METROPOLITAN UTILITIES DISTRICT OF OMAHA
OMAHA, NEBRASKA

SPECIFICATION FOR MATERIALS

1. DISTRICT FURNISHED MATERIALS

* A. Materials to be Furnished – The District will furnish "Not in Service" Tags/Bags, all valves 14" and larger, chlorine tubes 12" and larger, plastic pipeline markers, and Bentomat® CL geosynthetic clay liner.

B. Availability – District furnished materials are available for Contractor inspection and loading at the District Service Yard at 3100 South 61st Avenue, Omaha, Nebraska from 8:30 a.m. to 3:00 p.m. weekdays, excluding holidays. The Contractor shall provide personnel to load material. The District will not deliver any material.

C. Inspection – The Contractor shall inspect District furnished material prior to loading and reject damaged or defective items.

D. Replacement – The District will replace damaged or defective materials rejected by the Contractor. Except as provided herein, materials accepted by the Contractor and found to be damaged or defective prior to project acceptance or during the warranty period shall be replaced by the Contractor at the Contractor's expense. This includes furnishing necessary material, supplies, labor and facilities.

E. Return of Defective Materials – The Contractor shall return damaged or defective District furnished materials. Material damaged by the Contractor will be exchanged and the Contractor will be charged for its replacement or repair, whichever is less. If material is determined to be factory defective, it will be exchanged without cost to the Contractor.

2. CONTRACTOR FURNISHED MATERIALS

A. Materials to be Furnished – The Contractor shall furnish all materials not supplied by the District but required for the work covered by these Specifications.

B. Inspection – Contractor furnished material is subject to inspection and approval by the District. The Engineer will reject material that is damaged, defective or does not meet specifications.

C. Replacement – The Contractor shall replace material rejected prior to project acceptance or during the warranty period. This includes furnishing all necessary material, supplies, labor, and facilities at Contractor expense.

D. Submittals – Contractor shall provide submittals for all furnished materials to be approved by the District's Engineer before installation.

3. HANDLING AND STORAGE OF MATERIALS – All material shall be delivered to, and unloaded at, the project site by the Contractor. The Engineer must approve all handling and hauling equipment. The Contractor is responsible for safely storing material until it is incorporated in the project. Material stored on-site shall be set on blocks or pallets to prevent runoff from flowing over it.

4. DISTRICT'S RIGHT TO REPLACE MATERIALS – When damaged, defective or unacceptable materials may cause damage to the District's system, or threatens service to a substantial number of District customers, and where the Contractor cannot take immediate action, the District will act immediately to replace those materials. The District will notify the

* Denotes change

Contractor of the action taken and deduct any costs from final payment. Costs will be computed on a time and material basis.

5. RETURN OF DISTRICT FURNISHED MATERIAL

A. Unused Material – The Contractor shall return unused District furnished material to the District Service Yard. The cost of any material not permanently installed and not returned, or returned damaged, will be deducted from final payment.

B. Chlorine Tubes – Chlorine tubes shall be returned to the District Service Yard no later than seven (7) calendar days after hydrostatic pressure testing and chlorination. The District will inspect chlorine tubes for damage, make necessary repairs, and deduct the cost of repairs from final payment. The cost will be computed on a time and material basis. Final payment and release of taps to the main will not be processed until all chlorine tubes have been returned.

6. REQUIREMENTS FOR CONTRACTOR FURNISHED MATERIALS

A. Bentonite Granules shall be non-toxic, high swelling, low dust, granular, sodium bentonite used for sealing overlapped sections of geosynthetic clay liner around pipe. Acceptable brands are CETCO Volclay CG-50 (50lb bag) and BAROID granular bentonite (50 lb bag) available at local horizontal directional drilling (HDD) supply companies.

B. Bituminous Paving Mixtures shall meet the requirements of the agency having jurisdiction of the affected pavement.

C. Bolts

Tee Head Bolts and Hexagonal Nuts for use with mechanical joint pipe and fittings shall conform to ANSI/AWWA C111/ A21.11 and shall be manufactured in the United States by Birmingham Fastener, Inc.

