Illinois Department of Transportation
2300 South Dirksen Parkway / Springfield, Illinois / 62764

January 4, 2023

SUBJECT: FAU 6352 (West College Avenue)
Section 20-00271-00-PV (Normal)
McLean County
Contract No. 91619
Item 156
January 19, 2024 Letting
Addendum (A)

NOTICE TO PROSPECTIVE BIDDERS:

Attached is an addendum to the plans or proposal. This addendum involves revised and/or added material.

1. **Revised the Schedule of Prices**
2. **Revised Plan Sheets 5, 6, 11, 17, 18, 26, 28, 29, 33, 34, 38, 42, 59, 61, 75, 77, 90, 118, 120, 125, 127, 131, 132, 138 – 141, 173 – 186, 188, & 189**
3. **Revised pages ii & iii of the Special Provision Index**
4. **Revised pages 6, 7, 32 – 58 of the Special Provisions**
5. **Added pages 58A, & 58B to the Special Provisions**

Prime contractors must utilize the enclosed material when preparing their bid and must include any changes to the Schedule of Prices in their bid.

Very truly yours,

Jack A. Elston, P.E.
Bureau Chief, Design and Environment

Agency/Company	Type	Description	Location
City of Bloomington Public Works (Water) Dept.	Watermain	Fire hydrants and valves to be moved adjusted, and/or removed and replaced.	Stations 4+51 LT, 7+47 LT, 10+46 LT, 13+48 LT, 16+50 LT, 28+13 LT, 31+48 RT, 34+52 LT, 37+38 RT, 40+45 LT, 43+47 RT, 46+50 LT, 49+54 LT
Bluebird Network	No conflicts are known.		
Campus Communications Group	No conflicts are known.		
CIRBN LLC	Fiber Optic Communications	Vault to be adjusted	Station 59+45
Comcast	Overhead lines on poles owned by Corn Belt Energy Corp.	Light pole to be relocated.	Stations 5+32 RT, 15+32 RT, 35+33 RT, 40+42 RT, 45+35 RT, 50+39 RT, 55+48 RT, 60+56 RT, 65+56 RT, 70+56 RT, 75+56 RT, 80+44 RT
Corn Belt Energy Corporation	Poles	Light pole to be relocated.	Stations 5+32 RT, 15+32 RT, 27+80 LT, 32+82 LT, 35+33 RT, 37+83 LT, 40+42 RT, 42+82 LT, 45+35 RT, 47+83 LT, 50+39 RT, 52+91 LT, 55+48 RT, 58+00 LT, 60+56 RT, 63+06 LT, 65+56 RT, 67+75 LT, 70+56 RT, 73+06 LT, 75+56 RT, 77+98 LT, 80+44 RT
Frontier Communications	Underground Telephone	Manhole to be adjusted.	Stations 62+60 LT, 70+16 LT, 77+65 LT
Metro Communications Co., Inc.	No conflicts are known.		
Nicor Gas	No conflicts are known.		
Town of Normal Water Dept.	Watermain	Fire hydrants and valves to be moved, adjusted, and/or removed and replaced.	Stations 30+25 LT, 32+74 LT, 35+26 LT, 40+24 LT, 47+81 LT, 50+33 LT, 53+11 RT, 58+92 RT, 61+92 RT, 64+96 RT, 68+02 RT, 71+02 RT, 74+03 RT, 77+06 RT
Town of Normal Public Works and Engineering Dept. 1	Sanitary Sewer	Sanitary Manhole to be adjusted.	Stations 24+86 RT, 37+89 RT, 40+82 RT, 43+84 RT, 61+68 LT, 62+77 LT, 63+49 LT, 66+69 LT, 68+46 LT
Stratus Networks, Inc.	Underground Fiber	Handholes to be adjusted.	Stations 2+14 RT, 9+36 RT, 24+13 RT, 54+78 RT
T-Mobile	No conflicts are known.		
Windstream KDL / McLeod USA	No conflicts are known.		

UTILITIES TO BE WATCHED AND PROTECTED

The areas of potential concern noted below have been identified by following the suggested staging plan included for the contract. The information provided is not a comprehensive list of all remaining utilities, but those which during coordination were identified as ones which might require the contractor to take into consideration when making the determination of the means and methods that would be required to construct the proposed improvement. In some instances, the contractor will be responsible to notify the owner in advance of the work to take place so necessary staffing on the owner's part can be secured.

Agency/Company	Type	Description	Location
City of Bloomington Public Works (Water) Dept.	Watermain	Underground watermain, use caution with construction of proposed storm sewer.	Stations 3+25 RT, 3+50 RT, 5+50 RT, 7+52 RT, 21+50 RT, 23+01 RT, 25+74 RT, 27+70 RT, 32+50 RT, 36+50 RT, 40+55 RT, 42+08 RT, 44+0 RT, 53+69 RT, 74+18 LT
Bluebird Network	N/A		
Campus Communications Group	N/A		
CIRBN LLC	N/A		
Comcast	N/A		
Corn Belt Energy Corporation	N/A		
Frontier Communications	N/A		
Metro Communications Co., Inc.	N/A		
Nicor Gas 1		Underground high pressure gas line, use caution when constructing proposed storm sewer, underdrains, and utility adjustments.	Stations 2+33 LT, 2+33 LT, 3+50 LT, 5+50 LT, 7+52 LT, 21+50 LT, 22+88 LT, 25+38 LT, 28+75 LT to 31+40 LT, 32+50 LT, 36+50 LT, 37+50 LT to 81+60 LT
Town of Normal Water Dept.	Watermain	Underground watermain, use caution with construction of proposed storm sewer.	Stations 30+00 LT, 31+00 LT, 32+50 LT, 36+50 LT, 38+75 LT, 40+65 LT, 42+25 LT, 44+00 LT, 45+50 LT, 48+61 LT
Stratus Networks, Inc.	N/A		
T-Mobile	N/A		
Windstream KDL / McLeod USA	N/A		

STORM SEWERS AND PIPE CULVERTS

All Storm Sewers and Pipe Culverts shall be provided in accordance with Sections 542 and 550 of the IDOT Standard Specifications and as noted herein. Storm sewers and Pipe Culverts shall be Class A reinforced concrete pipe.

TYPE 1 FRAME AND LID

This work shall consist of furnishing and installing Type 1 Frame and Lid as noted on the plans and applicable portions of the State Highway Standards, except as modified herein. and details. Type 1 Frame and Lid shall be Neenah Foundry Company NO. R-1772 Manhole Frame with Solid Lid or Open Lid Grate; or East Jordan 1022Z1 Manhole Frame with Type 1020A Solid Lid or 1020M1 Grate. Grates shall be bicycle safe grates. All work shall be in accordance with Section 602 and 604 of the Standard Specifications.

Where proposed solid (closed) lids are located within the proposed multi-use path and sidewalk, the proposed lids shall be non-slip. The proposed non-slip lid shall not be paid for separately but shall be included in the work for the respective drainage structure. The locations are as follows:

Sta. 2+18.00, 84.62' Lt – Drainage Structure M1-1
Sta. 28+22.00, 33.0' Rt – Drainage Structure M1-2
Sta. 62+95.00, 27.73' Rt – Drainage Structure M3-1

CONNECTION INTO EXISTING OR PROPOSED DRAINAGE STRUCTURES

This work shall include furnishing and installing all necessary items to satisfactorily complete the connection as shown in the plans and as determined by the Engineer. A Concrete Collar shall be constructed in accordance with the detail as shown on the plans where storm sewer, or pipe culverts of differing pipe types connect or where new storm sewer, or pipe culverts connects to existing storm sewer or pipe culverts. Work shall also include plugs utilizing brick, mortar, and concrete in pipes and structures due to adjusted or abandoned items. The work and materials for concrete collars, plugs, and connecting the existing or proposed drain tile, underdrains, culvert, or sewer into the existing or proposed sewer structures, shall not be paid for separately, but shall be included in the work for the respective sewer, underdrains, or drainage structure.

INLETS TO BE ADJUSTED (SPECIAL)

This work shall consist of removing the existing Frame and Grate Special and replacing with proposed Type 1 Frame, Closed Lid. The contract unit price bid per each for Inlets to be Adjusted (Special) shall include work required to furnish and install the Type 1 Frame, Closed Lid in accordance with Sections 602, 603, and 604 of the Standard Specifications shall govern the adjustment of the Inlet and the Type 1 Frame, Closed Lid.

Existing Frame and Grate (Special) shall be removed and, if no flat slab concrete top is present, a new flat slab concrete top shall be furnished and installed. A proposed Type 1 Frame, Closed lid shall be installed and adjusted to match the proposed roadway surface.

This work shall be paid for at the contract unit price bid per each for INLETS TO BE ADJUSTED (SPECIAL).

ADJUSTING FRAMES AND GRATES

All existing and proposed structure adjustments shall be done with expanded polypropylene (EPP) adjusting rings. The maximum adjustment is 6".

