Set No._____

CITY OF LAMAR

WELL 12 AND 13 REDEVELOPMENT - SCOPE EXTENSION

LAMAR, COLORADO

CONSTRUCTION DOCUMENTS

RECORD DRAWINGS
JULY 2019
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PREPARED UNDER THE SUPERVISION OF

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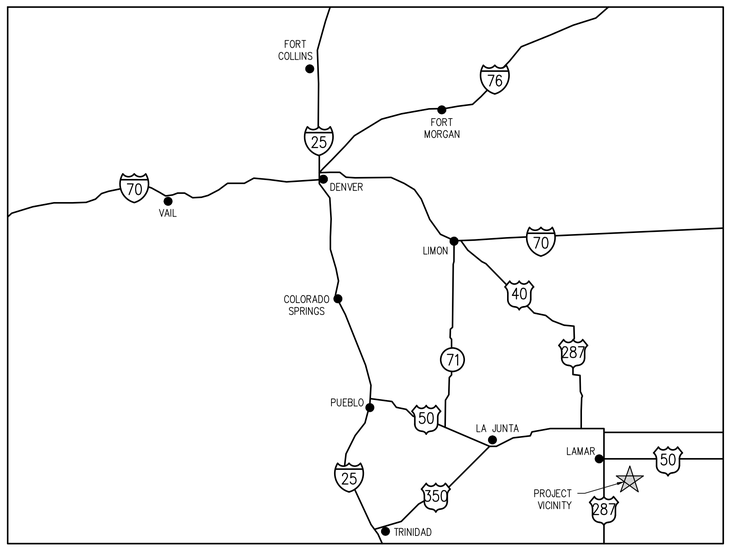
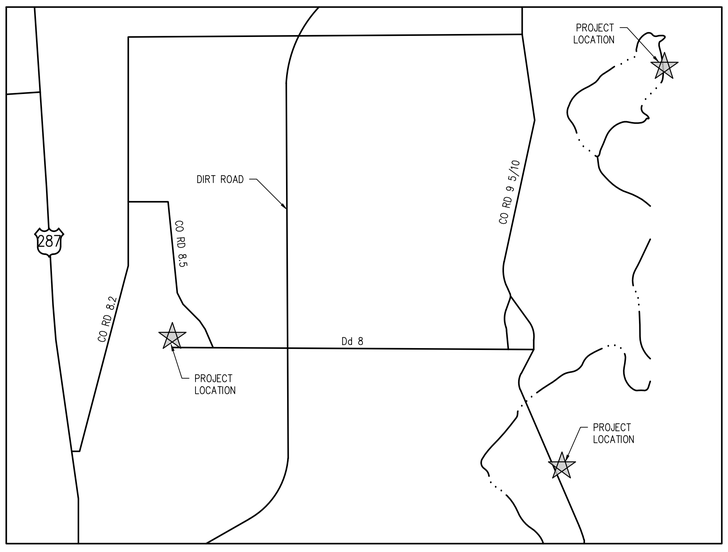
DRAWING INDEX



VICINITY MAP
NTS



PROJECT LOCATION MAP
NTS

ABBREVIATIONS

AASHTO	AMERICAN ASSOC. OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ABAN	ABANDON
AC	ASPHALTIC CONCRETE PAVING
ADDL	ADDITIONAL
ADDM	ADDENDUM
ADJ	ADJUSTABLE
AL	ALUMINUM
ALT	ALTERNATE
AMT	AMOUNT
APPROX	APPROXIMATE
ARCH	ARCHITECT(URAL)
ARV	AIR RELIEF VALVE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ASPH	ASPHALT
ASSY	ASSEMBLY
ASYM	ASYMMETRICAL
AUTO	AUTOMATIC
AVG	AVERAGE
AWWA	AMERICAN WATER WORKS ASSOC.
BC	BACK OF CURB
BFV	BUTTERFLY VALVE
BLDG	BUILDING
BLK	BLOCK
BM	BENCH MARK
BMP	BEST MANAGEMENT PRACTICE
BS	BACKSIGHT
BOT	BOTTOM
BSMT	BASEMENT
BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
BW	BOTTOM OF WALL
CB	CATCH BASIN
CCW	COUNTER CLOCKWISE
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION
CIP	CAST IRON PIPE
CJ	CONSTRUCTION JOINT
CL	CENTER LINE OR CHAIN LINK
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS(ATION)
COR	CORNER
CR	CONCENTRIC REDUCER
CTR	CENTER
CY	CUBIC YARDS
DEMO	DEMOLITION
DIA	DIAMETER
DIAG	DIAGONAL
DIP	DUCTILE IRON PIPE
DOM	DOMESTIC
DN	DOWN
DR	DRAIN
DWG	DRAWING
DWL	DOWEL
E	EAST
EA	EACH
ECC	ECCENTRIC
EJ	EXPANSION JT
EL	ELEVATION
ELB	ELBOW
ELEC	ELECTRICAL
ENGR	ENGINEER
EOP	EDGE OF PAVEMENT
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ESMT	EASEMENT
EST	ESTIMATE
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
EW	EACH WAY
EXP JT	EXPANSION JOINT
EXIST	EXISTING
FND	FOUNDATION
FES	FLARED END SECTION
FF	FINISH FLOOR
FG	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FN	FENCE
FOC	FACE OF CONCRETE
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET
FTG	FOOTING OR FITTING
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GCO	GRADE CLEANOUT
GIP	GALVANIZED IRON PIPE
GND	GROUND
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
GRTG	GRATING
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE
H	HIGH
HB	HOSE BIB
HE	HORIZONTAL ELLIPTICAL
HDWL	HEADWALL
HNDRL	HAND RAIL
HORIZ	HORIZONTAL
HP	HIGH POINT
HR	HOUR
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HWY	HIGHWAY
HWL	HIGH WATER LINE
HYD	HYDRANT
INCL	INCLUDED
ID	INSIDE DIAMETER
IN	INLET
INSUL	INSULATION
INV	INVERT
IRR	IRRIGATION
JTS	JOINTS
KB	KICKBLOCK
KO	KNOCKOUT
KPL	KICK PLATE
KWY	KEYWAY
L	LEFT OR LITER
LSCAPE	LANDSCAPE(ING)
LF	LINEAR FOOT
LP	LOW PRESSURE OR LIGHT POLE
LT	LIGHT
LWL	LOW WATER LEVEL
MAINT	MAINTENANCE
MAN	MANUAL
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPP	OPPOSITE
OPT	OPTIONAL
PC	POINT OF CURVATURE
PCO	PRESSURE CLEAN OUT
PCR	POINT OF CURVE RETURN
PI	POINT OF INTERSECTION
PVI	POINT OF VERTICAL INTERSECTION
PL	PROPERTY LINE
PE	POLYETHYLENE
PREFAB	PREFABRICATED
PRELIM	PRELIMINARY
PREP	PREPARATION
PROP	PROPOSED
PRV	PRESSURE REDUCING VALVE OR PRESSURE RELIEF VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE OR POINT OF VERTICAL CURVATURE
PVMT	PAVEMENT
QTY	QUANTITY
R	RIGHT
RAD	RADIUS
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RE	REFERENCE
RECT	RECTANGULAR
REINF	REINFORCE (D) (ING) (MENT)
REQD	REQUIRED
ROW	RIGHT OF WAY
SAN	SANITARY
SD	STORM DRAIN
SECT	SECTION
SPD	STANDARD PROCTOR DENSITY
SPEC	SPECIFICATION
SQ	SQUARE
SQ IN	SQUARE INCH
SQ FT	SQUARE FOOT
SQ YD	SQUARE YARD
SS	SANITARY SEWER
SST	STAINLESS STEEL
STA	STATION
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURAL
SWMP	STORMWATER MANAGEMENT PLAN
SYM	SYMMETRICAL
TB	THRUST BLOCK
TBC	TOP BACK OF CURB
TBM	TEMPORARY BENCH MARK
TEMP	TEMPORARY
THK	THICK
TOB	TOP OF BANK
TOC	TOP OF CONCRETE OR TOP OF CURB
TOT	TOTAL
TW	TOP OF WALL
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UGE	UNDERGROUND ELECTRIC
UTIL	UTILITY
VERT	VERTICAL
VC	POINT OF VERTICAL CURVATURE
VCP	VITRIFIED CLAY PIPE
W	WIDE OR WIDTH
W/	WITH
W/O	WITHOUT
WQCE	WATER QUALITY CONTROL ELEVATION
WSE	WATER SURFACE ELEVATION
WW	WASTEWATER
X SECT	CROSS SECTION
YH	YARD HYDRANT

PVC PIPE NOTES:

1. PVC PRESSURE PIPE
   a. 4–INCH TO 12–INCH PVC PIPE SHALL CONFORM TO AWWA C900 PVC PRESSURE PIPE ANSI/NSF–61 UNLESS NOTED OTHERWISE ON DRAWINGS
   b. MANUFACTURERS:
      i. JM EAGLE, NORTH AMERICAN PIPE CORP., OR ACCEPTED SUBSTITUTION
   c. PIPE SHALL BE DR 18 WITH A 235 PSI WORKING PRESSURE
2. JOINTS: ASTM D3139, INTEGRAL BELL OR MECHANICAL JOINT
   a. PUSH–ON JOINTS: PIPE TO PIPE JOINTS. PUSH–ON JOINTS ARE NOT PERMITTED ON FITTINGS OR VALVES
      i. INTEGRAL BELL TYPE WITH ELASTOMERIC GASKETS, ASTM F477 FACTORY INSTALLED
      ii. SUITABLE FOR BURIED SERVICE
      iii. GASKETS: SUITABLE FOR POTABLE WATER CONFORMING TO AWWA C111
   b. MECHANICAL JOINT RESTRAINT
      i. PROVIDE MECHANICAL JOINT RESTRAINTS FOR ALL DUCTILE IRON FITTINGS CONNECTING TO PVC PIPE
      ii. PRESSURE RATING CONSISTENT WITH PIPE PRESSURE RATING
      iii. MANUFACTURER: EBAA IRON, ROMAC, OR ACCEPTED SUBSTITUTION
3. FITTINGS:
   a. 3–INCH TO 24–INCH MECHANICAL JOINT DUCTILE IRON FITTINGS SHALL BE PRODUCED IN ACCORDANCE WITH ALL APPLICABLE TERMS AND PROVISIONS OF ANSI/AWWA C153/A21.53 AND ANSI/AWWA C111/A21.11
4. COUPLINGS:
   a. MECHANICAL COUPLINGS:
      i. DRESSER STYLE 38, ROCKWELL 411, OR ACCEPTED SUBSTITUTION
   b. TRANSITION COUPLINGS:
      i. DRESSER STYLE 39, ROCKWELL 415, OR ACCEPTED SUBSTITUTION

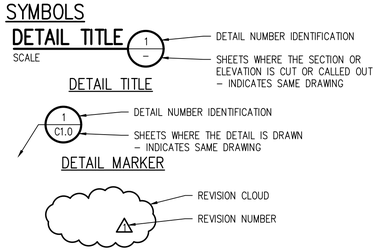
INSTALLATION NOTES:

1. GENERAL
   a. PROTECT EXISTING UTILITIES AND STRUCTURES
2. PREPARATION
   a. SHAPE TRENCH AND PLACE BEDDING AS SHOWN ON THE DRAWINGS
   b. PROVIDE UNIFORM AND CONTINUOUS BEARING AND SUPPORT FOR FULL LENGTH OF PIPE
   c. EXCEPT AS INDICATED ON DRAWINGS, LAY ALL PIPE STRAIGHT AND AT A UNIFORM GRADE
   d. PLACE BEDDING MATERIAL AT TRENCH BOTTOM, LEVEL FILL MATERIALS IN ONE CONTINUOUS LAYER NOT EXCEEDING 6 INCHES COMPATED DEPTH, COMPACT TO 95 PERCENT.
3. PIPE INSTALLATION
   a. INSTALL PVC PIPE IN ACCORDANCE WITH AWWA M23 AND AWWA C605
   b. INSTALL DUCTILE IRON PIPE IN ACCORDANCE WITH AWWA C600
   c. INSTALL DUCTILE IRON FITTINGS IN ACCORDANCE WITH AWWA M41
   d. MAINTAIN MINIMUM 4–FOOT BURY TO TOP OF PIPE DEPTH FOR ALL WATER LINES UNLESS OTHERWISE NOTED ON DRAWINGS
   e. BACKFILL AND COMPACTION REQUIREMENTS:
      i. WITHIN AREAS OF RIGHT–OF–WAY OR ROADS: COMPACTION OF TRENCHES SHALL MEET 95% OF MAXIMUM DENSITY (AASHTO T–99) WITHIN +/– 2% OF OPTIMUM MOISTURE CONTENT
      ii. WITHIN OTHER: COMPACTION OF TRENCHES SHALL MEET 90% OF MAXIMUM DENSITY (AASHTO T–99) WITHIN +/– 2% OF OPTIMUM MOISTURE CONTENT
   f. INSTALL TRACE WIRE CONTINUOUS OVER TOP OF PIPE. TRACER WIRE SHALL BE TYPE THHN, AWG SIZE #12, UL LISTED WITH A SINGLE COPPER CONDUCTOR, PVC INSULATION, AND NYLON JACKET. TEST STATIONS AT POST HYDRANTS SHALL BE CP TEST SERVICES, GLENN SERIES GLENN–4 WITH LOCKING LID, OR ACCEPTED SUBSTITUTION.
   g. INSTALL PIPELINE MARKER STRIP (TAPE) IN TRENCH ABOVE ALL PIPELINES
4. JOINTS
   f. MAKE PIPE JOINTS CAREFULLY AND NEATLY
   g. CONNECT PIPING IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS
   h. 4–INCH TO 12–INCH PVC PIPE SHALL CONFORM TO AWWA C900 PVC PRESSURE PIPE ANSI/NSF–61 UNLESS NOTED OTHERWISE ON DRAWINGS
   i. FLANGED JOINTS
      i. TAKE CARE WHEN BOLTING FLANGES TO INSURE TAT THERE IS NO RESTRAINT ON THE OPPOSITE END OF THE PIPE WHICH WOULD PREVENT GASKET COMPRESSION OR CAUSE UNNECESSARY STRESS IN FLANGES
      ii. LEAVE ONE FLANGE FREE TO MOVE IN ANY DIRECTION WHILE TIGHTENING FLANGE BOLTS
      iii. DO NOT PACK OR ASSEMBLE BELL AND SPIGOT JOINTS UNTIL ALL FLANGES AFFECTED THEREBY HAVE BEEN TIGHTENED
      iv. TIGHTEN BOLTS GRADUALLY AT A UNIFORM RATE TO COMPRESS GASKETS UNIFORMLY
2. FIELD QUALITY CONTROL
   a. GENERAL
      i. COMPLETELY ASSEMBLE AND TEST NEW PIPING SYSTEMS PRIOR TO CONNECTION TO EXISTING PIPE SYSTEMS
      ii. TEST DUCTILE IRON PIPE IN ACCORDANCE WITH THE LATEST VERSION OF AWWA C600
      iii. LIQUID PIPING SYSTEMS SHALL HAVE ZERO ALLOWABLE LEAKAGE AT THE SPECIFIED TEST PRESSURE THROUGHOUT THE SPECIFIED DURATION (2 HOURS)
      iv. HYDROSTATIC PRESSURE TESTING FOR BURIED PIPING: PERFORM TESTING AFTER BACKFILL AND PROPER COMPACTION OF TRENCHES. NOTIFY ENGINEER AT LEAST 48 HOURS PRIOR TO TESTING.
      v. ACKNOWLEDGE SATISFACTORY PERFORMANCE OF TESTS AND INSPECTIONS IN WRITING TO ENGINEER PRIOR TO FINAL ACCEPTANCE
   b. PIPE LEAKS
      i. ALL JOINTS AND SEAMS WHETHER TESTED OR NOT SHALL BE WATERTIGHT AND AIRTIGHT
      ii. INSPECT ALL EXPOSED SHOP AND FIELD WELDED SEAMS
      iii. LEAKS SHALL BE CLEARLY MARKED
      iv. WELDED JOINTS (STEEL) SHALL BE REPAIRED BY CHIPPING OUT DEFECTIVE PARTS AND REWELDING. WELDS SHALL NOT BE HAMMERED

VALVE NOTES:

1. GATE VALVES
   a. MANUFACTURERS:
      i. MUELLER, CLOW, KENNEDY, OR ACCEPTED SUBSTITUTION
   b. 3–INCH TO 12–INCH, SHALL CONFORM TO AWWA C509, IRON BODY, BRONZE TRIM, TWO O–RING STEM SEALS, NON–RISING STEM WITH SQUARE NUT, SINGLE WEDGE, RESILIENT SEAT, MECHANICAL JOINT ENDS, EXTENSION STEM, AND EXTENSION VALVE BOX, PRESSURE RATING OF 250 PSI
   c. NON–ADJUSTABLE ELASTOMERIC STEM SEALS
   d. VALVE STEM MATERIAL MUST COMPLY WITH ASTM B763
2. ROTATION: COUNTERCLOCKWISE TO OPEN WITH THE WORD "OPEN" AND AN ARROW INDICATING THE DIRECTION TO OPEN CAST ON VALVE BODY OR OPERATING NUT
3. FOR BURIED VALVES, PROVIDE VALVE OPERATING KEY WITH EXTENSION STEM, 7–FOOT LENGTH WITH TEE HANDLE
4. VALVE BOXES, DEPTH AS REQUIRED FOR BURIED VALVE
   b. THREE PIECE CAST IRON COMPLYING WITH ASTM A48, CLASS 20A, ADJUSTABLE SCREW TYPE, 5.25 INCH DIAMETER, MINIMUM THICKNESS OF 3/16 INCH
   c. BOX, COVER, AND BASE COATED BY DIPPING IN ASPHALT VARNISH
   d. COVER MARKED WITH WORD, "WATER"
5. CHECK VALVES
   a. MANUFACTURERS:
      i. DEZURIK, PRATT, VAL–MATIC, OR ACCEPTED SUBSTITUTION
   b. AWWA C508, UNOBSTRUCTED WATERWAY, QUICK–CLOSING, SPRING–LOADED, HORIZONTAL SWING
   c. STAINLESS STEEL SHAFT WITH BOTH ENDS EXTENDING THROUGH BRONZE BUSHED BEARINGS AND OUTSIDE STUFFING BOXES
   d. BODY AND COVER SHALL BE CAST IRON, BRONZE MOUNTED FULL OPENING
   e. FLANGES SHALL BE ANSI B16.1 CLASS 125
   f. FURNISH WITH EXTENDED STAINLESS STEEL HINGE WITH OUTSIDE LEVER AND WEIGHT
   g. FOR VERTICAL INSTALLATIONS, ADJUST LEVER ANGLE ACCORDINGLY
   h. 250 PSI WORKING PRESSURE 2–INCH TO 12–INCH
6. PROVIDE POLYETHYLENE TUBE ENCASEMENT ON ALL BURIED DUCTILE IRON FITTINGS AND VALVES PER AWWA C105

SYMBOLS



LEGEND

	CHECK VALVE
	TEE W/ THRUST BLOCK
	BEND W/ THRUST BLOCK
	END CAP W/ THRUST BLOCK
	GATE VALVE
	REDUCER/INCREASER
M	WATER METER
	FIRE HYDRANT
	WELL
	UTILITY POLE
W	WATER LINE
G	GAS LINE
OE	OVERHEAD ELECTRIC
FW	FINISHED WATER
PW	POTABLE WATER
IRR	IRRIGATION
RW	RAW WATER

GENERAL NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE CITY OF LAMAR, PROWERS COUNTY, COLORADO DEPARTMENT OF TRANSPORTATION, LAMAR FIRE PROTECTION REQUIREMENTS, AND APPLICABLE STATE AND LOCAL STANDARDS AND SPECIFICATIONS. THE CONTRACTOR SHALL HAVE IN POSSESSION AT THE JOB SITE AT ALL TIMES ONE (1) SIGNED COPY OF APPROVED PLANS, STANDARDS AND SPECIFICATIONS. CONTRACTOR SHALL CONSTRUCT AND MAINTAIN EMERGENCY ACCESS ROUTES TO THE SITE AND STRUCTURE AT ALL TIMES PER THE APPLICABLE LAMAR FIRE PROTECTION DISTRICT REQUIREMENTS. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FOR ANY VARIANCE TO THE ABOVE DOCUMENTS. NOTIFY ENGINEER OF ANY CONFLICTING STANDARDS OR SPECIFICATIONS. IN THE EVENT OF ANY CONFLICTING STANDARD OR SPECIFICATION, THE MORE STRINGENT OR HIGHER QUALITY STANDARD, DETAIL OR SPECIFICATION SHALL APPLY.
2. THE CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE CODES, LICENSES, STANDARD SPECIFICATIONS, PERMITS, BONDS, ETC., WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK, INCLUDING, BUT NOT LIMITED TO A LOCAL AND STATE GROUNDWATER DISCHARGE AND COLORADO DEPARTMENT OF HEALTH AND ENVIRONMENT (CDPHE) STORMWATER DISCHARGE PERMIT ASSOCIATED WITH CONSTRUCTION ACTIVITY.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE REQUIRED PARTY (OWNER AND ENGINEER) AT LEAST 48 HOURS PRIOR TO START OF ANY CONSTRUCTION. PRIOR TO BACKFILLING, AND AS REQUIRED BY JURISDICTIONAL AUTHORITY AND/OR PROJECT SPECIFICATIONS. THE CONTRACTOR SHALL CONTINUE WITH NOTIFICATIONS THROUGHOUT THE PROJECT AS REQUIRED BY THE STANDARDS AND SPECIFICATIONS.
4. THE LOCATIONS OF EXISTING UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION BASED ON INFORMATION BY OTHERS. NOT ALL UTILITIES MAY BE SHOWN. THE CONTRACTOR SHALL DETERMINE THE EXACT SIZE, LOCATION AND TYPE OF ALL EXISTING UTILITIES WHETHER SHOWN OR NOT BEFORE COMMENCING WORK. THE ENGINEER AND/OR OWNER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS SHOWN ON PLANS. THE CONTRACTOR SHALL BE FULLY AND SOLELY RESPONSIBLE FOR ANY AND ALL DAMAGES AND COSTS WHICH MIGHT OCCUR BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES. THE CONTRACTOR SHALL NOTIFY ALL PUBLIC AND PRIVATE UTILITY COMPANIES AND DETERMINE THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO PROCEEDING WITH GRADING AND CONSTRUCTION. ALL WORK PERFORMED IN THE AREA OF UTILITIES SHALL BE PERFORMED AND INSPECTED ACCORDING TO THE REQUIREMENTS OF THE UTILITY OWNER. LIKEWISE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND MAPPING ANY EXISTING UTILITY (INCLUDING DEPTH) WHICH MAY CONFLICT WITH THE PROPOSED CONSTRUCTION, AND FOR RELOCATING ENCOUNTERED UTILITIES AS DIRECTED BY THE ENGINEER. CONTRACTOR SHALL CONTACT AND RECEIVE APPROVAL FROM CITY OF LAMAR AND ENGINEER BEFORE RELOCATING ANY ENCOUNTERED UTILITIES. CONTRACTOR RESPONSIBLE FOR SERVICE CONNECTIONS, AND RELOCATING AND RECONNECTING AFFECTED UTILITIES AS COORDINATED WITH UTILITY OWNER AND/OR ENGINEER, INCLUDING NON–MUNICIPAL UTILITIES (TELEPHONE, GAS, CABLE, ETC., WHICH SHALL BE COORDINATED WITH THE UTILITY OWNER). THE CONTRACTOR SHALL IMMEDIATELY CONTACT ENGINEER UPON DISCOVERY OF A UTILITY DISCREPANCY OR CONFLICT. AT LEAST 48 HOURS PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY NOTIFICATION CENTER OF COLORADO (1–800–922–1987, WWW.UNCC.ORG).
5. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL PREPARE A TRAFFIC CONTROL PLAN FOR OWNER AND/OR CITY APPROVAL AND PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FENCING, FLAGMEN OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR AGREES TO COMPLY WITH THE PROVISIONS OF THE TRAFFIC CONTROL PLAN AND THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," PART VI, FOR CONSTRUCTION SIGNAGE AND TRAFFIC CONTROL. ALL TEMPORARY AND PERMANENT TRAFFIC SIGNS SHALL COMPLY TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) WITH REGARD TO SIGN SHAPE, COLOR, SIZE, LETTERING, ETC. UNLESS OTHERWISE SPECIFIED. IF APPLICABLE, PART NUMBERS ON SIGNAGE DETAILS REFER TO MUTCD SIGN NUMBERS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY GROUNDWATER ENCOUNTERED DURING THE CONSTRUCTION OF ANY PORTION OF THIS PROJECT. GROUNDWATER SHALL BE PUMPED, PIPED, REMOVED AND DISPOSED OF IN A MANNER WHICH DOES NOT CAUSE FLOODING OF EXISTING STREETS NOR EROSION ON ABUTTING PROPERTIES IN ORDER TO CONSTRUCT THE IMPROVEMENTS SHOWN ON THESE PLANS. GROUNDWATER TO BE PUMPED SHALL BE TESTED, PERMITTED, AND PUMPED PER THE STATE OF COLORADO AND LOCAL GROUNDWATER DISCHARGING PERMIT REQUIREMENTS.
7. RIM AND GRATE ELEVATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY AND ARE NOT TO BE TAKEN AS FINAL ELEVATIONS. THE CONTRACTOR SHALL ADJUST RIMS AND OTHER IMPROVEMENTS TO MATCH FINAL PAVEMENT AND FINISHED GRADE ELEVATIONS.
8. THE EXISTING AND PROPOSED ELEVATIONS OF FLATWORK, SIDEWALKS, CURBS, PAVING, ETC. AS SHOWN HEREON ARE BASED ON EXTRAPOLATION OF FIELD SURVEY DATA AND EXISTING CONDITIONS. AT CRITICAL AREAS AND SITE FEATURES, CONTRACTOR SHALL HAVE FORMWORK INSPECTED AND APPROVED BY OWNER, OWNER'S REPRESENTATIVE, OR ENGINEER PRIOR TO PLACING CONCRETE. MINOR ADJUSTMENTS, AS APPROVED, TO PROPOSED GRADES, INVERTS, ETC. MAY BE REQUIRED TO PREVENT PONDING OR SLOPE NOT IN CONFORMANCE WITH MUNICIPAL STANDARDS. ALL FLATWORK MUST PREVENT PONDING AND PROVIDE POSITIVE DRAINAGE AWAY FROM EXISTING AND PROPOSED BUILDINGS, WALLS, ROOF DRAIN OUTFALLS, ACROSS DRIVES AND WALKS, ETC., TOWARDS THE PROPOSED INTENDED DRAINAGE FEATURES AND CONVEYANCES.
9. ANY EXISTING MONITORING WELLS, CLEANOUTS, VALVE BOXES, ETC. TO BE PROTECTED AND TO REMAIN IN SERVICE. IF FEATURES EXIST, EXTEND OR LOWER TO FINAL SURFACE WITH LIKE KIND CAP WITH STANDARD CAST ACCESS LID WITH SAME MARKINGS. IN LANDSCAPED AREAS PROVIDE A CONCRETE COLLAR (18"x18"x6" THICK) AT ALL EXISTING AND PROPOSED MONITORING WELLS, CLEANOUTS, VALVE BOXES, ETC.
10. PIPE LENGTHS AND HORIZONTAL CONTROL POINTS SHOWN ARE FROM CENTER OF STRUCTURES, END OF FLARED END SECTIONS, ETC. SEE STRUCTURE DETAILS FOR EXACT HORIZONTAL CONTROL LOCATION. CONTRACTOR IS RESPONSIBLE FOR ADJUSTING ACTUAL PIPE LENGTHS TO ACCOUNT FOR STRUCTURES AND LENGTH OF FLARED END SECTIONS.
11. ALL SURPLUS MATERIALS, TOOLS, AND TEMPORARY STRUCTURES, FURNISHED BY THE CONTRACTOR, SHALL BE REMOVED FROM THE PROJECT SITE BY THE CONTRACTOR. ALL DEBRIS AND RUBBISH CAUSED BY THE OPERATIONS OF THE CONTRACTOR SHALL BE REMOVED, AND THE AREA OCCUPIED DURING CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ITS ORIGINAL CONDITION, WITHIN 48 HOURS OF PROJECT COMPLETION, UNLESS OTHERWISE DIRECTED BY THE MUNICIPALITY OR OWNER'S REPRESENTATIVE.
12. THE CONTRACTOR IS REQUIRED TO PROVIDE AND MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE LOCAL JURISDICTION, THE STATE OF COLORADO, URBAN DRAINAGE AND FLOOD CONTROL DISTRICT "URBAN STORM DRAINAGE CRITERIA MANUAL VOLUME 3", THE M–STANDARD PLANS OF THE COLORADO DEPARTMENT OF TRANSPORTATION, AND THE APPROVED EROSION CONTROL PLAN. JURISDICTIONAL AUTHORITY MAY REQUIRE THE CONTRACTOR TO PROVIDE ADDITIONAL EROSION CONTROL MEASURES AT THE CONTRACTOR'S EXPENSE DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE PLANS DO NOT FUNCTION AS INTENDED. THE CONTRACTOR IS RESPONSIBLE FOR PROHIBITING SILT AND DEBRIS LADEN RUNOFF FROM LEAVING THE SITE, AND FOR KEEPING ALL PUBLIC AREAS FREE OF MUD AND DEBRIS. THE CONTRACTOR IS RESPONSIBLE FOR RE–ESTABLISHING FINAL GRADES AND FOR REMOVING ACCUMULATED SEDIMENTATION FROM ALL AREAS INCLUDING SWALES AND DETENTION/WATER QUALITY AREAS. CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROL MEASURES AND REPAIR AREAS AS REQUIRED AFTER VEGETATION IS ESTABLISHED AND ACCEPTED BY OWNER AND MUNICIPALITY.
13. PROTECT ALL TREES AND VEGETATION. PLACE CONSTRUCTION FENCING AT DRIP LINE OF TREES AND PLANTS NEAR THE WORK ZONE. DEEP WATER TREES WEEKLY. HAND EXCAVATION REQUIRED AT ROOT ZONES WHERE PROPOSED PAVING OR UTILITY WORK IS WITHIN DRIPLINE OF TREES.