Steel Machine Bolts shall be in accordance to ASTM A307. Bolts smaller than ¾" shall be Grade B and feature heavy hexagonal heads per ASME B18.2.1. Bolts ¾" and larger shall be Grade A and feature hexagonal heads per ASME B18.2.1. Nuts shall be in accordance to ASTM A563 Grade A and be heavy hexagonal per ASME B18.2.2. Threads shall conform to ASME B1.1 with Class 2A for bolts and Class 2B for nuts. Bolt size shall conform to ASME B16.1 for Class 125 flanges. Bolts shall extend ¼" to ½" beyond the nut after assembly of the joint.

D. Brass Pipe and Fittings shall conform to ANSI B43.66 and ANSI B16.15, respectively.

E. Casing shall be welded steel smooth wall pipe conforming to ASTM A139, Grade B, with a minimum wall thickness in accordance with the Nebraska Department of Roads *Policy for Accommodating Utilities on State Right-of-Way*, or as indicated on the project drawing.

* Denotes change.

F. Casing Spacers

Steel Casing Spacers shall have minimum 10-gauge steel risers welded to minimum 14-gauge steel bands. Bands and risers shall have a minimum 10-mil (dry film thickness) fusion-bonded epoxy or fusion bonded PVC coating, or shall be 304 stainless steel. All risers shall be the same height and equally spaced around the pipe. A flexible inner liner shall protect the polyethylene encasement and prevent slippage. Runners shall have a low friction coefficient and be non-conductive, abrasion resistant, and at least 1-1/2" wide.

HDPE (High Density Polyethylene) Casing Spacers shall be totally non-metallic and assembled on-site by fitting one reusable element into another. Spacers shall be capable of carrying the filled weight of the pipeline without deformation of the supports.

G. Concrete shall conform to the City of Omaha's "Standard Specifications for Public Works Construction" for streets and roads within city limits and all subdivisions within Omaha's zoning jurisdiction. Provide State of Nebraska Class 47B Concrete in all other areas.

H. Corporation Stops

Air Tap Corporations shall be 1" threaded outlet ball valves with AWWA Standard inlet threads per AWWA C800 and female iron pipe outlet threads.

Sample Tap Corporations shall be 3/4" threaded outlet ball valves with AWWA Standard inlet threads per AWWA C800 and female iron pipe outlet threads.

Acceptable Air Tap and Sample Tap Corporations

Mueller B-20045
A.Y. McDonald 3148B
Ford FB1600

Pitometer Tap Corporations shall be 1" Mueller H-9992 ground key corporation stops.

I. Electrofusion Couplings for HDPE Pipe shall meet AWWA C906 with a pressure rating equal to or greater than the specified pipe and shall be compatible for fusion to the specified HDPE pipe. Acceptable manufacturers are Georg Fischer Central Plastics, Friatec, or approved equal.

J. Flange Insulating Sets shall consist of one (1) Type E gasket with a G-10 retainer and nitrile sealing element, a double set of reinforced G-10 insulating washers, steel washers, and full length 1/32" wall G-10 Insulating Sleeves. Insulating sets shall be Pipeline Seal and Insulator, Inc. "Linebacker", Advance Products and Systems, Inc. "Trojan", or Central Plastics "Jock".

K. Flowable Fill shall be per city of Omaha Standard Specifications Section 204.

L. Flex Restraints and Wall Anchors for HDPE PIPE shall meet AWWA C906 with a pressure rating equal to or greater than the specified pipe and shall be compatible for fusion to the specified HDPE pipe. Acceptable manufacturers are Georg Fischer Central Plastics Company, Performance Pipe (a Division of Chevron Philips Chemical Company LP), or approved equal.

* Denotes change.

M. Gaskets

Mechanical Joint and Push Joint Gaskets shall meet AWWA C111. In the event organic chemicals (gasoline, diesel, oil, etc.) are encountered in the soil during construction, the gasket shall be Nitrile (NBR).

Flange Gaskets shall be 1/8" thick and full-faced with inside diameter, outside diameter, and bolt holes meeting ANSI B16.1 for Class 125. Gaskets shall be Garlock Rubber Technologies Baystate 22, or approved equal.

N. Gate Valves (small) 2-1/2" and smaller gate valves shall be bronze-bodied with threaded ends, union bonnet, solid wedge disc, rising stem and handwheel. 200 PSI WOG rated. Brass materials in contact with potable water shall be made of no-lead brass Copper alloy C89833. For nonpotable water brass shall be ASTM B-62 Copper alloy C83600. Acceptable valves are Milwaukee UP105 or approved equal.

