

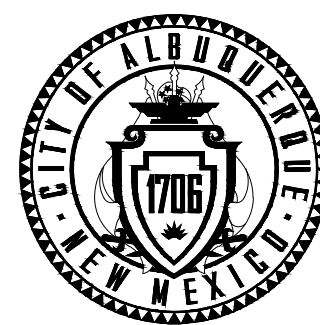
1. ALL WORK ON THESE PLANS TO BE PERFORMED UNDER THIS CONTRACT SHALL CONFORM TO THE CURRENT MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), NATIONAL ELECTRIC CODE, THE STANDARDS OF THE NATIONAL BOARD OF FIRE UNDERWRITERS FOR ELECTRICAL WIRING AND APPARATUS, AND THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (UPDATED IN JULY 2003).
2. LOCATIONS OF CONDUITS, FOUNDATIONS, CONTROL CABINETS, POLES, PULL BOXES, MANHOLES, AND SPLICE CABINETS SHOWN ON THE PLANS ARE SCHEMATIC AND MAY BE ADJUSTED IN THE FIELD TO PROVIDE MAXIMUM CLEAR SPACE AVAILABLE FOR PEDESTRIANS AND WHEELCHAIRS TO COMPLY WITH THE AMERICANS WITH DISABILITIES ACT AND/OR TO CLEAR EXISTING UTILITIES.
3. THE RECOMMENDED LOCATION OF SIGNAL POLES ON MEDIANS IS 15 FEET BACK FROM THE MEDIAN NOSE. ANY REVISIONS TO LOCATIONS OF POLES AND CABINETS FROM LOCATIONS SHOWN ON PLANS SHALL BE APPROVED BY CITY TRAFFIC ENGINEERING OPERATIONS.
4. CONSTRUCTION OF NEW FOUNDATIONS SHALL BE COORDINATED WITH OTHER CONSTRUCTION ACTIVITIES TO ASSURE THAT THE TOPS OF ALL FOUNDATIONS ARE FLUSH WITH ADJACENT SIDEWALK, THAT ALL STRAIGHT SIDES ARE PARALLEL TO SIDEWALK JOINTS AND BACK OF CURBS, AND THAT FOUNDATIONS WILL BE OUTSIDE OF RAMP SLOPES.
5. THE CONTRACTOR IS WARNED THAT EXISTING CONDUITS MAY CONTAIN AC POWER AND CAUTION SHALL BE EXERCISED IN INTERCEPTING OR INSTALLING CABLE IN EXISTING CONDUIT.
6. THE CONTRACTOR SHALL BORE, DRILL, OR PUSH CONDUITS WHEN CROSSING EXISTING PAVEMENTS AND ANY DRIVEWAYS FOR SIDE STREET CROSSINGS. BEFORE CONDUIT CAN BE BORED, DRILLED OR PUSHED, THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES. THE CONTRACTOR SHALL LOCATE AND EXPOSE ALL LINES THAT CROSS ANY PROPOSED BORES. THESE EXCAVATIONS SHALL REMAIN UNTIL AFTER THE BORE IS COMPLETE. THE CONTRACTOR SHALL REMOVE AND REPLACE IN KIND ANY SIDEWALK OR PAVEMENT REQUIRED TO EXPOSE SUCH LINES. THE CONTRACTOR MAY CUT, TRENCH, AND REPLACE EXISTING PAVEMENT ONLY WHEN APPROVED BY THE PROJECT MANAGER.
7. ALL LOOP LEAD-IN CABLES SHALL BE TAGGED AT THE CONTROL CABINET TO IDENTIFY EACH CABLE BY PHASE AND LOOP NUMBER. ALL VIDEO DETECTION CABLES SHALL BE TAGGED AT THE CONTROL CABINET TO IDENTIFY EACH CABLE BY CAMERA NUMBER AND LOCATION. ALL EMERGENCY VEHICLE PREEMPTION DETECTOR CABLE SHALL BE TAGGED AT THE CONTROL CABINET TO IDENTIFY EACH CABLE BY DIRECTION AND LOCATION.
8. ALL PULL BOXES SHALL BE REINFORCED POLYMER MORTAR HEAVY DUTY TYPE WITH REINFORCED POLYMER MORTAR HEAVY DUTY COVERS. CONCRETE COVERS, METAL COVERS, AND CONCRETE PULL BOXES WILL NOT BE ACCEPTABLE.
9. WATERTIGHT SPLICING OF TRAFFIC SIGNALS MULTI-CONDUCTOR CABLE WILL BE PERMITTED IN LARGE PULL BOXES INCLUDING LARGE MEDIAN PULL BOXES. SPLICING OF VIDEO DETECTION COAXIAL CABLE AND PREEMPTION DETECTOR CABLE WILL NOT BE PERMITTED FROM THE FIELD UNIT TO THE CONTROLLER CABINET.
10. THE CONTRACTOR SHALL NOTIFY THE CITY OF ALBUQUERQUE '311' THREE WORKING DAYS IN ADVANCE OF ANY ANTICIPATED WORK ON SIGNALS, LIGHTING, AND POWER SERVICES. TRAFFIC ENGINEERING OPERATIONS PERSONNEL WILL ASSIST THE CONTRACTOR IN FIELD LOCATION OF EQUIPMENT, COLOR CODING OF WIRING, AND MUST BE PRESENT WHEN SIGNALS AND LIGHTING ARE SHUT-OFF OR TURNED ON. THE CONTRACTOR SHALL ALSO NOTIFY THE CITY OF ALBUQUERQUE '311' EACH TIME A TRAFFIC SIGNAL CONTROL DOOR IS OPENED.
11. THE CONTRACTOR SHALL NOTIFY PNM 30 DAYS IN ADVANCE OF ANTICIPATED POWER SERVICE CONNECTIONS. THE CONTRACTOR SHALL COORDINATE WITH PNM TO ESTABLISH THE ELECTRICAL SERVICE IN THE CITY'S NAME. THE CONTRACTOR SHALL OBTAIN ALL PERMITS ASSOCIATED WITH PROVIDING ELECTRICAL SERVICE. THESE COSTS AND WORK WILL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.
12. THE CONTRACTOR SHALL REMOVE ALL CONFLICTING SIGNS AS NOTED IN PLANS TO BE DELIVERED TO THE CITY OF ALBUQUERQUE TRAFFIC ENGINEERING YARD ON PINO ROAD NE WHEN TRAFFIC SIGNALS ARE PUT INTO OPERATION.
13. ALL CONDUIT GROUNDS SHALL BE INSULATED GREEN #6 AWG CONDUCTORS IN LIEU OF THE SPECIFIED BARE COPPER.
14. LIVE UNUSED CONDUCTORS WILL NOT BE ALLOWED AT MASTARM POLES AND PEDESTAL POLES. ALL UNUSED CONDUCTORS SHALL BE CAPPED AND WATER PROOFED WITH CRIMPED ON NYLON WIRE CAPS.
15. ALL COPPER SPLICES SHALL USE SILICONE GEL FILLED WIRE NUTS.
16. IF TRENCH WIDTHS LESS THAN 12" ARE PROPOSED BY THE CONTRACTOR, APPROVED COMPACTION METHODS SHALL BE USED DURING BACKFILL TO PREVENT LATENT TRENCH FAILURES. THE CONTRACTOR SHALL USE GROUT OR LEAN FILL AS APPROVED BY THE PROJECT MANAGER IN LIEU OF EARTH BACKFILL.
17. THE CITY OF ALBUQUERQUE TRAFFIC ENGINEERING OPERATIONS PERSONNEL WILL PROVIDE ALL TRAFFIC SIGNAL TIMING PLANS AND WILL PROGRAM ALL TRAFFIC SIGNAL CONTROLLERS.
18. EXISTING CONDUITS TO BE REMOVED OR ABANDONED SHALL HAVE ALL WIRING REMOVED. IF EXISTING CONDUIT IS NOT UTILIZED, TRACER WIRE SHOULD BE INSTALLED.

