

CITY OF ALLEN, TEXAS
SPECIAL PROVISION
TO THE
NORTH CENTRAL TEXAS STANDARD SPECIFICATIONS

MATERIALS

PART II: MATERIALS

The North Central Texas Standard Specifications, Materials - Division 2, shall be modified and clarified by the addition of the following requirements of the various items. Except when specifically stated, none of the requirements of PART II: MATERIALS, shall be deleted.

PART II: DIVISION 300 - ROADWAY CONSTRUCTION

ITEM 301.2.3.4.2 QUICKLIME

Add the sentence: Quick Lime shall not be used in the construction of roadway work in Allen.

ITEM 301.2.3.4.2 HYDRATED LIME OR COMMERCIAL LIME SLURRY

Add the following sentence: Dry hydrated lime shall not be used for treating subgrade or base material unless specified on the plans.

ITEM 301.5. FLEXIBLE SUBBASE OR BASE (CRUSH STONE/CONCRETE)

Delete this section entirely and substitute with the following.

Any flexible base used shall conform to the latest amended TxDOT specifications unless otherwise noted in the plans. Crushed concrete shall not be used.

ITEM 302.2 AGGREGATES FOR HOT MIX ASPHALT PAVEMENT

302.2.1 General Requirements

Add the following: Paving mixtures which may be used on paving projects in Allen consist of the coarse graded base course Type "A", fine graded base or leveling up coarse Type "B", coarse graded surface course Type "C", or fine grades surface course Type "D". Gradations for Type "A" and Type "C" are showing in Special Provision Item 2.4.13 HOT MIX ASPHALTIC CONCRETE. Specifications of Type "B" and Type "D" are included in the Standard Specifications for Public Works Construction, North Central Texas. When Type "A" and Type "C" paving mixtures are specified, specifications for these types are included in the Texas State Department of Highways and Public Transportation Standard Specifications and these specifications shall apply.

ITEM 302.9.3 HOT MIX ASPHALT PAVEMENT

- C. Paving Mixture: Add the following requirements of proportions by weight for Type "A" and Type "C" Hot Mix Asphaltic Concrete.

COARSE GRADED BASE COURSE (TYPE "A")

Passing	Retained On	Percent
2-inch sieve		100
1-3/4 inch sieve		95 to 100
1-3/4 inch	7/8-inch sieve	16 to 42
7/8-inch sieve	3/8-inch sieve	16 to 42
3/8-inch sieve	No. 4 sieve	10 to 26
No. 4 sieve	No. 10 sieve	5 to 21
Total retained on	No. 10 sieve	68 to 84
No. 10 sieve	No. 40 sieve	5 to 21
No. 40 sieve	No. 80 sieve	3 to 16
No. 80 sieve	No. 200 sieve	2 to 16
No. 200 sieve		1 to 8

The asphaltic material shall form from 3.5 to 7 percent of the mixture by weight or from 8 to 16 percent of the mixture by volume, unless specified otherwise on the plans.

COARSE GRADED BASE COURSE (TYPE "A")

Passing	Retained On	Percent
2-inch sieve		100
1-3/4 inch sieve		95 to 100
1-3/4 inch	7/8-inch sieve	16 to 42
7/8-inch sieve	3/8-inch sieve	16 to 42
3/8-inch sieve	No. 4 sieve	10 to 26
No. 4 sieve	No. 10 sieve	5 to 21
Total retained on	No. 10 sieve	68 to 84
No. 10 sieve	No. 40 sieve	5 to 21
No. 40 sieve	No. 80 sieve	3 to 16
No. 80 sieve	No. 200 sieve	2 to 16
No. 200 sieve		1 to 8

ITEM 303.1 DESCRIPTION

Add the following paragraph: Where Type I cement is used, if required by the Owner, samples of the proposed Portland Cement will be obtained prior to beginning the work and one (1) set of three (3) cube specimens shall be made and tested at 3 days and 7 days for compressive strength. The 3-day strength shall have a minimum comprehensive strength of 1800 psi and the 7-day strength shall have a minimum comprehensive strength of 2800 psi. In addition, compressive strength cube specimens shall be made and tested at a frequency of one (1) set per 600 tons of cement used during construction so that the quality of the cement can be observed throughout the project. At the beginning of the project, samples of the cement shall be furnished to the laboratory to test for the fineness of the cement. Type I cement shall not exceed 1500 square centimeters per gram as measured by the Turbidimeter in accordance with Method C115. Also, at the beginning of the project, the time of setting by VICAT NEEDLES, Method C191, shall be made. The initial set shall not be less than 48 minutes.