O. Geotextile Fabric shall be Mirafi 500X, Synthetic Industries 200ST, or approved equal.

P. Grass Seed shall be City of Omaha Type "A", except in areas under County or State jurisdiction where a mixture of equal parts of orchard grass, brome grass and K-31 fescue shall be used.

Grass seed used to restore disturbed areas within the Papio-Missouri River Natural Resources District's channel levee right-of-way shall be as follows: 20 lbs. pure live seed (PLS) per acre Smooth Brome, 20 lbs. PLS per acre Tall Fescue (K31), 4 lbs. PLS per acre Switchgrass, 2 bushel per acre oats.

Q. Joint Lubricant shall be supplied by the pipe manufacturer and conform to AWWA C111 and be NSF 61 certified.

R. Manholes

Rings and Covers - 24" manhole rings and covers shall conform to District Drawings 416206 or 416207. 36" manhole rings and covers shall conform to District Drawing 416232. Approved manufacturers are Deeter Foundry, Inc., Neenah Foundry Company, East Jordan Iron Works (Product # NCR06-0074B and NCR06-0074C) and GCI Castings, Inc.

Joint Sealing Compound shall be preformed Butyl rubber in 1" rope form. Acceptable brands are K.T. Snyder Company RAM-NEK and Press Seal Gasket Corporation PRO-STIK.

S. Mechanical Couplings shall be rated for 150-psi water working pressure and 200-psi test pressure. Couplings shall feature carbon steel end rings, steel bolting, shop-coating (or epoxy-coating with stainless steel bolting) and meet AWWA C219 and the following:

Pipe Size	Minimum Length of middle ring	Minimum Thickness of middle ring
4" - 12"	5"	1/4"
14" - 24"	6"	3/8"
30" & larger	10"	1/2"

* Denotes change.

Acceptable Straight Couplings for Ductile Iron Pipe Sizes:

Pipe Size (O.D.)	Coupling
4” (4.80”)	Dresser 38 (steel w/ steel end rings) Ford FC3 (steel w/ steel end rings) Smith-Blair 411 (steel w/ steel end rings) Total Piping Solution Hymax #2000-0563-260 (steel)
6” (6.90”)	Dresser 38 (steel w/ steel end rings) Ford FC3 (steel w/ steel end rings) Smith-Blair 411 (steel w/ steel end rings) Total Piping Solution Hymax #2000-0768-260 (steel)
8” (9.05”)	Dresser 38 (steel w/ steel end rings) Ford FC3 (steel w/ steel end rings) Smith-Blair 411 (steel w/ steel end rings) Total Piping Solution Hymax #2000-0984-260 (steel)
10” (11.10”)	Dresser 38 (steel w/ steel end rings) Smith-Blair 411 (steel w/ steel end rings)
12” (13.20”)	Dresser 38 (steel w/ steel end rings) Romac 400 (steel w/ steel end rings) Smith-Blair 411 (steel w/ steel end rings) Total Piping Solution Hymax #2000-1366-260 (steel)
14” (15.30”) and 16” (17.40”)	Dresser 38 (steel w/ steel end rings) Ford FC4 (steel w/ steel end rings) Romac 400 (steel w/ steel end rings) Smith-Blair 411 (steel w/ steel end rings)
18” (19.50”) and larger	Dresser 38 (with steel end rings) Ford FC4 (steel w/ steel end rings) JCM 201 (steel w/ steel end rings) Romac 400 (steel w/ steel end rings) Smith-Blair 411 (steel w/ steel end rings)

Mechanical joint solid sleeves are approved alternatives to straight couplings, provided the fittings (sleeves) meet MUD 111.

Acceptable Transition Couplings for Ductile Iron Pipe Size to Cast Iron Pipe Size (Oversize):

Pipe Size (D.I.O.D. to C.I.O.D.)	Coupling
4” (4.80” to 5.00")	Dresser 38 (steel w/ steel end rings) Smith-Blair 413 (steel w/ steel end rings) Total Piping Solution Hymax #2000-0563-260 (steel)
6” (6.90” to 7.10")	Dresser 38 (steel w/ steel end rings) Smith-Blair 413 (steel w/ steel end rings) Total Piping Solution Hymax #2000-0768-260 (steel)
8” (9.05” to 9.30")	Dresser 38 (steel w/ steel end rings)

* Denotes change.

