

Exhibit D
List of Plans & Specifications
Construction Manager at Risk for Pima County RWRD
22nd St Sewer Augmentation Project

The GMP submittal is based upon the following plan set:

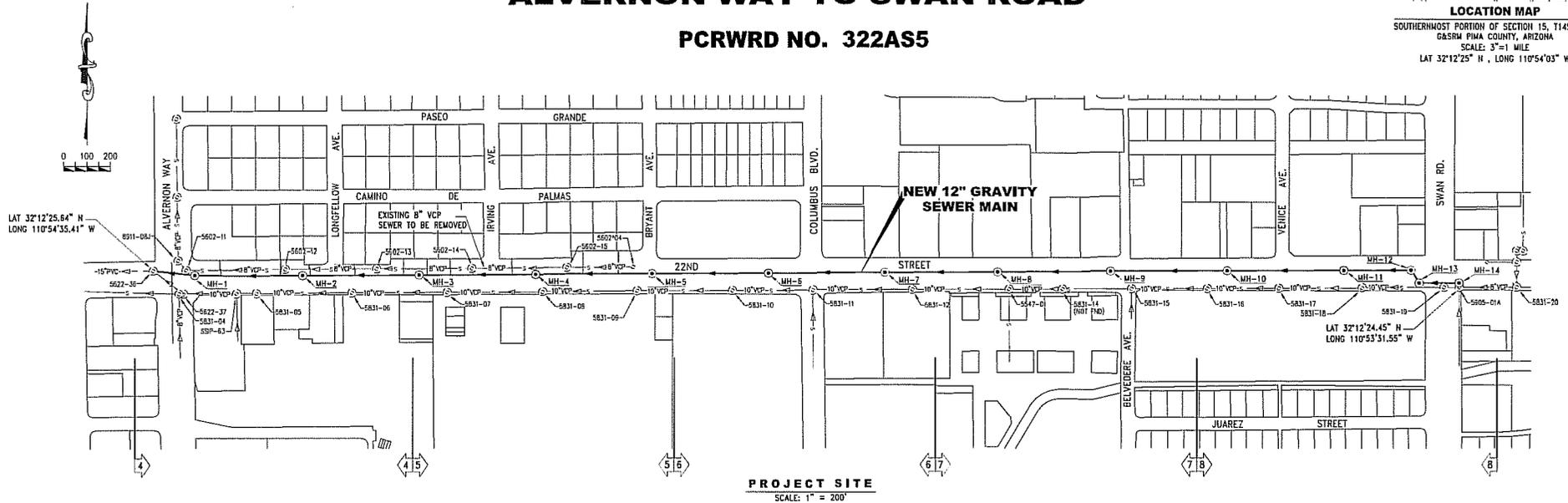
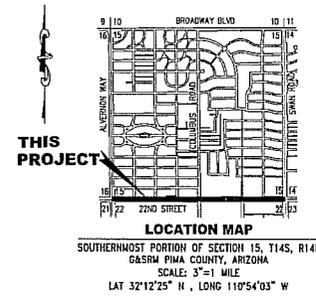
- Preliminary plans prepared by Engineering and Environmental Consultants, Inc. (EEC) for Pima County Regional Wastewater Reclamation Department project number 322AS5 (not sealed). The drawings include sheets numbering 1 through 9, with cover sheet dated July 2015 and labeled: 22nd Street Sewer Improvements Alvernon Way To Swan Road.

The GMP submittal is based up on the following specifications:

- PCRWRD Standard Specifications and Details for Construction 2012 Edition
- PC/COT Standard Specifications for Public Improvements 2003 Edition
- PC/COT Standard Details for Public Improvements 2003 Edition
- Tucson Water Standard Specifications and Details for Construction 2011 Edition
- Manual on Uniform Traffic Control Devices 2009 Edition

PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT PUBLIC SEWER IMPROVEMENT PLAN 22ND STREET SEWER IMPROVEMENTS ALVERNON WAY TO SWAN ROAD

PCRWRD NO. 322AS5



PROJECT SITE
SCALE: 1" = 200'

LAT 32°12'25.64" N
LONG 110°54'35.41" W

LAT 32°12'24.45" N
LONG 110°53'31.55" W

UTILITY OWNER

REGIONAL WASTEWATER RECLAMATION
DEPARTMENT - CONVEYANCE DIVISION
3355 N. DOUGL BLVD.
TUCSON AZ, 85716
ATTN: MANDLEY RUST, P.E.
TEL: 520.724.3482
FAX: 520.747.3452

ENGINEER

ENGINEERING AND ENVIRONMENTAL
CONSULTANTS, INC.
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TUCSON, AZ 85712
ATTN: RAY MONTFOY, P.E.
TEL: 520.321.4625
FAX: 520.321.0333

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FAX: 520.408.5002

GEO TECHNICAL

NINYO & MOORE
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TUCSON, AZ 85713
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TEL: 520.577.7600
FAX: 520.577.7606

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AS BUILT CERTIFICATION:

I HEREBY CERTIFY THAT THE AS-BUILT ANNOTATIONS PROVIDED ON THIS DRAWING WERE BASED ON AN AS-BUILT SURVEY CONDUCTED UNDER MY SUPERVISION AND ACCURATELY DEPICTS EXISTING FIELD CONDITIONS TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED LAND SURVEYOR _____ DATE _____

REGISTRATION NUMBER _____ EXPIRES _____

CONTACT SURVEYOR INFORMATION (ADDRESS, PHONE NO.)
IF DIFFERENT FROM FIRM PREPARING CONSTRUCTION PLANS



EXPIRES

BOARD OF SUPERVISORS

- DISTRICT 3 SHARON BRONSON.....CHAIR
- DISTRICT 5 RICHARD ELIAS.....VICE CHAIR
- DISTRICT 2 RAMON VALADEZ.....ACTING CHAIR
- DISTRICT 1 ALLY MILLER.....MEMBER
- DISTRICT 4 RAY CARROLL.....MEMBER

**PIMA COUNTY REGIONAL WASTEWATER
RECLAMATION DEPARTMENT**

JACKSON JENKINS	DIRECTOR	DATE
ENGINEERING		
ERIC WEDUWILT, PE	DEPUTY DIRECTOR	DATE
CONVEYANCE DIVISION		
JOHN WARNER	DEPUTY DIRECTOR	DATE
ACCEPTED:		
C.O.T.D.O.T. (FOR LOCATION IN R.O.W. ONLY)		DATE

G-2015-051

PCRWRD No. 322AS5

**22ND STREET SEWER IMPROVEMENTS
ALVERNON WAY TO SWAN ROAD
COVER SHEET**

DESIGN BY: RSM	DATE: SEPTEMBER 2015	1
DESIGN BY: RSM	SCALE: AS NOTED	OF
CHW BY: RSM	EEC JOB NO. 14634.02	9



Engineering and Environmental Consultants, Inc.
4625 East Fort Lowell Road | Tucson, Arizona 85712
Tel 520.321.4625 | Fax 520.321.0333

