

# Construction and Material Specifications

## 2018 Updates ODOT/FHWA Review



THE CITY OF  
**COLUMBUS**  
ANDREW J. GINTHER, MAYOR

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DEPARTMENT OF  
PUBLIC SERVICE

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DEPARTMENT OF  
PUBLIC UTILITIES

# Section 100 Overview

- Modified and updated some definitions
- Modified language for Non-Responsive Proposal
- Removed all reference to metric pay items and measurements
- Incorporated all SS 1100 changes
- Plan requirement set of 5 paper sets
- Modified language under for equipment storage and staging
- Modified language related to survey monuments, markers, etc.
- Prequalification language modified to match the City's prequalification process
- Added language related to CMIS

# Section 200 – Earthwork

## Section 200 Overview



- Capitalized the word “Structures” as definition so that contractor would not confuse with bridges, buildings, etc.
- All reference to test rolling in a street application were deleted
- Reviewed ODOT’s section accepted with the exception of:
  - Removing geotextile fabric in the location of underdrains
  - Requiring contract to differentiate between actual quantity and plan quantity when quantity is greater than 1000 cubic yards.
- Removed the lime kiln dust – not required by City

# Overview

## Section 250,300, 400 and 450 – Pavement Repairs, Bases, Flexible Pavement, Rigid Pavement

# Section 250 Pavement Repairs

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- **251 PARTIAL DEPTH PAVEMENT REPAIR**
  - **Section 251.01 Description**
    - Added language to clarify that this item is intended for asphalt pavement
  - **Section 251.03 Placement of Asphalt Concrete**
    - Added language to reference Std Dwg 1441 Removed language requiring pneumatic tire roller for compacting asphalt and added suitable mechanical compaction equipment to reflect actual practice.

# Section 250 Pavement Repairs

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- **251 PARTIAL DEPTH PAVEMENT REPAIR**
  - **Section 251.03 Placement of Asphalt Concrete**
    - Removed reference to Item 448 asphalt concrete and replaced with Item 441
    - Sealing the perimeter of repair area: 4 inch strip of same material used for crack sealing (702.17B or 702.17C), instead of 2-4 inch strip of 705.04 or 702.01 approved PG binder
    - These revisions were carried throughout Section 250
  - **Section 251.05 Basis of Payment**
    - Removed Partial Depth Pavement Repair (442) pay item

# Section 250 Pavement Repairs

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- **252 FULL DEPTH RIGID PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT**
  - **Section 252.06 Basis of Payment**
    - Revised the text to read the same as 2012 CMSC: “*The City will not pay for removal, disposal, and replacement of pavement damaged adjacent to the repair*” as opposed to “*Include the cost of...*”.
    - Added cubic yards to the pay items

# Section 250 Pavement Repairs

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- **253 PAVEMENT REPAIR**
  - No major changes
- **254 PAVEMENT PLANING**
  - No major changes



# Section 250 Pavement Repairs

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- **255 FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT**
  - **Section 255.01 Description**
    - Clarified that replacing asphalt overlay includes both intermediate and surface courses
  - **Section 255.02 Materials**
    - Updated to the new City concrete classes in Item 499: COC 1, etc.
    - **Removed:** A. Rapid Repair Concrete Mix Materials (RRCM)
      - It is not anticipated that the City will use this item.
  - **Section 255.07 Wearing Course Replacement**
    - Added statement allowing for one lift of intermediate course asphalt to be placement without sealing the perimeter if it is to be resurfaced.
  - **Section 255.07 Basis of Payment**
    - Clarified that the payment for the asphalt overlay is included with this item
    - Added cubic yards to the pay items

# Section 250 Pavement Repairs

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- **256 BONDED PATCHING OF PORTLAND CEMENT CONCRETE PAVEMENT**
  - No major changes
- **257 DIAMOND GRINDING PORTLAND CEMENT CONCRETE PAVEMENT**
  - No major changes
  - Continued to omit the section requiring profiler equipment. Removed in 2012.
- **258 LOAD TRANSFER RETROFIT**
  - Continue to omit this section. Removed in 2012

# Section 250 Pavement Repairs

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- **259 PERMANENT PAVEMENT REPLACEMENT**
  - **Section 259.01 Description**
    - Removed statement “guaranteed for a period of 1 year...” since the warranty period is already covered in Section 100.
    - Added language to include “...or asphalt replacement related to curb”
  - **Section 259.05 Brick Pavements**
    - **A. Materials:** Added language to differentiate historical bricks from newer style roadway pavers. And referenced Supplemental Specification 1524 Roadway Pavers.
    - **B. Installation:** Removed language that is repeated in Std Dwg 1441.

# Section 300 Bases

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- **301 ASPHALT CONCRETE BASE**
  - **Section 301.04 Spreading and Finishing**
    - Committee kept the warm mix asphalt minimum temperature requirement of 250 degrees F because the City wants to take advantage of the warm mix process. ODOT removed this requirement and reference to warm mix asphalt. (This was also kept in Item 302)

# Section 300 Bases

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- **302 ASPHALT CONCRETE BASE**
  - **Section 302.02 Composition**
    - Removed reclaimed asphalt shingles (RAS)
- **304 AGGREGATE BASE**
  - **Section 304.07 Method of Measurement**
    - The verification of moisture content and determination of pounds per cubic yard of material will remain as permissive. This was changed to “may” from “will” in 2012.

# Section 300 Bases

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- **305 PORTLAND CEMENT CONCRETE BASE**
  - **Section 305.02 Construction**
    - Load transfer devices are not required
  - **Section 305.04 Basis of Payment**
    - Removed the statement about using the determination and pay procedures for non QC/QA items since Item 455 QUALITY CONTROL PLAN, TESTING AND ASSURANCE FOR QC/QA CONCRETE is recommended to be omitted.
    - Added “and table 451.19-1” when determining the reduced pay for deficient thickness.

# Section 300 Bases

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- **306 PORTLAND CEMENT CONCRETE BASE – RESIDENTIAL**  
**\*Columbus Spec\***
  - **Section 306.01 Description**
    - Load transfer devices are not required

# Section 300 Bases

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- **307 ROLLER-COMPACTED CONCRETE BASE (RCC) \*NEW\***
  - This new specification is based on SS1523, dated 2/17/2009
  - **Section 307.03 Mix Design**
    - RCC:
      - Compressive Strength: 4000 psi
      - Splitting Tensile Strength: 400 psi (Opening to Traffic)
    - RCC-Residential
      - Compressive Strength: 3000 psi
      - Splitting Tensile Strength: 300 psi (Opening to Traffic)
  - Removed the 4/1 to 11/1 limitations on the use of Fly Ash and Ground Granulated Blast Furnace Slag (GGBFS)
    - ORMCA recommended this removal since our weather is constantly changing; therefore, this limitation is not needed.



# Section 300 Bases

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- **307 ROLLER-COMPACTED CONCRETE BASE (RCC) \*NEW\***
  - **Section 307.04 Contractor, Mix Design, and Paver Certification**
    - RCC contractor must perform a test strip once every two calendar years to receive certification from the City for the contractor, mix design, and paver. **SS1523 requires a test strip for every project.**
    - Projects requiring thicknesses greater than 10 inches will require a separate test strip to demonstrate the contractors ability to meet specifications.
    - Any changes to mix design or equipment used in the original test strip will require a new test strip for recertification.

# Section 300 Bases

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- **307 ROLLER-COMPACTED CONCRETE BASE (RCC) \*NEW\***
  - **Section 307.05 Test Strip**
    - No longer required for every project. The test strip will be performed as part of the two-year period certification process.
  - **Section 307.06B Pavers**
    - Conventional asphalt pavers no longer permitted. Only high-density asphalt pavers capable of placing RCC at a minimum of 90% of maximum wet density are permitted.
  - **Section 307.07H. Weather Limitations:**
    - Changed the minimum ambient temperature from 35 degrees F to 32 degrees F.

# Section 300 Bases

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- **307 ROLLER-COMPACTED CONCRETE BASE (RCC) \*NEW\***
  - **Section 307.10 Opening to Traffic**
    - Changed from 7 days to 5 days after placement or once the splitting tensile strength requirements have been met.
  - **Section 307.11 Pavement Thickness and Strength**
    - Remedial Actions: Areas to be removed and replaced to be performed after 5 days instead of 7 days.
  - **Warranty:** There is no longer a 2 year warranty with this item as included with SS1523. Warranty to be covered with Section 100.
- **320 RUBBLIZE AND ROLL**
  - No major changes
- **321 CRACKING AND SEATING NON-REINFORCED CONCRETE PAVEMENT**
  - No major changes

# Section 400 Flexible Pavement

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- **401 ASPHALT CONCRETE PAVEMENTS - GENERAL**
  - **Section 401.03 Materials**
    - City is excluding the use of steel slag
  - **Section 401.04**
    - The addition of reclaimed asphalt shingles (RAS) into the ODOT CMS was omitted and will not be included in the CMSC.
- **402 ASPHALT CONCRETE MIXING PLANT**
  - Most of the information in this section that was removed by ODOT was placed in Supplement 1101.