	Smith-Blair 413 (steel w/ steel end rings) Total Piping Solution Hymax #2000-0984-260 (steel)
10” (11.10” to 11.40")	Dresser 38 (steel w/ steel end rings) Smith-Blair 413 (steel w/ steel end rings) Total Piping Solutions Hymax #2000-1200-260 (steel)
12” (13.20” to 13.50")	Dresser 38 (steel w/ steel end rings) Smith-Blair 413 (steel w/ steel end rings) Total Piping Solution Hymax #2000-1366-260 (steel) Romac TC400 (steel w/ steel end rings)
14” (15.30” to 15.65")	Dresser 62 (steel w/ steel end rings) JCM 203 (steel w/ steel end rings) Romac TC400 (steel w/ steel end rings) Smith-Blair 413 (steel w/ steel end rings)
16” (17.40” to 17.80")	Dresser 62 (steel w/ steel end rings) JCM 203 (steel w/ steel end rings) Romac TC400 (steel w/ steel end rings) Smith-Blair 413(steel w/ steel end rings)
18” (19.50” to 19.92")	Dresser 62 (steel w/ steel end rings) JCM 203 (steel w/ steel end rings) Romac TC400 (steel w/ steel end rings) Smith-Blair 413 (steel w/ steel end rings)
20” (21.60” to 22.06”)	Dresser 62 (steel w/ steel end rings) JCM 203 (steel w/ steel end rings) Romac TC400 (steel w/ steel end rings) Smith-Blair 413(steel w/ steel end rings)
24” (25.80” to 26.32”) and larger	Dresser 62 (steel w/ steel end rings) Ford FC6 (steel w/ steel end rings) JCM 203 (steel w/ steel end rings) Romac TC400 (steel w/ steel end rings) Smith Blair 413(steel w/ steel end rings)

Mechanical joint dual purpose solid sleeves with oversize glands are approved alternatives to transition couplings, provided the fittings (sleeves) meet MUD 111.

T. Mechanical Joint Adapter Kit for HDPE Pipe (6” – 24”) – Mechanical Joint Adapters shall properly join AWWA C906 HDPE pipe to mechanical joint bells, which meet the requirements of ANSI/AWWA C111/A21.11. The joint between the mechanical joint adapter and HDPE pipe shall be a thermal butt-fusion joint, unless otherwise indicated on the project drawings or directed by the engineer. MJ Adapters shall be provided with a Stainless Steel Stiffener (included in the manufactured fitting). MJ Adapters shall be provided with Heavy Duty fusion bonded epoxy coated follower/back-up ring, conforming to AWWA C110. Kit will also include bolts and nuts made from ASTM A193 Type 304 Stainless Steel and shall be manufactured in the U.S.A. by Birmingham Fastener. Bolts shall be long enough to accommodate the added length of the HDPE fittings. Acceptable manufactures are Georg Fischer Central Plastics, Performance Pipe or approved equal.

* Denotes change.

U. Mechanical Joint Restraint – MJ Adaptors shall be a bolt-through positive restraint mechanism meeting working pressure specifications of AWWA C153 for compact fittings and manufactured of ductile iron conforming to ASTM A536, 80-55-06. MJ adaptors shall connect standard mechanical joint fittings (AWWA C110 or C153) and valves at a linear distance not to exceed three (3) inches and without attachment to pipe. MJ adaptors shall be installed with standard styrene butadiene rubber (SBR) MJ gaskets conforming to the latest revision of AWWA C111 and be supplied with an NSF 61, 7-mil fusion bonded epoxy coating. The bolts and nuts shall be ASTM A193 Type 304 Stainless and shall be manufactured in the U.S.A. by Birmingham Fastener. Provide Infact Foster Adaptor or STAR MJxMJ Adapter.

