PANTHER DRIVE BRIDGE
AT QUEEN CREEK

TOWN OF SUPERIOR

TOWN OF SUPERIOR
199 N. LOBB AVE
PO BOX 218 SUPERIOR, AZ 85173
PHONE: (480) 646-3771
CONTACT:LANA CLARK
EMAIL: SCLARK@SUPERIORAZ.GOV

ENGINEER

EPS GROUP, INC
1130 N. ALMA SCHOOL RD, SUITE 120
MESA, ARIZONA 85201
PHONE: (480) 503-2250
FAX: (480) 503-2258
CONTACT: MATT TRUITT

SHEET INDEX

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UTILITY COORDINATION LIST

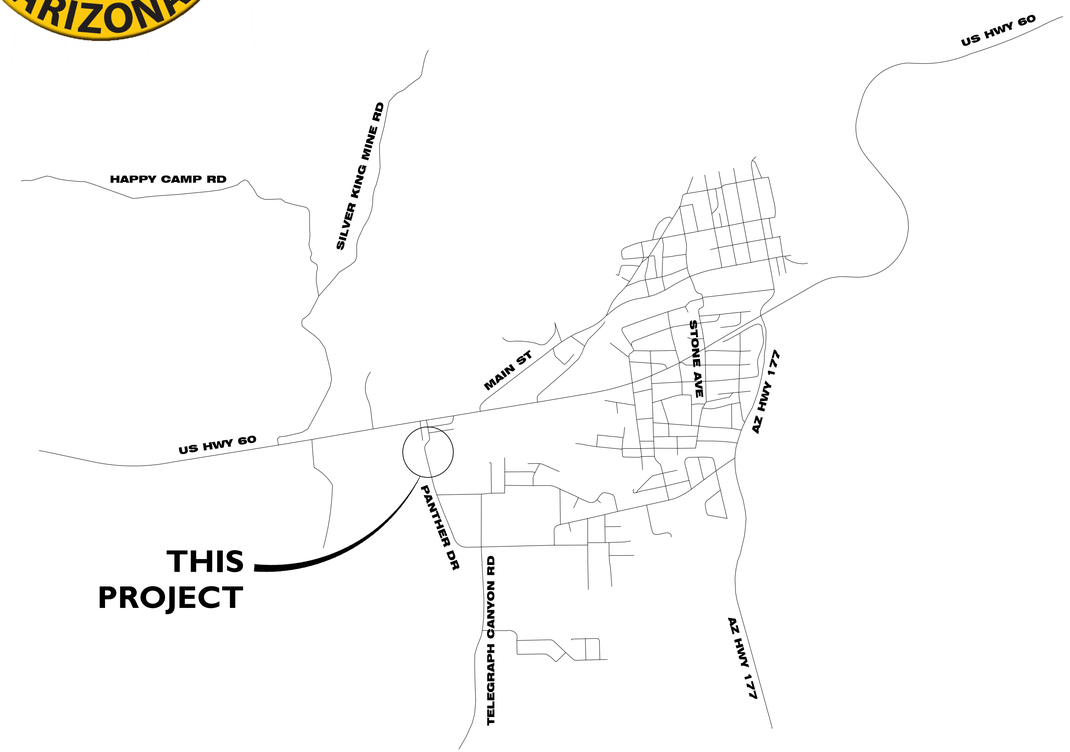
UTILITY PROVIDER	REPRESENTATIVE	PHONE
ARIZONA WATER COMPANY	JAMES WILSON	(602) 240-6860
SOUTHWEST GAS	DANIEL BALCAZAR	(928) 961-8033
SRP POWER (TRANSMISSION)	DANIEL DANCER-LUKEY	(602) 236-5644
TOWN OF SUPERIOR (SEWER)	LANA CLARK	(480) 646-3771

RECORD DRAWING 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/LAND SURVEYOR _____ DATE _____

REGISTRATION NUMBER _____



VICINITY MAP

APPROVALS

ARIZONA DEPT. OF ENVIRONMENTAL QUALITY

TOWN OF SUPERIOR PUBLIC WORKS DIRECTOR

EPS GROUP
1130 N Alma School Road
Suite 120
Mesa, AZ 85201
T:480.503.2250 | F:480.503.2258
www.epsgroupinc.com

Project: Panther Drive Bridge
Town of Superior, AZ

Cover Sheet

Revisions:

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Designer: MTT
Drawn by: RVV

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Job No.
23-0519

CS01

Sheet No.
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of 28

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jlassuy

ENGINEERS NOTES

1. THESE PLANS ARE SUBJECT TO THE INTERPRETATION OF INTENT BY THE ENGINEER. ALL QUESTIONS REGARDING THESE PLANS SHALL BE PRESENTED TO THE ENGINEER. ANYONE WHO TAKES UPON THEM SELF THE INTERPRETATION OF THE DRAWINGS OR MAKES REVISIONS TO THEM WITHOUT CONFERRING WITH THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR THE CONSEQUENCES THEREOF.
2. MARICOPA ASSOCIATION OF GOVERNMENTS (M.A.G.) UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION ARE INCORPORATED INTO THESE PLANS IN THEIR ENTIRETY. CONTRACTOR TO USE LATEST EDITION INCLUDING LATEST REVISIONS AND CURRENT SUPPLEMENTALS PER THE LOCAL TOWN, CITY, OR COUNTY.
3. ALL WORK REQUIRED TO COMPLETE THE CONSTRUCTION COVERED BY THESE PLANS SHALL BE IN ACCORDANCE WITH THE M.A.G. STANDARD SPECIFICATIONS AND DETAILS, AND CURRENT SUPPLEMENTS THEREOF PER CITY OF MARICOPA UNLESS SPECIFIED OTHERWISE IN THESE PLANS OR ELSEWHERE IN THE CONTRACT DOCUMENTS. CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH ALL REQUIRED STANDARD SPECIFICATIONS, DETAILS AND SUPPLEMENTS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THESE PLANS.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL METHODS, SEQUENCING, AND SAFETY USED DURING CONSTRUCTION UNLESS SPECIFICALLY ADDRESSED OTHERWISE IN THESE PLANS OR ELSEWHERE IN THE CONTRACT DOCUMENTS.
5. THE CONTRACTOR IS TO COMPLY WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS APPLICABLE TO THE CONSTRUCTION COVERED BY THESE PLANS.
6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND COMPLYING WITH ALL PERMITS REQUIRED TO COMPLETE ALL WORK COVERED BY THESE PLANS. THE DEVELOPER SHALL OBTAIN A PINAL COUNTY RIGHT-OF-WAY USE PERMIT PRIOR TO ANY WORK BEING PERFORMED WITHIN COUNTY RIGHT-OF-WAY AT LEAST 5 WORKING DAYS PRIOR TO WORK.
7. THE QUANTITIES AND SITE CONDITIONS DEPICTED IN THESE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY CONTRACTORS SHALL SATISFY THEMSELVES AS TO ACTUAL QUANTITIES AND SITE CONDITIONS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THESE PLANS.
8. A REASONABLE EFFORT HAS BEEN MADE TO SHOW THE LOCATIONS OF EXISTING UNDERGROUND FACILITIES AND UTILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND/OR FACILITIES CAUSED DURING THEIR CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL CALL 48 HOURS IN ADVANCE FOR BLUE STAKE AT 1-800-STAKEIT.
9. THE CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION OF CONSTRUCTION AFFECTING UTILITIES AND THE COORDINATION OF ANY NECESSARY UTILITY RELOCATION WORK.
10. ALL PAVING, GRADING, EXCAVATION, TRENCHING, PIPE BEDDING, CUT, FILL AND BACK FILL SHALL COMPLY WITH THE RECOMMENDATIONS SET FORTH IN THE SOILS (GEOTECHNICAL) REPORT FOR THIS PROJECT.
11. THE CONTRACTOR IS TO VERIFY THE LOCATION AND THE ELEVATIONS OF ALL EXISTING UTILITIES AT POINTS OF TIE-IN PRIOR TO COMMENCING ANY NEW CONSTRUCTION. SHOULD ANY LOCATION OR ELEVATION DIFFER FROM THAT SHOWN ON THESE PLANS, THE CONTRACTOR SHALL CONTACT THE OWNER'S AGENT.
12. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AN EARTH MOVING PERMIT FROM THE ENVIRONMENTAL PROTECTION AGENCY, AND COMPLYING WITH THEIR REQUIREMENTS FOR DUST CONTROL.
13. CONTRACTOR IS RESPONSIBLE TO COORDINATE WORK WITH WEATHER CONDITIONS. THE PROJECT SITE MAY BE LOCATED IN A FLOOD PRONE AREA AND SUBJECT TO, FLOODING AND ITS ASSOCIATED HAZARD.

GENERAL NOTES

1. CONTRACTOR SHALL OBTAIN A RIGHT OF WAY USE PERMIT PRIOR TO ANY WORK BEING PERFORMED.
2. ALL WORK REQUIRED TO COMPLETE THE CONSTRUCTION COVERED BY THESE PLANS SHALL BE IN ACCORDANCE WITH THE M.A.G. STANDARD SPECIFICATIONS AND DETAILS.
3. ALL FRAMES, COVERS, VALVE BOXES, AND MANHOLE COVERS SHALL BE ADJUSTED TO FINISHED GRADE PRIOR TO COMPLETION OF CONSTRUCTION. (IF LOCATED OUTSIDE PAVEMENT SECTION, PREFER LEVEL WITH FINISHED GRADE BUT ALLOW 6" MAX ABOVE FINISHED GRADE.)
4. CONTRACTOR IS RESPONSIBLE FOR BLUE STAKE MARKING AS CONSTRUCTION IS IN PROGRESS.
5. ALL RESIDENTS TO BE NOTIFIED IN PERSON 24 HOURS PRIOR TO DRIVEWAY CROSSING.
6. NO TRENCH TO BE LEFT OPEN/UNCOVERED AFTER WORKING HOURS UNLESS PROPERLY SIGNED AND BARRICADED PER THE APPROVED TRAFFIC CONTROL PLAN.
7. TRENCH EXCAVATION, BACKFILLING, AND COMPACTION SHALL BE PER MAG STANDARD SPECIFICATIONS SECTION 601. BEDDING SHALL BE SPECIFICALLY PER MAG STANDARD SPECIFICATIONS 601.4.2 AND 601.4.6.

SIGNING AND STRIPING NOTES

1. THE CONTRACTOR SHALL OBTAIN A RIGHT-OF-WAY USE PERMIT PRIOR TO ANY WORK BEING PERFORMED WITHIN THE TOWN RIGHT-OF-WAY.
2. ALL PAVEMENT MARKINGS SHALL CONFORM TO THE ARIZONA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITIONS.
3. THE CONTRACTOR SHALL SPOT MARK THE ENTIRE PROJECT BEFORE APPLYING ANY PAINT. WHEN THE SPOTTING IS COMPLETE THE CONTRACTOR SHALL CONTACT THE TOWN PUBLIC WORKS INSPECTION SECTION TO MAKE ARRANGEMENTS FOR INSPECTION PRIOR TO APPLYING ANY PAINT.
4. ANY PAVEMENT MARKINGS APPLIED PRIOR TO FIELD INSPECTION SHALL BE REMOVED AND RE-STRIPED AT THE EXPENSE OF THE CONTRACTOR.
5. THE DIMENSIONS SHOWN FOR THE PAVEMENT STRIPING ARE TO THE CENTER OF THE STRIPING OR, IN THE CASE OF DOUBLE STRIPING, TO THE CENTER OF THE DOUBLE STRIPE .
6. THE FINAL STRIPING SHALL BE 60 MIL (0.060 INCH) THICK HOT-SPRAYED THERMOPLASTIC REFLECTORIZED STRIPING.
7. THE PAVEMENT ARROWS, SYMBOLS AND LEGENDS SHALL BE WHITE 90 MIL (0.090 INCH) THICK ALKYD EXTRUDED THERMOPLASTIC REFLECTORIZED MARKINGS. TURN LANE ARROWS SHALL BE LOCATED IN ACCORDANCE WITH ADOT STANDARD DRAWING M-11.
8. THE CONTRACTOR SHALL APPLY A PRIMER-SEALER PRIOR TO THE INSTALLATION OF ALL THERMOPLASTIC PAVEMENT MARKINGS IN ACCORDANCE WITH THE THERMOPLASTIC MANUFACTURE'S RECOMMENDATIONS. THE WIDTH OF THE PRIMER-SEALER SHALL MATCH THE WIDTH OF THE FINAL STRIPING.
9. THE CONTRACTOR SHALL CLEAN THE ROADWAY SURFACE TO THE SATISFACTION OF THE INSPECTOR, BY SWEEPING AND AIR-JET BLOWING, IMMEDIATELY PRIOR TO THE PLACEMENT OF ALL PAVEMENT MARKINGS. THE ROADWAY SURFACE SHALL BE DRY AND THE AIR AND PAVEMENT TEMPERATURES SHALL NOT BE LESS THAN 50 DEGREES F FOR THE PLACEMENT OF THE THERMOPLASTIC MARKINGS.
10. ALL RETRO-REFLECTIVE RAISED PAVEMENT MARKERS SHALL HAVE AN ABRASION RESISTANT COATING ON THE FACE OF THE PRISMATIC REFLECTORS AND SHALL CONFORM TO THE DETAILS OF STD. DWG. M-19. THEY SHALL BE INSTALLED WITH A BITUMINOUS ADHESIVE WHICH IS ON THE ADOT APPROVED PRODUCT LIST.
11. CONTRACTOR IS RESPONSIBLE FOR BLUE STAKE MARKING PRIOR TO INSTALLATION OF ANY SIGN POSTS.
12. THE CONTRACTOR SHALL ALLOW THE CONCRETE IN THE POST HOLES TO CURE FOR AT LEAST 24 HOURS PRIOR TO STANDING THE POLES.
13. THE CONTRACTOR SHALL ENSURE THAT AT NO TIME A TRAFFIC SIGN IS INSTALLED IN SUCH A WAY AS TO BE BLOCKED BY TREES OR VEGETATION. IN THESE CASES, THE CONTRACTOR SHALL CONTACT THE TOWN TO PROVIDE AN ALTERNATE LOCATION FOR THE INSTALLATION OF THE SIGNING IN QUESTION.
14. SIGNING QUANTITIES AND INSTALLATION LOCATIONS ARE SUBJECT TO CHANGE AT THE TIME OF INSTALLATION BASED UPON CURRENT ACCEPTED PRACTICE.
15. ALL SIGNS MUST BE IN COMPLIANCE WITH THE MUTCD AND THE ADOT SIGNING AND MARKING STANDARD DRAWINGS.
16. THE BOTTOM OF EACH SIGN SHALL BE AT LEAST 7 FEET ABOVE THE NEAREST EDGE OF PAVEMENT AND AT LEAST 7 FEET ABOVE THE GROUND UNDER THE SIGN.
17. ALL SIGNS SHALL BE FABRICATED OF FLAT SHEET ALUMINUM WITH DIRECT APPLIED COPY OR SILK-SCREENED LEGEND.
18. TRAFFIC CONTROL AND BARRICADING SHALL BE ACCORDING TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
19. ALL WARNING, REGULATORY AND STREET NAME SIGNS ARE TO BE INSTALLED ON 2" SQUARE TUBE SIGN POST PER ADOT TRAFFIC SIGNING & MARKING STANDARD DRAWINGS, DRAWING NO. S-3 (SHEET 15 OF 16).
20. ALL SIGNS MUST BE MANUFACTURED OF "ASTM D-4956-01A- PROPOSED TYPE XI SHEETING" (3M 4000 DG3 SERIES OR EQUIVALENT) WHICH WILL BE ATTACHED TO THE STANDARD SIGNAGE ALUMINUM PLATES. SIGN IMAGING SHALL BE IN COMPLIANCE WITH THE REFLECTIVE SHEETING MANUFACTURER'S MATCHED COMPONENT SYSTEM. SIGN IMAGING SHALL CONSIST OF AN ACRYLIC BASED ELECTRONIC CUTTABLE FILM (3M 1170 SERIES OR EQUIVALENT) OR SILK SCREENED (DEPENDING ON THE QUANTITY OF SIGNAGE) WITH STANDARD HIGHWAY COLORS. IN ADDITION, IF CALLED OUT ON THE PLANS, TO CREATE A GRAFFITI-PROTECTIVE COATING, A PREMIUM PROTECTIVE OVERLAY FILM (3M 1160 SERIES OR EQUIVALENT) SHALL BE USED WHICH IS DESIGNATED TO COMPLY WITH THE UNDERLYING REFLECTIVE SHEETING MATCH COMPONENT SYSTEM.

ADEQ WATER NOTES

1. ALL PIPE, FITTINGS, VALVES, FIRE HYDRANTS, ETC. SHALL CONFORM TO NSF STANDARD 61.
2. PVC PIPES WILL BE NSF APPROVED FOR POTABLE WATER USE. (NSF-PWSEAL)
3. CONTRACTOR TO MAINTAIN MIN 3' COVER OVER ALL WATER LINES.
4. DEAD ENDS MUST HAVE BLOW-OFF VALVES (MIN. DIAMETER = 2")
5. AIR AND VACUUM RELIEF VALVES ARE INSTALLED AT THE HIGH POINTS ON THE WATERLINE WHILE PRESSURE REDUCING VALVES ARE REQUIRED FOR PRESSURES GREATER THAN 100 PSI.
6. WATER/SEWER MAIN SEPARATION MUST MEET ACC R18-5-502.
   A. WATER AND SEWER MAINS SHALL BE SEPARATED IN ORDER TO PROTECT PUBLIC WATER SYSTEMS FROM POSSIBLE CONTAMINATION. ALL DISTANCES ARE MEASURED PERPENDICULARLY FROM THE OUTSIDE OF THE SEWER MAIN TO THE OUTSIDE OF THE WATER MAIN. SEPARATION REQUIREMENTS ARE AS FOLLOWS:
      a. A WATER MAIN SHALL NOT BE PLACED:
         1) WITHIN 6 FEET, HORIZONTAL DISTANCE, AND BELOW 2 FEET, VERTICAL DISTANCE, ABOVE THE TOP OF A SEWER MAIN UNLESS EXTRA PROTECTION IS PROVIDED. EXTRA PROTECTION SHALL CONSIST OF CONSTRUCTING THE SEWER MAIN WITH MECHANICAL JOINT DUCTILE IRON PIPE OR WITH SLIP-JOINT DUCTILE IRON PIPE IF JOINT RESTRAINT IS PROVIDED. ALTERNATE EXTRA PROTECTION SHALL CONSIST OF ENCASING BOTH THE WATER AND SEWER MAINS IN AT LEAST 6 INCHES OF CONCRETE FOR AT LEAST 10 FEET BEYOND THE AREA COVERED BY THIS SUBSECTION (C)(1)(A).
         2) WITHIN 2 FEET HORIZONTALLY AND 2 FEET BELOW THE SEWER MAIN.
      b. NO WATER PIPE SHALL PASS THROUGH OR COME INTO CONTACT WITH ANY PART OF A SEWER MANHOLE. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATER MAINS AND MANHOLES SHALL BE 6 FEET, MEASURED FROM THE CENTER OF THE MANHOLE.
      c. THE MINIMUM SEPARATION BETWEEN FORCE MAINS OR PRESSURE SEWERS AND WATER MAINS SHALL BE 2 FEET VERTICALLY AND 6 FEET HORIZONTALLY UNDER ALL CONDITIONS. WHERE A SEWER FORCE MAIN CROSSES ABOVE OR LESS THAN 6 FEET BELOW A WATER LINE, THE SEWER MAIN SHALL BE ENCASED IN AT LEAST 6 INCHES OF CONCRETE OR CONSTRUCTED USING MECHANICAL JOINT DUCTILE IRON PIPE FOR 10 FEET ON EITHER SIDE OF THE WATER MAIN.
      d. THE SEPARATION REQUIREMENTS DO NOT APPLY TO BUILDING, PLUMBING, OR INDIVIDUAL HOUSE SERVICE CONNECTIONS.
      e. SEWER MAINS (GRAVITY, PRESSURE, AND FORCE) SHALL BE KEPT A MINIMUM OF 50 FEET FROM WELLS UNLESS THE FOLLOWING CONDITIONS ARE MET:
         1) WATER MAIN PIPE, PRESSURE TESTED IN PLACE TO 50 PSI WITHOUT EXCESSIVE LEAKAGE, IS USED FOR GRAVITY SEWERS AT DISTANCES GREATER THAN 20 FEET FROM WATER WELLS; OR
         2) WATER MAIN PIPE, PRESSURE TESTED IN PLACE TO 150 PSI WITHOUT EXCESSIVE LEAKAGE, IS USED FOR PRESSURE SEWERS AND FORCE MAINS AT DISTANCES GREATER THAN 20 FEET FROM WATER WELLS. "EXCESSIVE LEAKAGE" MEANS ANY AMOUNT OF LEAKAGE WHICH IS GREATER THAN THAT PERMITTED UNDER THE AWWA STANDARD APPLICABLE TO THE PARTICULAR PIPE MATERIAL OR VALVE TYPE.
      f. REQUESTS FOR AUTHORIZATION TO USE ALTERNATE CONSTRUCTION TECHNIQUES, MATERIALS, AND JOINTS SHALL BE REVIEWED BY THE DEPARTMENT, AND SUCH REQUESTS MAY BE APPROVED ON A CASE-BY-CASE BASIS.
7. ALL WATER LINES MUST BE DISINFECTED PER BULLETIN 8 OR AWWA C651-86.
8. PRESSURE TESTING OF WATER LINES WILL CONFORM TO AWWA C605-924 OR LATEST REVISION. ALL WATER MAINS AND SERVICE LINES SHALL BE PRESSURE TESTED AT 150 PSI (MINIMUM).
9. ALL COMPLETED CONSTRUCTED WATER SYSTEM COMPONENTS SHALL BE SAMPLED FOR MICROBIOLOGICAL QUALITY AND BE FOUND TO MEET ADEQ STANDARDS PRIOR TO PLACEMENT IN SERVICE.