# Section 400 Flexible Pavement

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- **403 ASPHALT CONCRETE QUALITY CONTROL AND ACCEPTANCE**
  - **Section 403.03 Quality Control Program (QCP)**
    - Changed the submittal of the proposed QCP to the Laboratory from the minimum of 3 weeks before mix production, to only 1 week before mix production. And removed the restriction of “no later than February 28”.
  - **Section 403.05 Quality Control Tests**
    - Removed all references to Sublots and Lots from this section and throughout the CMSC since they do not apply to the City. Replaced with Daily Production.
  - **Section 403.07F Contractor Removal, Restoration**
    - This section deals with repeated problems with the contractor meeting requirements of CMSC. If this occurs, the Laboratory will request an opinion from the Quality Control Qualification Committee (QCQC) before notifying the contractor of removal from the City Verification Acceptance (VA). **Recommending replacing QCQC with City Engineer.**
  - **Section 403.08 Acceptance Tables for 448 Mixes**
    - Changed Table 403.08-2 to 1, 2, and 3 tests since the City typically does not perform 4 tests.

# Section 400 Flexible Pavement

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- **405 BITUMINOUS COLD MIX \*Columbus Spec\***
  - No major changes
- **407 TACK COAT**
  - **Section 407.02 Materials**
    - Includes Non-Tracking Tack Coat
  - **407.06 Application of Asphalt Material**
    - Includes a table of typical application rates
- **408 PRIME COAT**
  - No major changes

# Section 400 Flexible Pavement

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- **417 ASPHALT EMULSION SLURRY SEAL \*Columbus Spec\***
  - **Section 417.02 Materials**
  - **B. Aggregates:**
    - Removed Types I and III gradations. And changed the Type II gradation to ODOT Type A.
    - Specified a minimum of 16 lbs/SY application rate for dry aggregate instead of 15 +/-2 lbs/SY
  - **G. Design:**
    - Submit JMF at least 7 days prior to the start of work. Changed from submitting at Pre-con, but no later than 30 days prior to start of work.

# Section 400 Flexible Pavement

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- **417 ASPHALT EMULSION SLURRY SEAL \*Columbus Spec\***
  - Section 417.02 Materials
  - H. Submittals:
    - Submittal of physical specimens **only if requested by the Laboratory (Added)**
  - Section 417.03 Equipment
    - Added language from 421.06 to be more consistent on the calibration of equipment. Calibration is now required to be performed in the presence of the Engineer before mix production.
  - Section 417.05 Composition and Rate of Application of the Slurry Mix
    - Application rate changed to 16 lbs/SY minimum from 15-17 lbs/SY
    - Reporting requirements changed to daily from load by load.



# Section 400 Flexible Pavement

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- **417 ASPHALT EMULSION SLURRY SEAL \*Columbus Spec\***
  - **Section 417.06 Weather Limitations**
    - Removed “do not apply...if either the pavement or air temperature is 50 degrees F or below and falling.”
    - Removed the restrictions on placement when there is “high humidity”.
      - The humidity no longer has effect on the curing with the type of emulsion being used.
    - Required to have 45 degrees F or above and rising.
  - **Section 417.08 Application of the Slurry Surfaces**
    - Removed the required cone consistency test each morning. Not being performed and outdated test.
    - Modified the language for curing and opening to traffic by putting the responsibility on the Contractor.

# Section 400 Flexible Pavement

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- **417 ASPHALT EMULSION SLURRY SEAL \*Columbus Spec\***
  - **Section 417.09 Acceptance**
    - Removed the minimum 30 day after completion of project for the inspection and acceptance of slurry seal.
    - Acceptance will be based on the minimum required application rate.
  - **Section 417.11 Method of Measurement**
    - Removed the minimum thickness requirement as a basis of acceptance and payment deduction.
  - **Section 417.12 Basis of Payment**
    - Thickness has no factor in the basis of payment
    - City will not pay for any work that does not meet the specified application rate.

# Section 400 Flexible Pavement

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- **421 MICROSURFACING**

- **Section 421.01 Description**

- Removed the two year warranty in ODOT's CMS. City already has the one year warranty in Section 100. And any deficiencies should be apparent within the first year.

- **Section 421.09 Test Strip**

- Evaluation of test strip will be performed 1 hour after application instead of 24 hours. The City is not currently waiting 24 hours and Contractor must demonstrate control of material that breaks and is open to traffic in 1 hour.

- **Section 421.10 Application**

- For surface course only application, the minimum application rate is 20 lbs/SY. The 2012 CMSC had 18 lbs/SY min. and ODOT required a rate of 21 to 24 lbs/SY

# Section 400 Flexible Pavement

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- **421 MICROSURFACING**

- **Section 421.10 Application**

- Removed requirement of using pneumatic roller when not exposed to traffic within 48 hours.

- **Section 421.12 Performance Review \*REMOVED\***

- Associated with the 2 year warranty.

- **Section 421.14 Basis of Payment**

- The cost for removal of pavement markings, tack coat, and crack sealing will be paid for separately. Not incidental to the microsurfacing.

# Section 400 Flexible Pavement

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- **422 CHIP SEAL**
  - Continue to omit this section. Omitted in 2012 CMSC
- **423 CRACK SEALING, HOT APPLIED**
  - No major changes
- **424 FINE GRADED POLYMER ASPHALT CONCRETE**
  - No major changes

# Section 400 Flexible Pavement

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- **441 ASPHALT CONCRETE - MIX DESIGN AND QUALITY CONTROL**
  - **Major changes:**
  - No more Item 448 asphalt concrete as specified in 2012 CMSC
    - No more references to Heavy, Medium, and Light Traffic
    - NEW
      - Item 441 Asphalt Concrete Surface Course, Type 1
      - Item 441 Asphalt Concrete Intermediate Course, Type 1
      - Item 441 Asphalt Concrete Intermediate Course, Type 2
  - Acceptance: Added 446
  - If Heavy traffic conditions: Item 442 should be used
  - If Light traffic conditions (bike paths, etc): SS823 Light Traffic Asphalt Mixture Composition Requirements

# Section 400 Flexible Pavement

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- **441 ASPHALT CONCRETE - MIX DESIGN AND QUALITY CONTROL**
  - **Section 441.09 Quality Control Tests**
    - Quality control testing will continue to follow the schedule used by the City that was updated in SS1100
- **442 SUPERPAVE ASPHALT CONCRETE**
  - **Section 442.02 Type A Mix Design**
    - Removed the required submittal of a compacted gyratory sample and loose mix.
    - Removed the required submittal of aggregate to be used by the Laboratory for approval
  - **Section 442.05 Quality Control**
    - Omitted the section on acceptance requirements based on density at  $N_{max}$  and Maximum Specific Gravity (MSG). Acceptance will be based on the air void at  $N_{des}$ .

# Section 400 Flexible Pavement

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- **443 STONE MATRIX ASPHALT CONCRETE**
  - Continue to omit this section. Omitted in 2012 CMSC
- **446 ASPHALT CONCRETE CORE DENSITY ACCEPTANCE**
  - **Section 446.04 Density Acceptance**
    - Based on daily production, not Lots and Sublots
    - Revised language to clarify a production day and when to combine with the next or previous production days.
    - Removed the reference to the ODOT TE 217 form used to assist with locating core locations. City will evenly space the core locations.
- **448 ASPHALT CONCRETE ACCEPTANCE**
  - No major changes to the ODOT specification



# Section 450 Rigid Pavement

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- **451 REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT**
  - **Section 451.02 Materials**
    - Updated concrete classes to agree with Item 499
    - Removed Recycled Concrete Aggregate (RCS)
  - **Section 451.03 Pavement Quality Control**
    - Omitted. QC/QA concrete is not being included in CMSC
  - **Section 451.07 Placing Concrete**
    - Keeping language from 2012 CMSC regarding sawing equipment and new concrete
  - **Section 451.071 Depositing and Curing Concrete during Cold Weather**
    - Added this section from the 2012 CMSC

# Section 450 Rigid Pavement

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- **451 REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT**
  - **Section 451.09 Joints**
    - Continued to omit the HIPERPAV. Removed in 2012 CMSC
    - Removed the Mechanical Dowel Bar Inserter Section
      - Not likely to be used on a City project. If applicable, it could be included as a special provision.
  - **Section 451.10 Finishing**
    - The finishing procedures follow changes made in the City's SS1100; however, the spacing and depth of the grooves shall match dimensions used by ODOT.
    - Removed paragraph on impressing stationing into the pavement.

# Section 450 Rigid Pavement

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- **451 REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT**
  - **Section 451.15 Pavement Grooving Corrections**
    - This section was omitted in 2012; however, since tining was added in 451.10, including this section was necessary.
  - **Section 451.17 Opening to Traffic**
    - **Pavement Repairs before City Acceptance:** Carried over language from the 2012 CMSC not requiring the Contractor to obtain the Engineer's permission to make repairs.
    - Modified the repair limits of coring out cement balls to 1 inch beyond the outside limits of the defective area.