Add the following to Article 602.02 of the Standard Specifications:

"(t) Expanded Polypropylene (EPP) Adjusting Rings (Note 5) 1043.05

Note 5. Riser rings fabricated from EPP may be used to adjust the frames and grates of drainage and utility structures up to a maximum of 6 in. (150 mm). An adhesive meeting ASTM C 920, Type S, Grade N5, Class 25 shall be used with EPP adjustment rings. The top ring of the adjustment stack shall be a finish ring with grooves on the lower surface and flat upper surface. The joints between all manhole adjustment rings and the frame and cover shall be sealed using the approved adhesive. In lieu of the use of an adhesive, an internal or external mechanical frame-chimney seal may be used for watertight installation. EPP adjustment rings shall not be used with heat shrinkable infiltration barriers."

"**1043.05 Expanded Polypropylene (EPP) Adjusting Rings.** The EPP adjusting rings shall be manufactured using a high compression molding process to produce a minimum finished density of 7.5 lb/cu ft (120 g/l). The EPP rings shall be made of materials meeting ASTM D 3575 and ASTM D 4819-13. The grade adjustments shall be designed and tested according to the AASHTO Standard Specifications for Highway Bridges (AASHTO M 306 HS-25).

Grade rings shall contain upper and lower keyways (tongue and groove) for proper vertical alignment and sealing. The top ring, for use directly beneath the cast iron frame, shall have keyways (grooves) on the lower surface with a flat upper surface.

Adhesive or sealant used for watertight installation of the manhole grade adjustment rings shall meet ASTM C 920, Type S, Grade NS, Class 25, Uses NT, T, M, G, A, and O.

EPP adjustment rings shall have no void areas, cracks, or tears. The actual diameter or length shall not vary more than 0.125 in. (3 mm) from the specified diameter or length. Variations in height are limited to ± 0.063 in. (± 1.6 mm). Variations shall not exceed 0.25 in. (6 mm) from flat (dish, bow, or convoluting edge) or 0.125 in. (3 mm) for bulges or dips in the surface."

PROPOSED DRAINAGE STRUCTURES

All new drainage structures shall be cast-in-place concrete or precast concrete.

MANHOLES TO BE ADJUSTED (SPECIAL)

This work shall consist of removing the existing grate, flat slab top, CMU blocks, and provide manhole barrel adjustment to proposed weir elevation shown in the plans and replacing or providing new MCU blocks (if necessary), flat slab top, and existing grate. The contract unit price bid per each for Manholes to Be Adjusted (Special) shall include all work required to furnish and install the materials and make the required adjustments in accordance with Sections 602, 603, and 604 of the Standard Specifications.

This work shall be paid for at the contract unit price bid per each for MANHOLES TO BE ADJUSTED (SPECIAL).

MANHOLES TO BE ADJUSTED

This work shall consist of adjusting all the existing storm sewer, sanitary sewer, and utility manholes to the finish grade of the project improvements at locations shown in the plans. This work shall be in accordance with Sections 602, 603, and 604 of the Standard Specifications except as modified herein.

All structure adjustments shall be done with expanded polypropylene (EPP) adjusting rings. The maximum adjustment is 6".

Where existing sanitary sewer manhole and utility manhole solid lids are located within the proposed multi-use path and sidewalk, the existing frame and lid shall be removed and replaced with a new frame and new non-slip solid lid. For sanitary manholes, the frame and lid shall be self-sealing with closed pick hole and meet the Local Agency requirements. For utility manholes, the frame and lid shall meet the utility agency requirements. The new frame and non-slip solid lid shall be included in the cost of adjusting the structure. The removal and salvage of the existing frame and lid, and the furnishing and installation of the new frame and new non-slip solid lid shall be included in the contract unit price bid per each for MANHOLES TO BE ADJUSTED. The locations are as follows:

24+86.0, 58.0' Rt – Sanitary Sewer Manhole
63+48.8, 34.8' Lt – Sanitary Sewer Manhole
66+69.0, 36.4' Lt – Sanitary Sewer Manhole
70+16.1, 44.9' Lt – Utility Manhole
77+66.8, 47.8' Lt – Utility Manhole

This work required by this special provision will be measured and paid at the contract unit price per each for MANHOLES TO BE ADJUSTED.

MANHOLES TO BE ADJUSTED WITH SPECIAL FRAME AND GRATE

This work shall consist of adjusting all the existing manholes to the finish grade of the project improvements at locations shown in the plans. This work shall be in accordance with Sections 602, 603, and 604 of the Standard Specifications except as modified herein.

All structure adjustments shall be done with expanded polypropylene (EPP) adjusting rings. The maximum adjustment is 6".

This work required by this special provision will be measured and paid at the contract unit price per each for MANHOLES, TO BE ADJUSTED WITH SPECIAL FRAME AND GRATE

DRAINAGE STRUCTURE REPAIR

The Contractor shall repair existing manhole drainage structures as shown on the plans. The Contractor shall make spot repairs within manhole interior as necessary and as generally described below. Materials and repair methods shall be in accordance with the Standard Specifications.

The Contractor shall inspect and make necessary repairs which may include replacing mortar or mastic joints, replacing mortar connections between pipes and manhole openings, filling cracks, replacing bricks and mortar, isolated formed concrete repair, repairing or replacing manhole adjustment rings or steps, resetting frames and castings, and cleaning debris from manhole structures.

The contract unit price bid per each for the DRAINAGE STRUCTURE REPAIR shall be compensation in full for all work required to complete the necessary repairs in place as described herein and no additional compensation shall be allowed.

INLETS, SPECIAL, WITH SPECIAL FRAME AND GRATE

This work shall consist of furnishing and installing Inlets with Special Frame and Grate as shown on the details in the plans. The contract unit price bid per each for Inlet, Special, with Special Frame and Grate shall include all work required to furnish and install the inlet in accordance with the details as shown on the plans. Sections 602 and 604 of the Standard Specifications shall govern the construction of the Inlet, Special and the Special Frame and Grate. The Special Frame and Grate (previously known in the Town of Normal as a Type 50) is intended to be used on curb inlets and shall be as shown in the plan detail. Only cast iron grates shall be used. The Special Frame and Grate shall be a bicycle safe grate. Connection of existing storm sewers, and underdrains, where required, to the Inlet Type Special shall be included in the contract unit price.

This work shall also include furnishing and placing a PCC wedge along the backside (entire length) of inlet curb boxes to completely cover gaps at bolt connections to the inlet frame. The PCC wedge shall be vibrated. All work shall be in accordance with Section 606 of the Standard Specifications.

The inside of the inlet and casting junction shall be "finished" when the casting is set. All structure adjustments shall be done with expanded polypropylene (EPP) adjusting rings. The maximum adjustment is 6".

This work shall be paid for at the contract unit price bid per each for INLETS, SPECIAL, WITH SPECIAL FRAME AND GRATE.

INLETS, TYPE A OR B, WITH SPECIAL FRAME AND GRATE

This work shall consist of furnishing and installing inlets and castings as noted on the plans and details all in accordance with Section 602 and 604 of the Standard Specifications, including flat slab tops for Inlets Type B, if necessary. These items and all associated work shall be measured and paid for at the contract unit price bid per each of the type specified for INLETS, TYPE A, WITH SPECIAL FRAME AND GRATE or INLETS, TYPE B, WITH SPECIAL FRAME AND GRATE.

MANHOLES, TYPE A, 4'-DIAMETER, WITH SPECIAL FRAME AND GRATE

This work shall consist of furnishing and installing manholes and castings as noted on the plans and details all in accordance with Section 602 and 604 of the Standard Specifications, including flat slab tops, if necessary. These items and all associated work shall be measured and paid for at the contract unit price bid per each for MANHOLES, TYPE A, 4'-DIAMETER, WITH SPECIAL FRAME AND GRATE.

MANHOLES, TYPE A, 8'-DIAMETER, WITH SPECIAL FRAME AND GRATE

This work shall consist of furnishing and installing Manholes, Type A, 8'-Diameter, with Special Frame and Grate as shown on the details in the plans. The contract unit price bid per each for Manholes, Type A, 8'-Diameter, with Special Frame and Grate shall include all work required to furnish and install the Manhole in accordance with the details as shown on the plans, including flat slab top, if necessary. Sections 602 and 604 of the Standard Specifications shall govern the construction of the Manhole and the Special Frame and Grate. The Special Frame and Grate (previously known in the Town of Normal as a Type 50) is intended to be used on curb inlets and manholes and shall be as shown in the plan detail. Only cast iron grates shall be used. The Special Frame and Grate shall be a bicycle safe grate. Connection of existing storm sewers, existing inlet, and underdrains, where required, to the Manhole shall be included in the contract unit price.

Existing Frame and Grate Special will be removed. Existing inlet will be sawcut to top invert of proposed 8' manhole slab. Provide manhole opening in the bottom slab to match location and dimensions of existing inlet type special approximately 3.5' x 2.5' (to allow for existing inlet box to protrude through and connect to the proposed manhole). Provide for watertight, non-shrink mortar joint and sealant around existing inlet and manhole slab interface connection. Proposed Frame and Grate Special will be placed in the curb line and drain into the manhole. Roadway pipe underdrain, 4" will also drain into this manhole. A 6" hole shall be precast into the side of the manhole to accommodate this 4" pipe underdrain. Controlled Low Strength Material will be placed under and around the manhole to the dimensions shown in the Miscellaneous Details plan sheet.

