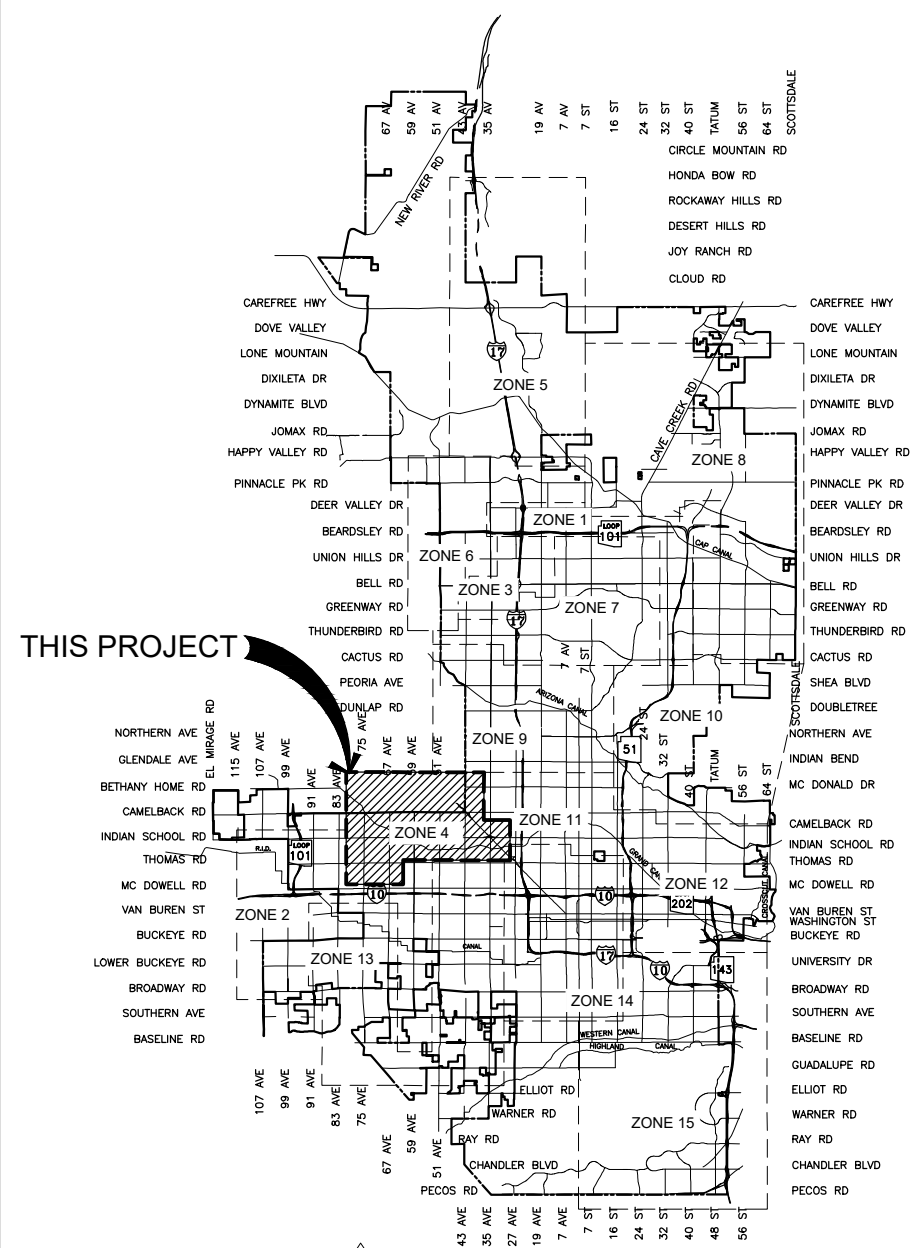


F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	WS90500273	1	63	

DES: YX DR: HC CK: TOB DATE: 1/22



# CITY OF PHOENIX WATER SERVICE DEPARTMENT LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4 WS90500273



**VICINITY MAP**  
City of Phoenix  
N  
NTS



**JANUARY 2022**

**MAYOR**  
KATE GALLEGO  
**CITY MANAGER**  
JEFFREY BARTON  
**CITY COUNCIL**

- DISTRICT NO 1. ANN O'BRIEN
- DISTRICT NO 2. JIM WARING
- DISTRICT NO 3. DEBRA STARK
- DISTRICT NO 4. LAURA PASTOR
- DISTRICT NO 5. BETTY GUARDADO
- DISTRICT NO 6. SAL DICICCIO
- DISTRICT NO 7. YASSAMIN ANSARI
- DISTRICT NO 8. CARLOS GARCIA

**CITY ENGINEER**  
ERIC J. FROBERG, P.E.  
**WATER SERVICES DIRECTOR**  
TROY HAYES, P.E.

**INDEX OF SHEETS**

SHEET NO.	DRAWING NO.	SHEET TITLE
1	G-1	COVER SHEET
2	G-2	NOTES
3	G-3	NOTES AND ABBREVIATIONS
4	G-4	KEY MAP
5 - 7	G-5 TO G-7	MANHOLE LOCATION MAP
8 - 57	-	MANHOLE MAP BOOK
58 - 63	D-1 TO D-6	DETAILS

**INSPECTION BLOCK**

CITY PROJECT MANGER \_\_\_\_\_

CITY INSPECTOR \_\_\_\_\_

CONTRACTOR \_\_\_\_\_

DATE OF SUBSTANTIAL COMPLETION \_\_\_\_\_

DATE OF FINAL COMPLETION \_\_\_\_\_

1 YEAR WARRANTY END DATE \_\_\_\_\_

5 YEAR WARRANTY (COATINGS) END DATE \_\_\_\_\_

25 YEAR WARRANTY (INSERTS) END DATE \_\_\_\_\_

**REHABILITATION QUANTITIES**

DESCRIPTION	QUANTITY 48IN MH DIA	QUANTITY 60IN MH DIA	QUANTITY IRREGULAR SHAPE MH
MANHOLES REHABILITATED WITH INSERT LINING	1 EA	23 EA	
MANHOLES REHABILITATED WITH ONLY COATING		10 EA	
MANHOLES REHABILITATED WITH ONLY SPOT REPAIRS	3 EA	10 EA	3 EA
TOTAL MANHOLES	4 EA	43 EA	3 EA
TOTAL MANHOLES REHABBED IN ZONE 4	50 EA		

**AS BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF

REGISTERED ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

REGISTRATION NUMBER \_\_\_\_\_

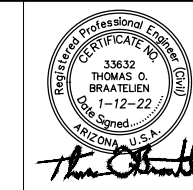
APPROVED **9/25/2023**  
CITY ENGINEER DATE

APPROVED **05/24/2022**  
WATER SERVICES DEPARTMENT DATE



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WS90500273 Q.S. 13-13,14-13,15-10,15-11,15-12,15-13,15-21,15-22,16-10,16-11,16-12,16-13,16-14,16-15,16-16,16-17,16-20,16-21,17-11,17-21,18-11 & 21-20



F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	WS90500273	2	63

**PEC** PROJECT ENGINEERING CONSULTANTS  
2432 W. PEORIA AVENUE, SUITE 1246  
PHOENIX, AZ 85029  
Phone: (602) 906-1901

### CITY OF PHOENIX PAVING NOTES

1. COMPACTION SHALL COMPLY WITH M.A.G SECTION 601.
2. CONSTRUCTION WITHIN THE RIGHT-OF-WAY SHALL CONFORM TO THE LATEST APPLICABLE MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND DETAILS AND THE LATEST CITY OF PHOENIX SUPPLEMENT TO THE MAG UNIFORM STANDARD SPECIFICATIONS AND DETAILS.
3. THE ENGINEERING DESIGN ON THESE PLANS IS ONLY APPROVED BY THE CITY IN SCOPE AND NOT IN DETAIL. CONSTRUCTION QUANTITIES ON THESE PLANS ARE NOT VERIFIED BY THE CITY. APPROVAL OF THESE PLANS ARE FOR PERMIT PURPOSES ONLY AND SHALL NOT PREVENT THE CITY FROM REQUIRING CORRECTION OF ERRORS IN THE PLANS WHERE SUCH ERRORS ARE SUBSEQUENTLY FOUND TO BE IN VIOLATION OF ANY LAW, ORDINANCE, HEALTH, SAFETY, OR OTHER DESIGN ISSUES. IN ADDITION, THE PROPERTY OWNER MUST DEDICATE STREETS IN ACCORDANCE WITH MINIMUM RIGHT-OF-WAY STANDARDS MAP (ORDINANCE NO 437, LATEST AMENDMENT).
4. PLAN APPROVAL IS VALID FOR 180 DAYS. PRIOR TO PLAN APPROVAL EXPIRATION, ALL ASSOCIATED PERMITS SHALL BE PURCHASED OR THE PLANS SHALL BE RESUBMITTED FOR EXTENSION OF PLAN APPROVAL. THE EXPIRATION, EXTENSION, AND REINSTATEMENT OF CIVIL ENGINEERING PLANS AND PERMITS SHALL FOLLOW THE SAME GUIDELINES AS THOSE INDICATED IN THE PHOENIX BUILDING CONSTRUCTION CODE ADMINISTRATIVE PROVISIONS SECTION 105.3 FOR BUILDING PERMITS.
5. EXISTING OR NEWLY DAMAGED AND/OR DISPLACED CONCRETE CURB, GUTTER, SIDEWALK, OR DRIVEWAY SLAB THAT IS WITHIN THE RIGHT-OF-WAY SHALL BE REPAIRED OR REPLACED, AS NOTED BY CITY INSPECTORS, BEFORE FINAL ACCEPTANCE OF THE WORK.
6. ALL NEW OR RELOCATED UTILITIES SHALL BE PLACED UNDERGROUND.
7. THE ACTUAL POINT OF PAVEMENT MATCHING, AND/OR TERMINATION, SHALL BE DETERMINED IN THE FIELD BY THE INSPECTOR FOR THE CITY.
8. AN APPROVED PAVING PLAN SHALL BE ON THE JOB SITE AT ALL TIMES. DEVIATIONS FROM THE PLAN MUST BE PRECEDED BY AN APPROVED PLAN REVISION.
9. OBSTRUCTIONS TO PROPOSED IMPROVEMENTS IN THE RIGHT-OF-WAY SHALL BE REMOVED OR RELOCATED BEFORE BEGINNING CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.
10. ALL EXISTING CATCH BASINS MUST BE RE-LOCATED WHEN THEY ARE SHOWN IN A NEWLY PROPOSED DRIVEWAY.
11. CONSTRUCTION OF SURFACE IMPROVEMENTS SHALL NOT BEGIN UNTIL CONFLICTING UNDERGROUND UTILITY CONSTRUCTION IS COMPLETED AND SERVICE CONNECTIONS TO ALL PLATTED LOTS HAVE BEEN ADEQUATELY EXTENDED PAST THE RIGHT-OF-WAY.
12. THE PERMIT HOLDER SHALL ARRANGE FOR THE RELOCATION AND RELOCATION COSTS OF ALL UTILITIES, INCLUDING ANY STREET LIGHTS, AND SUBMIT A UTILITY RELOCATION SCHEDULE PRIOR TO THE ISSUANCE OF A CONSTRUCTION PERMIT. RELOCATION OF WATER METERS SHALL BE DONE BY THE WATER SERVICES DEPARTMENT AFTER PAYMENT OF PREVAILING FEES. RELOCATION OF CITY FIRE HYDRANTS REQUIRE A SEPARATE PLAN REVIEW AND PERMIT AT THE CONTRACTOR'S EXPENSE.
13. ALL FRAMES, COVERS, VALVE BOXES, AND MANHOLE COVERS SHALL BE ADJUSTED TO FINISH GRADE PRIOR TO COMPLETION OF PAVING OR RELATED CONSTRUCTION. ADJUSTMENT OF EXISTING "TYPE A" OR "TYPE B" WATERLINE VALVE BOXES IN THE PARKWAY SHALL BE CONSIDERED INCIDENTAL TO PARKWAY GRADING. EXISTING "TYPE B" WATERLINE VALVE BOXES SHALL BE REPLACED WITH "TYPE A" BOXES PER COP STANDARD DETAIL P1391.
14. GRADING BETWEEN BACK OF CURB AND PROPERTY LINE SHALL BE LIMITED TO 4:1 SLOPE.
15. TREES AND SHRUBBERY IN THE RIGHT-OF-WAY THAT CONFLICT WITH PROPOSED IMPROVEMENTS SHALL NOT BE REMOVED WITHOUT APPROVAL OF THE CITY LANDSCAPE ARCHITECT. THE PERMIT HOLDER SHALL BE RESPONSIBLE FOR OBTAINING AUTHORIZATION TO REMOVE AND/OR RELOCATE SAID TREES OR AND RECREATION DEPARTMENT PRIOR TO ANY RIGHT-OF-WAY SHRUBBERY BY CALLING THE PARKS PLANT RELOCATIONS AT 602-262-6862.
16. THE INSPECTOR MUST CONTACT STREET TRANSPORTATION DEPARTMENT, TRAFFIC SERVICES DIVISION AT 602-495-0205 VOICE OR 602-534-5500 TTY TWO (2) WEEKS PRIOR TO COMPLETION OF PAVING WORK FOR SIGNING & STRIPING.
17. STREET PAVEMENT CUTS IN THE CITY RIGHT OF WAY WILL REQUIRE ASPHALT RESURFACING TREATMENT PER SECTION 31-49.1 OF THE PHOENIX CITY CODE.

### CITY OF PHOENIX SEWER NOTES

1. THE INSPECTOR FOR THE CITY SHALL BE NOTIFIED 48 HOURS BEFORE CONSTRUCTION BEGINS.
2. ANY SEWER MAIN 15 INCH IN SIZE OR 12 FEET IN DEPTH, OR GREATER, REQUIRES 5' MANHOLES.
3. ALL MANHOLES NEWLY CONSTRUCTED OR EXISTING THAT ARE WORKED IN FOR CONNECTIONS SHALL BE PAINTED WITH INSECTICIDE PAINT PER CITY OF PHOENIX SUPPLEMENT TO MAG SECTION 627.
4. MANHOLES WITH 60" DIAMETER AND PIPE GREATER THAN 12" REQUIRE COATING PER COP 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.
5. 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 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 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.
6. ALL CONSTRUCTION IN CITY OF PHOENIX RIGHT-OF-WAY, OR EASEMENT, IS TO CONFORM TO MAG SPECIFICATIONS AND DETAILS AND CITY OF PHOENIX SUPPLEMENT TO MAG SPECIFICATIONS AND DETAILS, UNLESS MODIFIED ON THE PLANS.
7. ALL SEWER MAINS MUST HAVE A CCTV INSPECTION BEFORE ACCEPTED AS COMPLETE (SEE CITY OF PHOENIX SUPPLEMENT TO MAG SPECIFICATION SECTION 611.3(C)).
8. TRAFFIC REGULATIONS: ALL WORK MUST COMPLY WITH REQUIREMENTS OF THE CURRENT CITY OF PHOENIX "TRAFFIC BARRICADE MANUAL".
9. THE FOLLOWING MAG DETAILS ARE SPECIFICALLY NOT APPROVED.  
425 24" ALUMINUM FRAME AND COVER
10. NEW MANHOLES ARE TO BE BUILT WITHOUT STEPS.
11. COMPACTION SHALL COMPLY WITH MAG SECTION 601 AND CITY OF PHOENIX SUPPLEMENTS.
12. NEW SEWER LINES ARE TO BE BUILT IN ACCORDANCE WITH CITY OF PHOENIX "STANDARD UTILITY LOCATIONS" OR AS SHOWN ON THE PLANS.
13. A SIX (6) FOOT MINIMUM HORIZONTAL SEPARATION FROM ANY UNDERGROUND UTILITY SHALL BE PROVIDE 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.
14. 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.
15. A TWO (2) FOOT MINIMUM VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN ANY SEWER MAIN AND STORM DRAIN 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 MAG STANDARD DETAIL 404 FOR ADDITIONAL INFORMATION AND OR PROVISIONS FOR CLEARANCE.
16. 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.
17. ANY AND ALL MORE STRINGENT REQUIREMENTS REQUIRED BY FEDERAL, STATE, COUNTY, OR LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
18. ANY SEWER LINES THAT ARE INSTALLED WITH LESS THAN 0.004 FT/FT SLOPE MUST BE INSTALLED USING A LASER.
19. WHEN DIP SEWER PIPE IS USED, LINING IS REQUIRED PER CITY OF PHOENIX SUPPLEMENT TO MAG 751.
20. CONCRETE OR ASPHALT DAMAGED DURING THE COURSE OF CONSTRUCTION SHALL BE REMOVED AND REPLACED IN KIND PRIOR TO FINAL INSPECTION.
21. RECORD DRAWING SUBMITTALS MUST COMPLY WITH WATER SERVICES DEPARTMENT ENGINEERING POLICY P-85. A COPY OF THE POLICY CAN BE OBTAINED IN THE DEPARTMENT'S WEBSITE: [HTTP:PHOENIX.GOV/WATERSERVICES/DESIGN/ENGPOLICIES/INDEX.HTML](http://PHOENIX.GOV/WATERSERVICES/DESIGN/ENGPOLICIES/INDEX.HTML)

### CITY OF PHOENIX GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH CONTRACT SPECIFICATIONS; PLANS; CITY OF PHOENIX SUPPLEMENTS TO MAG STANDARD SPECIFICATIONS AND DETAILS; AND MAG STANDARD SPECIFICATIONS AND DETAILS, IN THAT ORDER OF PRECEDENCE, AT THE TIME OF CONSTRUCTION BID.
2. FACILITIES WHICH ARE NOT SPECIFICALLY LOCATED WITH ACTUAL VERTICAL AND HORIZONTAL CONTROLS, ARE LOCATED ONLY APPROXIMATELY AND TO THE BEST AVAILABLE INFORMATION PROVIDED BY VARIOUS OWNERS OF THE FACILITIES, AND SUPPLEMENTED BY VISUAL SURFACE INFORMATION WHERE APPROPRIATE. ACCURACY, LOCATION AND COMPLETENESS OF THIS INFORMATION SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO INITIATION OF CONSTRUCTION.
3. AT LEAST TWO WORKING DAYS BEFORE CONSTRUCTION, THE CONTRACTOR SHALL CONTACT BLUESTAKE TO LOCATE AND FLAG UNDERGROUND UTILITIES. THE CONTRACTOR SHALL CONTACT OTHER APPROPRIATE UTILITIES DIRECTLY IF THEY ARE NOT ON BLUESTAKE SYSTEM.
4. VERTICAL CONTROL IS BASED ON NATIONAL GEODETIC SURVEY, NGVD 1929.
5. ALL CONSTRUCTION ACTIVITIES SHALL BE CONTAINED WITHIN THE PUBLIC RIGHT OF WAY OR IN EASEMENTS GRANTED FOR THE WATER AND/OR SEWER MAIN INSTALLATION. ANY EXISTING FEATURES DISTURBED OUTSIDE THESE LIMITS SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
6. TRAFFIC CONTROL SHALL CONFORM TO THE CITY OF PHOENIX "TRAFFIC BARRICADE MANUAL" AND SHALL BE SUBJECT TO CITY REVIEW AND APPROVAL.
7. ANY WORK BETWEEN 7:00 PM - 7:00 AM (BETWEEN OCTOBER 1ST - APRIL 30TH) OR 7:00 PM TO 6:00 AM (BETWEEN MAY 1ST - SEPTEMBER 30TH) IN THE RIGHT OF WAY (ARTERIAL AND COLLECTOR STREETS) REQUIRES AN AFTER HOURS WORK PERMIT.

### CITY OF PHOENIX ENVIRONMENTAL NOTES

1. CONTRACTOR, SUBCONTRACTORS, AND ALL FIELD PERSONNEL SHALL BE PROVIDED THE ATTACHED MIGRATORY BIRD TREATY ACT FLYER. IF TREES OR SHRUBS WILL BE TRIMMED OR REMOVED BETWEEN FEBRUARY 1 AND AUGUST 31, OR IF AN ACTIVE BIRD NEST IS PRESENT IN THE WORK AREA, WORK SHALL CEASE WITHIN 100 FEET AND THE CITY OF PHOENIX ENVIRONMENTAL QUALITY SPECIALIST (ANDREA LOVE [602-495-6718] OR JAMES MARSHALL [602-534-3747]) SHALL BE NOTIFIED IMMEDIATELY.
2. CONTRACTOR, SUBCONTRACTORS, AND ALL FIELD PERSONNEL SHALL BE PROVIDED THE WESTERN BURROWING OWL FLYER. IF BURROWING OWLS OR POTENTIALLY ACTIVE BURROWS (NATURAL OR MAN-MADE HOLES 3 INCH DIAMETER OR GREATER) ARE OBSERVED DURING CONSTRUCTION, WORK SHALL CEASE WITHIN 100 FEET AND THE CITY OF PHOENIX ENVIRONMENTAL QUALITY SPECIALIST (ANDREA LOVE [602-495-6718] OR JAMES MARSHALL [602-534-3747]) SHALL BE NOTIFIED IMMEDIATELY.
3. IF THERE IS A CHANGE IN SCOPE OR THE PROJECT LIMITS, THE CITY OF PHOENIX ENVIRONMENTAL QUALITY SPECIALIST (ANDREA LOVE [602-495-6718] OR JAMES MARSHALL [602-534-3747]) SHALL BE CONTACTED TO EVALUATE POTENTIAL IMPACTS.
4. IF ANY ARCHAEOLOGICAL MATERIALS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL CEASE ALL GROUND-DISTURBING ACTIVITIES WITHIN 10 METERS OF THE DISCOVERY AND THE CITY OF PHOENIX ARCHAEOLOGY OFFICE (602-534-1573) AND CITY OF PHOENIX ENVIRONMENTAL QUALITY SPECIALIST (ANDREA LOVE [602-495-6718] OR JAMES MARSHALL [602-534-3747]) SHALL BE NOTIFIED IMMEDIATELY AND ALLOWED TIME TO PROPERLY ASSESS THE MATERIALS.

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LARGE DIAMETER SANITARY SEWER REHABILITATION  
GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

**CITY OF PHOENIX, ARIZONA**  
WATER SERVICES DEPARTMENT

### NOTES

DR:	HC	DES:	YX	CK:	TOB	SHEET	TOTAL
DATE:	1/22	DATE:	1/22	DATE:	1/22	NO.	SHEETS
SCALE:	NONE	DRAWING NO.	G-2			2	63



REVISION BY CITY OF PHOENIX		REV BY	CHK BY	DATE
DESCRIPTION				
NO.				
REVISION BY CITY OF PHOENIX		REV BY	CHK BY	DATE
DESCRIPTION				
NO.				
REVISION BY CITY OF PHOENIX		REV BY	CHK BY	DATE
DESCRIPTION				
NO.				

REVISION BY CITY OF PHOENIX		REV BY	CHK BY	DATE
DESCRIPTION				
NO.				
REVISION BY CITY OF PHOENIX		REV BY	CHK BY	DATE
DESCRIPTION				
NO.				
REVISION BY CITY OF PHOENIX		REV BY	CHK BY	DATE
DESCRIPTION				
NO.				



F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	WS90500273	3	63

**PEC** PROJECT ENGINEERING CONSULTANTS  
 2432 W. PEORIA AVENUE, SUITE 1246  
 PHOENIX, AZ 85029  
 Phone: (602) 906-1901

**ENGINEERING NOTES**

1. THE CONTRACTOR SHALL SUPPORT AND PROTECT IN PLACE ALL EXISTING UTILITIES WITHIN THE EXCAVATION AS REQUIRED BY THE MAG SPECIFICATIONS AND THE CITY SUPPLEMENTS.
2. COMPACTION SHALL COMPLY WITH MAG SECTION 601 AND CITY OF PHOENIX SUPPLEMENTS AND AS INDICATED IN THE PROJECT PLANS AND DETAILS.
3. ALL REMOVAL AND REPLACEMENTS SHALL MATCH EXISTING UNLESS OTHERWISE NOTED ON PLANS OR IN CONTRACT SPECIFICATIONS.
4. CONTRACTOR TO VERIFY ALL ACCESS POINTS TO WORK ZONE PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS WHICH ARE REQUIRED PRIOR TO CONSTRUCTION, EXCEPT AS DEFINED BY THE SPECIFICATIONS.

**SEWER MANHOLE REHAB NOTES**

1. THE CONTRACTOR SHALL FIELD VERIFY ALL MANHOLE LOCATIONS, MATERIALS, CONDITIONS, AND DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
2. ANY CHANGES IN REHABILITATION METHODS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL WHEN REQUIRED TO, ADJUST OR REPLACE EXISTING MANHOLE, FRAME, AND COVER TO MATCH EXISTING FINAL GRADE ACCORDING TO MAG STANDARD DETAILS NO. 422, 423 AND COP STD DTL P1424.
4. CONTRACTOR SHALL SUBMIT BYPASS PUMPING PLANS FOR ALL WORK AT THE PRE-CONSTRUCTION MEETING. BYPASS PUMPING PLANS MUST BE APPROVED BY THE ENGINEER PRIOR TO PERFORMING WORK.
5. SANITARY SEWER FLOW SHALL NOT BE DISRUPTED DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE BYPASS AND/OR DIVERSION AROUND THE LIMITS OF WORK.
6. SPILLS SHALL NOT BE PERMITTED AT ANY TIME DURING CONSTRUCTION. A SPILL IS DEFINED AS ANY RELEASE OF RAW SEWAGE, CONSTRUCTION WATER, OR OTHER LIQUIDS.
7. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY FOR REMOVAL OF CONTAMINATED SOIL AND A HAUL PLAN TO THE DISPOSAL SITE.