LEGEND

EXISTING

	FOUND MONUMENT, AS NOTED		TREE
	WATER VALVE	T	TELEPHONE
W	WATER METER	S	SANITARY SEWER
	FIRE HYDRANT	OHE	OVERHEAD ELECTRIC
T	TELCO PEDESTAL / PULL BOX	UGE	UNDERGROUND ELECTRIC
TV	CABLE TV PEDESTAL / PULL BOX	UGT	UNDERGROUND TELEPHONE
	POWER POLE (12kV, 69kV)	ELEC	ELECTRIC
	DOWN GUY	WAT	WATER
GV	GAS VALVE	SD	STORM DRAIN
G	GAS METER	CATV	CABLE TELEVISION
	SIGN	IRR	IRRIGATION
	STREET LIGHT	FO	FIBER OPTIC
	PUBLIC UTILITY EASEMENT	OHE&T	OVERHEAD ELECTRIC AND TELEPHONE
1237	EXISTING CONTOUR LINE	UGC	UNDERGROUND CABLE
		ITS	TRAFFIC SIGNAL CONDUIT
			GUARDRAIL

PROPOSED

	WATER VALVE		4" AC PAVEMENT ON 8" ABC 6" ABC ACCESS ROAD. PEDESTRIAN PATHWAY
ARV	WATER AIR RELEASE VALVE		RIPRAP
	WATER LINE		
	SEWER MANHOLE		

ABBREVIATIONS

SEW	SEWER	R/W	RIGHT-OF-WAY
SD	STORM DRAIN	C/L	CENTERLINE
PC	POINT OF CURVATURE	MAG	MARICOPA ASSOCIATION OF GOVERNMENTS
PT	POINT OF TANGENCY	ESMT	EASEMENT
RT	RIGHT	DIP	DUCTILE IRON PIPE
LT	LEFT	WAT	WATER
M/L	MONUMENT LINE	E/P	EDGE OF PAVEMENT
ABND	ABANDONED	EX	EXISTING
STA	STATION	INV	INVERT ELEVATION

1130 N Alma School Road
Suite 120
Mesa, AZ 85201
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w w w . e p s g r o u p i n c . c o m
EPS GROUP

Project:
Panther Drive Bridge
Town of Superior, AZ

Notes

Revisions:

Call at least two full working days before you begin excavation.
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602)263-1100

Designer: MTT
Drawn by: RW

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Job No.
23-0519

CS02

Sheet No.
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of 28

EXISTING MONUMENTS

(1) BENCHMARK #1
3" BRASS CAP
NGS – DESIGNATION E81C
PID – DQ8555
N: 831822.64
E: 941937.93
ELEV=2661.41

(2) BENCHMARK #2
SURVEY NAIL
N: 831610.99
E: 944453.63

(3) BENCHMARK #3
5/8" REBAR
N: 831657.11
E: 944182.59

PANTHER DR CENTERLINE

[1] POINT #1
POINT OF BEGINNING
STA 10+00.00
N: 831231.61
E: 944576.02

[2] POINT #2
POINT OF INTERSECTION
STA 11+71.87
N: 831397.36
E: 944530.56

[3] POINT #3
POINT OF INTERSECTION
STA 12+54.43
N: 831476.52
E: 944507.13

[4] POINT #4
POINT OF INTERSECTION
STA 13+50.66
N: 831569.33
E: 944481.67

[5] POINT #5
PC
STA 15+88.60
N: 831801.69
E: 944430.48

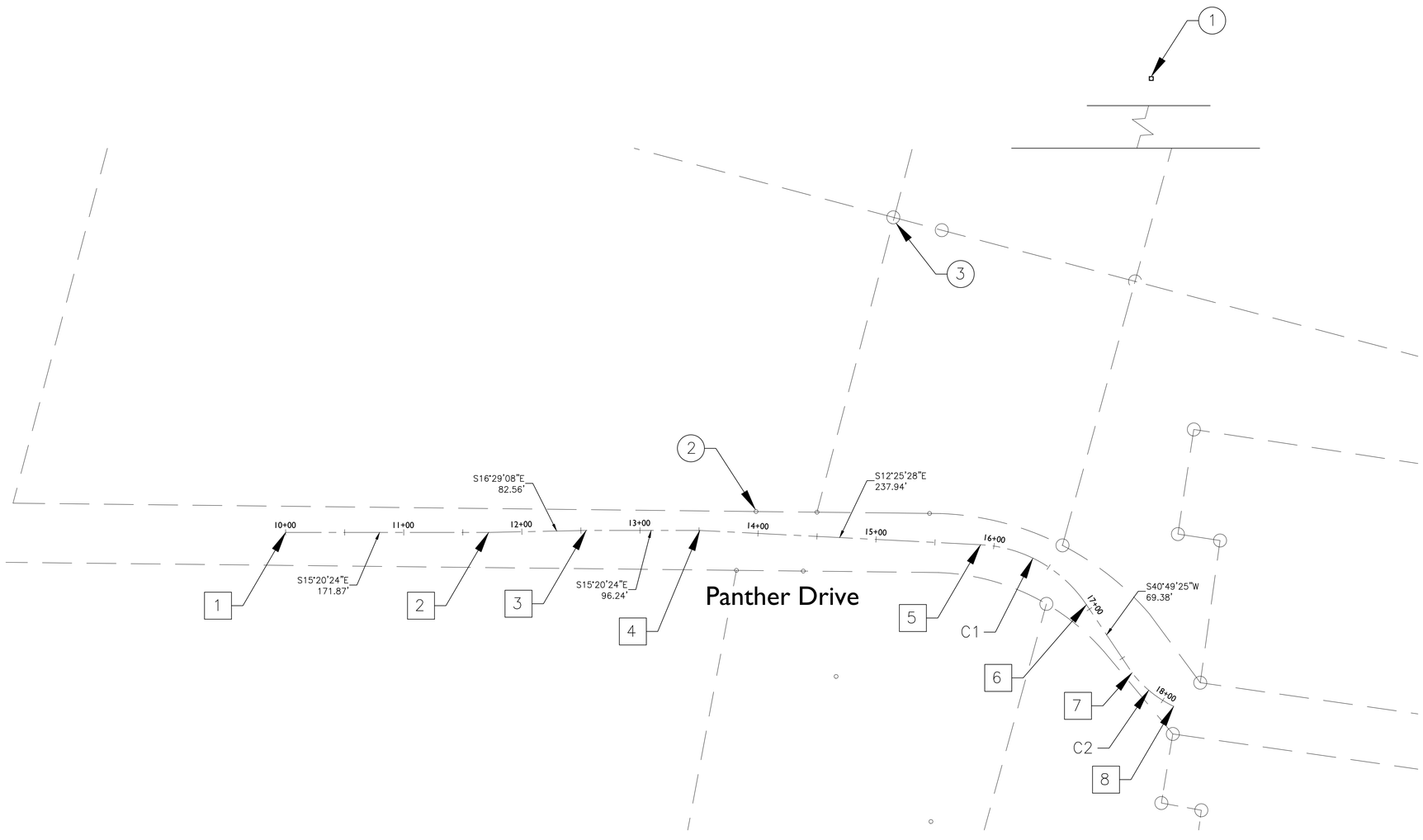
[6] POINT #6
PT
STA 16+95.36
N: 831901.62
E: 944455.76

[7] POINT #7
PC
STA 17+64.88
N: 831954.12
E: 944501.12

[8] POINT #8
PT/POINT OF END
STA 18+10.57
N: 831995.61
E: 944519.21

CURVE TABLE PANTHER DR CENTERLINE

CURVE NO.	RADIUS	ARC LENGTH
C1	115.00'	106.88'
C2	96.90'	45.68'



50 0 50 100
scale: 1" = 50' feet

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Geometric Control

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23-0519

CS03

Sheet No.
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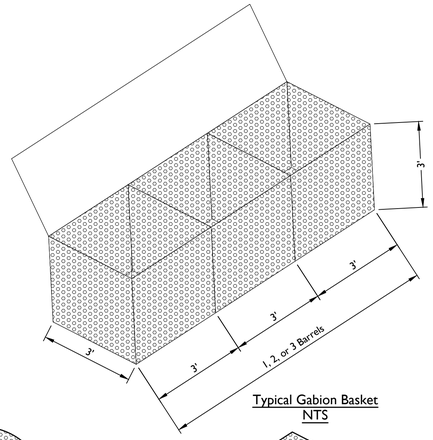
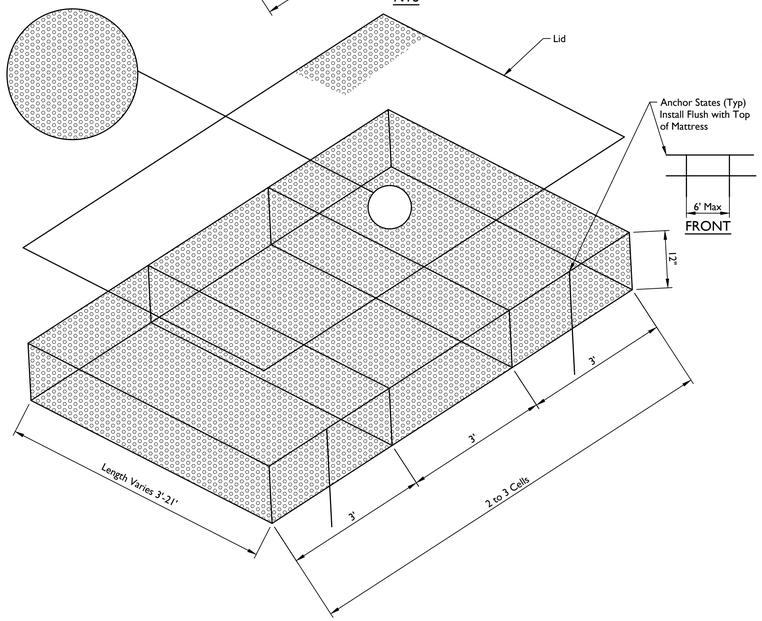
ESTIMATED EARTHWORK QUANTITIES

ROADWAY AND DRAINAGE EXCAVATION	1630 CY
ROADWAY AND DRAINAGE FILL	370 CY
TOTAL FILL (W/ 10% SHRINK)	410 CY
NET EARTHWORK	1220 CY (WASTE)



Typical Gabion Basket
NTS



TYPICAL GABION MATTRESS
NTS

1. CONNECT EDGES OF GABIONS TO ADJACENT BASKETS USING WIRE GABION CONNECTORS AT 4"–6" SPACING.
2. INSTALL INTERMEDIATE WIRE TIES, 2 PER CELL TO PREVENT BULGING OF GABION BASKETS UPON FILLING.
3. THE ROCK FOR THE GABIONS SHALL BE HARD, ANGULAR, DURABLE AND OF SUCH QUALITY THAT
4. THEY WILL NOT DISINTEGRATE ON EXPOSURE TO WATER OR WEATHERING. GABION ROCKS SHALL BE D_{50}= 6 IN. GRADATION SHALL BE PER SECTION 913 OF THE ADOT STANDARD SPECIFICATIONS.
5. INSTALL HIGH SURVIVABILITY GEOTEXTILE FABRIC (WOVEN) BEHIND ALL NEW GABIONS.
6. INSTALL 108" MINIMUM SOIL ANCHOR STAKES ON ROWS ABOVE CHANNEL GRADING POINT AT 6–FOOT SPACING. SECURE LID OF GABION BASKET TO STAKE AT 2 LOCATIONS MINIMUM. STAKES SHALL BE TIED TO GABIONS BASKET PER MANUFACTURER'S RECOMMENDATIONS.
7. GABION BASKETS ENDS SHALL BE SECURED INTO EXISTING BANKS WITH 72" MINIMUM SOIL ANCHOR STAKES. A MINIMUM OF 2 STAKES PER ROW OF GABIONS REQUIRED AT 2 FOOT SPACING
8. BACKFILL AND COMPACT EXCAVATED AREAS USING NATIVE CHANNEL MATERIAL TO MATCH FINISHED GRADE
9. BACKFILL AND COMPACT 95% DENSITY BEHIND GABIONS PER ADOT STANDARD SPECIFICATIONS SECTION 203.
10. GABION BASKETS SHALL HAVE THE FOLLOWING DIMENSIONS:
    LENGTH: 6', 9', OR 12', AS NEEDED.
    WIDTH: 3' TO 6'
    DEPTH: 3'
11. THE DISTANCE BETWEEN WIRE MESH DIVIDERS WILL NOT EXCEED 3'.
12. SECURELY ATTACH STAKE TO GABION TOP AT TWO POINTS WITH WIRE ROPE PER MANUFACTURER'S RECOMMENDATIONS
13. GABION MATTRESSES SHALL BE INSTALLED SO THAT THE LENGTH OF THE CELL IS PERPENDICULAR TO THE DIRECTION OF FLOW.
14. THE EXISTING GROUND SHALL BE FREE OF WEATHERED, LOOSE, OR DEGRADED ROCK, CLAY POCKETS, GAUGE OR SEAMS PRIOR PLACEMENT OF THE LEVELING COURSE OR GABIONS.
15. SECURE GABIONS TO EXISTING BRIDGE ABUTMENT WITH EPOXIED #6 DOWEL ANCHORS, USING 2 ANCHOR PER BASKET END. EPOXY DOWEL IN HOLE WITH AN APPROVED EPOXY ADHESIVE. DETAILS OF THE ANCHORAGE SYSTEM SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION
16. USE ANCHOR STAKES THAT ARE 2" DIA X 4' GALVANIZED PIPE OR 2" X 2" X." X 4' GALVANIZED STEEL ANGLE IRON.
17. GABION BASKETS SHALL BE CONSTRUCTED AT A 6" BATTER INTO THE WASH BANK.
18. SUBGRADE FOR WALLS BEARING ON NEW AND EXISTING EMBANKMENT FILL SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 1.0 FOOT, MOISTURE–CONDITIONED TO WITHIN THE LIMITS OF +/– 2 PERCENT OF OPTIMUM MOISTURE CONTENT, AND COMPACTED TO ACHIEVE A MINIMUM DRY DENSITY CORRESPONDING TO 100% OF THE STANDARD PROCTOR EFFORT, DETERMINED IN ACCORDANCE WITH THE APPLICABLE TEST METHOD FOR THE MATERIAL UNDER CONSIDERATION

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Details

Revisions:

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Designer: MTT
Drawn by: RW

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Job No.
23-0519

DT01

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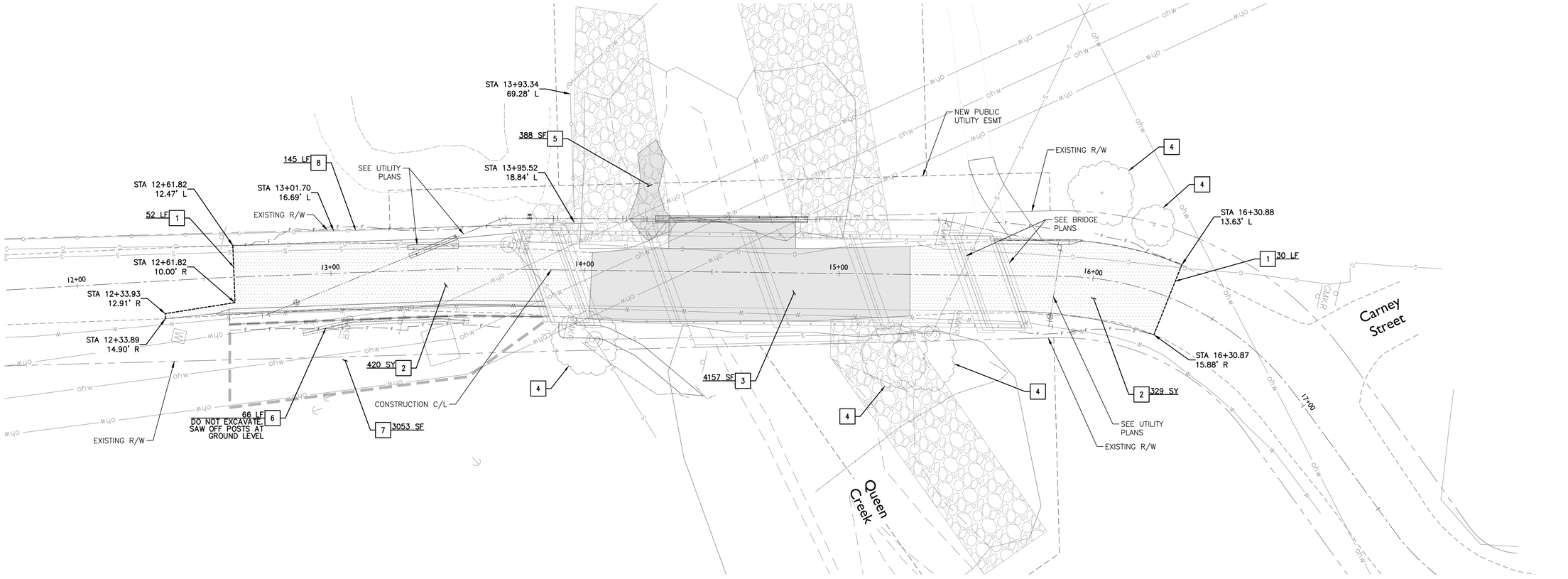
	ROADWAY REMOVAL CONSTRUCTION NOTES	
1	Sawcut Existing Pavement Section	82 LF
2	Remove Existing Pavement Section	749 SY
3	Remove Existing Concrete (at-grade crossing)	4157 SF
4	Remove Existing Tree	5 EA
5	Remove Existing Degradated Concrete	388 SF
6	Remove Existing Guardrail	66 LF
7	Clear Vegetation Under Existing SRP Power Lines	3053 SF
8	Remove and Replace Existing Fence in Kind	145 LF

REMOVAL LEGEND

REMOVE PAVEMENT SECTION

REMOVE CONCRETE

VEGETATION REMOVAL LIMIT



Panther Drive

20 0 20 40
scale: 1" = 20' feet

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Project: Panther Drive Bridge
Town of Superior, AZ

Roadway Removals

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Job No.
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RM01

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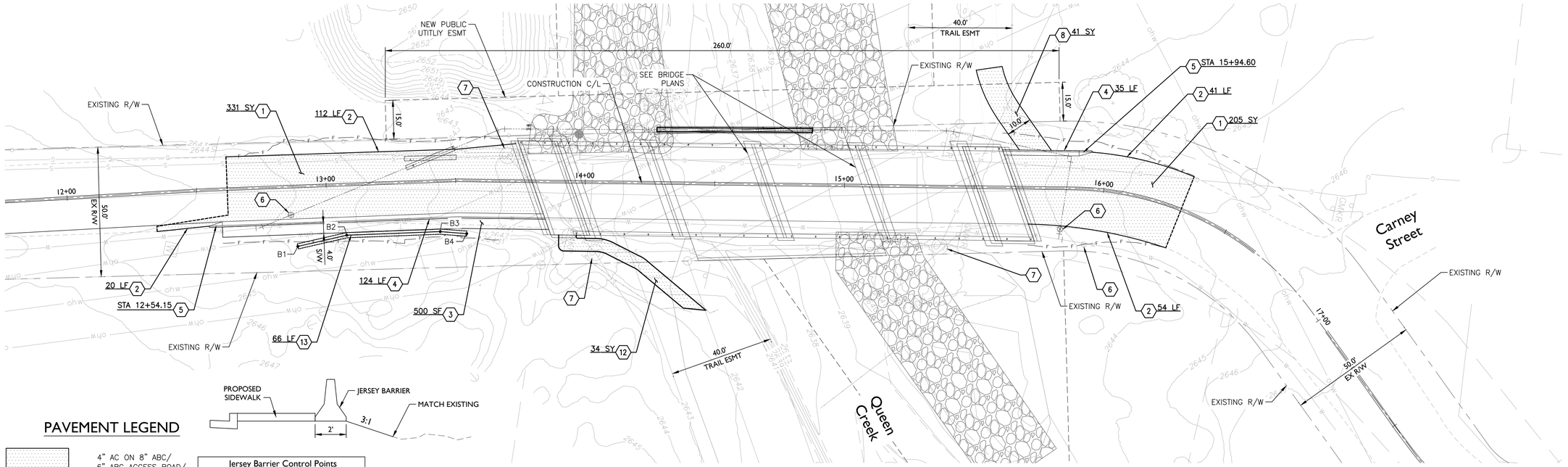
ROADWAY CONSTRUCTION NOTES								
1	4" AC Pavement over 8" ABC	536 SY	4	6" Mountable Curb and Gutter per MAG Detail 220-1, Type E	159 LF	8	6" Thick ABC Access Road	41 SY
2	Thickened Edge Per MAG Detail 201, Type A	227 LF	5	5.0' Curb Termination per MAG Detail 222 (Modified)	2 EA	12	5' Pedestrian Path with Pinebind Soil Stabilization	34 SY
3	4' Wide Sidewalk per MAG Detail 230 (6" Thick)	500 SF	6	Adjust Valve per AZ Wat. Co. Detail E-9-4-1	3 EA	13	Concrete Jersey Barrier	66 LF
			7	Adjust Sewer Manhole Per MAG Detail 422-1	3 EA			



