GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 90 DAYS FOLLOWING COMPLETION OF THE 10-DAY PERFORMANCE TEST. IN THE EVENT OF UNSATISFACTORY OPERATION THE CONTRACTOR SHALL CORRECT FAULTY INSTALLATIONS, MAKE REPAIRS AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY.

EQUIPMENT, MATERIAL AND LABOR COSTS INCURRED IN CORRECTING AN UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR.

THE GUARANTEE SHALL COVER THE FOLLOWING ITEMS OF THE TRAFFIC CONTROL SYSTEM: CONTROLLER, CABINET, UNINTERRUPTIBLE POWER SUPPLY, VEHICLE DETECTION EQUIPMENT, LED LAMP UNITS, NETWORK AND COMMUNICATION/INTERCONNECT EQUIPMENT.

CUSTOMARY MANUFACTURER'S GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE STATE OR THE MAINTAINING AGENCY FOLLOWING ACCEPTANCE OF THE EQUIPMENT.

THE COST OF GUARANTEEING THE TRAFFIC CONTROL SYSTEM WILL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS MAKING UP THE SYSTEM.

ITEM 614 – LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

USE OF LAW ENFORCEMENT OFFICES (LEOs) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOs SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITIONAL TO THE REQUIREMENTS OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

- DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.
- DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR THE FLOW OF TRAFFIC, OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT).

IN ADDITION TO THE REQUIREMENT OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHOULD BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS AS APPROVED BY THE ENGINEER:

- FOR LANCE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP).

IN GENERAL, LEOs SHOULD BE POSITIONED IN ADVANCE OF AND ON THE SAME SIDE AS THE LANE RESTRICTION, OR AT THE POINT OF ROAD CLOSURE, AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH SIGNALIZED INTERSECTIONS IN WORK ZONES.

LEOs SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.
THE LEOs WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOs WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOs. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOs' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

ENSURE PROVIDED LEOs HAVE BEEN TRAINED APPROPRIATE TO THE JOB DECISIONS THEY ARE REQUIRED TO MAKE WHILE ON THE PROJECT, IN ACCORDANCE WITH C&MS 614.03.

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE WHICH SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOs (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICE (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 40 HOURS

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF AN LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

ITEM 632-RELAMP EXISTING SIGNAL SECTION WITH LED LAMP UNIT, BY TYPE, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF REPLACING THE EXISTING 12-INCH LENS AND LED LAMP IN AN EXISTING SIGNAL HEAD SECTION WITH A NEW 12-IN LED LAMP UNIT.

THE LIGHT EMITTING DIODE (LED) SIGNAL LAMP UNITS SHALL MEET THE REQUIREMENTS OF C&MS 732.04-C. AN LED SIGNAL LAMP UNIT SHALL BE FURNISHED AND INSTALLED FOR THE TYPE OF SIGNAL LENS SPECIFIED IN THE BID ITEM DESCRIPTION.

THE EXISTING REFLECTOR UNIT AND LENS SHALL BE REMOVED AND RETURNED TO THE MAINTAINING AGENCY. THE EXISTING LAMPS SHALL BE DISPOSED BY THE CONTRACTORS.

THE DEPARTMENTS WILL MEASURE "RELAMP EXISTING SIGNAL HEAD WITH LED LAMPS UNITS, BY LENS TYPE, AS PER PLAN" BY THE NUMBER OF COMPLETE UNITS FURNISHED AND INSTALLED AND WILL INCLUDE ALL HARDWARE AND LAMPS AS SPECIFIED.

ITEM 632- SIGNALIZATION MISC.: RELAMP EXISTING PEDESTRIAN HEADS

THIS ITEM OF WORK SHALL CONSIST OF REPLACING THE EXISTING LENS AND LAMP LAMP IN AN EXISTING PEDESTRIAN SIGNAL HEAD SECTION WITH A NEW LED LAMP UNIT.

THE LIGHT EMITTING DIODE (LED) SIGNAL LAMP UNITS SHALL MEET THE REQUIREMENTS OF C&MS 732.04-C. AN LED SIGNAL LAMP UNIT SHALL BE FURNISHED AND INSTALLED. THE EXISTING LAMPS SHALL BE DISPOSED BY THE CONTRACTORS.

