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

June 6, 2005

SUBJECT: FAI Route 74
Project HD-00741(002)
Section D4 I-74 ITS System-4
Peoria & Tazewell County
Contract No. 68412
Item No. 228, 6/17/05 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 pages 7-11, 13-15, 20-22 & 31 of the Special Provisions.
2. Revised the Cover Sheet and sheets 2, 5 & 9 of the Plans.
3. Added sheet 20A to the Plans.

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

Bidders using computer-generated bids are cautioned to reflect any and all Schedule of Prices changes, if involved, into their computer programs.

Very truly yours,

Michael L. Hine
Engineer of Design
and Environment

By: Ted B. Walschleger, P. E.
Engineer of Project Management

cc: Joseph Crowe; Roger Driskell
Jim White; Design & Environment File

MS/sar

The Contractor shall label all cable terminations, jacks, and connectors with function and system identification.

Cable:

- Network — The Contractor shall furnish twisted-pair cables, UTP Category 5e, in accordance with the Plans. Cable terminations for network cables shall be Category 5e or greater.

- RF and Video — The Contractor shall furnish and install coaxial cables as indicated on the Plans. For applications requiring low-loss RF cables, the Contractor shall install RG-214/U or equivalent, "riser" rated cable. For local video connections, the Contractor shall furnish and install RG-6/U or equivalent cables.

  For video connections and distribution, the Contractor shall furnish and install RG-6 cable for point-to-point wiring and RG-59/U cable to connect to the monitors and switching equipment. All cables shall be "riser" rated.

- Fiber Optic — The Contractor shall furnish and install fiber optic patch cords to cross connect fibers in different cable sheaths, as shown on the Plans. These cables shall be color-coded, with yellow being used for single mode and orange being used for multi-mode cables.

Video Decoder:

The video decoder shall be a Coretec Model VCX2400-D (or approved equal) for integration with the existing ITS system.

The video decoder shall decode digitized and compressed video from the IDOT District Four Communication Center Node located in the Becker Building.

In addition, the codec shall decode camera pan, tilt, zoom, focus and iris commands and shall return camera and controller status.

The video decoder shall comply with the following data formatting, decompressing, and electrical requirements:

Input Power:

110 VAC, 60 Hz

Compression:

MPEG II, variable frame rate and resolution, D1 720hx480v NTSC
Frame Rate: 30 fps

Inputs:

Video: NTSC Composite
Data/Status: RS-232/422/485
Data Rate: to 38.4 kbps

Outputs:
Video and Status: EIA-530 at DS-1 rate
Connectors:
Video: BNC
Status/Control: DB-25, RJ-45
Network Parameters:
Data Rate: 1.0 to 8.0 Mbps
Ethernet: RJ-45
Interface: 10/100 Base T
Protocols: UDP, IP, IGMP, Multicast
Environmental:
Temperature: -20°C to +70°C
Humidity: 0-95% non-condensing

Fiber Optic Termination Panel

The Contractor shall furnish a Fiber Termination Panel with 24 terminations. The Contractor shall install these panels as shown on the Plans. The 24-fiber termination panel will be used to terminate the single mode cables.

The termination panels shall be constructed of heavy gauge aluminum and shall comply with the following requirements:

- The Termination Panels shall be mounted in EIA-Standard 19-in equipment racks.
- The 24-fiber panel shall not exceed two SRUs.
- The Termination Panels shall use ST connectors. These connectors shall be accessible to a technician standing in front of the cabinet. Each ST connector on the panel shall not cause in excess of 0.3dB optical signal loss when tested at 1310nm.
- The panel shall route fiber optic patch cables between any two connectors without reaching the patch cables' minimum bending radius.
- Single mode fiber used in the pigtails shall meet the optical characteristics of the drop cable used, including mode field diameter.

RJ-45 Patch Panel

The Contractor shall furnish a 24 port 19-in RJ-45 patch panel. The panel shall be constructed using normal-thru connections.

♦ Insertion loss	≤0.5 dB at 1.576 MHz
♦ Crosstalk	≤ -60 dB
♦ Return loss	≤ -26 dB at 772 kHz
♦ Contact resistance	≤ 0.01 ohms
♦ Characteristic impedance	100 ohms (nominal)
♦ Humidity	0 to 95%
♦ Life	Minimum 20,000 insertions/withdrawal cycles
♦ Thermal limits	-40°F to 149°F (-40°C to 65ºC) (operating) -76°F to 185°F (-60°C to 85ºC) (storage)

Revised 6/6/05

Video Control Joystick

The contractor shall furnish a joystick module that controls the video selection and controls the camera orientation (PTZ) from remote locations.

The joystick controller shall be a Vicon V1411X-DVC for integration with the existing ITS system components.

The interface between the joystick controller and the camera controller shall be EIA/TIA RS-422.

Video Monitor

The Contractor shall furnish a video monitor that conforms to the following minimum specifications:

- Power — 90-126 VAC
- Horizontal lines of resolution — Not less than 450
- Input connector — BNC
- Viewing area — Not less than 20 in, measured diagonally
- Format — NTSC, composite 1 V peak-to-peak (nominal)

The video monitor shall be a Sony Model PVM-20N5u (or approved equal) for integration into the existing ITS system.

Ethernet Switch

The Ethernet Switch shall be mountable in a 19” rack with all required cable management pre-installed.

If required power is not 120 VAC @ 60 Hz, the Contractor shall provide a plug-in power supply.

The Contractor shall furnish and install optical, data, and coaxial cables to interconnect the equipment as needed.

The Ethernet switch shall be a TC Communications Model TC3820 IFS Modle D7600 series, GarrettCom Magnum Series Industrial Ethernet Fiber Gigabit Switch (or approved equivalent) series switch for integration with the existing ITS system components.

