



ADDENDUM # 1
IFB #07-16 – ROUTE 10 & HUMMEL ROSS ROAD
TRAFFIC SIGNAL PROJECT

MARCH 18, 2016

The City of Hopewell has received and reviewed the below questions/requests related to IFB #07-16 – Route 10 & Hummel Ross Road Traffic Signal Project and offers the following responses as Addendum #1. Please acknowledge receipt of this addendum by signing and including the last page as part of your bid response.

1. What is the anticipated Notice-to-Proceed Date?

Answer: The anticipated Notice-to-Proceed (NTP) of the project is May 2, 2016.

2. Clarification about the lead time for the design specific mast arms and poles.

Answer: The anticipated fabrication time is 12-14 weeks after the shop drawings are approved by the City. With design and review time it is expected to be 16 weeks or more total lead time. The City plans to issue a provisional NTP 10 days after Notice of Award to the lowest responsible bidder. The 10 day grace period is required per procurement policies. The provisional NTP will be for the sole purpose of commencing engineering and design of shop drawings for approval. Once the shop drawings are approved and mast arms and poles on order, the Contractor and City (and its project Stakeholder Evonik Industries) will agree to a schedule to allow for field work concurrent with off-site fabrication of mast arms and poles. The 150 calendar day project time period will be adjusted accordingly based on the mutually agreed fabrication schedule.

3. Clarification of reasonable delays due to procurement of mast arms and poles.

Answer: The Contractor will not be responsible for reasonable delays in procurement of the mast arms and poles that are outside of the Contractor's control.

4. Will the existing communication cable be relocated?

Answer: The City understands that Pole B will need to shift to the west to avoid existing Overhead Utility (O.H.U.). The City will work closely with the awarded Contractor and designer of record to make the necessary field adjustment.

5. There is an existing gas line that is not included in the plans.

Answer: The City understands that Pole A may be in conflict with a new gas line that is not included on the plan. The gas line and Pole location is on the property of one of the project's primary stakeholders (Evonik Industries) and will be adjusted as necessary.

6. Who is responsible for Dominion Virginia Power costs?

Answer: The City will cover the costs for all Dominion fees including design and construction. The City will require for the awarded Contractor to complete the Dominion Load Letter. The Contractor will complete the work as described in Coded Note 8 - Sheet TS(3) using applicable unit prices.

7. Clarification between Site Specific and Region Pole Design.

Answer: A revised Bid Sheet is included with this Addendum. Please replace the Bid Sheet included in the Invitation for Bid with this revised Bid Sheet. The Contractor is to bid on Item 2 (Traffic Signal Installation) on the basis of Site Specific Pole Design. The City will include an alternate to provide VDOT Central Region Pole Designs for the City's review during the award process. Item "Alternate 1" on the revised Bid Sheet shall only include the *additional* cost to provide the Region Poles above the Base Bid Items 1-17. This Addendum also includes the VDOT Special Provision For Signal Poles (Mast Arm Poles) document.

8. Correction of Bid Item Special Provisions, Procedures and Measurement of Payment No. 15 on Page 9 and on Page 30 of Invitation for Bid.

Answer: No. 15 on Page 9 and on Page 30 of the IFB should read "Item 16-56200 Trench Excavation ECI-1".

9. Non-Mandatory Pre-Bid Conference Sign-In Sheet is included with this Addendum.

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
SIGNAL POLES
(MAST ARM POLES)

September 12, 2013

I. DESCRIPTION:

This work shall consist of furnishing and installing mast arm poles in accordance with the plans and this provision.

II. MATERIALS:

Mast arms poles, mast arms, and/or luminaire arms shall be steel conforming to the requirements of Section 226 and shall be fabricated, welded and inspected in accordance with the requirements of Section 407 of the Road and Bridge Specifications.

Unless otherwise specified, mast arms poles shall be of a one piece or sectional single member, tubular form and shall be round or multi-sided. Multi-sided poles shall have no less than eight sides. The pole shafts and arms shall have a removable cap fastened by no less than 3 screws.