PAVEMENT LEGEND

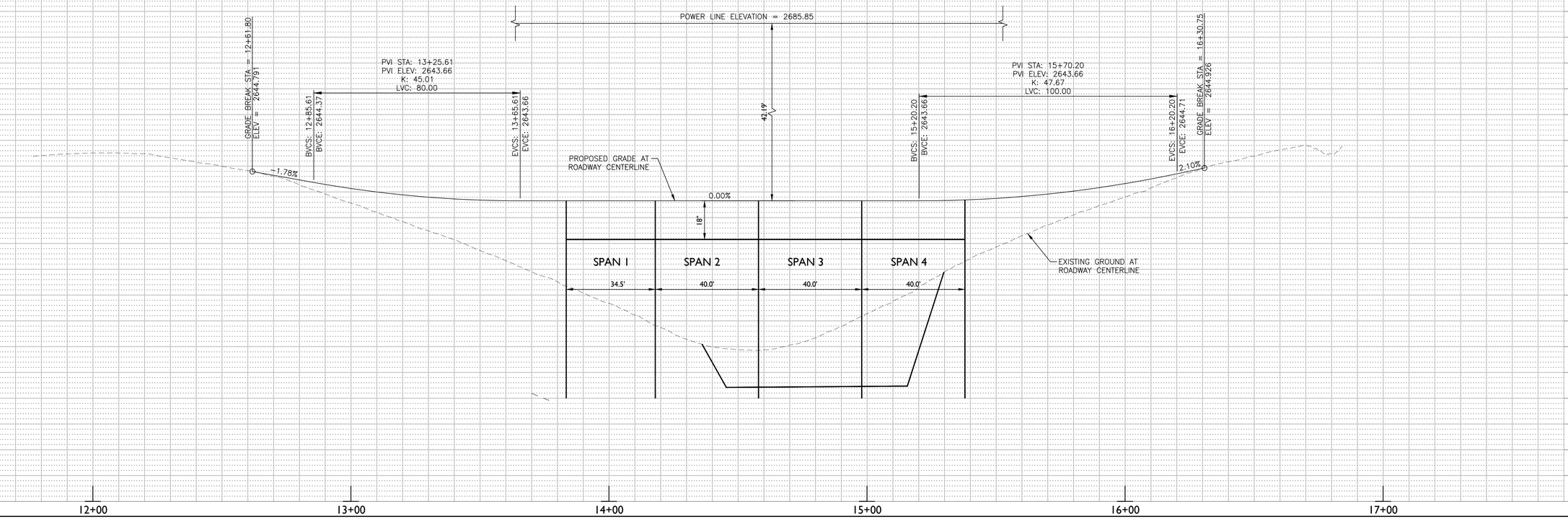
4" AC ON 8" ABC/
6" ABC ACCESS ROAD/
PEDESTRIAN PATH

SIDEWALK

Jersey Barrier Control Points		
Point	Station	Offset
B1	12+88.22	23.0' RT
B2	13+07.25	19.5' RT
B3	13+43.31	19.5' RT
B4	13+54.53	20.5' RT

Panther Drive

SCALE HORIZONTAL: 1"=20' VERTICAL: 1"=2'



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Panther Drive Bridge
Town of Superior, AZ

Roadway Plan & Profile

Project:

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Job No.
23-0519

PP01

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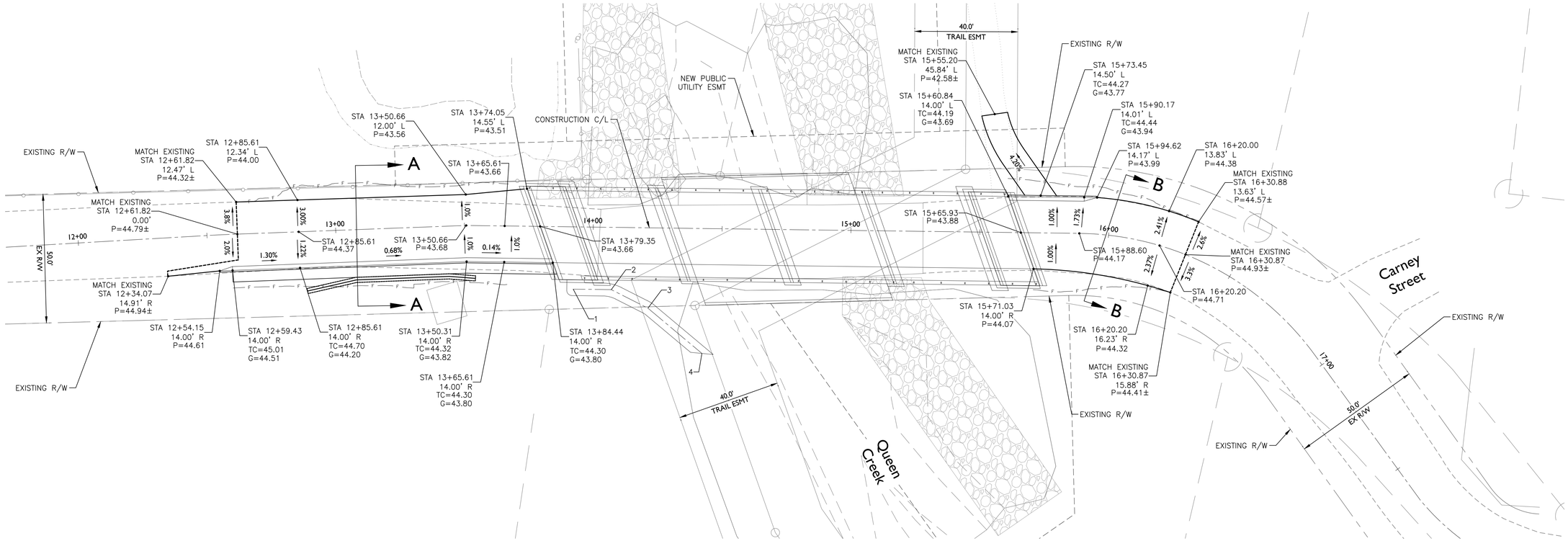
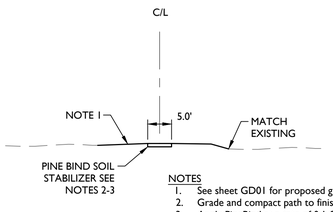
mtrulitt



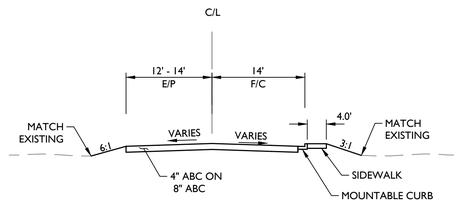
Panther Drive

Pedestrian Path Centerline Points			
Point	Station	Offset	Elevation
1	13+92.53	24.18' RT	2,643.94
2	14+07.29	24.18' RT	2,642.66
3	14+21.60	31.19' RT	2,641.29
4	14+42.77	48.47' RT	2,641.62

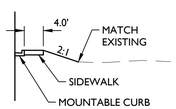


NOTES
1. See sheet GD01 for proposed grading around path
2. Grade and compact path to finished grade.
3. Apply PineBind at a rate of 0.1-0.2 Gal per SY
4. Allow 24-28 hr for PineBind to dry

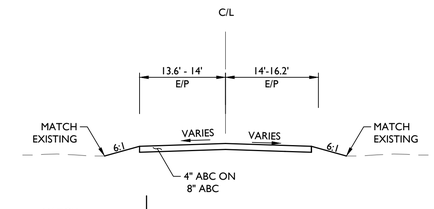
PEDESTRIAN PATH
NTS

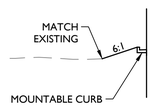


SECTION A-A
STA 12+59.43 TO 13+84.44
LOOKING NORTH
NTS



AT SRP TOWER





SECTION B-B
STA 15+60.84 TO 16+30.88
LOOKING NORTH
NTS

STA 15+61 TO 15+90

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Project:
Panther Drive Bridge
Town of Superior, AZ
Roadway Grading

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Job No.
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PP02

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SIGNING LEGEND

STOP — EXISTING STOP SIGN (R1–1)	SPEED LIMIT 25 — EXISTING SPEED LIMIT SIGN (R2–1 (25))
PANTHER DR — EXISTING STREET NAME SIGN (D3–1)	SCHOOL BUS STOP AHEAD — EXISTING SCHOOL BUS STOP SIGN (S3–1)
CARNEY ST — EXISTING STREET NAME SIGN (D3–1)	NO OUTLET — EXISTING NO OUTLET SIGN (W14–2)
DO NOT ENTER WHEN FLOODED — EXISTING FLOOD SIGN (W8–103a)	

TRAIL CROSSING — TRAIL CROSSING SIGN (W14–2 – 36" X 36")	
ROAD NARROWS — ROAD NARROWS SIGN (W15–1 – 36" X 36")	
REVERSE CURVE SIGN (W1–4–R – 36" X 36")	
SPEED LIMIT 15 — ADVISORY SPEED PLAQUE (W13–115 – 24" X 24")	

PAVEMENT MARKING LEGEND

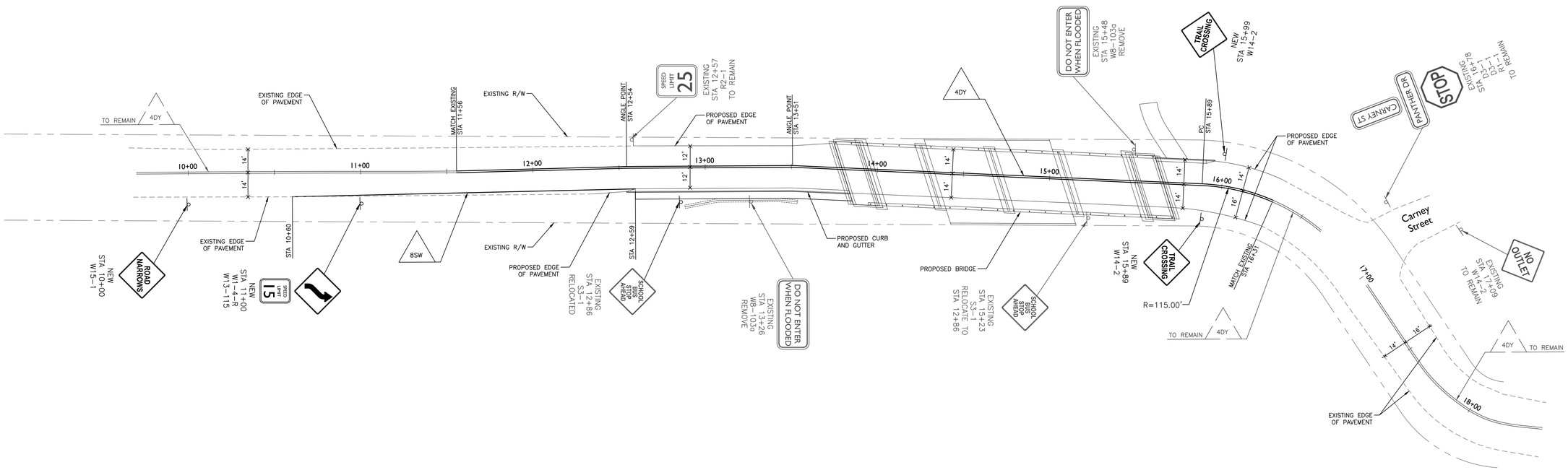
4DY — 4" SOLID DOUBLE YELLOW LINE	
8SW — 8" SOLID WHITE LINE	

ESTIMATED QUANTITIES – STRIPING

DESCRIPTION	QUANTITY	
WHITE STRIPE (4" EQUIVALENT)	390	LF
YELLOW STRIPE (4" EQUIVALENT)	950	LF
EX. STRIPING OBLITERATION	212	LF

ESTIMATED QUANTITIES – SIGNING

DESCRIPTION	QUANTITY	
REMOVE EXISTING SIGN	2	EA
RELOCATE EXISTING SIGN	1	EA
SIGN POST AND FOUNDATION	5	EA
SIGN PANEL	40	SF



Panther Drive

scale: 1" = 30'

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Project: Panther Drive Bridge
Town of Superior, AZ

Signing and Striping

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Job No.
23-0519

SS01

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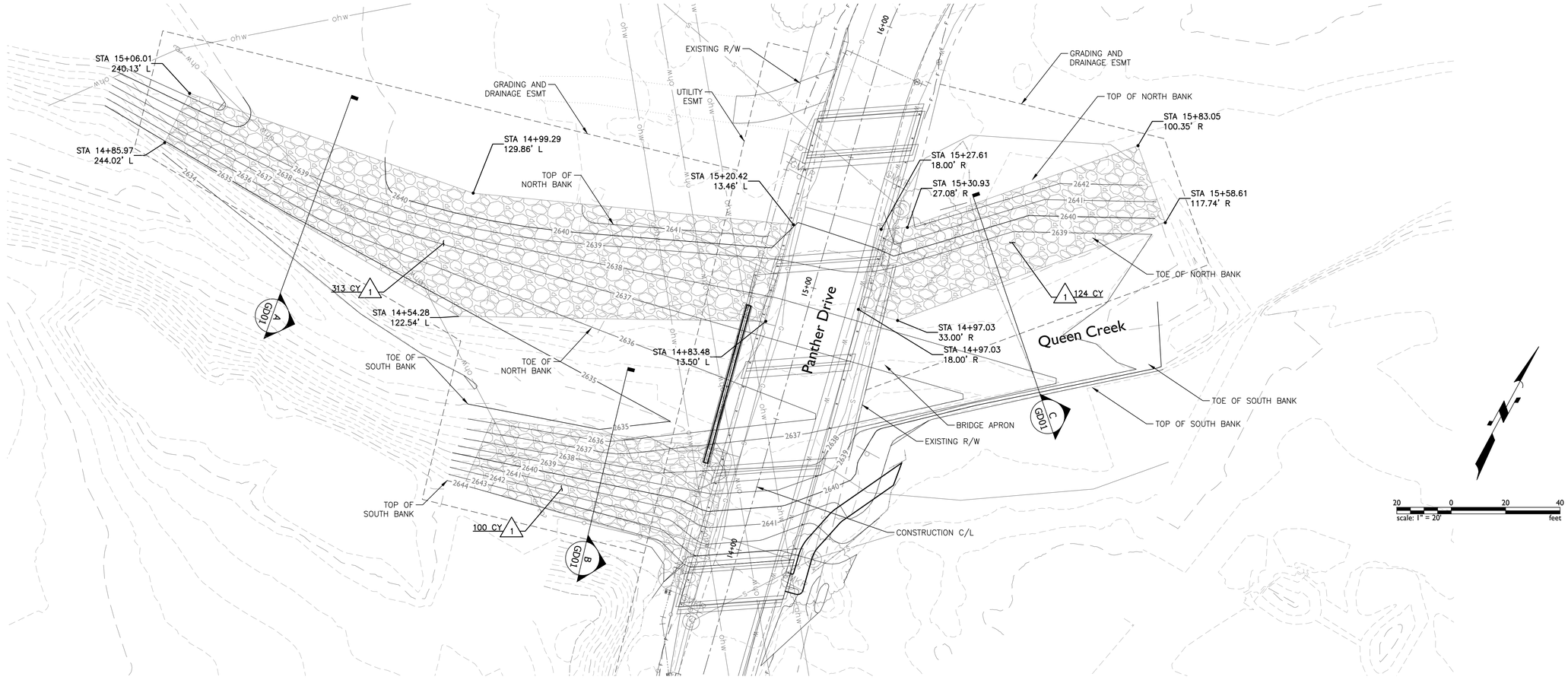
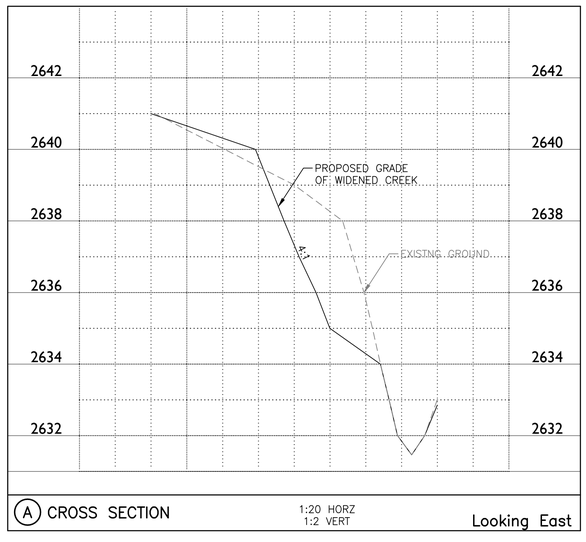
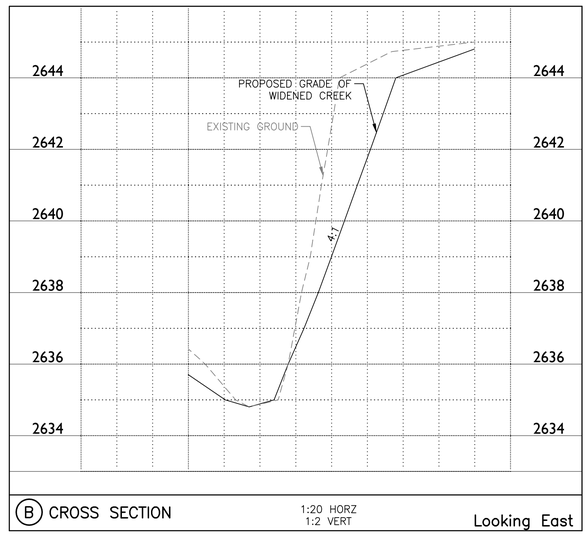
GRADING AND DRAINAGE CONSTRUCTION NOTES

1	Riprap Gabion Mattress	537 CY





A CROSS SECTION 1:20 HORZ 1:2 VERT Looking East



B CROSS SECTION 1:20 HORZ 1:2 VERT Looking East

C CROSS SECTION 1:20 HORZ 1:2 VERT Looking East

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Project:

Panther Drive Bridge
Town of Superior, AZ

Grading & Drainage Sheet

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Job No.
23-0519

GD01

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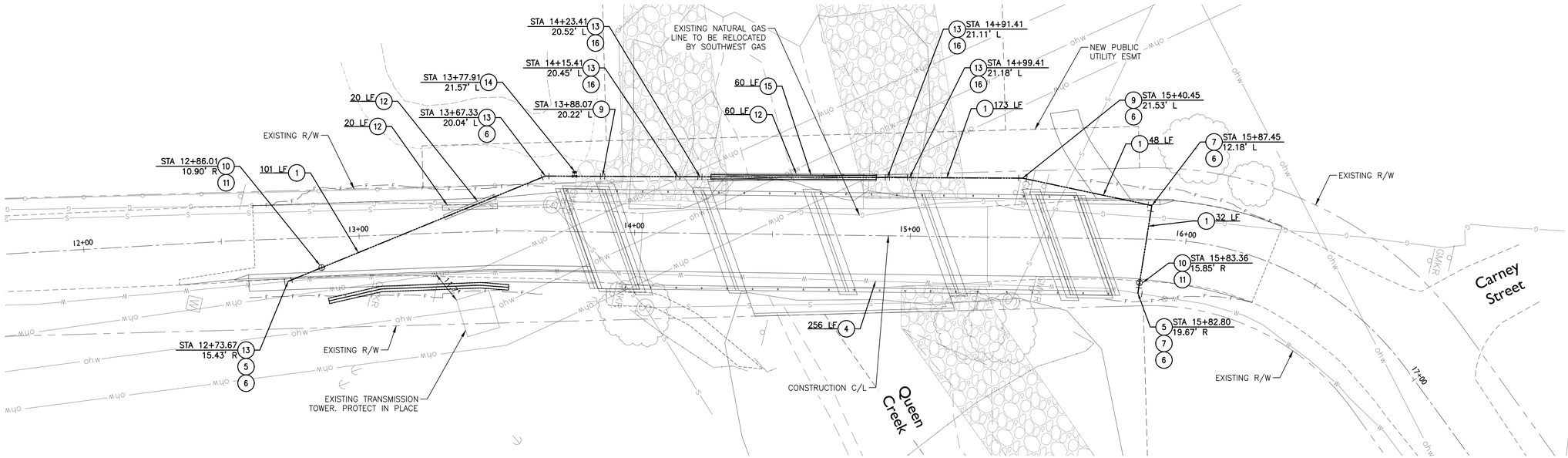
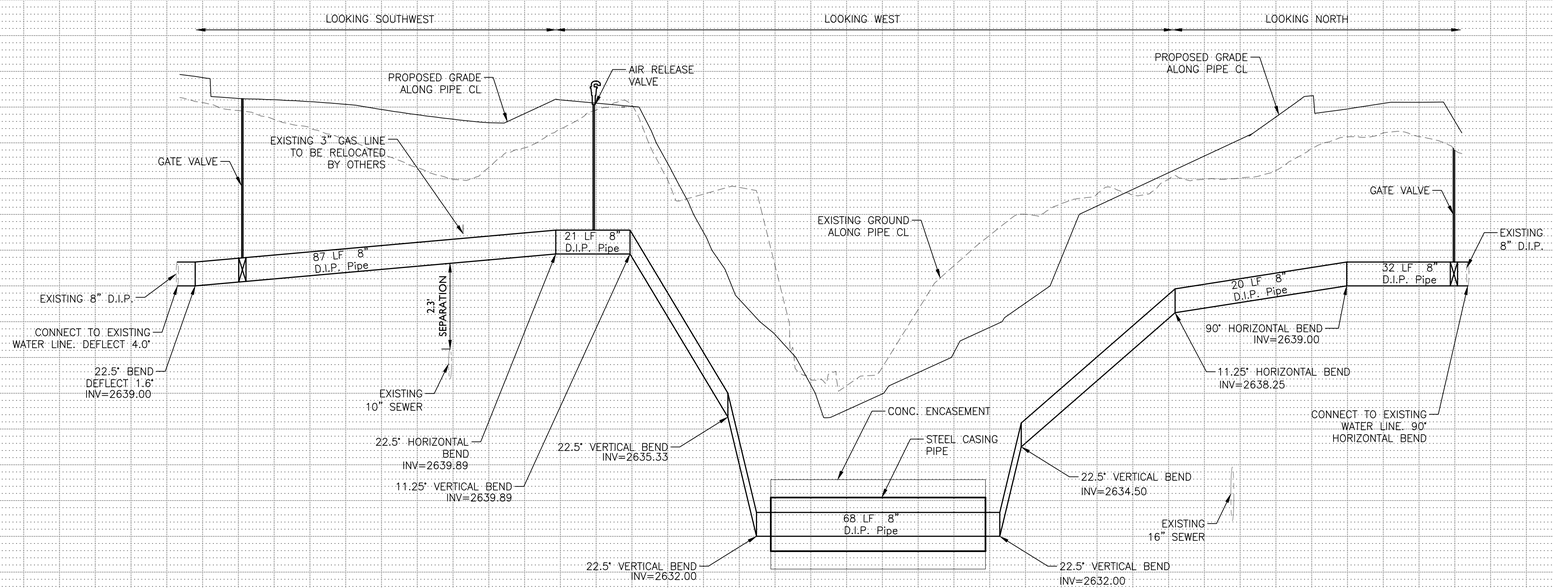
	WATER CONSTRUCTION NOTES							
1	8" Class 350 D.I.P. Waterline Installed per AZ Wat. Co. Detail E-9-28-1. Restrain per AZ Wat. Co. Detail E-9-5-2.	354 LF	7	8" x 90-Degree Bend Fitting	2 EA	14	Air Release Valve per AZ Wat. Co. Detail E-9-8-2	1 EA
4	Remove Existing Waterline	256 LF	9	8" x 11.25-Degree Bend Fitting	2 EA	15	18" Steel Casing Pipe per AZ Wat. Co. Detail E-9-24-1	60 LF
5	Connect to Existing Waterline.	2 EA	10	8" Vertical Gate Valve per AZ Wat. Co. Detail E-9-2-1	2 EA	16	Thrust Block per AZ Wat. Co. Detail E-9-5-2	4 EA
6	Thrust Block per AZ Wat. Co. Detail E-9-5-1	5 EA	11	Valve Box per AZ Wat. Co. Detail E-9-4-1	2 EA			
			12	Concrete Encasement per AZ Wat. Co. Detail E-9-30-1	100 LF			
			13	8" x 22.5-Degree Bend Fitting	6 EA			



Panther Drive

20 0 20 40
SCALE FEET
HORIZONTAL: 1"=20' VERTICAL: 1"=2'



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Project:
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Town of Superior, AZ

Waterline Plan & Profile

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UT01

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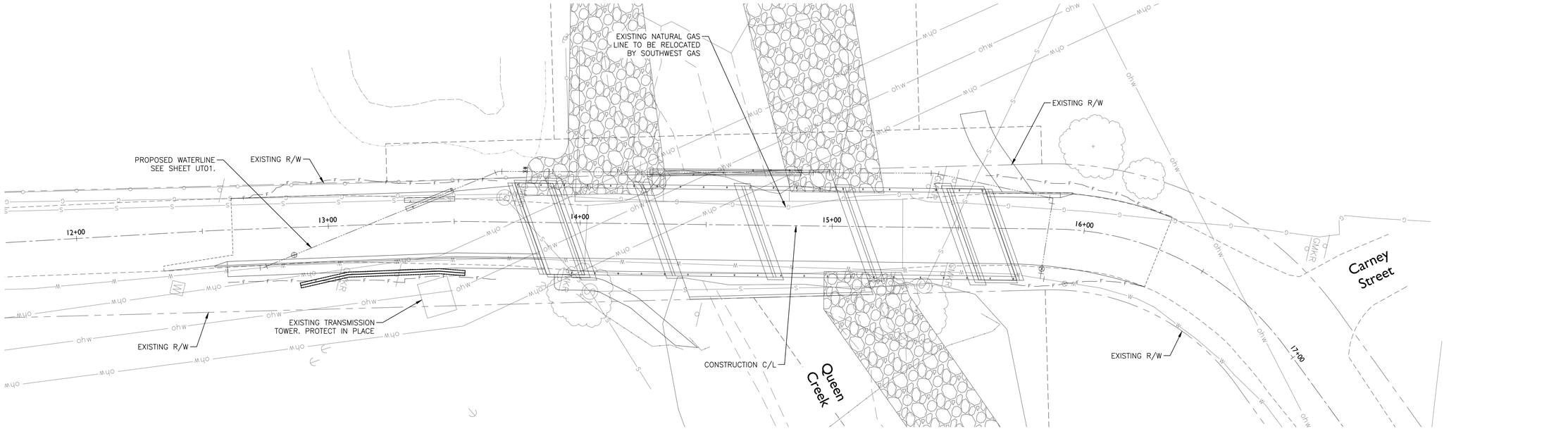

Panther Drive

SCALE HORIZONTAL: 1"=20' VERTICAL: 1"=2'
20 0 20 40
FEET

NOTE:
This sheet may be removed from the plans in the final PS&E submittal. It is left in place in the event the existing three brick sewer manholes at Stations 13+70, 14+04 and 15+37 can't support having their rims adjusted to grade and need to be replaced.

2652 2651 2650 2649 2648 2647 2646 2645 2644 2643 2642 2641 2640 2639 2638 2637 2636 2635 2634

12+00 13+00 14+00 15+00 16+00 17+00

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Sanitary Sewer Plan & Profile

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UT02

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AZ WATER COMAPNY CONSTRUCTION NOTES

1. CONNECT M.J. FITTINGS TO M.J. FITTINGS USING FOSTER ADAPTERS.
2. ALL MATERIALS & PIPE REMOVED MUST BE DISPOSED OF BY THE CONTRACTOR.
3. ASPHALT REPLACEMENT PER LOCAL PERMIT REQUIREMENTS.
4. ALL NEW RESTRAINED PIPE MUST BE U.S. PIPE TR FLEX, AMERICAN FLEX RING, OR M.J. DUCTILE IRON PIPE WITH MEGALUG SERIES 1100, STAR GRIP SERIES 3000 OR TUF GRIP SERIES 1000 JOINT RESTRAINTS.
5. USE MEGALUG SERIES 1100, STAR GRIP SERIES 3000 OR TUF GRIP SERIES 1000 JOINT RESTRAINTS AT ALL M.J. FITTING CONNECTIONS.
6. INTERRUPTION OF WATER SERVICE FOR TIE-INS CANNOT EXCEED 4 HOURS IN DURATION FROM TIME OF SHUTDOWN TO COMPLETION OF FLUSHING.
7. ARIZONA WATER COMPANY DOES NOT GUARANTEE EXISTING VALVES WILL PROVIDE A DRY SHUTDOWN.
8. ANY ADDITIONAL FITTINGS REQUIRED FOR TIE-INS BUT NOT SHOWN ON PLANS FOR PROPER ALIGNMENT SHALL BE CONSIDERED INCIDENTAL AND INCLUDED IN THE PIPE PRICE.
9. PROTECT ALL UTILITY CROSSINGS IN PLACE UNLESS OTHERWISE NOTED ON PLANS.
10. TRAFFIC CONTROL PER RIGHT-OF-WAY PERMIT REQUIREMENTS.
11. CONTRACTOR MUST MAINTAIN MIN. 3-FEET HORIZONTAL SEPARATION FROM OUTSIDE OF WATER MAIN TRENCH TO EX. POWER POLES AND PROVIDE BRACING FOR EX. POWER POLES IF NECESSARY DURING CONSTRUCTION.
12. CONTRACTOR MUST PLUG ENDS OF ABANDONED IN PLACE WATER MAINS WITH CLASS 'C' CONCRETE MIN. 24-INCHES INTO PIPE.
13. PASSING COMPACTION TEST RESULTS ARE REQUIRED PRIOR TO PAVEMENT REPLACEMENT.
14. CONTRACTOR MUST PAY THE COST OF ALL WATER PROVIDED BY ARIZONA WATER COMPANY TO THE CONTRACTOR FOR CONSTRUCTION AND TESTING OF THE WATER MAINS.
15. CONTRACTOR MUST PROVIDE AND INSTALL NEW CUSTOMER SHUT-OFF VALVE AT EACH SERVICE WITH PRIOR CUSTOMER PERMISSION.

CONSTRUCTION SPECIFICATIONS FOR THE INSTALLATION OF WATER DISTRIBUTION SYSTEMS - DUCTILE IRON

DEFINITIONS

A. COMPANY. THE WORDS "COMPANY" OR "ARIZONA WATER COMPANY" MEAN ARIZONA WATER COMPANY, AND WHERE APPLICABLE, ANY DIVISION OF ARIZONA WATER COMPANY, WHOSE PRINCIPAL PLACE OF BUSINESS IS LOCATED AT 3805 NORTH BLACK CANYON HIGHWAY, PHOENIX, ARIZONA 85015-5351 (POST OFFICE BOX 29006, PHOENIX, ARIZONA 85038-9006).

B. COMPANY'S AUTHORIZED REPRESENTATIVE. THE WORDS "COMPANY'S AUTHORIZED REPRESENTATIVE" MEAN ANY OFFICER OF THE COMPANY, AND ANY OF THE COMPANY'S ENGINEERS, ANY DIVISION MANAGER OF THE COMPANY AND/OR SUCH OTHER PERSON(S) DESIGNATED IN WRITING AS THE "COMPANY'S AUTHORIZED REPRESENTATIVE" BY THE PRESIDENT OR ANY VICE PRESIDENT OF THE COMPANY.

C. CONTRACTOR. THE WORD "CONTRACTOR" MEANS EITHER AN INDIVIDUAL OR OTHER ENTITY EMPLOYED TO DO THE WORK AS SHOWN ON THE CONSTRUCTION DRAWINGS AND AS SPECIFIED HEREIN.

D. CONSTRUCTION DRAWINGS. THE WORDS "CONSTRUCTION DRAWINGS" MEAN PLANS PREPARED BY OR ON BEHALF OF ARIZONA WATER COMPANY.

E. CONTRACT. THE WORD "CONTRACT" MEANS THE WRITTEN DOCUMENT TITLED "PROPOSAL/CONTRACT" WHEN SUCH DOCUMENT HAS BEEN SIGNED BY AN OFFICER OR OTHER AUTHORIZED REPRESENTATIVE OF BOTH THE CONTRACTOR AND THE COMPANY.

I. GENERAL ALL WORK IS TO BE COMPLETED IN A SAFE, WORKMANLIKE MANNER AND IN ACCORDANCE WITH THESE CONSTRUCTION SPECIFICATIONS; ANY DEVIATION THEREFROM MUST BE APPROVED IN WRITING BY THE COMPANY. INSTALLATIONS MUST CONFORM WITH THE REQUIREMENTS OF ALL GOVERNMENTAL REGULATING AGENCIES AND THE COST OF CONFORMING TO SUCH REGULATIONS MUST BE INCLUDED IN THE UNIT BID PRICES. EXAMPLES OF SUCH REGULATIONS, WITHOUT ATTEMPTING TO BE INCLUSIVE, ARE: A. SPECIAL USE PERMITS AND PAVING FOR STREET CROSSING. B. SHORING WHEN REQUIRED BECAUSE OF THE TRENCH DEPTH. C. CLOSING A TRENCH IN THOSE AREAS WHERE NO OPEN TRENCH IS ALLOWED OVERNIGHT. D. BARRICADING AND TRAFFIC CONTROL AS REQUIRED.

2. LOCATION MARKING ALIGNMENT STAKES AS REQUIRED IN THE OPINION OF THE COMPANY SHALL BE FURNISHED BY THE COMPANY TO THE CONTRACTOR AND SHALL BE SET BY THE COMPANY AS AGREED UPON INTERVALS AND OFFSETS. UNDER NORMAL CIRCUMSTANCES THESE WILL REFERENCE THE PIPELINE LOCATION FIVE FEET (5') INTO THE RIGHT-OF-WAY OR MEASURED FROM PROPERTY PINS. GRADE STAKES WILL BE PROVIDED ONLY WHEN THE CONSTRUCTION DRAWINGS SHOW A PIPELINE DEPTH OTHER THAN COVERED IN THESE SPECIFICATIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PRESERVE ALL SURVEY WORK.

3. TRENCH EXCAVATION TRENCH LOCATION IS TO BE DETERMINED BY THE CONSTRUCTION DRAWINGS. FOR 8-INCH OR SMALLER PIPE: THE DEPTH OF THE TRENCH PRIOR TO PIPE LAYING SHALL BE SUCH THAT THE FINISHED PIPELINE SHALL HAVE BETWEEN THIRTY-SIX INCHES (36") AND FORTY-TWO INCHES (42") OF COVER OVER THE TOP OF PIPE UNLESS OTHERWISE SPECIFIED ON THE CONSTRUCTION DRAWINGS. FOR 12-INCH AND LARGER PIPE: THE DEPTH OF THE TRENCH PRIOR TO PIPE LAYING SHALL BE SUCH THAT THE FINISHED PIPELINE SHALL BE SET BY THE FIFTY-EIGHT INCHES (40") AND SIXTY INCHES (60") OF COVER OVER THE TOP OF PIPE UNLESS OTHERWISE SPECIFIED ON THE CONSTRUCTION DRAWINGS. THE WIDTH OF THE TRENCH AT AND BELOW THE LEVEL AT THE TOP OF THE PIPE SHALL BE A MINIMUM OF TWELVE INCHES (12") PLUS THE OUTSIDE DIAMETER OF THE PIPE BARREL AND A MAXIMUM OF TWENTY-FOUR INCHES (24") PLUS THE OUTSIDE DIAMETER OF THE PIPE BARREL. THE BOTTOM OF THE TRENCH SHALL BE ACCURATELY GRADED TO PROVIDE A UNIFORM BEARING FOR EACH LENGTH OF PIPE FOR THE FULL LENGTH OF THE PIPE. IF THE NATIVE MATERIAL ON THE TRENCH BOTTOM CAN BE REASONABLY DUG BY HAND, BELL HOLES SHALL BE DUG FOR THE JOINTS SO THAT THE JOINTS IN NO WAY SUPPORT THE PIPE. WHEN NATIVE MATERIALS SUCH AS ROCK ARE ENCOUNTERED DURING TRENCHING THAT WILL NOT PROVIDE A UNIFORM SUPPORT FOR THE PIPE, THE TRENCH WILL BE OVER-EXCAVATED AN ADDITIONAL SIX INCHES (6") AND SUITABLE BEDDING MATERIAL WILL BE PLACED IN THE TRENCH. BEDDING MATERIAL WILL BE PLACED BY HAND IN FOUR INCH (4") LIFTS AND COMPACTED TO ENSURE UNIFORM COMPACTION AND TO ELIMINATE ANY VOIDS UNDER THE PIPE. WHEN THE SPACE BETWEEN THE PIPE AND TRENCH BOTTOM VARIES, THIS MUST BE BACKFILLED AND COMPACTED IN FOUR INCH (4") LIFTS TO THE MID-SECTION OF THE PIPE. WHENEVER THE TRENCH IS OVER-EXCAVATED FOR WHATEVER REASON, THE TRENCH BOTTOM WILL BE BROUGHT UP TO THE CORRECT DEPTH AT THE CONTRACTOR'S EXPENSE USING EITHER METHOD (A) OR (B) AS FOLLOWS: A. A.B.C. MATERIAL SHALL BE USED AND COMPACTED TO A UNIFORM DENSITY OF NOT LESS THAN 80% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99 METHOD A AND T-191. B. NATIVE MATERIAL 100% OF WHICH WILL PASS THROUGH A ONE AND ONE-HALF INCH (1-1/2") SCREEN AND AT LEAST 20% OF WHICH WILL PASS THROUGH NUMBER-8 SCREEN SHALL BE USED AND COMPACTED TO A UNIFORM DENSITY OF NOT LESS THAN 85% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99 METHOD A AND T-191.

4. MATERIALS TO BE PROVIDED BY CONTRACTOR UNLESS OTHERWISE SPECIFIED ON THE CONSTRUCTION DRAWINGS OR IN THE CONTRACT, THE CONTRACTOR WILL SUPPLY ALL OF THE NECESSARY MATERIALS WHICH WILL BECOME A PERMANENT AND INTEGRAL PART OF THE WATER DISTRIBUTION SYSTEM, INCLUDING CONCRETE BLOCKING, ANCHORS, BACKFILL MATERIAL, PAVING MATERIAL AND SUPPLIES USED DURING THE PROSECUTION OF THE WORK. ALL MATERIALS PROVIDED BY THE CONTRACTOR TO CONSTRUCT THE WATER DISTRIBUTION SYSTEM MUST BE NSF STANDARD 61 APPROVED. ALL POTABLE WATER PIPES AND FITTINGS SHALL HAVE NSF-PW SEAL. CONSTRUCTION MATERIALS USED IN THE WATER SYSTEM SHALL BE LEAD FREE AS DEFINED AT AAC R28-4-504 AND R18-1-101. THE CONTRACTOR WILL PROVIDE THE FOLLOWING MATERIALS:

A. FIRE HYDRANTS: MUELLER SUPER CENTURION 250 FIRE HYDRANT, MEETS ANSI/AWWA C502 STANDARD. MODEL NO. A-421, 4-1/2" MAIN VALVE OPENING, THREE WAY, 6" MECHANICAL JOINT SHOE, 1-1/2" PENTAGON OPERATING NUT, COLOR - YELLOW, DRAIN OPEN, OPEN DIRECTION - LEFT, 4' OR 4'6" BURY DEPENDING ON APPLICATION FOR PUMPER AND HOSE NOZZLE INFORMATION SEE BELOW. (1) 1 - 4" PUMPER NOZZLE, NST AND 2 - 2-1/2" HOSE NOZZLES, NST. (THESE LOCATIONS ONLY: AJO, CASA GRANDE, COOLIDGE AND SAN MANUEL.) (2) 1 - 4-1/2" PUMPER NOZZLE, NST AND 2 - 2-1/2 " HOSE NOZZLES, NST. (THESE LOCATIONS ONLY: APACHE JUNCTION, ARIZONA CITY, LAKESIDE, ORACLE, OVERGAARD, PINEWOOD, RIMROCK, SEDONA, SIERRA VISTA, WHITE TANK AND WINKELMAN.) (3) 1 - 4-1/2" PUMPER NOZZLE, NST AND 2 - 2-1/2" HOSE NOZZLES, NPT (BISBEE ONLY.) (4) 1 - 3" PUMPER NOZZLE GA 6-350 (6 THREADS PER INCH, 3.50 PITCH DIAMETER) AND 2 - 2-1/2" HOSE NOZZLES, NPT (MIAMI ONLY.) (5) 1 - 3-1/2" PUMPER NOZZLE GA 6-411 (6 THREADS PER INCH, 4.11 PITCH DIAMETER) AND 2 - 2-1/2" HOSE NOZZLES, NST (SUPERIOR ONLY.)

B. FITTINGS: MANUFACTURED BY TYLER OR UNION. CROSSES, ELBOWS, TEES, CAP, REDUCER, ADAPTER, PLUG, BLIND FLANGE AND TAPPED FLANGE; DUCTILE IRON, CLASS 350, SSB, CAST IRON CEMENT LINED. (1) FOSTER ADAPTORS FOR MJ, MADE BY INFACT CORPORATION: AVAILABLE IN SIZE 4" TO 16". PART NO. 4" = 4FA-BC, 6" = 6FA-BC, 8" = 8FA-BC, 10" = 10FA-BC, 12" = 12FA-BC, 16" = 16FA-BC.