# Section 450 Rigid Pavement

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- **451 REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT**
  - **Section 451.18 Pavement Thickness and Concrete Strength**
    - Added Concrete Strength to this section since it will factor into pay adjustments. Not included in 2012 CMSC.
    - Removed all references to QC/QA
  - **Section 451.19 Price Adjustments**
    - **B. Pavement Strength:** Modified the pavement strength pay factor table and language since it was going to be difficult to obtain enough cores to use ODOT's calculations. Replaced the statistical equations used by ODOT to determine strength pay factor with an equation similar to the thickness calculation. Less complicated.

# Section 450 Rigid Pavement

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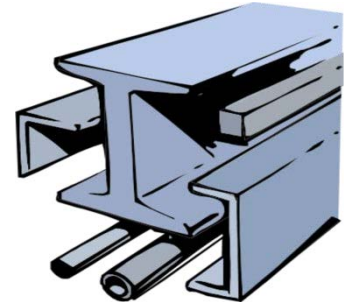
- **451 REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT**
  - **Section 451.19 Price Adjustments**
    - **C. Pavement Smoothness:** Omitted. City would prefer a correction instead of a price reduction.
- **452 NON-REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT**
  - **No major changes**

# Section 450 Rigid Pavement

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- **454 PAVEMENT RELIEF JOINTS \*Columbus Spec\***
  - **Section 454.03 General**
    - Added reference to construct in accordance with Standard Drawing 2175

# Section 499 and 500 – Concrete Base / Structures



## Task Highlights

- Registered Engineers seal and signature on submittal letter only
- Modified language on the requirements of the coverage of sand on bridge decks
- Added new specification for Elastomeric Strip Seal and Preformed Elastomeric Compression Seal

# OVERVIEW - Section 600 Incidentals

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## ITEM 601 SLOPE AND CHANNEL PROTECTION

601.10 Detention Basin, Infiltration Basin or Water Quantity Swale Aggregate **Deleted as it is not used.**

601.13 Articulating Concrete Block Revetment System **added**





# Section 600 Incidentals

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## ITEM 602 MASONRY

- 602.03 **New** Construction Requirements for Precast Structures including requirements for shop drawings at each culvert location.

## ITEM 603 PIPE CULVERTS, AND DRAINS

- Sewer Pipe installation covered under 901
- Updated Supplemental Spec References
- **Corrugated Metal Pipe removed from approved materials for Type A Culverts**



# Section 600 Incidentals

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## **ITEM 604 MANHOLES, CATCH BASINS, INLETS, INSPECTION WELLS, JUNCTION CHAMBERS, PRECAST REINFORCED CONCRETE OUTLETS, OR MONUMENTS**

604.03 **New** Construction Requirements for Sanitary manholes located in impervious areas shall require a concrete collar and sanitary manholes located in pervious areas shall require a flexible chimney seal.

Adjust to Grade -Secure extension ring in place by applying mastic, conforming to 706.10, to the entire contact surface between the casting and extension

## ~~**ITEM 611 PIPE CULVERTS, SEWERS, DRAINS, AND DRAINAGE STRUCTURES**~~

- City is keeping 603 and 604. Remove 611

# Section 600 Incidentals

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## ITEM 605 UNDERDRAINS

### 605.02 Materials

- **PVC removed**, Smooth-wall polyvinyl chloride underdrain pipe added
- 4" perforated corrugated polyethylene drainage tubing no longer allowed to substitute for 6" underdrain

# Section 600 Incidentals

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## ITEM 606 GUARDRAIL

### 605.02 Materials

- Removed redundant information
- Impact Attenuators reference City Approved products

## ITEM 607 FENCE

Spec only changed to match ODOT Spec - **top rail removed**



# Section 600 Incidentals

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## ITEM 608 WALK CURB RAMPS, AND STEPS

### 608.02 Materials

- **Removed “Recycled Concrete Aggregate” this is ODOT Specific.**
- Added Buff Wash Finish as a material option

608.07 Curb Ramps – Curb Ramp Compliance Checklist now required to completed. This is consistent with new ADA Curb Ramp Policy.

608.08 Method of Measurement **Ramps** to remain paid as **each**, but **Detectable Warnings** will be paid by **Square Foot**.  
**Spec for 712.14 for DW’s did not previously exist for City Spec.**

# Section 600 Incidentals

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## **ITEM 609 CURBING, CONCRETE MEDIANS, AND TRAFFIC ISLANDS**

### 605.02 Materials

- Recycled Concrete Aggregate removed

### 605.03 Curb

Separated Sandstone and Granite Curb, separate language for each.  
Edited the Granite curb Standard Drawing as well.

609.04 Cast-in-Place Concrete Curb and Combination Curb and Gutter.  
Removed requirements for form materials required (steel or thick plywood), did not see a need to dictate this.

## **ITEM 613 LOW STRENGTH MORTAR BACKFILL**

### 610.02 Materials

Mix Proportioning added columns for COC Types

# Section 600 Incidentals

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## **ITEM 615 ROADS AND PAVEMENTS FOR MAINTAINING TRAFFIC**

- “Temporary Pavements” removed as redundant
- Updated Roller Compacted Concrete under Rigid Pavement Req’s
- Updated some of the Lift Thicknesses
- Other General Changes to match ODOT Spec.

## **ITEM 616 DUST CONTROL**

- No changes (other than deleting metric references)

## **ITEM 617 RECONDITIONING SHOULDERS**

Added language to ensure that finished grading will drain properly.



# Section 600 Incidentals

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## ~~ITEM 618 RUMBLE STRIPS ON SHOULDERS~~

- Deleted this Spec as it is not applicable to City Standards –rural application only due to noise issues

## ITEM 619 FIELD OFFICE

Items Added by Construction, no longer refers to supplemental spec (Internet Capabilities, Printer requirements, etc.)

## ITEM 620 DELINEATORS

Simply matching ODOT Spec



# Section 600 Incidentals

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## **ITEM 621 RAISED PAVEMENT MARKERS (RPM)**

- Added restrictions to where RMPs may not be placed: within roundabouts, bridges, crosswalks, RR markings, dotted lines, adjacent to curbs with white edge lines
- Added that RPMs do not need to be patched when removed when the project is a resurfacing project
- Added pay item for RPMs removed (previously was included separately as a plan note)

## **ITEM 620 DELINEATORS**

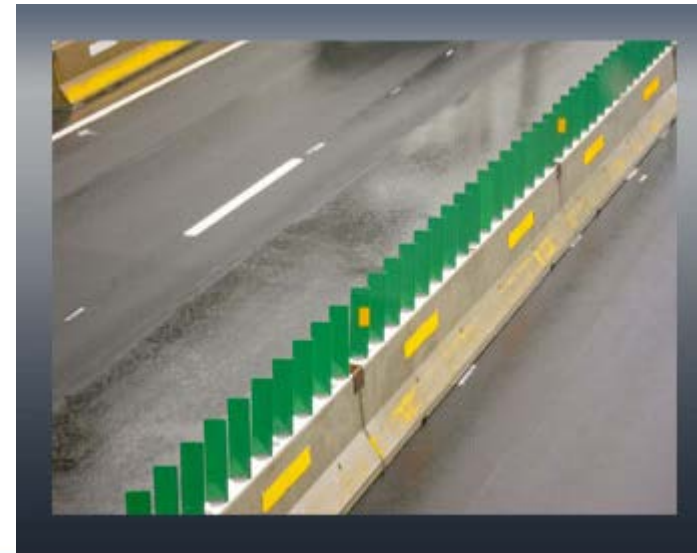
Simply matching ODOT Spec

# Section 600 Incidentals

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## ITEM 622 CONCRETE BARRIER

- Removed language about slip-forming portable barrier.
- Clarified reflector spacing method on portable barriers
- Clarified that contractor is to repair/replace attenuators, reflectors, and object markers and glares screens during the project
- Specified that glare screens should follow ODOT Standard drawing
- Matched ODOT's updates for measuring barrier end sections and anchorages with extra rebar separately.



# Section 600 Incidentals

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## **ITEM 623 CONSTRUCTION LAYOUT STAKES**

This Spec was reviewed by Faraj Faraj, and all changes to the ODOT Spec were rejected.

## **ITEM 624 MOBILIZATION**

No substantive changes



# Section 600 Incidentals

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## **NEW** ITEM 628 LONGITUDNAL CHANNELIZERS

The longitudinal channelizer assembly shall include two main components; the base component consisting of raised interlocking units (separator), and the vertical component (channelizer).



# Section 640 Pavement Marking

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## ITEM 641 PAVEMENT MARKING—GENERAL

### 641.08 Marking Types

- Clarified pavement markings thicknesses for crosswalk lines
- Added description for shared lane markings
- Added language for black borders for white pavement markings where placed on Concrete
- Added description for yield lines



Contractor recommendation to clarify 641.12 Method of Measurement based on pavement marking line thickness – language was taken from a plan note that we've been using.

# Section 640 Pavement Marking

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## ITEM 642 TRAFFIC PAINT

642.05 Basis of Payment. Added:

- Yield Line
- Bicycle Lane Symbol Marking
- Shared Lane Marking
- Removal of Pavement Marking



Contractor recommendation to clarify 641.12 Method of Measurement based on pavement marking line thickness – language was taken from a plan note that we've been using.