This work shall be paid for at the contract unit price bid per each for MANHOLES, TYPE A, 8'-DIAMETER, WITH SPECIAL FRAME AND GRATE.

MANHOLES, TYPE A, 4'-DIAMETER WITH SPECIAL GRATE

This work shall consist of furnishing and installing manholes and castings as noted on the plans and details all in accordance with Section 602 and 604 of the Standard Specifications, including flat slab tops, if necessary. These items and all associated work shall be measured and paid for at the contract unit price bid per each for MANHOLES, TYPE A, 4'-DIAMETER WITH SPECIAL GRATE.

MANHOLES, TYPE A, 9'-DIAMETER WITH SPECIAL GRATE

This work shall consist of furnishing and installing manholes and castings as noted on the plans and details all in accordance with Section 602 and 604 of the Standard Specifications, including flat slab tops, as necessary. These items and all associated work shall be measured and paid for at the contract unit price bid per each for MANHOLES, TYPE A, 9'-DIAMETER WITH SPECIAL GRATE.

INLET FILTERS

This work consists of furnishing, installing, maintaining and removing inlet filters at gutter inlet and gutter inlet/manhole locations in accordance with the Standard Specifications at locations shown in the plans or as determined by the Engineer. The inlet filters shall be of a non-woven geotextile catch bag type that fits inside the casting, held in place by the casting grate and be of high permeability, ≥ 100 gal/min/ft2.

Inlet Filters will be checked by the Resident Engineer weekly and after every rain of ≥ ½". If requested by the Engineer, inlet filters shall be cleaned of debris by the Contractor at no additional cost within 24 hours of notification by the Engineer.

Where existing inlets and gutter inlet/manholes within the project limits are to remain in place, Inlet Filters shall be installed and remain until complete ground cover is fully established. Inlet Filters shall also be installed in new inlets and manholes within curb and gutter locations after the frames and grates have been installed and Inlet Filters shall remain in place until complete ground cover is fully established.

This work as described herein shall be measured and paid for at the contract unit price per each, for INLET FILTERS.

PIPE UNDERDRAINS, TYPE 1, 4"

This work shall be according to Section 601 of the Standard Specifications and the details shown in the plans including excavation, trenching, and backfill material.

Contractor shall furnish and install pipe underdrain supplier recommended fittings to connect proposed pipe underdrains into existing pipe underdrains, existing and proposed inlets, and existing and proposed manholes, where necessary. This work shall not be paid for separately but included in the cost of PIPE UNDERDRAINS, TYPE 1, 4".

Wherever, in the opinion of the Engineer, it is necessary during the construction of the storm sewer system or pipe underdrains to explore and excavate to determine the location and elevation of

existing utilities, culverts, storm sewer, or other underground items, the Contractor shall make exploration and excavation for such purposes. This cost of exploratory excavation will not be paid for separately, but shall be included in the associated storm sewer, inlet, or underdrain pay item requiring the excavation.

This work shall be measured and paid for at the contract unit price bid per foot for PIPE UNDERDRAINS, TYPE 1, 4".

REMOVE CONCRETE HEADWALLS FOR PIPE DRAINS

This work shall consist of removing and disposing of concrete headwalls for pipe drains at locations shown in the plans. All work shall be performed in accordance with Section 501 of the Standard Specifications, except as modified herein.

Any holes or depressions left after removing a concrete headwall that will be under or within two feet of proposed improvements as defined in Article 208.01 of the Standard Specifications, shall be filled with trench backfill as shown on the plans, which is considered incidental to REMOVE CONCRETE HEADWALLS FOR PIPE DRAINS and shall not be paid for separately. The remaining ground surface shall be graded, compacted, and leveled to the satisfaction of the Engineer.

The work required by this special provision will be measured and paid at the contract unit price per each for REMOVE CONCRETE HEADWALLS FOR PIPE DRAINS and no additional compensation will be allowed.

EXISTING FIELD TILE REMOVAL

This works consists of the removal of a portion of existing field, drain tile at the locations specified in the plans, along with furnishing and installing a new 45 degree elbow fitting and tile extension with trench backfill to tie into proposed Inlet 2-7 located at station 42+25 RT. All work and shall be performed in accordance with applicable portions of Section 611 of the Standard Specifications, and as indicated by the Engineer. The work required by this special provision will be measured and paid at the contract unit price per foot for EXISTING FIELD TILE REMOVAL.

TEMPORARY EROSION CONTROL

Temporary erosion control systems and maintenance shall be the responsibility of the Contractor. The Contractor shall follow the Erosion Control Plan as shown in the plans and in these special provisions. Systems utilized for temporary erosion control shall be in accordance with Section 280 of the Standard Specifications and the latest revision of Standard 280001. Inlet and Pipe Protection shall be placed at all pipes and inlets, and manholes where indicated in the plans. Perimeter Erosion Barrier and Temporary Ditch Checks shall be placed to prevent silt from leaving the project limits. Inlet Filters shall be placed where indicated in the plans. Temporary Seeding and Mulch Method 2 shall be placed to establish groundcover and stabilize surface soil during construction.

Estimated quantities for these items have been included in the Summary of Quantities. No change in the contract unit price will be allowed for additions or deletions from the estimated quantities. Payment will only be made for items satisfactorily installed, maintained, and removed.

The erosion control devices shall be furnished and installed before commencing construction and shall be removed after complete grass cover is fully established. Upon completion of the project, temporary materials used for temporary erosion control shall be removed by the Contractor and become the property of the Contractor. The Contractor shall also be responsible for cleaning, maintaining and replacing the Temporary Erosion Control items during this project as needed or as requested by the Engineer and prior to acceptance of the project. Additional payment will not be made for maintenance or necessary replacement of Temporary Erosion Control items that may be required during this project.

The Contractor shall certify and follow the Storm Water Pollution Prevention Plan (SWPPP) included with these Special Provisions. Signed copies of the Contactor Certification Statement included with the SWPPP for the Prime Contractor and all Sub-contractors along with other documentation as required in the SWPPP shall be provided to the Town and the Engineer at the Preconstruction Meeting.

AGGREGATE SURFACE COURSE FOR TEMPORARY ACCESS

Effective: April 1, 2001
Revised: January 2, 2007

Revise Article 402.10 of the Standard Specifications to read:

"**402.10 For Temporary Access.** The contractor shall construct and maintain aggregate surface course for temporary access to private entrances, commercial entrances and roads according to Article 402.07 and as indicated by the Engineer.

The aggregate surface course shall be constructed to the dimensions and grades specified below, except as modified by the plans or as indicated by the Engineer.

(a) Private Entrance. The minimum width shall be 12 ft (3.6 m). The minimum compacted thickness shall be 6 in. (150 mm). The maximum grade shall be eight percent, except as required to match the existing grade.

(b) Commercial Entrance. The minimum width shall be 24 ft (7.2 m). The minimum compacted thickness shall be 9 in. (230 mm). The maximum grade shall be six percent, except as required to match the existing grade.

(c) Road. The minimum width shall be 24 ft (7.2 m). The minimum compacted thickness shall be 9 in. (230 mm). The grade and elevation shall be the same as the removed pavement, except as required to meet the grade of any new pavement constructed.

Maintaining the temporary access shall include relocating and/or regrading the aggregate surface coarse for any operation that may disturb or remove the temporary access. The same type and gradation of material used to construct the temporary access shall be used to maintain it.

When use of the temporary access is discontinued, the aggregate shall be removed and utilized in the permanent construction or disposed of according to Article 202.03."

Add the following to Article 402.12 of the Standard Specifications:

"Aggregate surface course for temporary access will be measured for payment as each for every private entrance, commercial entrance or road constructed for the purpose of temporary access. If a residential drive, commercial entrance, or road is to be constructed under multiple stages, the aggregate needed to construct the second or subsequent stages will not be measured for payment but shall be included in the cost per each of the type specified."

Revise the second paragraph of Article 402.13 of the Standard Specifications to read:

"Aggregate surface course for temporary access will be paid for at the contract unit price per each for TEMPORARY ACCESS (PRIVATE ENTRANCE), TEMPORARY ACCESS (COMMERCIAL ENTRANCE), TEMPORARY ACCESS (FIELD ENTRANCE), or TEMPORARY ACCESS (ROAD).

Partial payment of the each amount bid for temporary access, of the type specified, will be paid according to the following schedule:

(a) Upon construction of the temporary access, sixty percent of the contract unit price per each, of the type constructed, will be paid.

(b) Subject to the approval of the Engineer for the adequate maintenance and removal of the temporary access, the remaining forty percent of the pay item will be paid upon the permanent removal of the temporary access."

TEMPORARY PAVEMENT MARKING REMOVAL

This work shall consist of removing all applied applications of temporary pavement markings at locations specified in the plans in accordance with the applicable portions of Section 703 of the Standard Specifications.

