

GENERAL NOTES:

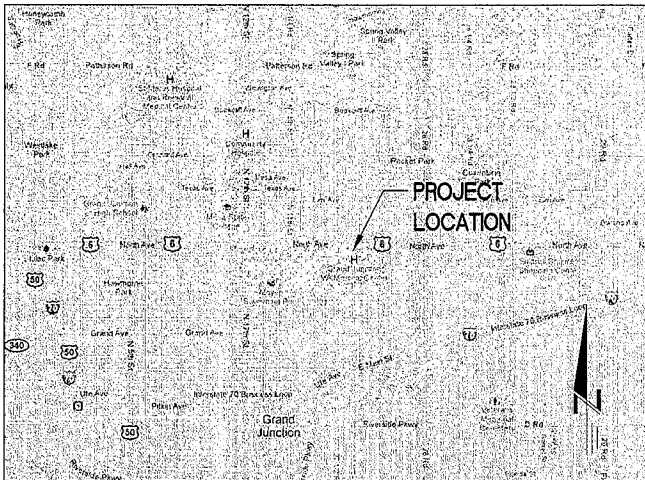
- BE ADVISED THAT OCCASIONALLY VALVES IN OUR SYSTEM MAY BE IN-OPERABLE. ON SUCH OCCASIONS IT MAY BECOME NECESSARY TO EXPAND THE IMPACTED AREAS TO BE AFFECTED FOR THE SHUT OUT.
- ALL PIPE, VALVES, HYDRANTS, MANHOLES AND OTHER PIPELINE APPURTENANCES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH SPECIFICATIONS AND MANUFACTURER'S INSTRUCTIONS. WHEN INSTALLATION DRAWINGS, INSTRUCTIONS OR PROCEDURES DIFFER, THE CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR) WILL DETERMINE WHICH WILL TAKE PRECEDENCE.
- ALL INSTALLATIONS / SYSTEM MODIFICATIONS SHALL BE APPROVED AND INSPECTED BY ENGINEER OF RECORD OR COTR
- WHEN REFERENCE IS MADE TO ASTM, AWWA, AASHTO, OR OTHER SPECIFICATIONS OR METHODS, IT SHALL BE UNDERSTOOD TO MEAN THE LATEST EDITION OR REVISION OF SAID SPECIFICATION, AS AMENDED AND ISSUED AT THE TIME OF THE ADVERTISEMENT FOR BIDS.
- DISCLAIMER:** VA STANDARD OPERATING PROCEDURES REPRESENT RECOMMENDED PRACTICES THAT SHOULD BE APPLICABLE TO MOST SITUATIONS ENCOUNTERED. THESE PROCEDURES SHOULD BE FOLLOWED TO THE EXTENT APPLICABLE; HOWEVER, THEY BY NO MEANS REPRESENT THE ONLY METHOD TO PERFORM THE TASKS THEY DESCRIBE. IT IS UNDERSTOOD THAT FIELD CONDITIONS, EMERGENCIES, AND OTHER CIRCUMSTANCES MAY REQUIRE DEVIATION FROM STANDARD OPERATING PROCEDURES.
- THE CONTRACTOR IS RESPONSIBLE FOR:
 - NOTIFYING THE OWNER OF POSSIBLE WATER OUTAGE OF WATER DURING CONSTRUCTION.
 - THE CONTRACTOR SHALL OBTAIN, AT HIS EXPENSE, ALL APPLICABLE LICENSES, PERMITS, BONDS, ETC. REQUIRED FOR INSTALLATION/SYSTEM MODIFICATION TO COMPLY WITH THIS PROJECT.
- CITY DISTRIBUTION MAINS, APPLICATION(S) FOR THE TAPS MUST BE RECEIVED AND APPROVED BY THE OWNER AND CITY. VA PERSONNEL ARE NOT RESPONSIBLE FOR WORK SITE SAFETY OR COMPLIANCE/ENFORCEMENT OF SAFETY REGULATIONS AND STANDARDS ESTABLISHED BY OTHER AGENCIES. ALL SAFETY COMPLIANCE/ENFORCEMENT AT THE WORK SITE SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- THE WATER QUALITY CONTROL DIVISION OF THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE) REQUIRES ALL WATER LINE CONTRACTORS TO POSSESS A CURRENT DISCHARGE PERMIT FOR DISCHARGES OF CHLORINATED AND PROCESS WATERS ASSOCIATED WITH THE INSTALLATION OF NEW MAINS OR CONDUITS. CONTACT CDPHE WATER QUALITY CONTROL DIVISION AT (303) 692-3539 FOR INFORMATION ON OBTAINING THE REQUIRED PERMIT.
- ALL MATERIALS USED SHALL BE NEW, IN CONFORMANCE WITH THE APPLICABLE STANDARDS MADE IN AMERICA.
- ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THESE PLANS AND VA STANDARD SPECIFICATIONS.
- ALL SAMPLING AND TESTING SHALL BE PERFORMED USING THE PROPER EQUIPMENT AS REQUIRED BY EACH TEST PROCEDURE. TECHNICIANS PERFORMING TESTING OF SOILS OR AGGREGATES SHALL BE NICET LEVEL II, OR WESTERN ALLIANCE FOR QUALITY TRANSPORTATION CONSTRUCTION CERTIFIED.
- THE CONTRACTOR IS RESPONSIBLE FOR QUALITY CONTROL OF ALL WORK PERFORMANCE AND SHALL IMPLEMENT WHATEVER PROCEDURES, METHODS, TESTING, SURVEYING, AND SUPERVISION THAT IS REQUIRED IN ORDER TO INSURE THAT THE WORK CONFORMS TO THE CONSTRUCTION PLANS AND CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL PROVIDE A QUALITY ASSURANCE PROGRAM. THIS PROGRAM SHALL INCLUDE SYSTEMATIC INSPECTION AND TESTING OF THE WORK AND MATERIALS DURING CONSTRUCTION TO ASSURE THE OWNER THAT THE CONTRACTOR IS PROVIDING WORK THAT IS IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.
- WHEN THE CITY FURNISHES MATERIALS THAT ARE TO BE INCORPORATED INTO THE WORK BY THE CONTRACTOR, PROVISIONS WILL BE MADE AS TO THE RESPONSIBILITIES OF THE CITY AND THE CONTRACTOR REGARDING DELIVERY, UNLOADING AND STORAGE OF THE MATERIALS.
- ALL PIPE SHALL BE TESTED IN CONFORMANCE WITH THE APPLICABLE STANDARDS. TESTING MAY BE WITNESSED BY THE CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR), OR BY AN APPROVED INDEPENDENT TESTING LABORATORY. UPON REQUEST OF THE OWNER, THE CONTRACTOR SHALL PROVIDE A COPY OF CERTIFIED TEST REPORTS INDICATING THAT MATERIAL DOES CONFORM TO THE APPLICABLE STANDARDS OR SPECIFICATIONS.
- ALL MATERIALS SHALL BE HANDLED WITH EQUIPMENT AND METHODS ADEQUATE TO PREVENT SHOCK OR DAMAGE. UNDER NO CIRCUMSTANCES SHALL MATERIALS BE DROPPED. PIPE HANDLED ON SKIDWAYS SHALL NOT BE SKIDDED OR ROLLED AGAINST PIPE ALREADY ON THE GROUND. IF ANY PART OF THE COATING OR LINING IS DAMAGED, THE CONTRACTOR SHALL REPAIR OR REPLACE THE MATERIAL AT HIS EXPENSE AS DIRECTED BY THE COTR. ALL PIPE AND APPURTENANCES SHALL BE HANDLED IN ACCORDANCE WITH THE APPROPRIATE AWWA AND ASTM STANDARDS.
- THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE SAFE STORAGE AND PROTECTION OF ALL PIPE AND OTHER MATERIALS DELIVERED TO THE WORK SITE. THE INTERIORS OF ALL PIPE AND FITTINGS SHALL BE KEPT FREE FROM DIRT AND FOREIGN MATTER AT ALL TIMES. GASKETS FOR PIPE JOINTS SHALL BE STORED IN A COOL LOCATION OUT OF DIRECT SUNLIGHT. IF SUNBURNED PIPE IS UTILIZED, THE OWNER REQUIRES THAT THE CONTRACTOR PROVIDE A MANUFACTURER'S CERTIFICATION THAT ALL WARRANTIES ARE STILL VALID. THE OWNER RESERVES THE RIGHT TO REJECT SUNBURNED PIPE DEPENDING ON THE SEVERITY OF THE APPARENT DAMAGE. ANY MATERIAL THAT HAS BEEN DAMAGED BEFORE ACTUAL INCORPORATION IN THE WORK SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.

PIPE AND FITTINGS:

- PIPE FOR ALL WATER MAINS SHALL BE POLYVINYL CHLORIDE (PVC) UNLESS OTHERWISE APPROVED. PVC PIPE AND FITTINGS FOR THE WATER DISTRIBUTION SYSTEM SHALL CONFORM TO AWWA C900 FOR SIZES 4" THROUGH 12" AND TO AWWA C905 FOR SIZES 14" THROUGH 36". UNLESS OTHERWISE SPECIFIED, THE MINIMUM THICKNESS CLASS OF C900 PVC PIPE SHALL A DIMENSION RATIO (DR) OF 18. MINIMUM THICKNESS CLASS OF C905 PVC IS DR25.
- PIPE JOINTS, JOINTS SHALL BE BELL AND SPIGOT TYPE SEALED WITH ELASTOMERIC GASKETS CONFORMING TO ASTM D3139. COUPLINGS SHALL BE ABLE TO WITHSTAND THE SAME INTERNAL PRESSURE AND EXTERNAL LOADING AS THE PIPE. NOTE: ALL CONNECTIONS TO EXISTING SHALL PROVIDE SAID GASKETS FOR PVC ASTM 2241-PVC C900 CONNECTIONS.
- FITTINGS: PVC FITTINGS WILL NOT BE ALLOWED. FITTINGS FOR USE WITH PVC PIPE SHALL BE DUCTILE IRON OR CAST IRON CONFORMING TO AWWA C110 OR C153. FITTINGS LARGER THAN 12-INCH SHALL BE CEMENT-MORTAR LINED PER AWWA C104. ALTHOUGH MINIMAL CRACKING IN THE CEMENT LINING IS ALLOWED, THE ABSENCE OF CEMENT MORTAR LINING IN ANY PART OF THE FITTING SHALL BE REASON FOR REJECTION. ALL FITTINGS, 12-INCH AND SMALLER, SHALL BE COATED INSIDE AND OUTSIDE WITH FUSION BONDED EPOXY COATINGS CONFORMING TO THE REQUIREMENTS OF ANSI/AWWA C116/A21.16. FITTINGS SHALL BE DESIGNED FOR USE ON DUCTILE IRON PIPE CONFORMING TO ANSI/AWWA C151/A21.51 AND PVC PIPE CONFORMING TO AWWA C900. ALL FITTINGS SHALL BE PROVIDED WITH INTEGRAL RESTRAINED JOINTS AND HAVE SEALS CONFORMING TO ASTM F 477 AND THE PHYSICAL TESTING REQUIREMENT OF AWWA C111. ALL FITTINGS SHALL BE COATED WITH FUSION BONDED EPOXY COATINGS CONFORMING TO THE REQUIREMENTS OF ANSI/AWWA C116/A21.16. ASSEMBLY OF FITTING JOINTS SHALL NOT REQUIRE BEVELING OF THE PLAIN END OF A CUT PIPE AND SHALL NOT REQUIRE THE USE OF JACKS OR POWER EQUIPMENT TO FORCE THE PIPE END PAST THE GASKET. FITTINGS SHALL BE MANUFACTURED BY ONE BOLT, INC., OR APPROVED EQUAL.
- DIP JOINTS, UNLESS OTHERWISE SPECIFIED IN THESE PLANS DUCTILE IRON PIPE JOINTS SHALL BE MECHANICAL OR PUSH-ON JOINTS CONFORMING TO AWWA C111. GASKETS SHALL BE OF NEOPRENE OR OTHER SYNTHETIC RUBBER MATERIAL.
- BOLTS. ALL BOLTS FOR MECHANICAL JOINTS SHALL BE COR-BLUE® BOLTS OR APPROVED EQUAL. ALL BOLTS FOR FLANGE CONNECTIONS SHALL BE STAINLESS STEEL BOLTS WITH THE THREADS COATED WITH ANTI-SEIZE.
- POLYETHYLENE ENCASEMENT, UNLESS OTHERWISE SPECIFIED OR APPROVED BY THE COTR, ALL DUCTILE IRON FITTINGS SHALL BE WRAPPED WITH POLYETHYLENE ENCASEMENT MATERIAL CONFORMING TO AWWA C105, AND SHALL BE PROVIDED WITH FUSION BONDED EPOXY COATING CONFORMING TO THE REQUIREMENTS OF ANSI/AWWA C116/A21.16.
- COPPER TUBING. COPPER TUBING FOR WATER SERVICE LINES 3/4" THROUGH 2" IN DIAMETER SHALL BE TYPE K, SOFT TEMPER COPPER TUBING FOR UNDERGROUND SERVICE CONFORMING TO ASTM B-88 AND ASTM B-251. THE PIPE SHALL BE MARKED WITH THE MANUFACTURER'S NAME OR TRADEMARK AND THE TYPE OF PIPE. THE OUTSIDE DIAMETER OF THE PIPE AND MINIMUM WEIGHT PER FOOT SHALL NOT BE LESS THAN THAT LISTED IN ASTM B-251, TABLE 1.
- PVC WATER SERVICE PIPE. PVC PIPE FOR WATER SERVICE LINES WILL BE ALLOWED FOR PIPE GREATER THAN OR EQUAL TO 3" IN DIAMETER. THREE INCH DIAMETER SHALL CONFORM TO ASTM D-2241 AND UNLESS OTHERWISE SPECIFIED, ALL PIPE SHALL BE CL 200 PSI. ALL SERVICES 4" AND LARGER SHALL CONFORM TO AWWA C 900.
- HDPE WATER SERVICE LINE. HDPE PIPE FOR WATER SERVICE LINES WILL BE ALLOWED FOR PIPE SIZES 1 1/2" AND 2". THIS PIPE MATERIAL IS SUITABLE FOR WATER SERVICE LINE, OR IRRIGATION SYSTEM INFRASTRUCTURE. PIPE MATERIALS MUST MEET HDPE 3408 - ASTM D2239 AND ASTM D2737 AND BE PRODUCED FROM VIRGIN MATERIAL (NATURAL VIRGIN CORE WITH BLUE VIRGIN EXTERIOR) OR ENGINEER APPROVED EQUAL.
- FITTINGS. ALL FITTINGS FOR WATER SERVICE LINES SHALL BE BRASS AND HAVE FLARED OR MUELLER 110 TYPE COMPRESSION COPPER CONNECTIONS. 2" GATE VALVES FOR WATER SERVICE LINES SHALL NOT BE ALLOWED. CURB STOPS SHALL BE USED FOR ALL WATER SERVICE LINE 2" IN DIAMETER OR SMALLER. IF COPPER SERVICE LINE IS NOT UTILIZED, 12" LONG BRASS NIPPLES SHALL BE INSTALLED ON EACH SIDE OF THE CURB STOP VALVE TO MITIGATE POTENTIAL TWISTING OF THE VALVE DURING OPERATION. VALVE SHALL HAVE IP THREAD OUTLET, MALE TO COMPRESSION ADAPTER TO 2 INCH TYPE K COPPER SERVICE.
- SEALANTS. ACCEPTABLE SEALANTS ARE HARVEY'S TEE PASTE AS MANUFACTURED BY WILLIAM H. HARVEY COMPANY OF OMAHA NEBRASKA 68117 (402-331-1175) OR SPEAR'S BLUE-75 THREAD SEALANT AS MANUFACTURED BY SPEAR'S MANUFACTURING COMPANY OF SYLMAR CA 91392 (818- 364-1611). RECTORSAL-5 IS NOT ACCEPTABLE.