THE DEPARTMENTS WILL MEASURE "SIGNALIZATION MISC.: RELAMP EXISTING PEDESTRIAN HEADS" BY THE NUMBER OF COMPLETE UNITS FURNISHED AND INSTALLED AND WILL INCLUDE ALL HARDWARE AND LAMPS AS SPECIFIED.

ITEM 632- SIGNALIZATION MISC.: REPLACE EXISTING CONFLICT MONITOR

THIS ITEM SHALL INCLUDE ALL PARTS, LABOR, LABOR AND MATERIALS REQUIRED TO THE REPLACEMENT OF THE EXISTING MALFUNCTION MONITOR UNIT (MMU) AT EACH INTERSECTION. MMU SHALL MEET ALL ODOT SPECIFICATIONS AND SHALL BE PROGRAMMED BY THE CONTRACTOR OR SUPPLIER PRIOR TO INSTALLATION. MMU SHALL BE CAPABLE OF COMMUNICATING CONFLICT ALERTS TO THE CITY'S CENTRACS SYSTEM AND SHALL BE PROGRAMMED TO DO SO.

ALL MMU'S ARE NEMA TYPE WITH THE EXCEPTION OF SR4 & 275 WB WHICH IS 2070 TYPE. MMU UNITS SHALL BE SUPPLIED ACCORDINGLY.

REMOVED MMU'S SHALL REMAIN IN THE TRAFFIC SIGNAL CABINET.

PAYMENT FOR ITEM 632 – SIGNALIZATION MISC.: REPLACE EXISTING CONFLICT MONITOR SHALL BE MADE FOR EACH MONITOR REPLACED, COMPLETE.

ITEM 632- SIGNALIZATION MISC. REPLACE PEDESTRIAN PUSHBUTTON

THIS WORK INCLUDES FURNISHING AND INSTALLING A NEW PEDESTRIAN PUSHBUTTON. THE REMOVED PUHSBUTTONS SHOULD BE DISPOSED OF BY THE CONTRACTOR. PUSHBUTTON SIGNS ARE NOT INCLUDED IN THIS ITEM.

ITEM 633-CABINET, TYPE TS-2, AS PER PLAN

THE CABINET SHALL BE FURNISHED AND INSTALLED ACCORDING TO CMS 633 AND 733 AND BE LISTED ON THE TRAFFIC AUTHORIZED PRODUCTS LIST (TAP).

THE GROUND-MOUNTED CABINET SHALL BE A NEMA TS-2, TYPE 1, CABINET SIZE 7 WITH 16 LOAD SWITCH BAYS, LED UNDER-SELF LIGHTING, POWER HARNESSES FOR BOTH TS2 TYPE 1 AND TYPE 2 CONTROLLERS AND SHALL HAVE A MINIMUM OF THREE SHELVES.

EACH CABINET SHALL COME EQUIPPED WITH TWO 16-CHANNEL CABINET DETECTOR RACKS (CDR) INCLUDING BUS INTERFACE UNITS (BIU). THE LOOP DETECTOR TERMINATION PANEL FOR THE SECOND DETECTOR RACK SHALL BE OMITTED.

THE CABINET SHALL BE FURNISHED WITH AN EDI MMU AS ALLOWED ON THE TAP/APPROVED PRODUCTS LIST.

PAYMENT FOR ITEM 633 CABINET, TYPE TS-2, AS PER PLAN WILL BE AT THE CONTRACT BID PRICE PER EACH COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS TESTED AND ACCEPTED.

ITEM 632 REMOVAL OF TRAFFIC SIGNAL, AS PER PLAN

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, MESSENGER WIRE, STRAIN POLES, CABINET, CONTROLLER, ETC., SHALL BE REMOVED IN ACCORDANCE WITH C&MS 632.26 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL BE REUSED AS PART OF A NEW INSTALLATION ON THE PROJECT OR STORED ON THE PROJECT FOR SALVAGE BY THE CITY OF SPRINGDALE IN ACCORDANCE WITH THE LISTING GIVEN HEREIN.

