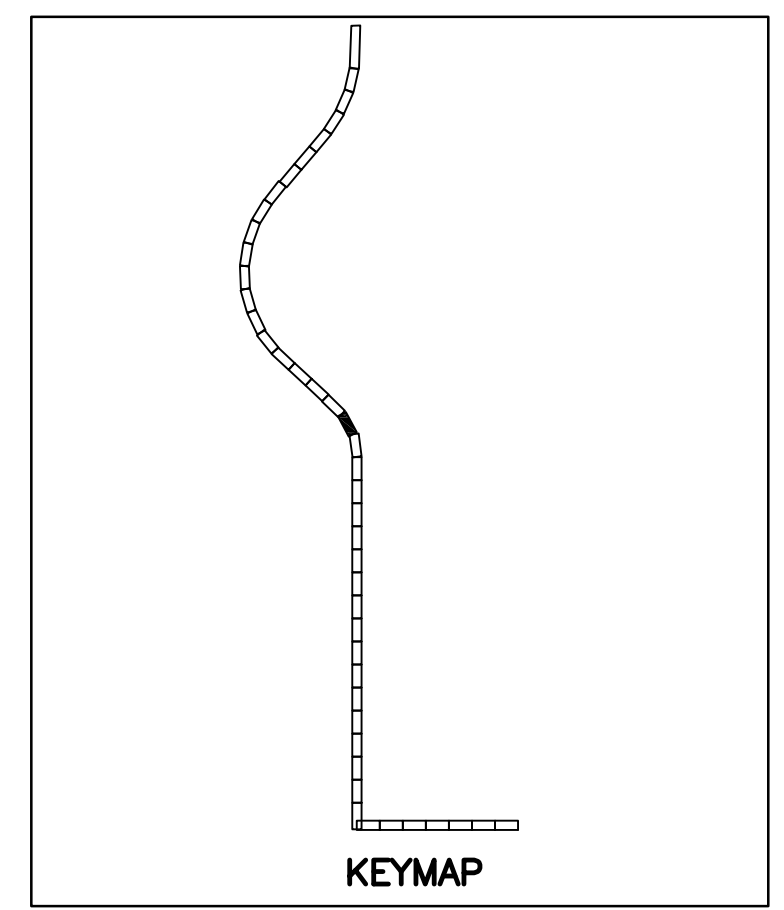
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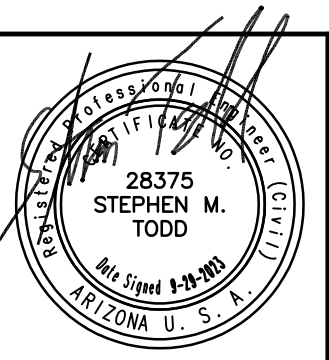
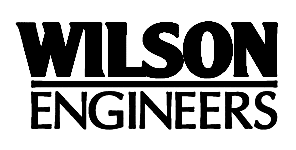
- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 4 DEFLECTION MANHOLE GREATER THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-103
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
  - 17 REMOVE AND REPLACE CURB & GUTTER PER MAG STD. DTL. 220-1, TYPE A, H=6" (20 LF)
  - 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE



CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

**ARIZONA 811**  
Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES SMT  
DWN GL  
CKD  
SMT

**City of Phoenix**

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT

**NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B**

CIVIL

**PLAN AND PROFILE 25**  
STA: 168+00 - STA: 172+00

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CITY PROJECT NO. WS90500307

DATE: SEPTEMBER 2023

C SHEET 25

CAD FILE: PKG4B-C25

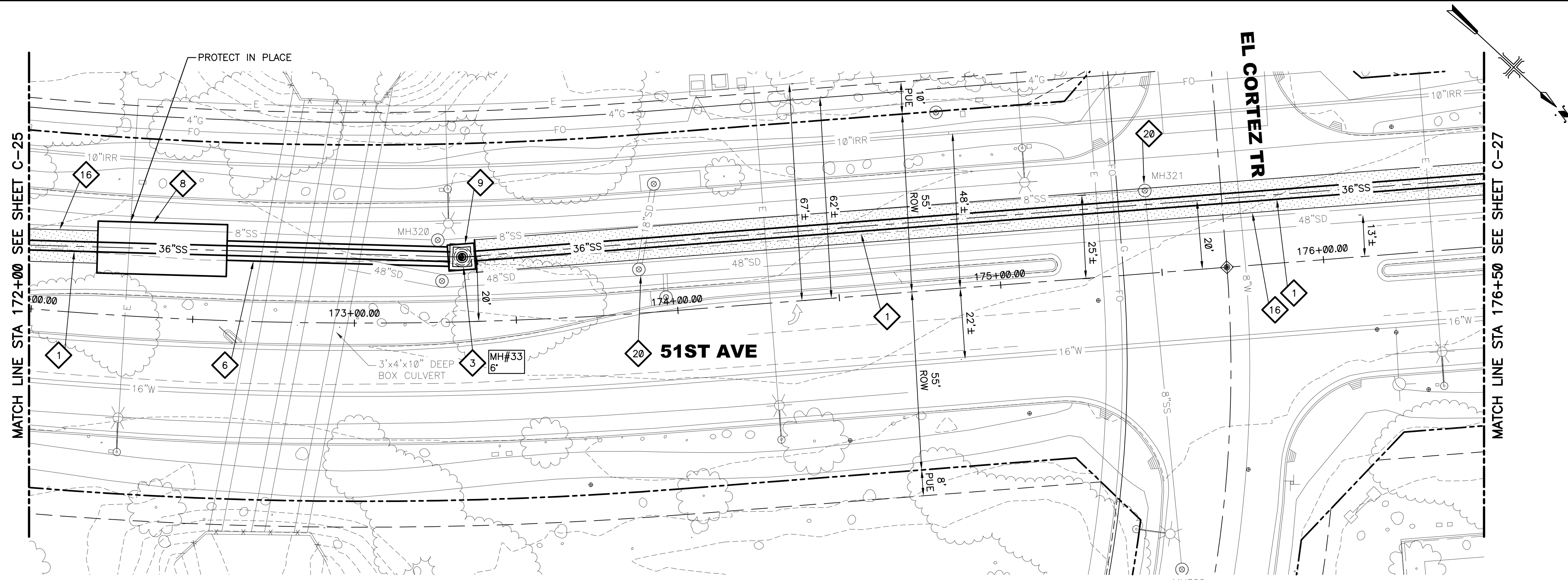
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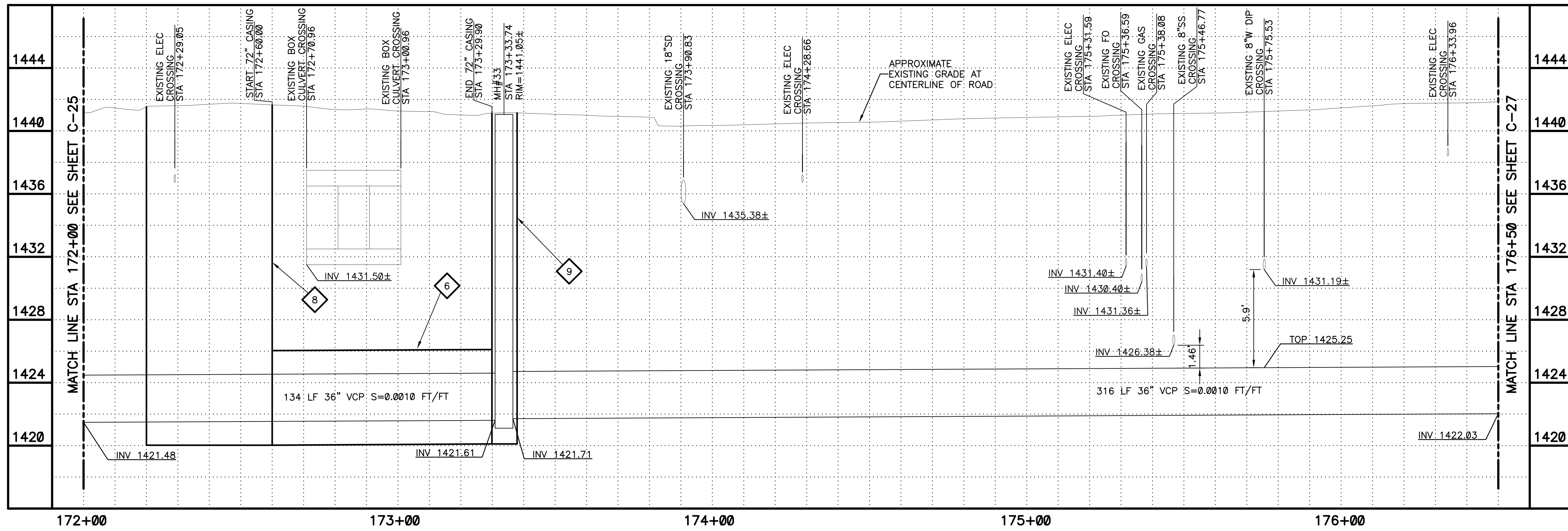
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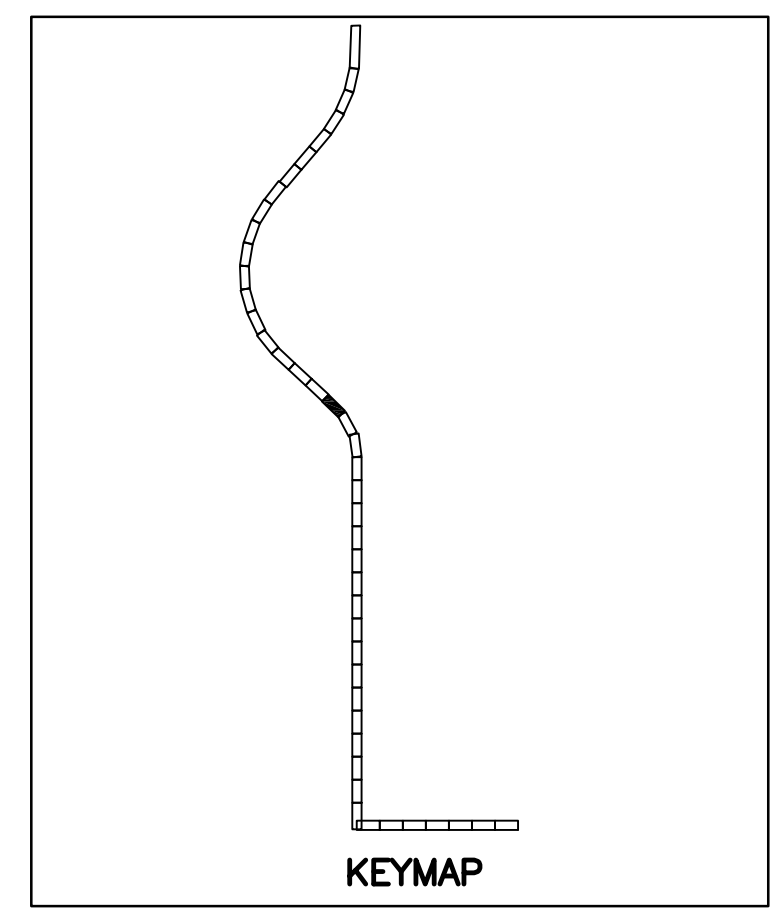
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PLAN  
SCALE: 1"=20'  
0 10 20 40  
1" = 20'



- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 3 DEFLECTION MANHOLE LESS THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-102
  - 6 72" STEEL CASING (0.750" MIN WALL THICKNESS) PER MAG STD. SPEC 602 AND DETAIL 201 SHEET C-101
  - 8 JACK AND BORE PIT
  - 9 RECEIVING PIT
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
  - 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE



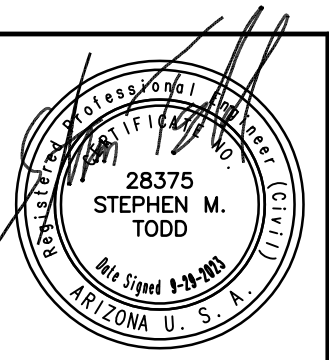
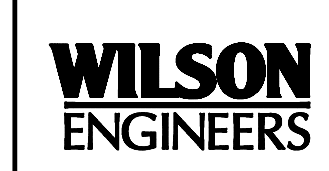
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Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

PLAN SCALE: 1"=20'  
PROFILE HORIZ: 1"=20'  
VERT: 1"=4'

REVISIONS	NO.	BY	DATE	CKD	REMARKS	DWG NUMBER	CAD FILE NAME	DATE	PROJECT NAME	PROJECT NO.	REFERENCE CID NUMBER	REVISION ENGINEERING COMPANY	FOR CITY OF PHOENIX USE ONLY



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NO.	BY	DATE	CKD	REMARKS	MS



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 26  
STA: 172+00 - STA: 176+50

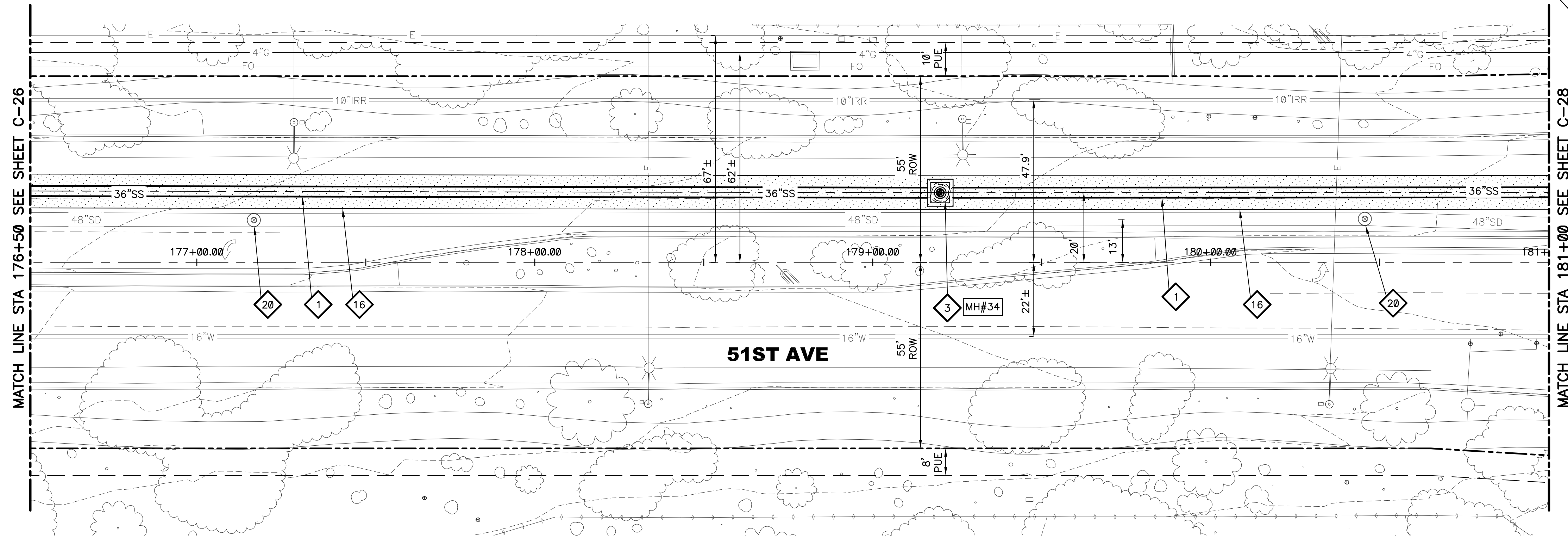
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DATE: SEPTEMBER 2023  
C SHEET 26  
CAD FILE: PKG4B-C26

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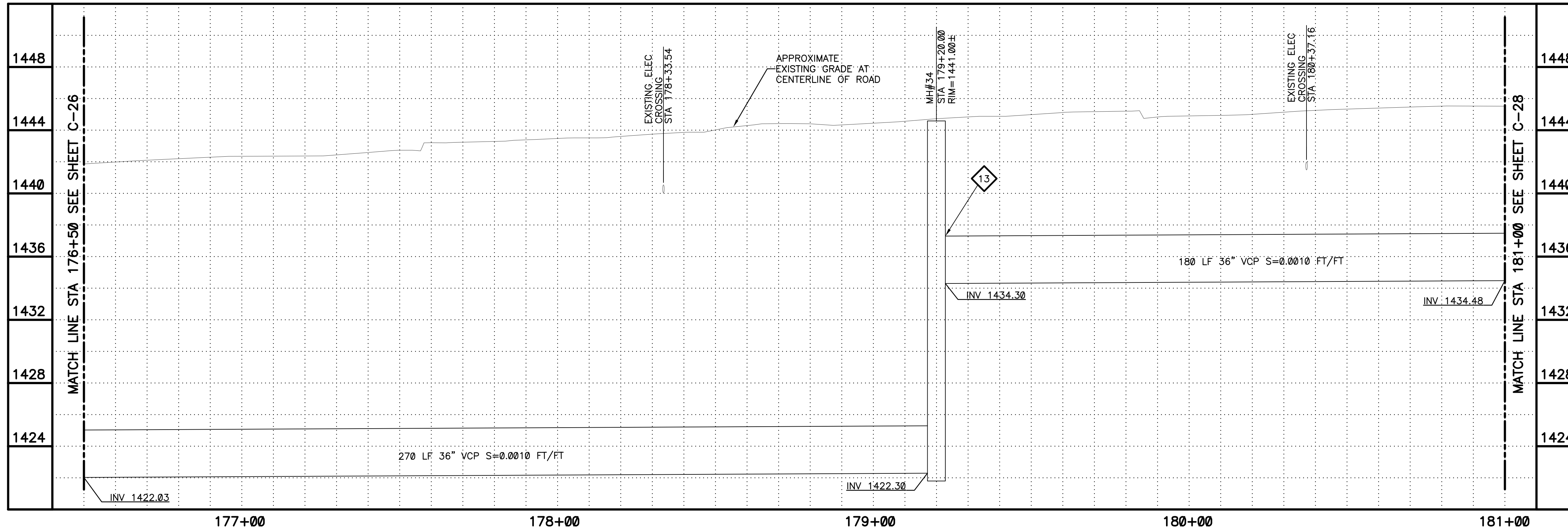
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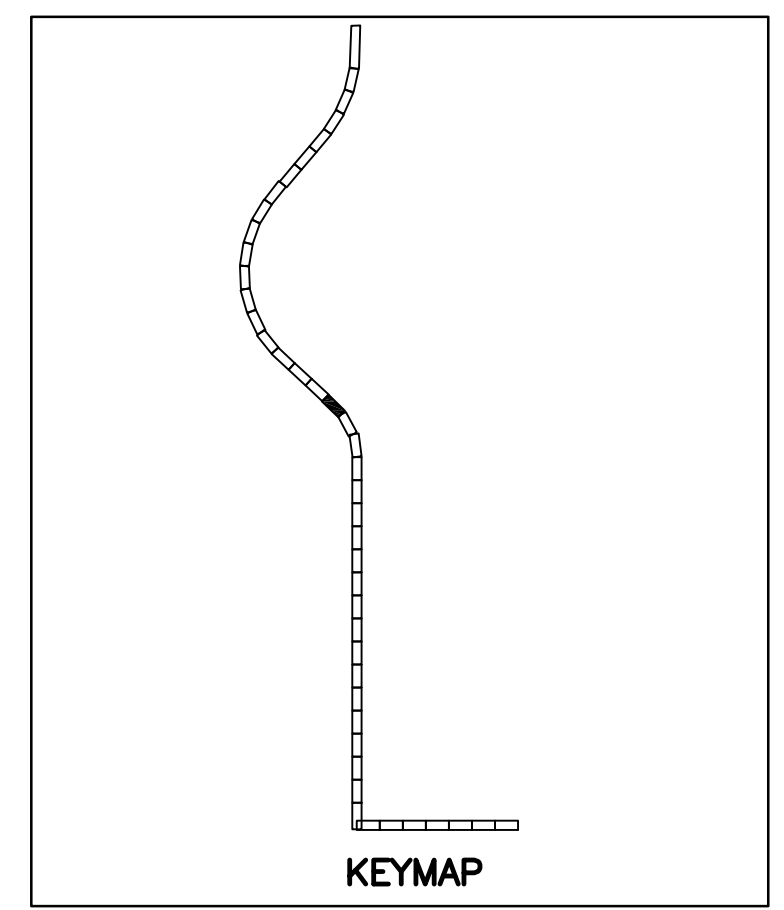


PLAN  
SCALE: 1"=20'  
1" = 20'



**KEYED NOTES**

- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
- 3 DEFLECTION MANHOLE LESS THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-102
- 13 TYPE B DROP SEWER CONNECTION PER MAG STD. DTL. 426
- 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
- 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE



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**ARIZONA 811**  
Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

PLAN  
SCALE:  
1"=20'

PROFILE  
HORIZ: 1"=20'  
VERT: 1"=4'

REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN  
GL  
CKD  
SMT

City of Phoenix

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 27  
STA: 176+50 - STA: 181+00

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DATE: SEPTEMBER 2023  
C SHEET 27  
CAD FILE: PKG4B-C27

WILSON ENGINEERS

STEPHEN M. TODD  
28375  
ARIZONA U.S.

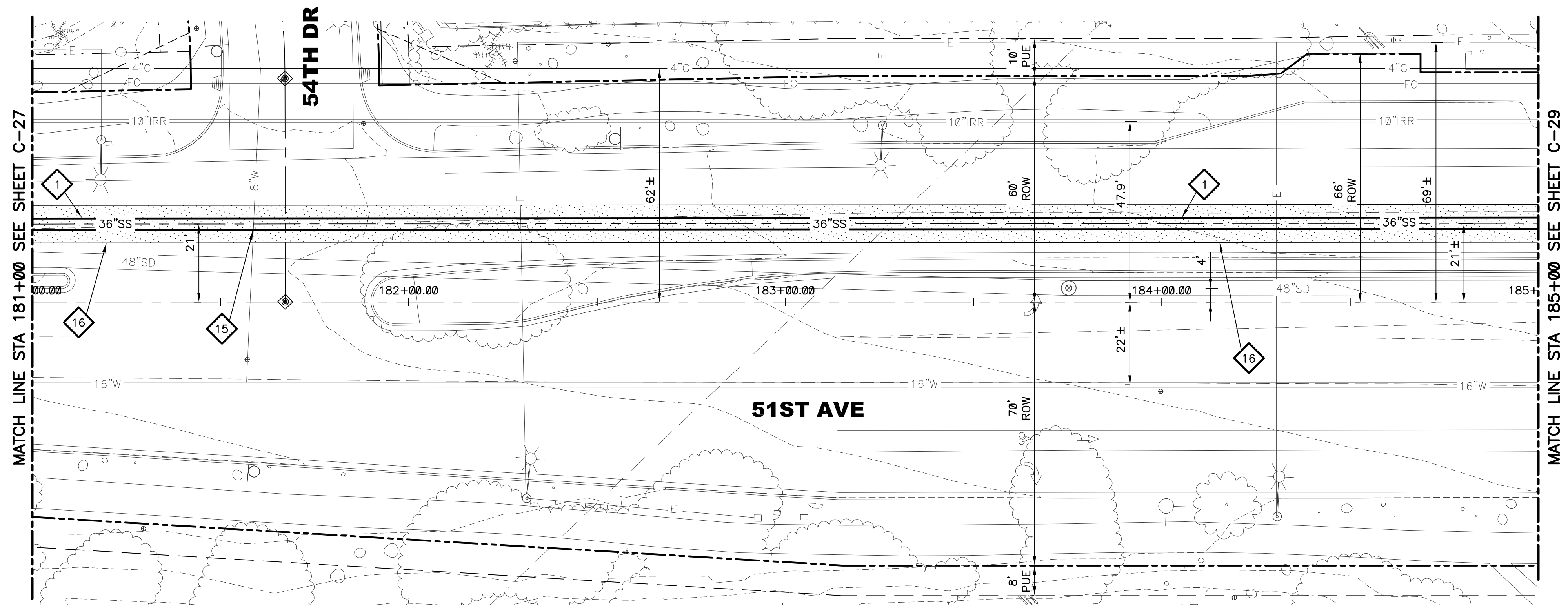
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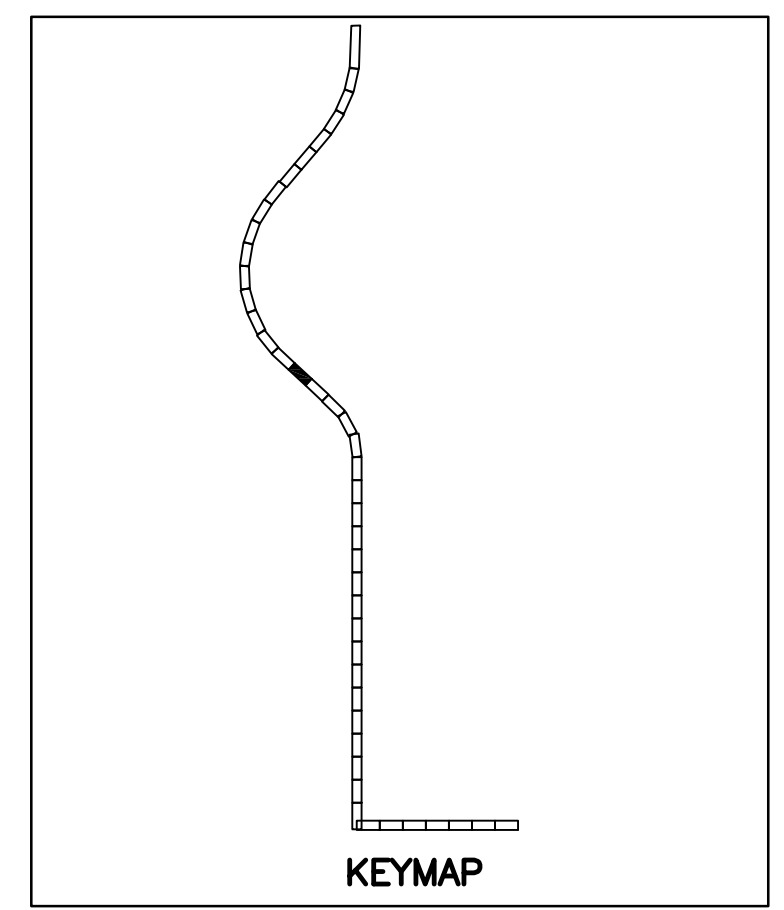
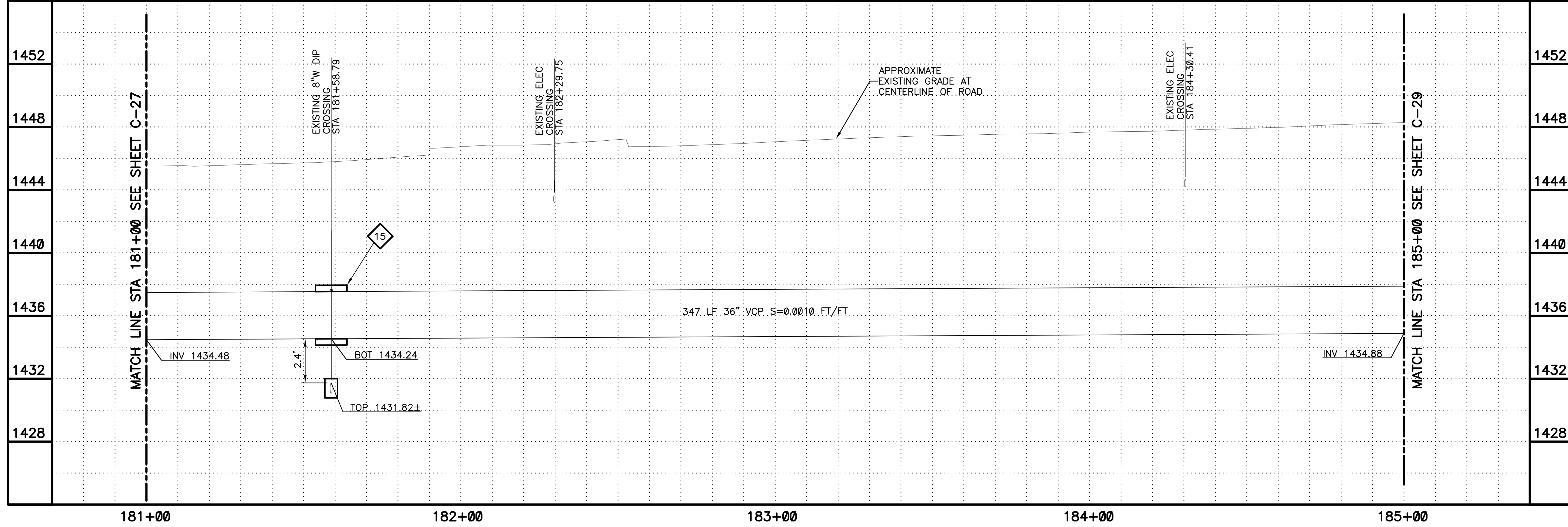
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PLAN  
SCALE: 1"=20'  
0 10 20 40  
1" = 20'



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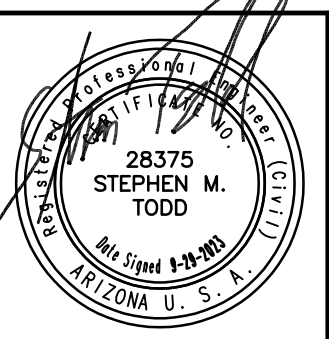
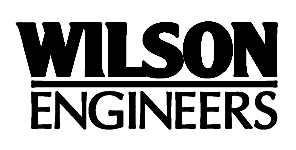
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Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

PLAN  
SCALE:  
1"=20'

PROFILE  
HORIZ: 1"=20'  
VERT: 1"=4'

- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 15 CONCRETE ENCASE PIPES PER MAG STD. DTL. 404-3
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN GL  
CKD  
SMT

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 28  
STA: 181+00 - STA: 185+00

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 28  
CAD FILE: PKG4B-C28

REVISION NUMBER	DATE	PROJECT NAME	CAD FILE NAME	REMARKS

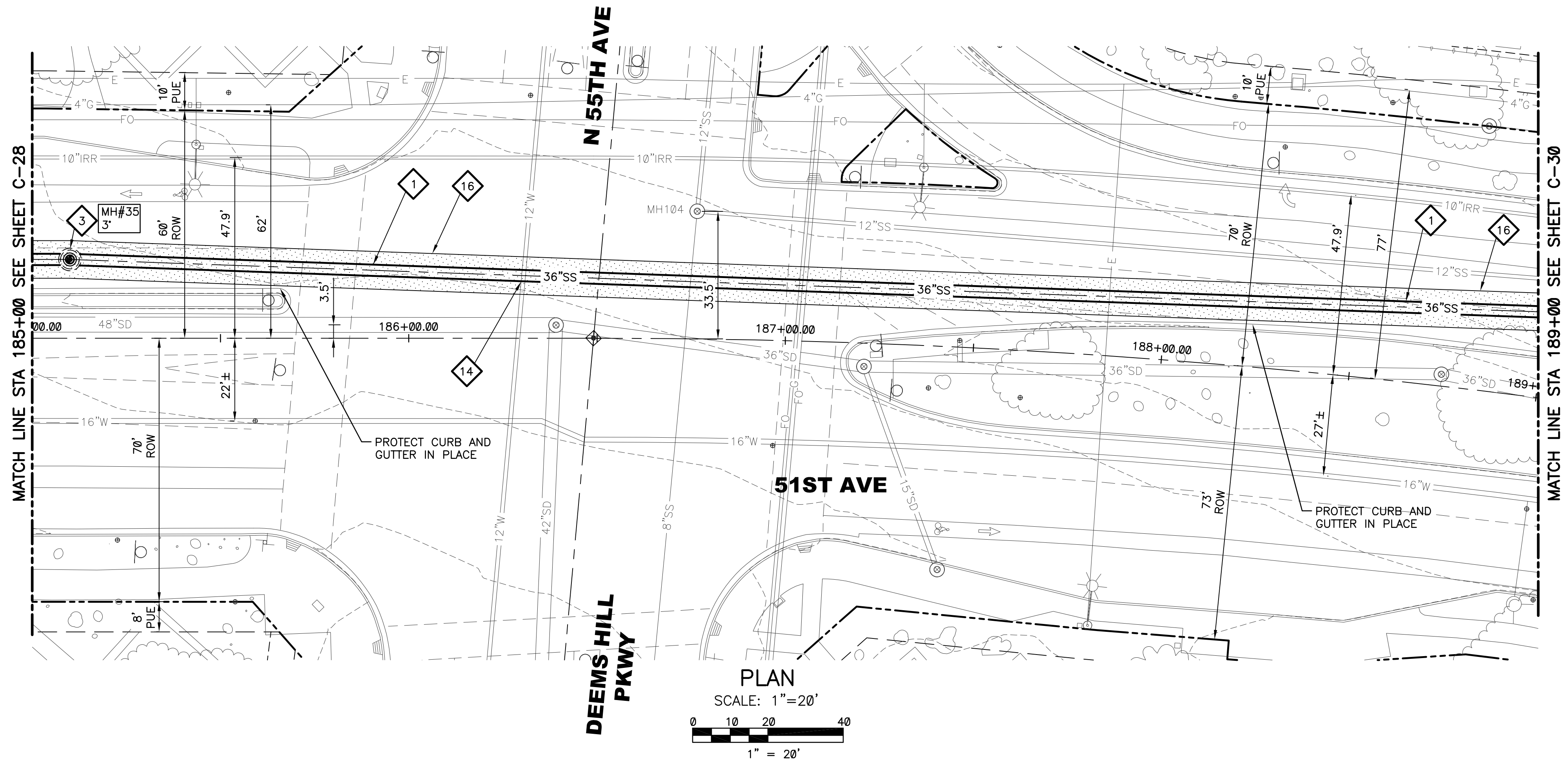
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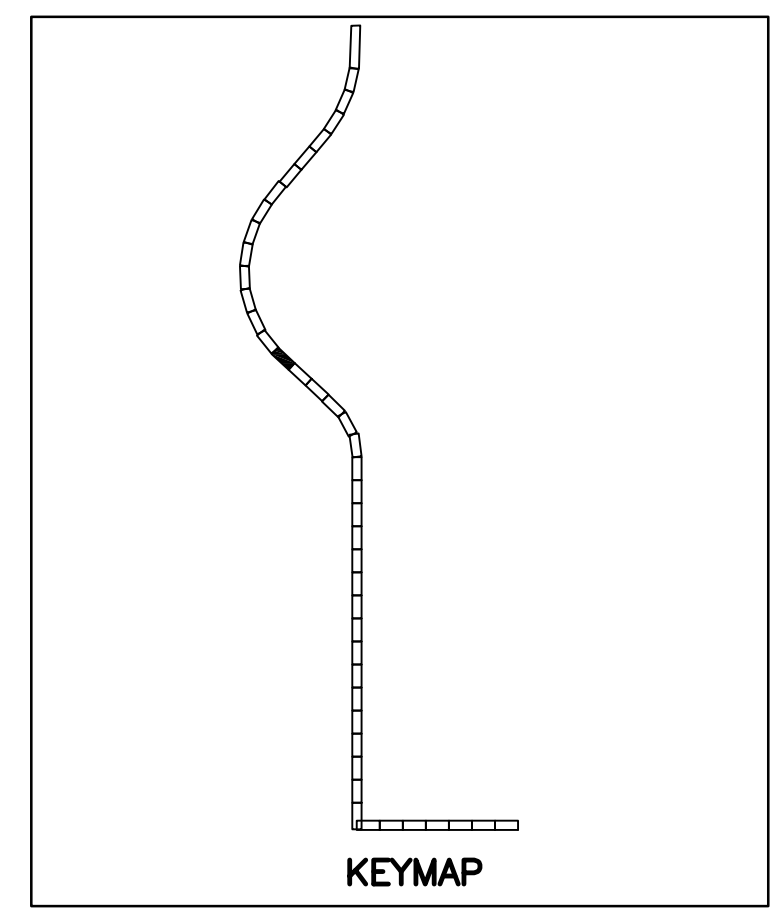
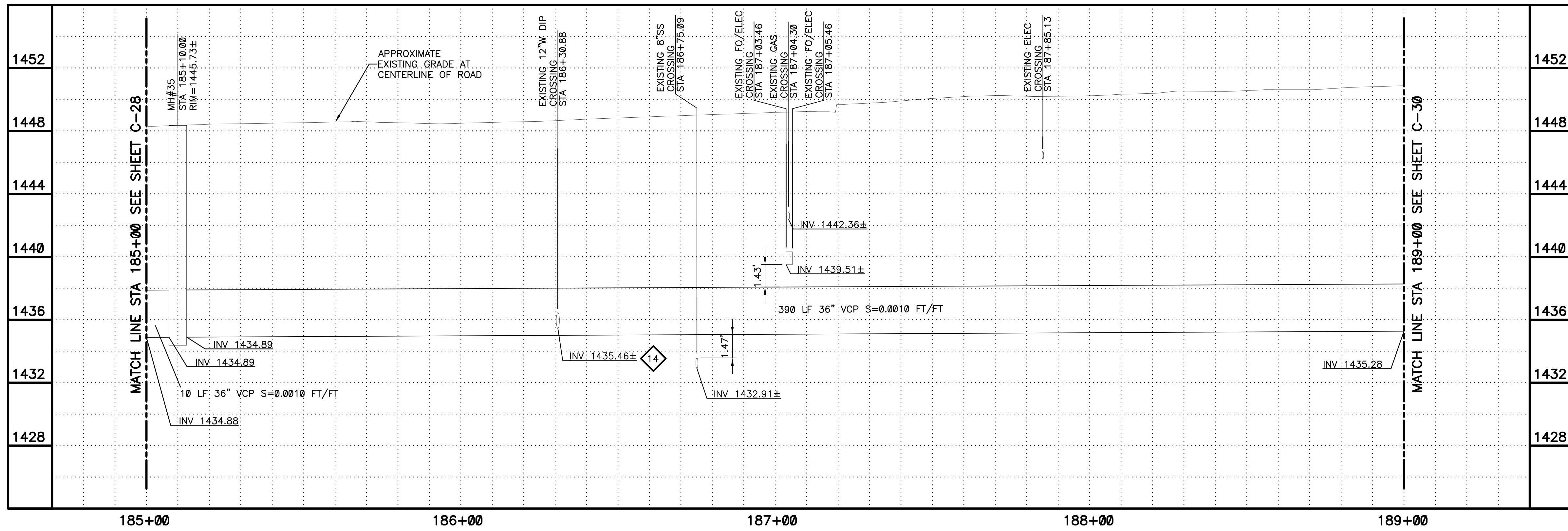
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PLAN  
SCALE: 1"=20'  
1" = 20'



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Arizona Blue Stake, Inc.

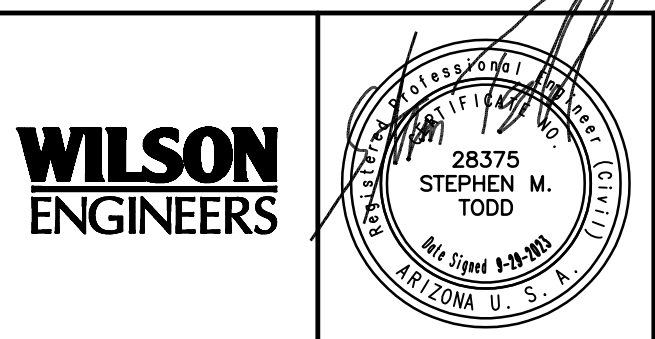
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IN MARICOPA COUNTY: (602)263-1100

PLAN SCALE: 1"=20'  
PROFILE HORIZ: 1"=20'  
VERT: 1"=4'

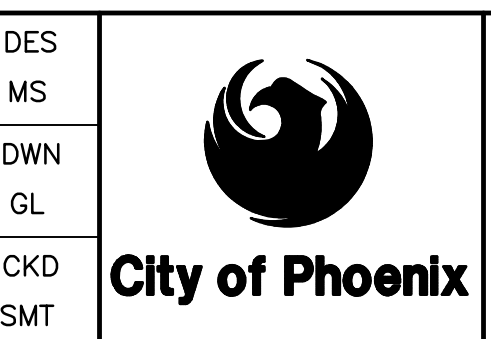
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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 29  
CAD FILE: PKG4B-C29

- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 3 DEFLECTION MANHOLE LESS THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-102
  - 14 VERTICALLY REALIGN WATERLINE PER COP STD. DTL. P1370. KEEP 2' MIN DISTANCE FROM SEWER. SEE DETAIL 703 SHEET C-106 FOR LOCATION
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A

NO.	BY	DATE	CKD	REVISIONS	REMARKS



NO.	BY	DATE	CKD	REVISIONS	REMARKS



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

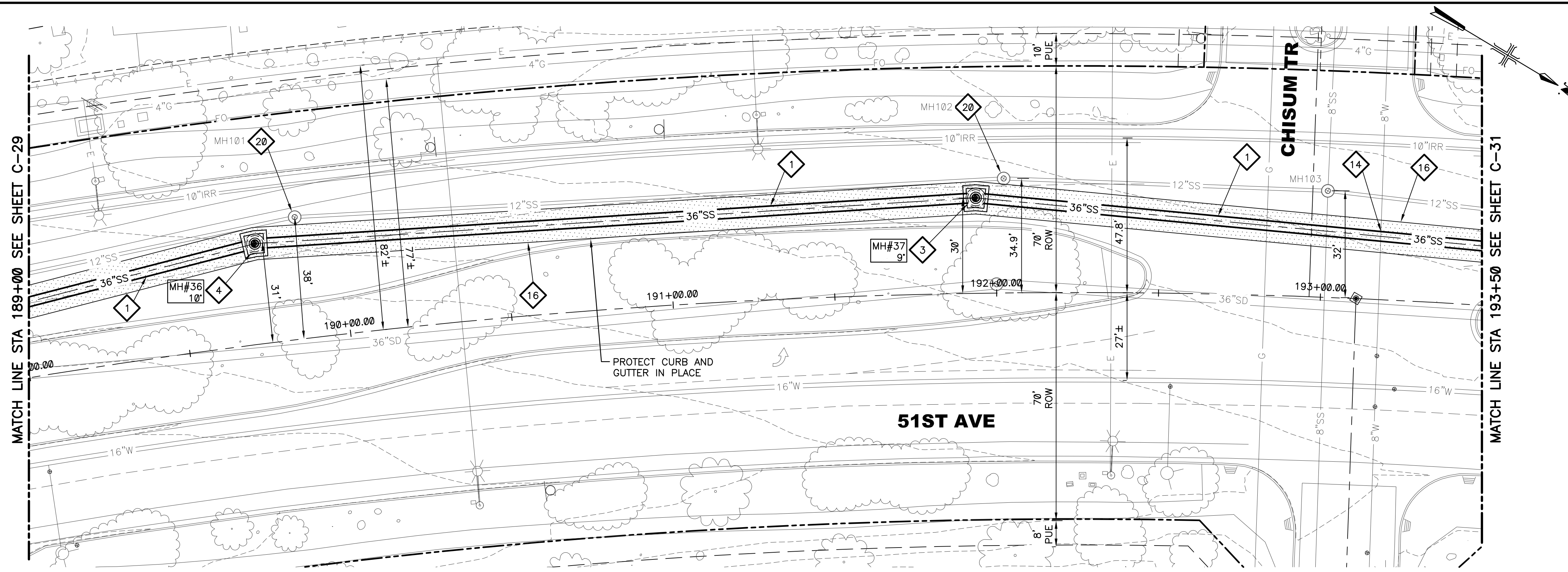
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PLAN AND PROFILE 29  
STA: 185+00 - STA: 189+00

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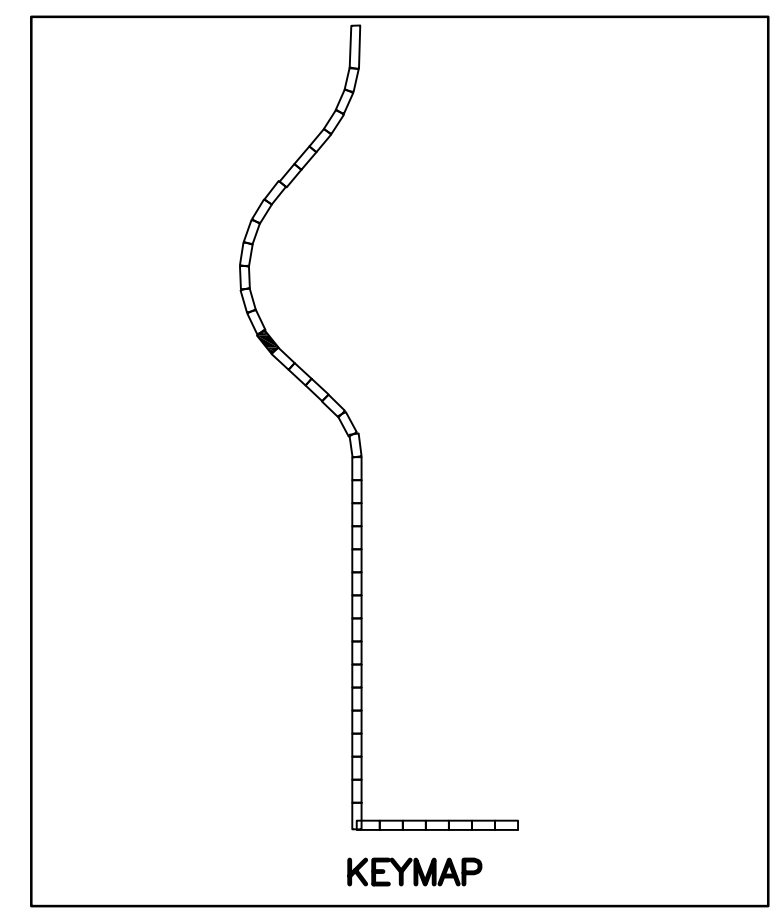
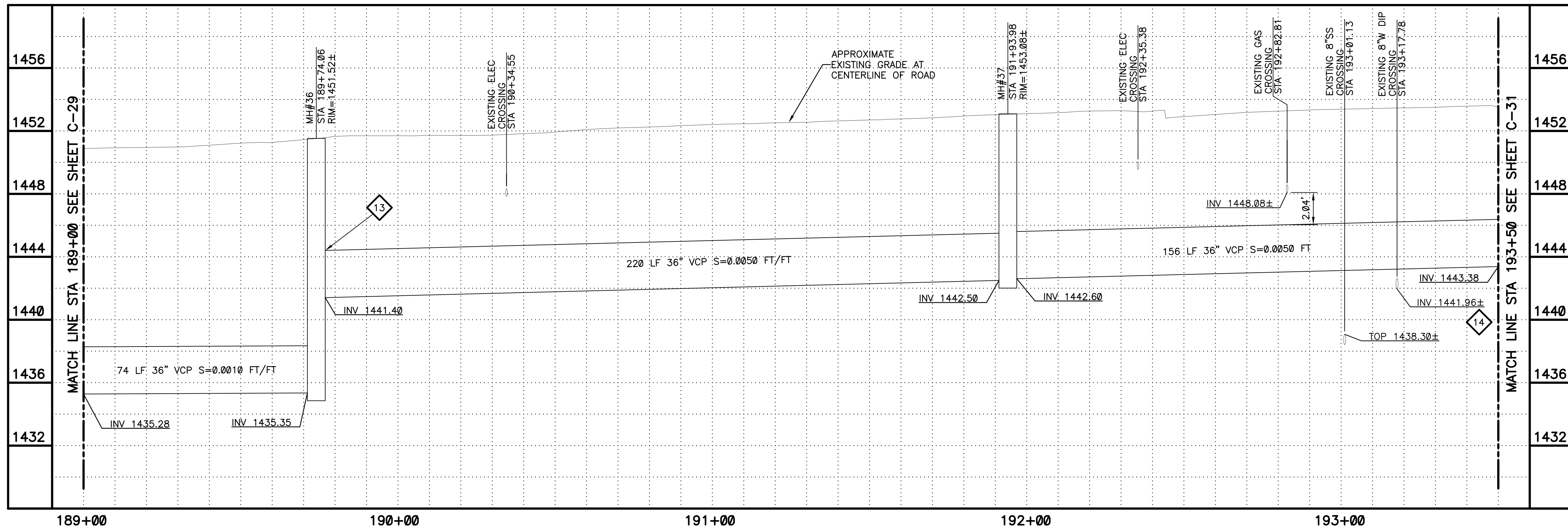
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PLAN  
SCALE: 1"=20'  
0 10 20 40  
1" = 20'



CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

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Arizona Blue Stake, Inc.

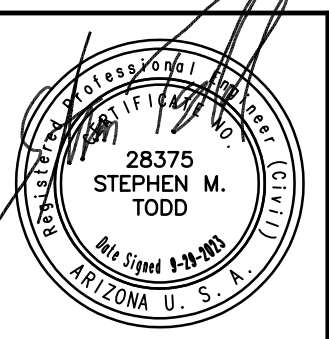
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IN MARICOPA COUNTY: (602)263-1100

PLAN  
SCALE:  
1"=20'

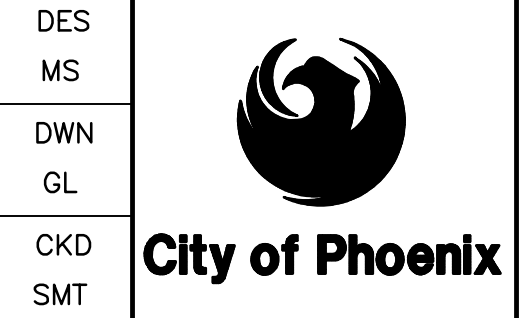
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HORIZ: 1"=20'  
VERT: 1"=4'

- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 3 DEFLECTION MANHOLE LESS THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-102
  - 4 DEFLECTION MANHOLE GREATER THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-103
  - 13 TYPE B DROP SEWER CONNECTION PER MAG STD. DTL. 426
  - 14 VERTICALLY REALIGN WATERLINE PER COP STD. DTL. P1370. KEEP 2' MIN DISTANCE FROM SEWER. SEE DETAIL 704 SHEET C-106 FOR LOCATION
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
  - 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE

REVISIONS	DATE	CAD FILE NAME	DWG NUMBER	REMARKS



REVISIONS				
NO.	BY	DATE	CKD	REMARKS



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 30  
STA: 189+00 - STA: 193+50

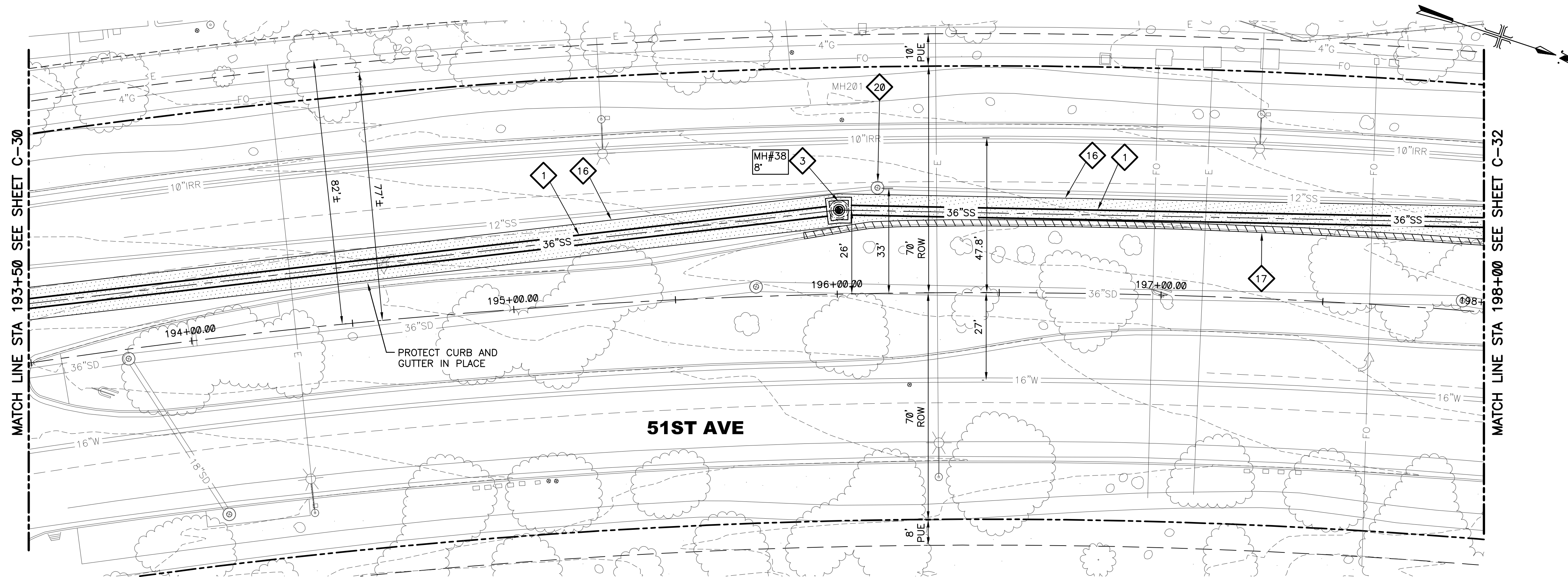
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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 30  
CAD FILE: PKG4B-C30

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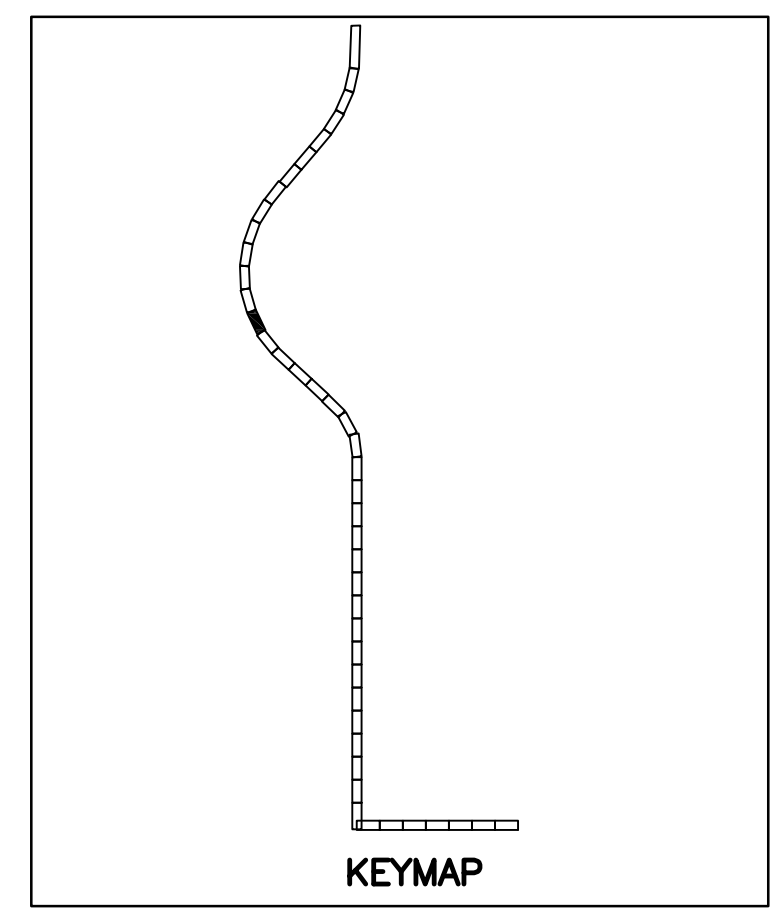
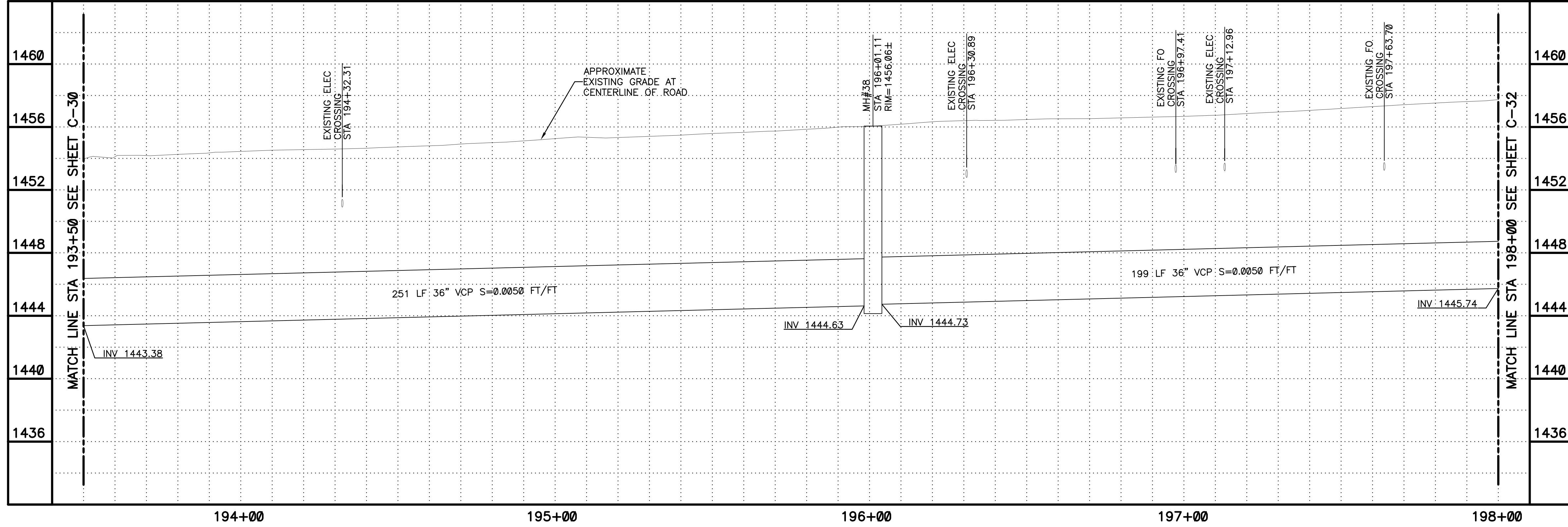
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PLAN  
SCALE: 1"=20'  
1" = 20'



CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

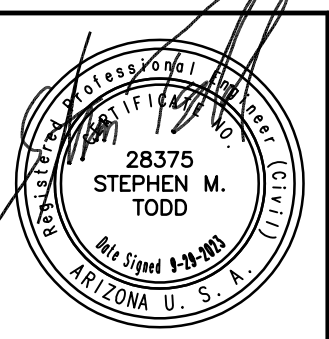
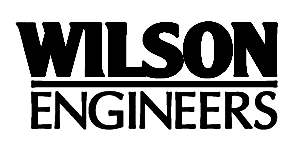
**ARIZONA 811**  
Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

PLAN SCALE: 1"=20'  
PROFILE HORIZ: 1"=20'  
VERT: 1"=4'

KEYED NOTES

- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
- 3 DEFLECTION MANHOLE LESS THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-103
- 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
- 17 REMOVE AND REPLACE CURB & GUTTER PER MAG STD. DTL. 220-1, TYPE A, H=6" (220 LF)
- 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE.