GRAND JUNCTION VA MEDICAL CENTER

LOCATED IN THE NW 1/4 OF THE NE 1/4
OF SECTION 13, T1S, R1W OF THE 6TH P.M.
CITY OF GRAND JUNCTION AND COUNTY OF MESA, STATE OF COLORADO
LOCATED AT 2121 NORTH AVENUE



VICINITY MAP
N.T.S.

100% SUBMITTAL CONSTRUCTION PLANS

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ENGINEER-OF-RECORD

CRG & ASSOCIATES, INC.
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CENTENNIAL, CO 80111
(303) 470-7338
RONALD.GEURTS@CRGPRO.COM



Know what's below.
Call before you dig.

BENCHMARK:

PROJECT BENCHMARK CP2, PK 6 & WAHNE
ON WEST END OF ISLAND BEING USED
EAST OF VA NORTH AVE. ENTRANCE
ELEVATION=4619.20 (NAVD 1988 datum).

ENGINEER'S CERTIFICATION:

THESE CONSTRUCTION PLANS FOR THE GRAND JUNCTION VA MEDICAL CENTER AT 2121 NORTH AVENUE HAVE BEEN PREPARED BY ME (OR UNDER MY DIRECT SUPERVISION) IN ACCORDANCE WITH THE REQUIREMENTS OF THE DESIGN AND CONSTRUCTION STANDARDS AND TECHNICAL CRITERIA OF THE DEPARTMENT OF VETERANS AFFAIRS.

RONALD A. GEURTS, P.E.
COLORADO NO. 33554

DATE

CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE

DEPARTMENT OF VETERAN AFFAIRS
GRAND JUNCTION VA MEDICAL CENTER
2121 NORTH AVENUE
GRAND JUNCTION, CO 81501
PATRICK MARBAS, P.E.
(970) 242-0731 x2052
PATRICK.MARBAS@VA.GOV

APPURTENANCES FOR WATER DISTRIBUTION:

- FIRE HYDRANTS: FIRE HYDRANTS SHALL BE THE DRY BOWL TYPE AND SHALL CONFORM TO AWWA C-502. THE STANDARD HYDRANT SHALL HAVE A SIX-INCH CONNECTION, A 5 1/4-INCH MAIN VALVE OPENING, TWO (2) 2 1/2-INCH HOSE NOZZLES AND ONE (L) 1 1/4-INCH PUMPER NOZZLE. THE HYDRANT BARREL SHALL BE MARKED WITH A CIRCUMFERENTIAL RIB TO DENOTE THE INTENDED GROUND LINE. THE CENTERS OF THE HOSE NOZZLE AND PUMPER NOZZLES SHALL BE AT LEAST 18 INCHES ABOVE THE GROUND LINE MARK. HYDRANTS SHALL BE OF THE "TRAFFIC" OR "BREAKAWAY" DESIGN, HAVING EASILY REPLACABLE BREAKAWAY DEVICES FOR THE GRADE LINE FLANGE AND OPERATING STEM THAT PREVENTS DAMAGE TO THE BARREL SECTIONS UPON IMPACT. THE OPERATING NUT AND NOZZLE CAP WRENCH NUTS SHALL BE 1-INCH PENTAGON, MEASURED FROM POINT TO OPPOSITE FLAT SIDE AT THE BASE. THE HEIGHT OF THE NUT SHALL NOT BE LESS THAN ONE INCH. THE NOZZLE CAPS SHALL BE REMOVED AND THE OPERATING NUT OPENED BY TURNING TO THE LEFT (COUNTER-CLOCKWISE). NOZZLE CAPS SHALL BE SECURELY CHAINED TO THE UPPER BARREL SECTION. THE 2 1/2-INCH HOSE NOZZLES SHALL BE NATIONAL STANDARD FIRE HOSE THREAD. THE PUMPER NOZZLE SHALL A MUELLER A-423, CLOW MEDALLION 2545 OR APPROVED EQUAL WITH THE FOLLOWING REQUIREMENTS:
 - OUTSIDE DIAMETER OF MALE THREAD IS 5.282 INCHES.
 - DIAMETER OF ROOT MALE THREAD IS 4.932 INCHES.
 - NUMBER OF THREADS PER INCH IS 4.
 - PITCH DIAMETER IS 5.12 INCHES.
 FIRE HYDRANTS SHALL BE PAINTED WITH RUST-O-LEUM FIRE HYDRANT ENAMEL "SAFETY YELLOW", ALKYD ENAMEL PAINT OR AN APPROVED SUBSTITUTE.
- GATE VALVES. GATE VALVES SHALL BE RESILIENT SEAT OR RESILIENT WEDGE TYPE GATE VALVES CONFORMING TO AWWA C-509. VALVES SHALL HAVE CAST IRON OR DUCTILE IRON BODIES AND BRONZE MOUNTED NON-RISING STEMS WITH O-RING SEALS. THE STEM AND ALL WEARING SURFACES SHALL BE BRONZE OR OTHER APPROVED MATERIAL. VALVE BOXES SHALL TURN LEFT TO OPEN. THE INTERIOR OF ALL GATE VALVES SHALL BE COATED WITH FUSION BONDED EPOXY COATING CONFORMING TO THE REQUIREMENTS OF ANSI/AWWA C550. END CONNECTIONS. END CONNECTIONS OF GATE VALVES SHALL CONSIST OF MECHANICAL OR PUSH-ON (RUBBER-GASKET) JOINTS CONFORMING TO AWWA C-111 OR FLANGED ENDS IN ACCORDANCE WITH ANSI B-16.1. WRENCH NUTS. WRENCH NUTS SHALL BE MADE OF CAST IRON AND SHALL BE 1 5/16-INCHES SQUARE AT THE TOP. 2 INCHES SQUARE AT THE BASE AND 1 3/4-INCHES HIGH. BOLTS. ALL PACKING BOLTS AND VALVE BONNET BOLTS SHALL BE STAINLESS STEEL. ALL BOLTS FOR MECHANICAL JOINTS SHALL BE COR-BLUE® BOLTS OR APPROVED EQUAL. ALL BOLTS FOR FLANGE CONNECTIONS SHALL BE STAINLESS STEEL BOLTS COATED WITH ANTI-SEIZE.
- MECHANICAL RESTRAINT. VALVES AND FITTINGS SHALL BE RESTRAINED BY MECHANICALLY CONNECTING THEM TO THE PIPE OR OTHER FITTINGS. FITTING TO FITTING CONNECTIONS MAY BE MADE WITH A FLANGE BY FLANGE CONNECTIONS OR AN INTEGRAL RING ANCHORING FITTING BY MECHANICAL JOINT CONNECTION. PIPE BY FITTING CONNECTIONS SHALL BE ENCASED WITH POLYETHYLENE IN ACCORDANCE WITH THESE PLANS. STARGIP SERIES 4000® OR OTHER APPROVED JOINT RESTRAINT. WHEN USING MECHANICAL RESTRAINTS, RESTRAINTS SHALL ALSO BE USED ON THE SLIP JOINTS ADJACENT TO MECHANICAL RESTRAINT, WHERE A SHORT PIECE OF PIPE IS INSTALLED BETWEEN A FITTING AND A VALVE OR OTHER FITTING. THE RESTRAINT MAY BE PROVIDED BY CONNECTING THE MECHANICAL JOINTS WITH 5/8" ZINC-COATED, ALL-THREAD, STEEL ROD. THE ROD SHALL BE CONNECTED TO THE MECHANICAL JOINT FITTING USING TIE-BACK BOLTS, NOT THROUGH THE FITTINGS BOLT HOLES. THE ROD SHALL BE COATED WITH AN ASPHALT SEALANT. ALL MECHANICAL RESTRAINTS SHALL BE ENCASED WITH POLYETHYLENE IN ACCORDANCE WITH THESE PLANS.
- TAPPING VALVES AND SLEEVES. CONNECTIONS FOR LINE EXTENSIONS OF 4" AND LARGER LINES MAY BE MADE WITH TAPPING SLEEVES AND VALVES. TAPPING VALVES SHALL BE FURNISHED WITH FLANGED INLET END CONNECTIONS HAVING A MACHINED PROJECTION ON THE FLANGES TO MATE WITH A MACHINED RECESS ON THE OUTLET FLANGES OF THE TAPPING SLEEVES. THE OUTLET ENDS SHALL CONFORM IN DIMENSIONS TO THE AWWA C-115 FOR THE FLANGE AND AWWA C-111 FOR THE HUB OR MECHANICAL JOINT CONNECTION, EXCEPT THAT THE OUTSIDE OF THE HUB SHALL HAVE A LARGE FLANGE FOR ATTACHING A DRILLING MACHINE. THE SEAT OPENING OF THE VALVES SHALL BE LARGER THAN NORMAL SIZE TO PERMIT FULL DIAMETER CUTS. THE TAPPING SLEEVE SHALL BE OF THE SAME MANUFACTURE AS THE TAPPING VALVE. EITHER THE TAPPING VALVE OR THE TAPPING SLEEVE SHALL HAVE A TEST PLUG. ALL PACKING BOLTS SHALL BE STAINLESS STEEL. ALL BOLTS FOR MECHANICAL JOINTS SHALL BE COR-BLUE® BOLTS OR APPROVED EQUAL. ALL BOLTS FOR FLANGE CONNECTIONS SHALL BE STAINLESS STEEL BOLTS COATED WITH ANTI-SEIZE.
- BUTTERFLY VALVES. BUTTERFLY VALVES SHALL CONFORM TO AWWA C-504. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE ENGINEER, DRAWINGS AND LITERATURE SHOWING THE TYPE, CLASS, PRINCIPAL DIMENSIONS AND MATERIALS USED FOR ALL PARTS OF THE VALVES AND OPERATOR. ALL PACKING BOLTS SHALL BE STAINLESS STEEL. THE INTERIOR OF ALL BUTTERFLY VALVES SHALL BE COATED WITH FUSION BONDED EPOXY COATING CONFORMING TO THE REQUIREMENTS OF ANSI/AWWA C550.
- VALVE BOXES. A CAST IRON VALVE BOX AND LID SHALL BE PROVIDED FOR EACH UNDERGROUND VALVE. VALVE BOXES SHALL BE 5 1/4 INCH DIAMETER, SLIP TYPE, SIZED FOR THE TYPE OF VALVE AND DEPTH OF BURY. THE LID SHALL HAVE THE WORD "WATER" PERMANENTLY CAST ON THE TOP.
- AIR VALVES. AIR VALVES SHALL BE OF THE TYPE, CLASS AND SIZE SPECIFIED IN THE SPECIAL PROVISIONS OR ON THE CONSTRUCTION DRAWINGS. A SEPARATE ISOLATION VALVE OF THE SAME SIZE AND PRESSURE RATING AS THE AIR VALVE SHALL BE INSTALLED BETWEEN THE WATER MAIN AND THE AIR VALVE. THE ISOLATION VALVE SHALL BE A BALL VALVE WITH A 2 INCH SQUARE NUT ON TOP FOR OPERATION. THIS VALVE SHALL BE PLACED INSIDE A STANDARD VALVE BOX SEPARATE FROM THE AIR VALVE.
- VAULTS. THE VAULTS FOR AIR VALVES AND BUTTERFLY VALVES SHALL BE MADE OF REINFORCED CONCRETE PIPE OR A MANHOLE RISER SECTION. THE COVER SHALL BE A PRE-CAST CONCRETE LID WITH A CAST IRON MANHOLE RING AND COVER. THE DIAMETER OF THE VAULT WILL BE AS DETAILED ON THE PLANS. THE COVER FOR THE AIR VALVE VAULT SHALL BE PERFORATED IF A RISER PIPE IS NOT TO BE INSTALLED AS SHOWN ON THE STANDARD DRAWINGS. THE TOTAL AREA OF PERFORATIONS IN THE MANHOLE COVER SHALL BE AS DETAILED ON THE PLANS OR SPECIFIED BY THE ENGINEER.
- CORPORATION STOPS. CORPORATION STOPS SHALL BE MADE OF BRASS AND SHALL BE THE SAME SIZE AS THE SERVICE LINE. THE OUTLET END OF THE STOP SHALL BE THREADED IN ACCORDANCE WITH AWWA C-800, FOR USE WITH TYPE K FLARED OR MUELLER COMPRESSION COPPER SERVICE TUBING. IF THE SERVICE LINE IS TAPPED DIRECTLY INTO THE WATER MAIN THE INLET THREADS OF THE STOP SHALL BE TAPERED IN ACCORDANCE WITH AWWA C-800. IF A TAPPING SADDLE IS USED, THE INLET THREADS OF THE CORPORATION STOP SHALL BE CC FOR 3/4" AND 1", NOT STANDARD IRON PIPE THREADS.
- TAPPING SADDLES. FOR 3/4" TO 2" SERVICE CONNECTIONS, WIDE-BODY BRASS TAPPING SADDLES (MUELLER BR2B SERIES OR APPROVED EQUAL) SHALL BE USED ON 8" AND SMALLER WATER MAINS AND MAY BE USED ON LARGER MAINS. TAPPING SADDLES ON 10" AND LARGER WATER MAINS MAY BE ALL STAINLESS STEEL OR EPOXY- OR NYLON-COATED DUCTILE IRON BODIES WITH STAINLESS STEEL STRAPS - EITHER DOUBLE STRAPS OR A WIDE SINGLE STRAP (SMITH-BLAIR 317, POWERSEAL 3417DI, MUELLER DR2S, OR APPROVED EQUAL). ALL TAPPING SADDLES SHALL HAVE A FLAT NEOPRENE SEAL. THE INSIDE DIAMETER OF THE SADDLE SHALL BE APPROPRIATELY SIZED TO THE OUTSIDE DIAMETER OF THE PIPE BEING TAPPED, SO UNIFORM PRESSURE IS APPLIED TO THE FULL CIRCUMFERENCE OF THE PIPE WHEN THE SADDLE IS SECURED. TAPPING SADDLES FOR STEEL PIPE SHALL BE AN APPROVED "WELD ON" TYPE.
- METER SETTERS. METER SETTERS SHALL BE BRASS AND SHALL BE THE SAME SIZE AS THE SERVICE LINE. THE INLET AND OUTLET ENDS SHALL BE THREADED IN ACCORDANCE WITH AWWA C-800 FOR USE WITH MUELLER COMPRESSION FITTINGS TO THE TYPE K COPPER SERVICE TUBING. ALL SETTERS SHALL BE EQUIPPED WITH A BALL TYPE, YOKE STOP VALVES WITH AN APPROVED LOCKING DEVICE.
- REDUCED PRESSURE BACKFLOW PREVENTION DEVICES. REDUCED PRESSURE BACKFLOW PREVENTION DEVICES SHALL BE THE SAME AS THE SERVICE LINE AND SHALL BE APPROVED BY THE FOUNDATION OF CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH AT THE UNIVERSITY OF SOUTHERN CALIFORNIA.