C. DETECTOR CHECK VALVE: MUELLER/ HERSEY EDC III, IRON BODY, INCLUDING 5/8"X 3/4" TRIM KIT. TRIM KIT PART NO.: 4" = 282080, 6" = 282082, 8" = 282085, 10" = 282496.

D. GATE VALVES: MUELLER RESILIENT WEDGE GATE VALVES, MEETS AWWA C509 SPECIFICATION, 250 PSIG, NON RISING STEM, PART NO. A-2360, LOW ZINC STEMS, EPOXY COATED INSIDE AND OUTSIDE TO MEET THE NSF 61 RATING. THE BONNET AND STUFFING BOX SHALL HAVE 304 STAINLESS STEEL NUTS/BOLTS AS USED FOR COMPANY STANDARD.

E. MEGALUG: MECHANICAL JOINT RESTRAINT MADE OF DUCTILE IRON CONFORMING TO ASTM 536-80, 250 PSI MADE BY EBAA IRON, INC., SERIES 1100 OR EQUAL.

F. METER BOXES: AVAILABLE FROM U.S. FILTER: (1) CONCRETE BOX WITH A STEEL REGULAR LID, NUMBER 1: TUCSON SPECIFICATION. (2) CONCRETE BOX WITH A STEEL REGULAR LID, NUMBER 2, 3, AND 4: PHOENIX SPECIFICATION.

G. PIPE, COPPER: TYPE K SOFT COPPER IN 60 OR 100 FOOT COILS.

H. PIPE, DUCTILE IRON: DUCTILE IRON PIPE, CEMENT LINED, PUSH-ON, CONFORM TO CURRENT ANSI/AWWA SPECIFICATION A21.51/C151, PRESSURE CLASS 350 (SIZES 4" THROUGH 12"), PRESSURE CLASS 250 (SIZES 14" THROUGH 20"), OR PRESSURE CLASS 200 FOR 24" PIPE. VENDORS: (1) PACIFIC STATES CAST IRON PIPE COMPANY (2) GRIFFIN PIPE (3) UNITED STATES PIPE AND FOUNDRY COMPANY (4) AMERICAN DUCTILE IRON PIPE

I. PIPE, PLASTIC: PLASTIC PIPE, C-900 PVC PER ANSI/AWWA C900, DR18, CLASS 150, SIZES 6" THROUGH 12". NSF 61 APPROVED. FURNISHED IN LAYING LENGTHS OF 20'

J. COUPLING: MUELLER, STRAIGHT THREE PART UNION, TESTED TO MEET ANSI/AWWA C800, H15403, 110 CONDUCTIVE COMPRESSION. VIKING JOHNSON BRAND, SOLD BY MUELLER: MAXIFIT STRAIGHT (2"-24"), MAXIFITXTRA STRAIGHT (4"-8") OR MAXISTEP TRANSITION, TESTED TO MEET AWWA/ANSI C.219-91 SPECIFICATIONS CERTIFIED TO ISO 9001:1994.

K. STOP, ANGLE METER, BALL: MUELLER, VALVE. B24258, 110 CONDUCTIVE COMPRESSION BY METER SWIVEL NUT, TESTED TO MEET ANSI/AWWA C800, SIZE 5/8"X 3/4"X 3/4" FOR A 3/4" SERVICE OR SIZE 1" FOR A 1" SERVICE. MUELLER, VALVE, B24265, FEMALE PIPE THREAD BY METER SWIVEL NUT, TESTED TO MEET ANSI/AWWA C800, SIZE 3/4"X 5/8"X 3/4" FOR A 3/4" SERVICE OR SIZE 1" FOR A 1" SERVICE. MUELLER, VALVE, H14351, STRAIGHT METER VALVE, FEMALE PIPE THREAD BY METER SWIVEL NUT, TESTED TO MEET ANSI/AWWA C800, SIZE 3/4"X 3/4"X 3/4" FOR DOUBLE SERVICES.

L. STOP, CORP: MUELLER, BALL VALVE, B25008, CC THREAD BY 110 CONDUCTIVE COMPRESSION, TESTED TO MEET ANSI/AWWA C800 SPECIFICATION, SIZES: 3/4", 1" AND 2". MUELLER, ORI-CORP VALVE, H15013, CC THREAD BY 110 CONDUCTIVE COMPRESSION, TESTED TO MEET ANSI/AWWA C800 SPECIFICATIONS, SIZE: 2".

M. STOP, CURB: MUELLER ORISEAL VALVE, H10291, IRON PIPE THREAD BY IRON PIPE THREAD, QUARTER TURN CHECK, BRASS. TESTED TO 300 PSI WORKING PRESSURE, TESTED TO MEET ANSI/AWWA C800 SPECIFICATION, SIZE: 2".

N. TAPPING SADDLE: SMITH BLAIR, CAST BRONZE ASTM-B584 85-5-5-5, DOUBLE STRAP, IRON PIPE THREADS, MODELS 321 AND 323. WASHERS ARE SILICON BRONZE, ASTM-B36. GASKETS ARE GRADE 60 BUNA N, OR MUELLER BRONZE DOUBLE STRAP SERVICE SADDLE, BR 2 B SERIES, CAST BRONZE, ASTM-B585, 85-5-5-5, OR H16084, 200 PSIG, MEETS ANSI/AWWA C800.

O. TAPPING SLEEVE: MUELLER H304 STAINLESS STEEL TAPPING SLEEVE, JCM 432 18-8 TYPE 304 STAINLESS STEEL TAPPING SLEEVE, ROMAC "SST" TYPE 304 STAINLESS STEEL TAPPING SLEEVE OR CASCADE-STYLE CST-EX STAINLESS STEEL PRESSURE-RATED TAPPING SLEEVE.

P. U-BRANCH: MUELLER, H15363, 1" 110 CONDUCTIVE COMPRESSION BY 3/4" MALE, MEETS ANSI/AWWA C800 SPECIFICATIONS, SIZE: 1" X 3/4" X 13-1/2", STRAIGHT LINE.

Q. VALVE BOXES: VALVE BOX WITH COVER, ADJUSTABLE, TYLER 562-A OR EQUAL, MADE OF CAST IRON.

R. VAULTS: UTILITY VAULT COMPANY, CHANDLER, AZ. (1) 4484-WA CONCRETE VAULT WITH A 3660 ALUMINUM DOUBLE TORSION DOOR WITH A RECESSED PADLOCK HASP, TWO - 18" X 24" CENTER KNOCKOUTS. (2) 575-WA CONCRETE VAULT WITH A 4874 ALUMINUM DOUBLE TORSION DOOR WITH A RECESSED PADLOCK HASP, TWO - 18" X 24" CENTER KNOCK OUTS AND ADJUSTABLE FRAME. (3) 612-5X-WA CONCRETE VAULT WITH A 4874 ALUMINUM DOUBLE TORSION DOOR WITH A RECESSED PADLOCK HASP, TWO - 18" X 24" CENTER KNOCKOUTS.

S. YOKES, METER: RELOCATOR TYPE COPPER METER YOKE WITH HORIZONTAL INLET AND OUTLET AND METER THREAD ENDS, H14118, WITH LOCK WING, GROUND KEY ANGLE METER STOP, SIZES: 1" X 12", 5/8" X 3/4" X 7", 5/8" X 3/4" X 9".

T. AIR RELEASE VALVE: CRISPIN MODEL AR10 WITH 1" NPT INLET AND 1/2" NPT OUTLET, CAST IRON BODY AND TOP FLANGE; WITH A 5/64" ORIFICE WITH STAINLESS STEEL VALVE SEALING FACES AND BUNA-N RUBBER.

U. PRESSURE RELIEF VALVE: WATTS 174A, MODEL M, 2" INLET, 2" OUTLET, BRONZE BODY, 30LB. TO 150LB. PRESSURE RANGE.

V. POLYETHYLENE ENCASEMENT: FOR ALL PIPELINE AND RELATED FITTINGS INSTALLED, EXCEPT FOR THE COOLIDGE DIVISION. MINIMUM 8 MIL. AND INSTALLED PER AWWA C105/A21.5-93 AND ASTM A-674-89. MANUFACTURED BY THE PACIFIC STATES CAST IRON PIPE COMPANY.

W. BUTTERFLY VALVES: MUELLER CATALOG NUMBER 3211, 150 PSI MAXIMUM WORKING PRESSURE. ANSI/AWWA C504 AND NSF61 CERTIFIED. EPOXY INTERIOR/EXTERIOR. SIZE 16" THROUGH 36".

X. TAPPING VALVE: MUELLER DOUBLE DISC TAPPING VALVE, CATALOG NUMBER H667, CLASS 125, SIZES 4" THROUGH 24", FLANGE BY MECHANICAL JOINT PER ANSI/AWWA C111 . IRON BODY, DOUBLE DISC, NON-RISING STEM. EPOXY COATED INTERIOR/EXTERIOR PER ANSI/AWWA C550 FOR NSF 61 COMPLIANCE. 200 PSI RANGE FOR VALVES 4" TO 12". 150 PSI RANGE FOR VALVES 16" TO 24". THE CONTRACTOR ALSO WILL BE REQUIRED TO PROVIDE THE FOLLOWING MATERIALS, THE COST OF WHICH WILL BE INCLUDED IN ITS UNIT BID PRICE: ALL MATERIAL AND CONCRETE FOR THRUST BLOCKS, OTHER ANCHORS, REINFORCING STEEL; ALL GRAVEL, CRUSHED STONE, A.B.C., EARTH, SAND, OR SCREENED MATERIAL WHICH MAY BE REQUIRED; ALL MATERIAL FOR BRACING AND SHORING TRENCHES AND FOR CONSTRUCTION OF FORMS; ALL BARRICADES AND TRAFFIC CONTROL EQUIPMENT; ALL MATERIAL FOR PAVING REPLACEMENT AND ANY WATER USED FOR COMPACTION OF BACKFILL.

5. INSTALLATION OF MATERIALS
ALL MATERIALS ARE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS UNLESS OTHERWISE DIRECTED BY THESE SPECIFICATIONS. ALL PIPE, FITTINGS AND VALVES SHALL BE LAID TRUE TO THE LINES, GRADES AND LOCATIONS ESTABLISHED BY THE SPECIFICATIONS AND THE CONSTRUCTION DRAWINGS. THE ENDS AND INSIDES OF PIPE SHALL BE THOROUGHLY CLEANED AND INSPECTED FOR DAMAGE. NO DAMAGED MATERIALS SHALL BE INSTALLED IN THE WATER DISTRIBUTION SYSTEM. WHENEVER THE WORK CEASES FOR ANY REASON, ALL OPEN PIPELINE ENDS SHALL BE TIGHTLY PLUGGED BY THE CONTRACTOR. CONCRETE THRUST BLOCKS OF THE SIZES REQUIRED BY THE PLANS AND SPECIFICATIONS ARE TO BE PROVIDED AT ALL VALVES, CHANGES IN DIRECTION OR SIZE, OR AT ANY OTHER POINT WHERE AN UNBALANCED THRUST DUE TO WATER PRESSURE WOULD EXIST. THRUST BLOCKS ARE TO BE FORMED TO PREVENT ANY CONCRETE FROM SPILLING OVER OR INTO A JOINT. TRENCH CURVES AS SHOWN ON THE CONSTRUCTION DRAWINGS MAY BE MADE WITHOUT FITTINGS WHEN USING PIPE UP TO TWELVE INCHES (12") IN DIAMETER, IF THE DEFLECTION OF THE PIPE DOES NOT EXCEED FIVE DEGREES (5°) OR NINETEEN INCHES (19") PER EIGHTEEN FOOT (18') LENGTH OF PIPE. THE MINIMUM RADIUS OF SUCH CURVES WILL BE TWO HUNDRED FIVE FEET (205').

A. PRIOR TO CONSTRUCTION, THE APPROPRIATE AGENCY(IES) WILL BE NOTIFIED AS REQUIRED BY THE PERMIT(S).

B. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UNCOVER ALL EXISTING WATER LINES BEING CONNECTED TO, AND TO VERIFY THE LOCATION, DEPTH AND SIZE OF PIPE BEFORE ANY CONSTRUCTION BEGINS. C. ANY CONSTRUCTION PERFORMED WITHOUT THE KNOWLEDGE OF THE DULY AUTHORIZED REPRESENTATIVE IS LIABLE FOR REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.

D. ALL FIRE HYDRANTS, FRAMES, COVERS AND VALVE BOXES, ETC SHALL BE ADJUSTED TO FINISHED GRADE PRIOR TO THE PLACING OF ASPHALTIC CONCRETE SURFACE COURSE BY THE CONTRACTOR (WHERE APPLICABLE).

E. AIR RELEASE VALVES SHALL BE INSTALLED AT WATER SYSTEM HIGH POINTS PER STANDARD DETAIL E-9-8-2.

F. ALL WATER SERVICES SHALL BE SET A MINIMUM OF TWO FEET (2') ON THE CUSTOMER'S PROPERTY, PREFERABLY WITHIN THE P.U.E. AND NOT WITHIN RIGHT-OF-WAY.

G. UNLESS OTHERWISE SPECIFIED ON THE CONSTRUCTION DRAWINGS, ALL WATER MAINS SHALL BE INSTALLED FIVE FEET (5') FROM THE THE PROPERTY LINE INSIDE THE RIGHT-OF-WAY OR EASEMENT.

H. WATER VALVES SHALL BE SPACED NOT MORE THAN FIVE HUNDRED FEET (500') IN COMMERCIAL DISTRICTS AND NOT MORE THAN EIGHT HUNDRED FEET (800') IN OTHER DISTRICTS. VARIATIONS MAY BE REQUIRED FOR TRANSMISSION MAINS OR SPECIAL APPLICATIONS.

I. INSTALLATION OF WATERLINE CASING SHALL BE PER STANDARD SPECIFICATION E-9-24-1.

6. BACKFILL OF WATER MAIN TRENCHES BACKFILL OF ANY EXCAVATION SHALL CONFORM TO THE REQUIREMENTS OF ANY OF THE GOVERNMENTAL AGENCIES HAVING JURISDICTION OVER THE LOCATION. IF NO GOVERNMENTAL AGENCY HAVING SUCH JURISDICTION SPECIFIES BACKFILL OR COMPACTION REQUIREMENTS, AND NO SPECIAL REQUIREMENTS ARE SHOWN ON THE CONSTRUCTION DRAWINGS, THE PROCEDURE SET FORTH IN THIS SECTION WILL APPLY FOR WATER LINE TRENCHES. THE BEDDING MATERIAL ABOVE THE PIPE AND BACKFILL MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 70% COMPACTION WITHIN A UTILITY EASEMENT AND 80% COMPACTION WITHIN A RIGHT-OF-WAY AS DETERMINED BY AASHTO T-99 METHOD A AND T-191. IF WATER SETTLING IS USED FOR COMPACTION, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PREVENT THE PIPE FROM FLOATING. THE BEDDING MATERIAL SHALL BE EITHER NATIVE MATERIAL, 100% OF WHICH WILL PASS THROUGH A ONE AND ONE-HALF INCH (1 1/2") SCREEN AND AT LEAST 20% OF WHICH WILL PASS THROUGH A NUMBER-8 SCREEN, OR IMPORTED MATERIAL WHICH CONFORMS TO M.A.G. SPECIFICATIONS FOR A.B.C. OR TYPE-B SELECT MATERIALS. BEDDING MATERIAL SHALL BE USED BELOW AND AROUND THE PIPE, AND A MINIMUM OF TWELVE INCHES (12") ABOVE THE PIPE. THE REMAINDER OF THE TRENCH SHALL BE BACKFILLED WITH NATIVE OR IMPORTED MATERIAL WHICH SHALL BE OF SOUND EARTHEN MATERIAL FREE FROM BROKEN CONCRETE, WOOD, BROKEN PAVEMENT, OR OTHER UNSUITABLE SUBSTANCES. EXCEPT AS OTHERWISE SPECIFIED, BACKFILL MAY BE MATERIAL CONTAINING NO PIECES LARGER THAN EIGHT INCHES (8") IN GREATEST DIMENSION. WHERE SETTLEMENT OCCURS, ADDITIONAL BACKFILL MATERIAL SHALL BE PLACED AND COMPACTED AND THE TRENCH SHALL BE BROUGHT TO FINAL GRADE.

7. HYDROSTATIC TESTING OF COMPLETED PIPELINES HYDROSTATIC TESTING OF WATER PIPELINES WILL BE COMPLETED BEFORE THE NEW SYSTEM IS CONNECTED INTO THE EXISTING WATER SYSTEM SO THAT ALL TESTING CAN BE DONE AGAINST ALL NEW MATERIALS. THE COMPLETED SECTION OF WATER PIPELINE TO BE TESTED SHALL BE SLOWLY FILLED WITH WATER WITH CARE BEING TAKEN TO EXPEL ALL AIR FROM THE PIPE. IF NECESSARY, THE PIPE WILL BE TAPPED AT HIGH POINTS TO VENT AIR. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND LABOR NECESSARY TO ACCOMPLISH THIS TESTING AND THE PRICE SHALL BE INCLUDED IN THE UNIT PRICES. THE CONTRACTOR SHALL NOTIFY THE COMPANY IN ADVANCE OF THE TESTING SO THAT THE COMPANY CAN SCHEDULE A DULY AUTHORIZED REPRESENTATIVE TO BE AT THE SITE DURING TESTING. THE CONTRACTOR, AT ITS OWN EXPENSE, SHALL MAKE ANY NECESSARY REPAIRS TO THE SYSTEM BEING TESTED IN ORDER TO CAUSE THE SECTION BEING TESTED TO MEET THE TEST LIMITS SET BELOW. THE CONTRACTOR MAY REQUEST AUTHORIZATION OF THE COMPANY TO CONNECT THE NEW PIPELINES TO THE EXISTING SYSTEM PRIOR TO COMPLETION OF PRESSURE TESTING WHEN, IN THE COMPANY'S SOLE OPINION AND JUDGMENT, CONDITIONS WARRANT SUCH CONNECTION. THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY TO COMPLETE PRESSURE TESTING TO COMPANY'S SPECIFICATIONS AFTER SUCH CONNECTION, INCLUDING, BUT NOT LIMITED TO, ISOLATION OF THE NEW PIPELINES FROM THE EXISTING SYSTEM, IF NECESSARY. CONNECTIONS PRIOR TO COMPLETION OF PRESSURE TESTING SHALL NOT BE MADE UNLESS PRIOR COMPANY AUTHORIZATION HAS BEEN OBTAINED, AND ANY EXTRA EXPENSES RESULTING FROM SUCH CONNECTIONS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. LEAKAGE TESTS WILL BE FOR A PERIOD OF TWO HOURS AT 200 PLUS OR MINUS 5 PSI AT THE POINT OF LOWEST ELEVATION; LEAKAGE MAY NOT EXCEED 0.1 GALLONS PER HOUR PER ONE THOUSAND FEET (1,000') OF PIPE PER INCH OF DIAMETER.

8. STERILIZATION AND FLUSHING OF COMPLETED WATER PIPELINES STERILIZATION AND FLUSHING WILL CONFORM TO RECOMMENDATIONS OF ARIZONA STATE DEPARTMENT OF HEALTH SERVICES ENGINEERING BULLETIN NUMBER 8, LATEST EDITION, OR ANY FUTURE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY BULLETINS.

9. NO OTHER UTILITIES ALLOWED IN OR NEAR WATER PIPELINE TRENCHES NO OTHER UTILITY INSTALLATIONS WILL BE PERMITTED IN THE WATER PIPELINE TRENCH OR WITHIN FIVE FEET (5') OF THE COMPANY'S WATER PIPELINE WHEN RUNNING PARALLEL TO THE WATER PIPELINES.

10. PROTECTION OF WATER MAINS NEAR SEWERS WATER/SEWER LINE(S) SEPARATION SHALL BE IN ACCORDANCE WITH AAC R18-4-502C. WATER LINE(S)/SEPTIC SYSTEMS SEPARATION SHALL BE IN ACCORDANCE WITH AAC R18-9-A312C

11. COMPACTION WHEN CROSSING EXISTING WATER MAINS A MINIMUM OF 95% COMPACTION IS REQUIRED TO THE BOTTOM OF EXISTING MAINS. ARIZONA WATER COMPANY REQUIRES THAT NO SLURRY BE PERMITTED TO CONTACT EXISTING CEMENT/ASBESTOS OR DUCTILE IRON PIPES. SLURRY MAY BE POURED IN THE BOTTOM OF THE SEWER TRENCH STOPPING THREE INCHES (3") BELOW THE EXISTING WATER MAIN. THE BACKFILL USED AROUND THE MAIN SHOULD BE AB IN SUFFICIENT DEPTH TO PREVENT SLURRY FROM CONTACTING EXISTING MAIN.

