

# CITY OF ALAMOGORDO

## CANYON ROAD WATER LINE EXTENSION

**PUBLIC WORKS BID NO. 2019-001**  
**OTERO COUNTY, NEW MEXICO**  
**FEBRUARY 2019**

**ELECTRIC UTILITY COMPANY**  
 PNM ELECTRIC COMPANY  
 650 FAIR GROUNDS RD.  
 ALAMOGORDO, NM 88310  
 OFFICE: 1-888-342-5766

**CITY OF ALAMOGORDO**  
 PUBLIC WORKS AND PARKS  
 DEPARTMENT  
 2600 N. FLORIDA AVE  
 ALAMOGORDO, NM 88062  
 OFFICE: (575) 439-4240

**TELECOMMUNICATION**  
 TULAROSA COMMUNICATIONS  
 503 ST FRANCIS DR.  
 TULAROSA, NM 88352  
 OFFICE: (575) 585-9800

**GAS UTILITY COMPANY**  
 NEW MEXICO GAS COMPANY  
 2101 INDIAN WELLS  
 ALAMOGORDO, NM 88310  
 OFFICE: 1-888-664-2726

**CITY OF ALAMOGORDO**  
 WATER OPERATIONS  
 1376 E. NINTH STREET  
 ALAMOGORDO, NM  
 DAVE NUNNELLEY  
 OFFICE: (575) 437-5991

**CABLE TV**  
 TDS TELECOM  
 901 N FLORIDA AVE.  
 ALAMOGORDO, NM 88310  
 1-877-422-5282

**CITY OF ALAMOGORDO**  
 UTILITIES DEPARTMENT  
 1376 E. NINTH STREET  
 ALAMOGORDO, NM  
 OFFICE: (575) 437-5991

**CITY OF ALAMOGORDO**  
 WASTE WATER  
 1376 E. NINTH STREET  
 ALAMOGORDO, NM  
 BRADLEY BOWMAN  
 OFFICE: (575) 430-3612

**CITY OF ALAMOGORDO**  
 WATER BILLING  
 1376 E. NINTH STREET  
 ALAMOGORDO, NM  
 MARK THREADGILL  
 OFFICE: (575) 439-4260

**ALAMOGORDO WHITE**  
**SANDS REGIONAL AIRPORT**  
 3500 AIRPORT RD.  
 ALAMOGORDO, NM 88310  
 OFFICE: (575) 439-4110

THE CITY OF ALAMOGORDO TECHNICAL  
 STANDARDS SHALL GOVERN THIS PROJECT

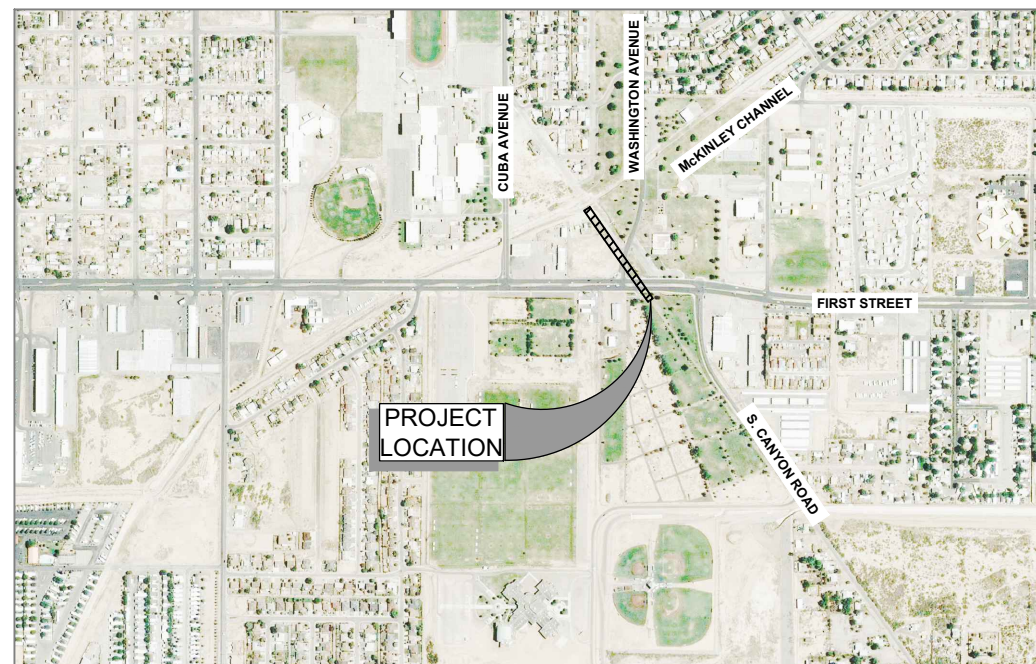
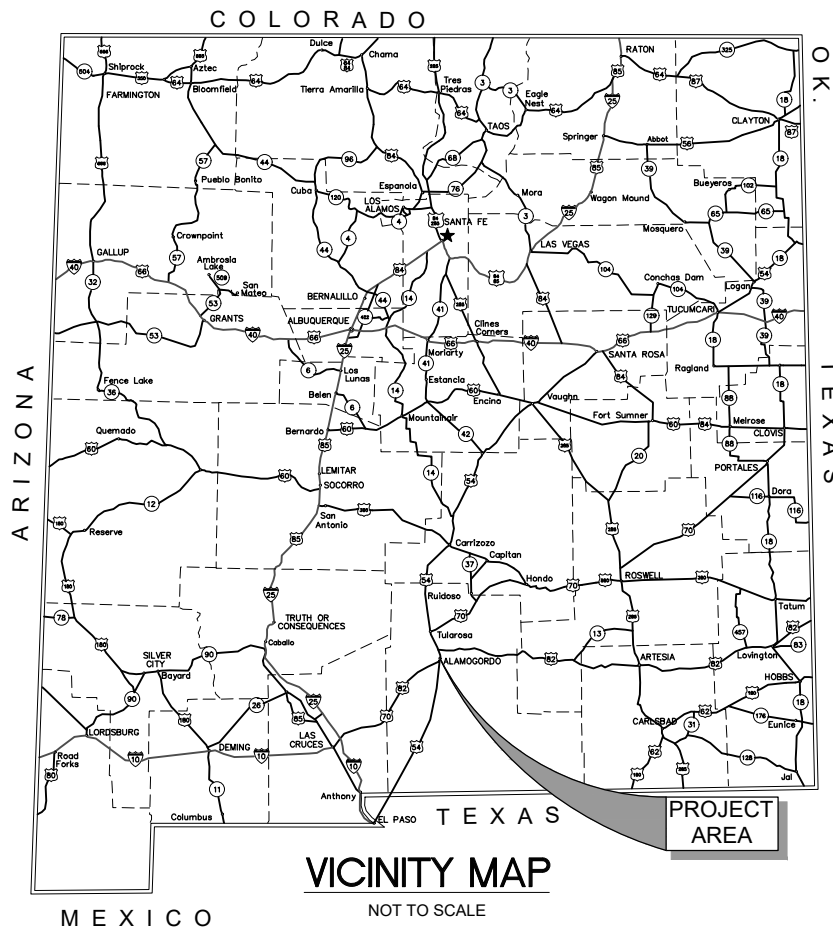
**CITY COUNCIL**  
 RICHARD BOSS - MAYOR AT-LARGE  
 JASON BALDWIN - DISTRICT 1 (MAYOR PRO TEM)  
 NADIA SIKES - DISTRICT 2  
 SUSAN PAYNE - DISTRICT 3  
 JOSH RARDIN - DISTRICT 4  
 AL HERNANDEZ - DISTRICT 5  
 DUSTY WRIGHT - DISTRICT 6



Know what's below.  
 Call before you dig.

It's the Law!

New Mexico One Call, Inc.



Sheet List Table	
Sheet Number	Sheet Title
1-G-001	TITLE SHEET
2-G-002	GENERAL NOTES
3-G-003	SUMMARY OF QUANTITIES
4-G-004	HORIZONTAL CONTROL
5-C-001	CITY OF ALAMOGORDO STANDARD DETAILS
6-C-003	UTILITY DETAILS
7-C-004	WATERLINE LAYOUT
8-C-005	TRAFFIC CONTROL NOTES & DETAILS
9-C-006	TRAFFIC CONTROL PHASE I THROUGH III
10-C-007	TRAFFIC CONTROL PHASE IV
11-C-008	TRAFFIC CONTROL PHASE V

**DRAWING NUMBER DESIGNATION:**

SHEET NUMBER 12 - C - 001  
 DISCIPLINE INDICATOR\*  
 DRAWING NO. IN DISCIPLINE

**\* DISCIPLINE LEGEND**  
 G = GENERAL  
 C = CIVIL  
 P = PROCESS EQUIPMENT  
 S = STRUCTURAL  
 A = ARCHITECTURAL  
 M = MECHANICAL  
 PL = PLUMBING  
 E = ELECTRICAL  
 I = INSTRUMENTATION



NO.	REVISION DESCRIPTION	DATE	BY
5			
4			
3			
2			
1			

CITY OF ALAMOGORDO  
 OTERO COUNTY, NEW MEXICO

CITY OF ALAMOGORDO  
 CANYON ROAD WATER LINE EXTENSION

TITLE SHEET

*Solutions for Today...  
 Vision for Tomorrow*

201 N Church Street  
 Suite 200A  
 Las Cruces, NM 88001  
 Phone: 575-523-2395  
 www.smithengineering.pro

JOB NO:  
816102

DATE:  
FEBRUARY 2019

SHEET NO:  
1-G-001

NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.  
 LISTEC-PROJECT 816102 McKinley Channel Phase 8 Utility Relocation/ENGINEERING/CADD/PLANS/ETC/001/TITLE SHEET.dwg Feb 20, 2019 - 8:00am Saved By: rusty

**GENERAL NOTES**

1. A MINIMUM OF 2 WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT NEW MEXICO ONE-CALL FOR UTILITY LOCATES. THE CONTRACTOR WILL BE RESPONSIBLE FOR EXPLORATORY TRENCHING, IF NECESSARY, TO MORE SPECIFICALLY LOCATE UTILITIES.
2. THE CONTRACTOR SHALL COORDINATE IN ADVANCE WITH PRIVATE UTILITY OWNERS TO SCHEDULE ANY SERVICE SHUTDOWN OR RELOCATIONS INCLUDING, BUT NOT LIMITED TO POWER, GAS, WATER, TELEPHONE, CABLE TV AND IRRIGATION LINES.
3. LOCATION, SIZE AND NUMBER OF UTILITIES SHOWN ON THE DRAWINGS ARE APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR THE FIELD VERIFICATION OF ALL UTILITIES DURING CONSTRUCTION: PRIVATE UTILITY RELOCATIONS SHALL BE ACCOMPLISHED BY UTILITY OWNER. CONTRACTOR SHALL COORDINATE AND PAY FOR ANY REQUIRED PERMITS AND FEES ASSOCIATED WITH THE RELOCATION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION IN ACCORDANCE WITH STATE LAW AND NM ONE-CALL PROCEDURES.
4. ANY WATER SHUT-OFF MUST BE PERFORMED BY THE CITY OF ALAMOGORDO. THE CONTRACTOR MUST NOTIFY THE CITY A MINIMUM OF 2 WORKING DAYS PRIOR TO THE REQUESTED SHUT-OFF.
5. THE CONTRACTOR SHALL DIRECTLY NOTIFY ALL AFFECTED CUSTOMERS 48 HOURS IN ADVANCE OF ANY WATER OUTAGES. ANY WATER OUTAGES SHALL BE PLANNED AND SCHEDULED TO MINIMIZE THE TIME AND IMPACT TO CUSTOMERS.
6. ANY CITY-OWNED UTILITY RELOCATION SHALL BE PERFORMED IN ACCORDANCE WITH CITY OF ALAMOGORDO SPECIFICATIONS.
7. PIPELINE TRENCHES SHALL BE BACKFILLED AND COMPACTED AS PIPE IS INSTALLED AND NO MORE THAN 100 FEET OF TRENCH SHALL BE OPEN AT ANY ONE TIME BY A SINGLE PIPE CREW UNLESS APPROVED BY THE CONTRACTING OFFICER. IF IT IS NECESSARY TO LEAVE AN EXCAVATION OPEN AFTER WORKING HOURS, THE CONTRACTOR SHALL BARRICADE THE EXCAVATION SECURELY TO MINIMIZE RISK TO VEHICLES, PEDESTRIANS OR ANIMALS.
8. NATIVE SOIL SHALL NOT BE USED TO BACKFILL TRENCHES WHERE PAVEMENT WILL BE CONSTRUCTED. ALL TRENCHES UNDER THE PAVEMENT SHALL BE BACKFILLED WITH ENGINEERED FILL THAT MEETS TECHNICAL SPECIFICATION, ARTICLE 02-022.2 , TRENCHING AND BACKFILL.
9. THE CONTRACTOR WILL BE RESPONSIBLE FOR PURCHASING ALL OF THE RECLAIMED WATER NEEDED FOR CONSTRUCTION FROM THE CITY OF ALAMOGORDO. THE COST WILL BE DETERMINED IN ACCORDANCE WITH THE CURRENT RECLAIMED WATER RATES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO TRANSPORT AND APPLY THE RECLAIMED WATER AS SPECIFIED OR AS ORDERED BY THE CONTRACTING OFFICER. SEE NOTE 11.
10. THE CONTRACTOR SHALL METER THE RECLAIMED WATER USED. THE CONTRACTOR SHALL FURNISH THE METER OR OBTAIN A METER FROM THE CITY FOR WHICH A DEPOSIT WILL BE REQUIRED AND REFUNDED WHEN THE METER IS RETURNED IN GOOD WORKING ORDER. UTILITY BILLING CUSTOMER SERVICE IS AVAILABLE AT 575-439-4260.
11. RECLAIMED (PURPLE) HYDRANT LOCATIONS.
  - LAVELLE HYDRANT/FILL STATION - 223 LAVELLE ROAD, APPROXIMATELY 1500 FEET SOUTH OF FIRST STREET ON LAVELLE ROAD AT BOOSTER STATION .
  - MICHEL STREET HYDRANT - NORTH OF ST. 2150 US HIGHWAY 54 SOUTH. APPROXIMATELY 250 FEET WEST OF HIGHWAY 54 SOUTH ON MICHEL ST..
  - CIVIC CENTER AUTOMATED FILL STAND - 800 EAST FIRST STREET, SOUTH SIDE OF SGT. WILLIE ESTRADA MEMORIAL CIVIC CENTER.
  - 26TH STREET HYDRANT - 2518 PUERTO RICO AVENUE - SOUTHEAST CORNER OF PUERTO RICO AVENUE AND 26TH STREET.
  - TRAVIS C. HOOSER BALLFIELD COMPLEX - 2143 WALKER AVENUE - 2 HYDRANTS - APPROXIMATELY 175 FEET SOUTH OF JAMES STREET ON SOUTH WALKER RD.
  - EDDY DRIVE AT 11TH STREET.
12. THE CONTRACTOR SHALL FURNISH AND MAINTAIN THE PIPING AND/OR EQUIPMENT NECESSARY TO CONNECT TO THE RECLAIMED WATER SOURCE AND TO CONVEY THE RECLAIMED WATER INTO THE CONTRACTOR'S RECLAIMED WATER TANK. CONTRACTOR SHALL NOT ALLOW RECLAIMED WATER TO GO TO WASTE DURING THE TANK FILLING OPERATIONS, THE CONTRACTOR SHALL NOT ALLOW PIPING AND EQUIPMENT TO LEAK WATER.
13. THE TANK FILLING EQUIPMENT SHALL BE PLACED AND MAINTAINED IN SUCH A WAY AS TO PREVENT ACCIDENTS OF ANY NATURE TO CONTRACTOR PERSONNEL OR THE PUBLIC IN GENERAL.
14. THE CONTRACTOR IS REQUIRED TO CONNECT THE FILL STAND OR FILL EQUIPMENT TO THE HYDRANT AND LEAVE THE HYDRANT VALVE OPEN. CONTRACTOR SHALL INSTALL A VALVE IN THE FILL STAND PIPING TO CONTROL THE WATER FLOW. THE HYDRANT VALVE SHALL NOT BE CLOSED EXCEPT WHEN WATER WILL NOT BE NEEDED OVER A WEEKEND OR A PERIOD OF TWO (2) OR MORE DAYS.
15. THE CONTRACTOR IS REQUIRED TO LOCATE ALL EXISTING UTILITIES PRIOR TO COMMENCING WORK ON THE PROJECT. IT SHALL BE THE CONTRACTOR'S SOLE FINANCIAL AND LEGAL RESPONSIBILITY TO FIELD VERIFY LOCATIONS AND DEPTHS OF ALL EXISTING UTILITIES AND COORDINATE ANY RELOCATION WORK REQUIRED. THE CONTRACTOR SHALL SUPPORT AND MAINTAIN OPERATION OF ALL UTILITIES EXPOSED DURING TRENCHING AND OTHER CONSTRUCTION OPERATIONS. NO UTILITY SHALL BE DISRUPTED WITHOUT FIRST NOTIFYING ALL AFFECTED PARTIES AT LEAST 48-HOURS IN ADVANCE. FOR 'LOCATES' OF UNDERGROUND UTILITIES, CONTRACTOR SHALL CONTACT THE NEW MEXICO ONE CALL SYSTEM AT 811 OR 1-800-321-2537. A POSITIVE RESPONSE IS REQUIRED PRIOR TO CONDUCTING ANY REMOVALS OR EXCAVATION. ALL UTILITIES WHICH ARE DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED, RECONSTRUCTED OR REPLACED TO THE UTILITY OWNER'S AND CONTRACTING OFFICER'S SATISFACTION, AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.
16. CONTRACTOR SHALL MAINTAIN WATER SERVICE AT ALL TIMES DURING THE COURSE OF CONSTRUCTION. EXISTING WATER MAIN AND SERVICES SHALL REMAIN IN SERVICE WHILE NEW WATER MAINS AND SERVICES ARE BEING CONSTRUCTED. THEREAFTER, THE CONTRACTOR SHALL PLAN ACTIVITIES TO PROVIDE SHORT-DURATION, TRANSITION TIE-INS TO MINIMIZE SYSTEM OR SERVICE DOWN TIME. THE CONTRACTOR SHALL NOTIFY THE CITY UTILITIES DEPARTMENT OF THE NEED FOR A WATER OUTAGE AT LEAST 48-HOURS IN ADVANCE. ANY WATER SHUT-OFF SHALL BE PERFORMED BY CITY UTILITY DEPARTMENT PERSONNEL.
17. MAXIMUM WEIGHT OF TRUCKS SHALL CONFORM TO NMDOT STANDARDS. THE CONTRACTOR SHALL REPAIR ANY DAMAGED STREETS OR OTHER FACILITIES USED DURING CONSTRUCTION HAULING TO THE CITY'S SATISFACTION AT NO ADDITIONAL COST. CONTRACTOR SHALL NOT BE HELD RESPONSIBLE FOR EXISTING DAMAGE PRESENT PRIOR TO THE CONTRACTOR STARTING WORK.