CONSULTANTS:

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PROJECT #311002

Drawing Title

COVER SHEET

Approved Project Director

Project Title

REPLACE INCOMING WATER
MAINS TO BUILDINGS

Location

GRAND JUNCTION, COLORADO

Date

10/26/2011

Checked

RAG

Drawn

JRF

Project Number

575-11-PP-0059

Building Number

GJ-VAMC

Drawing Number

C-1

Dwg. 1 of 9

Office of
Construction
and Facilities
Management



1. PRESSURE PIPELINES COVERED BY THIS SPECIFICATION INCLUDE: WATER LINES, FORCE MAINS, SIPHONS, PRESSURIZED IRRIGATION LINES AND OTHER LINES THAT OPERATE UNDER A HYDRAULIC HEAD.
2. LAYING PRESSURE PIPE: WATER LINES, FORCE MAINS AND OTHER PIPELINES THAT WILL OPERATE UNDER PRESSURE SHALL BE LAID ON THE ALIGNMENT SHOWN ON THE PLANS, IN ONE OTHERWISE SPECIFIED, OR APPROVED, PRESSURE PIPE SHALL BE LAID TO A DEPTH TO PROVIDE A MINIMUM COVER OF 36" MEASURED FROM THE FINAL GROUND SURFACE TO THE TOP OF THE PIPE. PRESSURE PIPELINES PLACED IN SERVICE BEFORE FINAL SURFACE GRADING HAS BEEN COMPLETED SHALL HAVE A MINIMUM COVER OF 24" DURING THE WINTER SEASON. THE INSIDE OF WATER PIPE AND JOINTING SURFACES SHALL BE KEPT CLEAN AND FREE FROM MUD, DIRT, GRAVEL, GROUND WATER, AND OTHER FOREIGN MATERIAL. WHENEVER DIRT OR DEBRIS ENTERS THE PIPE, THE CONTRACTOR SHALL CLEAN THE PIPE BY SURETY. SURETY SHALL BE OBTAINED AND MAINTAINED THROUGHOUT THE PROJECT SHALL DETERMINE IF THE PIPE IS CLEAN ENOUGH TO BE INSTALLED. WHEN PIPE LAYING IS NOT IN PROGRESS THE OPEN ENDS OF THE PIPELINE SHALL BE KEPT CLOSED WITH WATERTIGHT PLUGS. LONG RADIUS HORIZONTAL OR VERTICAL CURVES MAY BE LAID WITH STANDARD PIPE BY DEFLECTIONS AT THE JOINTS OF RIGID PIPE OR BY DEFLECTING THE ENTIRE LENGTH OF FLEXIBLE PIPE. MAXIMUM DEFLECTIONS AT PIPE JOINTS SHALL BE PER THE MANUFACTURER'S RECOMMENDATION. DEFLECTIONS OF FLEXIBLE PIPE SHALL BE LIMITED TO TRANSMISSION LINES OR MAINS NOT LOCATED IN STREETS. THE TRACING WIRE SHALL BE EXTENDED TO THE TOP OF EACH GATE VALVE BOX AND THE ISOLATION VALVE BOX AT EACH AIR RELEASE VALVE. TRACING WIRE SHALL BE TERMINATED AT THE ENDS OF ALL PRESSURE PIPELINES. TRACING WIRE SHALL BE SPLICED WITH A WIRE NUT, WRAPPED WITH TBT-20 RUBBER TAPE, TO COMPLETELY ENCASE THE CONNECTION, WITH AN EXTERIOR WARP WRAP OF 1/2" COTTON TAPE. THE TRACING WIRE SHALL BE WELDED TO THE WIRE NUT AT EACH JOINT. JOINTS SHALL BE ELECTRICALLY CONNECTED WITH WEDGES OR WITH CADWELD CONNECTORS, AND NO. 10 COPPER WIRE. THE WIRE ENDS AND CADWELDS SHALL BE SEALED TO PREVENT CORROSION.
4. POLYETHYLENE ENCASEMENT, PRIOR TO BACKFILLING, ALL CAST IRON AND DUCTILE IRON PIPE, FITTINGS, VALVES, APPURTENANCES AND ALL OTHER METAL PIPES AND FITTINGS, EXCEPT COPPER, SHALL BE ENCASED WITH POLYETHYLENE ENCASEMENT. THE ENCASEMENT MATERIAL POLYETHYLENE FILM SHALL HAVE A MINIMUM THICKNESS OF 0.008 INCHES (8MIL). INSTALLATION OF THE POLYETHYLENE ENCASEMENT SHALL BE IN ACCORDANCE WITH ONE OF THE METHODS DESCRIBED IN AWWA C-105. IF A SOIL SURVEY HAS BEEN PERFORMED IN ACCORDANCE WITH APPENDIX A OF AWWA C-105 AND THE SOIL IS FOUND TO NOT BE CORROSIVE TO DUCTILE IRON, THEN THE CONTRACTOR MAY SUBMIT A WRITTEN REQUEST TO THE CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR) TO INSTALL DUCTILE IRON PIPE WITHOUT FITTING WELDS. IF THE CONTRACTOR REQUESTS TO INSTALL DUCTILE IRON PIPE WITHOUT FITTINGS SHALL BE FULLY ENCAPSULATED BY THE POLYETHYLENE ENCASEMENT, EXCEPT THE VALVE OPERATING NUT. THE ENDS OF THE POLYETHYLENE SHALL BE TAPED AROUND THE FULL CIRCUMFERENCE OF THE PIPE. IF THE POLYETHYLENE IS CUT OR MORE THAN ONE PIECE IS USED TO WRAP THE VALVE OR FITTING, THE PIECES SHALL OVERLAP A MINIMUM OF 12 INCHES AND THE FULL LENGTH OF THE SEAM SHALL BE TAPED.
5. THRUST RESTRAINT: THRUST RESTRAINT SHALL BE PROVIDED FOR ALL PIPE BENDS, TEES, CAPS, VALVES, HYDRANTS AND AT THE END OF ALL STUB OUTS OR DEAD END LINES. THRUST RESTRAINT BEYOND THE PHYSICAL FITTING MAY BE PROVIDED BY CONCRETE BLOCKING OR MECHANICAL RESTRAINT OF PIPE JOINTS. IF PIPE JOINT RESTRAINT IS USED IN LIEU OF CONCRETE THRUST BLOCKS, THE MINIMUM DISTANCE FOR JOINT RESTRAINT ALONG THE PIPE AWAY FROM THE FITTING SHALL BE DETERMINED UTILIZING EBAA IRON PIPE JOINT RESTRAINT CALCULATOR V5.1, AVAILABLE ON LINE AT [HTTP://ROB.ECMA.COM/](http://rob.ecma.com/) RESTRAINT LENGTH CALCULATOR V5.1, IN-LINE VALVES WITH A MINIMUM 20 FEET OF PIPE ARE NOT REQUIRED TO BE SEPARATELY RESTRAINED.
6. CONCRETE BLOCKING. THE SIZE AND LOCATION OF CONCRETE BLOCKING SHALL BE AS SHOWN ON THE PLANS OR IN ACCORDANCE WITH THE DETAIL W-07. THRUST BLOCKS SHALL BE POURED ON FIRM, STABLE FOUNDATION MATERIAL AND ALL BEARING SURFACES SHALL BE AGAINST THE CONCRETE THRUST BLOCKS. THE CONCRETE SHALL BE MADE WITH MODIFIED TYPE II PORTLAND CEMENT AND SHALL REACH A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI IN 28 DAYS. REINFORCING STEEL AND BOLTS USED TO ANCHOR VALVES, FITTINGS, ETC., TO THRUST BLOCKS SHALL MEET TENSILE REQUIREMENTS OF ASTM GRADE 40. ALL ANCHORAGE STEEL NOT EMBEDDED IN CONCRETE SHALL BE FACTORY EPOXY COATED OR COR-ROD STEEL. THRUST BLOCKS SHALL BE DRY BLOCKED AS WELL AS MECHANICALLY RESTRAINED AS SHOWN ON DETAIL W-09.
7. INSTALLATION OF GATE VALVES AND VALVE BOXES. EACH GATE VALVE SHALL BE INSTALLED IN A VERTICAL POSITION AND SET ON A CONCRETE SUPPORT BLOCK. AN ADJUSTABLE SUP TYPE VALVE BOX SHALL BE SET INTO POSITION DURING BACKFILLING OPERATIONS. THE UPPER SECTION OF THE UNIT SHALL BE PLACED IN PROPER ALIGNMENT AND ADJUSTED SO THE TOP OF THE VALVE BOX GRIND FLAT. THE VALVE BOX SHALL BE VERTICALLY CENTERED OVER THE VALVE OPERATING NUT. EACH VALVE SHALL BE CHECKED FOR PROPER ACCESS AND OPERATION PRIOR TO PAVING.
8. INSTALLATION OF FIRE HYDRANTS. HYDRANTS SHALL BE INSTALLED AT THE LOCATIONS SHOWN ON THE CONSTRUCTION DRAWINGS. THEY SHALL BE PLUMB AND SET SO THAT THE BOTTOM OF THE PUMPER NOZZLE IS NO LESS THAN EIGHTEEN (18) INCHES AND NO MORE THAN TWENTY-TWO (22) INCHES ABOVE FINISHED GRADE. THE DEPTH OF THE WATER LINE SHALL BE ADJUSTED TO THE FIRE LINE. FROM THE MAIN LINE TO THE FIRE LINE, THE WATER LINE SHALL BE ADJUSTED HORIZONTALLY. THE FIRE HYDRANT SHALL BE WITHIN 1" INCH OF THE FINISHED GROUND LEVEL. IF THE DEPTH OF THE WATER LINE CANNOT BE ADJUSTED BECAUSE OF CONFLICTING UTILITIES OR OTHER CONSTRAINTS, AN OFFSET SHALL BE INSTALLED ON THE FIRE LINE AND ROTATED TO ACHIEVE THE PROPER BURY DEPTH OF THE HYDRANT OR FIRE HYDRANT WITH A DIFFERENT BARREL HEIGHT SHALL BE USED. A MINIMUM OF 1/4 CUBIC YARD OF WASHED GRAVEL SHALL BE PLACED AROUND THE BASE OF THE HYDRANT TO INSURE PROPER DRAINAGE OF THE HYDRANT. THE WATER SERVICE LINE BETWEEN THE MAIN LINE AND THE FIRE HYDRANT SHALL BE RESTRAINED WITH DRY CONCRETE THRUST BLOCKS BEHIND THE HYDRANT AND MECHANICAL RESTRAINTS. THE TEE SHALL BE RESTRAINED WITH CONCRETE THRUST BLOCK. WEEP HOLES, WHICH DRAIN THE HYDRANT, SHALL NOT BE COVERED WITH CONCRETE.
9. INSTALLATION OF WATER SERVICE PIPE. WHERE POSSIBLE, UNDERGROUND WATER SERVICE PIPES SHALL BE LAID NOT LESS THAN TEN (10) FEET HORIZONTALLY FROM THE BUILDING. IF THE MAIN LINE OR SERVICE LINE IS NOT POSSIBLE, THE SERVICE LINE SHALL BE AT LEAST EIGHTEEN (18) INCHES ABOVE THE TOP OF THE BUILDING SEWER LINE. IF PLACED IN A COMMON TRENCH WITH THE SEWER SERVICE, THE WATER SERVICE LINE SHALL BE ON A SOLID SHELF EXCAVATED TO ONE SIDE OF THE TRENCH. WHERE A SEWER SERVICE IS PROPOSED WITH LESS THAN 5 FEET OF COVER, THE WATER SERVICE LINE SHALL BE CONSTRUCTED IN A SEPARATE TRENCH AND THE SEWER SERVICE LINE SHALL BE CONSTRUCTED WITHIN THE TRENCH. THE WATER SERVICE PIPE SHALL BE DUCTILE IRON PIPE. SHALL BE DIRECT TAPPED. TAPPING SADDLES SHALL BE USED ON PVC PIPE. TAPS SHALL BE AT 45 ABOVE THE SPRING LINE OF THE PIPE. IF THE TAP IS MADE WHILE THE MAIN LINE IS IN SERVICE, A CORPORATION STOP SHALL BE INSTALLED IN THE TAP AND TURNED SO THE T-HANDLE WILL BE ON TOP. IF THE TAP IS MADE WHEN THE MAIN LINE IS NOT IN SERVICE AND THE METER SETTER AND THE SERVICE LINE FROM THE TAP TO THE METER SETTER ARE IN PLACE, WHEN THE MAIN LINE IS ACTIVATED, IT IS NOT NECESSARY TO INSTALL A CORPORATION STOP.
10. SERVICE STUB OUTS. THE SERVICE LINE SHALL BE INSTALLED FROM THE MAIN TO THE LOCATION SHOWN ON THE CONSTRUCTION DRAWINGS OR DESIGNATED BY THE ENGINEER. THE SERVICE LINE SHALL BE MARKED EITHER BY A 4" X 4" BOARD OR STEEL FENCE POST BURIED VERTICALLY. THE BOARD OR POST SHALL EXTEND 3 FEET ABOVE THE GROUND SURFACE WITH A MINIMUM OF 12 INCHES OF THE BOARD OR POST PAINTED BLUE. THE END OF THE SERVICE LINE SHALL BE CAPPED WITH WATERTIGHT A PLUG.
11. BACKFLOW PREVENTION DEVICES & VACUUM BREAKERS SHALL BE REQUIRED ON ALL IRRIGATION SPRINKLER SYSTEMS, AND ANY OTHER CONNECTION TO THE SERVICE LINE, WHICH PRESENTS A BACKFLOW OR SIPHON POTENTIAL, AND CONTAMINATION RISK. ALL BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE UNIFORM FLOODING CODE AND MANUFACTURER'S INSTRUCTIONS. FOR WATER SERVICE TO MEDIUM AND HIGH PRESSURE INSTALLATIONS, THE ASSEMBLIES SHALL BE REVIEWED AND APPROVED BY THE COTR, OR DESIGNATED REPRESENTATIVE, PRIOR TO INSTALLATION.
12. SERVICE LINE REPLACEMENTS AND RECONNECTIONS. EXISTING LEAD AND GALVANIZED STEEL

CONNECTIONS TO EXISTING MAINS. NEW WATER LINES SHALL NOT BE CONNECTED TO EXISTING MAINS IN SERVICE UNTIL THE NEW LINES HAVE BEEN TESTED, DISINFECTED, AND ACCEPTED. WHERE THE CONNECTION OF THE NEW LINES TO OLD REQUIRES INTERRUPTION OF SERVICE, THE ENGINEER AND CONTRACTOR SHALL MUTUALLY AGREE UPON A DATE AND TIME FOR CONNECTIONS WHICH WILL ALLOW AMPLE TIME TO ASSEMBLE LABOR AND MATERIALS.