ITEM 303.2.1 AGGREGATES FOR PORTLAND CEMENT CONCRETE PAVMENT

303.2.1.3 Coarse Aggregates

303.2.1.3.2 Gradation: Add the sentence: For Allen paving projects, the coarse aggregates gradation shall meet the requirements of Grade No. 3 shown in the table.

ITEM 303.2.3 CHEMICAL ADMIXTURES

Add the following: All reinforced concrete pavement shall contain an air entraining admixture having $5\% \pm 2\%$ entrained air in the concrete. Also, at the Contractors option a water reducing admixture may be used. All beam and cylinders prepared for testing in connection with the mix design shall contain the approved air entraining admixture and water reducing admixture.

303.2.3.1 Add the following as 303.2.3.1: Fly Ash: Add the following: Fly Ash admixtures may be used with Type I cement in mix designs for concrete pavements, except on State Highway improvements in Allen. Fly ash meeting the requirements of the Standard Specifications shall be used in the admixture. The maximum cement reduction shall not exceed 20% by weight per cubic yard of concrete except with approval of the Engineer based on laboratory test results, and fly ash replacement shall be 1.25 pounds per 1.0 pound of cement reduction.

Fly ash can only be used for machine placed concrete. Fly ash mix cannot be used for hand pours.

ITEM 303.5.4.7 JOINT SEALING

Delete paragraph: Ready-Mixed Cold-Applied Joint.

PART II: DIVISION 500 – UNDERGROUND CONSTRUCTION AND APPURTENANCES

ITEM 501.5 REINFORCED CONCRETE SEWER PIPE WITH RUBBER GASKET JOINTS

501.5.1 General

Add the following: Reinforced concrete pipe used in the sanitary sewer system is not allowed within the City of Allen, unless otherwise noted in the plans or directed by the City Engineer.

ITEM 501.7 DUCTILE-IRON PRESSURE PIPE AND FITTINGS

501.7.1 General

Add the following: Minimum design thickness for all Ductile-Iron Pipe installed within the City of Allen shall be Class 50 on sizes 12 inches and smaller, and Class 51 on sizes 14 inches and larger.

ITEM 501.10.1 GENERAL (Add The Following)

Water services from the main to the meter shall be installed as follows:

Two (2) inch or smallerSDR 9, Class 200 Poly

Three (3) inch4-inch C-900 PVC at the vault per Item 2.12.20
with reducer at meter

Larger than three (3) inchC-900 PVC per Item 2.12.20

ITEM 501.14.1 POLYVINYL CHLORINE (PVC) WATER PIPE (add the following)

All PVC water pipe shall be Class 200-DR14 for 6-inch diameter and Class 150-DR18 above, 6-inch diameter, and shall be extruded PVC pipe of the rubber gasket type joint and shall be furnished in 20-foot nominal laying lengths.

All fittings shall be ductile-iron of bell and spigot or mechanical joint, Class 250, in accordance with AWWA Specification C 110, C 111, or C 153 (Compact), and shall be tar coated on the outside surface and shall have an interior cement lining with seal coat per AWWA Specification C104, unless otherwise shown in the plans.

ITEM 502.1.1.1.1 JOINTS (Add the Following)

All sanitary sewer manholes installed in the City of Allen, shall have "O" ring joints conforming with ASTM Designation C443.

ITEM 502.1.1.2 Delete Item 502.1.1.2 Fiberglass Manholes in its entirety.

ITEM 502.3 FIRE HYDRANTS

Delete this item in its entirety and substitute therefore the following:

502.3.1 MATERIALS

All fire hydrants furnished shall conform strictly with the latest specification C-502 of the American Water Works Association Standards for dry barrel fire hydrants and must comply with the following supplementary details and changes or addition.

