

BILL OF MATERIALS

| ITEM | UNIT | QTY |
|--|--------|-----------|
| PAD MOUNTED CONTROLLER & CABINET | EACH | 1 |
| TRAFFIC SIGNAL HEAD (SEE CHART A) W/ MOUNTING HARDWARE | EACH | 13 |
| PEDESTRIAN SIGNAL HEAD (12" COMB.) W/ MOUNTING HARDWARE | EACH | 8 |
| TRAFFIC SIGNAL POLE (SEE CHART B) STEEL | EACH | 4 |
| CONCRETE CONTROLLER PAD | EACH | 1 |
| CONCRETE FOOTING - POLE | EACH | 4 |
| CONDUIT ELBOW 90° | EACH | As Req'd |
| CONDUIT ELBOW 90° 3" | EACH | As Req'd |
| BACK PLATE 5" - 3 SECTION | EACH | 8 |
| BACK PLATE 5" - 5 SECTION | EACH | 1 |
| TRAFFIC MANHOLE | EACH | 4 |
| GROUND ROD & CLAMP | EACH | 6 |
| CONDUIT CLAMP | EACH | As Req'd |
| TRAFFIC SIGNAL LAMP RED LED KIT | EACH | 13 |
| TRAFFIC SIGNAL LAMP YELLOW LED KIT | EACH | 13 |
| TRAFFIC SIGNAL LAMP GREEN LED KIT | EACH | 13 |
| TRAFFIC SIGNAL LAMP GREEN ARROW LED KIT | EACH | 1 |
| TRAFFIC SIGNAL LAMP YELLOW ARROW LED KIT | EACH | 1 |
| TRAFFIC SIGNAL LAMP LED (12" COMBINATION) | EACH | 8 |
| CLASS 4 - WOOD POLE | EACH | 0 |
| ENTRANCE HEAD | EACH | 1 |
| CIRCUIT BREAKER & BOX | EACH | 1 |
| GUY WIRE GUARD | EACH | As Req'd |
| GUY WIRE CLAMP | EACH | As Req'd |
| THIMBLE EYE ANCHOR ROD | EACH | As Req'd |
| PEDESTRIAN PUSHBUTTON W/SIGN | EACH | 2 |
| LEAD-IN WIRE No. 4 A.W.G. 1/C (TYPE THNN) | LIN. m | 128.96m |
| STANDARD 1C #8 (GROUND) | LIN. m | 153.91m |
| MULTI-CONDUCTOR CABLE No. 16 A.W.G. 3/C (V3) | LIN. m | 153.9123m |
| MULTI-CONDUCTOR CABLE No. 14 A.W.G. 7/C | LIN. m | 316.46m |
| VIDEO CABLE 75 OHM COAXIAL (BELDON 8281) (CX) | LIN. m | 153.91m |
| CONDUIT 50mm PVC - WESTAR | LIN. m | - |
| CONDUIT 35mm RGC | LIN. m | 5.18m |
| CONDUIT 50mm RGC | LIN. m | 144.37m |
| CONDUIT 75mm RGC | LIN. m | 145.23m |
| CAMERA HOUSING | EACH | 4 |
| VIDEO DETECTION CAMERA & MOUNTING HARDWARE (RISER BRACKET) | EACH | 4 |
| VIDEO DETECTION PROCESSOR UNIT | EACH | 1 |
| VIDEO MONITOR | EACH | 1 |
| TETHER WIRE 1/4" ASTM A475 SIEMENS-MARTIN GRADE MIN. | LIN. m | As Req'd |
| STREET NAME SIGNS W/MOUNTING HARDWARE (D-3) | EACH | 4 |
| LEFT TURN YIELD ON GREEN W/MOUNTING HARDWARE (R10-12) | EACH | 1 |

TYPE 170 CONTROLLER SETTINGS

| Interval | Phase | | | | | | | | Time Clock | Features |
|------------|--------|------|--------|------|--------|------|--------|------|------------|--------------|
| | 1 WBLT | 2 EB | 3 SBLT | 4 NB | 5 EBLT | 6 WB | 7 NBLT | 8 SB | | |
| Max. | 0 | 30 | 60 | 60 | 60 | 60 | 60 | 0 | Year | Veh Recall |
| Max. 2 | 1 | 30 | 60 | 60 | 60 | 60 | 60 | 1 | Month | Ped Recall |
| Walk | 2 | | 8 | 8 | 8 | 8 | 8 | 2 | Day/Month | Red Lock |
| Fl. Dw. | 3 | | 20 | 20 | 20 | 20 | 20 | 3 | Day/Week | Yel Lock |
| Max. Init. | 4 | 6 | 10 | 10 | 10 | 10 | 10 | 4 | Hour | 0 Permit |
| Min. Green | 5 | 5 | 8 | 8 | 8 | 8 | 8 | 5 | Minute | Lead Phases |
| TBR | 6 | 1 | 15 | 15 | 15 | 15 | 15 | 6 | Second | Sequential |
| TTR | 7 | 1 | 25 | 25 | 25 | 25 | 25 | 7 | | Dbl Entry |
| 8 | | | | | | | | 8 | | Start Up Yel |
| Passage | 9 | 1.0 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 9 | | Overlap A |
| Min. Gap | a | 1.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | a | | Overlap B |
| Add Act | b | 1.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | b | | Overlap C |
| Yellow | c | 3.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | c | | Overlap D |
| Red Clr | d | 1.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | d | | Exclusive |
| Red Rev | e | | | | | | | e | | Sim Gap |
| Walk II | f | | | | | | | f | | |