NO.	DATE	REVISION	BY	CHK	APPR



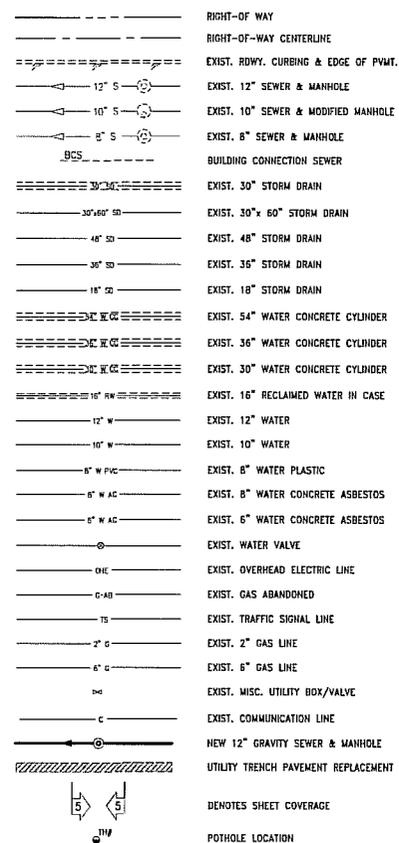
G-2015-051

GENERAL SEWER NOTES

- ALL DESIGN STANDARDS, MATERIALS AND WORKMANSHIP FOR PUBLIC SANITARY SEWERS SHALL BE IN ACCORDANCE WITH THE PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT (PCRWDR) ENGINEERING DESIGN STANDARDS 2012 (SSDC 2012) AND THE PCRWDR STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION 2012 (SSDC 2012). SAID DOCUMENT IS AVAILABLE THROUGH THE PCRWDR WEBSITE (www.pima.gov/wmw/eng/des_std.html).
- THE CONTRACTOR SHALL CALL "BLUE STAKE" (1-800-782-5348) A MINIMUM OF TWO (2) BUSINESS DAYS PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL KEEP ALL "BLUE STAKE" REQUESTS UP-TO-DATE AND COMPLY WITH APPLICABLE ARIZONA REVISED STATUTES (A.R.S.), TITLE 40, CHAPTER 1, ARTICLE 6.3, SECTION 40-300.22 PERTAINING TO "BLUE STAKE". ERRORS IN "BLUE STAKE" SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER.
- THE CONTRACTOR SHALL FIELD VERIFY EXISTING SEWER ELEVATIONS AND ALIGNMENTS PRIOR TO CONSTRUCTION AND IMPLEMENTATION; VERIFICATION MAY REQUIRE POT-HOLING.
- HOUSE OR BUSINESS CONNECTION SEWERS (HCS OR BCS) ARE NOT OWNED OR MAINTAINED BY THE PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT (PCRWDR). HCS/BCS LINES THAT WERE CONSTRUCTED PRIOR TO JANUARY 2008 ARE NOT REQUIRED TO BE MARKED AND LOCATED BY PCRWDR. ANY HCS/BCS LINES ENCOUNTERED DURING CONSTRUCTION SHALL BE PROTECTED, REPAIRED, OR REROUTED, AS THE SITUATION DICTATES PER THE PCRWDR STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION 2012, STANDARD DETAIL RW-400 AND AT NO EXPENSE TO THE HCS/BCS OWNER.
- ANY ACTIVITY THAT MIGHT AFFECT THE SANITARY SEWER SYSTEM (MATERIALS ENTERING THE SYSTEM, CONVEYANCE AND TREATMENT) REQUIRES APPROVAL AND/OR PERMIT BY PCRWDR PRIOR TO ANY ACTIVITY.
- SEWER CONSTRUCTION SHALL NOT COMMENCE UNTIL (A) THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ) HAS ISSUED A CERTIFICATE OF "CONSTRUCTION" AUTHORIZATION FOR THIS PROJECT AND (B) THE CONTRACTOR HAS OBTAINED A PUBLIC SEWER CONSTRUCTION PERMIT FROM THE PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT (520-724-6369) (C) A PRE-CONSTRUCTION MEETING WITH THE ASSIGNED PIMA COUNTY PROJECT FIELD INSPECTOR IS SCHEDULED AT LEAST THREE (3) FULL WORKING DAYS PRIOR TO THE START OF SEWER CONSTRUCTION. FLOW MANAGEMENT PLANS SHALL BE SUBMITTED TO FIELD ENGINEERING THIRTY (30) DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING.
- ANY WORK INSIDE OR AROUND AN EXISTING SANITARY SEWER MANHOLE, INCLUDING MANHOLES THAT ARE LOCATED WITHIN THE ROUGH GRADE LIMITS FOR A PROJECT, SHALL BE PROTECTED FROM FALLING DEBRIS BY INSTALLING A TEMPORARY FLOW CHANNEL COVER PER PCRWDR STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, STANDARD DETAIL RW-506. THE CONTRACTOR SHALL REMOVE ANY DEBRIS THAT ENTERS A MANHOLE DURING CONSTRUCTION. FAILURE BY THE CONTRACTOR TO PROPERLY REMOVE DEBRIS FROM A MANHOLE SHALL RESULT IN PCRWDR TAKING CORRECTIVE ACTION THAT WILL THEN BE BILLED TO THE CONTRACTOR.
- THE INSPECTION OF THE CONTRACTOR'S WORK BY AN AGENCY AND/OR PCRWDR STAFF SHALL IN NO WAY RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, CONSTRUCTION PLANS AND/OR SPECIFICATIONS. IF THE ENGINEER OF RECORD OR PCRWDR STAFF FAIL TO POINT OUT A DEFECT, DEFICIENCY OR ERROR IN THE WORK FROM LACK OF DISCOVERY OR FOR ANY OTHER REASON, IT SHALL IN NO WAY PREVENT LATER REJECTION OR RELIEVE THE CONTRACTOR OF PERFORMING CORRECTIONS TO THE UNSATISFACTORY WORK WHEN DISCOVERED. THE CONTRACTOR SHALL NOT FILE A CLAIM FOR LOSSES SUFFERED DUE TO ANY NECESSARY REMOVALS OR REPAIRS RESULTING FROM THE UNSATISFACTORY WORK.
- THE CONTRACTOR SHALL COMPLY WITH APPLICABLE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS AT ALL TIMES AND PCRWDR MANHOLE ENTRY GUIDELINES.
- THE CONTRACTOR SHALL VERIFY LOCATION AND ELEVATIONS OF ALL EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION CALL "BLUE STAKE" (1-800-782-5348) A MINIMUM OF TWO (2) BUSINESS DAYS PRIOR EXCAVATION.
- BEDDING, SHADING, AND TRENCH BACKFILL COMPACTION SHALL BE IN ACCORDANCE WITH DETAILS NO. RW-104, OR AS SHOWN ON THE PLANS. SHOULD GROUND WATER OR UNANTICIPATED SOIL CONDITIONS BE ENCOUNTERED, THE BEDDING SHALL BE MODIFIED BY THE ENGINEER OF RECORD AND APPROVED BY PCRWDR.
- SANITARY SEWER CONSTRUCTION SHALL START AT THE LOWEST DOWNSTREAM POINT AND PROGRESS UPSTREAM, REGARDLESS OF THE STATIONING SHOWN ON THE PLANS. IF NOT, THE CONTRACTOR SHALL PROVIDE AN OUT OF SEQUENCE LETTER FOR APPROVAL BY PCRWDR.
- THE HORIZONTAL AND VERTICAL SEPARATION BETWEEN PUBLIC WATER MAINS AND PUBLIC SEWER LINES SHALL COMPLY WITH A.A.C. R18-5-502 AND S.D. RW-108.
- ACCORDING TO THE REVISED "BLUE STAKE LAR" (ARS 40-360.21 THROUGH 40-360.32), THIS PROJECT IS SUBJECT TO THE NEW SEWER LATERAL DESIGN AND CONSTRUCTION REQUIREMENTS PER THE PCRWDR EDS 2012, SUBSECTION 3.3.5, AND PCRWDR SSC D. S.D. RW-401 AND RW-404.
- NEW PUBLIC SEWER FACILITIES MUST BE TESTED, INSPECTED AND AUTHORIZED FOR DISCHARGE BY PCRWDR AND ADED PRIOR TO DISCHARGING INTO THE EXISTING PUBLIC SANITARY SEWER.
- AS-BUILT SEWER PLANS ARE REQUIRED FOR FINAL ACCEPTANCE OF SEWER CONSTRUCTION BY PCRWDR AND SHALL CONFORM TO PCRWDR SSC 2012, SUBSECTION 1.4.7. SUBMIT THREE BLACK LINE COPIES AND AN ELECTRONIC VERSION TO THE PCRWDR FIELD ENGINEER.
- CONTRACTOR SHALL MAINTAIN ACCESS TO ALL SANITARY SEWER MANHOLE STRUCTURES AT ALL TIMES. IF ANY ACTIVITY THAT WILL BLOCK OR RESTRICT ACCESS TO AN ACTIVE PUBLIC SEWER MANHOLE CANNOT BE AVOIDED, THE CONTRACTOR SHALL NOTIFY PCRWDR CONVEYANCE AT 520-724-3400, TWO (2) BUSINESS DAYS IN ADVANCE.
- ALL LANDSCAPING LOCATED WITHIN TEN (10) FEET HORIZONTALLY OF THE PUBLIC SANITARY SEWER AND MANHOLES AND/OR WITHIN THE PUBLIC SEWER EASEMENTS SHOWN HEREON SHALL BE IN ACCORDANCE WITH THE PLANTING GUIDELINES CONTAINED WITHIN THE PCRWDR EDS 2012, SUBSECTION 7.7.
- ALL STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MEASURES SHALL BE INSTALLED SO AS TO PREVENT EROSION, SILTATION, OR OTHER DAMAGE TO EXISTING OR NEW SOILS TO BE DIRECTED INTO OR ONTO ANY SANITARY SEWER FACILITIES. PROTECTION OF SANITARY SEWER FACILITIES SHALL BE A PART OF THE APPROVED CONSTRUCTION SWPPP AND BEST MANAGEMENT PRACTICES. PROTECTION DEVICES SHALL BE INSTALLED AND MAINTAINED AROUND ALL POTENTIALLY AFFECTED SANITARY SEWER FACILITIES WITHIN THE PROJECT LIMITS. ADDITIONAL MEASURES SHALL INCLUDE BUT NOT BE LIMITED TO THE USE OF RAIN STOPPERS AND MANHOLE COVERS AS DEEMED NECESSARY BY PCRWDR.
- ALL PROJECT ACTIVITIES MUST BE KEPT WITHIN THE PROJECT AREAS. A CAUTION MUST BE NOTED CONCERNING HUMAN BURIALS, ARCHAEOLOGICAL CLEARANCE RECOMMENDATIONS DO NOT EXEMPT THE DEVELOPMENT FROM COMPLIANCE WITH STATE BURIAL PROTECTION LAWS. IN THE EVENT THAT HUMAN REMAINS, INCLUDING HUMAN SKELETA REMAINS, CREMATIONS, AND/OR CEREMONIAL OBJECTS AND FUNERARY OBJECTS ARE FOUND DURING EXCAVATION OR CONSTRUCTION, STOP ALL DISTURBING ACTIVITIES MUST CEASE IN THE IMMEDIATE VICINITY OF THE DISCOVERY. STATE LAWS ARE 41-865 AND ARS 41-844 REQUIRE THAT THE ARIZONA STATE MUSEUM BE NOTIFIED OF THE DISCOVERY AT 520-621-4795 SO THAT CULTURAL GROUPS WHO CLAIM CULTURAL OR RELIGIOUS AFFINITY TO THEM CAN MAKE APPROPRIATE ARRANGEMENTS FOR THE REPARATION AND BURIAL OF THE REMAINS. THE HUMAN REMAINS WILL BE REMOVED FROM THE SITE BY A PROFESSIONAL ARCHAEOLOGIST PENDING CONSULTATION AND REVIEW BY THE ARIZONA STATE MUSEUM AND THE CONCERNED CULTURAL GROUPS.
- SURVEY CUT SHEETS SHALL BE DEVELOPED IN ACCORDANCE WITH CONSTRUCTION 3.2.3(A)(1) OF THE PCRWDR STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION 2012. CERTIFIED CUT SHEETS SHALL BE SUBMITTED TO THE PCRWDR FIELD ENGINEER PRIOR TO COMMENCEMENT OF SEWER CONSTRUCTION. THE CUT SHEETS ARE FOR THE PROJECT FILE AND COMMENCEMENT OF SEWER CONSTRUCTION WILL NOT BE DELAYED DUE TO REVIEW OF THE DELIVERABLE. ANY ERRORS OR EMISSIONS RESULTING IN IMPROPER SEWER CONSTRUCTION SHALL NOT BE THE RESPONSIBILITY OF PCRWDR. REFER TO SUBSECTION 3.2.3(A)(1) FOR ALIGNMENT VERIFICATION REQUIREMENTS INCLUDING THE SPACING REQUIREMENTS FOR GRADE STAKES.
- SURVEY LAYOUT AND SURVEY CONTROL SHALL BE PERFORMED BY, OR UNDER THE DIRECT SUPERVISION OF, A REGISTERED LAND SURVEYOR (RLS) REGISTERED IN THE STATE OF ARIZONA. PRIOR TO THE START OF SURVEY ACTIVITIES, THE INDIVIDUAL OR COMPANY RESPONSIBLE FOR SURVEY LAYOUT AND CONTROL SHALL CONTACT THE PIMA COUNTY DEPARTMENT OF TRANSPORTATION, SURVEY SECTION, SURVEY MANAGER, AT 740-2628 TO ARRANGE A MEETING TO REVIEW SURVEY CONTROL, (HORIZONTAL AND VERTICAL), TO BE UTILIZED ON THE PROJECT.
- FOR PROJECTS REQUIRING A FLOW MANAGEMENT PLAN, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO (A) IDENTIFY AND INCLUDE ALL FLOW MANAGEMENT COSTS IN THE SEWER CONSTRUCTION BID SUBMITTED WITH THE PUBLIC SEWER PERMIT APPLICATION, AND (B) PROVIDE A FLOW MANAGEMENT PLAN AT LEAST THIRTY (30) DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING WITH PCRWDR FIELD ENGINEERING PRIOR TO BEGINNING SEWER CONSTRUCTION. THE FIELD ENGINEER WILL REVIEW THE PLAN WITHIN TWO (2) BUSINESS DAYS TO ACCOMMODATE REVIEW AND REVISION CYCLES. REFER TO PCRWDR SSC 2012, SECTION 2. FOR ANY QUESTIONS REGARDING FLOW MANAGEMENT, PLEASE CONTACT PCRWDR FIELD ENGINEERING AT (520) 740-2651.
- THE CONTRACTOR SHALL FURNISH, OPERATE AND MAINTAIN ALL EQUIPMENT AND LABOR NECESSARY TO PROVIDE CONTINUOUS 24 HR/DAY SANITARY SEWER SERVICE TO ALL PARTIES TRIBUTARY TO A LIVE SANITARY SEWER TO WHICH A CONNECTION IS TO BE MADE. THE PCRWDR CONVEYANCE SECTION SHALL BE NOTIFIED AT 520-724-3400 A MINIMUM OF TWO (2) BUSINESS DAYS PRIOR TO COMMENCING ANY CONSTRUCTION ACTIVITIES THAT COULD EITHER ADVERSELY IMPACT THE FLOW WITHIN A LIVE SANITARY SEWER SYSTEM, OR INVOLVE CONNECTION TO ANY PUBLIC SANITARY SEWER. THE CONTRACTOR'S ATTENTION IS DIRECTED TO PCRWDR SSC 2012, SECTION 2.
- WHERE CONNECTIONS TO EXISTING MANHOLES ARE TO BE MADE, THE CONTRACTOR SHALL CONSTRUCT NEW INVERTS IN THE EXISTING BASE TO SMOOTHLY DIRECT THE FLOW IN THE PROPER DIRECTION.
- DUCTILE IRON PIPE 8 INCHES AND GREATER IN DIAMETER, FITTINGS AND METAL COUPLINGS SHALL HAVE AN APPROVED INTERIOR LINING. ALL DIP SHALL BE INSTALLED WITH AN APPROVED EXTERIOR POLYETHYLENE WRAPPING.
- MANHOLE SURFACES THAT REQUIRE INTERIOR CORROSION PROTECTION SHALL BE CALKED, SEALED AND COATED PER PCRWDR EDS 2012, SECTION 5.2.16, AND PCRWDR SSC 2012, SECTION 3.3.3(b)(iv).
- THE WORDS "PIMA COUNTY SANITARY SEWER" SHALL BE IMPRINTED ONLY ON COVERS OF MANHOLES WHICH ARE TO BE PART OF THE PIMA COUNTY REGIONAL WASTEWATER RECLAMATION (PUBLIC) SANITARY SEWER CONVEYANCE SYSTEM. SEWER MANHOLE COVERS ON CONVEYANCE SYSTEMS TO BE OWNED AND OPERATED BY ANYONE OTHER THAN PIMA COUNTY SHALL HAVE CAST INTO THEM THE WORDS "PRIVATE SEWER".
- IMMEDIATELY REPORT ANY OF THE FOLLOWING TO EITHER PCRWDR FIELD ENGINEERING (520-740-2651) OR PCRWDR CONVEYANCE DIVISION (520-724-3400): ANY RELEASE OF SEWER OR ANY DAMAGE TO THE PUBLIC SANITARY SEWER SYSTEM, OR THE DROPPING OF DEBRIS INTO THE PUBLIC SANITARY SEWER SYSTEM, ON WEEKENDS, HOLIDAYS, OR BETWEEN 5:00 P.M. AND 7:00 A.M., IMMEDIATELY CALL PCRWDR OPERATIONS CONTROL CENTER AT (520-724-6048) AND REQUEST A PCRWDR REPRESENTATIVE TO BE DISPATCHED TO THE SITE. TAKE IMMEDIATE ACTION TO CONTAIN THE SANITARY SEWER OVERFLOW (SSO) FROM THE SEWER SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS TO REPAIR THE SYSTEM, FOR ALL EXPENSES TO MITIGATE THE RELEASE AND TO DISINFECT THE RELEASE AREAS AND FOR ANY REGULATORY PENALTIES LEVIED ON PCRWDR BECAUSE THIS SSO ENTERED A NATURAL DRAINAGEWAY OR STORM WATER DRAINAGE SYSTEM. THE CONTRACTOR SHALL REPAIR ALL DAMAGE AS DIRECTED AND APPROVED BY PCRWDR.

- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CALCULATE HIS OWN EARTHWORK QUANTITIES AND SUBMIT HIS BID BASED THEREON.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CARE, MAINTENANCE REPAIR OR REPLACEMENT OF EXISTING IMPROVEMENTS IN THE WORK AREA WHICH HAVE BEEN REMOVED OR DAMAGED DURING THE COURSE OF CONSTRUCTION. ALL REPAIR, REPLACEMENT, OR CLEANUP SHALL BE DONE TO THE SATISFACTION OF THE OWNER.
- OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE DRAWINGS, NOTES AND DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF PCRWDR AND THE ENGINEER, AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
- CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED FOR SEWER CONSTRUCTION, INCLUDING ANY RIGHT-OF-WAY OR ENCROACHMENT PERMITS FROM ADOT, CITY OF TUCSON, PIMA COUNTY, AFFECTED UTILITIES AND AFFECTED AGENCIES, AS NEEDED, PRIOR TO COMMENCEMENT OF WORK.
- A COPY OF THIS PLAN SHALL BE KEPT IN AN EASILY ACCESSIBLE LOCATION ON THE SITE AT ALL TIMES DURING CONSTRUCTION.
- IF UNANTICIPATED CONDITIONS ARE ENCOUNTERED DURING THE COURSE OF CONSTRUCTION AND ARE BEYOND THE SCOPE OF THE DESIGN, THE CONTRACTOR SHALL DEVELOP AND SUBMIT THE NECESSARY REVISED OR SUPPLEMENTAL IMPROVEMENT PLANS FOR REVIEW AND APPROVAL BY PCRWDR PRIOR TO ANY OUT-OF-SCOPE WORK TAKING PLACE.
- CONTRACTOR SHALL MAINTAIN ACCESS TO ALL HOMES AND PROPERTIES DURING CONSTRUCTION.
- MANHOLE FRAMES AND COVERS SHALL BE KEPT IN MATCHED ORDER AND STOCKPILED IN AN ORDERLY FASHION AS NOT TO CAUSE DAMAGE. EXCESS FRAME AND COVERS SHALL BE TURNED IN TO CONVEYANCE AT THE COMPLETION OF THE PROJECT. PCRWDR SSC 2012 S.D. RW-213 TO -215 SHALL APPLY TO THEIR RESPECTIVE MANHOLE FRAME AND COVER.
- THE CONTRACTOR SHALL NOTIFY PCRWDR FIELD ENGINEERING 520-740-2651 OF ANY DAMAGED OR MISMATCHED MANHOLE OR CLEANOUT FRAMES AND COVERS. EXISTING FRAMES AND COVERS THAT WILL BE RESET AS PART OF THIS PROJECT, PRIOR TO REINSTALLATION SHALL BE THOROUGHLY CLEANED OF ALL PAVING MATERIAL (ASPHALT AND/OR CONCRETE). THIS INCLUDES OPENING ALL VENT HOLES. IF THE FRAME AND COVER CAN NOT BE CLEANED OR THEY ARE DAMAGED, A NEW FRAME AND COVER WILL BE SUPPLIED BY PCRWDR AND INSTALLED BY THE CONTRACTOR AT NO COST TO PIMA COUNTY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING DESTROYED LOT PINS. REPLACEMENT SHALL BE BY AN ARIZONA REGISTERED LAND SURVEYOR.
- ALL PIPE AND FITTINGS SHALL NOT HAVE ANY MARKINGS STATING THAT IT IS BEING USED TO TRANSPORT NATURAL GAS. THE MARKINGS CAN STATE THAT THE PIPE IS A WASTEWATER PIPE OR THE MARKINGS CAN BE ABSENT AS TO WHAT THE PIPE IS BEING USED FOR.
- UPON COMMENCEMENT OF WORK, TRAFFIC CONTROL DEVICES SHALL BE POSTED AND MAINTAINED BY THE CONTRACTOR UNTIL SUCH TIME AS THE WORK IS COMPLETED. ALL WARNING SIGNS, BARRICADES, ETC. SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES ADOPTED BY THE STATE OF ARIZONA PURSUANT TO A.R.S. 28-650.
- ALL WORK SHALL BE DONE BY A CONTRACTOR HAVING A VALID CONTRACTOR'S LICENSE ISSUED BY THE STATE OF ARIZONA REGISTERED CONTRACTORS IN ACCORDANCE WITH THE PCRWDR SSC 2012, SUBSECTION 1.4.2.
- ALL WORKING REDLINE (AS-BUILT) PLANS SHALL BE KEPT ON-SITE AT ALL TIMES DURING CONSTRUCTION. AT THE COMPLETION OF THE PROJECT THE CONTRACTOR SHALL SUPPLY FINAL "AS-BUILT" DRAWINGS ALONG WITH ALL ORIGINAL REDLINES.
- ANY PLANS ACCEPTED BY PCRWDR SHALL BE USED FOR THE INSTALLATION OF SANITARY SEWER FACILITIES. PLANS ACCEPTED BY PCRWDR REQUIRING REVISION SHALL BE RESUBMITTED FOR REVIEW AND RE-ACCEPTANCE BY PCRWDR PRIOR TO START OF THE REVISED WORK.
- SEWER CONSTRUCTION WILL NOT BE ACCEPTED BY PCRWDR IF IT INCLUDES ADDITIONAL WORK NOT PROVIDED IN THE APPROVED SET OF PLANS, SEE SUBSECTION 1.4.5 OF THE PCRWDR STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION 2012 REGARDING THE APPROVAL OF FIELD CHANGES.

LEGEND



C.O.T. TRANSPORTATION NOTES

- THE CONTRACTOR MUST OBTAIN AN EXCAVATION AND BARRICADING PERMITS FROM THE CITY OF TUCSON TRANSPORTATION ENGINEERING DIVISION PRIOR TO ANY WORK IN THE CITY PUBLIC RIGHT-OF-WAYS.
- THE CONTRACTOR MUST MEET WITH THE CITY'S RIGHT-OF-WAY INSPECTOR PRIOR TO ANY WORK IN THE PUBLIC RIGHT-OF-WAY.
- ALL BACKFILL, WITHIN THE CITY OF TUCSON RIGHT-OF-WAY, ABOVE THE UTILITY SHADING, SHALL BE CONDUCTED IN ACCORDANCE TO THE CITY OF TUCSON TRANSPORTATION STANDARD DETAILS, SPECIFICATIONS, AND AS DIRECTED BY THE CITY OF TUCSON RIGHT-OF-WAY INSPECTOR AND CITY ENGINEER.
- ALL PAVEMENT PATCHING, WITHIN THE CITY OF TUCSON RIGHT-OF-WAY, SHALL BE CONDUCTED IN ACCORDANCE TO THE CITY OF TUCSON TRANSPORTATION STANDARD DETAILS, SPECIFICATIONS, AND AS DIRECTED BY THE CITY OF TUCSON RIGHT-OF-WAY INSPECTOR AND CITY ENGINEER.
- IN ACCORDANCE TO THE CITY OF TUCSON STANDARDS, PAVEMENT PATCHING SHALL BE WARRANTED FOR 1-YEARS. PAVEMENT PATCHING FAILING WITHIN THIS PERIOD SHALL BE REPAIRED/REPLACED AT NO COST TO THE CITY OF TUCSON.

ENGINEER'S STATEMENT

EXISTING ABOVE AND BELOW GROUND UTILITIES HAVE BEEN DELINEATED ON THESE PLANS BASED UPON FIELD SURVEY INFORMATION AS WELL AS FROM BLUE STAKE MARKINGS AND UTILITY BASE MAPS (AS MADE AVAILABLE) AND THEREFORE THE ENGINEER MAKES NO GUARANTEE OF THE ACCURACY OR COMPLETENESS OF THE UTILITY LOCATIONS OR OF THE EXISTENCE OR NONEXISTENCE OF ANY UTILITY OR UNDERGROUND STRUCTURES SHOWN. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT ANY UTILITY. THE CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR DAMAGE TO EXISTING ABOVE OR UNDERGROUND UTILITIES, INCLUDING THOSE NOT SHOWN ON THESE PLANS.

AL11010102 - 22nd Street Sewer Improvements 1050 CAD (1050) 055 MCT/Plan Sheet 102-10302-0202.dwg P:\Info\2015\2015-04-09\2015-04-09.dwg

PIMA COUNTY
 WASTEWATER RECLAMATION
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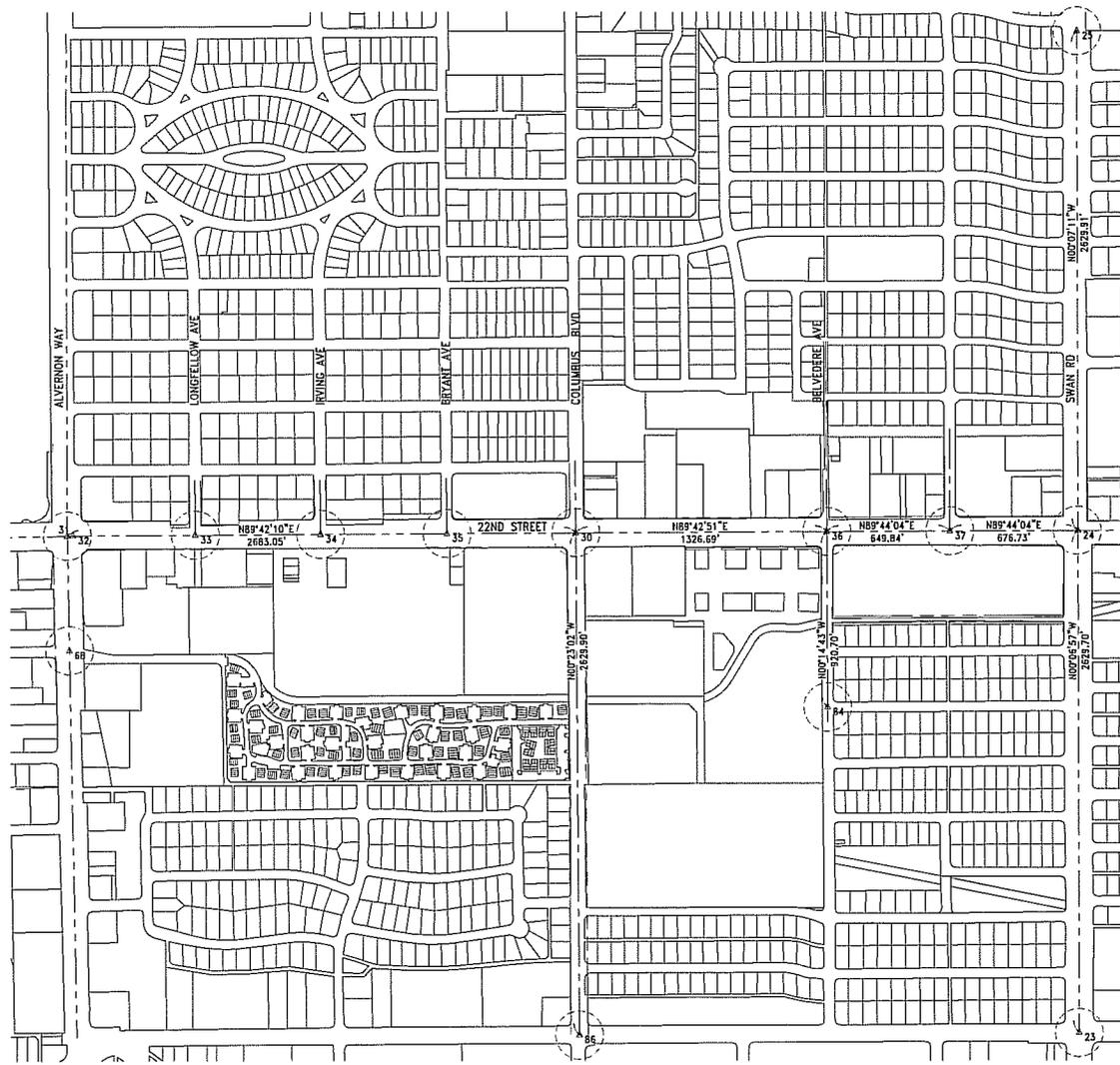
NO	DATE	REVISION	BY	CHK	APPR

G-2015-051 PCRWDR No. 322A55

22ND STREET SEWER IMPROVEMENTS
ALVERNON WAY TO SWAN ROAD
 GENERAL NOTES

DESIGN BY: EJM/REV	DATE: SEPTEMBER 2015	SCALE: N/A	2
DESIGN BY: BGM	DATE: N/A	SCALE: N/A	OF
CHK'D BY: RPH	DATE: 10/24/15	SCALE: N/A	9

ALVAD042 - 22nd Street Sewer Improvements 150 CAD(0)35 Dwg(Fin Sheet)101-160492-011.dwg Plotfile Sep 11, 2015 10:45am mmp



PROJECT SITE
SCALE: 1" = 300'

POINT TABLE			
POINT #	NORTHING	EASTING	DESCRIPTION
23	37957.40	116945.92	FD 2" BCSM COT RLS23956 1/4 22/23
24	40587.10	116940.60	FD 2" BCSM RLS13019 NE COR SEC 22 (VERT. CONTROL)
25	43217.00	116935.10	FD 2.5" BCSM RLS41603 AKA L17
30	40574.33	114287.37	FD 2" BCSM PO AKA N15
31	40560.42	111604.36	FD 2" BCSM RLS13019 NW COR SEC 22
32	40561.42	111634.51	FD 2" BCSM LS2585
33	40563.98	112279.73	FD 2" BCSM RLS13019
34	40567.46	112939.85	FD 2" BCSM RLS13019
35	40570.97	113606.85	FD 2" BCSM RLS13019
36	40580.95	115614.04	FD 2" BCSM RLS13019
37	40583.97	116263.88	FD 2" BCSM PO
68	39959.06	111615.72	FD 2" BCSM RLS12537
84	39660.26	115617.98	FD 1.5" ACP CITY UNREADABLE
86	37944.49	114304.99	FD 2" BCSM COT PLS 20373 1/4 SEC 22

HORIZONTAL CONTROL

THE HORIZONTAL CONTROL FOR THIS PROJECT IS BASED ON EXISTING PIMA COUNTY DOT - CITY OF TUCSON DOT GEODETIC CONTROL POINT "N15" AS ESTABLISHED FROM THE ARIZONA COORDINATE SYSTEM, 1983 (HARN 92), CENTRAL ZONE. THE PUBLISHED COGNISED FACTOR FOR "N15" = 0.9998917610 WAS USED TO CONVERT GRID COORDINATES TO GROUND COORDINATES. THE COORDINATES SHOWN ARE GROUND COORDINATES WHICH HAVE BEEN TRUNCATED. TO CONVERT GROUND COORDINATES TO GRID COORDINATES ADD 400,000 TO NORTHING COORDINATES AND 900,000 TO EASTING COORDINATES AND THEN MULTIPLY THEM BY 0.9998917610.