~~ITEM 643 POLYESTER PAVEMENT MARKING~~ - **REMOVED**



# Section 640 Pavement Marking

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## **ITEM 644 THERMOPLASTIC PAVEMENT MARKING**

Very Minor changes. Pavement marking removal covered under 642.

## **ITEM 645 PREFORMED PAVEMENT MARKING**

Grooved Pavement Markings language added- for use in concrete. Language used from Plan Notes.

## **ITEM 646 EPOXY PAVEMENT MARKING**

No Substantive Changes

# Section 640 Pavement Marking

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## **ITEM 647 HEAT-FUSED PREFORMED THERMOPLASTIC PAVEMENT MARKING**

Removed Types not used by the City.

## **ITEM 648 SPRAY THERMOPLASTIC PAVEMENT MARKING**

Grooved Pavement Markings language added- for use in concrete. Language used from Plan Notes.



# Section 650 Roadsides

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**ITEM 651 TOPSOIL STOCKPILED**

**ITEM 652 PLACING STOCKPILED TOPSOIL**

**ITEM 653 TOPSOIL FURNISHED AND PLACED**

**ITEM 654 RENOVATING EXISTING SOIL**

**ITEM 655 TREE PROTECTION**

Matched ODOT language, nothing substantive

**ITEM 656 ROADSIDE CLEANUP**

This is an ODOT Spec that Columbus eliminated previously.

# Section 650 Roadsides

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## **ITEM 657 RIPRAP FOR TREE PROTECTION**

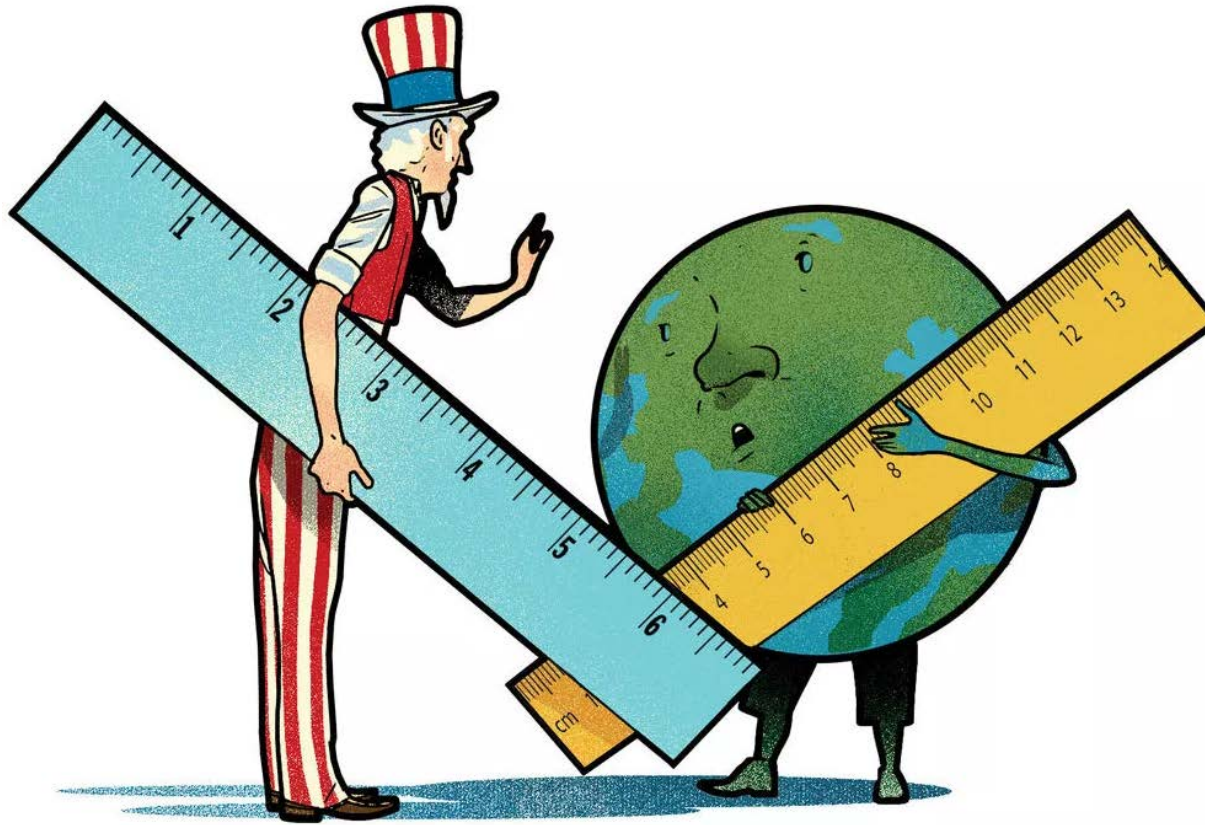
657.04 Clarified Tree Wells in Cut

## **ITEM 659 SEEDING AND MULCHING**

Discussion Regarding High Quality Germination Rates/Seed

# Overview Section 614, 625, 627, 630-633, 725, and 730-733 – Maintaining Traffic, Traffic Signs and Equipment

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# Section 614 MOT

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## ITEM 614 Maintaining Traffic

### General

**Changed** Terminology from “highway” to “roadway” throughout 614

### **614.01-02 Description/Traffic Facilities**

**Added** “Bicycle” to types of traffic

**Added** Language requiring the maintenance of a complaint  
Pedestrian Accessible Route

**Added** Included wedging/signing of steel plates as  
contractor’s responsibility

# Section 614 MOT

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## 614.03

### Traffic Control General

Added

Cones, Drums, sign supports, TY-3 Barricades, PCMS, Arrow boards, and attenuators to be according to current specs.

Added

MASH Test Level 3 added alongside NCHRP 350 for crash certification

Added

Furnish drums that are orange and are OMUTCD compliant

Added

Provide Type C steady burn lights on drums when dark

Moved

Equipment vehicle storage criteria to 614.035

Added

All work vehicles to have strobes, LED's, or rotating beacons and reflective sheeting on the rear

Added

Object marker minimum size requirement (6"x12")

# Section 614 MOT

---

## 614.031 Permit

Changed

Construction Coordinator to “Temporary Traffic Control Coordinator” throughout 614 and defined in 100

*The authorized representative of the City of Columbus working under the supervision of the Administrator of the Division of Traffic Management. The Temporary Traffic Control Coordinator is the duly authorized agent of the City of Columbus acting within the scope of its authority for purposes of engineering, directing, and coordinating temporary traffic control (for motorists, bicyclists, and pedestrians) for work within the right-of-way and typical or non-typical events.*

# Section 614 MOT

---

## **614.035      Storage Of Equipment, Vehicle and Material on Roadway Rights of Way**

**Added**      At night parked equipment to be encompassed by lit drums

## **614.04      Work Zone Marking Signs**

**Added**      Clarified that No Edge Line signs only added to roadways that have existing edge lines

**Deleted**      Requirement for steady burn lights on channelizing devices when dark.

# Section 614 MOT

## ITEM 614 Maintaining Traffic (Con't)

### 614.07 Traffic Maintained

**Added** Tourist signs to be kept in use unless otherwise specified





# Section 614 MOT

---

## ITEM 614 Maintaining Traffic (Con't)

### **614.071 Existing Parking Meters**

**Added** City will collect fee for removal when the DOIM-Permit Office issues permit

**Added** Clarified the City will only remove the meter head

**Removed** The City will provide meter posts to the Contractor for reinstallation

# Section 614 MOT

---

## ITEM 614 Maintaining Traffic (Con't)

### 614.08      **Flaggers**

**Not Added**    AFADs for flagging



### 614.10      **Work Zone Traffic Signals**

**Removed**    Requirement to furnish a UPS (Battery Backup)

# Section 614 MOT

---

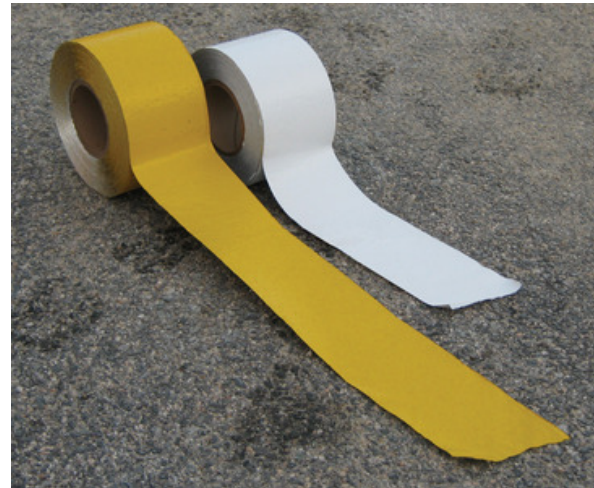
## 614.11 Work Zone Marking Specifications

Added

Spray thermoplastic now allowed along with paint or preformed material.

Added

Temporary markings that will winter shall be preformed or spray thermoplastic



# Section 614 MOT

---

## 614.11 Work Zone Marking Specifications

**Removed** References to 4"/8" width of edge lines and channelizing lines

**Added** Covering of conflicting/not in use markings

**Added** Removal of existing pavement markings to only be by water/sand blasting. A grinder can only be used to remove markings that will be paved over.