502.3.1.1 Supplementary Details Specified

502.3.1.1.1 Inlet Connection: Unless otherwise specified the inlet connection shall be a six (6) inch standard mechanical joint complete with all joint accessories. The inlet shoe shall be cast of complete with all joint accessories. The inlet shoe shall be cast of the same or stronger metal than the lower barrel to prevent impact damage of the shoe. The interior of the shoe, including the lower valve plate and/or cap nut shall have a protective epoxy coating of at least 4 mils applied in the shop. If a cap nut is utilized it must be locked in place with a stainless steel lock washer or similar non-corrosive device and all machined surfaces must be protected from water intrusion to prevent corrosion and assure ease of field teardown or maintenance.

502.3.1.1.2 Main Valve: The main valve shall be compression tape, closing with the pressure and shall be not less than 5-1/4" in diameter. Composition of the main valve shall be molded rubber or neoprene having a durometer hardness of 90+5 and shall be not less than 1" thick to protect against hydrant chatter and give long term durability.

502.3.1.1.3 Outlet Nozzles: All hydrants shall be "three way", equipped with two hose nozzles and one pumper nozzle.

502.3.1.1.4 Diameter Outlet Nozzles: The hydrant shall have two hose nozzles, two and one-half (2½") inches nominal I.D., and one pumper nozzle four and one-half (4½") inches nominal I.D. with Natural Standard Hose Threads.

502.3.1.1.5 Nozzle Attachment: All nozzles shall be mechanically connected into the barrel and have "O" Ring pressure seals to provide a positive seal between nozzles and hydrant barrel. A suitable nozzle lock shall be

provided and shall be stainless steel or bronze. Nozzles shall not be caulked in.

Nozzles caps shall be furnished with pentagon nut the same size as the operating nut. They shall be furnished with interior rubber gaskets that will seat against bronze nozzles. All caps shall be secured to hydrant barrel by heavy duty non-kinking chains with a chain loop on each cap that permits free turning of the cap, for speed and ease of removal by fire fighters.

- 502.3.1.1.6 Operating Nut: The operating nut shall be non-rising, pentagonal shape, measuring 1-1/8" at the top and 1-1/4" at the base from point to flat. Pentagon shall have a depth of at least one and one-quarter inch (1-1/4"). The hydrant shall be constructed in such a manner that the operating nut, "O" Rings and washers can be removed and replaced without removing the bonnet. All bearing surfaces of the operating nut shall be bronze.
- 502.3.1.1.7 Weather Cap: A weather cap shall be affixed which conceals the holddown nut. It shall also be embossed with an arrow indicating the opening direction. The direction of opening shall be counter-clockwise.
- 502.3.1.1.8 Lubrication Reservoir: The hydrant shall have completely "O" Ring sealed oil reservoir with a minimum of two (2) "O" Ring pressure seals to prevent contamination of the oil around the operating parts of the hydrant. The oil reservoir shall be cast in such a manner that all operating parts shall be repairable without removal of the bonnet to facilitate repairs and shall be of a design that all bearing surfaces and threaded parts will be automatically lubricated upon each operation of the hydrant. If bearing surfaces are not lubricated, the design shall keep operating friction to a minimum. A high wear resistant thermostat plastic anti-friction washer shall be in place above the thrust collar to minimize operation torque and facilitate long term ease of operation. The operating threads must be sealed against contact with water to all times regardless of open or closed position of main valve. The Hydrant shall have the capability of field personnel to visually check oil level and add additional oil if needed. Filler and inspection plug shall be recessed or flush type.
- 502.3.1.1.9 Traffic Feature: Hydrants shall be "traffic model" having upper and lower barrel joined approximately two inches (2") above the groundline by a breakable "swivel" flange providing 360 degree rotation of the upper barrel for nozzle positioning and must be capable of rotating barrel with line pressure on. The groundline shall not be less than eighteen

inches (18") below the centerline of the lowest nozzle and shall be clearly marked in a permanent manner on the lower barrel. A breakable stem coupling shall join the two-piece stem adjacent to the ground line flange. Screws, clevis pins, fasteners or bolts used in the coupling shall be Series 300 stainless steel. The weakened portion of the stem coupling shall be located to divert pressure from the stem coupling directly to the upper and lower stems when torque is applied in seat ring removal.