VERTICAL CONTROL

THE VERTICAL CONTROL FOR THIS PROJECT IS BASED ON EXISTING PIMA COUNTY DOT - CITY OF TUCSON DOT GEODETIC CONTROL POINT "N17", BASED ON NAVD 88 DATUM HAVING AN ELEVATION OF 2,552.67 FEET.

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS PROJECT IS A GRID BEARING OF SOUTH 63°54'51" EAST BETWEEN PIMA COUNTY DOT - CITY OF TUCSON DOT GEODETIC CONTROL POINT "L13" AND PIMA COUNTY DOT - CITY OF TUCSON DOT GEODETIC CONTROL POINT "T21", AS ESTABLISHED FROM THE ARIZONA COORDINATE SYSTEM, 1983 (HARN 92), CENTRAL ZONE.

G-2015-051

PCRWRD No. 322A55

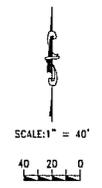
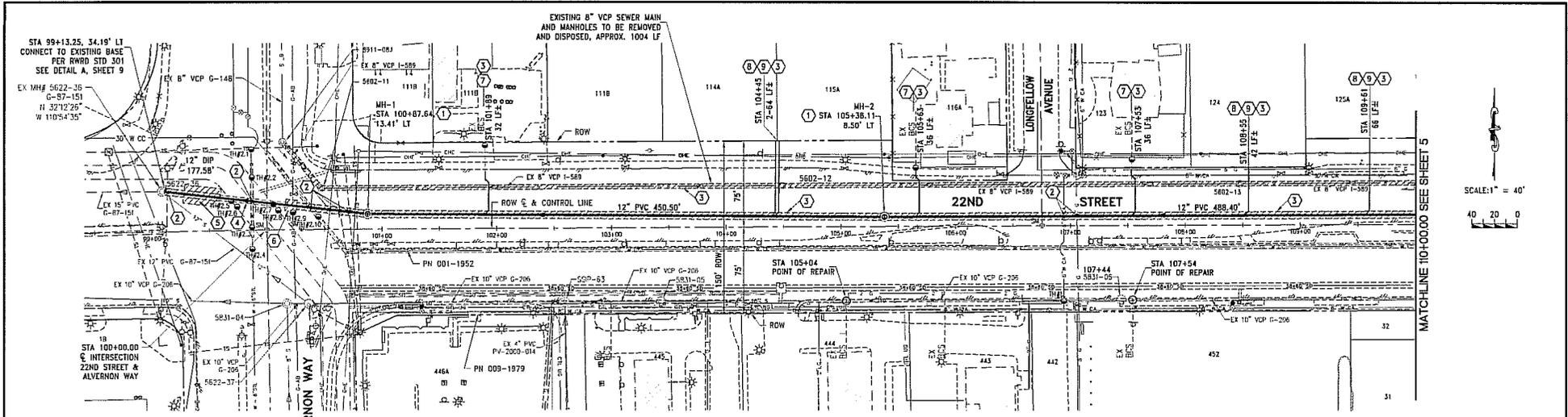


Engineering and Environmental Consultants, Inc.
4625 East Fort Lowell Road | Tucson, Arizona 85712
Tel 520.321.4625 | Fax 520.321.0333

NO.	DATE	REVISION	BY	CHK	APPR



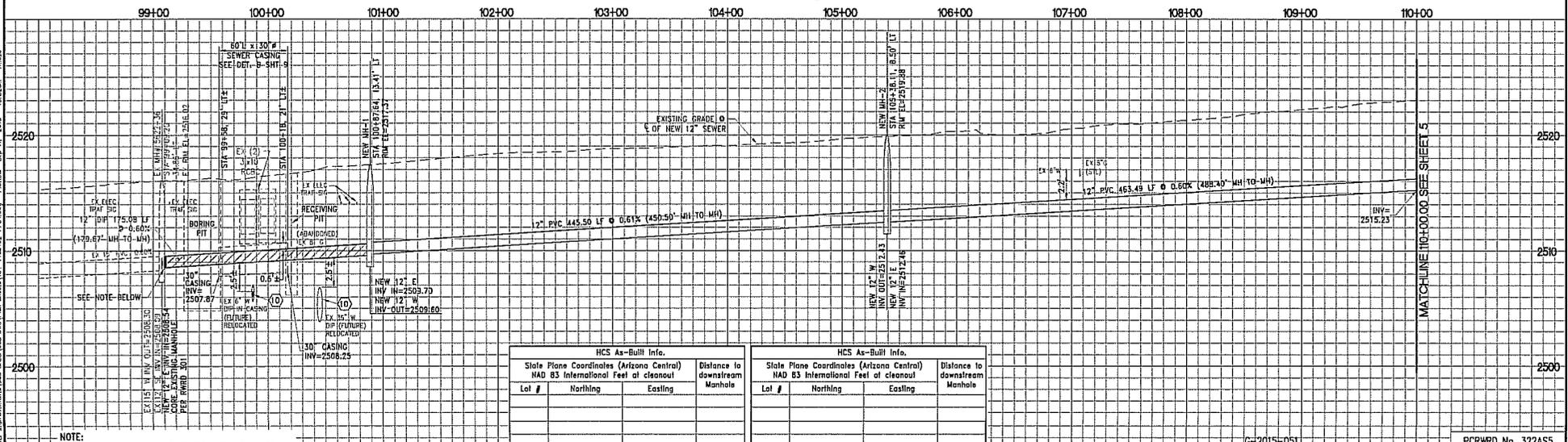
22ND STREET SEWER IMPROVEMENTS ALVERNON WAY TO SWAN ROAD HORIZONTAL & VERTICAL CONTROL			
DESIGN BY: CAS, RDM	DATE: SEPTEMBER 2015	SHEET NO. 14334-02	3
DESIGN BY: RDM	SCALE: 1" = 40' V, 1" = 4'		OF
CHK BY: RDM	EEC JOB NO. 14334-02		9



Manhole As-Built Information			
MH No.	Station	Northing	Easting
1	100+00.00		
2	100+00.00		

- KEY NOTES**
- NEW 5" DIAMETER MANHOLE PER STANDARD RWRD 206 WITH CONCRETE COLLAR STANDARD RWRD 211
 - EXISTING UTILITY CROSSING
 - TYPE I UTILITY TRENCH PATCH PER PC/COT 216
 - CONSTRUCT 30" DIAMETER CASING FOR SEWER LINE PER STANDARD RWRD 100 WITH APPROVED MODIFICATIONS
 - APPROXIMATE BORING PIT LOCATION, 32' L x 16' W ± CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION
 - APPROXIMATE RECEIVING PIT LOCATION, 10' L x 10' W ± CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION
 - RECONNECT EXISTING GCS TO NEW 12" SEWER PER RWRD 401.
 - NEW 4" HCS PER RWRD 401
 - REMOVE AND REPLACE IN KIND, EXIST. CURB/GUTTER AND/OR SIDEWALK PER PC/COT STDS.
 - TUCSON WATER 6" & 36" WATER LINES SHOWN VERTICALLY RELOCATED BY SEPARATE PLANS (FUTURE)

- NOTES**
- ALL STATIONING ALONG 22ND STREET ROW CENTERLINE.
 - CONTRACTOR TO FIELD VERIFY.
 - EXISTING UTILITIES NOT VERIFIED, SHOWN LOCATIONS SHALL BE CONSIDERED APPROXIMATE. REFER TO "ENGINEER'S STATEMENT".
 - SEE SHEET 3 FOR CONTROL PLAN.



HCS As-Built Info.			
Lot #	Northing	Easting	Distance to downstream Manhole

HCS As-Built Info.			
Lot #	Northing	Easting	Distance to downstream Manhole

NOTE:
INSTALL TEMPORARY PLUG AND SECURE WITH A CHAIN TO A MANHOLE STEP. PLUG TO INCLUDE MANUFACTURING COMPANY'S NAME. DO NOT ALLOW SEWAGE FLOW TO ENTER PUBLIC SEWER UNTIL RELEASED BY PCRWRD.

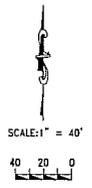
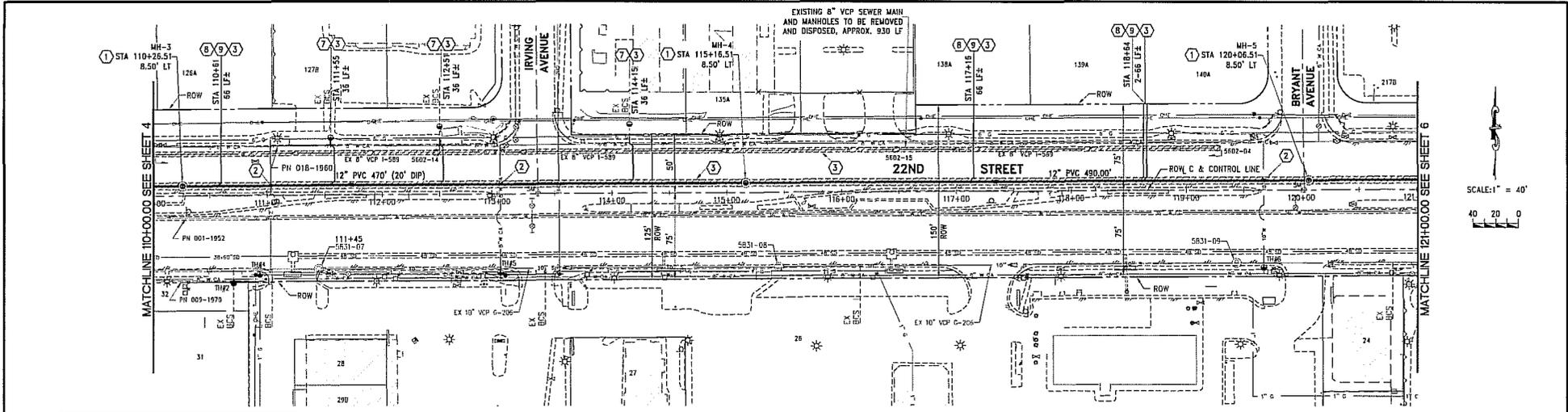
G-2015-051 PCRWRD No. 322A55

PIMA COUNTY
WASTEWATER RECLAMATION

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Tel 520.321.4625 | Fax 520.321.0333

22ND STREET SEWER IMPROVEMENTS
ALVERNON WAY TO SWAN ROAD
PLAN AND PROFILE

DESIGN BY: G.R. RYAN	DATE: SEPTEMBER 2015	4
ISSN BY: ROM	SCALE: H: 1"=40', V: 1"=4'	OF
CHKD BY: RPH	EEC JOB NO: 14034.02	9



HCS As-Built Info.