18. ALL ASPHALT AND CONCRETE REMOVALS SHALL BE ACCOMPLISHED WITH SAWCUTS AT MATCH POINTS. EXISTING ASPHALT EDGES AND SURFACES ALONG THE BOUNDARIES WITH PATCHES SHALL BE TACK COATED PRIOR TO PLACEMENT OF THE ASPHALT PATCH.
19. ALL NEW PEDESTRIAN ACCESS FEATURES MUST CONFORM TO CURRENT ADA REGULATIONS OR CITY OF ALAMOGORDO SPECIFICATIONS, WHICHEVER IS MORE STRINGENT.
20. THE CONTRACTOR SHALL BE REQUIRED TO CONFINE THE WORK WITHIN THE LIMITS OF THE RIGHT-OF-WAY AND ESTABLISHED CONSTRUCTION EASEMENTS.
21. AT THE END OF EACH WORK DAY, OR AS REQUIRED DURING EACH DAY, OR AS REQUIRED DUE TO WEATHER CONDITIONS, THE CONTRACTOR SHALL PERFORM GRADING, SHAPING AND CLEANUP, TO MAINTAIN AN ACCEPTABLE SITE CONDITION, AS DETERMINED BY THE CONTRACTING OFFICER.
22. A REVISED DRAWING WILL HAVE A DECIMAL POINT FOLLOWING THE SEQUENCE NUMBER, (EG: 3.1).
23. ON SLOPE DESIGNATIONS SUCH AS 1 ON 2 THE FIRST NUMBER REPRESENTS VERTICAL DISTANCE AND THE SECOND NUMBER REPRESENTS THE HORIZONTAL. MINOR CHANGES IN ELEVATION AND SLOPES FOR EXCAVATION AND FILL MAY BE ALLOWED TO SUIT CHANGED FIELD CONDITIONS SUBJECT TO APPROVAL BY THE CONTRACTING OFFICER.
24. ANY EXISTING FEATURE NOT DESIGNATED TO BE REMOVED THAT IS REMOVED OR DAMAGED DURING CONSTRUCTION OPERATIONS SHALL BE REPLACED TO ORIGINAL CONDITION BY THE CONTRACTOR AT NO EXPENSE TO THE CITY OF ALAMOGORDO.
25. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REQUEST AND OBTAIN ALL PERMITS NECESSARY FOR THIS PROJECT PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CURRENT FEDERAL, OSHA, STATE, COUNTY AND CITY LAWS, ORDINANCES, RULES AND REGULATIONS.
26. THE CONTRACTOR SHALL VERIFY THE CONSTRUCTION SCHEDULE WITH ALL UTILITIES AND THE CONTRACTING OFFICER.
27. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES BEFORE PROCEEDING WITH THE WORK. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE CONTRACTING OFFICE FOR RESOLUTION.
28. ANY EXISTING SURVEY MONUMENTS DISTURBED OR DESTROYED BY THE CONTRACTOR SHALL BE REPLACED BY A REGISTERED SURVEYOR AT THE CONTRACTOR'S EXPENSE AND BE APPROVED BY THE CONTRACTING OFFICER.
29. THE CUTTING, CAPPING, PLUGGING, REMOVAL AND DISPOSAL OF THE AC WATER LINE MUST COMPLY WITH THE GUIDELINES AND REGULATIONS OF:
  - A. NEW MEXICO ENVIRONMENT DEPARTMENT AIR QUALITY BUREAU (NMED-AQB)
  - B. AMERICAN WATER WORKS ASSOCIATION (AWWA)
  - C. NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANT (NESHAP)
30. THE CONTRACTOR INVOLVED IN THE CUTTING, CAPPING, PLUGGING, REMOVAL AND DISPOSAL OF THE ASBESTOS PIPE MUST BE LICENSED BY THE NEW MEXICO CONSTRUCTION INDUSTRIES DIVISION (505-827-7030). CONTACT CID FOR ALL SPECIFIC LICENSING REQUIREMENTS RELATED TO THE REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIAL.
31. ALL ASBESTOS CONTAINING WASTE MUST BE DEPOSITED AT A WASTE DISPOSAL SITE THAT IS OPERATED IN ACCORDANCE WITH 40 CFR 61.154. CONTACT THE SOLID WASTE BUREAU AT 505-827-0197 OR THE AS ASBESTOS HOTLINE AT 800-224-7009 FOR CURRENT INFORMATION REGARDING WHICH LANDFILLS ARE ALLOWED TO ACCEPT ASBESTOS CONTAINING MATERIALS. THE SOLID WASTE BUREAU HAS REGULATIONS PERTAINING TO ASBESTOS DISPOSAL.
32. IF CONNECTION TO EXISTING LATERALS REQUIRES ASBESTOS CEMENT PIPES TO BE REMOVED THE AC PIPES MUST BE REMOVED, HANDLED AND DISPOSED IN ACCORDANCE WITH ALL STATE AND FEDERAL REQUIREMENTS.

NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.



CITY OF ALAMOGORDO OTERO COUNTY, NEW MEXICO		NO.	REVISION DESCRIPTION	DATE	BY
5					
4					
3					
2					
1					

CITY OF ALAMOGORDO CANYON ROAD WATER LINE EXTENSION	GENERAL NOTES
--	---------------

*Solutions for Today...  
Vision for Tomorrow*

201 N Church Street  
Suite 200  
Las Cruces, NM 88001  
Phone: 575-523-2395  
www.smithengineering.pro

JOB NO:  
816102

DATE:  
FEBRUARY 2019

SHEET NO:  
2-G-002

L:\SEC-PROJECTS\816102 McPinney Channel Phase 8 Utility Relocation\ENGINEERING\CADD\PLANS\ET\Canyon Rd Ext\Plan\et2-G-002 GENERAL NOTES.dwg Feb 20, 2019 - 8:04am Saved By: rusty

SUMMARY OF QUANTITIES

<b>BASE BID</b>				
ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	FINAL QUANTITY
<b>UTILITY - POTABLE WATER</b>				
1	18" DIA. AWWA C-900 DR-18 WATER LINE; CIP	L.F.	690	
2	TIE TO EXISTING WATERLINE; COMPL	EACH	2	
3	LOWERING EXISTING WATERLINE OR REUSE LINE; COMPL	EACH	4	
<b>ASPHALT PAVEMENT &amp; CONCRETE WORK</b>				
4	REMOVE AND DISPOSE OF EXISTING PLANT MIX BITUMINOUS PAVEMENT AND BASE COURSE; COMPL	SY	240	
5	REMOVE AND DISPOSE OF EXISTING CONCRETE CURB AND GUTTER (ALL TYPES); COMPL	L.F.	50	
6	SAWCUT, REMOVE, AND DISPOSAL OF CONCRETE (4" AND 6" THICK); COMPL	SY	30	
7	CONCRETE CURB AND GUTTER (ALL TYPES); CIP	L.F.	50	
8	PAVEMENT PATCH (incl. PLACEMENT AND COMPACTION OF 3" PMBP, 8" THICK AGGREGATE BASE COURSE, AND PREPARATION OF THE SUBGRADE); CIP	SY	240	
9	4" THICK MEDIAN CONCRETE PAVEMENT; CIP	SY	3	
10	4" THICK CONCRETE (SIDEWALK); CIP	SY	27	
<b>MISCELLANEOUS ITEMS</b>				
11	UTILITY REMOVALS; COMPL	LUMP SUM	1	
12	NPDES/SWPPP COMPLIANCE (PREPARATION, IMPLEMENTATION, & MAINTENANCE); COMPL	LUMP SUM	1	
13	TRAFFIC CONTROL MANAGEMENT; COMPL	LUMP SUM	1	
14	MOBILIZATION/DEMOBILIZATION; COMPL	LUMP SUM	1	
15	CONSTRUCTION STAKING BY THE CONTRACTOR; COMPL	LUMP SUM	1	
16	IRRIGATION SPRINKLER SYSTEM REPAIR; COMPL	ALLOW	1	
17	UNFORESEEN UTILITIES OR OBSTRUCTIONS incl POTHOLING; COMPL	ALLOW	1	

SUMMARY OF WORK DETAILS:

NOTE: THE SUMMARY OF WORK PROVIDED BELOW IS FOR THE CONTRACTOR'S REFERENCE AND DOES NOT MODIFY OR REPLACE CONSTRUCTION REQUIREMENTS AS SET FORTH IN THE CITY OF ALAMOGORDO STANDARD SPECIFICATIONS.