12. WATER MAIN MATERIAL SPECIFICATIONS DUCTILE IRON PIPE (PUSH-ON TYPE) MINIMUM CLASS 350, CEMENT LINED AND CONFORM TO AWWA C151. ALL MAIN LINE VALVES SHALL CONFORM TO AWWA C500 WITH A MINIMUM WORKING PRESSURE OF 200 PSI. ALL CAST IRON FITTINGS TO BE CEMENT LINED IN ACCORDANCE WITH AWWA C104 AND SHALL CONFORM TO AWWA C110 WITH A MINIMUM WORKING PRESSURE OF 250 PSI. EXCEPT FOR THE COOLIDGE SYSTEM - SEE NOTE 4.I. A. MAXIMUM JOINT DEFLECTION FOR 6" MECHANICAL JOINT DUCTILE IRON PIPE IS SEVEN DEGREES, SEVEN MINUTES (7°7') OR TWENTY-SEVEN INCHES (27") PER EIGHTEEN FOOT (18') LENGTH PIPE, FOR A MAXIMUM CURVE OF ONE HUNDRED FORTY FIVE FEET (145'). B. MAXIMUM JOINT DEFLECTION FOR 8" & 12" MECHANICAL JOINT DUCTILE IRON PIPE IS FIVE DEGREES, TWENTY ONE MINUTES (5°21') OR TWENTY INCHES (20") PER EIGHTEEN FOOT' (18') LENGTH PIPE, FOR A MAXIMUM CURVE OF ONE HUNDRED NINETY FIVE FEET (195'). C. MAXIMUM JOINT DEFLECTION FOR 6", 8" & 12" PUSH-ON JOINT DUCTILE IRON PIPE IS FIVE DEGREES (5°) OR NINETEEN INCHES (19") PER EIGHTEEN FOOT (18') LENGTH PIPE FOR A MAXIMUM CURVE OF TWO HUNDRED FIVE FEET (205').

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Project: Panther Drive Bridge
Town of Superior, AZ

AZ Water Company Notes

Revisions:

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UT03
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jlassuy

AZ WATER COMPANY CONSTRUCTION SPECIFICATIONS FOR THE INSTALLATION OF WATER DISTRIBUTION SYSTEMS - DUCTILE IRON

1.GENERAL

ALL WORK IS TO BE COMPLETED IN A SAFE, WORKMANLIKE MANNER AND IN ACCORDANCE WITH THESE CONSTRUCTION SPECIFICATIONS; ANY DEVIATION THEREFROM MUST BE APPROVED IN WRITING BY THE COMPANY.

INSTALLATIONS MUST CONFORM WITH THE REQUIREMENTS OF ALL GOVERNMENTAL REGULATING AGENCIES AND THE COST OF CONFORMING TO SUCH REGULATIONS MUST BE INCLUDED IN THE UNIT BID PRICES. EXAMPLES OF SUCH REGULATIONS, WITHOUT ATTEMPTING TO BE INCLUSIVE, ARE:

a.SPECIAL COMPACTION AND PAVING FOR STREET CROSSING.
b.SHORING WHEN REQUIRED BECAUSE OF THE TRENCH DEPTH.
c.CLOSING A TRENCH IN THOSE AREAS WHERE NO OPEN TRENCH IS ALLOWED OVERNIGHT.
d.BARRICADING AND TRAFFIC CONTROL AS REQUIRED.

2.LOCATION MARKING

ALIGNMENT STAKES AS REQUIRED IN THE OPINION OF THE COMPANY SHALL BE FURNISHED BY THE COMPANY TO THE CONTRACTOR AND SHALL BE SET BY THE COMPANY AT AGREED UPON INTERVALS AND OFFSETS. UNDER NORMAL CIRCUMSTANCES THESE WILL REFERENCE THE PIPELINE LOCATION FIVE FEET (5') INTO THE RIGHT-OF-WAY MEASURED FROM PROPERTY PINS. GRADE STAKES WILL BE PROVIDED ONLY WHEN THE CONSTRUCTION DRAWINGS SHOW A PIPELINE DEPTH OTHER THAN COVERED IN THESE SPECIFICATIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PRESERVE ALL SURVEY WORK.

3.TRENCH EXCAVATION

THE TRENCH LOCATION IS TO BE DETERMINED BY THE CONSTRUCTION DRAWINGS.

FOR 8-INCH OR SMALLER PIPE: THE DEPTH OF THE TRENCH PRIOR TO PIPE LAYING SHALL BE SUCH THAT THE FINISHED PIPELINE SHALL HAVE BETWEEN THIRTY-SIX INCHES (36") AND FORTY-TWO INCHES (42") OF COVER UNLESS OTHERWISE SPECIFIED ON THE CONSTRUCTION DRAWINGS.

FOR 12-INCH AND LARGER PIPE: THE DEPTH OF THE TRENCH PRIOR TO PIPE LAYING SHALL BE SUCH THAT THE FINISHED PIPELINE SHALL HAVE BETWEEN FORTY-EIGHT INCHES (48") AND SIXTY INCHES (60") OF COVER UNLESS OTHERWISE SPECIFIED ON THE CONSTRUCTION DRAWINGS.

THE WIDTH OF THE TRENCH AT AND BELOW THE LEVEL AT THE TOP OF THE PIPE SHALL BE A MINIMUM OF TWELVE INCHES (12") PLUS THE OUTSIDE DIAMETER OF THE PIPE BARREL AND A MAXIMUM OF TWENTY-FOUR INCHES (24") PLUS THE OUTSIDE DIAMETER OF THE PIPE BARREL.

THE BOTTOM OF THE TRENCH SHALL BE ACCURATELY GRADED TO PROVIDE A UNIFORM BEARING FOR EACH LENGTH OF PIPE FOR THE FULL LENGTH OF THE PIPE. IF THE NATIVE MATERIAL ON THE TRENCH BOTTOM CAN BE REASONABLY DUG BY HAND, BELL HOLES SHALL BE DUG FOR THE JOINTS SO THAT THE JOINTS IN NO WAY SUPPORT THE PIPE. WHEN NATIVE MATERIALS SUCH AS ROCK ARE ENCOUNTERED DURING TRENCHING THAT WILL NOT PROVIDE A UNIFORM SUPPORT FOR THE PIPE, THE TRENCH WILL BE OVER-EXCAVATED AN ADDITIONAL SIX INCHES (6") AND SUITABLE BEDDING MATERIAL WILL BE PLACED IN THE TRENCH.

BEDDING MATERIAL WILL BE PLACED BY HAND IN FOUR-INCH (4") LIFTS AND COMPACTED TO ENSURE UNIFORM COMPACTION AND TO ELIMINATE ANY VOIDS UNDER THE PIPE. WHEN THE SPACE BETWEEN THE PIPE AND TRENCH BOTTOM VARIES, THIS MUST BE BACKFILLED AND COMPACTED IN FOUR-INCH (4") LIFTS TO THE MID-SECTION OF THE PIPE.

WHENEVER THE TRENCH IS OVER-EXCAVATED FOR WHATEVER REASON, THE TRENCH BOTTOM WILL BE BROUGHT UP TO THE CORRECT DEPTH AT THE CONTRACTOR'S EXPENSE USING EITHER METHOD (A) OR (B) AS FOLLOWS:

a.A.B.C. MATERIAL SHALL BE USED AND COMPACTED TO A UNIFORM DENSITY OF NOT LESS THAN 80% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99 METHOD A AND T-191.

b.NATIVE MATERIAL 100% OF WHICH WILL PASS THROUGH A ONE AND ONE-HALF INCH (1½") SCREEN AND AT LEAST 20% OF WHICH WILL PASS THROUGH A NUMBER-8 SCREEN SHALL BE USED AND COMPACTED TO A UNIFORM DENSITY OF NOT LESS THAN 85% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99 METHOD A AND T-191.

4.MATERIALS TO BE PROVIDED BY CONTRACTOR

UNLESS OTHERWISE SPECIFIED ON THE CONSTRUCTION DRAWINGS OR IN THE CONTRACT, THE CONTRACTOR WILL SUPPLY ALL OF THE NECESSARY MATERIALS WHICH WILL BECOME A PERMANENT AND INTEGRAL PART OF THE WATER DISTRIBUTION SYSTEM, INCLUDING CONCRETE BLOCKING, ANCHORS, BACKFILL MATERIAL, PAVING MATERIAL AND SUPPLIES USED DURING THE PROSECUTION OF THE WORK. ALL MATERIALS PROVIDED BY THE CONTRACTOR TO CONSTRUCT THE WATER DISTRIBUTION SYSTEM MUST BE NSF STANDARD 61 APPROVED, ALL POTABLE WATER PIPES AND FITTINGS SHALL HAVE NSF-PW SEAL. CONSTRUCTION MATERIALS USED IN THE WATER SYSTEM SHALL BE LEAD FREE AS DEFINED AT AAC R18-5-504 AND R18-1-101. THE CONTRACTOR WILL PROVIDE THE FOLLOWING MATERIALS:

a.FIRE HYDRANTS: MUELLER SUPER CENTURION 250 FIRE HYDRANT, MEETS ANSI/AWWA C502 STANDARD, MODEL NO. A_423, 5¼" MAIN VALVE OPENING, THREE WAY, 6" MECHANICAL JOINT SHOE, 1½" PENTAGON OPERATING NUT, COLOR - YELLOW, DRAIN OPEN, OPEN DIRECTION - LEFT, 4' OR 4'6" BURY DEPENDING ON APPLICATION. FOR PUMPER AND HOSE NOZZLE INFORMATION SEE BELOW.

(1) 1 - 4" PUMPER NOZZLE, NST AND 2 - 2½" HOSE NOZZLES, NST. (THESE LOCATIONS ONLY: AJO, CASA GRANDE, COOLIDGE AND SAN MANUEL.)

(2) 1 - 4½" PUMPER NOZZLE, NST AND 2 - 2½ " HOSE NOZZLES, NST. (THESE LOCATIONS ONLY: APACHE JUNCTION, ARIZONA CITY, LAKESIDE, ORACLE, OVERGAARD, PINEWOOD, RIMROCK, SEDONA, SIERRA VISTA, WHITE TANK AND WINKELMAN.)

(3) 1 - 4½" PUMPER NOZZLE, NST AND 2 - 2½" HOSE NOZZLES, NPT (BISBEE ONLY.)

(4) 1 - 3" PUMPER NOZZLE GA 6-350 (6 THREADS PER INCH, 3.50 PITCH DIAMETER) AND 2 - 2½" HOSE NOZZLES, NPT (MIAMI ONLY.)

(5) 1 - 3½" PUMPER NOZZLE GA 6-411 (6 THREADS PER INCH, 4.11 PITCH DIAMETER) AND 2 - 2½" HOSE NOZZLE, NST (SUPERIOR ONLY.)

b.FITTINGS: MANUFACTURED BY TYLER OR UNION. CROSSES, ELBOWS, TEES, CAP, REDUCER, ADAPTER, PLUG, BLIND FLANGE AND TAPPED FLANGE; DUCTILE IRON, CLASS 350, SSB, CAST IRON CEMENT LINED.

(1) FOSTER ADAPTORS FOR MJ, MADE BY INFACT CORPORATION: AVAILABLE IN SIZE 4" TO 16". PART NO. 4" = 4FA-BC, 6" = 6FA-BC, 8" = 8FA-BC, 10" = 10FA-BC, 12" = 12FA-BC, 16" = 16FA-BC.

c.DETECTOR CHECK VALVE: MUELLER/ HERSEY EDC III, IRON BODY, INCLUDING 5/8" X ¾" TRIM KIT. TRIM KIT PART NO.: 4" = 282080, 6" = 282082, 8" = 282085, 10" = 282496.

d.GATE VALVES: MUELLER RESILIENT WEDGE GATE VALVES, MEETS AWWA C509 SPECIFICATION, 250 PSIG, NON-RISING STEM, PART NO. A-2360 SIZES 4" THROUGH 12" ; PART NO. A-2361 SIZES 14" THROUGH 36", LOW ZINC STEMS, EPOXY COATED INSIDE AND OUTSIDE TO MEET THE NSF 61 RATING. THE BONNET AND STUFFING BOX SHALL HAVE 304 STAINLESS STEEL BOLTS/NUTS.

e.TRACER WIRE AND WARNING TAPE:

I.TRACER WIRE: SHALL BE DIRECT BURY AWG #14 SOLID COPPER WIRE, COLOR: BLUE.

2.WARNING TAPE: REEF INDUSTRIES, STANDARD TERRA TAPE IN 3" WIDTHS. COLOR: BLUE AND IMPRINTED 'ARIZONA WATER COMPANY'.

f. AIR RELEASE VALVE: CRISPIN MODEL AR10 WITH 1" NPT INLET AND ½" NPT OUTLET, CAST IRON BODY AND TOP FLANGE; WITH A 5/64" ORIFICE WITH STAINLESS STEEL VALVE SEALING FACES AND BUNA-N RUBBER.

g.PRESSURE RELIEF VALVE: WATTS 174A, MODEL M, 2" INLET, 2" OUTLET, BRONZE BODY, 30LB. TO 150LB. PRESSURE RANGE.

h.MEGA LUG: MECHANICAL JOINT RESTRAINT MADE OF DUCTILE IRON CONFORMING TO ASTM 536-80, 250 PSI MADE BY EBAA IRON, INC., SERIES 1100 OR EQUAL.

i. METER BOXES:

(1) CONCRETE BOX WITH A STEEL REGULAR LID, NUMBER 1: TUCSON SPECIFICATION.

(2) CONCRETE BOX WITH A STEEL REGULAR LID, NUMBER 2, 3, AND 4: PHOENIX SPECIFICATION.

j. PIPE, COPPER: TYPE K SOFT COPPER IN 60 OR 100-FOOT COILS, PER ASTM B88.

k.PIPE, DUCTILE IRON: DUCTILE IRON PIPE, CEMENT LINED, PUSH-ON, CONFORM TO CURRENT ANSI/AWWA SPECIFICATION A21.51/C151, PRESSURE CLASS 350 (SIZES 4" THROUGH 12"), PRESSURE CLASS 250 (SIZES 14" THROUGH 20"), OR PRESSURE CLASS 200 FOR 24" THROUGH 36" PIPE. VENDORS:
(1) PACIFIC STATES CAST IRON PIPE COMPANY
(2) GRIFFIN PIPE
(3) UNITED STATES PIPE AND FOUNDRY COMPANY
(4) AMERICAN DUCTILE IRON PIPE
(5) CLOW PIPE (MCWANE, INC.)

l. PIPE, PLASTIC: PLASTIC PIPE, C-900 PVC PER ANSI/AWWA C900, CLASS 150, SIZES 6" THROUGH 12". NSF61 APPROVED. FURNISHED IN LAYING LENGTHS OF 20'. THE BARREL SHALL CONFORM TO THE OUTSIDE DIMENSIONS OF STEEL PIPE (IPS) OR CAST IRON (CI) PIPE EQUIVALENT AND THE WALL THICKNESS OF DIMENSION-RATIO (DR) 18.

m. POLYETHYLENE ENCASEMENT (POLYWRAP): FOR ALL PIPELINE AND RELATED FITTINGS INSTALLED, EXCEPT FOR THE COOLIDGE DIVISION. MINIMUM 8 MIL. AND INSTALLED PER AWWA C105/A21.5-93 AND ASTM A-674-89. MANUFACTURED BY THE PACIFIC STATES CAST IRON PIPE COMPANY. THE WRAPPING TAPE SHALL BE MINIMUM 10 MIL. VINYL TAPE. NO DUCT TAPE SHALL BE USED.

n. COUPLING: MUELLER, STRAIGHT THREE PART UNION, TESTED TO MEET ANSI/AWWA C800, H15403, CONDUCTIVE COMPRESSION. MUELLER, H15428, STRAIGHT COUPLING, CONDUCTIVE COMPRESSION BY MALE IRON PIPE, TESTED TO MEET ANSI/AWWA C800 SPECIFICATION. SIZE: 2". MUELLER, H15451, STRAIGHT COUPLING, CONDUCTIVE COMPRESSION BY FEMALE IRON PIPE, TESTED TO MEET ANSI/AWWA C800 SPECIFICATION. SIZE: 2". VIKING JOHNSON BRAND, SOLD BY MUELLER: MAXIFIT STRAIGHT (2"-24"), MAXIFITXTRA STRAIGHT (4"-8") OR MAXISTEP TRANSITION, TESTED TO MEET AWWA/ANSI C.219-91 SPECIFICATIONS -CERTIFIED TO ISO 9001:1994 / SMITH -BLAIR QUANTUM.

o. STOP, ANGLE METER, BALL: MUELLER, VALVE, B24258, CONDUCTIVE COMPRESSION BY METER SWIVEL NUT, TESTED TO MEET ANSI/AWWA C800, SIZE 5/8 " X ¾ " X ¾ " FOR A ¾ " SERVICE OR SIZE 1" FOR A 1" MUELLER, VALVE, B24265, FEMALE PIPE THREAD BY METER SWIVEL NUT, TESTED TO MEET ANSI/AWWA C800, SIZE 5/8" X ¾ " X ¾ " FOR A ¾ " SERVICE OR SIZE 1" FOR A 1" SERVICE.

p. STOP, CORP: MUELLER, BALL VALVE, B25008, TAPER THREAD BY CONDUCTIVE COMPRESSION, TESTED TO MEET ANSI/AWWA C800 SPECIFICATION, SIZES: ¾ ", 1" AND 2". MUELLER, BALL VALVE, B25028, IRON PIPE THREAD BY CONDUCTIVE COMPRESSION, TESTED TO MEET ANSI/AWWA C800 SPECIFICATION. SIZES ¾ ", 1", AND 2". MUELLER, 300 BALL CURB VALVE, B-25122, TAPER THREAD BY CONDUCTIVE COMPRESSION, TESTED TO MEET ANSI/AWWA C800 SPECIFICATIONS, SIZE: 2". (2" SERVICE)

q. STOP, CURB: ORISEAL VALVE, H10291, IRON PIPE THREAD BY IRON PIPE THREAD, QUARTER TURN CHECK, BRASS, TESTED TO 300 PSI WORKING PRESSURE, TESTED TO MEET ANSI/AWWA C800 SPECIFICATION, SIZE: MUELLER, B20283, MUELLER 300 BALL CURB VALVE, FEMALE IRON PIPE BY FEMALE IRON PIPE, QUARTER TURN CHECK, TESTED TO MEET ANSI/AWWA C800 SPECIFICATION. SIZE: 2". (BLOW-OFF

r. TAPPING SADDLE: SMITH BLAIR, CAST BRONZE ASTM-BS84 85-5-5-5, DOUBLE STRAP, CURB SERVICE SADDLE, MODELS 321 AND 323. WASHERS ARE SILICON BRONZE, ASTM-B36. GASKETS ARE GRADE 60 BUNA N, OR MUELLER BRONZE DOUBLE STRAP SERVICE SADDLE, BR 2 B SERIES, CAST BRONZE, ASTM-B585, 85-5-5-5, OR H16084, 250 PSIG, MEETS ANSI/AWWA C800.

s.TAPPING SLEEVE: MUELLER H304 STAINLESS STEEL TAPPING SLEEVE, JCM 432 18_8 TYPE 304 STAINLESS STEEL TAPPING SLEEVE, ROMAC "SST" TYPE 304 STAINLESS STEEL TAPPING SLEEVE OR CASCADE-STYLE CST-EX STAINLESS STEEL PRESSURE-RATED TAPPING SLEEVE.

t.TAPPING VALVE: MUELLER RESILIENT WEDGE TAPPING VALVE, CATALOG NUMBER T-2360-16, CLASS 125, SIZES 4" THROUGH 12"; T-2361-16, CLASS 125, SIZES 14" TO 36" ALL WITH TYPE 304 STAINLESS STEEL FASTENERS; BYPASS VALVES ARE REQUIRED ON 18" - 36" VALVES FLANGE BY MECHANICAL JOINT PER ANSI/AWWA C111, IRON WEDGE, NON-RISING STEM. EPOXY COATED INTERIOR/EXTERIOR PER ANSI/AWWA C550 FOR NSF 61 COMPLIANCE. 250 PSI RANGE FOR VALVES 4" TO 12". 150 PSI RANGE FOR VALVES 14" TO 36".

u.U-BRANCH: MUELLER, H15364, 1" MALE IRON PIPE BY ¾" MALE IRON PIPE. TESTED TO MEET ANSI/AWWA C800 SPECIFICATION. SIZE: 1" X ¾" X 13½", STRAIGHT LINE.

v. VALVE BOXES: VALVE BOX WITH COVER, ADJUSTABLE, TYLER 562-A OR EQUAL, MADE OF CAST IRON.

w. VAULTS: UTILITY VAULT COMPANY, CHANDLER, AZ.

(1) 4484-WA CONCRETE VAULT WITH A 3660 ALUMINUM DOUBLE TORSION DOOR WITH A RECESSED PADLOCK HASP, TWO - 18" X 24" CENTER KNOCKOUTS.

(2) 575-WA CONCRETE VAULT WITH A 4874 ALUMINUM DOUBLE TORSION DOOR WITH A RECESSED PADLOCK HASP, TWO - 18" X 24" CENTER KNOCK OUTS AND ADJUSTABLE FRAME.

(3) 612-5X-WA CONCRETE VAULT WITH A 4874 ALUMINUM DOUBLE TORSION DOOR WITH A RECESSED PADLOCK HASP, TWO - 18" X 24" CENTER KNOCKOUTS.

x. VALVE, METER: MUELLER, B24265-1, MUELLER 300 BALL ANGLE METER VALVE, FEMALE IRON PIPE BY METER NUT, QUARTER TURN CHECK, LOCK WING, TESTED TO MEET ANSI/AWWA C800 SPECIFICATION. SIZE: 1".