All costs associated with removing the temporary pavement markings at locations specified in the plans or as indicated by the Engineer shall not be paid for separately, but shall be included in the contract unit bid price per FOOT for TEMPORARY PAVEMENT MARKING, of the size and type specified.

UNDERGROUND CONDUIT

This work shall consist of furnishing and installing a conduit of the type and size specified, in accordance with Section 810 of the Standard Specifications except as described herein.

When PVC Conduit is required to be spliced to steel conduit sections, a heavy wall set screw connector with a PVC female adapter shall be installed and sealed by duct seal and plastic tape.

A ¼ inch (6 mm) polypropylene pull rope shall be installed in all conduit runs. A minimum of 6 feet of rope shall be provided in each end of a conduit run.

This work shall be considered as included in the contract unit price per FOOT for UNDERGROUND CONDUIT, PVC, of the size specified.

HANDHOLE TO BE ADJUSTED

This work shall be done in accordance with Sections 602 and 603 of the Standard Specifications. Castings and handholes shall be adjusted and set at the finished grade elevation.

This work will be paid for at the contract unit price per each for HANDHOLE TO BE ADJUSTED.

HANDHOLE

The covers for the handhole, cast-in-place concrete or composite concrete, shall have recessed lift rings as described in Article 1088.06 of the Standard Specifications.

The handhole cover shall not be held down by hex head bolts or any other means.

(Gulfbox Junction cover shall be held down by the hex head bolts or any other means acceptable to the engineer.)

Concrete handholes shall be cast-in-place or precast. Composite concrete handholes shall not be allowed.

ELECTRIC CABLE

All signal, lead-in, communication, service cable, and lighting cable shall be tagged with wiring identification markers at each point of access. All handholes, gulfbox junctions, mast arm pole handholes, and controller cabinet shall be considered as points of access.

Wiring identification markers shall be in accordance with Article 1066.07 of the Standard Specifications. The cost associated with this compliance shall be considered as included in the contract unit price per FOOT for ELECTRIC CABLE of the size and type specified.

DAMAGE TO EQUIPMENT

Any equipment damaged by the Contractor in his/her operations shall be replaced at his/her own expense, and no additional compensations will be allowed.

ELECTRIC CABLE IN CONDUIT, GROUND, NO. 6 1/C

This work shall be in accordance with the latest revision of Standard 873001 and the applicable articles of Articles 801.04, 873.04 and 1076.04(e) of the Standard Specifications with the following modifications.

The controller foundation ground rod shall be located in the double handhole rather than in the foundation. All other foundations shall retain their ground rods as shown on the foundation detail sheet.

This work shall be considered as included in the contract unit cost per FOOT for ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C which price shall be payment in full for all work, including clamps, hardware and all equipment required to provide the grounding system described above.

UNINTERRUPTABLE POWER SUPPLY, STANDARD

The supply and installation of the UPS shall be in accordance with Section 862 of the Standard Specifications in addition to the following:

When the proposed contract requires a Concrete Foundation, Type C or the modification of the existing concrete foundation to Type C dimensions, the proposed UPS cabinet shall be of the NEMA Type III with ground mount dimensions as listed in Article 1074.04 (b)(2)e.

When the proposed contract does not require a Concrete Foundation, Type C or the modification of the existing concrete foundation to Type C dimensions, the proposed UPS cabinet shall be NEMA Type III with piggy back type with dimensions capable of housing batteries only, per the approval of the engineer.

To maintain compatibility with current UPS systems, the UPS systems supplied in this contract shall be Alpha Technologies brand, model FXM 1100 or the pre-approved equivalent.

The inverter/charger, power transfer relay, and the manual bypass shall be installed inside the proposed traffic signal controller cabinet.

The UPS shall be equipped with the ethernet port.

The external battery cabinet shall be attached to the traffic signal controller cabinet via stainless steel bolts, flat washers and nuts of the size that is acceptable to the engineer. The battery cabinet shall be fastened in all four corners to the traffic signal cabinet.

The contractor shall cut an access hole through both adjacent cabinet walls of adequate size to accommodate the UPS cable. The contractor shall install a grommet around the edge of the hole that will fit firmly and protect the cable insulation from damage. The UPS cable shall be routed through the hole.

Compliance with this special provision shall be considered as included in the cost of UNINTERRUPTABLE POWER SUPPLY, STANDARD and no additional compensation will be allowed.

TRAFFIC SIGNAL POST

This work shall be in accordance with Section 875 of the Standard Specifications except that in addition to the fabric post tightener, a pipe wrench shall also be an acceptable method of screwing the post to the base.

All traffic signal posts shall be aluminum provided with pole-base collars.

The Contractor shall protect the finish of the post by placing wood blocks in the jaws of the pipe wrench or by other means acceptable to the Engineer.

Post shall be field tightened to the base.

The access cover shall be installed in the direction away from traffic.

MAST ARM MOUNTED TRAFFIC SIGNAL HEAD PLACEMENT

It is the intent of the Owner that the mast arm mounted traffic signal heads be positioned over the middle of the respective traffic lane.

Generally, an exception shall be made of signal heads with left turn indications over directly opposing left turn lanes where “masking” the view of the signal heads may occur. In the case of directly opposing left turn lanes, the mast arm length is designed to provide for the signal head to be located 1ft. offset from the center of the lane towards the respective mast pole creating a 2 ft. separation between opposing outside signal heads.

Occasionally the length of the proposed mast arm will cause a greater offset from the center of the lane and a greater offset between opposing signal heads.

To avoid misalignment of the mast arm mounted signal heads over the traffic lanes, the contractor shall not pre-drill the mounting holes on the mast arm until the final location of the mast arm pole foundation is determined and the foundation constructed.

MAST ARM DAMPENING DEVICE

This work shall consist of installing a dampening device on mast arms, indicated in the plans, equidistant between the two outermost signal heads. Mast arm dampening devices shall be installed on mast arms that are 40 ft. in length or more.

The dampening device shall consist of a 36” X 72” Type 1 unpainted aluminum sign stock mounted horizontally on top of the mast arm with the 36” length perpendicular to the arm.

This work shall be considered as included in the unit cost each for STEEL COMBINATION MAST ARM ASSEMBLY AND POLE of the size and type specified. No additional compensation will be allowed.

CONCRETE FOUNDATION, TYPE C

This work shall be in accordance with Section 878 of the Standard Specifications and Standard 878001 of the latest revision with the following exceptions:

The 4 inch gap shown in the detail for Type C foundation in the Standard shall be eliminated and the cabinets shall be attached.

The cable conduit shown in the foundation to route the cable from cabinet to cabinet shall be eliminated.

New cable between the UPS and traffic signal controller cabinet shall access through a grommet protected hole of adequate size once the cabinets are bolted together.

This work shall be considered as included in the contract unit price per FOOT of depth of CONCRETE FOUNDATION, TYPE C.

SIGNAL HEAD, LED

This work shall be performed according to Section 880 of the Standard Specifications. The mast arm traffic signal heads shall be mounted with sky brackets manufactured by Olsen Aluminum Castings. The LED signal indications shall have a minimum 5-year warranty covering material and labor costs to replace the LED lamps should failure occur prior to the end of the warranty period.

TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE

This work shall be in accordance with Sections 882 and 1078 of the Standard Specifications except as modified herein.

The traffic signal backplate shall be fabricated from sheet aluminum and shall have a nominal thickness of 0.05 in. (1.3 mm) and shall be according to ASTM B 209, Alloy 5052 or better and shall have matte black finish. The backplate shall be slotted to reduce wind load on the signal head. The slots shall accumulate 20 percent of the total exposed surface area when looking at the front of the signal. The backplate shall be split to allow installation without removal of the signal head from its mounting bracket. The backplate shall be secured to the existing signal head with a sufficient number of screws to prevent failure from wind loading.

A three-inch (3”) side strip of reflective sheeting shall be applied to the outside perimeter of the face of the backplate. The reflective tape shall be fluorescent yellow in color and shall consists of Type AZ sheeting and should be shop applied with a pressure roller prior to being installed in the field.

Basis of Payment: This work will be paid for at the contract unit price per each for TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE and shall be payment in full for all work required to remove the existing backplate and furnish and install a traffic signal backplate with reflective tape as described above.

WIRELESS INTERCONNECT (COMPLETE)

Description

This work shall consist of maintaining a complete wireless interconnect system at the locations as shown on the plans. The wireless interconnect system shall be compatible with Econolite controller closed loop systems. This work shall include all wireless interconnect components at all traffic signal(s) in the system to provide a completely operational closed loop system. This work shall include all necessary testing to provide the completely operational closed loop system as shown on the plans. The wireless interconnect system shall include, but not be limited to, the following components:

a. Rack or Shelf Mounted RS-232 Frequency Hopping Spread Spectrum (FHSS) Radio

b. Software for Radio Configuration (Configure Frequency and Hopping Patterns)

c. Antennas (Omni Directional or Yagi Directional)

d. Antennas Cables, LMR400, Low Loss. Max. 100-ft from controller cabinet to antenna

e. Brackets, Mounting Hardware, and Accessories Required for Installation

f. RS232 Data Cable for Connection from the radio to the local or master controller

g. Radio repeater(s), if needed

h. All other components required for a fully functional radio interconnect system

All controller cabinet modifications and other modifications to existing equipment that are required for the installation of the radio interconnect system components shall be included in the cost of WIRELESS INTERCONNECT (COMPLETE).