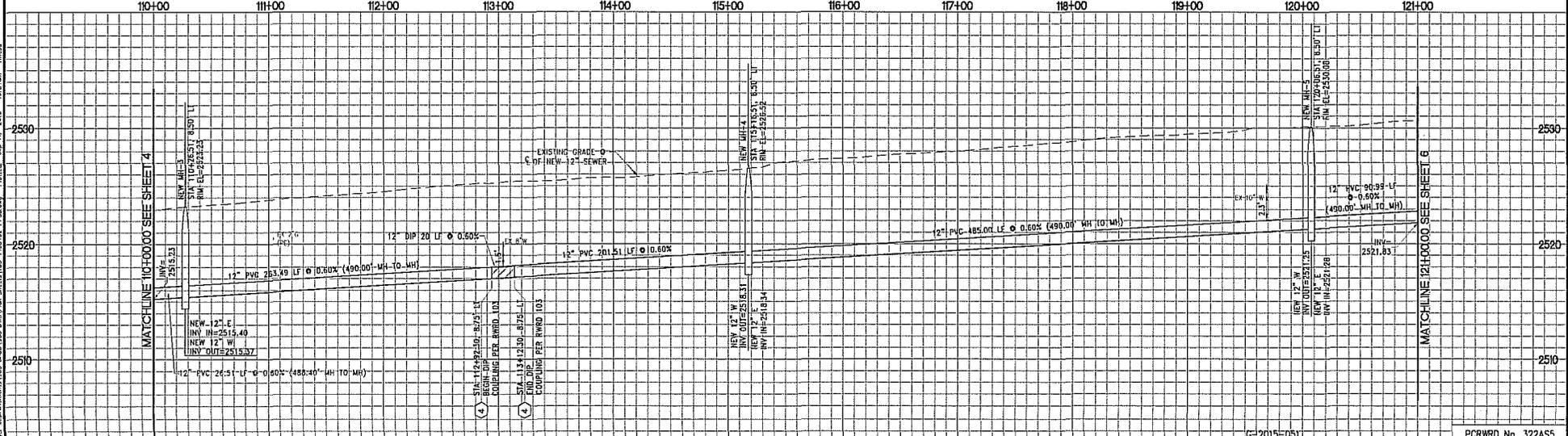
State Plane Coordinates (Arizona Central) HAD B3 International Feet of cleanup	Distance to downstream Manhole	
Lot #	Northing	Eastng

Manhole As-Built Information

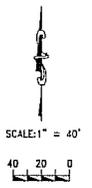
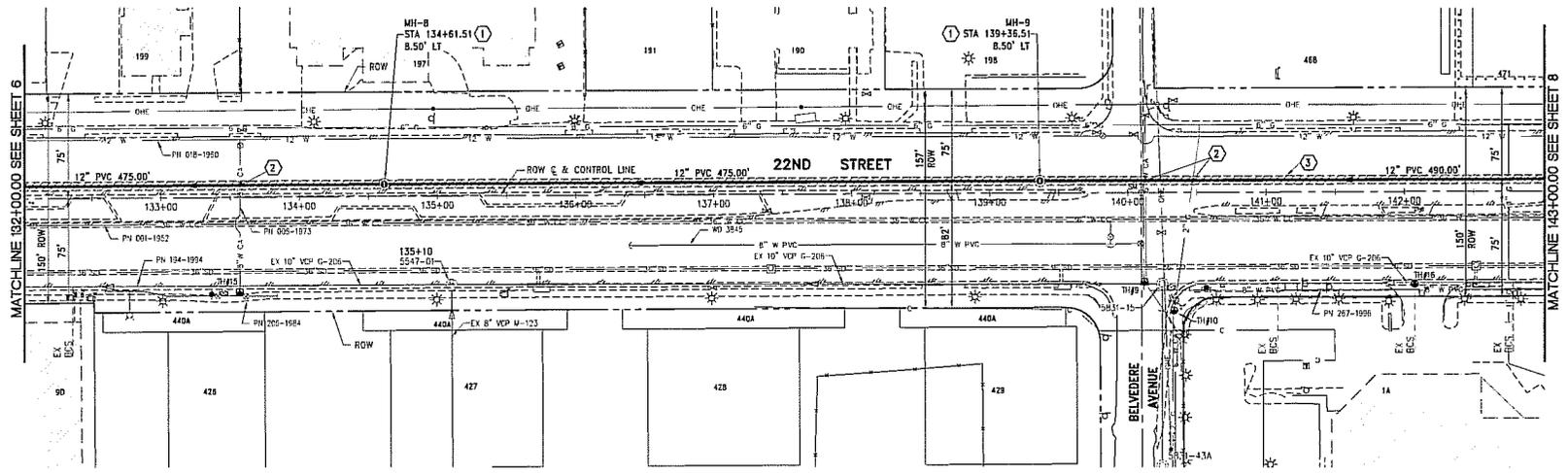
MH NO.	State Plane Coordinates (Arizona Central) HAD B3 International Feet	
	Northing	Eastng
3		
4		
5		

- KEY NOTES**
- ① NEW 5" DIAMETER MANHOLE PER STANDARD RWRD 206 WITH CONCRETE COLLAR STANDARD RWRD 211
 - ② EXISTING UTILITY CROSSING
 - ③ TYPE I UTILITY TRENCH PATCH PER PC/COT 216
 - ④ MATERIAL TRANSITION COUPLING PER RWRD 103
 - ⑤ RECONNECT EXISTING BCS TO NEW 12" SEWER PER RWRD 401.
 - ⑥ NEW 4" HCS PER RWRD 401
 - ⑦ REMOVE AND REPLACE IN KIND, EXIST. CURB/GUTTER AND/OR SIDEWALK PER PC/COT STD.

- NOTES**
1. ALL STATIONING ALONG 22ND STREET ROW CENTERLINE.
 2. CONTRACTOR TO FIELD VERIFY.
 3. EXISTING UTILITIES NOT VERIFIED, SHOWN LOCATIONS SHALL BE CONSIDERED APPROXIMATE. REFER TO "ENGINEER'S STATEMENT".
 4. SEE SHEET 3 FOR CONTROL PLAN.



AL14031.02 - 22nd Street Sewer Improvements 150' (250') (50') (25') (10') (5') (2') (1') (0.5') (0.25') (0.125') (0.0625') (0.03125') (0.015625') (0.0078125') (0.00390625') (0.001953125') (0.0009765625') (0.00048828125') (0.000244140625') (0.0001220703125') (0.00006103515625') (0.000030517578125') (0.0000152587890625') (0.00000762939453125') (0.000003814697265625') (0.0000019073486328125') (0.00000095367431640625') (0.000000476837158203125') (0.0000002384185791015625') (0.00000011920928955078125') (0.000000059604644775390625') (0.0000000298023223876953125') (0.00000001490116119384765625') (0.000000007450580596923828125') (0.0000000037252902984619140625') (0.00000000186264514923095703125') (0.000000000931322574615478515625') (0.00000000046566128730792878125') (0.000000000232830643653964390625') (0.0000000001164153218269821953125') (0.00000000005820766091349109765625') (0.000000000029103830456745548828125') (0.0000000000145519152283727744140625') (0.00000000000727595761418638720703125') 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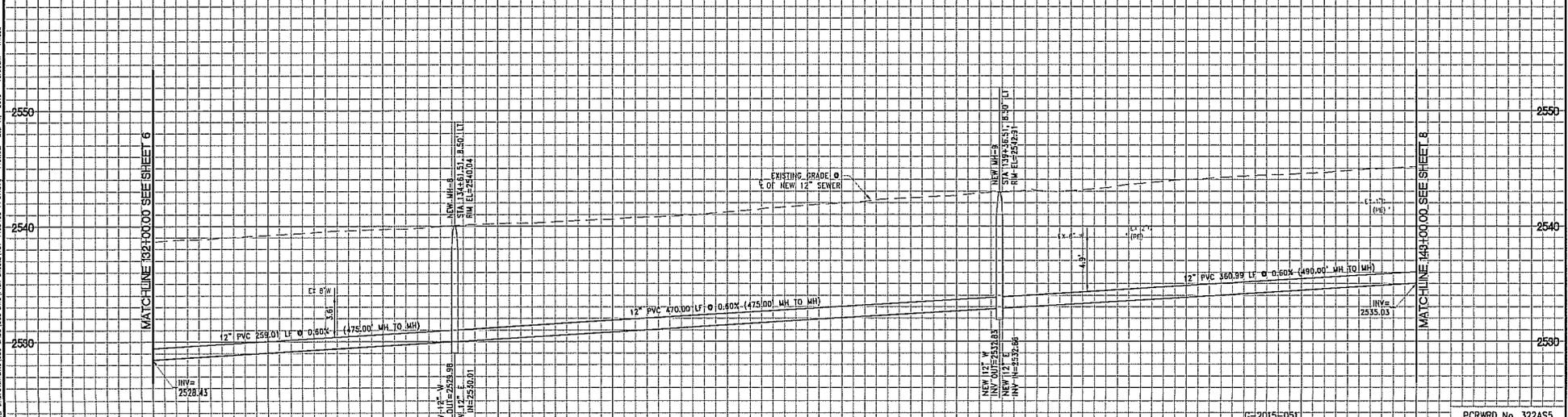


Manhole As-Built Information	
MH NO.	Slate Plane Coordinates (Arizona Central) NAD 83 International Feet
B	Northing
9	Easting

- KEY NOTES**
- NEW 5' DIAMETER MANHOLE PER STANDARD RWRD 205 WITH CONCRETE COLLAR STANDARD RWRD 211
 - EXISTING UTILITY CROSSING
 - TYPE 1 UTILITY TRENCH PATCH PER PC/COT 216

- NOTES**
- ALL STATIONING ALONG 22ND STREET ROW CENTERLINE.
 - CONTRACTOR TO FIELD VERIFY.
 - EXISTING UTILITIES NOT VERIFIED, SHOWN LOCATIONS SHALL BE CONSIDERED APPROXIMATE, REFER TO "ENGINEER'S STATEMENT".
 - SEE SHEET 3 FOR CONTROL PLAN.

132+00 133+00 134+00 135+00 136+00 137+00 138+00 139+00 140+00 141+00 142+00 143+00



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PIMA COUNTY
WASTEWATER RECLAMATION

eec
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Tel 520.321.4625 | Fax 520.321.6333



22ND STREET SEWER IMPROVEMENTS
ALVERNON WAY TO SWAN ROAD
PLAN AND PROFILE

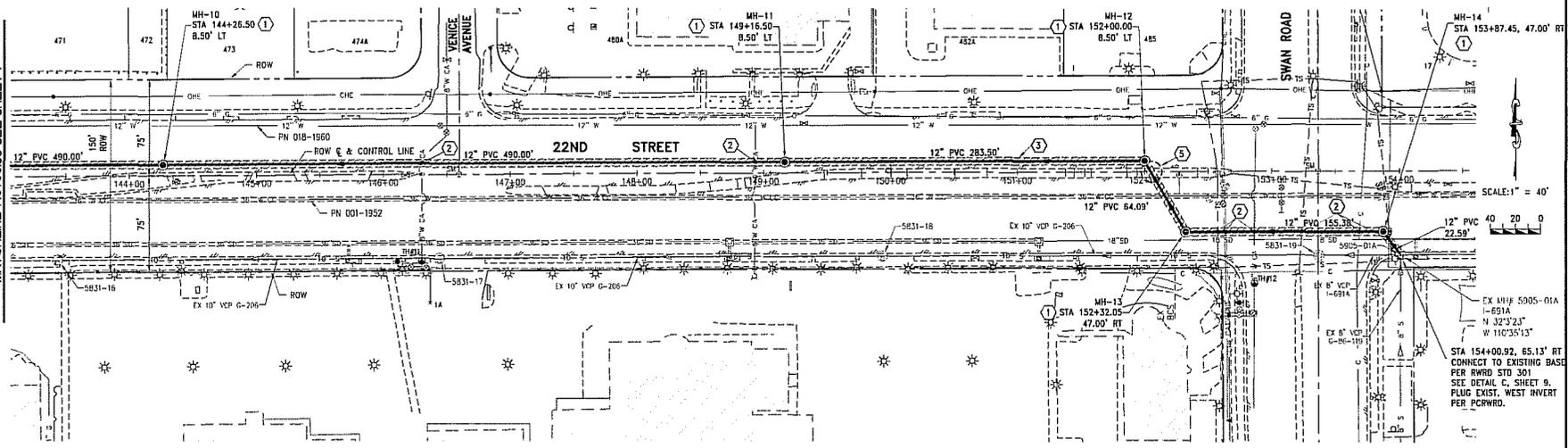
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DESIGN BY: RSM	SCALE: H. 1"=40' V. 1"=4'	OF
CHKD BY: RSM	ECC JOB NO. 14034.02	9

PCRWRD No. 322AS5

MATCHLINE 143+00.00 SEE SHEET 7

MATCHLINE 143+00.00 SEE SHEET 7



Manhole As-Built Information		
MH NO.	State Plane Coordinates (Arizona Central) NAD 83 International Feet	
	Northing	Easting
10		
11		
12		