19. EXISTING CONDUITS SHALL BE REPAIRED, ADJUSTED, OR REPLACED AS DIRECTED BY THE PROJECT MANAGER WHERE ELECTRICAL PULL BOXES OR TRAFFIC MANHOLES ARE INSTALLED OR REPLACED.
20. EXISTING SIDEWALKS IMPACTED OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR.
21. THE CONTRACTOR SHALL ARRANGE TO HAVE OFF-DUTY POLICE OFFICERS DIRECT TRAFFIC WHEN SIGNALS ARE TURNED OFF.
22. ALL DATA SHOWN HEREIN CONCERNING EXISTING UTILITIES HAS BEEN OBTAINED FROM "AS-BUILT" DRAWINGS AND FROM FIELD OBSERVATIONS WHICH MAY OR MAY NOT BE ACCURATE. THE CONTRACTOR WILL BE RESPONSIBLE FOR EXPLORATORY TRENCHING, IF NECESSARY, TO MORE SPECIFICALLY LOCATE UTILITY LINES. COST OF LOCATING UTILITY LINES INCLUDING EXPLORATORY TRENCHING WILL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.
23. ANY TRAFFIC SIGNAL EQUIPMENT REMOVED AND NOT RELOCATED SHALL BE SALVAGED BY THE CONTRACTOR AND DELIVERED TO THE CITY OF ALBUQUERQUE TRAFFIC ENGINEERING YARD ON PINO ROAD NE WITH PROPER DOCUMENTATION (LETTER OF TRANSMITTAL).
24. THE CONTRACTOR SHALL TAKE DIGITAL PHOTOS OF EXISTING TRAFFIC SIGNAL EQUIPMENT PRIOR TO ANY REMOVALS OF SIGNAL EQUIPMENT AND ALL SIGNAL EQUIPMENT AFTER CONSTRUCTION. THE PICTURES SHALL BE PROVIDED TO THE CITY OF ALBUQUERQUE TRAFFIC ENGINEERING OPERATIONS IN .JPG FORMAT AND PLACED ON A CD-ROM. THE CD-ROM SHALL BECOME THE PROPERTY OF THE CITY AND MAY BE USED TO RESOLVE ANY QUESTIONS RELATED TO THE ORIGINAL CONDITION AND QUALITY OF EXISTING EQUIPMENT. ALL REMOVED EXISTING TRAFFIC SIGNAL EQUIPMENTS INCLUDING BUT NOT LIMITED TO POLES, SIGNAL HEADS, CONTROLLER CABINETS, CONFLICT MONITORS, AND DETECTORS SHALL BE DELIVERED TO THE CITY OF ALBUQUERQUE TRAFFIC ENGINEERING YARD ON PINO ROAD NE WITH PROPER DOCUMENTATION (LETTER OF TRANSMITTAL).
25. ALL PEDESTRIAN RAMPS SHALL BE AMERICANS WITH DISABILITY ACT (ADA) COMPLIANT INCLUDING APPROPRIATE RAMP SLOPES AND INCORPORATE TRUNCATED DOMES.
26. ALL PEDESTRIAN PUSH BUTTON LOCATIONS SHALL BE ADA COMPLIANT AND BE INSTALLED AT A HEIGHT OF 36 INCHES FROM FINISHED GRADE. PEDESTRIAN PUSHBUTTONS SHALL BE INSTALLED NO MORE THAN 18 INCHES HORIZONTALLY FROM THE SIDEWALK OR THE PEDESTRIAN REFUGE AREA OF A MEDIAN.
27. PEDESTRIAN PUSH BUTTON SIGNS SHALL BE INSTALLED WITH THE ARROW POINTING IN THE DIRECTION OF THE PEDESTRIAN MOVEMENT.
28. NEW TRAFFIC SIGNAL POLES SHALL BE CITY OF ALBUQUERQUE STANDARD TYPE II OR TYPE III GALVANIZED STEEL. ALUMINUM POLES MAY BE USED ONLY WHEN PRE-APPROVED BY THE CITY OF ALBUQUERQUE TRAFFIC ENGINEERING OPERATIONS. MIXING OF STEEL AND ALUMINUM POLES AND MASTARMS AT AN INTERSECTION IS HIGHLY DISCOURAGED AND MUST BE APPROVED BY THE CITY OF ALBUQUERQUE TRAFFIC ENGINEERING OPERATIONS.
29. CONTRACTOR SHALL FURNISH AND INSTALL DOUBLE-FACED INTERNALLY ILLUMINATED STREET NAME SIGNS PER CITY OF ALBUQUERQUE STREET NAME SIGNS STANDARDS.
30. LOOP DETECTORS SHALL BE CENTERED ON LANE AS INDICATED ON THE PLANS. LOOPS SHALL BE 6'x40' QUADRUPOLE PRESENCE DETECTORS (2 TURNS) FOR LEFT TURN LANES AND SHALL BE 6'x40' BIPOLE PRESENCE DETECTORS (2 TURNS) FOR THROUGH LANES.

