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G:\OIProject

8	TWELVE (12) TERMINATIONS REQUIRED
	COLOR OF BUFFER TUBE TO BE USED
15	PROJECT WILL BE PROVIDED BY THE
	OF NORMAN I.T. DEPARTMENT AS THE
4095	PROGRESSES.
420	B. FIBER – THE PAY QUANTITY IS FOR 144
	STRAND, ARMORED, SINGLE-MODE FIBER
960	CABLE TO BE RUN FROM SH 9 TO CEDAR
	AS SHOWN IN THE PLANS.
48	
	C. SPLICE ENCLOSURES – SPLICE ENCLOSUR
3	SHALL BE FULL COYOTE SPLICE ENCLOSU
-	APPROVED EQUAL.

D. SPLICING RESPONSIBILITY

- . SPLICING WILL BE REQUIRED AT CEDAR LANE INTO DESIGNATED PAIRS OF EXISTING FIBER. DIAGRAMS WILL BE PROVIDED WHEN DEFINE THIS. 2. SPLICES WILL BE REQUIRED TO BE DONE IN
- THE GROUND BOX NEAR THE SIGNAL CONTROLLER AT SH 9. THE TERMINATION POINTS WILL BE IN THE CONTROLLER CABINET.

 SPLICING WILL BE REQUIRED FOR THE 144 STRAND CABLE TO TIE INTO THE SPLICE CASE AT SH 9 & 12TH AVENUE SE. 	(TR-24)	ALL BECO SHAI
F. PATCH PANEL		SHAI
1. PAY ITEM IS FOR THE INSTALLATION OF ONE		GRO
CORNING OR COMMSCOPE 12 PORT, SC		F00
PATCH PANELS TO BE MOUNTED UNDER THE		CON
TOP SHELF IN THE CABINET. ALL 12 FIBERS SHALL TERMINATE AT EACH CONTROLLER USING SC CONNECTORS	(1)	POLY
	(2)	PAY
IN ORDER TO DEVELOP A SERVICEABLE INSTALLATION, ADDITIONAL FIBER AND COMMUNICATION EQUIPMENT IS REQUIRED THIS WILL BE PAID FOR UNDER ITEM		17" PLAN
819 8780 AND INCLUDES THE FOLLOWING:	(3)	QUAN
A. CISCO SWITCH (TO BE DELIVERED TO THE CITY OF	()	ARM
NORMAN IT DEPARTMENT FOR INSTALLATION)		CFD1
MODEL NUMBER WS-C3750X-12S-E. FINALLY, FIBER		ON
OPTIC MODULES ARE NEEDED TO PLUG INTO THE		THIS
CISCO GLO-LH-SM(1000RASE-LX SEP SME	(4)	THF
1310NM, LC CONNECTOR) TO BE PAID FOR UNDER	(-)	BEF
ITEM 819 8780.		MAS
		PEDE
THE 2-INCH HIGH DENSITY PE PIPE USED ON THIS		INST
PROJECT SHALL BE SDR 11.		1074

(5)

(6)

(7)

(8)

STYLE

12TH AVE

FIBER SHOULD BE COMMSCOPE, LIGHTSCOPE, OUTSIDE (SP-4) PLANT, DOUBLE JACKET, SINGLE ARMORED, SINGLE MODE 144 STRAND AND 12 STRAND FIBER, OR APPROVED FOLIAL

(SP-2)

(SP-3)