**ABBREVIATIONS**

- ADOT ARIZONA DEPARTMENT OF TRANSPORTATION
- B BROKEN
- BOU BOTTOM OF UTILITY
- C COLLAR SHAPE CIRCULAR
- CCTV CLOSED CIRCUIT TELEVISION
- CIPP CAST IN PLACE PIPE
- CM CRACK MULTIPLE
- CONC CONCRETE
- COP CITY OF PHOENIX CONSTRUCTION
- CST
- DB DISPLACED BRICK
- DTL / DET DETAIL
- DIP DUCTILE IRON PIPE
- DWG DRAWING
- EA EACH
- ELEC ELECTRIC OR ELECTRICAL
- ELEV ELEVATION
- EX / EXIST EXISTING
- FDMC FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
- FL FLANGE
- FM FRACTURE MULTIPLE
- FND FOUND
- FO FIBER OPTIC
- (FT) FEET
- HH HANDHOLE
- ID IDENTIFICATION
- I.E. INVERT ELEVATION
- (IN) INCHES
- LFD LINING FAILURE DETACHED
- LT LEFT
- MC MARICOPA COUNTY
- MH MANHOLE
- MMM MORTAR MISSING MEDIUM
- PHX PHOENIX
- PHXSE PHOENIX OWNED PARCEL WITH COP SEWER EASEMENT
- PNDNG OWNERSHIP OF PARCEL IS CURRENTLY CHANGING
- PTPUE PRIVATE PROPERTY WITH COP PUBLIC UTILITY EASEMENT
- PTSE PRIVATE PROPERTY WITH COP SEWER EASEMENT
- PVC POLYVINYL CHLORIDE
- RT RIGHT
- SAM SURFACE AGGREGATE MISSING
- SAMM SURFACE AGGREGATE MISSING MECHANICAL
- SAMZ SURFACE AGGREGATE MISSING UNKNOWN
- SAP SURFACE AGGREGATE PROJECTING
- SAPZ SURFACE AGGREGATE PROJECTING UNKNOWN
- SH STEP HOLE
- SHT SHEET
- SRC SURFACE REINFORCEMENT CORRODED
- SRP SALT RIVER PROJECT
- SRPZ SURFACE REINFORCEMENT PROJECTING UNKNOWN
- SRV SURFACE REINFORCEMENT VISIBLE
- SRVZ SURFACE REINFORCEMENT VISIBLE UNKNOWN
- SSMH SANITARY SEWER MANHOLE
- STA STATION
- SW SOUTHWEST
- VCP VITRIFIED CLAY PIPE
- W/ WITH
- XXX UNKNOWN

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LARGE DIAMETER SANITARY SEWER REHABILITATION  
 GRADE 5 & 4 MANHOLES - NORTH - ZONE 4  
**CITY OF PHOENIX, ARIZONA**  
 WATER SERVICES DEPARTMENT

**NOTES AND ABBREVIATIONS**

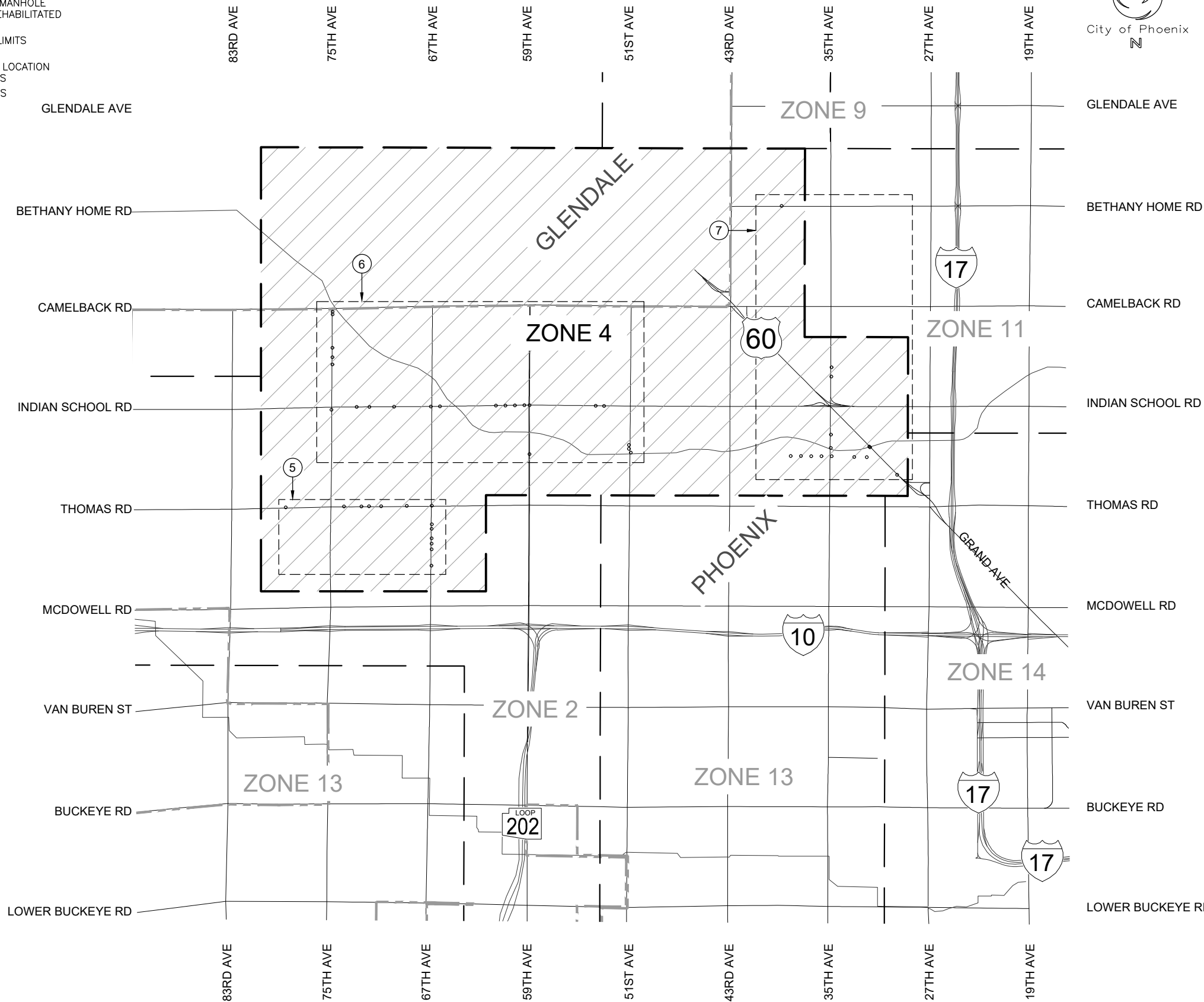


DR:	HC	DES:	YX	CK:	TOB	SHEET	TOTAL
DATE:	1/22	DATE:	1/22	DATE:	1/22	NO.	SHEETS
SCALE:	NONE	DRAWING	NO.	G-3	3	63	

REVISION BY CITY OF PHOENIX	NO.	DESCRIPTION	REV BY	CHKD BY	DATE
REVISION BY CITY OF PHOENIX	NO.	DESCRIPTION	REV BY	CHKD BY	DATE
REVISION BY CITY OF PHOENIX	NO.	DESCRIPTION	REV BY	CHKD BY	DATE

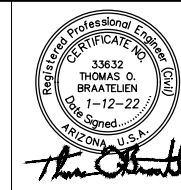
**LEGEND**

- (X) MANHOLE LOCATION MAP REFERENCE NUMBER
- EXISTING MANHOLE TO BE REHABILITATED
- ▨ ZONE 4 LIMITS
- - - - MANHOLE LOCATION MAP LIMITS
- - - - CITY LIMITS



**KEY MAP**  
NOT TO SCALE

NOTES:  
PLANS FOR OTHER ZONES UNDER DIFFERENT SET OF PLANS.



F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	WS90500273	4	63

**PEC** PROJECT ENGINEERING CONSULTANTS  
2432 W. PEORIA AVENUE, SUITE 1246  
PHOENIX, AZ 85029  
Phone: (602) 906-1901

QUARTER SECTIONS LIST	
QUARTER SECTIONS	MANHOLES
13-13	1
14-13	5
15-10	1
15-11	4
15-12	1
15-13	1
15-21	2
15-22	1
16-10	1
16-11	2
16-12	2
16-13	1
16-14	4
16-15	2
16-16	4
16-17	1
16-20	4
16-21	5
17-11	1
17-21	2
18-11	4
21-20	1
<b>GRAND TOTAL</b>	<b>50</b>

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LARGE DIAMETER SANITARY SEWER REHABILITATION  
GRADE 5 & 4 MANHOLES - NORTH - ZONE 4  
**CITY OF PHOENIX, ARIZONA**  
WATER SERVICES DEPARTMENT

**KEY MAP**

DR:	HC	DES:	YX	CK:	TOB	SHEET	TOTAL
DATE:	1/22	DATE:	1/22	DATE:	1/22	NO.	SHEETS
SCALE:		DRAWING	G-4	NO.		4	63







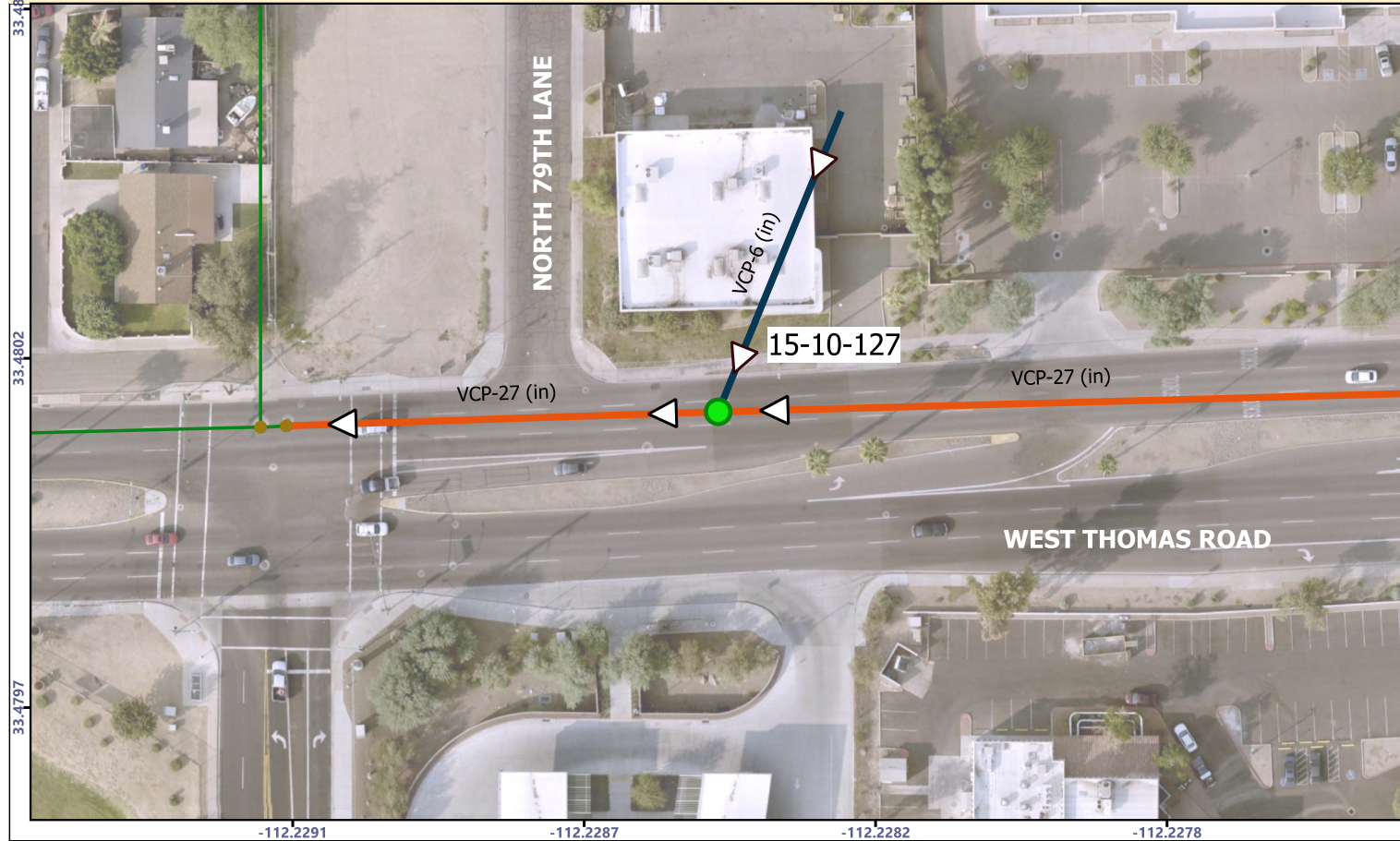
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1245960	LOCATION ID: 15-10-127	CROSS STREET: THOMAS RD & 79TH LN	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 10.8 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 15-10
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 5	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

"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"  
THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER	
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2					
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3					
		REPAIR & COAT 60 IN DIAMETER	EA	4	1				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5					
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6					
		JOINT REPAIR	EA	7					
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8					
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	8.1				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10					
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _		

**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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	PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 1 / 50	SHEET NUMBER: 8 OF 63
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MANHOLE 15-10-127  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4



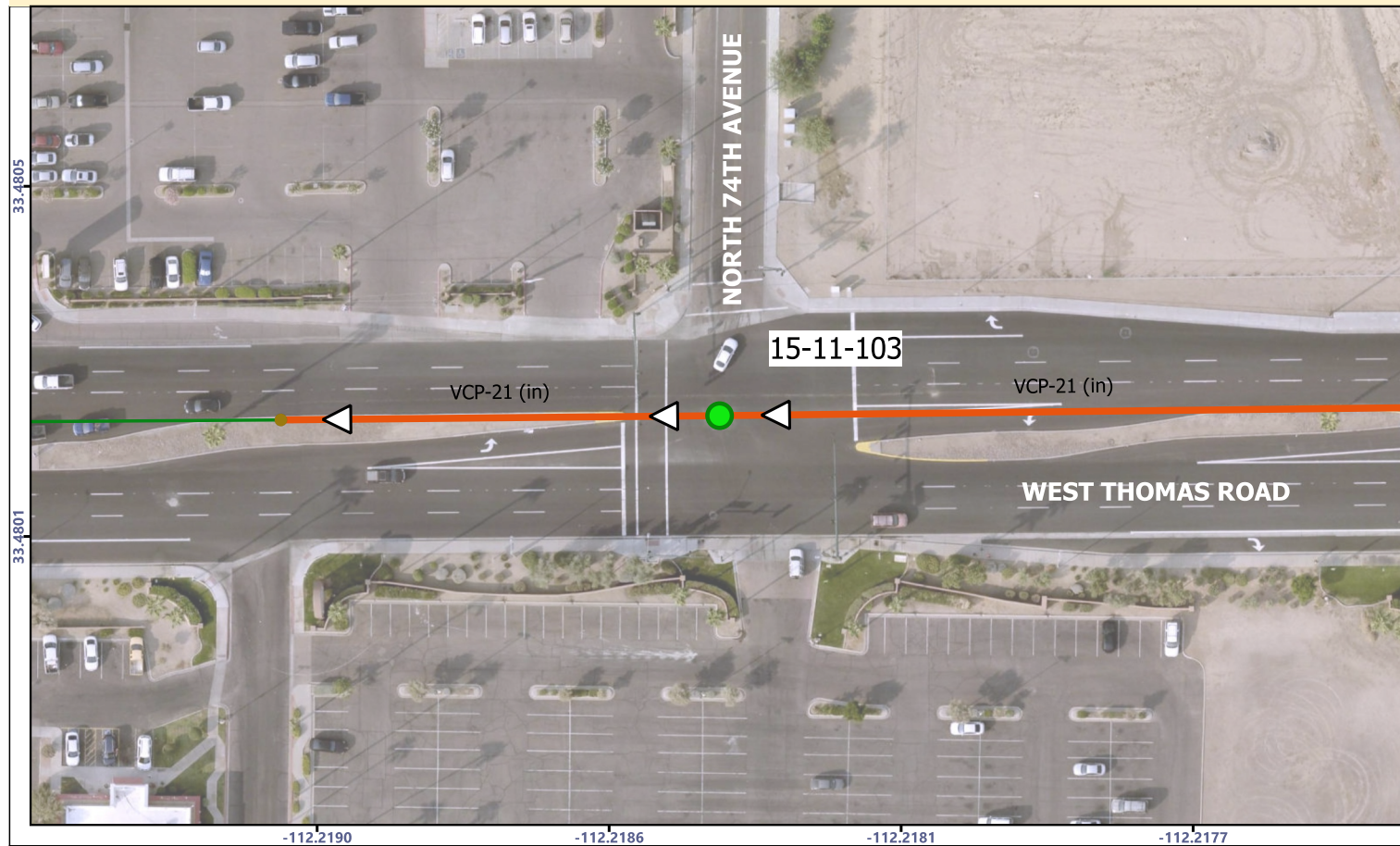
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1247857	LOCATION ID: 15-11-103	CROSS STREET: 74TH AVE & THOMAS RD	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 26 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 11.7 (FT)	BARREL DIAMETER: 48 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 15-11
COLLAR PRESENT: NO GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: BRICK	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES: 48 (IN) CONICAL WALL
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<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1			
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	9			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 2 / 50	SHEET NUMBER: 9 OF 63
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MANHOLE 15-11-103  
WS90500273

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

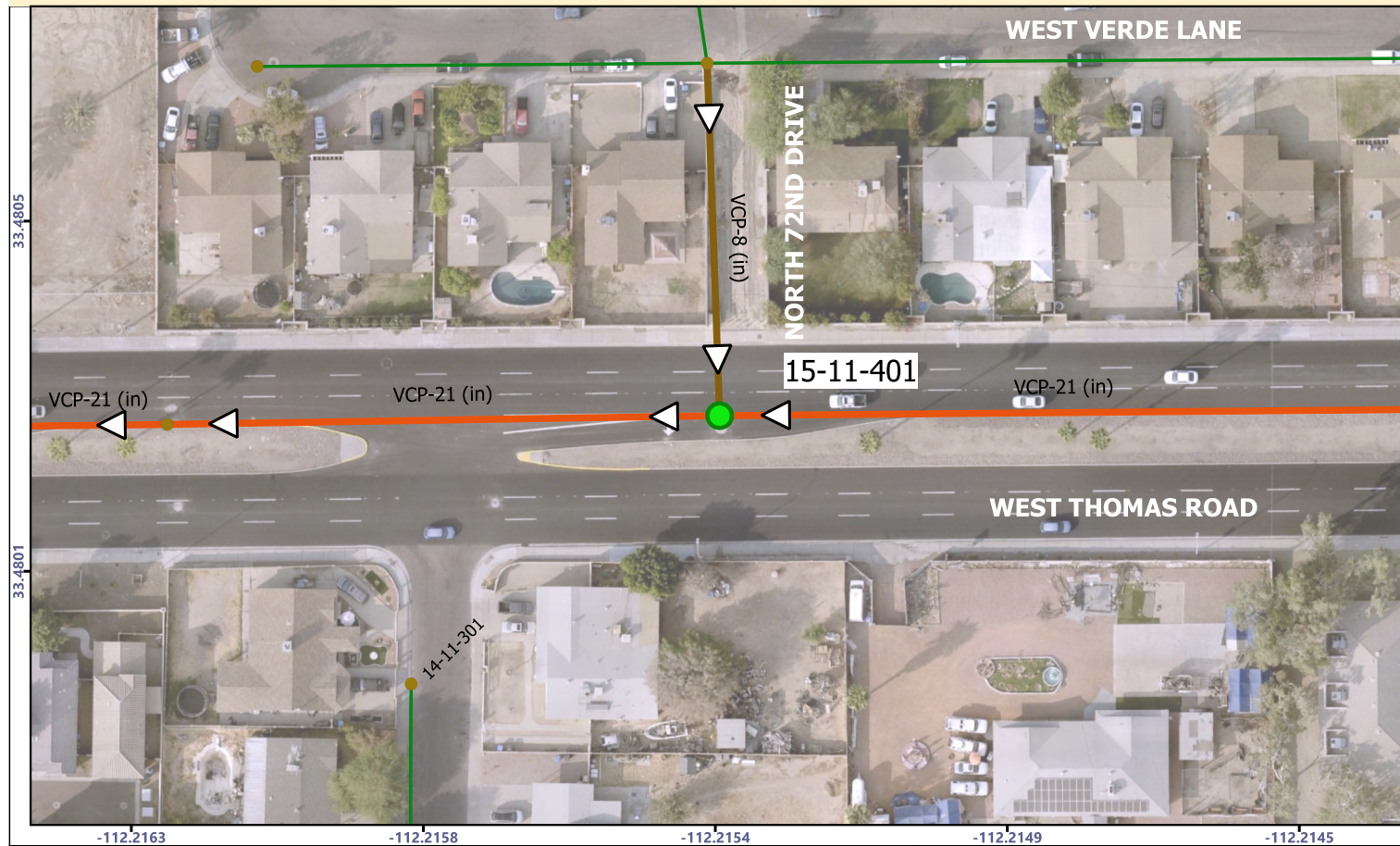
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1247855	LOCATION ID: 15-11-401	CROSS STREET: THOMAS RD & 72ND DR	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 11.9 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 15-11
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:
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	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	156			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901	Know what's below. Call before you dig.	SCALE OF MAP: 1:100	MANHOLE: 3 / 50	SHEET NUMBER: 10 OF 63
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MANHOLE 15-11-401  
WS90500273

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

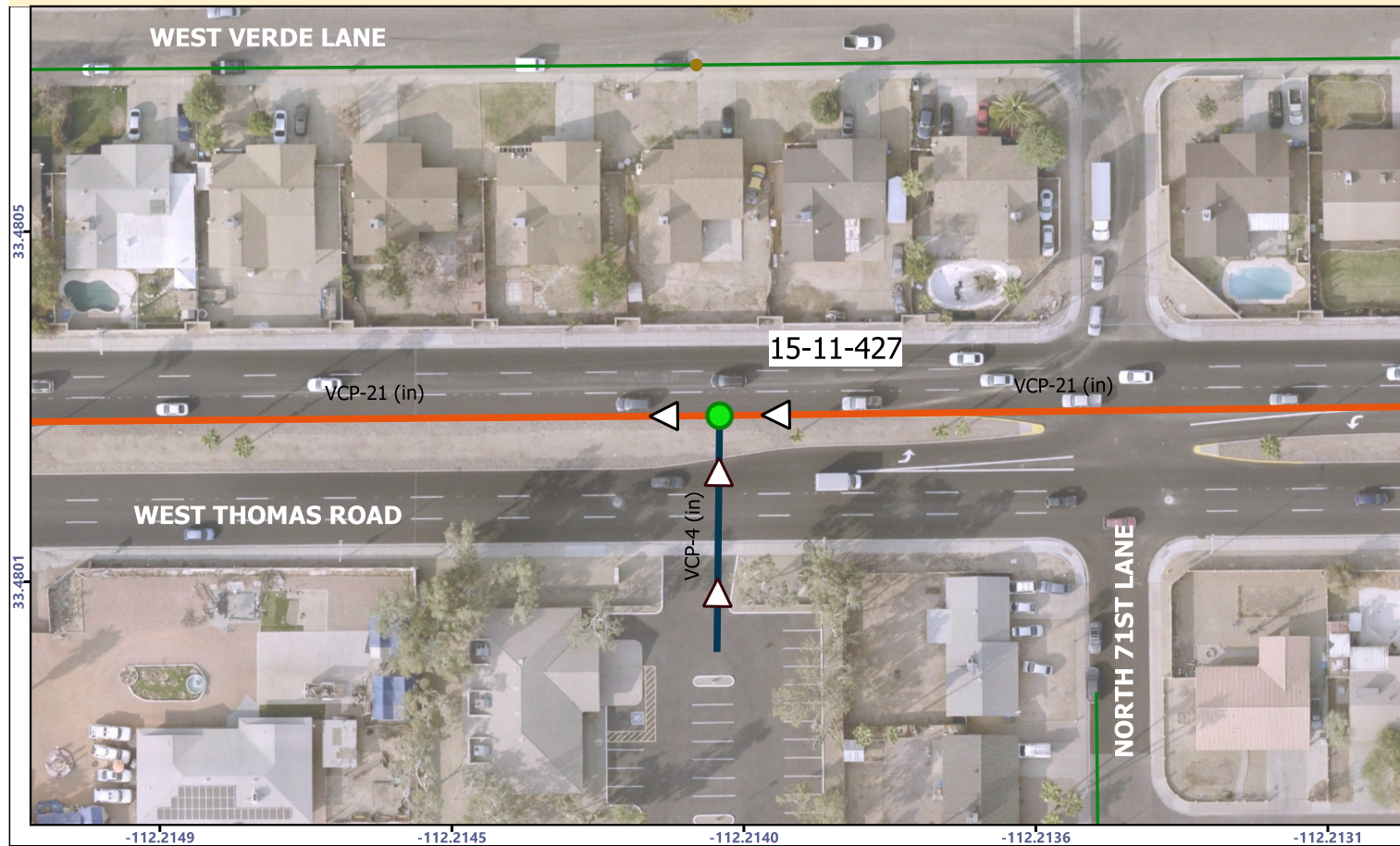
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1247854	LOCATION ID: 15-11-427	CROSS STREET: THOMAS RD & 71ST LN	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 26 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 12.5 (FT)	BARREL DIAMETER: 48 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 15-11
COLLAR PRESENT: NO GROUND TYPE: GRAVEL	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: BRICK	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:
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<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	12			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901	Know what's below. Call before you dig.	SCALE OF MAP: 1:100	MANHOLE: 4 / 50	SHEET NUMBER: 11 OF 63
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MANHOLE 15-11-427  
WS90500273

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

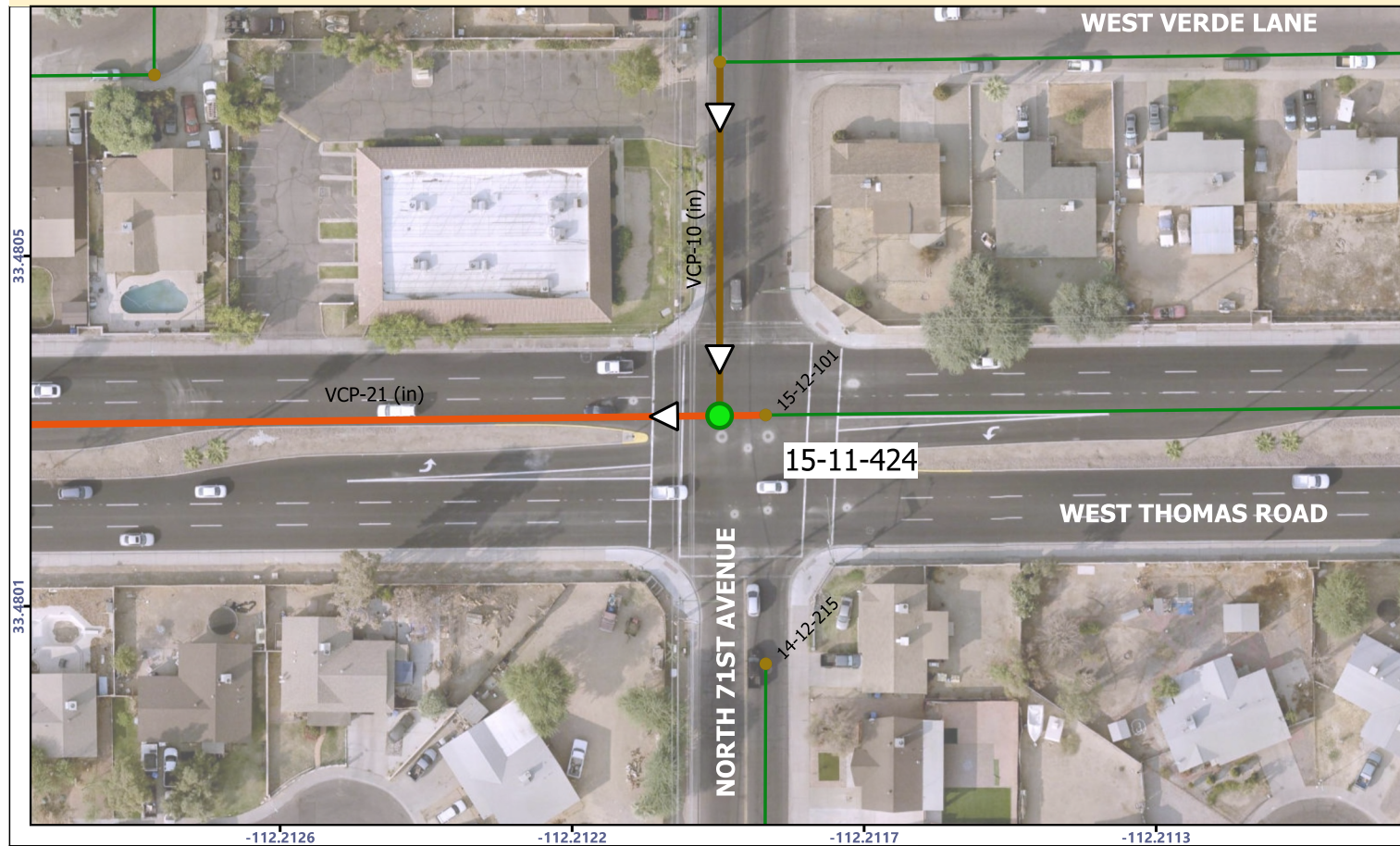
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1247853	LOCATION ID: 15-11-424	CROSS STREET: 71ST AVE & THOMAS RD	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 13 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 15-11
COLLAR PRESENT: NO GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1			
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	10.3			
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 5 / 50	SHEET NUMBER: 12 OF 63
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MANHOLE 15-11-424  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