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN  
GL  
CKD  
SMT

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 31  
STA: 193+50 - STA: 198+00

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 31  
CAD FILE: PKG4B-C31

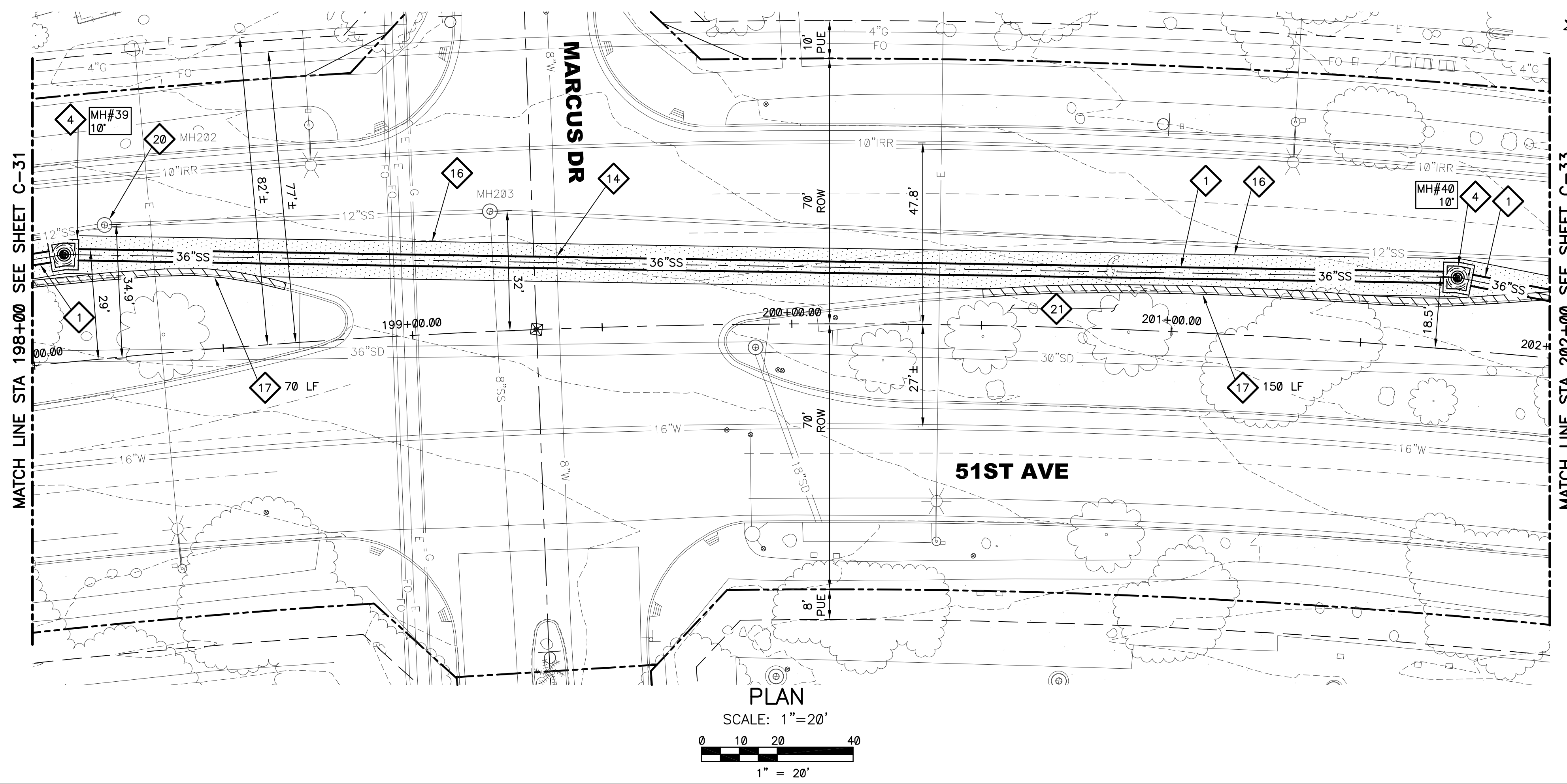
REVISION	DATE	PROJECT NAME	PROJECT NO.	REFERENCE CID NUMBER	DWG NUMBER	REMARKS

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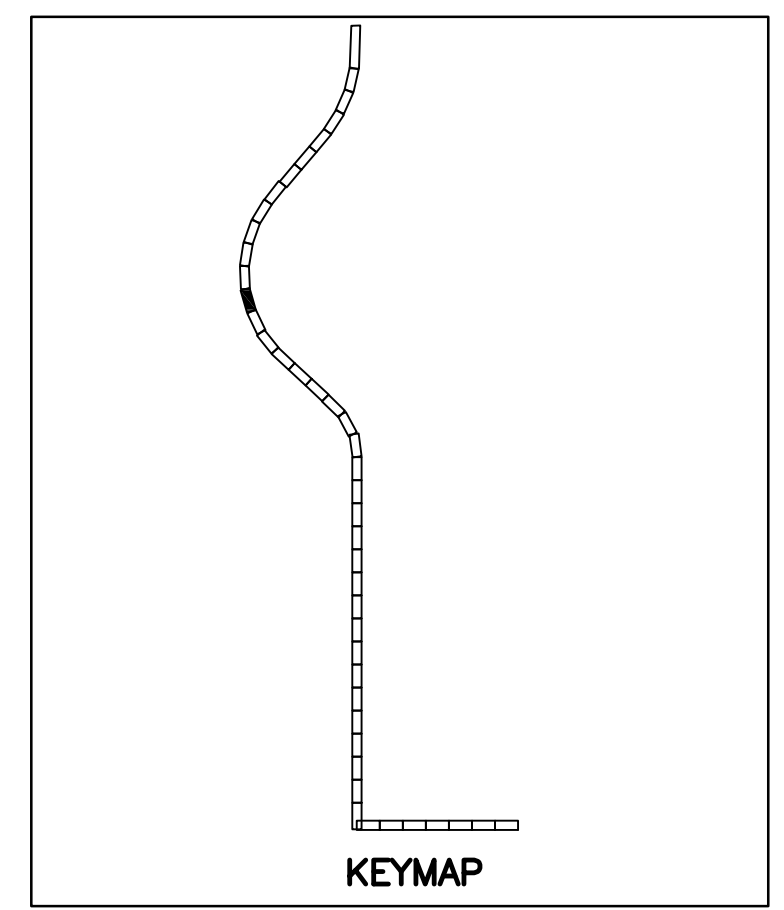
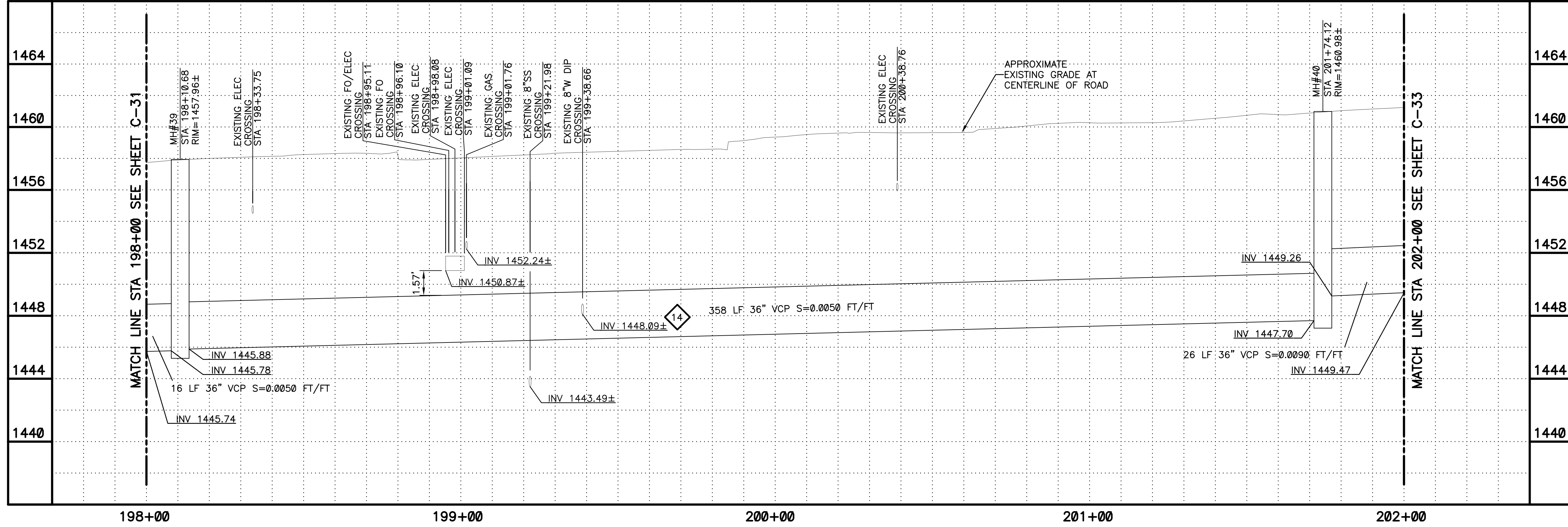
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PLAN  
SCALE: 1"=20'  
0 10 20 40  
1" = 20'



CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

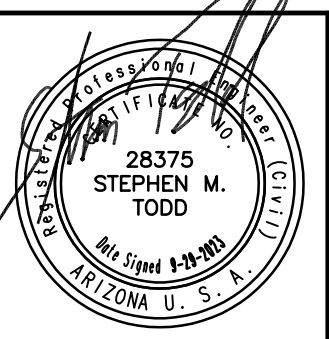
**ARIZONA 811**  
Arizona Blue Stake, Inc.

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IN MARICOPA COUNTY: (602)263-1100

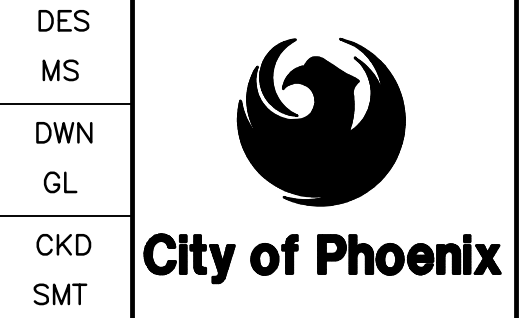
PLAN SCALE: 1"=20'  
PROFILE HORIZ: 1"=20'  
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  - 14 VERTICALLY REALIGN WATERLINE PER COP STD. DTL. P1370. KEEP 2' MIN DISTANCE FROM SEWER. SEE DETAIL 705 SHEET C-106 FOR LOCATION
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NO.	BY	DATE	CKD	REVISIONS	REMARKS



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 32  
STA: 198+00 - STA: 202+00

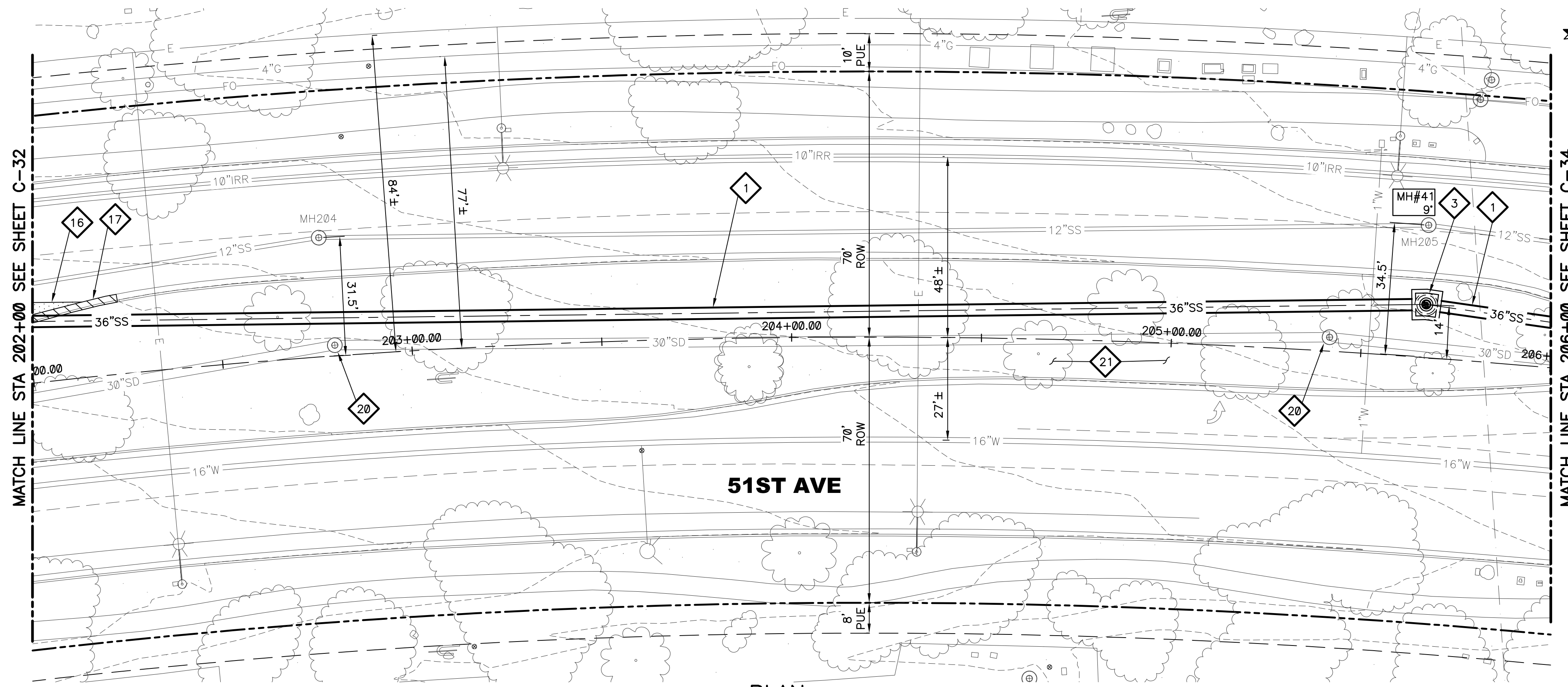
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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 32  
CAD FILE: PKG4B-C32

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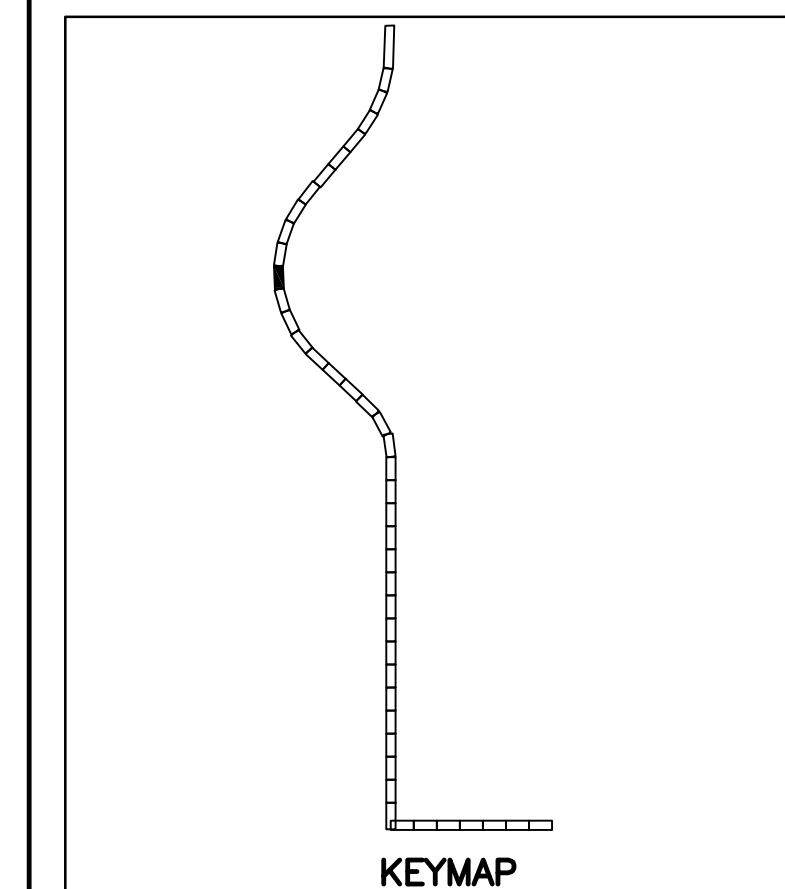
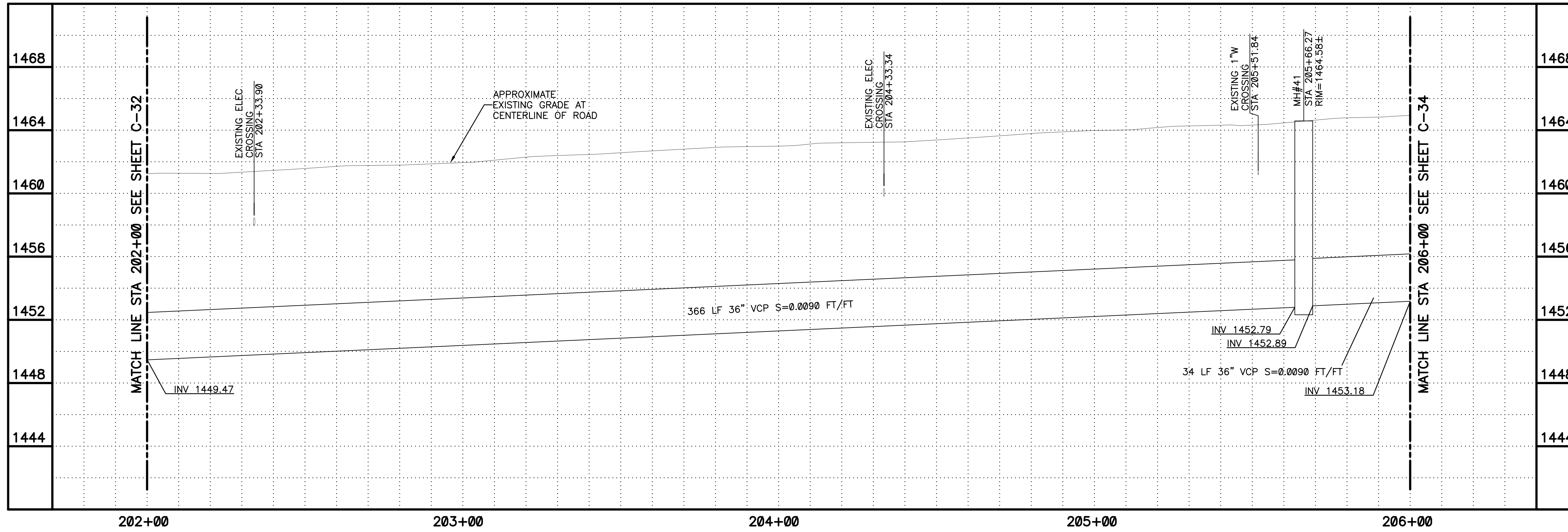
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1" = 20'



CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

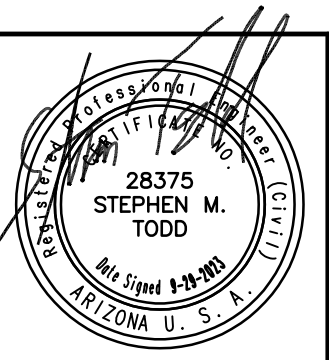
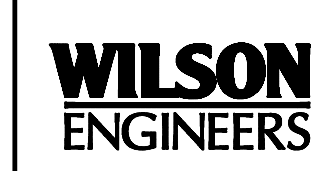
**ARIZONA 811**  
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- 21 REPLACE LANDSCAPING IN KIND (TYP)



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN  
GL  
CKD  
SMT

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 33  
STA: 202+00 - STA: 206+00

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 33  
CAD FILE: PKG4B-C33

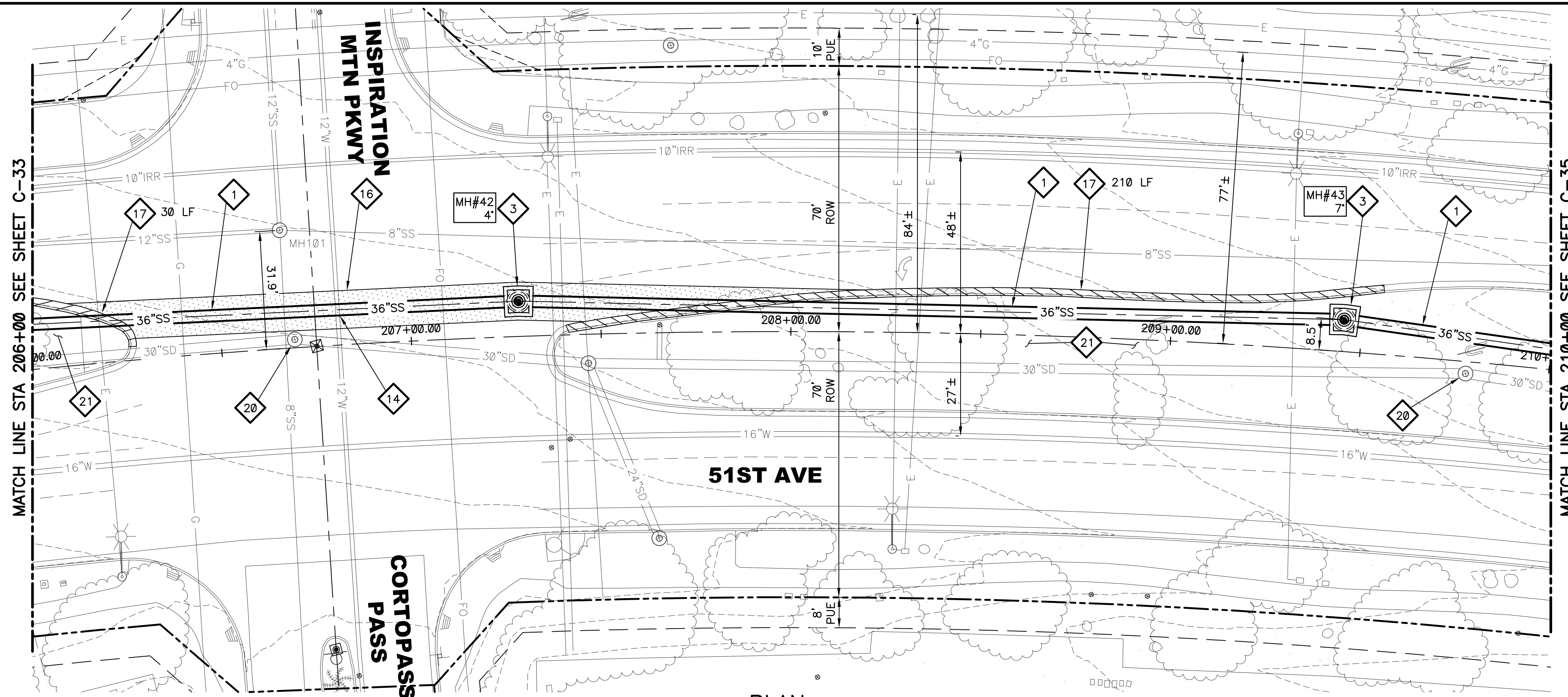
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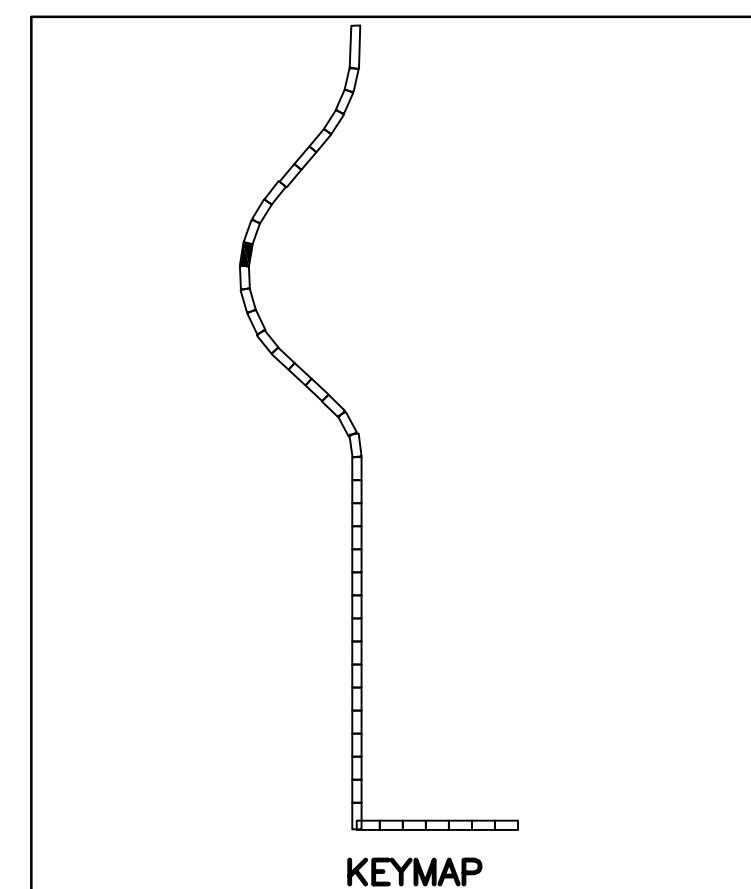
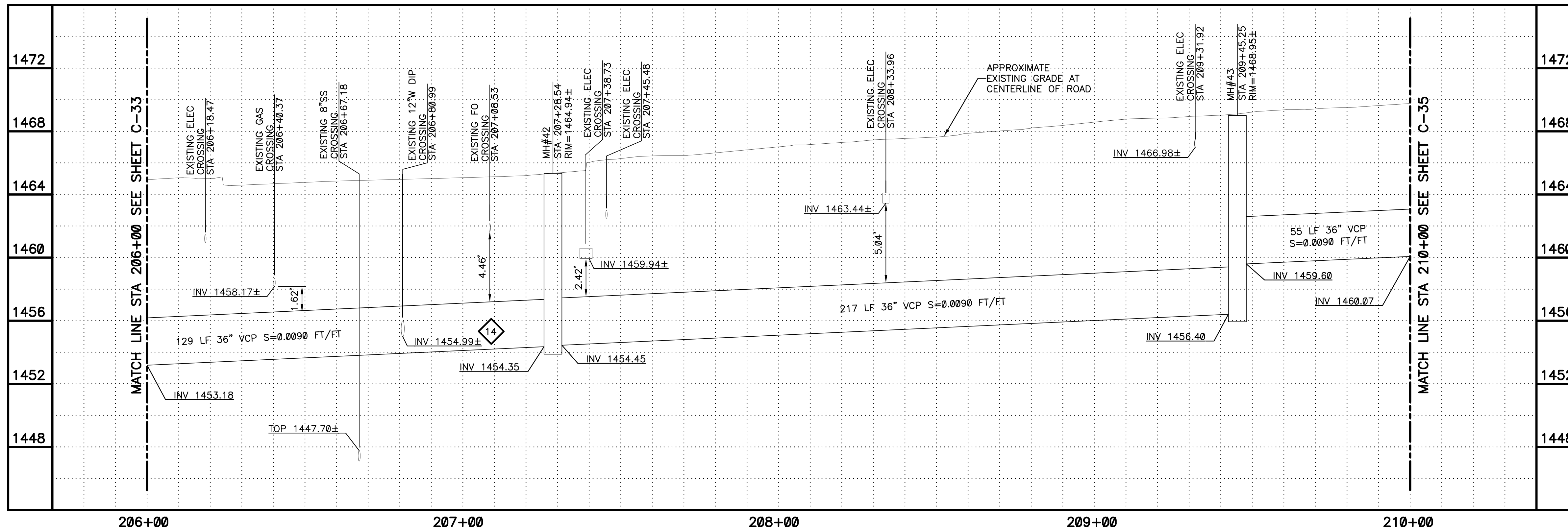
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PLAN  
SCALE: 1"=20'  
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1" = 20'

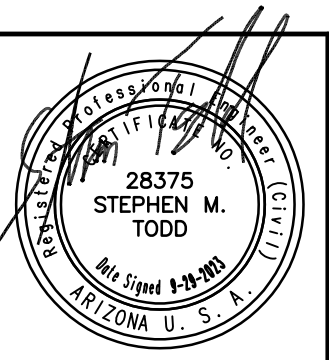


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Arizona Blue Stake, Inc.  
DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

PLAN SCALE: 1"=20'  
PROFILE HORIZ: 1"=20'  
VERT: 1"=4'

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- 21 REPLACE LANDSCAPING IN KIND (TYP)



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN  
GL  
CKD  
SMT

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 34  
STA: 206+00 - STA: 210+00

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DATE: SEPTEMBER 2023  
C SHEET 34  
CAD FILE: PKG4B-C34

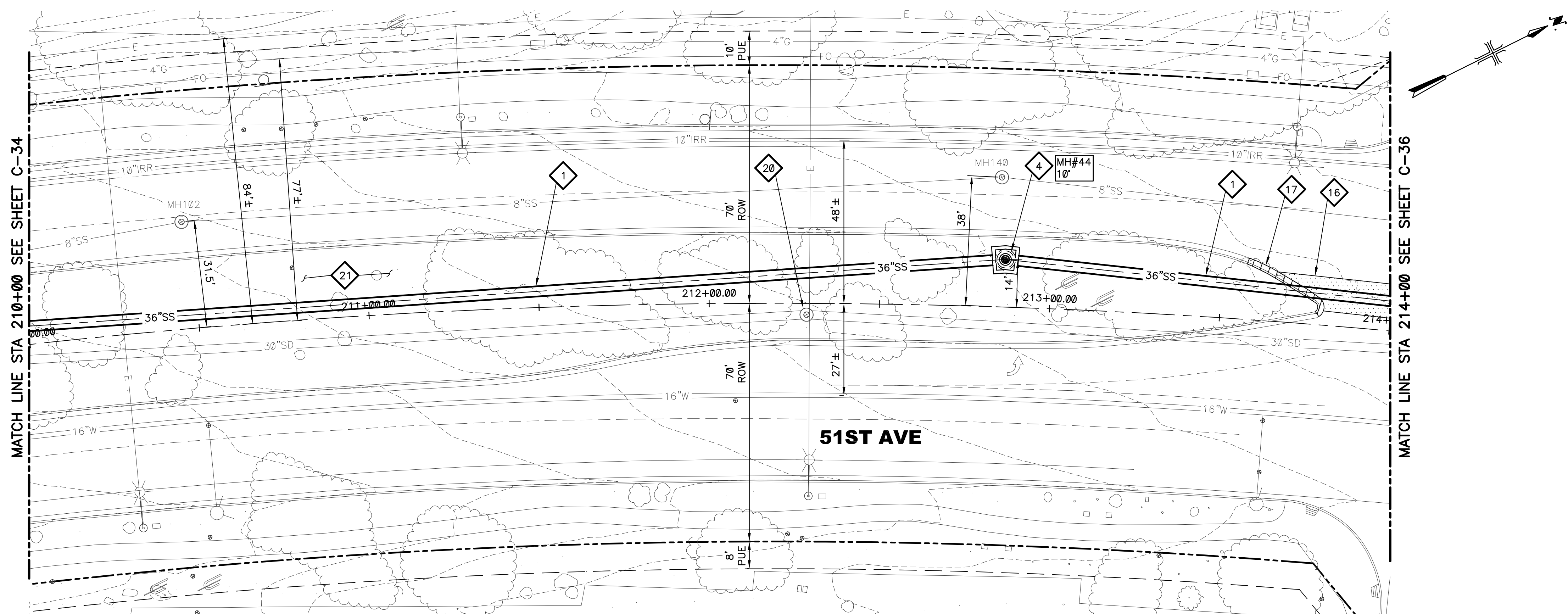
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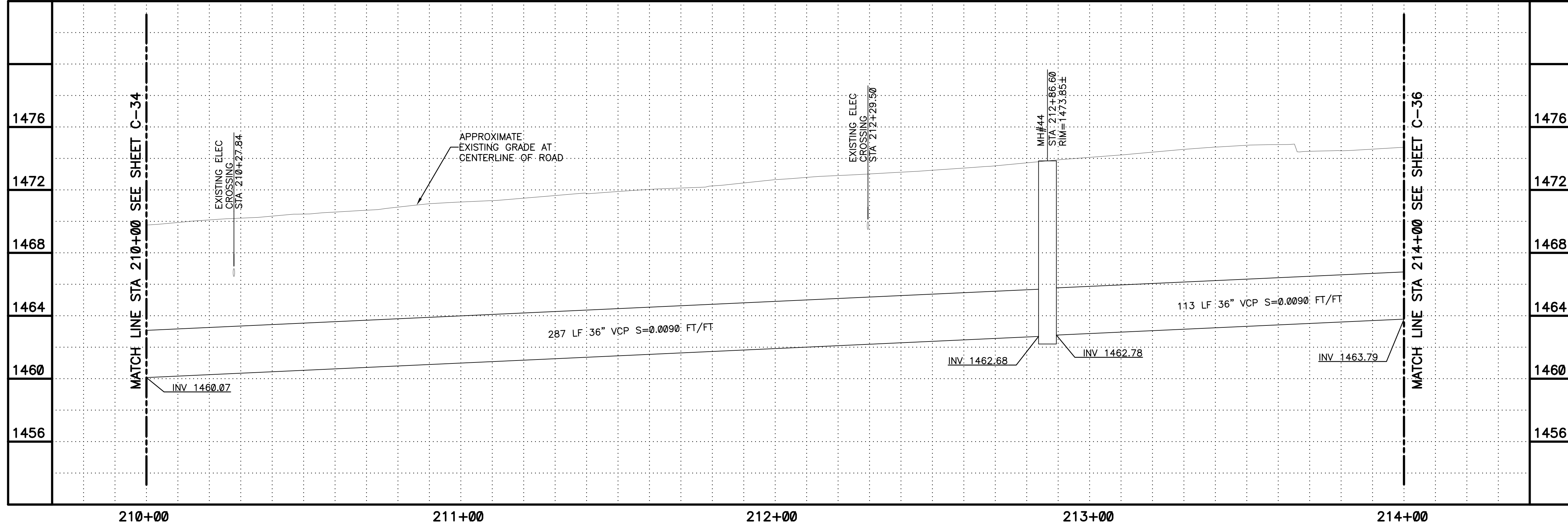
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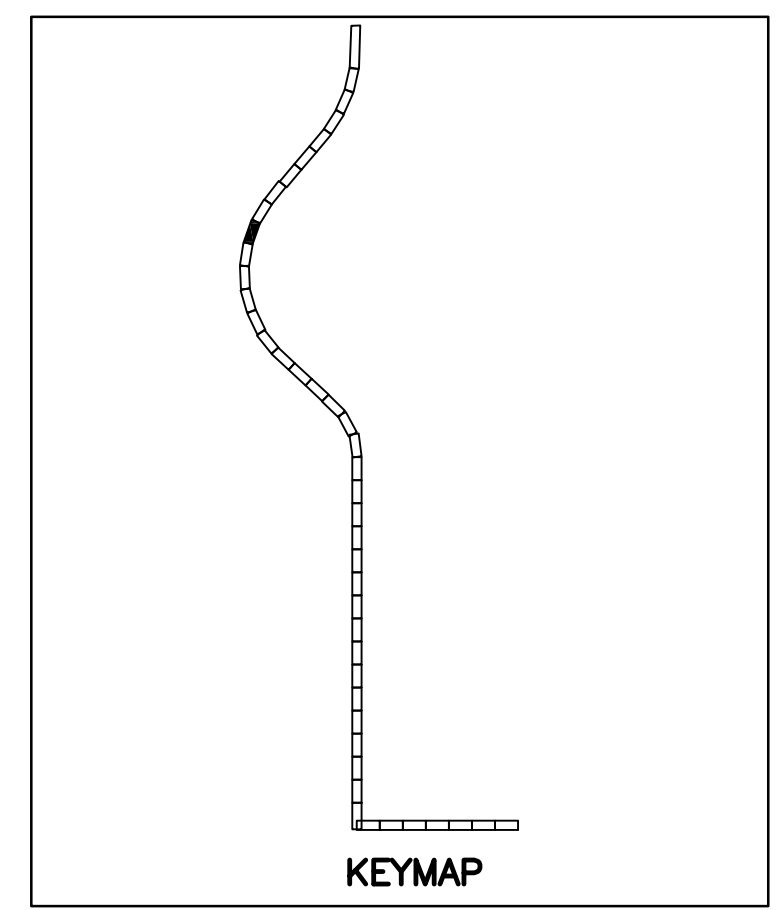
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PLAN  
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1" = 20'



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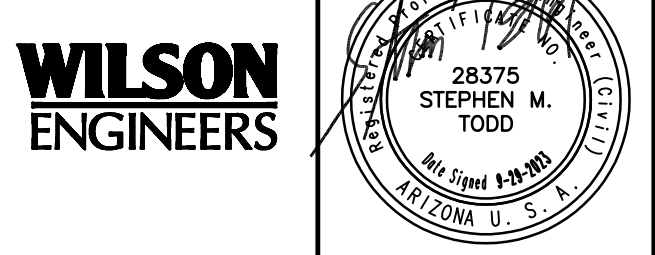
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**ARIZONA 811**  
Arizona Blue Stake, Inc.

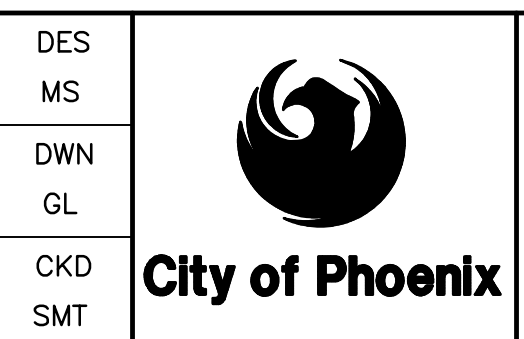
DIAL 811 OR 1-800-STAKE-IT (782-5348) IN MARICOPA COUNTY: (602)263-1100

PLAN SCALE: 1"=20'  
PROFILE HORIZ: 1"=20' VERT: 1"=4'

NO.	BY	DATE	CKD	REVISIONS	REMARKS



NO.	BY	DATE	CKD	REVISIONS	REMARKS



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 35  
STA: 210+00 - STA: 214+00

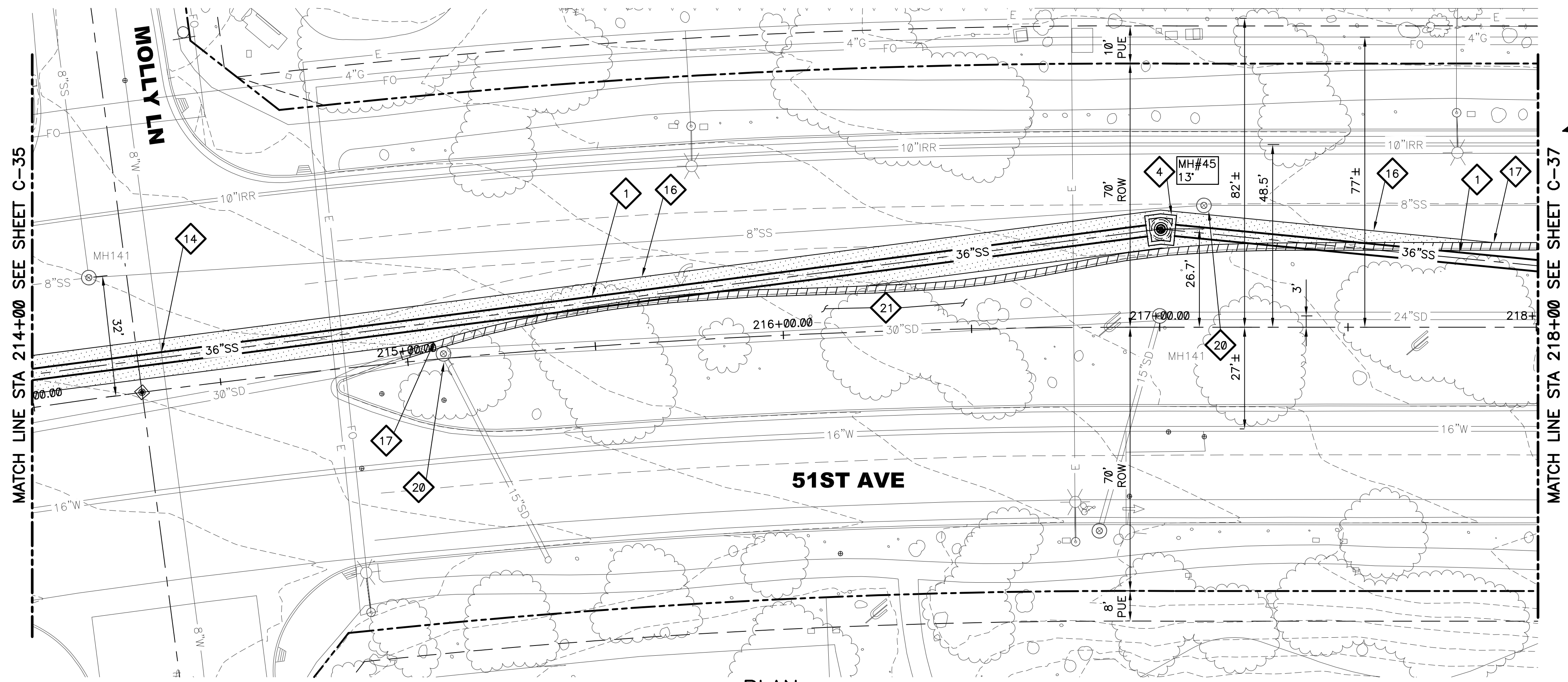
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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 35  
CAD FILE: PKG4B-C35

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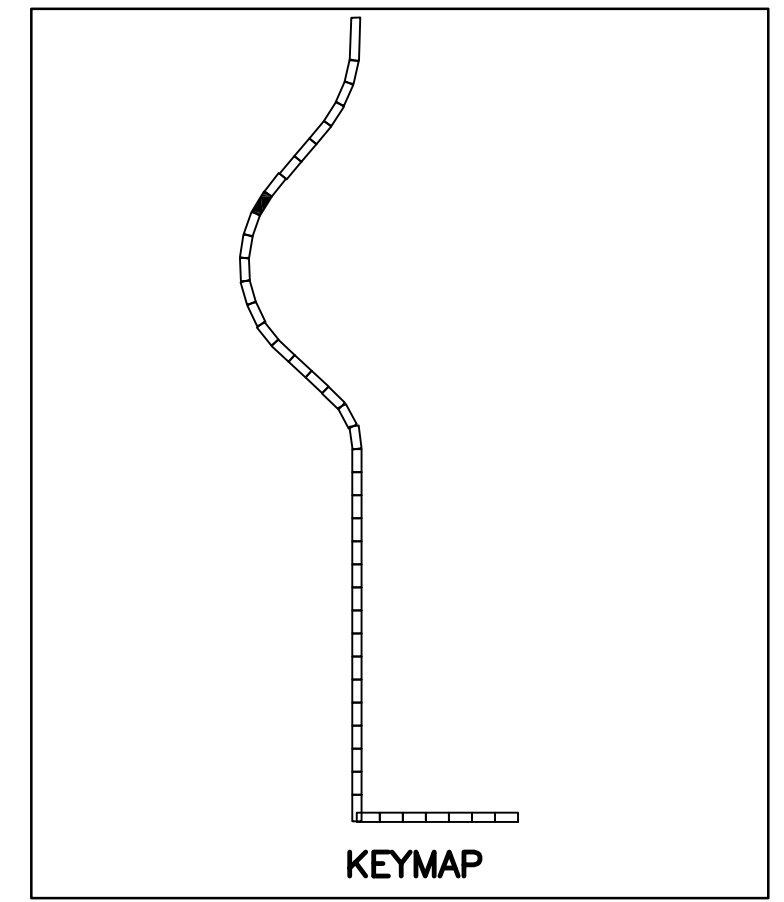
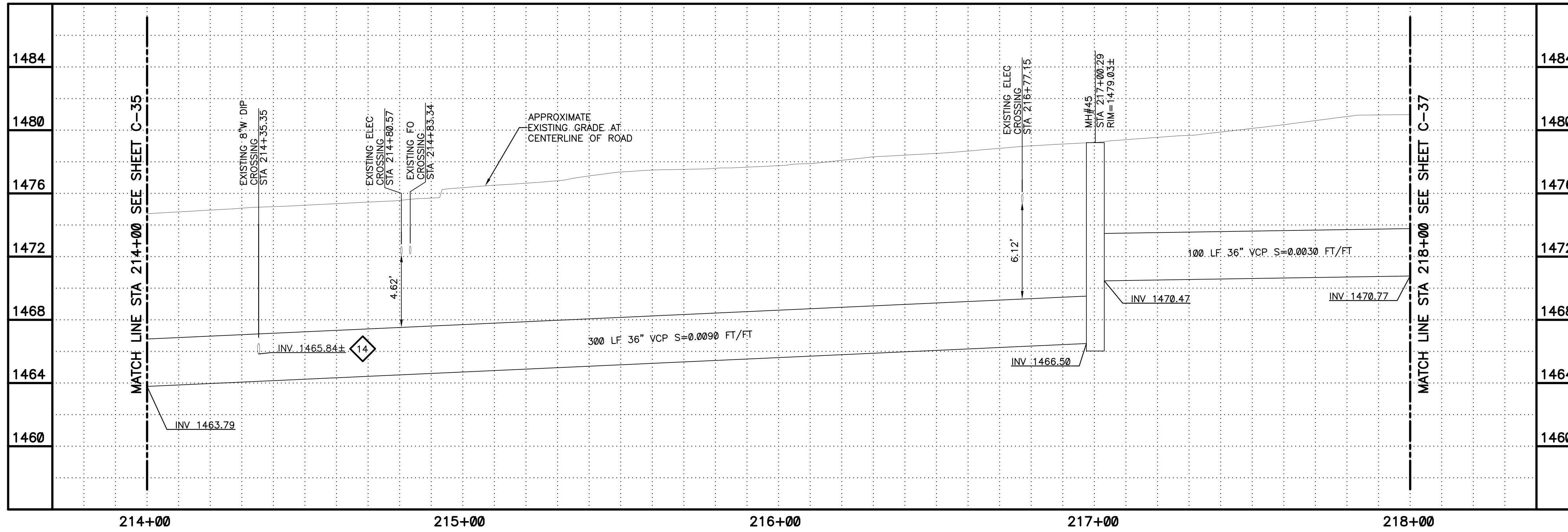
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PLAN  
SCALE: 1"=20'  
0 10 20 40  
1" = 20'



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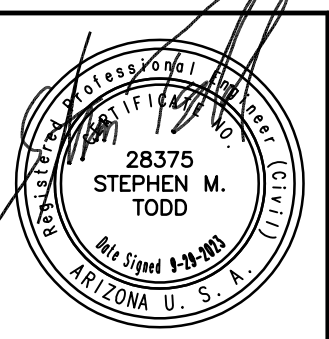
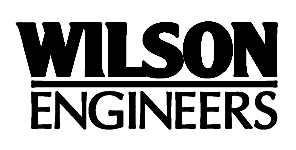
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DIAL 811 OR 1-800-STAKE-IT (782-5348)  
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PLAN  
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1"=20'

PROFILE  
HORIZ: 1"=20'  
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REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN GL  
CKD  
SMT

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 36  
STA: 214+00 - STA: 218+00

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 36  
CAD FILE: PKG4B-C36

REVISION	DATE	PROJECT NAME	PROJECT NO.	REFERENCE CID NUMBER	CAD FILE NAME	DWG NUMBER	REMARKS

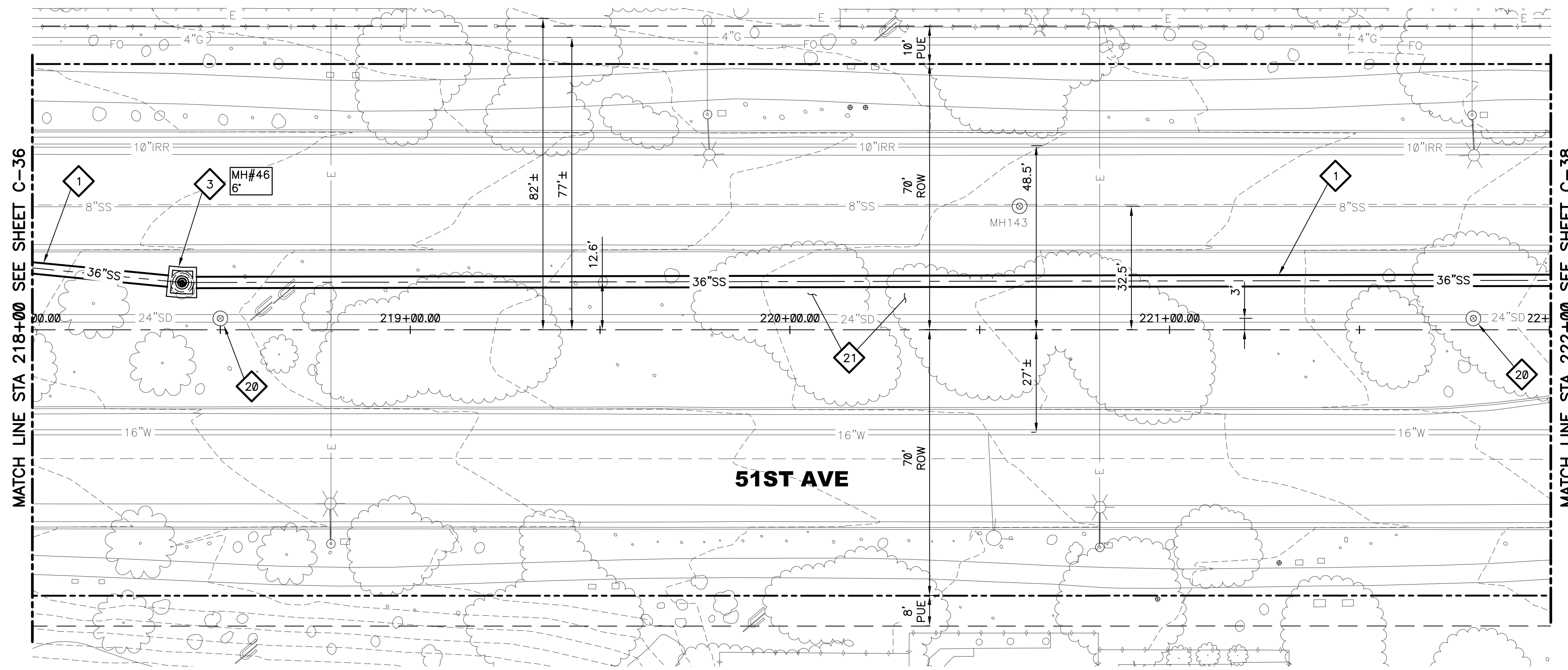
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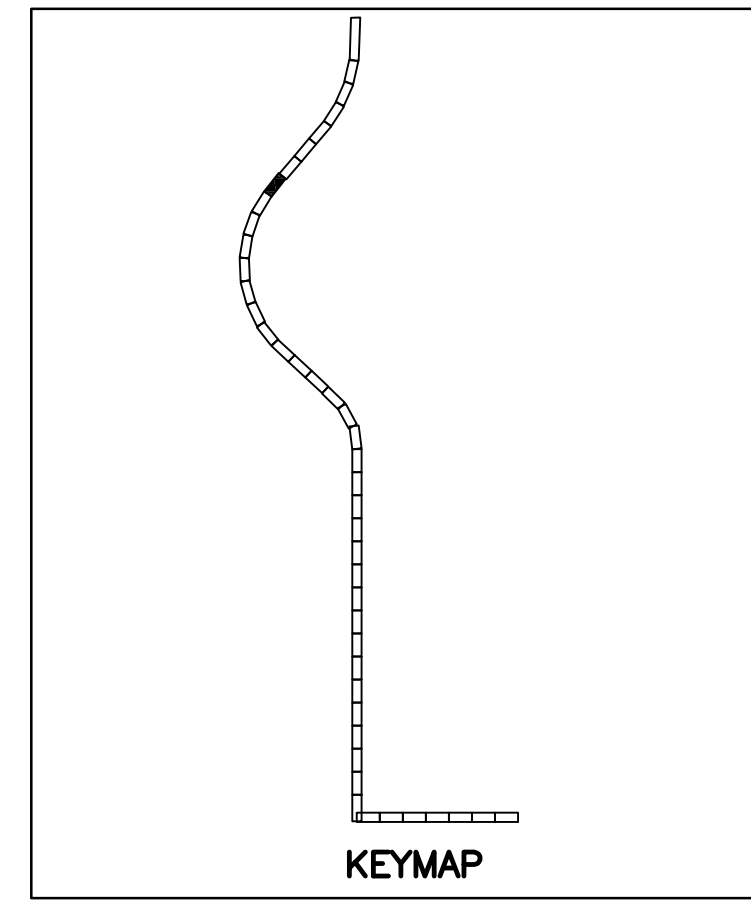
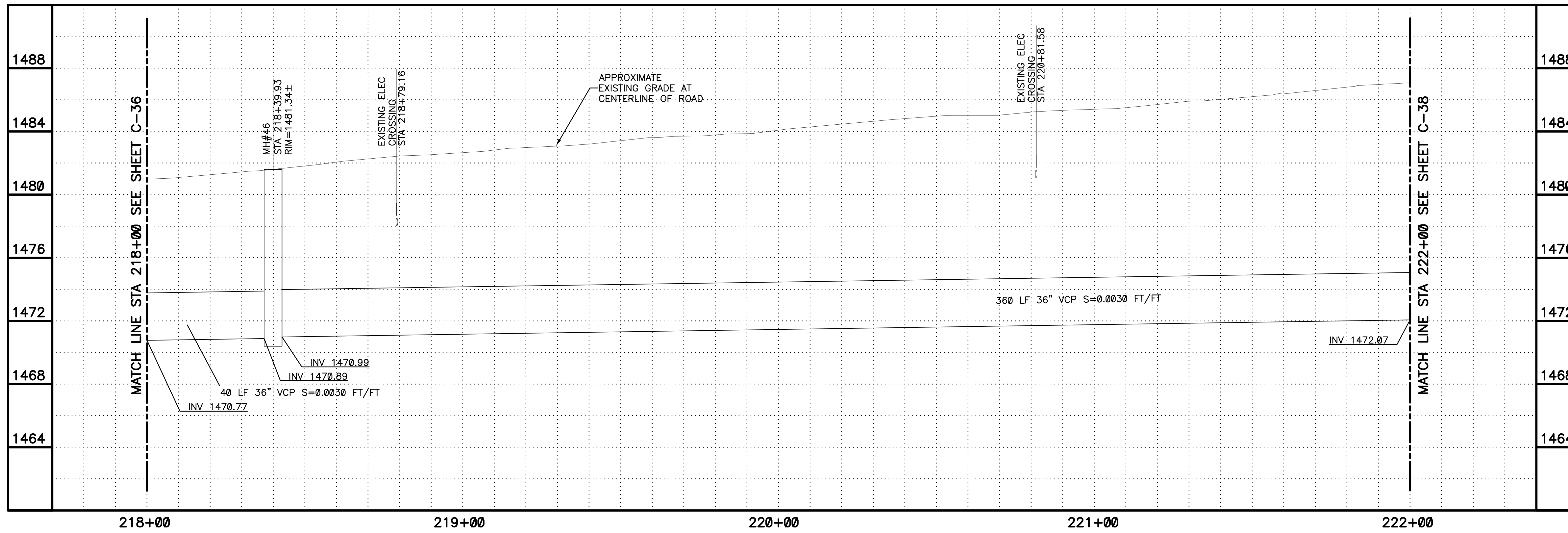
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PLAN  
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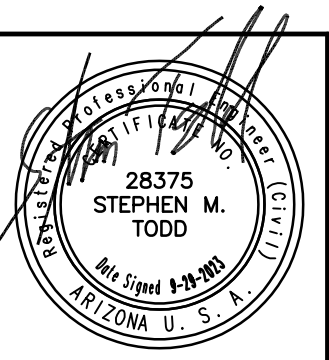


PLAN  
SCALE:  
1"=20'