- RELATIONSHIP BETWEEN WATER LINES AND SANITARY SEWERS. TO REDUCE THE POSSIBILITY OF CONTAMINATION OF THE DOMESTIC WATER SUPPLY IN THE EVENT OF A WATER LINE BREAK OR REPAIR, THE FOLLOWING CONSTRUCTION TECHNIQUES SHALL BE USED WHEN A WATER LINE AND SANITARY SEWER ARE INSTALLED IN CLOSE PROXIMITY TO EACH OTHER. THESE REQUIREMENTS SHALL APPLY TO MAIN LINES.
- IF THE SEWER LINE IS ABOVE AND WITHIN 10 FEET HORIZONTALLY OF THE WATER LINE, THE SEWER LINE SHALL BE INSTALLED THROUGH A STEEL OR DUCTILE IRON CASING PIPE OR ENCASED IN REINFORCED CONCRETE. THE CASING PIPE OR CONCRETE SHALL BE INSTALLED PERPENDICULAR TO THE WATER LINE ON EITHER SIDE OF THE WATER LINE, MEASURED PERPENDICULAR TO THE WATER LINE.
 - IF THE SEWER LINE IS 18" OR LESS CLEAR DISTANCE BELOW AND WITHIN 5 FEET HORIZONTALLY OF THE WATER LINE, THE SEWER LINE SHALL BE INSTALLED THROUGH A STEEL OR DUCTILE IRON CASING PIPE OR CAPPED WITH CONCRETE. THE CASING PIPE OR CONCRETE CAP SHALL EXTEND A MINIMUM OF 10 FEET ON EITHER SIDE OF THE SEWER LINE. MEASURES SHALL BE TAKEN TO PREVENT THE SEWER FROM BEING SUITABLE BACKFILL OR OTHER STRUCTURAL PROTECTION SHALL BE PROVIDED TO PRECLUDE THE SETTLING OR FAILURE OF BOTH PIPES. CROSSINGS OF SEWER AND WATER LINES SHALL NOT BE AT AN ANGLE LESS THAN 45 DEGREES NOR SHALL A SEWER LINE OR WATER LINE BE INSTALLED WITHIN 10 FEET OF EACH OTHER UNLESS APPROVED BY THE ENGINEER.
- RESTORATION OF GROUNDS. THE CLEANUP AND RESTORATION OF GROUNDS SHALL BE A CONTINUOUS PROCESS FROM THE BEGINNING OF CONSTRUCTION TO FINAL COMPLETION OF THE WORK. THE CONTRACTOR SHALL REPLACE ALL LANDSCAPED AREAS REMOVED OR DAMAGED BY OPERATION. THE INTENT IS TO SEED (HYDRO MULCH) THE MAJORITY OF SOIL AREAS DISTURBED, ALTHOUGH, IT IS UNDERSTOOD SOME AREAS MAY REQUIRE SOIL, USE A PLANNING FACTOR OF 90% HYDRO/10% SOIL. ALL LANDSCAPE RESTORATION WORK SHALL BE COMPLETED WITHIN 180 DAYS OF THE END OF THE PROJECT. THE CONTRACTOR SHALL KEEP THE WORK SITE FREE FROM ACCUMULATION OF DEBRIS AND WASTE MATERIAL CAUSED BY HIS OPERATION. AFTER THE PIPELINE IS BACKFILLED, THE AREA SHALL BE CLEANED AND RESTORED TO THE ORIGINAL GRADE AND CONDITION. FINAL STABILIZATION AND RESTORATION OF GROUNDS SHALL BE IN ACCORDANCE WITH THE STORM WATER MANAGEMENT PLAN (SWMP). EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED UNTIL THE REQUIRED VEGETATION IS ESTABLISHED. THE CLEANING AND RESTORATION WORK SHALL BE KEPT UP TO NO GREATER THAN 500 FEET BEHIND THE BACKFILL OPERATIONS UNLESS THE CONSTRUCTION DRAWINGS OR CONTRACT DOCUMENTS INDICATE OTHERWISE. ALL FENCES, UTILITIES, CULVERTS, DITCHES, STRUCTURES, GRASSED AREAS AND PLANTINGS SHALL BE REPLACED AND RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THAT AT THE BEGINNING OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE PERFORMED LATER IN THE CONSTRUCTION PROCESS, SUCH AS WATER LINE TIE-INS. THE RESTORATION (BUT NOT THE CLEAN UP) OF THE AREA ADJACENT TO THE POINT LOCATION MAY BE DELAYED UNTIL THE POINT-LOCATION WORK IS COMPLETED.
- RESTORATION OF PAVED SURFACES. THE CONTRACTOR SHALL REPLACE ALL PAVED (HARD) SURFACES REMOVED OR DAMAGED BY OPERATION. ALL PAVING, PATCHING, AGGREGATE BASE COURSE AND CONCRETE REPLACEMENT WORK SHALL BE IN ACCORDANCE WITH VA SPECIFICATION 901-1.18. THE RESTORATION OF ASPHALT AND CONCRETE SURFACES AND STRUCTURES SHALL BE PERFORMED AT THE COMPLETION OF EACH SEGMENT OF THE PROJECT (INCLUDING ALL REQUIRED TESTING) UNLESS OTHERWISE SPECIFIED OR APPROVED BY THE COTR. A SEGMENT IS DEFINED AS ONE CONTIGUOUS LENGTH OF PIPE INSTALLED. TRENCHES IN STREETS MAY BE REPAVED AS A SINGLE OPERATION AFTER ALL UTILITIES AND APPURTENANCES HAVE BEEN REINSTALLED. THE REPAIRS SHALL BE OTHERWISE SPECIFIED, PRIOR TO PAVING OR PATCHING ALL PAVEMENT EDGES THAT HAVE BEEN BROKEN, RAVELED OR OTHERWISE DAMAGED SHALL BE RE-CUT TO A NEAT LINE.
- EROSION CONTROL. EROSION CONTROL MEASURES SHALL BE CONSTRUCTED, INSTALLED, MAINTAINED, MOVED (IF NEEDED) AND REMOVED IN ACCORDANCE WITH THE PROJECT STORM WATER MANAGEMENT PLAN (SWMP). EROSION CONTROL MEASURES SHALL BE MAINTAINED DURING CONSTRUCTION TO PREVENT EROSION. TO MINIMIZE EROSION, SEDIMENTATION, AND POLLUTION OF ANY STATE WATERS AND WETLANDS.
- FINAL INSPECTION AND ACCEPTANCE. THE ACCEPTANCE OF ALL PIPELINES BY THE VA WILL BE BASED ON THE FOLLOWING:
- RED-LINED AS-BUILT CONDITIONS OF INSTALLED UTILITIES TO INCLUDE ALL EXISTING ENCOUNTERS.
 - CLASSIFICATION OF THE WORK BY THE ENGINEER OF RECORD AND COTR.
 - SUBMITTAL OF ALL QUALITY ASSURANCE TEST RESULTS IN ACCORDANCE WITH TABLE 101- REQUIRED QUALITY ASSURANCE TESTING
 - SUBMITTAL OF SATISFACTORY RESULTS OF REQUIRED TEST (SUCH AS PRESSURE TEST, LEAKAGE TESTS, COMPACTION TESTS, ETC.) CERTIFIED BY THE ENGINEER OR AN APPROVED INDEPENDENT LABORATORY.
 - SUBMITTAL OF "AS-BUILT" CONSTRUCTION DRAWINGS ELECTRONICALLY SHALL BE IN PDF FORMAT. ALL "AS-BUILT" DRAWINGS SHALL BE CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER AND SHALL STATE THE DATES OF INSTALLATION AND THE NAME OF THE CONTRACTOR WHO INSTALLED THE SYSTEM. AS-BUILT DRAWINGS
 - SHALL ALSO BE SUBMITTED AS AN ELECTRONIC AUTOCAD 2004 file format. AS-BUILT DRAWING SHALL INCLUDE THE FOLLOWING INFORMATION: FOR SEWERS, HORIZONTAL AND VERTICAL INFORMATION, ALL MANHOLES, ALL BASINS, ALL SERVICE STUB OUTS DURING GRADES OR WATER LINES, WITH POTENTIALS AND IRRIGATION SYSTEMS. HORIZONTAL AND VERTICAL INFORMATION SHALL BE REQUIRED ON ALL SERVICE LINES AND FITTINGS. WATER LINE AS-BUILTS SHALL ALSO IDENTIFY MATERIAL TYPE AS WELL AS THE OUTSIDE DIAMETER OF ALL WATER LINES CONNECTED INTO. FOR ALL UTILITIES, HORIZONTAL AND VERTICAL INFORMATION IS REQUIRED AT ALL CROSSINGS OF OTHER
 - SUBMITTAL OF COPIES OF ALL INSPECTION REPORTS INCLUDING THE INSPECTOR'S DAILY DIARIES.

ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH VA DESIGN STANDARDS, MATERIALS SPECIFICATIONS, AND DRAWINGS. ALL MAIN INSTALLATIONS/SYSTEM MODIFICATIONS WILL BE APPROVED AND INSPECTED BY VA COTR OR ENGINEER OF RECORD. CONTRACTORS SHALL MAINTAIN A COPY OF THE CURRENT VA SPECIFICATIONS ON-SITE AT ALL TIMES DURING CONSTRUCTION. SEE THE CHART BELOW FOR A QUICK REFERENCE TO THE FREQUENTLY USED MATERIAL SPECIFICATIONS.

FOR ALL PIPE INSTALLATIONS, THE DEPTH OF COVER OVER THE PIPE, MEASURED FROM GRADE TO THE TOP OF THE PIPE, SHALL BE A MINIMUM OF 3 FEET AND SHALL BE KNOWN AS THE COVER OVER THE PIPE. IF DIFFICULTIES ARISE WHEN CROSSING INTERFERENCE, AND WHERE SPECIFICALLY APPROVED BY VA, DEVIATIONS FROM 3 FEET OF COVER WILL BE PERMITTED. THE COVER OVER THE PIPE SHALL BE A MINIMUM OF 3 FEET AND A MAXIMUM OF 10 FEET.

ANY CHANGES IN ALIGNMENT AND GRADE SHALL BE AUTHORIZED BY VA AND SHALL BE ACCOMPLISHED BY THE INSTALLATION OF ADDITIONAL FITTINGS. THE DEFLECTION OF JOINTS IS PERMITTED ONLY WHEN INSTALLING PIPE ON HORIZONTAL OR VERTICAL CURVES.

THE CONTRACTOR SHALL ADJUST ALL VALVE BOXES AND FIRE HYDRANTS TO THE FINAL FINISHED GRADE.

NEWLY INSTALLED WATER MAINS AND FIRE LINES SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH VA ENGINEERING SPECIFICATIONS.

SERVICES AND METERS:

THE COLORADO DEPARTMENT OF PUBLIC HEALTH & ENVIRONMENT (CDPHE) REGULATES ASBESTOS ACTIVITIES THROUGH THE AIR POLLUTION CONTROL DIVISION (APCD) AND THE SOLID WASTE AND MATERIALS MANAGEMENT DIVISION (SWMMMD) WHEN SOIL CONTAMINATION IS INVOLVED. VA WILL REQUIRE CONTRACTORS AND DEVELOPERS TO FOLLOW THE PROCEDURES BELOW WHEN CEMENT ASBESTOS PIPE IS ENCOUNTERED:

- a. THE PIPE MUST BE REMOVED FROM THE EXCAVATION FOR PROPER DISPOSAL.
- b. THE CONTRACTOR/DEVELOPER WILL MANAGE THE PIPE IN ACCORDANCE WITH THE FOLLOWING REGULATIONS:
 - c. COLORADO AIR REGULATIONS NO 8 - CONTROL OF HAZARDOUS AIR POLLUTANTS
 - d. OSHA 29 CFR 1926.1101 - GENERAL INDUSTRY STANDARDS ASBESTOS
 - e. OSHA 29 CFR 1926.1101 - CONSTRUCTION STANDARDS - ASBESTOS
- f. IF LARGE AMOUNTS OF CEMENT ASBESTOS PIPE ARE ANTICIPATED TO BE REMOVED, THE MATERIAL MUST BE MANAGED BY AN APPROPRIATE ASBESTOS ABATEMENT CONTRACTOR (160 SQUARE FEET OR 280 LINEAR FEET WILL REQUIRE A PERMIT).

CEMENT ASBESTOS PIPE IS CONSIDERED A NON-FRABLE ASBESTOS MATERIAL, DEFINED AS CONTAINING MORE THAN 1% ASBESTOS BY WEIGHT, AND CANNOT BE CRUMBLED, PULVERIZED, OR REDUCED TO POWDER BY HAND PRESSURE. THEREFORE, A RELEASE OF ASBESTOS FIBERS IS NOT LIKELY DURING NORMAL USE AND HANDLING OF THIS MATERIAL.

- a. MAIN EXTENSIONS AND PRIVATE PIPE EXTENSIONS SHALL BE CHLORINATED IN ACCORDANCE WITH AWWA C651- AND THE LOCAL HEALTH AUTHORITY HAVING JURISDICTION OVER THE PROJECT.
- b. THE CHLORINATING AGENT AND THE METHOD OF APPLICATION SHALL BE APPROVED BY THE VA. THE CHLORINATION OF THE FINISHED PIPELINE SHALL BE DONE PRIOR TO HYDROSTATIC TESTING. BEFORE FILLING THE PIPE WITH WATER, THE PIPE SHALL BE CLEANED AND SHALL BE FREE OF DEBRIS TO THE SATISFACTION OF THE VA. THE VA WILL NOT BE RESPONSIBLE FOR THE CHLORINATION OF THE PIPE IF THE APPROVED APPLICANT'S INSTALLATION OF MAINS UNDER PRIVATE CONTRACT.
- c. CHLORINE TABLETS MAY BE USED FOR DISINFECTION IN 12-INCH AND SMALLER PIPES SIXTEEN INCH AND LARGER PIPES REQUIRE CHLORINE SLURRY TO BE FED INTO THE WATER THAT IS USED TO FILL THE PIPE. CHLORINE TABLETS SHALL BE ATTACHED TO THE INSIDE OF THE PIPE USING APPROVED METHODS AS REFERRED TO NSF STANDARDS 61, PRIOR TO THE PIPE INSTALLATION IN THE TRENCH, AN APPROVED ADHESIVE IS DOW CORNING 748 MULTI-PURPOSE SEALANT.

SAMPLES OF WATER WILL BE COLLECTED FOR BACTERIOLOGICAL EXAMINATION AND RESIDUAL CHLORINE CONTENT TESTING BEFORE THE PIPE IS PUT INTO SERVICE. TESTING OF RESIDUAL CHLORINE AND SAMPLING WILL BE DONE BY THE LOCAL HEALTH AUTHORITY OR THEIR DESIGNATED REPRESENTATIVE.