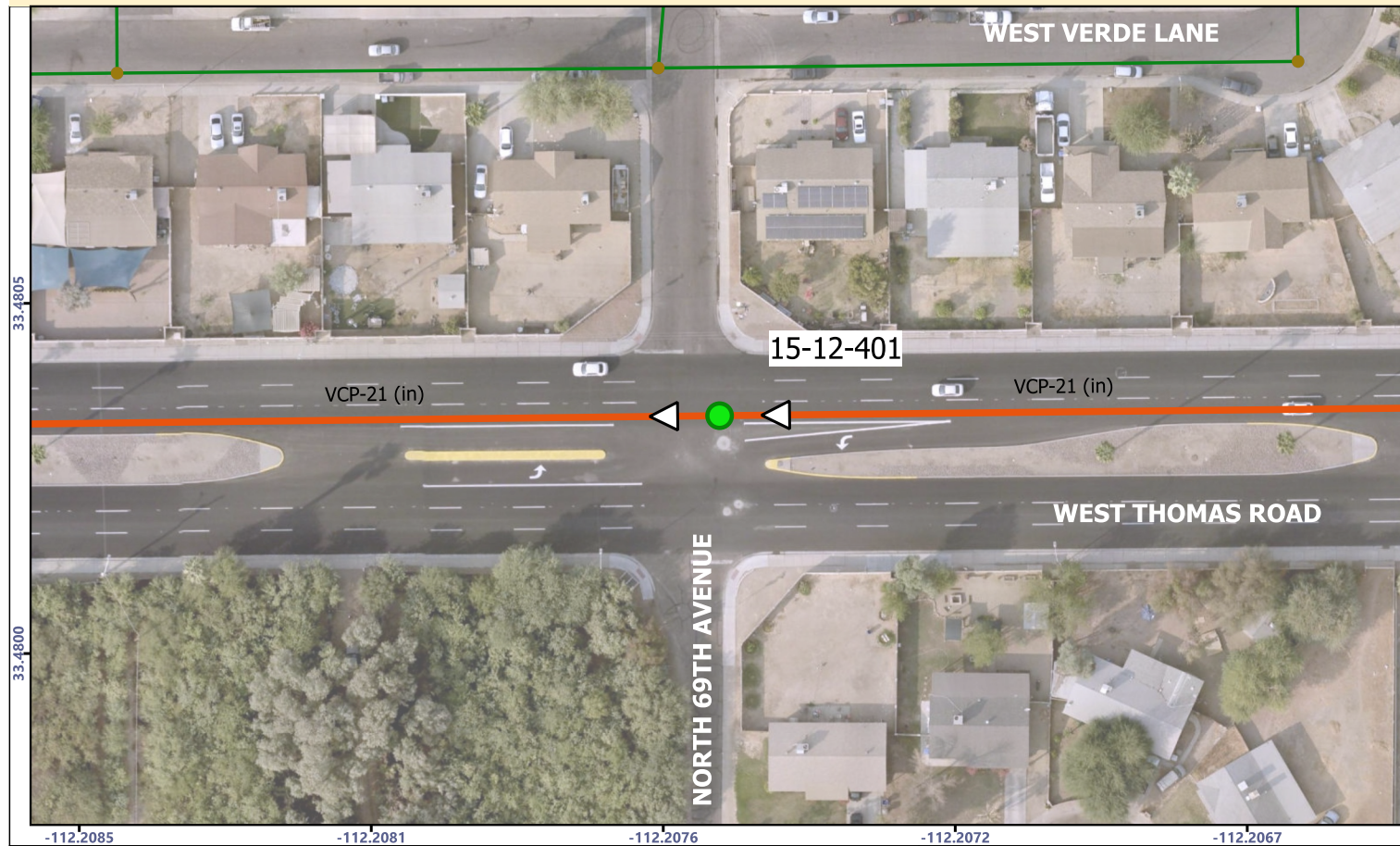
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1253541	LOCATION ID: 15-12-401	CROSS STREET: THOMAS RD & 69TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 26 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 13.6 (FT)	BARREL DIAMETER: 48 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 15-12
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: BRICK	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:  
48 (IN) CONICAL WALL

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
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- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER	
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	10				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3	1				
		REPAIR & COAT 60 IN DIAMETER	EA	4					
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5					
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6					
		JOINT REPAIR	EA	7					
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8					
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9					
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10					
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _		

**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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	PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 6 / 50	SHEET NUMBER: 13 OF 63
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MANHOLE 15-12-401  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4  
 WS90500273

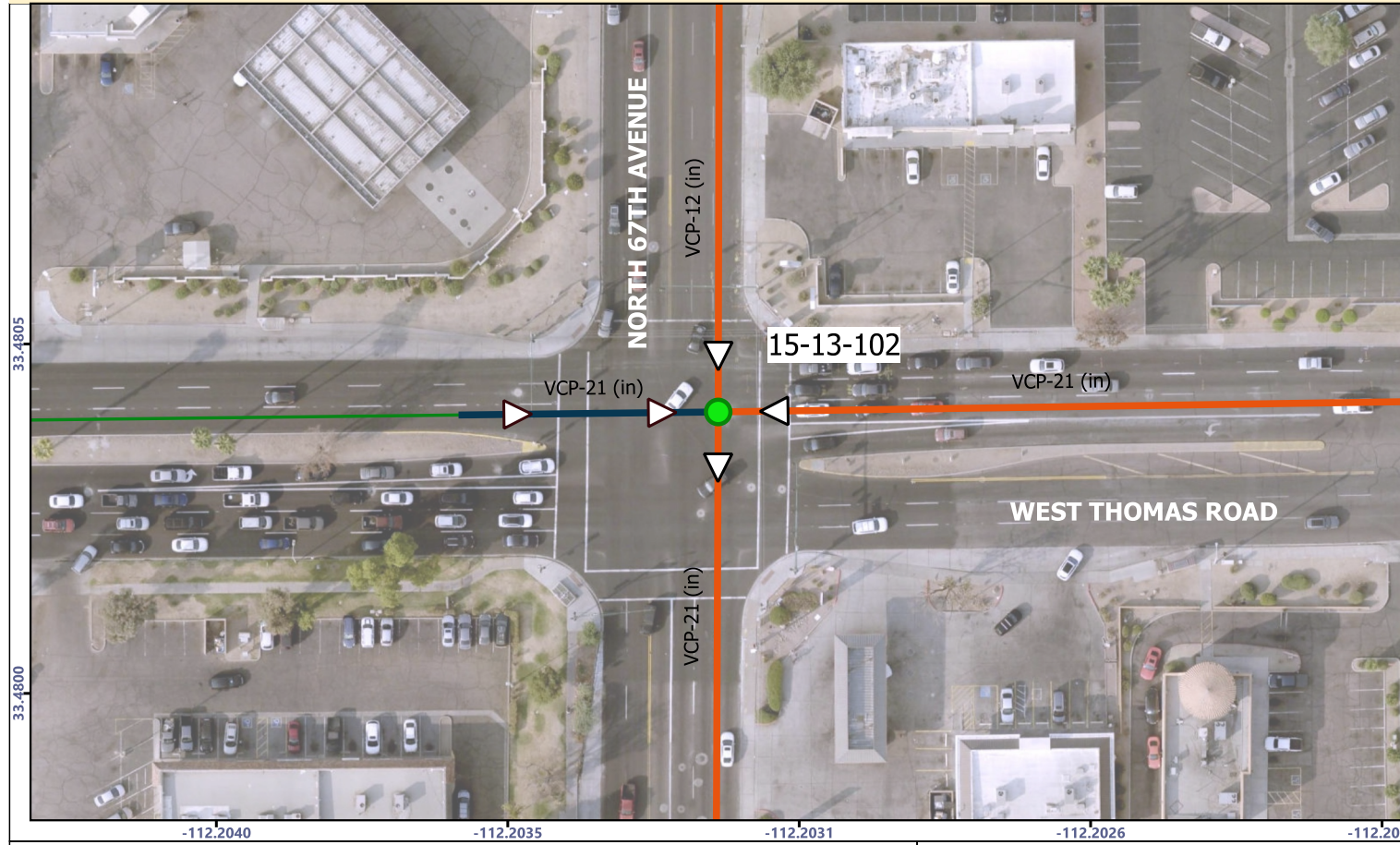
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1246115	LOCATION ID: 15-13-102	CROSS STREET: THOMAS RD & 67TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 26 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 13.5 (FT)	BARREL DIAMETER: 48 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 15-13
COLLAR PRESENT: NO GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: BRICK	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES: 9 O'CLOCK CONNECTION EXTENDED FOR VISIBILITY, NOT REAL GIS LENGHT
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<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

"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"  
THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1			
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3	1			
		REPAIR & COAT 60 IN DIAMETER	EA	4				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5	1			
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8	11.9			
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _	

**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 7 / 50	SHEET NUMBER: 14 OF 63
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MANHOLE 15-13-102  
WS90500273

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

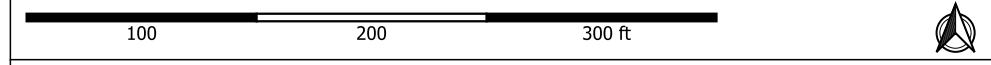
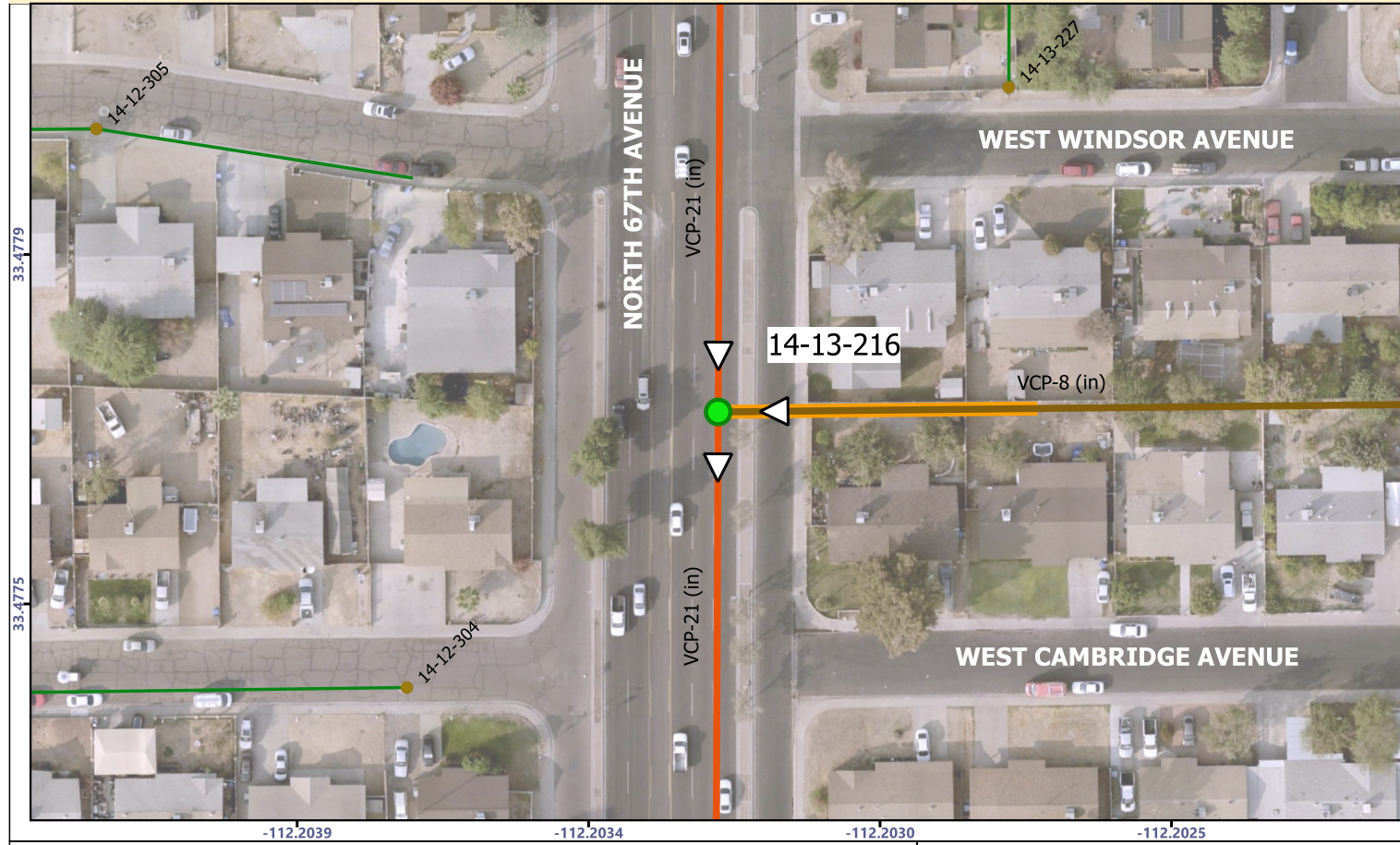
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1230261	LOCATION ID: 14-13-216	CROSS STREET: 67TH AVE & CAMBRIDGE AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 26 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 12.2 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 14-13
COLLAR PRESENT: YES GROUND TYPE: OTHER	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: BRICK	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

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**AS BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED CIVIL ENGINEER:
REGISTRATION NUMBER:
DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

"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"  
THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	11			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL.</p> <p>B. REMOVE ALL STEPS BEFORE REHABILITATION WORK.</p> <p>C. BLAST CLEAN MANHOLE BEFORE REHABILITATION.</p> <p>D. COAT THE CHANNEL IF IT IS CONCRETE.</p> <p>E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING.</p> <p>F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION.</p> <p>G. USE FLOW THROUGH PLUG IF NECESSARY.</p> <p>H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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<p>PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901</p>		SCALE OF MAP: 1:100	MANHOLE: 8 / 50	SHEET NUMBER: 15 OF 63
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**MANHOLE 14-13-216**  
**WS90500273**  
**CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER**  
**REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4**

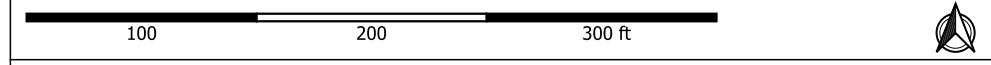
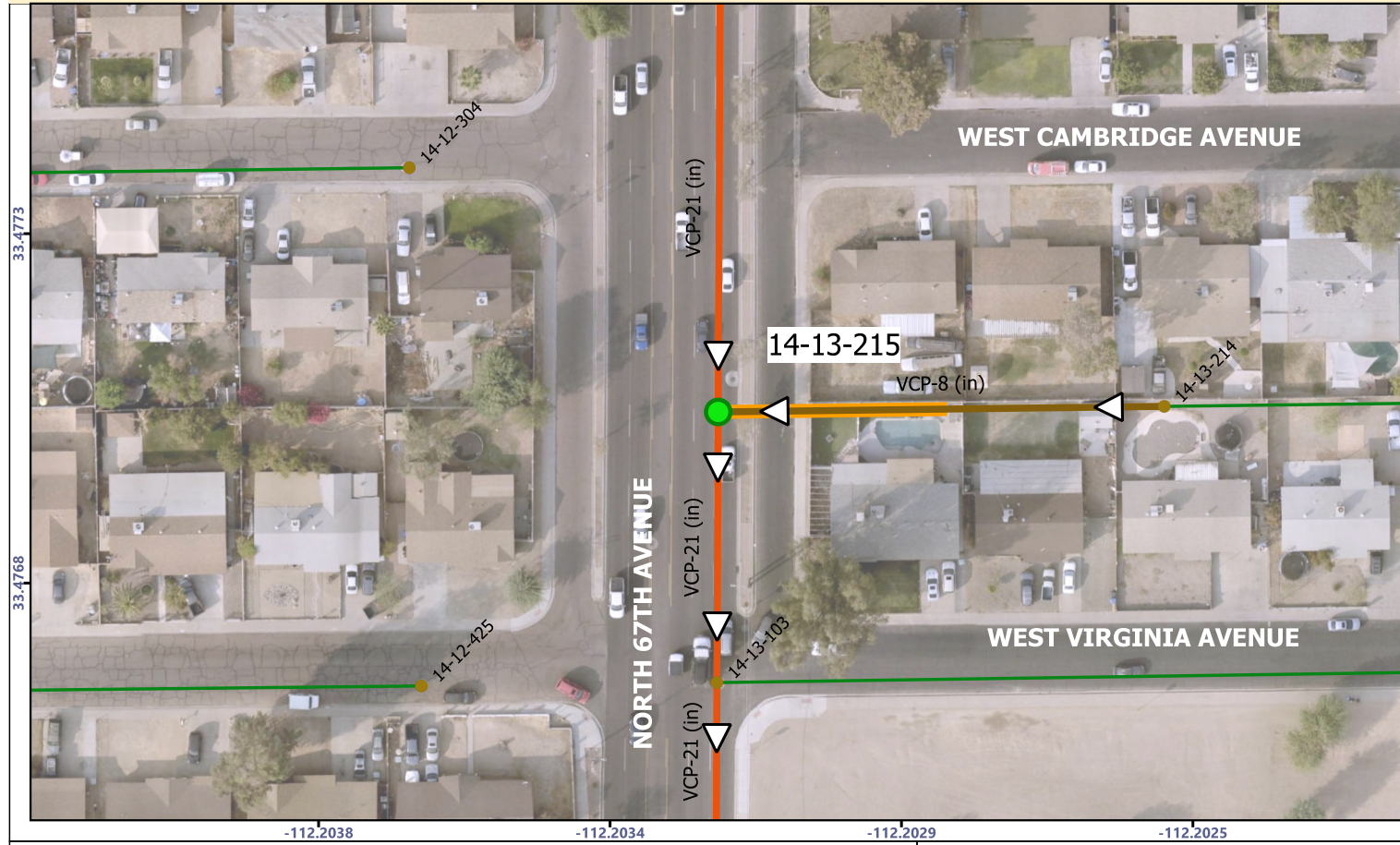
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1201282	LOCATION ID: 14-13-215	CROSS STREET: 67TH AVE & VIRGINIA AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 26 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 12.2 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 14-13
COLLAR PRESENT: NO GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: BRICK	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:	
<b>AS BUILT CERTIFICATION</b>	REGISTERED CIVIL ENGINEER:
I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1			
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9	10.1			
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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	PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 9 / 50	SHEET NUMBER: 16 OF 63
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MANHOLE 14-13-215  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4  
 WS90500273



**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1245996	LOCATION ID: 14-13-101	CROSS STREET: 67TH AVE & WILSHIRE AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 11.8 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 14-13
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: BRICK	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES: 60 (IN) CONICAL WALL	<p><b>LEGEND:</b></p> <ul style="list-style-type: none"> <li><span style="color: green;">●</span> MANHOLE TO REPAIR</li> <li><span style="color: red;">—</span> Pipe Connection on Wall</li> <li><span style="color: brown;">—</span> Pipe Connection Over Bench</li> <li><span style="color: orange;">—</span> Pipe Connection At Channel</li> <li><span style="color: yellow;">—</span> Drop Pipe Connections</li> <li><span style="color: blue;">—</span> Existing Abandoned Sewer Main</li> <li><span style="color: darkblue;">—</span> Not in GIS Pipe Connections</li> <li><span style="color: green;">—</span> City Sewer Main</li> <li><span style="color: black;">▷</span> Flow Direction</li> <li><span style="color: black;">●</span> City Manholes / Not For Repair</li> </ul>
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<p><b>AS BUILT CERTIFICATION</b></p> <p>I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.</p>	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	13			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL.</p> <p>B. REMOVE ALL STEPS BEFORE REHABILITATION WORK.</p> <p>C. BLAST CLEAN MANHOLE BEFORE REHABILITATION.</p> <p>D. COAT THE CHANNEL IF IT IS CONCRETE.</p> <p>E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING.</p> <p>F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION.</p> <p>G. USE FLOW THROUGH PLUG IF NECESSARY.</p> <p>H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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	<p>PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901</p>		SCALE OF MAP: 1:100	MANHOLE: 10 / 50	SHEET NUMBER: 17 OF 63
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**MANHOLE 14-13-101**  
**WS90500273**  
**CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER**  
**REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4**

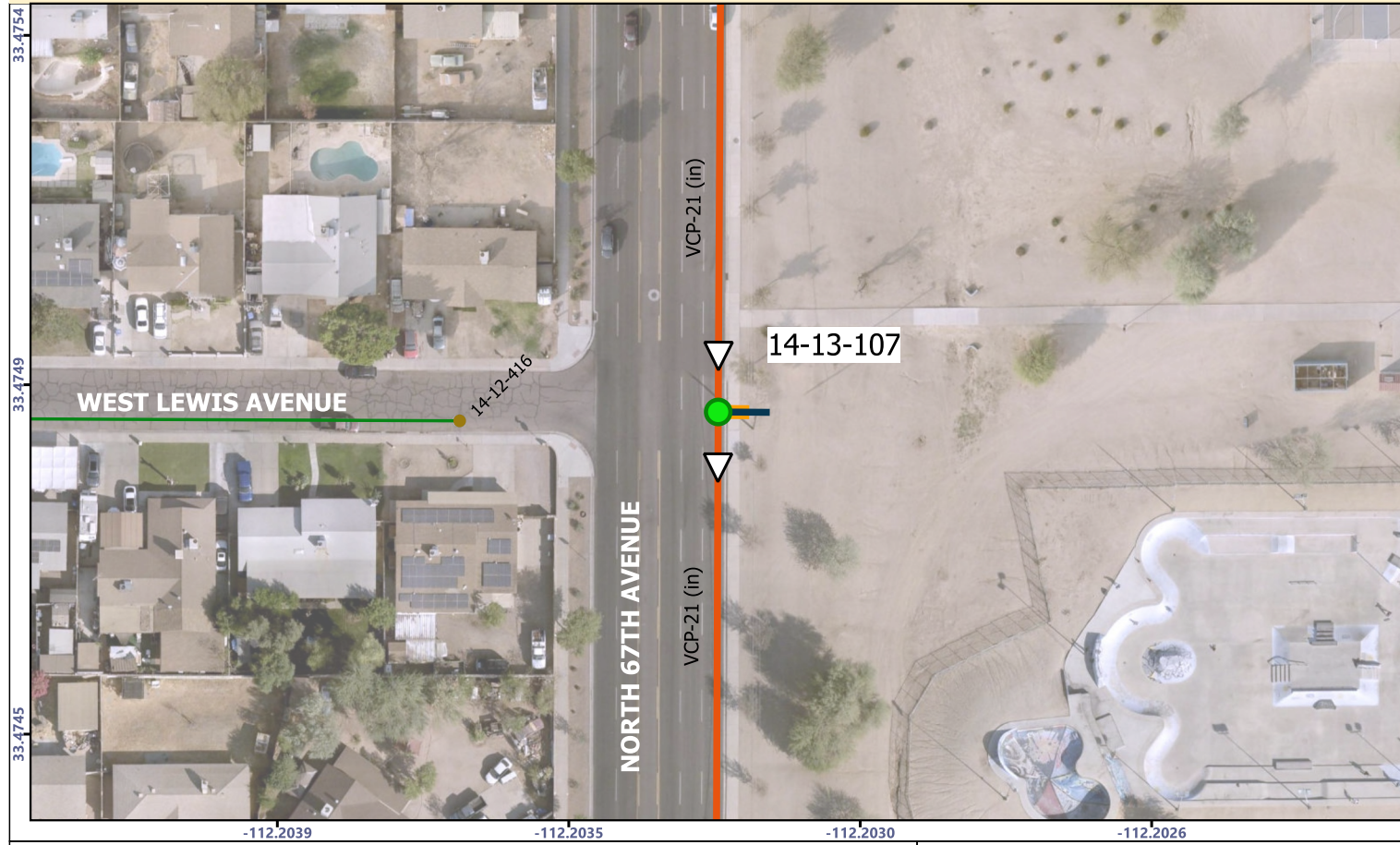
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1246151	LOCATION ID: 14-13-107	CROSS STREET: 67TH AVE & LEWIS AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 11.8 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 14-13
COLLAR PRESENT: NO GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	159			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901	Know what's below. Call before you dig.	SCALE OF MAP: 1:100	MANHOLE: 11 / 50	SHEET NUMBER: 18 OF 63
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MANHOLE 14-13-107  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1256680	LOCATION ID: 14-13-102	CROSS STREET: 67TH AVE & VERNON AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 26 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 12.5 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 14-13
COLLAR PRESENT: NO GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: BRICK	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

"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"  
THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	76			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 12 / 50	SHEET NUMBER: 19 OF 63
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MANHOLE 14-13-102  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

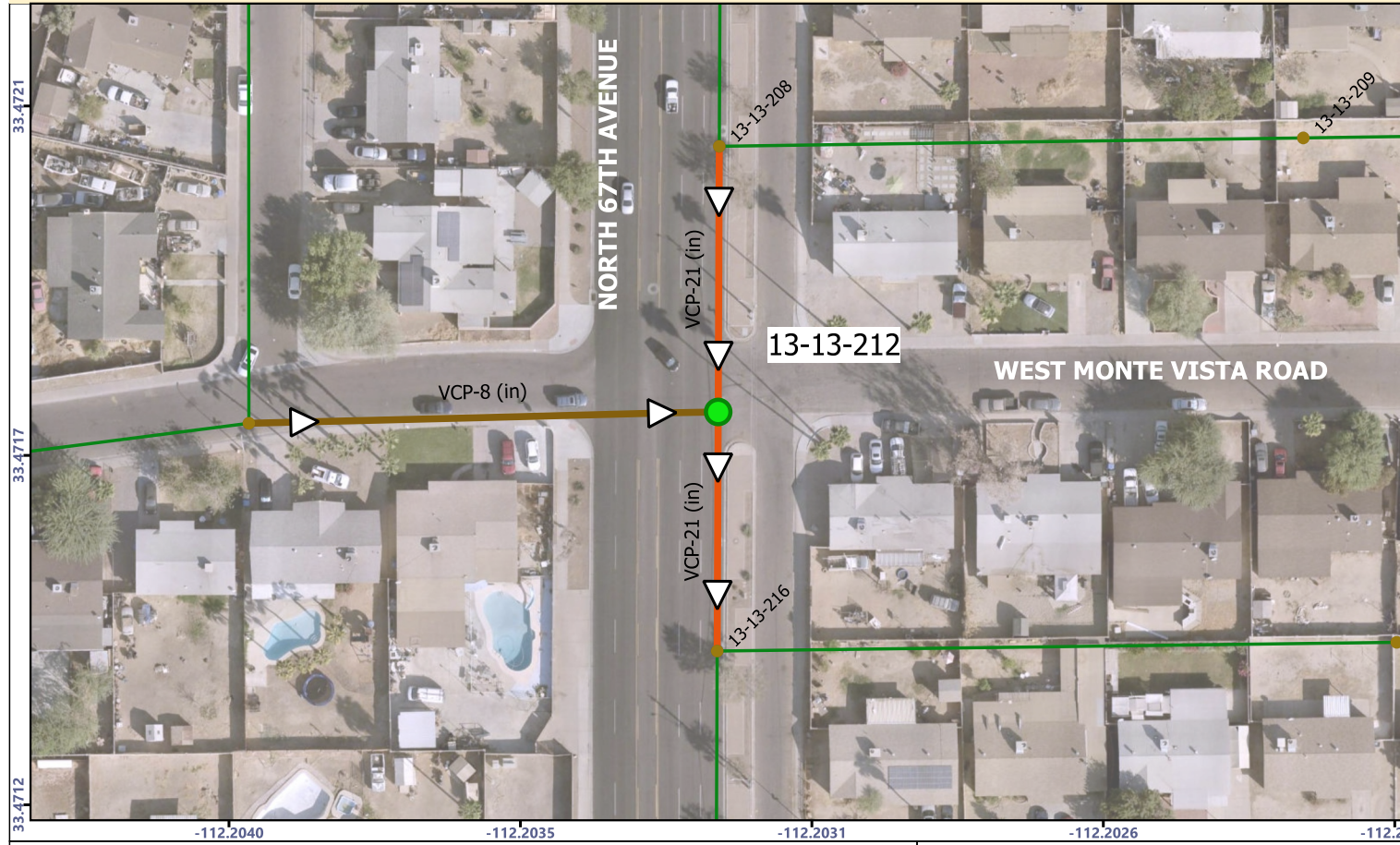
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1171050	LOCATION ID: 13-13-212	CROSS STREET: MONTE VISTA RD & 67TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 26 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 12.8 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 13-13
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: BRICK	NOTES:

**MANHOLE LOCATION**



**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

**ASSESSMENT NOTES:**

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**AS BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED CIVIL ENGINEER:
REGISTRATION NUMBER:
DATE:

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THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	11			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5	1			
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL.</p> <p>B. REMOVE ALL STEPS BEFORE REHABILITATION WORK.</p> <p>C. BLAST CLEAN MANHOLE BEFORE REHABILITATION.</p> <p>D. COAT THE CHANNEL IF IT IS CONCRETE.</p> <p>E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING.</p> <p>F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION.</p> <p>G. USE FLOW THROUGH PLUG IF NECESSARY.</p> <p>H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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<p>PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901</p>	<p>Know what's below. Call before you dig.</p>	SCALE OF MAP: 1:100	MANHOLE: 13 / 50	SHEET NUMBER: 20 OF 63
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**MANHOLE 13-13-212**  
**WS90500273**  
**CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER**  
**REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4**

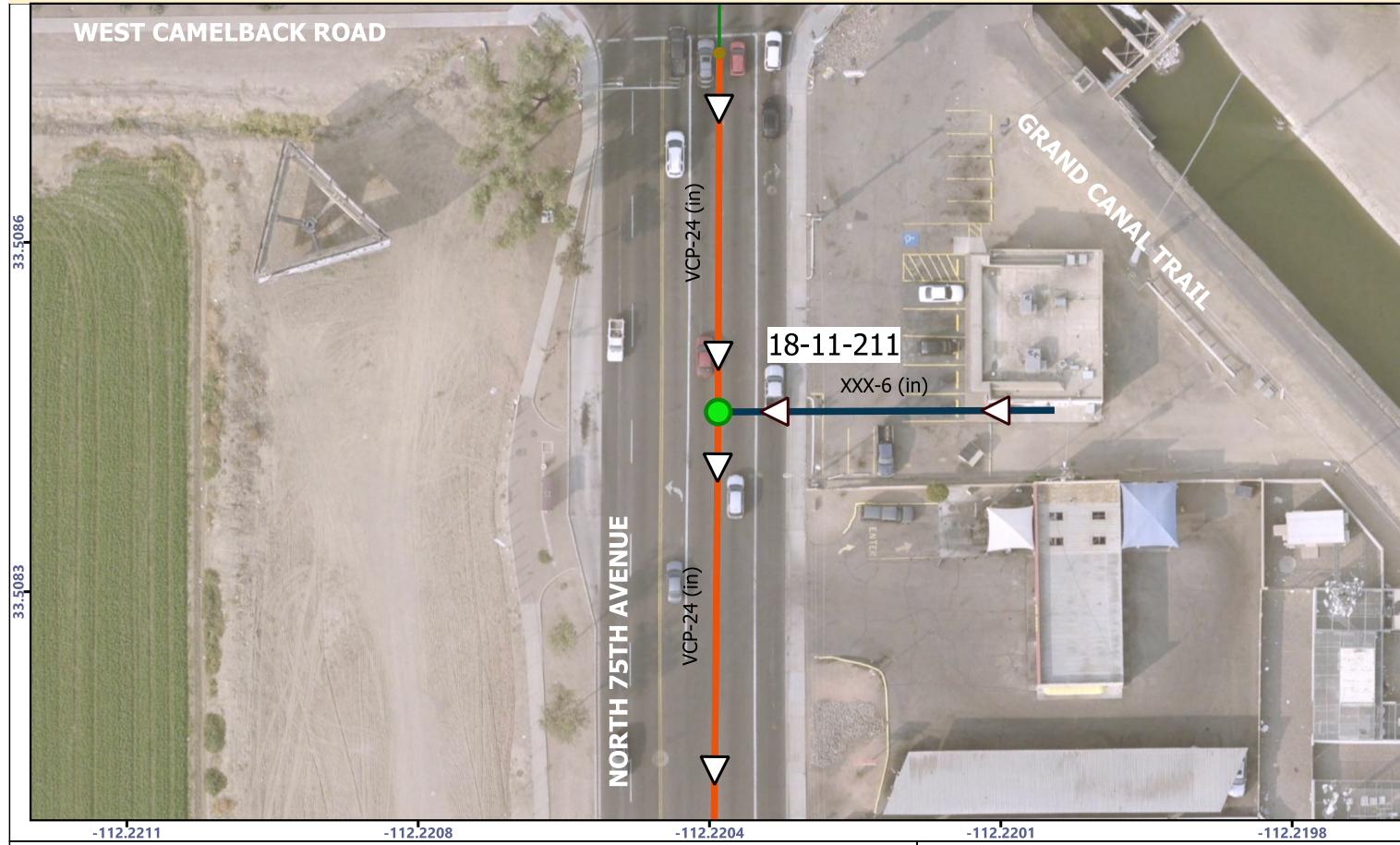
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1192337	LOCATION ID: 18-11-211	CROSS STREET: 75TH AVE & CAMELBACK RD	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 10.1 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 18-11
COLLAR PRESENT: NO GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:
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<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	124			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901	Know what's below. Call before you dig.	SCALE OF MAP: 1:75	MANHOLE: 14 / 50	SHEET NUMBER: 21 OF 63
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MANHOLE 18-11-211  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4  
 WS90500273

**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1192243	LOCATION ID: 18-11-212	CROSS STREET: 75TH AVE & CAMELBACK RD	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 9.9 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 18-11
COLLAR PRESENT: NO GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	123			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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	PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:75	MANHOLE: 15 / 50	SHEET NUMBER: 22 OF 63
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MANHOLE 18-11-212  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4  
 WS90500273

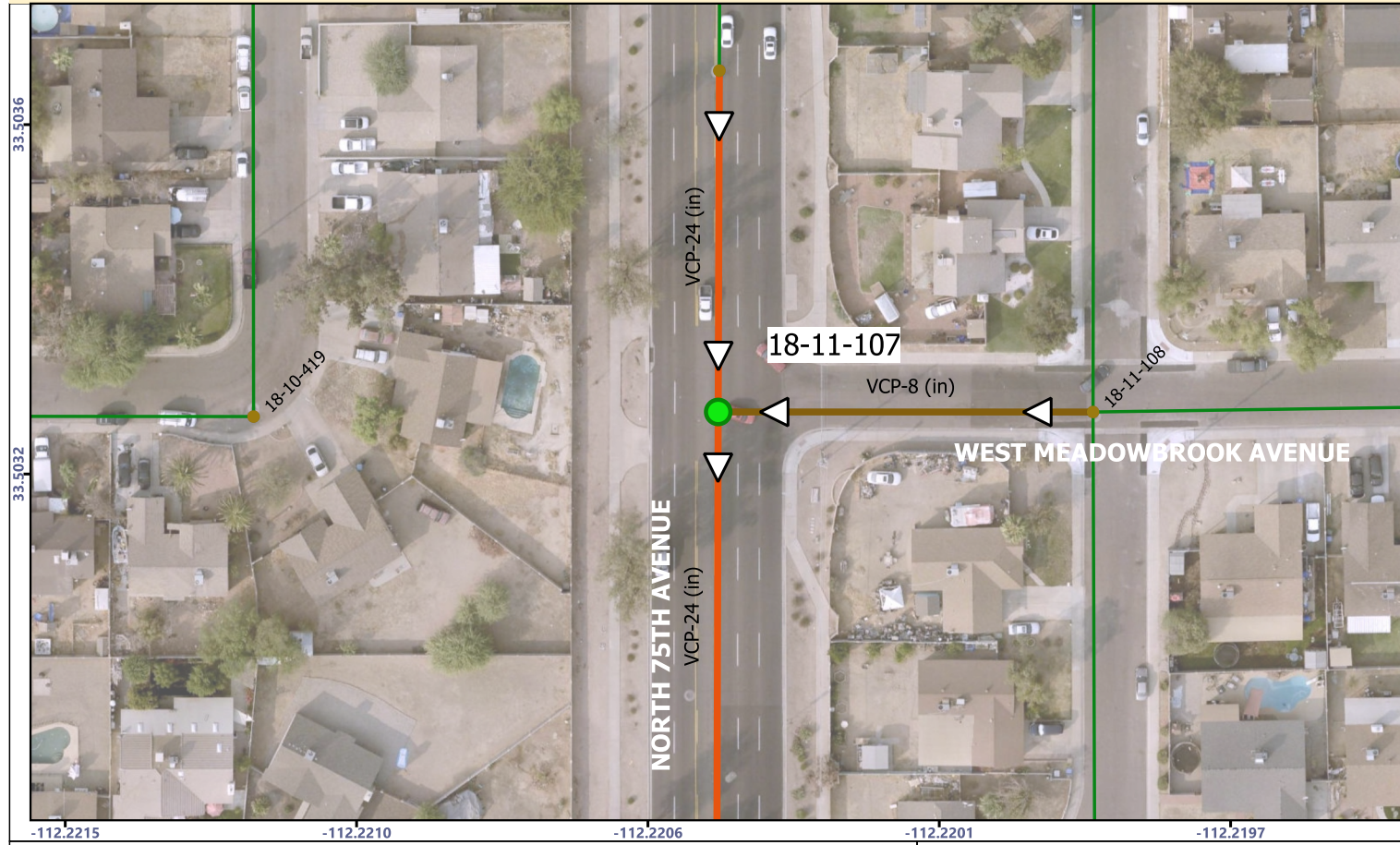
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1192331	LOCATION ID: 18-11-107	CROSS STREET: MEADOWBROOK AVE & 75TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 11.2 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 18-11
COLLAR PRESENT: NO GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 5	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

**ASSESSMENT NOTES:**

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**AS BUILT CERTIFICATION**

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REGISTERED CIVIL ENGINEER:
REGISTRATION NUMBER:
DATE:

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER	
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2					
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3					
		REPAIR & COAT 60 IN DIAMETER	EA	4	1				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5					
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6					
		JOINT REPAIR	EA	7					
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8					
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	8.8				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10					
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _		

**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL.</p> <p>B. REMOVE ALL STEPS BEFORE REHABILITATION WORK.</p> <p>C. BLAST CLEAN MANHOLE BEFORE REHABILITATION.</p> <p>D. COAT THE CHANNEL IF IT IS CONCRETE.</p> <p>E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING.</p> <p>F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION.</p> <p>G. USE FLOW THROUGH PLUG IF NECESSARY.</p> <p>H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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	<p>PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901</p>		SCALE OF MAP: 1:100	MANHOLE: 16 / 50	SHEET NUMBER: 23 OF 63
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**MANHOLE 18-11-107**  
**WS90500273**  
**CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER**  
**REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4**

**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1192251	LOCATION ID: 18-11-117	CROSS STREET: SELLS DR & 75TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 26 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 12.2 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 18-11
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

**ASSESSMENT NOTES:**

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**AS BUILT CERTIFICATION**

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REGISTERED CIVIL ENGINEER:
REGISTRATION NUMBER:
DATE:

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER	
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1					
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	171				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3					
		REPAIR & COAT 60 IN DIAMETER	EA	4	1				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5					
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6					
		JOINT REPAIR	EA	7					
SHEET: D-4 DETAIL: 1 & 3	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8					
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9					
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10					
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _		

**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL.</p> <p>B. REMOVE ALL STEPS BEFORE REHABILITATION WORK.</p> <p>C. BLAST CLEAN MANHOLE BEFORE REHABILITATION.</p> <p>D. COAT THE CHANNEL IF IT IS CONCRETE.</p> <p>E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING.</p> <p>F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION.</p> <p>G. USE FLOW THROUGH PLUG IF NECESSARY.</p> <p>H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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<p>PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901</p>		SCALE OF MAP: 1:100	MANHOLE: 17 / 50	SHEET NUMBER: 24 OF 63
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**MANHOLE 18-11-117**  
**WS90500273**  
**CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER**  
**REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4**



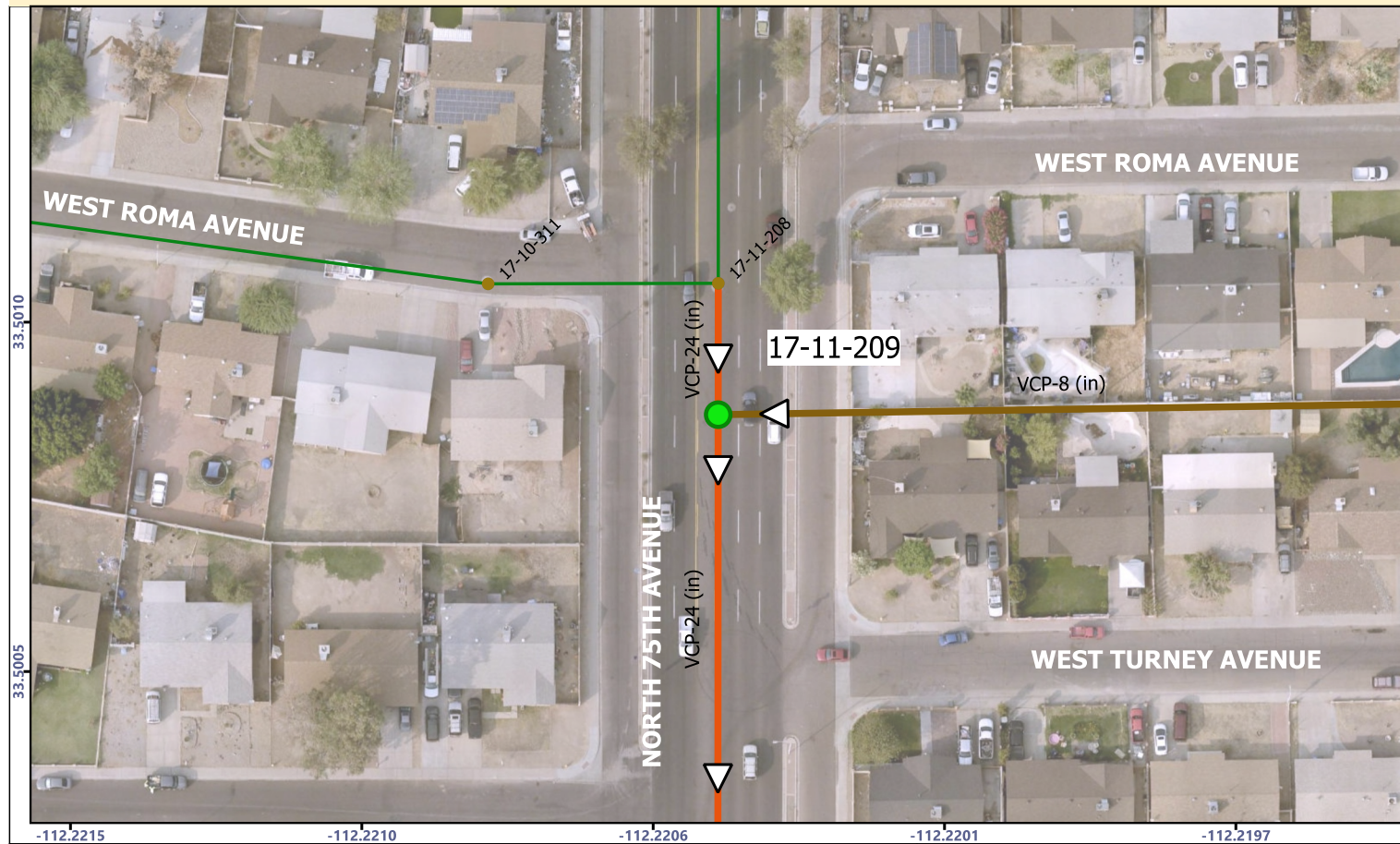
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1252978	LOCATION ID: 17-11-209	CROSS STREET: 75TH AVE & ROMA AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 11.7 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 17-11
COLLAR PRESENT: NO GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: BRICK	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:
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<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER	
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1					
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	4				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3					
		REPAIR & COAT 60 IN DIAMETER	EA	4	1				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5	1				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6					
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7					
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8					
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9					
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10					
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _		

**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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	PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 18 / 50	SHEET NUMBER: 25 OF 63
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MANHOLE 17-11-209  
WS90500273

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

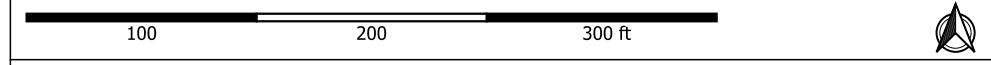
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1252411	LOCATION ID: 16-10-317	CROSS STREET: 75TH AVE & INDIAN SCHOOL RD	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 26 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 10.5 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-10
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: BRICK	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

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**AS BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED CIVIL ENGINEER:
REGISTRATION NUMBER:
DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	7			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5	1			
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL.</p> <p>B. REMOVE ALL STEPS BEFORE REHABILITATION WORK.</p> <p>C. BLAST CLEAN MANHOLE BEFORE REHABILITATION.</p> <p>D. COAT THE CHANNEL IF IT IS CONCRETE.</p> <p>E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING.</p> <p>F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION.</p> <p>G. USE FLOW THROUGH PLUG IF NECESSARY.</p> <p>H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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	PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 19 / 50	SHEET NUMBER: 26 OF 63
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MANHOLE 16-10-317  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

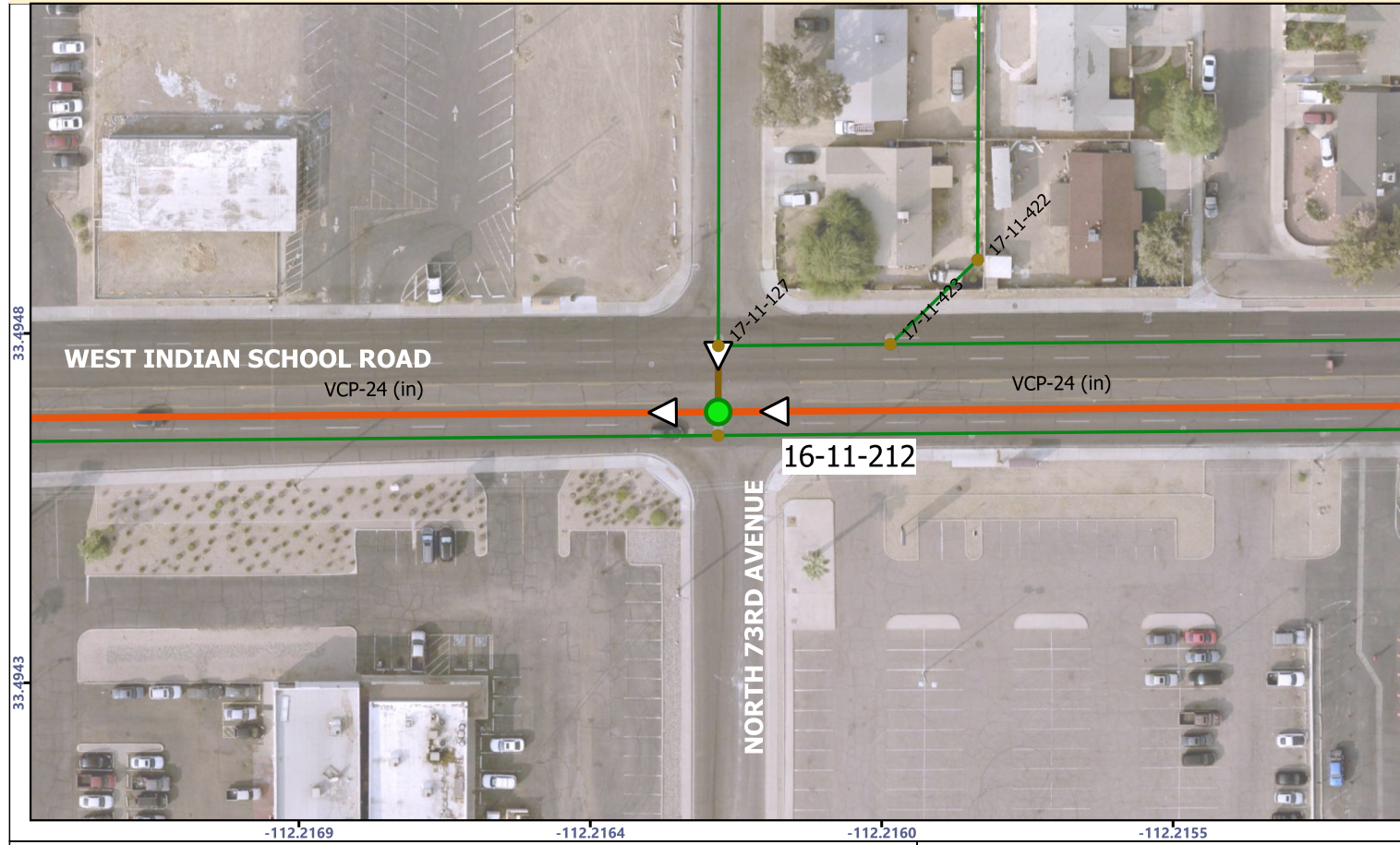
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1249502	LOCATION ID: 16-11-212	CROSS STREET: 73RD AVE & INDIAN SCHOOL RD	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 10.9 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-11
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1			
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5	1			
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	7.9			
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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	PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 20 / 50	SHEET NUMBER: 27 OF 63
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MANHOLE 16-11-212  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

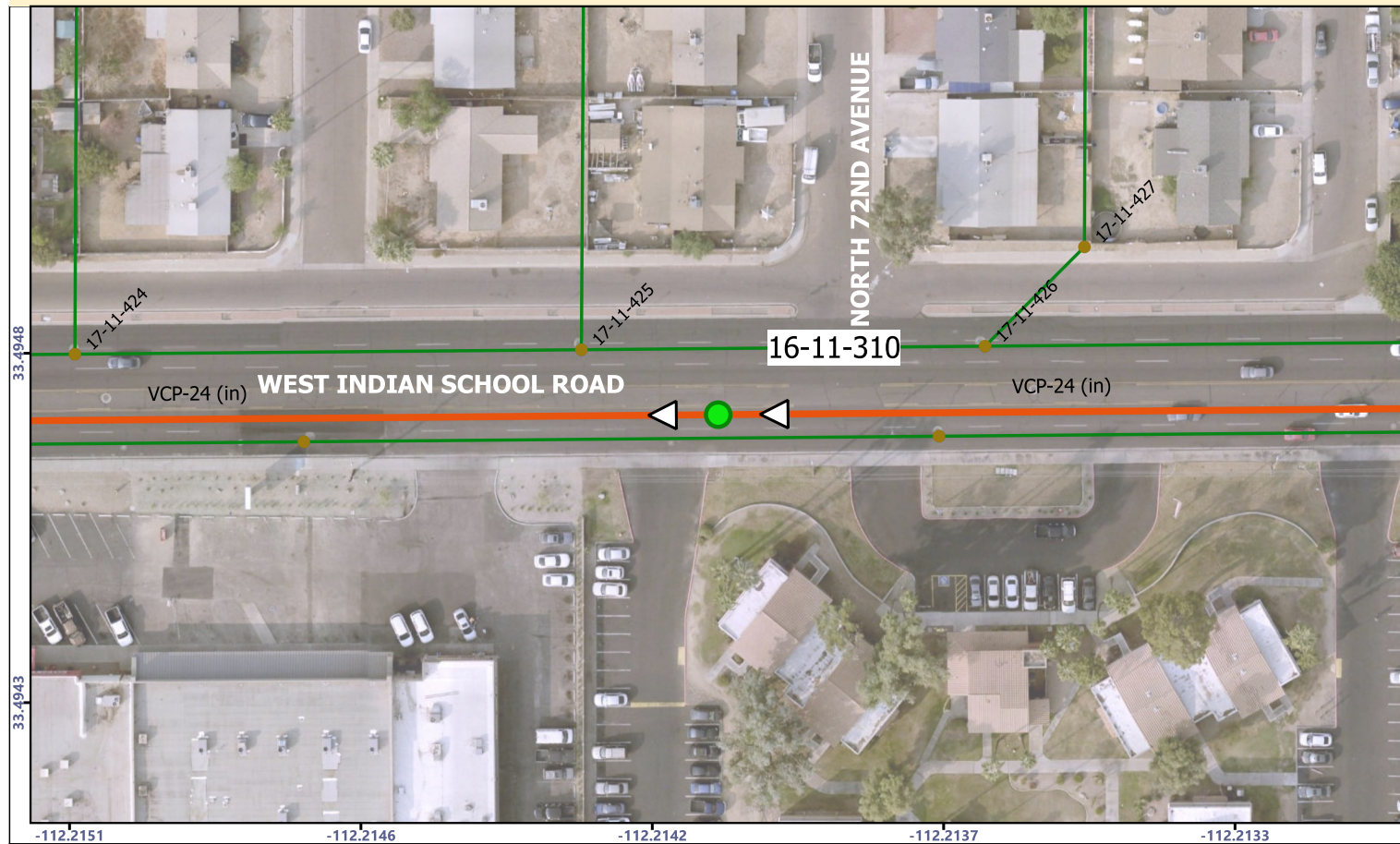
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1249501	LOCATION ID: 16-11-310	CROSS STREET: INDIAN SCHOOL RD & 72ND AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 11.4 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-11
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

**ASSESSMENT NOTES:**

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**AS BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED CIVIL ENGINEER:	
REGISTRATION NUMBER:	
DATE:	

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1			
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	7.9			
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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	<p>PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901</p>		SCALE OF MAP: 1:100	MANHOLE: 21 / 50	SHEET NUMBER: 28 OF 63
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MANHOLE 16-11-310  
WS90500273

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

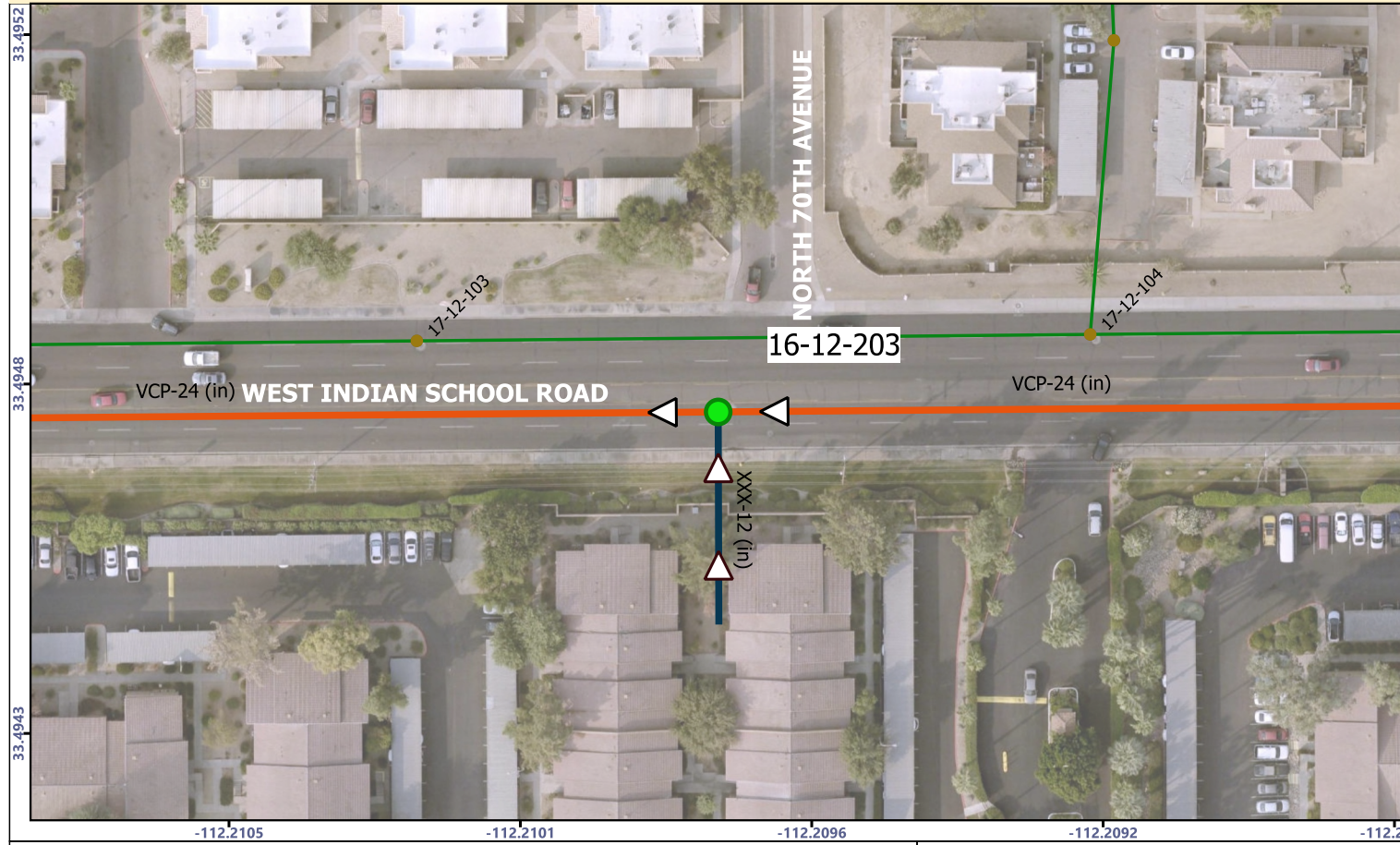
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1255619	LOCATION ID: 16-12-203	CROSS STREET: INDIAN SCHOOL RD & 70TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 12.4 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-12
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1			
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	8.9			
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 22 / 50	SHEET NUMBER: 29 OF 63
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MANHOLE 16-12-203  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1255615	LOCATION ID: 16-12-302	CROSS STREET: INDIAN SCHOOL RD & 67TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 12 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-12
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 5	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:
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<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1			
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5	1			
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	7.8			
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901	Know what's below. Call before you dig.	SCALE OF MAP: 1:100	MANHOLE: 23 / 50	SHEET NUMBER: 30 OF 63
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MANHOLE 16-12-302  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4  
 WS90500273