Revised 6/6/05

The switch shall be a managed switch that meets or exceeds the following minimum specifications:

Data Rates	10/100Mbps (electrical) 1000 Mbps (optical)
Optical	
Interface	2 Ethernet 1000Base-SX,-LX
Transmitter	ELED, LASER
Receiver	PIN Diode
Wavelength	1300nm Multimode 1300nm, 1550nm Single Mode
Fiber Optic Connectors	ST
Loss Budget* (1300nm, 1550nm)	Multimode (62.5/125µm): 15dB Single Mode (9/125µm): 20dB Laser Single Mode: 25dB
Electrical	
Ethernet Ports	6 RJ-45 Female
Interface	Ethernet 10/100Base-T (auto-sensing)
Standard	IEEE 802.3/3u/3x
Bit Error Rate	1 in 10^9 or better
Fault Recovery	< 250 msec.
Visual Indicators	
System Status	Power, Status (8)
Port Status (Each Port)	10/100, Act, Link, Tx, Rx, Speed
Alarm	
Dry Contact	Normal OPEN
Power	
Standard	12VDC @ 500mA 120 VAC (with external power supply)
Optional	24VDC, -48VDC, 125VDC or 115/230VAC
Temperature	
Operating	-10° to 50°C
High Temp	-20° to 70°C
Hardened	-40° to 80°C
Storage	-40° to 90°C
Humidity	95% non-condensing
Physical (Rackmount Unit)	
Height	(3.53 cm) 1.75" Nominal
Width	(48.26 cm) 19.0" Nominal
Depth	(16.57 cm) 6.5" Nominal
Weight	(544 gm) 1.2 lbs Nominal

Required Features:

- Redundant ring technology. If a fiber cable or device failure occurs, the data path automatically switches over within 250 msec. to the secondary path to maintain Ring network integrity. Revised 6/6/05

- SNMP Management, Six 10/100M copper ports and two Gigabit fiber ports. Unit can be daisy-chained and supports distances between switches up to 100 km.

- The Ring can be single mode fiber (1300/1550nm) or CAT5 UTP cables; IEEE 802.3, 802.3u, 802.3x and 802.z compliant.

- Web-based configuration user interface is provided to view and change network settings such as IP Address, Subnet, Gateway, Speed, Half/Full Duplex, Name, Password and other parameters. It also monitors the fiber ring status, alarm conditions, fault locations for local and remote units. The unit can also be configured through a serial console (Out-of-Band).

- Store-forward switching technology eliminates the congestion problem inherent to the contention-oriented Ethernet CSMA/CD protocol.

Construction Requirements.

General

The Contractor shall install ITS equipment as indicated on the plan sheets.

The Contractor shall prepare a shop drawing, which details all of the equipment to be supplied under this bid item. The submittal shall consist of the standard catalogue descriptions and user or installation manuals for each component. The information submitted must be sufficient to verify that the equipment is compliant with all of requirements included in the material specifications. In addition, schematics shall be included which detail the interconnection of all of the components to other system components.

The Contractor shall develop and submit for the Engineer's approval, a detailed test plan that verifies that each component is compliant with the specification and that all of the interconnection cables are operational and properly configured. This test shall use standard manufacturer operating and diagnostic software. At the test, each component will be inspected to verify that it has been delivered according to the approved shop drawings.

Five (5) copies of all operations and maintenance manuals for each central component shall be delivered for each assembly installed.

Revised 6/6/05

Labeling Requirements:

The Contractor shall label all cables and ports using permanent cable tags. These labels shall identify the function of the cables and the ports the cables are connected to.

The Contractor shall label all cable terminations, jacks, and connectors with function and system identification.

Cable:

- Network — The Contractor shall furnish twisted-pair cables, UTP Category 5e, in accordance with the Plans. Cable terminations for network cables shall be Category 5e or greater.

- RF and Video — The Contractor shall furnish and install coaxial cables as indicated on the Plans. For applications requiring low-loss RF cables, the Contractor shall install RG-214/U or equivalent, "riser" rated cable. For local video connections, the Contractor shall furnish and install RG-6/U or equivalent cables.

  For video connections and distribution, the Contractor shall furnish and install RG-6 cable for point-to-point wiring and RG-59/U cable to connect to the monitors and switching equipment. All cables shall be "riser" rated.

- Fiber Optic — The Contractor shall furnish and install fiber optic patch cords to cross connect fibers in different cable sheaths, as shown on the Plans. These cables shall be color-coded, with yellow being used for single mode and orange being used for multi-mode cables.

Fiber Optic Splice Tray:

The Contractor shall furnish a Fiber Optic Splice Tray and install it in the existing outdoor communication's cabinet.

Ethernet Switch

The Ethernet Switch shall be mountable in a 19" rack with all required cable management pre-installed.

If required power is not 120 VAC @ 60 Hz, the Contractor shall provide a plug-in power supply for the DS1 Fiber Optic Modem.

Revised 6/6/05

The Contractor shall furnish and install optical, data, and coaxial cables to interconnect the equipment as needed.

The Ethernet Switch shall be a TC Communications Model TC3820 Model D7600 series, GarrettCom Magnum series Industrial Ethernet Fiber Gigabit Switch (or approved equivalent) series switch for integration with the existing ITS system components.