The radio interconnect system may operate at 900Mhz (902-928) or 2.4 Ghz depending on the results of a site survey. The telemetry shall have an acceptable rate of transmission errors, time outs, etc. comparable to that of a hardwire system.

The proposed or existing master controller and telemetry module shall be configured for use with the radio interconnect at a minimum rate of 9600 baud.

The radio interconnect system shall include all other components required for a complete and fully functional telemetry system and shall be installed in accordance to the vendors recommendations.

The Contractor shall verify that the radio interconnect equipment used is compatible with the existing equipment at the intersection of IL Route 9 and US Route 150.

Basis of Payment

This work will be paid for at the contract unit price each for WIRELESS INTERCONNECT (COMPLETE).

VIDEO VEHICLE DETECTION SYSTEM

This work shall consist of furnishing and installing a video vehicle detection system as specified and/or as shown on the plans. This pay item shall include all necessary work and equipment required to have a fully operational system including but not limited to the detector units, the interface unit and all the necessary hardware, cables and accessories required to complete the installation in accordance with the manufacturer's specifications.

The video vehicle detection system shall work under all weather conditions, including rain, freezing rain, snow, wind, dust, fog, and changes in temperature and light. It shall work in an ambient temperature range of -34 to 74 degrees Celsius. The video detection system shall be compatible with only CAT 5 cable utilized for all directions of application.

The video vehicle detection system shall be compatible with the Town of Normal and IDOT approved traffic controller assemblies utilizing NEMA TS 2 Type 2 controllers and cabinet components for full time operation. The video vehicle detection system shall provide a minimum of one interface unit that has Ethernet connectivity, surge protection and shall be capable of supporting a minimum of 4 detector units. The video vehicle detection system shall include a display inside the cabinet that has a minimum 10" screen with a minimum 1280x800 resolution.

The video vehicle detection system shall include the following Town of Normal approved systems of Econolite - Autoscope Vision.

A representative from the supplier of the video vehicle detection system shall supervise the installation and testing of the video vehicle detection system and shall be present at the traffic signal turn-on inspection. Once the video vehicle detection system is configured, it shall not need reconfiguration to maintain performance, unless the roadway configuration or the application requirements change.

The mounting locations of the detector units shall be per the manufacturer's recommendations and as shown in the Plans. If an extension mounting assembly is needed, it shall be included in this item. All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The video detection system shall be warrantied, free from material and workmanship defects for a period of three years from final inspection.

This work shall be paid for at the contract unit price each for Video Vehicle Detection System the price of which shall include the cost for all of the work and material described herein and includes furnishing, installing, delivery, handling, testing, set-up and all appurtenances and mounting hardware necessary for a fully operational video vehicle detection system.

LUMINAIRE, LED, SPECIAL

Description

This work shall consist of furnishing and installing a luminaire in accordance with Section 821 of the Standard Specifications, the details in the plans, and the following additions or exceptions.

Materials

The full cut-off luminaire shall have a structured LED array to provide 23,000 initial lumens at 4,000K. Distribution shall be asymmetric medium. Luminaire shall utilize a 4-bolt slip fitter with +/- 5 degrees of adjustment for leveling. Provide luminaire with optional level and tool less entry. Luminaire shall be suitable for use on a 120-240 volt system. Each luminaire shall have an individual photocell. The luminaire shall have a black finish.

The luminaire shall be the Evolve LED series manufactured by GE Lighting Systems, catalog number ERS2-0-23-E1-40-D-BLCK-AGLR.

Basis of Payment

This work will be paid for at the contract unit price each for LUMINAIRE, LED, SPECIAL.

PAINT TRAFFIC SIGNAL EQUIPMENT

It is the intent of the department that the signal equipment be finished in a color and texture that is available from the supplier and the choosing of the municipality. The Town of Normal requires black powder coated finishes.

All traffic signal equipment shall be finished, except for the proposed controller cabinets which shall remain in the natural aluminum finish.

All traffic signal equipment shall include but not be limited to combination mast arm assemblies and poles, luminaires, traffic signal posts and bases, signal head mounting brackets, pedestrian push-button posts.

The warranty level of the finish shall be for a period of 5 years.

Areas damaged during installation shall be touched up according to the specified painting process as directed by the manufacturer.

Payment for the painting of the proposed traffic signal equipment shall be paid for per the contract unit price per lump sum for Paint Traffic Signal Equipment and no additional compensation will be allowed.

FULL-ACTUATED CONTROLLER AND CABINET, SPECIAL

This work shall be in accordance with the applicable Articles of Sections 857, 1073, and 1074 of the Standard Specifications with the following modifications:

The cabinet furnished under this contract shall be in accordance with the Section 857 of the Standard Specifications.

The cabinet shall be equipped with a NEMA TS2 Type 2 controller. The sequence and phasing of the controller shall be as shown in the plans. The controller shall be the Econolite Cobalt controller with EOS Software.

It is the intent of the Department that the proposed cabinet is compatible to being connected to a fiber optic network. A distribution enclosure shall be installed in accordance with Section 864 of the Standard Specifications. The distribution panel shall be connected to an ethernet switch via fiber optic jumpers. The ethernet switch shall be connected to the controller via ethernet jumper cables.

The new distribution enclosure shall be under the shelf mounted using LC connectors. The distribution enclosure shall be the Multilink Model# FRM-2RU-4X-SO or the pre-approved equivalent. The distribution enclosure shall be of adequate capacity to accommodate a minimum of 48 fiber terminations.

The controller, conflict monitor, and the uninterruptible power source shall be equipped with ethernet ports for communication. Cat. 5 ethernet jump cables shall be provided for connecting the devices to the ethernet switch. The ethernet switches will be paid for per the appropriate pay item.

The manufacturer's representative shall be on site for the traffic signal turn-on.

The Contractor shall provide the names and phone numbers of two technicians who would be able to respond to controller malfunctions that occur within the 30-day acceptance period after the controller is turned on. If neither person can be reached at the time of the malfunction or can be at the location within 2 hours of receiving the call, an available electrician capable of evaluating and correcting the malfunction may be called at the owner's discretion. All Invoices resulting from defective operation of the controller or cabinet shall be the responsibility of the Contractor.

CONTROLLER CABINET

The cabinet shall also be furnished with a manual control switch and manual cord with the police compartment door as incidental to the controller work.

A clear plastic cover, or other high strength nonconductive cover, shall be installed over, and completely cover, the power panel and the power terminals for the thermostatically controlled exhaust fan. The cover shall completely shield the wires, and circuit breaker wires from accidental contact.

The door toggle switches shall be protected from accidental contact by a hinged cover or metal fins. The fins shall extend beyond the switches, in a manner like the terminals on the back panel. A resealable plastic plan holder shall be installed on the cabinet door. The holder shall be at least 12 inches high and 18 inches wide and shall open from the side.

The controller cabinet and components shall be fully wired and sized for the future expansion and use of all either phases, four pedestrian movements, and four overlaps. Pedestrian phases shall always be serviced by load switched 9, 10, 11, 12 corresponding to pedestrian phases 2, 4, 6, 8 respectively. The cabinet equipment shall be furnished with SDLC ports for communication between the controller and other cabinet components. A 16-position load bay shall be provided to accommodate future expansion.

This work shall be paid for at the contract unit price each for FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL, the price of which shall include the cost for all of the work and material described herein and includes furnishing, installing, delivery, handling, testing, set-up and all appurtenances and mounting hardware necessary for a fully operational video vehicle detection system.

FIBER OPTIC CABLE 12 FIBERS, SINGLE MODE

This work shall be performed in accordance with applicable portions of Section 871 and 1076 of the Standard Specifications for Road and Bridge Construction

This work shall be paid for per the contract unit cost per foot for FIBER OPTIC CABLE 12 FIBERS, SINGLE MODE and shall include the work as described herein. No additional compensation will be allowed.

ETHERNET SWITCH

This work shall include supplying, installing, and powering ethernet switches at locations designated in the plans for the purpose of interfacing with fiber optic network{s). Programming or configuring the switch shall be done by others. The ethernet switches provided for this contract shall be of the managed type or the unmanaged type as they are noted in the plans per location.

The ethernet switches shall be managed and shall be Comtrol RocketLinx ES8509-XT or the pre-approved equivalent.

Managed ethernet switches shall be equipped with Comtrol SFP {small form-factor pluggable) Single-Mode I0KM I000BASE-GLX (Extended Temperature) transceivers or the pre-approved equivalent.

All fiber optic jumpers necessary to connect SFP's to the fiber optic distribution enclosure shall be included in this pay item.

This work shall be paid for per the contract unit cost each for Ethernet Switch and shall include the work as described herein. No additional compensation will be allowed.

UNDERGROUND CONDUIT, HDPE, 4" DIA.