V. Polyethylene Encasement (polywrap) shall be V-Bio® Enhanced linear low-density polyethylene (LLDPE) film, white in color, conforming to the latest version of AWWA Specification C105. Polywrap is to be furnished by the pipe manufacturer/supplier of the ductile iron pipe. Polywrap may be purchased separately from polywrap manufacturers/suppliers only if approved by Engineering. Plastic tape furnished and used with the polywrap shall be at least 2" wide with a pressure sensitive adhesive, plastic tape brands allowed include Polyken 900, Scotchwrap No. 50 or engineer approved equal.

W. Glands

Standard MJ Glands shall be ductile iron and conform to the latest version of AWWA C111.

Set Screw Retainer Glands shall be ductile iron per ASTM A536 with cup-point, square head set screws. Acceptable glands are:

For ductile iron pipe:

Ford Uni-Flange Model B
SIGMA RMG
SIP Industries
Tyler Pipe/Union Foundry
STAR Series 600

Wedge Action Retainer Glands shall be ductile iron with heat-treated ductile iron wedges and twist-off torque nut bolts. Ductile iron shall be per ASTM A536 grade 65-45-12. Wedges shall have a minimum hardness of 370 BHN. The gland shall allow for a minimum deflection of 3° and allow joint movement after installation. Glands 16" and smaller shall have a pressure rating of 350 psi with a safety factor of at least 2:1. Glands larger than 16" shall have a pressure rating of 250 psi with a safety factor of at least 2:1. The gland shall be provided with torque limiting twist-off nuts with an additional fixed hex head to allow for removal and reinstallation of the gland. Twist-off torque nut bolts shall be coated or lubricated in a manner to prevent corrosion and pre-mature twist-off of the torque limiting twist-off nuts. Acceptable glands are:

For ductile iron pipe:

EBAA Iron Megalug Series 1100
Ford Uni-Flange Series 1400
STAR Stargrip 3000
SIGMA One-Lok SLD
SIP Industries

* Denotes change.

TYLER UNION TUFGRIP DUCTILE IRON TLD

For PVC pipe:

EBAA Iron Megalug Series 2000PV
STAR PVC Stargrip 4000E9408985
TYLER UNION TUFGRIP PVC TLP
FORD Uni-Flange Series 1500

For HDPE pipe:

EBAA Iron Megalug 2000PV Series for 6" – 12" DIPS (shall be installed with metal Stiffening Insert)
STAR PVC/HDPE Stargrip 4000 Series for 6" – 12" DIPS (shall be installed with metal Stiffening Insert)

For 16", 20", 24" DIPS see Section 6.W. Restrainer for HDPE Pipe.

Split Wedge Action Retainer Glands shall comply with the specifications of wedge action retainer glands. The gland shall be in two halves allowing for installation on existing M.J. joints. Acceptable glands are:

For ductile iron pipe:

EBAA Iron Megalug Series 1100SD
FORD Uni-Flange Series 1405

For PVC pipe:

EBAA Iron Megalug Series 2000SV

X. Restrainer for HDPE Pipe (16"-24") - Restrainer for HDPE pipe shall be a split, two piece configuration with a serrated inside surface and provide a wide supportive contact around the full circumference of the pipe. Restrainer body shall be ASTM A-285 Grade C Steel with Epoxy coating on all surfaces except the serrations. The restrainer fasteners (rods) shall be per AWWA C111/ANSI 21.11. Restrainer shall be installed with metal Stiffening Insert per Section 6.X. Provide JCM Sur-Grip 610 Series or approved equal.

Y. Stiffening Inserts for HDPE Pipe

Stiffening Inserts for HDPE 6"-16" DIPS Pipe shall be a two piece design (stiffener and wedge) and shall be made of Type 304 Stainless Steel per ASTM A240. Stiffeners shall be provided to fit the DR as specified on Contract drawings and inside diameter of the specific pipe manufacturer chosen by the Contractor. Provide Cascade Waterworks (6"–16"), Romac (6"-12") or approved equal.

Stiffening Inserts for HDPE 16"- 24" DIPS Pipe shall be a one piece design with tapered insert end and shall be made of Type 304 Stainless Steel per ASTM A240. Stiffeners shall be provided to fit the DR as specified on Contract drawings and inside diameter of the specific pipe manufacturer chosen by the Contractor. Provide JCM 230 Series (16"-24") HDPE Stiffeners or approved equal.

* Denotes change.

Z. Rock & Gravel

Hydrant Drainage Rock shall be as specified in Construction Standard 3.0.1.