The fiber optic modem shall be a managed switch that meets or exceeds the following minimum specifications:

Data Rates	10/100Mbps (electrical) 1000 Mbps (optical)
Optical	
Interface	2 Ethernet 1000Base-SX,-LX
Transmitter	ELED, LASER
Receiver	PIN Diode
Wavelength	1300nm Multimode 1300nm, 1550nm Single Mode
Fiber Optic Connectors	ST
Loss Budget* (1300nm, 1550nm)	Multimode (62.5/125µm): 15dB Single Mode (9/125µm): 20dB Laser Single Mode: 25dB
Electrical	
Ethernet Ports	6 RJ-45 Female
Interface	Ethernet 10/100Base-T (auto-sensing)
Standard	IEEE 802.3/3u/3x
Bit Error Rate	1 in 10^9 or better
Fault Recovery	< 250 msec.
Visual Indicators	
System Status	Power, Status (8)
Port Status (Each Port)	10/100, Act, Link, Tx, Rx, Speed
Alarm	
Dry Contact	Normal OPEN
Power	
Standard	12VDC @ 500mA120 VAC (with external power supply)
Optional	24VDC, -48VDC, 125VDC or 115/230VAC

Temperature	
Hardened	-40°C to 80°C
Storage	-40°C to 90°C
Humidity	95% non-condensing
Physical (Rackmount Unit)	
Height	(3.53 cm) 1.75" Nominal
Width	(48.26 cm) 19.0" Nominal
Depth	(16.57 cm) 6.5" Nominal
Weight	(544 gm) 1.2 lbs Nominal

Revised 6/6/05

Required Features:

- Redundant ring technology. If a fiber cable or device failure occurs, the data path automatically switches over within 250 msec. to the secondary path to maintain Ring network integrity.

- SNMP Management, Six 10/100M copper ports and two Gigabit fiber ports. Unit can be daisy-chained and supports distances between switches up to 100 km.

- The Ring can be single mode fiber (1300/1550nm) or CAT5 UTP cables; IEEE 802.3, 802.3u, 802.3x and 802.z compliant.

- Web-based configuration user interface is provided to view and change network settings such as IP Address, Subnet, Gateway, Speed, Half/Full Duplex, Name, Password and other parameters. It also monitors the fiber ring status, alarm conditions, fault locations for local and remote units. The unit can also be configured through a serial console (Out-of-Band).

- Store-forward switching technology eliminates the congestion problem inherent to the contention-oriented Ethernet CSMA/CD protocol.

Construction Requirements.

General

The Contractor shall install ITS equipment as indicated on the plan sheets, including a total of two CAT 5E cables (approximately 250 ft. per each cable each) from the existing outdoor communications cabinet to the ITS equipment closet located inside of the EPPS Building using existing conduit.

The Contractor shall prepare a shop drawing, which details all of the equipment to be supplied under this bid item. The submittal shall consist of the standard catalogue descriptions and user or installation manuals for each component. The information submitted must be sufficient to verify that the equipment is compliant with all of requirements included in the material specifications. In addition, schematics shall be included which detail the interconnection of all of the components to other system components.

Five (5) copies of all operations and maintenance manuals for each central component shall be delivered for each assembly installed.

Revised 6/6/05

Operation and Maintenance Documentation

After the fiber optic cable plant has been installed, ten (10) complete sets of Operation and Maintenance Documentation shall be provided. The documentation shall, as a minimum, include the following:

• Complete and accurate as-built diagrams showing the entire fiber optic cable plant including locations of all splices.

• Final copies of all approved test procedures.

• Complete performance data of the cable plant showing the losses at each splice location and each terminal connector.

• Complete parts list including names of vendors.

Testing Requirements

The Contractor shall submit detailed test procedures for approval by the Engineer. All fibers shall be tested bi-directionally at both 1310 nm and 1550 nm with both an Optical Time Domain Reflectometer (OTDR). Fibers shown on the plan sheet labeled “Fiber Optic Cable Detail” shall be tested with a power meter and optical source to determine attenuation. The Contractor, at his option , may either terminate the fibers for testing or utilize a bare fiber adapter kit for testing fibers that have not been terminated. The cost of terminating fibers for testing or using a bare fiber adapter kit for testing shall be included in the bid price for the fiber optic cable. For testing, intermediate breakout fibers may be concatenated and tested end-to-end. Any discrepancies between the measured results and these specifications will be resolved to the satisfaction of the Engineer.

The Contractor shall provide the date, time and location of any tests required by this specification to the Engineer at least 5 days before performing the test. Upon completion of the cable installation, splicing, and termination, the Contractor shall test all fibers for continuity, events above 0.1 dB, and total attenuation of the cable. The test procedure shall be as follows:

A Certified Technician utilizing an Optical Time Domain Reflectometer (OTDR) and Optical Source/Power Meter shall conduct the installation test. The Technician is directed to conduct the test using the standard operating procedures defined by the manufacturer of the test equipment. All fibers installed shall be tested in both directions.

The method of connectivity between the OTDR and the cable shall be a factory patch cord of a length equal to the "dead zone" of the OTDR. Optionally, the Technician can use a factory "fiber box" of 328 ft (100 m) minimum with no splices within the box. The tests shall be conducted at 1310 and 1550 nm for all fibers.

At the completion of the test, the Contractor shall provide two copies of documentation of the test results to the Project Engineer. The test documentation shall be bound and shall include the following:

Cable & Fiber Identification:

Cable ID
Cable Location - beginning and end point
Fiber ID, including tube and fiber color
Operator Name
Date & Time
Setup Parameters

Wavelength
Pulse width (OTDR)
Refractory index (OTDR)
Range (OTDR)
Scale (OTDR)
Setup Option chosen to pass OTDR “dead zone”

Test Results:

A. OTDR Test
Total Fiber Trace
Splice Loss/Gain
Events > 0.10 dB
Measured Length (Cable Marking)
Total Length (OTDR)

Test results and traces shall also be provided on a diskette.

B. Optical Source/Power Meter

Total Attenuation
Attenuation (dB/km)

These results shall be provided in tabular form. The following shall be the criteria for the acceptance of the cable:

The test results shall show that the dB/km loss does not exceed +3% of the factory test or 1% of the cable's published production loss. However, no event shall exceed 0.10 dB. If any event is detected above 0.10 dB, the Contractor shall replace or repair the fiber including that event point.

The total dB loss of the cable, less events, shall not exceed the manufacturer's production specifications as follows: 0.5 dB/km at both 1310 and 1550 nm.