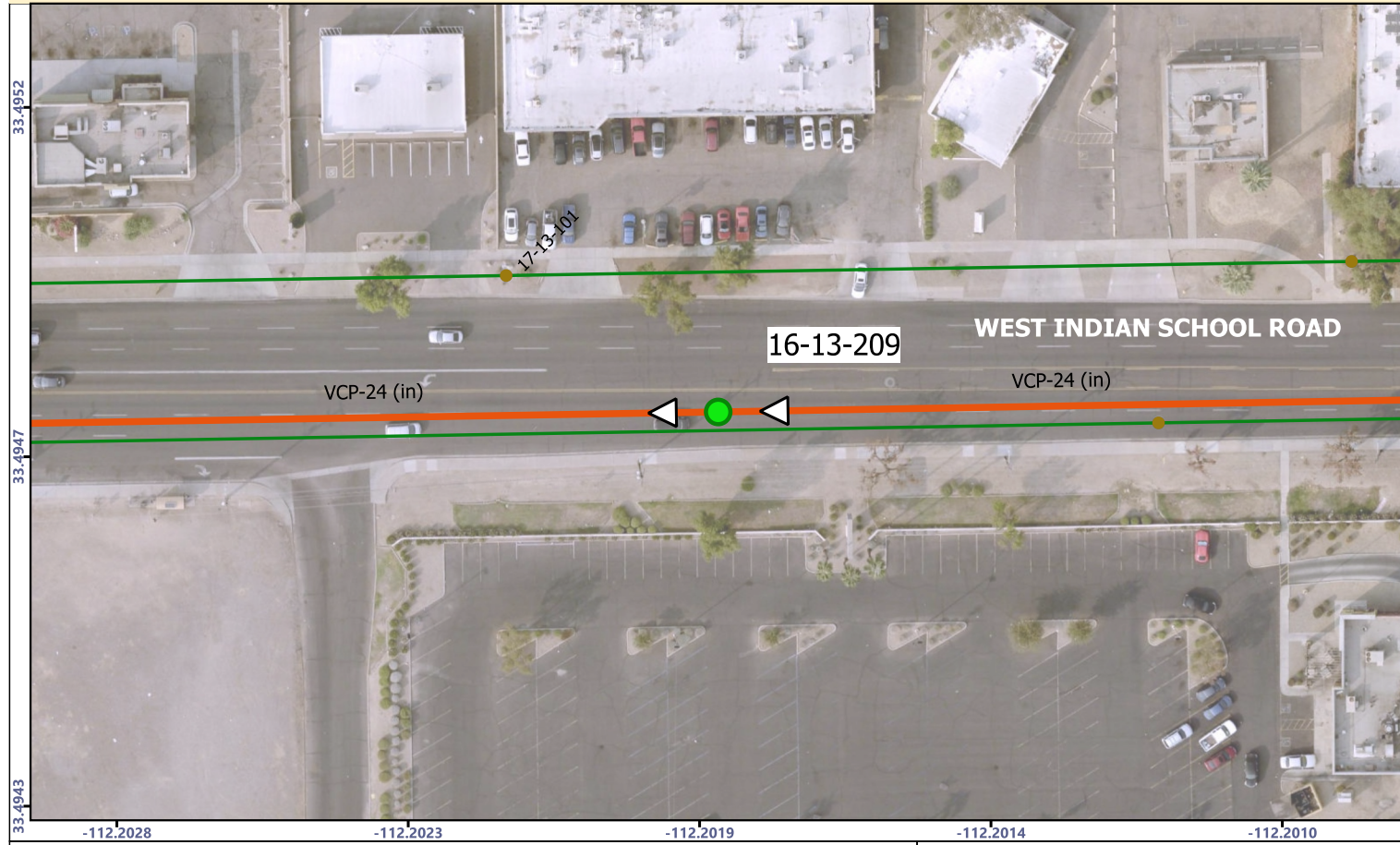
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1250446	LOCATION ID: 16-13-209	CROSS STREET: INDIAN SCHOOL RD & 67TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 12.1 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-13
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

"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"  
THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER	
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1					
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	158				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3					
		REPAIR & COAT 60 IN DIAMETER	EA	4	1				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5					
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6					
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7					
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8					
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9					
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10					
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _		

**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901	Know what's below. Call before you dig.	SCALE OF MAP: 1:100	MANHOLE: 24 / 50	SHEET NUMBER: 31 OF 63
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MANHOLE 16-13-209  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

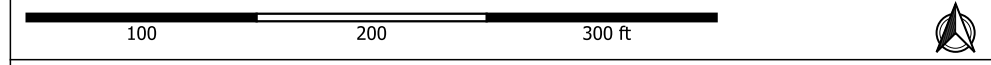
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1175270	LOCATION ID: 16-14-224	CROSS STREET: INDIAN SCHOOL RD & 61ST DR	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: SIDEWALK
DEPTH RIM TO INVERT: 12.3 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-14
COLLAR PRESENT: NO GROUND TYPE: GRAVEL	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

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**AS BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED CIVIL ENGINEER:
REGISTRATION NUMBER:
DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

"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"  
THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER	
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2					
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3					
		REPAIR & COAT 60 IN DIAMETER	EA	4	1				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5					
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6					
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7					
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8					
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	9.1				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10					
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _		

**NOTES**

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	PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 25 / 50	SHEET NUMBER: 32 OF 63
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MANHOLE 16-14-224  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4  
 WS90500273



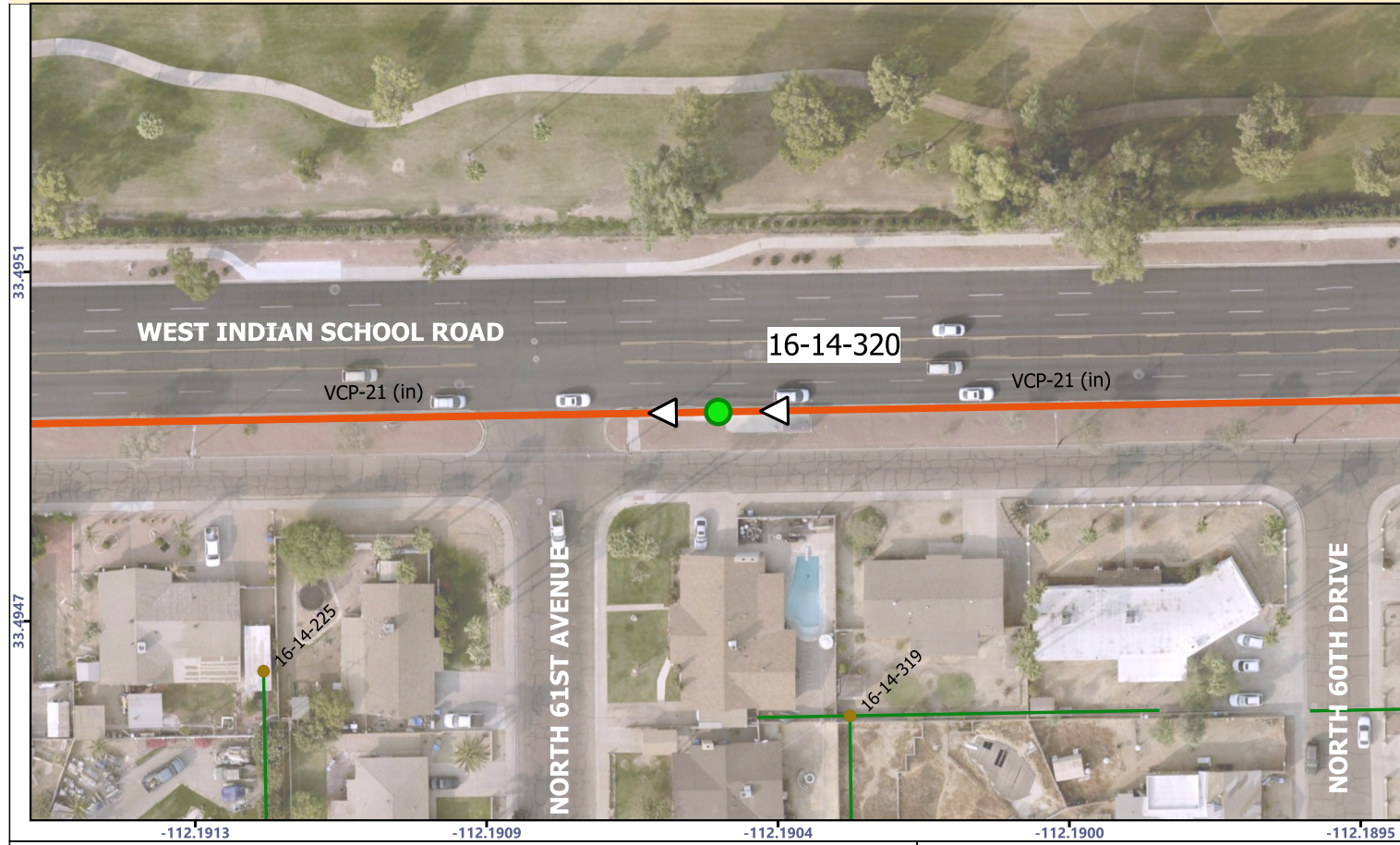
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1175269	LOCATION ID: 16-14-320	CROSS STREET: INDIAN SCHOOL RD & 61ST AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: SIDEWALK
DEPTH RIM TO INVERT: 11.9 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-14
COLLAR PRESENT: NO GROUND TYPE: CONCRETE	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

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	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER	
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2					
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3					
		REPAIR & COAT 60 IN DIAMETER	EA	4	1				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5					
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6					
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7					
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8					
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	8.7				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10					
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _		

**NOTES**

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	PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 26 / 50	SHEET NUMBER: 33 OF 63
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MANHOLE 16-14-320  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4  
 WS90500273

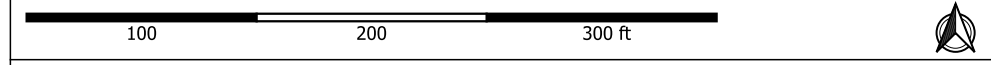
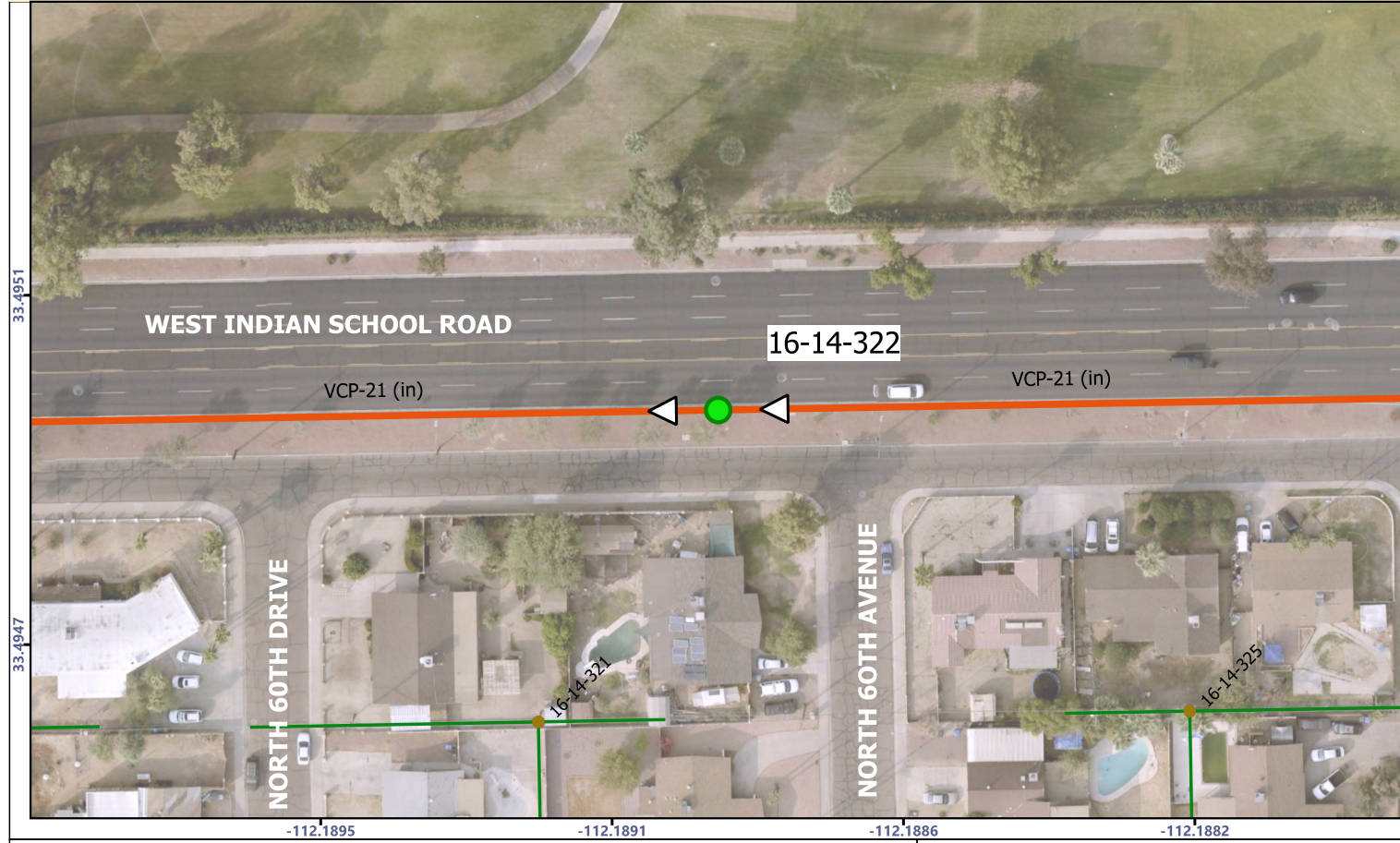
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1175268	LOCATION ID: 16-14-322	CROSS STREET: INDIAN SCHOOL RD & 60TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: SIDEWALK
DEPTH RIM TO INVERT: 11.3 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-14
COLLAR PRESENT: NO GROUND TYPE: GRAVEL	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

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**AS BUILT CERTIFICATION**

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REGISTERED CIVIL ENGINEER:
REGISTRATION NUMBER:
DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER	
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2					
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3					
		REPAIR & COAT 60 IN DIAMETER	EA	4	1				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5					
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6					
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7					
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8					
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	8.1				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10					
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _		

**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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	<p>PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901</p>		<p>SCALE OF MAP: 1:100</p>	<p>MANHOLE: 27 / 50</p>	<p>SHEET NUMBER: 34 OF 63</p>
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**MANHOLE 16-14-322**  
**WS90500273**  
**CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER**  
**REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4**

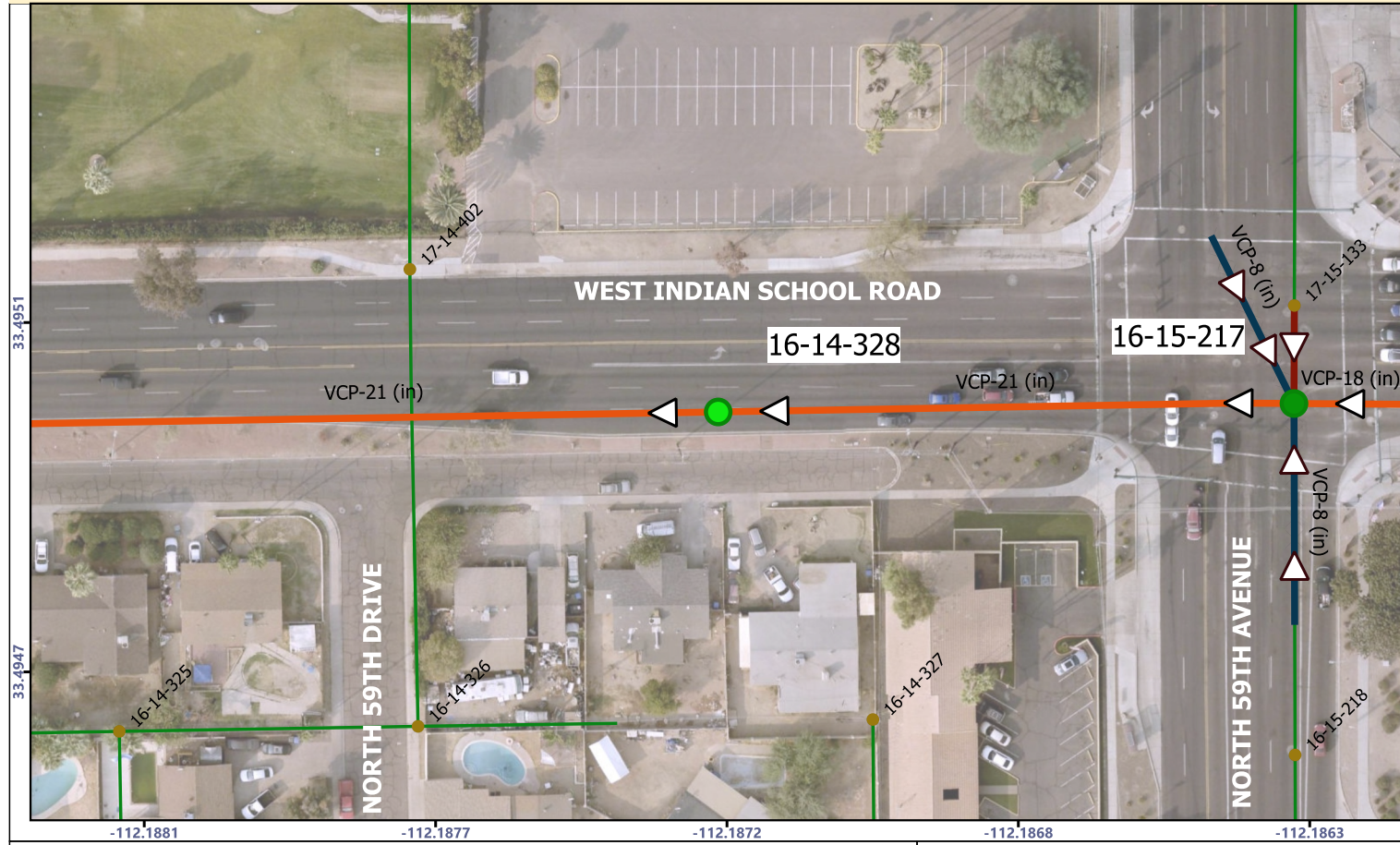
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1175267	LOCATION ID: 16-14-328	CROSS STREET: INDIAN SCHOOL RD & 59TH DR	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 11.3 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-14
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

<b>LEGEND:</b>	
	MANHOLE TO REPAIR
	Pipe Connection on Wall
	Pipe Connection Over Bench
	Pipe Connection At Channel
	Drop Pipe Connections
	Existing Abandoned Sewer Main
	Not in GIS Pipe Connections
	City Sewer Main
	Flow Direction
	City Manholes / Not For Repair

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CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1			
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	7.9			
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901	Know what's below. Call before you dig.	SCALE OF MAP: 1:100	MANHOLE: 28 / 50	SHEET NUMBER: 35 OF 63
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MANHOLE 16-14-328  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

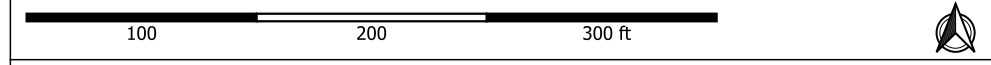
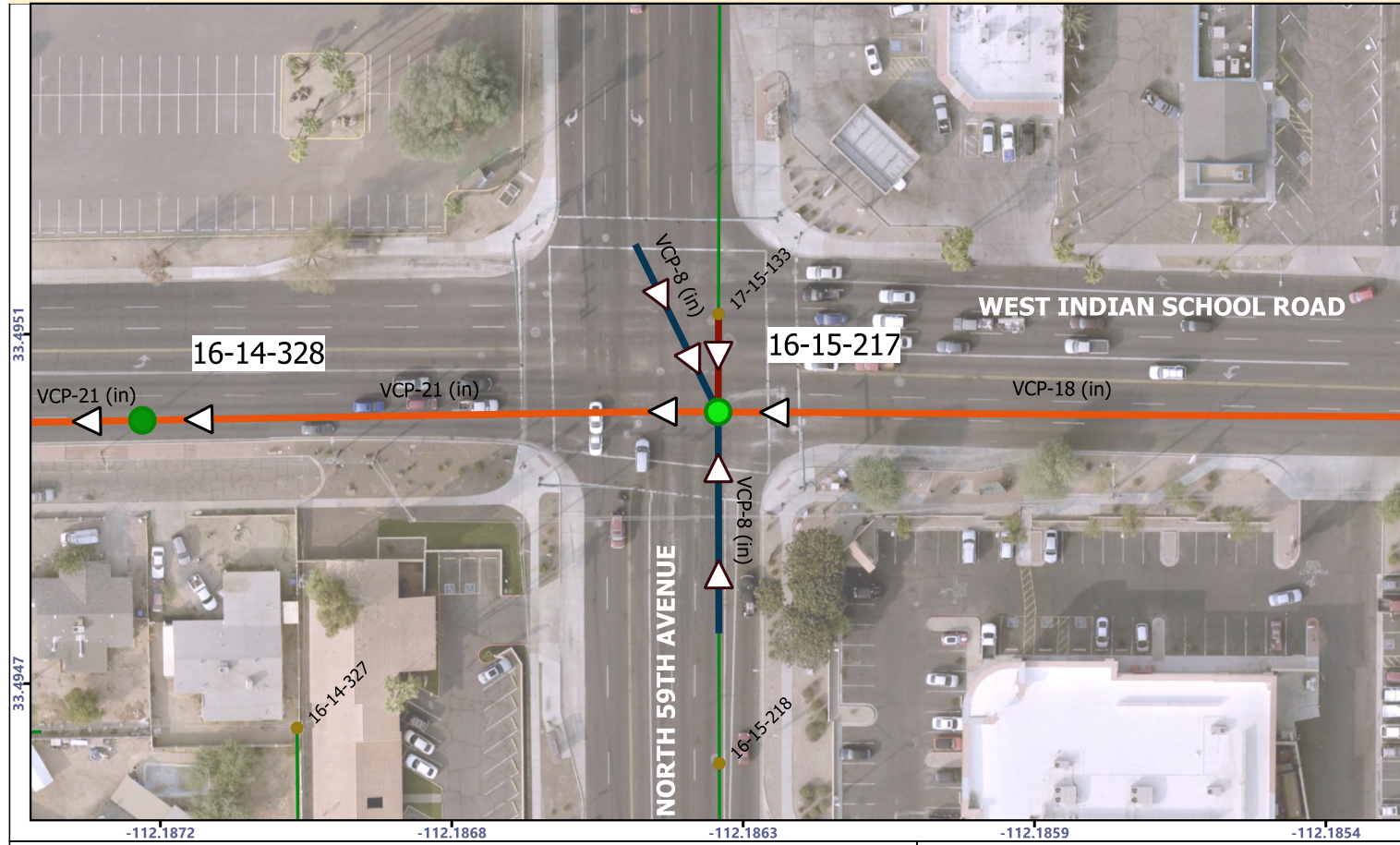
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1246418	LOCATION ID: 16-15-217	CROSS STREET: INDIAN SCHOOL RD & 59TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 11.1 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-15
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 5	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

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**AS BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED CIVIL ENGINEER:
REGISTRATION NUMBER:
DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

"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"  
THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1			
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5	1			
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	8.3			
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _	

**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL.</p> <p>B. REMOVE ALL STEPS BEFORE REHABILITATION WORK.</p> <p>C. BLAST CLEAN MANHOLE BEFORE REHABILITATION.</p> <p>D. COAT THE CHANNEL IF IT IS CONCRETE.</p> <p>E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING.</p> <p>F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION.</p> <p>G. USE FLOW THROUGH PLUG IF NECESSARY.</p> <p>H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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<p>PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901</p>	<p>Know what's below. Call before you dig.</p>	SCALE OF MAP: 1:100	MANHOLE: 29 / 50	SHEET NUMBER: 36 OF 63
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**MANHOLE 16-15-217**  
**WS90500273**  
**CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER**  
**REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4**

**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1241582	LOCATION ID: 16-15-101	CROSS STREET: 59TH AVE & OSBORN RD	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 8.1 (FT)	BARREL DIAMETER: 48 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-15
COLLAR PRESENT: NO GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: BRICK	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

"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"  
THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3	1			
		REPAIR & COAT 60 IN DIAMETER	EA	4				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5	1			
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 30 / 50	SHEET NUMBER: 37 OF 63
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MANHOLE 16-15-101  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1175065	LOCATION ID: 16-16-211	CROSS STREET: INDIAN SCHOOL RD & MARYVALE PKY	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 11.4 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-16
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	140			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
		JOINT REPAIR	EA	7				
SHEET: D-4 DETAIL: 1 & 3	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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	PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 31 / 50	SHEET NUMBER: 38 OF 63
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MANHOLE 16-16-211  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4  
 WS90500273

**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1175067	LOCATION ID: 16-16-212	CROSS STREET: INDIAN SCHOOL RD & 53RD AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 11.9 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-16
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:
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<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	155			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
		JOINT REPAIR	EA	7				
SHEET: D-4 DETAIL: 1 & 3	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901	Know what's below. Call before you dig.	SCALE OF MAP: 1:100	MANHOLE: 32 / 50	SHEET NUMBER: 39 OF 63
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MANHOLE 16-16-212  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4  
 WS90500273