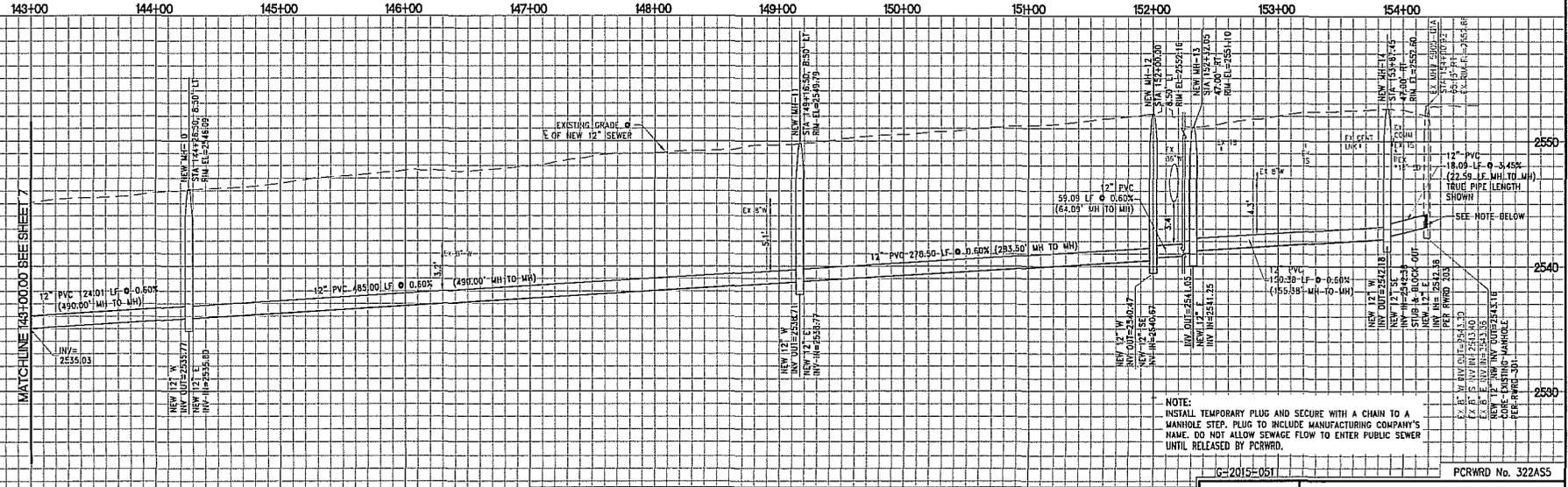
Manhole As-Built Information		
MH NO.	State Plane Coordinates (Arizona Central) NAD 83 International Feet	
	Northing	Easting
13		
14		

NOTES

1. ALL STATING ALONG 22ND STREET ROW CENTERLINE.
2. CONTRACTOR TO FIELD VERIFY.
3. EXISTING UTILITIES NOT VERIFIED, SHOWN LOCATIONS SHALL BE CONSIDERED APPROXIMATE. REFER TO "ENGINEER'S STATEMENT".
4. SEE SHEET 3 FOR CONTROL PLAN.

KEY NOTES

1. NEW 5' DIAMETER MANHOLE PER STANDARD RWRD 206 WITH CONCRETE COLLAR STANDARD RWRD 211
2. EXISTING UTILITY CROSSING
3. TYPE I UTILITY TRENCH PATCH PER PC/COT 216
5. REMOVE AND REPLACE IN KIND EXISTING ROAD MEDIAN PER PC/COT STDS.



NOTE:
INSTALL TEMPORARY PLUG AND SECURE WITH A CHAIN TO A MANHOLE STEP. PLUG TO INCLUDE MANUFACTURING COMPANY'S NAME. DO NOT ALLOW SEWAGE FLOW TO ENTER PUBLIC SEWER UNTIL RELEASED BY PCRWRD.

G=2015=051

PCRWRD No. 322A55



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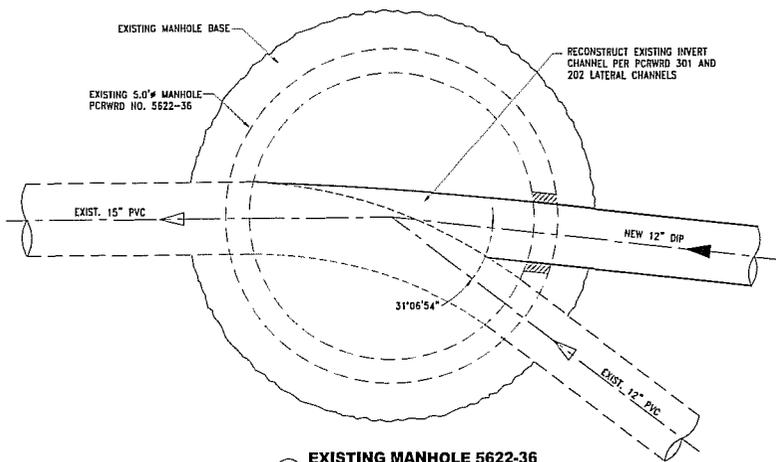
NO.	DATE	REVISION	BY	CHK	APPR



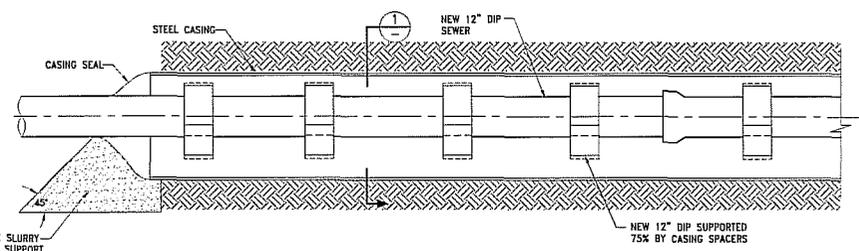
**22ND STREET SEWER IMPROVEMENTS
ALVERNON WAY TO SWAN ROAD
PLAN AND PROFILE**

OWNER BY:	GC: RDM	DATE:	SEPTEMBER 2015	8
DESIGN BY:	ROM	SCALE:	H. 1"=40' V. 1"=4'	OF
CHKD BY:	RFH	EEC JOB NO.:	14034-02	9

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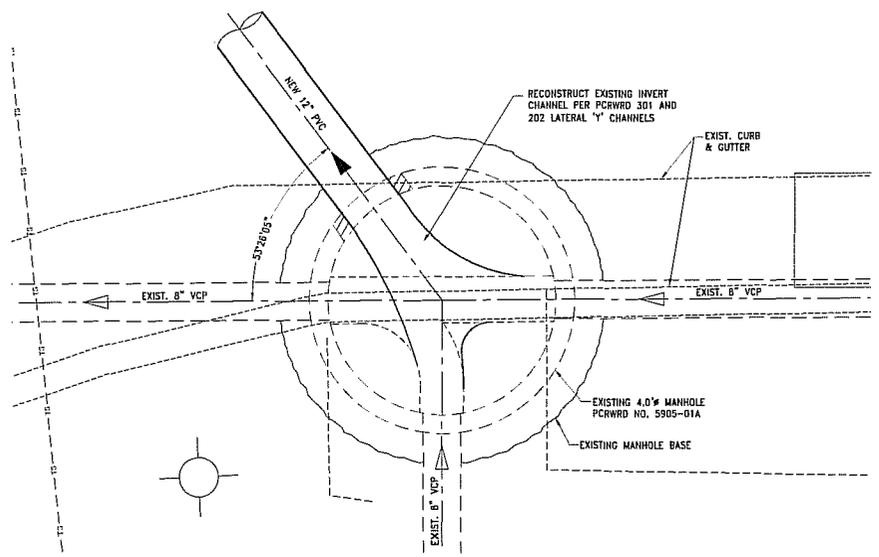


A EXISTING MANHOLE 5622-36 CONNECTION DETAIL NTS



- NOTES TO CONTRACTOR**
- CASING SPACERS SHALL BE RWRD 100 OR APPROVED BY PCRWD IDUAL.
 - PROVIDE CAP OR SEAL FOR OPEN CASING END.

B PIPE CASING DETAIL WITH FULLY RESTRAINED JOINTS NTS



C EXISTING MANHOLE 5905-01A CONNECTION DETAIL NTS

22ND STREET POTHOLES TABLE

PH #	LOCATION	NORTHING	EASTING	UTILITY TYPE	UTILITY SIZE	UTILITY DESCRIPTION	DATE	GROUND ELEVATION	Found Depth	Remarks
1	22ND STREET	40486 7453	11299 7000	WATER	6"	AC PIPE	2/18/2015	2520.34	7.01'	FOUND
2	22ND STREET	40480 1450	11276 2753	BLDG CONN SWR	4"	CLAY PIPE	2/18/2015	2623.4	4.34'	SEWER CONN
3	22ND STREET	---	---	---	---	---	3/18/2015	---	---	NOT FOUND
4	22ND STREET	40497 8925	11269 1339	GAS	4"	METAL	2/18/2015	2623.82	3.28'	FOUND
6	22ND STREET	40489 1308	11287 3267	WATER	8"	CA	2/18/2015	2525.25	5.19'	FOUND
8	22ND STREET	40503 5925	113571 8539	WATER	10"	CA	2/18/2015	2539.45	4.85'	FOUND
7	22ND STREET	40470 2812	114262 7316	GAS	6"	METAL	2/18/2015	2535.18	4.68'	FOUND
8	22ND STREET	40465 6512	114265 8318	REC. WATER	10"/30" CASING	STEEL CASING	2/18/2015	2525.07	15.88'	FOUND
9	22ND STREET	40511 1282	115816 4580	TEL/WATER	1" TEL# WATER	CABLE/AC	2/18/2015	2543.13	2.6673 16"	BOTH FOUND
10	22ND STREET	40468 4820	115037 9013	GAS	2"	PLASTIC	2/18/2015	2543.97	3.94'	FOUND
11	22ND STREET	40516 4053	118234 4660	WATER	8"	CA	2/18/2015	2547.18	5.62'	FOUND
12	22ND STREET	40489 8938	114090 6907	WATER	8"	CA	2/18/2015	2552.18	4.61'	FOUND
13	22ND STREET	---	---	BLDG CONN SWR	---	---	2/18/2015	---	---	NOT FOUND
14	DELETED	---	---	SEWER MAIN	---	---	2/18/2015	---	---	---
15	22ND STREET	40510 0352	114081 1740	WATER	8"	CA	2/18/2015	2539.09	4.44'	FOUND
16	22ND STREET	40515 8259	115818 8500	BLDG CONN SWR	4"	CLAY PIPE	2/18/2015	2543.82	3.42'	SEWER CONN
2.1	22ND ST. & ALVERNON WAY	40630 2320	111593 8780	WATER	6"	CA	3/18/2015	2518.41	2.82'	FOUND
2.2	22ND ST. & ALVERNON WAY	40630 2087	111591 1596	WATER	6"	METAL	3/18/2015	2518.2	> 8.23'	Fnd. Conc. cap @ 8.36' Fy @ 4.77'
2.3	22ND ST. & ALVERNON WAY	40682 8700	111591 4068	WATER	6"	METAL	3/19/2015	2518.5	> 8.44'	Fnd. Conc. cap @ 8.44'
2.4	22ND ST. & ALVERNON WAY	40643 8095	111581 0600	WATER	6"	METAL	3/18/2015	2518.83	6.16'	FOUND
2.5	22ND ST. & ALVERNON WAY	40585 4991	111573 3050	STORM DRAIN	2-3.0' x 10" RCBC with 3.0" wide factor	CONCRETE	3/18/2015	2518.14	0.7275 76'14 00"	Top @ 0.72 & 88 @ 5.76' Fy @ 4.87'
2.6	22ND ST. & ALVERNON WAY	40580 5103	111578 3798	STORM DRAIN	2-3.0' x 10" RCBC with 3.0" wide factor	CONCRETE	3/18/2015	2518.19	0.7775 81'14 50"	Top @ 0.77 & 88 @ 6.81' Fy @ 4.87'
2.7	22ND ST. & ALVERNON WAY	40582 4445	111569 9723	STORM DRAIN	2-3.0' x 10" RCBC with 3.0" wide factor	CONCRETE	3/18/2015	2518.58	0.8675 80'14 11"	Top @ 0.86 & 88 @ 5.87' Fy @ 4.71'
2.8	22ND ST. & ALVERNON WAY	40577 2487	111814 2213	STORM DRAIN	2-3.0' x 10" RCBC with 3.0" wide factor	CONCRETE	3/18/2015	2518.61	0.9375 85'14 70"	Top @ 0.93 & 88 @ 5.85' Fy @ 4.77'
2.9	22ND ST. & ALVERNON WAY	40575 5914	111829 9620	GAS	8"	METAL	3/19/2015	2518.74	6.87'	FOUND/ABANDONED
2.10	22ND ST. & ALVERNON WAY	40572 0038	111649 0857	WATER	3"	CONCRETE	3/18/2015	2517.08	8.22'	FOUND
2.12	22ND ST. & ALVERNON WAY	---	---	TELEPHONE	---	CABLE	3/23/2015	---	---	NOT FOUND

NOTE
THE POTHOLE DATA WHICH IS PRESENTED HEREIN WAS PREPARED UPON THE BASIS OF THE UTILITY SEARCH AND COMPARISON WITH THE EXISTING SEWER RECORD DRAWINGS. ADDITIONAL POTHOLES WILL BE IMPLEMENTED BY THE CONSTRUCTION MANAGER AT RISK IN ORDER TO DEVELOP MORE SPECIFIC ELEVATIONS WITHIN THE INTERSECTION OF ALVERNON WAY AND 22ND STREET IN ORDER TO COMPLY WITH THE REQUIREMENT FOR A MANDATORY 24-INCH SEPARATION BETWEEN THE PROPOSED 12-INCH SEWER PIPELINE AND RELATED TUCSON WATER PIPELINES. THIS POTHOLE PROFILE DATA WILL BE SHOWN ON SUBSEQUENT DRAWINGS PREPARED FOR THE WATER LINE RELOCATIONS AND REPLACEMENT.