NEW	EXISTING	ITEM
		PULL BOX (LARGE)
		PULL BOX (STANDARD)
		SERVICE RISER (SIGNAL)
		METER PEDESTAL
		CONTROLLER CABINET
		CONDUIT RUN (SIGNALS)
		CONDUIT RUN (INTERCONNECT)
		CONDUIT RUN NUMBER (SIGNAL)
		CONDUIT RUN NUMBER (POWER SERVICE)
		TYPE II STANDARD POLE WITH MASTARM, TRAFFIC SIGNAL, BACKPLATE, PREEMPTION DETECTOR AND ISNS
		TYPE III STANDARD POLE WITH MASTARM, TRAFFIC SIGNAL, BACKPLATE, PREEMPTION DETECTOR, LUMINAIRE, VIDEO CAMERA, AND ISNS
		PEDESTRIAN COUNTDOWN SIGNALS ON PEDESTAL POLE (PUSHBUTTONS MOUNTED ON SIDE OF POLE WHERE INDICATED)
		TRAFFIC SIGNAL PEDESTAL POLE (WITH PROTECTED TURN SIGNAL)
		TRAFFIC SIGNAL PEDESTAL POLE (WITH PROTECTED+PERMITTED TURN SIGNAL)
		LOOP DETECTOR
		SPLICE VAULT
		VIDEO CAMERA
		EMERGENCY VEHICLE PREEMPTION DETECTOR
		ISNS (INTERNALLY ILLUMINATED STREET NAME SIGN)



**CALL NM ONE-CALL
SYSTEM SEVEN (7) DAYS
PRIOR TO ANY EXCAVATION**



CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

TRAFFIC SIGNAL GENERAL NOTES & LEGEND

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. K-13
		CITY PROJECT NO. 123456
		SHEET NO. 9-1

TRAFFIC SIGNAL EQUIPMENT REQUIREMENTS

1. THE CONTRACTOR SHALL FURNISH AND INSTALL THE FOLLOWING:
 - A. ALL TRAFFIC SIGNAL CONTROLLERS SUPPLIED FOR THIS PROJECT SHALL BE ECONOLITE ASC/3 OR APPROVED EQUAL BY THE CITY OF ALBUQUERQUE.
 - B. ALL TRAFFIC SIGNAL CONTROLLER CABINETS SUPPLIED FOR THIS PROJECT SHALL BE TYPE "P" CABINETS.
2. SERVICE PEDESTAL SUPPLIED FOR THIS PROJECT SHALL BE TESCO TYPE B AS PER CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS.
3. EMERGENCY VEHICLE PREEMPTION DETECTOR SYSTEM EQUIPMENT SHALL BE 3M "OPTICOM" MODEL 762 (OR MOST CURRENT ACCEPTABLE MODEL) PHASE SELECTORS MOUNTED ON 3M "OPTICOM" MODEL 760 RACKS, OR APPROVED EQUAL. ALL RACKS SHALL BE CAPABLE OF PROVIDING FOUR CHANNELS OF DETECTION. PHASE SELECTOR MODULES SHALL BE CAPABLE OF TWO CHANNELS OF DETECTION EACH. A MANUFACTURER'S REPRESENTATIVE SHALL ASSIST THE CONTRACTOR IN THE FIELD AS WORK PROGRESSES TO COMPLETE THE INSTALLATION OF ALL EMERGENCY VEHICLE PREEMPTION DETECTOR EQUIPMENT AND ASSIST IN SETTING UP. TURNING ON, PROGRAMMING AND FIELD TESTING PREEMPTION EQUIPMENT INCLUDING EMITTERS TO ENSURE THAT THE EQUIPMENT IS OPERATIONAL.
4. ALL INDICATIONS OF ALL VEHICLE SIGNAL ASSEMBLIES AND ALL PEDESTRIAN SIGNAL INDICATORS SHALL BE TINTED LED SIGNALS OF A TYPE AND MANUFACTURER APPROVED BY THE CITY OF ALBUQUERQUE. PEDESTRIAN SIGNALS SHALL ALSO INCLUDE "COUNTDOWN" INDICATIONS FOR CLEARANCE TIME.
5. ALL PEDESTRIAN PUSH BUTTONS SHALL BE BULLDOG TYPE.
6. ALL SIGNAL ASSEMBLIES, PEDESTRIAN SIGNALS, PEDESTRIAN PUSH BUTTONS, AND FITTINGS SHALL COMPLY WITH THE CITY OF ALBUQUERQUE TYPE AND COLOR (BLACK) FINISH REQUIREMENTS.
7. LOOP DETECTION SHALL BE THE PREFERRED CHOICE FOR VEHICLE DETECTION AT AN INTERSECTION. VIDEO DETECTION OR OTHER DETECTION OPTIONS MAY NOT BE ALLOWED UNLESS PRE-APPROVED BY THE CITY OF ALBUQUERQUE TRAFFIC ENGINEERING OPERATIONS.
8. IF VIDEO DETECTION IS APPROVED BY THE CITY OF ALBUQUERQUE, CONTRACTOR SHALL FURNISH AND INSTALL THE FOLLOWING:
 - A. VIDEO DETECTION CAMERAS.
 - B. NECESSARY COMPUTER SOFTWARE TO CONNECT AND OPERATE THE VIDEO DETECTION SYSTEM.
 - C. NECESSARY VIDEO POWER CABLE.
 - D. TRAINING FOR THE VIDEO DETECTION EQUIPMENT AND THE VIDEO HARDWARE SYSTEM.

TRAFFIC SIGNAL INCIDENTAL ITEMS*

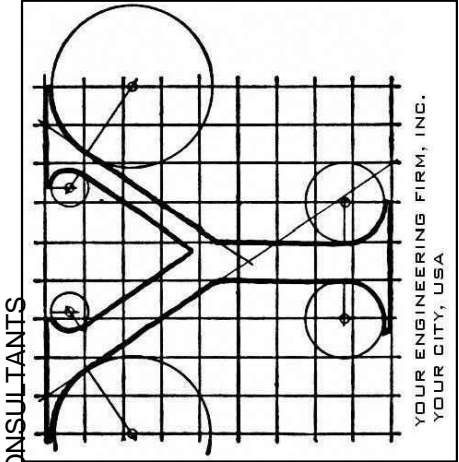
1. REMOVAL OF EXISTING PULL BOXES, CONDUITS, CONDUCTORS OR OTHER SIGNAL EQUIPMENT FOR INSTALLATION OF NEW SIGNAL EQUIPMENTS EXCEPT AS NOTED IN PLANS.
2. CABLE TESTING AND DIAGRAMS.
3. BORING, DRILLING, PUSHING, AND TRENCHING, INCLUDING REMOVAL AND REPLACEMENT OF PAVEMENT SIDEWALKS, DRIVE PADS, VALLEY GUTTERS, WHEELCHAIR RAMPS, CURB & GUTTER, AND LANDSCAPING (INCLUDING SPRINKLERS) FOR INSTALLATION OF PULL BOXES, CONDUITS, AND SIGNAL FOUNDATIONS, EXCEPT AS NOTED IN THE PLANS.
4. LOCATION OF UTILITY LINES INCLUDING EXPLORATORY TRENCHING AND EXPOSING GAS LINES WHEN BORING.
5. DESIGN, MATERIALS, INSTALLATION, AND REMOVAL OF SAFETY BARRIER FOR SHIELDING EQUIPMENT OR MATERIAL.
6. APPRISING PUBLIC THROUGH THE LOCAL NEWS MEDIA.
7. HAULING OF MATERIAL TO BE DISPOSED TO CITY LANDFILL.
8. REMOVAL, SALVAGE, AND TRANSPORTATION OF EXISTING SIGNAL EQUIPMENT TO THE CITY OF ALBUQUERQUE TRAFFIC ENGINEERING YARD ON PINO ROAD NE.
9. LEAN FILL FOR CONDUIT TRENCHES.
10. PULL BOX ADJUSTMENT TO GRADE.
11. OFF-DUTY POLICE OFFICER FOR TRAFFIC CONTROL.
12. CAMERA MOUNTING HEIGHT ADJUSTMENT ARM.
13. COST FOR PNM TO PROVIDE ELECTRICAL SERVICE.