Design of the coupling shall be such that when the coupling is broken, no part of the coupling will shatter or come loose and fall into hydrant and the break will not occur through the pins or bolts holding the coupling to the stem.

- 502.3.1.1.10 Drain Valve Assembly: Hydrants shall be equipped with drain valves which drain the barrel when the hydrant is closed and seal shut when the hydrant is in the open position. The upper valve plate, seat ring and drain ring (shoe bushing) must be bronze and work in conjunction to form an all bronze drainway. Upper valve plate if not bronze, must be epoxy coated.

The bronze seat ring shall be a minimum 5-1/4" inside diameter and shall thread into a bronze drain ring forming an all bronze drainway with two (2) drain outlets for double protection against drain clogging and corrosive damage. All bronze components shall have less than 16% zinc alloy, Grade A to give high corrosion resistance as recommended in Section 2.1, Table I of American Water Works Association Standard C-502. Seat ring seals shall be "O" Rings. Hydrant shall be designed so that during opening and closing operation(s), water pressure force flushes the drain valve and drain openings to prevent clogging, thus allowing barrel drainage.

- 502.3.1.1.11 Repair: All internal operating parts shall be removable from above ground level with a lightweight stem wrench.

- 502.3.1.1.12 Provisions for Extension: All hydrants shall be capable of being extended to accommodate future grade changes without excavation. Extension of the hydrant shall be made by adding at the groundline flange a new coupling and stem section equal to the length of the extension. This must facilitate easy field grade adjustment.

Stem extensions made by adding new section of stem to the threaded section of the stem at the top of the hydrant will not be accepted.

Extension kits must be available from manufacturer in six-inch (6") increments.

- 502.3.1.1.12 Pressure Loss and Working Pressure: Pressure loss through one (1) four and one-half inch (4½") nozzle at 1000 GPM shall not be more than 5.0 psi.

ITEM 502.3.4 PAINT AND PROTECTIVE COATINGS

All fire hydrants furnished under these specifications shall have paint and protective coatings applied at the factory or in the field as specified herein.

- 502.3.4.1 Factory Coating: All hydrants shall be cleaned at the factory by shot blasting and shall be painted above the groundline (at the factory) with two (2) coats of neutral orange rust-prohibitive primer which shall be compatible with the finished coating.

All continuously wetted ferrous metal surfaces in the hydrant shoe shall be protected with a two-part thermostat epoxy coating to a nominal thickness of 4 mils of corrosion protection and shall be of a color that is easily identified as an epoxy coating. All other exposed exterior surfaces below ground level shall be coated with asphalt varnish as specified in American Water Works Association Standard C-502, Section 4.2 or as otherwise outlined in these specifications. All remaining interior surfaces above the main valve, except machined surfaces such as the threaded portion of the operating stem or nut, shall be coated with asphalt varnish.

The thermostat epoxy coating shall be a two-part epoxy and shall function as a physical, chemical and electrical barrier between the base metal to which it is applied and the surroundings. The coating shall be non-toxic and shall not impart taste to water. The coating must be formulated from materials deemed acceptable per the Food & Drug Administration Document Title 21 of the Federal Regulations of Food Additives, Section 121.2514 entitled Resins & Polymeric Coatings. The coating shall have a satin finish and shall be suitable for field overcoating and touch-up with the same coating material without sanding or special surface preparation, or application of heat in excess of room temperatures.