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NO.	DATE	DESD	DWN
1	07/2019	PMH	LLG

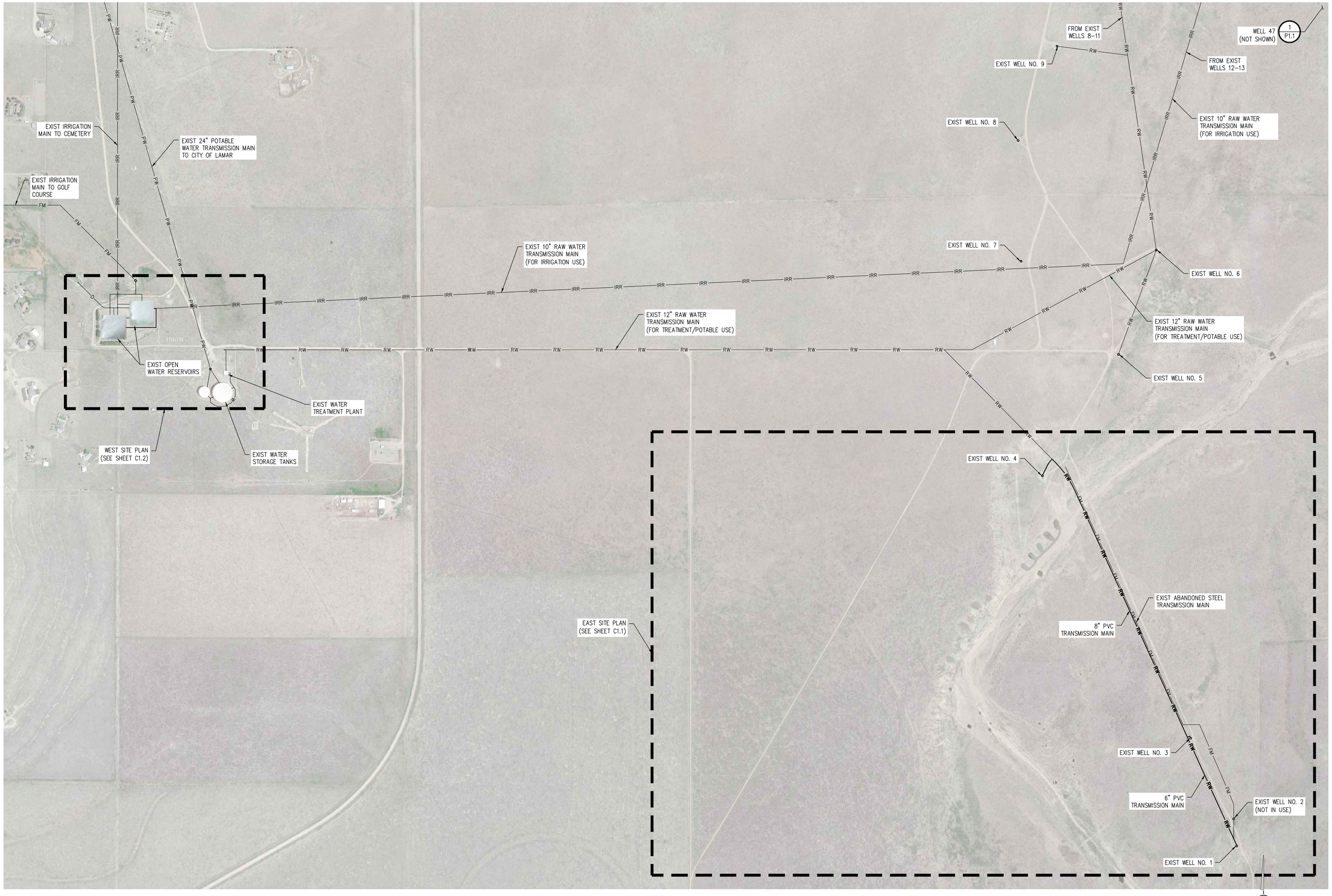
RECORD DRAWINGS
REVISION DESCRIPTION

DESIGNED BY:	PMH
DRAWN BY:	LLG
CHECKED BY:	ACS
JOB #:	2215.10c
DATE:	FEBRUARY 2019

CITY OF LAMAR
WELL 12 AND 13 REDEVELOPMENT
SCOPE EXTENSION

LEGEND, NOTES & ABBREVIATIONS

SHEET NO.
G0.1



OVERALL SITE PLAN
1" = 400'