- TIE TO EXISTING WATERLINE** SHALL BE NON-PRESSURE CONNECTIONS. WORK SHALL INCLUDE SPECIALS, ADAPTERS, COUPLINGS, SLEEVES, AND/OR FITTINGS REQUIRED TO COMPLETE THE CONNECTION. WORK SHALL ALSO INCLUDE EXCAVATION, TRENCHING, CONNECTION ENCASEMENT, BACKFILL AND COMPACTION.
- AWWA C-900 PVC WATER LINE (18")** SHALL MEET AND/OR EXCEED THE REQUIREMENTS SPECIFIED IN THE CITY OF ALAMOGORDO STANDARD SPECIFICATIONS - ARTICLE 02-026.1. WORK SHALL INCLUDE EXCAVATION, TRENCHING, RESTRAINTS, THRUST BLOCKING, SHORING, SUPPORT AND PROTECTION OF ANY ADJACENT UTILITIES, BACKFILLING, COMPACTION, PLACING OF TRACING TAPE, 14 GAUGE SOLID COPPER TRACING WIRE, DISINFECTION, AND ANY OTHER WORK NECESSARY TO COMPLETE THE INSTALLATION OF THE PIPE. WORK SHALL ALSO INCLUDE UTILITY MARKERS ON PIPELINES ACROSS OPEN AREAS PER DETAIL HEREIN.
- LOWERING OF EXISTING WATERLINE (POTABLE AND REUSE)** SHALL MEET AND/OR EXCEED THE CITY OF ALAMOGORDO STANDARD SPECIFICATIONS AND DETAILS. WORK SHALL INCLUDE EXCAVATION, TRENCHING, NEW REUSE/POTABLE WATERLINE TO COMPLETE LOWERING OF SAID LINE (CONTRACTOR TO FIELD VERIFY SIZE AND MATERIAL), FITTINGS, RESTRAINTS AND/OR THRUST BLOCKS, CONNECTION(S) TO EXISTING LINES ON EITHER SIDE OF LOWERED SECTION, MISCELLANEOUS PARTS TO COMPLETE CONNECTIONS, BACKFILL, AND COMPACTION.
- CONCRETE CURB AND GUTTER ALL TYPES** SHALL MEET AND/OR EXCEED THE CITY OF ALAMOGORDO STANDARD SPECIFICATIONS AND DETAILS. WORK SHALL INCLUDE SUBGRADE PREPARATION, COMPACTION, CONCRETE PLACEMENT AND FINISHING TO MEET AND MATCH ADJACENT EXISTING CURBS AND GUTTERS.
- PAVEMENT PATCH** SHALL MEET AND/OR EXCEED THE CITY OF ALAMOGORDO STANDARD SPECIFICATIONS AND DETAILS. WORK SHALL INCLUDE COMPACTION, SUBGRADE PREPARATION, PLACEMENT OF 8" AGGREGATE BASE COURSE, AND PLACEMENT OF 3" SP-IV PLANT MIX BITUMINOUS PAVEMENT TO MEET AND MATCH EXISTING ADJACENT GRADES AND SLOPES. TACK AND PRIME COATS SHALL BE INCIDENTAL TO PAVEMENT PATCHING.
- 4" THICK CONCRETE** FOR SIDEWALKS SHALL MEET AND/OR EXCEED THE CITY OF ALAMOGORDO STANDARD SPECIFICATIONS AND DETAILS. WORK SHALL INCLUDE SUBGRADE PREPARATION, COMPACTION, AND CONCRETE PLACEMENT AND FINISHING TO MEET AND MATCH EXISTING CONCRETE SIDEWALKS.
- 4" THICK MEDIAN CONCRETE PAVEMENT** TO BE PLACED IN THE EXISTING MEDIAN ALONG 1ST STREET. MEDIAN PAVEMENT SHALL MEET AND MATCH THE EXISTING GRADES/SLOPES AT THE NEATLINE CUTS PERFORMED FOR REMOVAL OF MEDIAN PAVING. CONTRACTOR SHALL FIELD VERIFY AND MATCH EXISTING CONCRETE COLORATION IN SO MUCH AS POSSIBLE. NEW 4" THICK MEDIAN CONCRETE PAVEMENT SHALL MEET AND/OR EXCEED THE CITY OF ALAMOGORDO STANDARD SPECIFICATIONS AND DETAILS.
- UTILITY REMOVALS** - WORK SHALL INCLUDE DISCONNECTIONS OF EXISTING LINES SCHEDULE FOR REMOVAL AND/OR ABANDONMENT IN PLACE. UTILITY LINES TO BE ABANDONED IN PLACE SHALL BE CUT, CAPPED, PURGED, AND ABANDONED AS NOTED ON THE DRAWINGS. UTILITY LINES TO BE REMOVED SHALL BE COMPLETELY REMOVED WITHIN THE LIMITS/LENGTHS NOTED; WORK INCLUDES TRENCHING, REMOVAL, DISPOSAL AT AN APPROVED LANDFILL, BACKFILL AND COMPACTION. REFER TO SHEETS 7-C-004 FOR WORK TO BE COMPLETED.
- TRAFFIC CONTROL MANAGEMENT** - INCLUDING TO FURNISH AND PROVIDE MUTCD COMPLIANT PROJECT WIDE TRAFFIC CONTROL AND DEVICES, FOR THE SAFE HANDLING OF PEDESTRIAN AND VEHICULAR TRAFFIC, AND APPURTENANCES, AS SUCH SPECIFIED AND/OR SHOWN ON THE CONSTRUCTION DOCUMENTS, COMPLETE, IN PLACE AND ACCEPTED BY THE CITY. ITEM INCLUDES ACCESS COORDINATION WITH CITY DEPARTMENTS, BUSINESSES, AND RESIDENCES TO PROTECT THE WORK. WORK SHALL INCLUDE ALL COSTS OF LABOR, MATERIALS, AND EQUIPMENT TO SET, RELOCATE, AND REMOVE TRAFFIC CONTROL DEVICES FOR CONSTRUCTION. THESE DEVICES MAY INCLUDE, BUT ARE NOT LIMITED TO SIGNING, REFLECTORIZED PAINTED MARKINGS, TEMPORARY REMOVABLE MARKING TAPE, BARRELS, SEQUENTIAL ARROW DISPLAYS, VERTICAL PANELS, BARRICADES, 4-WAY STOP SET-UP, TEMPORARY WALL BARRIER, FLAGMEN, AND MISCELLANEOUS TRAFFIC CONTROL DEVICES. WORK SHALL ALSO INCLUDE THE DEVELOPMENT, IMPLEMENTATION, AND MANAGEMENT OF THE TRAFFIC CONTROL PLAN. ALL WORK SHALL MEET THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION. THE TRAFFIC CONTROL PLAN AND MAINTENANCE DURING CONSTRUCTION SHALL BE PERFORMED BY A PERSON CERTIFIED AS A WORK ZONE TRAFFIC SAFETY SUPERVISOR WITH THE AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION (ATSSA) OR ASSOCIATED CONTRACTORS OF NEW MEXICO (ACNM).
- MOBILIZATION/DEMOBILIZATION** - ITEM CONSISTS OF, BUT NOT LIMITED TO, ALL PREPARATORY/CLEAN-UP WORK, PRELIMINARY/FINAL CLOSEOUT OPERATIONS, AND INCURRED COSTS NECESSARY FOR THE MOVEMENT OF PERSONNEL, EQUIPMENT, SUPPLIES, AND INCIDENTALS TO/FROM THE PROJECT SITE(S); AND FOR THE ESTABLISHMENT/REMOVAL OF ALL OFFICES, BUILDINGS, AND OTHER FACILITIES NEED FOR THE PROJECT TO/UPON COMPLETION OF THE WORK. THIS PARTICULAR ITEM SHALL COVER THE WORK ASSOCIATED WITH UTILITY RELOCATIONS/INSTALLATIONS NOT THE COMPLETE PROJECT AS A WHOLE. WORK ALSO INCLUDES GENERAL CONDITION ITEMS, AND APPURTENANCES, COMPLETE, IN PLACE AND ACCEPTED BY THE CITY.
- CONSTRUCTION STAKING BY THE CONTRACTOR** - WORK SHALL INCLUDE ALL COSTS OF LABOR, EQUIPMENT, AND MATERIALS REQUIRED TO/FOR CONSTRUCTION STAKING ESSENTIAL FOR THE CONTROL AND COMPLETION OF THE UTILITY PORTION OF THE PROJECT, IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN CONFORMITY WITH THE LINES, GRADES, AND DETAILS SHOWN HEREIN. THIS ITEM ALSO INCLUDES STAKING OF ALL STRUCTURES, WATER LINES, REUSE LINES, SANITARY SEWER LINES, AND OTHER UTILITY IMPROVEMENTS. MAINTENANCE OF ALL STAKING IS ALSO REQUIRED. THIS BID ITEM ALSO INCLUDES REPLACING ALL PROPERTY CORNERS BY A LICENSED SURVEYOR IN THE STATE OF NEW MEXICO THAT MUST BE REMOVED DURING CONSTRUCTION.
- IRRIGATION SPRINKLER SYSTEM REPAIR** - THE EXISTING REUSE SPRINKLER SYSTEM WITHIN WASHINGTON PARK HAS NOT BEEN FULLY FIELD LOCATED TO DETERMINE HORIZONTAL LOCATION OF ALL SPRINKLER LINES. THE CONTRACTOR SHALL BE AWARE THAT SPRINKLER LINES ARE PRESENT THROUGHOUT THE PARK; AN ALLOWANCE IS IN PLACE TO REPAIR DAMAGED LINES AS A RESULT OF TRENCH FOR THE INSTALLATION OF THE 18"Ø AWWA C-900 PVC WATERLINE THROUGH THE AREA. THE CONTRACTOR SHALL MAKE ALL REASONABLE EFFORTS TO PREVENT DAMAGE TO THE SPRINKLER LINES. NO ADDITIONAL PAYMENT SHALL BE MADE ABOVE AND BEYOND THE AMOUNT ACCOUNTED FOR IN THE ALLOWANCE. TO BILL AGAINST THE ALLOWANCE THE CONTRACTOR SHALL PROVIDE MATERIAL AND LABOR COSTS FOR REPAIRS MADE TO SPRINKLER LINES ONLY. THE CITY OF ALAMOGORDO WATER AND PARKS DEPARTMENT WILL ASSIST THE CONTRACTOR IN FIELD LOCATING SPRINKLER LINES PRIOR TO TRENCHING OPERATIONS.

NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.



NO.	REVISION DESCRIPTION	DATE	BY
4			
3			
2			
1			

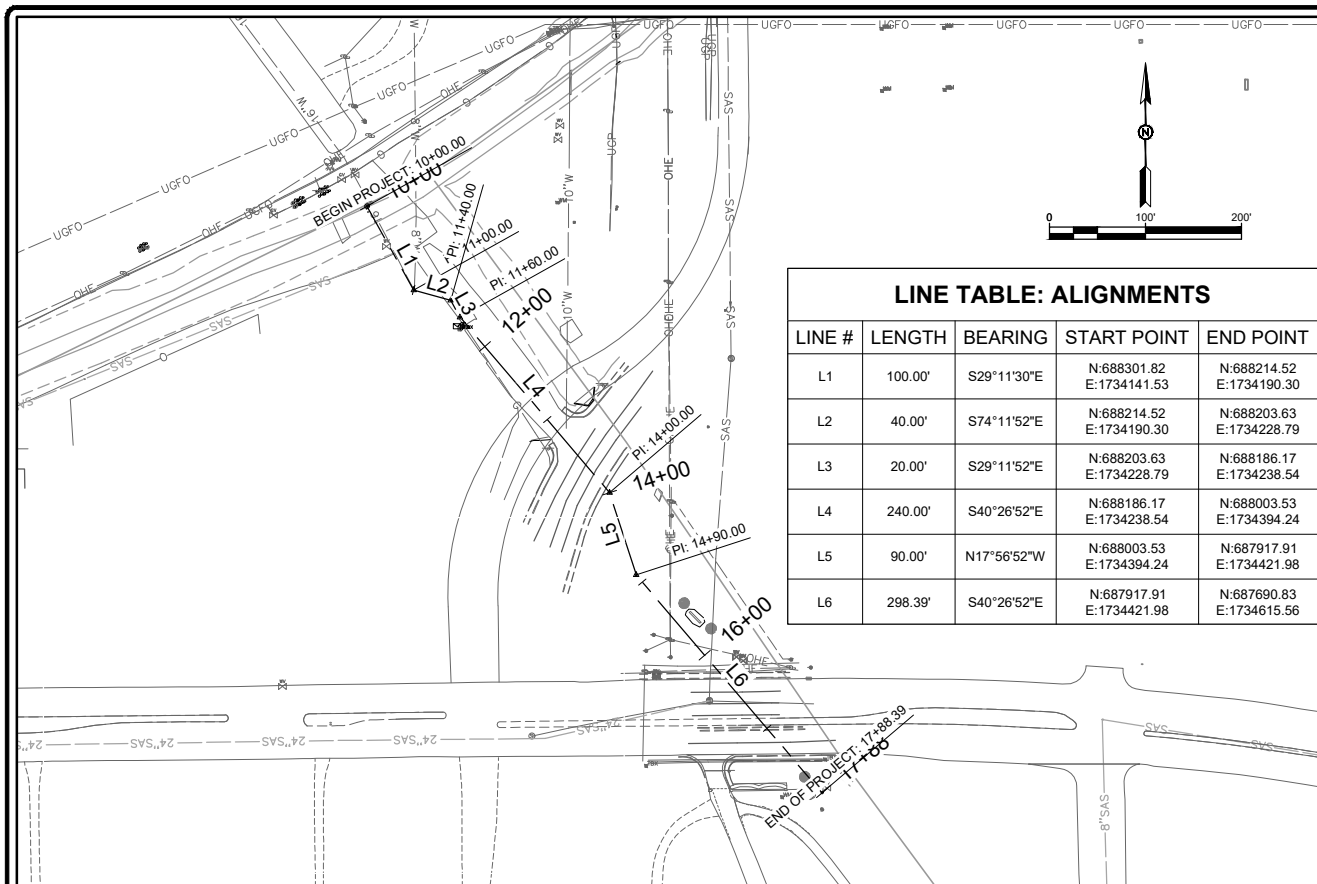
CITY OF ALAMOGORDO  
 OTERO COUNTY, NEW MEXICO  
  
 CITY OF ALAMOGORDO  
 CANYON ROAD WATER LINE EXTENSION  
  
 SUMMARY OF QUANTITIES

Solutions for Today...  
 Vision for Tomorrow  
 201 N Church Street  
 Suite 200A  
 Las Cruces, NM 88001  
 Phone: 575-523-2395  
 www.smithengineering.pro



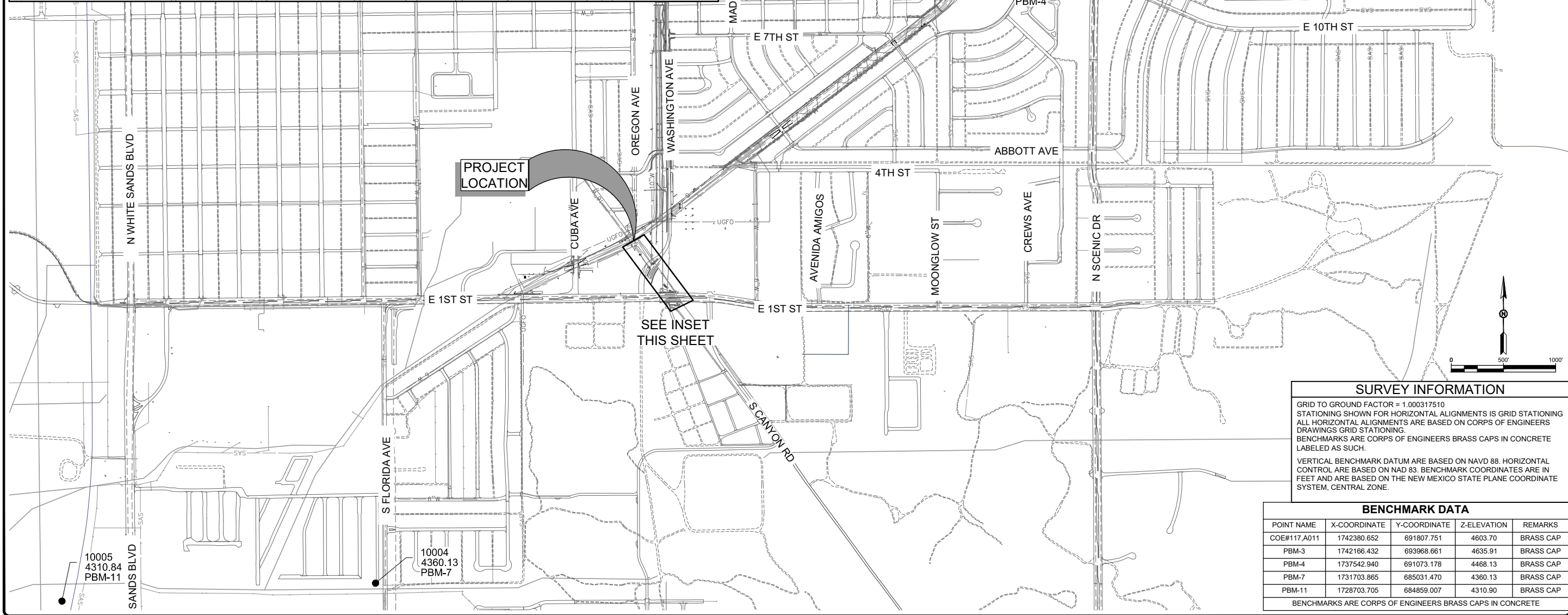
L:\SEC-PROJECTS\816102\_McKinley Channel Phase 8 Utility Relocation\ENGINEERING\CADD\PLANS\SET\Canyon Rd.Exr\Phase8\3-G-003 SUMMARY OF QUANTITIES.dwg Feb. 20, 2019 - 8:05am Saved By: rustyw





**LINE TABLE: ALIGNMENTS**

LINE #	LENGTH	BEARING	START POINT	END POINT
L1	100.00'	S29°11'30"E	N:688301.82 E:1734141.53	N:688214.52 E:1734190.30
L2	40.00'	S74°11'52"E	N:688214.52 E:1734190.30	N:688203.63 E:1734228.79
L3	20.00'	S29°11'52"E	N:688203.63 E:1734228.79	N:688186.17 E:1734238.54
L4	240.00'	S40°26'52"E	N:688186.17 E:1734238.54	N:688003.53 E:1734394.24
L5	90.00'	N17°56'52"W	N:688003.53 E:1734394.24	N:687917.91 E:1734421.98
L6	298.39'	S40°26'52"E	N:687917.91 E:1734421.98	N:687690.83 E:1734615.56



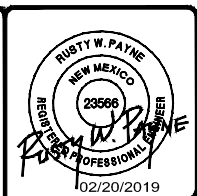
**SURVEY INFORMATION**

GRID TO GROUND FACTOR = 1.000317510  
 STATIONING SHOWN FOR HORIZONTAL ALIGNMENTS IS GRID STATIONING  
 ALL HORIZONTAL ALIGNMENTS ARE BASED ON CORPS OF ENGINEERS DRAWINGS GRID STATIONING.  
 BENCHMARKS ARE CORPS OF ENGINEERS BRASS CAPS IN CONCRETE LABELED AS SUCH.  
 VERTICAL BENCHMARK DATUM ARE BASED ON NAVD 88. HORIZONTAL CONTROL ARE BASED ON NAD 83. BENCHMARK COORDINATES ARE IN FEET AND ARE BASED ON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE.