- 502.3.4.2 Field Coatings: All hydrants shall be field painted at the time the Contractor is instructed by the Public Works Inspector and shall be painted above ground with two (2) coats of aluminum paint, Mobil

11-A-19 or Tnemec 2-color, Tnemec-Gloss or approved equal according to the following color schedule:

Water Main Size	Bonnet and Caps Color
4"	Red
6"	Silver
8"	Blue
10" & Larger	Yellow

ITEM 502.3.5 EXPERIENCE AND CERTIFICATION

Fire hydrants, furnished under these specifications shall be manufactured by a firm that has been producing hydrants of this general type continuously for the past five (5) years. Each company or manufacturer supplying hydrants under these specifications shall have on file, at the Allen Public Works Engineering and Utility Operations Department, approved records of experience and detailed drawings of the proposed hydrants. Drawings shall cover the specific hydrant to be furnished for installation in the City of Allen and shall show all dimensions including metal thickness, construction details and materials used in all parts of the hydrant together with ASTM Designation and structural properties of these materials.

The City may require the Manufacturer, Supplier or Contractor to dismantle hydrants at any time to determine compliance with these specifications. Location of any hydrant within the City system, installed after adoption of these specifications, that does not meet the specifications completely shall be cause for prohibiting the future use of any hydrants from the same manufacturer.

ITEM 502.5.1 BRASS STOPS, COCKS AND FITTINGS FOR WATER WORKS SERVICE

ITEM 502.5.1.1 GENERAL

All brass stops, cocks and fittings shall conform to AWWA Specification C800, latest revision.

ITEM 502.5.1.2 PHYSICALS

All pressure holding components of brass stops or fittings shall be certifiable pressure tested before assembly as specified herein, including meter coupling tailpieces, compression nuts, etc.

ITEM 502.5.1.3 DESIGN FEATURES OF STOP AND COCKS

The stem end of the key, prestaked key nut and the "D" washer shall be so designed that they turn in unison and if tightened to the failure point, the stem will not break causing the key to blow out.

Corporation, curb and angle stop bodies shall be of one-piece construction to provide optimum resistance to installation, operating and earth-load stresses. The operating head and checks of these stops shall be integrally cast with the plug or cap of the stop for maximum resistance to torque feature.

Angle valves shall have a lockwing and shall be "O" ring sealed at the top of the key to prevent leakage during operation and to act as a secondary protection against external top leakage. Meter swivel nuts shall be of the saddle nut construction to support the meter during installation. Inlet compression parts for angle valves shall be field interchangeable on ¾" and 1" sizes to make repairs easier and more economical.

ITEM 502.5.1.4 DESIGN FEATURES OF FITTINGS

Delete the third paragraph of this item and replace with the following:

Flare joints and fittings are not approved in Allen.

Add the following to the sixth paragraph of this item:

All stops and fitting joints shall be of the compression type for copper pipe unless otherwise noted. Compression coupling nuts shall be designed to "bottom out" on a machined shoulder on the fitting to provide a visual check for proper assemble and eliminate field judgment errors of the installation. The coupling nut shall house the compression gasket in a smooth machined area and shall be internally coated with a fluorocarbon (Teflon) lubricant to prevent gasket damage and reduce installation torques. The smaller compression gasket shall be a heavy armored gasket to provide electrical continuity through the fitting and prevent gasket cold flow and shall house a concave hardened stainless steel overlapping gripper band that is automatically activated and set by shouldering out the fitting properly.

Minimum pullout (or tensile strength) required of these fittings after installation to protect against earth loads are as follows:

¾"	2,000 lbs.
1"	3,000 lbs.
1½"	3,500 lbs.
2"	4,000 lbs.

All outlet threads on compression connections shall be compatible with the City's present drilling and tapping machine equipment.

ITEM 502.6.2 RESILIENT SEATED GATE VALVES

502.6.2.1 General Description

Add the following: Unless otherwise approved in writing, all Gate Valves for direct buried service in the City's distribution system, 6 inches through 12 inches in diameter, shall be Resilient Seated Gate Valves that conform strictly with the latest specification C509 of the American Water Works Association Standards and must comply with the following supplementary details, changes or additions.

502.6.2.1.1 Body: Gate valves shall be iron body designed for a working pressure of 200 psi. All valves shall be hydrostatically tested at 200 psi and shell tested at 400 psi. Any leakage during testing shall be cause for rejection. For ease of repair the body, bonnet and stuffing box shall be flanged together with ASTM Grade B bolts and nuts. Each valve shall have the maker's initials, pressure rating, and year in which manufactured cast in the body.