Sand-Gravel for Trench Subgrade shall be State of Nebraska Department of Roads' fine aggregate for Class 47B Concrete.

Crushed Rock for Trench Subgrade shall be 1-1/2" dry, cleaned, crushed limestone.

Crushed Rock and Gravel for Roads shall meet requirements of the agency having jurisdiction.

AA. Screw Jacks shall be complete with pipe, screw, wing nut/handle and socket butt end. Provide 2" diameter Schedule 80 Extra Strong Steel pipe and Milwaukee Tool & Equipment Item T-14 Screw End and T-2 Socket Butt End.

BB. Sod shall match the type and variety of grass established and shall meet the quality requirements of the City of Omaha's "Standard Specifications for Public Works Construction".

CC. Adjustable Valve Boxes (CC Boxes)

Cast Iron Valve Boxes shall conform to District Drawing No. 416128, and include base, middle section, top section, and deep skirt cover marked "Water". Provide Tyler 6860 CC, Bingham and Taylor No. 4906, East Jordan Iron Works 8560 Series, STAR Pipe Products Dwg. A-1676 dated 12-10-2004, SIGMA VB630CC/VB2600/WVB6306.

Cast Iron Valve Box Alignment Device shall accept a #6 valve box base and shall center the valve box over the valve. The device shall be manufactured from ¾" and ½" recycled rubber compound. Provide Adaptor Inc.'s Valve Box Adaptor II #6 Base or approved equal.

Plastic Valve Boxes shall feature white or black ABS (Acrylonitrile-Butadrene-Styrene) plastic middle, extension and base sections. The top section shall be cast iron and shall accept the cast iron cover specified above. The middle section and extensions shall interchange with cast iron top sections. Provide Bingham and Taylor Middle #P5M64 Full Thread (36" L), Extension #P5E58FT Full Thread (18" L), Base Item #P5BA6.

DD. Plastic Test Boxes shall feature a 2-1/2" or 2-3/8" I.D. x 15" long ABS (Acrylonitrile-Butadrene-Styrene) plastic body with cast iron lid. The body shall be flared at the base to prevent pull-out or settling. The cast iron lid shall be marked "Test" or "Test Station". Acceptable test boxes are: Bingham and Taylor 2-1/2"x15" test box, C.P. Test Services Mini Box, or Handley Industries Model T2.

EE. Service Saddle for Sample Taps and Air Taps on PVC Mains shall have a CC (AWWA) outlet sized for the mating corporation. The saddle shall be 85-5-5-5 cast bronze per ASTM B62. The saddle shall feature straps for use on PVC pipe. Strap(s), nuts, and washers shall be 18-8 Type 304 Stainless Steel. Acceptable saddles are:

Ford 202BS
Mueller BR 2 S Series
Smith Blair 325

* Denotes change.

FF. Service Saddle for Sample Taps and Air Taps on HDPE Mains shall be specified on Contract Drawings. Electrofusion saddles and sidewall fusion tapping saddles shall be installed by MUD construction division unless specified differently on Contract Drawings or in Contract Documents.

GG. 6" and 8" Chlorine Tubes shall conform to drawings:
MUD 125 (MUD 119) FIG 1 - 6" CHLORINE TUBE FOR CONTRACTED PROJECTS
MUD 125 (MUD 119) FIG 2 - 8" CHLORINE TUBE FOR CONTRACTED PROJECTS.
Drawings are available through MUD Engineering and on the Districts' website at https://www.mudomaha.com/contractors/specifications-and-documents

HH. Silt Fence

Filter Fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six (6) months of expected usable construction life at a temperature range of 0° - 120° Fahrenheit. Filter fabric shall conform to the following specifications:

Properties	Minimum Requirement	Test Method
Grab Tensile Strength (lbs)	130	ASTM D4632
Elongation @ Failure (%)	8	ASTM D4632
Mullen Burst Strength (psi)	175	ASTM D3786
Flow Rate (gal/min/ft)	90	ASTM D4751
Ultraviolet Radiation Stability (%)	80	ASTM D4355

Acceptable silt fence fabrics are:

- FabTex SCF1300 manufactured by FabTex Solutions Inc. and distributed by ASP Enterprises
- Style 1215 Silt Fence manufactured by Willacoochee Industrial Fabrics and distributed by Lumbermen's

Post shall be a minimum of 4' long. Post shall be steel and be a standard "T" or "U" post weighing not less than 1.25 pounds per lineal foot.