**BENCHMARK DATA**

POINT NAME	X-COORDINATE	Y-COORDINATE	Z-ELEVATION	REMARKS
COE#117_A011	1742380.652	691807.751	4603.70	BRASS CAP
PBM-3	1742166.432	693968.661	4635.91	BRASS CAP
PBM-4	1737542.940	691073.178	4468.13	BRASS CAP
PBM-7	1731703.865	685031.470	4360.13	BRASS CAP
PBM-11	1728703.705	684859.007	4310.90	BRASS CAP

BENCHMARKS ARE CORPS OF ENGINEERS BRASS CAPS IN CONCRETE



CITY OF ALAMOGORDO  
OTERO COUNTY, NEW MEXICO

NO	REVISION DESCRIPTION	DATE	BY
5			
4			
3			
2			
1			

CITY OF ALAMOGORDO  
CANYON ROAD WATER LINE EXTENSION

HORIZONTAL CONTROL

Solutions for Today...  
Vision for Tomorrow

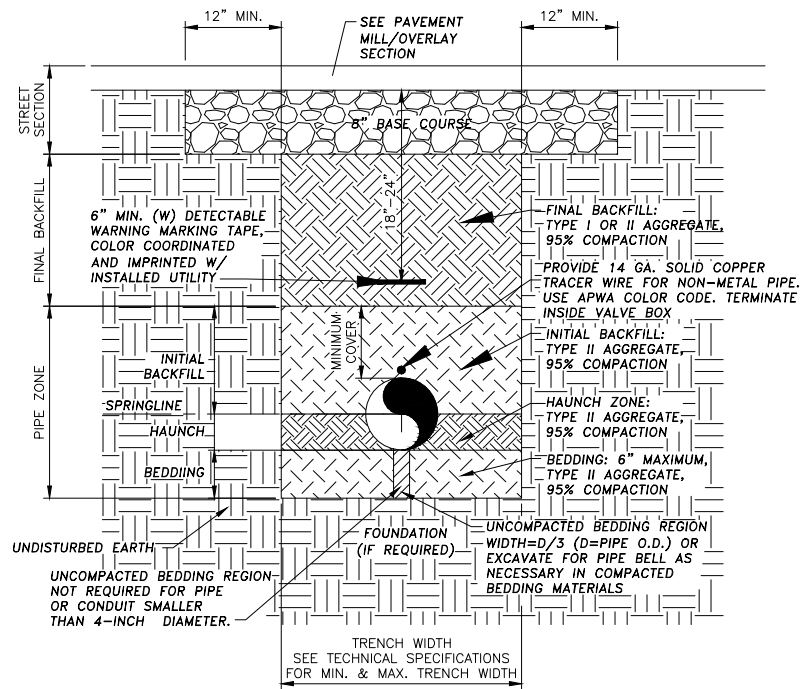
201 N Church Street  
Suite 200A  
Las Cruces, NM 88001  
Phone: 575-523-2395  
www.smithengineering-pro

JOB NO:  
816102

DATE:  
FEBRUARY 2019

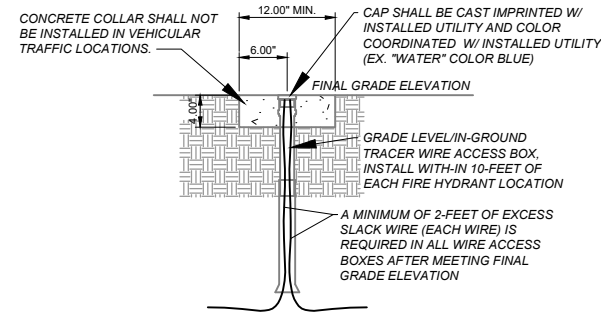
SHEET NO:  
4-G-004

L:\SEC-PROJECTS\816102\_McKinley Channel Phase 8 Utility Relocation\ENGINEERING\CAD\PLANSET\Canyon Rd Ext\PlanSet\4-G-004\_HORIZONTAL CONTROL.dwg Feb 20, 2019 - 8:07am Saved By: rustyw



**Utility Trench Cross-Section**

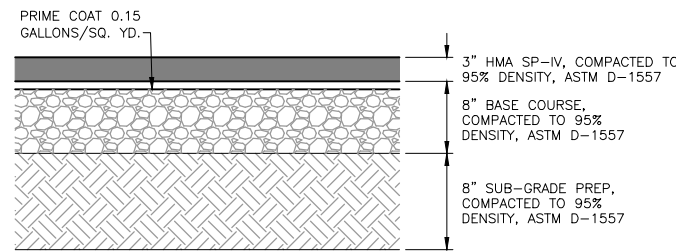
No Scale



**Tracer Wire Termination Detail**

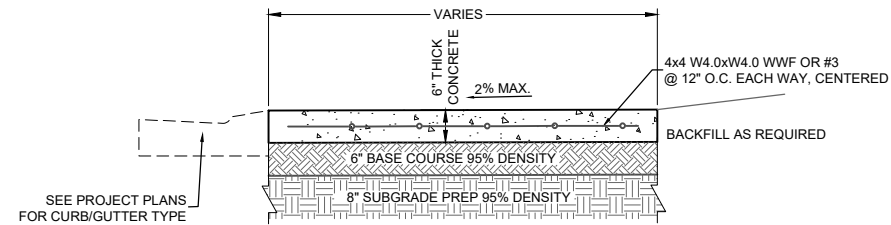
No Scale

- CONTRACTOR NOTE:
1. TRACER WIRE ACCESS BOXES SHALL BE LOCATED AT ALL FIRE HYDRANT LOCATIONS.
  2. TRACER WIRE ACCESS BOXES SPACING SHALL NOT EXCEED 500 LINEAR FEET.
  3. COORDINATOR WITH OWNER TRACER WIRE ACCESS BOXES FINAL LOCATION(S).



**Typical Pavement Section**

No Scale

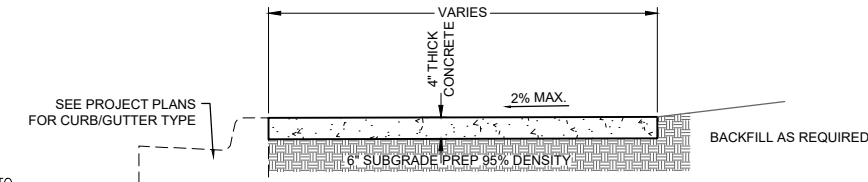


**6\"/>**

No Scale

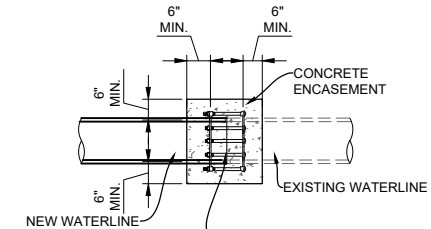
**GENERAL NOTES:**

1. CROSS SLOPE SHALL NOT EXCEED 2% MAXIMUM.
2. RAMP SLOPE SHALL NOT EXCEED 8.3% MAXIMUM.
3. CONTRACTOR SHALL FIELD VERIFY CROSS SLOPE AND RAMP SLOPE AND COORDINATE WITH ENGINEER ITEMS THAT MAY EXCEED THESE MAXIMUM REQUIREMENTS.
4. COORDINATE WITH OWNER/ENGINEER LIMITS OF REMOVAL.
5. COORDINATE WITH OWNER/ENGINEER LIMITS OF BACKFILL REQUIREMENTS.



**4\"/>**

No Scale

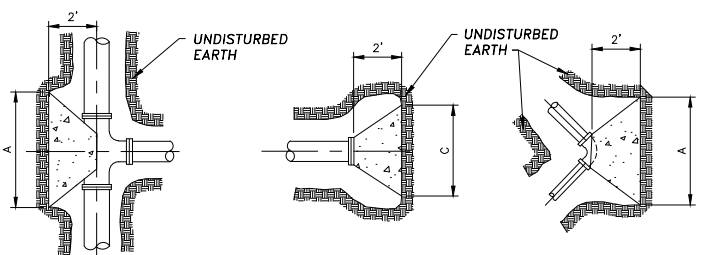


**WATERLINE TIE-IN DETAIL**

SCALE: NOT TO SCALE

**TYPE II AGGREGATE BASE BACKFILL GRADATION AND REQUIREMENTS**

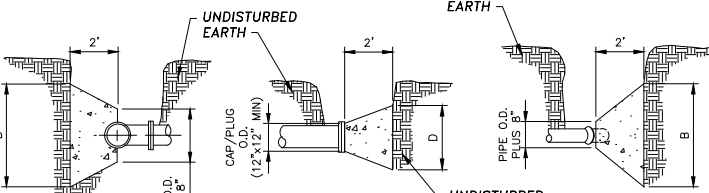
SIEVE SIZE	PERCENT OF DRY WEIGHT PASSING SIEVE
1-INCH	100
3/4-INCH	85 - 95
No. 4	40 - 70
No. 10	35 - 45
No. 16	25 - 35
No. 200	6 - 18
PLASTIC INDEX	12 MAXIMUM
LIQUID LIMITS	35 MAXIMUM
FRACTURED FACES	70% MINIMUM
TOTAL AVAILABLE WATER SOLUBLE SULFATES	35 MAXIMUM



**Plan View**

**Plan View**

**Plan View**



**Elevation**

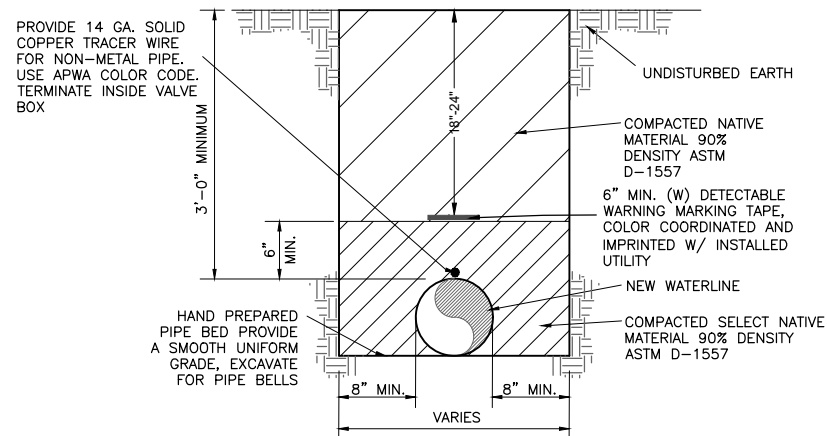
**Elevation**

**Elevation**

**Blocking for Tee Blocking for Plug/Cap Blocking for Elbow**

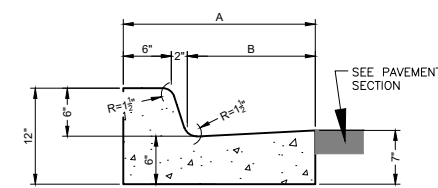
PIPE SIZE	TEE, CAP, PLUG, ELBOW ANGLE	A	B	C	D	PIPE SIZE	TEE, CAP, PLUG, ELBOW ANGLE	A	B	C	D
4"	TEE OR CAP/PLUG	2'	1'	-	-	10"	TEE OR CAP/PLUG	3'	3'	-	-
4"	90° 45°	-	-	2'	2'	10"	90°	-	-	3'-6"	3'-6"
4"	22 1/2° 11 1/4°	-	-	2'	2'	10"	45°	-	-	3'	3'
6"	TEE OR CAP/PLUG	2'	2'	-	-	10"	22 1/2° 11 1/4°	-	-	2'	2'
6"	90° 45°	-	-	2'	2'	12"	TEE OR CAP/PLUG	3'-6"	3'-6"	-	-
6"	22 1/2° 11 1/4°	-	-	2'	2'	12"	90°	-	-	4'	4'
8"	TEE OR CAP/PLUG	3'	3'	-	-	12"	45°	-	-	3'-6"	3'-6"
8"	90°	-	-	3'	3'	12"	22 1/2° 11 1/4°	-	-	2'	2'
8"	45°	-	-	2'	2'	14"	TEE OR CAP/PLUG	4'	4'	-	-
8"	22 1/2° 11 1/4°	-	-	2'	2'	14"	90°	-	-	5'	5'
						14"	45°	-	-	3'-6"	3'-6"
						14"	22 1/2° 11 1/4°	-	-	3'	3'

THE DIMENSIONS ON THE TABLE ARE FOR PIPE BEING TESTED UP TO 150 P.S.I.

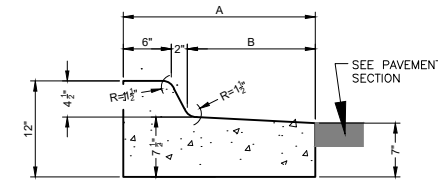


**TYPICAL WATER TRENCH**

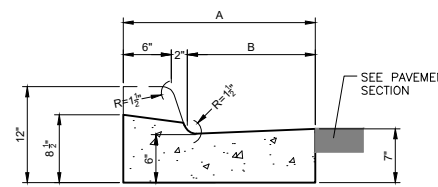
No Scale



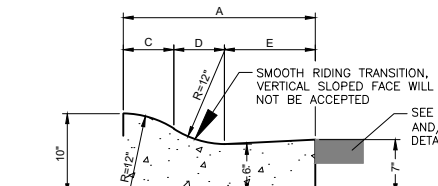
**STANDARD CURB & GUTTER**



**REVERSE SLOPE CURB & GUTTER**



**LAY-DOWN CURB & GUTTER**



**MOUNTABLE CURB & GUTTER**

CURB & GUTTER LEGEND			
TYPE	I	II	III
A	18"	24"	30"
B	10"	16"	22"
C	5 5/8"	5 5/8"	5 5/8"
D	5"	7"	7"
E	7 3/8"	11 3/8"	17 3/8"

**TYPICAL CURB AND GUTTER DETAIL**

No Scale

**GENERAL NOTES:**

1. NEW CURB/GUTTER PROFILE SHALL MATCH EXISTING ADJACENT CURB AND GUTTER AND/OR STREET PROFILE.
2. NEW CURB/GUTTER SHALL INCLUDE 8-INCH SUB-GRADE PREP.
3. NEW CURB/GUTTER SHALL INCLUDE 6-INCH BASE COURSE.
4. EDGES OF CURB/GUTTER NOT SPECIFICALLY DIMENSIONED SHALL BE EDGED WITH A 3/8" EDGING TOOL.
5. DIMENSIONS AT ROUNDED CORNERS MEASURED TO INTERSECTION OF STRAIGHT LINES.
6. PROVIDE CONTROL JOINTS EVERY 5'-0". CONTROL JOINT SHALL BE TOOL JOINTED WITH TOP ROUND EDGE OF 1/8-INCH RADIUS. DEPTH OF 1-INCH. THE FINISH JOINT OPENING EXCLUDING RADIUS SHALL NOT BE WIDER THAN 1/8-INCH.
7. PROVIDE 1/2" EXPANSION JOINTS EVERY 50'-0", ALONG CURB AND GUTTER.
8. TACK COAT EDGE OF GUTTER PRIOR TO PLACEMENT OF NEW PAVEMENT/PAVEMENT PATCH.
9. THE CONSTRUCTION OF CURB & GUTTER AND/OR PAVEMENT SHALL BE CONSTRUCTED SO THAT THE GUTTER FLOW WILL BE CONSTANT (NO FONDING AREAS WILL BE ACCEPTED).