* ITEMS LISTED ARE ONLY A GENERAL DESCRIPTION OF THE REQUIRED WORK AND MATERIALS, AND MAY NOT BE COMPLETE. THIS DOES NOT INCLUDE ANY INCIDENTAL WORK OR MATERIALS REQUIRED BY THE SPECIAL PROVISIONS SERIALS (STANDARD DETAILS), SUPPLEMENTAL SPECIFICATIONS, OR THE STANDARD SPECIFICATIONS.

TRAFFIC SIGNAL INTERCONNECT REQUIREMENTS

1. PER PLAN, EXISTING COPPER OR FIBER OPTIC INTERCONNECT SHALL BE MAINTAINED OR PROVIDED FOR SIGNAL CONSTRUCTION. THIS SHALL INCLUDE BUT NOT LIMITED TO INSTALLING SPICE CABINETS, SPICE VAULTS, SPICE CLOSURES, INTERCONNECT CONDUIT AND CABLE, CCTV CAMERA INSTALLATION, AND APPROPRIATE SIGNAL CONTROLLER INTERFACES (FIELD SWITCH, TERMINAL SERVERS ETC.).
2. IF NO EXISTING INTERCONNECT IS PRESENT, CONTRACTOR SHALL PROVIDE SPICE VAULT, AND INTERCONNECT CONDUIT WITH #6 AWG TRACER WIRE & PULL STRING. INTERCONNECT CONDUIT SHALL BE STUBBED AND CAPPED AT PROJECT LIMITS.
3. SIGNAL CONDUCTORS SHALL NOT SHARE CONDUIT OR PULL BOXES WITH FIBER OPTIC COMMUNICATIONS CABLE. FIBER OPTIC CABLE SHALL BE INSTALLED IN SEPARATE CONDUIT AND PULL BOXES.
4. SPLICING OF COMMUNICATION CABLE WILL NOT BE PERMITTED IN PULL BOXES. SPLICING OF COMMUNICATION CABLE (CONNECTIONS) WILL BE PERMITTED ONLY AT SPICE CABINETS, SPICE VAULTS WITH SPICE CLOSURES, OR CONTROLLER CABINETS WITH SPICE BLOCKS.
5. FOR CONDUITS CONTAINING ONLY LOW VOLTAGE COMMUNICATION CABLES OR FIBER OPTIC CABLE, AN INSULATED SINGLE CONDUCTOR COPPER #6 AWG WILL BE USED AS A TRACER WIRE.

DIRECTIONS:
DESIGNER SHALL REFER CITY OF ALBUQUERQUE
STANDARDS AND DETAILS REGARDING PROVIDING
OR MAINTAINING SIGNAL INTERCONNECT INFRASTRUCTURE.



CONSULTANTS

BENCH MARKS

BENCH MARKS

TO REACH THE STATION FROM THE INTERSECTION OF BROADWAY BOULEVARD AND CENTRAL AVENUE. TRAVEL NORTH 0.45 MILES ON BROADWAY AVENUE TO LOMAS AVENUE. TURN LEFT ONTO LOMAS AND GO WEST 0.7 MILES TO EIGHTH STREET AND THE STATION IN THE MEDIAN ON THE WEST SIDE OF THE INTERSECTION. THE SURVEY CONTROL IS A CITY OF ALBUQUERQUE ALUMINUM DISC 3 1/4 INCH ALUMINUM DISC STAMPED "17-J14 1983" SET FLUSH WITH THE TOP OF THE CONCRETE

SEAL

[illegible]

DESIGNED BY: ABC

DRAWN BY: QRS

CHECKED BY: XYZ

DATE 2/2011



**CALL NM ONE-CALL
SYSTEM SEVEN (7) DAYS
PRIOR TO ANY EXCAVATION**



CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

EQUIPMENT & INCIDENTAL ITEMS, INTERCONNECT REQUIREMENTS

DESIGN REVIEW COMMITTEE

CITY ENGINEER APPROVAL

ZONE MAP NO.

K-13

CITY PROJECT NO

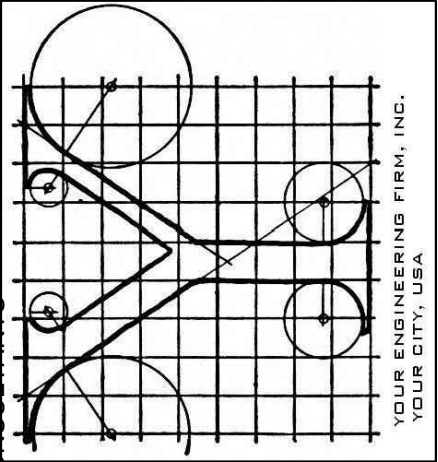
123456

SHEET NO.