Ties shall be 7" long black plastic zip ties.

I I. Curb Inlet Filters shall be the Silt-Saver SS-300 or approved equal.

JJ. Soil Stabilization Blankets and Matting

Combination Material Blanket/Matting shall consist of photo-degradable polypropylene net stitched with a biodegradable thread to 100% straw. The straw shall be evenly distributed over the blanket for a consistent thickness. The straw shall interlock or entwine to form a dense layer which resists raindrop impact, but allows vegetation to penetrate the blanket. The blanket shall be non-toxic to vegetation and to the germination of seed and shall not be harmful to the unprotected skin of humans. At a minimum, a polypropylene net shall cover the top side of the blanket and possess high web strength. The netting shall be entwined with the straw to maximize strength and provide for ease of handling.

* Denotes change.

Approved soil stabilization blankets are:

- S31 manufactured by Erosion Control Blanket and distributed by Lumbermen's
- American Excelsior Premier Single Net Straw or Curlex I CL stocked and distributed by Miller Seed in Lincoln
- S75 manufactured by North American Green and distributed by ASP Enterprises
- S32 manufactured by Erosion Control Blanket and distributed by Lumbermen's
- American Excelsior Premier Double Net Straw or Curlex II CL stocked and distributed by Miller Seed in Lincoln
- S150 manufactured by North American Green and distributed by ASP Enterprises

Staples shall be #13 gauge wire or heavier. The length shall be a minimum of 6" with a distance of 1" to 2" between the legs of the staple. Wood or bio-degradable plastic staples that provide proper embedment and support may be used.

KK. 1" and 2" Automatic Air Release Valves shall be the S-050 (1") and D-040 (2") Automatic Air Release Valves "SEGEV" as manufactured by A.R.I. Flow Control Accessories or approved equal. The valves shall feature a male 1" or 2" NPT end with a strainer and a vacuum check valve. The valves shall be for potable water and have a working pressure range of 3 – 230 psi.

LL. Gate Valves 4" through 12" shall be provided in accordance with MUD 122. Only the approved manufacturers listed in MUD122 will be accepted. Additionally the contractor shall operate each valve to confirm it operates smoothly, confirm the directions of each valve (RH/LH), and magnet check bolts to confirm they are stainless steel.

The following modifications are made to Section 4.1 of MUD 122:

Contractor is not required to submit product data at the time of bid, but shall provide the product data prior to installation.

The following modification is made to Section 6.3 of MUD 122:

The affidavit stating that valves are in compliance with AWWA C509 and/or AWWA C515 and other provisions of MUD 122 is not required at the time of bid but shall be provided with each project before installation.

MM. Dry-Barrel Fire Hydrants shall be provided in accordance with MUD 100; only the approved hydrants listed in MUD100 will be accepted.

The following modifications are made to Section 4.3 of MUD 100:

1. Contractor is not required to submit product data at the time of bid, but shall provide the product data prior to installation.
2. Paint samples will not be required.
3. Delete the sentence "After award of bid, furnish updates on all data requested above associated with design and/or manufacturing changes." The sentence is not applicable for hydrants furnished by contractors on a per project basis.

The following modification is made to Section 6.3 of MUD 100:

The affidavit stating that the hydrants and materials used in their construction conform to applicable requirements of AWWA and these specifications is not required at the time of bid but shall be provided with each project before installation.

* Denotes change.

* NN. Check Valves 6",8", and 12" shall feature a ductile iron body and bonnet and a buna-n rubber-encapsulated, nylon-reinforced metal disc with integral o-ring seating. Bolts & plugs shall be ASTM A193, grade B8 (AISI Type 304 Austenitic Steel) stainless steel. Provide ANSI B16.1 Class 125 flanges. The valve will be designed for a minimum of 175 PSI working pressure. The interior and exterior of the body and bonnet will be epoxy coated.

Approved Check Valves are:

- American Flow Control Series 2100
- APCO Model 108
- Val-Matic Swing-Flex Model 508
- Kennedy – Ken Flex
- Mueller – Flexible Disc

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