- (SP-5) THE POWER SHALL REQUIRE A TRANSFORMER OR A STEP DOWN TO SUPPLY THE PROPER POWER TO THE FOUIPMENT
- (ITS-2) THE INSTALLATION OF THE FIBER OPTIC CABLES. SPLICES AND TERMINATIONS SHALL BE THE RESPONSIBILITY OF THE FIBER CONTRACTOR FOR THIS PORTION OF THE PROJECT. THE FIBER CONTRACTOR SHALL BE REQUIRED TO MEET ALL SPECIFICATIONS OF THE "FIBER OPTIC CABLE TERMINATIONS AND SPLICING REQUIREMENTS". NO WORK ON ANY PORTION OF THE FIBER OPTIC SYSTEM SHALL BE PERFORMED BY ANYONE OTHER THAN THE FIBER CONTRACTO
- (ITS-6) THE FIBER OPTIC CABLE SHALL BE PULLED WITH MULE TAPE, BY NEPTCO, INC., OR AN APPROVED EQUAL, NO GREATER THAN A 600 POUND PULL STRENGTH.
- (ITS-7) THE INSTALLED FIBER OPTIC CABLE SHALL BE OTDR TESTED AND SHALL MEET INDUSTRY STANDARDS. LIGHT LOSS AS TESTED SHALL BE NO GREATER THAN .10 DB FOR THE ENTIRE FIBER RUN
- (ITS-12) SPLICING WILL BE DONE BY THE FUSION WELD METHOD AND THE WELDING PROCESS SHALL BE SPECIFICALLY. DESIGNED FOR SPLICING SINGLE-MODE FIBERS IN BOTH THE LVD AND DVD DESIGN, OPTIC LOSS PER SPLICE SHALL BE EQUAL TO OR LESS THAN .10 DB. OPTICAL LOSS FOR PIGTAIL SPLICES IN THE FIBER TERMINATION BOX SHALL BE LESS THAN OR FOUAL TO 8 DB
- (ITS-15) THE CONTRACTOR SHALL PROVIDE "AS-BUILT" DOCUMENTATION FOR ALL FIBER OPTIC CABLE ROUTES. O/FROM), INDIVIDUAL FIBERS, TERMINATIONS SPLICES, FINAL DESTINATIONS, AND OTDR READINGS

(ITS-22) THE COST BID FOR THIS ITEM SHALL INCLUDE THE COST OF SHIELD ISOLATION PEDESTAL (RELIABLE SIP40), THE W-FLANGE POST, 2.5 LBS. FT., TWO FIBER OPTIC SIGNS, TAGGING AND IDENTIFYING OF EACH FIBER OPTIC CABLE AND THE #6 AWG GROUND WIRE RUN BETWEEN THE SHIELD ISOLATION PEDESTAL AND THE SPLICE POINT REGARDLESS OF ITS LOCATION IN A SPLICE BOX, A GROUND BOX, A 332 CABINET, A COMMUNICATION HUT, ETC. COST TO INCLUDE ALL APPURTENANCES AND MATERIAL NECESSARY TO CONNECT ALL SPLICES TO THE SHIELD ISOLATION PEDESTAL. (PEDESTAL STAKE MARCONI MS1342; GROUND ROD ERICO 6138529).

- (TL-35) SEE SERVICE POLE SCHEDULE: FOR ADDITIONAL INFORMATION CONCERNING THE SERVICE POLE, CONTACT THE FOLLOWING PRIOR TO INSTALLATION WITH THE CITY OF ... NORMAN CITY'S TELEPHONE NO......405-329-0528.
- (TP-1) PAYMENT FOR THIS ITEM WILL BE BASED ON PLAN QUANTITY, SEE THE 2009 SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

CONTROLLER SHALL BE ECONOLITE ASC3-1000 TS-2 TYPE 1, WITH NTCIP FIRMWARE, AND SHALL BE FULLY COMPATIBLE WITH AND ABLE TO USE ALL THE FEATURES OF THE CITY'S CENTRACS ADVANCED TRAFFIC MANAGEMENT SYSTEM, EACH ETHERNET EQUIPPED COMPONENT SHALL COME WITH A 3' CAT5E NETWORK CABLE FOR CONNECTING TO A SWITCH. EQUIPMENT SUPPLIER SHALL BE REQUIRED TO SUBMIT A UNIT TEST CERTIFICATION OF THE ENTIRE CABINET ASSEMBLY PRIOR TO INSTALLATION IN THE FIELD.

WAYNE RUSSELL, P.E. # 16030 C.A. # 1160, RENEWAL 06-30-17 R. WAYNE RUSSELL 2-16-17

Traffic Engineering Consultants, Inc 6000 S. Western, Suite 300 - Oklahoma City, OK 73139, Ph: 405-720-7721, Fax: 405-720-9848, Web: www.tecok.cor