G-2015-051

PCRWD No. 322A55

C EXISTING MANHOLE 5905-01A CONNECTION DETAIL NTS



Engineering and Environmental Consultants, Inc.
4625 East Fort Lowell Road | Tucson, Arizona 85712
Tel 520.321.4625 | Fax 520.321.8333

NO.	DATE	REVISION	BY	CHK	APPR



22ND STREET SEWER IMPROVEMENTS ALVERNON WAY TO SWAN ROAD POTHOLES DATA AND DETAILS

DRWN BY: SJC/DWM	DATE: SEPTEMBER 2015	9
DESIGN BY: BDM	SCALE: H 1"=40' V 1"=4'	0F
CHKD BY: SPH	EEC JOB NO: 14634.02	9

A:\11043107 - 22nd Street Sewer Improvements\1050 CAD\1050 DWG\1050-22nd Street Sewer Improvements.dwg Sheet 110 of 140 02-27-15 11:01am emms

A:\11624.02 - 22nd Street Sewer Improvements\11624.02\DWG\11624.02-22nd Street Sewer Improvements.dwg (Sheet) 10/14/2015 10:52:15 AM

RWRD 2012 AND PC/COT 2003 SPECIFICATIONS

1. SECTION 3.1 EARTHWORK IN ACCORDANCE WITH THE LATEST EDITION OF THE 2012 EDITION OF THE PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT STANDARD SPECIFICATION AND DETAILS.
2. SECTION 205 ROADWAY GRADING IN ACCORDANCE WITH THE LATEST EDITION OF THE PIMA COUNTY AND CITY OF TUCSON STANDARD SPECIFICATION FOR PUBLIC IMPROVEMENTS
3. SECTION 206 FURNISH WATER SUPPLY IN ACCORDANCE WITH THE LATEST EDITION OF THE PIMA COUNTY AND CITY OF TUCSON STANDARD SPECIFICATION FOR PUBLIC IMPROVEMENTS
4. SECTION 207 DUST PALLIATIVE IN ACCORDANCE WITH THE LATEST EDITION OF THE PIMA COUNTY AND CITY OF TUCSON STANDARD SPECIFICATION FOR PUBLIC IMPROVEMENTS
5. SECTION 3.2 SANITARY SEWER PIPE IN ACCORDANCE WITH THE 2012 EDITION OF THE PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT STANDARD SPECIFICATION AND DETAILS.
6. SECTION 3.3 SANITARY SEWER MANHOLES IN ACCORDANCE WITH THE 2012 EDITION OF THE PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT STANDARD SPECIFICATION AND DETAILS.
7. SECTION 701 MAINTENANCE AND PROTECTION OF TRAFFIC IN THE LATEST EDITION OF THE ACCORDANCE WITH PIMA COUNTY AND CITY OF TUCSON STANDARD SPECIFICATION FOR PUBLIC IMPROVEMENTS
8. SECTION 737 INCIDENTAL ELECTRICAL WORK IN ACCORDANCE WITH THE LATEST EDITION OF THE PIMA COUNTY AND CITY OF TUCSON STANDARD SPECIFICATION FOR PUBLIC IMPROVEMENTS
9. SECTION 901 MOBILIZATION IN ACCORDANCE WITH THE LATEST EDITION OF THE PIMA COUNTY AND CITY OF TUCSON STANDARD SPECIFICATION FOR PUBLIC IMPROVEMENTS.
10. SECTION 902 CHAIN LINK FENCE IN ACCORDANCE WITH THE LATEST EDITION OF THE PIMA COUNTY AND CITY OF TUCSON STANDARD SPECIFICATION FOR PUBLIC IMPROVEMENTS
11. SECTION 908 CONCRETE CURBS, GUTTERS, SIDEWALKS AND DRIVEWAYS IN ACCORDANCE WITH THE LATEST EDITION OF THE PIMA COUNTY AND CITY OF TUCSON STANDARD SPECIFICATION FOR PUBLIC IMPROVEMENTS.
12. SECTION 909 SURVEY MONUMENTS IN ACCORDANCE WITH THE LATEST EDITION OF THE PIMA COUNTY AND CITY OF TUCSON STANDARD SPECIFICATION FOR PUBLIC IMPROVEMENTS
13. SECTION 910 CONCRETE BARRIERS IN ACCORDANCE WITH THE LATEST EDITION OF THE PIMA COUNTY AND CITY OF TUCSON STANDARD SPECIFICATION FOR PUBLIC IMPROVEMENTS
14. SECTION 912 SHOTCRETE IN ACCORDANCE WITH THE LATEST EDITION OF THE PIMA COUNTY AND CITY OF TUCSON STANDARD SPECIFICATION FOR PUBLIC IMPROVEMENTS IN ACCORDANCE WITH THE LATEST EDITION.
15. SECTION 913 BANK PROTECTION IN ACCORDANCE WITH THE LATEST EDITION OF THE PIMA COUNTY AND CITY OF TUCSON STANDARD SPECIFICATION FOR PUBLIC IMPROVEMENTS
16. SECTION 915 TEMPORARY SILT FENCE IN ACCORDANCE WITH THE LATEST EDITION OF THE PIMA COUNTY AND CITY OF TUCSON STANDARD SPECIFICATION FOR PUBLIC IMPROVEMENTS
17. SECTION 929 BORING AND JACKING IN ACCORDANCE WITH THE LATEST EDITION OF THE PIMA COUNTY AND CITY OF TUCSON STANDARD SPECIFICATION FOR PUBLIC IMPROVEMENTS.
18. SECTION 1016 PACKAGED DRY CONCRETE AND MORTAR MATERIALS IN ACCORDANCE WITH THE LATEST EDITION OF THE PIMA COUNTY AND CITY OF TUCSON STANDARD SPECIFICATION FOR PUBLIC IMPROVEMENTS.



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NO.	DATE	REVISION	BY	CHK	APPR

G-2015-051

PCRWRD No. 322A55



22ND STREET SEWER IMPROVEMENTS
ALVERNON WAY TO SWAN ROAD

SPECIFICATIONS

DRAWN BY:	ELF/JSM	DATE:	SEPTEMBER 2015	1
DESIGN BY:	BJW	SCALE:		OF
CHECKED BY:	RPL	REC. JOB NO.:	14034.02	1

Exhibit E
Clarifications & Assumptions
Construction Manager at Risk for Pima County RWRD
22nd St Sewer Augmentation Project

List of Clarifications & Assumptions

SEWER INSTALLATION

Item 2.00 – Removals

Removal, stockpiling, hauling, and disposing of asphalt or concrete debris generated from the project based upon 8" asphalt thickness per geotechnical report borings B1-B5. Excludes any costs for the removal of hazardous materials.

Item 2.10 – 8" Sewer Removal

Removal of the existing 8" Vitrified Clay Pipe (VCP) from manhole 8911-08J to manhole 5602*04. Removal shall not commence until a Discharge Authorization for the new 12" sewer has been issued by ADEQ and released by PCRWRD.

Item 2.50 – SWPPP

Project SWPPP preparation, inspection, and implementation per AZDEQ. Includes providing catch basin protection, track out at staging yard, and street sweeping as required.

Item 3.00 – Aggregate Base

Delivery and installation of five inches of PAG specification aggregate base materials per the soil borings B1-B5 for a trench width of four feet wide along the project alignment. Native material will be used for trench backfill.

Item 4.00 – Trench Patching

Installation of 8" PAG specification mix no. 2 arterial in a four foot-one inch wide trench. Trench patching or restoration is bid to match the existing for any pavement areas disrupted. Replacement per PC/COT Std. Det. 216 Type 2. Work to take place between the hours of 6:00 am and 6:00 pm. Excludes cost of any chip sealing, crack sealing, or fog coating.

Item 4.05 – Mill / Plate Excavation

Trenches will be plated for protection of traffic while crews are not working. Per the City of Tucson Standard, the plates will be milled to a depth flush with existing asphalt and cold mix applied in place. Up to 500 linear feet of plating shall be utilized on the project and rotated in and out of service throughout the project duration.

Item 5.00 – Jack & Bore 30"

This item is based on a maximum length of 60 linear feet (LF) to be auger bored, carrier pipe to be placed on wood skids inside of the 30 inch casing, annular space to be filled with pea gravel, end seals to be installed, and casing supported beneath the pipe with CLSM per TW-800. Shoring used for the jack & bore pits will be engineered to have steel crossing plates placed so that traffic may drive over the trenches during the day.

5.15 – 12" DIP Sanitary Sewer

Installation of 12" SP2000 coated DIP will occur in two locations: the first is 60 LF at the water crossing located at Columbus Blvd where the new sanitary sewer lies above the existing water lines; the second is 20 LF at the water crossing at Irving where there is less than 2' of separation between the existing water line and new sewer line. In

addition there are two locations where 12" bare DIP lined with CIPP coating will be installed: the first is 165 LF from manhole 5622-36 to new manhole #1, across the intersection and through the casing at Alvernon Way & 22nd Street. The second is 20 LF from new manhole #14 to manhole 5905-01A at the Swan Rd & 22nd St tie-in point.

5.20 – 12" PVC Sanitary Sewer

Installation of the underground sanitary sewer pipe per plans dated July 2015 provided by EEC. Work will take place between the hours of 6:00 pm and 6:00 am. Pipe material is SDR35 PVC. Excludes any cost associated with hard dig conditions, rock excavation, blasting or hydraulic breakers of any kind.

5.25 – House Connections

Includes tying 17 house/business connections into the new 12" sewer main and extending a 4" sewer service to the property line with a cleanout assembly installed at the property line. Existing services will tie into the new cleanout assembly. New services will terminate at the cleanout assembly.

5.30 – Sanitary Sewer Testing

Includes pressure testing and deflection testing of PVC pipelines and mixed material pipelines. CCTV inspection of completed pipelines is to be provided by RWRD.

5.40 – New 60" Diameter Sanitary Sewer Manholes

Installation of new concrete manholes per RWRD Std. Dtl. 206. Includes concrete collar installation per RWRD Std. Dtl 211.

5.45 – Existing Manhole Connections

Concrete coring and patching on the connection points including existing manhole 5905-01A on the upstream and existing manhole 5622-36 on the downstream. Cores shall be 2" larger than the pipe diameter to accommodate gaskets and non-shrink grout installation. Includes bench rehabilitation after new pipe is installed.

5.50 – Sanitary Sewer Manhole Testing

Vacuum testing of sanitary sewer manholes per Arizona Administrative Code Title 18, Ch.9 section 3.e.

5.60 – Bypass Pumping

Hydrostatic pressure testing of flow management main-line discharge lines to be tested at 1.5 times the operating pressure of the system or at 30 PSI, whichever is greater. Suction and discharge hoses connected directly to pumps are exempt from these pressure tests. HDPE discharge lines to be disinfected and cleaned prior to removal using 12.5% Hypochlorite solution. Only includes bypass pumping for the upstream tie-in, the downstream tie-in will use flow-thru plugs.

5.70 – Existing 10" Line Repairs

The 10" repairs consist of:

1. Ultra Violet (UV) repair between manhole 5547-01 and manhole 5831-12
2. Cured In Place Pipe (CIPP) repair between manhole 5831-12 and manhole 5831-11
3. UV repair between manhole 5831-11 and manhole 5831-10
4. Trim protruding service between manhole 5831-07 and manhole 5831-06
5. Install tophat between manhole 5831-06 and 5831-05

UV patches will cover a point repair area of 4' and include CCTV of the line after installation. CIPP will rehabilitate the entire length of the pipe and will include pre-cleaning and pre and post CCTV of the pipe. The service to be trimmed will be

trenchless and performed by a mechanical whole-saw. The tophat installation will be trenchless and performed by CCTV trucks.