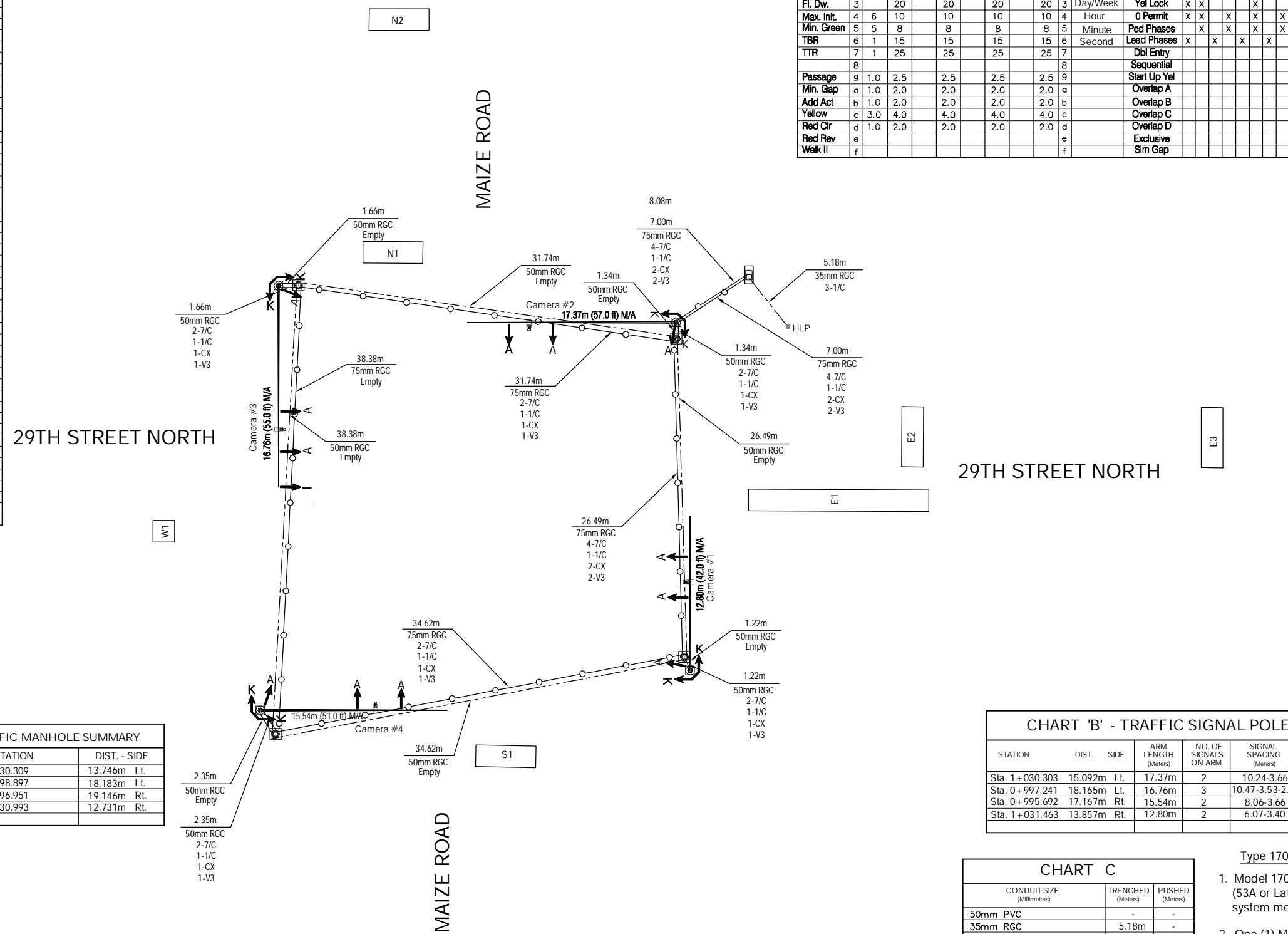
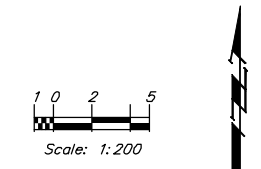