DATE

TRAFFIC SIGNAL AND FIBER PAY QUANTITIES 12th Avenue SE at SH 9 in Norman, OK

0300 TRAFFIC

ITEM	DESCRIPTION		UNIT	12TH AVE. SE & SH 9	FIBER INTERCONNECT	TOTAL
302(B) 8342	2" PVC SCH. 40 PLASTIC CONDUIT TRENCHED	(TP-1)	LF	30		30
802(B) 8344	3" PVC SCH. 40 PLASTIC CONDUIT BORED	(TP-1)	LF	140		140
802(B) 8346	3" PVC SCH. 40 PLASTIC CONDUIT TRENCHED	(TP-1)	LF	245		245
802(B) 8348	4" PVC SCH. 40 PLASTIC CONDUIT BORED	(TP-1)	LF	365		365
802(B) 8350	4" PVC SCH. 40 PLASTIC CONDUIT TRENCHED	(TP-1)	LF	60		60
802(C) 8552	2" HIGH DENSITY PE PIPE - BORED	(TP-1)	LF		495	495
802(C) 8557	2" HIGH DENSITY PE PIPE - TRENCHED	(TP-1)(SP-3)	LF		3530	3530
803(A) 8060	PULL BOX	(1,2)	EA	1		1
803(A) 8066	PULL BOX (SIZE II)	(1)	EA	4		4
803(B) 8085	GROUND BOX (GB36)	(SP-1)	EA		6	6
803(B) 8105	GROUND BOX (R48)	(SP-1)(13)	EA		2	2
304(A) 2915	STRUCTURAL CONCRETE	(TP-1)(3)	СҮ	28.9		28.9
804(B) 2916	REINFORCING STEEL	(TP-1)	LB	4106.4		4106.4
805(A) 8726	(PL) REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	(TR-24)	LSUM	1		1
305(D) 8742	(PL) REMOVE & RESET TRAFFIC SIGNAL	(10)	LSUM	1		1
306(A) 8312	32' MH POLE 40' TS & 10' LMA (G.STL.)	(4)	EA	1		1
806(A) 8313	32' MH POLE 45' TS & 10' LMA (G.STL.)	(4)	EA	1		1
306(A) 8314	32' MH POLE 50' TS & 10' LMA (G.STL.)	(4)	EA	1		1
806(A) 8348	32' MH POLE, 60' TS & 10' LMA (G.STL.)	(4)	EA	1		1
306(B) 8894	10' MTG. HT. TS PED. POLE (G.STL.)	(5)	EA	4		4
309(A) 8090	ROADWAY LUMINAIRE	(6)	EA	4		4
810(A) 3118	SERVICE POLE	(TL-35)(SP-5)	EA	1		1
811 8040	1/C NO. 6 ELECTRICAL CONDUCTOR	(21) (TP-1)(7)	LF	200		200
811 8044	1/C NO. 10 ELECTRICAL CONDUCTOR	(TP-1)	LF	2160		2160
818(A) 8710	(SP)FIBER OPTIC CABLE, 12 SMF	(TP-1)(SP-1,4)	LF		175	175
818(A) 8733	(SP)FIBER OPTIC CABLE, 144 SMF	(TP-1)(SP-1,4)	LF		4330	4330
818(B) 8743	(SP)FIBER OPTIC PATCH PANEL, 12 PORT	(ITS-2,6,7,15) (SP-1)	EA		1	1
818(C) 8735	(SP)FIBER OPTIC CABLE SPLICE	(ITS-2,12,15)	EA		456	456
818(D) 8740	(SP)FIBER OPTIC CABLE TERMINATION	(ITS-2,15)(SP-1)	EA		24	24
818(F) 8370	(SP)SHIELD ISOLATION PEDESTAL	(ITS-22)(SP-1)	EA		3	3
818(G) 5570	(SP)FIBER OPTIC ROUTE SIGN & INSTALLATION	(SP-1)	EA		8	8
819 8780	(PL)FIBER OPTIC & COMMUNICATION EQUIPMENT	(SP-2)	LSUM		1	1
825 8550	TRAFFIC SIGNAL CONTROLLER ASSEMBLY	(8,9,10,11)	EA	1		1
328 8132	(PL)DETECTION SYSTEM (VIDEO)	(12)	LSUM	1		1
330 8000	PEDESTRIAN PUSH BUTTON	(14)	EA	8		8
331 8231	1WAY 3SEC. ADJ. SIG. HD. S-6	(15)	EA	7		7
331 8252	1WAY 3SEC. ADJ. SIG. HD. S-9	(15)	EA	6		6
331 8286	1WAY 5SEC. ADJ. SIG. HD. S-19	(15)	EA	2		2
331 8295	1WAY2SEC. ADJ. PED. SIG. HD. S-20	(16)	EA	8		8
333 3030	BACKPLATE	(17)	EA	15		15
834(A) 8207	5/C TRAFFIC SIGNAL ELECTRICAL CABLE	(TP-1)	LF	4095		4095
334(A) 8208	7/C TRAFFIC SIGNAL ELECTRICAL CABLE	(TP-1)	LF	420		420
834(A) 8213	21/C TRAFFIC SIGNAL ELECTRICAL CABLE	(TP-1)	LF	960		960
834(B) 8220	2/C SHIELDED LOOP DETECTOR LEAD-IN CABLE	(TP-1)(18)	LF	48		48
840(A) 8592	E.P.S. OPTICAL EMITTER	(19)	EA	3		3
840(B) 8593	E.P.S. OPTICAL DETECTOR	(19)	EA	1		1
840(C) 8594	E.P.S. OPTICAL DETECTOR CABLE	(TP-1)(19)	LF	125		125
840(D) 8595	E.P.S. 2 CHANNEL PHASE SELECTOR	(19)	EA	2		2
850(C) 8118	MAST ARM MOUNTED SIGNS (ALUMINUM)	(20)	SF	74		74