If the total loss exceeds these specifications, the Contractor shall replace or repair that cable run at the Contractor's expense, both labor and materials. Elevated attenuation due to exceeding the pulling tension during installation shall require the replacement of the cable run at the Contractor's expense, including labor and materials.

Label the destination of each trunk cable onto the cable in each handhole, vault or cable termination panel.

Splicing Requirements

Splices shall be made at locations shown on the Plans. Any other splices shall be permitted only with the approval of the Engineer.

All optical fibers shall be spliced as indicated on the Plans. If no information is provided, mainline splices will concatenate the fibers from the two cable segments, that is, the colors of the buffer tubes and fibers shall be the same across the splice. For splices that breakout the individual fibers, the fibers shall be spliced in accordance with the Plans.

Termination Requirements

Fiber shall be terminated as shown on the plan sheet labeled “Fiber Optic Cable Termination Detail”. The Contractor shall only utilize pre-assembled connectors that are fusion spliced to minimize attenuation. The use of mechanical connectors will not be allowed. The cost of terminating fibers as described above and shown on the plan sheets shall be included in the pay item for the fiber optic cable. Revised 6/6/05

Slack Storage of Fiber Optic Cables.

A part of these items, slack fiber shall be supplied as necessary to allow splicing the fiber optic cables in a controlled environment, such as a splicing van or tent. After splicing has been completed, the slack fiber shall be stored underground in handholes or in the raised base adapters of ground mounted traffic controller cabinets.

Where identified on the plans, or as directed by the Engineer, additional lengths of fiber shall be stored, as maintenance coils. The aggregate lengths of the maintenance coils and the slack fiber will be used to repair and maintain the fiber optic cable.

Fiber optic cable shall be tagged inside handholes with yellow tape containing the text: "CAUTION - FIBER OPTIC CABLE."

Method of Measurement. The fiber optic cable of the number of fibers specified will be measured for payment as the number of linear feet (meters) of cable, including lengths stored as splicing slack and maintenance coils, actually furnished installed and tested.

Basis of Payment. FIBER OPTIC CABLE of the number of fibers specified shall be paid for at the contract unit price per foot , which cost shall include the cost of furnishing all labor, material, documentation, tools and equipment to install and test the fiber optic cable.

Fiber optic patch panels, splice closures, connectors, splice vaults and handholes will be supplied and paid for under other contract items.

FIBER OPTIC FUSION SPLICE

Effective October 14, 2002

Description. The Contractor will splice optical fibers from different cable sheaths and protect them with a splice closure at the locations shown on the Plans. Fiber splicing consists of in-line fusion splices for fibers described in the cable plan at the particular location.

Materials.

Splice Closures

Splice Closures shall be designed for use under the most severe conditions such as moisture, vibration, impact, cable stress and flex temperature extremes as demonstrated by successfully passing the factory test procedures and minimum specifications listed below:

Physical Requirements:

The closures shall provide ingress for up to four cables in a butt configuration.

The closure shall prevent the intrusion of water without the use of encapsulates.

Revised 6/6/05

POLE MOUNTED EQUIPMENT CABINET TYPE C

Effective June 8, 2005

Description. This work consists of furnishing and installing a pole mounted equipment cabinet and peripheral equipment at locations indicated in the Plans. These cabinets will be utilized to house critical electrical, optical, and communications equipment as defined in other contract pay items.

Materials.

Materials shall be in accordance to the following specifications.

General.

Equipment cabinets shall be mounted and anchored on the poles and structures at locations indicated in the Plans. These cabinets will have a housing that shall include, but not be limited to, miscellaneous items such as video transmitters, receiver/drivers, modems, etc. as defined by other pay items. In addition, all mounting hardware and brackets required to install the equipment cabinet on the pole shall be stainless steel and provided. The mounting heights and pole diameters shall be as specified in the Plans.

The Type C cabinet shall be a stainless steel NEMA 4X Single Door Enclosure, with nominal outside dimensions of approximately 24 in high X 20 in wide X 8 in deep and shall be large enough to accommodate all required components. It shall also be furnished with two adjustable height shelves. The cabinet shall also have a Corbin #2 dead bolt lock or equal. The key shall be removable in the lock position only. Four keys shall be supplied for each lock, and all equipment cabinet locks shall be keyed the same.

All cables shall be labeled utilizing marking tags.

Surge Protector

The Contractor shall install surge protection on all external cables. This will include primary power as well as signal and control cables.

The surge protector shall be an ECO SHA-1210IRS or approved equal.

A surge protector shall protect each leg of the primary power feed. This surge protector shall be installed as a precautionary measure against possible damage resulting from voltage surges on all incoming power lines. The 120V AC single-phase surge protector shall incorporate a series choke and shall have a maximum clamp voltage of 340 V at 20 kA with a 5 ns response.

In addition, the surge protector shall have the capability of removing high-energy surges and shall block high-speed transients. The surge protector shall comply with the following specifications:

Peak Current: 20,000 amps (8 X 20 us wave shape)
Occurrences: 20 times at peak current
Minimum Series Inductance: 200 microHenrys
Continuous Series Current: 50A
Temperature Range: -40°F to 185°F (-40°C to +85°C)

Revised 6/6/05

DESIGN ENGR.: ERIC HOWALD 309-671-4481 PROJECT ENGR.: RANDY LANINGA 309-671-4477

INDEX OF SHEETS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

F.A.I. ROUTE 74 (I-74)