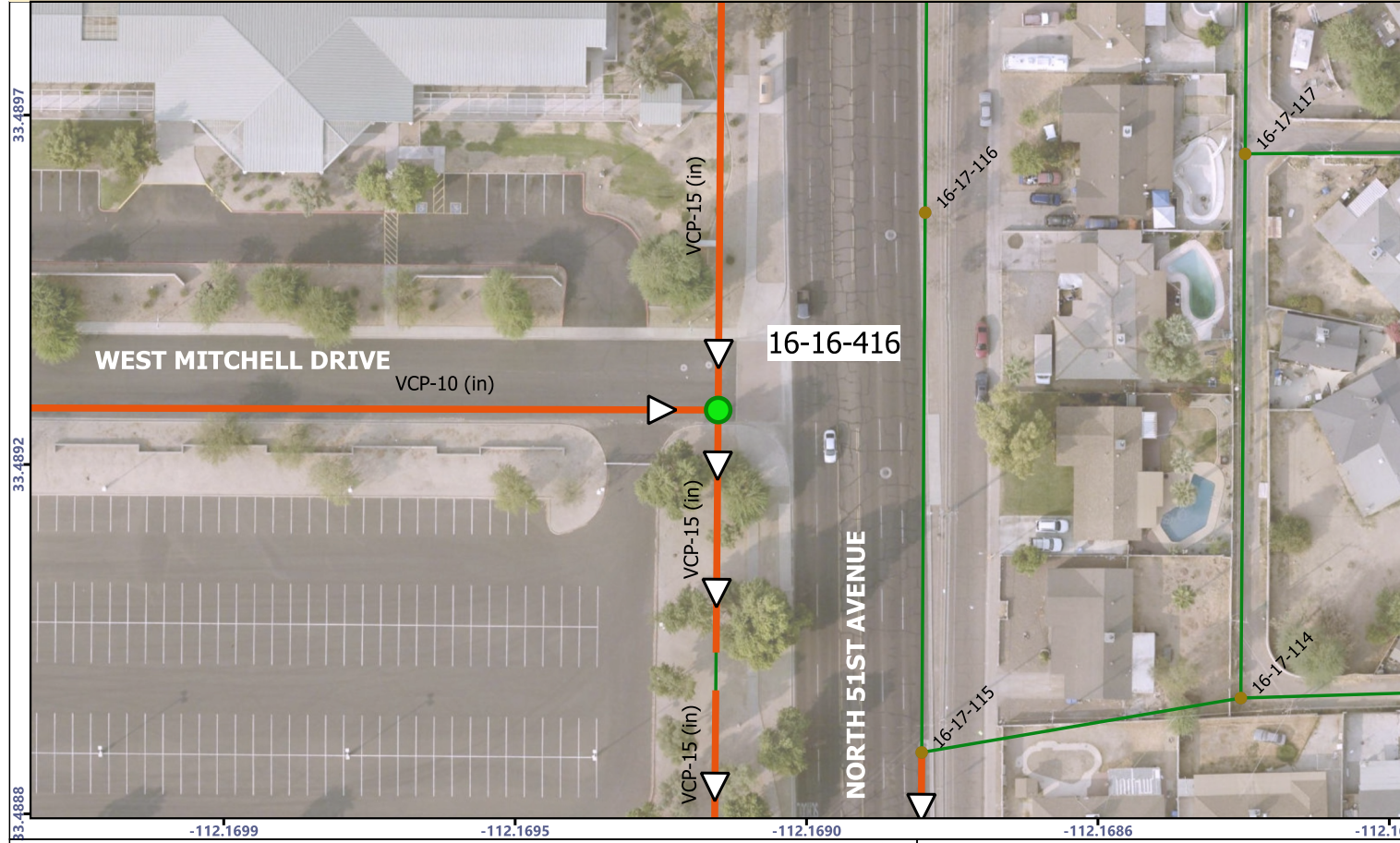
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1175081	LOCATION ID: 16-16-416	CROSS STREET: MITCHELL DR & 51ST AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: SECONDARY ROAD
DEPTH RIM TO INVERT: 9.9 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-16
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER	
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1					
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	129				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3					
		REPAIR & COAT 60 IN DIAMETER	EA	4	1				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5					
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6					
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7					
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8					
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9					
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10					
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _		

**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 33 / 50	SHEET NUMBER: 40 OF 63
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MANHOLE 16-16-416  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4



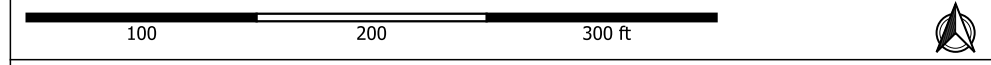
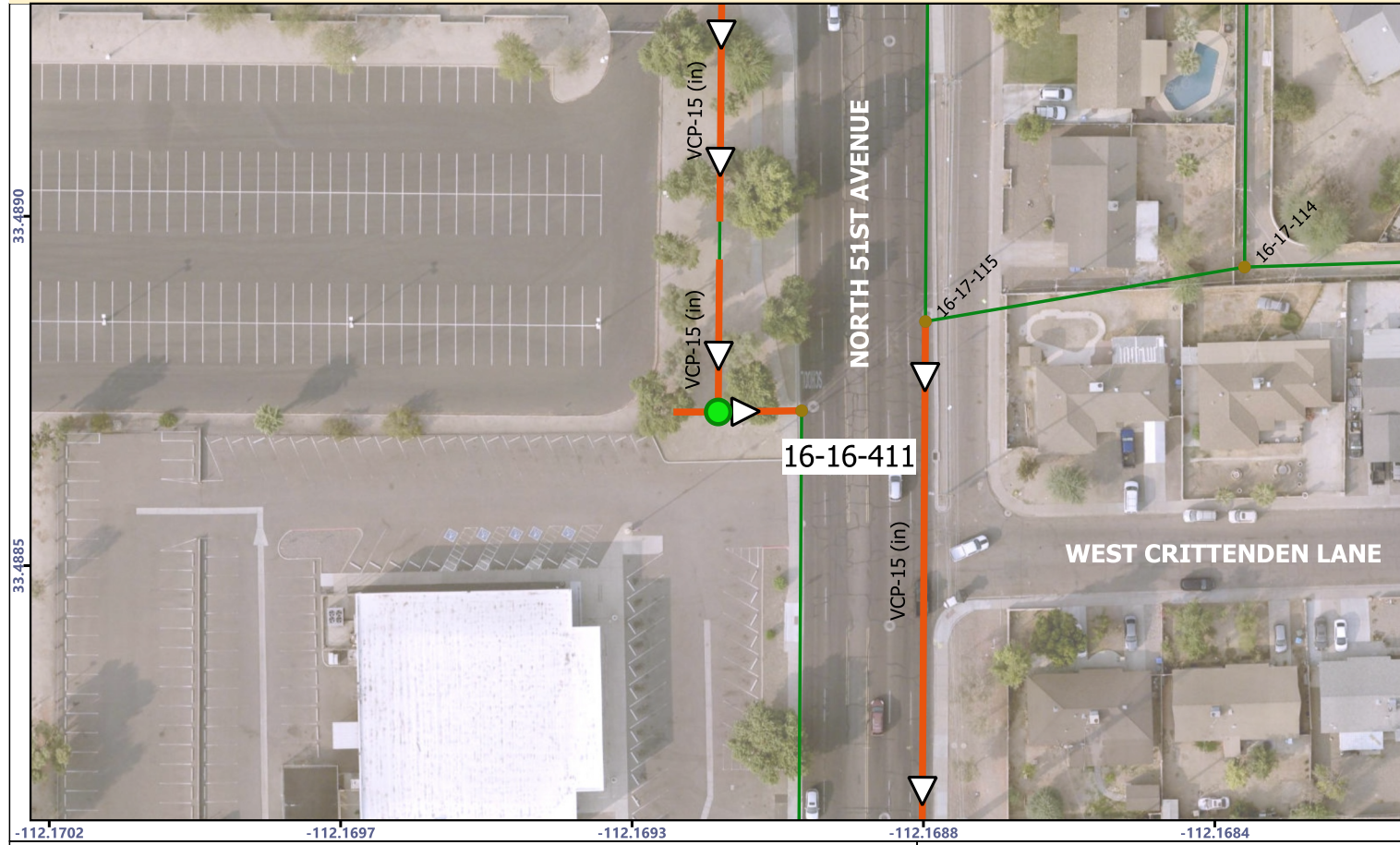
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1233260	LOCATION ID: 16-16-411	CROSS STREET: 51ST AVE & CRITTENDEN LN	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: EASEMENT/ RIGHT OF WAY
DEPTH RIM TO INVERT: 9.4 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-16
COLLAR PRESENT: NO GROUND TYPE: GRASS DIRT	NASSCO MACP STRUCTURAL GRADE: 5	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

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**AS BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED CIVIL ENGINEER:
REGISTRATION NUMBER:
DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER	
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2					
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3					
		REPAIR & COAT 60 IN DIAMETER	EA	4	1				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5	1				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6					
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7					
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8					
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	7.7				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10					
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _		

**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL.</p> <p>B. REMOVE ALL STEPS BEFORE REHABILITATION WORK.</p> <p>C. BLAST CLEAN MANHOLE BEFORE REHABILITATION.</p> <p>D. COAT THE CHANNEL IF IT IS CONCRETE.</p> <p>E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING.</p> <p>F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION.</p> <p>G. USE FLOW THROUGH PLUG IF NECESSARY.</p> <p>H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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<p>PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901</p>	<p>Know what's below. Call before you dig.</p>	SCALE OF MAP: 1:100	MANHOLE: 34 / 50	SHEET NUMBER: 41 OF 63
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MANHOLE 16-16-411  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4  
 WS90500273

**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1202907	LOCATION ID: 16-17-134	CROSS STREET: NORTH 51ST AVENUE & WEST CRITTENDEN LANE	
JURISDICTION: SALT RIVER PROJECT	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 26 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 10.1 (FT)	BARREL DIAMETER: 48 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-17
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: BRICK	NOTES: GRAND CANAL

**MANHOLE LOCATION**



ASSESSMENT NOTES:

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**AS BUILT CERTIFICATION**  
I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED CIVIL ENGINEER:  
REGISTRATION NUMBER:  
DATE:

- LEGEND:**
- MANHOLE TO REPAIR
  - Pipe Connection on Wall
  - Pipe Connection Over Bench
  - Pipe Connection At Channel
  - Drop Pipe Connections
  - Existing Abandoned Sewer Main
  - Not in GIS Pipe Connections
  - City Sewer Main
  - ▤ Flow Direction
  - City Manholes / Not For Repair

"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"  
THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER	
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	7				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3	1				
		REPAIR & COAT 60 IN DIAMETER	EA	4					
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5	1				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6					
		JOINT REPAIR	EA	7					
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8					
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9					
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10					
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _		

**NOTES**

- A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL.
- B. REMOVE ALL STEPS BEFORE REHABILITATION WORK.
- C. BLAST CLEAN MANHOLE BEFORE REHABILITATION.
- D. COAT THE CHANNEL IF IT IS CONCRETE.
- E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING.
- F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION.
- G. USE FLOW THROUGH PLUG IF NECESSARY.
- H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.



<p>PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901</p>	<p>Know what's below. Call before you dig.</p>	SCALE OF MAP: 1:100	MANHOLE: 35 / 50	SHEET NUMBER: 42 OF 63
		<p>DATE: _____</p>		

MANHOLE 16-17-134  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4  
 WS90500273

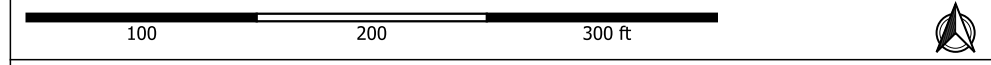
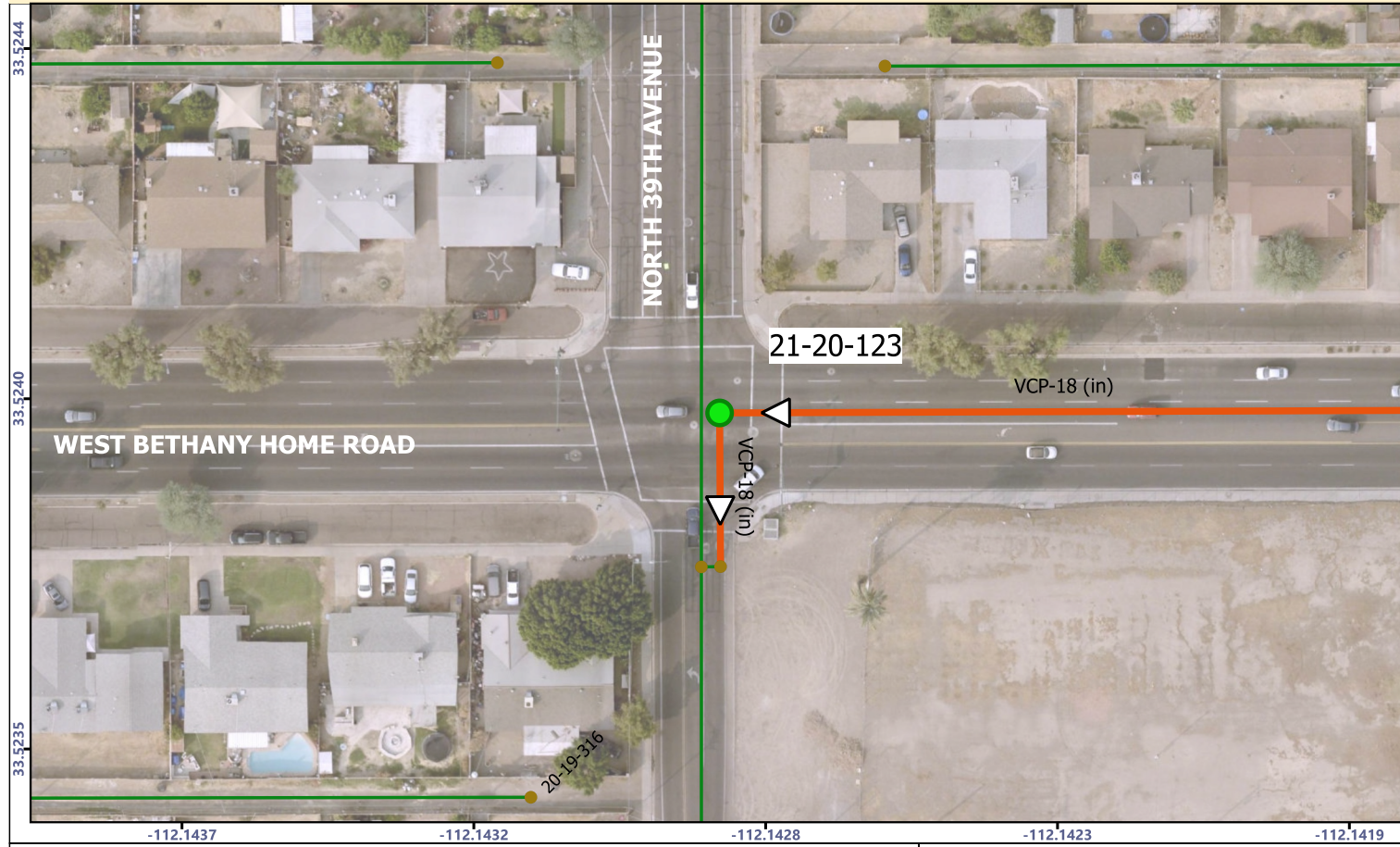
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1229146	LOCATION ID: 21-20-123	CROSS STREET: BETHANY HOME RD & 39TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 19.8 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 21-20
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 5	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

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**AS BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED CIVIL ENGINEER:
REGISTRATION NUMBER:
DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1			
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5	1			
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
		JOINT REPAIR	EA	7				
SHEET: D-4 DETAIL: 1 & 3	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	16.8			
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL.</p> <p>B. REMOVE ALL STEPS BEFORE REHABILITATION WORK.</p> <p>C. BLAST CLEAN MANHOLE BEFORE REHABILITATION.</p> <p>D. COAT THE CHANNEL IF IT IS CONCRETE.</p> <p>E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING.</p> <p>F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION.</p> <p>G. USE FLOW THROUGH PLUG IF NECESSARY.</p> <p>H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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<p>PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901</p>	<p>Know what's below. Call before you dig.</p>	SCALE OF MAP: 1:100	MANHOLE: 36 / 50	SHEET NUMBER: 43 OF 63
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**MANHOLE 21-20-123**  
**WS90500273**  
**CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER**  
**REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4**

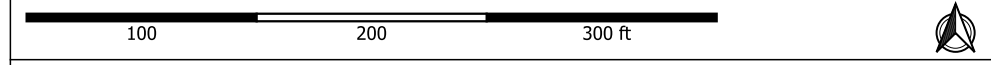
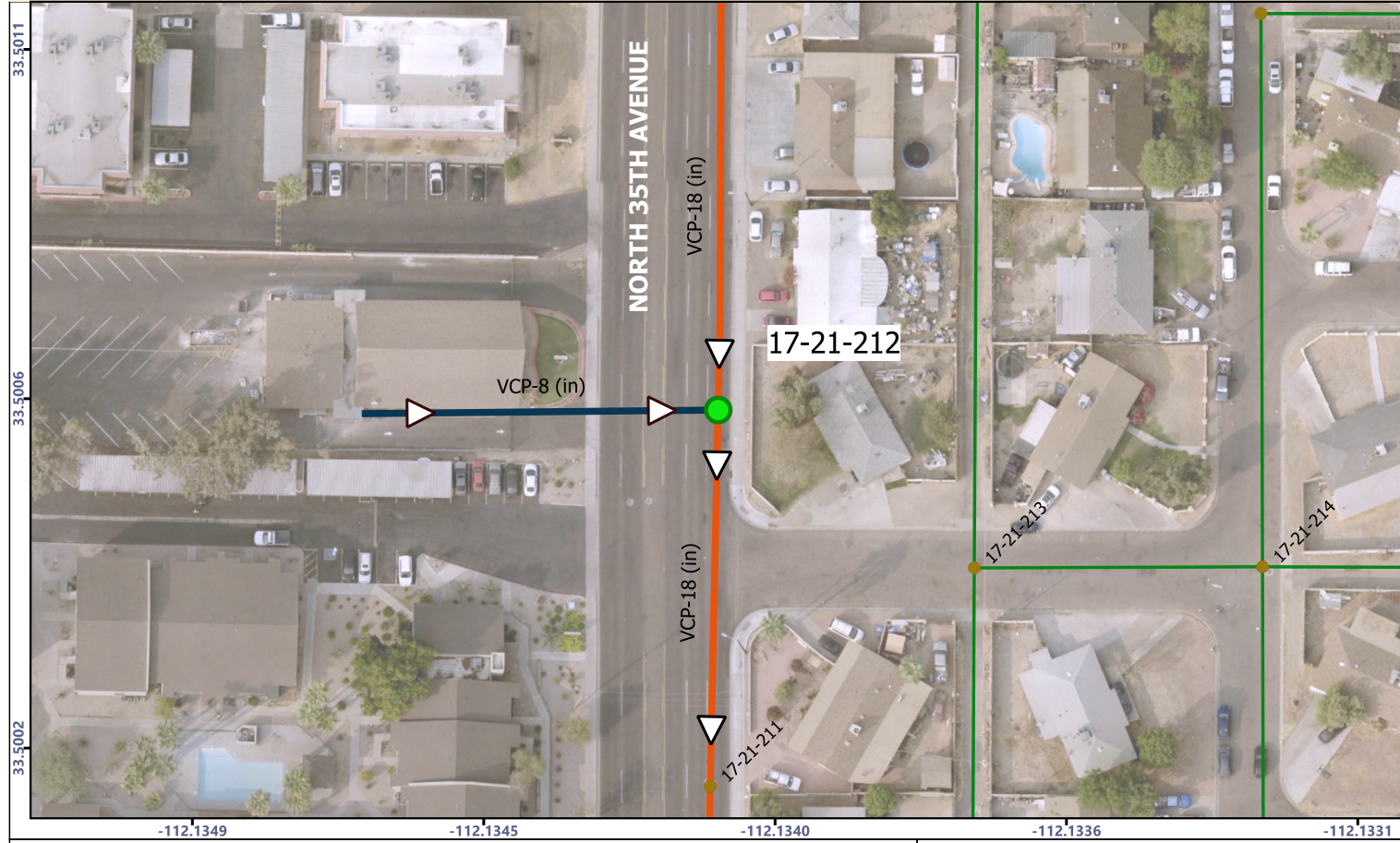
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1246270	LOCATION ID: 17-21-212	CROSS STREET: 35TH AVE & TURNEY AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 26 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 10.3 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 17-21
COLLAR PRESENT: YES GROUND TYPE: OTHER	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: BRICK	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

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**AS BUILT CERTIFICATION**

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REGISTERED CIVIL ENGINEER:
REGISTRATION NUMBER:
DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5	1			
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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<p>PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901</p>	<p>Know what's below. Call before you dig.</p>	SCALE OF MAP: 1:100	MANHOLE: 37 / 50	SHEET NUMBER: 44 OF 63
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**MANHOLE 17-21-212**  
**WS90500273**  
**CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER**  
**REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4**

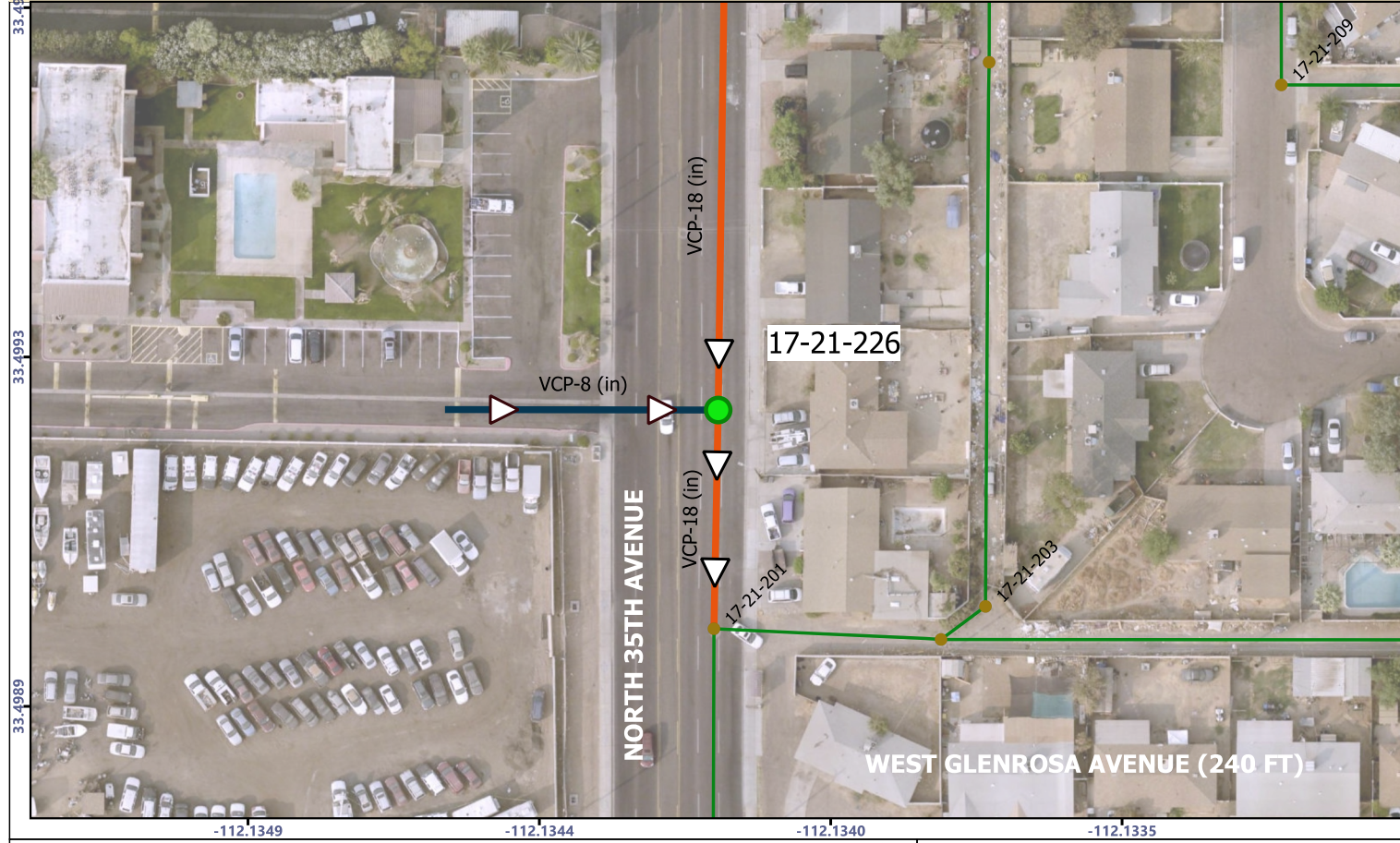
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1246272	LOCATION ID: 17-21-226	CROSS STREET: 35TH AVE & GLENROSA AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 26 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 10.7 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 17-21
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 5	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

**ASSESSMENT NOTES:**

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**AS BUILT CERTIFICATION**

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REGISTERED CIVIL ENGINEER:
REGISTRATION NUMBER:
DATE:

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1			
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	8.2			
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

**NOTES:**

SPARK TEST RESULTS: \_\_\_\_\_

PULL TEST: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

COMPANY: \_\_\_\_\_

DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL.</p> <p>B. REMOVE ALL STEPS BEFORE REHABILITATION WORK.</p> <p>C. BLAST CLEAN MANHOLE BEFORE REHABILITATION.</p> <p>D. COAT THE CHANNEL IF IT IS CONCRETE.</p> <p>E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING.</p> <p>F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION.</p> <p>G. USE FLOW THROUGH PLUG IF NECESSARY.</p> <p>H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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	<p>PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901</p>		<p>SCALE OF MAP: 1:100</p>	<p>MANHOLE: 38 / 50</p>	<p>SHEET NUMBER: 45 OF 63</p>
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**MANHOLE 17-21-226**  
**WS90500273**  
**CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER**  
**REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4**