CITY OF ALAMOGORDO  
OTERO COUNTY, NEW MEXICO

CITY OF ALAMOGORDO  
CANYON ROAD WATER LINE EXTENSION

CITY OF ALAMOGORDO STANDARD DETAILS

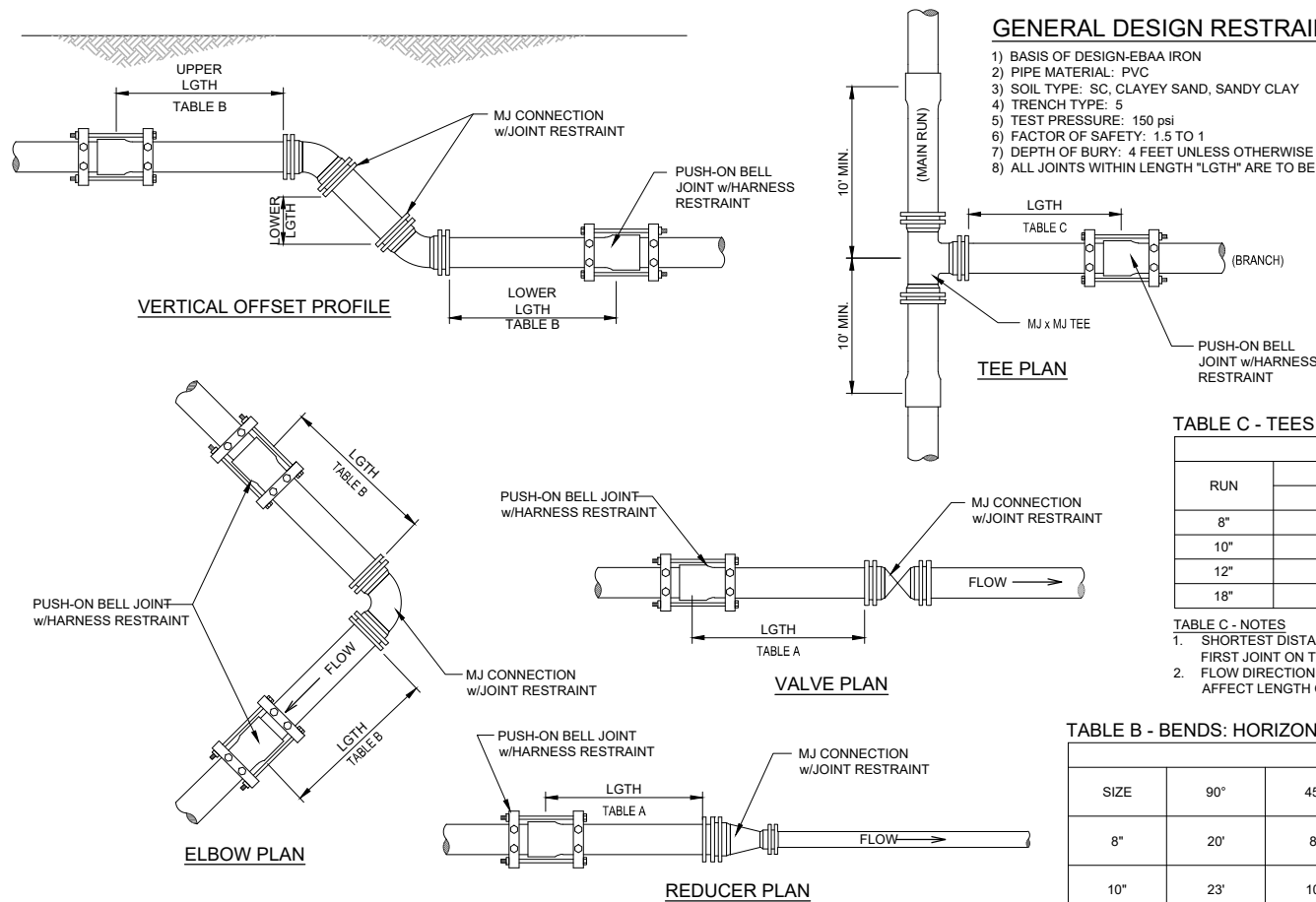
Solutions for Today...  
Vision for Tomorrow  
201 N Church Street  
Suite 200  
Las Cruces, NM 88001  
Phone: 575-523-2395  
www.smithengineering.pro



JOB NO:  
816102  
DATE:  
FEBRUARY 2019  
SHEET NO:  
5-C-001

NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

LISTEC-PROJECT 1818102\_MRFInlay Channel Phase 8\_Utility Relocation/ENGINEERING/CADD/PLANS/SET/Channel Rd\_EXP/Phase 8/DETAILS.dwg Feb 20, 2019 - 8:10am Saved By: rnsjy



**TABLE C - TEES**

RUN	LENGTH TO BE RESTRAINED			
	BRANCH (RESTRAINED)			
8"	1'	N/A	N/A	N/A
10"	1'	1'	N/A	N/A
12"	1'	1'	1'	N/A
18"	1'	1'	1'	1'

**TABLE C - NOTES**

1. SHORTEST DISTANCE BETWEEN THE TEE END AND FIRST JOINT ON THE MAIN RUN IS 10-FEET.
2. FLOW DIRECTION THROUGH THE TEE DOES NOT AFFECT LENGTH OR JOINT TO BE RESTRAINED.

**TABLE B - BENDS: HORIZONTAL & VERTICAL OFFSET**

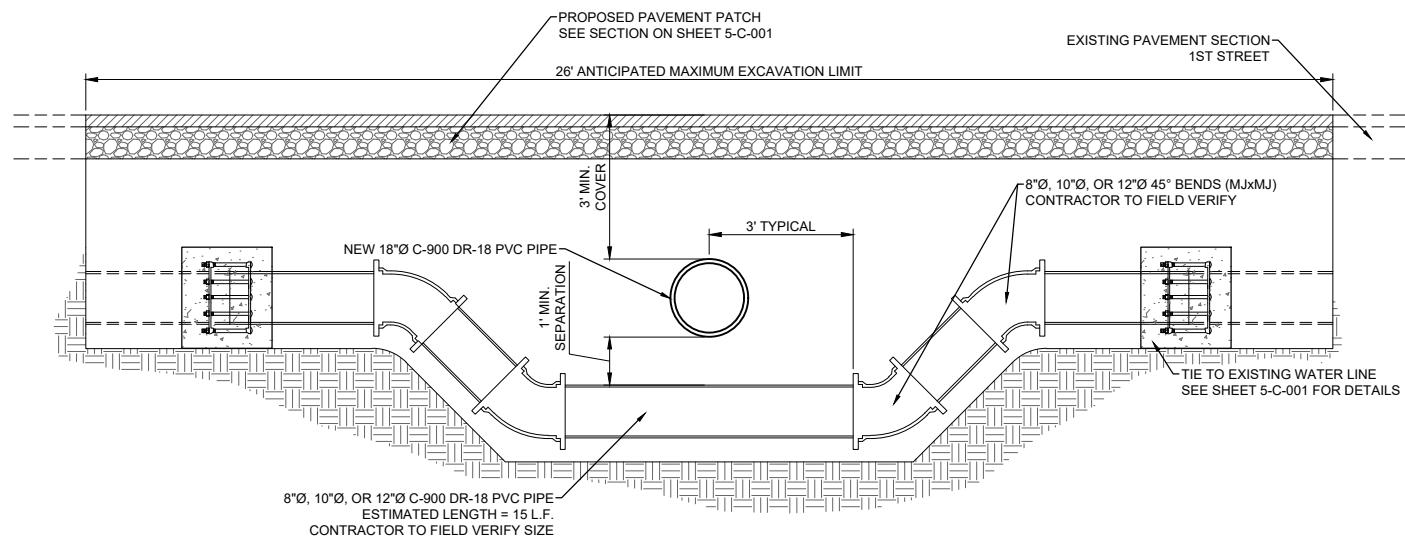
SIZE	LENGTH TO BE RESTRAINED							
	90°	45°	22.5°	11.25°	45° VERT.	22.5° VERT.	11.25° VERT.	DEAD END
					6' LOW DEPTH	6' LOW DEPTH	6' LOW DEPTH	
8"	20'	8'	4'	2'	34' UPPER 6' LOWER	16' UPPER 3' LOWER	8' UPPER 2' LOWER	62'
10"	23'	10'	5'	3'	40' UPPER 8' LOWER	20' UPPER 4' LOWER	10' UPPER 2' LOWER	75'
12"	27'	12'	6'	3'	47' UPPER 9' LOWER	23' UPPER 5' LOWER	12' UPPER 2' LOWER	89'
18"	39'	16'	8'	4'	68' UPPER 12' LOWER	33' UPPER 6' LOWER	16' UPPER 3' LOWER	127'

**MINIMUM VERTICAL SEPARATION BETWEEN UTILITIES**  
 (MEASURED FROM OUTER SURFACE OF UTILITY)

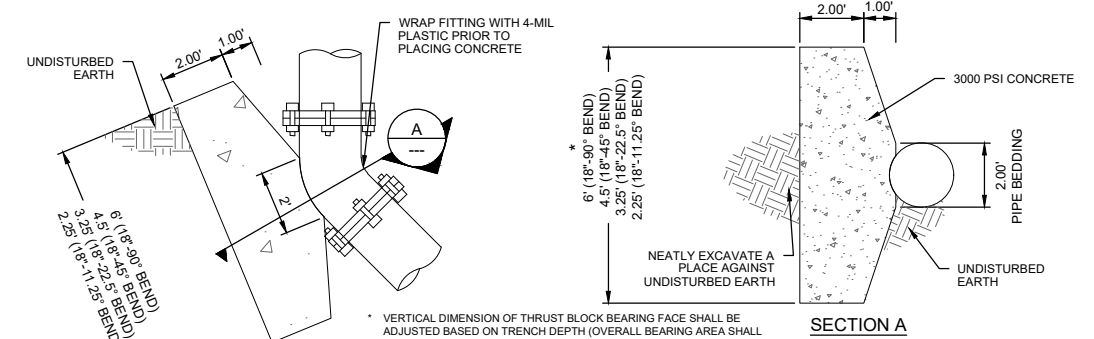
	POTABLE WATER LINE
GAS MAIN*	12 INCHES
GAS SERVICE	6 INCHES
WATER MAIN	12 INCHES
REUSE WATER LINE	12 INCHES
WATER SERVICE	6 INCHES
SANITARY SEWER MAIN	24 INCHES
SANITARY SEWER SERVICE	6 INCHES
STORM SEWER MAIN	12 INCHES

\* THE VERTICAL SEPARATIONS LISTED FOR GAS MAINS APPLY TO POLY LINES ONLY AND DO NOT APPLY TO STEEL GAS LINES. VERTICAL SEPARATION FROM STEEL GAS LINES SHALL BE 24-INCHES FOR A HIGH PRESSURE AND 18-INCHES FOR LOW PRESSURE.

**AWWA C-900 PVC WATERLINE MECHANICAL JOINT RESTRAINT DETAIL**  
 NOT TO SCALE



**EXISTING WATERLINE LOWERING DETAIL**  
 NOT TO SCALE



**BEARING AREA CALCULATIONS:**

$$A_b = \frac{S_1 \cdot T}{S_2}$$

$$T = S_1 \cdot 2 \cdot P \cdot A \cdot \sin(\text{ANGLE}/2)$$

$A_b$  - BEARING AREA (SF)  
 $S_1$  - SAFETY FACTOR (1.5)  
 $T$  - THRUST FORCE (LBS)  
 $S_2$  - ALLOWABLE SOIL BEARING CAPACITY  
 $P$  - DESIGN TEST PRESSURE (PSI)  
 $A$  - CROSS SECTIONAL AREA (IN<sup>2</sup>)  
 ANGLE - FITTING ANGLE (°)

**BEARING AREA SAMPLE CALCULATION:**

$$T_{18" \text{ D.I.P. } 90^\circ \text{ BEND}} = 2 \cdot P \cdot A \cdot \sin(\text{ANGLE}/2) = 2 \cdot 150 \text{ PSI} \cdot 232.35 \text{ IN}^2 \cdot \sin(90^\circ/2) = 49,288.9 \text{ LBS}$$

$$A_b_{18" \text{ D.I.P. } 90^\circ \text{ BEND}} = \frac{S_1 \cdot T}{S_2} = \frac{1.5 \cdot 49,288.9 \text{ LBS}}{2,000 \text{ PSF}} = 39.97 \text{ FT}^2$$

**BLOCKING DESIGN REQUIREMENT NOTES:**

1. CONCRETE STRENGTH FC = 3,000 PSI AT 28 DAYS.
2. STANDARD THRUST BLOCKING IS BASED ON THE FOLLOWING DESIGN ASSUMPTIONS AND LIMITATIONS:
  - 2.1. TEST PRESSURE IS 150 PSI OR LOWER
  - 2.2. DEPTH FROM FINISHED GRADE TO TOP OF PIPE ASSUME TO EQUAL 4'-0" OR GREATER.
  - 2.3. ELEVATION OF GROUNDWATER TABLE ASSUMED TO BE BELOW BOTTOM OF THE THRUST BLOCK.
  - 2.4. ALLOWABLE SOIL BEARING CAPACITY IS ASSUMED TO BE 2,000 PSF PER GEOTECHNICAL DESIGN DOCUMENTATION REPORT (DDR) ALAMOGORDO FLOOD CONTROL - PHASE VII MCKINLEY CHANNEL.
3. A 1.5 SAFETY FACTOR IS INCLUDED IN THE BEARING AREA CALCULATIONS.