# Section 614 MOT

---

**614.115**

## **Work Zone Raised Pavement Markers**

Added

Furnish according to ODOT's approved list



# Section 614 MOT

---

## **614.13      Asphalt Concrete for Maintaining Traffic**

Added

Type 1 or Type 2 mix to be used

## **614.14      Performance**

Added

Pavement deficiencies to be repaired within 24 hours

# Section 614 MOT

---

## **614.15 Method of Measurement**

Added

WZ markings will be measured by length of complete stripe, including gaps and intersections. WZ markings will include layout, application, and removal of the markings.

Added

PCMS paid for by each month the sign is at the project or storage yard.

## **614.16 Basis of Payment**

Added

“Flashing arrow panels” are now “Arrow Boards”

Added

WZ markings can be paid for by each

# Section 625 Traffic Signal Underground

---

## **ITEM 625    Traffic Signal Underground / ~~ODOT Highway Lighting~~** **General**

**Added**            All working/cut sheets will now be called “Shop Drawings”

**Changed**        All concrete shall be COC 1 or COC 6

### **625.06            Shop Drawings**

**Added**            Shop drawings to indicate pay item number and description vs. bid reference number

*(note – all signals sections now refer to this 625 standard language)*



# Section 625 Traffic Signal Underground

---

## 625.06 Shop Drawings

**Changed** Shop drawings to indicate pay item number and description vs. bid reference number

# Section 625 Traffic Signal Underground

---

## 625.12 Raceways and Conduits

**Added** HDPE conduit shall not be used where exposed or in buildings

**Added** New conduit, except in interconnect duct bank, shall have a fiberglass pull tape

**Added** New empty conduit, except in interconnect duct bank, shall have tracer wire.

**Added** Unused conduit shall be capped and taped.

**Added** Conduit that enters pullbox/cabinet shall be sealed with duct putty. No foam allowed.

# Section 627 Reboundable Traffic Post

---

## ITEM 627 Reboundable Traffic Post

### General

**Added** Allow the device to be bonded to surface or spun into an embedded cup.



# Section 630 Traffic Signs and Supports

---

## **ITEM 630      Traffic Signs and Supports**

### **General**

**Changed**      All concrete shall be COC 1 or COC 6

**Changed**      Shop Drawings now refer to 625 standard language

**Rejected**      ODOT's change of conduit to reference CMS 611, we will keep referencing CMS 603

### **630.04      Sign Fabrication**

**Added**      Use standard highway alphabet

**Removed**      References to clearview font (RIP)

**Added**      Do not use extruded panels and spot welded panels in the same sign

# Section 630 Traffic Signs and Supports

---

## 630.04 Sign Fabrication

Added

Use fluorescent yellow-green sheeting for school and pedestrian signs:

School Crossing , school speed limit, SCHOOL ENTRANCE ,SCHOOL BUS STOP ,SCHOOL BUS TURN, SCHOOL ENTRANCE , School Speed Limit Ahead, Pedestrian Crossing , Bicycle, Pedestrian Crossing , Handicap Crossing, SAFETY ZONE , Trail Crossing , Playground, and warning plaques



# Section 630 Traffic Signs and Supports

## 630.04 Sign Fabrication

Changed Updated the decal design:

**CITY OF COLUMBUS-TRANSPORTATION DIVISION  
WARNING!**

*VANDALS WILL BE PROSECUTED.*

TO REPORT DAMAGE CALL 614-645-7393

MONTH: 1 2 3 4 5 6 7 8 9 10 11 12

YEAR: 07 08 09 10 11 12 13 14 15 16 17

PROTECTIVE OVERLAY FILM? Y / N

# Section 630 Traffic Signs and Supports

---

## **630.06 Sign Supports**

**Removed** Alternate design or materials submittals.

**Added** Added MASH crash testing (or NCHRP 350) to the support requirements

**Removed** Rigid Overhead Supports shall include brackets for attaching a disconnect switch and couplings for sign wiring.

**Removed** Furnish Luminaire support assemblies for rigid overhead supports

**Added** Overhead signs on span wire to be level regardless of sag

# Section 630 Traffic Signs and Supports

---

## **630.06 Sign Supports**

Added

Extrusheet nuts to be tightened using hand tools only

## **630.06 Specific Service and Tourist-Oriented Directional Signs**

Rejected

Requirement to provide written notification to ODOT of at least 60 days before the signs are removed/relocated.



# Section 630 Traffic Signs and Supports

---

## **630.14 Method of Measurement**

Added

Ground mounted posts to be measured from the bottom of the support to the top of the support. The overlap length of the post for the anchor base will not be measured.

## **630.06 Specific Service and Tourist-Oriented Directional Signs**

Removed

Requirement to provide written notification to ODOT of at least 60 days before the signs are removed/relocated.

# Section 630 Traffic Signs and Supports

---

## **630.14 Method of Measurement**

Added

Ground mounted posts to be measured from the bottom of the support to the top of the support. The overlap length of the post for the anchor base will not be measured.

## **630.06 Specific Service and Tourist-Oriented Directional Signs**

Removed

Requirement to provide written notification to ODOT of at least 60 days before the signs are removed/relocated.

# Section 631 Sign Lighting

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## **ITEM 631 Sign Lighting and Electrical Signs**

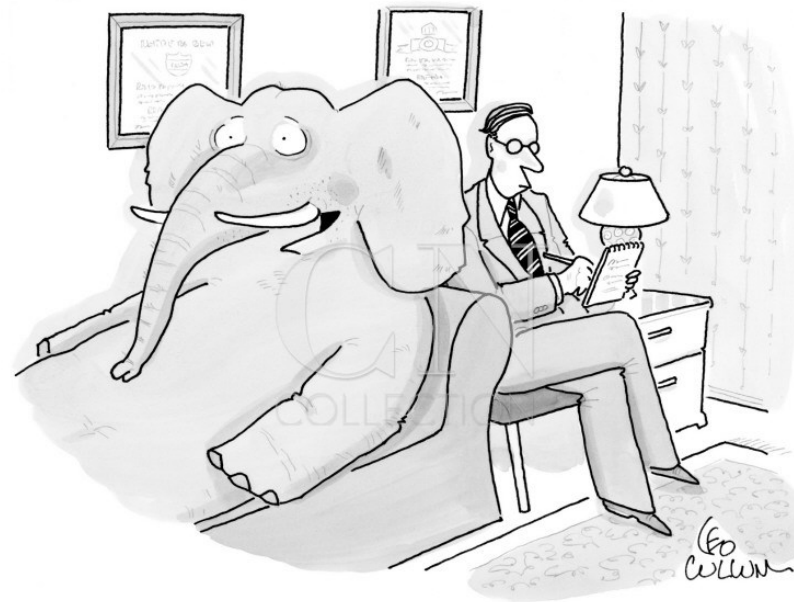
### **631.10 Removal**

**Changed** Removed sign lighting items will now become the property of the contractor

# Section 632 Traffic Signal Equipment

City of Columbus QPL

(spoiler alert: there isn't one for traffic items....yet)



*"I'm right there in the room, and no one even acknowledges me."*

# Section 632 Traffic Signal Equipment

## ITEM 632 Traffic Signal Equipment

### General

- Changed All concrete shall be COC 1 or COC 6
- Changed Shop Drawings now refer to 625 standard language
- Changed All division names have been updated
- Kept When specified furnish backplates.

### 632.05 General

Added Work to compliant with Standard for Electrical Safety and OSHA (in addition to NEC and NESC).

Added Cable tags to be 1" round or ½" rectangular

Added	<table><tr><td><u>Power (3 wire) 1Ø 120/240 volt</u></td><td><u>AC + 1, AC + 2</u></td></tr><tr><td><u>Neutral wire</u></td><td><u>AC- or ACN</u></td></tr></table>	<u>Power (3 wire) 1Ø 120/240 volt</u>	<u>AC + 1, AC + 2</u>	<u>Neutral wire</u>	<u>AC- or ACN</u>
<u>Power (3 wire) 1Ø 120/240 volt</u>	<u>AC + 1, AC + 2</u>				
<u>Neutral wire</u>	<u>AC- or ACN</u>				

# Section 632 Traffic Signal Equipment

---

## 632.05 General

**Added** Work to be compliant with Standard for Electrical Safety and OSHA (in addition to NEC and NESC).

**Added** Cable tags to be 1" round or ½" rectangular

## 632.056 New Signal Flash Operation

**Removed** Language stating that signal be placed on flash no sooner than eight (8) days prior to meeting warrant. Now just states that signal to be placed on flash prior to meeting warrants.

# Section 632 Traffic Signal Equipment

---

## 632.056 New Signal Flash Operation

**Changed** Updated signs to match MUTCD standards.



# Section 632 Traffic Signal Equipment

## 632.06 Vehicular Signal Head, Conventional

Added

Signal faces with backplates to be one-way head. *Old multi-way heads do not work with backplates.*

Added

Balance adjusters to only be used when approved by engineer. *Balance adjusters are to make sure signal heads to make hang plumb, don't play nice with tethering.*





# Section 632 Traffic Signal Equipment

## 632.06 Vehicular Signal Head, Conventional

Added

Drop pipes/extendors to only be used when necessary and if > 1.5' long, must be approved by the engineer. *Need for long extendors could indicate an issue with the way the span was installed and are more susceptible to breaking.*

Added

Apply silicone to serrations on polycarbonate heads. *To prevent water intrusion where hanger meets head.*

Rejected

Furnish backplates. Keeping the text that notes when specified furnish backplates.