ALL VEHICULAR AND PEDESTRIAN SIGNAL HEADS, CCTV DOME CAMERA, ETHERNET RADIO, CABINET, RADAR DETECTION UNITS AND CORRESPONDING WIRING AND HARDWARE SHALL BE SAVED AND STORED BY THE CONTRACTOR.

THE REMOVED ITEMS SHALL BE DELIVERED TO THE CITY OF SPRINGDALE WHOSE ADDRESS IS LISTED BELOW:
CITY OF SPRINGDALE, ATTN: 513-346-5520
335 NORTHLAND BOULEVARD
SPRINGDALE, OHIO 45246

ITEM 632 REMOVAL OF TRAFFIC SIGNAL, AS PER PLAN (CONT.)

IN THE EVENT THE ITEMS STORED ON THE PROJECT FOR SALVAGE BY THE LOCAL AGENCY ARE NOT REMOVED, THE CONTRACTOR SHALL, WHEN DIRECTED BY THE ENGINEER IN WRITING, REMOVE AND DISPOSE OF THE ITEMS AT NO ADDITIONAL COST TO THE PROJECT.

ITEM 632- SIGNAL SUPPORT FOUNDATION, AS PER PLAN

PRIOR TO ORDERING THE SIGNAL SUPPORTS, THE CONTRACTOR SHALL CONTACT OUPS TO HAVE ALL THE UTILITIES LOCATED IN THE FIELD THEN MEET WITH THE PROJECT ENGINEER TO LOCATE THE PROPOSED SUPPORT LOCATIONS TO INSURE THERE ARE NO CONFLICTS WITH UTILITIES. IF THERE ARE ISSUES, THE PROJECT ENGINEER SHALL PROVIDE GUIDANCE AS TO THE RELOCATION OF THE SUPPORT POLES.

FOUNDATION FOR POLE SP-1 SHALL FOLLOW DESIGN PROVIDED IN PLANS. PAYMENT WILL BE AT THE CONTRACT UNIT PRICE AND WILL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS NECESSARY FOR EACH SUPPORT FURNISHED, IN PLACE, COMPLETE AND ACCEPTED.

ITEM 633 – UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN

THIS ITEM SHALL CONFORM TO ODOT CMS 633 AND 733, EXCEPT THAT A GENERATOR CONNECTION AND APPROPRIATE POWER INVERTER SHALL BE PROVIDED TO ALLOW THE SIGNAL ELECTRICIANS TO OPERATE THE TRAFFIC SIGNAL AND RECHARGE THE BATTERIES DURING EXTENDED POWER OUTAGES (3 PRONG CONNECTION). THE UPS SHALL BE PROGRAMMED TO PROVIDE AN ALERT THROUGH A RELAY WHEN BATTERY POWER BEGINS AND AN ADDITIONAL ALERT WHEN THE BATTERY CHARGE IS REDUCED TO 20%. THESE ALERT RELAYS SHALL BE WIRED TO THE ALARM INPUTS ON THE SIGNAL CONTROLLER. THE CONTRACTOR SHALL PROVIDE ALL PROGRAMMING, MATERIALS, LABOR AND INCIDENTALS TO COMPLETE THIS ITEM.

ITEM 804 – DROP CABLE, 12 FIBER, AS PER PLAN

THIS ITEM INCLUDES ALL SPECIFICATION SET FORTH IN THE ODOT CMS ITEM 804 – IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE ANY NEW DROP CABLES INSTALLED ARE SPLICED SUCH THAT THE NEW FIBER CONNECTIONS MATCH THE PREVIOUS SPLICES IN EACH ENCLOSURE. ALL NEW SPLICES ARE TO BE CONSIDERED INCIDENTAL TO THE DROP CABLE ITEM. THESE QUANTITIES PERTAIN TO THE NEW TRAFFIC SIGNAL AT SR747 & KEMPER

ITEM 804 – FIBER TERMINATION PANEL, 12 FIBER, AS PER PLAN

THIS ITEM INCLUDES ALL SPECIFICATION SET FORTH IN THE ODOT CMS ITEM 804 – IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE NEW DROP CABLE TERMINATION MATCH EXISTING TERMINATIONS. THESE QUANTITIES PERTAIN TO THE NEW TRAFFIC SIGNAL AT SR747 & KEMPER.