Description

This work shall consist of furnishing Installing, splicing, connecting and demonstrating continuity of a fiber optic conduit system of the size specified herein and as shown in the Plans. The conduit system shall be manufactured by Dura-Line, Blue Diamond Industries, or approved equivalent.

Materials

The conduit and fittings shall meet the requirements of Article 1088.01(c) of the Standard Specifications, except as modified herein. The conduit system shall include no less than six (6) innerducts. Three (3) 1.25 in diameter standard HDPE conduit and three (3) 18 mm outside diameter (O.D.), 14 mm inside diameter (I.D.) micro-ducts shall be contained inside an HDPE protective outer sheath with a minimum thickness of 0.07 in.

The overall conduit system shall have a maximum nominal 4 in. outside diameter with a supported bend radius of 56 in., an unsupported bend radius of 93 in., and a safe working pull strength of 6,880 lbs.

Conduit shall be free from holes, blisters, inclusions, cracks, or other imperfections that would affect the performance or serviceability of the product.

Conduit shall be constructed of polymeric materials, which are lightweight, flexible, corrosion resistant and nonconductive. The base material shall be clean virgin-grade high-density polyethylene (HDPE), which conforms to ASTM D3350-98a, Type III, Category 5, Class B or C and Grade P- 34 per ASTM D1248-84 or equivalent.

The base HDPE material shall conform to the following minimum mechanical properties:

Description Property	ASTM Standard	Value
Density	D1505	0.940-0.950 g/cm3
Melt Index (E)	D1238	0.10 - 0.35 g/10 Minutes
Environmental Stress Crack Resistance (ESCR)	D1693	192.0 hrs (per ASTM D3350)
Tensile @ Yield (min)	D638	2500 - 3200 psi (1,700 - 2,200 N/cm2)
Elongation	D638	300%
Flexural Modulus (min)	D790	115,000 psi (790,000 kPa)
Hardness	D2240	60 Shore D
VICAT Softening Point	D1525	248°F (120°C)
Brittleness Temperature	D746	-94°F (-70°C)

Micro-ducts shall be smooth on the outside and ribbed on the inside. The inside shall have a co-extruded permanent layer of silicone to provide a permanent low friction boundary layer between the micro-duct and the fiber optic cable for the anticipated service life of the micro-duct.

Standard available micro-duct colors shall be blue, orange, green, brown, grey, white, and red, or other colors as approved. Micro-ducts shall be individually colored and be sequentially numbered every two feet. Colors shall be protected from ultra-violet (UV) degradation by the incorporation of Hindered Amine Light Stabilizers (HALS) to allow for two years of outside storage UV protection. The duct material shall be compounded with antioxidant additives to prevent thermal degradation.

All 18/14 mm micro-ducts shall have a minimum safe pull strength of 3,500 lbs., a minimum sustained air pressure of 300 PSI, and a minimum burst pressure of 475 PSI.

The micro-duct system shall be equipped with an integrated 20 AWG (minimum) copper wire, insulated and installed within the oversheath that is designed to be used for underground utility locating purposes. Continuity of the tracer wire must be maintained at all points. Submittal information shall demonstrate how the tracer wire continuity will be maintained throughout the micro-duct run. Connection devices used shall be as approved by the tracer wire manufacturer, except wire nuts of any type are not acceptable and shall not be used.

The Contractor shall perform a locate or conductivity test as a part of the final documentation.

Conduit shall be supplied on 3,500 ft reels (or larger as equipment and installation techniques permit) to minimize the number of conduit splices. Fittings shall be mechanical or glued splices that preserve the seamless surface on the inside of the conduit. Fittings shall be capable of developing a minimum of 75% of the rated tensile (pull) strength of the conduit.

Installation

Installation of conduit shall be in accordance with Article 810.04 of the Standard Specifications and as specified herein in accordance with manufacturer's specifications, and as specified herein.

Pulling Tension

Pulling tension of the conduit shall be monitored throughout the pull, and pulling tension shall not exceed the specific manufacturer maximum pulling tensions as indicated in the catalog cut submittal. Failure to monitor the pulling tension will result in non-payment of that particular conduit span and the span shall be reinstalled with new duct at no additional cost to the Town of Normal. Lubricants used shall be compatible with the conduit and ducts.

Handholes/Communications Vaults

Where conduit passes through handholes or vaults, the conduit shall be cut cleanly and rough edges removed to prevent damage to cable being coiled and stored in the handhole or vault.

Bends

Minimum bending radius shall be in accordance with the manufacturer's recommended radius. Bends shall be made so that the duct will not be damaged and the internal diameter of the duct will not be effectively reduced. The degrees of bend in one duct run shall not exceed 360° between termination points.

In Trench

The trench shall be closed and the site restored to match the surrounding conditions after all loose stones have been removed and all protruding stones have been removed or covered with backfill material as directed by the Engineer.

Where duct is shown to be installed in a trench, it shall be installed at a depth not less that 30 inches unless otherwise indicated in the Plans or specifically directed by the Engineer.

Plowing is allowed in lieu of trench and backfill. Unless otherwise indicated or specifically approved by the Engineer, plowing of innerduct shall lay the duct in place and shall not pull the duct through the length of the cut behind a bullet-nose mandrel or similar apparatus. In all cases, plowing operations shall be non-injurious to the duct. The disturbed surface shall be restored to match the surrounding conditions after completion of conduit installation.

Post Installation Testing

The Contractor shall perform post installation testing on all conduit and ducts prior to installing fiber optic cable. As a minimum, tests shall include: an air test, a foam sponge test, a plastic sphere test and a pressure test.

Each duct shall be tested for continuity by blowing a sponge and then a plastic sphere (approximately 80% of the inside duct diameter) from one end to the other and each duct shall be pressure tested in accordance with the manufacturer's procedures to ensure that the duct will pressurize and hold air pressure for a specific amount of time.

The Contractor shall perform acceptance testing of the ducts in accordance with the manufacturer's recommended practices. Testing, at a minimum, shall demonstrate that the ducts are installed and assembled correctly, are air-tight, and have had no reduction of the interior diameter. Each duct shall be pressurized to check for leaks and other problems that would prevent the installation of fiber optic cable in the future. All testing shall be performed in the presence of the Resident Engineer. The Contractor shall submit testing results to the Town of Normal. The Contractor shall correct deficiencies to the satisfaction of the Engineer.

The Contractor shall submit testing information and procedures to the Town of Normal for review and approval included in the conduit submittal prior to ordering material.

A cable marking tape shall be installed above the conduit system according to Article 810 of the Standard Specifications. The color of the tape shall be red with large black lettering which reads "WARNING – FIBER OPTIC CABLE BELOW" or similar.

The Contractor shall submit catalog cut sheets for the conduit, micro-ducts, splice kits, and all installation and testing documents to the Town of Normal for review prior to ordering.

Method of Measurement

This work will be measured for payment in feet in place. Measurements will be made in straight lines along the centerline of the conduit between ends and changes in direction.

Vertical measurement of the duct shall be as follows:

For runs terminating at junction boxes and/or control cabinets, the vertical measurement will be made from the bottom of the trench, or horizontal raceway, to a point 18 inches beyond the center of the junction box or control cabinet.

For runs terminating at poles, the vertical measurement will be taken from the bottom of the trench, or horizontal raceway, to a point 18 inches beyond the center of the pole handhole.

Basis of Payment

This item will be paid for at the contract unit price per foot for UNDERGROUND CONDUIT, HDPE, 4" DIA.

MAINTENANCE OF EXISTING TEMPORARY TRAFFIC SIGNAL INSTALLATION

Description

This work shall consist of maintaining an existing temporary traffic signal installation that has been designated to remain in operation during construction.

General

1. Full maintenance responsibility shall start as soon as the Contractor begins any physical work on the Contract or any portion thereof. If Contract work is started prior to a traffic

signal inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection.

2. This item shall include maintenance of all existing and modified temporary traffic signal equipment and other connected and related equipment such as master controllers, uninterruptable power supply (UPS and batteries), vehicle detection, handholes, lighted signs, communication cables, conduits to adjacent intersections, and other traffic signal equipment.

3. The energy charges for the operation of the traffic signal installation shall be paid for by the Town of Normal.

Maintenance

1. The Contractor shall check all controllers every two (2) weeks, which will include visually inspecting all timing intervals, relays, detectors, and per-emption equipment to ensure that they are functioning properly. The Contractor shall check signal system communications to assure proper operation. The Contractor shall maintain in stock at all times a sufficient amount of materials and equipment to provide effective temporary and permanent repairs. Prior to the traffic signal maintenance transfer, the contractor shall supply a detailed maintenance schedule that includes dates, locations, names of electricians providing the required checks and inspections along with any other information requested by the Engineer.

2. The Contractor is advised that the existing traffic signal installation must remain in operation during all construction stages, except for the most essential down time. Any shutdown of the traffic signal installation, which exceeds fifteen (15) minutes, must have prior approval of the Engineer. Approval to shut down the traffic signal installation will only be granted during the period extending from 10:00 a.m. to 3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather or holiday periods.