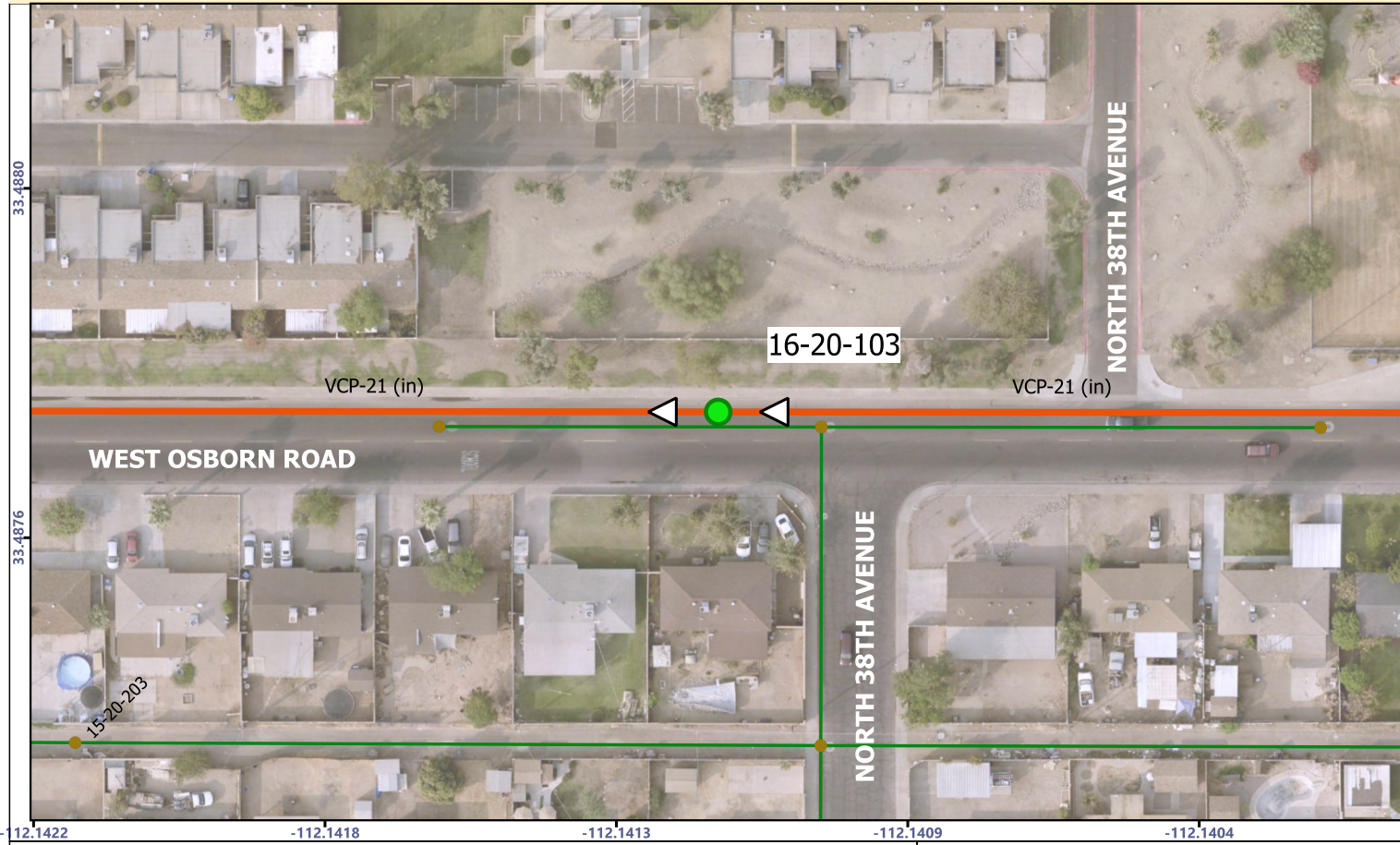
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1175219	LOCATION ID: 16-20-103	CROSS STREET: OSBORN RD & 38TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 24 (IN)	ENVIRONMENT: SECONDARY ROAD
DEPTH RIM TO INVERT: 21.4 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-20
COLLAR PRESENT: NO GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 5	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER	
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2					
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3					
		REPAIR & COAT 60 IN DIAMETER	EA	4	1				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5					
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6					
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7					
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8					
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	19.4				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10					
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _		

**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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	PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 39 / 50	SHEET NUMBER: 46 OF 63
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MANHOLE 16-20-103  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1259198	LOCATION ID: 16-20-106	CROSS STREET: OSBORN RD & 37TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 24 (IN)	ENVIRONMENT: SECONDARY ROAD
DEPTH RIM TO INVERT: 21.4 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-20
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 5	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
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- Existing Abandoned Sewer Main
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CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER	
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2					
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3					
		REPAIR & COAT 60 IN DIAMETER	EA	4	1				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5					
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6					
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7					
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8					
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	18.3				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10					
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _		

**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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	PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 40 / 50	SHEET NUMBER: 47 OF 63
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MANHOLE 16-20-106  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

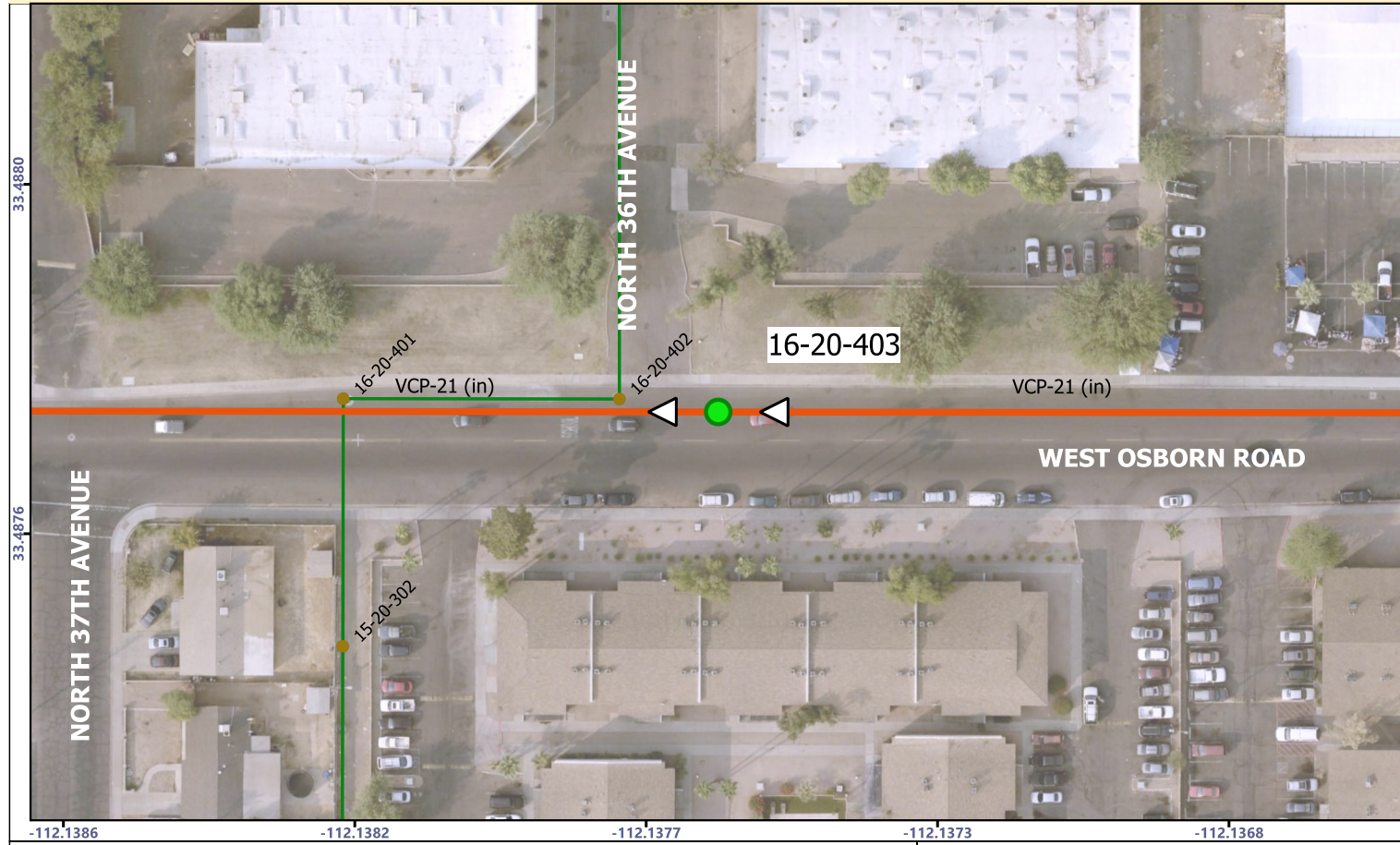
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1175220	LOCATION ID: 16-20-403	CROSS STREET: OSBORN RD & 37TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: SECONDARY ROAD
DEPTH RIM TO INVERT: 21.8 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-20
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 5	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

"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"  
THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1			
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
		JOINT REPAIR	EA	7				
SHEET: D-4 DETAIL: 1 & 3	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	19.4			
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 41 / 50	SHEET NUMBER: 48 OF 63
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MANHOLE 16-20-403  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4



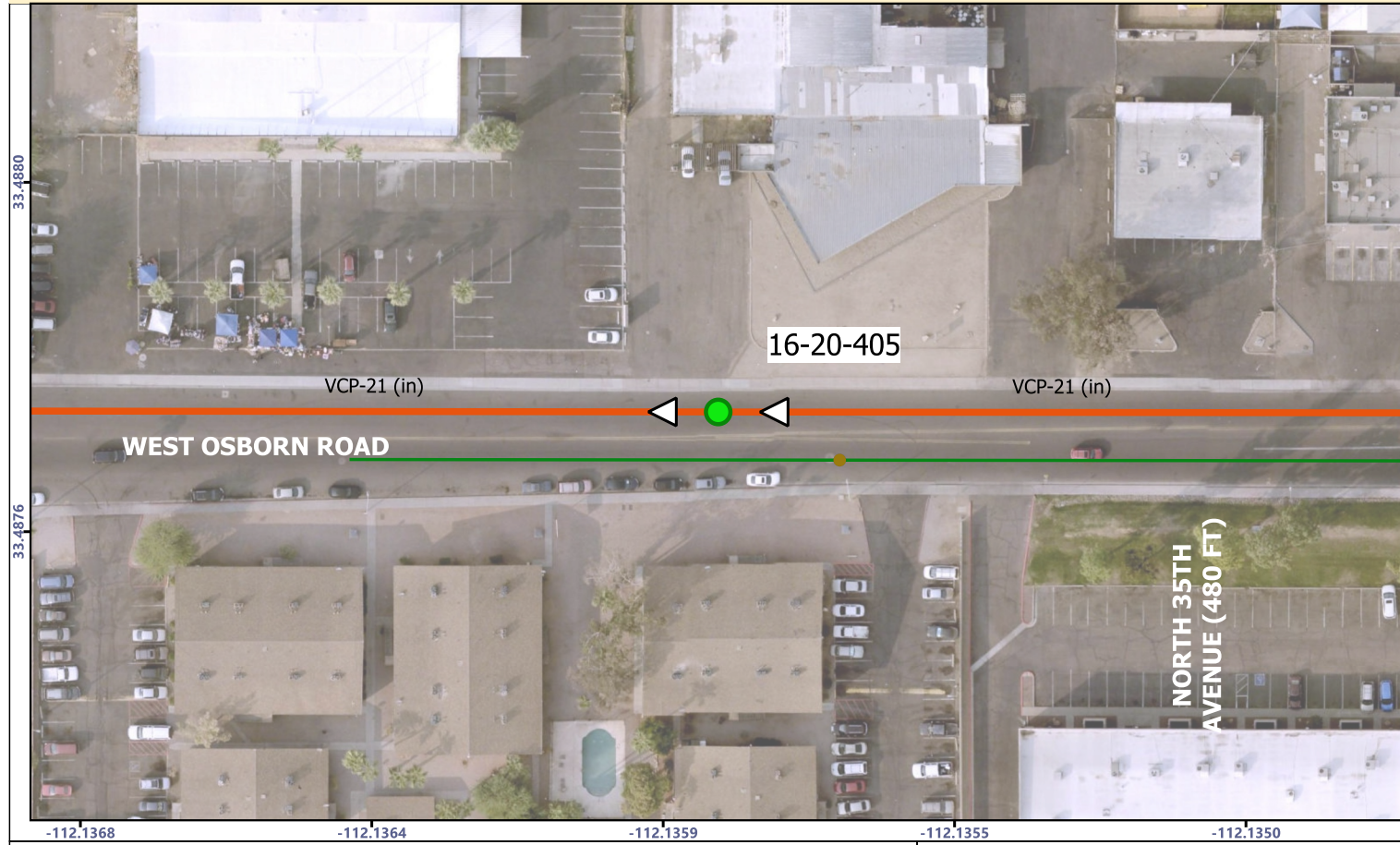
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1251855	LOCATION ID: 16-20-405	CROSS STREET: OSBORN RD & 35TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: SECONDARY ROAD
DEPTH RIM TO INVERT: 22.1 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-20
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 5	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:
<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

"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"  
THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER	
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2					
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3					
		REPAIR & COAT 60 IN DIAMETER	EA	4	1				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5					
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6					
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7					
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8					
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	20.1				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10					
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _		

**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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	PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 42 / 50	SHEET NUMBER: 49 OF 63
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MANHOLE 16-20-405  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

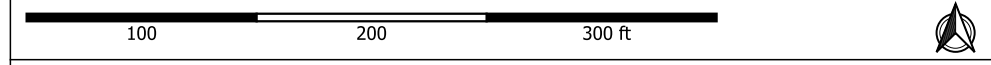
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1244254	LOCATION ID: 16-21-117	CROSS STREET: WELDON AVE & 35TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 15.3 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: EPOXY	QUARTER SECTION: 16-21
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

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**AS BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED CIVIL ENGINEER:	
REGISTRATION NUMBER:	
DATE:	

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	5			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
		JOINT REPAIR	EA	7				
SHEET: D-4 DETAIL: 1 & 3	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _	

**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL.</p> <p>B. REMOVE ALL STEPS BEFORE REHABILITATION WORK.</p> <p>C. BLAST CLEAN MANHOLE BEFORE REHABILITATION.</p> <p>D. COAT THE CHANNEL IF IT IS CONCRETE.</p> <p>E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING.</p> <p>F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION.</p> <p>G. USE FLOW THROUGH PLUG IF NECESSARY.</p> <p>H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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<p>PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901</p>		SCALE OF MAP: 1:100	MANHOLE: 43 / 50	SHEET NUMBER: 50 OF 63
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**MANHOLE 16-21-117**  
**WS90500273**  
**CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER**  
**REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4**

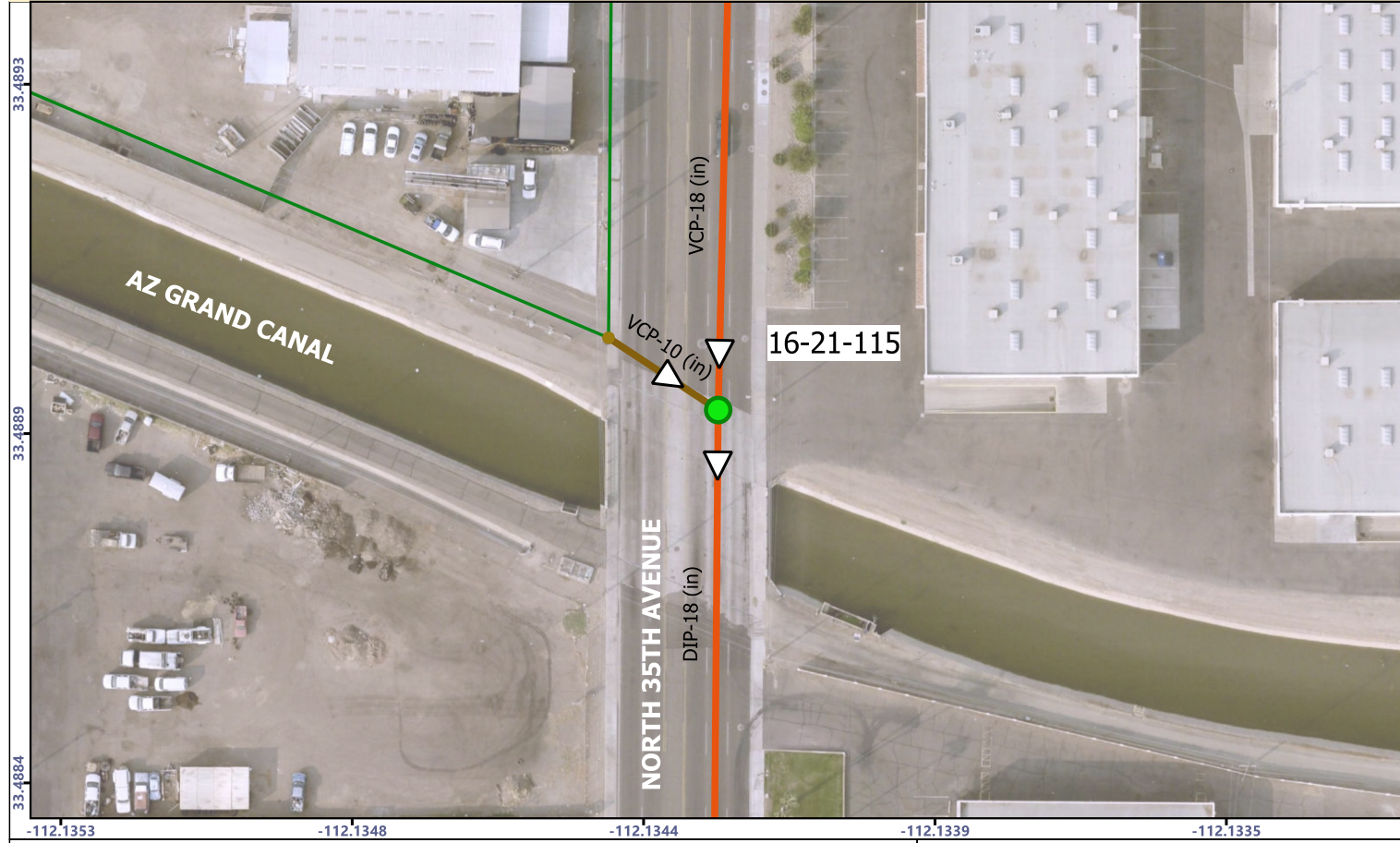
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1244252	LOCATION ID: 16-21-115	CROSS STREET: 35TH AVE & WHITTON AVE	
JURISDICTION: SALT RIVER PROJECT POWER AND WATER	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 17.8 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: EPOXY	QUARTER SECTION: 16-21
COLLAR PRESENT: NO GROUND TYPE: CONCRETE	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: CONCRETE	NOTES: GRAND CANAL

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	22			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901	Know what's below. Call before you dig.	SCALE OF MAP: 1:100	MANHOLE: 44 / 50	SHEET NUMBER: 51 OF 63
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MANHOLE 16-21-115  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

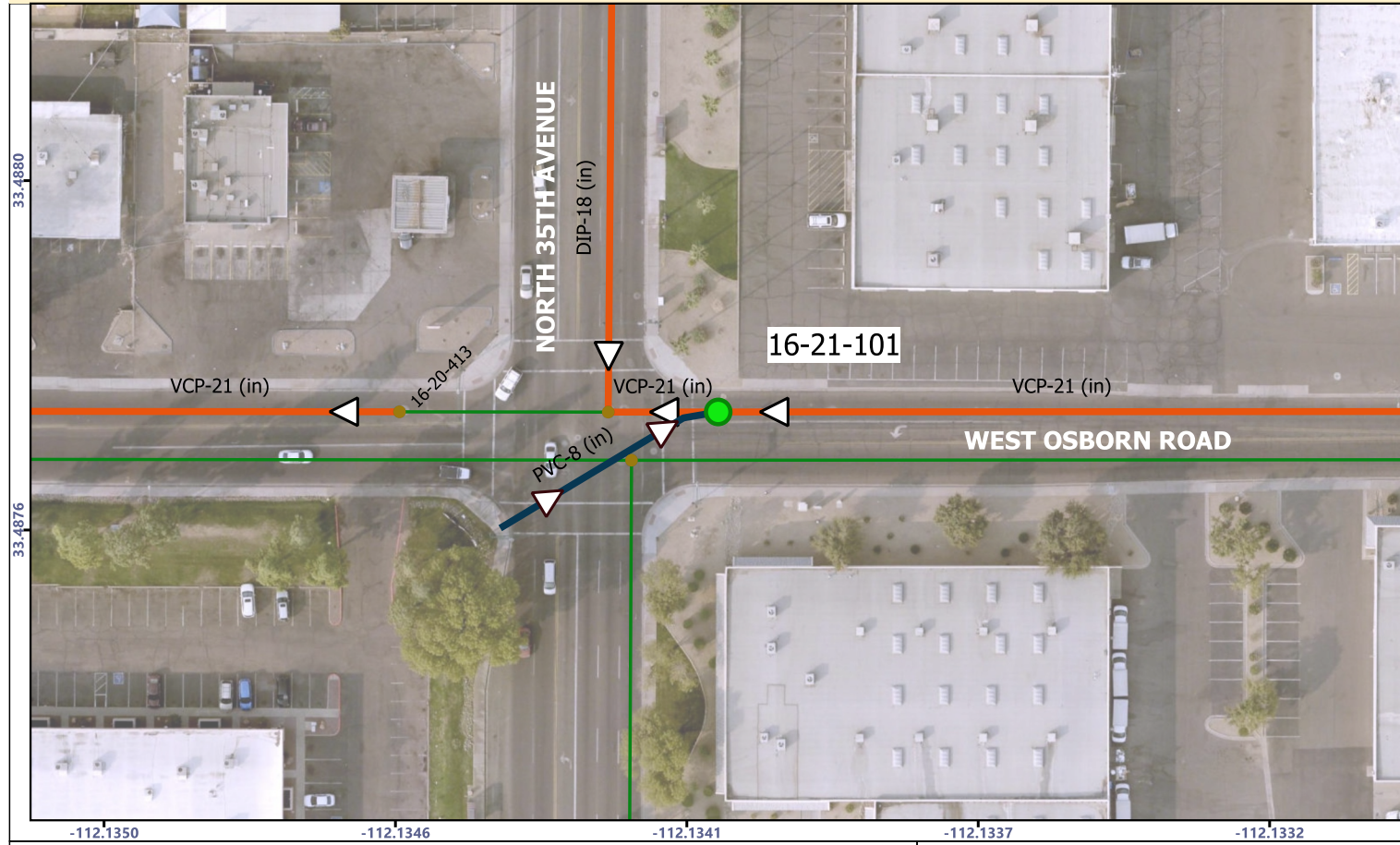
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1251881	LOCATION ID: 16-21-101	CROSS STREET: OSBORN RD & 35TH AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 22 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-21
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 5	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:
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<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
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- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1			
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5	1			
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	19.3			
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901	Know what's below. Call before you dig.	SCALE OF MAP: 1:100	MANHOLE: 45 / 50	SHEET NUMBER: 52 OF 63
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MANHOLE 16-21-101  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

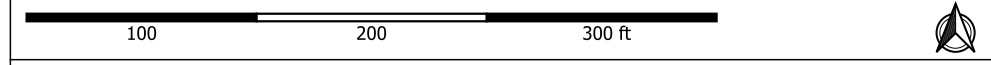
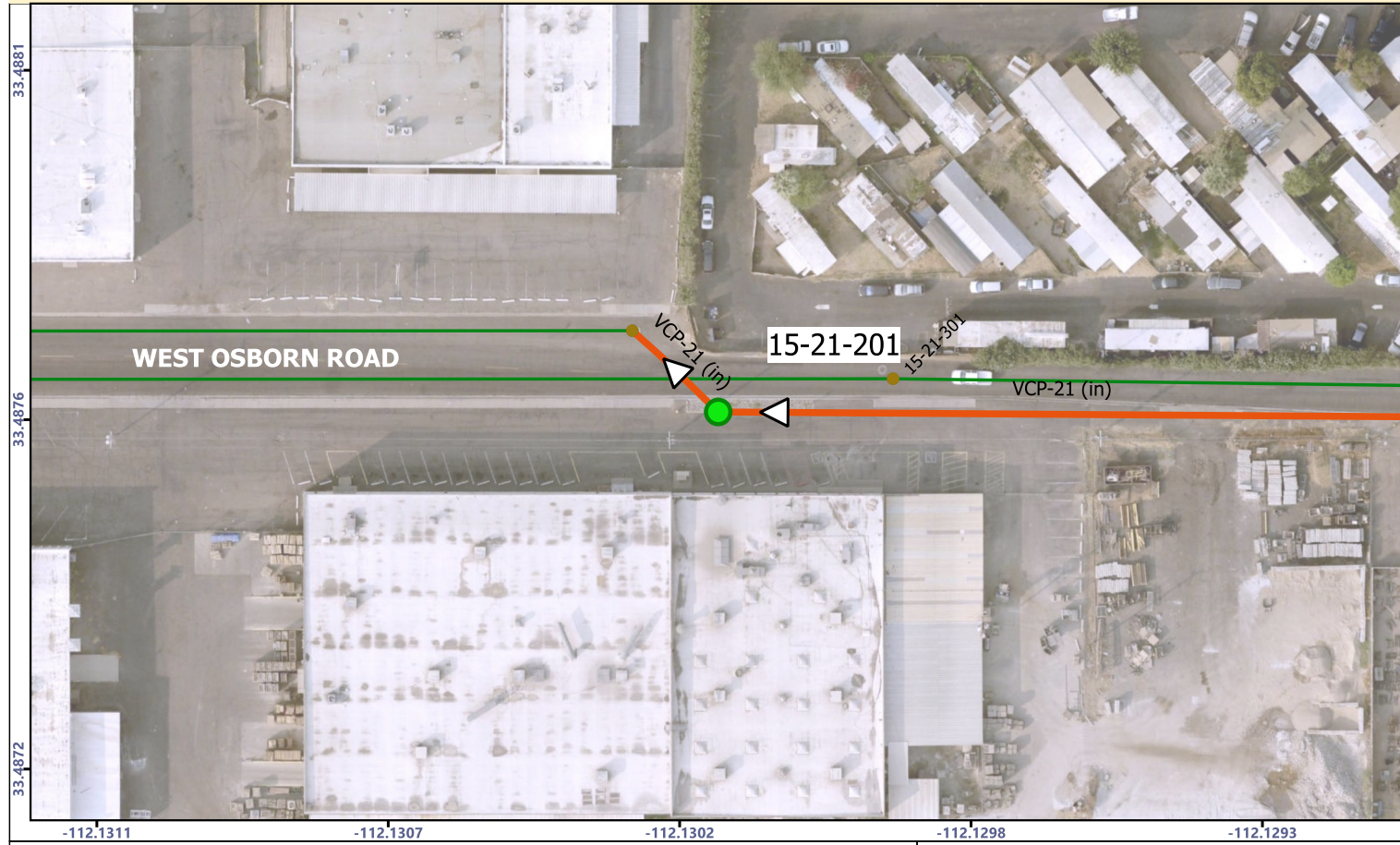
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1251840	LOCATION ID: 15-21-201	CROSS STREET: OSBORN RD & 33RD AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: EASEMENT/ RIGHT OF WAY
DEPTH RIM TO INVERT: 19.3 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 15-21
COLLAR PRESENT: NO GROUND TYPE: GRASS DIRT	NASSCO MACP STRUCTURAL GRADE: 5	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

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**AS BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED CIVIL ENGINEER:	
REGISTRATION NUMBER:	
DATE:	

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

"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"  
THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER	
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2					
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3					
		REPAIR & COAT 60 IN DIAMETER	EA	4	1				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5	1				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6					
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7					
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8					
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9	16.2				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10					
NOTES: SPARK TEST RESULTS: PULL TEST:				APPROVED BY: PRINTED NAME: _____ COMPANY: _____			DATE: _ / _ / _		

**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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	<p>PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901</p>		SCALE OF MAP: 1:100	MANHOLE: 46 / 50	SHEET NUMBER: 53 OF 63
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**MANHOLE 15-21-201**  
**WS90500273**  
**CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER**  
**REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4**