PROFILE  
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REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES  
MS  
DWN  
GL  
CKD  
SMT



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL

PLAN AND PROFILE 37  
STA: 218+00 - STA: 222+00

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DATE: SEPTEMBER 2023  
C SHEET 37  
CAD FILE: PKG4B-C37

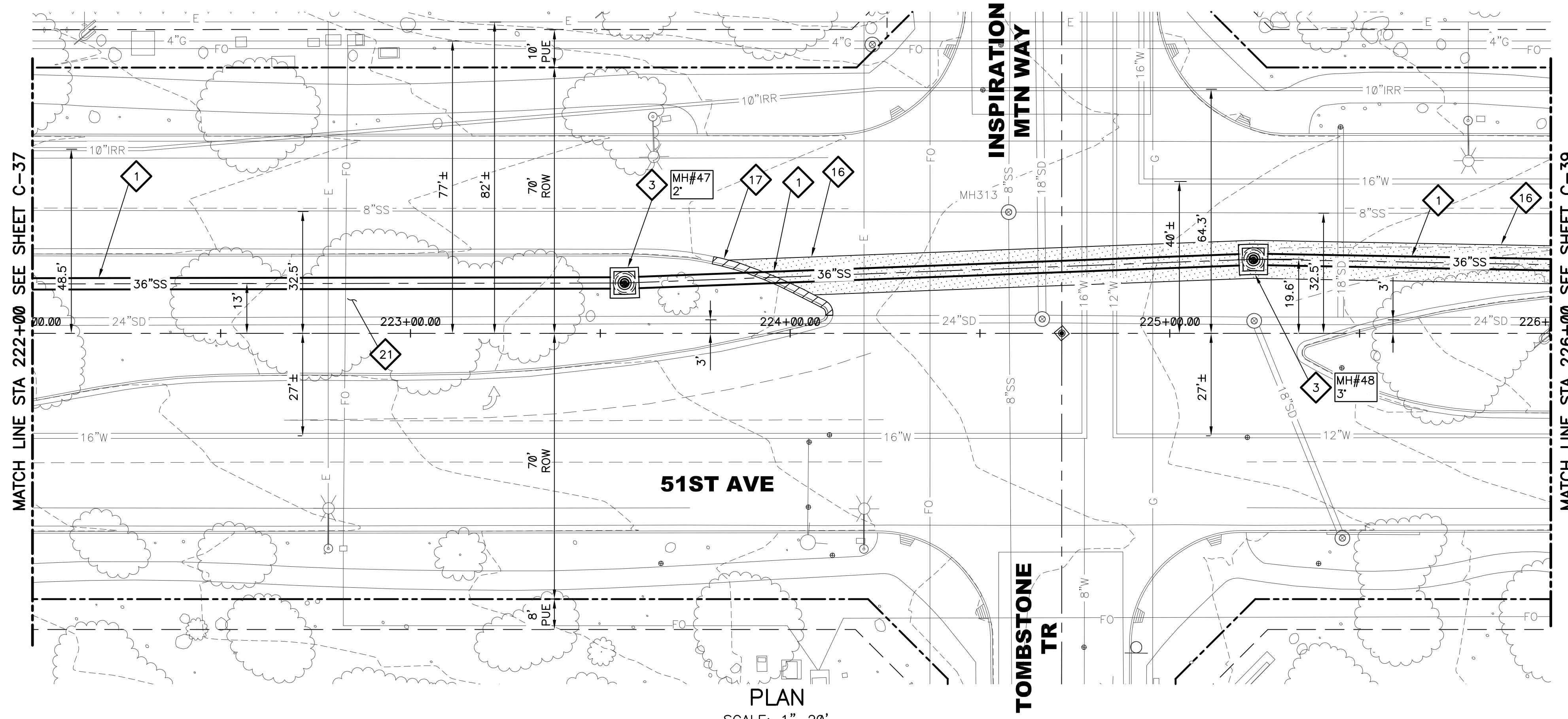
REVISION	DATE	PROJECT NAME	DWG NUMBER	REMARKS

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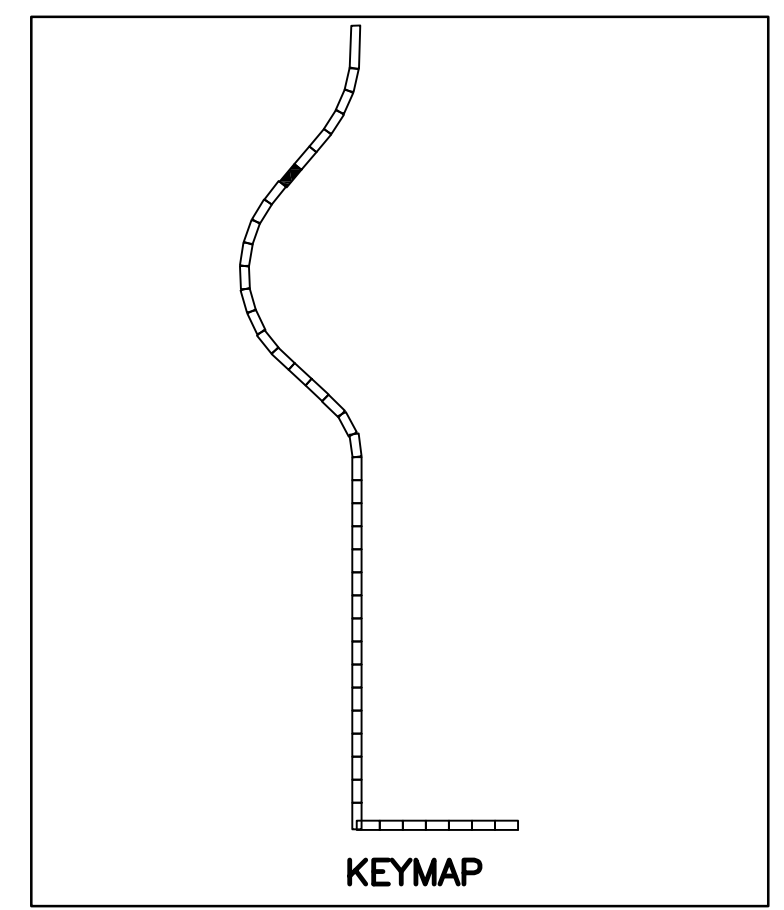
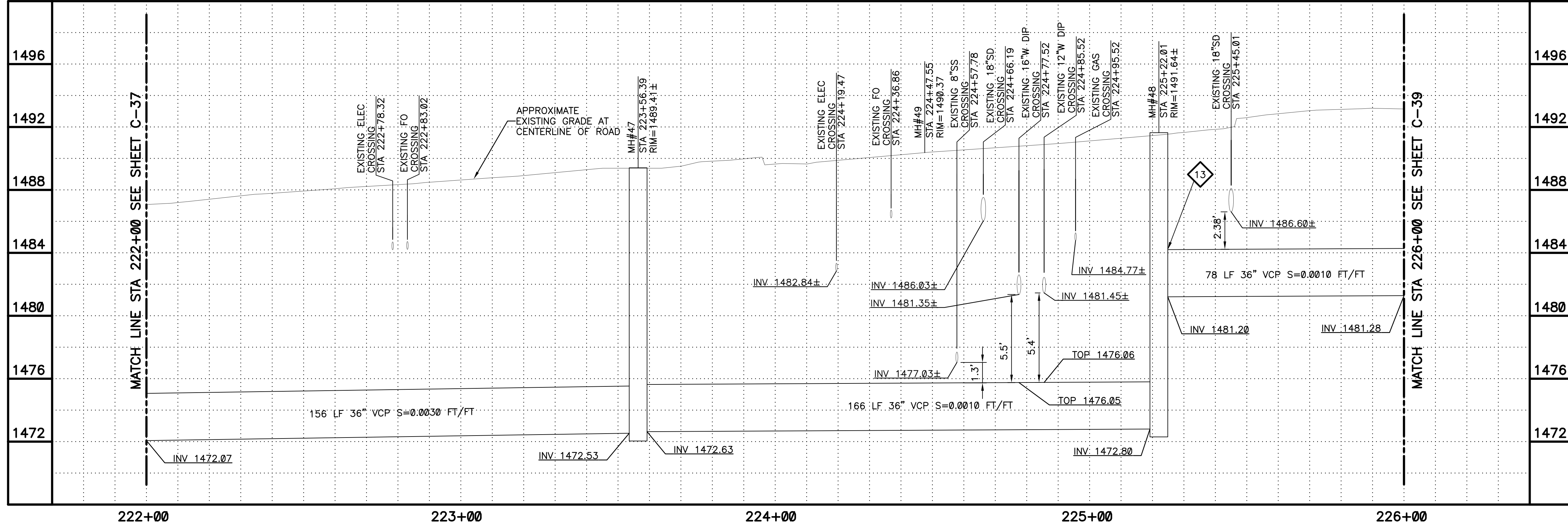
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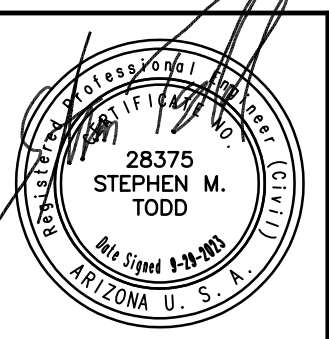


PLAN  
SCALE:  
1"=20'

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- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 3 DEFLECTION MANHOLE LESS THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-102
  - 13 TYPE B DROP SEWER CONNECTION PER MAG STD. DTL. 426
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
  - 17 REMOVE AND REPLACE CURB & GUTTER PER MAG STD. DTL. 220-1, TYPE A, H=6" (40 LF)
  - 21 REPLACE LANDSCAPING IN KIND (TYP)

NO.	BY	DATE	CKD	REVISIONS	REMARKS



NO.	BY	DATE	CKD	REVISIONS	REMARKS

DES  
MS  
DWN  
GL  
CKD  
SMT



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL

PLAN AND PROFILE 38  
STA: 222+00 - STA: 226+00

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CITY PROJECT NO. WS90500307

DATE: SEPTEMBER 2023

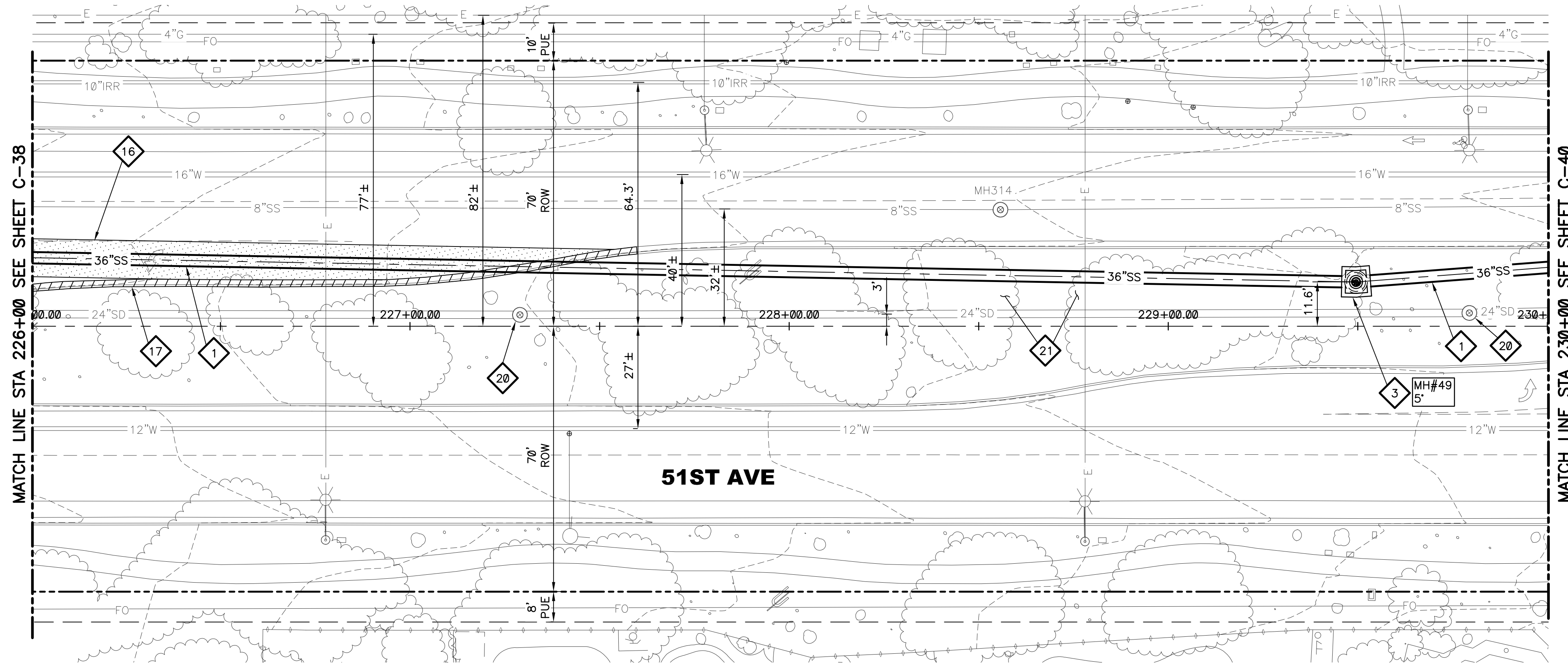
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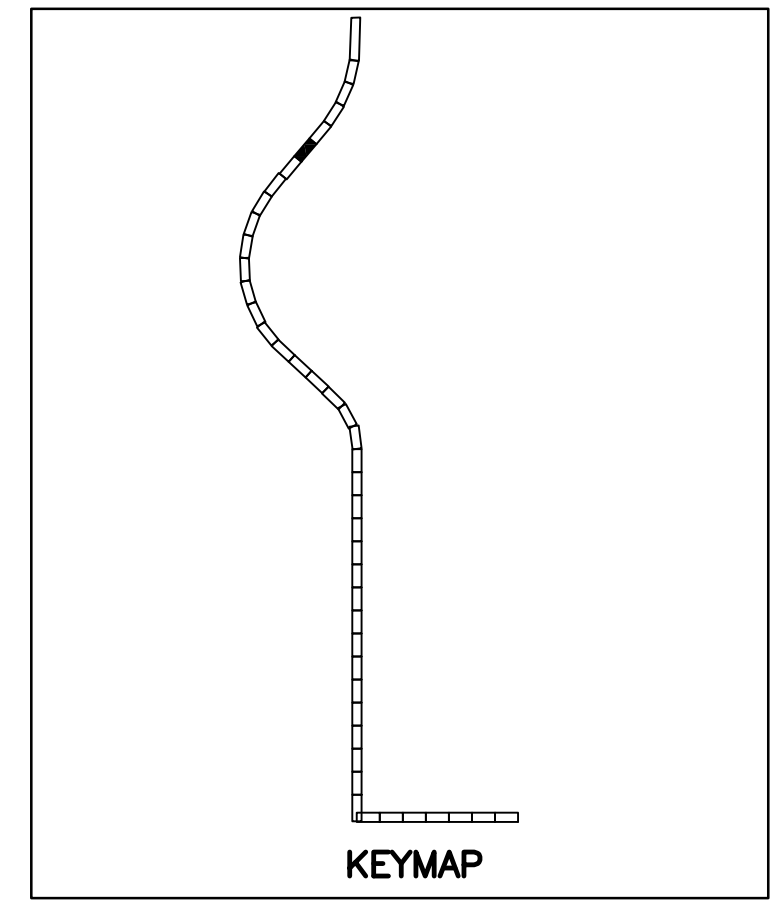
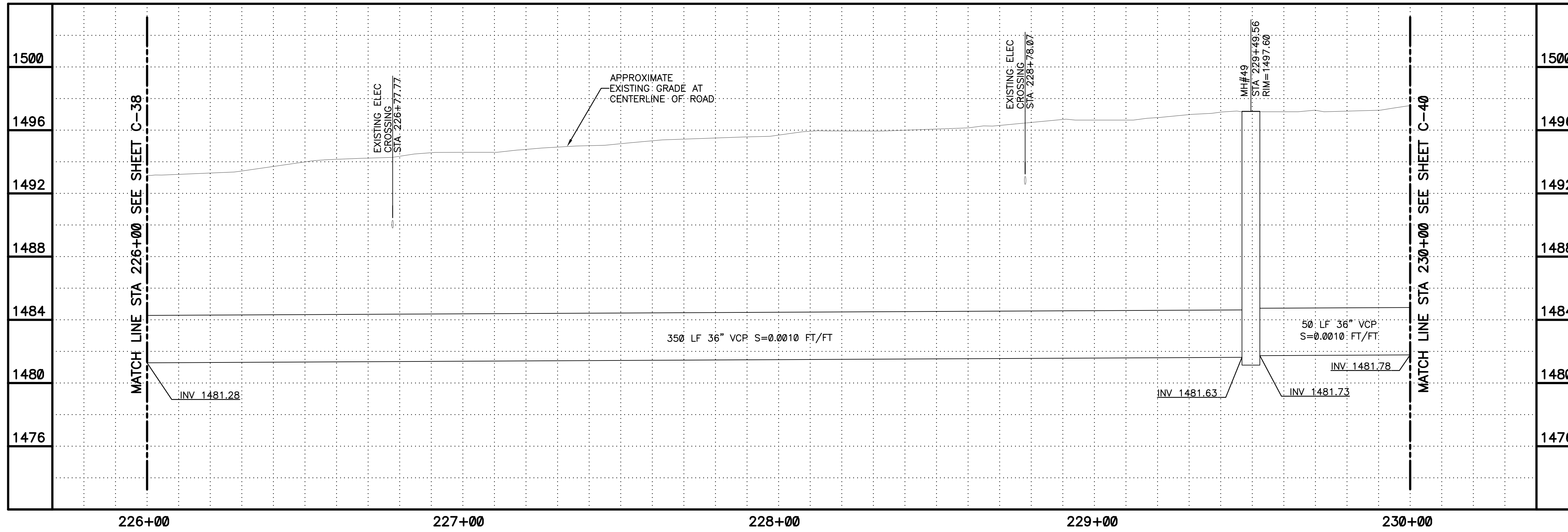
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PLAN  
SCALE: 1"=20'  
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1" = 20'

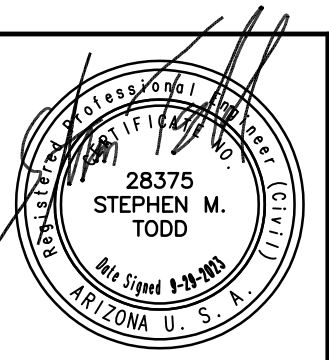
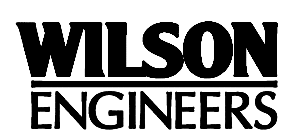


PLAN  
SCALE:  
1"=20'

PROFILE  
HORIZ: 1"=20'  
VERT: 1"=4'

- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 3 DEFLECTION MANHOLE LESS THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-102
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
  - 17 REMOVE AND REPLACE CURB & GUTTER PER MAG STD. DTL. 220-1, TYPE A, H=6" (150 LF)
  - 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE
  - 21 REPLACE LANDSCAPING IN KIND (TYP)

NO.	DATE	PROJECT NAME	DWG NUMBER	REMARKS



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN  
GL  
CKD  
SMT

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

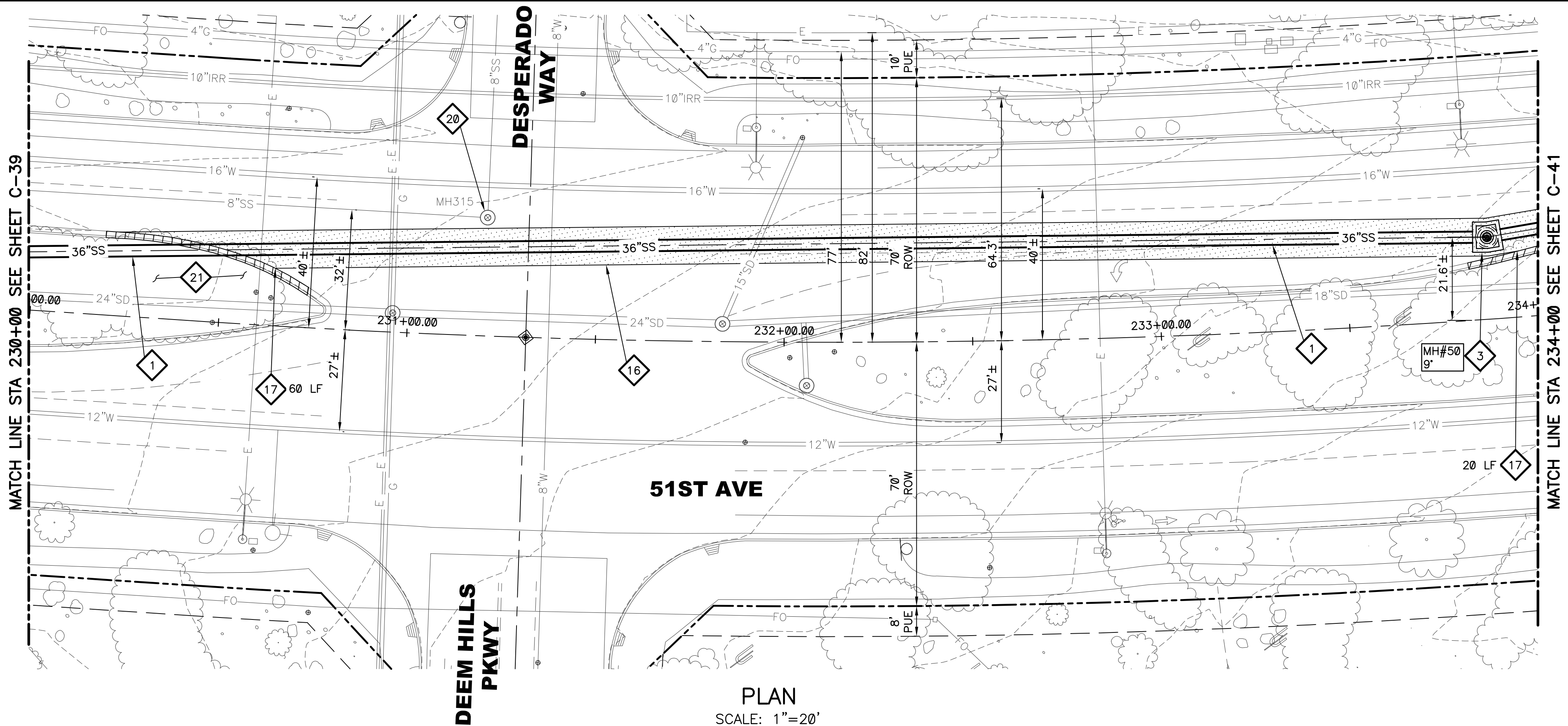
CIVIL  
PLAN AND PROFILE 39  
STA: 226+00 - STA: 230+00

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 39  
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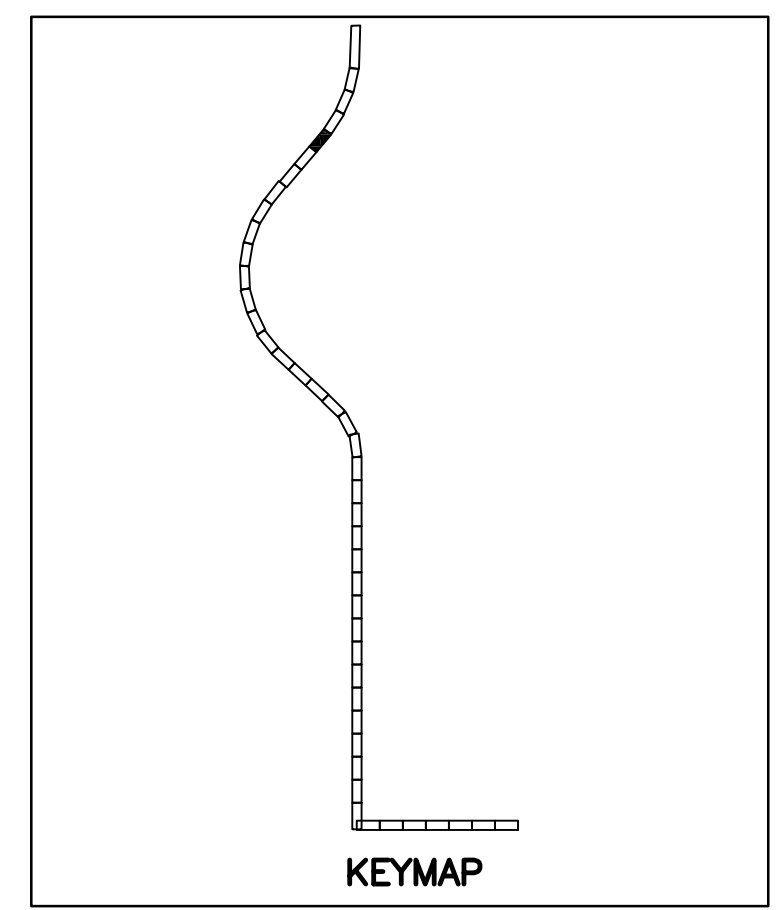
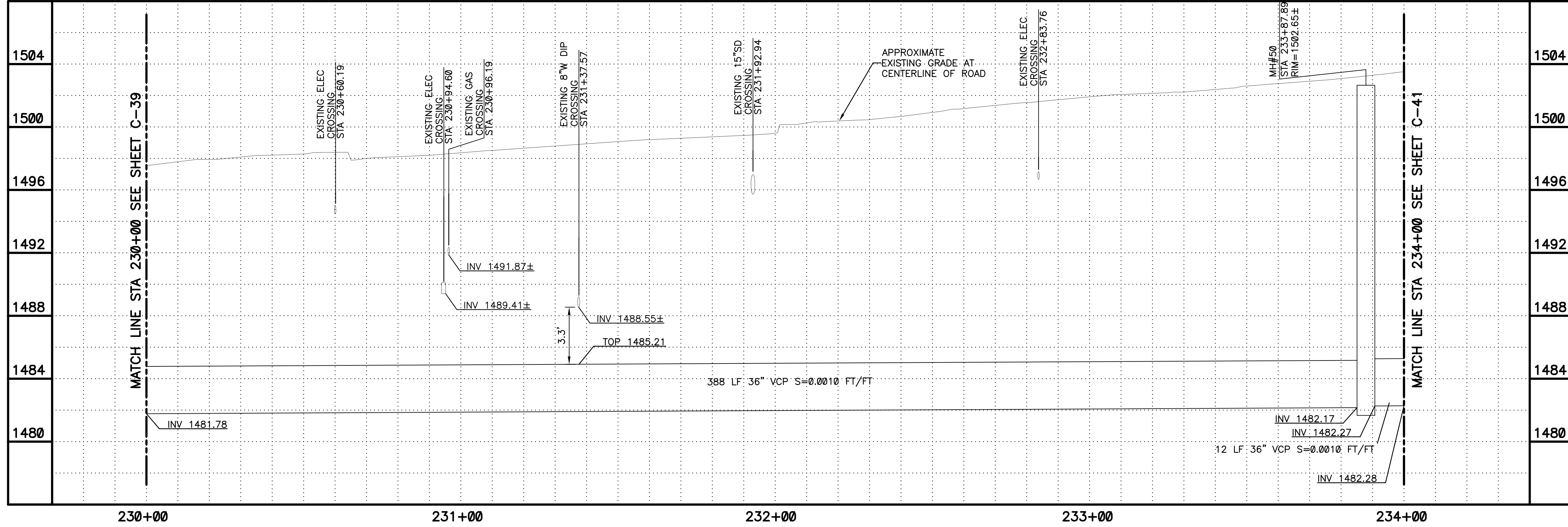
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PLAN  
SCALE: 1"=20'  
0 10 20 40  
1" = 20'

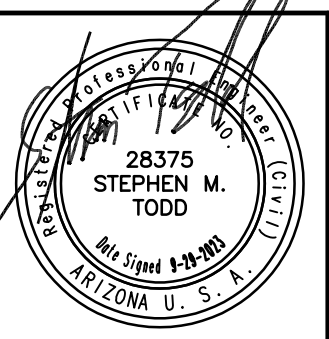


PLAN  
SCALE:  
1"=20'

PROFILE  
HORIZ: 1"=20'  
VERT: 1"=4'

- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 3 DEFLECTION MANHOLE LESS THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-102
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
  - 17 REMOVE AND REPLACE CURB & GUTTER PER MAG STD. DTL. 220-1, TYPE A, H=6" (80 LF)
  - 20 PROTECT IN PLACE EXISTING MANHOLE. REPLACE CONCRETE COLLAR AS NEEDED PER COP STD. DTL. P1422. ENSURE COVER IS AT GRADE
  - 21 REPLACE LANDSCAPING IN KIND (TYP)

NO.	BY	DATE	CKD	REVISIONS	REMARKS



NO.	BY	DATE	CKD	REVISIONS	REMARKS

DES  
MS  
DWN  
GL  
CKD  
SMT



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL

PLAN AND PROFILE 40  
STA: 230+00 - STA: 234+00

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CITY PROJECT NO. WS90500307

DATE: SEPTEMBER 2023

C SHEET 40

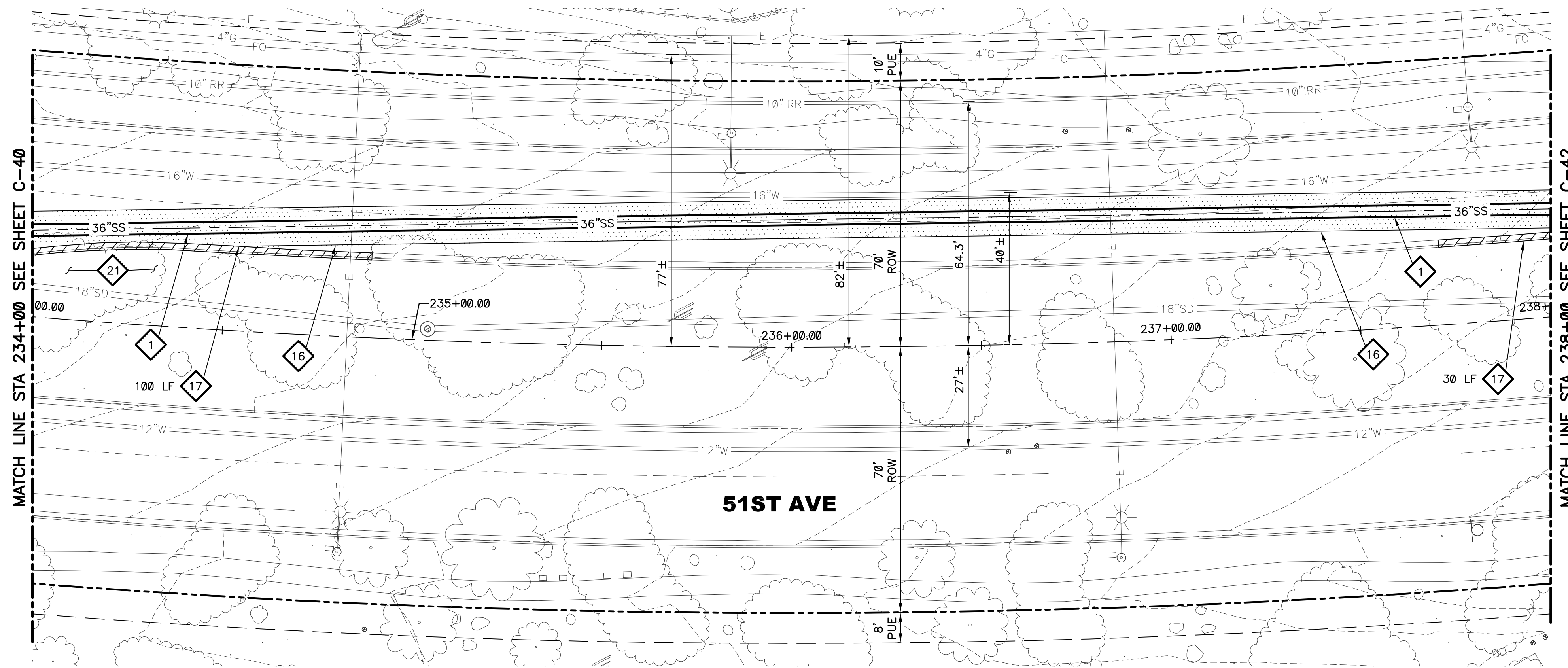
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100% SUBMITTAL

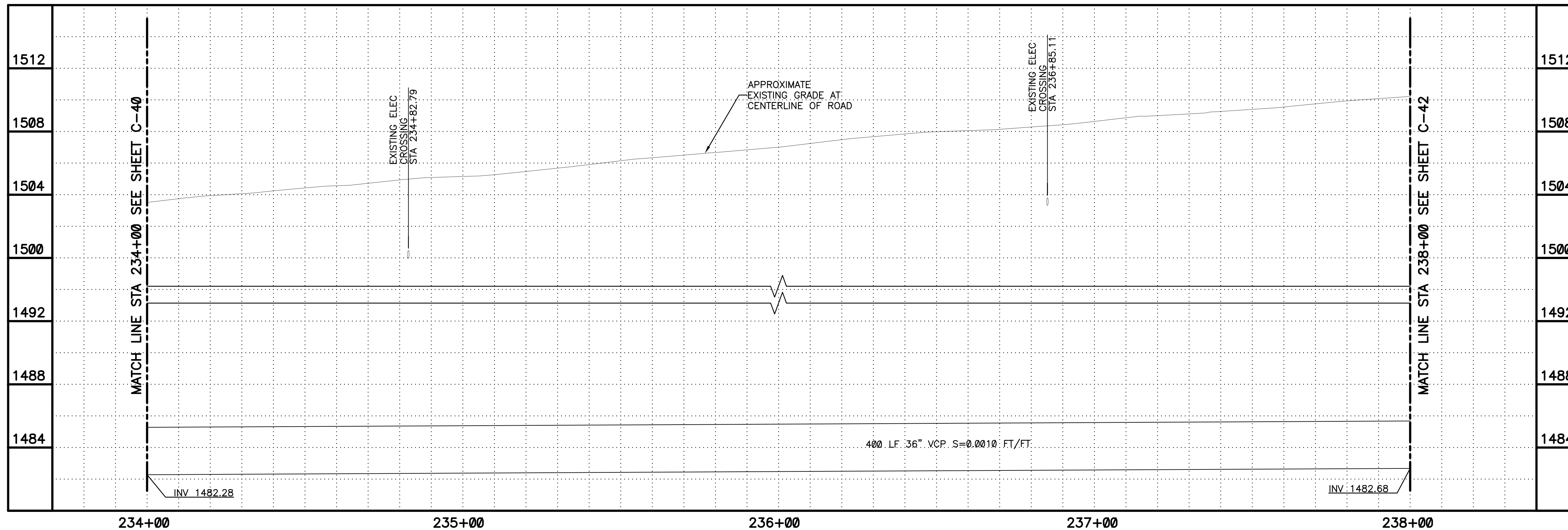
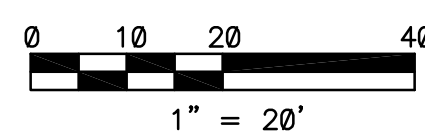
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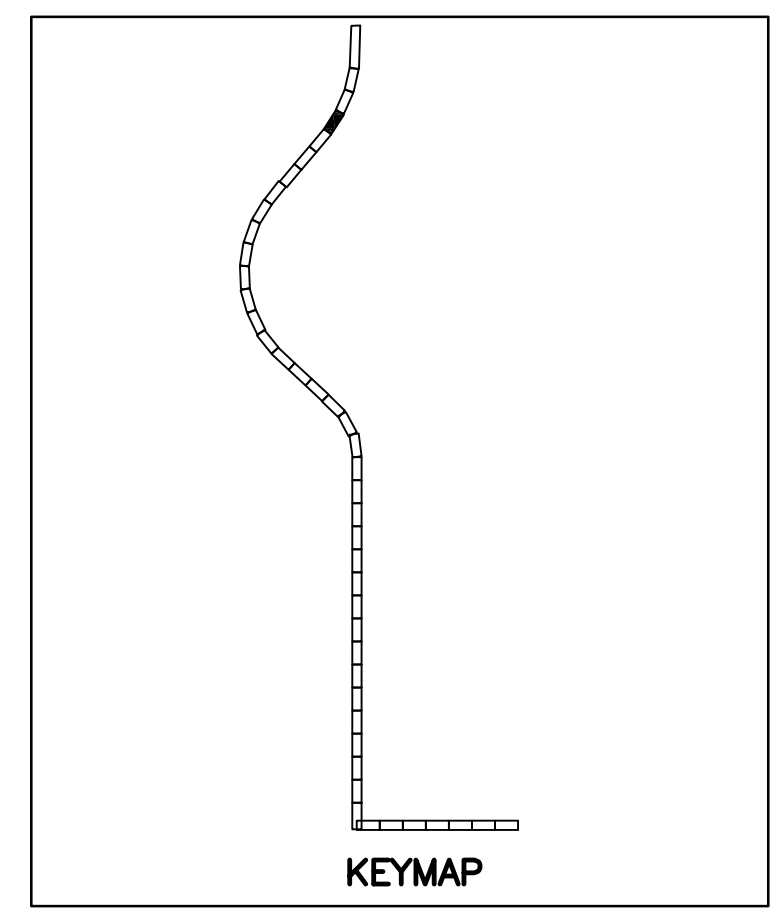


PLAN

SCALE: 1"=20'

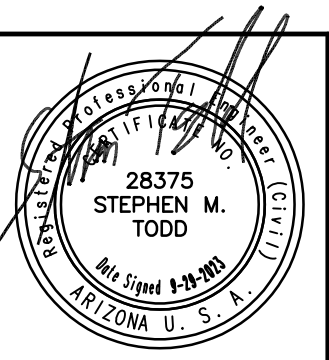


- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
  - 17 REMOVE AND REPLACE CURB & GUTTER PER MAG STD. DTL. 220-1, TYPE A, H=6" (130 LF)
  - 21 REPLACE LANDSCAPING IN KIND (TYP)

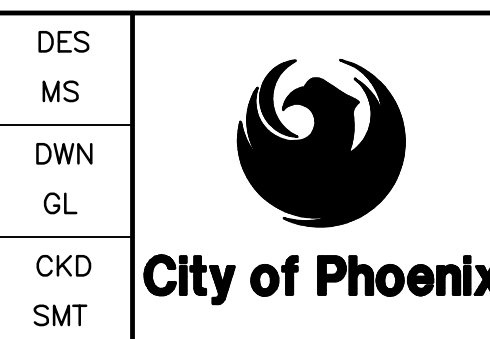


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REVISION ENGINEERING COMPANY PROJECT NO. PROJECT NAME DATE CAD FILE NAME DWG NUMBER REMARKS

PLAN SCALE: 1"=20'  
PROFILE HORIZ: 1"=20'  
VERT: 1"=4'



REVISIONS				
NO.	BY	DATE	CKD	REMARKS



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 41  
STA: 234+00 - STA: 238+00

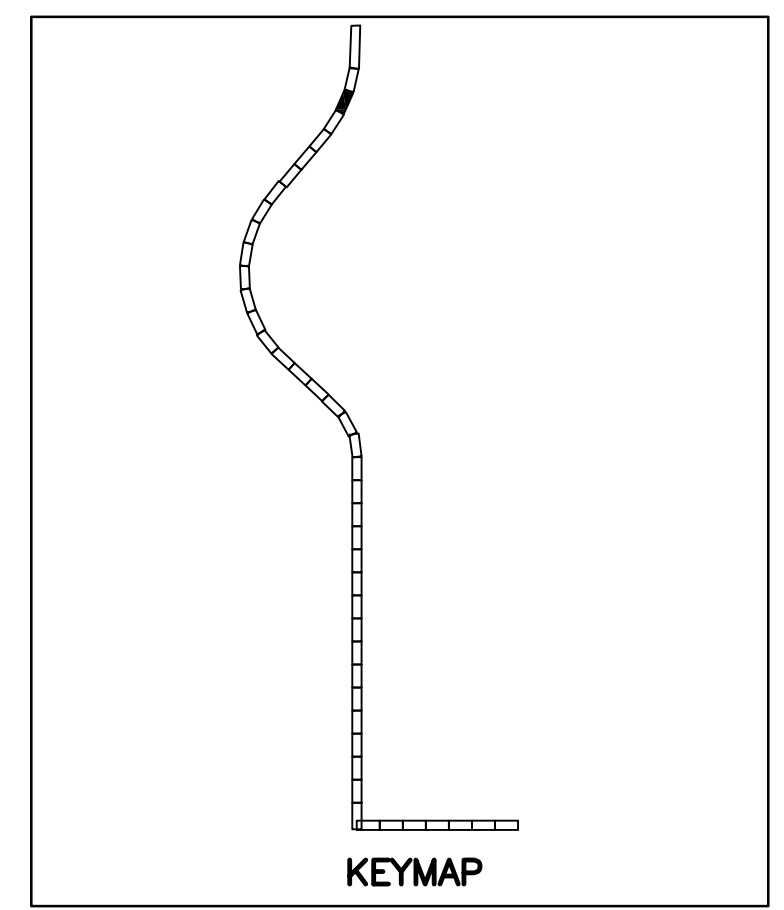
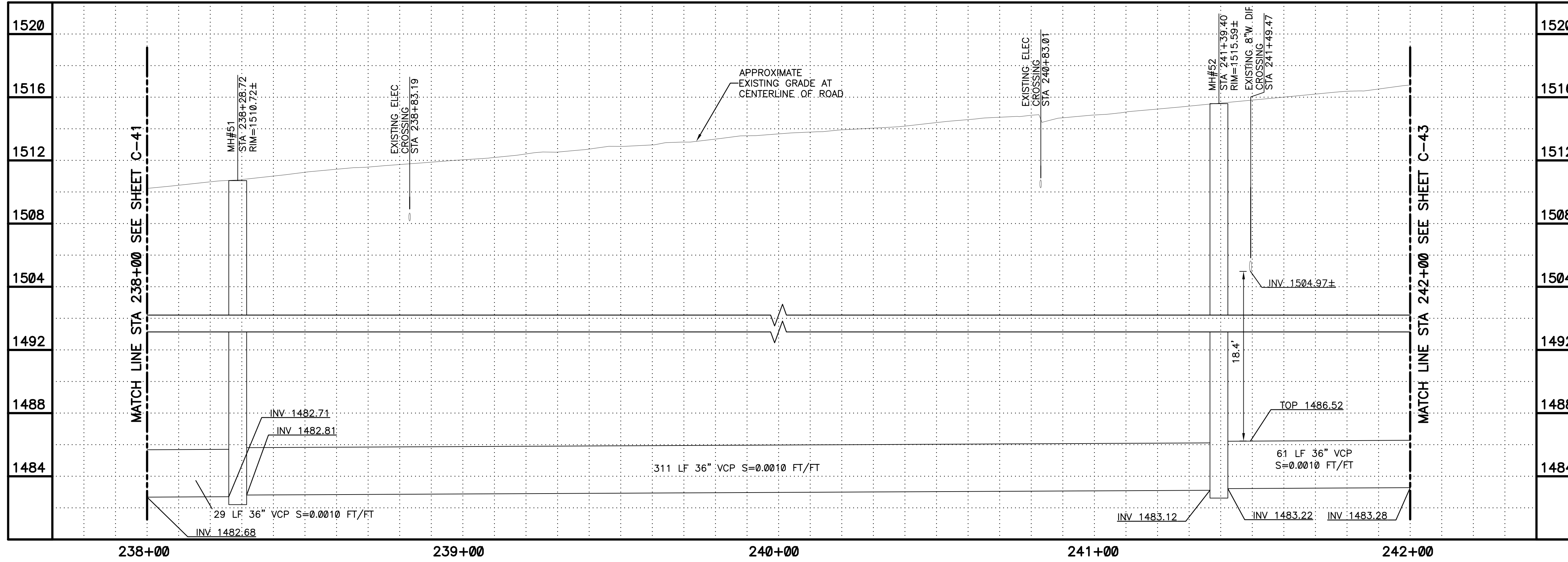
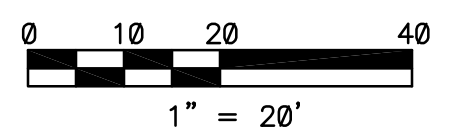
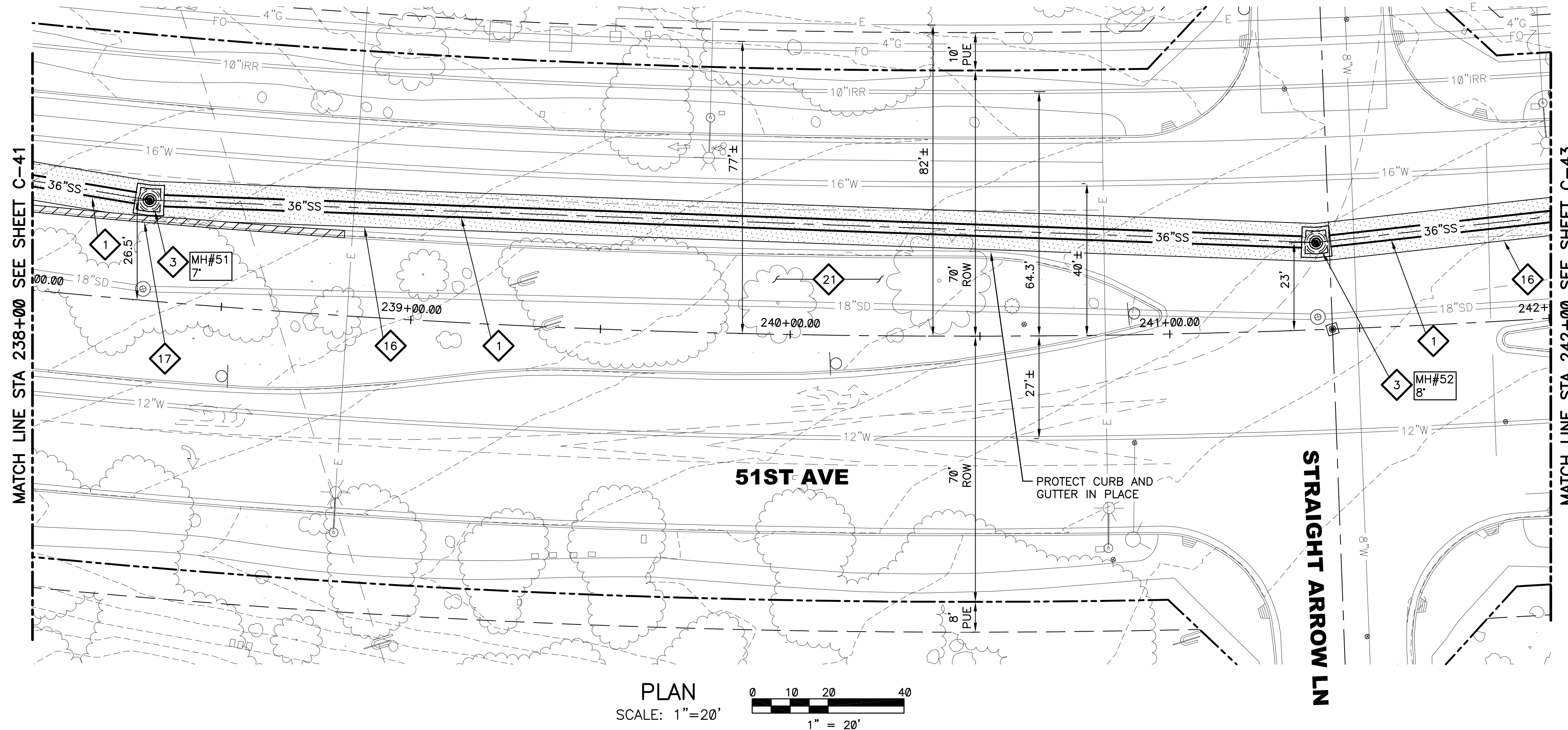
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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 41  
CAD FILE: PKG4B-C41

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CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

**ARIZONA 811**  
Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

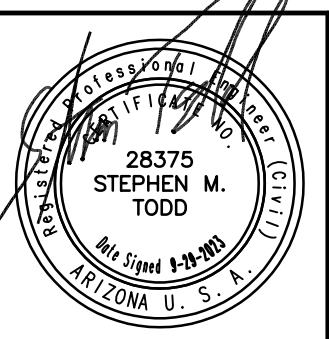
**PLAN**  
SCALE: 1"=20'

**PROFILE**  
HORIZ: 1"=20'  
VERT: 1"=4'

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 42  
CAD FILE: PKG4B-C42

**KEYED NOTES**

- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
- 3 DEFLECTION MANHOLE LESS THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-102
- 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
- 17 REMOVE AND REPLACE CURB & GUTTER PER MAG STD. DTL. 220-1, TYPE A, H=6" (80 LF)
- 21 REPLACE LANDSCAPING IN KIND (TYP)



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN  
GL  
CKD  
SMT

**City of Phoenix**

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 42  
STA: 238+00 - STA: 242+00

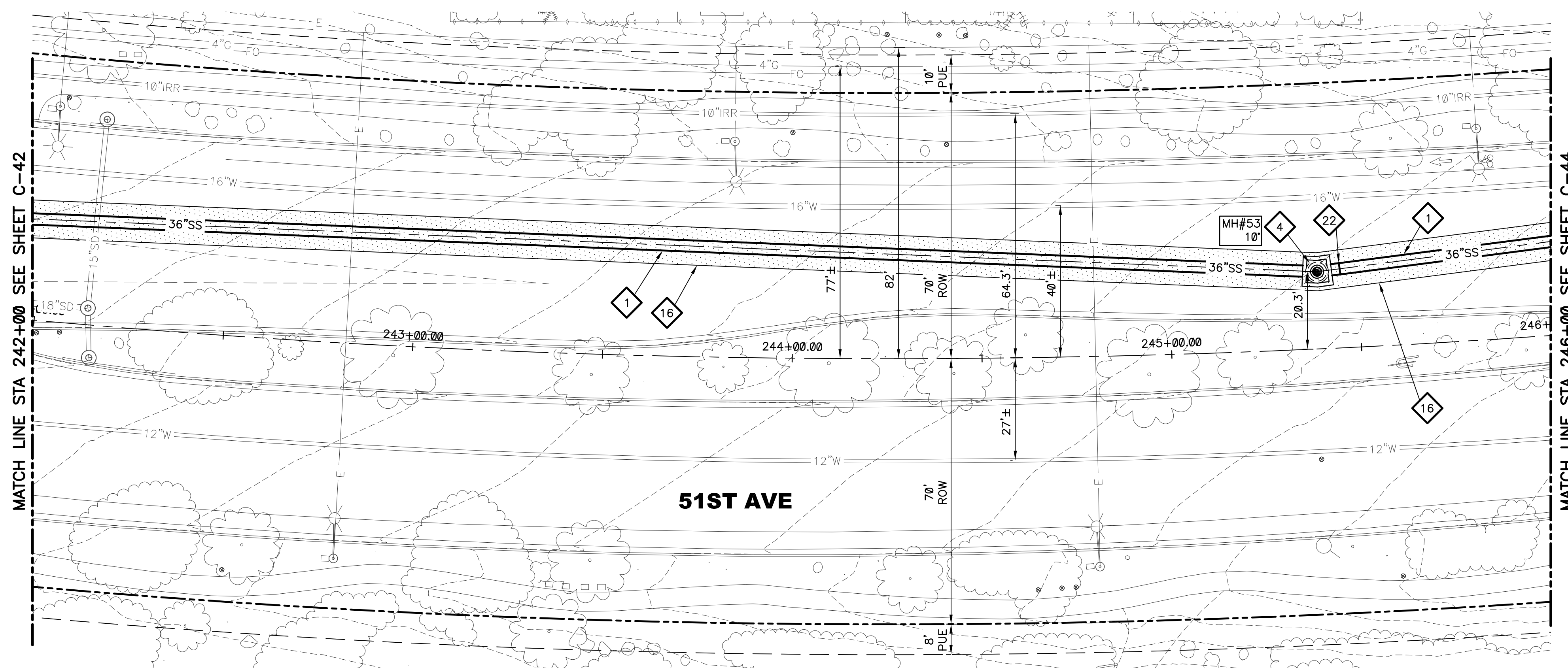
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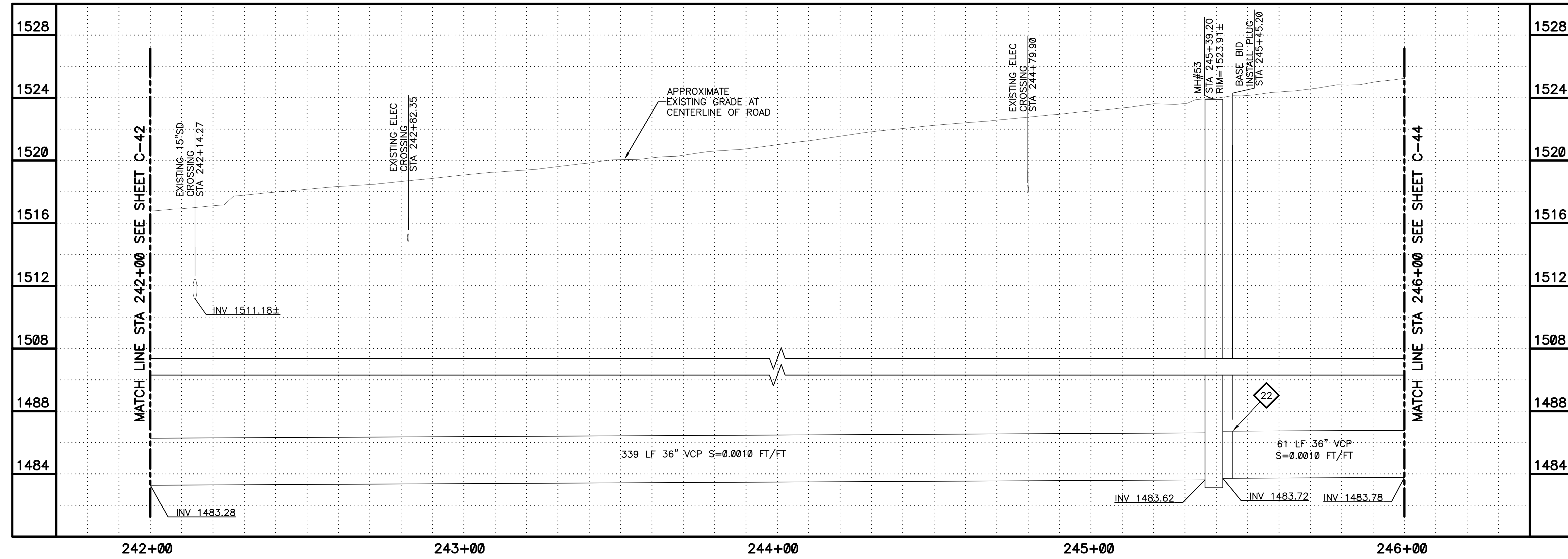
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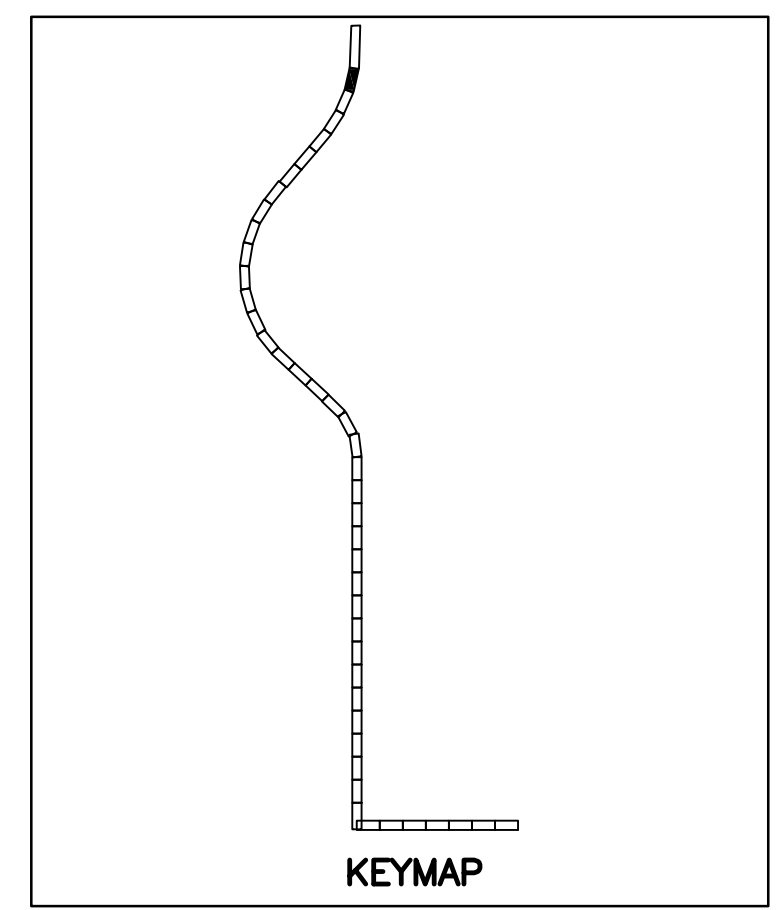
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PLAN  
SCALE: 1"=20'



- KEYED NOTES**
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 4 DEFLECTION MANHOLE GREATER THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-102
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
  - 22 VCP STUB OUT AND PLUG PER MAG STD. DTL. 427



CALL AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION.