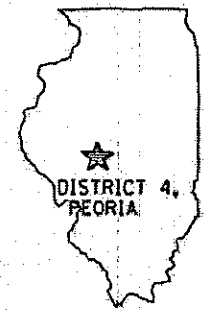
SECTION D4 I-74 ITS SYSTEM-4

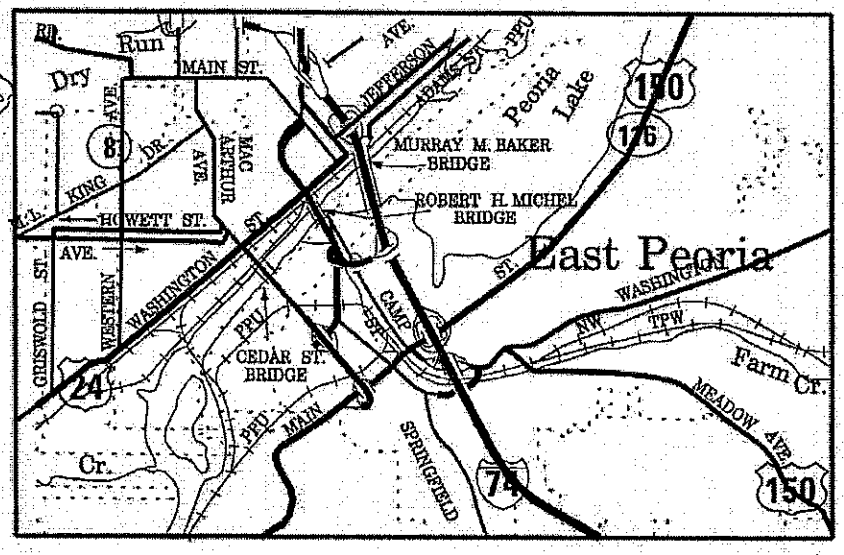
PROJECT HD-0074(002)

PEORIA-TAZEWELL COUNTIES

C-94-090-04

D-94-046-04





STANDARDS

701001-01
701006-02
701011-01
701101-01
701301-02
701701-04
702001-05
813001-01
814001
878001-03

LOCATION OF IMPROVEMENT

PEORIA COUNTY LOCATIONS: CITY OF PEORIA - WALNUT ST., WATER ST., IL 40 (KUMPH BLVD.), IDOT D4 ITS EQUIPMENT ROOM

TAZEWELL COUNTY LOCATIONS: CITY OF EAST PEORIA - IL 40 (RIVER RD.), CAMP ST., W. WASHINGTON ST., IL 116 (MAIN ST.), IL 8 (CAMP ST.), IL 8 (E. WASHINGTON ST.), EAST PEORIA PUBLIC SAFETY BUILDING, AND EAST PEORIA PUBLIC WORKS BUILDING

DESCRIPTION OF WORK

THIS PROJECT CONSISTS OF INSTALLING FIBER OPTIC CABLE IN NEW AND EXISTING CONDUIT AND HANDHOLES; INSTALLING CONDUIT ATTACHED TO STRUCTURE ON THE BOB MICHEL BRIDGE; INSTALLING ITS EQUIPMENT AT THE EAST PEORIA PUBLIC WORKS AND PUBLIC SAFETY BUILDINGS; TERMINATING, SPLICING, AND TESTING FIBER OPTIC CABLE; INSTALLING CCTV CAMERAS; AND ALL OTHER COLLATERAL WORK REQUIRED TO COMPLETE THE IMPROVEMENTS.

CONTRACT NO. 68412
CATALOG NO. 031087-56D

⚠ REVISED
JUN 01 2005

JOSEPH E. CROWE JR.
062-044371
REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS
EXPIRES: 11/30/2005

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED APRIL 1, 2005

Joseph E Crowe

DEPUTY DIRECTOR OF HIGHWAYS REGION ENGINEER

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ROUTE		SECTION	COUNTY	SHEET	
MKD.	DESIG.	D4 I-74 ITS SYSTEM-4	PEORIA TAZEWELL	TOTAL	NO.
VAR.	VAR.			20	2

CONSTRUCTION NOTES
THE LOCATION OF ALL UTILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR BEFORE THE INSTALLATION OF ANY COMPONENTS.
THE EXISTING ITS SYSTEM SHALL REMAIN IN OPERATION DURING THE INSTALLATION OF THE PROPOSED ITS COMPONENTS AND FIBER OPTIC CABLE.
ANY MAINTENANCE OF EXISTING EQUIPMENT SHALL BE CONSIDERED EXTRA WORK IN ACCORDANCE WITH ART. 109.04 OF THE STANDARD SPECIFICATIONS.
THE LOCATION OF ALL UTILITIES AND PRIVATELY OWNED FACILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE INSTALLATION OF ANY COMPONENTS.
THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING AND PROPOSED STATE OWNED ITS, TRAFFIC SIGNAL, AND LIGHTING FACILITIES.
THE CONTRACTOR SHALL FURNISH A WARRANTY CERTIFICATE FOR ALL INSTALLED EQUIPMENT THAT INCLUDES THE EQUIPMENT DESCRIPTION , SERIAL NUMBERS, EFFECTIVE DATES, AND THE WARRANTY DETAILS FOR EACH WARRANTY ITEM.
ALL COSTS FOR LABOR, EQUIPMENT, AND MATERIALS REQUIRED TO INTEGRATE THE PROPOSED ITS EQUIPMENT INTO THE EXISTING ITS SYSTEM SHALL BE INCLUDED IN THE BID PRICE FOR THE CONTRACT. THERE WILL BE NO ADDITIONAL COMPENSATION FOR THIS WORK.
PROPOSED HANDHOLES SHALL BE CAST IN PLACE CONCRETE HANDHOLES.
THE HANDHOLE SHALL BE CONSTRUCTED SO THAT THE TOP OF THE FRAME IS FLUSH WITH THE SURFACE OF THE MEDIAN, SIDEWALK, OR GROUND LINE.
COILABLE POLYETHYLENE DUCT MAY BE SUBSTITUTED FOR PVC CONDUIT PUSHED OR TRENCHED.
ALL CONDUITS CONTAINING FIBER SHALL HAVE A 12 GA. STRANDED THHN, INSULATED ORANGE TRACER WIRE PULLED DURING THE FIBER OPTIC CABLE INSTALLATION. THIS WORK SHALL BE DONE AT THE SAME TIME THE FIBER OPTIC CABLE IS PULLED. THIS WORK SHALL BE INCLUDED IN THE PRICE FOR FIBER OPTIC CABLE IN CONDUIT.
THE CONTRACTOR MAY ELECT TO PUSH A CONDUIT THAT IS SHOWN TO BE TRENCHED ON THE PLANS. THIS WORK WILL BE MEASURED FOR PAYMENT AND PAID FOR AS CONDUIT IN TRENCH OF THE TYPE AND SIZE SPECIFIED AND TRENCH AND BACKFILL FOR ELECTRICAL WORK.
ALL SURPLUS MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH ARTICLE 202.03 OF THE STANDARD SPECIFICATIONS.
1 ALL FIBER OPTIC CABLES SHALL BE [redacted] TERMINATED AND TESTED IN ACCORDANCE WITH THE PROJECT SPECIAL PROVISIONS.
EACH HANDHOLE SHALL HAVE 6.5 FT OF SLACK CABLE AND EACH DOUBLE HANDHOLE SHALL HAVE 13.0 FT OF SLACK CABLE (ITS FIBER ONLY).