# Section 632 Traffic Signal Equipment

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**632.09**

## **Pedestrian Pushbutton**

**Added**

Furnish one ped sign with each pushbutton. (prev. 2)



R10-4b

# Section 632 Traffic Signal Equipment

---

## **632.10      Loop Detector Unit**

**Removed**      Stop bar detection should detect bicycles, advanced detection should detect motorcycles. *CoC standard loops cannot conform to this.*

## **632.15      Signal Support (i.e – Mast Arms)**

**Added**      Adjust initial rake, so when loaded, poles will essentially be vertical

**Added**      Do not erect signal supports unless at least one signal, sign or damping device is installed within 24 hours. *This is to mitigate galloping on unloaded poles.*

# Section 632 Traffic Signal Equipment

## 632.23 Cable and Wire

Added

Do not over strip signal cable and cable jacket shall extend into the enclosure.

Changed

City of Columbus field hookup wiring and now includes Pedestrian Hybrid Beacon (PHB) wiring chart.

Vehicular Signal Head - Field Wiring Color Codes

Signal Display	Wire Color Per Approach
Thru R	Red
Thru Y	Orange
Thru G	Green
L/T ←R	Black
L/T ←Y	White w/Black Tracer
L/T ←G	Blue
R/T →R	Orange w/Black Tracer
R/T →Y	Red w/Black Tracer
R/T →G	Green w/Black Tracer
Neutral	White

# Section 632 Traffic Signal Equipment

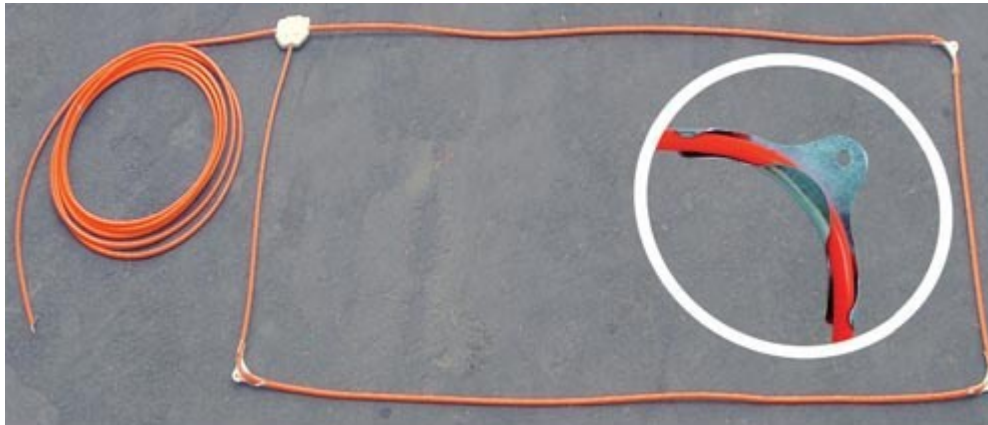
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**632.23**

## **Cable and Wire**

**Added**

Preformed loops are acceptable.



**Added**

Messenger wire for service cable shall not serve as the neutral (ODOT allows this).

# Section 632 Traffic Signal Equipment

---

## **632.25      Covering of Vehicular and Pedestrian Signal Heads**

**Rejected**      Use covering material that is a different color than that of the head and cannot be beige. *CoC will continue to use canvas to cover heads.*

**Added**      Completely cover signal head and backplate.

# Section 632 Traffic Signal Equipment

---

## **632. 26      Removal of Traffic Signal Installation**

**Changed**      Planning and Operations Traffic Maintenance Manager to “Traffic Operations Manager” throughout 632 and defined in 100

*The authorized representative of the City of Columbus working under the supervision of the Administrator of the Division of Traffic Management. The Traffic Operations Manager is the duly authorized agent of the City of Columbus acting within the scope of its authority for purposes of engineering, directing, and coordinating ....TBD..*

# Section 632 Traffic Signal Equipment

## 632. 29 Method of Measurement

Changed

Tether wire payment now includes pole clamps and safety tie clamps.





# Section 632 Traffic Signal Equipment

---

## **632. 29      Method of Measurement**

**Removed**      Anchor bolts and conduit ells for pole supports paid for with foundation pay items. *CoC pay for these separately.*

## **632.30      Basis of Payment**

**Changed**      All signal head pay items will need to be defined as aluminum or polycarbonate. *Polycarb only used when can be rigidly mounted, otherwise aluminum to be used.*

**Removed**      Pedestrian signal heads can not be specified as aluminum or polycarbonate. *CoC uses only aluminum ped head housings.*

# Section 633 Traffic Signal Controllers

---

## **ITEM 633 Traffic Signal Controllers**

### **General**

**Changed** All concrete shall be COC 1 or COC 6

**Changed** Shop Drawings now refer to 625 standard language

### **633.03 Materials and Equipment**

**Added** For new items that are warrantied, the manufacture date shall be within one year of the date supplied to the project. *This addressed items like controllers on multi-year projects that are installed near the end of the project, so we don't end up with warranty items that are out/near end of warranty.*

# Section 633 Traffic Signal Controllers

---

## 633.03 Materials and Equipment

**Removed** Master controller section 733.06. *CoC no longer installs master controllers since we have CTSS.*

**Removed** Remote monitoring station 733.07. *CoC no longer has need for this because of CTSS.*

**Removed** Telephone service 733.08 . *CoC no longer has need for this, we are completely closed loop fiber.*

**Removed** Centrally Controller Arterial Traffic Signal System 733.14 . *CoC no longer has need for this, we have a Traffic Management Center.*

# Section 633 Traffic Signal Controllers

---

## 633.05 General

Changed

For each new cabinet, contractor to provide: 2 hard copies and 1 electronic copy of each cabinet wiring diagram, 1 service manual, and 1 instructional manual. *Cut down from 4 hard copies and 2 manuals since we are going electronic.*

## 633.09 Cabinet Riser

Removed

Provide a riser for each new cabinet. *CoC typically doesn't use cabinet risers, if necessary will be a separate pay item.*



# Section 633 Traffic Signal Controllers

---

## **633.18 Uninterruptible Power Supply (UPS).**

**Added**

Each free-standing UPS cabinet to require a ground rod. *To cut down on missed ground rods for new UPS cabinets.*

**Removed**

Provide a riser for each new UPS cabinet. *CoC typically doesn't use cabinet risers, if necessary will be a separate pay item.*

**Added**

Seal joints between UPS cabinet and signal cabinet and UPS cabinet and foundation with caulk. *This is to prevent water intrusion.*

# Section 725 Traffic Signal Underground

---

## **Item 725      Traffic Signal Underground Materials**

**General**      DoP lighting is referenced in the 1000 sections, however 725 is geared toward highway lighting as well. *Some references to lighting that are not linked to traffic signals have been removed.*

# Section 725 Traffic Signal Underground

---

## **725.051      Schedule 40 Polyvinyl Chloride Conduits and Fittings**

**Changed**      Schedule 40 PVC now its own pay item. *This is for all non-interconnect related conduit.*

## **725.052      Polyethylene Conduits and Fittings**

**Changed**      Schedule 80 HDPE specified. *Upgraded from SCH 40.*

## **725.053      Schedule 80 Polyvinyl Chloride Conduits and Fittings**

**Added**      New specification for schedule 80 PVC. *This is typically for interconnect related conduit.*

# Section 725 Traffic Signal Underground

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## 725.07 Plastic Pull Boxes

**Removed** Plastic pull boxes specification. *Due to past crushing issues, CoC does not use plastic pull boxes.*





# Section 730 Traffic Sign Material

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## **Item 730 Traffic Sign and Support Material**

### **730.015 U-Channel Posts**

**Removed** References to NCHRP 350. *MASH is now the standard crash testing procedure.*

**Removed** Allow contractor to provide baked enamel coated drive posts. *Only galvanized drive posts shall be used.*

### **730.017 Wooden Box Beams**

**Removed** CoC does not use wooden box beams, so this section was removed.

# Section 730 Traffic Sign Material

---

## **730.14 Aluminum Castings**

**Added**

Extrusheet clips now to have manufacture's name on the clip and follow new ODOT SS. *Failed sign clips around the state drove this change.*

**Removed**

Allow contractor to provide baked enamel coated drive posts. *Only galvanized drive posts shall be used.*

## **730.19 Reflective Sheeting Type G**

**Changed**

Prismatic sheeting to be used, glass bead material no longer allowed.

# Section 730 Traffic Sign Material

---

## **730.24 Cantilever Offset Bracket**

**Changed**

This has been rewritten to match the CoC standard drawing for street sign brackets.