9-2

TRAFFIC SIGNAL ESTIMATED QUANTITIES (CONTINUED)			
ITEM #	ITEM DESCRIPTION	UNIT	QUANTITY
428.001	LOOP VEHICLE DETECTOR	EA	
428.010	PEDESTRIAN PUSH BUTTON STATION	EA	
428.021	LOOP DETECTOR WIRE	LF	
428.050	LOOP LEAD-IN CABLE	LF	
428.060	DETECTOR SAW CUT	LF	
428.070	PHASE SELECTOR RACK, 4 CHANNEL	EA	
428.071	PHASE SELECTOR MODULE, 2 CHANNEL	EA	
428.076	EMERGENCY PREEMPTION DETECTOR, 2D/2C	EA	
428.078	EMERGENCY PREEMPTION DETECTOR CABLE	LF	
428.080	EMERGENCY PREEMPTION EMITTER	EA	
429.001	TRAFFIC ACTUATED CONTROLLER	EA	
429.021	8 PHASE DUAL RING CONTROLLER CABINET	EA	
429.101	SIGNAL CONTROLLER, ANY TYPE, REMOVE & SALVAGE	EA	
429.121	CONTROLLER CABINET, ANY TYPE, REMOVE & SALVAGE	EA	
429.122	CONTROLLER CABINET, ANY TYPE, REMOVE & RELOCATE	EA	
450.001	ALUMINUM PANEL SIGN	EA	

DIRECTIONS:
TRAFFIC SIGNAL ITEMS, ITEM NUMBER AND DESCRIPTION MUST BE BASED ON 'CITY ENGINEER'S ESTIMATED
UNIT PRICES FOR CONTRACT ITEMS 2009' DOCUMENT BY THE CITY OF ALBUQUERQUE OR AN UPDATED
VERSION OF THE SAME.



TO REACH THE STATION FROM THE INTERSECTION OF BROADWAY BOULEVARD AND CENTRAL AVENUE. TRAVEL NORTH 0.45 MILES ON BROADWAY AVENUE TO LOMAS AVENUE. TURN LEFT ONTO LOMAS AND GO WEST 0.7 MILES TO 18TH STREET AND THE STATION IN THE MEDIAN ON THE WEST SIDE OF THE INTERSECTION. THE SURVEY CONTROL IS A CITY OF ALBUQUERQUE STATION MARK 3 1/4 INCH ALUMINUM DISC STAMPED "17-J14 1983" SET FLUSH WITH THE TOP OF THE CONCRETE.

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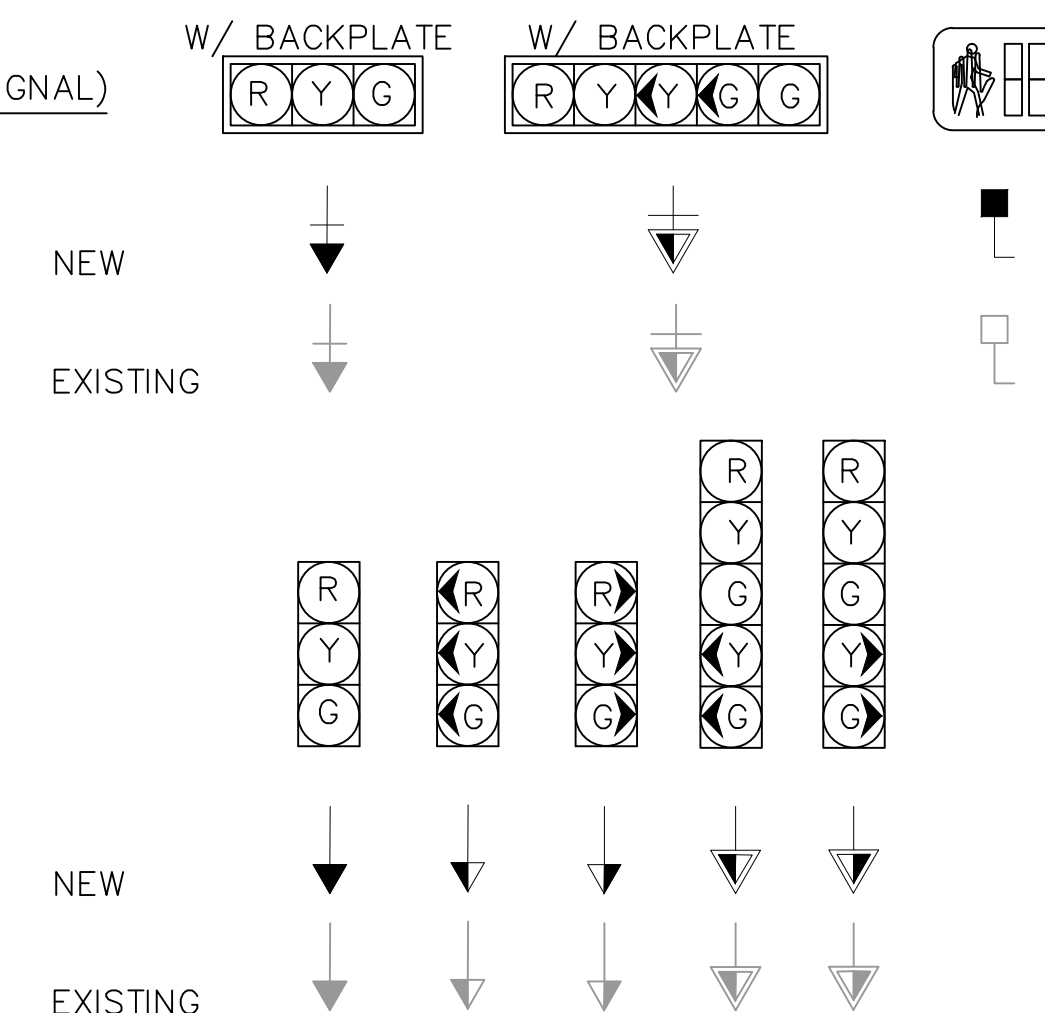
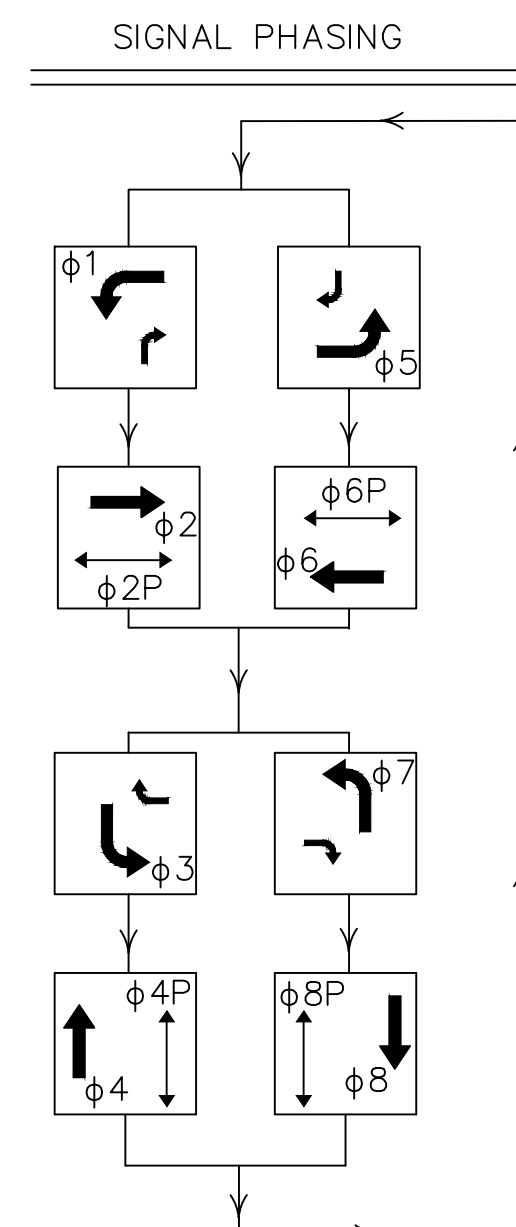
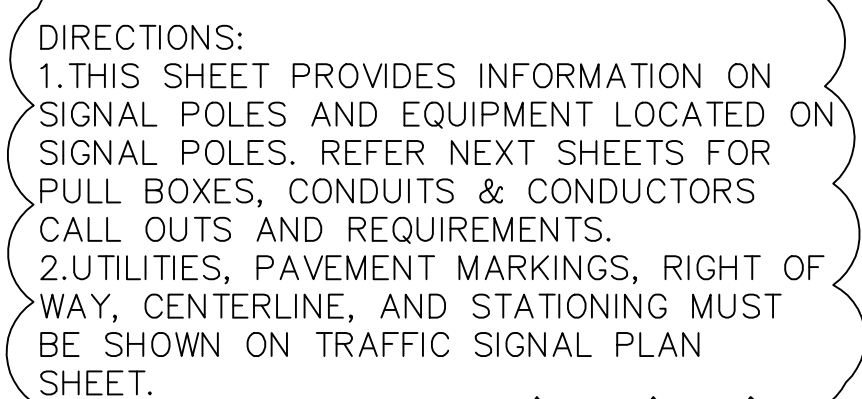
DESIGNED BY:	ABC
DRAWN BY:	QRS
CHECKED BY:	XYZ
DATE	2/2011



CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

TRAFFIC SIGNAL ESTIMATED QUANTITIES

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. K-13
		CITY PROJECT NO. 123456
		SHEET NO. 9-3



ABBREVIATIONS

MA1	MAST ARM NUMBER
PP1	PEDESTAL POLE NUMBER
CC	CONTROLLER CABINET
EVPD(ϕ 2)	EMERGENCY VEHICLE PREEMPTION DETECTOR (PHASE)
IISNS	INTERNALLY ILLUMINATED STREET NAME SIGN

FLASH CONDITION





RED HEADS	–	$\phi 1, \phi 2, \phi 5, \phi 6$
RED HEADS	–	$\phi 3, \phi 4, \phi 7, \phi 8$

INITIALIZATION









STEADY ALL RED, THEN $\phi 2$ AND $\phi 6$ GREEN

NOTES

1. LOOPS SHOWN ARE SCHEMATIC.

LEGEND	PEDESTAL POLE HEIGHT	EQUIPMENT				POLE LOCATION
						
PP1	15'	0	0	2	2	100+74.3, 73.6'LT
PP2	13'	0	1	0	0	100+97.0, 4.9'RT
PP3	15'	0	0	2	2	100+74.3, 75.3'RT
PP4	13'	1	0	0	0	99+93.0, 100.6'RT
PP5	15'	0	0	2	2	99+24.6, 75.3'RT
PP6	13'	0	1	0	0	98+93.8, 3.6'LT
PP7	15'	0	0	2	2	99+24.9, 73.8'LT
PP8	13'	1	0	0	0	100+7.1, 106.2'LT

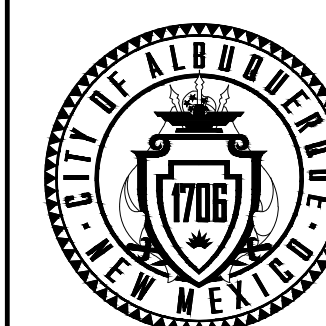
NOTES:
REFER CABQ STD. DWG. 2558, 2560, 2562C, AND 2562D FOR
INSTALLATION OF PEDESTAL POLES AND FOUNDATION.

LEGEND	EQUIPMENT TYPE	LOCATION							
CC	ASC/3, TYPE "P" CABINET	101+15.4, 65.8'LT							
	TESCO TYPE B	101+27.8, 65.8'LT							
LEGEND	MASTARM TYPE	EQUIPMENT							POLE LOCATION
									
MA1	ALB-3-40-40	2	0	1	1	1	1	1	100+67.0, 94.7'LT
MA2	ALB-3-40-40	2	1	1	0	1	1	1	100+95.5, 68.2'RT
MA3	ALB-3-40-40	2	0	1	1	1	1	1	99+31.9, 96.8'RT
MA4	ALB-3-40-40	2	1	1	0	1	1	1	99+3.6, 66.3'LT

NOTES:
REFER CABQ STD. DWG. 2555, 2558, 2560, 2562C, AND 2562D FOR
INSTALLATION OF CONTROL CABINET, SIGNAL POLES AND FOUNDATION.



**CALL NM ONE-CALL
SYSTEM SEVEN (7) DAYS
PRIOR TO ANY EXCAVATION**



CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

STREET "A" & STREET "B" TRAFFIC SIGNAL PLAN

	DESIGN REVIEW COMMITTEE
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CITY ENGINEER APPROVAL

ZONE MAP NO.