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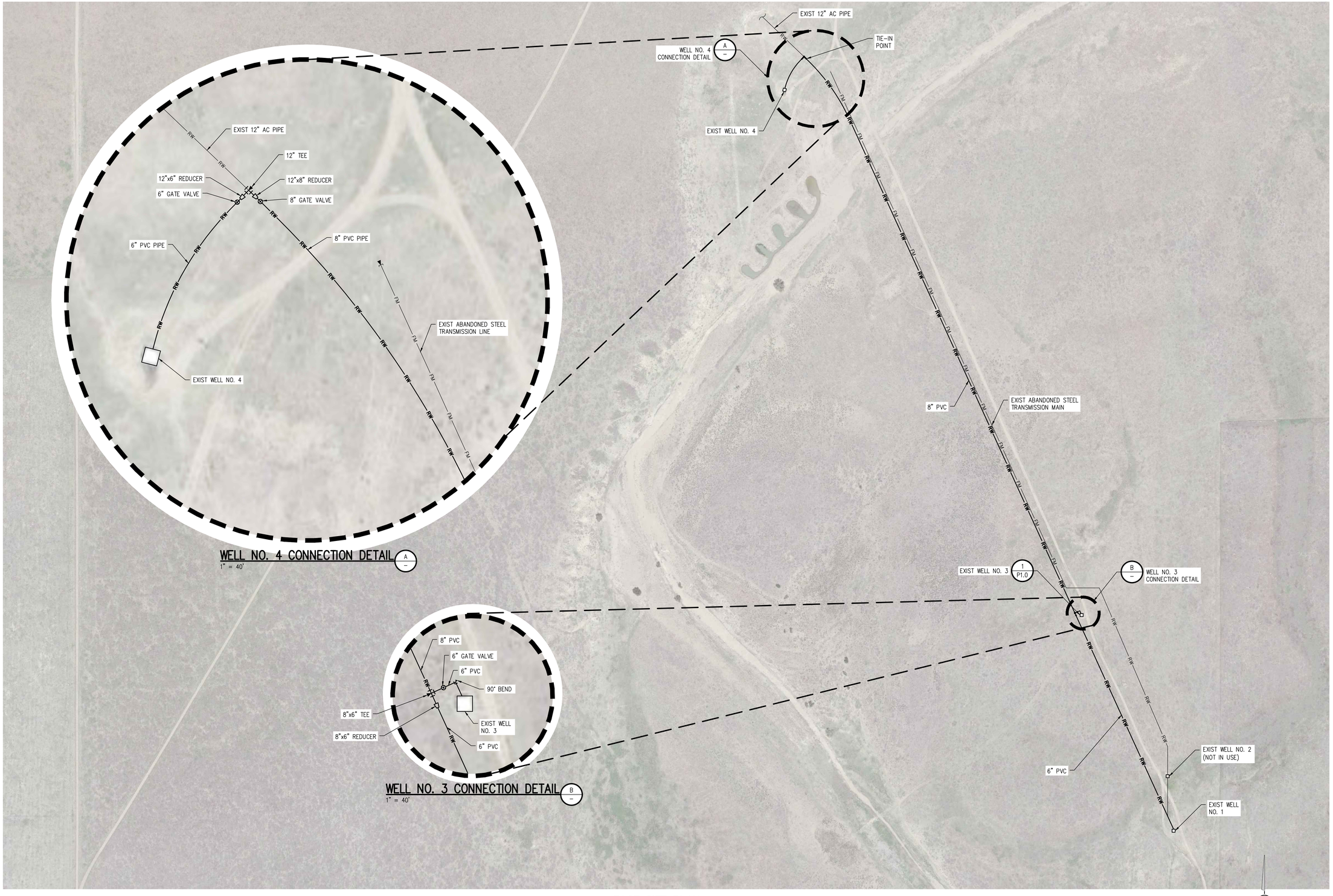
CITY OF LAMAR
WELL 12 AND 13 REDEVELOPMENT
SCOPE EXTENSION

OVERALL SITE PLAN

SHEET NO.
C1.0



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CITY OF LAMAR
WELL 12 AND 13 REDEVELOPMENT
SCOPE EXTENSION

EAST SITE PLAN

SHEET NO.
C1.1

EXIST 10" FORCE MAIN TO GOLF COURSE

EXIST PUMP STATION

EXIST 10" STEEL IRRIGATION MAIN TO CEMETERY

EXIST IRRIGATION TO PUMP STATION

EXIST 14"x10" TEE W/ STUB

EXIST 14" CI

EXIST 10" STEEL DRAIN

EXIST 24" POTABLE WATER TRANSMISSION MAIN TO CITY OF LAMAR

CO RD 8.5

EXIST 10" PVC TRANSMISSION MAIN FROM WELL FIELD

1 CD1.1 OPEN WATER RESERVOIR NO. 1 DISCHARGE DETAIL

10" TEE W/ TB

10" MCPROPELLER FLOW METER

10" GATE VALVE (TYP 3)

10" PVC

OPEN WATER RESERVOIR NO. 1

EXIST 10" PVC

OPEN WATER RESERVOIR NO. 2

2 CD1.1 OPEN WATER RESERVOIR NO. 2 DISCHARGE DETAIL

EXIST GATE VALVE AND PLUG

Dd 8

EXIST 12" PVC TANSMISSION MAIN FROM WELL FIELD

EXIST WTP

EXIST WATER STORAGE TANKS

WEST SITE PLAN

1" = 60'

60 0 60 120

SCALE IN FEET

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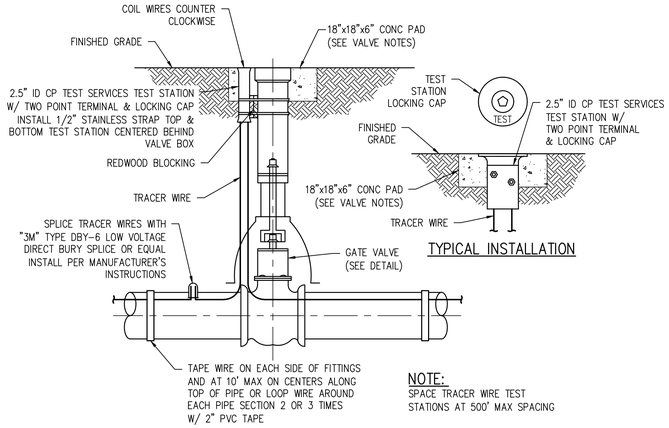
CITY OF LAMAR
WELL 12 AND 13 REDEVELOPMENT
SCOPE EXTENSION

WEST SITE PLAN

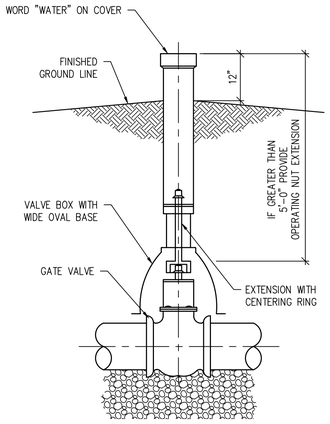
SHEET NO.

C1.2



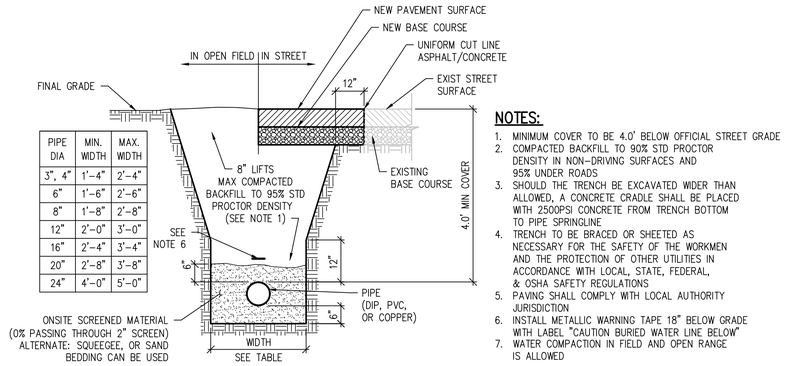
NOTE:
SPACE TRACER WIRE TEST STATIONS AT 500' MAX SPACING

TRACER WIRE INSTALLATION AND TEST STATION DETAIL 1
NTS



NOTE:
1. CARE SHALL BE TAKEN WHEN INSTALLING VALVES ON LINES TO ASSURE PROPER SUPPORT OF THE VALVES.
2. WOOD BLOCKS OR 3/4" WASHED ROCK TO BE INSTALLED UNDER THE VALVE TO PROVIDE PROPER SUPPORT WHERE REQUIRED.
3. VALVES SHALL NOT BE PLACED IN CONCRETE CROSS PANS.