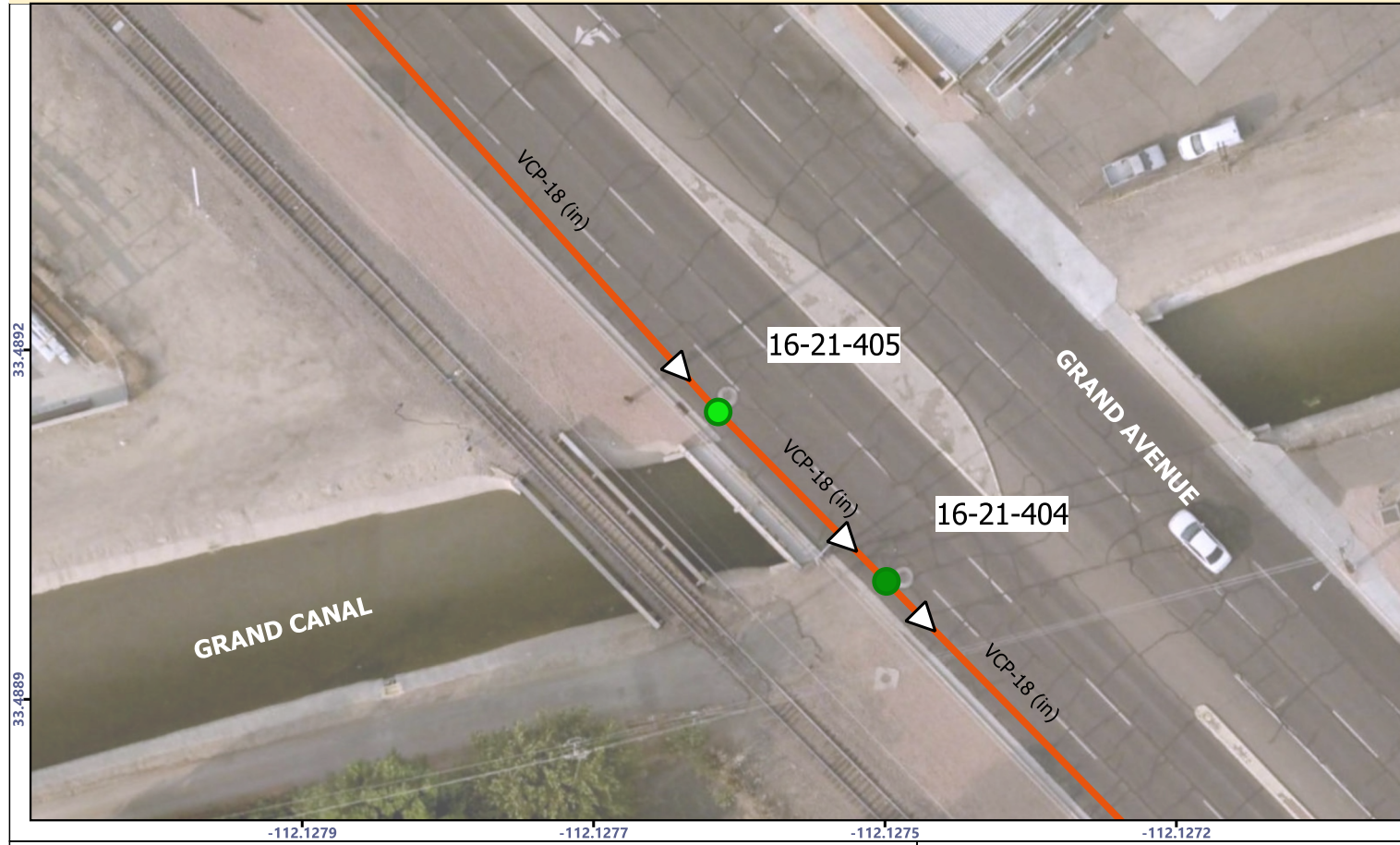
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1251877	LOCATION ID: 16-21-405	CROSS STREET: GRAND AVE & 32ND AVE	
JURISDICTION: ARIZONA DEPARTMENT OF TRANSPORTATION	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 26 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 16.5 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-21
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: BRICK	NOTES: GRAND CANAL

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

"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"  
THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1			
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2				
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9	14.8			
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901	Know what's below. Call before you dig.	SCALE OF MAP: 1:50	MANHOLE: 47 / 50	SHEET NUMBER: 54 OF 63
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MANHOLE 16-21-405  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

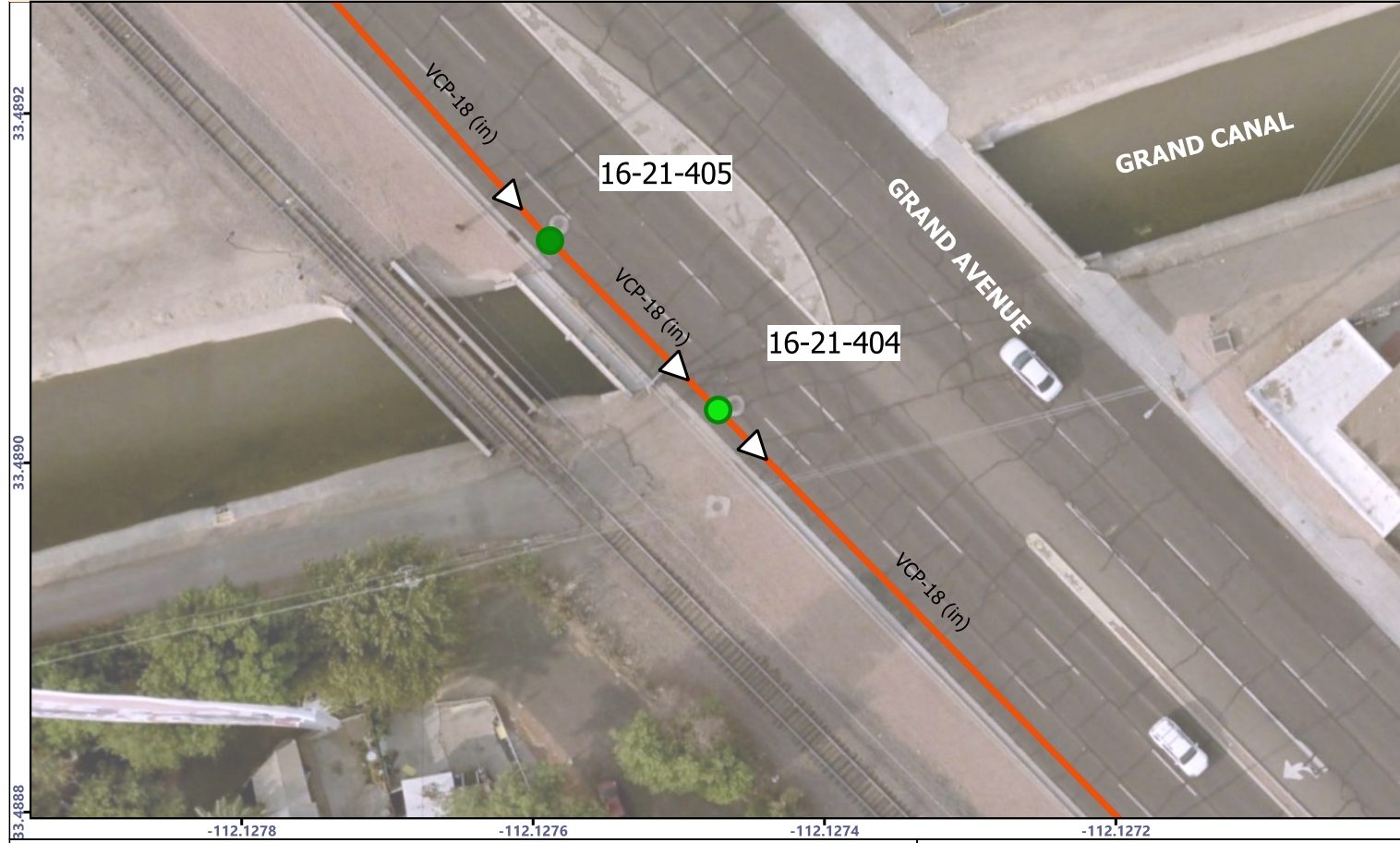
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1251878	LOCATION ID: 16-21-404	CROSS STREET: GRAND AVE & 32ND AVE	
JURISDICTION: ARIZONA DEPARTMENT OF TRANSPORTATION	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 16.3 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 16-21
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 4	EXISTING WALL MATERIAL: BRICK	NOTES: GRAND CANAL

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	20			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4				
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.		
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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:50	MANHOLE: 48 / 50	SHEET NUMBER: 55 OF 63
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MANHOLE 16-21-404  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1251841	LOCATION ID: 15-21-304	CROSS STREET: OSBORN RD & GRAND AVE	
JURISDICTION: CITY OF PHOENIX	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 32 (IN)	ENVIRONMENT: SECONDARY ROAD
DEPTH RIM TO INVERT: 19.1 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 15-21
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 5	EXISTING WALL MATERIAL: CONCRETE	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

<b>AS BUILT CERTIFICATION</b> I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	REGISTERED CIVIL ENGINEER:
	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- △ Flow Direction
- City Manholes / Not For Repair

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**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1	1			
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	250			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5				
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 1		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

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PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:100	MANHOLE: 49 / 50	SHEET NUMBER: 56 OF 63
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MANHOLE 15-21-304  
 WS90500273  
 CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
 REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4



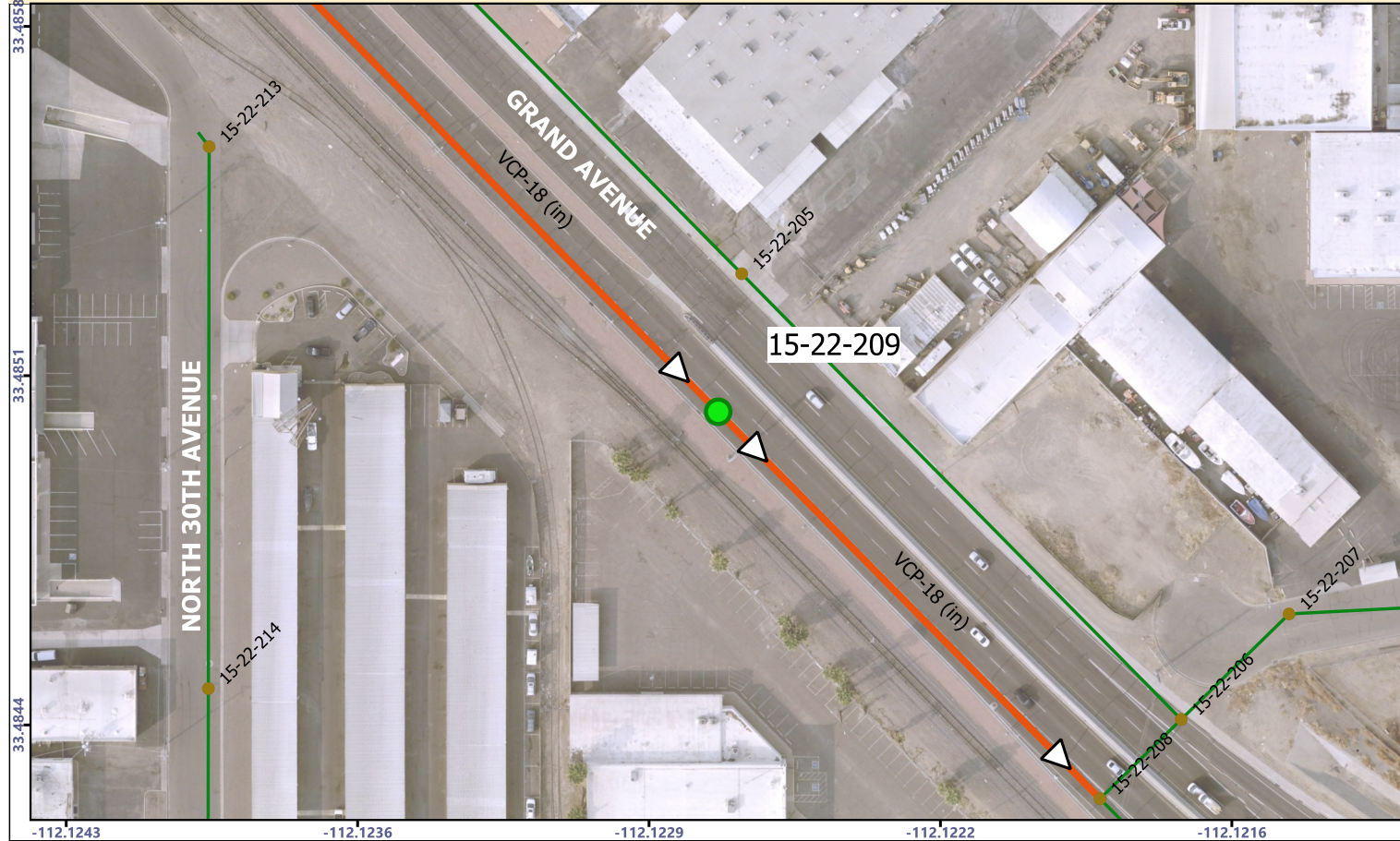
**PROJECT INFORMATION**

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4	PROJECT NUMBER: WS90500273
	CITY PROJECT MANAGER: SAUL DURAN

**MANHOLE INFORMATION**

WAM ID : I-1246020	LOCATION ID: 15-22-209	CROSS STREET: GRAND AVE & 30TH AVE	
JURISDICTION: ARIZONA DEPARTMENT OF TRANSPORTATION	FRAME/COVER MATERIAL: CAST IRON	COVER DIAMETER: 26 (IN)	ENVIRONMENT: MAJOR ARTERIAL ROAD
DEPTH RIM TO INVERT: 11.5 (FT)	BARREL DIAMETER: 60 (IN)	CORROSION PROTECTION: NOT COATED	QUARTER SECTION: 15-22
COLLAR PRESENT: YES GROUND TYPE: ASPHALT	NASSCO MACP STRUCTURAL GRADE: 5	EXISTING WALL MATERIAL: BRICK	NOTES:

**MANHOLE LOCATION**



ASSESSMENT NOTES:

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	REGISTRATION NUMBER:
	DATE:

**LEGEND:**

- MANHOLE TO REPAIR
- Pipe Connection on Wall
- Pipe Connection Over Bench
- Pipe Connection At Channel
- Drop Pipe Connections
- Existing Abandoned Sewer Main
- Not in GIS Pipe Connections
- City Sewer Main
- ▷ Flow Direction
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THIS DOCUMENT MUST BE KEPT SECURE AT ALL TIMES

**REHABILITATION DESIGN AND QUANTITIES**

CONSTRUCTION DETAILS	COMPONENT	REHABILITATION	UNITS	BID ITEM NO.	BID QUANTITY	AS BUILT QUANTITY	APPROVED MATERIAL	MANUFACTURER
MAG 422 MAG 423 COP P1424	COLLAR, FRAME & COVER	REPLACE COLLAR, FRAME & COVER	EA	1				
SHEET: D-3 DETAIL: 1 & 2	CHIMNEY, CONE & BARREL	DEFECT REPAIR COATING	SF	2	11			
SHEET: D-4 DETAIL: 1	BENCH	REPAIR & COAT 48 IN DIAMETER	EA	3				
		REPAIR & COAT 60 IN DIAMETER	EA	4	1			
SHEET: D-1 DETAIL: 1 - 5	CHANNEL	REPAIR (SEE NOTE D)	EA	5	1			
SHEET: D-4-6 DETAIL: ALL	PVC LINER	DEFECT REPAIR PATCHING	SF	6				
SHEET: D-4 DETAIL: 1 & 3		JOINT REPAIR	EA	7				
SHEET: D-2 DETAIL: 1	INSERT	INSTALL 42-IN DIAMETER INSERT	VF	8				
SHEET: D-2 DETAIL: 2		INSTALL 54-IN DIAMETER INSERT	VF	9				
MAG 420	MANHOLE	REPLACE MANHOLE	VF	10				

NOTES: SPARK TEST RESULTS: PULL TEST:	APPROVED BY: PRINTED NAME: _____ COMPANY: _____	DATE: _ / _ / _
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**NOTES**

<p>A. FIELD MEASURE DIMENSIONS BEFORE PURCHASING MATERIAL. B. REMOVE ALL STEPS BEFORE REHABILITATION WORK. C. BLAST CLEAN MANHOLE BEFORE REHABILITATION. D. COAT THE CHANNEL IF IT IS CONCRETE. E. REINSTATE PIPE CONNECTIONS AFTER COATING OR LINING. F. RESTORE LANDSCAPE/PAVEMENT/SIDEWALK AFTER REHABILITATION. G. USE FLOW THROUGH PLUG IF NECESSARY. H. PERFORM SPARK AND PULL TESTS AFTER REHABILITATION.</p>		
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	PROJECT ENGINEERING CONSULTANTS 2432 W. PEORIA AVENUE, SUITE 1246 PHOENIX, AZ 85029 Phone: (602) 906-1901		SCALE OF MAP: 1:150	MANHOLE: 50 / 50	SHEET NUMBER: 57 OF 63
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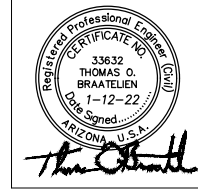
MANHOLE 15-22-209  
WS90500273

CITY OF PHOENIX - WATER SERVICES DEPT - LARGE DIAMETER SANITARY SEWER  
REHABILITATION - GRADE 5 & 4 MANHOLES - NORTH - ZONE 4



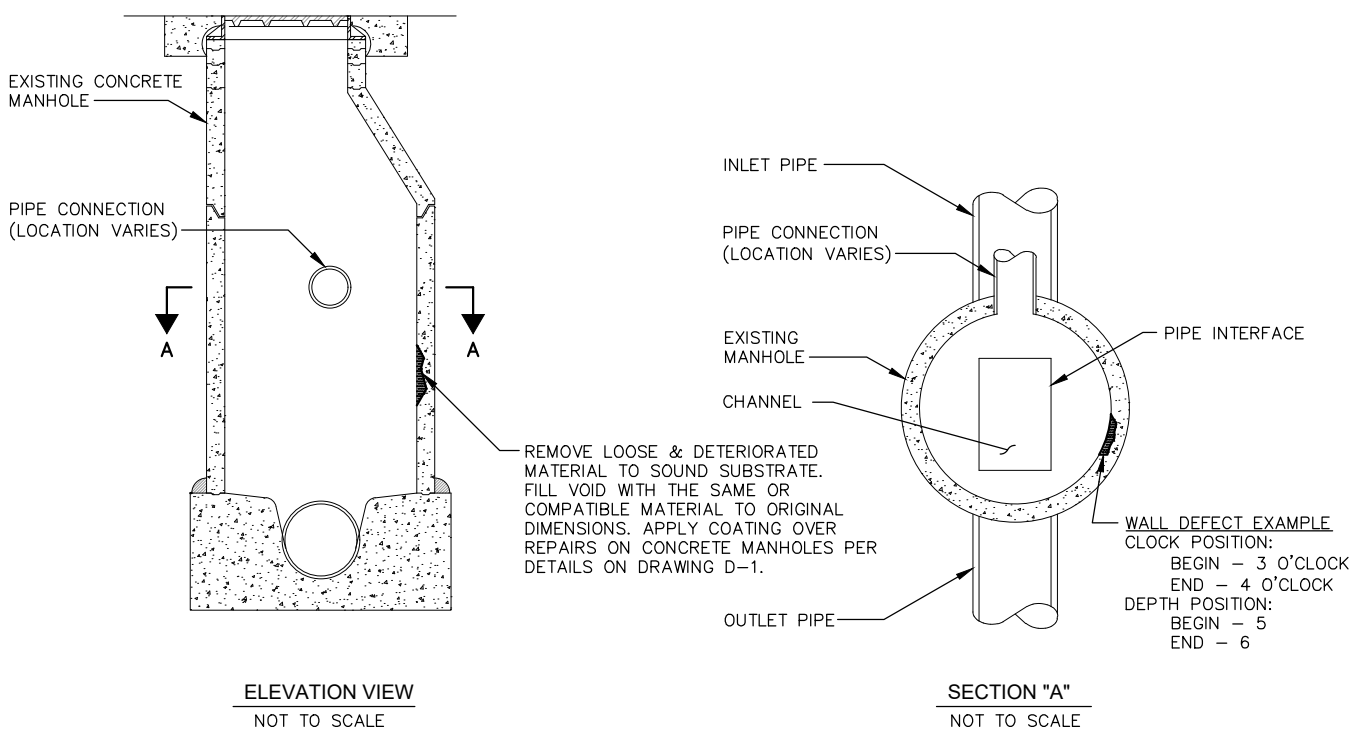


REVISION BY CITY OF PHOENIX	DESCRIPTION	REV BY	CHKD BY	DATE
NO.				
REVISION BY CITY OF PHOENIX	DESCRIPTION	REV BY	CHKD BY	DATE
NO.				
REVISION BY CITY OF PHOENIX	DESCRIPTION	REV BY	CHKD BY	DATE
NO.				



F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	WS90500273	60	63

**PEC** PROJECT ENGINEERING CONSULTANTS  
2432 W. PEORIA AVENUE, SUITE 1246  
PHOENIX, AZ 85029  
Phone: (602) 906-1901

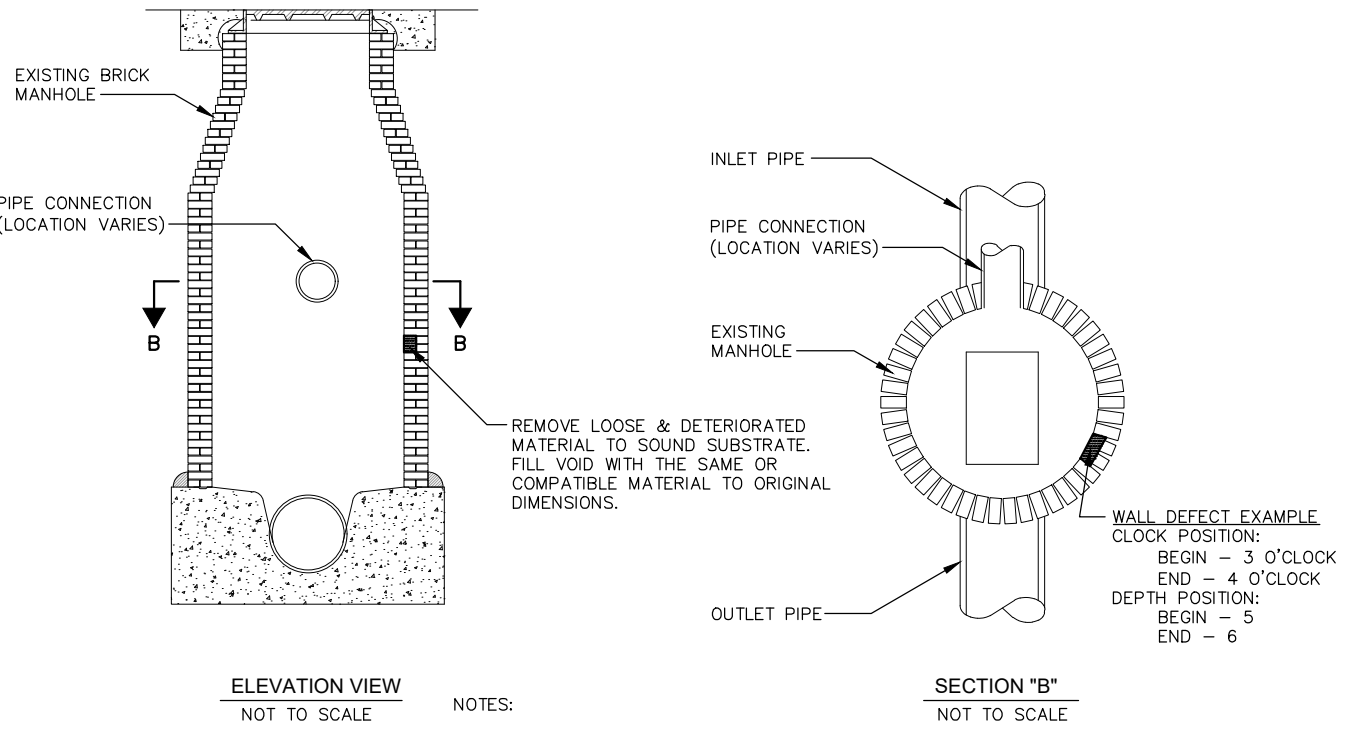


**ELEVATION VIEW**  
NOT TO SCALE

**SECTION "A"**  
NOT TO SCALE

NOTE:  
CONTRACTOR SHALL PROVIDE A WATERTIGHT SEAL AROUND SPOT REPAIR.

**TYPICAL SPOT REPAIR ON CONCRETE MANHOLE**  
NOT TO SCALE



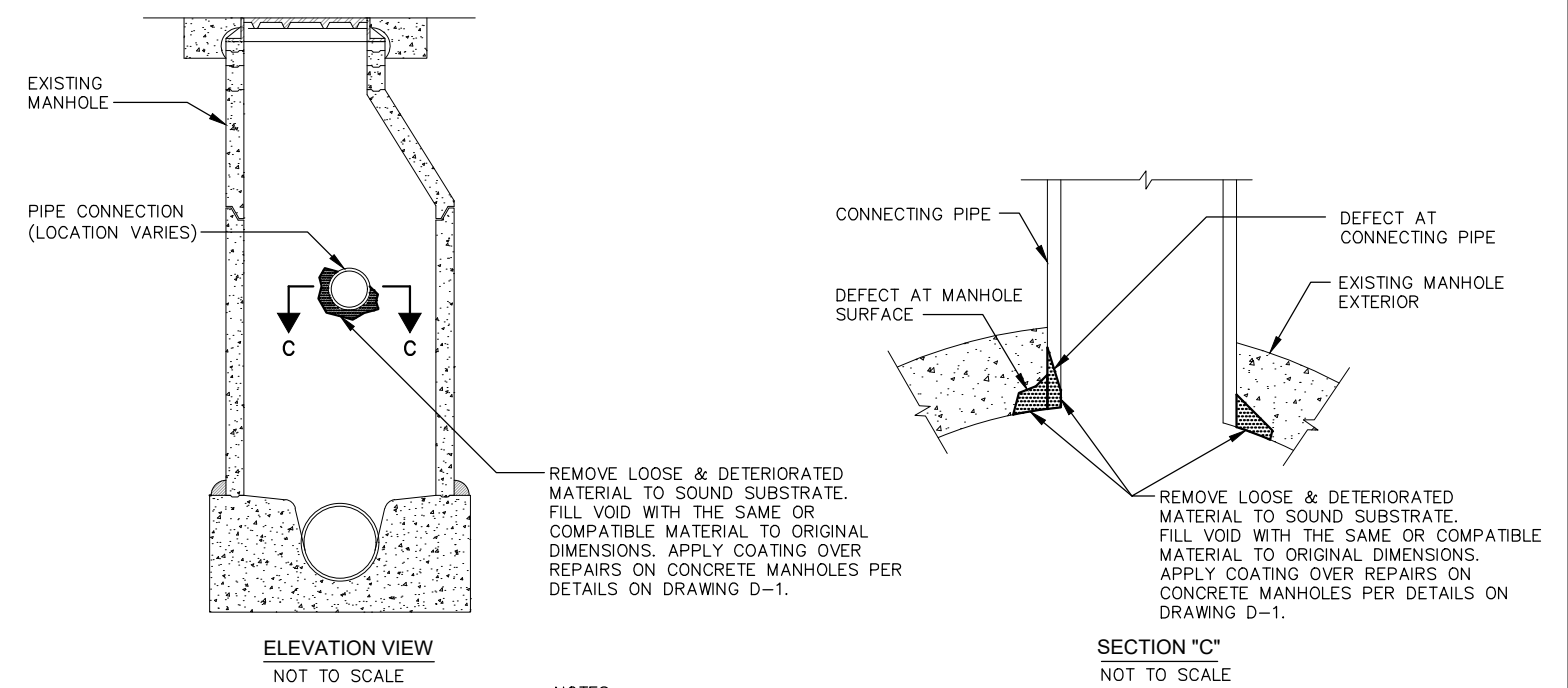
**ELEVATION VIEW**  
NOT TO SCALE

**SECTION "B"**  
NOT TO SCALE

NOTES:  
1. CONTRACTOR SHALL PROVIDE A WATERTIGHT SEAL AROUND SPOT REPAIR.  
2. DO NOT COAT BRICK.

**TYPICAL SPOT REPAIR ON BRICK MANHOLE**  
NOT TO SCALE

DETAIL 1



**ELEVATION VIEW**  
NOT TO SCALE

**SECTION "C"**  
NOT TO SCALE

NOTES:  
1. CONTRACTOR SHALL PROVIDE A WATERTIGHT SEAL AROUND SPOT REPAIR.  
2. DO NOT COAT BRICK.

**SPOT REPAIR AT PIPE CONNECTION**  
NOT TO SCALE

DETAIL 2

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LARGE DIAMETER SANITARY SEWER REHABILITATION  
GRADE 5 & 4 MANHOLES - NORTH - ZONE 4

**CITY OF PHOENIX, ARIZONA**  
WATER SERVICES DEPARTMENT

**REHABILITATION:  
SPOT REPAIR ON CONCRETE AND  
BRICK MANHOLE DETAILS**

DR:	HC	DES:	YX	CK:	TOB	SHEET	TOTAL
DATE:	1/22	DATE:	1/22	DATE:	1/22	NO.	SHEETS
SCALE:	NONE	DRAWING	NO.	D-3		60	63