ZONE MAP NO. **K-13**

CITY PROJECT NO. 123456

SHEET NO. 9-4

CONDUIT AND CONDUCTOR REQUIREMENTS											
RUN ID	SIZE/LENGTH		LOCATION	POWER	HOME-RUN	RING	BRANCH	IISNS	LUMINAIRE	LOOP	PREEMPTION CABLE
##	2"	3"									
S1	500		RISER TO METER	X							
S2	50		METER TO CC	X							
1		10	CC TO PB1		X			X	X		
2		10	CC TO PB1							X	X
3		60	PB1 TO PB2			X		X	X		
4		60	PB1 TO PB2							X	X
5		60	PB2 TO PB3			X		X	X		
6		60	PB2 TO PB3							X	X
7		60	PB3 TO PB4			X		X	X		
8		60	PB3 TO PB4							X	X
9		60	PB4 TO PB5			X		X	X		
10		60	PB4 TO PB5							X	X
11		60	PB5 TO PB6			X		X	X		
12		60	PB5 TO PB6							X	X
13		60	PB6 TO PB7			X		X	X		
14		60	PB6 TO PB7							X	X
15		60	PB7 TO PB8			X		X	X		
16		60	PB7 TO PB8							X	X
17		60	PB8 TO PB9			X		X	X		
18		60	PB8 TO PB9							X	X
19		30	PB9 TO PB1			X		X	X		
20		30	PB9 TO PB1							X	X
21		10	PB2 TO PP2				X				
22		10	PB3 TO MA2				X	X	X		X
23		10	PB3 TO PP3				X				
24		10	PB4 TO PP4				X				
25		10	PB5 TO MA3				X	X	X		X
26		10	PB5 TO PP5				X				
27		10	PB6 TO PP6				X				
28		10	PB7 TO MA4				X	X	X		X
29		20	PB7 TO PP7				X				
30		10	PB8 TO PP8				X				
31		10	PB9 TO MA1				X	X	X		X
32		20	PB9 TO PP1				X				
33		30	PB10 TO PB2							X	
34		30	PB11 TO PB3							X	
35		30	PB12 TO PB4							X	
36		30	PB13 TO PB6							X	
37		30	PB14 TO PB7							X	
38		30	PB15 TO PB8							X	
CONDUIT(FT)	550	1360									
MCC5					10	510	100				
MCC20					20	1020	140				
SCC#6				1600	20	1020					
SCC#8								1120			
SCC#10								1120			
LOOP										1750**	
PREEMPTION CABLE											860**

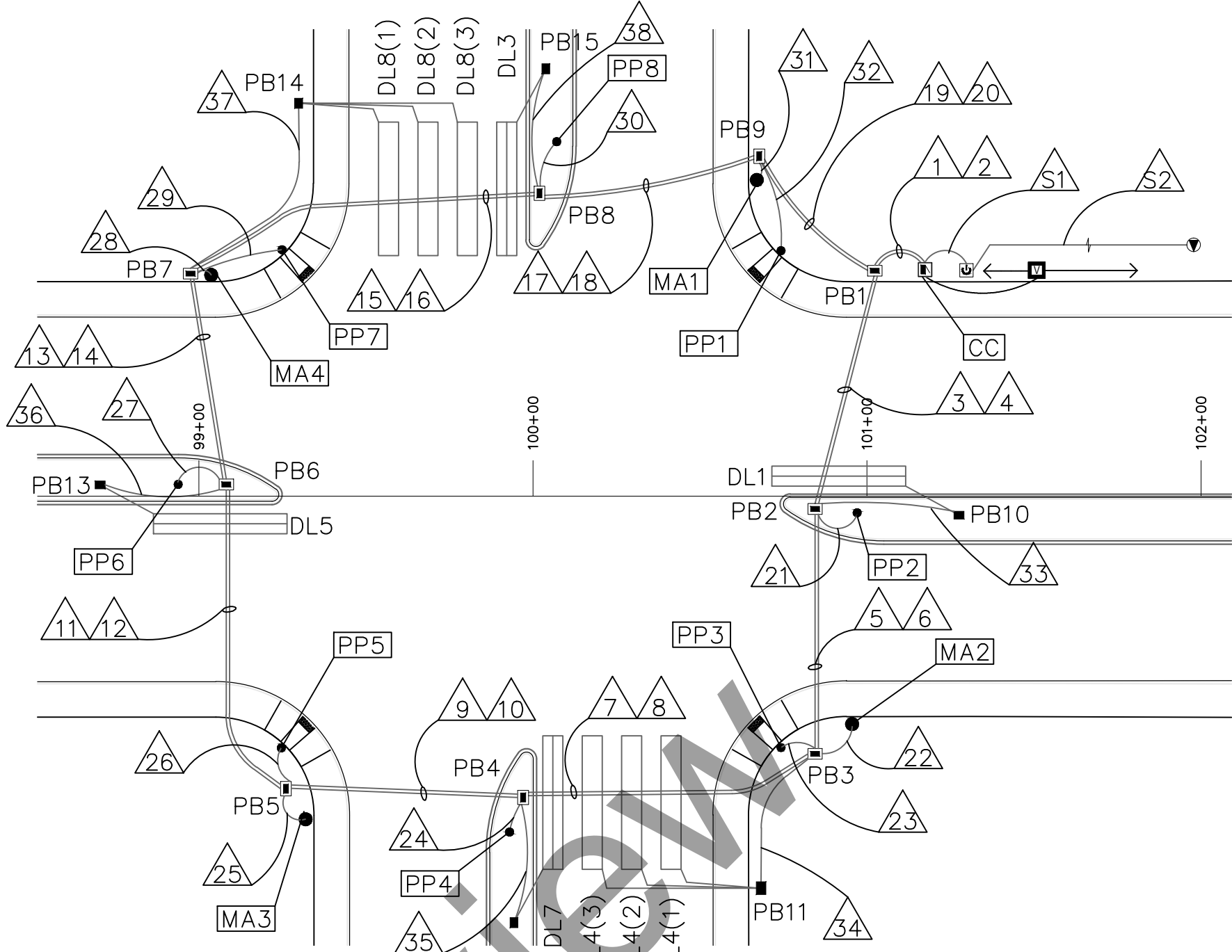
NOTES:
** REFER LOOP DETECTOR LEAD-IN CABLE TRACE AND PREEMPTION DETECTOR CABLE TRACE TABLES ON THIS SHEET FOR CONDUIT TRACE AND LENGTH CALCULATIONS
EXPLANATION OF POWER, HOME-RUN, RING, BRANCH, IISNS, LUMINAIRE, LOOP, AND PREEMPTION CABLE IS AS FOLLOWS:
POWER: RISER TO METER HAS 3-SCC#2 AWG (STANDARD PNM WIRING), METER TO CC HAS 3-SCC#6
HOME-RUN: 1-MCC5, 2-MCC20, AND 2-SCC#6 WHITE & GREEN
RING: 1-MCC5, 2-MCC20, AND 2-SCC#6 WHITE & GREEN
BRANCH: 1-MCC5, 1-MCC20, 2-SCC#6 WHITE & GREEN
IISNS: 2-SCC#10
LUMINAIRE: 2-SCC#8
LOOP: 1-LOOP DETECTOR LEAD-IN CABLE
PREEMPTION CABLE: 1-PREEMPTION DETECTOR CABLE

PREEMPTION CABLE TRACE								
PREEMPTION DETECTOR	FROM	TO	LENGTH (FT) (A)	FROM	TO	CONDUIT TRACE	LENGTH (FT) (B)	LENGTH (FT) (A+B)
EVPD(Φ2)	MA2	POLE BASE	60	POLE BASE	CC	31-20-2	50	110
EVPD(Φ4)	MA1	POLE BASE	60	POLE BASE	CC	22-6-4-2	140	200
EVPD(Φ6)	MA4	POLE BASE	60	POLE BASE	CC	25-10-8-6-4-2	260	320
EVPD(Φ8)	MA3	POLE BASE	60	POLE BASE	CC	28-16-18-20-2	170	230
TOTAL LENGTH (FT)								860