MUELLER, B25170, MUELLER 300 BALL STRAIGHT VALVE, CONDUCTIVE COMPRESSION BY FEMALE IRON PIPE, QUARTER TURN CHECK, LOCK WING, TESTED TO MEET ANSI//AWWA C800 SPECIFICATION. SIZE: 1".

y. YOKES, METER: RELOCATOR TYPE COPPER METER YOKE WITH HORIZONTAL INLET AND OUTLET AND METER THREAD ENDS, B24118, WITH LOCK WING MUELLER 300 ANGLE BALL VALVE, FULL PORT, SIZES: 1" X 12", 5/8" X ¾" X 7", 5/8 X ¾" X 9".

MUELLER, 2" COPPER METER YOKE WITH HORIZONTAL INLET AND OUTLET AND FEMALE IRON PIPE THREADS, B2423-99000, WITH LOCK WING MUELLER 300 BALL ANGLE METER VALVES ON INLET AND OUTLET RISERS. RAISED 1" BY-PASS WITH LOCK WING MUELLER 300 BALL VALVE.

THE CONTRACTOR ALSO WILL BE REQUIRED TO PROVIDE THE FOLLOWING MATERIALS, THE COST OF WHICH WILL BE INCLUDED IN ITS UNIT BID PRICE:

ALL MATERIAL AND CONCRETE FOR THRUST BLOCKS, OTHER ANCHORS, REINFORCING STEEL; ALL GRAVEL, CRUSHED STONE, A.B.C., EARTH, SAND, OR SCREENED MATERIAL WHICH MAY BE REQUIRED; ALL MATERIAL FOR BRACING AND SHORING TRENCHES AND FOR CONSTRUCTION OF FORMS; ALL BARRICADES AND TRAFFIC CONTROL EQUIPMENT; ALL MATERIAL FOR PAVING REPLACEMENT AND ANY WATER USED FOR COMPACTION OF BACKFILL.

5.INSTALLATION OF MATERIALS

ALL MATERIALS ARE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS UNLESS OTHERWISE DIRECTED BY THESE SPECIFICATIONS.

ALL PIPE, FITTINGS AND VALVES SHALL BE LAID TRUE TO THE LINES, GRADES AND LOCATIONS ESTABLISHED BY THE SPECIFICATIONS AND THE CONSTRUCTION DRAWINGS.

THE ENDS AND INSIDE OF THE PIPE SHALL BE THOROUGHLY CLEANED AND INSPECTED FOR DAMAGE. NO DAMAGED MATERIALS SHALL BE INSTALLED IN THE WATER DISTRIBUTION SYSTEM.

WHENEVER THE WORK CEASES FOR ANY REASON, ALL OPEN PIPELINE ENDS SHALL BE TIGHTLY PLUGGED BY THE CONTRACTOR. PLUGS SHALL BE WATERTIGHT AND APPROVED BY THE COMPANY.

6.BACKFILL OF WATER MAIN TRENCHES

CONCRETE THRUST BLOCKS OF THE SIZES REQUIRED BY THE PLANS AND SPECIFICATIONS ARE TO BE PROVIDED AT ALL VALVES, CHANGES IN DIRECTION OR SIZE, OR AT ANY OTHER POINT WHERE AN UNBALANCED THRUST DUE TO WATER PRESSURE WOULD EXIST. THRUST BLOCKS ARE TO BE FORMED TO PREVENT ANY CONCRETE FROM SPILLING OVER OR INTO A JOINT.

TRENCH CURVES AS SHOWN ON THE CONSTRUCTION DRAWINGS MAY BE MADE WITHOUT FITTINGS WHEN USING PUSH ON JOINT PIPE UP TO TWELVE INCHES (12") IN DIAMETER, IF THE DEFLECTION OF THE PIPE DOES NOT EXCEED FIVE DEGREES (5°) OR NINETEEN INCHES (19") PER EIGHTEEN-FOOT (18') LENGTH OF PIPE. THE MINIMUM RADIUS OF SUCH CURVES WILL BE TWO HUNDRED FIVE FEET (205').

PRIOR TO CONSTRUCTION, THE APPROPRIATE AGENCY(IES) WILL BE NOTIFIED AS REQUIRED BY THE PERMIT(S).

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UNCOVER ALL EXISTING WATER LINES BEING CONNECTED TO, AND TO VERIFY THE LOCATION, DEPTH AND SIZE OF PIPE BEFORE ANY CONSTRUCTION BEGINS.

ANY CONSTRUCTION PERFORMED WITHOUT THE KNOWLEDGE OF THE DULY AUTHORIZED REPRESENTATIVE IS LIABLE FOR REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.

ALL FIRE HYDRANTS, FRAMES, COVERS AND VALVE BOXES, ETC. SHALL BE ADJUSTED TO FINISHED GRADE PRIOR TO THE PLACING OF THE ASPHALT CONCRETE SURFACE COURSE BY THE CONTRACTOR (WHERE APPLICABLE).

AIR RELEASE VALVES SHALL BE INSTALLED AT WATER SYSTEM HIGH POINTS PER STANDARD DETAIL E-9-8-2.

ALL WATER SERVICES SHALL BE SET A MINIMUM OF TWO FEET (2') ON THE CUSTOMER'S PROPERTY, PREFERABLY WITHIN THE P.U.E. AND NOT WITHIN RIGHT-OF-WAY.

UNLESS OTHERWISE SPECIFIED ON THE CONSTRUCTION DRAWINGS, ALL WATER MAINS SHALL BE INSTALLED FIVE FEET (5') FROM THE PROPERTY LINE INSIDE THE RIGHT-OF-WAY OR EASEMENT.

WATER VALVES SHALL BE SPACED NOT MORE THAN FIVE HUNDRED FEET (500') IN COMMERCIAL DISTRICTS AND NOT MORE THAN EIGHT HUNDRED FEET (800') IN OTHER DISTRICTS. VARIATIONS MAY BE REQUIRED FOR TRANSMISSION MAINS OR SPECIAL APPLICATIONS.

INSTALLATION OF WATER LINE CASING SHALL BE PER STANDARD SPECIFICATION E-9-24-1.

TRACER WIRE AND WARNING TAPE ARE TO BE INSTALLED ON ALL MAINS, TEES, CROSSES, ELLS AND FIRE HYDRANT LATERALS. THEY WILL NOT BE INSTALLED ON SERVICE LINES. THE TRACER WIRE WILL BE INSTALLED ON THE WATER MAIN 45 DEGREES FROM THE VERTICAL CENTERLINE OF THE PIPE AND SHALL BE TAPED TO THE FITTINGS DIRECTLY AND ON THE MAIN EVERY 10 FEET USING A MINIMUM 10 MIL VINYL TAPE. THE TRACER WIRE SHALL BE PLACED BETWEEN THE VALVE RISER AND BOX WITH A MINIMUM OF 12" OF WIRE INSIDE. THE WARNING TAPE SHALL BE INSTALLED A MINIMUM OF TWO FEET BELOW THE SURFACE, BEING MEASURED FROM FINAL GRADE, DIRECTLY OVER THE CENTER OF THE PIPE. ANY SPLICES IN THE TRACER WIRE SHALL BE JOINED USING WATERPROOF CONNECTORS. ANY SPLICES IN THE WARNING TAPE SHALL BE JOINED USING MINIMUM 10 MIL VINYL TAPE. THE TRACER WIRE SHALL BE TESTED FOR CONTINUITY AFTER BACKFILL AND COMPACTION, BUT BEFORE PAVING. ANY DETECTED DAMAGES TO THE WIRE SHALL BE REPAIRED BEFORE PAVING WILL BE ALLOWED.

BACKFILL OF ANY EXCAVATION SHALL CONFORM TO THE REQUIREMENTS OF ANY OF THE GOVERNMENTAL AGENCIES HAVING JURISDICTION OVER THE LOCATION. IF NO GOVERNMENTAL AGENCY HAVING SUCH JURISDICTION SPECIFIES BACKFILL OR COMPACTION REQUIREMENTS, AND NO SPECIAL REQUIREMENTS ARE SHOWN ON THE CONSTRUCTION DRAWINGS, THE PROCEDURE SET FORTH IN THIS SECTION WILL APPLY FOR WATER LINE TRENCHES.

THE BEDDING MATERIAL ABOVE THE PIPE AND BACKFILL MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 70% COMPACTION WITHIN A UTILITY EASEMENT AND 80% COMPACTION WITHIN A RIGHT-OF-WAY AS DETERMINED BY AASHTO T-99 METHOD A AND T-191. IF WATER SETTLING IS USED FOR COMPACTION, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PREVENT THE PIPE FROM FLOATING.

THE BEDDING MATERIAL SHALL BE EITHER NATIVE MATERIAL, 100% OF WHICH WILL PASS THROUGH A ONE AND ONE-HALF INCH (1½") SCREEN AND AT LEAST 20% OF WHICH WILL PASS THROUGH A NUMBER-8 SCREEN, OR IMPORTED MATERIAL WHICH CONFORMS TO M.A.G. SPECIFICATIONS FOR A.B.C. OR TYPE-B SELECT MATERIALS. BEDDING MATERIAL SHALL BE USED BELOW AND AROUND THE PIPE AND A MINIMUM OF TWELVE INCHES (12") ABOVE THE PIPE. SHADE AND BEDDING MATERIAL TO BE MECHANICALLY COMPACTED PRIOR TO REMAINDER OF TRENCH BACK-FILL.

THE REMAINDER OF THE TRENCH SHALL BE BACKFILLED WITH NATIVE OR IMPORTED MATERIAL WHICH SHALL BE OF SOUND EARTHEN MATERIAL FREE FROM BROKEN CONCRETE, WOOD, BROKEN PAVEMENT, OR OTHER UNSUITABLE SUBSTANCES. EXCEPT AS OTHERWISE SPECIFIED, BACKFILL MAY BE MATERIAL CONTAINING NO PIECES LARGER THAN SIX INCHES (6") IN GREATEST DIMENSION.

WHERE SETTLEMENT OCCURS, ADDITIONAL BACKFILL MATERIAL SHALL BE PLACED AND COMPACTED AND THE TRENCH SHALL BE BROUGHT TO FINAL GRADE.

7.HYDROSTATIC TESTING OF COMPLETED PIPELINES

HYDROSTATIC TESTING OF WATER PIPELINES WILL BE COMPLETED BEFORE THE NEW SYSTEM IS CONNECTED INTO THE EXISTING WATER SYSTEM SO THAT ALL TESTING CAN BE DONE AGAINST ALL NEW MATERIALS.

THE COMPLETED SECTION OF WATER PIPELINE TO BE TESTED SHALL BE SLOWLY FILLED WITH WATER WITH CARE BEING TAKEN TO EXPEL ALL AIR FROM THE PIPE. IF NECESSARY, THE PIPE WILL BE TAPPED AT HIGH POINTS TO VENT AIR.

THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND LABOR NECESSARY TO ACCOMPLISH THIS TESTING AND THE PRICE SHALL BE INCLUDED IN THE UNIT PRICES. THE CONTRACTOR SHALL NOTIFY THE COMPANY IN ADVANCE OF THE TESTING SO THAT THE COMPANY CAN SCHEDULE A DULY AUTHORIZED REPRESENTATIVE TO BE AT THE SITE DURING TESTING. THE CONTRACTOR, AT ITS OWN EXPENSE, SHALL MAKE ANY NECESSARY REPAIRS TO THE SYSTEM BEING TESTED IN ORDER TO CAUSE THE SECTION BEING TESTED TO MEET THE TEST LIMITS SET BELOW. THE CONTRACTOR MAY REQUEST AUTHORIZATION OF THE COMPANY TO CONNECT THE NEW PIPELINES TO THE EXISTING SYSTEM PRIOR TO COMPLETION OF PRESSURE TESTING WHEN, IN THE COMPANY'S SOLE OPINION AND JUDGMENT, CONDITIONS WARRANT SUCH CONNECTION.

THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY TO COMPLETE PRESSURE TESTING TO COMPANY'S SPECIFICATIONS AFTER SUCH CONNECTION, INCLUDING, BUT NOT LIMITED TO, ISOLATION OF THE NEW PIPELINES FROM THE EXISTING SYSTEM, IF NECESSARY.

CONNECTIONS PRIOR TO COMPLETION OF PRESSURE TESTING SHALL NOT BE MADE UNLESS PRIOR COMPANY AUTHORIZATION HAS BEEN OBTAINED, AND ANY EXTRA EXPENSES RESULTING FROM SUCH CONNECTIONS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

LEAKAGE TESTS WILL BE FOR A PERIOD OF TWO HOURS AT 200± 5 PSI AT THE POINT OF LOWEST ELEVATION; LEAKAGE MAY NOT EXCEED 0.1 GALLONS PER HOUR PER ONE THOUSAND FEET (1,000') OF PIPE PER INCH OF DIAMETER. IF DRY UTILITIES ARE NOT INSTALLED, A SECOND PRESSURE TEST IS REQUIRED.

8.DISINFECTION AND FLUSHING OF COMPLETED WATER PIPELINES

DISINFECTION AND FLUSHING WILL CONFORM TO RECOMMENDATIONS OF ARIZONA STATE DEPARTMENT OF HEALTH SERVICES ENGINEERING BULLETIN NUMBER 8, LATEST EDITION, OR ANY FUTURE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY BULLETINS. CONTRACTOR TO FOLLOW ALL CONDITIONS OF ANY DISCHARGE PERMIT.

9.NO OTHER UTILITIES ALLOWED IN OR NEAR WATER PIPELINE TRENCHES

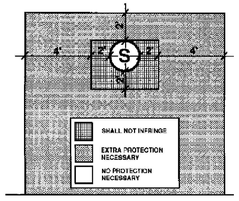
NO OTHER UTILITY INSTALLATIONS WILL BE PERMITTED IN THE WATER PIPELINE TRENCH OR WITHIN FIVE FEET (5') OF THE COMPANY'S WATER PIPELINE WHEN RUNNING PARALLEL TO THE WATER PIPELINES.

10.PROTECTION OF WATER MAINS NEAR SEWERS

IN ORDER TO PROTECT WATER MAINS FROM CONTAMINATION BY SEWERS, THE INSTALLATION OF THE WATER MAINS MUST CONFORM TO THE FOLLOWING REQUIREMENTS:

a.HORIZONTAL - WHEN WATER LINES AND SEWERS ARE LAID PARALLEL WITH EACH OTHER, THE HORIZONTAL DISTANCE BETWEEN THEM SHALL NOT BE LESS THAN SIX FEET (6'). EACH LINE SHALL BE LAID ON UNDISTURBED OR BEDDED MATERIAL IN A SEPARATE TRENCH. WHERE CONDITIONS PREVENT THE MINIMUM HORIZONTAL SEPARATION SET FORTH ABOVE, EXTRA PROTECTION WILL BE REQUIRED. EXTRA PROTECTION SHALL CONSIST OF CONSTRUCTING THE SEWER MAIN WITH MECHANICAL JOINT DUCTILE IRON PIPE OR WITH SLIP-JOINT DUCTILE IRON PIPE IF JOINT RESTRAINT IS PROVIDED, OR ENCASING THE SEWER MAIN IN CONCRETE. EXTRA PROTECTION SHALL CONSIST OF CONSTRUCTING THE WATER MAIN WITH MECHANICAL JOINT DUCTILE IRON PIPE OR WITH SLIP-JOINT DUCTILE PIPE IF JOINT RESTRAINT IS PROVIDED. THE WATER MAIN SHALL NOT BE ENCASED IN CONCRETE.

THE CONSTRUCTION DRAWINGS SHALL INDICATE THE INSTALLATION REQUIREMENTS. THE DRAWINGS SHOWING THESE EXCEPTIONS SHALL HAVE BEEN APPROVED BY THE APPROPRIATE STATE AND/OR COUNTY HEALTH DEPARTMENT. REFER TO THE DIAGRAM BELOW FOR CLARIFICATION.



UNDER NO CIRCUMSTANCES WILL THE HORIZONTAL SEPARATION BETWEEN SEWER MAINS AND WATER MAINS BE LESS THAN TWO FEET (2'), ALL DISTANCES ARE TO BE MEASURED FROM THE OUTSIDE OF THE SEWER MAIN TO THE OUTSIDE OF THE WATER MAIN.

a.VERTICAL - WHEN A WATER MAIN IS PARALLEL WITH OR CROSSES A SEWER MAIN WITHIN TWO FEET (2') ABOVE THE SEWER OR GREATER THAN TWO FEET (2') BELOW THE SEWER, EXTRA PROTECTION WILL BE REQUIRED. EXTRA PROTECTION SHALL CONSIST OF CONSTRUCTING THE SEWER MAIN WITH MECHANICAL JOINT DUCTILE IRON PIPE OR WITH SLIP-JOINT DUCTILE IRON PIPE IF JOINT RESTRAINT IS PROVIDED, OR ENCASING THE SEWER MAIN IN CONCRETE. EXTRA PROTECTION SHALL CONSIST OF CONSTRUCTING THE WATER MAIN WITH MECHANICAL JOINT DUCTILE IRON PIPE OR WITH SLIP-JOINT DUCTILE PIPE IF JOINT RESTRAINT IS PROVIDED. THE WATER MAIN SHALL NOT BE ENCASED IN CONCRETE.

THE CONSTRUCTION DRAWINGS SHALL INDICATE THE INSTALLATION REQUIREMENTS. THE DRAWINGS SHOWING THESE EXCEPTIONS SHALL HAVE BEEN APPROVED BY THE APPROPRIATE STATE AND/OR COUNTY HEALTH DEPARTMENT.

UNDER NO CIRCUMSTANCES WILL THE VERTICAL SEPARATION OF A SEWER MAIN INSTALLED ABOVE A WATER MAIN BE LESS THAN TWO FEET (2'). ALL DISTANCES ARE TO BE MEASURED FROM THE OUTSIDE OF THE SEWER MAIN TO THE OUTSIDE OF THE WATER MAIN. REFER TO THE DIAGRAM ABOVE FOR CLARIFICATION.

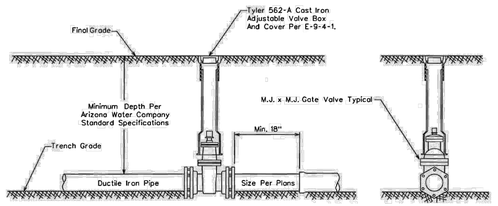
b.WHEN UNUSUAL CONDITIONS SUCH AS, BUT NOT LIMITED TO, HIGHWAY OR BRIDGE CROSSINGS PREVENT THE WATER AND SEWER MAIN SEPARATIONS REQUIRED FROM BE

FOR 6" THROUGH 12" GATE VALVES

Mueller Resilient Wedge Gate Valves
Catalog Number A-2360-__
ANSI/AWWA C509 Compliant

FOR 14" THROUGH 16" GATE VALVES

Mueller Resilient Wedge Gate Valves
Catalog Number A-2361-__
ANSI/AWWA C509 Compliant

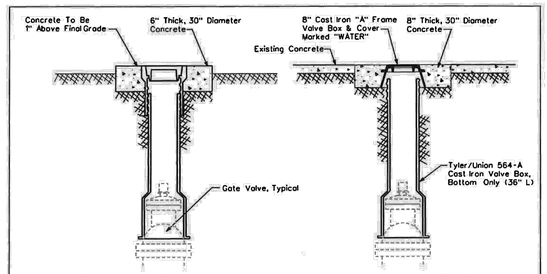


All Valves Installed On Pipe Five Feet (5') Deep And Greater Are To Be Installed With A Valve Operator Extension, Mueller Catalog No. A-26441.

ARIZONA WATER COMPANY

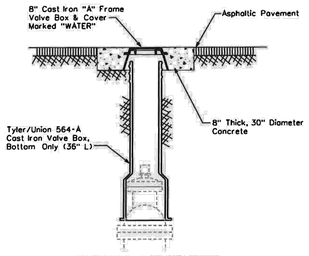
STANDARD SPECIFICATION
FOR THE INSTALLATION OF
TYPICAL VERTICAL GATE VALVES

DRAWN BY:	APPROVED BY:	DATE:		
CB	MW	03.20.1986	△ 08.23.2006	E-9-2-1



NON-VEHICULAR VALVE BOX

CONCRETE VALVE BOX
For Areas Subject To Vehicular Traffic



ASPHALT VALVE BOX
For Areas Subject To Vehicular Traffic

NOTE:

1. The Valve Box Shall Be Adjusted To Finished Grade Prior To Placing Of Asphalt And/Or Concrete.
2. For Non-Traffic Areas Use Tyler/Union 562-A, Two-Piece, 6855 Series Or Equivalent Adjustable Cast Iron Valve Box And Cover. Valves 4" To 12"

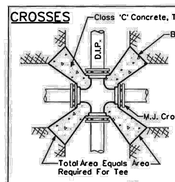
   For Traffic Areas, Use Tyler/Union 564-A Bottom Section Only With An 8" Cast Iron "A" Frame With Cover. Valves 4" To 12"
3. All Valves Installed Five Feet (5') Deep And Greater Are To Be Installed With A Valve Operator Extension, Mueller Catalog No. A-26441 And Shall Have A Debris Cap.
4. Use Minimum Class 'C' Concrete which is defined as concrete whose minimum compressive strength at 14 days reaches 1600psi and at 28 days reaches 2000psi. per MAG Section 725, Table 725-1.