Steel poles, mast arms, and/or luminaire arms shall be hot dipped galvanized after fabrication in accordance with the requirements of Section 223 of the Specifications. When specified on the plans, the poles, mast arms, and/or luminaire arms shall be powder coated. The powder coating color shall be as color specified on the plans. Powder coat finish shall consist of a Urethane or Triglycidly Isocyanurate (TGIC) Polyester Powder. The exterior steel surface shall be blast cleaned utilizing cast steel abrasives. Prior to the powder application, the zinc-coated substrate shall be preheated to a maximum temperature of 450 °F for a minimum of one (1) hour. Then all exterior surfaces shall be cleaned and coated with a Urethane or Triglycidyl Isocyanurate (TGIC) Polyester Powder to a minimum dry film thickness (DFT) of 2.0 mils (0.002"). The powder coating shall be electrostatically applied and then cured in a gas fired convection oven at a temperature range of 350 to 400 °F. The thermosetting powder resin shall provide both intercoat as well as substrate fusion adhesion that meets 5A or 5B classifications as ASTM D3359.

The Contractor shall furnish a 24 position two pole terminal strip constructed of non-corrosive materials which shall be located on the outside of the pole just above the hand hole. A continuously welded frame and removable, weatherproof gasketed cover designed to enclose the hand hole and terminal strip shall be provided. The frame shall be at least 26-inches in height and 5 ½ inches in width. The cover shall be held in place with non-corrosive cap screws located at the top, bottom and side midpoints of the cover, and attachment holes in the frame shall be drilled and tapped.

Mast arm poles shall be designed in accordance with the 1994 AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals* for a 90 mph wind load and shall include and conform to the following:

- A removable galvanized steel or aluminum pole cap. If field adjusting of pole length is required, pole cap shall snugly fit pole after adjustment. The Department will notify the Contractor on a per pole basis whether length adjustment is required.
- A steel "J" hook located within 5-inches of the top of the pole for wire suspension. When pole length has been field adjusted, a "J" hook shall be attached after length adjustment.

- A grounding lug welded to the inside of the pole, easily accessible from the hand hole. Grounding lug shall be designed to secure the No. 6 ground wire by inserting the wire under a set screw type of lug.

Mast Arm Poles shall include a mast arm attachment flange plate 19-inches in width and 30-inches in height continuously welded to gusset and side plates. Gusset and side plates shall be continuously welded to the pole and each other. The flange plate shall be parallel to the axis of the pole. Flange plates for mast arm poles with two arms shall be positioned 90 degrees to each other. The flange plate shall be fabricated with eight permanently mounted 1½-inch diameter studs for receiving nuts, or the flange plate shall be threaded for receiving eight 1½-inch diameter bolts for attachment of the arm. The flange plate shall be suitable for supporting a 75 feet arm and loading shown herein. The eight bolt pattern for the flange plates shall be centered on a 14 ½-inch width x 25 ½-inch height for the four outside bolts and a 14 ½-inch width x 16 ½-inch height for the four inside bolts. The flange plate and pole shall have a 4-inch wiring hole centered in the pattern. Wiring hole shall be deburred and rounded or fitted with a rubber gasket or grommet. Mast arm poles shall have a round base plate designed for eight 2-inch diameter anchor bolts equally spaced on a 24-inch bolt circle. All anchor bolts shall be designed with either a threaded plate or plate with nut and washer on the end of the bolt embedded in foundation. The upper ends of anchor bolts shall be threaded and furnished with nuts for pole attachment. Mast arm poles shall be of the following four types.

TYPE I shall be manufactured for single mast arms. Mast arm poles shall be 20 feet in height and designed and fabricated (including arm attachment) to support any arm length and loading specified herein.

TYPE II shall be manufactured for dual mast arms. Mast arm poles shall be 20 feet in height and designed and fabricated (including arm attachments) to support two arms of any lengths up to 60 feet and loading specified herein.

TYPE III shall be manufactured for single mast arm with luminaire arm. Mast arm poles shall be 26 feet in height and designed and fabricated (including arm attachment) to support both mast arm and luminaire arm of the length and loading specified herein.

TYPE IV shall be manufactured for dual mast arms with luminaire arm. Mast arm poles shall be 26 feet in height and designed and fabricated (including arm attachment) to support two mast arms of any length up to 60 feet and a luminaire arm of the length and loading specified herein.