3. The Contractor shall provide immediate corrective action when any part or parts of the system fail to function properly. When repairs at a signalized intersection require that the controller be disconnected or otherwise removed from normal operation, and power is available, the Contractor shall place the traffic signal installation on flashing operation. The signals shall flash RED for all directions unless a different indication has been specified by the Engineer.

4. The Contractor shall provide the Engineer with 2 (two) 24 hour telephone numbers for the maintenance of the traffic signal installation and for emergency calls by the Engineer.

5. Traffic signal equipment which is lost or not returned to the Local Agency (Town of Normal) for any reason shall be replaced with new equipment meeting the requirements of the Standard Specifications and these special provisions.

6. The Contractor shall respond to all emergency calls from the Local Agency or others within one (1) hour after notification and provide immediate corrective action. When equipment has been damaged or becomes faulty beyond repair, the Contractor shall replace it with new and identical equipment. The cost of furnishing and installing the replaced equipment shall be borne by the Contractor at no additional charge to the contract. The Contractor may

institute action to recover damages from responsible third party. If at any time the Contractor fails to perform all work as specified herein to keep the traffic signal installation in proper operating condition or if the Engineer cannot contact the Contractor's designated personnel, the Engineer shall have the Local Agency's Electrical Maintenance Contractor perform the maintenance work. The Contractor shall be responsible for all of the Local Agency's Electrical Maintenance Contractor's costs and liquidated damages of $1000 per day per occurrence. The Local Agency's Electrical Maintenance Contractor shall bill the Contractor for the total cost of the work. The Contractor shall pay this bill within thirty (30) days of the date of receipt of the invoice or the cost of such work will be deducted from the amount due the Contractor. The Contractor shall allow the Electrical Maintenance Contractor to make reviews of the Existing Traffic Signal Installation that has been transferred to the Contractor for Maintenance.

7. Equipment included in this item that is damaged or not operating properly from any cause shall be replaced with new equipment meeting current Town of Normal requirements. And provided by the Contractor at no additional cost to the Contract and/or owner of the traffic signal system, all as approved by the Engineer. Final replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection otherwise the traffic signal installation will not be accepted. Cable splices outside the controller cabinet shall not be allowed.

8. The Contractor shall be responsible to clear snow, ice, dirt, debris and other condition that obstructs visibility of any traffic signal display or access to traffic signal equipment.

Basis of Payment

This work will be paid for at the contract unit price per each for MAINTENANCE OF EXISTING TEMPORARY TRAFFIC SIGNAL INSTALLATION. Each intersection will be paid for separately.

RECTANGULAR RAPID FLASHING BEACON ASSEMBLY (COMPLETE)

This pay item includes all work to furnish and install the post-mounted Pedestrian Activated Solar-Powered Rectangular Rapid Flashing Beacon Assembly (Complete) at the proposed pedestrian crossing locations shown on the plans. This work shall be in accordance with all applicable FHWA and MUTCD guidelines as well as Article 801 of the current Standard Specifications.

Solar Powered Rectangular Rapid Flashing Beacon (RRFB) Assembly

The system shall be fully self-contained and power autonomous without the need for an external power supply. All housings and components shall be weather, corrosion, and vandal resistant. The system shall consist of bi-directional (or double sided) RRFB units, including a solar array, batteries, wireless communications equipment, controls, push button, brackets and mounting hardware for each traffic signal post installation.

Each RRFB unit shall conform to current FHWA and MUTCD requirements for unit size, mounting location, flash rate, and operational parameters. The units shall be programmable to establish the appropriate duration of the flashing periods upon user activation via the push button. A single activation of either push button shall commence the flashing of each RRFB unit at the pedestrian crossing. The RRFB units shall communicate wirelessly using an unlicensed radio band, so as to

simultaneously commence and cease operations appropriately with each push button activation. Each RRFB unit shall provide a pilot light to the user and the housing shall be black in color.

The solar panels shall be top-of-pole mounted and sized appropriately to support up to 100 activations per day for up to two minutes of flash time (120 seconds) per activation. The batteries shall be sealed, maintenance free, and field replaceable. For the purpose of determining equipment type and size requirements, the location of the assemblies will be as shown in the plans.

The push buttons shall conform to Section 876 of the current Standard Specifications. In determining the usage of the "Yellow lights are flashing" message, the option of using the speech message shall be programmable by the end user. The push button housings shall be black in color.

All components of the RRFB assembly shall have a minimum three-year manufacturer's warranty.

Traffic Signal Post

This work shall be in accordance with Article 875 of the current Standard Specifications. The Type A foundations shall be adjacent to the accessible ramp to provide accessibility to the push button locations. Refer to State Standard 878001 for Type A foundation for Ground Mounted Controller Cabinet. The Traffic signal post and base shall be black powder coat over galvanized steel.

This work shall be paid for at the contract unit price each for RECTANGULAR RAPID FLASHING BEACON ASSEMBLY (COMPLETE), which shall be payment in full for furnishing all parts and installation of the entire solar assembly system, including the traffic signal poles and foundations. No additional compensation will be allowed.

TIMBER RAILING

Description: This work shall consist of furnishing and installing timber railings, posts, and associated appurtenances.

Materials shall be in accordance with Section 507 and timber shall be treated according to Article 1007.12 of the Standard Specifications.

Railing and Hardware: The timber railing and hardware shall be according to Section 507 of the Standard Specifications, except the timber railing shall be treated and not painted.

Method of Measurement: This work shall be measured for payment in feet along the top edge of the rail elements and all appurtenances, continuous through laps and splices. Hardware will not be measured for payment.

Basis of Payment: This work will be paid for at the contract unit price per FOOT for TIMBER RAILING.

TEMPORARY PAVEMENT

Description. This work shall consist of constructing a temporary pavement at the locations shown on the plans or as indicated by the engineer. Materials shall be in accordance with the Standard Specifications and the pavement types indicated in the plans for permanent locations.

The thickness of the Temporary Pavement shall be either Aggregate Base Course, Type B, 8" and PC Concrete Pavement 6" or Hot-Mix Asphalt Pavement 8" on top of the Aggregate Base Course. The contractor shall have the option of constructing either material type if both Portland cement concrete and HMA are shown in the plans.

The necessary earth excavation and maintenance of temporary pavement shall not be paid for separately, but shall be included in the cost of TEMPORARY PAVEMENT.

Method of Measurement. Temporary pavement will be measured in place and the area computed in square yards.

Basis of Payment. This work will be paid for at the contract unit price per square yard for TEMPORARY PAVEMENT

Removal of temporary pavement will be paid for at the contract unit price per square yard for PAVEMENT REMOVAL.

CONSTRUCTION LAYOUT

This work shall consist of construction layout in accordance Check Sheet #9 of the Supplemental Specifications and Recurring Special Provisions, and as indicated by the Engineer.

This work will be paid for at the contract unit price per lump sum for CONSTRUCTION LAYOUT.

TRAFFIC CONTROL AND PROTECTION (SPECIAL)

Traffic control shall be in accordance with the plans, the applicable sections of the Standard Specifications for Road and Bridge Construction and Supplemental Specifications, the applicable guidelines contained in the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways", these Special Provisions, and the special details and Highway Standards contained herein and in the plans.

No construction shall commence until such time that all required signs and barricades have been erected. The Contractor shall also be responsible for notifying the Town of Normal Department of Engineering, the Illinois Department of Transportation, Connect Transit, the Normal Fire Department, the Normal Police Department, the U.S. Postal Service, Unit 5 School District, Illinois State University, and the Bloomington-Normal Water Reclamation District no less than 72 hours prior to any lane closure or changes in travel patterns and shall notify the same agencies prior to opening the street.

Special attention is called to the following sections of the Standard Specifications, the State Standards, and the special provisions relating to traffic control:

Standard Specifications:

- Article 105.03 (b) – Traffic Control Deficiency Deduction
- Article 107.09 – Public Convenience and Safety
- Article 107.14 – Maintenance of Traffic
- Article 107.15 – Dirt on Pavement or Structures

Article 107.25 – Protection and Restoration of Traffic Signs
Section 701 - Work Zone Traffic Control and Protection
Section 703 - Work Zone Pavement Marking
Section 780 – Pavement Striping
Section 783 - Pavement Marking and Marker Removal
Section 1106 – Work Zone Traffic Control Devices

Highway Standards:

701001	701006	701011	701101	701106	701201
701301	701306	701311	701326	701421	701422
701426	701701	701901			

Recurring Special Provisions:
none

Design and Environment Special Provisions:
Work Zone Traffic Control Devices

Fire hydrants on or adjacent to the work site shall be kept accessible to fire-fighting equipment at all times.

Any unattended obstacle, excavation, inlet, manhole, valve, pavement drop-off, or other appurtenance in the work zone shall be protected with drums or barricades. All traffic control devices and barricades throughout the project shall remain in place until the entire project location is substantially complete, or as otherwise indicated by the Engineer.

The Contractor shall furnish and install steel plates over storm sewer trench locations as needed to maintain traffic during removal, installation, backfill, and patch curing timelines.