ITEM 804 – SPLICE ENCLOSURE, AS PER PLAN

THIS ITEM INCLUDES ALL SPECIFICATION SET FORTH IN THE ODOT CMS ITEM 804 – SPLICE ENCLOSURE. THESE QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR CONNECTION OF THE NEW TRAFFIC SIGNAL CABINET AT SR747 & KEMPER TO THE CITY'S EXISTING FIBER NETWORK.

SPLICE ENCLOSURE SHOULD BE INSTALLED ON SP1. THIS ITEM INCLUDES RELOCATING THE SLACK FROM THE EXISTING SIGNAL SUPPORT ON THE NW CORNER TO SP 1.

ITEM 804 – FIBER OPTIC CABLE TESTING, AS PER PLAN

PRIOR TO RELOCATION OF THE FIBER OPTIC CABLE, THE CONTRACTOR SHALL TEST THE FIBER OPTIC CABLE IN ORDER TO ESTABLISH AN OPERATIONAL BASE LINE. OLD DROPS HAVE BEEN DISCONNECTED AND THE NEW DROPS HAVE BEEN SPLICED, THE CABLE SHALL BE TESTED TO CONFIRM THAT THE CABLE PLANT WAS NOT DAMAGED DURING THE TRANSFER. RECORDS OF THE OPERATIONAL TESTS SHALL BE PROVIDED TO THE ENGINEER, CITY OF SPRINGDALE FOR THEIR RECORDS. THIS ITEM PERTAINS ONLY TO THE NEW SIGNAL AT SR747 & KEMPER.

ITEM 809 – ATC V6.24 CONTROLLER, AS PER PLAN

THE CONTROLLER UNIT SHALL BE FURNISHED AND INSTALLED PER SS 809 AND BE LISTED ON THE TRAFFIC AUTHORIZED PRODUCTS (TAP) LIST.

THE CONTROLLER SHALL BE AN ECONOLITE COBALT AND COMPATIBLE WITH THE CABINET TYPE BEING INSTALLED.

ITEM 809 – STOP LINE RADAR DETECTION, AS PER PLAN

THIS ITEM SHALL INCLUDE ALL SPECIFICATIONS OF SUPPLEMENTAL SPEC 809 – STOP LINE RADAR DETECTION. THE CONTRACTOR SHALL INSTALL STOP LINE DETECTION FOR ALL SIDE STREET APPROACHES AND MAIN STREET LEFT TURN PHASES WHERE APPLICABLE. THIS ITEM INCLUDES ALL LABOR, MATERIALS AND INCIDENTALS FOR THE INSTALLATION OF THE STOP LINE RADAR UNITS TO BE FULLY OPERATIONAL.

THIS ITEM INCLUDES DISCONNECTION AND REMOVAL OF EXISTING DETECTION EQUIPMENT FOR THESE MOVEMENTS FROM OPERATION.

THIS ITEM SHALL BE PERFORMED AT THE FOLLOWING INTERSECTIONS:
1)SR747 & PROGRESS PLACE
2)SR747 & NORTH MALL
3)SR 747 & SOUTH MALL
4) KEMPER & TRI COUNTY PKWY.

ITS SERVICE DEVICE DOWNTIME

ALL NEW FIBER DROPS SHALL BE TERMINATED AND READY FOR SPLICING PRIOR TO THE EXISTING DROP BEING SEVERED AS OUTLINED IN THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL SPECIFICATION 804 ITS DEVICES AND COMPONENTS. THE CONTRACTOR SHALL PHASE AND COORDINATE CONSTRUCTION ACTIVITIES TO INSURE RESTORATION OF COMMUNICATION WITH THE LOCAL INTERSECTION CONTROLLERS BY THE CITY WITHIN 10 BUSINESS DAYS OF BEING NOTIFIED THAT THE FIBER OPTIC TRUNK LINE HAS BEEN TRANSFERRED.