RENCH BACKFILL AND COMPACTION SHALL BE PER VA TYPE 1 OR VA TYPE 2 TRENCHES
MATERIAL AND COMPACTION REQUIREMENTS FOR PIPE BEDDING/SHADING SHALL BE IN
ACCORDANCE WITH THE SPECIFICATIONS FOR THE APPLICABLE UTILITY PIPE.
PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF VA 32-12-
2-16.
ASPHALTIC TACK MATERIAL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF VA 32-12-
2-16.
ASPHALTIC CONCRETE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF VA 32-12-
2-16.
CONCRETE LOAD TRANSFER DOWELS SHALL BE PLACED WHENEVER NEW CURB, GUTTER,
SIDEWALK, DRIVEWAYS OR FLATWORK CONCRETE ARE CONSTRUCTED ADJOINING EXISTING,
CURB, GUTTER, SIDEWALK OR DRIVEWAYS, ETC. THE DOWELS SHALL BE 1/2 IN. DIAMETER
#8 IN. LONG DOWELS (#4 REBAR) WITH A MINIMUM OF 2 DOWELS IN ALL JOINTS PLUS 1
DOWEL FOR EACH ADDITIONAL 4 FEET OF CONCRETE WIDTH OR PORTION THEREOF. DOWELS
SHALL BE INSTALLED BY DRILLING THE EXISTING CONCRETE AND EPOXYING THE
DOWELS WHEREVER REQUIRED. USE AN APPROVED HIGH VISCOSITY EPOXY. #3 MAY BE
USED FOR CONCRETE THINNER. PEDESTRIAN TRAFFIC AREAS ONLY.

- THE CONCRETE PORTION REMAINING NEXT TO A LONGITUDINAL OR TRANSVERSE JOINT SHALL BE LESS THAN 4 FEET AT ITS NARROWEST WIDTH; REMOVE AND REPLACE THE EXISTING CONCRETE TO THE NEXT JOINT.
- ALL REPLACEMENT CONCRETE SHALL PROVIDE POSITIVE DRAINAGE, ANY AREAS WHERE THIS IS NOT POSSIBLE SHALL BE APPROVED BY THE COTR PRIOR TO POURING CONCRETE.
- CONSTRUCTION SURVEYING AND "AS-BUILT" DRAWINGS.
- BY CONTRACT WITH ITS SURVEYOR, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION SURVEYING, CALCULATING, LAYOUT AND STAKING NECESSARY FOR CONSTRUCTION OF ALL ELEMENTS OF THE PROJECT. ALL CONSTRUCTION SURVEYING AND PREPARATION OF AS-BUILT DRAWINGS SHALL BE IN ACCORDANCE WITH VA STANDARDS.
- THE WORKMAN PRESSURE THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL EMPLOY A SURVEYOR WHO SHALL PREPARE AND MAINTAIN A CURRENT SET OF AS-BUILT CONSTRUCTION DRAWINGS SHOWING ALL CHANGES AND DEVIATIONS FROM THE ORIGINAL DRAWINGS THAT WERE MADE IN THE CONSTRUCTED IMPROVEMENTS. THIS SHALL INCLUDE ALL CHANGES IN HORIZONTAL LOCATION AND VERTICAL ELEVATION OF ALL CONSTRUCTED IMPROVEMENTS, BOTH UNDERGROUND AND ON THE SURFACE. THE AS-BUILT DRAWINGS SHALL BE AVAILABLE TO THE COTR AT THE JOB SITE DURING WORKING HOURS.
- ALL EXISTING AND NEW RADIOACTIVE WASTE DEBRIS, INCLUDING IN THE 1940's, 50'S AND 60'S RADIOACTIVE URANIUM MILL TAILINGS WERE USED IN THE GRAND JUNCTION AREA AS FILLING AND BACKFILL MATERIAL FOR CONSTRUCTION OF PIPELINES, BUILDING FOUNDATIONS, PARKING LOTS, SIDEWALKS AND ROADWAYS. WHEN RADIOACTIVE MILL TAILINGS ARE FOUND IN, UNDER OR ADJACENT TO PIPE, ASPHALT PAVEMENT, CONCRETE OR OTHER MATERIALS DESIGNATED FOR REMOVAL, THE CONTRACTOR SHALL CONTACT THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE) WORKATION AND HAZARDOUS WASTE DIVISION (PHONE NO. 970-248-7164) FOR MATERIAL CHARACTERIZATION. IF THE RADIOACTIVE LEVEL OF THE CONTAMINATED MATERIAL EXCEEDS THE THRESHOLD LEVEL AS DETERMINED BY THE CDPHE REPRESENTATIVE, THE MATERIAL SHALL BE EITHER DETERMINED IN ACCORDANCE WITH CDPHE REQUIREMENTS, OR TRANSPORTED TO THE DESIGNATED RADIOACTIVE WASTE TREATMENT FACILITY LOCATED AT THE CITY SHOPS, 1333 WEST AVENUE FOR REMOVAL. PRIOR TO LOADING, ALL MATERIAL AND OTHER CONTAMINANTS CONTAINED WITH MILL TAILINGS SHALL BE BROKEN INTO PIECES WHICH ARE NO GREATER THAN SIX FEET IN ANY DIMENSION. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO SEPARATE UNCONTAMINATED MATERIALS FROM THOSE THAT HAVE BEEN CONTAMINATED WITH MILL TAILINGS.
- PRIOR TO TRANSPORTING RADIOACTIVE MILL TAILINGS OR OTHER MATERIALS CONTAMINATED WITH MILL TAILINGS, THE TRUCKING COMPANY SHALL MAKE ARRANGEMENTS WITH THE CITY OF GRAND JUNCTION INSPECTOR OR CALL THE CITY CONSTRUCTION ENGINEERING OFFICE AT (970) 244-1453 TO MAKE ARRANGEMENTS FOR OPENING AND CLOSING THE RADIOACTIVE MATERIALS CONTAINMENT FACILITY.
- TRUCKS USED TO HAUL URANIUM MILL TAILINGS AND OTHER RADIOACTIVE MATERIALS SHALL BE PREPARED TO PREVENT SPILLAGE. TAILGATE DIAPERS SHALL BE USED ON THICK TAILGATES THAT ARE NOT LEAK PROOF. TAILGATE DIAPERS SHALL BE 6-MIL OR THICKER AND 4 FEET BY 4 FEET. EACH LOAD SHALL BE COVERED WITH A BEDCOVER MADE OF CANVAS, OR OTHER APPROVED MATERIAL, AND SHALL BE SECURELY TIED DOWN. AFTER

DUMPING THE MATERIAL AT THE DESIGNATED CONTAINMENT SITE, THE BED OF EACH TRUCK SHALL BE SWEEPED OR WASHED OUT TO REMOVE ALL REMAINING RADIOACTIVE MATERIAL. EACH TRUCK DRIVER HAVING RADIOACTIVE MILL TAILINGS OR MATERIALS CONTAMINATED WITH MILL TAILINGS SHALL HAVE HIS REGISTRATION A DOCUMENT LISTING THE NAME AND ADDRESS OF THE TRANSPORTER. A DESCRIPTION OF THE RADIOACTIVE MATERIALS BEING TRANSPORTED, THE ADDRESS OR LOCATION WHERE THE RADIOACTIVE MATERIALS CAME FROM AND THE ADDRESS OF THE DESTINATION (CITY SHOPS, 333 WEST AVENUE). CONCRETE FOR CONSTRUCTION OF CURBS, GUTTERS, SIDEWALKS, CURB RAMPS, DRIVEWAY APPROACHES, CORNER FILLETS, DRAINAGE PANS, MEDIAN COVER AND TRAILS SHALL BE CDOT CLASS B MODIFIED AS FOLLOWS AND SHALL BE DESIGNATED AS CLASS GV-8 (CLASS B MODIFIED FOR THE GRAND VALLEY).

- a. MINIMUM FIELD COMPRESSIVE STRENGTH ----- 4500 P.S.I. AT 28 DAYS
- a. AIR CONTENT ----- 6% ± 1.5%
- c. MAXIMUM WATER CEMENT RATIO ----- 0.50
- d. MAXIMUM SLUMP AT DELIVERY SHALL BE 4". IN THE EVENT THAT THE CONCRETE SLUMP FROM THE FIRST TRUCK OF THE DAY EXCEEDS 5" THE LOAD WILL BE REJECTED. SUBSEQUENT BATCHES SHALL BE ADJUSTED SO THAT THE SLUMP AT DELIVERY DOES NOT EXCEED 4".


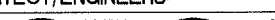

CAST IN PLACE CONCRETE USED IN CONSTRUCTION OF CONCRETE ENCASEMENT, THRUST BLOCKS, AND OTHER STRUCTURES, SHALL MEET THE REQUIREMENTS OF CDOT CLASS B (4500 PSI) COMPRESSIVE STRENGTH AT 28 DAYS, UNLESS OTHERWISE SPECIFIED. CONCRETE PROVIDED FOR ENCASEMENT SHALL BE MADE WITH TYPE V OR TYPE II MODIFIED PORTLAND CEMENT HAVING LESS THAN 5% (5 PERCENT) TRICALCIUM ALUMINATE. CEMENT MORTAR USED IN CONSTRUCTION OR MAINTENANCE OF MANHOLES, INLETS, VAULTS, ETC., SHALL BE A NON-SHRINK GROUT CONFORMING TO ASTM C-109 AND ASTM C-191 GROUT USED FOR SETTING/ADJUSTING CAST IRON MANHOLE RINGS SHALL BE QUIKRETE® RAPID ROUC REPAIR (NO. 1242) OR AN APPROVED AN EQUAL. ALL CRETE 5 MINUTE SET (FOSROC INC. GEORGETOWN KY) OR AN APPROVED EQUAL SHALL BE USED FOR MANHOLE INVERT WORK. CONCRETE SHALL BE PLACED IN 6" TO 8" LAYERS, AND DAMAGED AREAS OR M27M FOR BOXES WITH LESS THAN TWO FEET OF COVER SUBJECTED TO HIGHWAY LOADING. PRECAST CONCRETE STRUCTURES (VAULTS) SHALL BE PLACED ON PREPARED GRANULAR BEDDING, UNIFORMLY SUPPORTED, IN CORRECT ALIGNMENT AND AT PROPER GRADE. PIPE CONNECTIONS TO CONCRETE STRUCTURES SHALL RESULT IN A SMOOTHLY FINISHED, WATERTIGHT JOINT. IF THE PIPE IS NOT POLYETHYLENE WITH A SMOOTH FINISH, A WATER TIGHT JOINT SHALL BE INSTALLED ON THE END OF THE PIPE AND THE PIPE GROUTED INTO THE STRUCTURE OR A FLEXIBLE BOOT TYPE JOINT SHALL BE INSTALLED WITH STAINLESS STEEL STRAPS.

CAST IRON FRAMES SHALL BE ADJUSTED TO GRADE WITH WEDGES OR SHIMS TO ASSURE ACCURATE PLACEMENT. THE FRAME OR GRADE RINGS SHALL BE SET ON ALL MORTAR BEDDING. THE FINAL BOTTOM OF THE BOX, INLETS AND OTHER STRUCTURES SHALL BE CLEANED OF ANY ACCUMULATION OF SILT, DEBRIS, OR OTHER FOREIGN MATTER AND SHALL BE FREE FROM SUCH ACCUMULATIONS AT THE TIME OF FINAL INSPECTION.

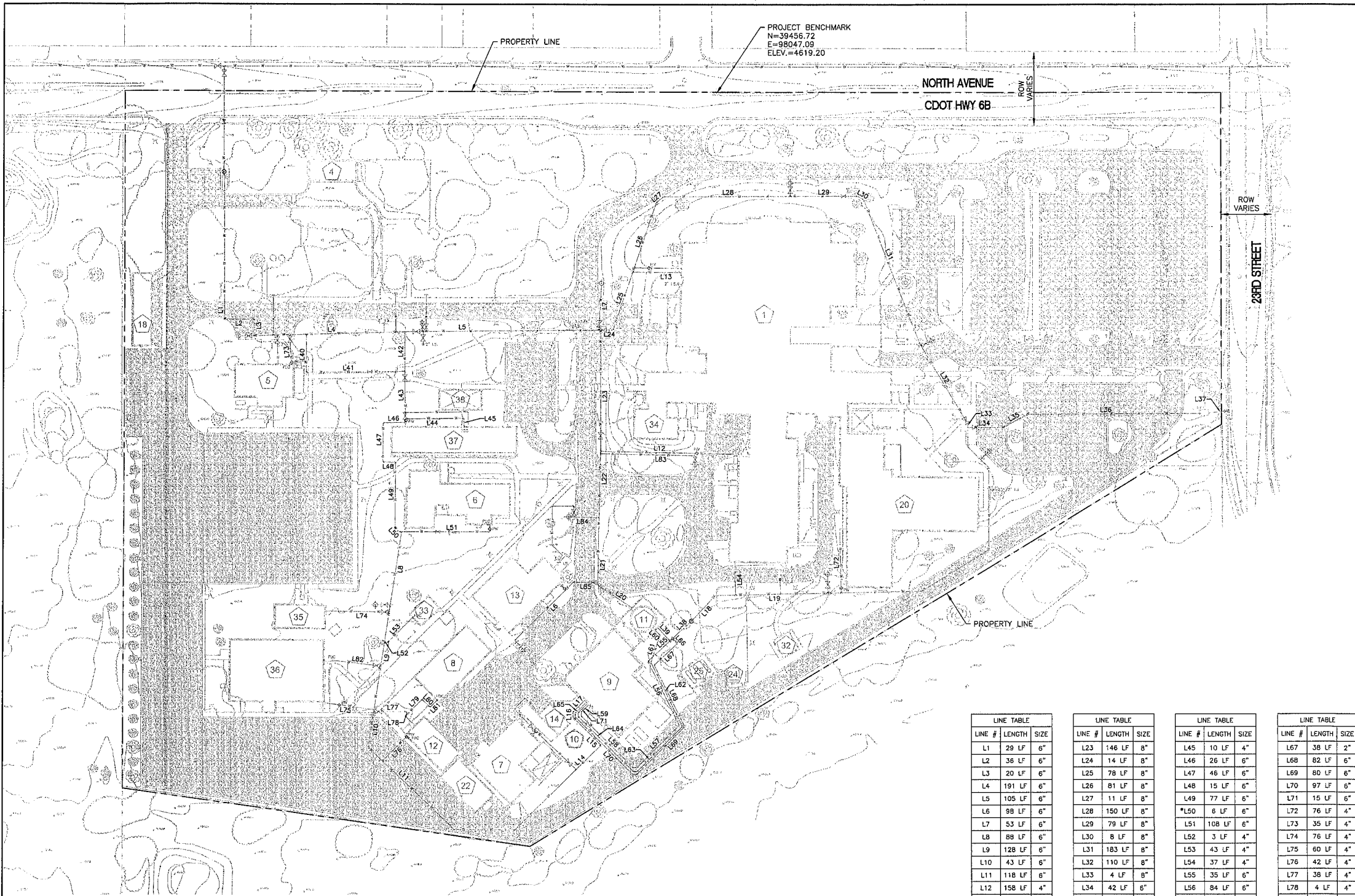
LESS OTHERWISE DIRECTED OR SPECIFIED IN THE SPECIAL PROVISIONS, ALL TRENCHES SHALL BE EXCAVATED TO AT LEAST SIX (6) INCHES BELOW THE PIPE GRADE AND BACKFILLED TO THE EXISTING GRADE WITH UNGRAVELLED BEDDING MATERIAL. THE BEDDING MATERIAL SHALL BE HAND SHAPED AND GRADED INTO A TRENCH BOTTOM UNIFORM IN DEPTH, FREE FROM ROCKS, BUMPS AND DEPRESSIONS, A COUPLING OR BELL HOLE SHALL BE DUG AT EACH PIPE JOINT WITH SUFFICIENT LENGTH, WIDTH AND DEPTH TO PERMIT ASSEMBLY OF THE JOINT AND PROVIDE A MINIMUM CLEARANCE OF TWO (2) INCHES BETWEEN THE COUPLING AND THE TRENCH BOTTOM. THE BEDDING MATERIAL SHALL BE BACKFILLED TO THE EXISTING GRADE. THE BEDDING UNDER EACH PIPE JOINT UNTIL ALL VOIDS ARE FILLED. CARE SHALL BE TAKEN NOT TO DISPLACE THE PIPE FROM ITS LINE AND GRADE.