**18" DIAMETER WATER TRANSMISSION LINE THRUST BLOCK DETAIL:**  
 SCALE = NOT TO SCALE



CITY OF ALAMOGORDO  
 OTERO COUNTY, NEW MEXICO

CITY OF ALAMOGORDO  
 CANYON ROAD WATER LINE EXTENSION

UTILITY DETAILS

Solutions for Tomorrow  
 Vision for Tomorrow  
 201 N Church Street  
 Suite 200A  
 Las Cruces, NM 88001  
 Phone: 575-523-2395  
 www.smithengineering.pro

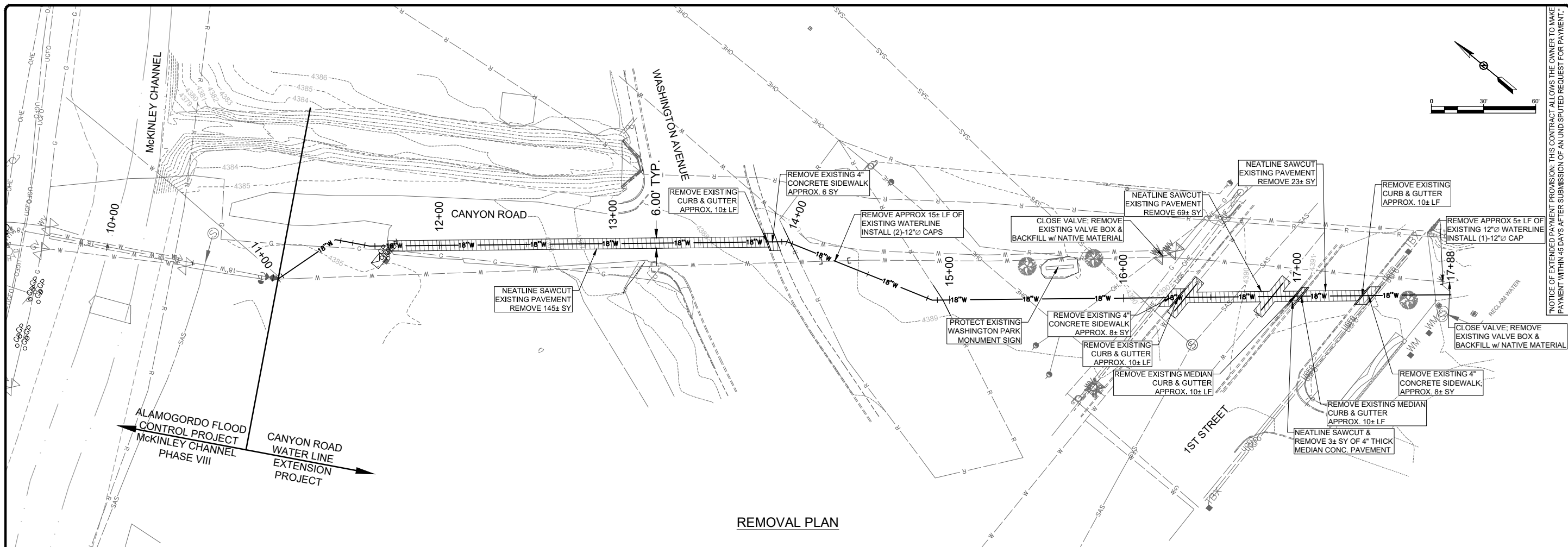


JOB NO:  
 816102  
 DATE:  
 FEBRUARY 2019  
 SHEET NO:  
 6-C-003

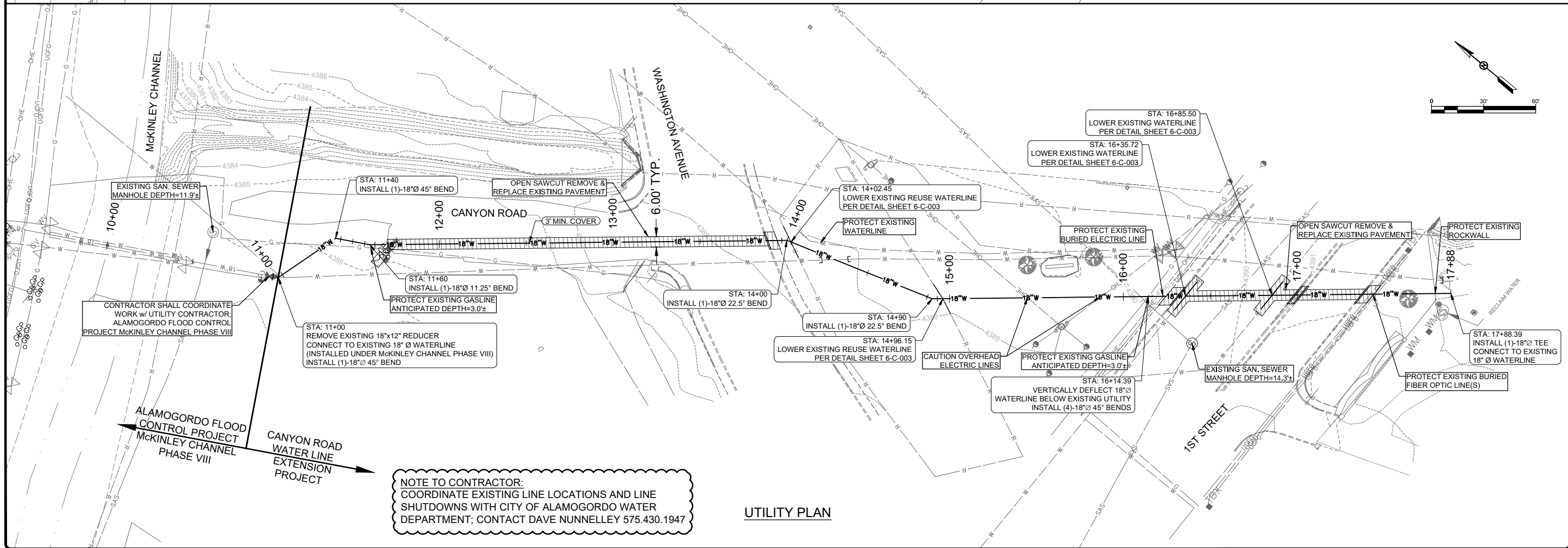
NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

LISTED PROJECT 1816102 McKinley Channel Phase 8 Utility Relocation/ENGINEERING/CADD/PLANS/SET/CONTRACT/UTILITY DETAILS.dwg, Feb 20, 2019 - 8:11 am Saved By: rusty



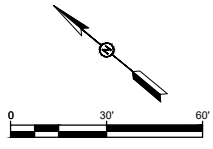


REMOVAL PLAN



UTILITY PLAN

NOTE TO CONTRACTOR:  
 COORDINATE EXISTING LINE LOCATIONS AND LINE  
 SHUTDOWNS WITH CITY OF ALAMOGORDO WATER  
 DEPARTMENT; CONTACT DAVE NUNNELLEY 575.430.1947



NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

RUSTY W. PAYNE  
 NEW MEXICO  
 23666  
 PROFESSIONAL ENGINEER  
 02/20/2019

NO	REVISION DESCRIPTION	DATE	BY
5			
4			
3			
2			
1			

CITY OF ALAMOGORDO  
 OTERO COUNTY, NEW MEXICO  
  
 CITY OF ALAMOGORDO  
 CANYON ROAD WATER LINE EXTENSION  
 WATERLINE LAYOUT

Solutions for Today...  
 Vision for Tomorrow  
 201 N Church Street  
 Suite 200A  
 Las Cruces, NM 88001  
 Phone: 575-523-2395  
 www.smithengineering.pro



JOB NO:  
 816102  
 DATE:  
 FEBRUARY 2019  
 SHEET NO:  
 7-C-004

L:\SEC-PROJECTS\816102 McKinley Channel Phase 8 Utility Relocation\ENGINEERING\CADD\PLANS\Canyon Rd Exp\Phase7-C-004 WATERLINE LAYOUT.dwg Feb 20, 2019 - 9:16am Saved By: rusty

**TRAFFIC CONTROL NOTES**

- PLACING, RELOCATING, AND MAINTENANCE OF TRAFFIC CONTROL DEVICES AS SHOWN ON THE PLANS, OR AS DIRECTED BY THE PROJECT MANAGER ARE TO BE INCIDENTAL TO THE LUMP SUM BID PRICE.
- ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION - SECTION 702 (LATEST EDITION) AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION) AND CURRENT REVISIONS.
- ALL CONSTRUCTION SIGNING SHALL BE BLACK ON REFLECTIVE (TYPE III) ORANGE, UNLESS OTHERWISE SPECIFIED. ALL CONSTRUCTION BARRICADES AND CHANNELIZATION DEVICES SHALL BE WHITE ON ORANGE REFLECTORIZED UNLESS OTHERWISE SPECIFIED.
- STEEL POSTS AND BASE POSTS FOR CONST. SIGNS: THE CONTRACTOR SHALL HAVE THE OPTION OF SUPPLYING EITHER THE FLANGED CHANNEL OR THE DRIVEDOWN POST AS PER NEW MEXICO STANDARD SERIALS - SN 75-1-1/2 & SN 75-1-2/2
- TYPE III BARRICADE - 8.0 FT. ATTACHED TYPE "A" FLASHING BEACONS AND PLYWOOD SIGNS ARE TO BE INCIDENTAL TO BID PRICE.
- FLAGGING SHALL BE PROVIDED FOR SAFETY AND/OR AS DIRECTED BY THE PROJECT MANAGER. FLAGGERS SHALL USE STOP/SLOW PADDLES (18"x18" MIN) IN ACCORDANCE WITH THE MUTCD. THE FLAGGER, APPLICABLE SIGNS AND OTHER RELATED ITEMS SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, NO PAYMENT OR MEASUREMENT WILL BE MADE THEREFOR.
- CHANNELIZATION DEVICE, TYPE-DRUM: SHALL BE EQUIPPED WITH BEACON ONLY ON CHANNELIZATION TAPERS, AS SPECIFIED IN THE STANDARD AND SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SECTION 702, LATEST EDITION.
- THE PROVISIONS AS INCLUDED IN THE PLANS AND SPECIFICATIONS FOR HANDLING AND CONTROLLING TRAFFIC DURING CONSTRUCTION OF THE PROJECT MAY BE CHANGED BY THE PROJECT MANAGER. SHOULD FIELD CONDITIONS WARRANT A CHANGE IN THE PLAN, THEY SHALL BE ISSUED IN WRITING TO THE CONTRACTOR AND SHALL BE CONSIDERED AN AMENDMENT TO THE PLANS AS OF THE DATE OF THE CHANGE.
- THE CONTRACTOR SHALL SUBMIT ANY PROPOSED CHANGES IN THE TRAFFIC CONTROL PLAN TO THE PROJECT MANAGER FOR APPROVAL TWO WEEKS IN ADVANCE OF ANTICIPATED CHANGE.
- THE CONTRACTOR SHALL HAVE A RESPONSIBLE PERSON ON SITE DURING WORKING HOURS AND ON CALL DURING NON-WORKING HOURS TO INSPECT AND MAINTAIN PROJECT TRAFFIC CONTROL AS DIRECTED BY THE PROJECT MANAGER.
- ALL NON-APPLICABLE SIGNING SHALL BE REMOVED OR COVERED COMPLETELY WITH AN OPAQUE NON-LIGHT TRANSMITTING MATERIAL. ALL REMAINING, NON-APPLICABLE TRAFFIC CONTROL DEVICES ARE TO BE REMOVED AND STORED AT LOCATIONS DESIGNATED BY THE PROJECT MANAGER.
- WHEN DIRECTED, THE CONTRACTOR SHALL PLACE REFLECTIVE MARKINGS (ITEM 704000) ON EACH LIFT OF SURFACING (EXCEPT 5/8" OPEN GRADED FRICTION COURSE) AT THE END OF EACH DAYS OPERATION. THESE MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE DETAILS SHOWN IN FIGURE 2 ON THIS SHEET. IN THE EVENT THAT THE PAINTED MARKINGS CANNOT BE PLACED AS DESCRIBED ABOVE, THE CONTRACTOR SHALL WITH APPROVAL OF THE PROJECT MANAGER, PLACE NON-REMOVABLE MARKING TAPE (ITEM 704110) IN ACCORDANCE WITH THE DETAILS SHOWN IN FIGURE 1 ON THIS SHEET AND PAYMENT SHALL BE MADE USING THE UNIT PRICE OF REFLECTORIZED PAINTED MARKINGS - ITEM 704000
- IN AREAS ADJACENT TO THE EXISTING TRAVEL LANE, THE CONTRACTOR SHALL ASSURE THAT NO

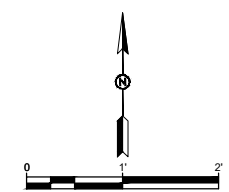
- PAVEMENT DROP-OFFS ARE LEFT EXPOSED DURING NON-WORKING HOURS. THE CONTRACTOR SHALL INITIATE CORRECTIVE MEANS PER THE "NMDOT PAVEMENT DROP-OFF GUIDELINE" TO ACHIEVE A MINIMUM 3:1 SLOPE. THIS WORK SHALL BE INCIDENTAL TO PAVEMENT OPERATIONS ADJACENT TO EXISTING TRAVELED LANES, SEE FIGURE 2.
- THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS AND TURNOUTS AT ALL TIMES.
  - FLOODLIGHTS SHALL BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED. THIS SHALL BE CONSIDERED INCIDENTAL TO COMPLETION OF THE PROJECT AND THEREFORE NO PAYMENT WILL BE MADE.
  - FLASHING WARNING LIGHTS AND/OR FLAGS MAY BE USED TO CALL ATTENTION TO THE ADVANCED WARNING SIGNS.
  - AS PER SECTION 618 -- TRAFFIC CONTROL MANAGEMENT - OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, LATEST EDITION, THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL DIARIES. THEY ARE TO BE OBTAINED FROM THE ASSOCIATED CONTRACTORS OF NEW MEXICO OFFICE.
  - ALL CROSS OVERS SHALL BE MARKED WITH REMOVABLE MARKING TAPE AND RAISED PAVEMENT MARKERS.
  - THROUGHOUT THE LIFE OF THE PROJECT, THE CONTRACTOR SHALL COORDINATE WITH THE CITY PROJECT MANAGER FOR PUBLIC SERVICE ANNOUNCEMENTS RELATED TO LANE CLOSURES AND CONSTRUCTION PHASES WHICH WILL RESTRICT THE NORMAL FLOW OF TRAFFIC. THERE WILL BE NO DIRECT MEASUREMENT OR PAYMENT FOR THIS COORDINATION.

**SUGGESTED SEQUENCE OF CONSTRUCTION**

- THE CONTRACTOR MAY INITIATE CONSTRUCTION ACTIVITIES ON EITHER END OF THE PROPOSED WATERLINE INSTALLATION.
- THE CONTRACTOR SHALL PHASE THEIR CONSTRUCTION ACTIVITIES TO MINIMIZE CLOSURE DURATIONS AT WASHINGTON AVENUE AND AT 1ST STREET.
- CLOSURES ALONG 1ST STREET (WEST AND EAST BOUND) WILL BE LIMITED TO A SINGLE DIRECTION AT ANY ONE TIME.
- THE TRAFFIC CONTROL PHASE LAYOUTS INCLUDED HEREIN ARE INTENDED AS A GENERAL GUIDE FOR THE DETOURING OF TRAFFIC AND POSSIBLE CLOSURES OF STREET(S) IMPACTED BY CONSTRUCTION ACTIVITIES. SHOULD THE CONTRACTOR WISH TO MODIFY THE TRAFFIC CONTROL PLANS, A NEW TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL. NO ADDITIONAL PAYMENT WILL BE MADE FOR DEVELOPMENT OF SUCH PLANS OR FOR THEIR IMPLEMENTATION ON THIS PROJECT.