GENERAL CONSTRUCTION NOTES

SYMBOLS AND LEGENDS ARE DIAGRAMMATIC ONLY AND LOCATIONS SHALL BE ADJUSTED FOR EXISTING FIELD CONDITIONS, BUT NO MAJOR ALTERATIONS OR RELOCATIONS WILL BE MADE WITHOUT FIRST CONSULTING WITH THE TRAFFIC ENGINEERING. DIVISION AT (405)521-2861.

THIS PROJECT SHALL BE CONSTRUCTED WITHOUT CLOSING THE EXISTING ROAD TO LOCAL AND THROUGH TRAFFIC. SEE STANDARD SPECIFICATIONS FOR MAINTENANCE OF LOCAL AND THROUGH TRAFFIC.

ALL BROKEN CONCRETE, WASTE MATERIAL, AND DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR. AND SHALL BE REMOVED FROM THE LIMITS OF THE PROJECT AND DISPOSED OF IN AN AREA APPROVED BY HE ENGINEER. NO PAYMENT WILL BE MADE FOR THE DISPOSAL OF THIS MATERIAL.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE HE MAY INFLICT TO THE EXISTING UNDERGROUND UTILITIES WITHIN THE PROJECT AREA AS A RESULT OF HIS DIGGING, TRENCHING, BORING, ETC.... PRIOR TO DIGGING NEAR THE UTILITIES. THE CONTRACTOR SHALL CALL FOR A LIST OF ALL UNDERGROUND FACILITIES REGISTERED IN THE AREA OF CONSTRUCTION LISTED WITH THE FOLLOWING AGENCIES: THE "OKIE" NOTIFICATION CENTER 811 OR (405) 522-6543 OR WWW.CALLOKIE.COM OR THE LOCAL COUNTY CLERK'S OFFICE.

PAY QUANTITY NOTES

(SP-1) THIS PROJECT INVOLVES THE INSTALLATION OF FIBER OPTIC CABLE TO INTERCONNECT THE 12TH AVENUE SE TRAFFIC SIGNAL AT SH 9 TO THE EXISTING SYSTEM ENDS TO THE SOUTH AT CEDAR LANE. A. PULL BOXES, SPLICES POINTS, FIBER LOCATING 1. ALL FIBER OPTIC GROUND BOXES SHALL BE GB36 (ODOT TYPICAL GB-36 GROUND BOX) POLYMER CONCRETE. ALL SPLICE POINT LOCATIONS SHALL BE IN R48 (ODOT TYPICAL R-48 GROUND BOX) POLYMER CONCRETE GROUND BOXES. THE 100-FOOT MAINTENANCE LOOP IN EACH R48 GROUND BOX SHALL BE COILED USING A FIGURE 8 METHOD TO PREVENT DAMAGE TO THE FIBERS AND SECURED TO THE SIDES OF THE GROUND BOX.