502.6.2.1.2 Stems: Stems shall be machined from manganese bronze rod with an integral forged thrust collar machined from manganese bronze rod with an integral forged thrust collar machined to size. The stems shall be non-rising and equipped for nut operation, which shall be opened by turning to the left.

502.6.2.1.3 Stem Seals: Amended to read: Stems shall be O-ring sealed either above or below thrust collar. An antifriction washer shall be located above the thrust collar for operating torque.

502.6.2.1.4 Stem Nut: Amended to read: Stem nut can be either integral cast with valve disc or separately installed into disc. Nut shall be waterworks bronze. Manufacturer shall submit an exact formula used to determine number of turns required to affect complete closure of each size resilient seated valve supplied under these specifications.

502.6.2.1.5 Paint and Protective Coatings: All valves furnished under these specifications shall be painted on the exterior as specified in AWWA C-509 with asphalt varnish.

All ferrous metal surfaces in the internal part of the valve shall be protected with a two-part thermoset epoxy coating to a nominal thickness

of 4 mils for corrosion protection and shall be of a color that is easily identified as an epoxy coating.

The thermoset epoxy coating shall be a two-part epoxy and shall function as a physical, chemical and electrical barrier between the base metal to which it is applied and the surroundings. The coating shall be non-toxic and shall not impart taste to water. The coating must be formulated from materials deemed acceptable per the Food & Drug Administration Document Title 21 of the Federal Regulations of Food Additives, Section 121.2514 entitled Resins and Polymeric Coatings. The coating shall have a satin finish and shall be suitable for field overcoating and touchup with the same coating material without sanding or special surface preparation, or application of heat in excess of room temperature.

- 502.6..2.1.6 Experience and Certification: Valves, furnished under these specifications, shall be manufactured by a firm that has been producing valves of this general type continuously for the past five (5) years. Each company or manufacturer supplying valves under these specifications shall have on file, at the Allen Public Works Engineering and Utility Operations Department, approved records of experience and detailed drawings of the proposed valves. Drawings shall cover the specific valve to be furnished for installation in the City of Allen and shall show all dimensions including metal thickness, construction details and materials used in all parts of the valve together with ASTM Designation and Structural properties of these materials.

The City may require the Manufacturer, Supplier or Contractor to dismantle valves at any time to determine compliance with these specifications. Location of any valve within the City system, installed after adoption of these specifications that does not meet the specifications completely shall be cause for prohibiting the future use of any valves from the same manufacturer.

- 502.6.2..1.7 Tapping Sleeves: The materials for tapping sleeves bodies shall be cast-iron or ductile-iron in accordance with AWWA Standard C110 (ANSI 21.10), in two sections, or halves to be bolted together with high-strength, corrosion resistant, low alloy steel bolts conforming to AWWA Standard C111 (ANSI 21.11).

Cast iron and ductile-iron sleeve shall be mechanical joint, or as specified, or dimensions to secure proper fit on the type and class of pipe on which they are to be used.

Each sleeve shall be furnished with a 3/8-inch test opening so that tests can be made prior to tapping. Opening shall be provided with a 3/8-inch bronze plug.

ITEM 504.2.1 PIPE EMBEDMENT MATERIAL FOR STORM SEWERS

Add the sentence: Unless otherwise indicated, storm sewer pipe shall be bedded with Class "C" bedding in accordance with the details shown on the plans.

504.2.1.1 Add the following as 504.2.1.1: Class "C" Bedding: After the trench has been cut to a depth below the barrel of the pipe a distance of $1/8 B_c$ (outside diameter of pipe), three inches minimum (six inches minimum in rock), the bedding shall be brought up to a point slightly above grade with stone. Bell holes shall be formed, a trough scooped out to grade, and the pipe laid and jointed as specified. The stone shall then be brought up in uniform compacted layers of either side of the pipe $1/6 BC$ (outside diameter of pipe). Bedding shall be one of the following materials:

- (1) Screened Pit-run gravel, passing 1½-inch sieve and retained on ¼-inch sieve.
- (2) Pea gravel, passing 5/8-inch sieve and retained on 1/8-inch sieve.
- (3) Crushed Limestone meeting the requirements of Item 2.1.8 - PIPE BEDDING MATERIALS FOR WATER AND SANITARY SEWER MAINS.