CALCULATED SGB
CHECKED ERW

GENERAL NOTES

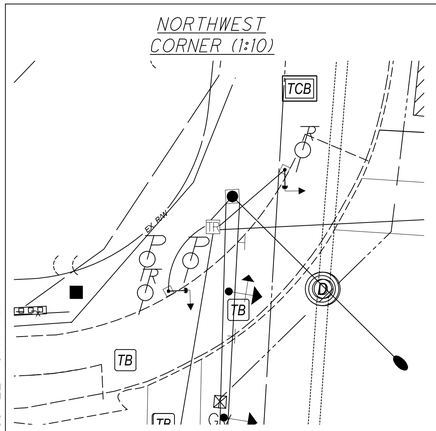
HAM SPRINGDALE
SIGNAL UPGRADES

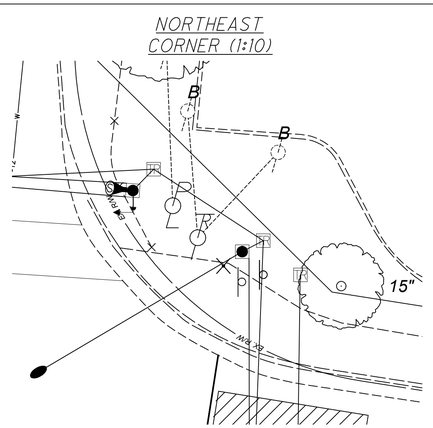
SHEET NUM.												PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
6	9											01/MPO/OT	02/MPO/OT/SPR						
																		TRAFFIC SIGNALS	
378												378		202	30000	378	SF	WALK REMOVED	
2.9												2.9		253	01001	2.9	SY	PAVEMENT REPAIR, AS PER PLAN	3
1.5												1.5		608	10000	1.5	SF	4" CONCRETE WALK	
459												459		608	52000	459	SF	CURB RAMP	
4												4		625	18510	4	EACH	BRACKET ARM, 30'	
889												889		625	23000	889	FT	NO. 4 AWG 600 VOLT DISTRIBUTION CABLE	
564												564		625	23400	564	FT	NO. 10 AWG POLE AND BRACKET CABLE	
150												150		625	25402	150	FT	CONDUIT, 2", 725.05	
95												95		625	25602	95	FT	CONDUIT, 4", 725.05	
840												840		625	25906	840	FT	CONDUIT, JACKED OR DRILLED, 725.051 4"	
4												4		625	26252	4	EACH	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED)120 V, TYPE III DISTRIBUTION	
155												155		625	29010	155	FT	TRENCH, 30" DEEP	
8												8		625	30706	8	EACH	PULL BOX, 725.08, 24"	
3												3		625	31600	3	EACH	PULL BOX, MISC.:ADJUSTED TO GRADE	3
10												10		625	32000	10	EACH	GROUND ROD	
12												12		630	79100	12	EACH	SIGN HANGER ASSEMBLY, MAST ARM	
108												108		630	80100	108	SF	SIGN, FLAT SHEET	
	8											8		632	03200	8	EACH	VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED, 3 SECTION, 12" LENS, 1-WAY	
16												16		632	05006	16	EACH	VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE BLACK	
3												3		632	05086	3	EACH	VEHICULAR SIGNAL HEAD, (LED), 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE BLACK	
	234											210	24	632	10100	234	EACH	RELAMP EXISTING SIGNAL SECTION WITH LED LAMP UNIT CIRCULAR RED	
	234											210	24	632	10100	234	EACH	RELAMP EXISTING SIGNAL SECTION WITH LED LAMP UNIT CIRCULAR YELLOW	
	234											210	24	632	10100	234	EACH	RELAMP EXISTING SIGNAL SECTION WITH LED LAMP UNIT CIRCULAR GREEN	
	55											55		632	10100	55	EACH	RELAMP EXISTING SIGNAL SECTION WITH LED LAMP UNIT CIRCULAR RED ARROW	
	102											101	1	632	10100	102	EACH	RELAMP EXISTING SIGNAL SECTION WITH LED LAMP UNIT CIRCULAR YELLOW ARROW	
	106											105	1	632	10100	106	EACH	RELAMP EXISTING SIGNAL SECTION WITH LED LAMP UNIT CIRCULAR GREEN ARROW	
6												6		632	20730	6	EACH	PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN	
19												19		632	25000	19	EACH	COVERING OF VEHICULAR SIGNAL HEAD	
6												6		632	25010	6	EACH	COVERING OF PEDESTRIAN SIGNAL HEAD	
6												6		632	26000	6	EACH	PEDESTRIAN PUSHBUTTON	
1,700												1,700		632	40500	1,700	FT	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	
6,000												6,000		632	40700	6,000	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	
4												4		632	64010	4	EACH	SIGNAL SUPPORT FOUNDATION	
1												1		632	64011	1	EACH	SIGNAL SUPPORT FOUNDATION, AS PER PLAN	3
5												5		632	64020	5	EACH	PEDESTAL FOUNDATION	
1,700												1,700		632	65300	1,700	FT	LOOP DETECTOR LEAD-IN CABLE, 2 CONDUCTOR, NO. 14 AWG	
80												80		632	68300	80	FT	POWER CABLE, 3 CONDUCTOR, NO. 6 AWG	
1												1		632	70000	1	EACH	POWER SERVICE	
1												1		632	72130	1	EACH	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 12	
4												4		632	72150	4	EACH	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 14	
5												5		632	89900	5	EACH	PEDESTAL, 8', TRANSFORMER BASE	
1												1		632	90101	1	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN	3
	98											88	10	632	90400	98	EACH	SIGNALIZATION, MISC.:RELAMP EXISTING PEDESTRIAN HEAD	3
	28											25	3	632	90400	28	EACH	SIGNALIZATION, MISC.:REPLACE EXISTING CONFLICT MONITOR	3
	68											60	8	632	90400	68	EACH	SIGNALIZATION, MISC.:REPLACE EXISTING PUSHBUTTON	3
1												1		633	65510	1	EACH	CABINET, TYPE TS-2	
1												1		633	67100	1	EACH	CABINET FOUNDATION	
1												1		633	67200	1	EACH	CONTROLLER WORK PAD	
1												1		633	75001	1	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN	3