2. PAY ITEM IS FOR ONE (1), 12 STRAND ARMORED PIG TAIL TO BE INSTALLED ON THIS PROJECT TO RUN FROM THE SIGNAL CONTROLLER CABINET AT SH 9 TO THE NEARBY SPLICE BOXES AT EACH INTERSECTION. 3. ALL FIBER OPTIC CABLE NEEDS TO BE ARMORED

FIBER OPTIC CABLING, INSTALLATION DEPTH SHOULD BE BETWEEN 36" AND 48". IF INSTALLATION IS CONSTRAINED SUCH THAT THESE DEPTHS ARE NOT ACHIEVABLE, NO LESS THAN 24" DEPTH SHALL BE ALLOWED. COMMSCOPE TERRASPEED OR CORNING ODOT STANDARD WILL BE ACCEPTABLE. THE CITY REQUIRES NO. 14 GAUGE, STRANDED COPPER CABLE BE USED TO COMPLETE GROUNDING AND UTILITY LOCATE CAPABILITIES FROM THE CONTROLLER CABINET TO THE FIBER OPTIC CABLE IN GROUND, ONCE ATTACHED TO THE ARMORED JACKET ON THE FIBER, THE UTILIT LOCATE CAPABILITY NEEDS TO BE CONFIRMED CAPABLE FOR THE DISTANCE OF THE FIBER RUN. SHIELD ISOLATION PEDESTALS MUST BE USED TO PROVIDE EASE OF UTILITY LOCATING CITY OF NORMAN FIBER OPTIC SIGNAGE (PAID FOR WITH PAY ITEM "818 (G) 5570 (PL) FIBER OPTIC ROUTE SIGN AND INSTALLATION") PLACED ALONG THE PATH, AS WELL. THE CITY OF NORMAN CAN PROVIDE INFORMATION TO DEFINE THE SHIELD ISOLATION PEDESTALS. SIGNAGE, GROUND BOXES, ETC 4 PAY ITEM IS FOR FOURTEEN (14) FIBER OPTIC ROUTE INDICATION SIGNS TO BE PLACED ALONG THE ROUTE OF THE FIBER OPTIC CABLE AT

EACH GROUND BOX. 5. TWELVE (12) SPLICES REQUIRED AT SH 9 AND D SH 9. THE FOR THE PROJECT

OPTIC LANE.

JRES, OR

NECESSARY TO THE SELECTED CONTRACTOR TO

TRAFFIC SIGNAL EQUIPMENT REMOVED SHALL OME THE PROPERTY OF THE CITY. THE CONTRACTOR LL DELIVER REMOVED EQUIPMENT TO THE CITY NORMAN AT 1311 DA VINCI STREET. THE PRICE BID LL INCLUDE THE REMOVAL OF ALL FOOTINGS BELOW JND I FVFI OR AS DIRECTED BY THE ENGINEER. INGS TO BECOME THE PROPERTY OF THE TRACTOR.

MER CONCRETE PULL BOXES SHALL BE USED.

ITEM IS FOR THE INSTALLATION OF OVERSIZED X 30" X 12" PULL BOXES, AS SHOWN IN THE

ITITY INCLUDES AN S-55 FOOTING FROM THE "DUAL MAST FOOTING DATA" TABLE FROM ODOT STANDARD DRAWING -2-00 TO BE INSTALLED FOR THE 60' MAST ARM POLE "E" THIS PROJECT. CONTRACTOR TO VERIFY THE ADEQUACY OF FOOTING DESIGN FOR A 60 MAST ARM POLE.

HAND HOLES AT THE BASE OF THE POLES SHALL PLACED AT 135 DEGREES CLOCKWISE FROM THE ARMS IN ORDER TO AVOID CONFLICTS WITH THE ESTRIAN PUSH BUTTONS AND SIGNS BEING ALLED ON THIS PROJECT. PELCO PART NO. AP--PNC SHALL BE INSTALLED ON THIS PROJECT AND SHALL INCLUDE TERMINAL BLOCK ASSEMBLY WITH TERMINAL STRIP BARRIER TYPE.

THE PEDESTRIAN POLES TO BE SUPPLIED ON THIS PROJECT SHALL BE 10" DIAMETER POLES AND INCLUDE POLE AND BASE COLLAR ASSEMBLY PELCO PART NO. PB-5325-PNC THE LUMINAIRES TO BE INSTALLED ON THIS PROJECT SHALL BE AN LED HOLOPHANE LEDGEND FIXTURE IN ACCORDANCE WITH THE LATEST CITY OF NORMAN STANDARDS AND SPECIFICATIONS, OR AN APPROVED EQUAL. IN ORDER TO BE CONSIDERED AN EQUAL FIXTURE THE PROPOSED FIXTURE WILL NEED TO MEET THE FOLLOWING REQUIREMENTS.