**CONSTRUCTION PHASING AS SHOWN HEREIN:**

- PHASE I - 18" WATERLINE INSTALLATION WITHIN THE PAVED PARKING AREA (CANYON ROAD).
- PHASE II - 18" WATERLINE INSTALLATION ACROSS WASHINGTON AVENUE.
- PHASE III - 18" WATERLINE INSTALLATION ACROSS WASHINGTON PARK.
- PHASE IV - 18" WATERLINE INSTALLATION ACROSS THE WEST (NORTH SIDE OF STREET) BOUND LANES ALONG 1ST STREET.
- PHASE V - 18" WATERLINE INSTALLATION ACROSS THE EAST (SOUTH SIDE OF STREET) BOUND LANES ALONG 1ST STREET.



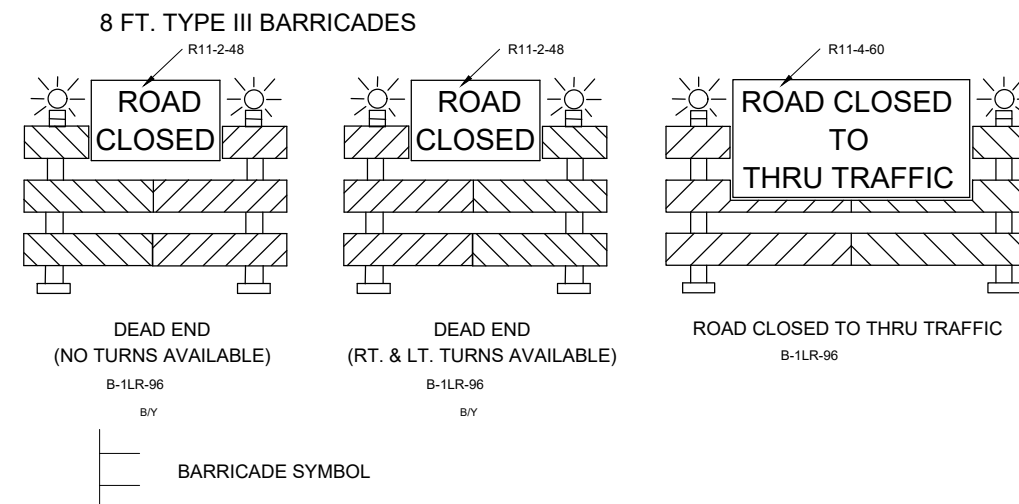
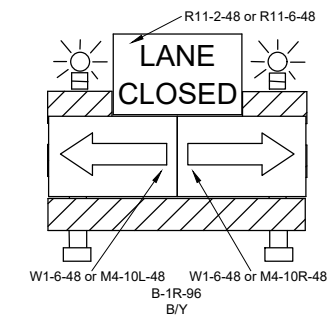
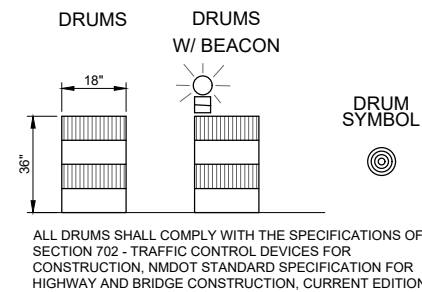
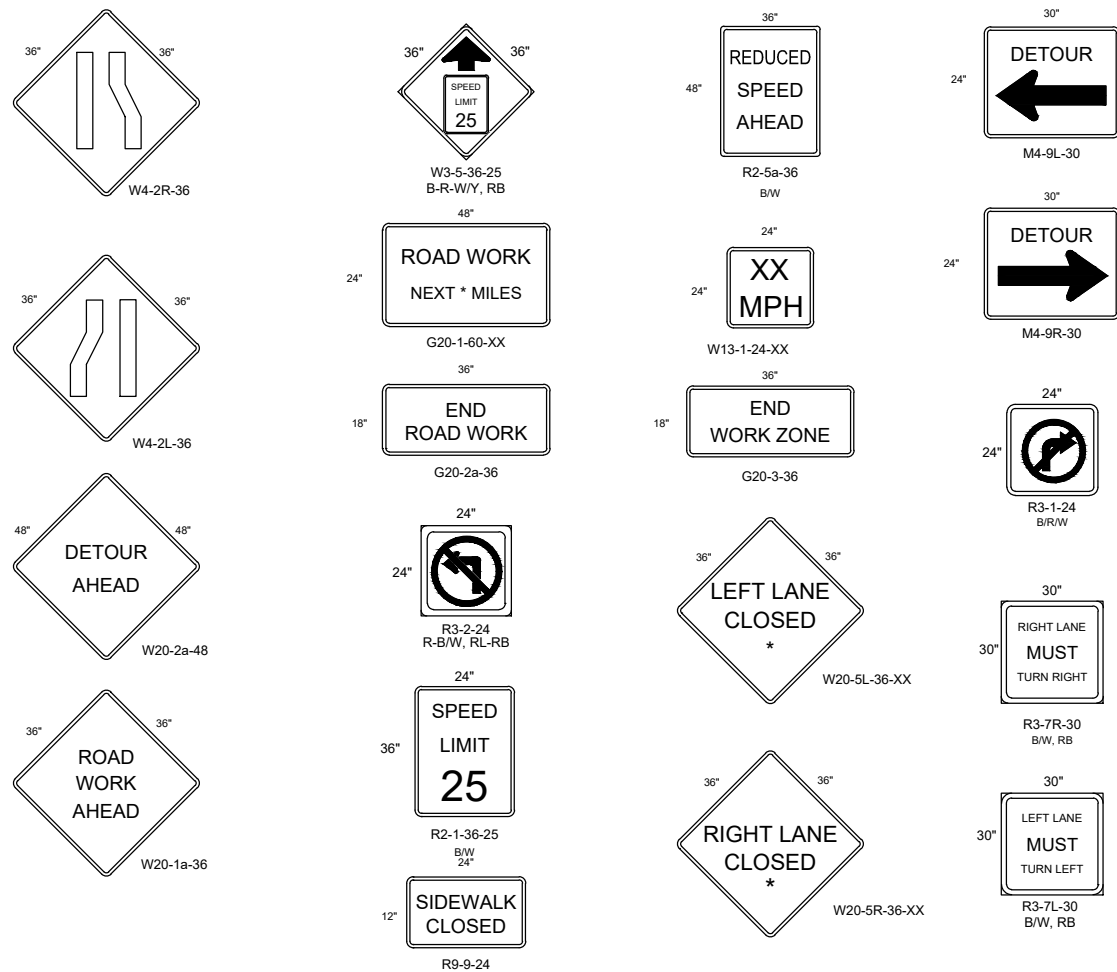
NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.



CITY OF ALAMOGORDO OTERO COUNTY, NEW MEXICO	NO.	1	DATE	BY
	2			
	3			
	4			
	5			

CITY OF ALAMOGORDO  
CANYON ROAD WATER LINE EXTENSION  
TRAFFIC CONTROL NOTES & DETAILS

**TRAFFIC CONTROL SIGN FACE DETAILS**

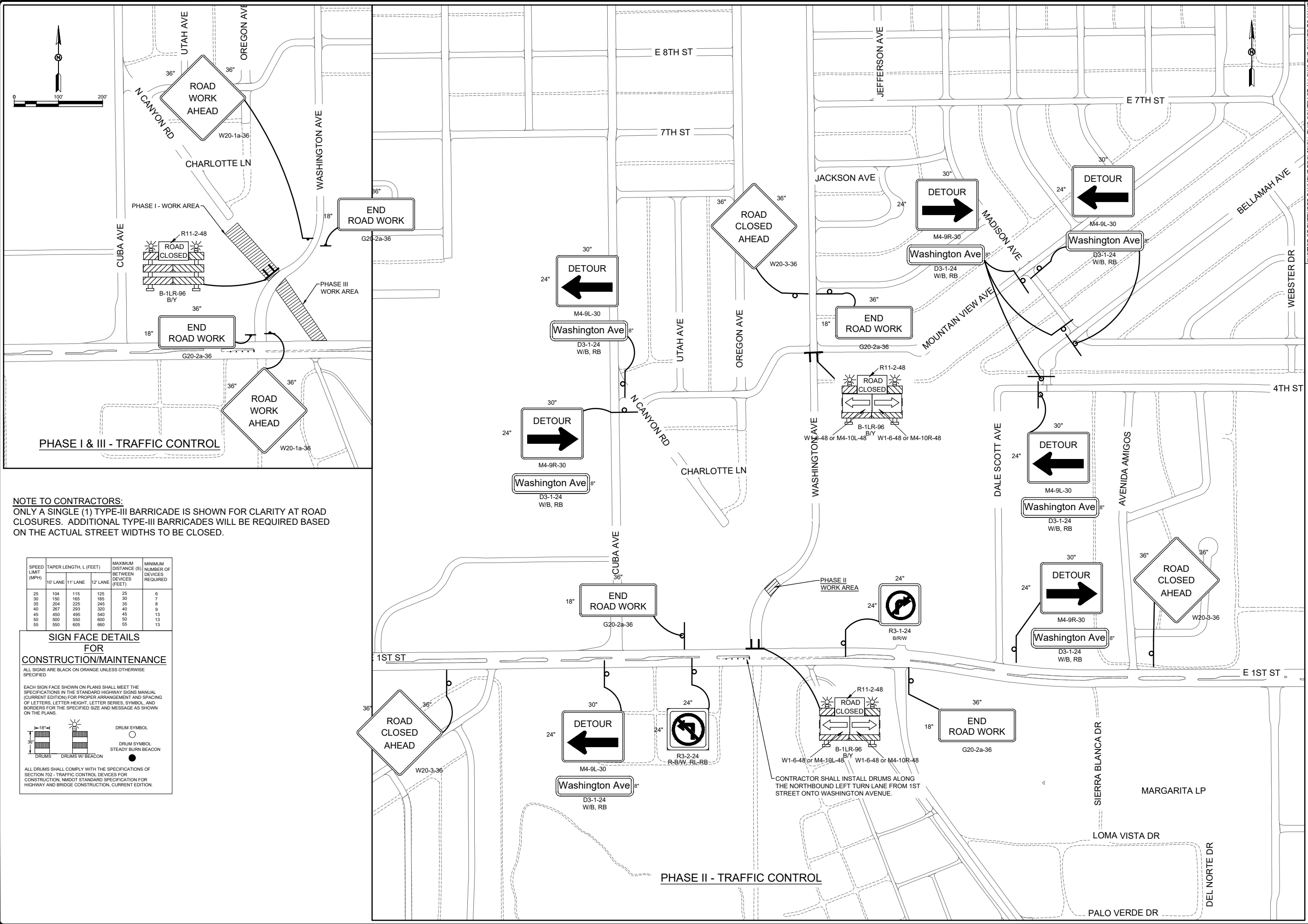


Solutions for Today...  
Vision for Tomorrow  
201 N Church Street  
Suite 200A  
Las Cruces, NM 88001  
Phone: 575-523-2395  
www.smithengineering.pro



JOB NO: 816102  
DATE: FEBRUARY 2019  
SHEET NO: 8-C-005





**NOTE TO CONTRACTORS:**  
 ONLY A SINGLE (1) TYPE-III BARRICADE IS SHOWN FOR CLARITY AT ROAD CLOSURES. ADDITIONAL TYPE-III BARRICADES WILL BE REQUIRED BASED ON THE ACTUAL STREET WIDTHS TO BE CLOSED.

SPEED LIMIT (MPH)	TAPER LENGTH, L (FEET)			MAXIMUM DISTANCE (S) BETWEEN DEVICES (FEET)	MINIMUM NUMBER OF DEVICES REQUIRED
	10' LANE	11' LANE	12' LANE		
25	104	115	125	25	6
30	150	165	185	30	7
35	204	225	245	35	8
40	267	293	320	40	9
45	450	495	540	45	13
50	500	550	600	50	13
55	550	605	660	55	13

**SIGN FACE DETAILS FOR CONSTRUCTION/MAINTENANCE**

ALL SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE SPECIFIED

EACH SIGN FACE SHOWN ON PLANS SHALL MEET THE SPECIFICATIONS IN THE STANDARD HIGHWAY SIGNS MANUAL (CURRENT EDITION) FOR PROPER ARRANGEMENT AND SPACING OF LETTERS, LETTER HEIGHT, LETTER SERIES, SYMBOL, AND BORDERS FOR THE SPECIFIED SIZE AND MESSAGE AS SHOWN ON THE PLANS.

ALL DRUMS SHALL COMPLY WITH THE SPECIFICATIONS OF SECTION 702 - TRAFFIC CONTROL DEVICES FOR CONSTRUCTION, NMDOT STANDARD SPECIFICATION FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT EDITION.

NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

**RUSTY W. PAYNE**  
 23566  
 PROFESSIONAL ENGINEER  
 02/20/2019

NO.	REVISION DESCRIPTION	DATE	BY
5			
4			
3			
2			
1			

CITY OF ALAMOGORDO  
 OTERO COUNTY, NEW MEXICO

CITY OF ALAMOGORDO  
 CANYON ROAD WATER LINE EXTENSION

TRAFFIC CONTROL PHASE I THROUGH III

Solutions for Today...  
 Vision for Tomorrow

201 N Church Street  
 Suite 200A  
 Las Cruces, NM 88001  
 Phone: 575-523-2395  
 www.smithengineering.pro

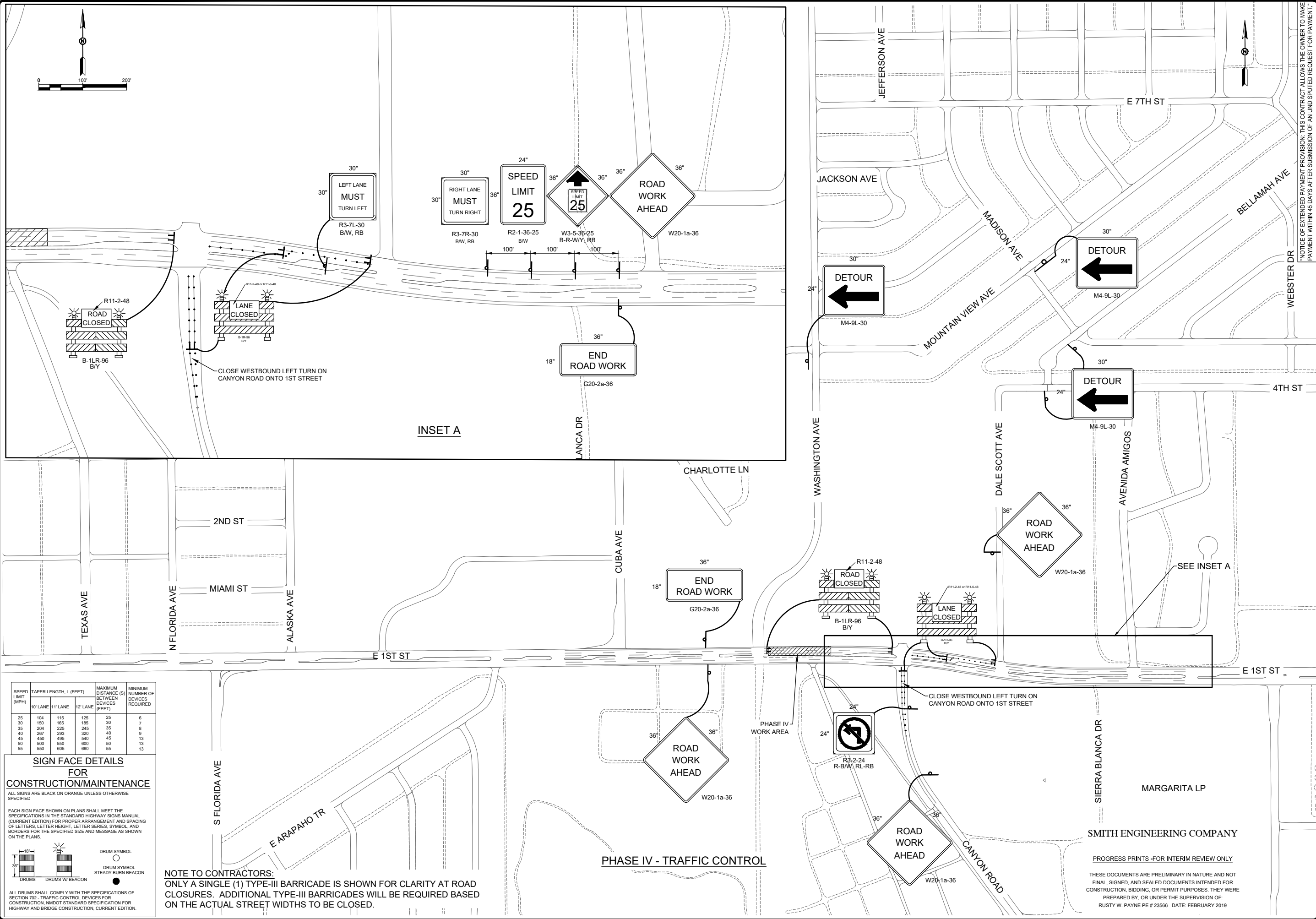
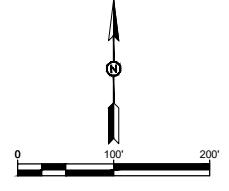


JOB NO:  
816102

DATE:  
FEBRUARY 2019

SHEET NO:  
9-C-006

USDC-PROJECT 1818102 McKinley Channel Phase 8 Utility Relocation/ENGINEERING/CADD/PLANS/SET/Canyon Rd Exp/Phase I/C-006 TRAFFIC CONTROL PHASE I THROUGH III.dwg, Feb 20, 2019 - 9:27am Saved By: rusty

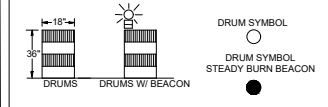


SPEED LIMIT (MPH)	TAPER LENGTH, L (FEET)			MAXIMUM DISTANCE (S) BETWEEN DEVICES (FEET)	MINIMUM NUMBER OF DEVICES REQUIRED
	10' LANE	11' LANE	12' LANE		
25	104	115	125	25	6
30	150	165	185	30	7
35	204	225	245	35	8
40	267	293	320	40	9
45	450	495	540	45	13
50	550	600	650	50	13
55	550	605	660	55	13

**SIGN FACE DETAILS FOR CONSTRUCTION/MAINTENANCE**

ALL SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE SPECIFIED

EACH SIGN FACE SHOWN ON PLANS SHALL MEET THE SPECIFICATIONS IN THE STANDARD HIGHWAY SIGNS MANUAL (CURRENT EDITION) FOR PROPER ARRANGEMENT AND SPACING OF LETTERS, LETTER HEIGHT, LETTER SERIES, SYMBOL, AND BORDERS FOR THE SPECIFIED SIZE AND MESSAGE AS SHOWN ON THE PLANS.



ALL DRUMS SHALL COMPLY WITH THE SPECIFICATIONS OF SECTION 702 - TRAFFIC CONTROL DEVICES FOR CONSTRUCTION, NMDOT STANDARD SPECIFICATION FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT EDITION.

**NOTE TO CONTRACTORS:**  
 ONLY A SINGLE (1) TYPE-III BARRICADE IS SHOWN FOR CLARITY AT ROAD CLOSURES. ADDITIONAL TYPE-III BARRICADES WILL BE REQUIRED BASED ON THE ACTUAL STREET WIDTHS TO BE CLOSED.

NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.



NO	REVISION DESCRIPTION	DATE	BY
5			
4			
3			
2			
1			

CITY OF ALAMOGORDO  
 OTERO COUNTY, NEW MEXICO

CITY OF ALAMOGORDO  
 CANYON ROAD WATER LINE EXTENSION

TRAFFIC CONTROL PHASE IV

Solutions for Today...  
 Vision for Tomorrow

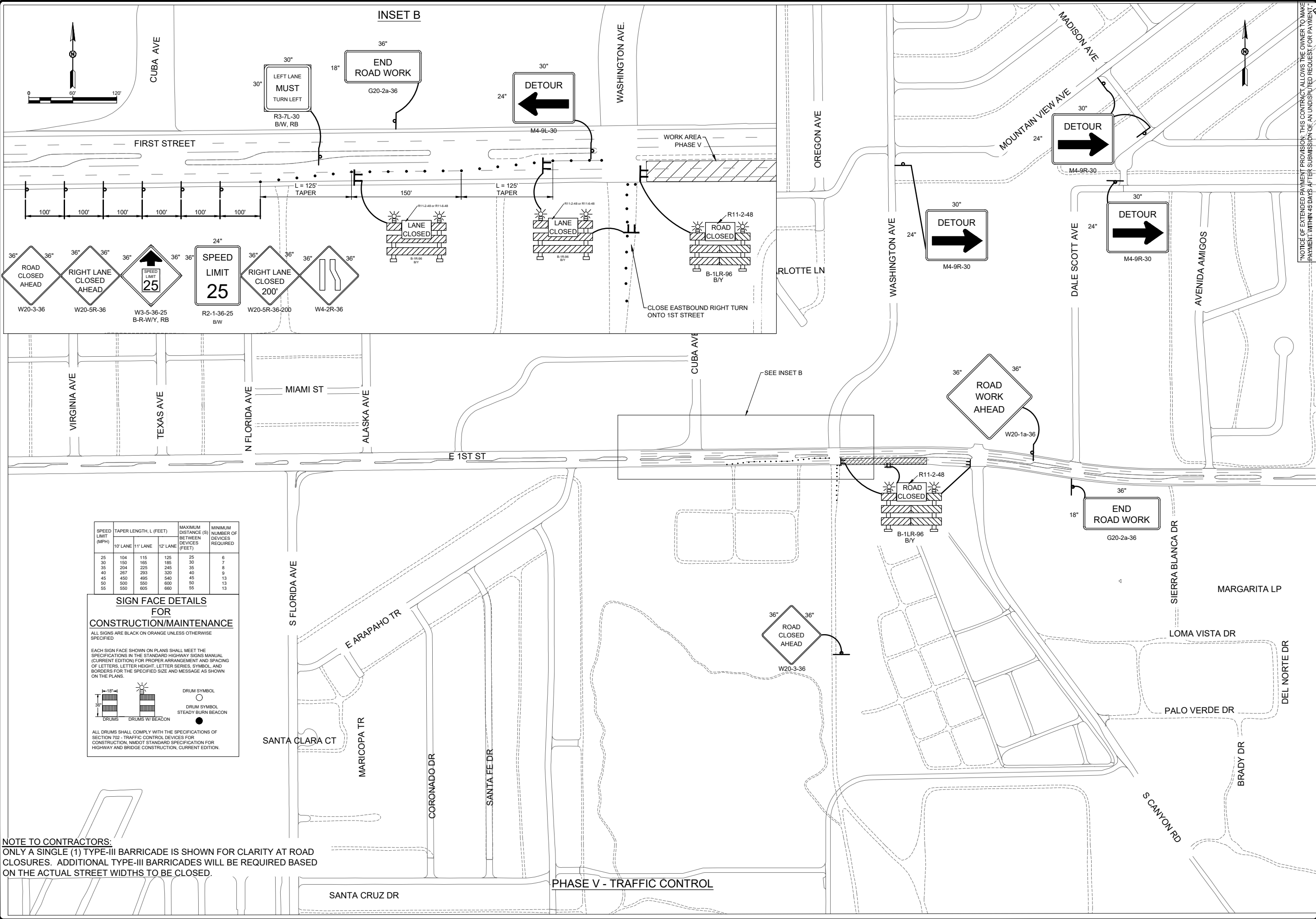
201 N Church Street  
 Suite 200A  
 Las Cruces, NM 88001  
 Phone: 575-523-2395  
 www.smithengineering.pro



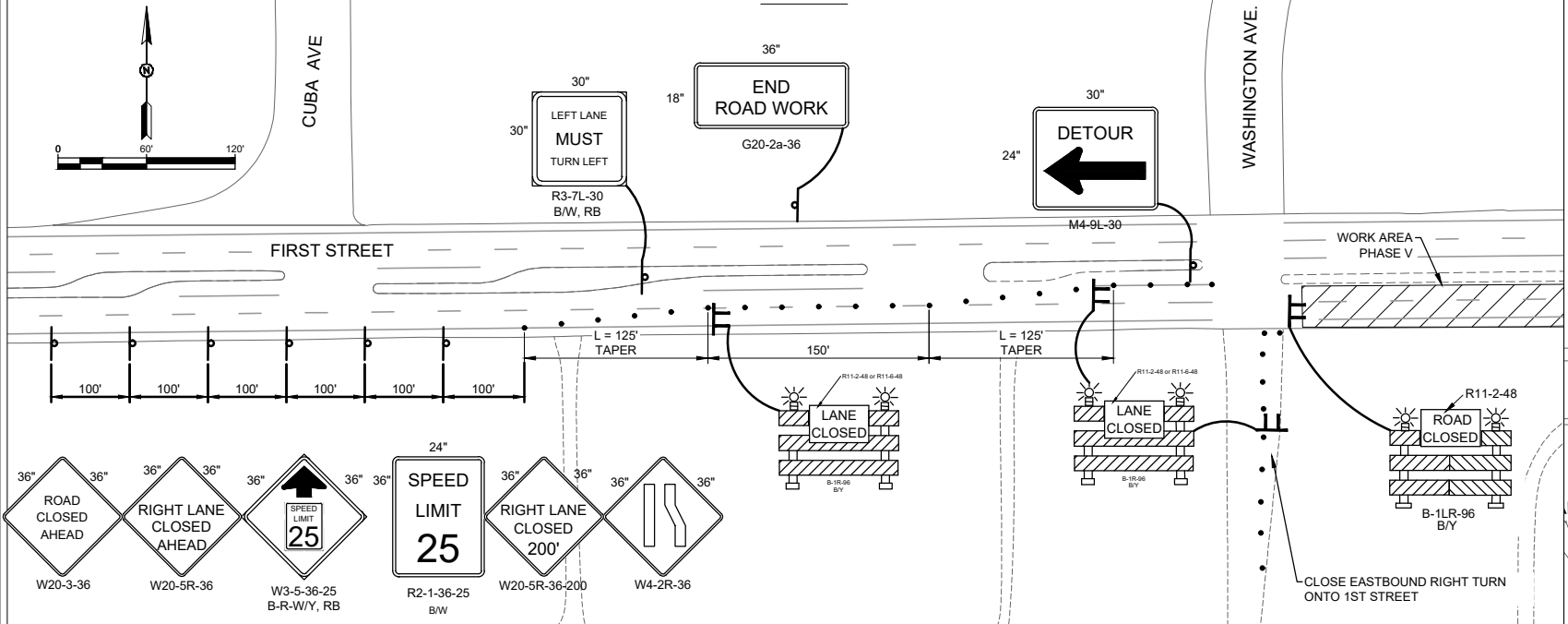
PROGRESS PRINTS - FOR INTERIM REVIEW ONLY

THESE DOCUMENTS ARE PRELIMINARY IN NATURE AND NOT FINAL. SIGNED, AND SEALED DOCUMENTS INTENDED FOR CONSTRUCTION BIDDING, OR PERMIT PURPOSES. THEY WERE PREPARED BY, OR UNDER THE SUPERVISION OF:  
 RUSTY W. PAYNE PE # 23566 DATE: FEBRUARY 2019

JOB NO: 816102  
 DATE: FEBRUARY 2019  
 SHEET NO: 10-C-007



**INSET B**



SPEED LIMIT (MPH)	TAPER LENGTH, L (FEET)			MAXIMUM DISTANCE (S) BETWEEN DEVICES (FEET)	MINIMUM NUMBER OF DEVICES REQUIRED
	10' LANE	11' LANE	12' LANE		
25	104	115	125	25	6
30	150	165	185	30	7
35	204	225	245	35	8
40	267	293	320	40	9
45	450	495	540	45	13
50	500	550	600	50	13
55	550	605	660	55	13

**SIGN FACE DETAILS FOR CONSTRUCTION/MAINTENANCE**

ALL SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE SPECIFIED

EACH SIGN FACE SHOWN ON PLANS SHALL MEET THE SPECIFICATIONS IN THE STANDARD HIGHWAY SIGNS MANUAL (CURRENT EDITION) FOR PROPER ARRANGEMENT AND SPACING OF LETTERS, LETTER HEIGHT, LETTER SERIES, SYMBOL, AND BORDERS FOR THE SPECIFIED SIZE AND MESSAGE AS SHOWN ON THE PLANS.

ALL DRUMS SHALL COMPLY WITH THE SPECIFICATIONS OF SECTION 702 - TRAFFIC CONTROL DEVICES FOR CONSTRUCTION, MOST STANDARD SPECIFICATION FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT EDITION.

**NOTE TO CONTRACTORS:**  
 ONLY A SINGLE (1) TYPE-III BARRICADE IS SHOWN FOR CLARITY AT ROAD CLOSURES. ADDITIONAL TYPE-III BARRICADES WILL BE REQUIRED BASED ON THE ACTUAL STREET WIDTHS TO BE CLOSED.

**PHASE V - TRAFFIC CONTROL**

NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

**RUSTY W. PAYNE**  
 NEW MEXICO  
 23566  
 PROFESSIONAL ENGINEER  
 02/20/2019

NO.	REVISION DESCRIPTION	DATE	BY
5			
4			
3			
2			
1			

CITY OF ALAMOGORDO  
 OTERO COUNTY, NEW MEXICO

CITY OF ALAMOGORDO  
 CANYON ROAD WATER LINE EXTENSION

TRAFFIC CONTROL PHASE V

*Solutions for Today...  
 Vision for Tomorrow*

201 N Church Street  
 Suite 200A  
 Las Cruces, NM 88001  
 Phone: 575-523-2395  
 www.smithengineering.pro



JOB NO:  
816102

DATE:  
**FEBRUARY 2019**

SHEET NO:  
11-C-008

LISTED PROJECT 8102 McKinley Channel Phase 8 Utility Relocation/ENGINEERING/CADD/PLANS/ETC/008 TRAFFIC CONTROL PHASE V.dwg Feb.20. 2019 - 9:26am Saved By: nashp