ARIZONA WATER COMPANY

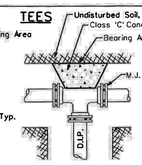
STANDARD SPECIFICATION
FOR THE INSTALLATION OF
TYPICAL VALVE SUBJECT TO NON-VEHICULAR AND VEHICULAR TRAFFIC

DRAWN BY:	APPROVED BY:	DATE:		
CB	MW	03.20.1986	△ 8.24.2006	E-9-4-1

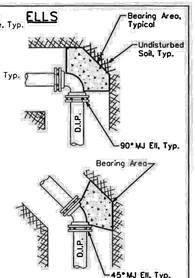
CROSSES

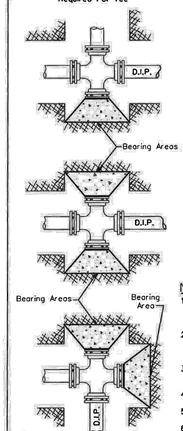


TEES

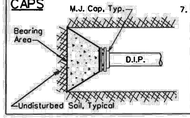


ELLS

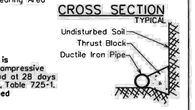




CAPS



CROSS SECTION
TYPICAL



NOTES:

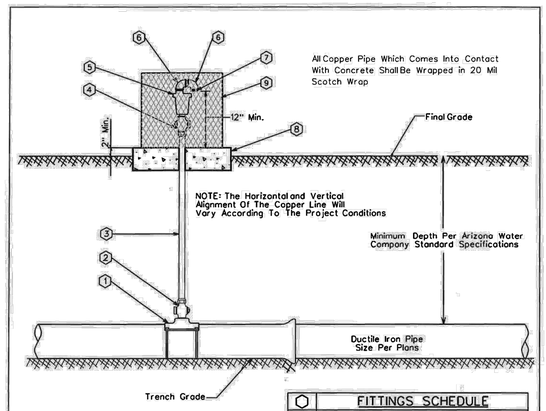
1. Use minimum Class 'C' concrete, which is defined as concrete whose minimum compressive strength at 14 days reaches 1600psi and at 28 days reaches 2000psi. per MAG Section 725, Table 725-1.
2. Thrust blocks are to bear on undisturbed earth with minimum bearing area as shown. If not undisturbed, areas will be increased as required.
3. Place the pressure treated form board in front of all plugs before pouring thrust blocks.
4. Form all non-bearing areas to prevent any concrete from entering any joint.
5. All flanges, bolts and nuts shall be kept free of concrete.
6. Center the bearing area on the pipe centerline and force line.
7. All pipe fittings to be wrapped with polyethylene pipe wrap prior to thrust block installation. (where applicable)

THRUST BLOCK SCHEDULE

PIPE SIZE	TEE, 45°, AND 22.5° ELLS, & PLUGS	90° ELLS
6" And Under	4 Sq.Ft.	6 Sq.Ft.
8"	6 Sq.Ft.	9 Sq.Ft.
12"	13 Sq.Ft.	20 Sq.Ft.
16"	23 Sq.Ft.	32 Sq.Ft.
18" And Larger	Calculated Per Project	

STANDARD SPECIFICATION
FOR THE INSTALLATION OF
TYPICAL THRUST BLOCKING SCHEDULE

DRAWN BY:	APPROVED BY:	DATE:		
CB	MW	03.20.1986	△ 05.27.2005	E-9-5-1



GENERAL NOTES:

1. The valve shall be installed at high points and on long runs to vent the accumulation of air with the line under pressure- see the construction plans for specific locations.
2. The valve shall have a 1/64" orifice with valve sealing faces of stainless steel and BUNA-N rubber.
3. The valve shall be Crispin model AR10 for 6" and larger water mains.
4. Crispin model AR10 valve construction consists of a 1" IPST inlet & 1½" IPST outlet, cast iron body and top flange with stainless steel float and trim.
5. The air release assembly shall be located out of the path of traffic but within right-of-way or easement.

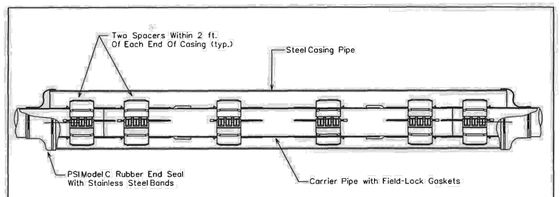
FITTINGS SCHEDULE

1.	Mueller BR2B Bronze Service Saddle - Double Strap	
2.	1" Mueller B-25008 Taper x Comp. Ball Corp Stop	
3.	1" Type 'K' Copper w/NO Splices - Field Fit	
4.	1" Mueller B-25028 IP x Comp. Ball Corp Stop	
5.	Crispin 1" Air Release Valve, Model AR10	
6.	1½" Brass Street Elbow	
7.	No.16 Wire Mesh Screen (Non-Corrodible)	
8.	4" Thick Concrete Pad - Class 'C' Concrete	
9.	Guardshack, Model GS-1, Available From BPDI, Inc. Available In Leaf Green Or Desert Tan	

ARIZONA WATER COMPANY

STANDARD SPECIFICATION
FOR THE INSTALLATION OF
TYPICAL AIR RELEASE VALVE

DRAWN BY:	APPROVED BY:	DATE:		
CB	MW	03.20.1997	△ 08.24.2006	E-9-8-2



CROSS SECTION

The casing spacers shall be the PSI Ranger II Casing Spacers as manufactured by Pipeline Seal and Insulator, Inc., Houston, Texas.

SECTION CUT

End Seals
After insertion of the carrier pipe into the casing, the ends of the casing shall be closed by installing 1/8" thick synthetic rubber end seals equal to the PSI Model "C" end seal as manufactured by Pipeline Seal and Insulator, Inc., Houston, Texas.

NOTE: The Carrier Pipe Shall Be Polywrapped Prior To The Skid Installation & Insertion Into The Carrier Casing For Divisions Requiring Polywrapped Pipe.

OD Push On Joint Bell	OD M.J. BELL
6" - 8.66"	6" - 11.12"
8" - 10.82"	8" - 13.37"
12" - 15.05"	12" - 17.94"
16" - 19.74"	16" - 22.56"
20" - 23.98"	20" - 27.08"
24" - 28.16"	24" - 31.58"
30" - 35.40"	30" - 39.12"
36" - 41.84"	36" - 46.00"
48" - 55.94"	48" - 60.00"

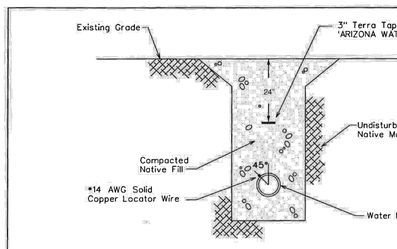
*Thickness Of Skid To Extend A Minimum of ½" Above The O.D. Of The Pipe Bell or Gland.

PIPE SIZE	CASING SIZE	CASING SIZE ID	CASING SCHEDULE	WALL THICKNESS	SKID SIZE
6"	16"	15.25"	STD.	.375	*x4x12
8"	18"	18.25"	STD.	.375	*x4x12
12"	22"	21.25"	STD.	.375	*x4x12
16"	28"	27.25"	STD.	.375	*x4x12
20"	32"	31.25"	STD.	.375	*x4x12
24"	36"	35.25"	STD.	.375	*x4x12
30"	48"	47.25"	STD.	.375	*x4x12
36"	54"	53.25"	STD.	.375	*x4x12
48"	66"	65.25"	STD.	.375	*x4x12

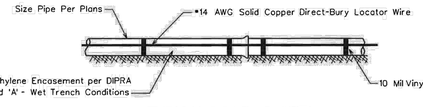
ARIZONA WATER COMPANY

STANDARD SPECIFICATION
FOR THE INSTALLATION OF
TYPICAL WATER LINE ENCASEMENT

DRAWN BY:	APPROVED BY:	DATE:		
CB		3/20/1996	△ 09.27.2006	E-9-24-1



TYPICAL WATER TRENCH DETAIL



TYPICAL PROFILE VIEW

WIRE GENERAL NOTES:

1. All pipe shall have #14 AWG Solid Copper Direct-Bury Locator Wire Installed Directly To The Polywrap At 45° From The Vertical Center Of The Pipe and Shall Be Attached Using 10 Mil Vinyl Tape.
2. The Locating Wire Shall Terminate At the Top Of Each Valve Box and Be Capable of Extending 12" Above the Top Of The Box In Such A Manner So As Not To Interfere With Valve Operation.

TAPE GENERAL NOTES:

1. Use Terra Tape 3" Marking Tape As Manufactured By Reef Industries Inc. Of Houston, Texas (1-800-231-2417)
2. The Tape Is Blue & Imprinted 'ARIZONA WATER Co.'
3. INSTALLATION: The Pipe Warning Tape Shall Be Installed Over All Water Mains And Shall Be Buried 24 Inches Below The Surface Over The Center Of The Pipe.
   A) The Backfill Shall Be Sufficiently Leveled So That The Tape Is Installed On A Flat Surface.
   B) The Tape Shall Be Centered In The Trench With The Printed Side Up.
   C) Care Shall Be Exercised To Avoid Movement Of The Tape While The Remaining Backfill Is Moved Into The Trench.

ARIZONA WATER COMPANY

STANDARD SPECIFICATION
FOR THE INSTALLATION OF
PIPE WARNING TAPE AND LOCATOR WIRE

DRAWN BY:	APPROVED BY:	DATE:		
CB		03.24.1997	△ 09.27.2006	E-9-28-1

EPS GROUP
1130 N Alma School Road
Suite 120
Mesa, AZ 85201
T:480.503.2250 | F:480.503.2258
www.epsgroupinc.com

Project:
Panther Drive Bridge
Town of Superior, AZ

Utility Standard Details

Revisions:

Call at least two full working days before you begin excavation.
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602)263-1100

Designer: MTT
Drawn by: RW

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Job No.
23-0519

UT05

Sheet No.
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of 28

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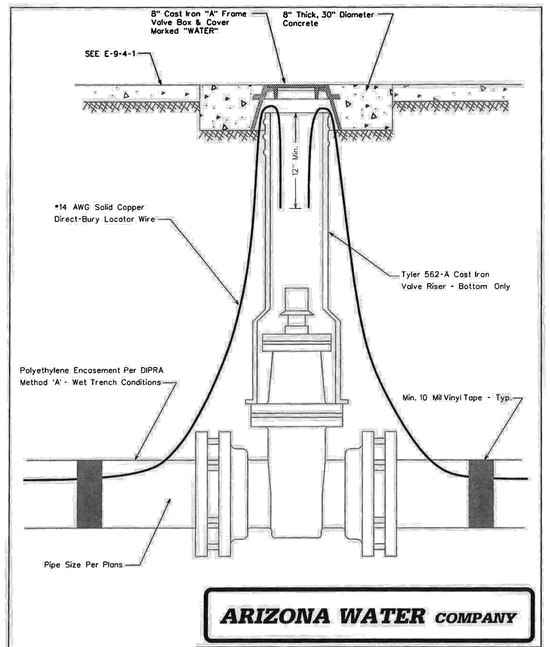
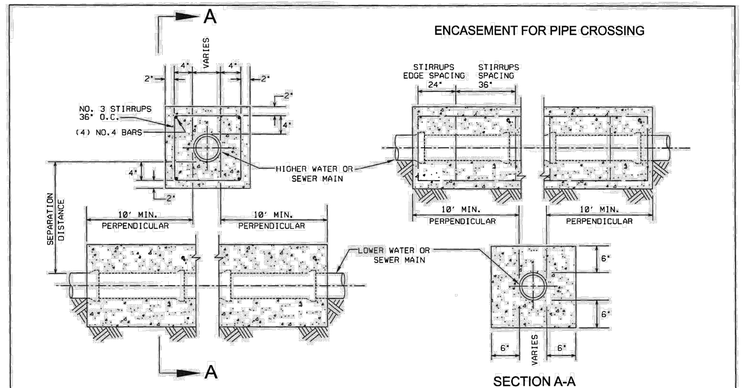


ARIZONA WATER COMPANY

STANDARD SPECIFICATION
FOR THE INSTALLATION OF
LOCATOR WIRE TERMINATION

DRAWN BY:	APPROVED BY:	DATE	△	
CB		09.27.2006		E-9-28-2



NOTES:

1. 2,000 PSI CONCRETE
2. SEPARATION DISTANCES AND/OR OTHER EXTRA PROTECTION SHALL BE REQUIRED TO PROTECT WATER MAINS FROM CONTAMINATION BY SANITARY SEWER MAINS. SEE AWC STANDARD SPECIFICATION PAGES E-8-1-9 AND E-8-1-10.
3. SEE CROSS SECTION DETAIL FOR LIMITS OF SEPARATION/EXTRA PROTECTION. ALL DISTANCES ARE MEASURED PERPENDICULARLY FROM THE OUTSIDE OF THE PIPES.
4. RECLAIMED WATER SHALL BE CONSIDERED A SANITARY SEWER WHEN PLACED NEXT TO A POTABLE WATER MAIN.

ARIZONA WATER COMPANY

STANDARD SPECIFICATION
FOR THE INSTALLATION OF
WATER AND SANITARY SEWER SEPARATION/PROTECTION

DRAWN BY:	APPROVED BY:	DATE	△	
CB	JW	04.07.2008		E-9-30-1

EPS GROUP
1130 N Alma School Road
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Mesa, AZ 85201
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w w w . e p s g r o u p i n c . c o m

Project:
Panther Drive Bridge
Town of Superior, AZ

Utility Standard Details

Revisions:

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602)263-1100

Designer: MTT
Drawn by: RW

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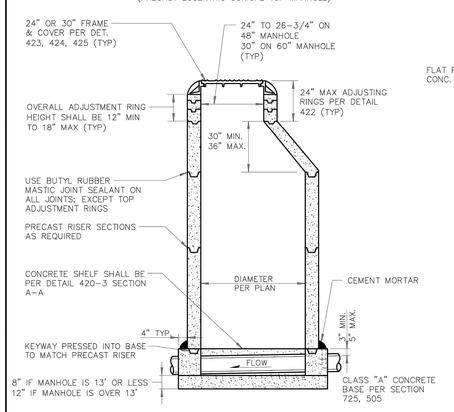
Job No.
23-05519

UT06

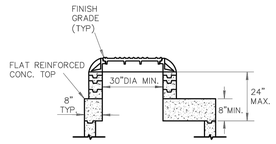
Sheet No.
15
of 28

TYPE 'A' TOP

(PRECAST ECCENTRIC CONICAL TOP MANHOLE)



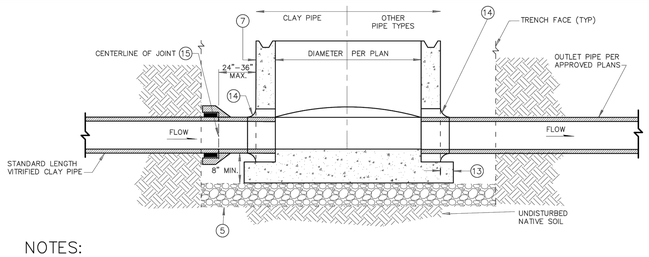
(PRECAST FLAT TOP M.H.)



NOTES:

1. PRECAST STEEL REINFORCED MANHOLE SECTIONS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C478 EXCEPT AS MODIFIED HEREIN.
2. CAST-IN-PLACE MANHOLE BASE TO BE CONSTRUCTED IN ONE PLACEMENT.
3. CAST-IN-PLACE MANHOLE BASE SHELF AND CHANNEL TO RECEIVE SMOOTH TROWEL FINISH.
4. MANHOLE COATINGS PER AGENCY.
5. SEE MAG DETAIL 422 FOR FINAL ADJUSTMENT TO GRADE.
6. ANY MANHOLE OVER 20' IN DEPTH, MEASURED TO THE DEEPEST PIPE INVERT, SHALL REQUIRE AN ENGINEERED BASE DESIGN.
7. THE MANHOLE ACCESS POINT SHALL BE ORIENTED IN SUCH A WAY THAT THE OPENING IS DIRECTLY ABOVE THE LOWEST INVERT, OR AS OTHERWISE DIRECTED BY THE PLANS OR ENG.
8. FOR PRECAST BASE SEE DETAIL 420-2.
9. FLAT TOPS SHALL ONLY BE USED WITH APPROVAL FROM THE ENGINEER.

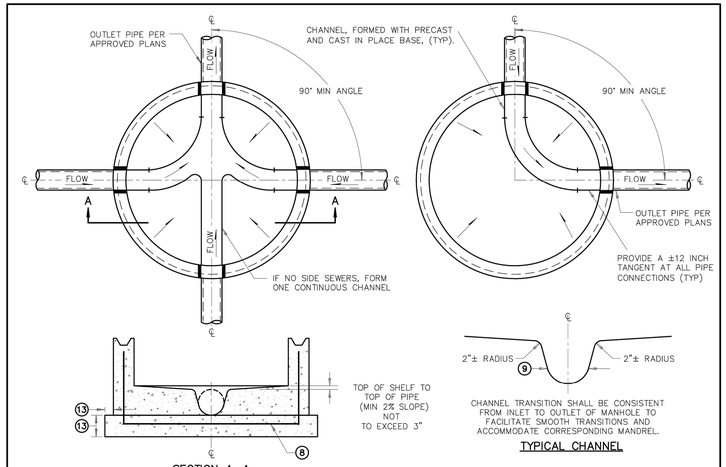
DETAIL NO.	STANDARD DETAIL		REVISED	DETAIL NO.
420-1	MARICOPA ASSOCIATION of GOVERNMENTS ENGLISH	CONCRETE SANITARY SEWER MANHOLE	01-01-2023	420-1



NOTES:

1. PRECAST, MANUFACTURER SHALL BE AN NATIONAL PRECAST CONCRETE ASSOCIATION (NPCA) CERTIFIED PLANT. ENTIRE PRECAST BASE SHALL BE MANUFACTURED AT THE PLANT PER ASTM C478.
2. MAG "AA" 4000 PSI CONCRETE SHALL BE USED FOR PRECAST MANHOLE BASES.
3. SPRING LINE OF CAST-IN-PLACE BELL SHALL STOP AT INSIDE FACE OF MANHOLE.
4. JOINTS FOR BARREL SECTION SHALL BE TONGUE AND GROOVE TYPE. ALL LIFTING HOLES SHALL BE SEALED WITH GROUT.
5. ALL PRECAST MANHOLE BASES SHALL BE PLACED ON 8" MINIMUM OF ABC PER SECTION 702 COMPACTED TO 100% MAXIMUM DENSITY.
6. ALL MODIFICATIONS SHALL BE APPROVED BY THE ENGINEER.
7. MINIMUM WALL THICKNESS SHALL BE PER ASTM C478 (MIN 5").
8. REINFORCEMENT SHALL BE DESIGNED BY AN ARIZONA REGISTERED PROFESSIONAL ENGINEER.
9. CHANNEL TRANSITION SHALL BE CONSTANT FROM INLET TO OUTLET OF MANHOLE TO FACILITATE SMOOTH TRANSITIONS AND ACCOMMODATE CORRESPONDING MANDREL.
10. THERE SHALL BE NO HARD CONNECTIONS (GROUTED) INTO THE MANHOLE BASE UNLESS APPROVED BY THE ENGINEER.
11. ALL SEWER SERVICE CONNECTIONS SHALL HAVE THE SAME CONNECTION TYPES IN THE PRECAST MANHOLE BASE.
12. ALL CORE HOLES INTO THIS STRUCTURAL PRECAST BASE SHALL BE COATED WITH AN APPROVED COATING MATERIAL.
13. THE MANHOLE BOTTOM SHALL EXTEND OUTSIDE THE MANHOLE WALL A MINIMUM 6" WIDE ON 48" BASES, 7" WIDE ON 60" BASES, AND 8" WIDE ON 72" BASES. EXTENDED BOTTOM SHALL BE A MINIMUM OF 5" THICK.
14. PIPE TO MANHOLE RESILIENT CONNECTORS SHALL BE IN COMPLIANCE WITH ASTM C923.
15. ACCEPTABLE JOINTS SHALL BE POLYURETHANE BELL AND SPIGOT OR PLAIN END PIPE WITH ELASTOMERIC COMPRESSION COUPLINGS. BOTH SHALL BE IN COMPLIANCE WITH ASTM C425.

DETAIL NO.	STANDARD DETAIL		REVISED	DETAIL NO.
420-2	MARICOPA ASSOCIATION of GOVERNMENTS ENGLISH	PRECAST CONCRETE MANHOLE BASE	01-01-2022	420-2



SECTION A-A

TYPICAL CHANNEL

SEE DETAIL 420-2 FOR NOTES

DETAIL NO.	STANDARD DETAIL		REVISED	DETAIL NO.
420-3	MARICOPA ASSOCIATION of GOVERNMENTS ENGLISH	CONCRETE MANHOLE BASE	01-01-2015	420-3

EPS GROUP
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Project:

Panther Drive Bridge

Town of Superior, AZ

Utility Standard Details

Revisions:

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Designer: MTT
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Job No.
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16
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