COMMITMENTS

NO COMMITMENTS WERE MADE IN CONJUNCTION WITH THIS PROJECT.

NOTE

ALL TELEPHONE NUMBERS FOR THE ENGINEER'S FIELD OFFICE SHALL BE UNPUBLISHED.

TRAFFIC SIGNAL LEGEND

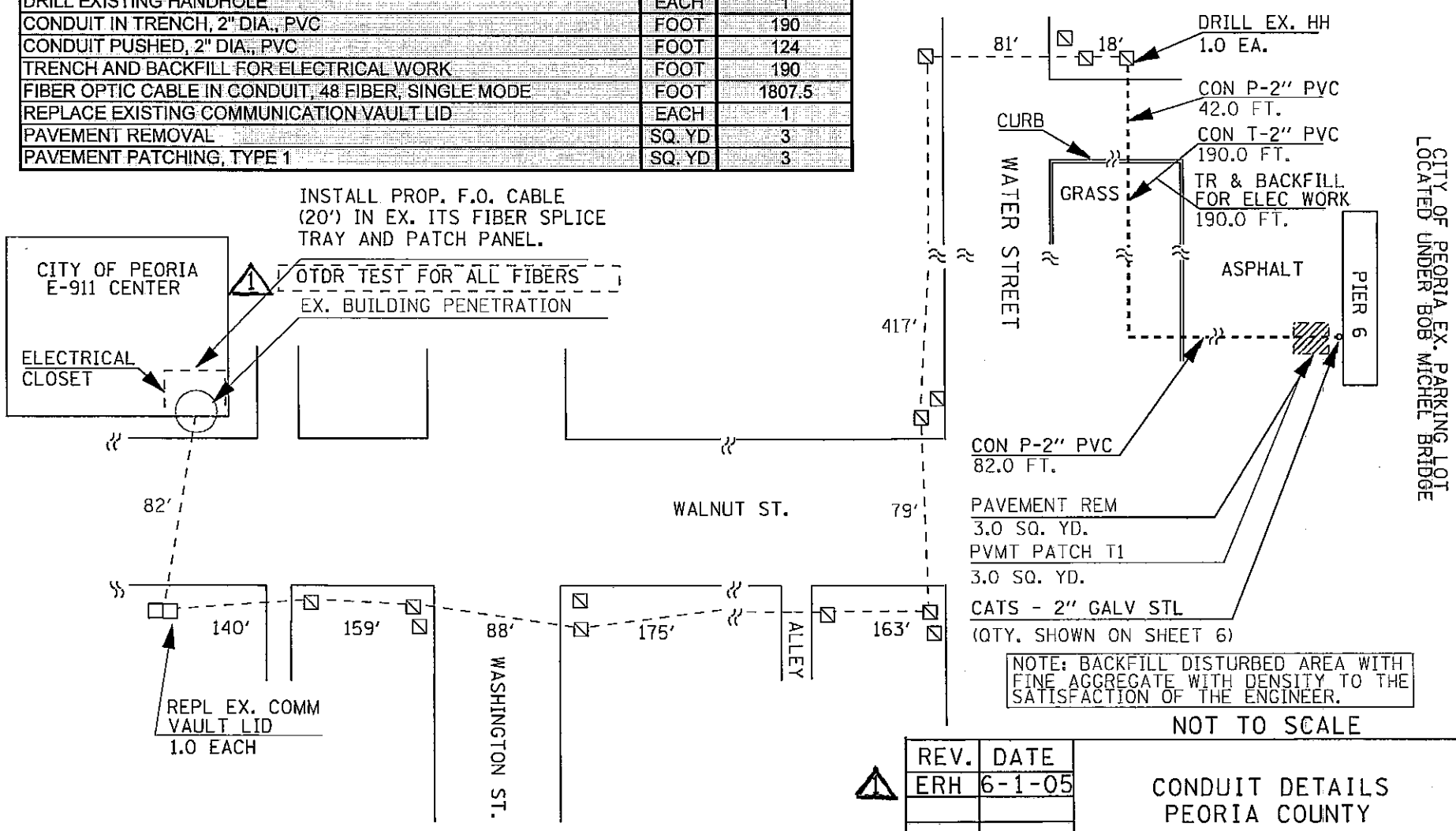
- EX. CONT. CABINET (SIGNAL)
- EX. DBL HANDHOLE
- EX. HANDHOLE
- EX. COMMUNICATIONS VAULT
- EX. CONDUIT
- EX. JUNCTION BOX
- EX. TRAFFIC SIGNAL HEAD
- EX. STEEL COMB. MAST ARM
- EX. LUMINAIRE
- PROP. CONDUIT (PUSHED/TRENCHED)
- PROP. CONCRETE HANDHOLE
- PROP. JUNCTION BOX
- PROP. TY IV CABINET (SPECIAL)