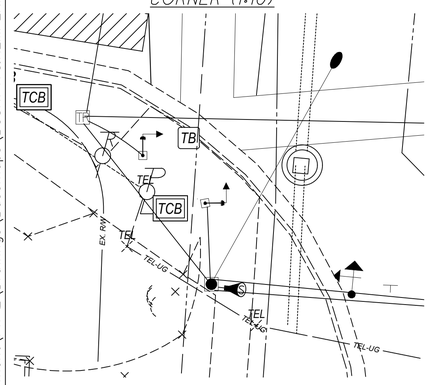
CALCULATED SGB
CHECKED ERW

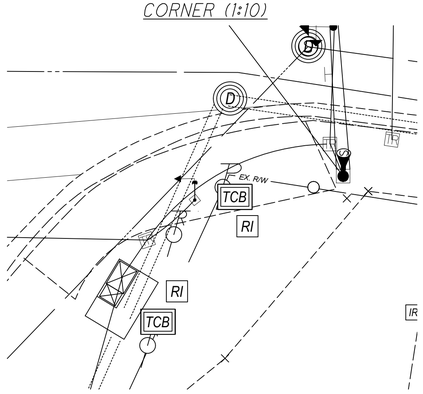
GENERAL SUMMARY

HAM SPRINGDALE SIGNAL UPGRADES









RADAR DETECTION CHART (TEM FORM 496-4)