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Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

PLAN SCALE: 1"=20'  
PROFILE HORIZ: 1"=20'  
VERT: 1"=4'



REVISIONS				
NO.	BY	DATE	CKD	REMARKS

DES MS  
DWN  
GL  
CKD  
SMT

City of Phoenix

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
PLAN AND PROFILE 43  
STA: 242+00 - STA: 246+00

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CITY PROJECT NO. WS90500307  
DATE: SEPTEMBER 2023  
C SHEET 43  
CAD FILE: PKG4B-C43

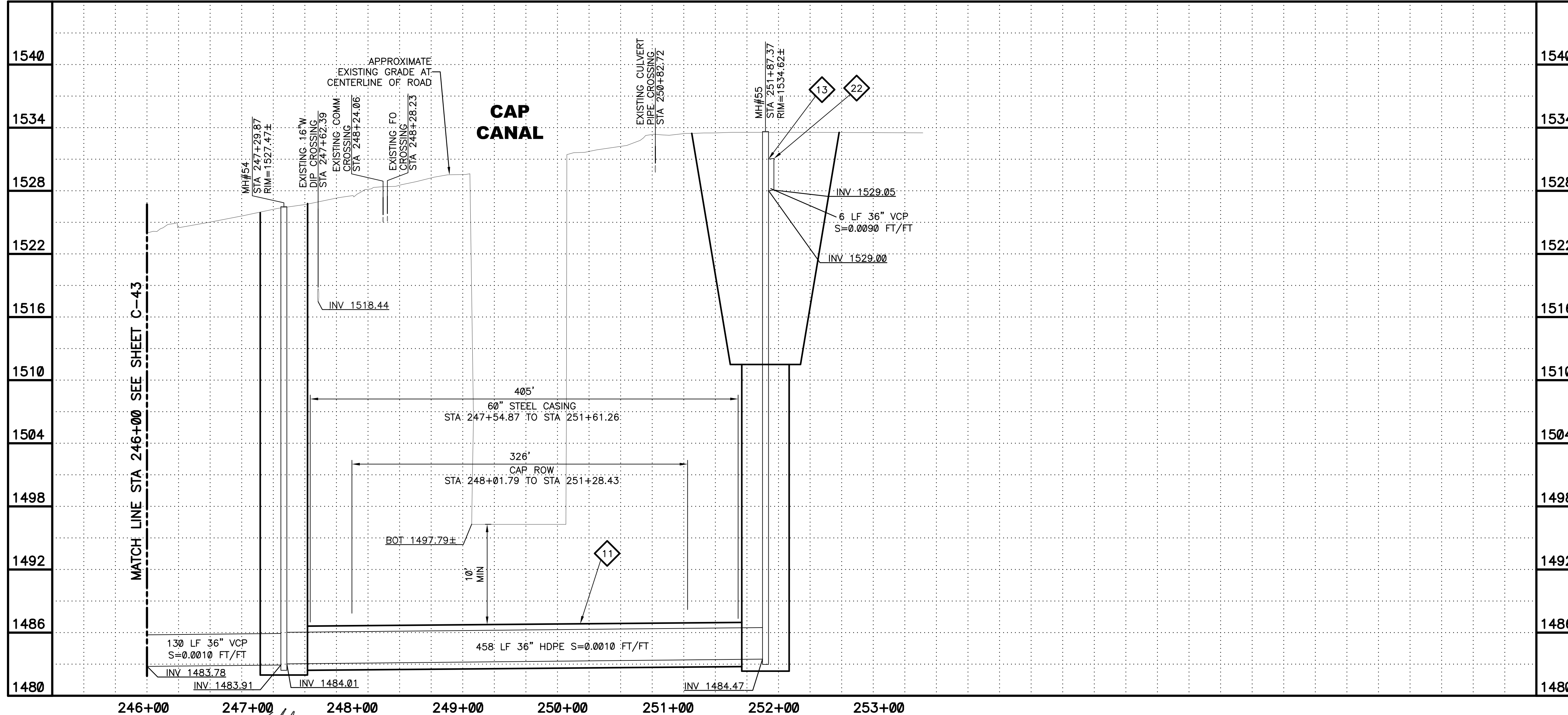
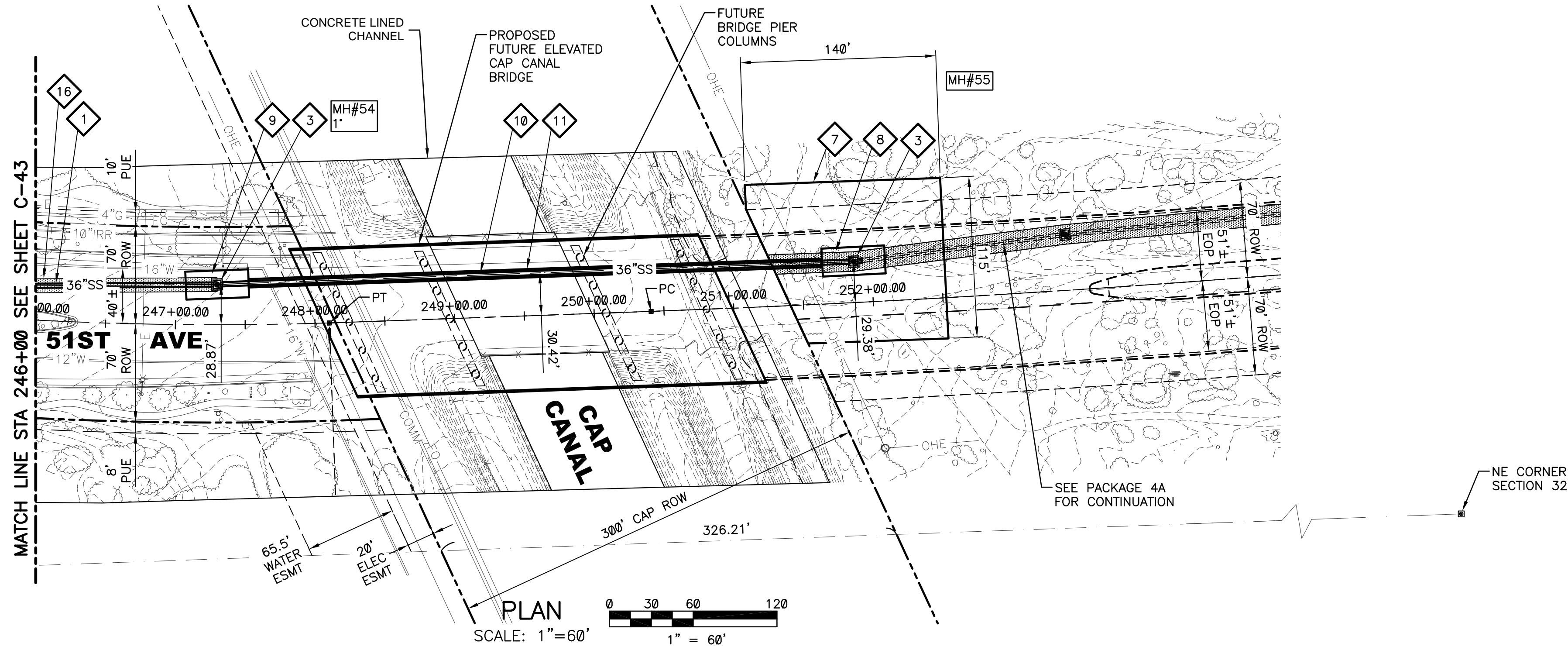
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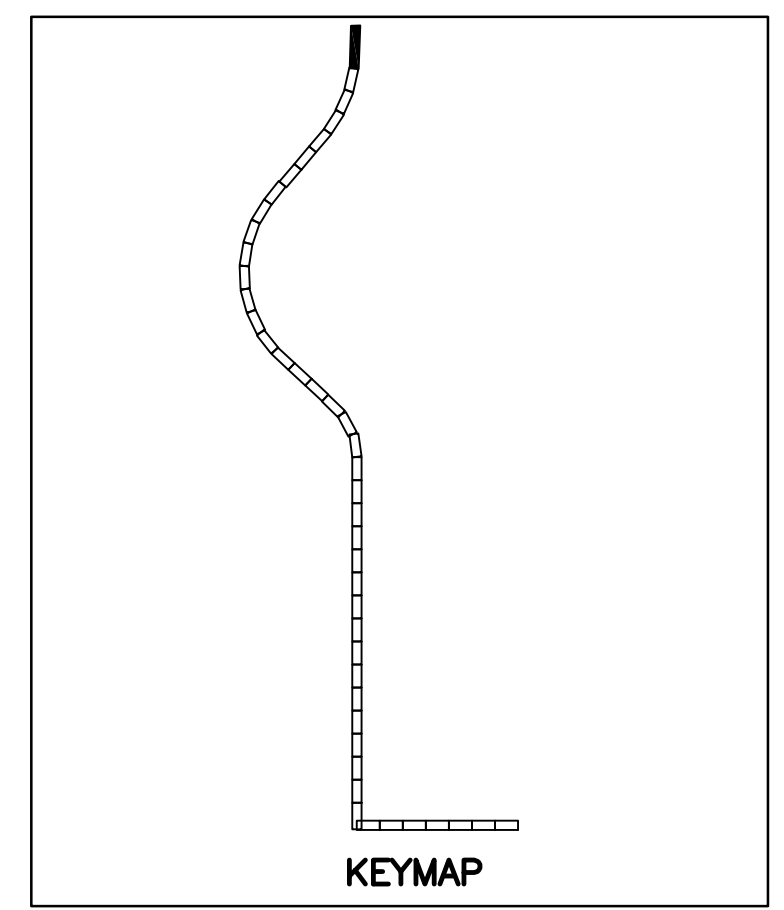
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- ### KEYED NOTES
- 1 36" VCP SANITARY SEWER. TRENCH PER COP STD. DTL. P1120 (SEE SHEETS C-104 AND C-105)
  - 3 DEFLECTION MANHOLE LESS THAN 10 DEGREES PER DETAIL 302 SHEET C-102 AND SHEET S-102
  - 7 ACCESS PIT
  - 8 JACK AND BORE PIT (20' x 45')
  - 9 RECEIVING PIT (20' x 45')
  - 10 36" CLASS 100 DIPS HDPE GRAVITY SEWER. TRENCH PER DETAIL 403 SHEET C-103
  - 11 60" STEEL CASING (0.625" MIN WALL THICKNESS) PER MAG STD. SPEC 602 AND DETAIL 401 AND 402 SHEET C-103
  - 13 TYPE B DROP SEWER CONNECTION PER MAG STD. DTL. 426
  - 16 SAWCUT REMOVE AND REPLACE AC PAVEMENT PER MAG SPEC 336 AND DETAIL 200-1, TYPE A
  - 22 VCP STUB OUT AND PLUG PER MAG STD. DTL. 427



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**ARIZONA 811**  
Arizona Blue Stake, Inc.

DIAL 811 OR 1-800-STAKE-IT (782-5348)  
IN MARICOPA COUNTY: (602)263-1100

**PLAN**  
SCALE: 1"=60'

**PROFILE**  
HORIZ: 1"=60'  
VERT: 1"=6'

NO.	BY	DATE	CKD	REVISIONS	REMARKS

**WILSON ENGINEERS**

28375 STEPHEN M. TODD

NO.	BY	DATE	CKD	REVISIONS	REMARKS

**City of Phoenix**

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT

**NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B**

CIVIL

**PLAN AND PROFILE 44**  
STA: 246+00 - STA: 253+00

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CITY PROJECT NO. WS90500307

DATE: SEPTEMBER 2023

C SHEET 44

CAD FILE: PKG4B-C44

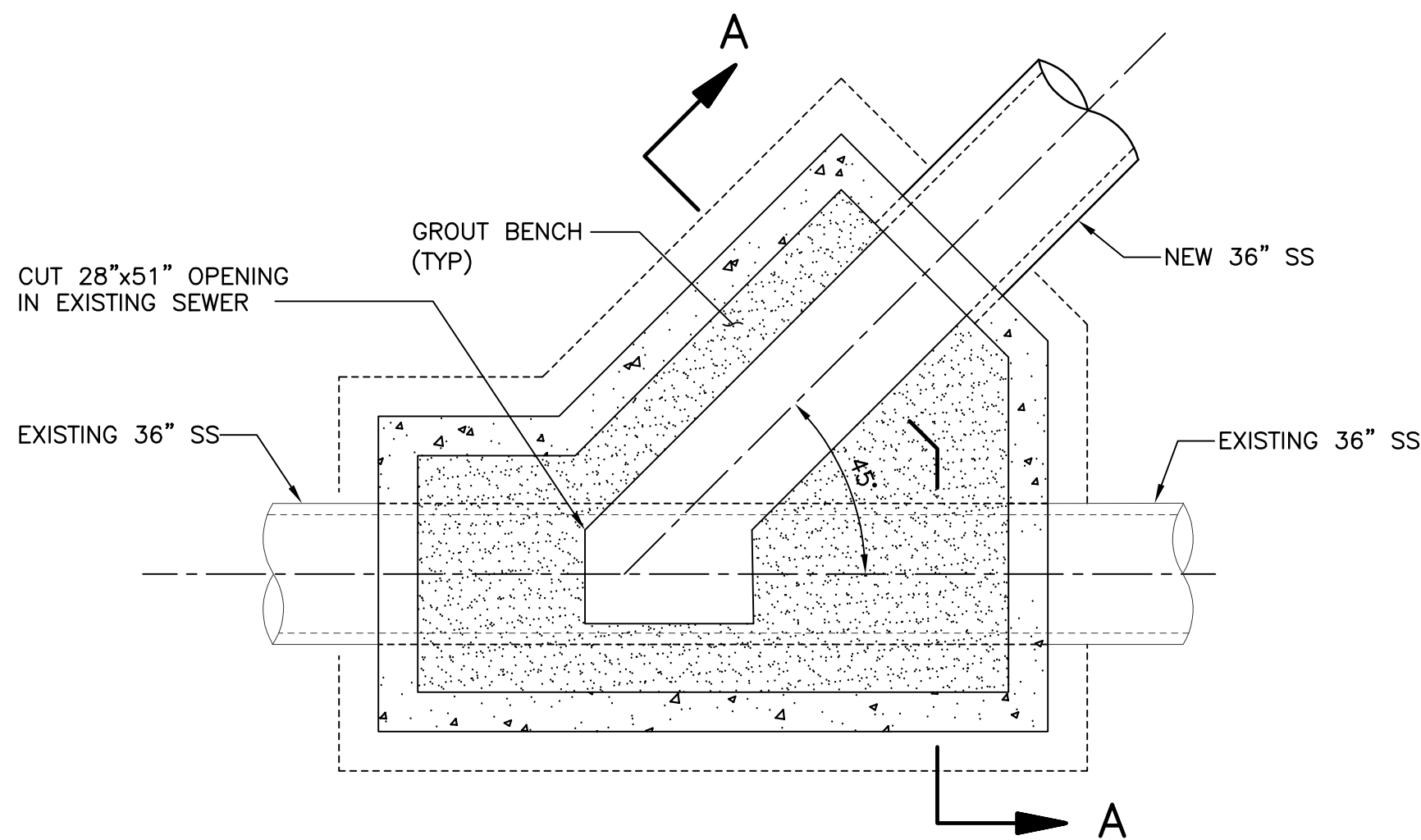
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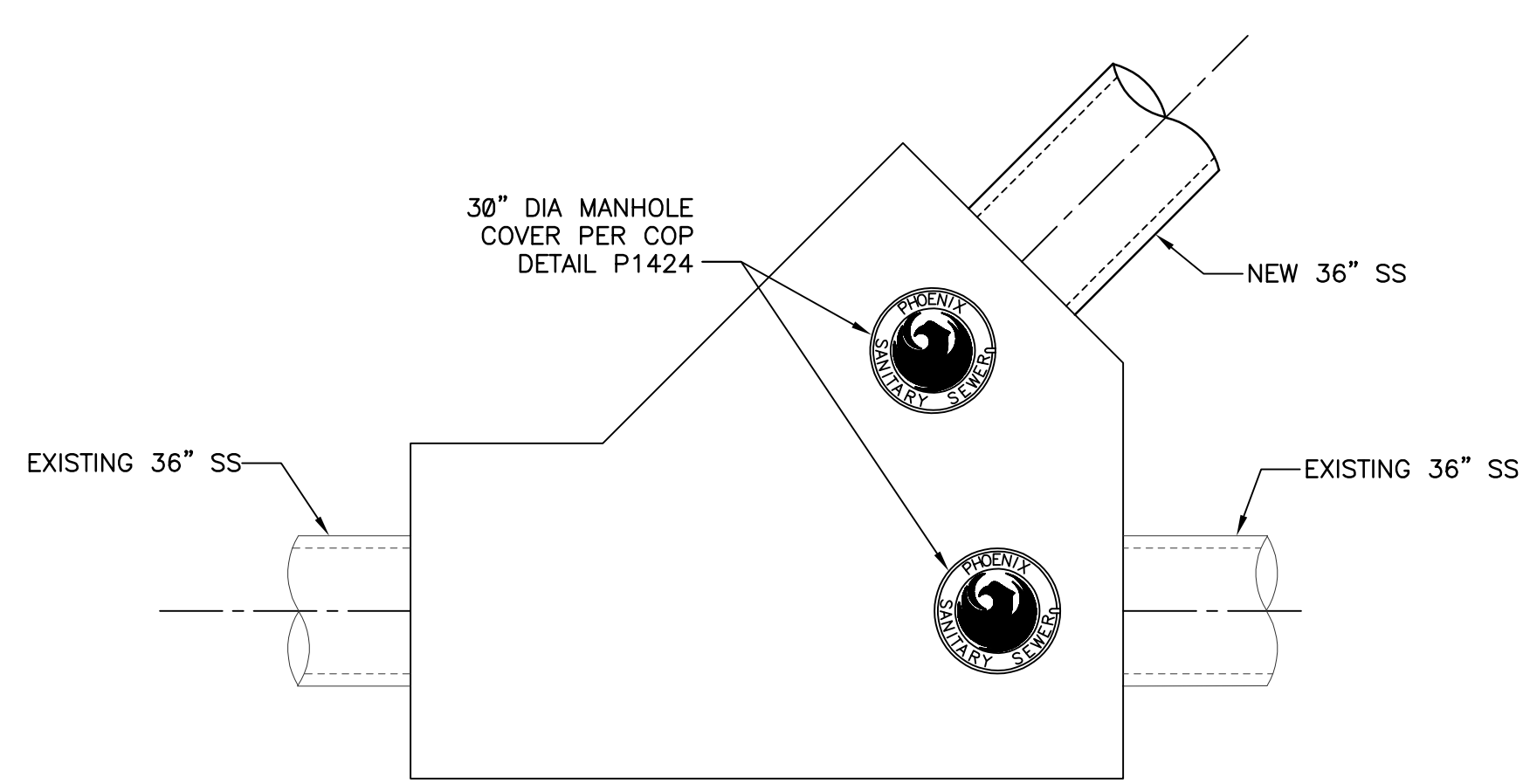
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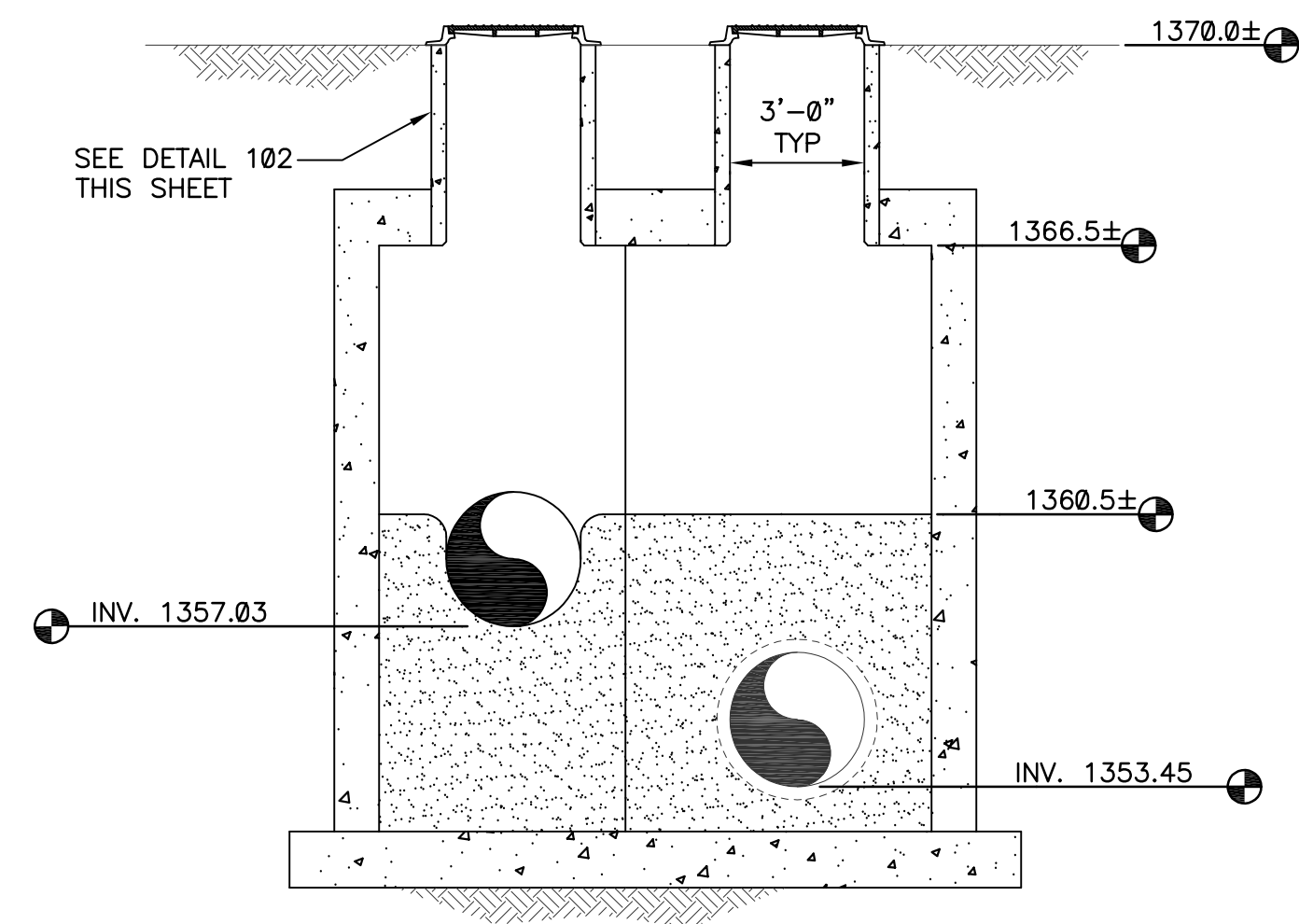
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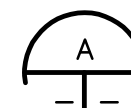


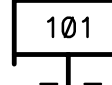
PINNACLE PEAK JUNCTION STRUCTURE  
LOWER PLAN

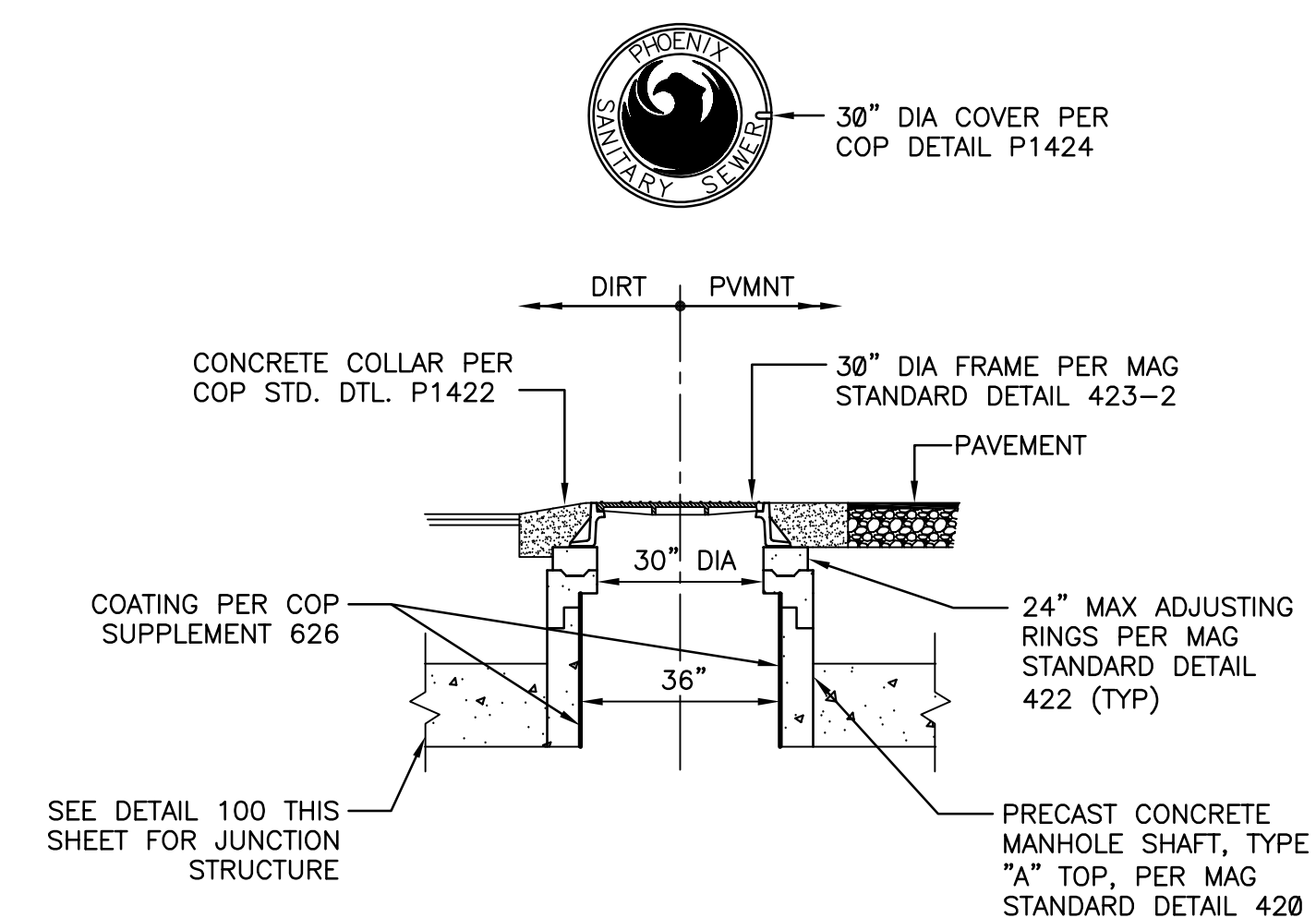


PINNACLE PEAK JUNCTION STRUCTURE  
UPPER PLAN



SECTION   
SCALE: 1/4"=1'-0"

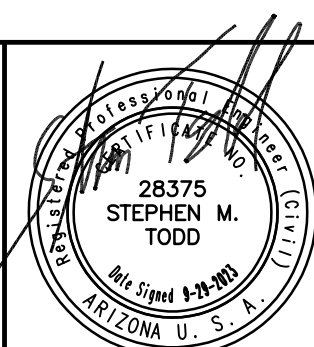
DETAIL   
SCALE: 1/4"=1'-0"



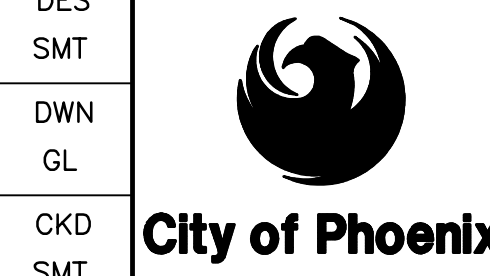
MANHOLE SHAFT FOR  
JUNCTION STRUCTURE

DETAIL   
SCALE: 3/8"=1'-0"

REVISION #	DATE	CAD FILE NAME	DWG NUMBER	REMARKS



REVISIONS				
NO.	BY	DATE	CKD	REMARKS



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

JUNCTION STRUCTURE PLAN AND SECTION

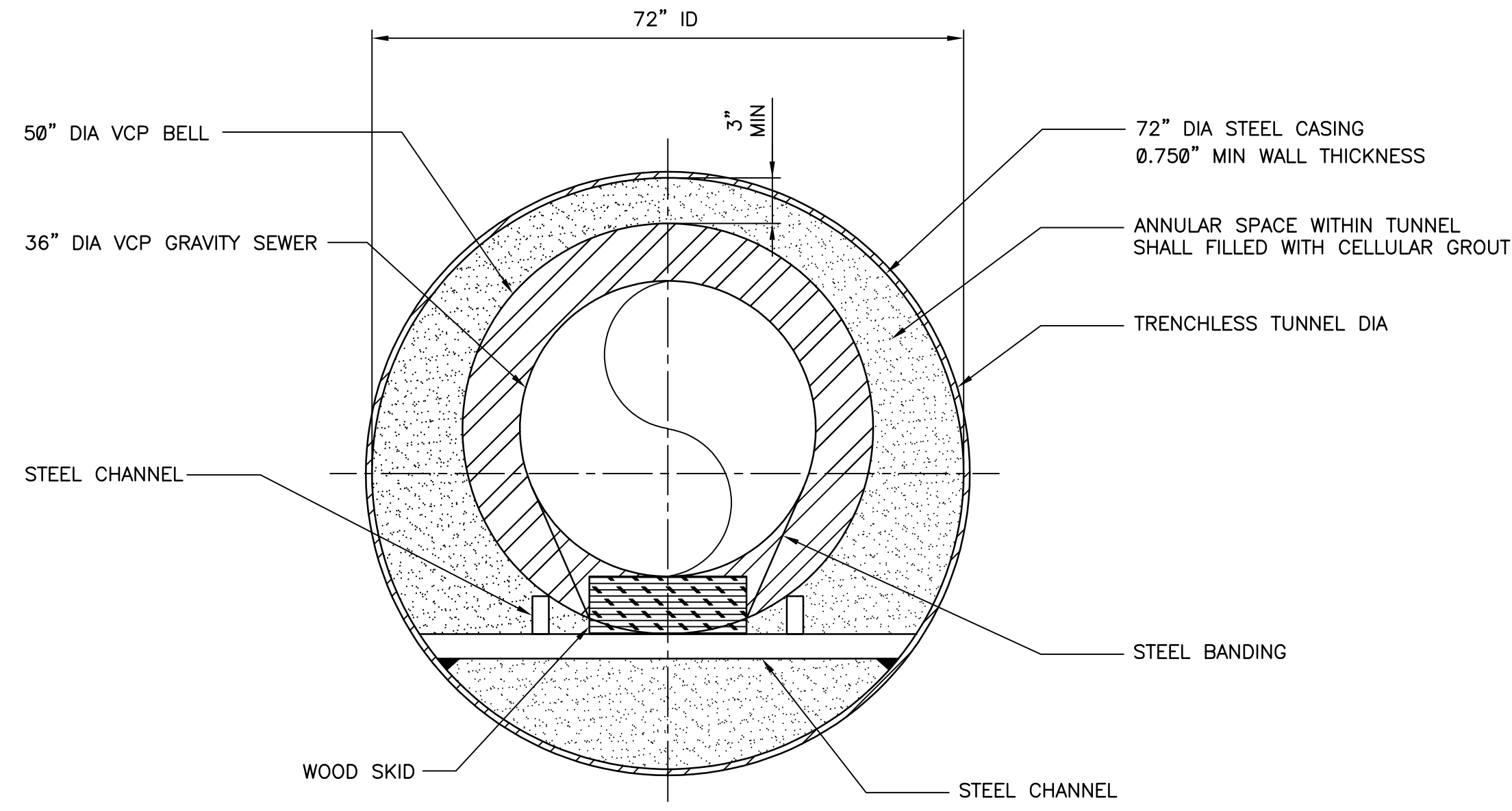
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DATE: SEPTEMBER 2023  
C SHEET 100  
CAD FILE: PKG4B-C100

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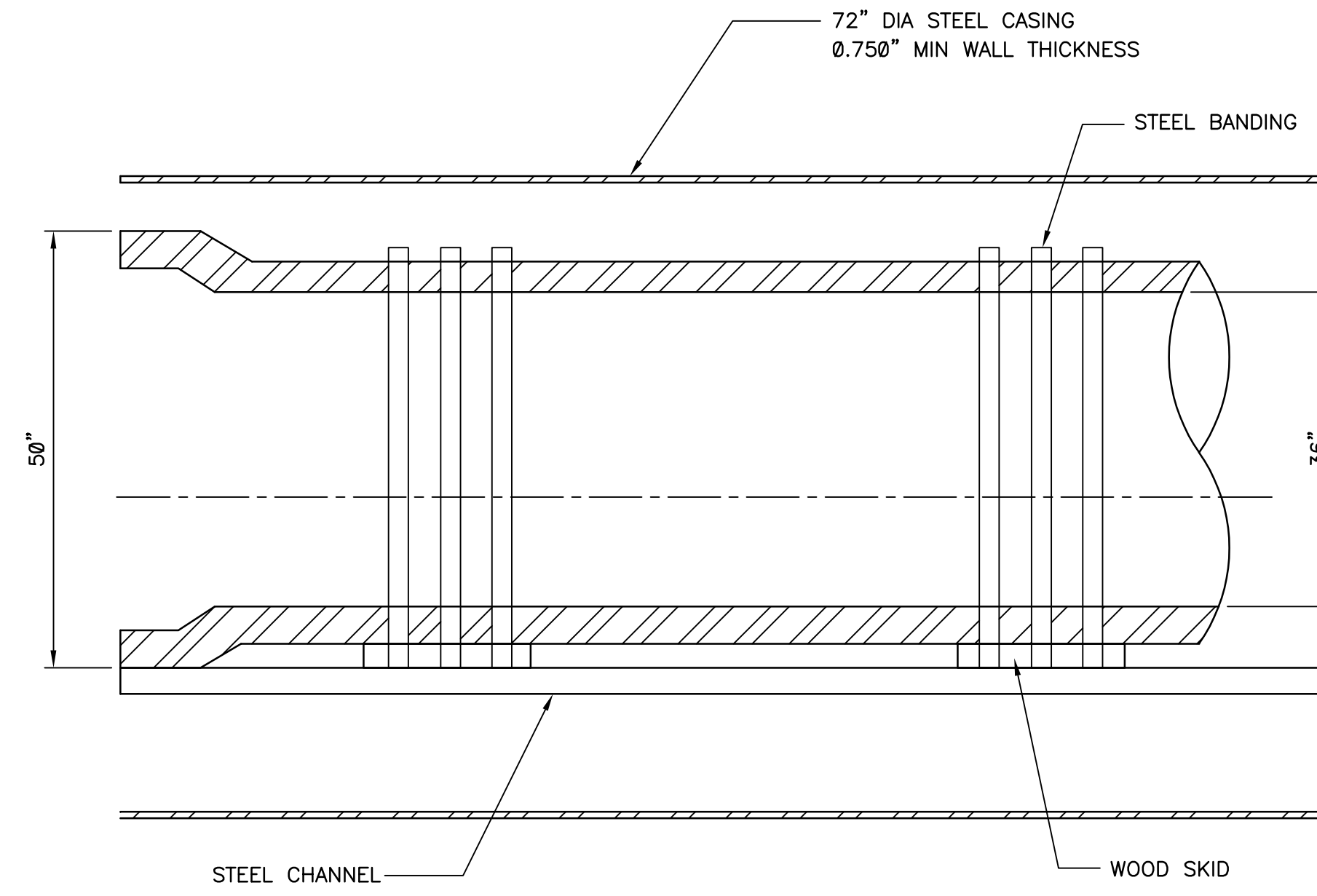
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TRENCHLESS TUNNEL SECTION FRONT VIEW

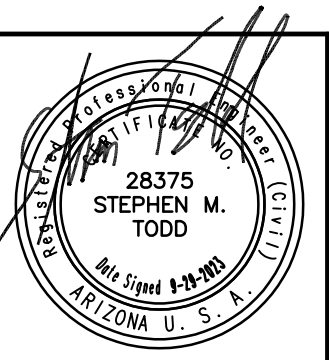


TRENCHLESS TUNNEL SECTION SIDE VIEW

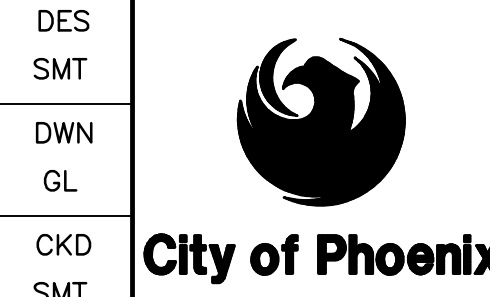
- NOTE:
- CONTRACTOR TO VERIFY INVERT OF TUNNEL MAINTAINS PIPE INVERTS AND ACCOMMODATES GUIDE STEEL.
  - ENDS OF CASING SHALL HAVE BLOCK AND MORTAR PLUG PER MAG STD. DTL. 427

DETAIL 201  
NOT TO SCALE

REVISION #	ENGINEERING COMPANY	PROJECT NO.	PROJECT NAME	DATE	CAD FILE NAME	DWG NUMBER	REMARKS
1							
2							
3							
4							



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NO.	BY	DATE	CKD	REMARKS	SMT



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
VCP CASING DETAILS

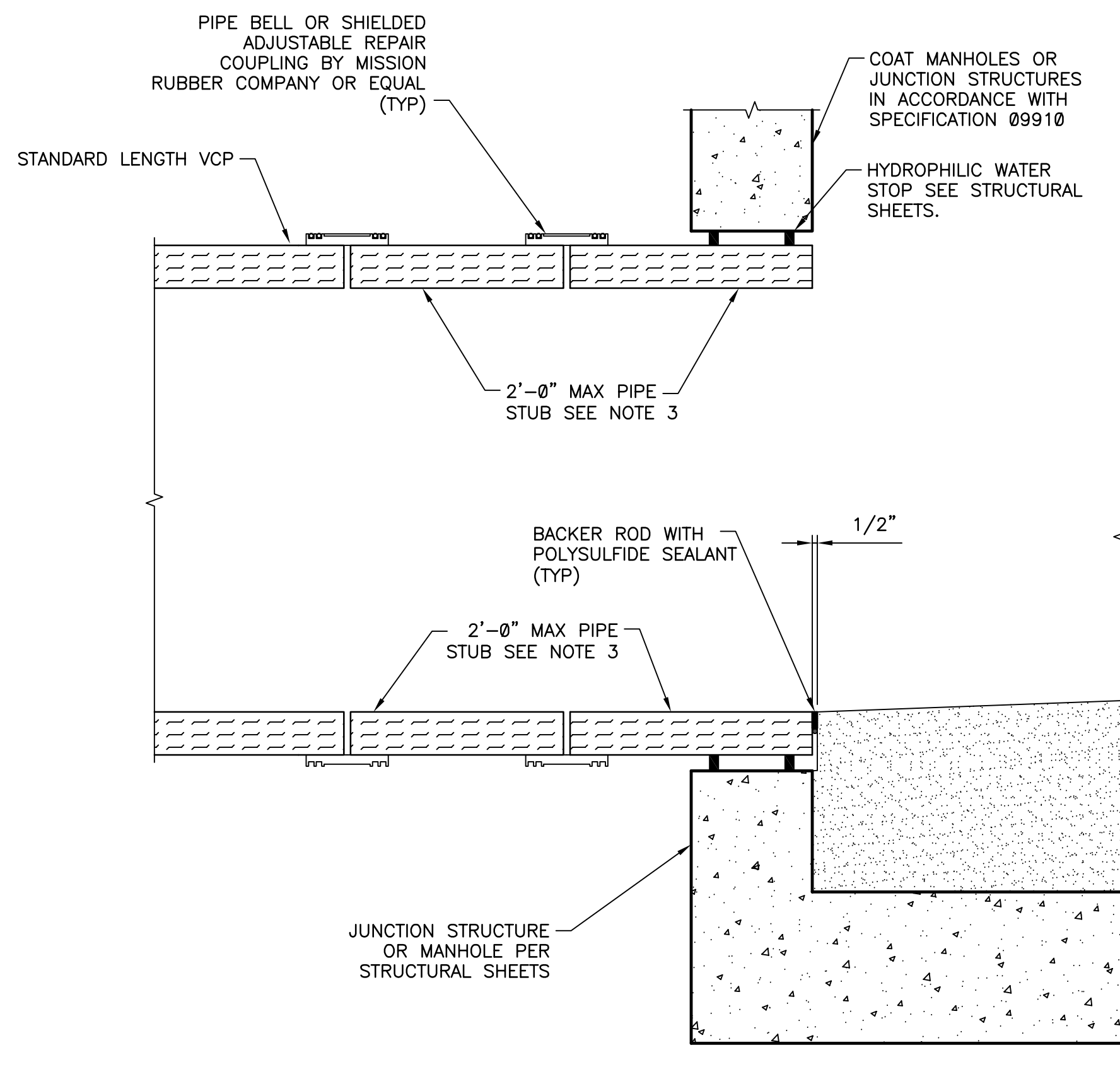
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DATE: SEPTEMBER 2023  
C SHEET 101  
CAD FILE: PKG4B-C101

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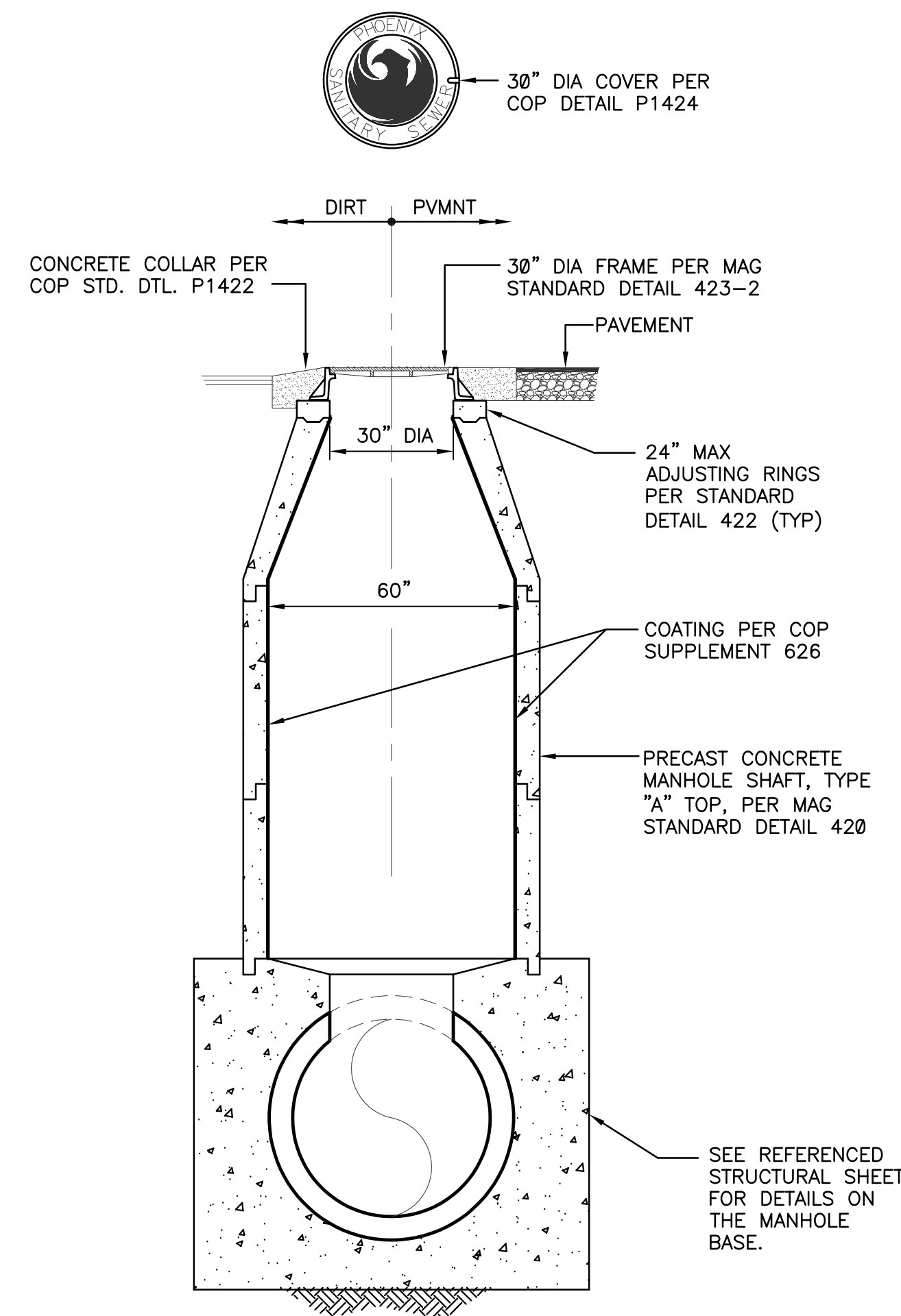


VCP CONNECTION TO JUNCTION STRUCTURE OR MANHOLE

DETAIL 301  
SCALE: 1"=1'-0"

NOTES:

- VCP PIPE CONNECTION TO JUNCTION STRUCTURES OR MANHOLES SHALL CONFORM TO RECOMMENDATION IN NATIONAL CLAY PIPE INSTITUTE - VITRIFIED CLAY PIPE ENGINEERING MANUAL.
- CONTRACTOR SHALL USE EXTREME CAUTION IN CONSTRUCTION OF JUNCTION STRUCTURES OR MANHOLES TO ASSURE AN UNYIELDING FOUNDATION. SETTLEMENT OF JUNCTION STRUCTURE OR MANHOLE MAY CAUSE DAMAGE TO THE ADJACENT VCP PIPE.
- ALL PIPE SHALL BE FACTORY PRODUCED CLAY PIPE. PIPE MAY BE SHOP CUT TO LENGTH
- TWO POINTS OF FLEXIBILITY SHALL BE USED WITHIN 36-INCHES OF EACH MANHOLE AND VCP PIPE CONNECTION BY USING TWO SHORT LENGTHS OF 24-INCH MAXIMUM STUBS AT EACH CONNECTION.
- NO MORTAR OR GROUT SHALL BE PLACED BETWEEN VCP PIPE AND CONCRETE WALL STRUCTURE.
- VCP PIPE SHALL BE CENTERED IN MANHOLE OPENING.

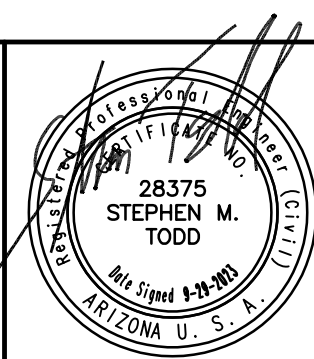


TYPE 'A' MANHOLE

DETAIL 302  
SCALE: 3/8"=1'-0"

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**WILSON ENGINEERS**



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**City of Phoenix**

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
MANHOLE DETAILS

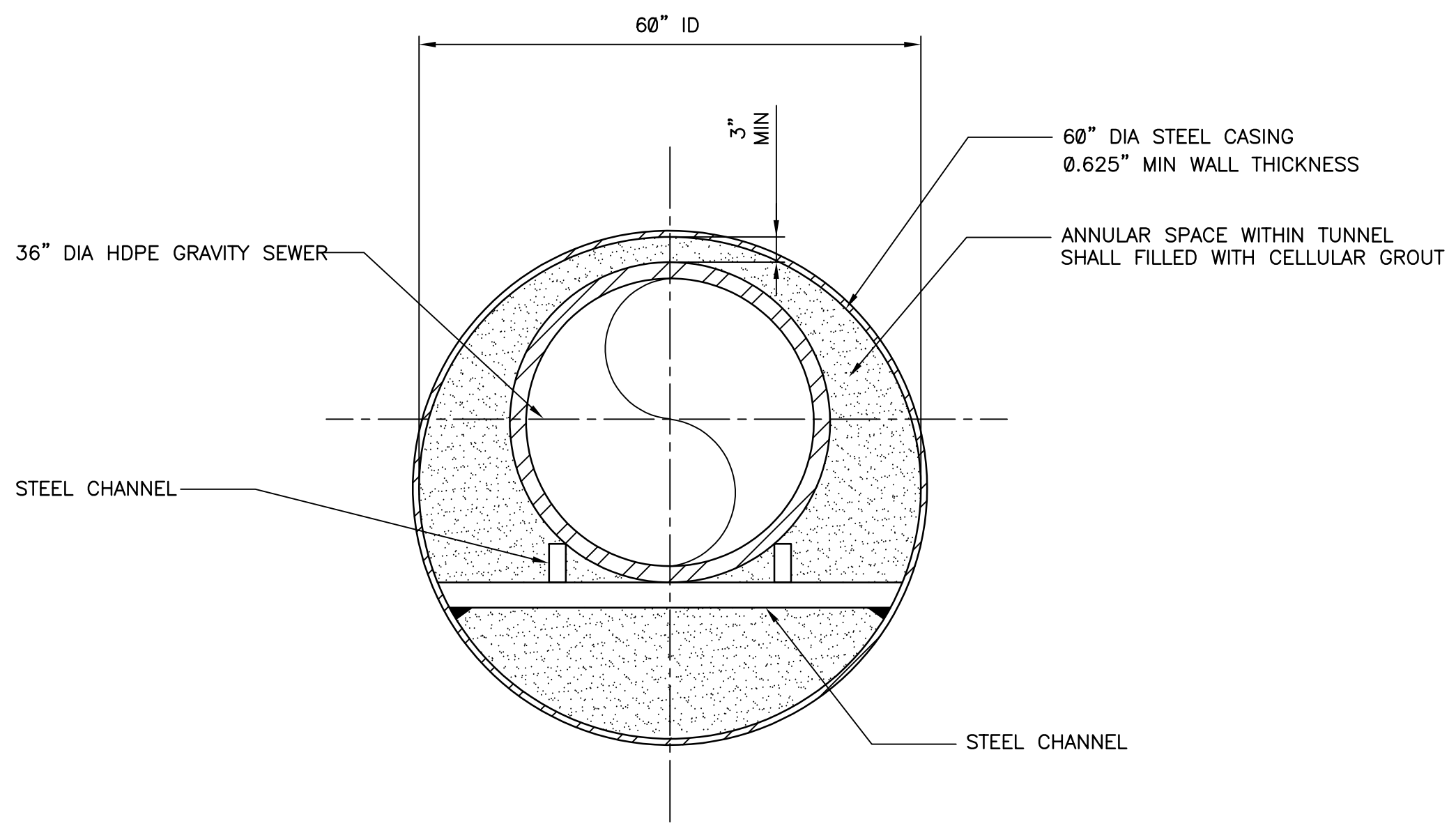
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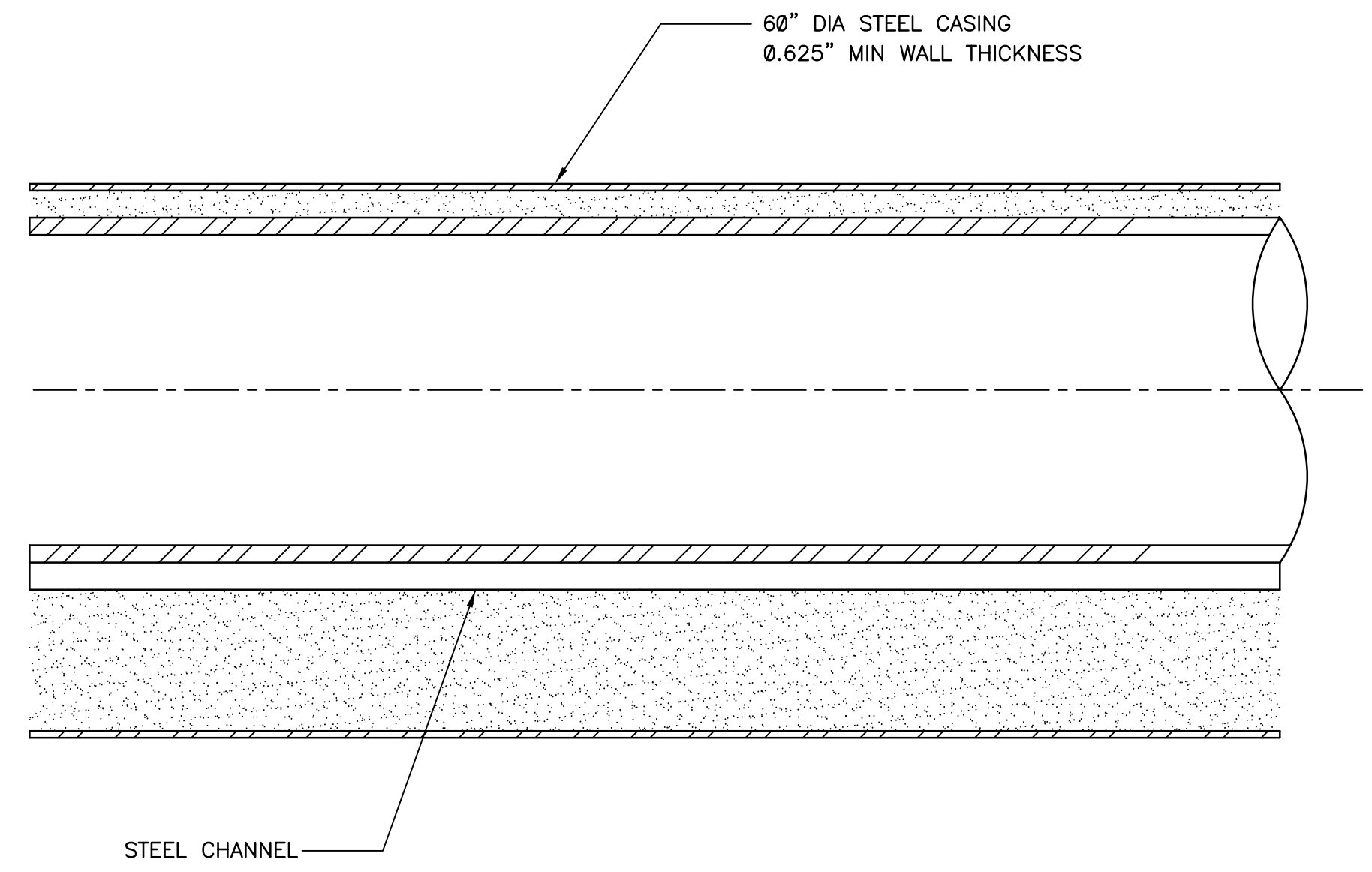
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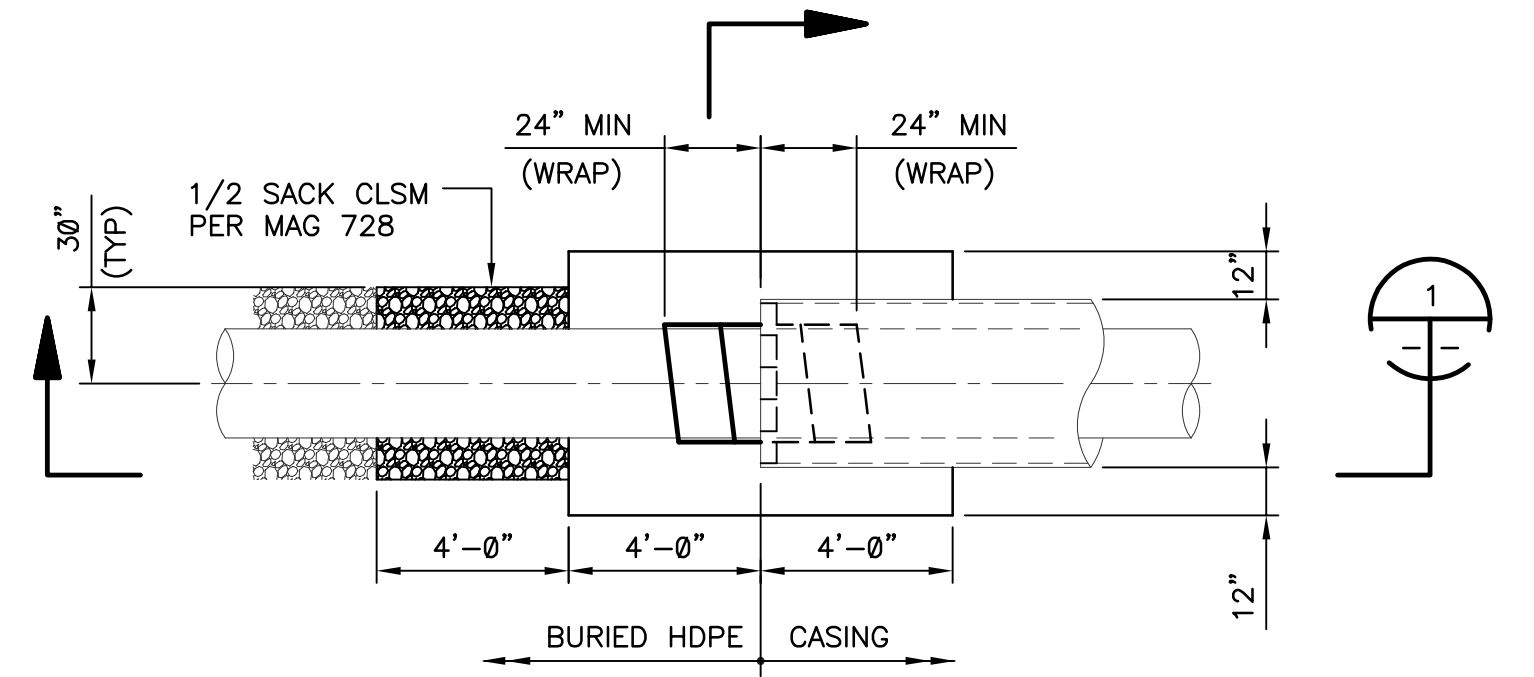
TRENCHLESS TUNNEL SECTION FRONT VIEW



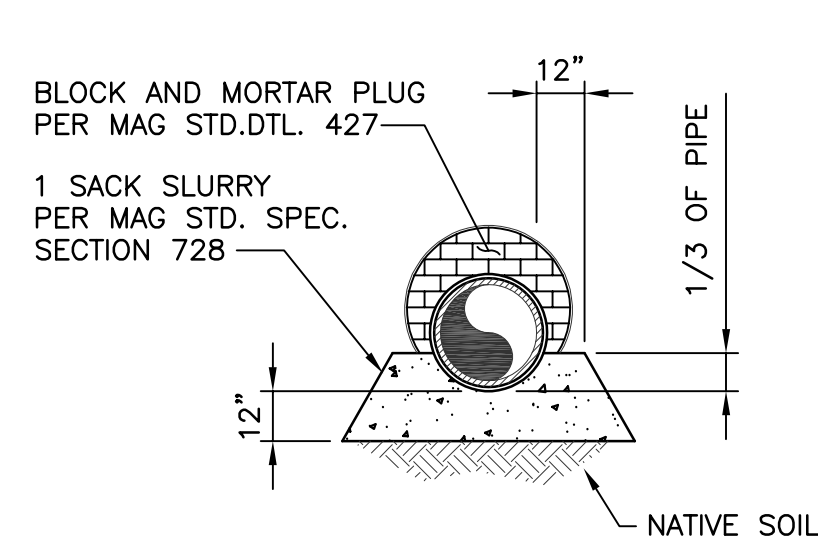
TRENCHLESS TUNNEL SECTION SIDE VIEW

NOTE:  
1. CONTRACTOR TO VERIFY INVERT OF TUNNEL MAINTAINS PIPE INVERTS AND ACCOMMODATES GUIDE STEEL.