CHART 'A' - SIGNAL INVENTORY

| NO. WAYS | NO. SECTIONS (Per Face) | SIGNAL FACE ARRANGEMENT | MOUNTING TYPE | QTY |
|----------|-------------------------|-------------------------|---------------|-----|
| 1 | 3 | A | TYPE I | 8 |
| 1 | 5 | I | TYPE I | 1 |
| 1 | 3 | A | TYPE III | 4 |
| 1 | 1 | K (SYMB) | TYPE II | 8 |

TRAFFIC MANHOLE SUMMARY

| STATION | DIST. - SIDE |
|----------------|--------------|
| Sta. 1+030.309 | 13.746m Lt. |
| Sta. 0+998.897 | 18.183m Lt. |
| Sta. 0+996.951 | 19.146m Rt. |
| Sta. 1+030.993 | 12.731m Rt. |

CHART 'B' - TRAFFIC SIGNAL POLES

| STATION | DIST. | SIDE | ARM LENGTH (Meters) | NO. OF SIGNALS ON ARM | SIGNAL SPACING (Meters) | TYPE |
|----------------|---------|------|---------------------|-----------------------|-------------------------|------|
| Sta. 1+030.303 | 15.092m | Lt. | 17.37m | 2 | 10.24-3.66 | JU |
| Sta. 0+997.241 | 18.165m | Lt. | 16.76m | 3 | 10.47-3.53-2.94 | JU |
| Sta. 0+995.692 | 17.167m | Rt. | 15.54m | 2 | 8.06-3.66 | JU |
| Sta. 1+031.463 | 13.857m | Rt. | 12.80m | 2 | 6.07-3.40 | JU |

CHART 'C'

| CONDUIT SIZE (Millimeters) | TRENCHED (Meters) | PUSHED (Meters) |
|----------------------------|-------------------|-----------------|
| 50mm PVC | - | - |
| 35mm RGC | 5.18m | - |
| 50mm RGC | 78.01m | 66.36m |
| 75mm RGC | 78.87m | 66.36m |

CHART 'D' - STREET NAME SIGN SUMMARY

| LEGEND | TYPE | QTY | UNITS | SIZE (Millimeters) |
|----------|------|-----|-------|--------------------|
| 29th St | D-3 | 2 | EA | 750 x 1500 |
| Maize Rd | D-3 | 2 | EA | 750 x 1500 |

SPECIAL FINISH FOR TRAFFIC SIGNAL EQUIPMENT:

The traffic signal controller cabinet, brackets, sign blank backs, signal backs and other exposed surfaces shall be shop painted with an aerosol lacquer cellulose ester to match the traffic signal pole color. The contractor shall submit two copies of the proposed coating system to the City for approval to application.

TRAFFIC SIGNAL POLE & PEDESTAL EXTERIOR COATING:

In addition to being galvanized, all exterior surfaces shall be coated with a zinc rich epoxy powder to a minimum dry film thickness of 2.0 mils. The coating shall be electrostatically applied and partially cured in a gas fired convection oven by heating the steel substrate to a minimum of 250 degrees Fahrenheit.

The powder primed surface shall be coated with an intermediate coat of polyester powder to a minimum dry film thickness of 2.0 mils. The coating shall be electrostatically applied and cured by heating the steel substrate in a convection oven to minimum of 350 degrees and a maximum of 400 degrees Fahrenheit.

The intermediate coat shall be top coated with one coat of high-build acrylic polyurethane enamel to a minimum dry film thickness of 2.0 mils. The coating shall be electrostatically applied and cured by heating the substrate in a convection oven to a minimum of 225 degrees Fahrenheit. The final top coating color shall be BLACK.

- ### GENERAL NOTES
- Signal Timing by the City of Wichita. The Contractor shall be responsible for furnishing and installing the controller, cabinet, concrete base, and for all equipment necessary for the complete and satisfactory operation of the traffic signal, whether said equipment is specifically mentioned or not.
 - Lengths given are to the centerline of pole/box and do not include lengths for elbows and risers.
 - Signal heads, pedestrian signals, traffic signs, etc. shall include all brackets, hardware, & other incidentals necessary for installation.
 - See City of Wichita Standard Specifications for additional wiring notes.
 - Quantities are for Information Only.

- Type 170 Controller System to include:**
- Model 170E controller unit complete with W4IKS (53A or Latest Revisions) traffic program on 412B system memory module with a 400 modem
 - One (1) Model 332 Cabinet complete with all accessories & shall include:
 - One (1) Model 210ECL or 210MS Conflict Monitor with software.
 - Four (4) Model 430 Transfer Relays.
 - Two (2) Model 204 Flashing Units.
 - Twelve (12) Model 200 Switch Packs.
 - Three (3) Model 242 DC Isolators.
 - One (1) Surge Arrester.