Poles shall be designed in addition to loads indicated herein to support a CCTV video camera and mounting bracket attached to the side of pole 1 foot from the top. Pole shall be designed for installation of CCTV equipment within the full pole circumference. Loading of the CCTV equipment and bracket shall be determined using a 15 pound dead load and 1 square foot wind load area.

Mast arms shall have an arm plate the same width and height as the arm attachment flange plate on the pole and with holes to accommodate the flange plate studs. The amount of arm rise shall not be less than required to prevent the end of the arm from deflecting below the horizontal plane, nor greater than required to prevent the mounting height of signal heads from exceeding 19 feet. Mast arms shall be one of seven different lengths: 30, 40, 50, 60, 65, 70 or 75 feet and shall be designed to accommodate the dead loading and wind loading specified below for rigid mounted signal heads and signs.

30 and 40 Foot Mast Arm Lengths

Loading concentrated 1 foot from the end of arm shall be a signal with backplate with 100 pounds of dead load and 13 square feet of area. Three loads, applied at 8 foot increments from the first load to pole attachment, shall be signals with backplates with 60 pounds of dead load and 8 square feet of area each. The area provided does not take into account the wind drag coefficient. A drag coefficient of 1.2 shall be applied in determining the wind loading.

Two additional sign loads shall be applied as follows: The first load shall be applied 4 feet from end of arm, shall be a sign with 20 pounds of dead load and 8 square feet of area. The second load shall be applied from the pole attachment to the closest signal load, shall be a sign weighing 70 pounds with 30 square feet of area.

50, 60 and 65 Foot Mast Arm Lengths

Loading shall be same as for 30 foot and 40 foot lengths, except an additional 8 foot increment loading of 60 pounds and 8 square feet area for a signal with backplate shall be applied. The area provided does not take into account the wind drag coefficient. A drag coefficient of 1.2 shall be applied in determining the wind loading.

70 and 75 Foot Mast Arm Lengths

Loading shall be the same as for the 30 foot and 40 foot lengths except two additional 8 foot increment loads of 60 pounds and 8 square foot area for a signal with backplate shall be applied. The area provided does not take into account the wind drag coefficient. A drag coefficient of 1.2 shall be applied in determining the wind loading.

30, 40, 50, 60, 65, 70 and 75 Foot Mast Arm Lengths

An additional load concentrated at the midpoint of all arm lengths shall be a video camera and mounting bracket with 22 pounds of dead load and 1 square foot area. The area provided does not take into account the wind drag coefficient. A drag coefficient of 1.2 shall be applied in determining the wind loading.

Luminaire arms shall be designed for clamp on installation on the 26 foot Type III and Type IV poles. The powder coating shall conform to the requirements herein above. Luminaire arm design shall be in accordance with the AASHTO design requirements indicated herein. Clamps shall be provided with stainless steel or galvanized hardware with a minimum of four bolts per clamp for securing the clamps to the pole. Clamps attaching the luminaire arm to the pole shall be designed to fit the section of pole above the mast arm without using spacers or shims for a uniform rigid installation. Luminaire arm shall be a truss type design with a rise of 42 inches to 48 inches. Luminaire arms shall be designed with spacing between the two clamps to fit within the space above the mast arm and 1 foot from the top of the pole.

Luminaire arms for either the Type III or Type IV poles shall be one of two lengths, 15 feet or 18 feet. Luminaire arms shall be designed to accommodate a video camera with 22 pounds of dead load and 1 square foot of wind load area concentrated 1 foot from the end of arm. An additional load applied on the end of the arm, shall be a luminaire with 35 pounds of dead load and 1 square foot of wind load area.

The mast and luminaire arms shall be field drilled for cable wiring and fitted with rubber gaskets or grommets.

The mast arm shall be equipped with a removable galvanized steel or aluminum end cap. If field adjusting of mast arm length is required, end cap shall properly fit arm after adjustment. The Department will notify the Contractor on a per arm basis whether length adjustment is required.

IV. WORKING DRAWINGS:

The Contractor shall submit working drawings in accordance with Section 700.03 of the Specifications in addition to completing and submitting the attached design summary forms for signal poles. Summary forms shall be submitted with the shop drawings and design calculations. When powder coated poles and mast arms are required, the Contractor shall also submit a color chip for the specified pole color for approval by the Department.