DETAIL 401  
NOT TO SCALE

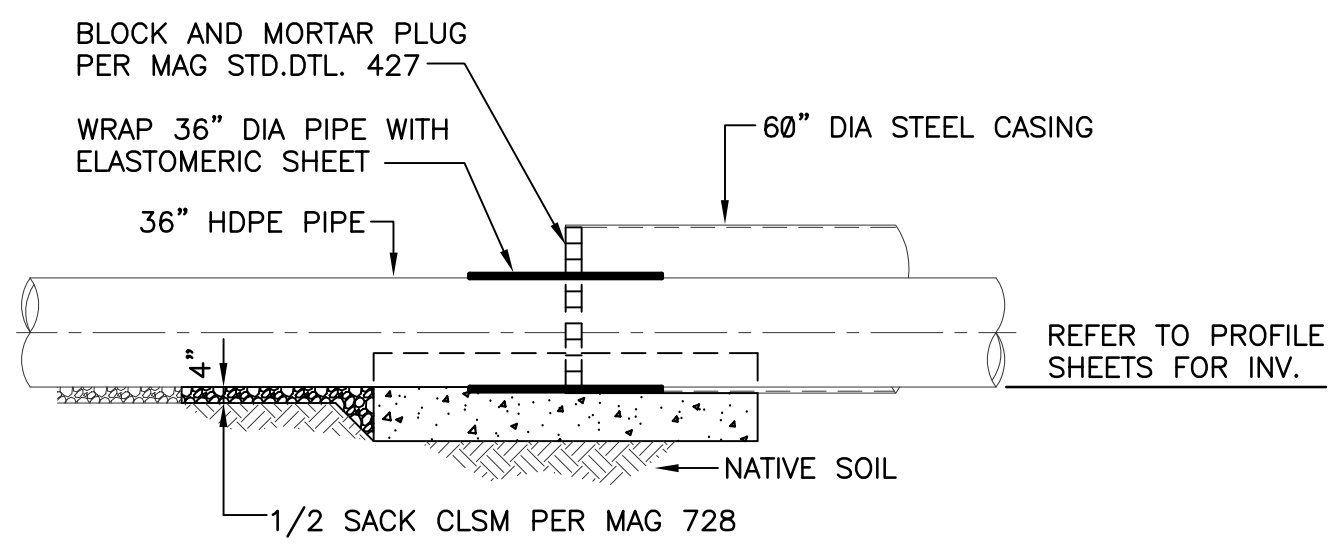


PLAN



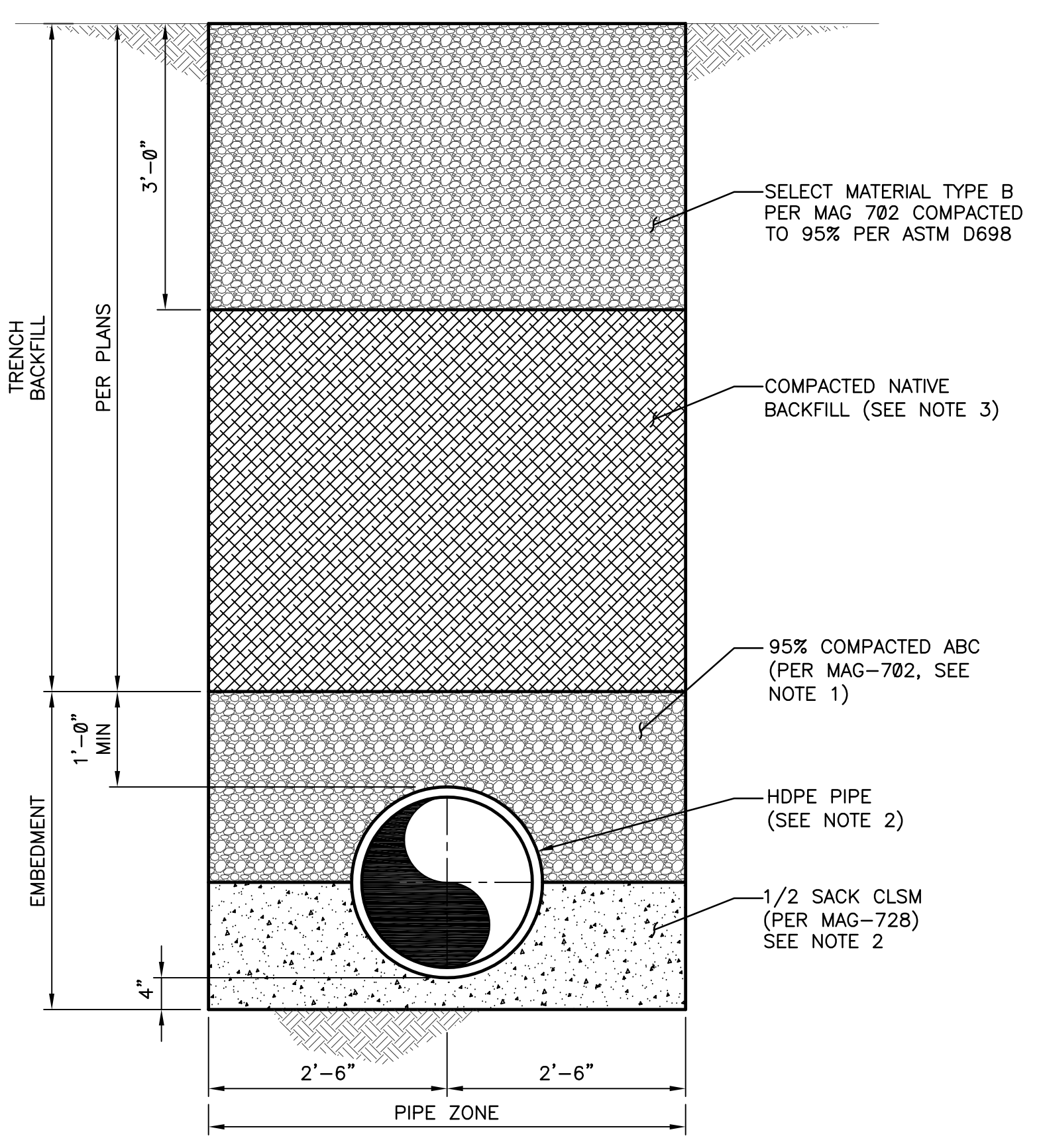
SECTION 1

CASING ENTRANCE/EXIT DETAIL



SECTION 2

DETAIL 402  
NOT TO SCALE

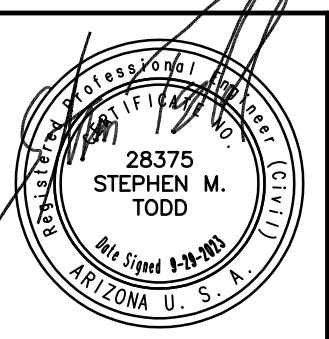
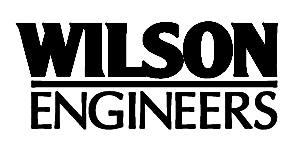


HDPE TRENCH DETAIL

DETAIL 403  
NOT TO SCALE

- NOTES:**
1. CONTRACTOR MAY SUBSTITUTE 1/2 SACK CLSM FOR COMPACTED ABC ABOVE SPRINGLINE OF PIPE
  2. CONTRACTOR SHALL TAKE REQUIRED PREVENTATIVE MEASURES TO HOLD PIPE IN PLACE TO PREVENT PIPE FLOTATION DURING PLACEMENT OF CLSM. 95%.
  3. NATIVE SOIL BACKFILL PER MAG 601, OR ABC PER MAG 702 AND 601, BACKFILL COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY UNLESS OTHERWISE SPECIFIED.
  4. TRENCH EXCAVATION SHALL BE SLOPED, PROTECTED SHORED, OR BRACED IN COMPLIANCE WITH OSHA AND ALL GOVERNING LOCAL, STATE, AND FEDERAL GUIDELINES.
  5. NO SECTION OF PIPE, PIPE APPURTENANCE OR STRUCTURE SHALL BE BACKFILLED UNTIL THE INSPECTOR HAS EXAMINED AND APPROVED THAT SECTION OF THE INSTALLATION.
  6. WATER CONSOLIDATION BY JETTING, PUDDLING OR FLOODING SHALL NOT BE USED AS A COMPACTION METHOD.
  7. EMBEDMENT SHALL BE PLACED IN LIFTS NOT TO EXCEED 8-INCHES.

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NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

CIVIL  
HDPE PIPE CASING

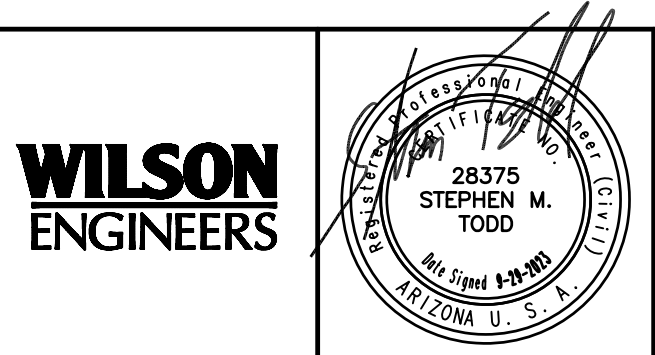
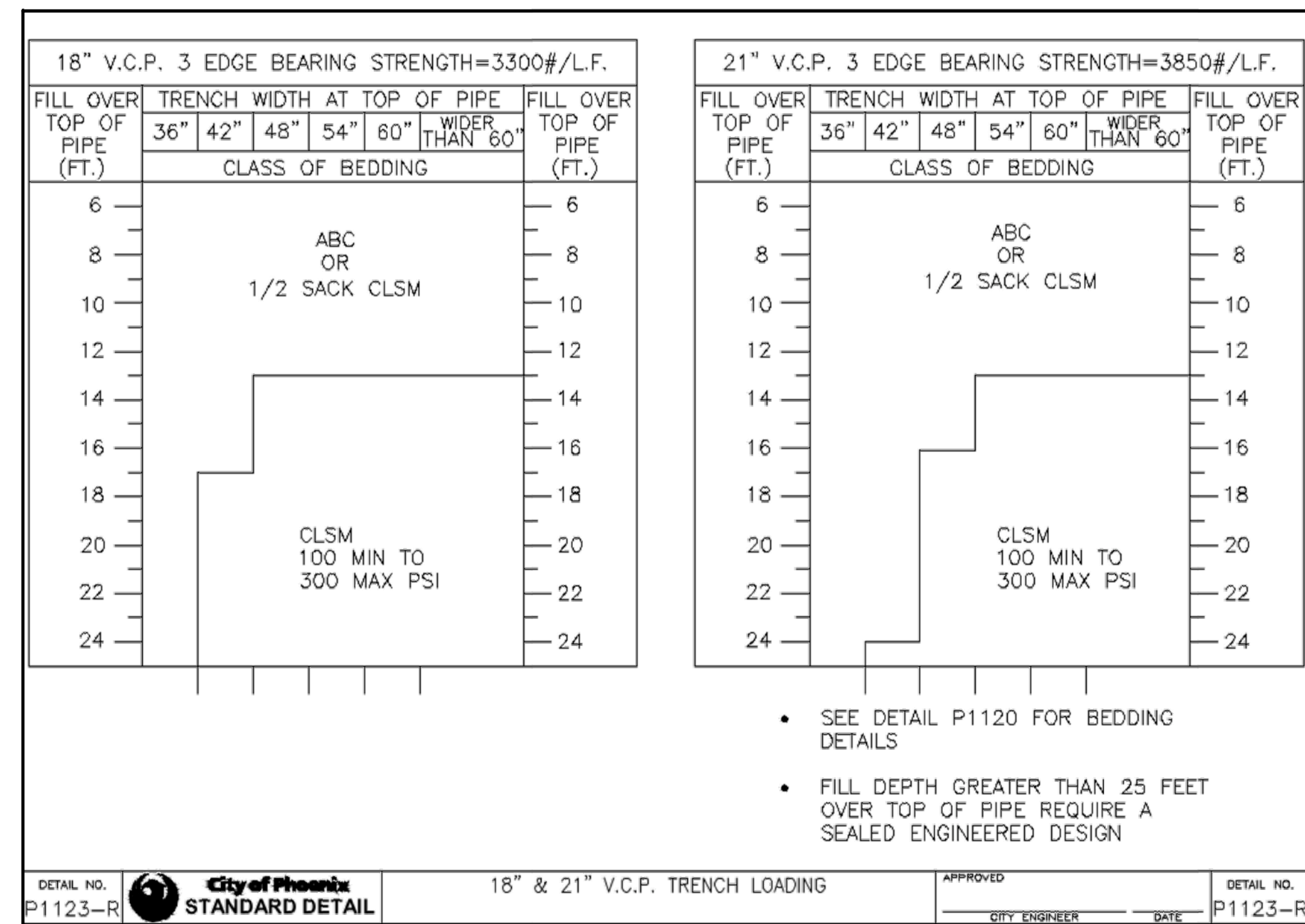
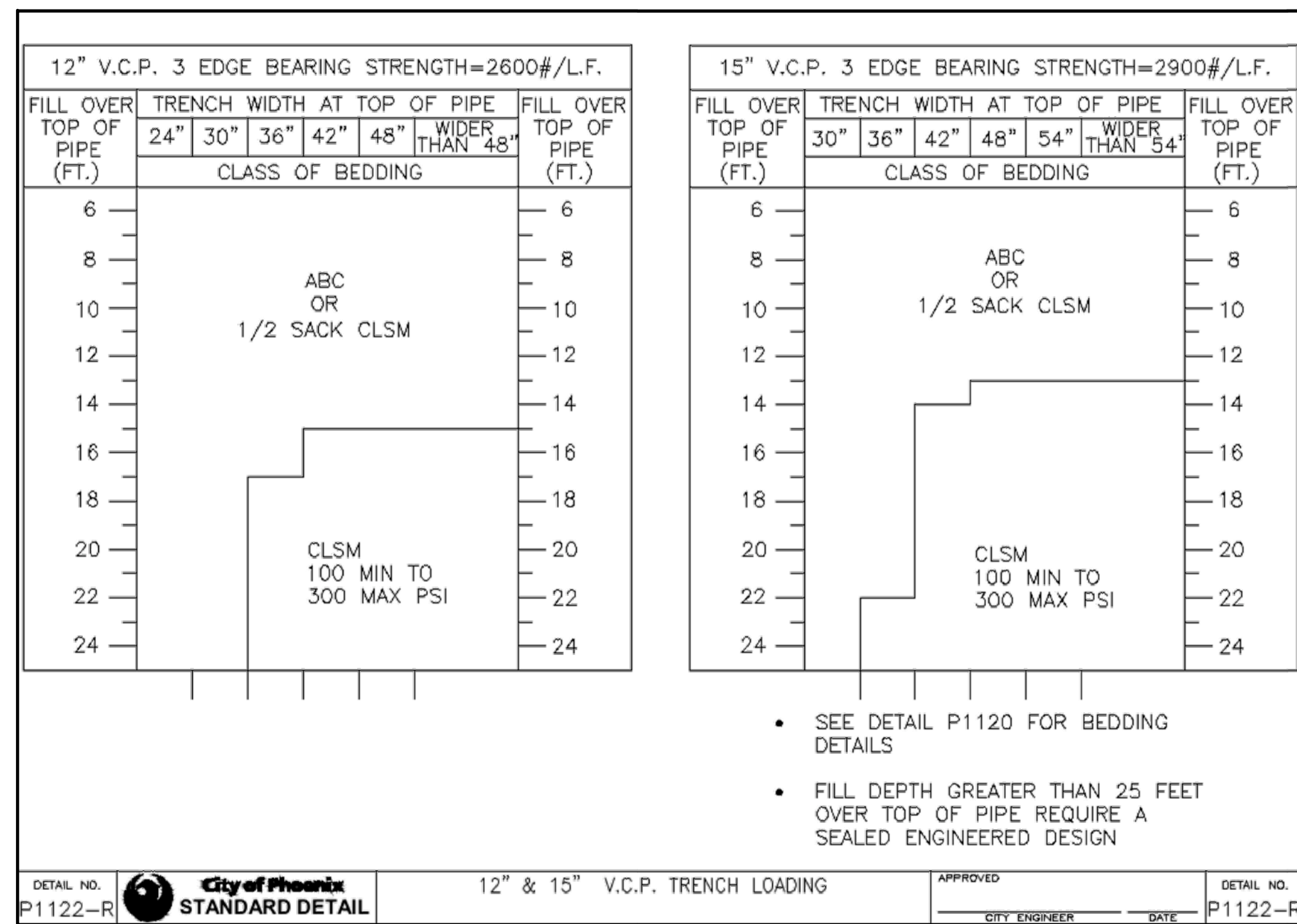
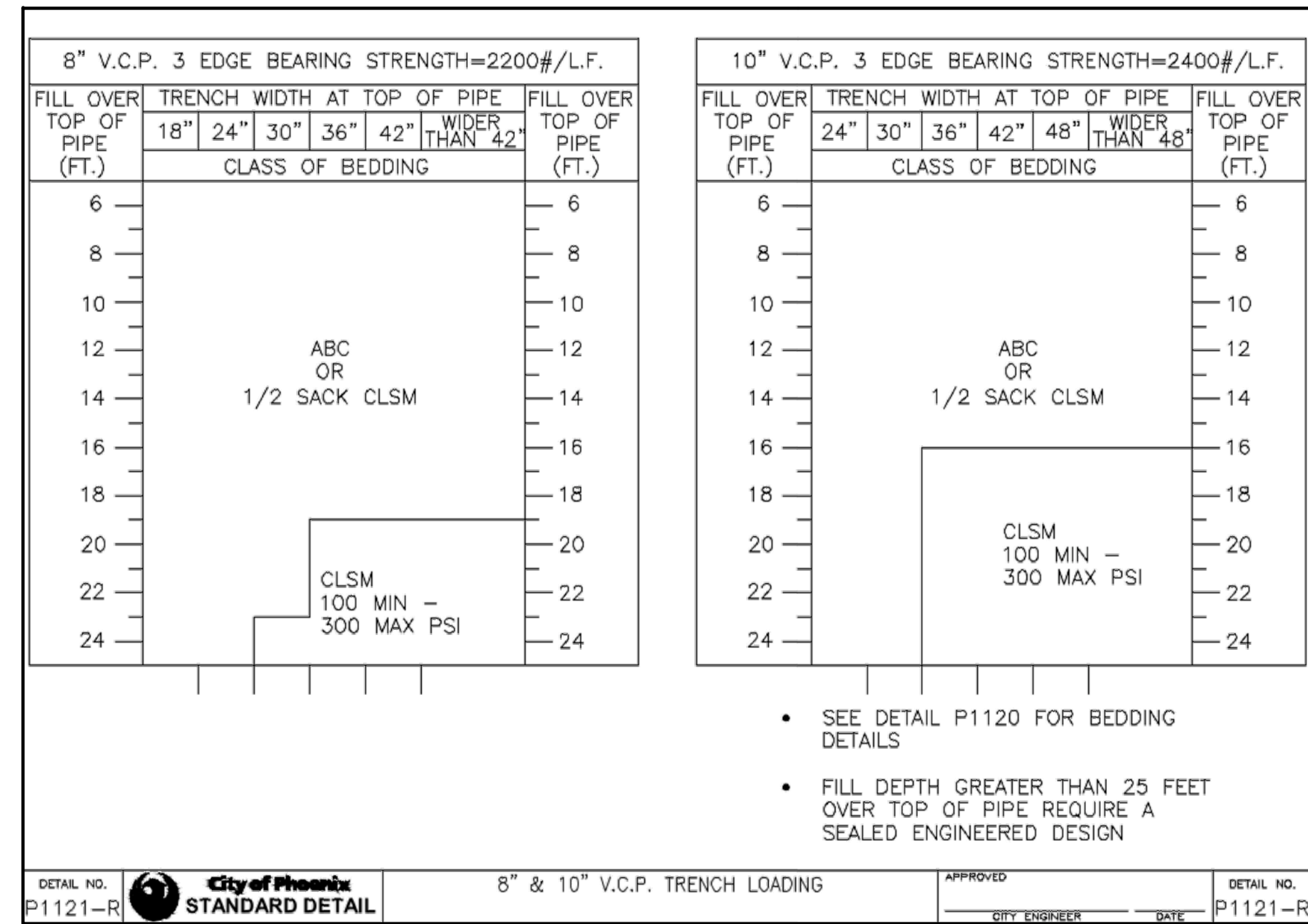
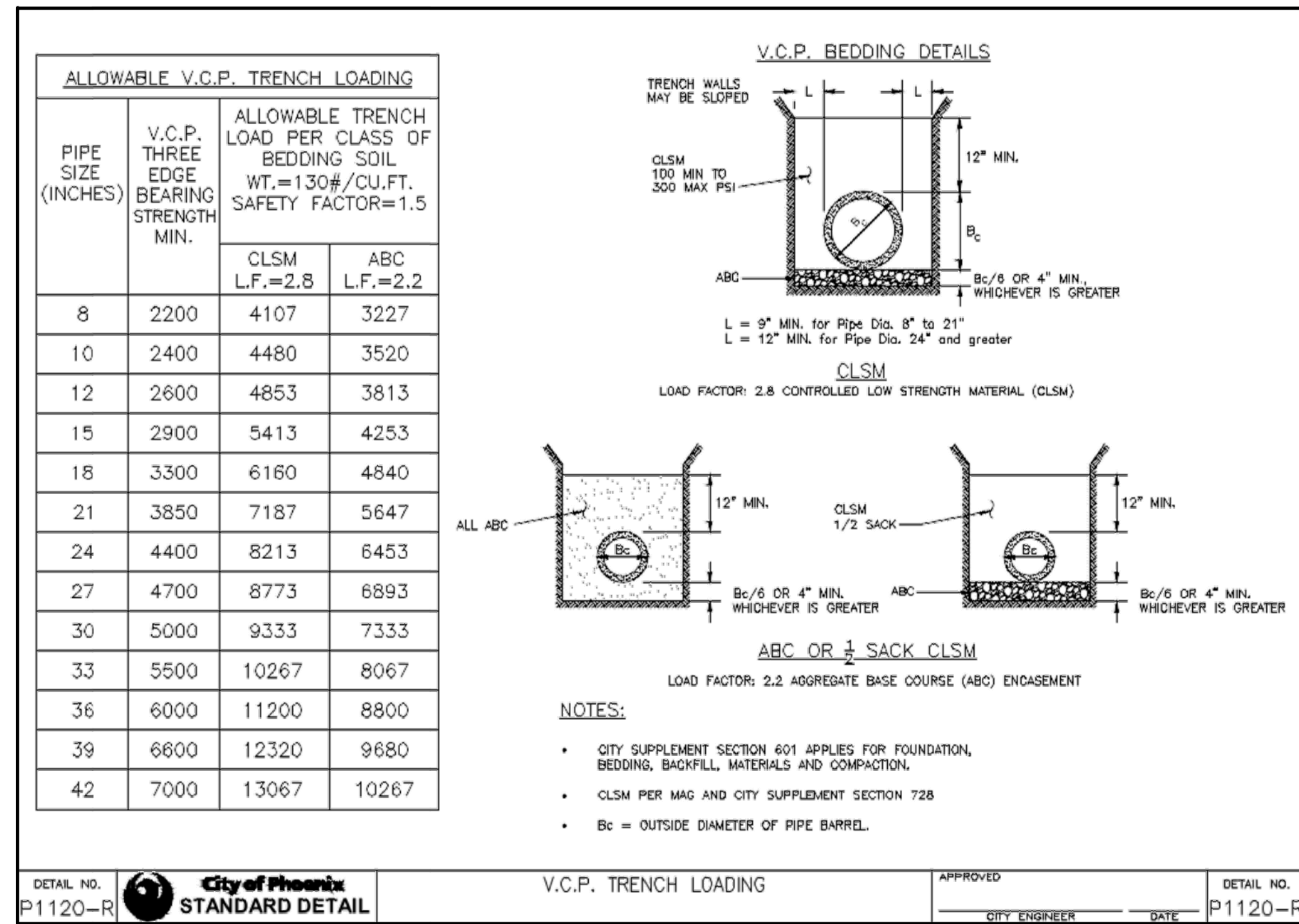
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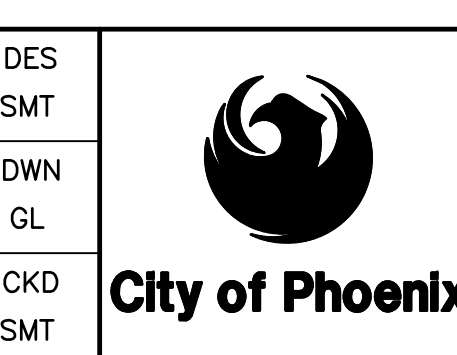
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CIVIL  
  
**TRENCH VITRIFIED CLAY PIPE DETAILS 1**

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CAD FILE: PKG4B-C104

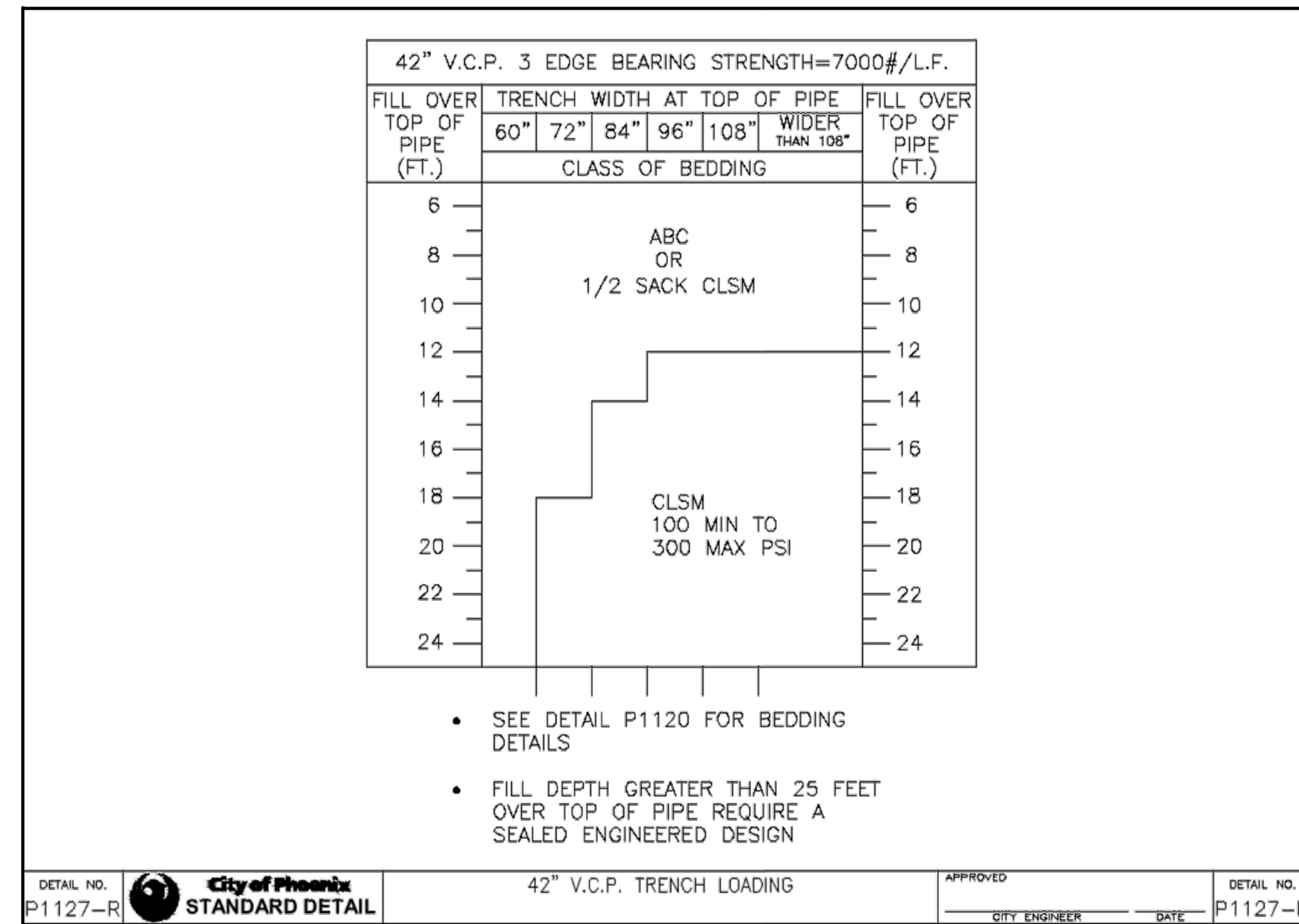
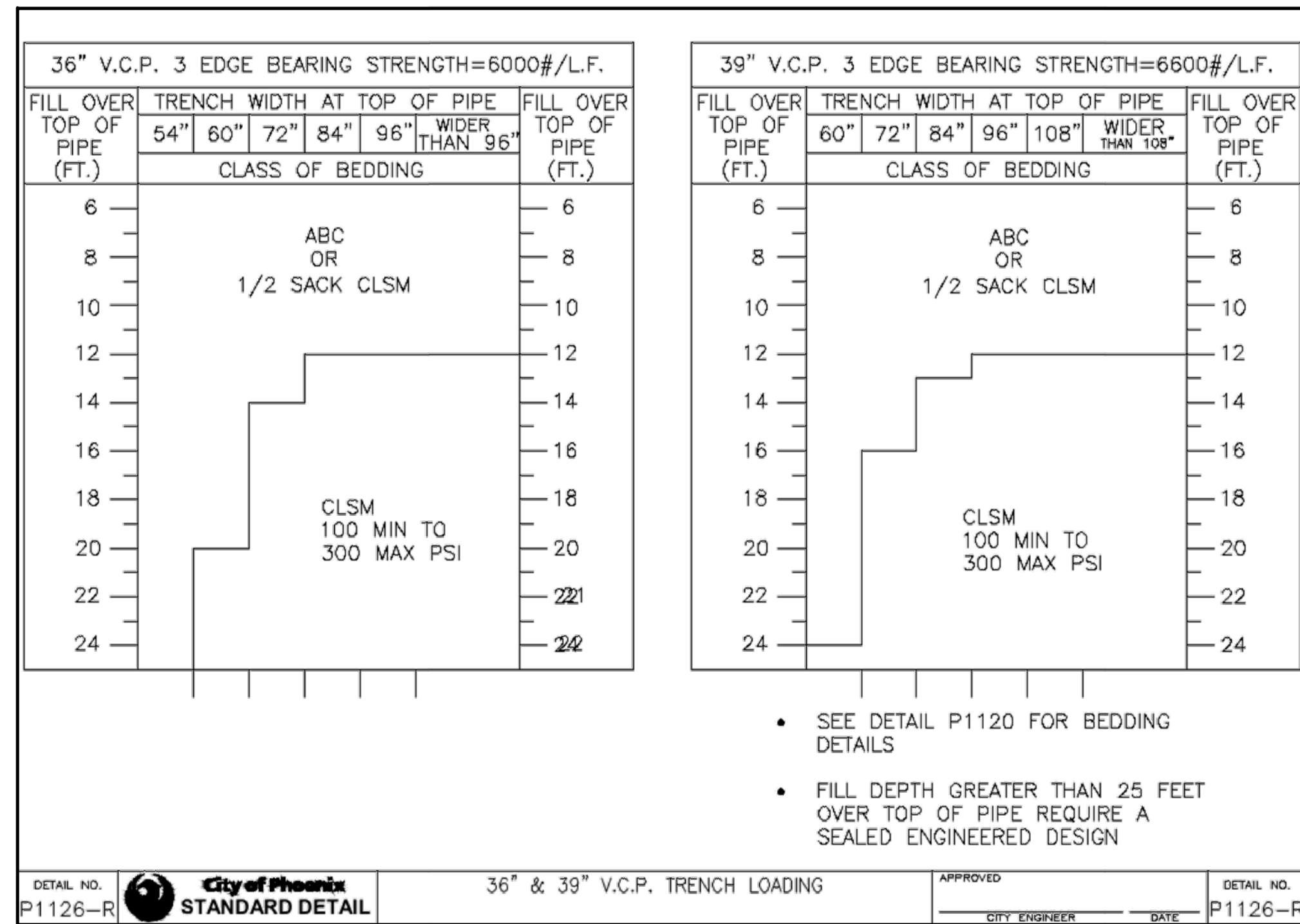
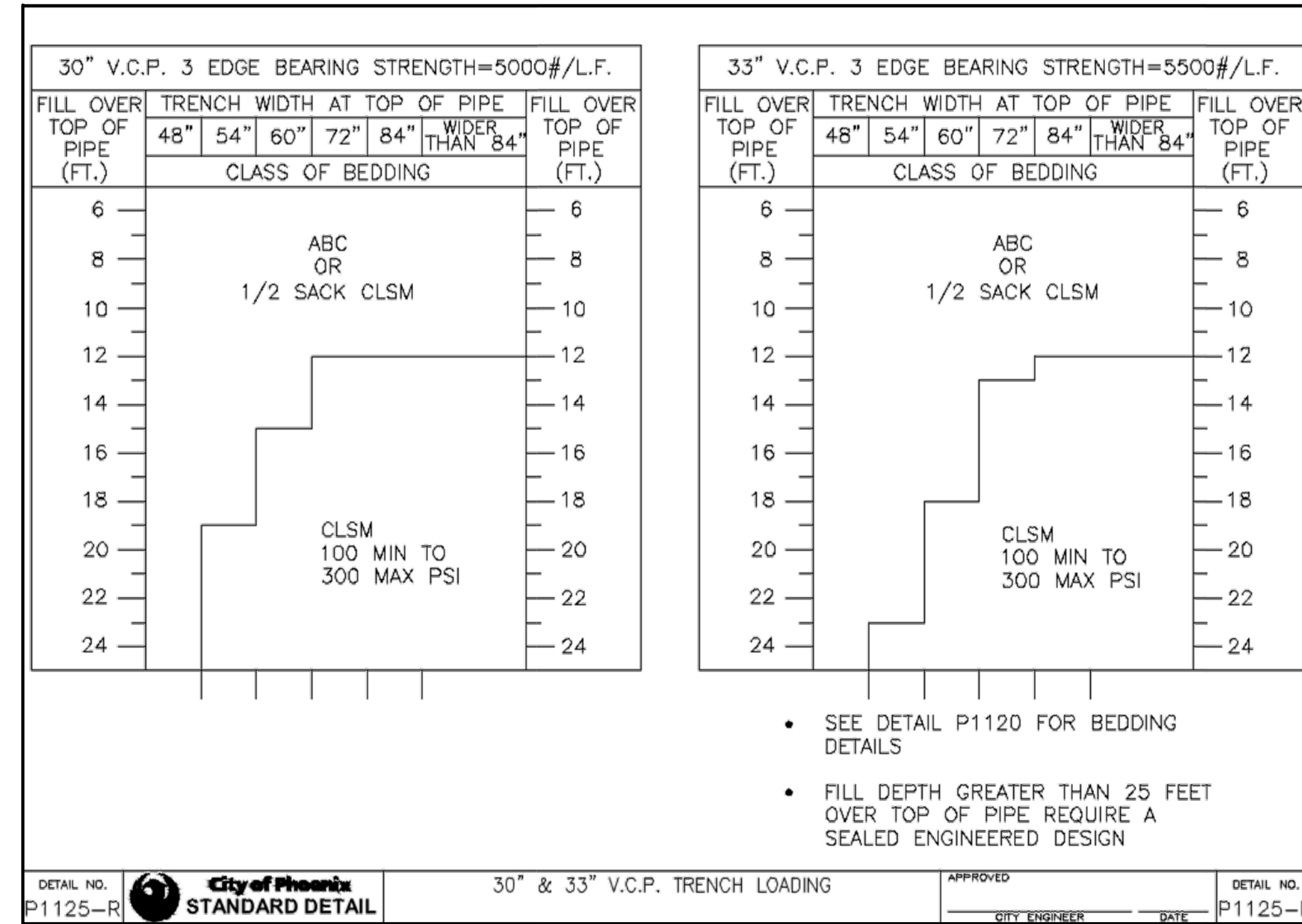
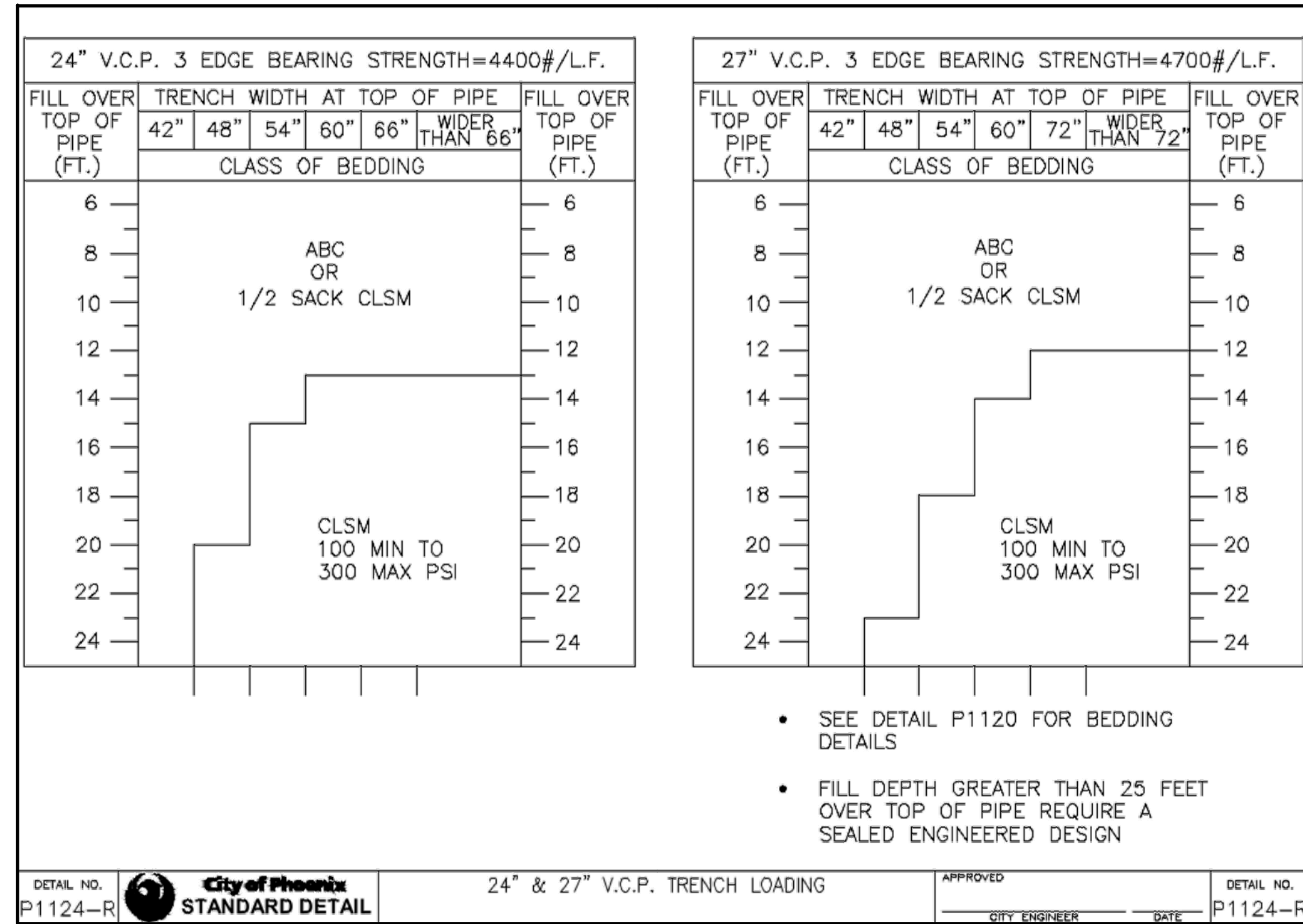
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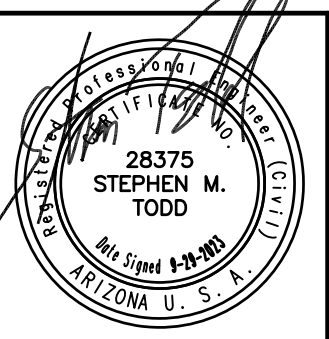
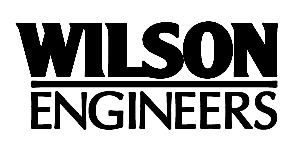
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MASTER PLAN  
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TRENCH VITRIFIED CLAY PIPE DETAILS 2

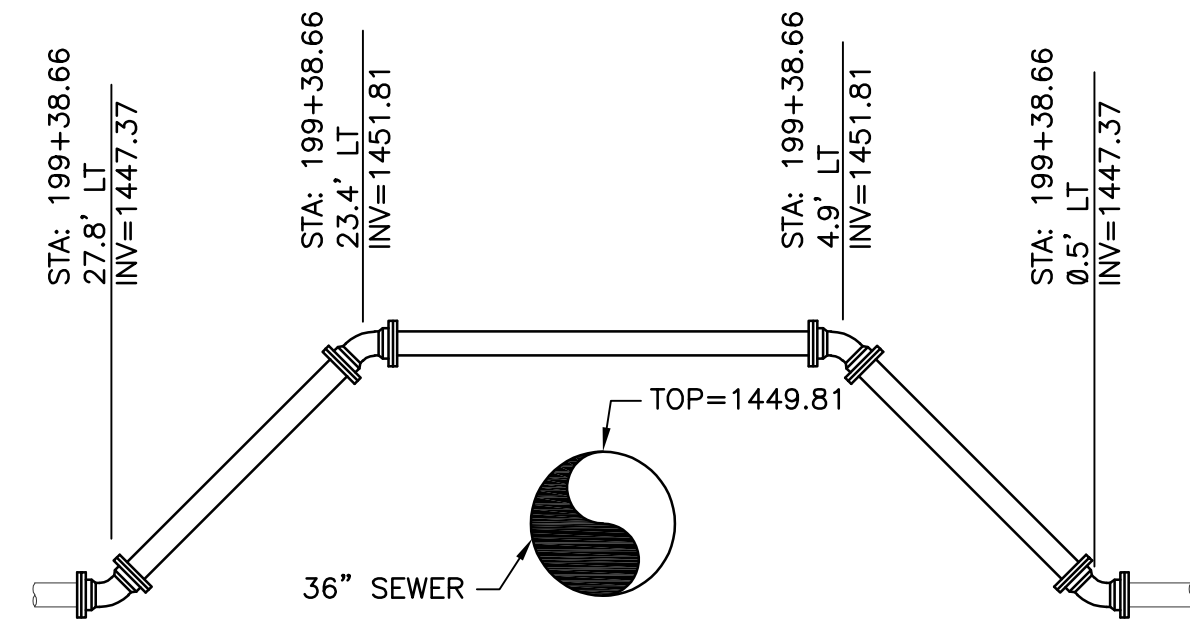
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C SHEET 105  
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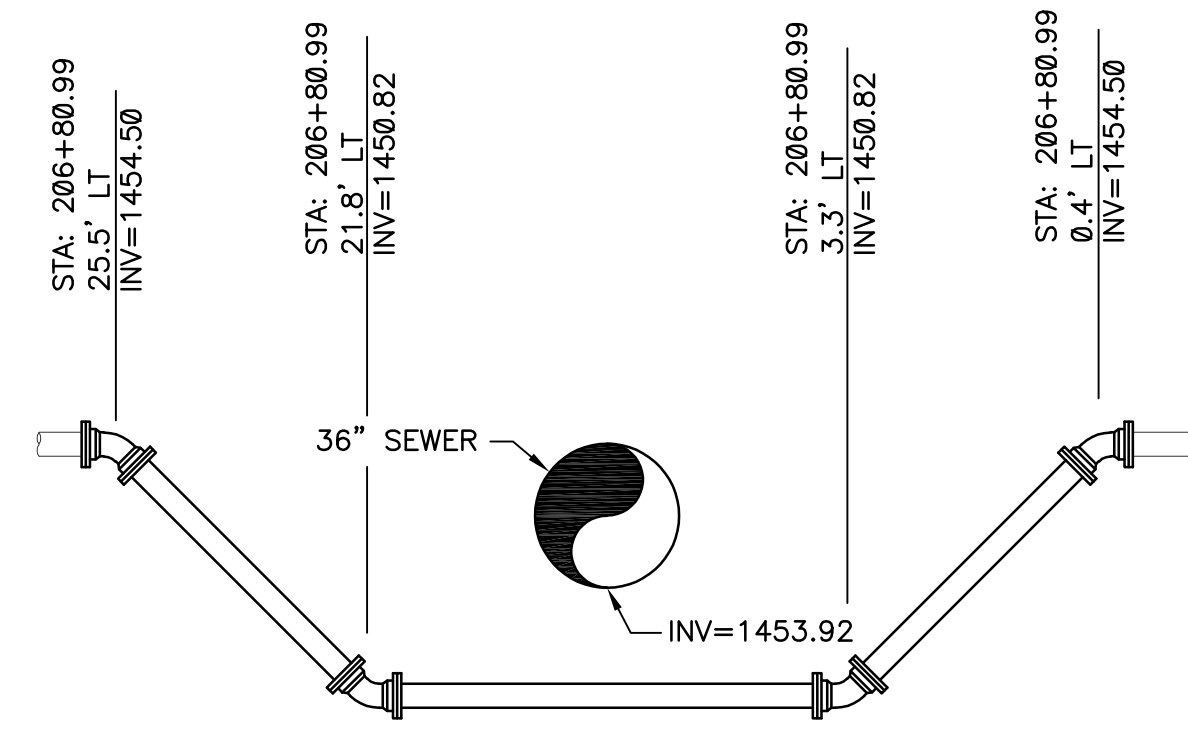
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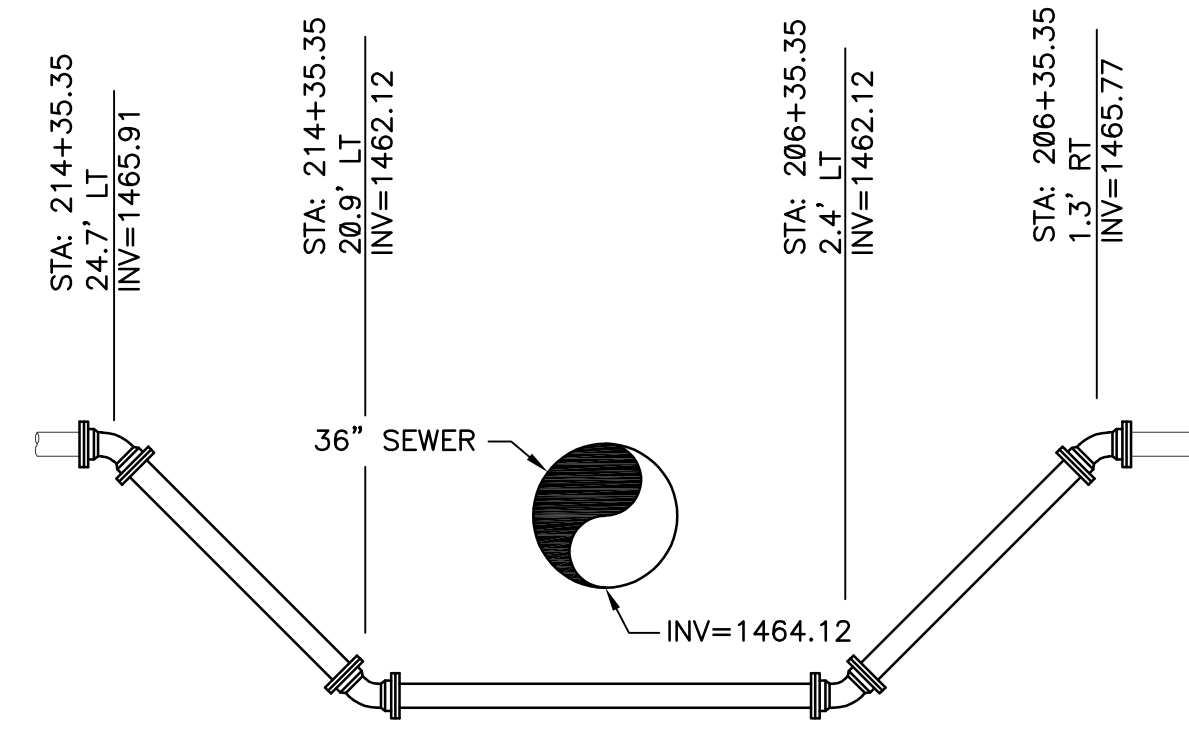
NOTE:  
1. SEE SHEET C-32 FOR PLAN AND PROFILE.

DETAIL 705  
NOT TO SCALE



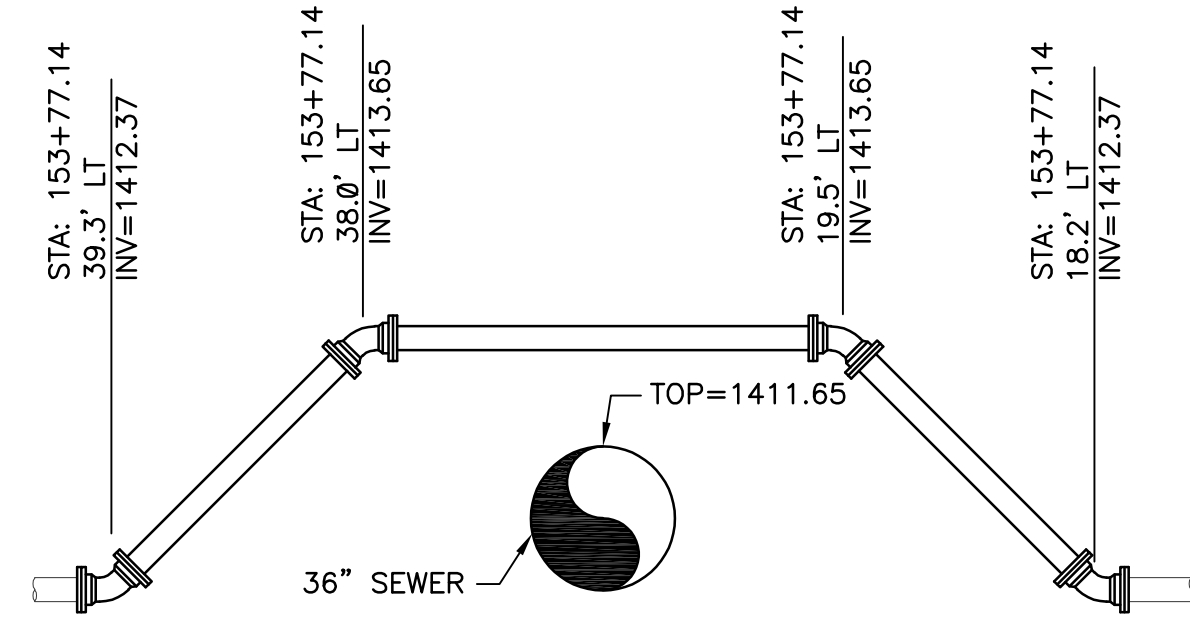
NOTE:  
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DETAIL 706  
NOT TO SCALE



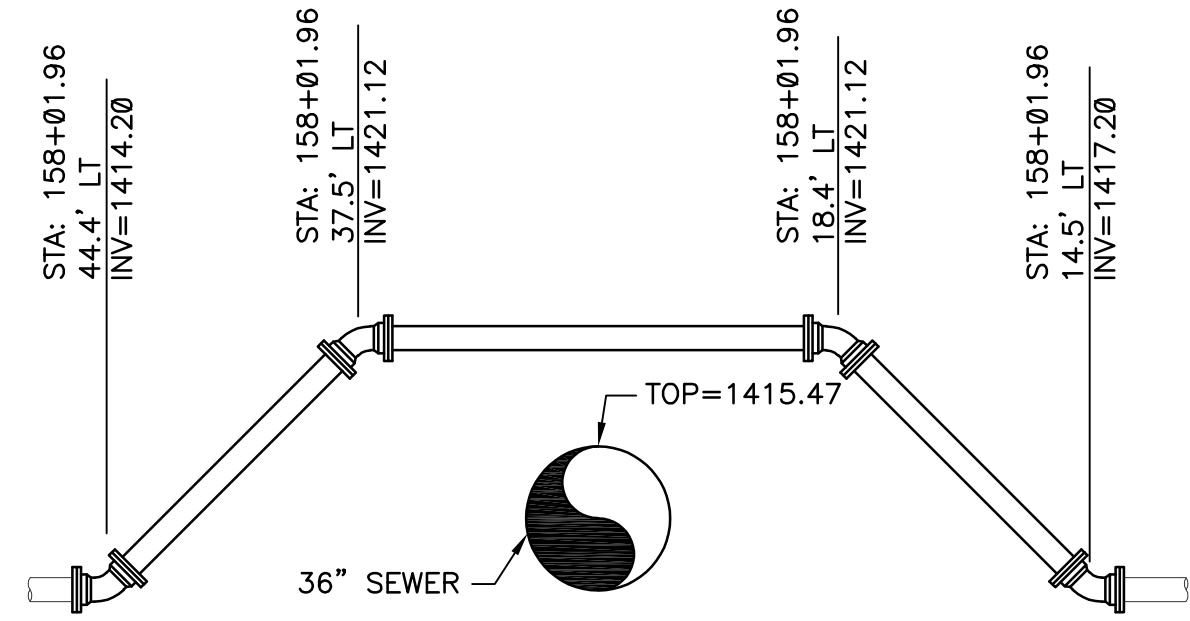
NOTE:  
1. SEE SHEET C-36 FOR PLAN AND PROFILE.

DETAIL 707  
NOT TO SCALE



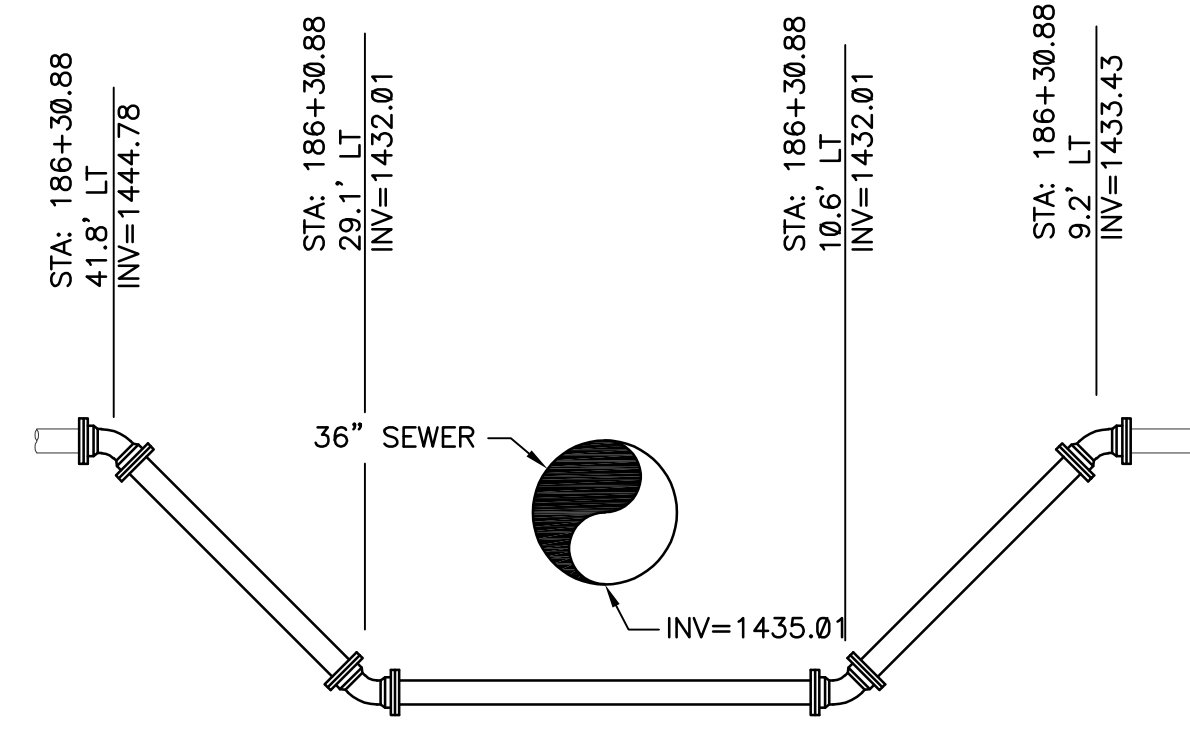
NOTE:  
1. SEE SHEET C-21 FOR PLAN AND PROFILE.