The Contractor shall place additional traffic control whenever conditions warrant or whenever requested to do so by the Engineer.

This work shall include all traffic control and protection, any night time work protection or lighting, flaggers, surveillance, work zone pavement marking removal, signs, and barricades to furnish, install, maintain, relocate, and remove same shall not be paid for separately but shall be included in the contract lump sum price for TRAFFIC CONTROL AND PROTECTION (SPECIAL).

SEQUENCE OF OPERATIONS

The sequence of operations shown on the Maintenance of Traffic plans are described below. No deviation from the sequence will be permitted except by written permission from the Engineer and Town.

Stage 1A – Construction of the North Side of the 3-lane section (Westbound Lanes)

- Prior to storm sewer installation, work zone speed and advisory signs and necessary traffic control signage and appurtenances shall be installed. All storm sewer lateral work (existing and proposed) and associated inlet structures east of Sta 24+00.00 shall be removed,

installed, backfilled, and Class D Patches, 9" placed in the first substage of the project prior to Stage 1A. Inlet and Pipe Protection shall also be provided. Traffic shall be maintained during storm sewer installation with day time flaggers in accordance with IDOT state standards and specifications. Steel plates shall be furnished and installed where needed. Contractor shall maintain drainage and also provide traffic control barrels at lateral locations. Rubblization operations shall not take place over new storm sewer laterals and Class D Patches, 9".

- Maintain 1-lane of one-way traffic going Eastbound between Gatehouse 4 and White Oak Road.
- 4-lane section between US Route 150 / Rivian Motorway and Gatehouse 4 operates as normal with 2-lanes in each direction and temporary signals while permanent signals are being ordered.
- As a substage in Stage 1A, temporary pavement shall be constructed as shown on the plans around the existing SE quadrant of the intersection of Wylie Drive and College Avenue. Wylie Drive shall remain open to EB right and NB right traffic.
- As a substage in Stage 1A, Merle Lane shall be completely closed and pavement apron constructed over a weekend with nighttime work as necessary. The dates of closure shall be coordinated with the affected property owners.

Stage 1B – Construction of the South Side of the 3-lane section (Eastbound Lanes)

- Maintain 1-lane of one-way traffic going Westbound between Gatehouse 4 and White Oak Road on the hot-mix asphalt binder pavement constructed in Stage 1A.
- 4-lane section between US Route 150 / Rivian Motorway and Gatehouse 4 operates as normal with 2-lanes in each direction and temporary signals while permanent signals are being ordered.
- Wylie Drive in Stage 1B shall be completely closed and constructed as the first substage in Stage 1B. As soon as Wylie intersection is complete in Stage 1B open the intersection to allow for WB left and NB left traffic.
- Hot-mix asphalt surface course shall be placed full width as the final layer (all three lanes) as the final substage.

Stage 2A – Construction of North Side of the 4-lane section (Westbound Lanes)

- Maintain 2-lanes of one-way traffic going Eastbound between US Route 150 / Rivian Motorway and Gatehouse 4.
- 3-lane section between Gatehouse 4 and White Oak Road is fully constructed and fully open to traffic. Westbound traffic in 3-lane section will have access to turn right into Gatehouse 4.
- US Route 150 / Rivian Motorway: Prior to Stage 2A the north median nose along US Route 150 shall be removed and temporary pavement constructed to allow for truck turning movements onto College Avenue. Additionally, prior to Stage 2A the ultimate conditions of the Route 150 south median nose will be constructed. In Stage 2A and initial Substage of 2B, US Route 150 / Rivian Motorways two NB through lanes shall be reduced to 10.5' wide and the right turn lane to access W. College Avenue shall be completely constructed up to Sta 94+15.87.

- Gatehouse 5 Entrance: The intersection apron of the Gatehouse 5 entrance and north half of the College Avenue Intersection adjacent to Gatehouse 5 shall be constructed half at a time with the western half being constructed first to the limits shown in the Maintenance of Traffic plan sheets. From Friday afternoon after 5:30 PM to Monday morning at 6:30 AM, the Contractor shall construct the western half of the intersection area referenced above using High – Early Strength PC Concrete Pavement. The Contractor will likely need to work both daytime and nighttime crews during this time period to complete this work. The Contractor shall also provide full time, day and night Flaggers during this operation to allow for 1 lane of access into the Gatehouse 5 entrance during this operation and pavement curing timeline. EB trucks making a left turn into Gatehouse 5 shall utilize the northern through lane (not the left turn lane). Flaggers shall continue to be provided until the western pavement half constructed meets strength specification requirements and Gatehouse 5 entrance can be fully opened to traffic operations. Any differences in elevations between existing and newly constructed pavement shall be provided with Hot-Mix Asphalt Temporary Ramp material utilized with a bond breaker surface under the Temporary Ramp.

  The eastern half of the intersection area shall be constructed during a separate weekend operation as indicated above.

- Gatehouse 4 Entrance: The intersection apron of Gatehouse 4 entrance and north half of the College Avenue Intersection adjacent to Gatehouse 4 shall be constructed half at a time with the western half being constructed first to the limits shown in the Maintenance of Traffic plan sheets. From Friday afternoon after 5:30 PM to Monday morning at 6:30 AM, the Contractor shall construct the western half of the intersection area referenced above using High – Early Strength PC Concrete Pavement. The Contractor will likely need to work both daytime and nighttime crews during this time period to complete this work. The Contractor shall also provide full time, day and night Flaggers during this operation to allow for 1 lane of access into the Gatehouse 4 entrance during this operation. EB trucks making a left turn into Gatehouse 4 shall utilize the northern through lane (not the left turn lanes). SB trucks making a turn onto College Avenue shall utilize the eastern NB through lane. Temporary Pavement shall be constructed prior to Stage 2A through the median easternly adjacent to Gatehouse 4 as shown in the Maintenance of Traffic plan sheets. Flaggers shall continue to be provided until the western pavement half constructed meets strength specification requirements and Gatehouse 4 entrance can be fully opened to traffic operations. Any differences in elevations between existing and newly constructed pavement shall be provided with Hot-Mix Asphalt Temporary Ramp material utilized with a bond breaker surface under the Temporary Ramp.

  The eastern half of the intersection area shall be constructed during a separate weekend operation as indicated above.

  College Avenue: The westbound lane of travel just west of Wylie Drive shall be closed to all traffic on the weekend when the east half of Gatehouse 4 will be constructed. Contractor shall provide for applicable traffic control in accordance with state standards to provide for advanced warning traffic control along College Avenue and Wylie Drive.

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Stage 2B – Construction of South Side of the 4-lane section (Eastbound Lanes)

- Maintain 2-lanes of one-way traffic going Eastbound between US Route 150 / Rivian Motorway and Gatehouse 4 on the pavement constructed in Stage 2A.
- 3-lane section between Gatehouse 4 and White Oak Road is fully constructed and partially open to traffic. Westbound traffic in 3-lane section will not have access to west of Wylie Drive due to oncoming and transitioning traffic in the permanent WB lanes. Westbound traffic in the 3-lane section will be diverted south onto Wylie Drive for the duration of Stage 2B construction.
- US Route 150 / Rivian Motorway: Prior to Stage 2B, temporary pavement shall be constructed across the median to allow turning movements from NB Right US Route 150 / Rivian Motorway and SB Left US Route 150 / Rivian Motorway to EB W. College Avenue utilizing the pavement constructed in Stage 2A. In Stage 2B US Route 150 / Rivian Motorways two NB through lanes shall be reduced to 10.5' wide and the remaining southeast quadrant beginning at Sta 94+15.87 up to the eastern RPC of W. College Avenue shall be completely constructed as the first substage in Stage 2B. In areas of temporary pavement, the permanent median and the intersection island shall be constructed as last substage in Stage 2B.
- S. Unit Drive (Stage 2B): The intersection apron of S. Unit Drive and south half of the College Avenue Intersection adjacent to S. Unit Drive shall be constructed half at a time with the western half being constructed first to the limits shown in the Maintenance of Traffic plan sheets. From Friday afternoon after 5:30 PM to Monday morning at 6:30 AM, the Contractor shall construct the western half of the intersection area referenced above using High – Early Strength PC Concrete Pavement. The Contractor will likely need to work both daytime and nighttime crews during this time period to complete this work and pavement curing timeline. The Contractor shall also provide full time, day and night Flaggers during this operation to allow for a single lane of access on S. Unit Drive during this operation. EB trucks along College Avenue making a SB right turn onto S. Unit Drive shall utilize the southern through lane. Flaggers shall continue to be provided until the western pavement half constructed meets strength specification requirements and S. Unit Drive can be fully opened to 2-way traffic operations. Any differences in elevations between existing and newly constructed pavement shall be provided with Hot-Mix Asphalt Temporary Ramp material utilized with a bond breaker surface under the Temporary Ramp.

  The eastern half of the intersection area shall be constructed during a separate weekend operation as indicated above.

COMMITMENTS

Any required tree removal shall not occur between April 1st and September 30th.

All work, staging, and otherwise-impacted areas must be mowed prior to equipment/impact and kept mowed at/below 8” in height for the duration of the project.