V. PROCEDURES:

Mast arm poles shall not be erected on concrete foundations until the concrete has obtained a compressive strength of at least 3,000 pounds per square inch or has cured for at least 7 days when **high-early-strength** is used, or 28 days when Class A3 concrete is used. Strength Test shall be in accordance with Section 217.08(b) of the Specifications.

The Contractor may install a No. 3 rebar to encompass the anchor bolts to prevent their individual movement during concrete placement. The rebar shall be attached to the anchor bolts with rebar twist ties.

Unless otherwise specified on the plans, mast arm poles shall be installed in accordance with Section 700 of the Specifications.

An identification tag conforming to the requirements of Section 700.04(e) of the Specifications shall be permanently attached to each mast arm pole.

VI. MEASUREMENT AND PAYMENT:

Mast arm poles will be measured in units of each for the type specified and will be paid for in units of each. This price shall include furnishing and installing pole including grounding lugs, hand holes and covers, terminal strips when required, caps, bolt covers when required, fittings, and identification tag.

Mast arms will be measured in units of each for the length specified and will be paid for in units of each. This price shall include furnishing and installing mast arms including arm caps, fittings, field drilling of wire outlet holes and rubber gaskets or grommets and field adjustment of arm lengths.

Luminaire arms will be measured and paid for in accordance with Section 700.05 of the Specifications.

These prices shall include providing the required finish.

Payment will be made under:

Pay Item	Pay Unit
Mast arm pole (Type)	Each
Mast arm (Length)	Each

Project: _____

City/County: _____

Pole Manufacturer: _____

Address: _____

Date: _____ 19 _____

Material designation of pole: ASTM _____ API _____

Other _____

Yield strength of pole (F_y): _____ (psi)

Pole height: _____

Mast arm is attached _____ feet from top of pole.

Mast arm: _____ single; _____ double; other: _____

If double: angle between arms (in degrees) _____

Length of arm(s): _____ (feet)

Pole data: (check one and fill in data):

_____ same section throughout pole: thickness: _____ in.

diameter: _____ in.

area: _____ sq. in.

I: _____ in.⁴

SUBJECT: DESIGN SUMMARY FOR CANTILEVER MAST ARM POLE (Sheet 2 of 3)

Pole data (cont.):

_____ tapered section: thickness: _____ in.
 diameter: at top: _____ in. at bottom: _____ in.
 area: at top: _____ sq. in. at bottom : _____ sq. in.
 I: at top: _____ in.⁴ at bottom: _____ in.⁴

_____ consists of several sections (not tapered):

	Section 1 (topmost)	Section 2	Section 3	Section 4
thickness (in.)	_____	_____	_____	_____
diameter (in.)	_____	_____	_____	_____
area (sq. in.)	_____	_____	_____	_____
I (in. ⁴)	_____	_____	_____	_____

AASHTO design wind speed: (check one)

_____ 70 mph _____ 80 mph _____ 90 mph _____ 100 mph
 _____ other. Wind speed is _____ mph.

JFJV
 05-28-92

Design loads on pole at base (bottom):

AASHTO	CSR	Axial Load (pounds)	Shear Normal (pounds)	Shear Trans. (pounds)	Torsion (foot-pounds)
Group I	_____	_____	_____	_____	_____
Group II	_____	_____	_____	_____	_____
Group III	_____	_____	_____	_____	_____

AASHTO	Moment Normal (foot-pounds)	Moment Trans. (foot-pounds)	Resultant Moment (foot-pounds)
Group I	_____	_____	_____
Group II	_____	_____	_____
Group III	_____	_____	_____

Anchor bolt data:

ASTM designation: _____

Number of bolts: _____ Bolt circle: _____ in.

Bolt length(s): _____ in.

If nuts are used, ASTM designation: _____

If washer is used, ASTM designation: _____ size: _____

If plate is used, ASTM designation: _____ size: _____

Thickness: _____ in.

*IFB #07-16 – Route 10 & Hummel Ross Road Traffic Signal Project – Addendum #1
City of Hopewell, Virginia
March 18, 2016*

Please sign and include this form as part of your bid response to verify receipt of Addendum # 1.



April L. Cone, Purchasing Officer

Signature of Receipt of Addendum # 1

Date

Company Name