DETAIL 701  
NOT TO SCALE



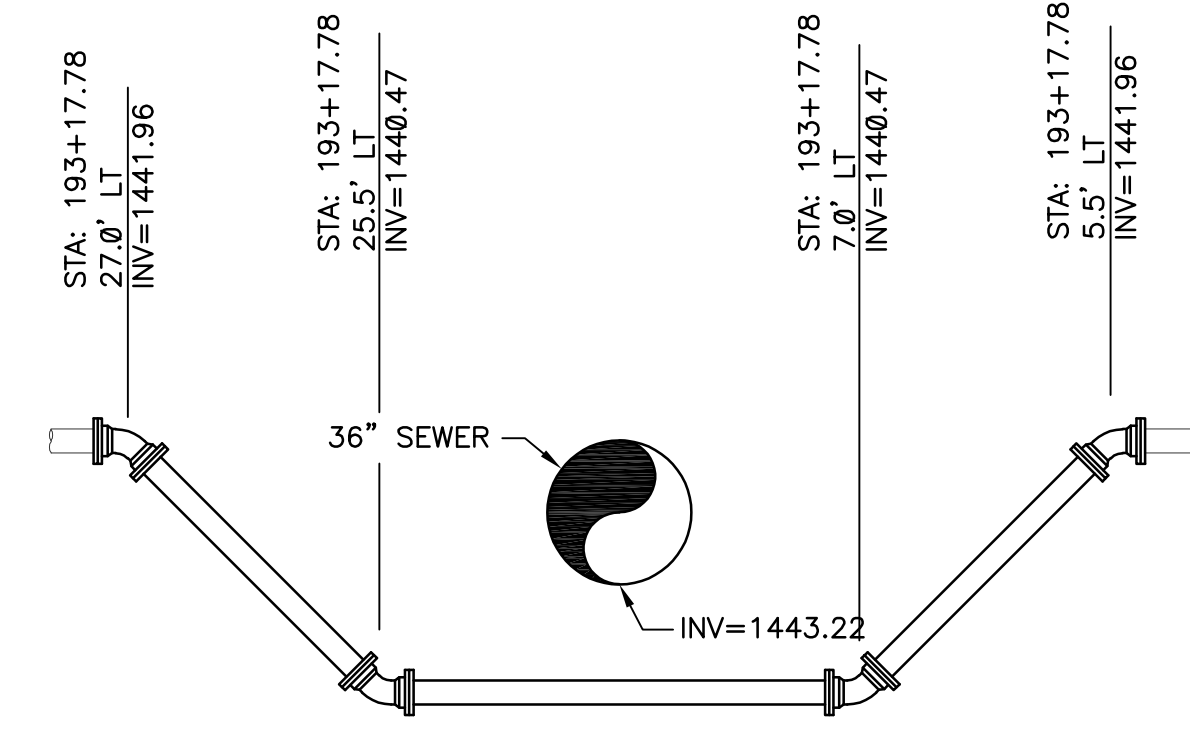
NOTE:  
1. SEE SHEET C-22 FOR PLAN AND PROFILE.

DETAIL 702  
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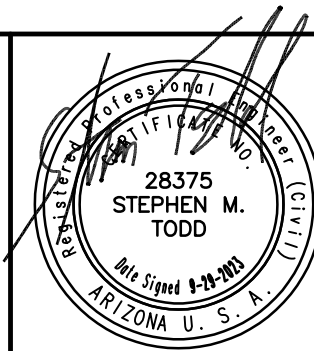
NOTE:  
1. SEE SHEET C-29 FOR PLAN AND PROFILE.

DETAIL 703  
NOT TO SCALE



NOTE:  
1. SEE SHEET C-30 FOR PLAN AND PROFILE.

DETAIL 704  
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CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
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CIVIL  
WATERLINE REALIGNMENT DETAILS

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**STRUCTURAL DESIGN PARAMETERS**

- 1.01 DESCRIPTION:
  - A. ALL CONSTRUCTION SHALL COMPLY WITH THE BUILDING CODE AND OTHER APPLICABLE CODES AND STANDARDS.
- 1.02 COORDINATION:
  - A. BUILDING CODE: 2018 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC 2018) AS ADOPTED AND AMENDED BY THE CITY OF PHOENIX.
  - B. COMPLY WITH ACI 350-06 " CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES."
- 1.03 QUALITY ASSURANCE:
  - A. REFERENCE STANDARDS FOR DESIGN LOADS AND LOAD COMBINATIONS: BUILDING CODE, ASCE 7-16.
- 2.01 DESIGN CRITERIA:
  - A. DEAD LOADS ON CONCRETE ROOF = WEIGHT OF BACKFILL
  - B. LIVE LOADS
    - 1. AT GRADE CONCRETE ROOF = 2'-0" OF SOIL COVER PLUS AASHTO HS20 LOADING
  - C. RISK CATEGORY III
  - D. WIND LOAD PARAMETERS
    - 1. EXPOSURE CATEGORY = C
    - 2. BASIC DESIGN WIND SPEED = 108 MPH
    - 3. ALLOWABLE STRESS DESIGN WIND SPEED = 85 MPH
    - 4. INTERNAL PRESSURE COEFFICIENTS (GC(Pi)) = ± 0.18
  - E. SEISMIC LOAD PARAMETERS
    - 1. SEISMIC IMPORTANCE FACTOR, Ie = 1.25
    - 2. SPECTRAL RESPONSE ACCELERATION PARAMETERS:
      - i. Ss = 0.230 g
      - ii. S1 = 0.080 g
      - iii. S(DS) = 0.245 g
      - iv. S(D1) = 0.128 g
    - 3. SITE CLASS = D
    - 4. SEISMIC DESIGN CATEGORY = B

**GENERAL STRUCTURAL NOTES**

- 1.01 DESCRIPTION:
  - A. THE STRUCTURAL DRAWINGS SHOW THE COMPLETED PROJECT. THEY DO NOT INCLUDE COMPONENTS THAT MAY BE NECESSARY FOR CONSTRUCTION SAFETY. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY IN AND AROUND THE JOB SITE DURING CONSTRUCTION.
  - B. GENERAL NOTES AND TYPICAL DETAILS APPLY EVEN THOUGH NOT SPECIFICALLY REFERENCED ON STRUCTURAL DRAWINGS, UNLESS NOTED OTHERWISE.
- 1.02 COORDINATION:
  - A. DETAILS ON THE STRUCTURAL DRAWINGS ARE TYPICAL. VERIFY ALL SITE DIMENSIONS, ELEVATIONS, AND SLOPES WITH THE ARCHITECTURAL, CIVIL, AND GRADING DRAWINGS. STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO MECHANICAL OR ELECTRICAL EQUIPMENT SHALL ALSO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
  - B. MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DRAWINGS SHALL BE PROVIDED PRIOR TO PLACING CONCRETE. STRUCTURAL DRAWINGS SHALL BE USED IN COORDINATION WITH MECHANICAL, ELECTRICAL, AND CIVIL DRAWINGS AND SHOP DRAWINGS PROVIDED BY MANUFACTURERS OF EQUIPMENT.
- 2.01 SHOP ACTIONS:
  - A. VERIFY ALL NEW AND EXISTING DIMENSIONS AND CONDITIONS PRIOR TO STARTING WORK. NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR INCONSISTENCIES.
- 3.01 FIELD EXECUTION:
  - A. STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURES. DURING CONSTRUCTION, THE STRUCTURES SHALL BE PROTECTED BY BRACING AND BALANCING WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR.

**SPECIAL INSPECTION**

- 1.01 DESCRIPTION:
  - A. THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE SPECIAL STRUCTURAL INSPECTORS IN ACCORDANCE WITH THE APPLICABLE BUILDING CODE.
- 1.02 CONTRACTOR'S RESPONSIBILITIES:
  - A. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT ALL STRUCTURAL WORK FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY STRUCTURAL INSPECTION PROVIDED BY OTHERS DOES NOT RELIEVE HIM OF HIS RESPONSIBILITY. ANY STRUCTURAL DEVIATIONS FROM THE CONTRACT DOCUMENTS THAT ARE FOUND AT A LATER DATE AND ARE DECLARED TO BE SIGNIFICANT BY THE STRUCTURAL ENGINEER SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE AND WITH ALL DISPATCH.
  - B. THE STRUCTURAL INSPECTOR IS NOT AUTHORIZED TO STOP OR DELAY THE WORK. IF THE CONTRACTOR ELECTS TO CONTINUE WITH CERTAIN WORK AFTER BEING NOTIFIED BY THE STRUCTURAL INSPECTOR THAT SUCH WORK IS UNACCEPTABLE, HE DOES SO AT HIS OWN RESPONSIBILITY AND RISKS CORRECTING THE WORK AT A LESS OPPORTUNE TIME.
  - C. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE FACILITIES FOR THE STRUCTURAL INSPECTOR TO INSPECT THE WORK SAFELY AND EFFICIENTLY. TWENTY-FOUR (24) HOUR NOTICE IS REQUIRED FOR INSPECTION.
  - D. WORK MUST BE COMPLETED AT TIME OF INSPECTION. CONTRACTOR SHALL BEAR THE EXPENSE OF ANY ADDITIONAL INSPECTION THAT MAY OCCUR BECAUSE OF INCOMPLETE OR INCORRECT WORK.
- 1.03 INSPECTOR'S RESPONSIBILITIES:
  - A. THE STRUCTURAL INSPECTOR IS NOT INSPECTING FOR ANY OSHA COMPLIANCE OR FOR ANY TEMPORARY CONSTRUCTION, SUCH AS BRACING.
  - B. THE STRUCTURAL INSPECTOR IS NOT AUTHORIZED TO DIRECT OR APPROVE ANY CHANGES FROM THE CONTRACT DOCUMENTS. IF THE CONTRACTOR WISHES TO QUESTION THE STRUCTURAL INSPECTOR'S INTERPRETATION OF THE CONTRACT DOCUMENTS, HE MAY DO SO DIRECTLY WITH THE STRUCTURAL ENGINEER.
- 2.01 SHOP ACTIONS:
  - A. SHOP FABRICATION WORK IS SUBJECT TO SPECIAL INSPECTION UNLESS THE FABRICATOR IS REGISTERED AND APPROVED TO PERFORM WORK WITHOUT SPECIAL INSPECTION.
- 3.01 REQUIRED VERIFICATION AND INSPECTIONS:
  - A. THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION.

INSPECTION OF SOILS (RE:2018 IBC TABLE 1705.6)	
INSPECTION ITEM	FREQUENCY OF INSPECTION
1. SOIL STABILITY, PREPARATION AND EXCAVATION	PERIODIC
2. MATERIALS USED AND PLACEMENT	CONTINUOUS

INSPECTION OF CONCRETE CONSTRUCTION (RE: 2018 IBC TABLE 1705.3)	
INSPECTION ITEM	FREQUENCY OF INSPECTION
<b>A. STRUCTURAL CAST-IN-PLACE CONCRETE:</b>	
1. REINFORCING STEEL MATERIALS AND PLACEMENT	PERIODIC
2. BOLTS INSTALLED IN CONCRETE PRIOR TO AND DURING CONCRETE PLACEMENT	CONTINUOUS
3. VERIFY USE OF REQUIRED MIX DESIGN	PERIODIC
4. SAMPLING OF FRESH CONCRETE	CONTINUOUS
5. CONCRETE AND SHOTCRETE PLACEMENT TECHNIQUE	CONTINUOUS
6. MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	PERIODIC
7. FORMWORK FOR SHAPE, LOCATION, AND DIMENSIONS	PERIODIC
<b>B. PRECAST CONCRETE:</b>	
1. ERECTION OF PRECAST CONCRETE MEMBERS	PERIODIC
2. CONNECTION OF PRECAST MEMBERS	PERIODIC
<b>C. REINFORCING STEEL:</b>	
1. VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A706	PERIODIC
2. REINFORCING STEEL RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORCEMENT	CONTINUOUS
3. SHEAR REINFORCEMENT	CONTINUOUS
4. OTHER REINFORCING STEEL	PERIODIC

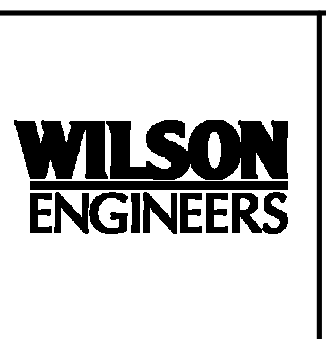
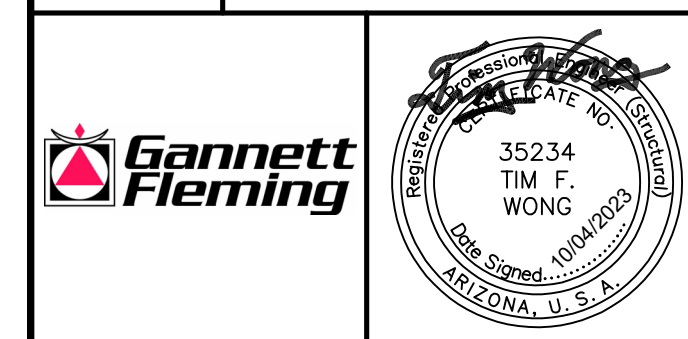
INSPECTION OF POST-INSTALLED ANCHORS AND DOWELS (RE: PRODUCT ICC-ES EVALUATION REPORT)	
INSPECTION ITEM	FREQUENCY OF INSPECTION
<b>A. ADHESIVE ANCHORS AND REINFORCEMENT DOWELS:</b>	
1. VERIFY DRILL BIT TYPE AND SIZE	CONTINUOUS
2. HOLE DEPTH AND CLEANING PROCEDURE	CONTINUOUS
3. PRODUCT DESCRIPTION INCLUDING NAME, ROD TYPE, DIAMETER, AND LENGTH	CONTINUOUS
4. ADHESIVE EXPIRATION DATE	CONTINUOUS
5. PROPER INSTALLATION TECHNIQUE FOR ADHESIVE ANCHORS	CONTINUOUS

- 1. "PERIODIC" SPECIAL INSPECTION: THE PART-TIME OR INTERMITTENT OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK HAS BEEN OR IS BEING PERFORMED AND AT THE COMPLETION OF WORK. 2018 IBC CHAPTER 2 "SPECIAL INSPECTIONS"
- 2. "CONTINUOUS" SPECIAL INSPECTION - THE FULL-TIME OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED. 2018 IBC CHAPTER 2 "SPECIAL INSPECTIONS"
- 3. ITEMS NOT SHOWN MAY REQUIRE CONTINUOUS OR PERIODIC SPECIAL STRUCTURAL INSPECTION AT THE DISCRETION OF THE ENGINEER OF RECORD. ITEMS LISTED MAY REQUIRE ALTERNATE FREQUENCIES OF INSPECTION OTHER THAN SHOWN ABOVE UNDER DIRECTION OF THE ENGINEER OF RECORD.
- 4. WELDING OF REINFORCING STEEL NOT ACCEPTABLE UNLESS DIRECTED BY THE ENGINEER OF RECORD.
- 5. VERIFY SOILS INSPECTION REQUIREMENTS WITH PROJECT SOILS ENGINEER/CONSULTANT AS OUTLINED IN SOILS REPORT AND PROJECT SPECIFICATIONS.

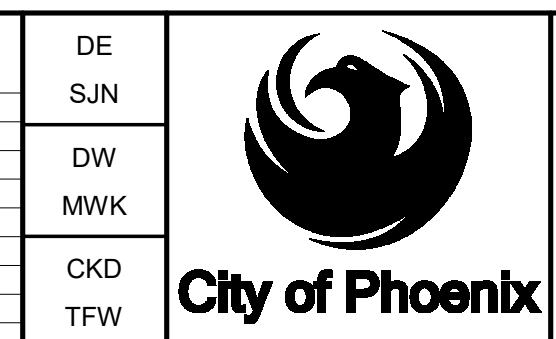
**SHOP DRAWINGS**

- 1.01 DESCRIPTION:
  - A. SHOP DRAWINGS ARE DETAILED DRAWINGS OR OTHER INFORMATION CREATED TO DESCRIBE PRODUCTS OR PARTS OF THE WORK TO BE INSTALLED.
  - B. SEE OTHER SECTIONS OF CONTRACT DOCUMENTS INCLUDING NOTES, PLANS, SECTIONS, AND DETAILS, AND SPECIFICATIONS FOR DESCRIPTIONS ABOUT WORK, PRODUCTS, AND DATA REQUIRED FOR SUBMITTALS.
- 1.02 COORDINATION:
  - A. ELEMENTS REQUIRED TO BE SHOWN IN THE SHOP DRAWINGS SHALL BE REDRAWN BY THE PARTY PREPARING THE SHOP DRAWINGS. SHOP DRAWINGS COPIED FROM THE CONTRACT STRUCTURAL DRAWINGS WILL BE REJECTED.
  - B. THE PROGRAM/PROJECT MANAGER WILL REVIEW SHOP DRAWINGS FOR COMPLIANCE WITH THE GENERAL DESIGN INTENT OF THE STRUCTURE AND REQUIREMENTS OF THE CONTRACT DOCUMENTS.
  - C. IF A SHOP DRAWING OR OTHER SUBMITTAL CONTAINS VARIATIONS FROM THE CONTRACT DRAWINGS, NOTIFY THE PROGRAM/PROJECT MANAGER IN WRITING DESCRIBING THE EXTENT AND REASON FOR THE VARIATION, AND CLEARLY IDENTIFY ALL ITEMS INVOLVED. REVIEW OF VARIATIONS DOES NOT GUARANTEE THAT THE VARIATIONS WILL BE ACCEPTABLE.
  - D. RE-SUBMITTED SHEETS SHALL CLEARLY IDENTIFY ADDED OR CORRECTED INFORMATION AND THE ITEMS INVOLVED BY CLOUDING AROUND ADDED OR CHANGED INFORMATION.
- 1.03 QUALITY ASSURANCE:
  - A. BEFORE SUBMITTING A SHOP DRAWING OR ANY RELATED MATERIAL FOR REVIEW, THE CONTRACTOR SHALL REVIEW, APPROVE, AND SO STAMP EACH SUBMISSION FOR CONFORMANCE WITH MEANS, METHODS, TECHNIQUES, SEQUENCES, AND OPERATIONS OF CONSTRUCTION, AND WITH SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
  - B. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK SHOP DRAWINGS, AND COORDINATE SUBMITTAL INFORMATION AND CONTRACT INTERFACES PRIOR TO SUBMITTING TO THE PROGRAM/PROJECT MANAGER.
  - C. SHOP DRAWINGS WILL BE RETURNED FOR RE-SUBMITTAL IF A CURSORY REVIEW SHOWS MAJOR ERRORS WHICH SHOULD HAVE BEEN FOUND BY THE CONTRACTOR'S CHECKING. MATERIAL NOT CALLED FOR OR WHICH HAS NOT BEEN APPROVED BY THE CONTRACTOR AND BEAR THEIR STAMP WILL BE RETURNED WITHOUT COMMENT.
  - D. WORK DONE PRIOR TO OR WITHOUT SHOP DRAWING REVIEW AND APPROVAL BY THE PROGRAM/PROJECT MANAGER IS PERFORMED AT THE CONTRACTOR'S OWN RISK AND RESPONSIBILITY.
  - E. DIMENSION CHECKING AND CHECKING OF DESIGN CHANGES PROPOSED BY THE CONTRACTOR WITHOUT PRIOR CONSULTATION WITH THE ENGINEER SHALL BE CHECKED ONLY IF THE CONTRACTOR WISHES THEM TO BE CHECKED AT THEIR OWN COST.
  - F. ENGINEERING SUBMITTED FOR REVIEW SHALL BE APPROPRIATELY SEALED. FULL RESPONSIBILITY FOR SUCH ENGINEERING RESTS WITH THE PERSON SEALING THE DESIGN.

REMARKS	DWG NUMBER	CAD FILE NAME	DATE	CID NUMBER	PROJECT NAME	PROJECT NO.	ENGINEERING CO.



REVISIONS				
NO.	BY	DATE	CKD	REMARKS



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

**STRUCTURAL**

**GENERAL STRUCTURAL NOTES I**

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CITY PROJECT NO. WS90500307

DATE: OCTOBER 2023

**S** SHEET 001

BIM FILE: \_S\_central\_R20.rvt



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THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES.

DEFERRED SUBMITTALS

- 1.01 DESCRIPTION:
A. DEFERRED SUBMITTALS ARE THOSE PORTIONS OF THE DESIGN THAT ARE NOT SUBMITTED AT THE TIME OF PERMIT APPLICATION...
B. THE CONTRACTOR SHALL INCLUDE IN HIS BID ALL TIME AND EFFORT REQUIRED TO OBTAIN A BUILDING DEPARTMENT REVIEW AND PERMIT FOR DEFERRED STRUCTURAL ITEMS...
1.02 SUBMITTALS:
A. DOCUMENTS FOR DEFERRED SUBMITTALS SHALL BE SUBMITTED TO THE DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE FOR REVIEW...
B. SUBMITTALS OF ENGINEERING DESIGN PROVIDED BY OTHERS SHALL HAVE DRAWINGS AND CALCULATIONS APPROPRIATELY SIGNED AND SEALED BY AN ENGINEER REGISTERED IN THE STATE OF ARIZONA...
C. IN ALL CASES THE COMPONENTS MUST BE DESIGNED AND MANUFACTURED BY A FABRICATOR APPROVED BY THE GOVERNING BODY HAVING JURISDICTION.
D. SUBMITTALS SHALL INCLUDE KEY PLANS, SECTIONS, AND DETAILS REQUIRED FOR CONSTRUCTION.
2.01 SHOP FABRICATION:
A. THE FOLLOWING ITEMS ARE DEFERRED SUBMITTAL ITEMS.
1. MISCELLANEOUS PIPE SUPPORTS
2. PRECAST MANHOLES
3.01 FIELD EXECUTION:
A. FIELD INSTALLATION OF DEFERRED STRUCTURAL ITEMS IS SUBJECT TO SPECIAL STRUCTURAL INSPECTION.
B. SHOP FABRICATION OF DEFERRED STRUCTURAL ITEMS MAY ALSO BE SUBJECT TO SPECIAL STRUCTURAL INSPECTION, UNLESS NOTED OTHERWISE.

FOUNDATIONS

- 1.01 DESCRIPTION:
A. PERFORM ALL WORK IN ACCORDANCE WITH THE BUILDING CODE SOILS AND FOUNDATION REQUIREMENTS, CONTRACT DOCUMENTS, AND GEOTECHNICAL INVESTIGATION REPORT.
1.02 COORDINATION:
A. PERFORM ALL WORK IN ACCORDANCE WITH THE SOILS REPORT BY NINYO & MOORE, PROJECT NO. 606692006, DATED SEPTEMBER 27, 2023 PACKAGE 4B.
B. FOUNDATION DESIGN IS BASED ON THE FOLLOWING PRESUMPTIVE PROPERTIES:
1. SOIL CLASSIFICATION = SILTY TO CLAYEY SAND.
2. DRY DENSITY OF SOIL = 120 PCF.
3. ANGLE OF INTERNAL FRICTION = 30 DEGREES.
4. BEARING CAPACITY OF 4000 PSF FOR JUNCTION AND MANHOLE STRUCTURES.
5. LATERAL AT-REST PRESSURES = 60 PSF/FT
6. LATERAL ACTIVE PRESSURES = 40 PSF/FT
7. LATERAL PASSIVE PRESSURES = 360 PSF/FT
8. BASE FRICTION COEFFICIENT = 0.4
C. UNLESS OTHERWISE SHOWN, ON ALL STRUCTURAL DRAWINGS THE FINISH GRADE AROUND STRUCTURES IS SHOWN THUS  $\times\times\times\times$  INDICATING EITHER GROUND SURFACE, TOP OF CONCRETE SLAB, OR A.C. PAVEMENT. FOR DETAILS OR FINISH SURFACES, SEE CIVIL SITE DRAWINGS. PROVIDE CONCRETE ENCASUREMENT FOR ALL UNDERGROUND PIPES BENEATH STRUCTURES.
2.01 PLACE GRIT BASINS FOUNDATION CONCRETE ONLY ON UNDISTURBED NATIVE SOILS FOR DEPTHS GREATER THAN 10'-0" DEEP AND AT LEAST 2'-0" BELOW THE LOWEST ADJACENT FINISHED GRADE, WHICHEVER IS LOWER. FOR AT-GRADE STRUCTURES, PLACE FOUNDATIONS ON CLEAN, FIRM BEARING MATERIAL FOR SPREAD FOUNDATIONS AT LEAST 1'-6" BELOW LOWEST ADJACENT FINISHED GRADE AND MAT FOUNDATIONS FOUNDED ON AT LEAST 1'-0" BELOW FINISHED GRADE. VERIFY THE SUITABILITY OF THE BEARING MATERIAL WITH THE SOILS CONSULTANT BEFORE PLACING FOUNDATIONS.
2.02 CONTROLLED LOW STRENGTH MATERIAL (CLSM):
A. CLSM SHALL BE USED AS AN UNREINFORCED FILL MATERIAL TO REPLACE EXCAVATED SOIL INCLUDING UNDER STRUCTURE FOUNDATIONS AND AS SHOWN ON DRAWINGS.
B. PROPORTIONS: CEMENT CONTENT = 94 LBS/CU YD (+/- 5%); SLUMP = 7 INCHES (+/- 1 INCH); COMPRESSIVE STRENGTH AT 28 DAYS = 75 PSI (+/- 25 PSI/10 PSI).

- 3.01 PLACEMENT:
A. PLACE DOWELS AND ANCHOR BOLTS BEFORE POURING CONCRETE. USE TEMPLATES TO ENSURE PROPER PLACEMENT.
B. CENTER FOUNDATIONS UNDER COLUMNS AND WALLS UNLESS NOTED OTHERWISE.

CONCRETE

- 1.01 DESCRIPTION:
A. THIS SECTION INCLUDES REQUIREMENTS FOR MATERIALS, PROPORTIONING, AND INSTALLATION OF CONCRETE (RE: ACI 301-05, ACI 350-06). PROVIDE NORMAL WEIGHT CONCRETE (144 PCF WET).
1.02 COORDINATION:
A. INSTALL JOINTS, WATERSTOPS, AND SEALANTS IN CONCRETE WHERE APPLICABLE IN ACCORDANCE WITH OTHER SECTIONS OF THE GENERAL STRUCTURAL NOTES, PLANS, AND PROJECT SPECIFICATIONS.
B. PATCHING OF CONCRETE SHALL BE CONSIDERED STRUCTURAL. SEE STRUCTURAL CONCRETE REPAIR SECTION OF THE GENERAL STRUCTURAL NOTES.
C. MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DRAWINGS SHALL BE PROVIDED PRIOR TO PLACING CONCRETE.
1.03 SUBMITTALS:
A. SUBMIT THE FOLLOWING TO THE ENGINEER FOR REVIEW PRIOR TO PLACEMENT OF CONCRETE. INDICATE FOR EACH MIX DESIGN THE LOCATION ON THE PROJECT WHERE IT WILL BE USED. PREPARE OR CERTIFY SUBMITTALS TO CONFORM TO ACI CODES BY AN INDEPENDENT TESTING LABORATORY PRIOR TO SUBMITTING TO ENGINEER.
1. CONCRETE MIX PROPORTIONS AND CHARACTERISTICS
2. COMPRESSIVE STRENGTH TESTING DATA
3. MATERIALS DATA FOR CEMENTITIOUS MATERIALS, AGGREGATES, ADMIXTURES, AND WATER AND ICE.
4. JOINT LOCATIONS IF DIFFERENT THAN SHOWN ON DRAWINGS.
1.04 QUALITY ASSURANCE:
A. PRODUCE AND DELIVER CONCRETE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS IN ACI 301 AND TOLERANCES OF ACI 117. PLACE CONCRETE IN ACCORDANCE WITH ACI 304. CONDUCT HOT WEATHER AND COLD WEATHER CONCRETING IN ACCORDANCE WITH ACI 305 AND ACI 306 RESPECTIVELY.
2.01 MIX WATER:
A. USE POTABLE WATER FREE FROM MATERIALS THAT ARE DELETERIOUS TO CONCRETE OR STEEL (ASTM C1602).
2.02 CEMENTITIOUS MATERIALS:
A. PORTLAND CEMENT: CONFORM TO ASTM C 150, TYPE II, EXCEPT FOR MASS CONCRETE PROVIDE TYPE IV CEMENT OR ADDITIVES OR OTHER PROVISIONS TO REDUCE THE HEAT OF HYDRATION.
B. FLY ASH: ACCEPTABLE FOR USE IN MIX DESIGN IF COMPLIANT WITH REQUIREMENTS OF CONTRACT DOCUMENTS AND THE MAX RATIO OF FLY ASH TO TOTAL CEMENT AND FLY ASH DOES NOT EXCEED 20 PERCENT BY WEIGHT. CONFORM TO ASTM C 618, TYPE F. DO NOT USE FLYASH IN COLORED CONCRETE WITHOUT WRITTEN APPROVAL.
2.03 AGGREGATE:
A. PROVIDE A SINGLE SIZE OR A GRADATION OF AGGREGATE WITH THE MAXIMUM SIZE AS SHOWN ON THE MIX DESIGN PROPORTIONS BELOW. DO NOT USE AGGREGATES CONTAINING SOLUBLE SALTS OR OTHER SUBSTANCES SUCH AS IRON SULFIDES, PYRITE, MARCASITE, OCHRE, OR OTHER MATERIALS THAT MAY CAUSE STAINS ON EXPOSED CONCRETE SURFACES.
B. UNLESS NOTED OTHERWISE, AGGREGATE SHALL BE NORMAL WEIGHT CONFORMING TO ASTM C33.
2.04 ADMIXTURES:
A. SUBMIT ALL ADMIXTURES TO THE ENGINEER FOR REVIEW. DO NOT USE ADMIXTURES CONTAINING CALCIUM CHLORIDE. ADMIXTURES AND COMBINATIONS OF ADMIXTURES SHALL BE THE SAME AS THOSE USED IN THE FIELD OR TRIAL TEST DATA SUBMITTED.
B. AIR ENTRAINING ADMIXTURE (ASTM C260): DO NOT USE CONTENT OF ENTRAINED AIR GREATER THAN THAT SUBMITTED IN TEST DATA FOR REVIEW. ALLOWABLE TOLERANCE FOR AIR CONTENT AT THE POINT OF DELIVERY IS +/- 1.5 PERCENT.
C. SUPERPLASTICIZERS (HIGH RANGE WATER REDUCERS) AND WATER REDUCERS: COMPLY WITH ASTM C494 TYPE A AND TYPE F. FOR PLANT-ADDED SUPERPLASTICIZERS, MIXES THAT ARRIVE ON SITE WITH A SLUMP OF 5" OR LESS WILL NOT BE ACCEPTED. FOR SITE-ADDED SUPERPLASTICIZERS, THE MIX SHALL BE SLUMPED AT THE JOB SITE PRIOR TO THE ADDITION OF SUPERPLASTICIZERS. PROVIDE COMPUTER BATCH RECORDS IF SUPERPLASTICIZERS ARE USED. DO NOT ADD ADDITIONAL SUPERPLASTICIZERS ON SITE.

- 2.05 SLUMP:
TOLERANCE FOR SPECIFIED SLUMP IS +/-1 INCH BEFORE THE ADDITION OF SUPERPLASTICIZERS/WATER REDUCERS PER ACI 117. MAX SLUMP WITH SUPERPLASTICIZERS IS 8 INCHES. WATER MAY BE ADDED ON SITE FOR SLUMP ADJUSTMENT PROVIDED THE TOTAL AMOUNT ADDED IS MAINTAINED WITHIN THE WATER/CEMENTITIOUS RATIO AND SLUMP LIMITS SPECIFIED. DO NOT ADD WATER IF SUPERPLASTICIZERS HAVE BEEN ADDED.
2.06 MIX DESIGN PROPORTIONS (NORMAL WT CONCRETE U.N.O.)
A. PROVIDE COMPUTERIZED BATCH RECORDS WITH ALL LOAD LOCATION.

Table with 6 columns: LOCATION, MIN 28 DAY COMPR. STRENGTH, MAX W/CM RATIO, SLUMP, % AIR, MAX AGG SIZE. Rows include SIDEWALKS, CURBS, GUTTERS, CONCRETE FILL, PIPE ENCASEMENTS, BEAMS, SUSP SLABS, WALLS, SITE-CAST PANELS, FOUNDATIONS.

- 2.07 NON-SHRINK GROUT:
A. USE PLASTIC OR STIFF (DRY PACK), NON-METALLIC NON-SHRINK GROUT WITH MINIMUM 7,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS. CONFORM TO THE REQUIREMENTS OF CRD-C 621 CORPS OF ENGINEERS FOR NON-SHRINK GROUT.
B. SATURATE THE AREA WITH POTABLE WATER FOR 24 HOURS IMMEDIATELY PRIOR TO APPLICATION OF THE GROUT PER THE MANUFACTURER'S RECOMMENDATIONS. WET CURE AND APPLY CURING COMPOUNDS TO EXPOSED GROUT SURFACES.
C. USE BASF CONSTRUCTION GROUT, EUCCO DRY PACK GROUT, OR EQUAL.
3.01 CONCRETE PLACING:
A. DO NOT PLACE CONCRETE IN CONTACT WITH ALUMINUM.
B. DO NOT ADD WATER ON SITE OR AFTER SUPERPLASTICIZERS HAVE BEEN ADDED.
C. THE MAXIMUM FREE DROP OF ANY CONCRETE IS 6'-0" WITHOUT A TREMI PIPE TO PREVENT SEGREGATION. DEPOSIT CONCRETE AS NEAR AS POSSIBLE TO ITS FINAL POSITION. DO NOT USE ANY PRACTICES THAT WILL CAUSE SEGREGATION SUCH AS (BUT NOT LIMITED TO) VIBRATING TO TRAVEL CONCRETE.
D. MECHANICALLY VIBRATE ALL CONCRETE, EXCEPT THAT SLABS ON GRADE NEED BE VIBRATED ONLY AROUND UNDER-FLOOR DUCTS AND OTHER ITEMS EMBEDDED IN THE SLAB.
E. DO NOT CAST WALLS OR GRADE BEAMS IN A SINGLE POUR IN LENGTHS OVER 40 FEET. WAIT 48 HOURS BETWEEN ADJACENT CONCRETE CASTINGS.
F. WAIT 28 DAYS MINIMUM AFTER CONCRETE HAS BEEN PLACED BEFORE SAND BLASTING, WATER BLASTING OR OTHER SURFACE TREATMENT.
G. DO NOT PLACE CONCRETE IN STANDING WATER
3.02 FINISHING:
A. PROVIDE FINISHES ON FORMED SURFACES PER ACI 301 AND FORMED SURFACE IRREGULARITIES PER ACI 117 AS FOLLOWS.
1. ROUGH FORM FINISH: SURFACES NOT EXPOSED TO PUBLIC VIEW. PATCH TIE HOLES, LEAVE TEXTURE IMPARTED BY FORM, REMOVE FINS GREATER THAN 1/2 INCH IN HEIGHT.
2. SMOOTH FORM FINISH: SURFACES EXPOSED TO PUBLIC VIEW. REMOVE FINS GREATER THAN 1/8 INCH IN HEIGHT.
3. SURFACES EXPOSED TO VIEW: CLASS B SURFACE WITH ABRUPT IRREGULARITIES LESS THAN 1/4 INCH.
B. THE USE OF WATER OR "SPRINKLING" AS AN AID TO FINISHING UNFORMED SURFACES IS NOT ACCEPTABLE.
C. PROVIDE 3/4" X 3/4" CHAMFERS AT ALL EXPOSED CORNERS OF SLABS, WALLS, COLUMNS AND BEAMS.

- 3.03 CURING:
A. CURE CONCRETE PER ACI 350-06 AND ACI 301 FOR 7 DAYS AFTER PLACEMENT. WHERE USED, ALL CURING COMPOUNDS SHALL HAVE A FUGITIVE DIE. ALL CURING COMPOUNDS SHALL BE COMPATIBLE WITH FUTURE TOPPING, PAINT, WATERPROOFING AND FINISHES. APPLY TWO HEAVY COATS OF CURING COMPOUND USING A HIGH PRESSURE AIRLESS SPRAYER. APPLY THE SECOND COAT 90 DEGREES TO THE FIRST. CLEAN ALL NOZZLES AFTER EACH USE.
B. ALL CONCRETE SURFACES IN CONTACT WITH POTABLE WATER OR WATER THROUGHOUT TREATMENT TO BE POTABLE SHALL BE CONTINUOUSLY MOIST CURED OR CURING COMPOUNDS SHALL BE ANSI/NSF-61 CERTIFIED.
C. ALL CONCRETE SURFACES NOT IN CONTACT WITH POTABLE WATER OR THE PROCESS OF TREATMENT FOR POTABLE WATER SHALL MEET THE MOISTURE RETENTION REQUIREMENTS OF ASTM C-309, TYPE 1-D AT COVERAGE RATE SPECIFIED, AND PASS VOC REQUIREMENTS.
D. COLUMNS, WALLS, GRADE BEAMS, AND FOUNDATIONS: START CURING IMMEDIATELY UPON THE REMOVAL OF FORMS AND THE COMPLETION OF FINISHING WORK. THE TOPS OF SPREAD FOUNDATIONS WILL REQUIRE CURING COMPOUND.
E. SLAB AND CAST-IN-PLACE FINISHED CONCRETE: START CURING IMMEDIATELY ONCE THE CONCRETE IS SET ENOUGH TO WALK ON WITHOUT HARMING THE FINISH.
3.04 CONCRETE REPAIR OR DEMOLITION:
A. ALL PATCHING OF CONCRETE SHALL BE CONSIDERED STRUCTURAL. NOTIFY ENGINEER ON A CASE BY CASE BASIS.
B. WHEN DRILLING, CHIPPING, SAWCUTTING, OR CORING INTO CONCRETE, GPR, X-RAY OR FERROSCAN EXISTING CONCRETE TO LOCATE REINFORCING. DO NOT CUT, NICK, OR OTHERWISE DAMAGE EXISTING REINFORCING.

REINFORCING STEEL

- 1.01 DESCRIPTION:
A. THIS SECTION COVERS THE REQUIREMENTS FOR MATERIALS, DETAILING, AND INSTALLATION OF REINFORCING STEEL (RE: ACI 301-05, ACI 350-06).
1.02 COORDINATION:
A. PLACE REINFORCEMENT IN CONFORMANCE WITH ACI DETAILING MANUAL ACI SP-66.
B. DO NOT DAMAGE OR DISRUPT REINFORCING BARS OR CONNECTORS FROM THEIR PROPER LOCATION BY THE PLACEMENT OF EMBEDDED PIPING OR CONDUIT. PROVIDE CLEARANCE BETWEEN REINFORCEMENT AND EMBEDDED PIPING AND CONDUIT AT ALL TIMES.
1.03 SUBMITTALS:
A. SUBMIT PLACING DRAWINGS PER ACI DETAILING MANUAL, ACI SP-66. INCLUDE ELEVATIONS SHOWING REINFORCING AT ALL CONCRETE WALLS AND FOUNDATIONS.
B. SUBMIT ICC EVALUATION REPORTS OR OTHER APPROVED EVALUATIONS REPORTS AND LOCATIONS OF REINFORCEMENT CONNECTORS (MECHANICAL COUPLERS, ETC) AND REBAR TERMINATORS.
1.04 QUALITY ASSURANCE:
A. TOLERANCES FOR FABRICATION, PLACEMENT, BAR BENDS, STANDARD HOOKS AND LAP SPLICES FOR REINFORCEMENT SHALL CONFORM TO ACI 117, SECTION 2 AND CRSI STANDARDS.
2.01 REINFORCEMENT MATERIALS:
A. REINFORCING STEEL SHALL BE DEFORMED EXCEPT SPIRALS, AND WELDED PLAIN WIRE FABRIC.
B. REINFORCING STEEL SHALL CONFORM TO THE FOLLOWING STANDARDS.
1. #3 BARS AND LARGER - ASTM A 615, GRADE 60
2. STIRRUPS AND COLUMN TIES - ASTM A 615, GRADE 60
3. STEEL WIRE - ASTM A 82
4. WELDED PLAIN (SMOOTH) WIRE FABRIC - ASTM A 185
5. WELDABLE REINFORCING STEEL - ASTM A 706
6. REBAR TERMINATORS - ASTM A 576
2.02 REINFORCEMENT CONNECTORS:
A. REINFORCEMENT CONNECTORS ARE ACCESSORIES INCLUDING MECHANICAL BUTT SPLICES, FORM SAVERS, COUPLERS, AND TERMINATORS.
B. TENSION, AND COMPRESSION AS REQUIRED, SPLICE CAPACITY OF CONNECTORS MUST EXCEED 125% OF THE YIELD STRENGTH (FY) OF THE REINFORCING BAR IN ACCORDANCE WITH ACI 318. INSTALL PER THE ICC REPORT AND MANUFACTURER'S RECOMMENDATIONS.
C. SPECIAL INSPECTION WILL INCLUDE RANDOM TORQUE TESTING OF COUPLERS BEFORE AND AFTER INSTALLATION IN FORMS. IF ANY COUPLER DOES NOT PASS THE TORQUE TEST, ALL COUPLERS WILL BE TORQUED BY AN INDEPENDENT TESTING LAB AT THE CONTRACTOR'S EXPENSE. COUPLERS USED IN COLUMNS SHALL NOT BE LONGER THAN 8" OR HAVE A DIAMETER LARGER THAN 2.5 INCHES.
D. REBAR TERMINATORS SHALL BE OF SUFFICIENT DIAMETER AND WIDTH TO BE CAPABLE OF DEVELOPING THE SPECIFIED YIELD STRENGTH OF THE REBAR. CONNECTION OF THE REBAR TERMINATORS TO THE REINFORCING STEEL SHALL BE CAPABLE OF DEVELOPING THE TENSION SPLICE CAPACITY FOR CONNECTORS.

Table with 6 columns: REMARKS, DWG NUMBER, CAD FILE NAME, DATE, PROJECT NAME, CID NUMBER. Includes revision history and project information.

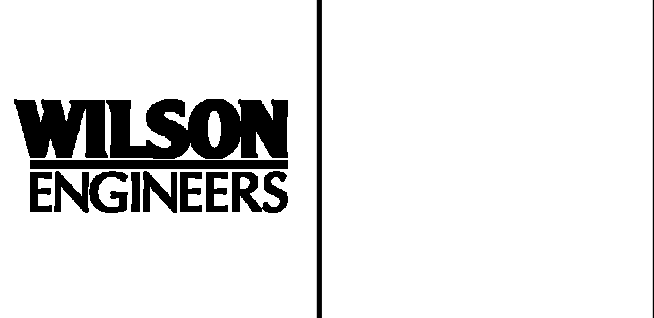
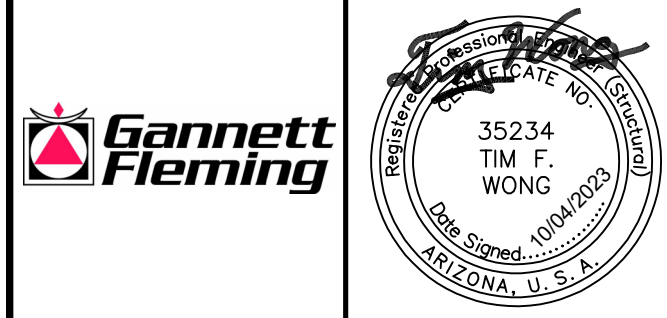
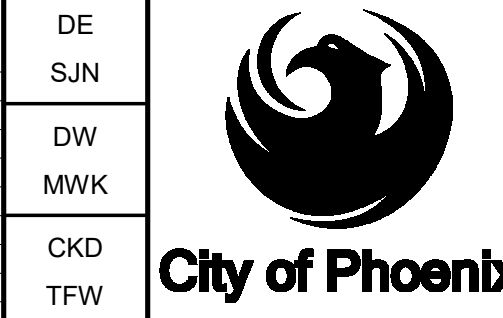


Table with 5 columns: NO., BY, DATE, CKD, REMARKS. Includes a REVISIONS header.



CITY OF PHOENIX WATER SERVICES DEPARTMENT
NORTHWEST WASTEWATER MASTER PLAN PACKAGE 4B

STRUCTURAL
GENERAL STRUCTURAL NOTES II

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CITY PROJECT NO. WS9500307
DATE: OCTOBER 2023
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### REINFORCING STEEL (CONTINUED)

- 3.01 PLACEMENT:
- A. SECURELY TIE ALL REINFORCING AND EMBEDDED ITEMS IN POSITION BEFORE PLACING CONCRETE OR GROUT. DO NOT STAB OR SHOVE INTO FRESHLY PLACED CONCRETE.
  - B. TIE COLUMN CAGES TO FORMS AND SQUARE BEFORE PLACING CONCRETE. ALL CAGES AND FORMS SHALL BE SQUARED UP PLUMB AND CENTERLINE LOCATIONS OF ALL COLUMNS SHALL BE CHECKED BEFORE PLACING CONCRETE.

- 3.02 SLAB REINFORCEMENT (MIN), UNLESS NOTED OTHERWISE ON DRAWINGS:
- A. THE MINIMUM QUANTITY OF REINFORCEMENT IN SLABS SHALL BE AS SHOWN BELOW.

SLAB THICKNESS	REINFORCEMENT
6" SLAB	#3 @ 9" OR #4 @ 16"
8" SLAB	#3 @ 7" OR #4 @ 12"
10" SLAB	#4 @ 10"

- B. EDGE BARS: THE EDGES OF ALL SLABS SHALL BE REINFORCED WITH 2 #5 BARS CONTINUOUS.
- C. ALL OPENINGS IN SLABS SHALL HAVE 2 #5 BARS PARALLEL TO ALL EDGES, EXTENDING 2'-0" BEYOND EACH CORNER.
- D. SLAB REINFORCEMENT SHALL NOT BE CUT AT PLUMBING OR OTHER OPENINGS. SPREAD REINFORCEMENT AROUND OPENINGS.
- E. SUPPORT SLAB TOP REINFORCEMENT ON HIGH CHAIRS. USE #5 BARS AS SUPPORT BARS WHERE REQUIRED. ALL BARS AND CHAIRS MUST BE SECURELY TIED TOGETHER. PROVIDE SUFFICIENT SUPPORT TO MAINTAIN CONCRETE PROTECTION AS SPECIFIED. USE NON-FERROUS CHAIRS WHERE RUST STAINS ARE UNACCEPTABLE.

- 3.03 REINFORCEMENT (MIN), UNLESS NOTED OTHERWISE ON DRAWINGS:
- A. THE MINIMUM QUANTITY OF REINFORCEMENT IN WALLS SHALL BE AS SHOWN BELOW.

WALL THICKNESS	REINFORCEMENT (EACH FACE)
6"	#4 @ 18" VERT, #3 @ 7" HORIZ
8"	#4 @ 16" VERT, #4 @ 9" HORIZ
10"	#4 @ 14" VERT, #4 @ 8" HORIZ
12"	#5 @ 12" VERT, #5 @ 12" HORIZ

- B. PROVIDE 2 #5 BARS AT ALL WALL CORNERS AND ENDS, UNLESS NOTED OTHERWISE.
- C. ALL OPENINGS IN WALLS SHALL HAVE 2 #5 BARS PARALLEL TO ALL EDGES, EXTENDING 2'-0" BEYOND CORNERS.

- 3.04 COLUMN REINFORCEMENT:
- A. HOOKS ON COLUMN TIES SHALL BE 135 DEGREES. PROVIDE 90 DEGREE HOOKS AT TERMINATION OF COLUMN. HOOK VERTICAL REINFORCEMENT INTO SLAB OR BEAMS.

- 3.05 BEAM REINFORCEMENT:
- A. STIRRUP SUPPORT BARS SHALL BE PROVIDED BETWEEN ENDS OF TOP BARS AS REQUIRED. SUPPORT BARS SHALL BE #6 MINIMUM.

- 3.06 COVER:
- A. MINIMUM CONCRETE COVERAGE FOR REINFORCING BARS (TO FACE OF BAR INCLUDING PRIMARY REINFORCEMENT, STIRRUPS, TIES, AND SPIRALS) UNLESS NOTED OTHERWISE ON DRAWINGS.
  - B. CAST-IN-PLACE CONCRETE (NON-PRESTRESSED)
    - 1. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: ALL BARS - 3"
    - 2. CONCRETE CAST AGAINST FORMS AND PERMANENTLY EXPOSED TO EARTH OR WEATHER: #3 THRU #18 BARS - 2"
    - 3. CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
      - i. SLABS, WALLS, JOISTS #3 THRU #18 BARS - 2"
      - ii. BEAMS, COLUMNS PRIMARY REINF, TIES, STIRRUPS, SPIRALS - 2"

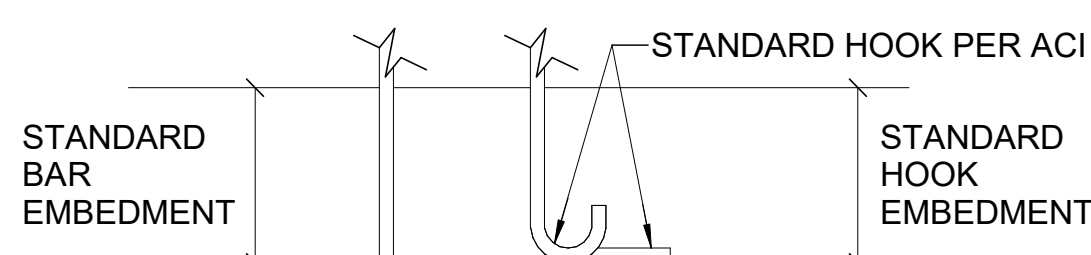
- 3.07 SPLICES:
- A. ALL REINFORCEMENT IS CONTINUOUS AND MUST BE LAPPED WITH A FULL TENSION LAP OR TERMINATED WITH A 90 DEGREE STANDARD HOOK, UNLESS NOTED OTHERWISE ON DRAWINGS.
  - B. ALL WALL REINFORCEMENT AT CORNERS, INTERSECTIONS, AND JUNCTIONS SHALL BE CONTINUOUS AND LAPPED OR TERMINATED IN A 90 DEGREE STANDARD HOOK.
  - C. ALL RADIAL WALLS SHALL HAVE STAGGERED SPLICES WITH NO MORE THAN 1/3 OF THE REINFORCEMENT SPLICED AT ANY LOCATION.
  - D. SPLICE REINFORCING BARS ONLY AT APPROVED LOCATIONS. SPLICE BOTTOM BARS OVER SUPPORTS AND TOP BARS AT MID-SPAN ONLY, UNLESS NOTED OTHERWISE ON DRAWINGS.
  - E. DOWEL ALL VERTICAL REINFORCEMENT TO FOUNDATIONS, UNLESS NOTED OTHERWISE ON DRAWINGS. ALL DOWELS SHALL BE THE SAME SIZE AND SPACING AS THE REINFORCEMENT THAT IT IS SPLICED WITH, UNLESS NOTED OTHERWISE ON DRAWINGS.

- 3.08 LAP SPLICE LENGTHS:
- A. TOP BARS ARE CONSIDERED HORIZONTAL BARS LOCATED WHERE 12 INCHES OR MORE OF FRESH CONCRETE WILL BE PLACED BELOW THE BAR.
  - B. LAP WELDED WIRE FABRIC TWO FULL SQUARES.
  - C. ALL LAP SPLICES ARE CLASS 'B' SPLICES, UNLESS NOTED OTHERWISE ON DRAWINGS.
  - D. MINIMUM LAPS SPLICE LENGTHS FOR CLASS 'B' LAPS AND FOR BARS WITH CONCRETE COVER OF AT LEAST ONE BAR DIAMETER ARE GIVEN IN THE FOLLOWING SCHEDULE, UNLESS NOTED OTHERWISE ON DRAWINGS.

REINFORCEMENT LAP SPLICE AND EMBEDMENT LENGTH (f'c ≥ 4500 PSI)						
BAR SIZE NO.	METRIC BAR SIZE NO.	BAR SPACING	MIN LAP LENGTH (IN)		MIN EMBEDMENT LENGTH (IN)	
			TOP BARS	OTHER BARS	STRAIGHT BARS	
			CLASS B	CLASS B	TOP BARS	OTHER BARS

REQUIREMENTS FOR SLABS & WALLS**						
#3	#10	≥ 3db	24	19	19	7
#4	#13		32	25	25	10
#5	#16		40	31	31	12
#6	#19		48	37	37	15
#7	#22		70	54	54	17
#8	#25		80	62	62	19
#9	#29		91	70	70	22
#10	#32		102	79	79	24
#11	#36		113	87	87	27

REQUIREMENTS FOR BEAMS AND COLUMNS						
#3 THRU #7	#10 THRU #22	≥ 2db	SAME AS SLABS AND WALLS ABOVE			
#8	#25	2 db OR LESS	121	93	93	19
#9	#29		136	105	105	22
#10	#32		153	118	118	24
#11	#36		170	131	131	27



\*\* FOR BAR CLEAR SPACING LESS THAN 3 BAR DIAMETER, ADD 50%

- 3.09 WELDING:
- A. DO NOT WELD REINFORCING STEEL EXCEPT WHERE SUCH WELDING HAS BEEN SUBMITTED TO THE OWNER'S AGENT FOR REVIEW BY THE STRUCTURAL ENGINEER.
  - B. WELDING WILL NOT BE ACCEPTED AS A SUBSTITUTE FOR TIE WIRES OR TO AID IN SUPPORTING REINFORCING STEEL.
  - C. WELD REINFORCING BARS IN CONFORMANCE WITH AWS D1.4 USING ELECTRODE E8018-X.
  - D. SUBMIT WELDER CERTIFICATIONS AND WELDING PROCEDURES PER AWS D1.4.

### CONSTRUCTION JOINTS

- 1.01 LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE AS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER. SUBMIT CONSTRUCTION JOINT LOCATIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS TO THE ENGINEER FOR REVIEW.
- 1.02 PROVIDE AND INSTALL POLYVINYLCHLORIDE (PVC), THERMOPLASTIC VULCANIZATE WATERSTOP (TPV) AND HYDROPHILIC VINYLESTER WATERSTOPS WHERE SHOWN ON DRAWINGS AND AT ALL CONSTRUCTION JOINTS IN WATERBEARING, AND PARTIALLY AND FULLY UNDERGROUND SLABS AND WALLS (INCLUDING ELEVATOR AND ESCALATOR PITS, AND CHEMICAL CONTAINMENT AREAS). WATERSTOPS ARE NOT REQUIRED IN WALLS AND SLABS WHEN THERE IS WATER ON BOTH SIDES UNLESS NOTED OTHERWISE.
- 1.03 PROVIDE AND INSTALL PREFORMED JOINT MATERIAL IN EXPANSION AND ISOLATION JOINTS WHERE NOTED ON DRAWINGS. PROVIDE ELASTOMERIC JOINT SEALANT AND ALL NECESSARY ACCESSORIES SUCH AS BACKER ROD AND BOND BREAKER TAP WHERE EXPANSION JOINT IS TO BE SUBMERGED FOR ANY AMOUNT OF TIME OR WHERE NOTED ON DRAWINGS AS "CAULK AND SEAL".
- 1.04 SUBMIT THE FOLLOWING PRIOR TO START OF WORK:
- A. LAYOUT OF CONSTRUCTION AND EXPANSION JOINTS
  - B. MANUFACTURER'S PRODUCT SPECIFICATIONS AND INSTALLATION INSTRUCTIONS FOR WATERSTOPS AND JOINT FILLER MATERIAL AND ACCESSORIES.
- 2.01 PROVIDE WATERSTOPS AND JOINT SEALANT SUITABLE FOR THEIR CONDITION OF USE SUCH AS MOVEMENT AND/OR CHEMICAL ATTACK (FOR EXAMPLE, WATER CONTAMINATED WITH SOLVENTS AND HYDROCARBONS).
- 2.02 PROVIDE PREFORMED JOINT FILLER IN ACCORDANCE WITH ASTM D 1752 TYPE I (FOAM RUBBER) OR TYPE II (CORK) AT INTERIOR EXPANSION JOINTS AND AS NOTED ON DRAWINGS. PROVIDE PREFORMED BITUMINOUS JOINT FILLER IN ACCORDANCE WITH ASTM D 1751 FOR EXTERIOR ISOLATION JOINTS AND AS NOTED ON DRAWINGS.
- 3.01 ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED FOR BOND. CAULK AND SEAL JOINTS PER JOB SPECIFICATIONS AND WHERE NOTED ON DRAWINGS.
- 3.02 SEE TYPICAL DETAILS FOR INSTALLATION OF CONSTRUCTION JOINTS AND WATERSTOPS IN NEW CONSTRUCTION AND BETWEEN EXISTING AND NEW CONSTRUCTION.
- 3.03 FOR NON-WATERBEARING SLABS-ON-GRADE, PLACE JOINTS IN 12" SLAB ON GRADE AT 20'-0" MAXIMUM OR IN RATIOS NOT TO EXCEED 2:1. TIMING OF JOINT SAWING IS CRITICAL. JOINTS SHOULD BE SAWN AS SOON AS THE CONCRETE IS HARD ENOUGH THAT THE SAWING DOES NOT RAVEL JOINT EDGES OR DISLODGE COURSE AGGREGATE PARTICLES. PROVIDE SAWCUTS IN A RECTANGULAR PATTERN AS SHOWN ON PLANS. WHERE A PATTERN IS NOT SHOWN, SAWCUT ON COLUMN LINES, AT EQUAL SPACES BETWEEN COLUMN LINES TO PRODUCE THE MAXIMUM SPACING, AND AT ALL RE-ENTRANT CORNERS AND SLAB CHANGES. PROVIDE ISOLATION JOINTS IN A DIAMOND PATTERN AROUND COLUMNS. SUBMIT JOINT LAYOUT PLAN PRIOR TO STARTING WORK.