THE CONTRACTOR SHALL SUBMIT THREE (3) COPIES OF ALL SUBMITTAL DATA FOR REVIEW AND/OR APPROVAL. SUBMITTALS SHALL INCLUDE AT A MINIMUM: (1) THE MANUFACTURER'S CERTIFICATE, (2) TYPE OF MATERIAL, (3) ASTM, ANSI, AWWA OR OTHER QUALITY STANDARDS AND (4) PIPE SPECIFICATION CLASS. IF THE MATERIALS DO NOT MEET THE QUALITY STANDARDS SPECIFIED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE CORRECT MATERIALS. BEFORE THE CONTRACTOR MUST OBTAIN APPROVAL OF ALL PIPE MATERIALS PRIOR TO COMMENCING CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TWO (2) COPIES OF A CERTIFICATE OF INSPECTION FROM THE PIPE MANUFACTURER THAT THE PIPE SUPPLIED HAS BEEN INSPECTED AT THE PLANT AND MEETS THE REQUIREMENTS OF THESE SPECIFICATIONS, (3) PIPE DELIVERY, STORAGE AND HANDLING: UNITS SHALL BE DELIVERED, HANDLED, AND MAINTAINED IN A MANNER THAT WILL NOT DAMAGE TO THE PIPE. THE PIPE SHALL BE STORED ON OPEN RACKS ON HIGH, AND NOT SUBJECT TO LOADING, UNLOADING OR OTHER MEANS OF CONTAMINATION. DURING UNLOADING, PIPING SHALL BE TARPED ON FRONT OF TRAILER TO PREVENT CONTAMINATION BY DIESEL FUMES FROM TRUCK, PIPING SHIPPED UNCOVERED WILL NOT BE ACCEPTED.

EXISTING PVC PIPE IS CERTAIN-TEED IPS 6" 200 PSI ASTM 2241 PIPE AND WILL REQUIRE SPECIAL GASKETS AT ALL JOINTS WITH THE C-900 PIPE.

CONSULTANTS: 		SEAL: 	ARCHITECT/ENGINEERS:  6155 E. EUCLID AVE. CENTENNIAL, CO 80111 Phone: (303) 470-7338 Fax: (303) 470-7333 ronald.geurts@CRGpro.com PROJECT #311002	Drawing Title NOTES SHEET Approved Project Director	Project Title REPLACE INCOMING WATER MAINS TO BUILDINGS Location GRAND JUNCTION, COLORADO Date 10/26/2011 Checked RAG Drawn JRF	Project Number 575-11-RP-0059 Building Number GJ-VAMC Drawing Number C-2 Dwg. 2 of 9	Office of Construction and Facilities Management  Department of Veterans Affairs
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one eighth inch = one foot
one quarter inch = one foot
three eighths inch = one foot
one half inch = one foot
three quarters inch = one foot
one inch = one foot
one and one half inches = one foot
two inches = one foot
three inches = one foot



BLDG #	FUNCTION
1	HOSPITAL
2	QUARTERS ABANDONED
3	QUARTERS ABANDONED
4	GARAGE STORAGE (TO BE ABANDONED)
5	ADMINISTRATIVE
6	ADMINISTRATIVE
7	WAREHOUSE
8	ADMINISTRATIVE / ENGINEERING
9	BOILER/CHILLER PLANT
10	SMOKESTACK
11	WATER TOWER
12	ADMINISTRATIVE / ENGINEERING
13	LAUNDRY
14	INCINERATOR
18	CARPORT
20	NURSING HOME
22	WAREHOUSE
24	ELECTRIC SWITCH
25	FUEL STORAGE
32	SHELTER
33	TELEPHONE SWITCH
34	ITS
35	ADMINISTRATIVE
36	ADMINISTRATIVE
37	RECREATION / ADMINISTRATIVE
38	BBQ SHELTER

- NOTES:**
- EXISTING CONDITIONS BASED UPON 2001 AERIAL SURVEY AND 2011 FIELD SURVEY. EXISTING WATER MAIN & FITTINGS LOCATED & FIELD SURVEYED ON 5/25/11 BY RCE CONSULTANTS, GRAND JUNCTION, CO (970) 243-8300.
 - FIRE HYDRANT & VALVE SYMBOLS ARE EXAGGERATED FOR CLARITY. SEE FIRE HYDRANT & VALVE TABLE FOR ACTUAL COORDINATE LOCATION.

BENCHMARK:
PROJECT BENCHMARK CP2, PK & WASHER
ON WEST END OF ISLAND BEING JUST
EAST OF VA NORTH AVE. ENTRANCE.
ELEVATION=4619.20 (NAVD 1988 DATUM).



NOTE: THIS LINE TABLE TO BE CONSIDERED RELIABLE TO THE EXTENT POSSIBLE FROM EXISTING DOCUMENTATION & SURFACE OBSERVATION. TO BE VERIFIED PRIOR TO CONSTRUCTION.
*L50 6" LENGTH IS UNDETERMINED

LINE #	LENGTH	SIZE
L1	29 LF	6"
L2	36 LF	6"
L3	20 LF	6"
L4	191 LF	6"
L5	105 LF	6"
L6	98 LF	6"
L7	53 LF	6"
L8	88 LF	6"
L9	128 LF	6"
L10	43 LF	6"
L11	118 LF	6"
L12	158 LF	4"
L13	57 LF	4"
L14	41 LF	6"
L15	47 LF	6"
L16	6 LF	4"
L17	20 LF	4"
L18	41 LF	6"
L19	148 LF	6"
L20	49 LF	8"
L21	80 LF	8"
L22	75 LF	8"

LINE #	LENGTH	SIZE
L23	146 LF	8"
L24	14 LF	8"
L25	78 LF	8"
L26	81 LF	8"
L27	11 LF	8"
L28	150 LF	8"
L29	79 LF	8"
L30	8 LF	8"
L31	183 LF	8"
L32	110 LF	8"
L33	4 LF	8"
L34	42 LF	6"
L35	33 LF	6"
L36	204 LF	6"
L37	24 LF	6"
L38	35 LF	6"
L39	21 LF	6"
L40	49 LF	6"
L41	116 LF	6"
L42	47 LF	6"
L43	61 LF	6"
L44	69 LF	4"

LINE #	LENGTH	SIZE
L45	10 LF	4"
L46	26 LF	6"
L47	46 LF	6"
L48	15 LF	6"
L49	77 LF	6"
*L50	6 LF	6"
L51	108 LF	6"
L52	3 LF	4"
L53	43 LF	4"
L54	37 LF	4"
L55	35 LF	6"
L56	84 LF	6"
L57	71 LF	6"
L58	87 LF	6"
L59	12 LF	6"
L60	8 LF	2"
L61	34 LF	2"
L62	85 LF	2"
L63	75 LF	2"
L64	92 LF	2"
L65	18 LF	2"
L66	8 LF	6"

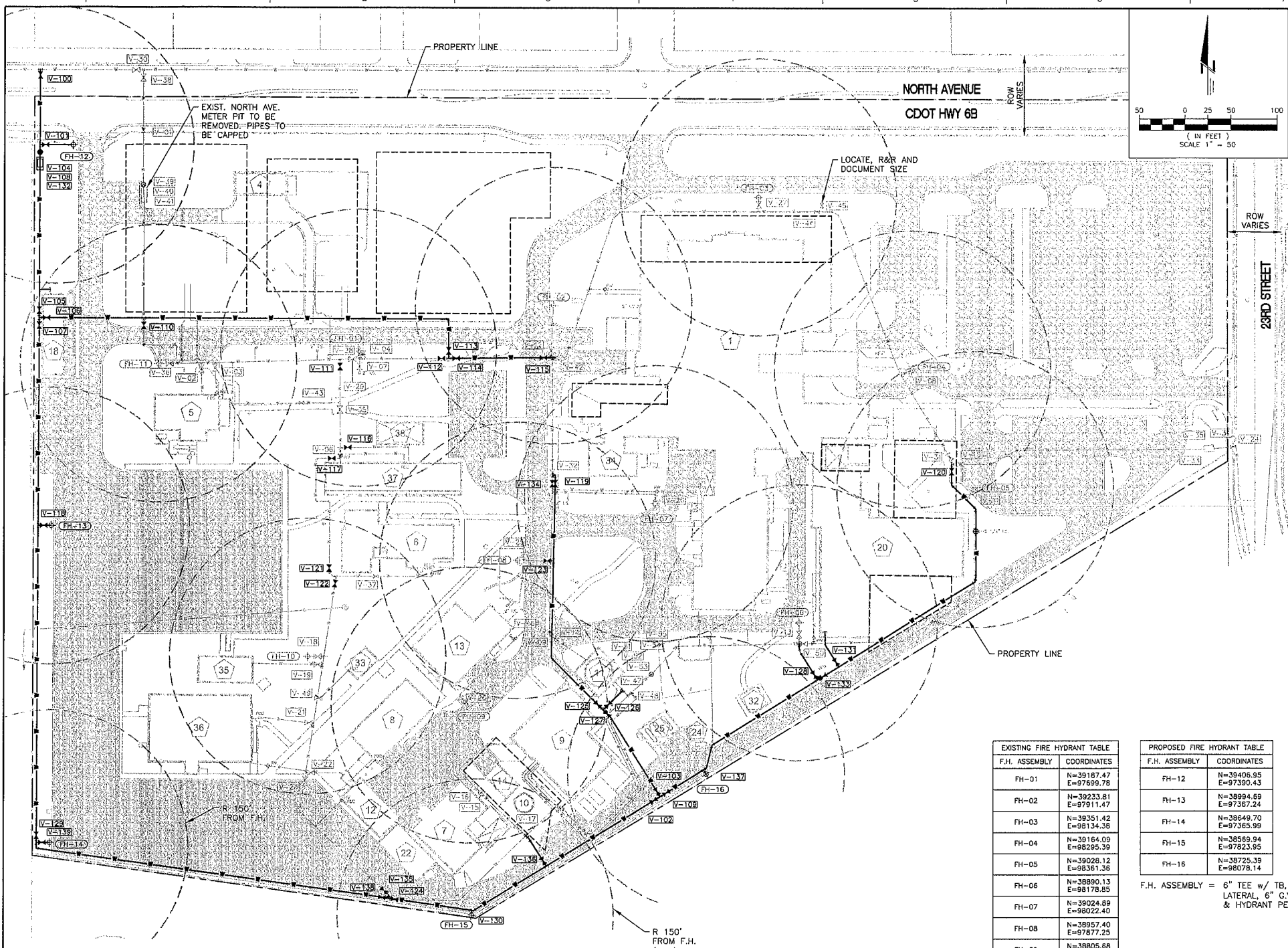
LINE #	LENGTH	SIZE
L67	38 LF	2"
L68	82 LF	6"
L69	80 LF	6"
L70	97 LF	6"
L71	15 LF	6"
L72	76 LF	4"
L73	35 LF	4"
L74	76 LF	4"
L75	60 LF	4"
L76	42 LF	4"
L77	38 LF	4"
L78	4 LF	4"
L79	24 LF	4"
L80	13 LF	4"
L81	12 LF	4"
L82	60 LF	4"
L83	112 LF	6"
L84	32 LF	6"
L85	28 LF	6"

LEGEND

- W --- EXISTING WATER MAIN
- ⊕ EXISTING FIRE HYDRANT
- ⊕ EXISTING VALVE
- 2" I.D. EXISTING 2" IRRIGATION SUPPLY
- EXISTING BUILDING
- EXISTING PAVEMENT
- EXISTING BUILDING NUMBER
- SURVEY CONTROL POINT
- PROPERTY LINE

CONSULTANTS:		SEAL:	ARCHITECT/ENGINEERS:	Drawing Title EXISTING SURVEY	Project Title REPLACE INCOMING WATER MAINS TO BUILDINGS	Project Number 575-11-RP-0059	Office of Construction and Facilities Management Department of Veterans Affairs
			CRG & ASSOCIATES ENGINEERING SERVICES	Approved Project Director	Location GRAND JUNCTION, COLORADO	Building Number GJ-VAMC	
					Date 10/26/2011	Drawing Number C-3	
					Checked RAG	Drawn JRF	

three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
one eighth inch = one foot
one quarter inch = one foot
one eighth inch = one foot



EXISTING FIRE HYDRANT TABLE	
F.H. ASSEMBLY	COORDINATES
FH-01	N=39187.47 E=97699.78
FH-02	N=39233.81 E=97911.47
FH-03	N=39351.42 E=98134.36
FH-04	N=39164.09 E=98295.39
FH-05	N=39028.12 E=98361.36
FH-06	N=38890.13 E=98178.85
FH-07	N=39024.69 E=98022.40
FH-08	N=38957.40 E=97877.25
FH-09	N=38805.68 E=97815.33
FH-10	N=38853.07 E=97645.54
FH-11	N=39170.36 E=97483.08

PROPOSED FIRE HYDRANT TABLE	
F.H. ASSEMBLY	COORDINATES
FH-12	N=39406.35 E=97390.43
FH-13	N=38994.69 E=97367.24
FH-14	N=38649.70 E=97365.99
FH-15	N=38589.94 E=97823.95
FH-16	N=38725.39 E=98078.14

F.H. ASSEMBLY = 6" TEE w/ TB, 6" LATERAL, 6" G.V. & BOX & HYDRANT PER SPEC.