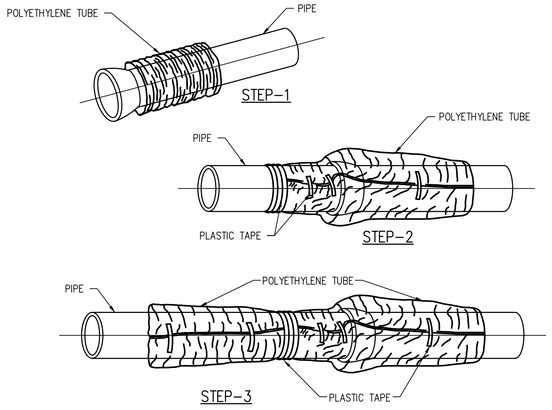
GATE VALVE DETAIL 2
NTS



PIPE DIA	MIN. WIDTH	MAX. WIDTH
3", 4"	1'-4"	2'-4"
6"	1'-6"	2'-6"
8"	1'-8"	2'-8"
12"	2'-0"	3'-0"
16"	2'-4"	3'-4"
20"	2'-8"	3'-8"
24"	4'-0"	5'-0"

NOTES:
1. MINIMUM COVER TO BE 4.0' BELOW OFFICIAL STREET GRADE
2. COMPACTED BACKFILL TO 90% STD PROCTOR DENSITY IN NON-DRIVING SURFACES AND 95% UNDER ROADS
3. SHOULD THE TRENCH BE EXCAVATED WIDER THAN ALLOWED, A CONCRETE CRADLE SHALL BE PLACED WITH 2500PSI CONCRETE FROM TRENCH BOTTOM TO PIPE SPRINGLINE
4. TRENCH TO BE BRACED OR SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKMEN AND THE PROTECTION OF OTHER UTILITIES IN ACCORDANCE WITH LOCAL, STATE, FEDERAL, & OSHA SAFETY REGULATIONS
5. PAVING SHALL COMPLY WITH LOCAL AUTHORITY JURISDICTION
6. INSTALL METALLIC WARNING TAPE 18" BELOW GRADE WITH LABEL "CAUTION BURIED WATER LINE BELOW"
7. WATER COMPACTION IN FIELD AND OPEN RANGE IS ALLOWED

TYPICAL TRENCH DETAIL 3
NTS



FIELD INSTALLATION-POLYETHYLENE WRAP
(FOR FITTINGS, JOINTS, AND VALVE ACCESSORIES)

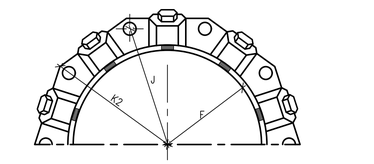
STEP-1 PLACE TUBE OF POLYETHYLENE MATERIAL AROUND PIPE PRIOR TO LOWERING PIPE INTO TRENCH

STEP-2 PULL THE TUBE OVER THE LENGTH OF THE PIPE. TAPE TUBE TO PIPE AT JOINT FOLD MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH THREE CIRCUMFERENTIAL TURNS OF TWO-INCH WIDE PLASTIC TAPE TO HOLD PLASTIC TUBE AROUND SPIGOT END

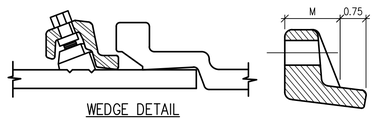
STEP-3 ADJACENT TUBE OVERLAPS FIRST TUBE AND IS SECURED WITH PLASTIC ADHESIVE TAPE. THE POLYETHYLENE TUBE MATERIAL COVERING THE PIPE WILL BE LOOSE. EXCESS MATERIAL AND SHOULD BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED INTO AN OVERLAP ON TOP OF THE PIPE AND HELD IN PLACE BY MEANS OF PIECES OF THE PLASTIC TAPE AT APPROXIMATELY THREE TO FIVE FOOT INTERVALS

NOTE:
ALL RODDING TO BE ENCASED IN POLYETHYLENE SEPARATED FROM THE PIPE

POLYETHYLENE WRAP DETAIL 4
NTS



MECHANICAL JOINT RESTRAINT



WEDGE DETAIL

BOLT HOLE DETAIL

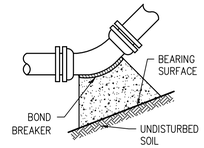
DIMENSIONS

NOMINAL PIPE SIZE	NO. OF BOLTS	NO. OF WEDGES	K2 INCHES	J INCHES	F INCHES	M INCHES
4"	2	2				
6"	6	3	11.12	9.50	7.00	0.88
8"	6	4	13.37	11.75	9.15	1.00
10"	8	6	15.62	14.00	11.20	1.00
12"	8	8	17.88	16.25	13.30	1.25
16"	12	12	22.50	21.00	17.54	1.56
20"	14	14	27.00	25.50	21.74	1.69

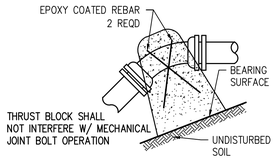
NOTES:
1.) BASED ON "MEGA LUG" PIPE RESTRAINT SYSTEM BY EBAA IRON

2.) OTHER MECHANICAL JOINT RESTRAINT DEVICES MUST BE APPROVED BEFORE INSTALLATION.

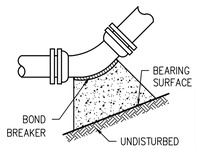
MECHANICAL JOINT RESTRAINT DETAIL 5
NTS



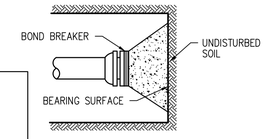
UPWARD BEND



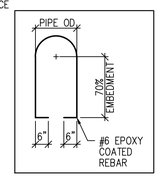
DOWNWARD BEND

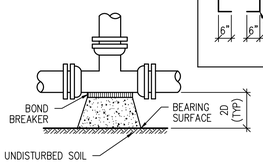


45° & 90° BENDS

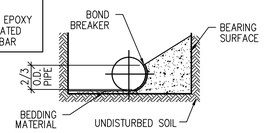


DEAD END





TEE



TYPICAL CROSS SECTION

NOTES:
1. BEARING SURFACES SHOWN IN CHART ARE MINIMUM SQUARE FEET
2. BASED ON 150 PSI INTERNAL PIPE PRESSURE PLUS WATER HAMMER. 4", 6", 8", & 12" WATER HAMMER = 110 PSI 16", 20" AND 24" WATER HAMMER = 70 PSI
3. BASED ON 3000psf SOIL BEARING CAPACITY
4. USE TYPE II PORTLAND CEMENT 3000 PSI CONCRETE
5. ALL VALVES, TEES, BENDS AND PLUGS SHALL BE RESTRAINED AND KICKBLOCKED

SIZE OF PIPE	SURFACE AREA (SQ FT) TEE OR DEAD END	BENDS 45°	BENDS 90°	CONC VOL (CU YD) VERT 45°
4"	1.50	1.00	2.0	0.34
6"	3.00	2.25	4.5	0.71
8"	5.25	4.00	8.0	1.22
12"	11.25	8.75	17.0	1.83
16"	19.00	14.50	27.00	2.59
20"	25.00	19.50	35.50	6.93
24"	36.00	27.75	51.00	9.88

MINIMUM BEARING SURFACE AREA (IN SQUARE FEET)