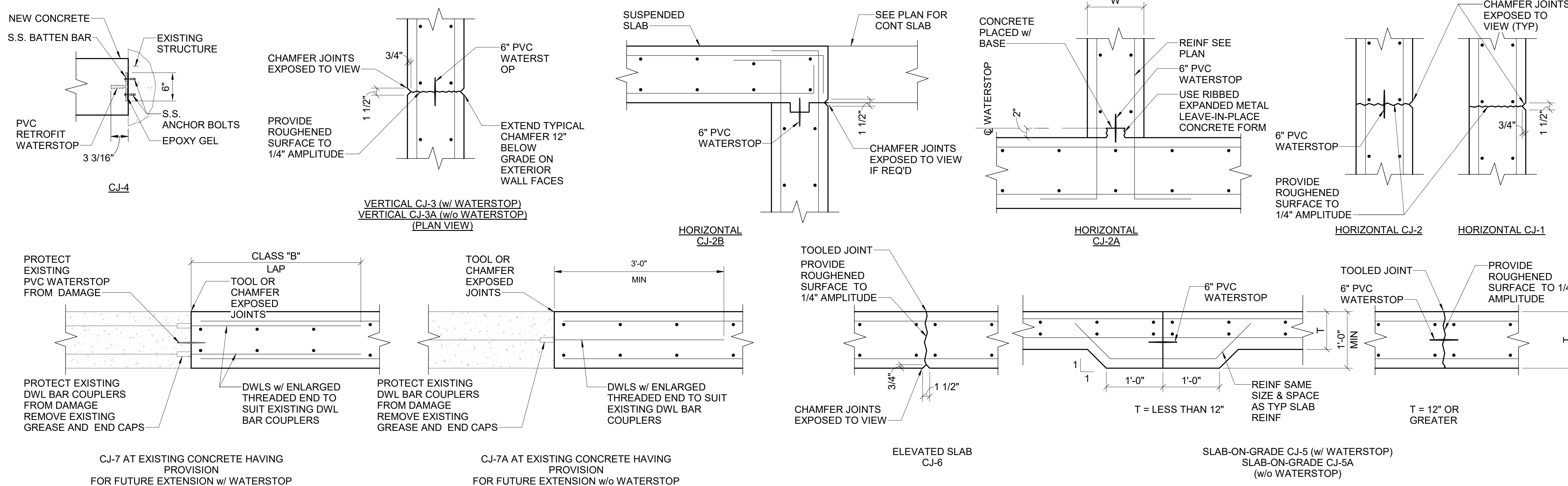
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			NO.	BY	DATE	CKD	REMARKS																				

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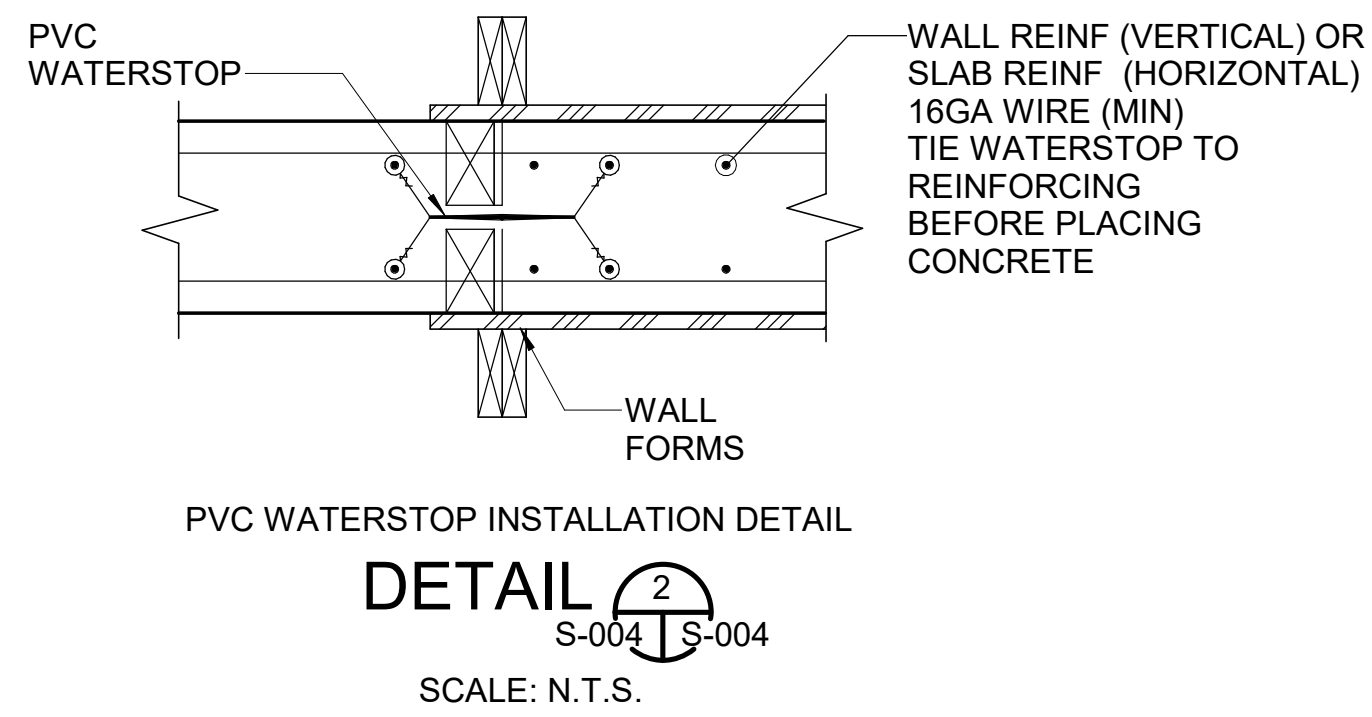
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TYPICAL CONSTRUCTION JOINT DETAILS  
**DETAIL 1**  
S-004 | S-004  
SCALE: N.T.S.

NOTES:  
1.) CONTINUE ALL REINFORCEMENT BARS THRU JOINTS  
2.) ALL WALL VERTICAL CONSTRUCTION JOINTS TO BE CJ-3 UNO  
3.) CONSTRUCTION JOINTS SHALL NOT OCCUR WITHIN THE MINIMUM LENGTH OF LAPS FOR SPLICES OF REINFORCEMENT  
SEE GENERAL STRUCTURAL NOTES FOR LAP SPLICE REQUIREMENTS



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SUN  
DW  
MWK  
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City of Phoenix

CITY OF PHOENIX  
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NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

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**STANDARD DETAILS I**

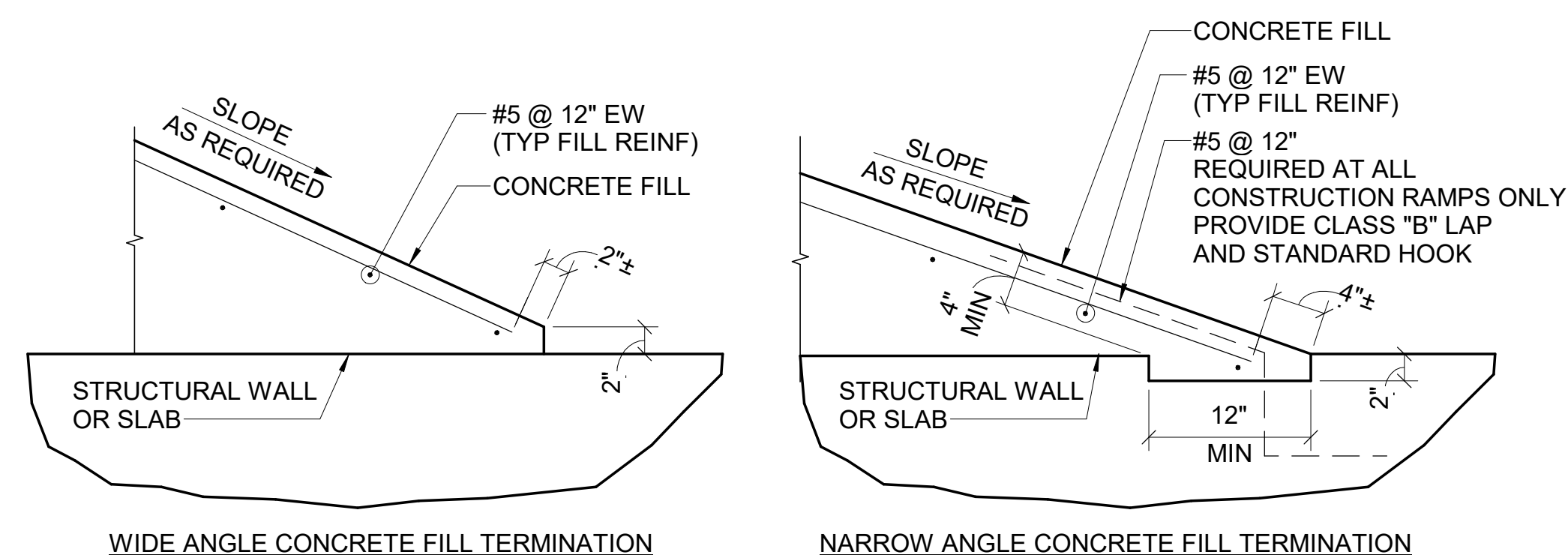
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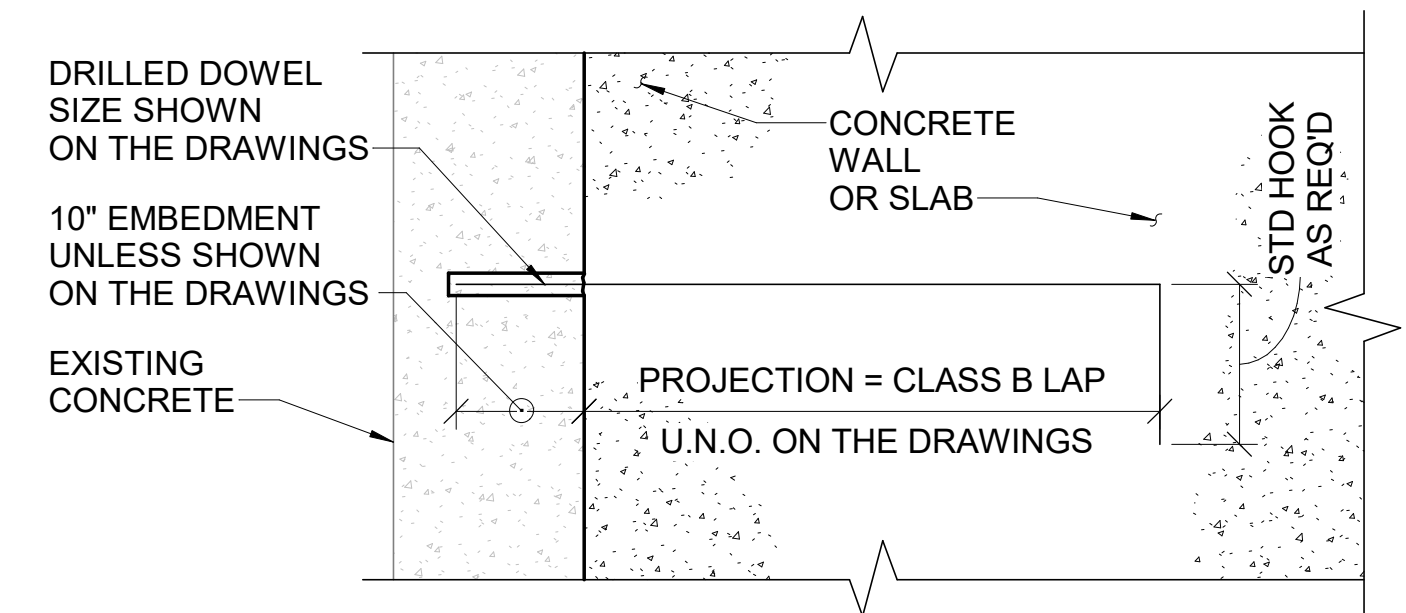
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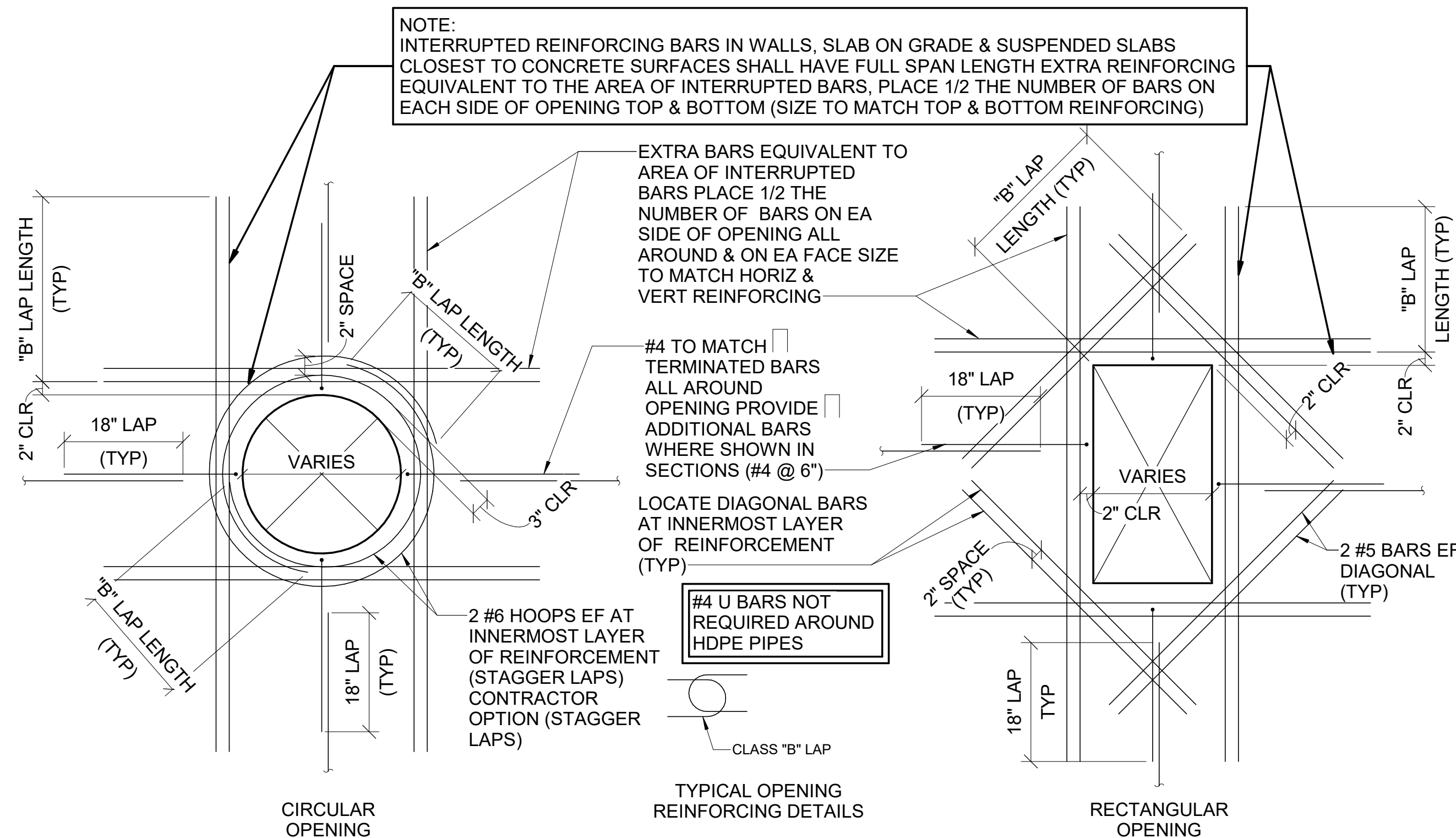
DETAIL 1  
S-005 | S-005  
SCALE: N.T.S.



**DRILLED DOWEL NOTES**

1. USE ROTARY PERCUSSION DRILL TO AVOID CUTTING EXISTING REINFORCING BARS. DO NOT USE CORE DRILL.
2. DRILL HOLE DIAMETER OF SIZE PER ADHESIVE MANUFACTURER'S INSTRUCTIONS AND ICC-ES REPORT.
3. THOROUGHLY CLEAN HOLE AND INSTALL DWLS PER ADHESIVE MANUFACTURER'S INSTRUCTIONS AND ICC-ES REPORT.
4. ADHESIVE SHALL BE HILTI HIT-RE 500-V3 (ICC REPORT ESR 3814) OR APPROVED EQUAL DRILLED IN DOWEL
5. DO NOT CUT EXISTING REINFORCING.

DETAIL 2  
S-005 | S-005  
SCALE: N.T.S.



DETAIL 3  
S-005 | S-005  
SCALE: N.T.S.

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STANDARD DETAILS II

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DATE: OCTOBER 2023

S SHEET 005

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Gannett Fleming

WILSON ENGINEERS

35234  
TIM F. WONG  
Date Signed: 10/24/2023  
Professional Engineer  
Arizona, U.S.A.

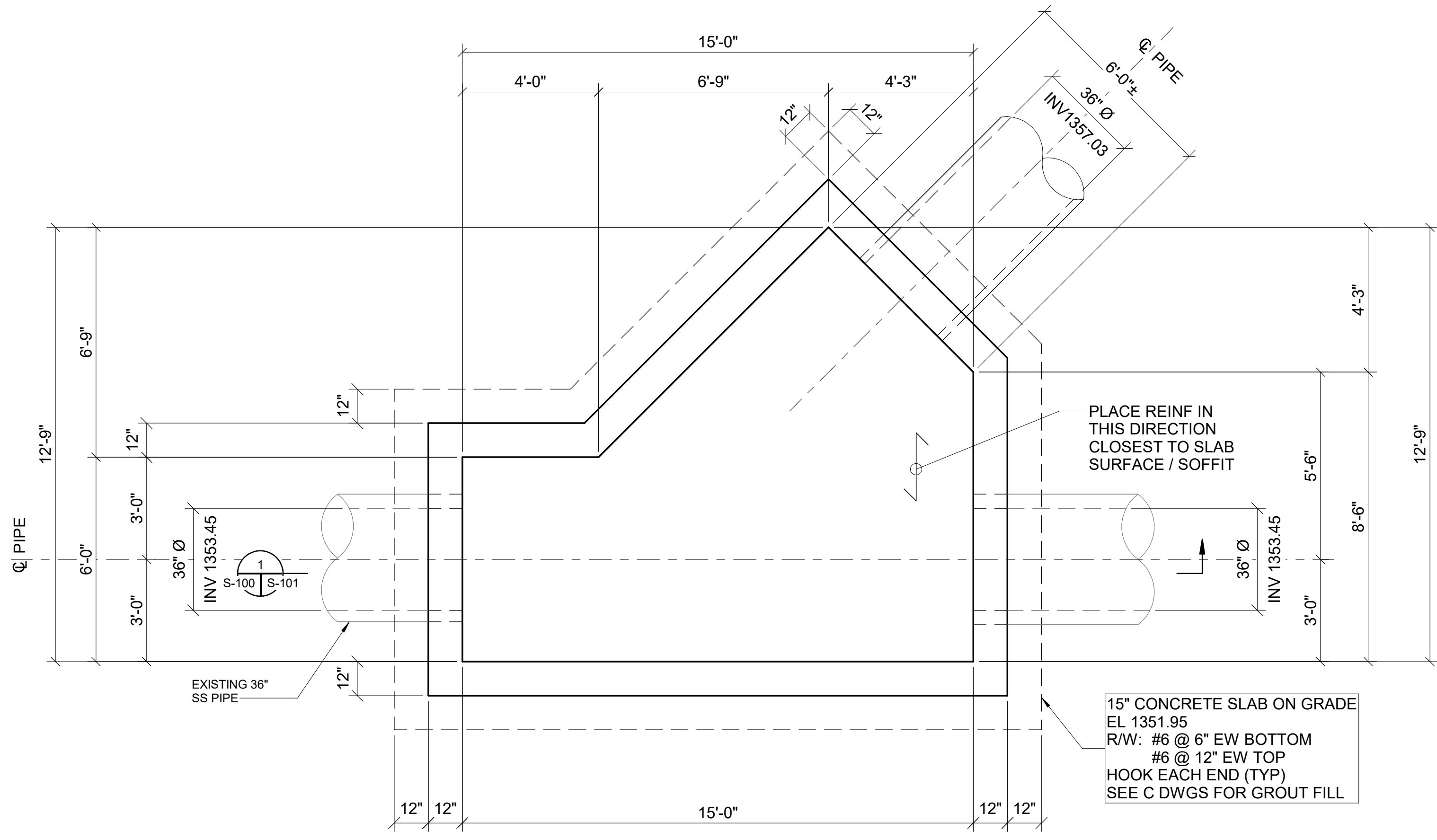
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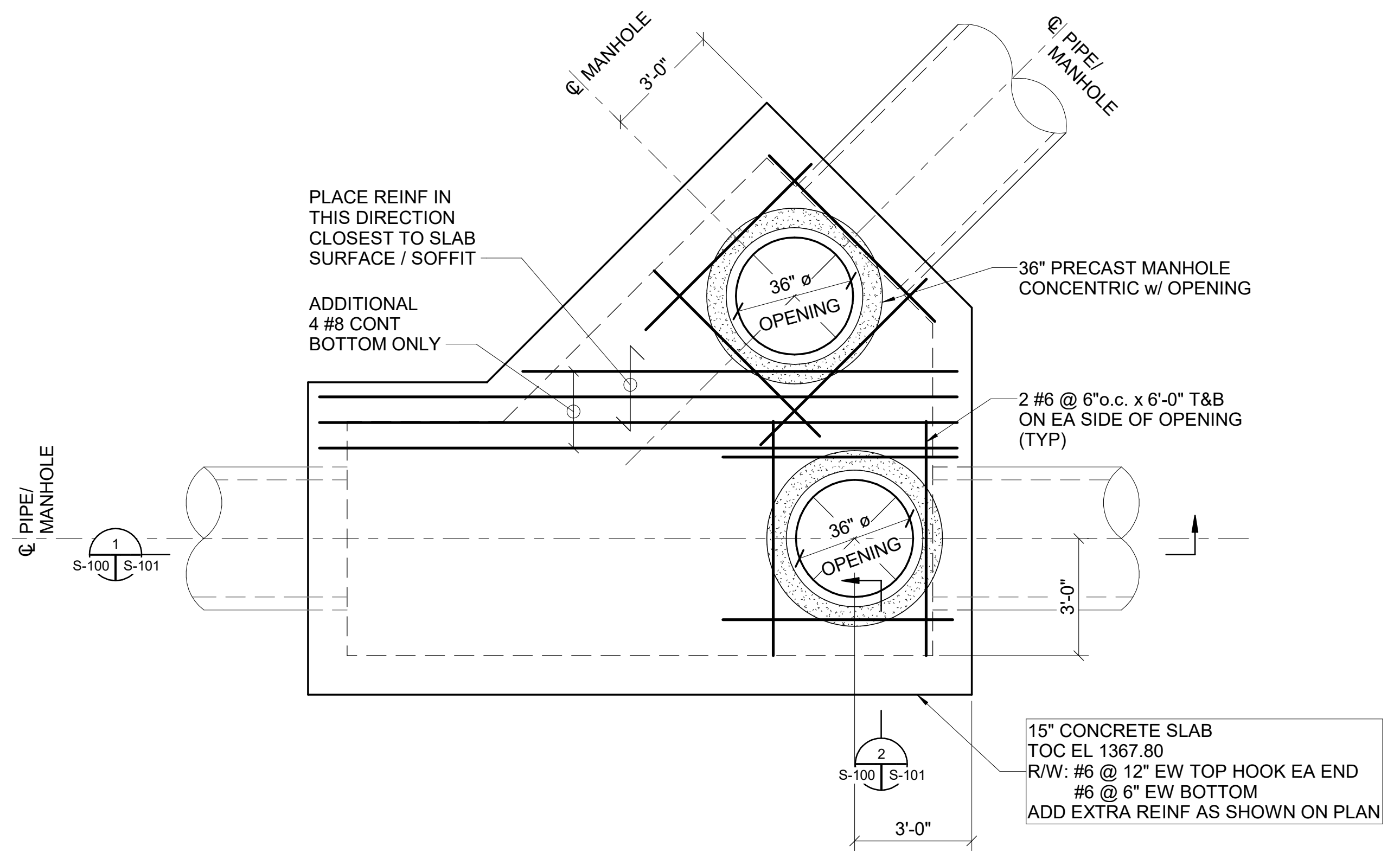
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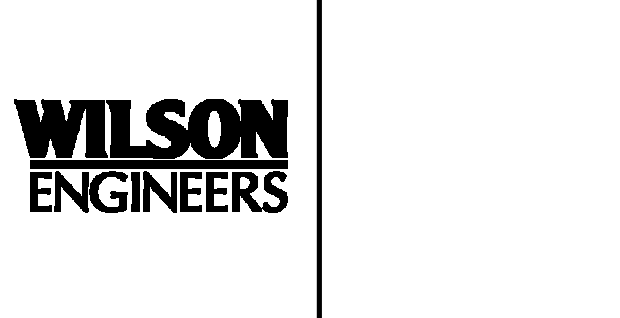
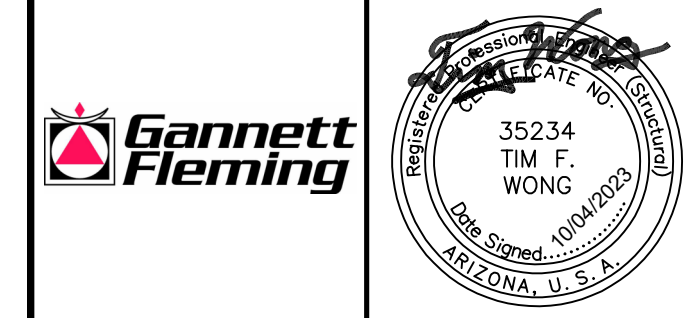


LOWER PLAN  
JUNCTION STRUCTURE NO. 1  
SCALE: 3/8" = 1'-0"

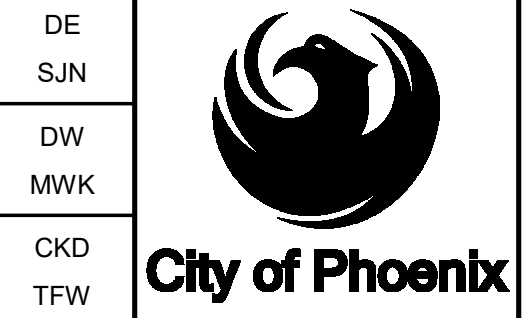


UPPER PLAN  
JUNCTION STRUCTURE NO. 1  
SCALE: 3/8" = 1'-0"

PROVIDE WATERSTOPS AT ALL WALL TO SLAB INTERFACES  
SEE S-004



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CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

STRUCTURAL  
JUNCTION STRUCTURE NO. 1  
PLAN VIEWS

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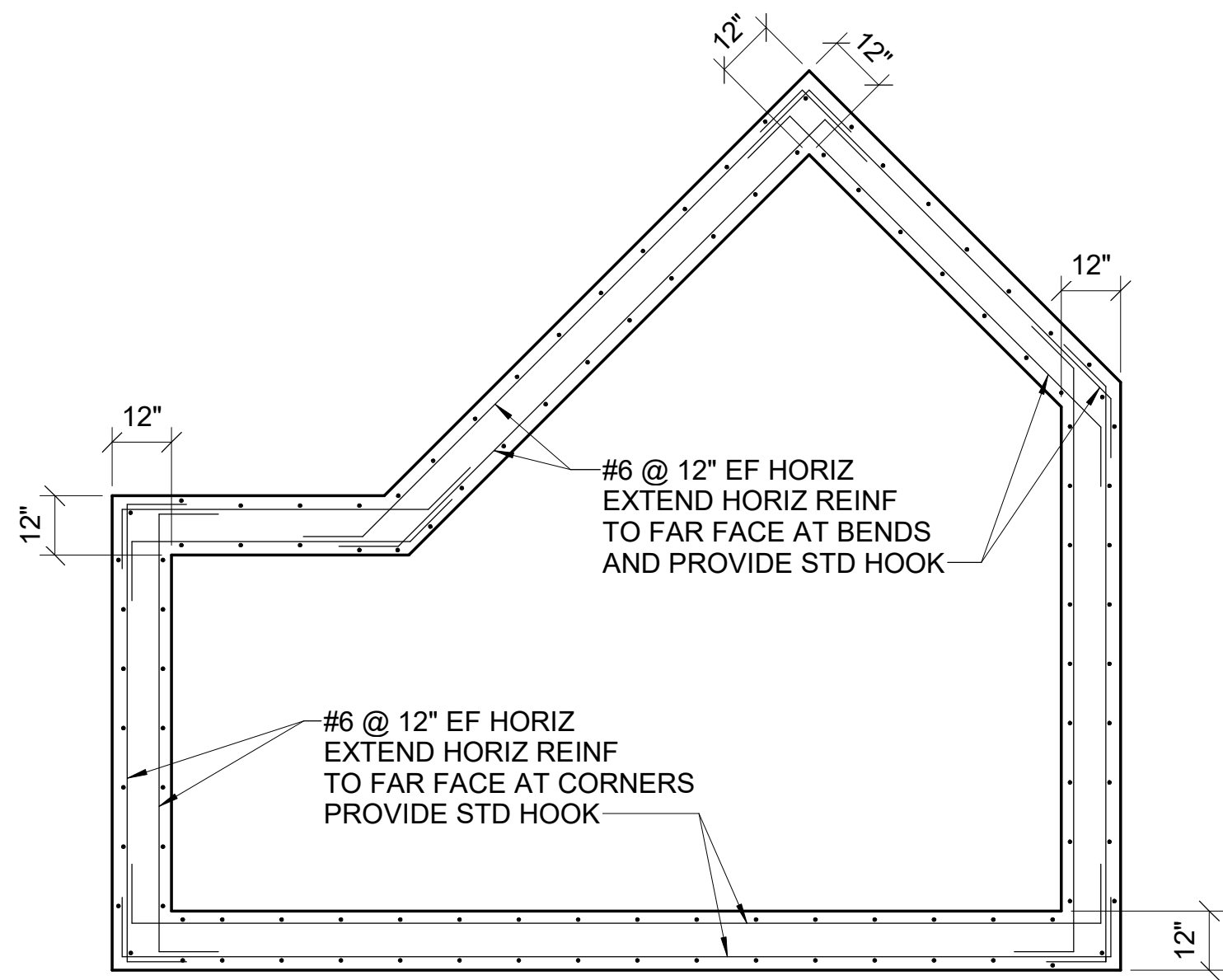
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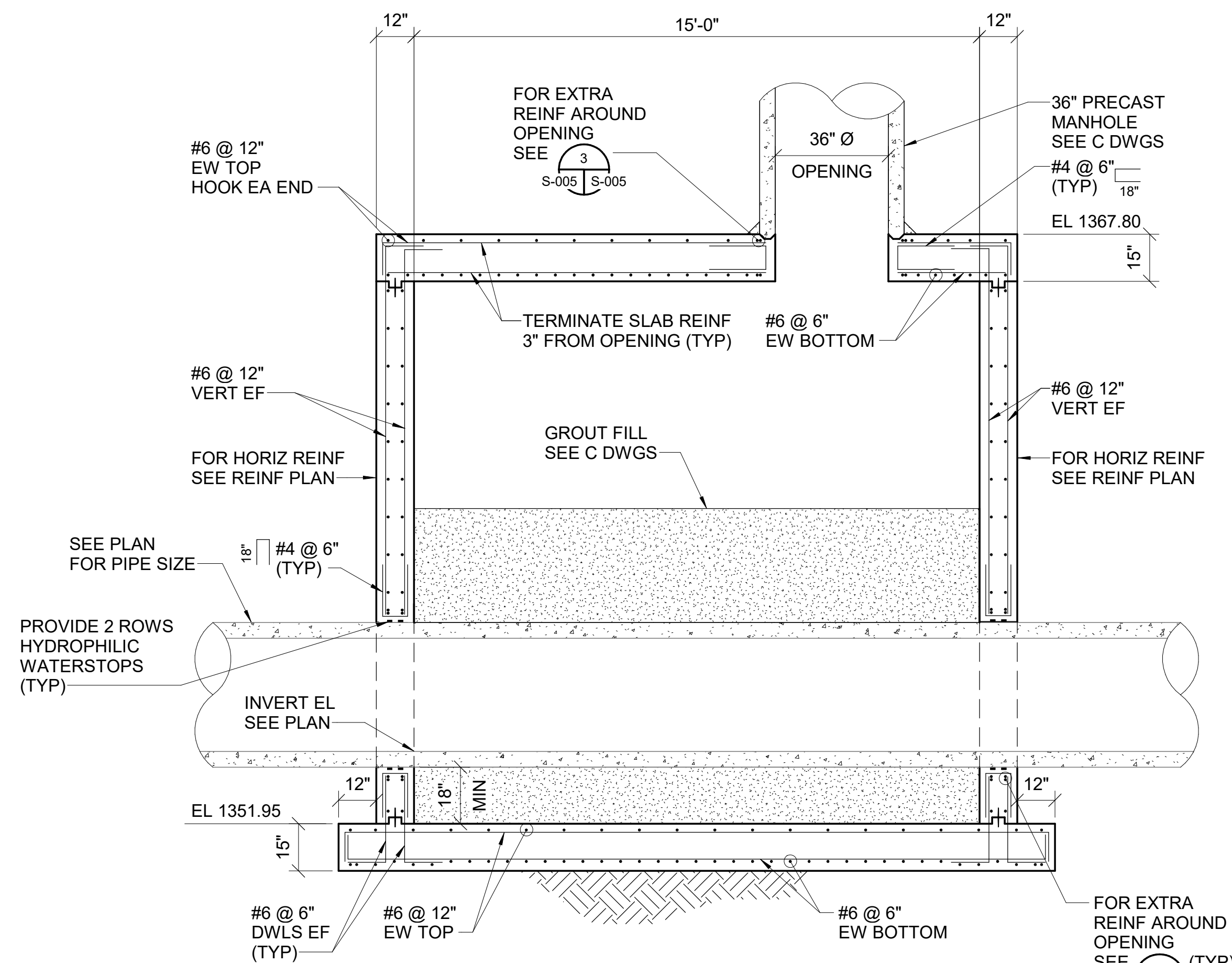
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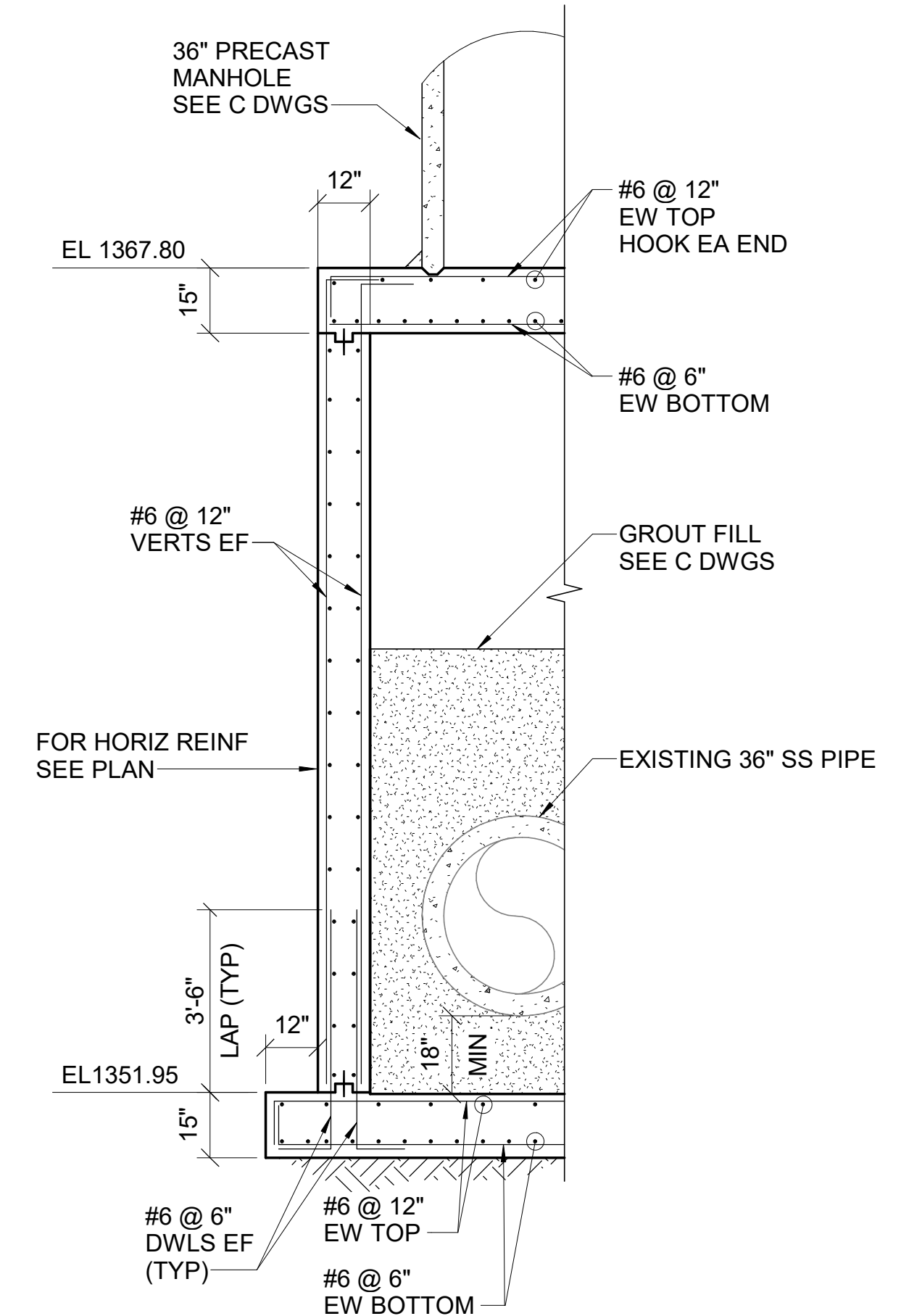


**REIN PLAN**

**JUNCTION STRUCTURE NO. 1**  
SCALE: 3/8" = 1'-0"

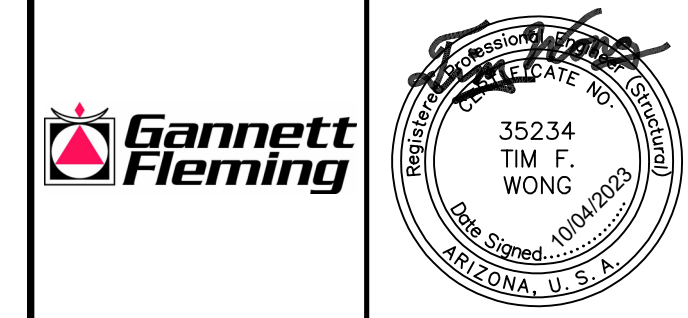


**SECTION 1**  
S-100 S-101  
SCALE: 3/8" = 1'-0"



**SECTION 2**  
S-100 S-101  
SCALE: 3/8" = 1'-0"

PROVIDE WATERSTOPS AT ALL WALL TO SLAB INTERFACES  
SEE S-004



**WILSON ENGINEERS**

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**City of Phoenix**

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

**STRUCTURAL**  
**JUNCTION STRUCTURE NO. 1**  
**PLAN AND SECTIONS**

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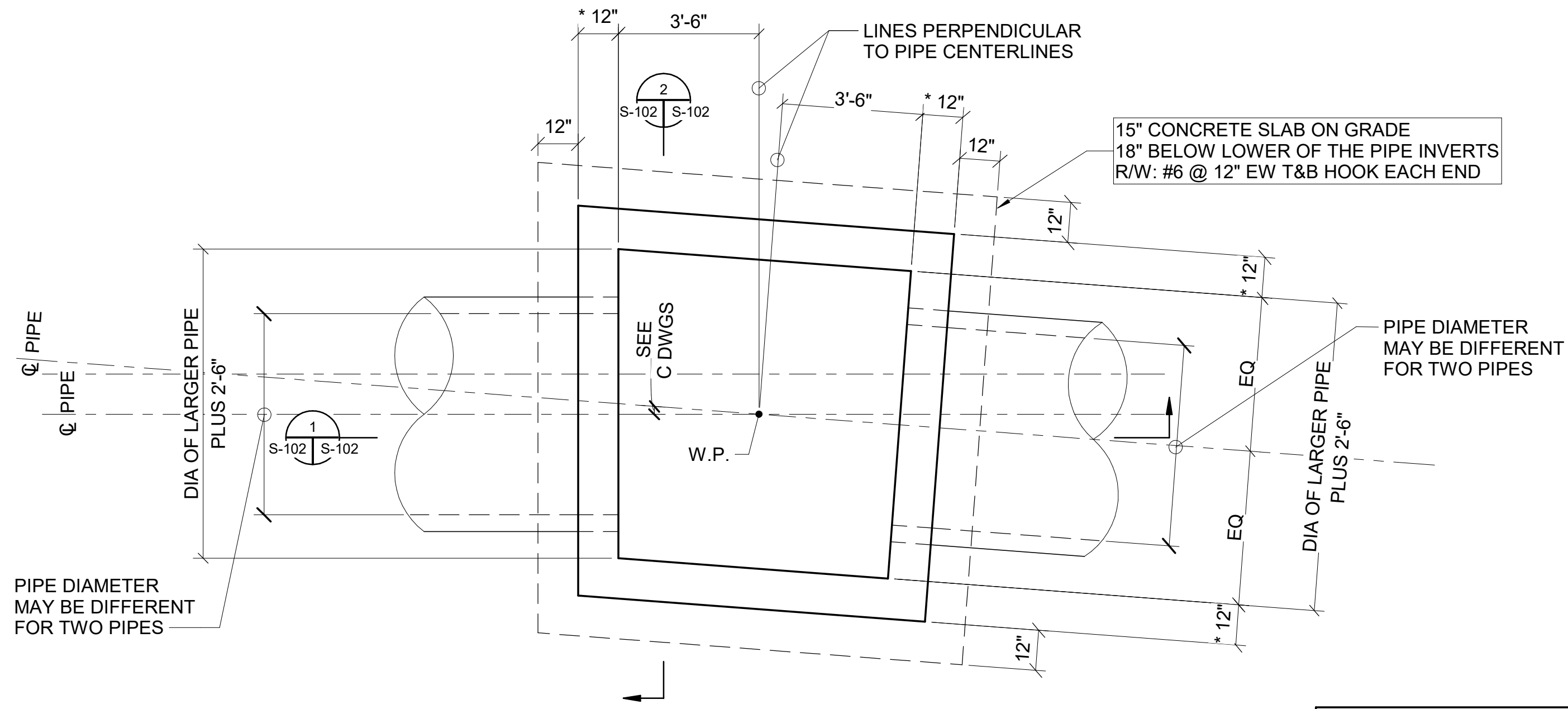
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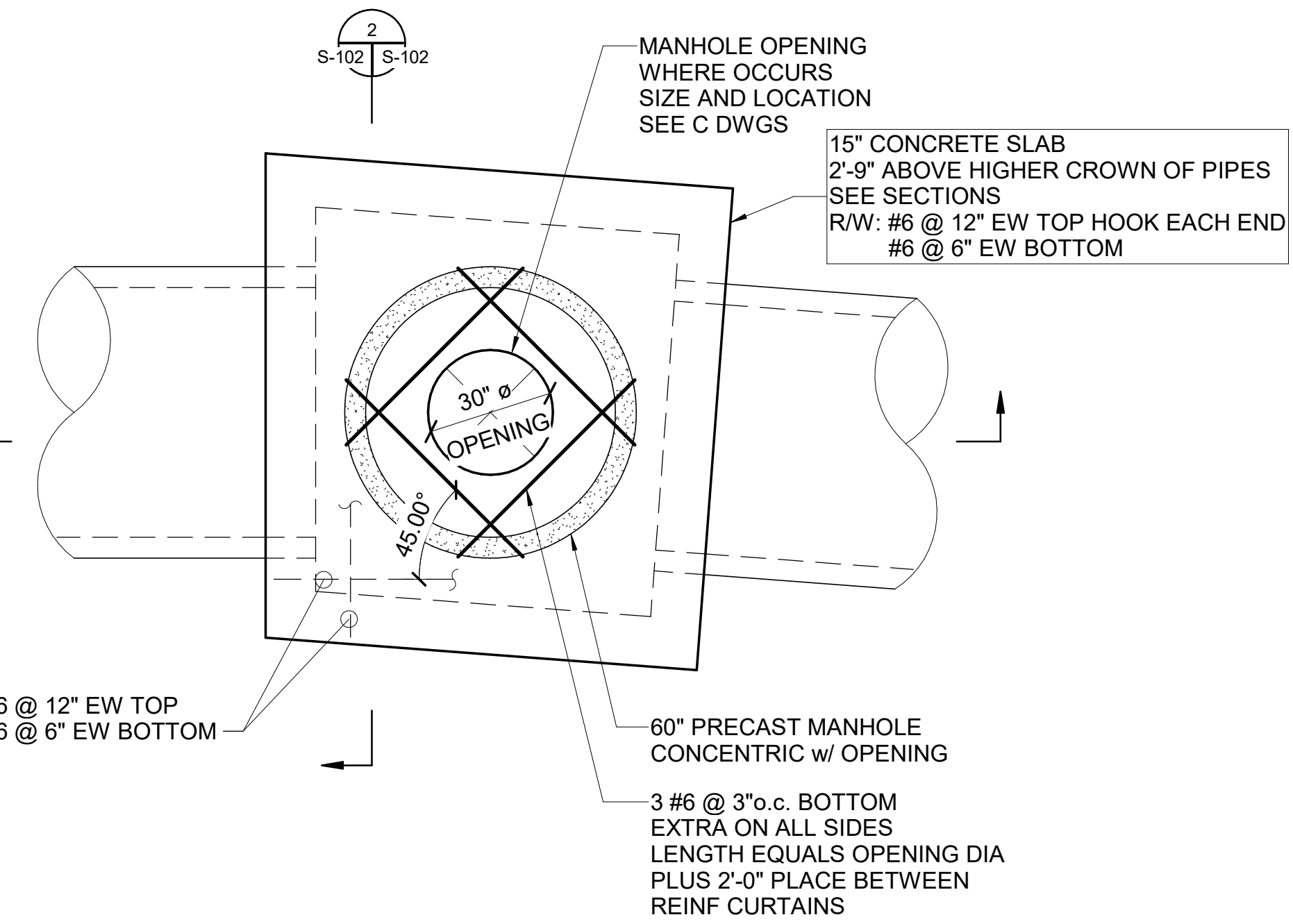
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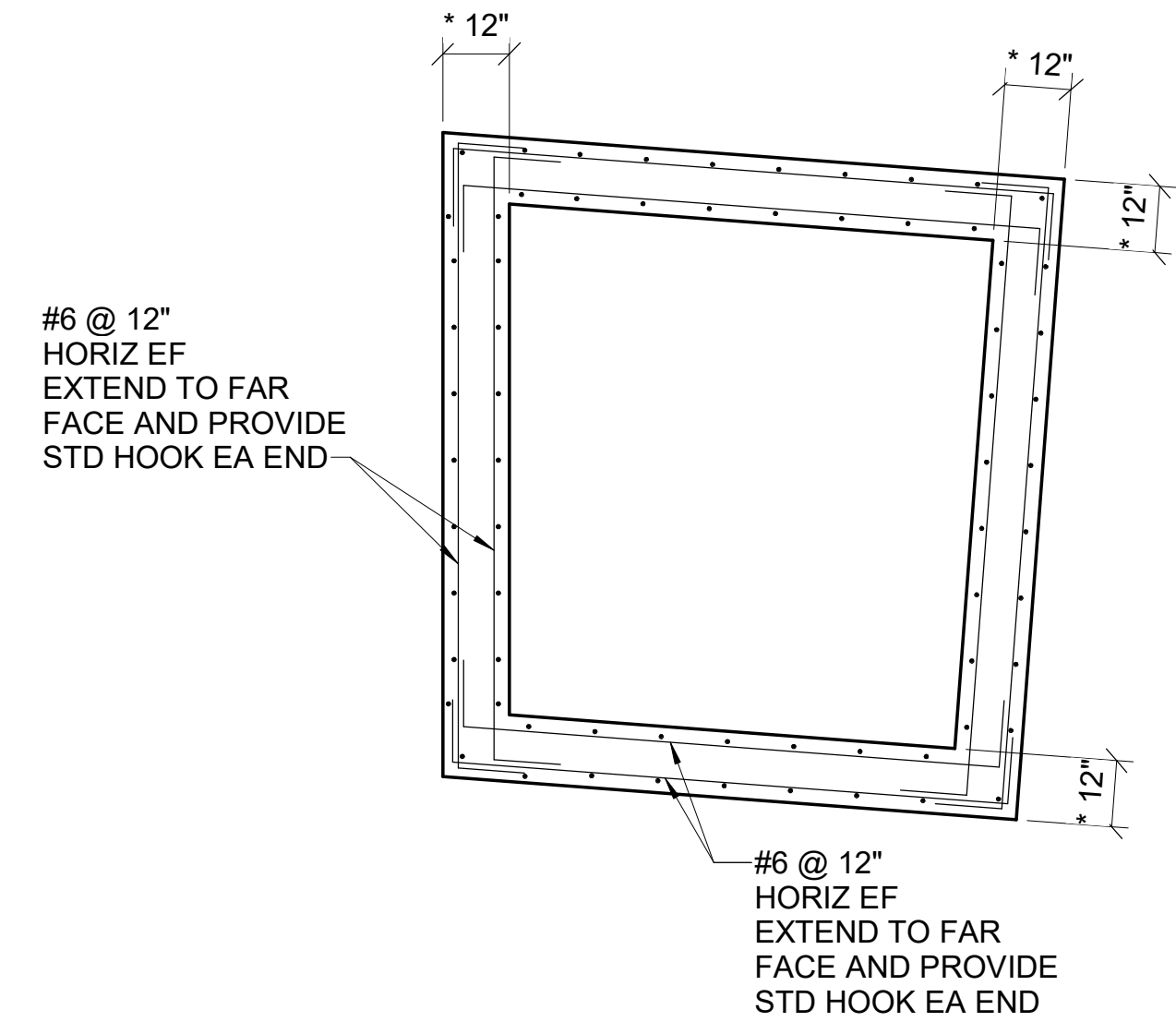
PIPES SHOWN SCHEMATIC  
NOTE:  
USE THIS BOX TYPE WHEN DEVIATION ANGLE IS 10 DEGREES OR LESS  
SEE C DRAWINGS  
**LOWER PLAN**  
DEFLECTION MANHOLE  
SCALE: 3/8" = 1'-0"

FOR MANHOLES NUMBERS 34, 36, 48 AND 55  
INVERT OF INCOMING (FLOW) PIPE SHALL BE  
SAME AS INVERT OF THE OUTGOING PIPE  
(INCOMING PIPE MAY HAVE DROP SEWER  
CONNECTION PER MAG STANDARD DETAIL 426)

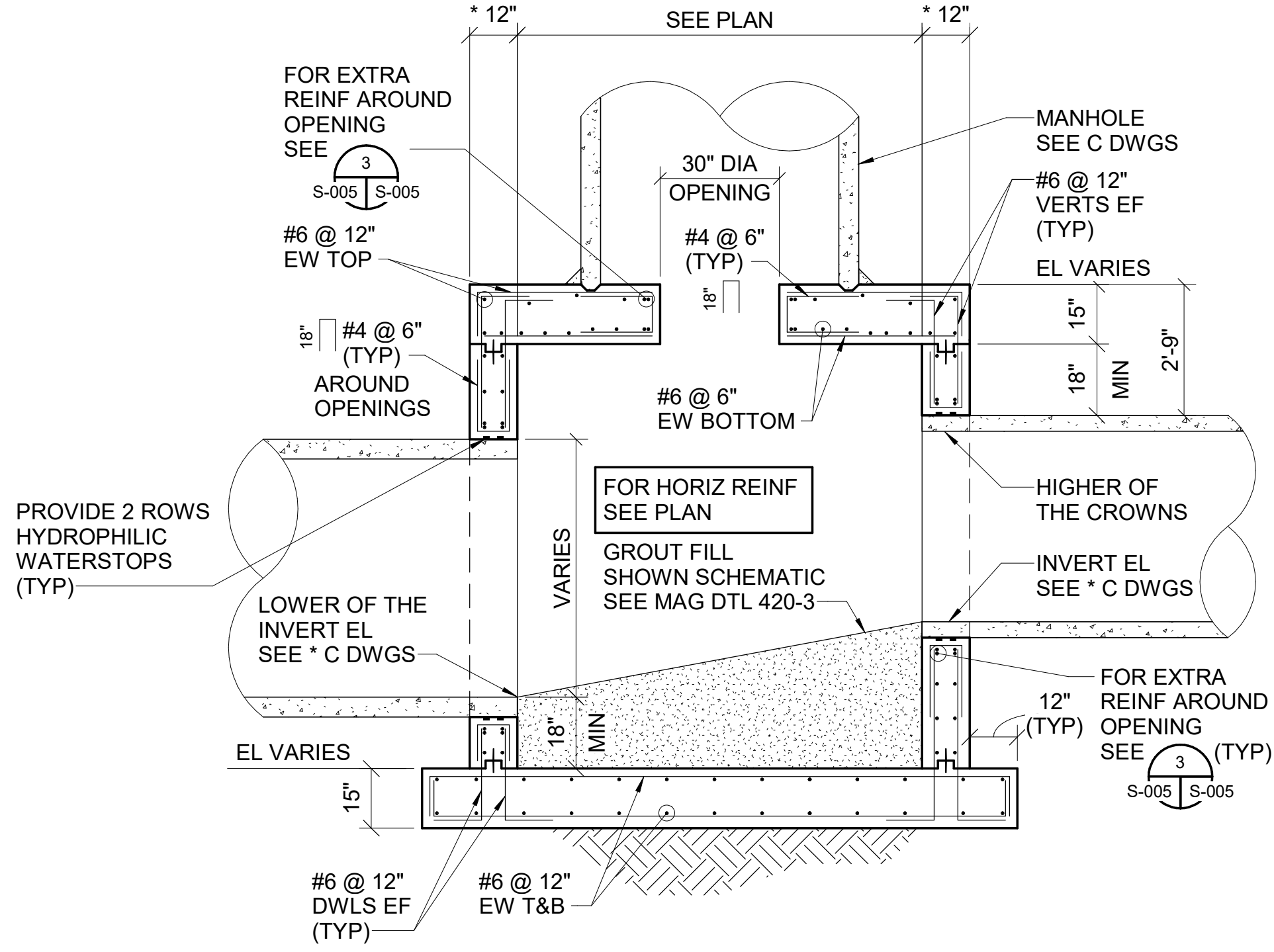
\* FOR MANHOLE NUMBER 55 ONLY:  
WALL THICKNESS SHALL BE 15"  
ROOF AND FOUNDATION THICKNESS  
AND ALL REINFORCING SHALL REMAIN THE SAME