REV.	DATE
1 ERH	6-1-05

COMMITMENTS AND NOTES

ROUTE		SECTION	COUNTY	SHEET	
MKD.	DESIG.	D4 I-74 ITS SYSTEM-4	PEORIA TAZEWELL	TOTAL	NO.
VAR.	VAR.			20	5

ITEM DESCRIPTION	UNIT	QUANTITY
DRILL EXISTING HANDHOLE	EACH	1
CONDUIT IN TRENCH, 2" DIA., PVC	FOOT	190
CONDUIT PUSHED, 2" DIA., PVC	FOOT	124
TRENCH AND BACKFILL FOR ELECTRICAL WORK	FOOT	190
FIBER OPTIC CABLE IN CONDUIT, 48 FIBER, SINGLE MODE	FOOT	1807.5
REPLACE EXISTING COMMUNICATION VAULT LID	EACH	1
PAVEMENT REMOVAL	SQ. YD	3
PAVEMENT PATCHING, TYPE 1	SQ. YD	3



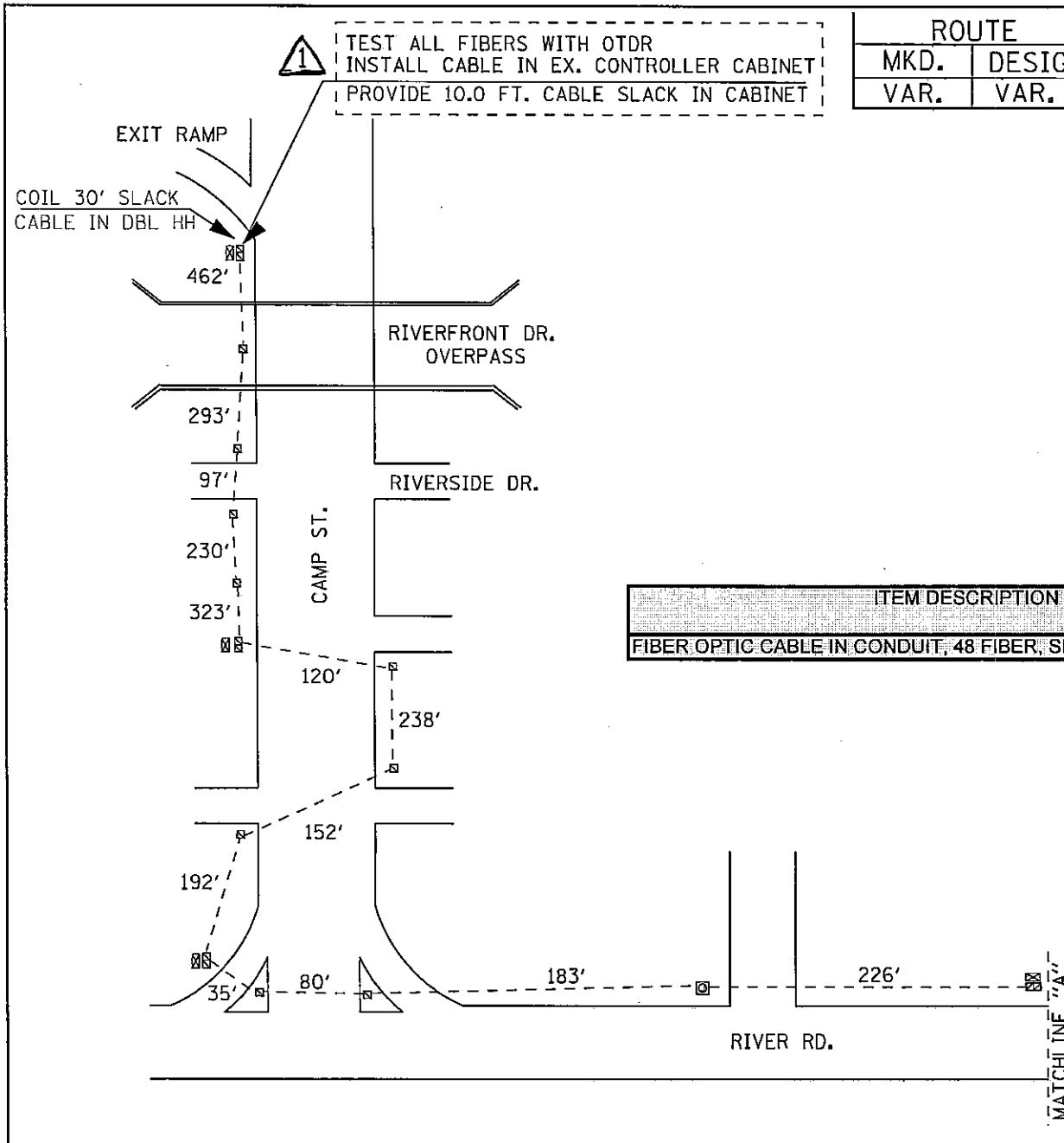
NOTE: BACKFILL DISTURBED AREA WITH FINE AGGREGATE WITH DENSITY TO THE SATISFACTION OF THE ENGINEER.