CONCRETE THRUST BLOCK DETAIL 6
NTS

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1	07/2019	PMH	LLG

RECORD DRAWINGS
REVISION DESCRIPTION

DESIGNED BY:	PMH
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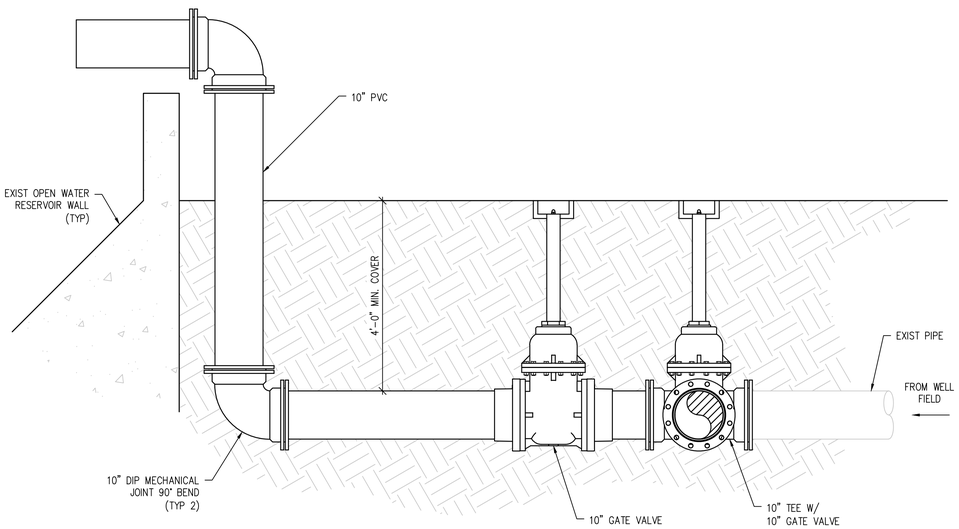
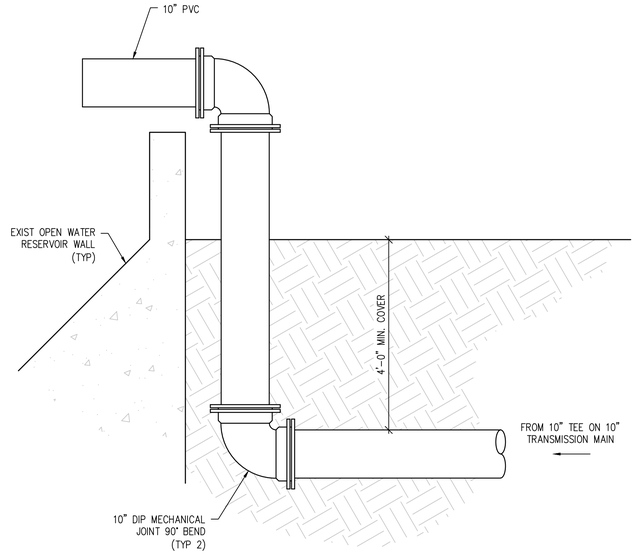
CITY OF LAMAR
WELL 12 AND 13 REDEVELOPMENT
SCOPE EXTENSION

CIVIL DETAILS

SHEET NO.
CD1.0



O.W.R. 1 DISCHARGE DETAIL (1 / C1.2)
NTS



O.W.R. 2 DISCHARGE DETAIL (2 / C1.2)
NTS

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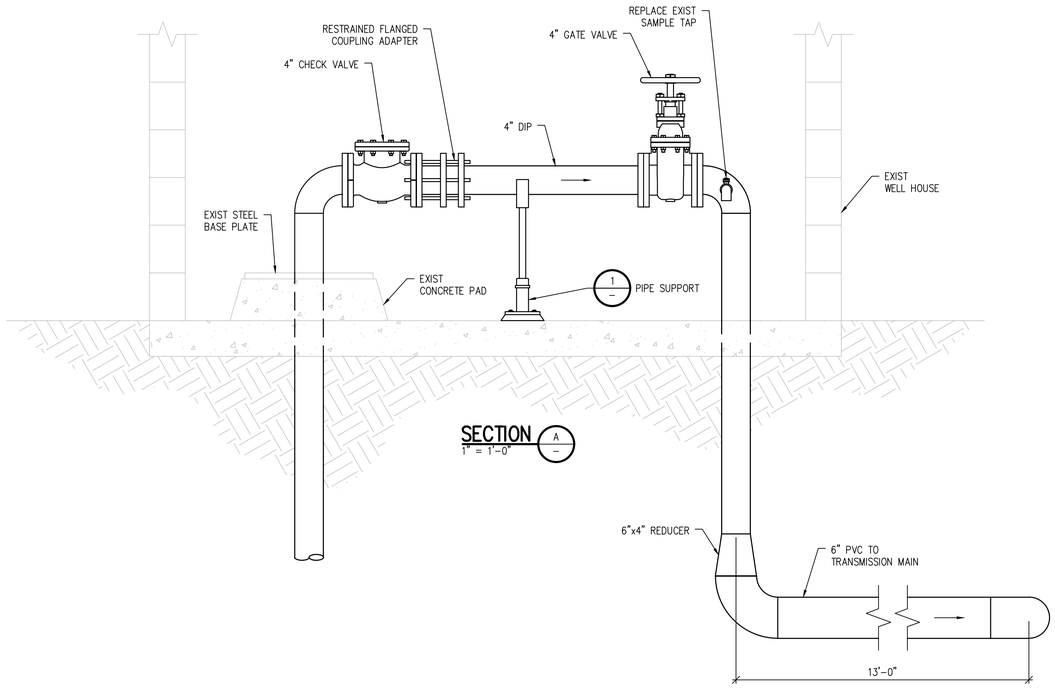
CITY OF LAMAR
WELL 12 AND 13 REDEVELOPMENT
SCOPE EXTENSION

CIVIL DETAILS

SHEET NO.
CD1.1



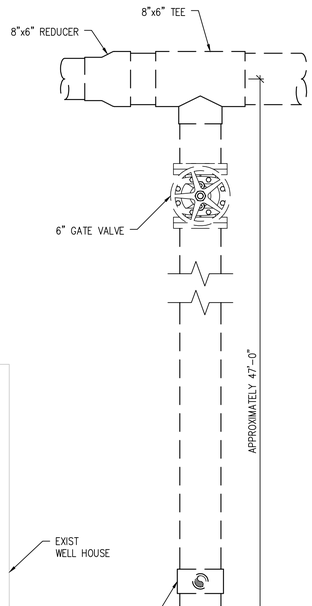
SECTION A
1" = 1'-0"

PUMP SPECIFICATIONS:

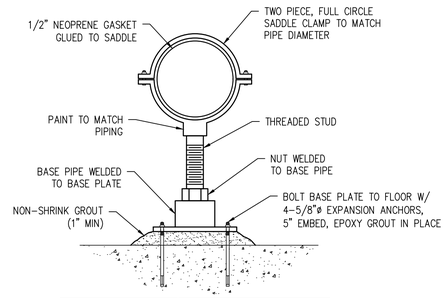
FLOW (GPM):	125
TDH (FT):	200
PUMP:	BERKELY, 10 HP
MOTOR:	BERKELEY, 10 HP, 460/3PH

WELL NOTES:

1. FOLLOW CITY PROCEDURE FOR WELL REHABILITATION.
2. TOTAL WELL DEPTH IS 75 FT. REPLACE EXIST CARRIER PIPE.

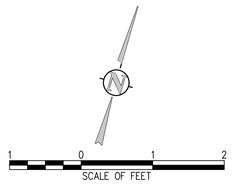


EXIST WELL HOUSE NO. 3 CONNECTION
1" = 1'-0"
1 / C1.0



PIPE SIZE	CLAMP SIZE	THREADED STUD ø	BASE PLATE	BASE PIPE
2", 3"	.375"x1.5"	.75"	6"x6"	2"
4"-12"	.5"x2"	1"	8"x8"	2"
14"-16"	.625"x3"	1.5"	12"x12"	3"
18"-24"	.75"x4"	2"	12"x12"	4"

FLOOR PIPE SUPPORT DETAIL
NTS
1 / –



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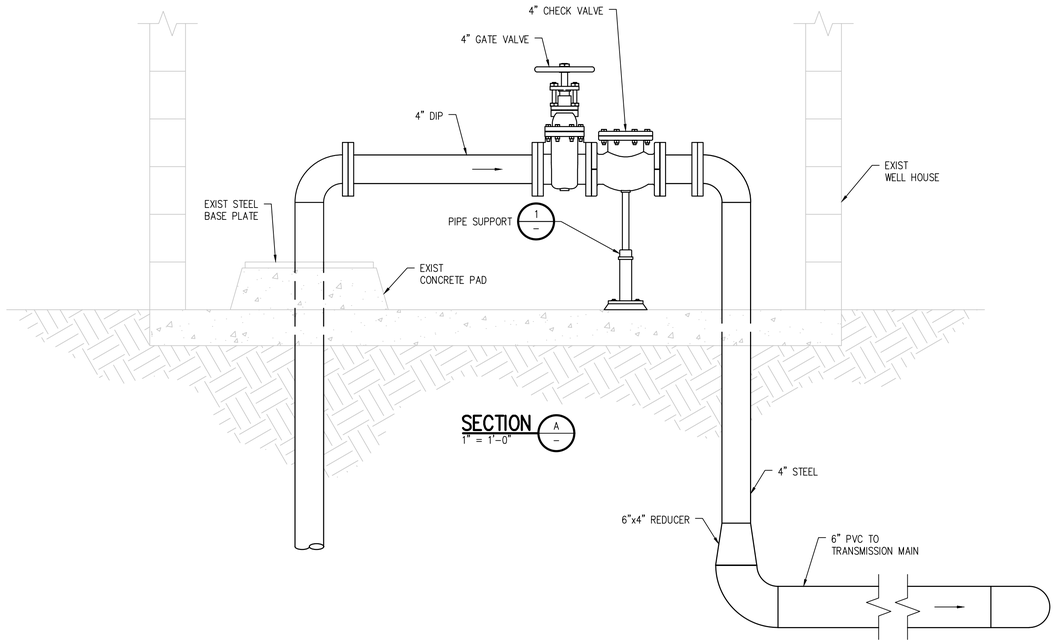
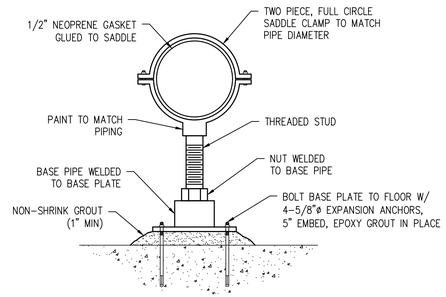
CITY OF LAMAR
WELL 12 AND 13 REDEVELOPMENT
SCOPE EXTENSION