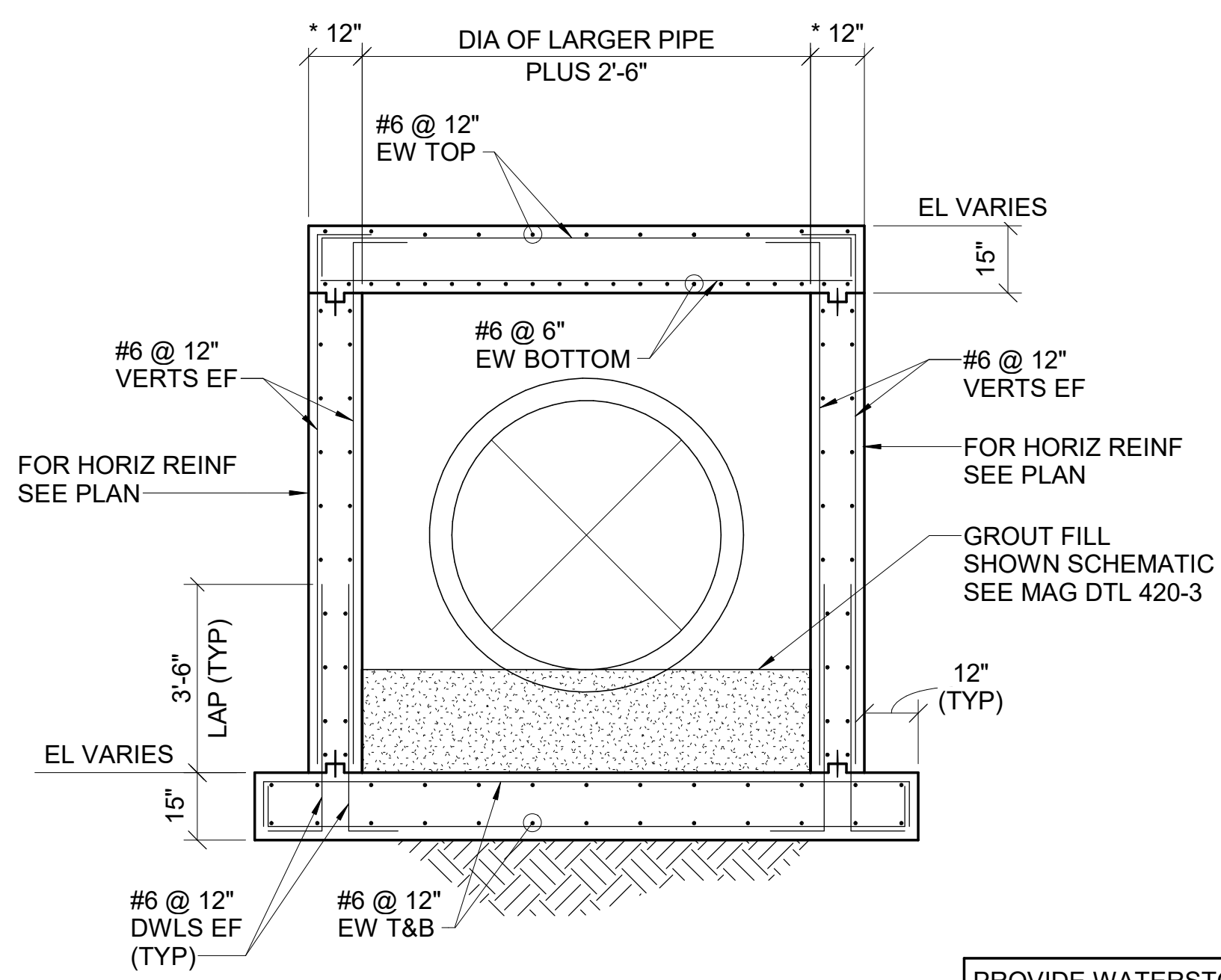
**UPPER PLAN**  
DEFLECTION MANHOLE  
SCALE: 3/8" = 1'-0"



DEFLECTION MANHOLE REINF PLAN  
SCALE: 3/8" = 1'-0"

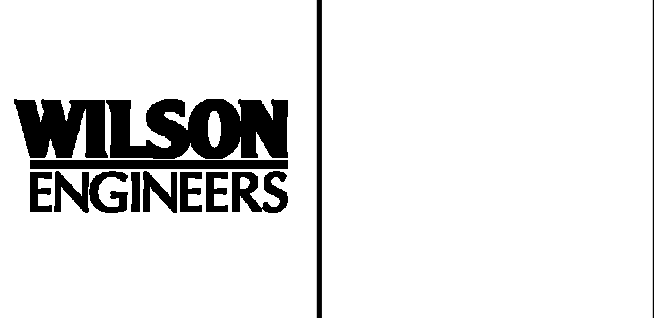
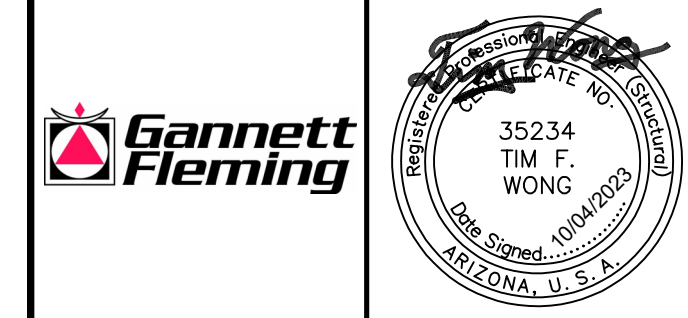


**SECTION 1**  
SCALE: 3/8" = 1'-0"

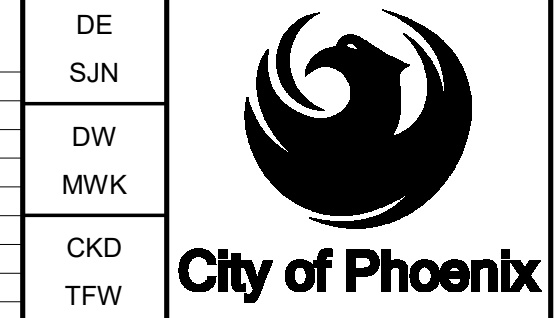


**SECTION 2**  
SCALE: 3/8" = 1'-0"

PROVIDE WATERSTOPS AT ALL WALL TO SLAB INTERFACES  
SEE S-004



REVISIONS				
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CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

**STRUCTURAL**  
**DEFLECTION MANHOLE OF 1 TO 10 DEGREES  
PLANS AND SECTIONS**

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S SHEET 102  
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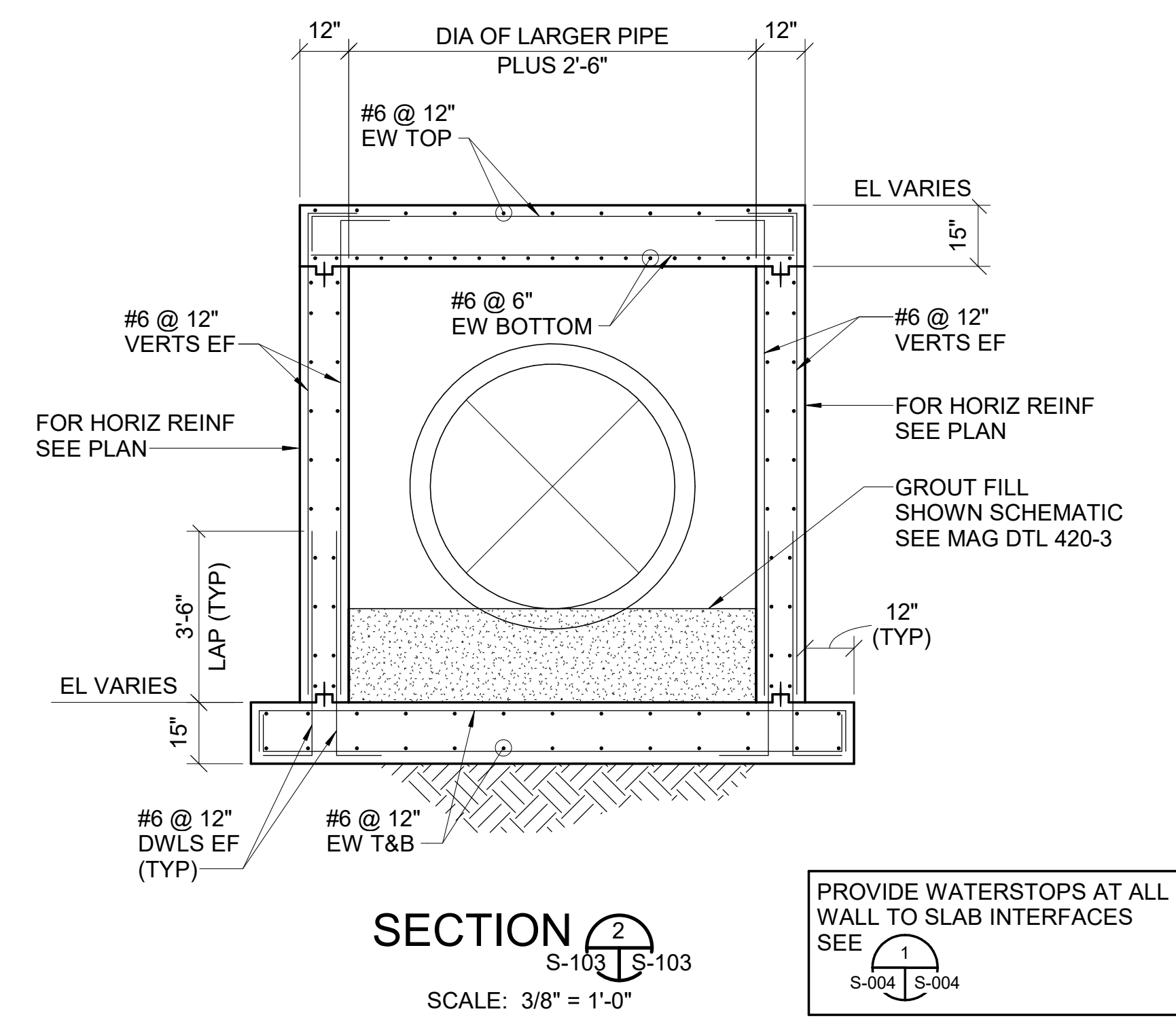
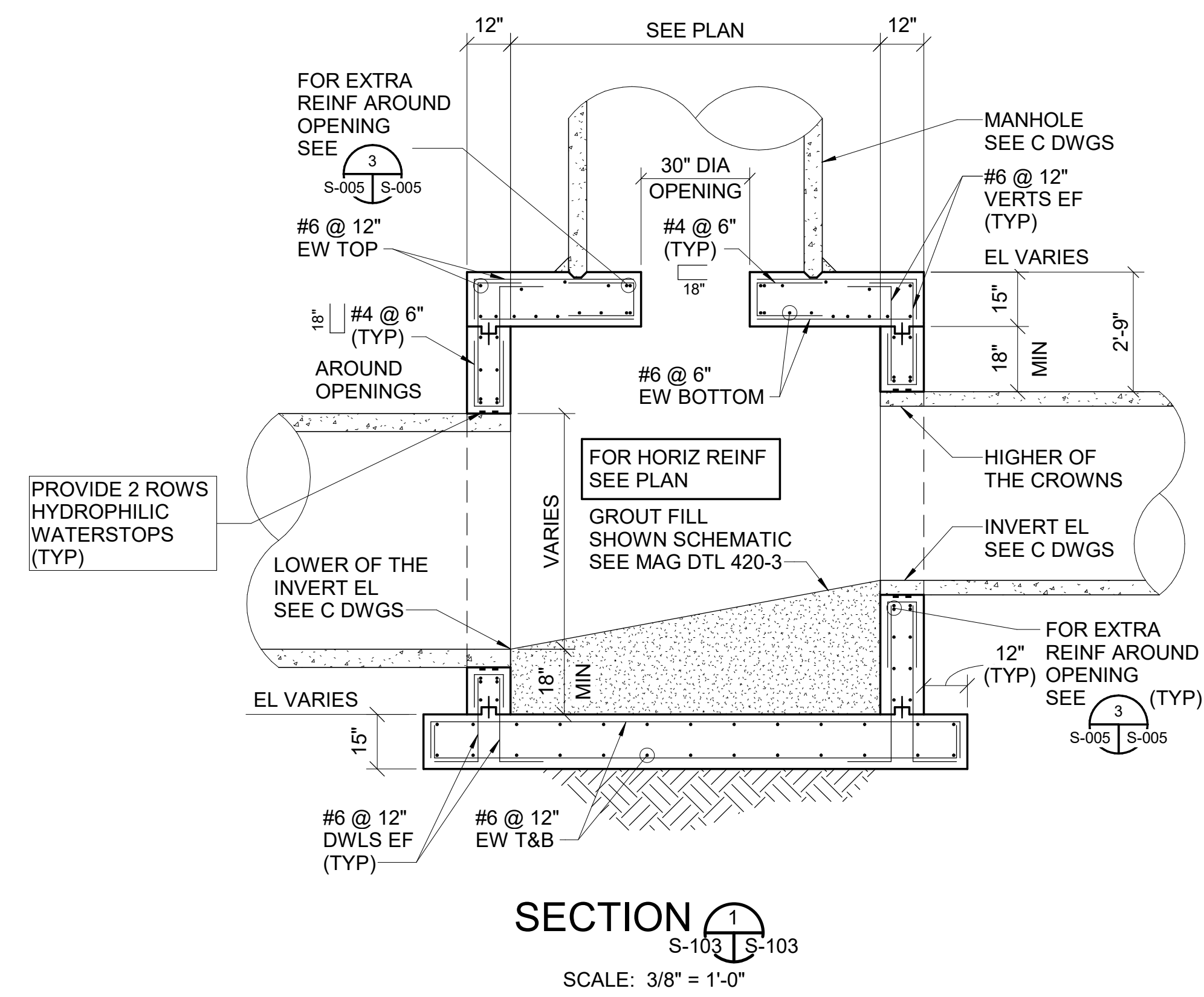
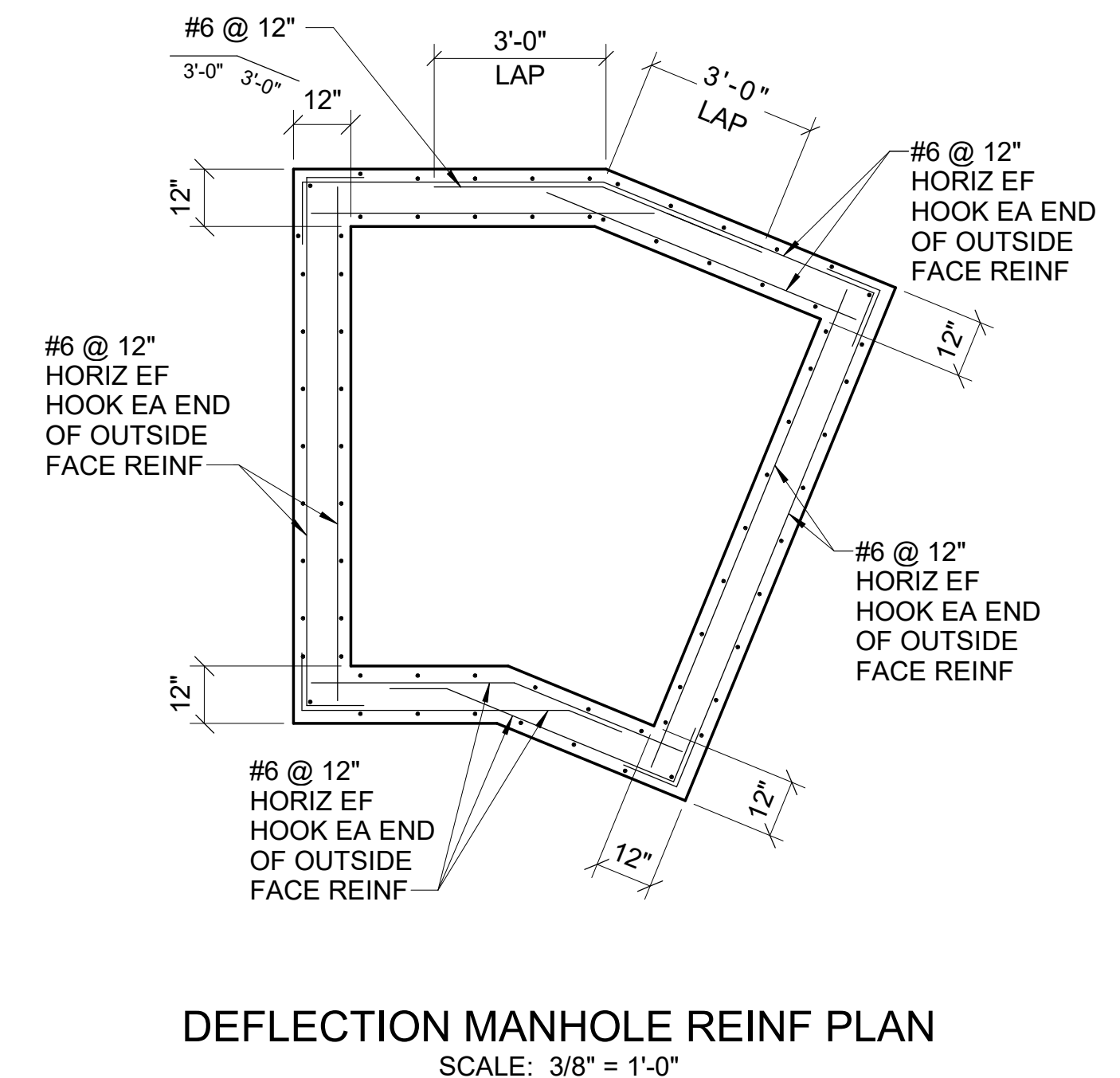
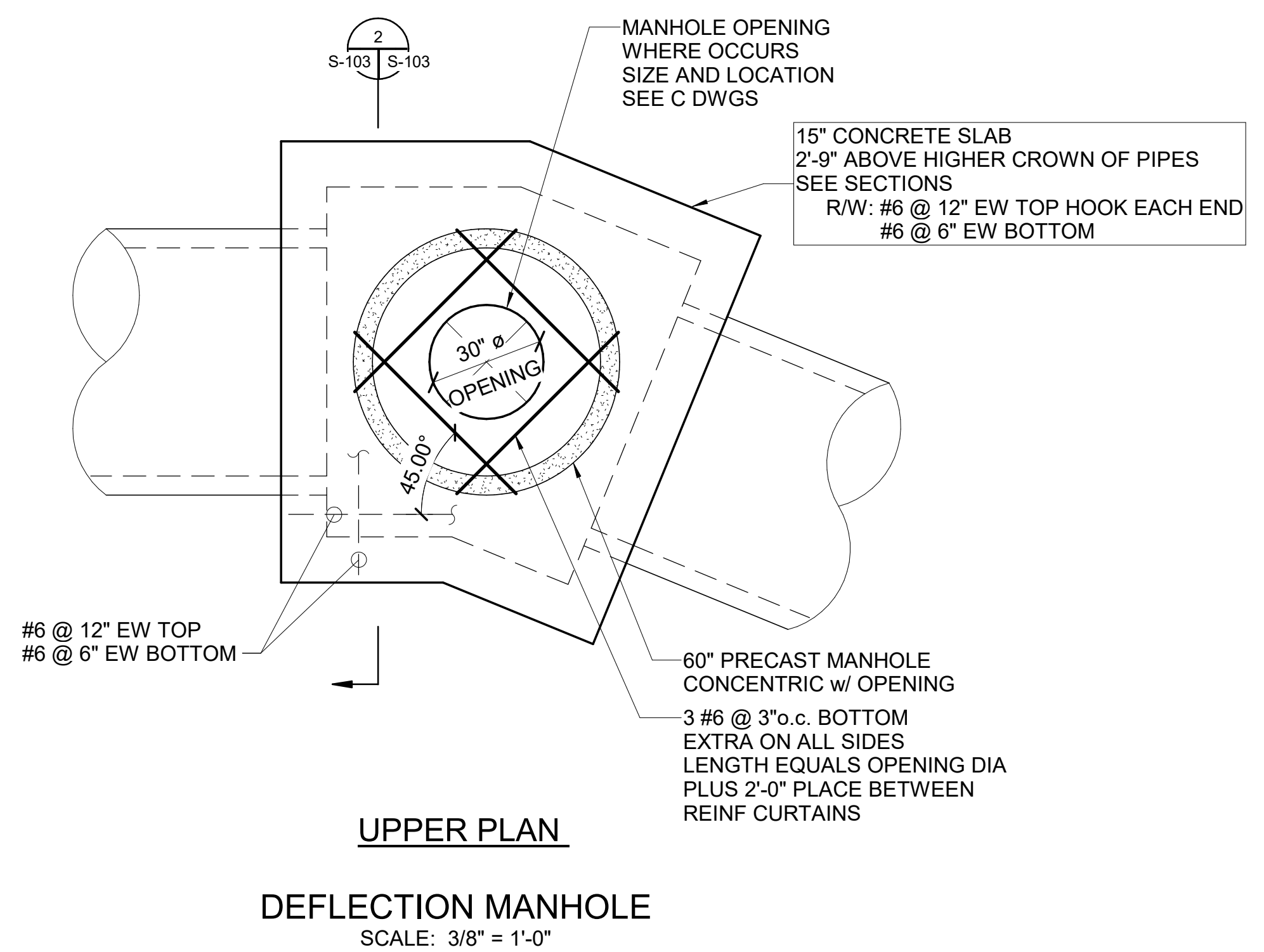
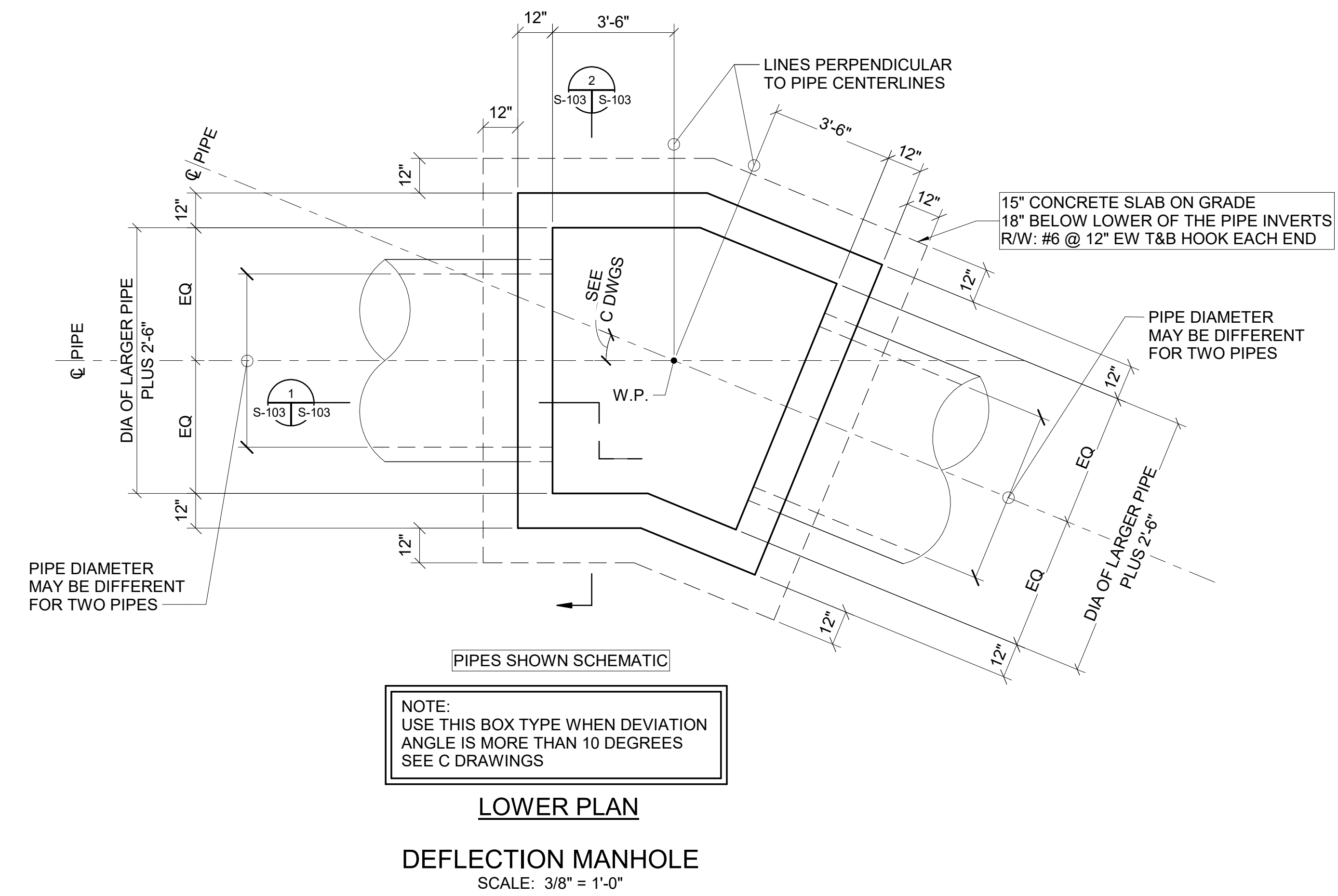
REV.	ENGINEERING CO.	PROJECT NO.	PROJECT NAME	DATE	CAD FILE NAME	DWG NUMBER	REMARKS

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MWK  
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TFW

CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

STRUCTURAL  
**DEFLECTION MANHOLE OF 11 TO 40 DEGREES  
PLANS AND SECTIONS**

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CITY PROJECT NO. WS90500307  
DATE: OCTOBER 2023  
S SHEET 103  
BIM FILE: \_S\_central\_R20.rvt

REV.	ENGINEERING CO.	PROJECT NO.	PROJECT NAME	DATE	CAD FILE NAME	DWG NUMBER	REMARKS

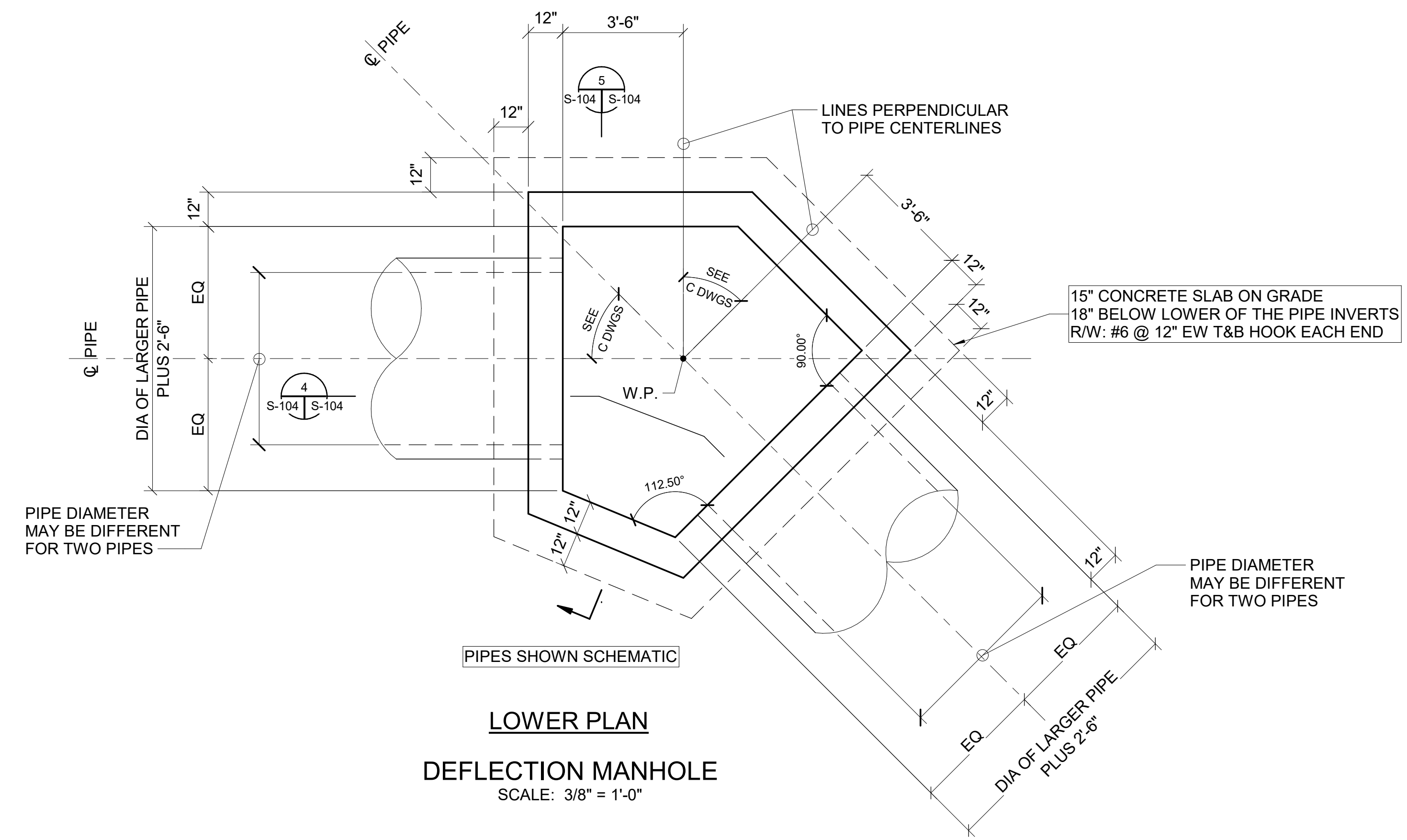
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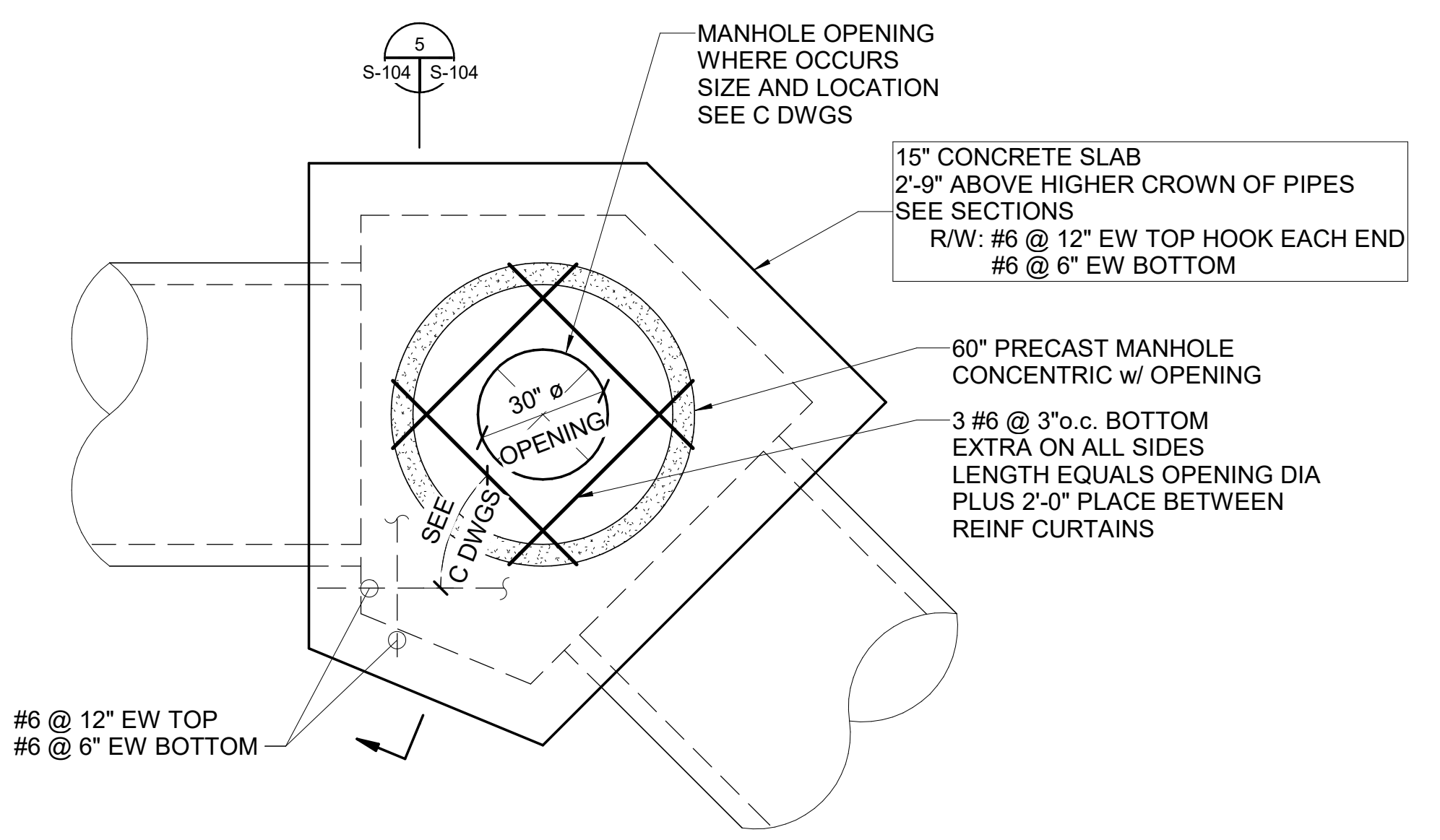
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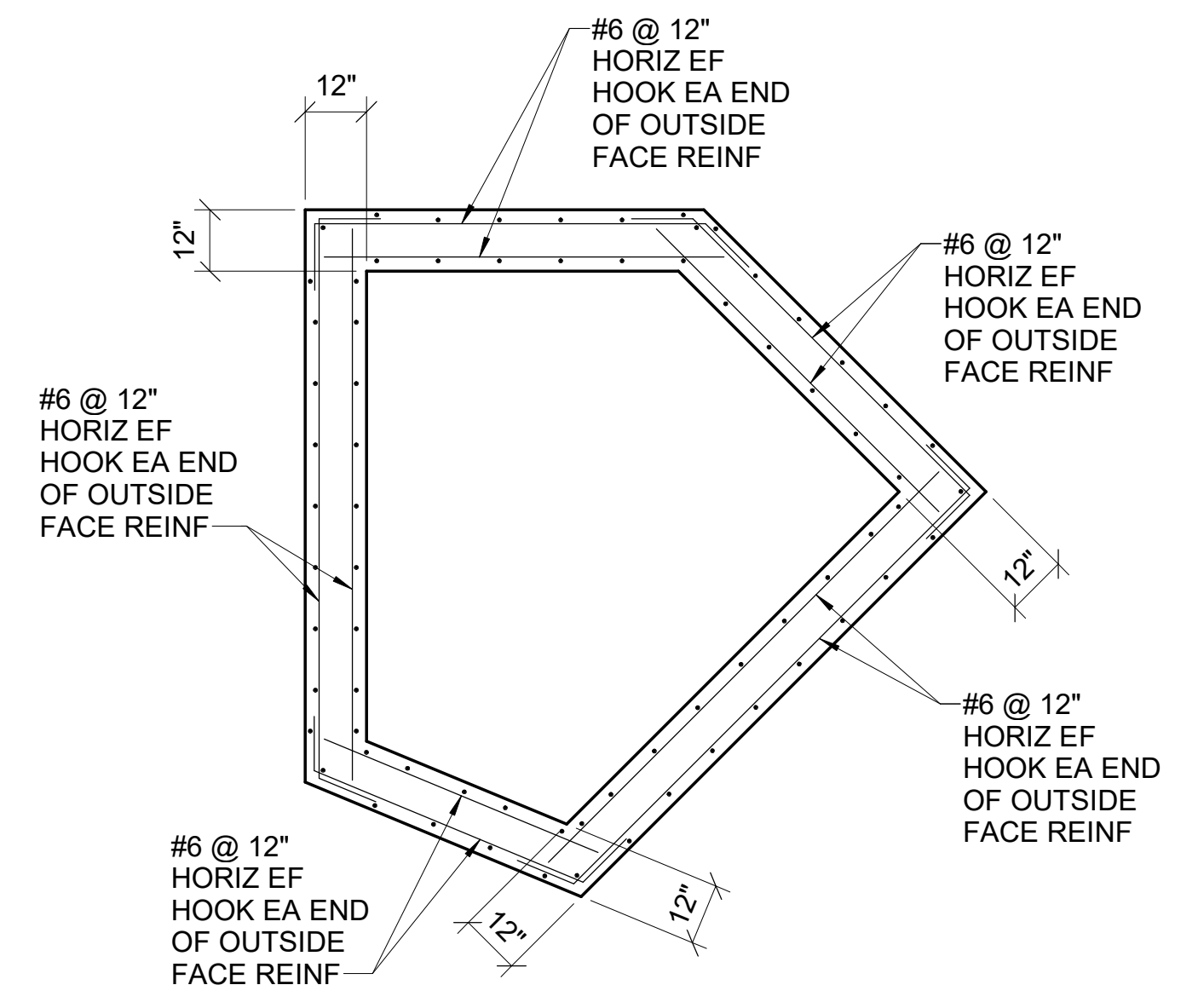
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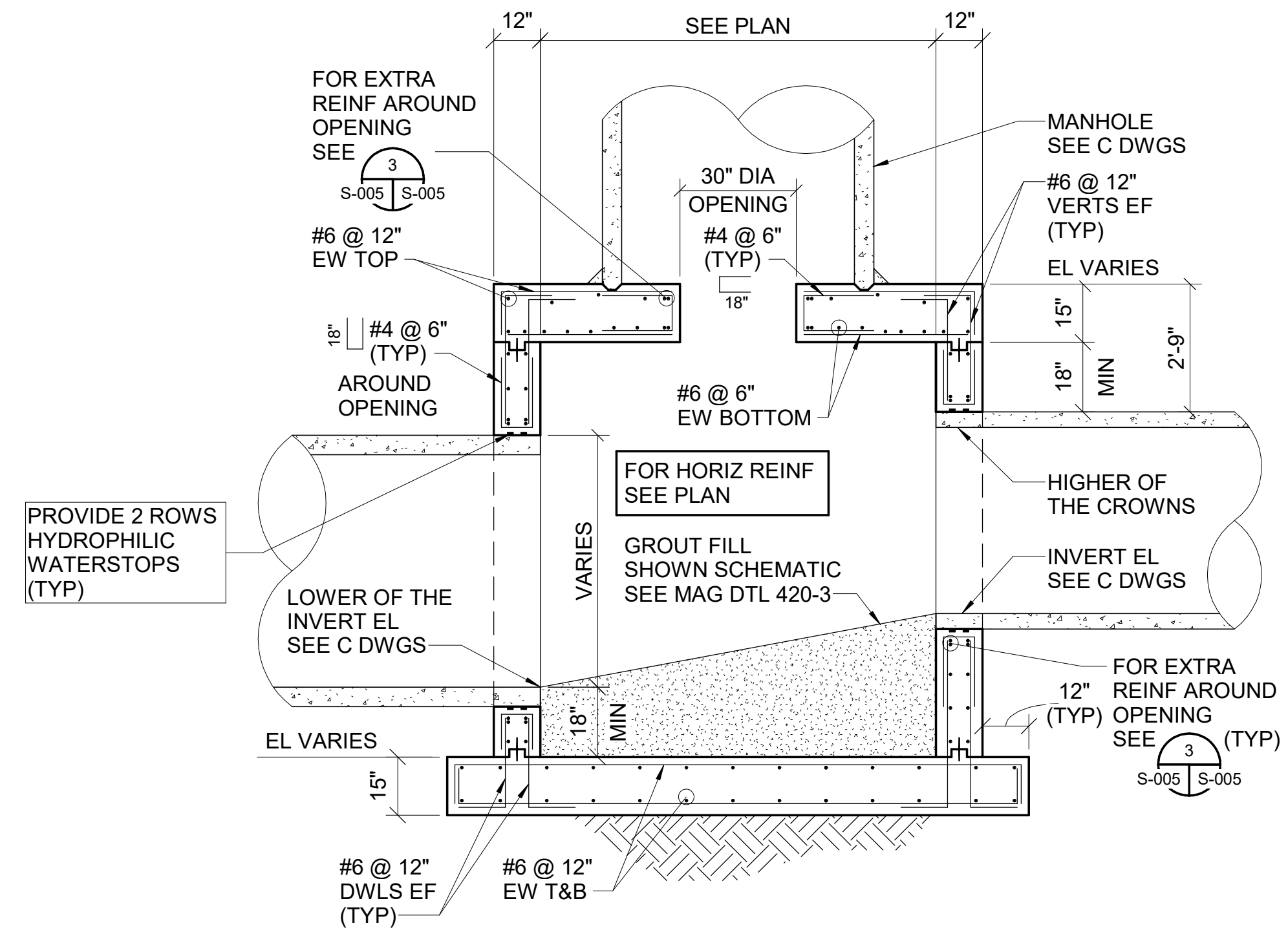
LOWER PLAN  
DEFLECTION MANHOLE  
SCALE: 3/8" = 1'-0"



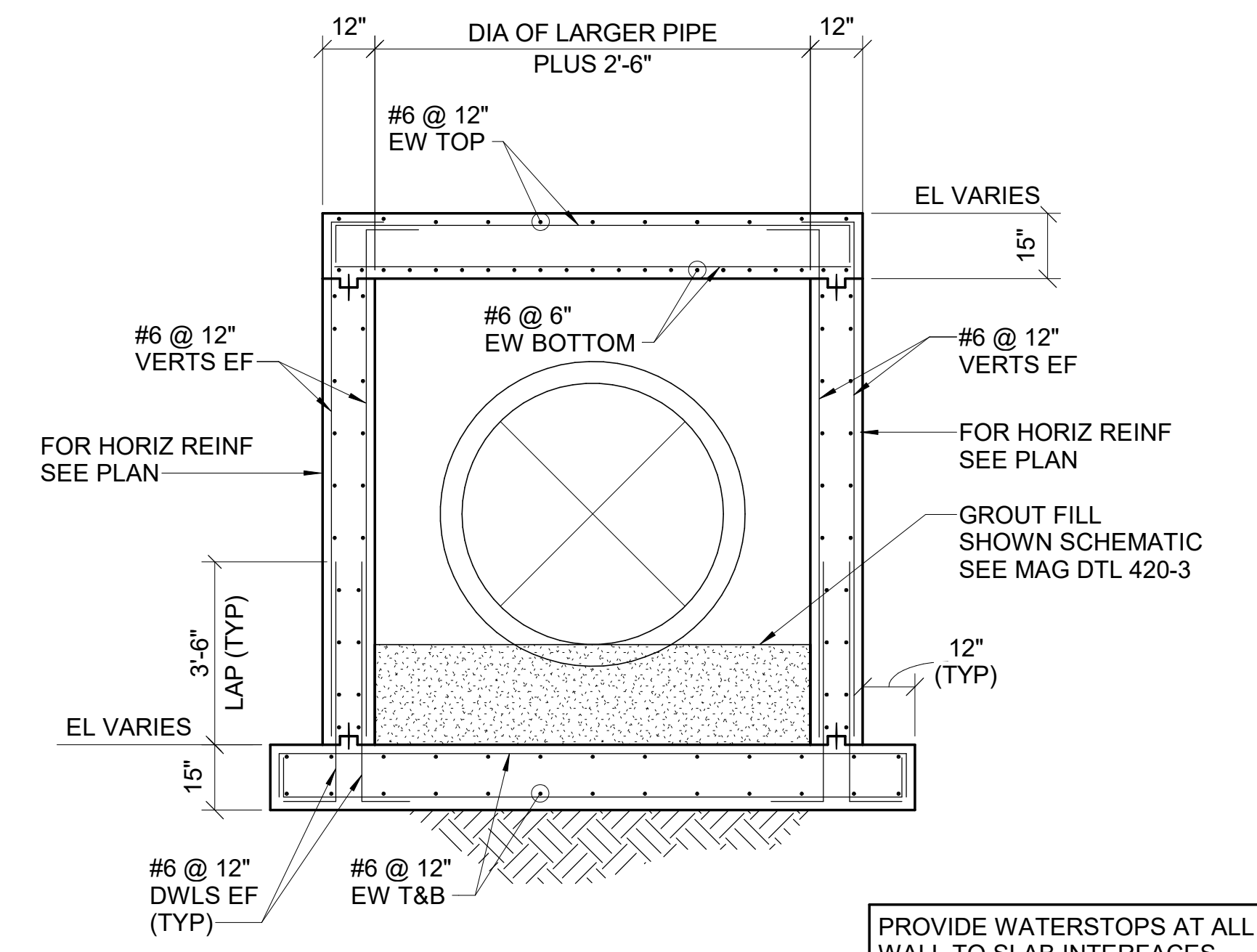
UPPER PLAN  
DEFLECTION MANHOLE  
SCALE: 3/8" = 1'-0"



DEFLECTION MANHOLE REINF PLAN  
SCALE: 3/8" = 1'-0"

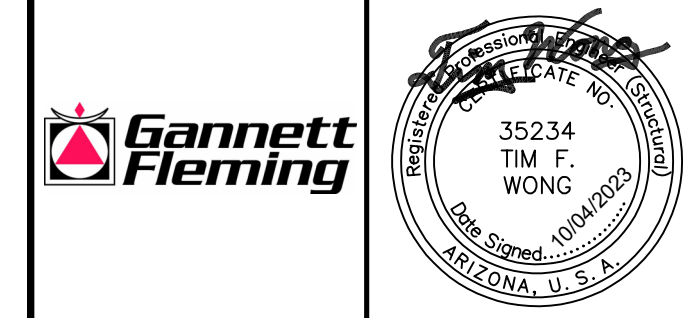


4 SECTION  
SCALE: 3/8" = 1'-0"

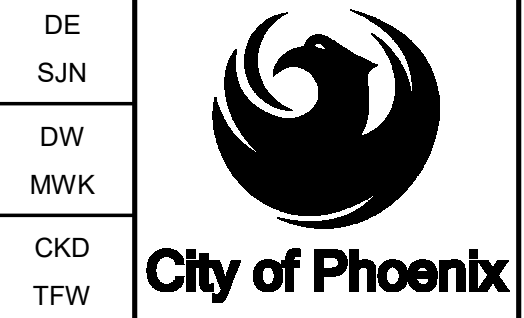


5 SECTION  
SCALE: 3/8" = 1'-0"

PROVIDE WATERSTOPS AT ALL WALL TO SLAB INTERFACES  
SEE 004/004



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CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

STRUCTURAL  
**DEFLECTION MANHOLE OF 45 TO 71 DEGREES  
PLANS AND SECTIONS**

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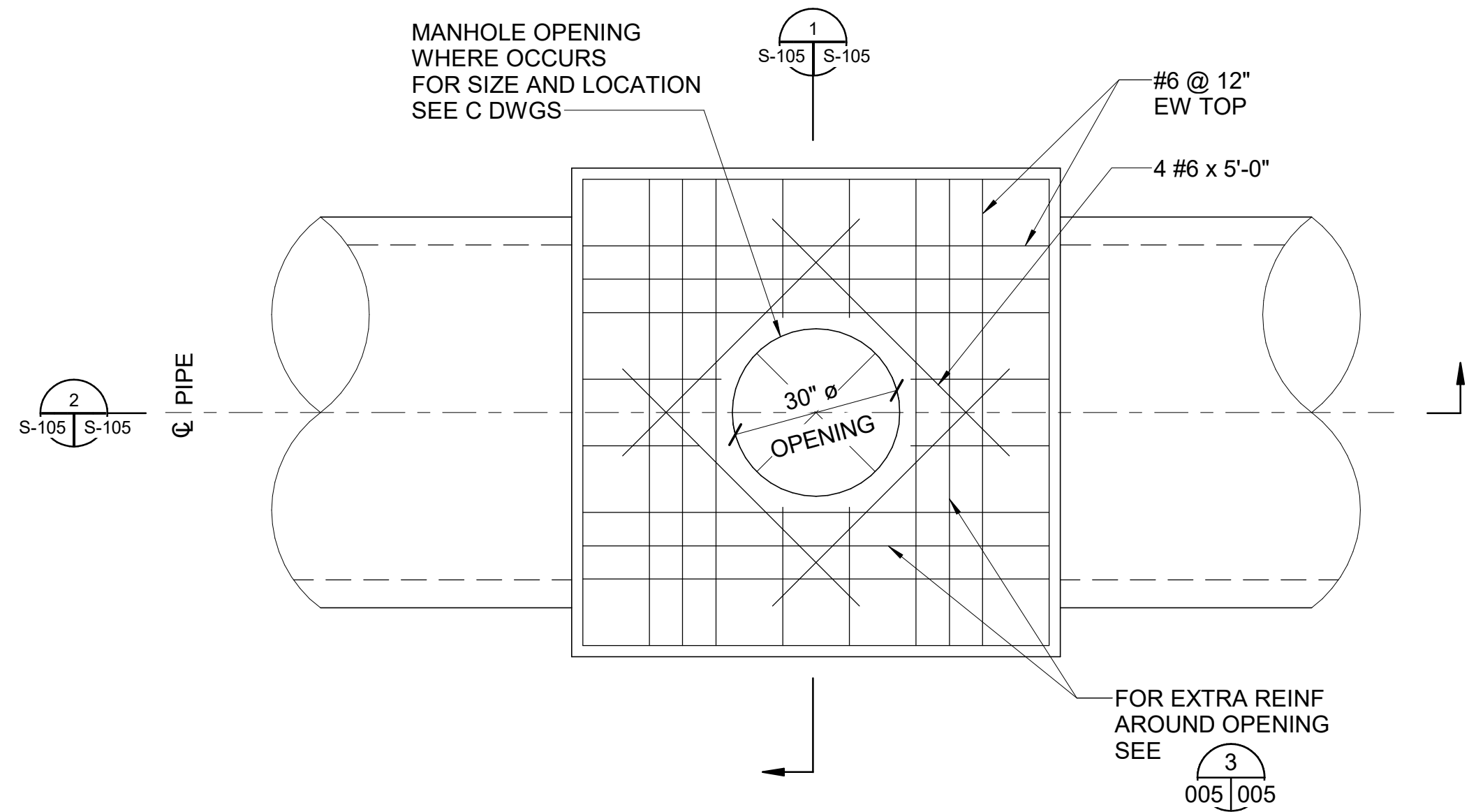
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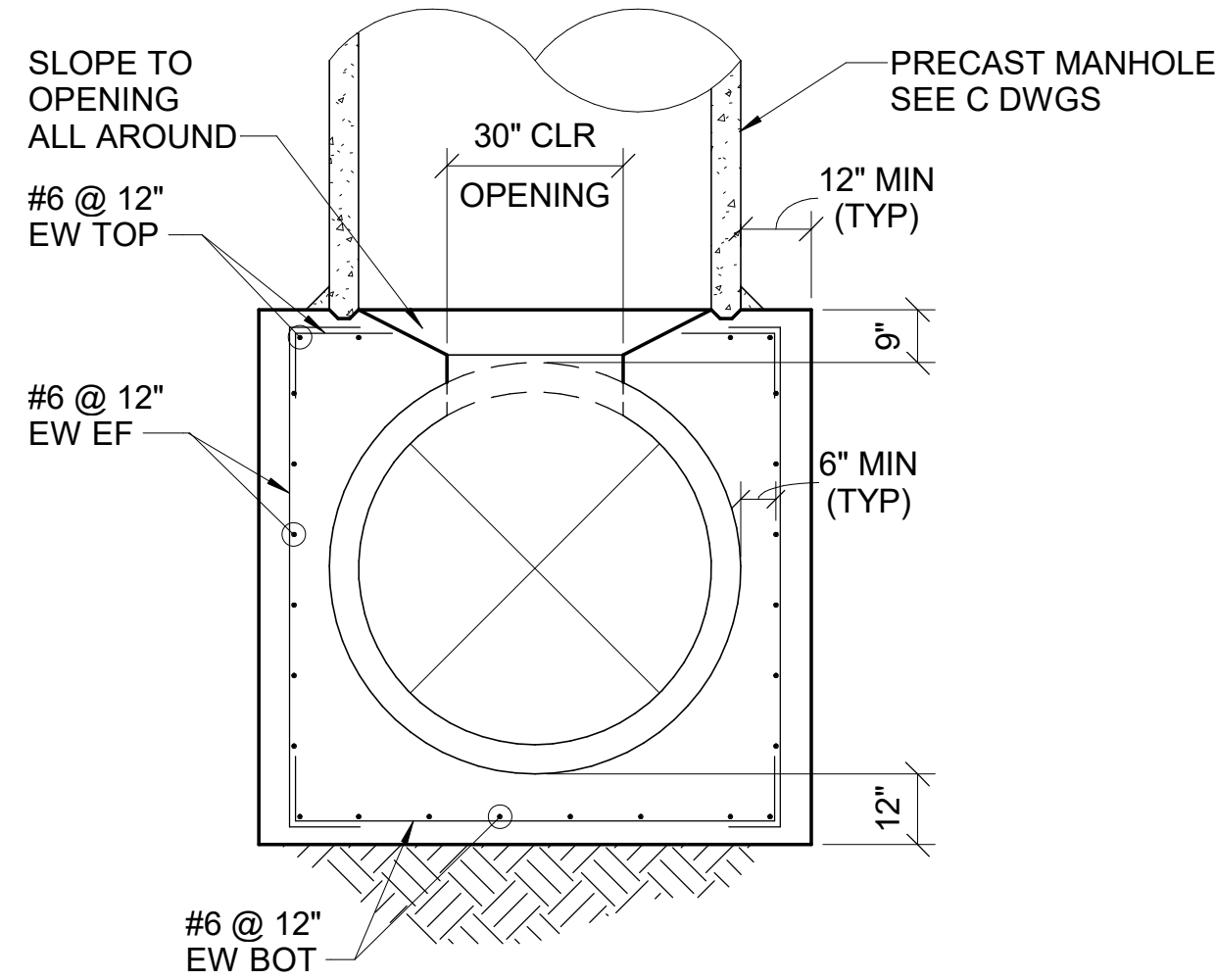
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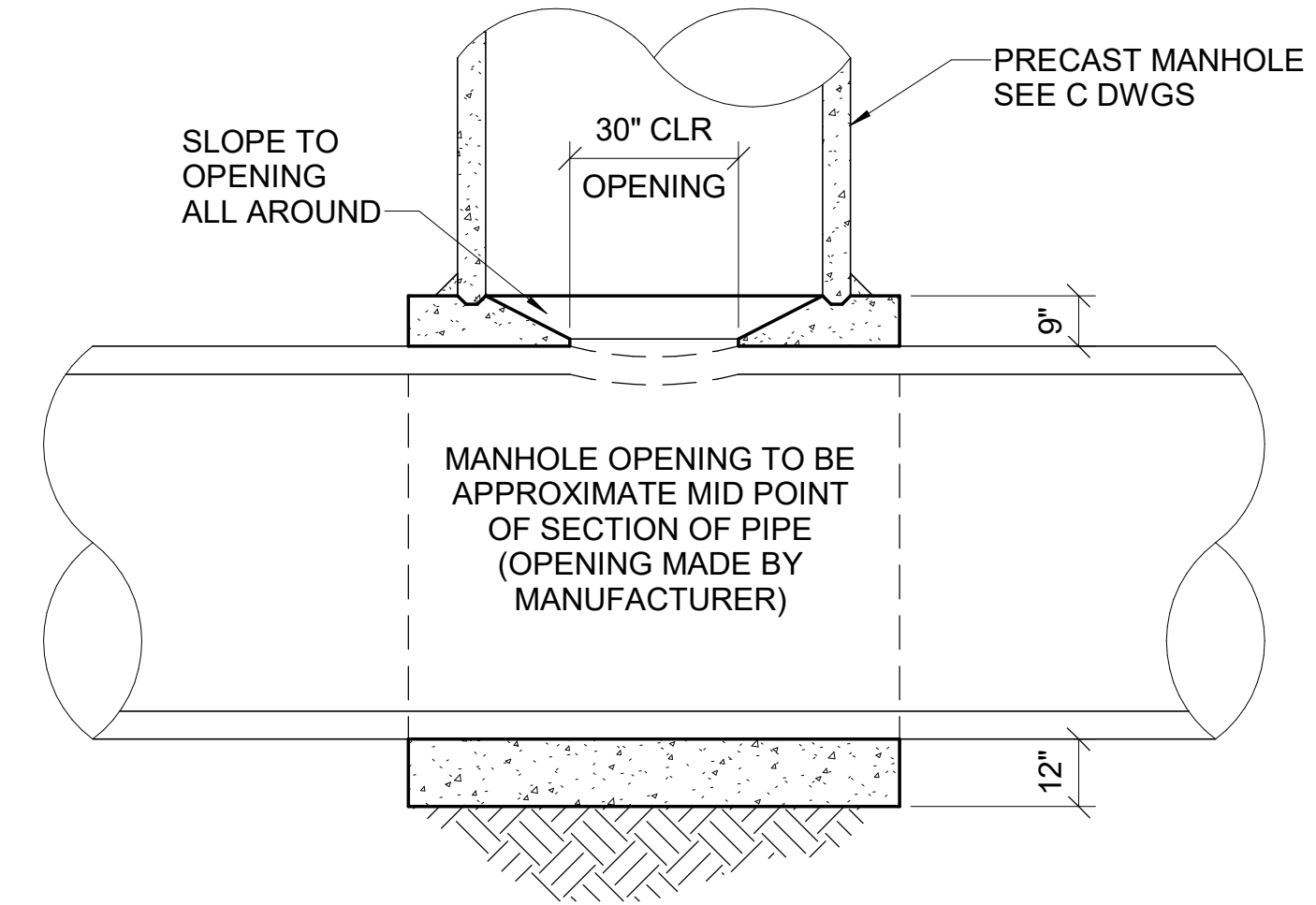
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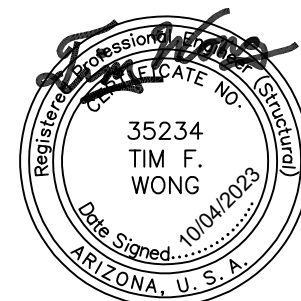
UPPER PLAN  
STRAIGHT RUN MANHOLE  
SCALE: 1/2" = 1'-0"



SECTION 1-1  
SCALE: 3/8" = 1'-0"



SECTION 2-2  
SCALE: 3/8" = 1'-0"



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DW  
MWK  
CKD  
TFW



CITY OF PHOENIX  
WATER SERVICES DEPARTMENT  
NORTHWEST WASTEWATER  
MASTER PLAN  
PACKAGE 4B

STRUCTURAL  
STRAIGHT RUN MANHOLE  
PLAN AND SECTION

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BIM FILE: \_S\_central\_R20.rvt

REV.	ENGINEERING CO.	PROJECT NO.	PROJECT NAME	DATE	CAD FILE NAME	DWG NUMBER	REMARKS

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