DETECTION ZONE	MOVEMENT	WIDTH	DELAY IN CONTROLLER (SEC)	EXTENSION IN CONTROLLER (SEC)	DETECTOR NUMBER	PURPOSE	DETECTION ZONE LENGTH (FT)
RDZ5A	SBL	5'	-	3.0	RD2	STOP-LINE	40
RDZ5B	SBL	5'	-	3.0	RD2	STOP-LINE	40
RDZ2A	SBT	5'	-	5.0	RD2	STOP-LINE	40
RDZ2B	SBT	5'	-	5.0	RD2	STOP-LINE	40
RDZ2C	SBR	5'	5.0	5.0	RD2	STOP-LINE	40
RDZ7A	WBL	5'	-	3.0	RD4	STOP-LINE	40
RDZ7B	WBL	5'	-	3.0	RD4	STOP-LINE	40
RDZ4A	WBT	5'	-	3.0	RD4	STOP-LINE	40
RDZ4B	WBT	5'	-	3.0	RD4	STOP-LINE	40
RDZ4C	WBTR	5'	-	3.0	RD4	STOP-LINE	40
RDZ4D	WBR	5'	5.0	-	RD4	STOP-LINE	40
RDZ1A	NBL	5'	-	3.0	RD6	STOP-LINE	40
RDZ6A	NBT	5'	-	5.0	RD6	STOP-LINE	40
RDZ6B	NBT	5'	-	5.0	RD6	STOP-LINE	40
RDZ6C	NBTR	5'	5.0	5.0	RD6	STOP-LINE	40
RDZ3A	EBL	5'	-	5.0	RD8	STOP-LINE	40
RDZ3B	EBL	5'	-	5.0	RD8	STOP-LINE	40
RDZ8A	EBT	5'	-	3.0	RD8	STOP-LINE	40
RDZ8B	EBT	5'	-	3.0	RD8	STOP-LINE	40
RDZ8C	EBT	5'	-	3.0	RD8	STOP-LINE	40
RDZ8D	EBR	5'	5.0	5.0	RD8	STOP-LINE	40

NOTE: DILEMMA ZONE SPEED THRESHOLD >30 MPH

PROPOSED SIGNS

R10-10L 30"X36"
LEFT TURN SIGNAL
SN2,SN3,SN4 SN5,SN6,SN7 SN8

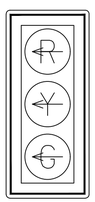
R10-11c 30"X42"
NO TURN ON RED EXCEPT FROM RIGHT LANE
SN1

R10-3E-9
START CROSSING WATCH for Vehicles
DON'T START Finish Crossing If Started
TIME REMAINING To Finish Crossing
DON'T CROSS
PUSH BUTTON TO CROSS
PB2A, PB2B, PB4A, PB4B, PB8A, PB8B

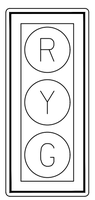
D3-1 18"X102"
PRINCETON PK
SN10, SN12

D3-1 18"X84"
KEMPER RD
SN9, SN11

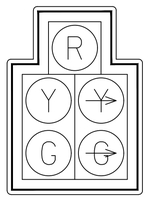
PROPOSED SIGNALS 12" LED WITH BACKPLATES