EXISTING VALVE COORDINATE TABLE					
VALVE #	STATUS	BUILDING	COORDINATES	ACTION	SIZE
V-01	N.O.	-	N=39422.87 E=97465.68	A	-
V-02	N.O.	5	N=39169.31 E=97528.82	R&R	2"
V-03	N.C.	5	N=39166.85 E=97543.72	R&R	4"
V-04	N.O.	2	N=39176.80 E=97704.41	R&C	2"
V-05	N.O.	-	N=39120.94 E=97679.52	R&R	6"
V-06	N.O.	37	N=39072.44 E=97680.18	R&R	6"
V-07	N.C.	37	N=39173.88 E=97700.74	R&R	2"
V-08	N.O.	-	N=39161.73 E=98289.95	R&R	6"
V-09	N.O.	13	N=38879.89 E=97905.78	R&R	6"
V-10	N.O.	-	N=39082.55 E=98345.77	R&R	6"
V-11	N.O.	-	N=39026.13 E=98359.94	R&R	6"
V-12	N.O.	-	N=39179.62 E=97908.66	R&R	6"
V-13	N.O.	-	N=38877.66 E=98176.94	R&R	6"
V-14	N.O.	-	N=38873.17 E=97913.21	R&R	8"
V-15	N.O.	-	N=38702.11 E=97834.58	R&R	2"
V-16	-	-	N=38704.67 E=97833.57	R&R	2"
V-17	N.O.	-	N=38666.12 E=97874.33	R&R	UNK
V-18	N.O.	-	N=38553.07 E=97874.33	R&R	6"
V-19	N.O.	-	N=38844.37 E=97659.92	-	2"
V-20	N.O.	-	N=39025.24 E=98022.41	R&R	6"
V-21	N.O.	36	N=38780.70 E=97646.67	-	2"
V-22	N.O.	8	N=38726.20 E=97647.27	R&R	4"
V-23	N.O.	12	N=38718.30 E=97592.85	R&R	6"
V-24	N.O.	-	N=38681.83 E=98851.52	R&R	6"
V-25	N.O.	-	N=38958.90 E=97879.49	R&R	4"
V-26	N.O.	-	N=38808.30 E=97812.86	R&R	6"
V-27	N.O.	-	N=39347.59 E=98134.49	R&R	6"
V-28	N.O.	-	N=39178.23 E=97700.24	R&R	6"
V-29	N.O.	-	N=39175.83 E=97592.85	R&R	6"
V-30	N.O.	-	N=39486.14 E=97457.80	R	-
V-31	N.O.	-	N=39063.76 E=98344.25	R&R	8"
V-32	N.O.	-	N=39060.62 E=97911.21	R	8"
V-33*	N.O.	-	N=39078.69 E=98623.55	R&R	6"
V-34*	N.O.	-	N=39079.25 E=98623.55	R&R	2"
V-35*	N.O.	-	N=39080.37 E=98625.27	R&R	6"
V-36	N.O.	-	N=39170.37 E=97494.97	R&R	-
V-37	N.O.	-	N=38939.76 E=97718.05	R&R	4"
V-38	N.O.	-	N=39479.81 E=97465.68	R	-
V-39*	N.O.	-	N=39356.76 E=97467.11	R	6"
V-40*	N.O.	-	N=39354.91 E=97468.54	R	2"
V-41*	N.O.	-	N=39352.76 E=97467.26	R	6"
V-42	N.O.	-	N=39177.98 E=97913.54	R&R	8"
V-43	N.C.	VA	N=39128.08 E=97638.23	R&R	6"
V-44	N.O.	VA	N=39335.98 E=98197.49	R&R	8"
V-45	N.C.	VA	N=39342.71 E=98202.83	R&R	UNK
V-46	N.O.	VA	N=38874.28 E=97866.94	R&R	4"
V-47	N.O.	VA	N=38812.20 E=97894.97	R&R	6"
V-48	N.O.	VA	N=38810.73 E=97999.48	R&R	6"
V-49	N.O.	-	N=38807.84 E=97657.40	R&R	4"
V-50	N.O.	-	N=38867.74 E=98183.98	R&R	6"
V-51**	N.O.	11	N=38856.88 E=97874.15	R&R	6"
V-52**	N.O.	11	N=38850.01 E=97978.26	R&R	6"
V-53**	N.O.	11	N=38848.39 E=97982.34	R&R	6"
V-54**	N.O.	11	N=38852.44 E=97979.29	R&R	6"
V-55**	N.O.	11	N=38853.66 E=97980.25	R&R	2"

* V-33, V-34, V-35, V-39, V-40, AND V-41 ARE INSTALLED UNDER THIS CONTRACT.

** V-51 THRU V-55 APPURTENANCES ARE LOCATED WITHIN THE METER PIT. SEE DETAIL C-7. ALL SHALL BE REPLACED WITH EQUAL OR BETTER IN THIS CONTRACT.

N.O. = NORMALLY OPEN
N.C. = NORMALLY CLOSED
R = REMOVE
R&R = REMOVE AND REPLACE
VA = VALVE LOCATIONS NOT VERIFIED BY SURVEY
A = ABANDONED CLOSED
R&C = REMOVE AND CAP

PROPOSED VALVE COORDINATE TABLE		
VALVE #	COORDINATES	SIZE
V-100*	N=39478.19 E=97354.55	8"
V-101	N=39406.97 E=97360.38	6"
V-102	N=38896.48 E=98021.32	8"
V-103	N=38706.41 E=98024.37	8"
V-104*	N=39390.05 E=97354.27	8"
V-105	N=39227.47 E=97353.65	8"
V-106	N=39219.47 E=97361.62	8"
V-107	N=39211.47 E=97353.60	8"
V-108	N=39387.12 E=97355.10	2"
V-109	N=38704.92 E=98034.81	8"
V-110	N=39211.38 E=97466.51	6"
V-111	N=39167.70 E=97679.52	6"
V-112	N=39176.78 E=97790.04	6"
V-113	N=39184.85 E=97797.96	8"
V-114	N=39176.83 E=97806.04	8"
V-115	N=39177.85 E=97900.57	8"
V-116	N=39079.53 E=97888.09	6"
V-117	N=39067.70 E=97670.93	6"
V-118	N=38994.75 E=97359.14	6"
V-119	N=39040.81 E=97913.81	8"
V-120	N=39054.64 E=98344.18	8"
V-121	N=38948.61 E=97858.68	6"
V-122	N=38931.85 E=97674.88	6"
V-123	N=38956.85 E=97905.23	6"
V-124	N=38588.36 E=97735.60	8"
V-125	N=38799.54 E=97955.36	8"
V-126	N=38801.05 E=97971.97	8"
V-127	N=38790.76 E=97970.94	8"
V-128	N=38830.42 E=98197.66	6"
V-129	N=38649.77 E=97354.22	6"
V-130	N=38573.10 E=97824.40	6"
V-131	N=38845.20 E=98220.39	2"
V-132	N=39367.15 E=97356.18	6"
V-133	N=38829.89 E=98201.53	8"
V-134	N=39040.20 E=97901.17	8"
V-135	N=38594.41 E=97731.47	6"
V-136	N=38629.45 E=97901.99	6"
V-137	N=38727.86 E=98076.61	6"
V-138	N=38589.07 E=97730.65	8"
V-139	N=38661.22 E=97363.73	8"

LEGEND	
EXISTING	PROPOSED

- NOTES:**
1. ALL EXISTING WATER MAIN TO BE CONSIDERED 6" PVC UNLESS OTHERWISE NOTED (U.O.N.).
 2. ALL NEW WATER MAIN TO BE CONSIDERED 8" PVC U.O.N.
 3. ALL EXISTING VALVES TO BE REMOVED & REPLACED PER SPEC. U.O.N.
 4. FIRE HYDRANT & VALVE SYMBOLS ARE EXAGGERATED FOR CLARITY. SEE FIRE HYDRANT & VALVE TABLE FOR ACTUAL COORDINATE LOCATION.
 5. IF TRAFFIC FLANGE ELEVATION IS CALLED OUT AS 0.00' THE FLANGE SHALL BE SET 3" ABOVE EXISTING GRADE & SHALL NOT BE MORE THAN 3" ABOVE FINAL GRADE \pm 2".

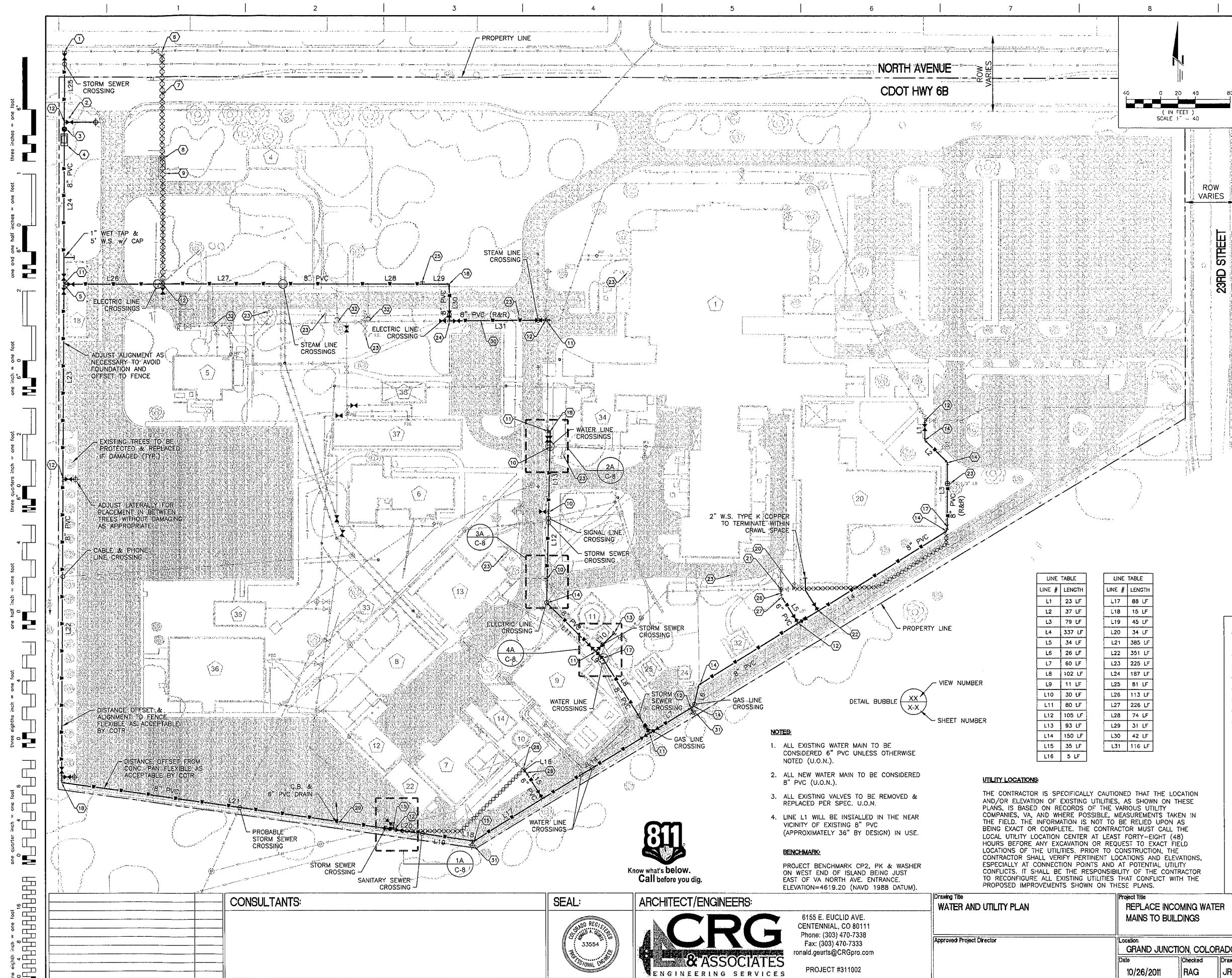
BENCHMARK:
PROJECT BENCHMARK CP2, PK & WASHER ON WEST END OF ISLAND BEING JUST EAST OF VA NORTH AVE. ENTRANCE. ELEVATION=4619.20 (NAVD 1988 DATUM).



UTILITY LOCATIONS:

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES, AS SHOWN ON THESE PLANS, IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, VA, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST FORTY-EIGHT (48) HOURS BEFORE ANY EXCAVATION OR REQUEST TO EXACT FIELD LOCATIONS OF THE UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY PERTINENT LOCATIONS AND ELEVATIONS, ESPECIALLY AT CONNECTION POINTS AND AT POTENTIAL UTILITY CONFLICTS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RECONFIGURE ALL EXISTING UTILITIES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS.

CONSULTANTS:		SEAL:	ARCHITECT/ENGINEERS:	Drawing Title	Project Title	Project Number	Office of Construction and Facilities Management
			CRG & ASSOCIATES ENGINEERING SERVICES	FIRE HYDRANTS AND VALVES	REPLACE INCOMING WATER MAINS TO BUILDINGS	575-11-RP-0059	
			6155 E. EUCLID AVE. CENTENNIAL, CO 80111 Phone: (303) 470-7338 Fax: (303) 470-7333 ronald.geurts@CRGpro.com	Approved Project Director	Location GRAND JUNCTION, COLORADO	Building Number GJ-VAMC	
			PROJECT #311002		Date 10/26/2011	Checked RAG	
					Drawn JRF	Dwg # C-4 of 9	



- 1 EXCAVATE & COORDINATE FOR CITY TO INSTALL 8" WET TAP & VALVE. STREET CUT & PATCH PER CDOT. SEE DETAIL ON SHEET C-8

2 EXISTING TREE TO BE REMOVED. STUMP AND ROOTS TO BE REMOVED WITHIN 12" OF SURFACE

3 RELOCATED 48" MH & SPIRAX/SARCO METER SYSTEM

4 PROVIDE NEW VAULT & METER PIT PER CITY DETAIL W-08 w/ HEATED "HOT BOX" & RP BACKFLOW VALVE IN COMPLIANCE WITH VA STD DETAIL AND CITY SPECIFICATIONS. THE BACKFLOW PREVENTER WILL BE INSPECTED AND TESTED BY A CERTIFIED TESTER. SEE DETAIL OF EXISTING. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL

5 INSTALL UNDER FOUNDATION w/ COMPACTION PER SPEC. EXCEPT AT 98% MODIFIED PROCTOR

6 EXCAVATE & REMOVE TEE & AC PIPE TO WESTERLY VALVE. REMOVE VALVE. REPLACE WITH 8" PVC CS90. ABANDON 6" LATERAL IN PLACE w/ CAP

7 GRAND JUNCTION PIPE #8891 PVC TO BE ABANDONED IN PLACE

8 REMOVE & RELOCATE SPIRAX/SARCO METER SYSTEM TO NEW LOCATION. 48" MH & METERS INSTALLED JULY 2011. PROVIDE DOCUMENTATION OF RE-COMMISSIONING & RENEW WARRANTY BY ORIGINAL MANUFACTURER (SNYDER CORPORATION) OR EQUAL. SEE VA PROJECTS VA-776-10-RA-0084 AND 19-VA701-C0081 DB METER PROJECTS (SUMMER 2011)

9 6"x16" VAULT & METER PIT WITH HOT BOX TO BE REMOVED ONCE NEW LINE & METER IS OPERATIONAL

10 DISCONNECT AT EXISTING TEE & INSTALL BLIND FLANGE. PROVIDE NEW 8"x8"x6" TEE w/ TB AND CONNECT EXIST HYDRANT LINE TO NEW 8" LINE

11 8"x8"x6" TEE w/ TB

12 8"x8"x6" TEE w/ TB

13 6"x6"x8" TEE w/ TB

14 8" 45° BEND w/ TB

15 6" 45° BEND w/ TB

16 8" 22.5° BEND w/ TB

17 8" 11.25° BEND w/ TB

18 8" 90° BEND w/ TB

19 6" 90° BEND w/ TB

20 90° 6"x4" REDUCING BEND w/ TB

21 6"x6"x6"x6" CROSS

22 2" WET TAP w/ W.S. TO BUILDING 20

23 REMOVE & REPLACE EXISTING IRRIGATION BACKFLOW PREVENTION WITH FEBCO 825YA. REUSE EXISTING CAGE SYSTEM.

24 8"x6"x8" TEE w/ TB

25 8"x8"x6" TEE & BLIND FLANGE

26 6" 11.25° BEND w/ TB

27 6" 22.5° BEND w/ TB

28 6"x6"x2" TEE w/ TB. 2" SERVICE TO BE FIELD VERIFIED

29 EXCAVATE (EXPOSE) MH AND DRAINPIPE PRIOR TO INSTALLING L20. PRESENT SITUATION AND RECOMMENDATION TO COTR FOR DECISION. INSTALL AS DIRECTED