NOT TO SCALE

REV.	DATE
ERH	6-1-05

CONDUIT DETAILS
PEORIA COUNTY

ROUTE		SECTION	COUNTY	SHEET	
MKD.	DESIG.	D4 I-74 ITS SYSTEM-4	PEORIA TAZEWELL	TOTAL	NO.
VAR.	VAR.			20	9



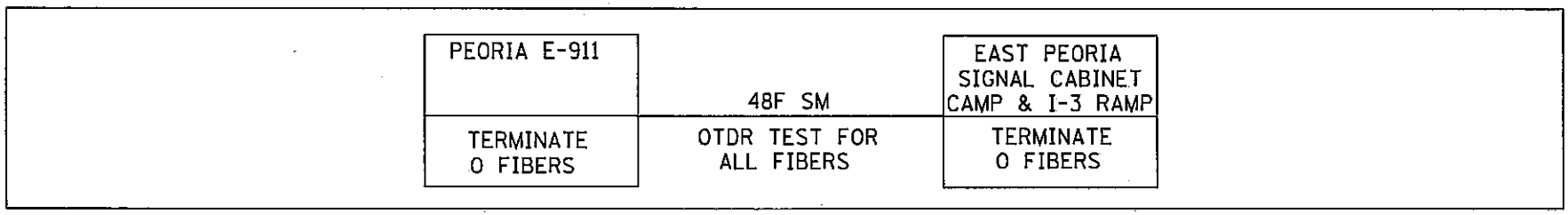
ITEM DESCRIPTION	UNIT	QUANTITY
FIBER OPTIC CABLE IN CONDUIT, 48 FIBER, SINGLE MODE	FOOT	2791.5

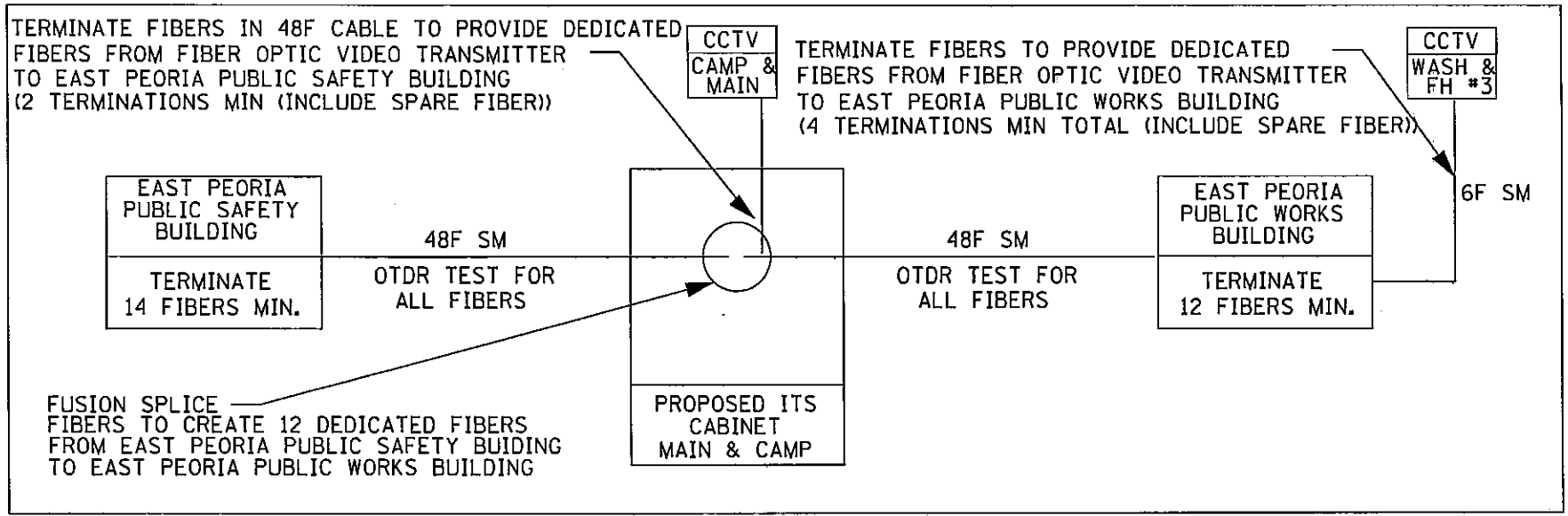
NOT TO SCALE

REV.	DATE
1 ERH	6-1-05

CONDUIT DETAILS
CAMP ST.
EAST PEORIA
TAZEWELL COUNTY

ROUTE		SECTION	COUNTY	SHEET	
MKD.	DESIG.	D4 I-74 ITS SYSTEM-4	PEORIA TAZEWELL	TOTAL	NO.
VAR.	VAR.			20	20A





NOTES:

1. ALL TERMINATED FIBERS SHALL USE FACTORY ASSEMBLED PIG-TAILED CONNECTORS THAT ARE FUSION SPLICED ONTO THE 48F CABLE.
2. ALL CONTINOUS FIBERS FROM THE EAST PEORIA PUBLIC SAFETY BUILDING TO THE EAST PEORIA PUBLIC WORKS BUILDING SHALL BE TESTED WITH A POWER METER AND SOURCE.
3. OTDR TESTED FIBERS SHALL BE TESTED BI-DIRECTIONALLY.
4. THE COST FOR ALL FIBER OPTIC TERMINATIONS AND TESTING SHALL BE INCLUDED IN THE BID PRICE FOR THE FIBER OPTIC CABLE.
5. A FUSION SPLICE SHALL ENTAIL SPLICING TOGETHER TWO FIBERS FROM TWO DIFFERENT CABLES AND SHALL BE PAID FOR AS FIBER OPTIC FUSION SPLICE.

FIBER OPTIC TERMINATIONS:
-EAST PEORIA PW BLDG (48F)- QTY. 14
(12 DEDICATED + 2 FOR CCTV)
-EAST PEORIA PS BLDG (48F)- QTY. 12
(12 DEDICATED)
-PROP. ITS CABINET (48F)- QTY. 2
(2 FOR CCTV FOVT)
-EAST PEORIA PS BLDG (6F)- QTY. 4
(2 FOR CCTV FOVT, 2 FOR FOVR)

FIBER OPTIC SPLICES
EAST PEORIA E-911 - QTY. 12

FIBER OPTIC CABLE TERMINATION DETAILS

1 NEW SHEET 6-1-05