VOLTAGE CONTROLLED BY = PHOTO CELL LAMP TYPE = LED LAMP COLOR (NOMINAL) = 4-4000 K VERTICAL DISTRIBUTION = MEDIUM LATERAL DISTRIBUTION = TYPE 3 DISTRIBUTION CONTROL = CUTOFF = CUTOFF DESIGN

THIS PAY ITEM IS TO BRING POWER TO THE CONTROLLER CABINET FROM THE SERVICE POLE.

THE CONTROLLER(S) TO BE EURNISHED ON THIS PROJECT SHALL HAVE A NATURAL ALUMINUM FINISH AND BE VEHICLE ACTUATED SOLID STATE DIGITAL CONTROLLER(S) WITH VOLUME DENSITY FEATURES. THE CONTRACTOR SHALL FURNISH THE CONTROLLER(S) AND MOUNTING FRAMES AS FOLLOWS

		CONFLICT &
INTERSECTION	TYPE	USER FLASH
TH AVE SE & SH 9	8P	ALL RED

THE CONTROLLER(S) WITH 2P - 4P CAPABILITY SHALL BE FURNISHED WITH 8 LOAD RECEPTACLE BAYS. CONTROLLER(S) WITH 5P - 8P CAPABILITY SHALL BE FURNISHED WITH 16 LOAD SWITCH RECEPTACLE BAYS. ALL CORRESPONDING RECEPTACLE WIRING IN THE CABINET AND FIELD WIRING SHALL BE INSTALLED FOR THE CONTROLLER AS REQUIRED EXCEPT FOR ADDITIONAL DETECTOR CONNECTING CABLES WHEN THE CONTROLLER IS EXPANDED. THE CONTROLLER(S) SHALL BE CAPABLE OF PERFORMING AS SHOWN ON PHASE & SEQUENCE DIAGRAMS. PEDESTRIAN ISOLATION SHALL BE PROVIDED IN THE CONTROLLER CABINET. ALL N.E.M.A. FUNCTIONS SHALL TERMINATE IN THE CONTROLLER CABINET.

CABINET SHALL HAVE A 120V RECEPTACLE INSTALLED INSIDE OF THE CABINET IN ADDITION TO OR IN LIEU OF A RECEPTACLE INSTALLED ON THE DOOR. ALSO, ALL CARINETS THAT ARE TO BE INSTALLED IN A SIGNAL INTERCONNECT SYSTEM SHALL HAVE A PULL-OUT COMPUTER SHELF AND DRAWER INSTALLED FOR LAPTOP USE AT THE CONTROLLER CABINET.

CONTROLLER UNIT, CONFLICT MONITOR, AND VIDEO DETECTION SYSTEM SHALL EACH BE EQUIPPED WITH 10/100-TX ETHERNET COMMUNICATIONS PORT





REVISIONS	
DESCRIPTION	DATE

THE CONFLICT MONITOR TO BE INSTALLED ON THIS PROJECT SHALL BE AN EDI MMU2-16LEip SMART MONITOR

PAY ITEM WILL BE FOR THE RELOCATION OF THE TWO (2) PEDESTRIAN POLES IN THE MEDIANS, AS SHOWN IN THE PLANS. PRICE BID FOR THIS ITEM SHALL INCLUDE THE REMOVAL OF THE EXISTING FOOTING, AS APPROVED BY THE ENGINEER, AND THE RESETTING OF THE POLES ON NEW FOOTINGS. THE CONTRACTOR SHALL VERIFY THAT THE BOLT CIRCLES WILL FIT THE EXISTING BASES OF THE EXISTING POLES.

THE EDOTING QUANTITIES CONDUIT AND WIRING REQUIRED FOR THESE POLES WILL BE INCLUDED IN THEIR RESPECTIVE PAY ITEMS AND SHALL NOT BE INCLUDED IN THE PRICE BID FOR THIS ITEM

ALSO INCLUDED IN THE PRICE BID FOR THIS PAY ITEM SHALL BE THE INSTALLATION OF AN UNINTERRUPTIBLE POWER SUPPLY FOR TRAFFIC APPLICATIONS. THIS UNIT SHALL MEET THE FOLLOWING SPECIFICATION:

GENERAL DESCRIPTION: THE EQUIPMENT FURNISHED UNDER THIS SPECIFICATION SHALL BE THE LATEST PRODUCTION MODELS CONFORMING TO THE LATEST STANDARD SPECIFICATIONS OF THE OKLAHOMA DEPARTMENT OF TRANSPORTATION AND THE CITY OR NORMAN.