30 L31 ALIGNMENT FLEXIBLE. CONTRACTOR TO CONSIDER OFFSET OPTIONS TO MAINTAIN SERVICE DURING CONSTRUCTION. NOTE: OLD ABANDONED "1955" LINE IS LOCATED IN GOOD BEDDING ROCK 24" SOUTH OF EXISTING

31 POTENTIALLY TIGHT FIT BETWEEN BACK OF CURB & FENCE LINE. FIELD ADJUST VALVE & HYDRANT AS APPROPRIATE AS APPROVAL TO COTR

32 EXCAVATE & REMOVE SERVICE LINE AT MAIN. SEAL SERVICE TAP WITH APPROPRIATE CAP/PLUG/FLANGE
- | EXISTING | LEGEND | PROPOSED |
|----------|----------------------------|----------|
| --- | FENCE | --- |
| --- | PHONE & CABLE | --- |
| --- | ELECTRIC LINE | --- |
| --- | GAS LINE | --- |
| --- | SANITARY SEWER | --- |
| --- | SIGNAL ? | --- |
| --- | STEAM LINE | --- |
| --- | STORM SEWER | --- |
| --- | WATER | --- |
| --- | AIR RELEASE VALVE | --- |
| --- | 2" IRRIGATION SUPPLY | --- |
| --- | END CAP | --- |
| --- | GATE VALVE | --- |
| --- | FIRE HYDRANT ASSEMBLY | --- |
| --- | FIRE DEPARTMENT CONNECTION | --- |
| --- | POST INDICATOR VALVE | --- |
| --- | LIGHT | --- |
| --- | STORM SEWER MANHOLE | --- |
| --- | SANITARY SEWER MANHOLE | --- |
| --- | WATER METER | --- |
| XXXXX | TO BE ABANDONED IN PLACE | --- |
| 1 | BUILDING NUMBER | --- |
| (R&R) | REMOVE AND REPLACE | --- |
| TB | TIE BACK / THRUST BLOCK | --- |

- NOTES:**
- ALL EXISTING WATER MAIN TO BE CONSIDERED 6" PVC UNLESS OTHERWISE NOTED (U.O.N.).
 - ALL NEW WATER MAIN TO BE CONSIDERED 8" PVC (U.O.N.).
 - ALL EXISTING VALVES TO BE REMOVED & REPLACED PER SPEC. U.O.N.
 - LINE L1 WILL BE INSTALLED IN THE NEAR VICINITY OF EXISTING 8" PVC (APPROXIMATELY 36" BY DESIGN) IN USE.
- BENCHMARK:**
- PROJECT BENCHMARK CP2, PK & WASHER ON WEST END OF ISLAND BEING JUST EAST OF VA NORTH AVE. ENTRANCE. ELEVATION=4619.20 (NAVD 1988 DATUM).

UTILITY LOCATIONS:

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES, AS SHOWN ON THESE PLANS, IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, VA, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST FORTY-EIGHT (48) HOURS BEFORE ANY EXCAVATION OR REQUEST TO EXACT FIELD LOCATIONS OF THE UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY PERTINENT LOCATIONS AND ELEVATIONS, ESPECIALLY AT CONNECTION POINTS AND AT POTENTIAL UTILITY CONFLICTS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RECONFIGURE ALL EXISTING UTILITIES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS.

LINE TABLE		LINE TABLE	
LINE #	LENGTH	LINE #	LENGTH
L1	23 LF	L17	88 LF
L2	37 LF	L18	15 LF
L3	79 LF	L19	45 LF
L4	337 LF	L20	34 LF
L5	34 LF	L21	385 LF
L6	26 LF	L22	351 LF
L7	60 LF	L23	225 LF
L8	102 LF	L24	187 LF
L9	11 LF	L25	81 LF
L10	30 LF	L26	113 LF
L11	80 LF	L27	226 LF
L12	105 LF	L28	74 LF
L13	93 LF	L29	31 LF
L14	150 LF	L30	42 LF
L15	35 LF	L31	116 LF
L16	5 LF		

CONSULTANTS:		SEAL:	ARCHITECT/ENGINEERS:	Drawing Title	Project Title	Project Number	Office of Construction and Facilities Management Department of Veterans Affairs	
			CRG & ASSOCIATES ENGINEERING SERVICES	WATER AND UTILITY PLAN	REPLACE INCOMING WATER MAINS TO BUILDINGS	575-11-RP-0059		
				Approved Project Director	Location	GJ-VAMC		
					GRAND JUNCTION, COLORADO	C-5		
					Date	Checked	Drawn	Dwg 5 of 9
					10/26/2011	RAG	JRF	

1. THE CONTRACTOR SHALL REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY BE DISCHARGED TO OR, ACCUMULATE IN, THE FLOWLINES, STORM DRAINAGE APPEARANCES, ROADWAYS AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS CONSTRUCTION PROJECT. SAID REMOVAL SHALL BE CONDUCTED IN A TIMELY MANNER.
2. THE CONTRACTOR SHALL PREPARE A STORMWATER MANAGEMENT PLAN AS REQUIRED BY APPLICABLE LAWS.
3. THE CONTRACTOR SHALL PREVENT SEDIMENT, DEBRIS AND ALL OTHER POLLUTANTS FROM ENTERING THE STORM SEWER SYSTEM DURING ALL DEMOLITION, EXCAVATION, TRENCHING, BORING, GRADING OR OTHER CONSTRUCTION OPERATIONS THAT ARE PART OF THIS PROJECT. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR REMEDIATION OF ANY ADVERSE IMPACTS TO ADJACENT WATERWAYS, WETLANDS, ETC., RESULTING FROM WORK DONE AS PART OF THIS PROJECT.
4. A LAYER OF SUITABLE MULCH SHALL BE APPLIED TO ALL DISTURBED PORTIONS OF THE SITE WITHIN 14 DAYS OF THE COMPLETION OF OVERLOT GRADING. SAID MULCH SHALL BE APPLIED AT A RATE OF 2 TONS PER ACRE AND SHALL BE TACKED OR FASTENED BY AN APPROVED METHOD SUITABLE FOR THE TYPE OF MULCH USED. ROUGH-CUT STREETS SHALL BE MULCHED UNLESS A LAYER OF AGGREGATE ROAD BASE OR ASPHALT PAVING IS TO BE APPLIED TO SAID ROUGH-CUT STREETS WITHIN THE 14 DAY PERIOD AFTER COMPLETION OF OVERLOT GRADING.
5. THE CONTRACTOR SHALL LOCATE, INSTALL, AND MAINTAIN ALL EROSION CONTROL WITH WATER QUALITY "BEST MANAGEMENT PRACTICES".
6. THE DEVELOPER, GENERAL CONTRACTOR, GRADING CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL INSURE THAT ALL LOADS OF CUT AND FILL MATERIAL IMPORTED TO OR EXPORTED FROM THIS SITE SHALL BE PROPERLY COVERED TO PREVENT LOSS OF THE MATERIAL DURING TRANSPORT ON PUBLIC RIGHTS OF WAYS.
7. SOILS THAT WILL BE STOCKPILED FOR MORE THAN 30 DAYS SHALL BE PROTECTED FROM WIND AND WATER EROSION WITHIN 14 DAYS OF STOCKPILE CONSTRUCTION. STABILIZATION AND PROTECTION OF THE STOCKPILE MAY BE ACCOMPLISHED BY ANY OF THE FOLLOWING: MULCHING, TEMPORARY/PERMANENT REVEGETATION OPERATIONS, CHEMICAL SOIL STABILIZER APPLICATION (REQUIRES WMD APPROVAL), OR EROSION CONTROL MATTING/GEOTEXTILES. IF STOCKPILES ARE LOCATED WITHIN 100 FEET OF A DRAINAGEWAY, ADDITIONAL SEDIMENT CONTROLS SUCH AS TEMPORARY DIKES OR SILT FENCE SHALL BE REQUIRED.
8. APPROVED EROSION AND SEDIMENT CONTROL "BEST MANAGEMENT PRACTICES" SHALL BE MAINTAINED AND KEPT IN GOOD REPAIR FOR THE DURATION OF THIS PROJECT. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL BMPs WEEKLY AND AFTER SIGNIFICANT PRECIPITATION EVENTS. ALL NECESSARY MAINTENANCE AND REPAIR SHALL BE COMPLETED IN A TIMELY MANNER. ACCUMULATED SEDIMENT AND DEBRIS SHALL BE REMOVED FROM A BMP WHEN THE SEDIMENT LEVEL REACHES ONE HALF THE HEIGHT OF THE BMP OR, AT ANY TIME THAT SEDIMENT OR DEBRIS ADVERSELY IMPACTS THE FUNCTIONING OF THE BMP.
9. WATER USED IN THE CLEANING OF CEMENT TRUCK DELIVERY CHUTES SHALL BE DISCHARGED INTO A PREDEFINED, BERMED CONTAINMENT AREA ON THE JOB SITE. THE REQUIRED CONTAINMENT AREA IS TO BE BERMED SO THAT WASH WATER IS TOTALLY CONTAINED. WASH WATER DISCHARGED INTO THE CONTAINMENT AREA SHALL BE ALLOWED TO INFILTRATE OR EVAPORATE. DRIED CEMENT WASTE IS REMOVED FROM THE CONTAINMENT AREA AND PROPERLY DISPOSED OF. SHOULD A PREDEFINED BERMED CONTAINMENT AREA NOT BE AVAILABLE DUE TO THE PROJECT SIZE, OR LACK OF AN AREA WITH A SUITABLE GROUND SURFACE, FOR ESTABLISHING A CONTAINMENT AREA, PROPER DISPOSAL OF READY MIX WASHOUT AND RINSE OFF WATER AT THE JOB SITE SHALL CONFORM TO THE APPROVED TECHNIQUES AND PRACTICES IDENTIFIED IN THE COLORADO DEPARTMENT OF PUBLIC HEALTH & ENVIRONMENT'S TRAINING VIDEO ENTITLED BUILDING FOR A CLEANER ENVIRONMENT, READY MIX WASHOUT TRAINING, AND ITS ACCOMPANYING MANUAL ENTITLED, READY MIX WASHOUT GUIDELINES, VEHICLE AND EQUIPMENT WASHOUT AT CONSTRUCTION SITES, INFORMATION ABOUT, OR DETAILS OF THE VIDEO TRAINING MATERIAL ARE AVAILABLE FROM THE WATER QUALITY CONTROL DIVISION, COLORADO DEPARTMENT OF PUBLIC HEALTH & ENVIRONMENT, 4300 CHERRY CREEK DRIVE SOUTH, DENVER, COLORADO 80222-1530, 303-692-3555
10. THE CONTRACTOR SHALL PROTECT ALL STORM SEWER FACILITIES ADJACENT TO ANY LOCATION WHERE PAVEMENT CUTTING OPERATIONS INVOLVING WHEEL CUTTING, SAW CUTTING OR ABRASIVE WATER JET CUTTING ARE TO TAKE PLACE. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL WASTE PRODUCTS GENERATED BY SAID CUTTING OPERATIONS ON A DAILY BASIS. THE DISCHARGE OF ANY WATER CONTAMINATED BY WASTE PRODUCTS FROM CUTTING OPERATIONS TO THE STORM SEWER SYSTEM IS PROHIBITED.
11. PAVED SURFACES WHICH ARE ADJACENT TO CONSTRUCTION SITES BE SWEEPED IN A TIMELY MANNER WHEN SEDIMENT AND OTHER MATERIALS ARE TRACKED OR DISCHARGED ON TO THEM. EITHER SWEEPING BY HAND OR USE OF STREET SWEEPERS IS ACCEPTABLE. STREET SWEEPERS USING WATER WHILE SWEEPING IS PREFERRED IN ORDER TO MINIMIZE DUST.

A TEMPORARY SEDIMENT BARRIER CONSISTING OF A FILTER FABRIC STRETCHED ACROSS AND ATTACHED TO SUPPORTING POSTS AND ENTRENCHED. THE SILT FENCE IS A TEMPORARY LINEAR FILTER BARRIER CONSTRUCTED OF SYNTHETIC FILTER FABRIC AND SUPPORTED BY WOODEN OR STEEL POSTS.

1. TO INTERCEPT AND DETAIN SMALL AMOUNTS OF SEDIMENT FROM DISTURBED AREAS DURING CONSTRUCTION OPERATIONS IN ORDER TO REDUCE SEDIMENT IN RUNOFF FROM LEAVING THE SITE.
2. TO DECREASE THE VELOCITY OF SHEET FLOWS AND LOW-TO-MODERATE LEVEL CONCENTRATED FLOWS.

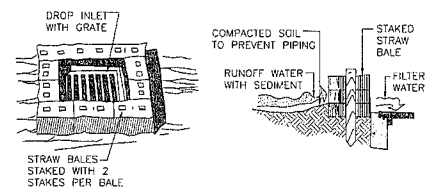
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1. SET POSTS.
2. EXCAVATE A 4' X 4' TRENCH UPSLOPE ALONG THE LINE OF UPRIGHTS.
3. ATTACH FILTER MATERIAL TO POSTS OR INSERT SEVEN POCKETS OVER POSTS AND EXTEND IT INTO THE TRENCH.
4. FINISHED SECTION:
- WOODEN POSTS
- FILTER FABRIC, ATTACH
- RUNOFF
- Min. 12"
- APPROX. 4' X 4' TRENCH

DEFINITION

A SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA AROUND A STORM DRAIN

PURPOSES

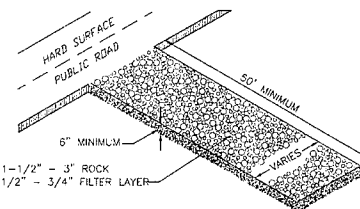
TO PREVENT SEDIMENT FROM ENTERING STORM DRAINAGE SYSTEMS PRIOR TO PERMANENT STABILIZATION OF THE DISTURBED AREA.



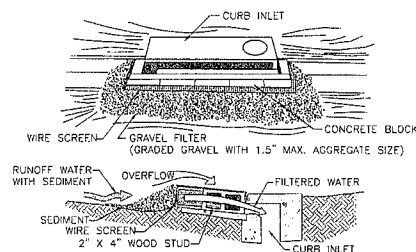
SPECIFIC APPLICATION

SPECIFIC APPLICATION
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPES NO GREATER THAN 5 PERCENT) WHERE SHEET OR OVERLAND FLOWS (NOT EXCEEDING 0.5 CFS) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

INLET PROTECTION
W/ STRAW BALE SEDIMENT FILTER (IP)



VEHICLE TRACKING CONTROL (VTC)



SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE AN OVERFLOW CAPABILITY IS NECESSARY TO PREVENT EXCESSIVE PONDING IN FRONT OF STRUCTURE.

NOTE:

1. ALTERNATE DESIGN COULD UTILIZE GRAVEL FILLED BAGS.

CURB INLET PROTECTION (IP)
BLOCK AND GRAVEL FILTER

[illegible]