# Section 731 Sign Lighting

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## Item 731 Sign Lighting and Electrical Signs Material

### General

**Changed** All references to the City QPL have been changed to ODOT QPL. *There is no City QPL for these items.*

### **731.06 Sign Flasher Assembly**

**Changed** The beacons shall now be LED instead of incandescent.

# Section 732 Traffic Signal Material

---

## **Item 732 Traffic Signal Material**

### **732.01 Vehicular Signal Heads, Conventional**

**Removed** References to glass and plastic lenses. *CoC only uses LED for new construction, and those are modular units.*

**Added** Green optical sections uses a clear plastic “lens” vs. colored for yellow and red sections.

**Removed** Disconnect hanger references. *CoC no longer uses disconnect hangers.*

**Changed** No black signal heads allowed, except the underside of all visors to be flat black. *CoC uses yellow signal heads.*

# Section 732 Traffic Signal Material

---

## **732.01 Vehicular Signal Heads, Conventional**

**Added** Polycarbonate signal heads shall be obtained by use of colored plastic not painting.

**Added** Green optical sections uses a clear plastic “lens” vs. colored for yellow and red sections.

**Removed** Disconnect hanger references. *CoC no longer uses disconnect hangers.*

**Changed** No black signal heads allowed, except the underside of all visors to be flat black. *CoC uses yellow signal heads.*

# Section 732 Traffic Signal Material

---

**732.03**      **Vehicular Signal Heads, Optically Programmed, 8-inch lens**

**Removed**      Removed the entire section. *CoC only uses 12" optically programmed heads.*

**732.04**      **Vehicular and Pedestrian Light Emitting Diode (LED) Modules**

**Changed**      Removed a lot of the specific and dated references for LEDs and now just referencing general ITE and Intertek certification standards.

**Removed**      All photometric requirements, now just referencing ODOT SS 1097.

# Section 732 Traffic Signal Material

---

## **732.05 Pedestrian Signal Heads**

**Removed** References allowing polycarbonate housings. *CoC only uses aluminum ped head housings.*

**Removed** References allowing a black grid sunshade.

## **732.09 Foundations**

**Changed** Anchor bolts for cabinets can be a lower strength than other foundations.

## **732.11&12 Signal Supports and Strain Poles**

**Added** Pole identification tags with the SCD #, Design #, and date shall be attached to the pole.



# Section 732 Traffic Signal Material

---

**732.14**

## **Down Guy Assemblies**

**Added**

Specifics on material types, lengths, and construction.

**732.16**

## **Conduit Risers**

**Added**

Non-conductive cables to be rigid galvanized steel riser, conductive cables to be in schedule 80 PVC riser.

**732.18**

## **Messenger Wire**

**Changed**

Specific breaking strengths, ASTM references added, including ¼" messenger wire to be extra high strength grade and material details on accessories.

# Section 732 Traffic Signal Material

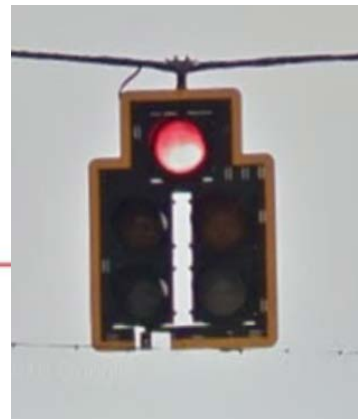
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## 732.185 Tether Wire

**Removed** Entire section removed. *Tether wire specifications are covered in 732.18 – Messenger Wire.*

## 732.22 Backplates

**Added** Shape of the backplate shall match the shape of the head. *For example, a 5-section doghouse signal head backplate will follow the shape of the head and won't be rectangular.*



# Section 733 Traffic Signal Controller Material

---

## Item 733 Traffic Signal Controller Material

### General

CoC only uses NEMA TS-1 cabinets and controllers, all other references have been deleted.

### **733.02 Controller Units**

**Added** All controllers shall be capable of implementing flashing yellow arrow operation.

**Added** A minimum of one IP port and one serial port shall be included.

**Added** A datakey shall be included with the controller.

# Section 733 Traffic Signal Controller Material

---

## 733.03

### Cabinet

Added

Cabinet drawings shall include: intersection map, field wiring hookup chart, CMU channel assignments, wiring diagrams and schematics.

Added

Cabinet shall come with an aluminum shelf with storage compartment and LED strip lighting.

Added

Additional non-GFCI outlet to be wired in the cabinet.

# Section 733 Traffic Signal Controller Material

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## **733.09 Uninterruptible Power Supply (UPS)**

**Added** Buck/Boost capability. *This helps deal with dirty power.*

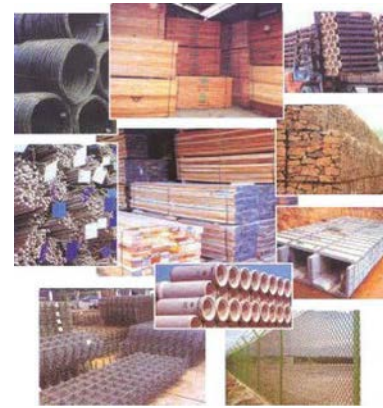
**Added** Ethernet port shall be included.

**Added** Exterior red LED indicator lamp to outside of cabinet. *LED will be lit when the cabinet is being powered by UPS.*

# Section 700 – Material Details

## Task Highlights

- Discussed the use of Structural Backfill Type 2
- Adopted ODOT language for testing of paint
  - ODOT currently does much of the testing for paint
- Removed Lime kiln dust
- Added new specification for Elastomeric Strip Seal and Per Elastomeric Compression Seal
  - Prior had no reference for bridge joints in CMSC



# Section 800 – Water Supply Distribution

## Task Highlights



- Utilized mechanical joint wedge restraining glands on fire hydrant leads in lieu of concrete backing. These restraining glands would be permitted for permanent restraint use on fire hydrant leads only.
- Analyzed corrosion protection specifications to determine if any changes are needed
- Added language to require special gaskets for areas in which certain contaminated soil types are encountered
- Added references to the Standard Drawings in numerous places
- **Modified the compaction thickness requirement from 8-inches to 12-inches**
- **Removed Item 804 - Iron Castings since it was outdated and unused. Removed Item 816 – Water Line and Water Service Taps Relocated or Abandoned, 2-Inch and Under, and relocating the content to Item 808 for clarity and convenience.**
- **Renamed/reorganized Item 808, as it will now include water main and water service abandonments/relocations for ALL sizes of pipe. The 2012 spec book breaks out this work by the different pipe sizes.**

# Item 801 – Furnishing and Laying Pipe and Fittings

## Item 801.01 - Description

- Adding requirement for 20” and larger pipe installations for Contractor to coordinate with Pipe Manufacturer to provide an on-site coordination meeting that outlines the major components of the pipe installation.

## Item 801.02 – Design Criteria

- Item 10. Corrosion Protection.
  - Section C: Now requiring large diameter water services (3” and larger) to be isolated by installing flange isolation kits between the tee and the valve. This will electrically isolate the main from the services if we ever decide to implement an active, impressed current, cathodic protection system in the future.
  - We have removed the requirement for designing and installing Test Stations with large diameter main installations. These can be installed at any time in the future. As we currently do not have an active monitoring system in place, nor any apparent corrosion issues, the stations would remain unused.

## Item 801.06 – Steel Pipe and Fittings

- Revised language regarding Cathodic Protection System Design. Now stating that the City will require a Cathodic Protection System in accordance with the Contract Documents, in lieu of previous language that stated to be designed in accordance with the “Supplemental Specification”.



# Item 801 – Furnishing and Laying Pipe and Fittings (Continued)

## Item 801.07 – Joints for Ductile Iron Pipe

- Added language to require special gaskets in areas where certain contaminated soil types are encountered to prevent permeation of chemicals into the water main.
- Revised language to state “mechanical joint wedge action restraining glands” only when approved by the Engineer. Old language stated “mechanical joint restraint glands”.

## Item 801.09 – Water Main Appurtenances

- Modified language for clarity regarding valve joint types for the different pipes based on pipe size and material

## Item 801.10 – Excavation and Pipe Installation

- Modified language for clarity regarding cover requirements
- Added “pipe clamp” and “padded forks” as permitted handling methods
- Revised maximum permitted compaction thickness for granular material to be 12” in lieu of 8”
- Modified language for clarity regarding restrained joint location requirements

# Item 801 – Furnishing and Laying Pipe and Fittings (Continued)

## Item 801.11 – Backfill within the Influence of Pavement

- Revised maximum permitted compaction thickness for granular material to be 12” in lieu of 8”

## Item 801.12 – Backfill outside the Influence of Pavement

- Revised maximum permitted compaction thickness for granular material to be 12” in lieu of 8”

## Item 801.13 – Water Main Cleaning and Flushing

- Added language clarifying that Division of Water personnel must operate the water supply valve.
- Modified language to allow for the possible reuse of poly pigs, if permitted by the Inspector
- Modified language regarding insertion points of the poly pig, stating that the Contractor shall identify and the inspector shall approve. Previous language stated that the Engineer identified these points, which was not true.