WELL HOUSE 3
PLAN AND SECTION

SHEET NO.
P1.0



SECTION (A / –)
1" = 1'-0"



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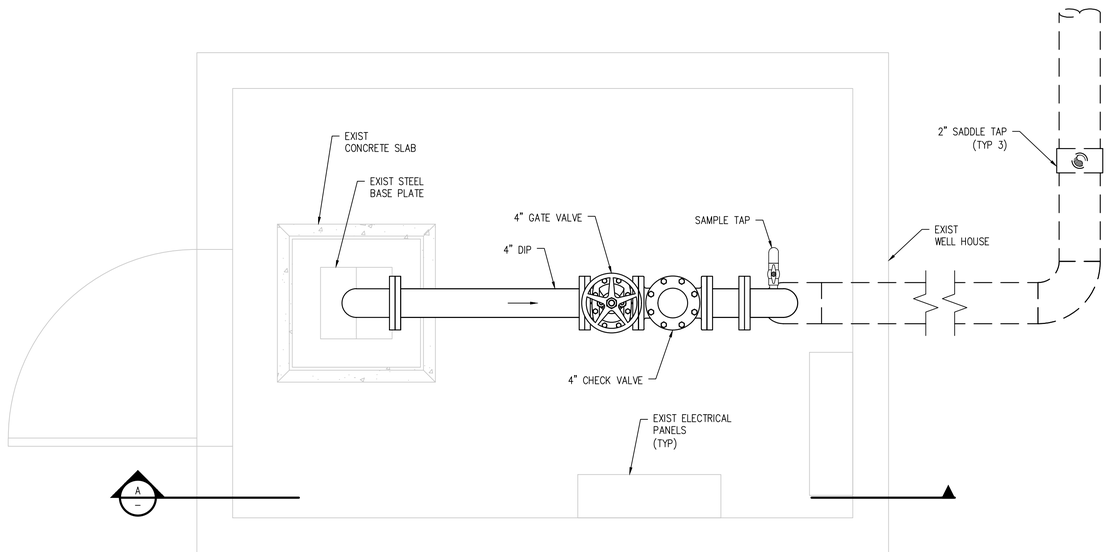
4"-12"	.5"x2"	1"	8"x8"	2"
14"-16"	.625"x3"	1.5"	12"x12"	3"
18"-24"	.75"x4"	2"	12"x12"	4"

FLOOR PIPE SUPPORT DETAIL (1 / –)
NTS



EXIST WELL HOUSE NO. 1 CONNECTION (1 / C1.0)
1" = 1'-0"

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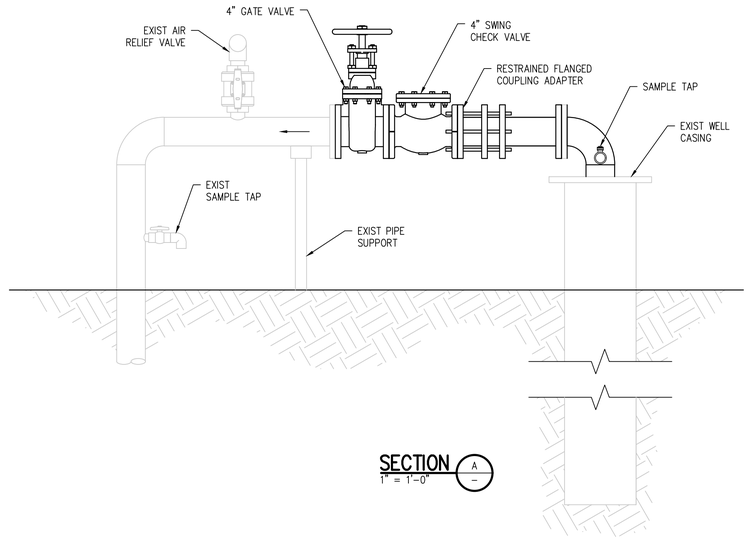
SCOPE EXTENSION

WELL HOUSE 1
PLAN AND SECTION

SHEET NO.
P1.1

SCALE OF FEET
1 0 1 2



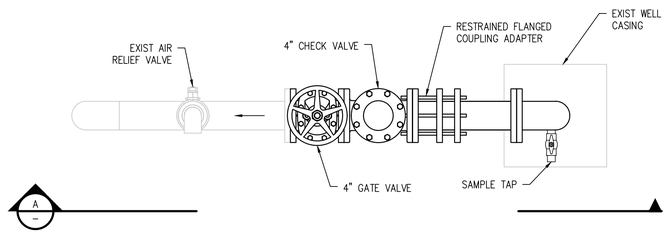
SECTION A
1" = 1'-0"

PUMP SPECIFICATIONS:

FLOW (GPM):	125
TDH (FT):	160
PUMP:	BERKELEY, 7.5 HP
MOTOR:	BERKELEY, 7.5 HP, 460/3PH

WELL NOTES:

1. FOLLOW CITY PROCEDURE FOR WELL REHABILITATION.
2. TOTAL WELL DEPTH IS 34.5 FT. REPLACE EXIST CARRIER PIPE.



PLAN VIEW
1" = 1'-0"

CONSULTING ENGINEERS
JVA, Incorporated 1319 Spruce Street
Boulder, CO 80302 Phone: 303.444.1951
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NO.	DATE	DESD	DWN	REVISION DESCRIPTION
1	07/2019	PMH	LLG	RECORD DRAWINGS

DESIGNED BY:	PMH
DRAWN BY:	LLG
CHECKED BY:	ACS
JOB #:	2215.10c
DATE:	FEBRUARY 2019

CITY OF LAMAR
WELL 12 AND 13 REDEVELOPMENT
SCOPE EXTENSION

WELL 47
PLAN AND SECTION

SHEET NO.
P1.2

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Repurposing of Wells 12 and 13 Project

City of Lamar

Substantially Complete July 1, 2019

Well No. 12 control building new pump and SCADA system.

Completed installation of bypass piping for the open water reservoir used as a source of irrigation water for the piped distribution system.

Completed well field piping for Well Nos. 12 and 13.

Completed pump installation for Well No. 47.

Project Description

The City of Lamar, through its Water and Wastewater Department, has been providing the City with water and sewer services for over 135 years. Although the City has undertaken numerous upgrades, rehabilitation, and expansion projects over the years, most of the existing infrastructure was funded and built during the 1950's. Originally, the City's Wells 12 and 13 were used for municipal potable water supply. In 2012, the wells were taken out of service due to non-compliant water quality tests. A 2014 feasibility study concluded that it is feasible to redevelop the wells for non-potable irrigation use, including irrigation of a city-owned cemetery and a golf course, both of which are currently watered with potable water. As a result of this project, Wells 12, 13, 1, 3, and 47 are now connected to the non-potable, irrigation system. Power has been extended to the wells and the well houses are operated with SCADA systems. Pipe was installed in the two, interconnected open water reservoirs to allow for improved operational efficiency and flexibility and to allow for delivery of irrigation water to the City-owned cemetery and golf course.

P R O J E C T D A T A		
Sponsor: City of Lamar	*County:* Prowers	*Water Source:* Arkansas River
Type of Project: Municipal System Rehabilitation	*Board Approval Date:* September 2015	
Terms of Loan: 1.95% for 10 years *(Original)* $101,000	*(Final)* $83,200.49	
Terms of Grant: (Original) $150,000	*(Final)* $131,784.74	
Design Engineer: JVA Consulting Engineers, Inc.		