THE EQUIPMENT TO BE SPECIFIED IS A TESCO CLASS. 22-46 BATTERY BACKUP UNIT, OR AN APPROVED FOUAL THE BELOW LISTED SPECIFICATIONS ARE THE DESIRED MINIMUM. BIDDER'S EQUIPMENT SHOULD EQUAL OR EXCEED THESE SPECIFICATIONS. DEVIATIONS MAY BE ACCEPTED ONLY AS APPROVED BY CITY TRAFFIC ENGINEER.

1-0 GENERAL

NO.

(10)

(11)

THE EQUIPMENT SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA). ANY EQUIPMENT MANUFACTURER SHALL SUPPLY CERTIFICATION SHOWING THAT THE PARTICULAR MODEL OF EQUIPMENT INTENDED TO BE FURNISHED, HAS BEEN TESTED AND APPROVED BY A QUALIFIED INDEPENDENT TESTING LABORATORY PER REQUIREMENTS SPECIFIED IN THE NEMA STANDARD. A "QUALIFIED" INDEPENDENT TESTING LABORATORY IS DEFINED AS A LABORATORY WHICH CLEARLY SHOWS THAT IT IS CAPABLE OF PERFORMING THE TEST IN ACCORDANCE WITH THE NEMA. THE MANUFACTURER SHALL SUPPLY QUALIFICATION STATEMENTS AND/OR OTHER DOCUMENTATION THAT INDICATES THE LABORATORY IS PROFESSIONALLY RECOGNIZED. REPUTABLE IN NATURE, AND EQUIPPED WITH OR HAS ACCESS TO ALL NECESSARY TESTING APPARATUS TO SUPPLY A CERTIFIED LETTER WITH DELIVERY OF THE EQUIPMENT (IDENTIFIED BY LOCATION AND SERIAL NUMBER) INDICATING THAT THE PARTICULAR EQUIPMENT FURNISHED IS IDENTICAL TO THE EQUIPMENT THAT WAS TESTED AND APPROVED AND THAT ALL "COMPONENTS AND PARTS" USED IN ASSEMBLING THE EQUIPMENT ARE EQUAL OR SUPERIOR IN QUALITY TO THE ONES USED IN THE TESTING OF THE FOUIPMENT

THE BATTERY BACKUP SYSTEM SHALL HAVE MANUFACTURER'S CERTIFICATES (IF NEEDED) WARRANTY OF SERVICE, INSTRUCTION BOOKS SERVICE MANUALS. A LIST OF GENERIC PART NUMBERS FOR SERVICE PERSONNEL, AND COMPLETE INSTALLATION INSTRUCTIONS. 1.2 THIS SPECIFICATION APPLICABLE TO A SPECIFIC INTERSECTION COVERS ONE COMPLETE UNIT OF UNINTERRUPTIBLE POWER SUPPLY TO BE ATTACHED TO TRAFFIC SIGNAL CABINETS TO OPERATE THE SIGNAL DURING POWER FAILURES. EACH UNIT SHALL CONSIST OF ONE CONTROL ASSEMBLY, ONE POWER TRANSFER SWITCH. 24V STRING OF 18AH BATTERIES, ONE BATTERY CABINET WITH GENERATOR KIT INCLUDING BYPASS SWITCH AND RECEPTACLE COVER.

2-0 GENERAL EQUIPMENT

2.1 THE SYSTEM SHALL PROVIDE A 120 VAC 60 HZ PURE SINE WAVE. THE SYSTEM SHALL PROVIDE POWER FOR NORMAL SIGNAL OPERATION FLASH OPERATION, AND NORMAL/FLASH COMBINATION MODE 2.2 THE SYSTEM SHALL BE DESIGNED FOR OUTDOOR

APPLICATIONS AND MEET THE ENVIRONMENTAL REQUIREMENTS AS IS STANDARD IN THE TRAFFIC INDUSTRY, IT SHALL CONFORM TO NEMA. NATIONAL ELECTRIC CODE (NEC), AND UNDERWRITERS LABORATORY (UL) STANDARDS 2.3 THE UNINTERRUPTED POWER SUPPLY (UPS) SYSTEM SHALL INCLUDE ALL NECESSARY CABLES WIRING HARNESSES BATTERY CABLES AND ALL COMPONENTS FOR PROPER OPERATION.

TRAFFIC SIGNAL PAY QUANTITIES AND NOTES (1 OF 2)

State Job No. 29289(04)

Sheet No.