# Item 801 – Furnishing and Laying Pipe and Fittings (Continued)

## Item 801.14 – Hydrostatic Tests

- Modified language to clarify that water services and fire hydrants are also part of the test

## Item 801.15 – Chlorination of Competed Pipe Line

- Added language regarding blowoffs, stating “Do not install tubing or piping directly into a storm sewer. Provide an adequate gap between the end of the tubing or piping and any storm inlet.”
- Added language regarding blowoffs, stating “When possible, use plugs, with taps of the sufficient size installed directly on the plug, at the ends of each tested section. “

## Item 801.18 – Method of Measurement

- Removed paragraph discussing how to pay for the Cathodic Protection System Design and Installation. This will be addressed in the Contract Documents.

## Item 802 – Valves and Appurtenances

### Item 802.04 – Inserting Valves

- Revised this item to be “Not Used”, as we do not utilize inserting valves

### Item 802.08 – Valve Boxes

- Modified language to clarify when a standard box or heavy duty box shall be used

## Item 803 – Tapping Sleeves and Valves

### Item 803.03– Installation

- Modified language to clarify that pressure testing shall occur with the tapping valve in the closed position

## Item 804 – Iron Castings

Removed this entire item, as this was not used

# Item 805 – Water Service Taps

## Item 805.01– Description

- Clarified that City will pay for ferrule box as a separate item, when needed, in addition to paying for a new curb box.
- Added to verify “size of water service tap” in addition to location of the tap

## Item 805.02 – Water Main Connection

- Now requiring Dielectric/Isolating Corporation Stops (for corrosion protection of dissimilar metals)
- Revised language to install corporation stops at the “10 and 2 o’clock position” on the water main.
- Revised language for 3” and larger water services to show that they can be installed with a tee and not just a tapping sleeve and valve, as previously language seemed to dictate.

## Item 805.04 – Control Valves and Boxes

- Revised language to clarify when a second valve is required on large diameter services

## Item 805.05 – Installation

- Added statement to “Align curb stops so that the control valve is perpendicular to the structure on the property, unless otherwise indicated on the plans”
- Removed “Prior to Backfilling” at the beginning of the sentence regarding pressure testing of services.

## Item 805 – Water Service Taps (Continued)

### Item 805.06 – Method of Measurement

- Revised language to state that payment for the water service tap will be for all the work required. Previous language allowed for an option to also break out all items individually, if desired (valves, corp., pipe, etc.)

### Item 805.07 – Basis of Payment

- Removed pay items for \_ Inch Corporation Stop and \_ Inch Water Tubing as these are not used

## Item 806 – Casing Pipe

### Item 806.01 – Description

- Removed language regarding test stations, as these are no longer being installed

### Item 806.05 – Description

- Revised language to state the City MAY require corrosion protection of the casing pipe on critical crossings

## Item 807 – Adjust Valve Boxes and Service Boxes to Grade

No major changes

## Item 808 – Relocating, Abandoning, Cutting and Plugging (or Capping) Water Mains and Services

Renamed this Item from previous, “Relocating, Cutting and Plugging (or Capping) Water Mains or Services 3-Inch and Larger

- No longer having separate spec items due to main/service sizes. Including all of this information in one item now. Item 816 has been removed and was titled “Water Lines and Water Service Taps Relocated or Abandoned – 2-Inch and Smaller”. For the sake of keeping this type of work in one section, we have removed 816 and renamed 808 in order to include relocations, abandonments, and cut & plugs for ALL SIZE PIPE AND SERVICES. We also added an item for water line lowerings, as these are not the same as relocations.

### Item 808.01 – Description

- Clarified language to include abandonments and lowerings

### Item 808.02 – Relocation of Water Mains

- Clarified language to include work to be performed in accordance with 801
- Removed paragraph regarding the reference to Standard Drawings L-7401 Typical Water Line Lowering, as this is now a separate item in itself. A relocation will require a chlorination, and a lowering permits hand swabbing.

# Item 808 – Relocating, Abandoning, Cutting and Plugging (or Capping) Water Mains and Services (Continued)

## Item 808.03 – Lowering of Water Mains

- Added this item to the spec. This discusses the installation of water main lowerings and references the standard drawing L-7401 Typical Water Line Lowering. Lowerings will include the removal of existing pipe, be performed per the Standard Drawing, and do not require chlorinations.

## Item 808.04 – Relocation of Water Service Taps (2-Inch and Smaller)

- Renamed this section
- Moved this item from Item 816. Added the reference to Standard Drawing L-7102C Water Service Relocation, as the only drawing reference previously was L-7102A Water Service Extension and Curb Box Relocation.



# Item 808 – Relocating, Abandoning, Cutting and Plugging (or Capping) Water Mains and Services (Continued)

## Item 808.05 – Abandonment of Water Mains and Water Service Taps (3-Inch and larger)

- Added this section. There was no previous language that discussed abandonment requirements.
- Item states: **808.05 Abandonment of Water Mains and Water Service Taps (3 inch and larger)**

Abandon existing water mains and/or water service taps, 3 inch and larger, at the main by removing the existing tee and installing sleeves, unless otherwise indicated on the plans or as directed by the Division of Water Engineer. Perform water main abandonment after transferring all affected water services and no sooner than 24 hours after shut down of the line designated for abandonment.

Remove all visible valve boxes, curb boxes, and fire hydrants on the abandoned water line no longer in service. The City will pay for the required surface restoration under the appropriate bid item(s).

# Item 808 – Relocating, Abandoning, Cutting and Plugging (or Capping) Water Mains and Services (Continued)

## Item 808.06 – Abandonment of Water Mains and Water Service Taps (2-Inch and Smaller)

- Renamed this section and moved from Item 816
- No major changes to the previous language

## Item 808.07 – Cutting and Plugging (Capping)

- Added language stating that all exposed pipe and appurtenances shall be poly wrapped in accordance with Standard Detail Drawing L-1003.

## Item 808.08 – Method of Measurement

- Added language clarifying how to measure relocated water lines (linear feet) and lowered water lines (each)

## Item 808.09 – Basis of Payment

- Added language clarifying the basis of payment for abandoning water lines and water service taps
- Added language clarifying the basis of payment for water line lowerings

# Item 808 – Relocating, Abandoning, Cutting and Plugging (or Capping) Water Mains and Services (Continued)

## Item 808.09 – Basis of Payment (Continued)

- Revised pay items to be:

Item	Unit	Description
808	Each	Cut and Plug (Cap) ____ Inch Water Line or Water Service Tap
808	Each	Relocate ____ Inch Water Service Tap
808	Linear Foot	Relocate ____ Inch Water Line or Water Service Tap
808	Each	____ Inch Water Line Lowering
808	Each	____ Inch Water Line Abandoned

# Item 809 – Fire Hydrants

## Item 809.03 – Installation

- No longer requiring concrete backing behind the fire hydrant setting. Removed the language regarding this.
- Added language to require the use of mechanical joint wedge action restraining glands at all joints on the fire hydrant lead and fire hydrant settings.

## Item 809.05 – Hydrant Delivered

- Revised this item to be NOT USED. This item was used a long time ago when the City would request hydrant outlets to be installed on large diameter mains for future hydrant installations, but did not want the hydrants installed yet.

## Item 809.08 – Basis of Payment

- Removed the pay item for Fire Hydrant, Delivered

## **Item 810 – Furnishing and Installing Hydrant Extensions, Complete**

### **Item 810.05 – Basis of Payment**

- Modified language to include payment for hydrant lowerings. Previous language discussed how hydrant extensions were paid, but did not make mention of lowerings, even though there is a pay item for them.

## **Item 811 – Increase or Decrease in Excavation and Backfill**

**No changes to section**

## **Item 812 – Air Release Outlets**

**No changes to section**

## **Item 815 – Crushed Stone or Gravel**

**No changes to section**

## **Item 816 – Water Lines and Water Service Taps Relocated or Abandoned – 2-Inch and Under**

**Removed this section and relocated language and pay items to Item 808**

# Section 900 – Sewerage Work

## Overview



- Added HDPP material to CMSC
- Added Glass-Fiber-Reinforced Polymer Mortar Pipe as new material
- Removed references that required a specific product or supplier
- Discussed and added language requiring railroad insurance and necessary permits
  - For tunneling project under railroad
  - Agreed to wording that requires contractor to locate project centerline on tunnel projects when separate pay item is referenced
- Added requirement to use laser to test for deflection if inaccessible to pull a mandrel
- Recommended tunneling shield for liner plate and RR installation
- Added the reference to specific standard drawings for clarity

# Section 1000 – Transmission & Distribution

## Overview

- Clarification of Circuit Feet
- Modified language to comply with City's 3 wire policy
- Changed Language to include option for LED
- Removed 1002 and 1003

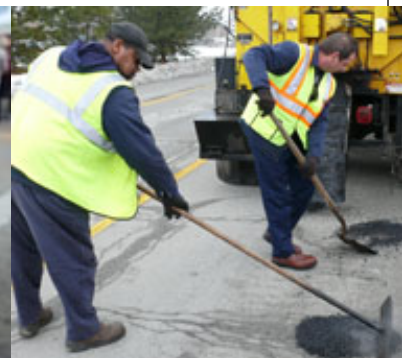
# Section 1000 – Street Lighting

## Overview

- Removal of TDMIS from CMSC
  - TDMIS as supplemental take precedence over CMSC
  - Description, Methods of Measurement, Basis of Payment all in TDMIS
  - Ground Rods use methods clarified
  - Updated references







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