The aggregate used shall contain not more than a total of eight percent by weight of deleterious substance, such as clay, shale or organic matter.

The embedment backfill shall be select or granular material and shall be brought up in uniform compacted layers to a point six inches above the top of the pipe. Density shall be 95% under paving, 90% elsewhere.

ITEM 504.2.2 PIPE EMBEDMENT FOR WATER AND WASTEWATER MAINS

504.2.2.1 Crush Stone Embedment: Add the following: All stone used for pipe embedment within Allen shall be Standard Crushed Rock Aggregate, Grade 4, unless otherwise approved in writing. Crushed concrete shall not be used.

PART II: DIVISION 800 – MISCELLANEOUS CONSTRUCTION AND MATERIALS

ITEM 801.5 WIRE FENCING

801.5.2 Material

801.5.2.1 Fabric: All chain link fencing installed in Allen shall be No. 9 gage copper bearing open-hearth steel wire.

801.5.2.2.1 Metal Posts: All posts shall be heavily galvanized by the hot-dip process after fabrication and shall be fitted with watertight malleable iron caps. All posts shall be of the following size and shape:

801.5.2.2.1.1 Add the following as 801.5.2.2.1.1: Line Posts: "H" Section hot rolled weighing not less than 4.10 pounds per linear foot or 3-1/2-inch O.D. pipe weighing not less than 3.65 pounds per linear foot.

801.5.2.2.1.2 Add the following as 801.5.2.2.1.2: Terminal Posts: Three inch (3) steel pipe weighing not less than 5.79 pounds per linear foot.

801.5.2.2.1.3 Add the following as 801.5.2.2.1.3: Gate Posts: Four inch (4") O.D. steel pipe weighing not less than 9.11 pounds per linear foot.

801.5.2.3 Rails, Gates Braces and Fittings: Shall be 1-5/8 inch steel pipe weighing not less than 2.27 pounds per linear foot.

ITEM 803.2.2 GABIONS

Add the sentence: All wire used, including tie and connecting wire, shall be certified by Mill Test Reports showing compliance with specification requirements.

ITEM 803.2.2.2 STONE

Add the following: Facing stone shall be hand selected, large stone and shall be selected for best appearance. Facing stone shall be an off-white color and prior to laying the stone, samples shall be delivered to the site and shall be approved by the Engineer for gradation and appearance.

ITEM 803.2.3.1 PERMEABLE BARRIER FABRIC

High strength permeable barrier fabric for use as a filter media, shall be placed along the earth side of the Gabion Structures. The permeable barrier fabric to be used shall be TREVIRA S1115 as manufactured by Hoechst Fibers Industries, Spartanburg, South Carolina; MIRAFI 140 Fabric, produced by Fiber Industries,

Inc.; Bidim U-14 as distributed by Quline Corporation, Houston, Texas, or approved equal.

ITEM 805.3 MATERIALS

Change paragraph 805.63.6 Rejection to paragraph 805.3.7 Rejection. Add: 805.3.6 Pull Box for Traffic Signal Conduit. All pull boxes shall be #36 supplied by Traffic Signal Equipment Company, Fort Worth, Texas or approved equal. Boxes shall be approximately 10½" x 17" x 12" and shall be furnished with a concrete cover.

ITEM 806.4.1.5 RAILINGS AND POSTS

806.4.1.5.1. Reflectorized Marking for Guard Rail

Add the following as 806.4.1.5.1: Reflectorized marking for guard rail and other traffic control used shall meet the requirements of 3M Scotchlite Brand Reflective Sheeting Grade, Series 2800, 3800 or 5800, or equal. The marking shall conform to U.S. Department of Transportation, Federal Highway Administration, STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, 1979 FP-79, Type III A, Sections 633.36 and 718.01 and Federal Supply Service, General Services Administration, LS-300 C, SHEETING AND TAPE REFLECTIVE NON-EXPOSED LENS, Reflectivity 2, Class 4.

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