6.10 – Concrete Curb

Curb removal and replacement per PC/DOT Std. Detail 209, type 2 vertical curb. Due to minimal quantity, concrete testing is excluded.

6.20 – Concrete Sidewalk

Sidewalk removal and replacement per PC/DOT Std. Detail 200. Due to minimal quantity, concrete testing is excluded.

7.00 – Traffic Control

Includes daily setup and takedown for the duration of the project.

7.10 – Uniformed Officers

City of Tucson off duty officers utilized for point control while crossing the intersections of Alvernon, Columbus, and Swan Roads.

7.20 – Striping

Striping to be damaged by equipment and trench plate location along 22nd street for the length of the project. Temporary paint as well as thermoplastic replacement of stop bars, skip lines, reflective pavement markers, and crosswalks are included.

7.30 – Signal Loop Replacement

Includes replacing advance loops and stop loops at the intersections of Alvernon, Swan, and Columbus.

8.00 – Survey / As-Built

Includes construction survey, control verification, utility potholing verification, and as-built survey for the work in place.

8.10 – QC Testing

Includes testing of new sewer installation, including three compaction tests per line segment, compaction tests every 2 vertical feet of manhole backfill, and concrete cylinder casting at new manholes with 24 hour, 7 day, and 28 day breaks.

8.20 – Public Relations

Need for public relations outreach to businesses, public meetings, website construction updates, and hotline phone monitoring for the anticipated duration of 4 months.

9.00 – Permits

Includes Arizona Department of Environmental Quality Storm Water Pollution Prevention Permit Notice Of Intent, Pima County Department of Environmental Quality dust control permit, and City of Tucson Right of Way permit. Sewer permit to be provided at no cost from RWRD.

WATER MODIFICATIONS

2020041 – Removal of Pipe

Removal of existing waterline shall be completed for the existing 36" diameter Concrete Cylinder Pipe in the same location as the new line to be installed. Removal of the existing 6" diameter water line shall be located where tie-ins and connections take place. The existing 6" diameter water line shall be abandoned where it crosses beneath the existing drainage culvert.

4060114 – Utility Trench Patch (Type 2)(PC/COT STD 216)

Trench patching shall be greater than 4' in width, and a type 2 pavement patch is anticipated. The existing structural section shall be matched, based upon geotechnical

engineering, approximately 5" of aggregate base course shall be placed followed by 8" to 10" of PAG 2 asphalt.

51000001 – 6" Jack & Bore

The 18" jack & bore under the reinforced concrete box culvert is to be a maximum of 100 linear feet. Shoring used for the jack & bore pits will be engineered to have steel crossing plates placed so that traffic may drive over the trenches during the day.

51001106 – Pipe, DIP, 6"

6" Class 350 ductile iron pipe shall be utilized. The pipe shall be fully restrained and the new alignment parallel to the existing allowing for a new installation with proper separation allowing for jack & bore operations beneath the storm drain box culvert.

51001124 – Pipe, DIP, 24"

24" pipe shall be installed with minimum class 350 ductile iron pipe and fully restrained. A 24" x 6" tee shall be installed to facilitate the installation of a zone valve.

51001136 – Pipe, DIP, 36"

The new 36" ductile iron pipe shall be class 350 and be fully restrained. Included are the fittings to facilitate a vertical and horizontal offset. Backfill of the pipe shall be native material. To complete the installation a weekend closure of the intersection is required. The pipe tie in location is anticipated to be within the travel lanes of E 22nd Street and N Alvernon Way.

5102406, 5102424, 5102436 – Gate Valve, Box & Cover

All valves are anticipated to be vertical gate valves based upon existing potholing data at the intersection. Valve Boxes and Covers shall follow City of Tucson Water Standard.

5102604 – Combination Air Release Valve, 1"

A single new 1" air release valve is anticipated to be added on the 6" relocated water line. The new ARV is expected to be placed outside of traffic lanes and placed in a #2 meter box per Tucson Water Standard.

5102606 – Combination Air Release Valve, 2"

A single new 2" air release valve is anticipated to be added on the 36" relocated water line. The new ARV is expected to be placed outside of traffic lanes and placed in a #2 meter box per Tucson Water Standard.

5106006 – 6" Connections

New 6" connections shall include necessary dewatering, excavation, and connection to existing pipe, regardless of type.

5106024 – 24" Connections

24" Connection to the existing water line shall include all excavation, shoring / bracing, dewatering and connection to the existing 24" diameter concrete cylinder pipe using a specialty manufactured welded steel connection piece. The connection piece shall be fully welded and contain a 16" flanged outlet for interior welding access.

5106030 – 30" Connections

30" Connection to the existing water line shall include all excavation, shoring / bracing, dewatering and connection to the existing 30" diameter concrete cylinder pipe using a specialty manufactured welded steel connection piece. The connection piece shall be fully welded and contain a 16" flanged outlet for interior welding access.

5106036 – 36” Connections

36” Connection to the existing water line shall include all excavation, shoring / bracing, dewatering and connection to the existing 36” diameter concrete cylinder pipe using a specialty manufactured welded steel connection piece. The connection piece shall be fully welded and contain a 16” flanged outlet for interior welding access.

5107004 – Final Corrosion Report

A final corrosion report shall be completed by a certified NACE technician in accordance with the City of Tucson Water Department specifications.

5107120 – Corrosion Test Station

Corrosion test stations shall be located outside of the roadway and be located at each tie in location verifying the isolation of the dissimilar pipe materials.

5107624, 5107630, 5107636 – Flange Insulating Kits

A total of three large diameter Flange Insulating Kits shall be used, to isolate the dissimilar pipe materials at the 24”, 30” and 36” connection.

7010001 – Maintenance and Protection of Traffic

It is anticipated that a closure of the intersection be allowed for the pipe crossing. Included is the estimated to include setup / takedown and devices for the associated waterline work. No uniformed officer / point control is included.

7310010 – Pole (Type A)

A traffic signal pole is required to be removed and replaced during the waterline crossing. Included is the electrical disconnection, removal of the pole, and re-installation of the pole on the existing foundation.

7310200 – Pole Foundation (Type A)

If necessary removal and installation of a new pole foundation is required, includes electrical conduits to a maximum of 5’ radius from the existing pole.

7350100 – Loop Detector

4 traffic signal loop detectors are anticipated to be damaged from the associated waterline construction. Included is the reinstatement of signal loops to existing signal junction boxes. Saw-cutting asphalt and sealing of the joint is included.

9080005 – Concrete Vertical Curb

Type 209 concrete vertical curb following City of Tucson standard details of construction. Class B 2500 psi concrete shall be used. Testing shall be per City of Tucson Standard Specifications Section 1006.

TUCSON DOT ROADWAY RESTORATION

400 – Mill & Overlay North Half of 22nd St / Alvernon Way

Includes milling out 2.5” of the north half of the Alvernon Way & 22nd St intersection going from the bullnose of the median on the west side of 22nd St across Alvernon to the bullnose of the median on the east side of 22nd St and north to the southbound crosswalk on Alvernon Way. Also included at southbound Alvernon Way is milling from the crosswalk and going north 60 feet from the bike lane on southbound Alvernon Way to the median on the north side of Alvernon Way. Pavement replaced with PAG 2 Arterial mix per PC/COT Std. Det. 216. Temporary paint and thermoplastic striping is included. Any damages to traffic loops is not included.

401 – Mill & Overlay Alvernon Way to Bryant Ave

Includes milling the entire width of westbound 22nd St from the end of the bullnose of the median on the east side of the intersection of Alvernon Way & 22nd St to Bryant Ave. Pavement replaced with PAG 2 Arterial mix per PC/COT Std. Det. 216. Temporary paint and thermoplastic striping is included. Any damages to traffic loops is not included.

402 – Mill & Overlay Bryant Ave to Swan Rd

Includes milling the left westbound lane of 22nd St from Bryant Ave east to the point where the new 12" sewer main will cross the median on 22nd St and go southeast to it's tie-in point. Pavement replaced with PAG 2 Arterial mix per PC/COT Std. Det. 216. Temporary paint and thermoplastic striping is included. Any damages to traffic loops is not included.

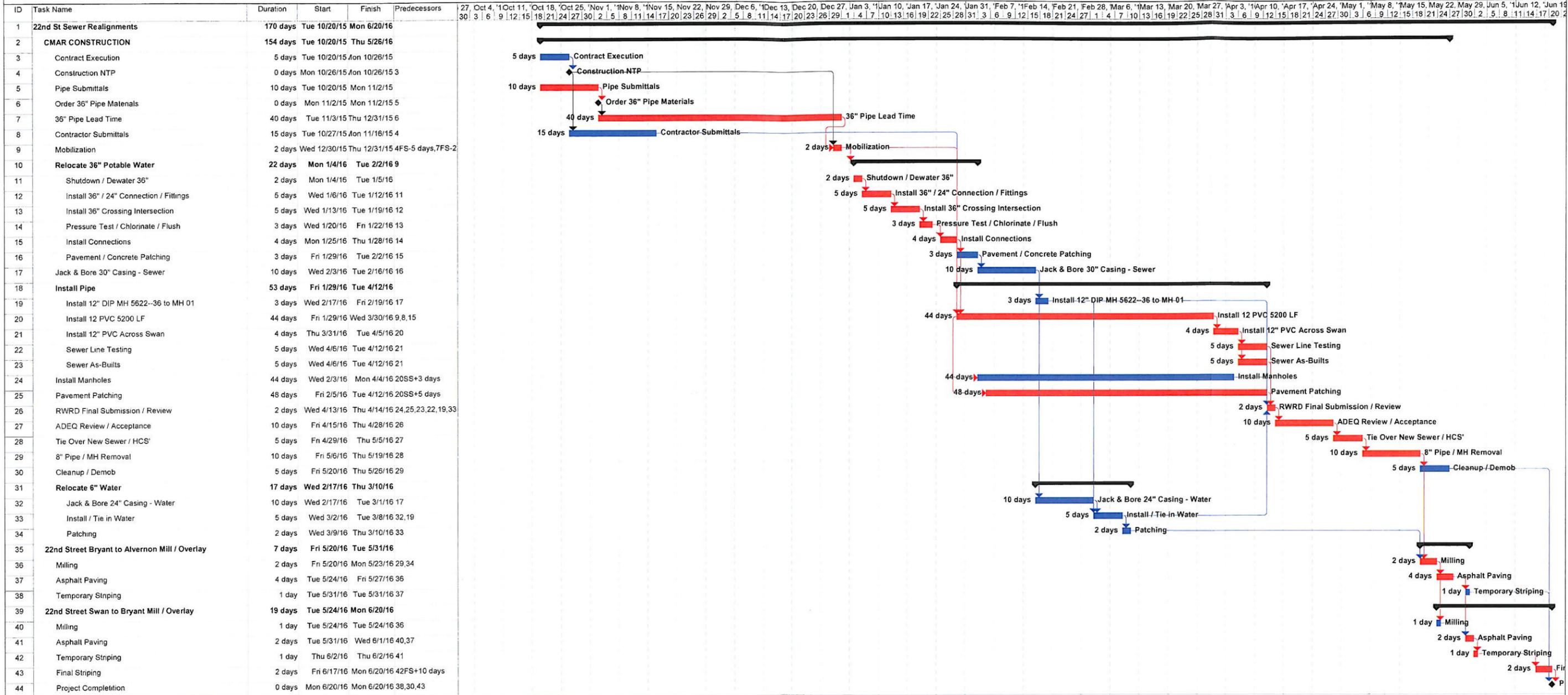
403 – Type 1 Trench Patch at Swan Rd

Includes a type 1 utility patch over approximately 230 feet of trench extending across the eastbound right lane of 22nd St through the Swan Rd intersection. Pavement replaced with PAG 2 Arterial mix per PC/COT Std. Det. 216. Temporary paint and thermoplastic striping is included. Any damages to traffic loops is not included.

General

1. Normal weather conditions are expected on this project, as such, KE&G expects average rainfall to equal 1 day per month. Weather related days can be claimed during rainfall events or after rainfall events on days no rain has occurred. The project is expected to last six months, so we can anticipate six (6) rain days.
2. Clarifications and Assumptions included in this Exhibit or others are the basis of this GMP.
3. Excludes cost for existing utility relocation/support other than the 36" & 6" water mains at Alvernon Way
4. Excludes pole support and overhead protection
5. Excludes temporary construction easement cost
6. Excludes dewatering of ground water

22nd St Sewer Augmentation - Construction



Project KE&G 22nd St CMAR Precons Date: Fri 9/25/15

Task	Milestone	Rolled Up Critical Task	Split	Group By Summary	Inactive Summary	Manual Summary Rollup	Finish-only
Critical Task	Summary	Rolled Up Milestone	External Tasks	Deadline	Manual Task	Manual Summary	External Tasks
Progress	Rolled Up Task	Rolled Up Progress	Project Summary	Inactive Milestone	Duration-only	Start-only	External Milestone