1A,3A, 3B,5A, 5B,7A 7B



2B,2C 4B,4C,6B,6A 6C,8B,8C

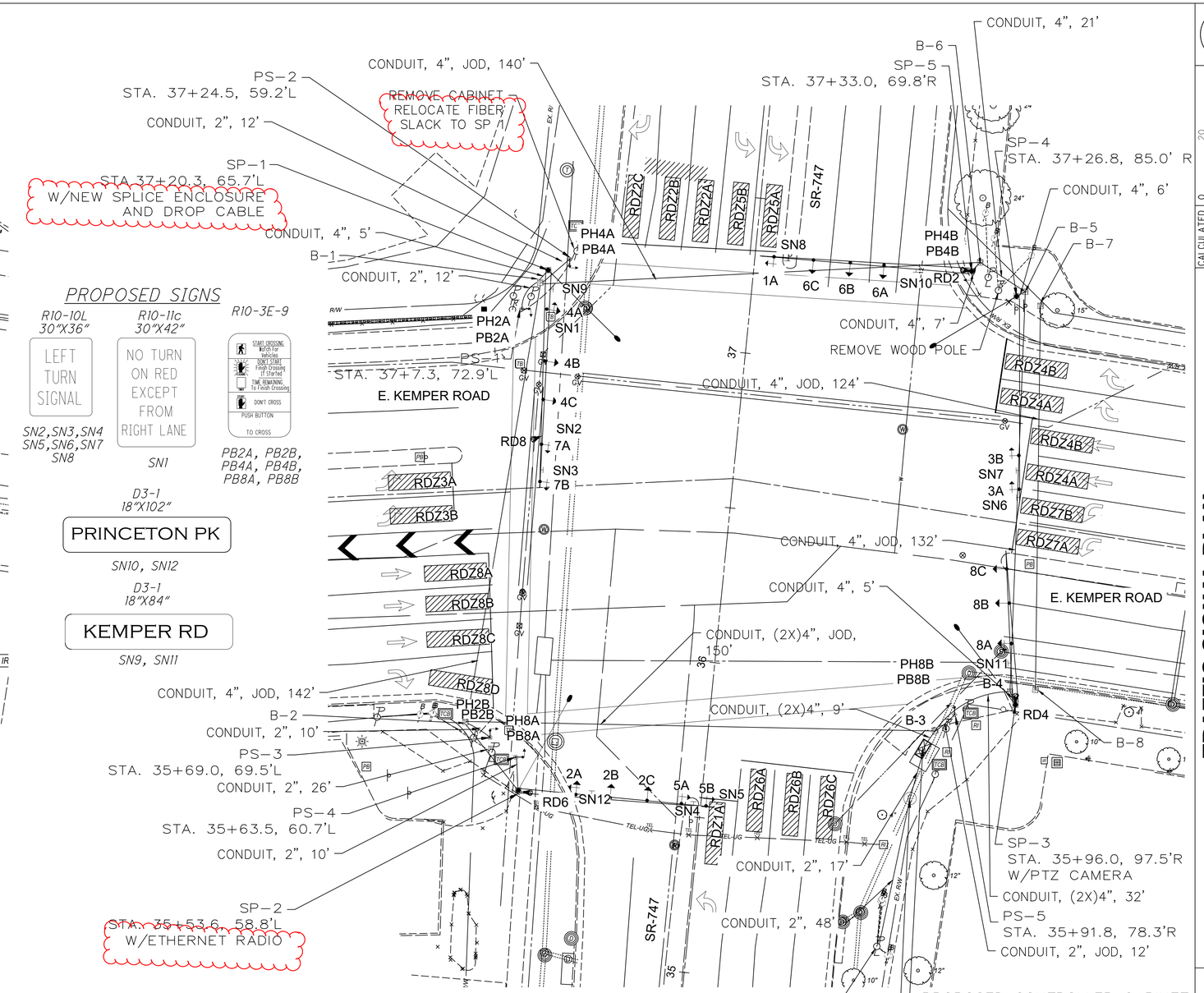


2A,4A,8A

PH2A, PH2B, PH4A, PH4B, PH8A, PH8B

LEGEND

- TRAFFIC SIGNAL, 3 UNIT HEAD, 12"
- TRAFFIC SIGNAL, 3 UNIT HEAD, TURN ARROWS 12"
- TRAFFIC SIGNAL, 5 UNIT HEAD, 12"
- SIGNAL SUPPORT POLE
- CONTROLLER CABINET AND WORK PAD (TS-2)
- TRAFFIC PULL BOX
- STOP BAR RADAR DETECTION UNIT



PULLBOX TABLE

ITEM #	STATION	SIDE	OFFSET	SIZE (NOMINAL)
B-1	37+16.2	L	68.0	24"
B-2	35+72.9.	L	78.1	24"
B-3	35+85.1	R	72.5	24"
B-4	36+00.0	R	95.4	24"
B-5	37+29.3	R	87.6	24"
B-6	37+36.4	R	72.3	24"
B-7	37+24.4	R	92.9	24"
B-8	36+1.5	R	103.5	24"

N

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGB
CHECKED ALH

TRAFFIC SIGNAL PLAN
SR 747 AND KEMPER RD.
HAM SPRINGDALE SIGNAL UPGRADES