LOOP DETECTOR WIRE AND PAVEMENT SAWCUT										
LOOP#	PHASE#	VEHICLE DETECTOR		LOOP TYPE	LOOP DIMENSIONS (FT)				LOOP WIRE (FT)	PAVEMENT SAWCUT (FT)
		MODE	UNIT # CHANNEL		L	W	S	T		
DL1	Φ1	PRESENCE	2 1	QP	40	6	7	4	371	139
DL3	Φ3	PRESENCE	4 1	QP	40	6	7	4	371	139
DL4(1)	Φ4	PRESENCE	3 1	BP	40	6	7	4	211	99
DL4(2)	Φ4	PRESENCE	3 1	BP	40	6	19	4	235	111
DL4(3)	Φ4	PRESENCE	3 1	BP	40	6	21	4	239	113
DL5	Φ5	PRESENCE	2 2	QP	40	6	7	4	371	139
DL7	Φ7	PRESENCE	4 2	QP	40	6	7	4	371	139
DL8(1)	Φ8	PRESENCE	3 2	BP	40	6	7	4	211	99
DL8(2)	Φ8	PRESENCE	3 2	BP	40	6	19	4	235	111
DL8(3)	Φ8	PRESENCE	3 2	BP	40	6	21	4	239	113
TOTAL (FT)									2,854	1,202

QUANTITY ESTIMATE EQUATIONS
LOOP WIRE FOR 6' X 40' QP = (8*L) + (4*W) + (2*S) + (2*T) + 5
LOOP WIRE FOR 6' X 40' BP = (4*L) + (4*W) + (2*S) + (2*T) + 5
PAVEMENT SAW CUT FOR 6' X 40' QP = (3*L) + (2*W) + S
PAVEMENT SAW CUT FOR 6' X 40' BP = (2*L) + (2*W) + S
WHERE,
QP = QUADRUPOLE LOOP (2 TURNS)
BP = BIPOLE LOOP (2 TURNS)
L = DETECTOR LOOP LENGTH (FROM PLAN)
W = DETECTOR LOOP WIDTH (FROM PLAN)
S = SAWCUT LENGTH FROM DETECTOR LOOP TO FACE OF CURB (FROM PLAN)
T = LOOP WIRE TERMINAL LENGTH FROM FACE OF CURB TO PULL BOX (FROM PLAN)

CONDUCTORS FROM BASE OF POLES TO EQUIPMENTS ON MAST ARMS				
CONDUCTOR TYPE/LENGTH				
POLE	MCC5	MCC7	ISNS	LUMINAIRE
MA1	2	2	1	1
MA2	3	1	1	1
MA3	2	2	1	1
MA4	3	1	1	1
PP1	4	0	0	0
PP2	0	1	0	0
PP3	4	0	0	0
PP4	1	0	0	0
PP5	4	0	0	0
PP6	0	1	0	0
PP7	4	0	0	0
PP8	1	0	0	0
TOTAL(FT)	720	150	120	180



ABBREVIATIONS

MA1	MAST ARM NUMBER
PP1	PEDESTAL POLE NUMBER
CC	CONTROLLER CABINET
PB1	PULL BOX NUMBER
EVPD(Φ2)	EMERGENCY VEHICLE PREEMPTION DETECTOR (PHASE)
IISNS	INTERNALLY ILLUMINATED STREET NAME SIGN
DL1(1)	DETECTOR LOOP PHASE# (LOOP#)
SCC	SINGLE CONDUCTOR CABLE
MCC	MULTI-CONDUCTOR CABLE

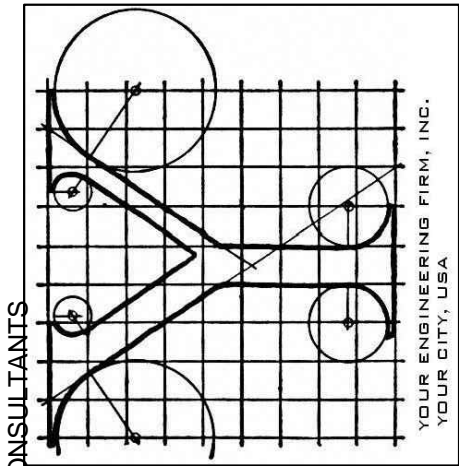
LOOP DETECTOR LEAD-IN CABLE TRACE			
LOOP#	FROM	TO	LENGTH (FT)
DL1	PB10	CC	33-4-2
DL3	PB15	CC	38-18-20-2
DL4(1)(2)(3)	PB11	CC	34-6-4-2
DL5	PB13	CC	36-14-16-18-20-2
DL7	PB12	CC	35-8-6-4-2
DL8(1)(2)(3)	PB14	CC	37-16-18-20-2
TOTAL LENGTH (FT)			1750

CALL NM ONE-CALL SYSTEM SEVEN (7) DAYS PRIOR TO ANY EXCAVATION

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

STREET "A" & STREET "B"
TRAFFIC SIGNAL CABLES &
CONDUITS - I

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. K-13
		CITY PROJECT NO. 123456
		SHEET NO. 9-5



TO REACH THE STATION FROM THE INTERSECTION OF BROADWAY BOULEVARD AND CENTRAL AVENUE, TRAVEL NORTH 0.45 MILES ON BROADWAY AVENUE TO LOWAS AVENUE. TURN LEFT ONTO LOWAS AND GO WEST 0.7 MILES TO 8TH STREET AND THE STATION IN THE MEDIAN ON THE WEST SIDE OF THE INTERSECTION. THE STATION MARK IS A CITY OF ALBUQUERQUE SURVEY CONTROL 3 1/4 INCH ALUMINUM DISC STAMPED "17-J14 1983" SET FLUSH WITH THE TOP OF THE CONCRETE.

SEAL		BY	DATE	DESCRIPTION	CONTRACTOR	NO.	DATE	AS-BUILT INFORMATION	WORK STAGED BY:	INSPECTOR'S ACCEPTANCE BY:	FIELD VERIFICATION BY:	DRAWINGS CORRECTED BY:

DESIGNED BY: ABC
DRAWN BY: QRS
CHECKED BY: XYZ
DATE: 2/2011

FUNCTION CHART – 115 VOLT CIRCUIT ^{1/}			
CONDUCTOR		RING 1–MCC20 ^{2/}	RING 2–MCC20 ^{2/}
BASE COLOR	TRACER	FIELD CONNECTION	FIELD CONNECTION
BLACK	—	SPARE	SPARE
WHITE	—	SPARE	SPARE
RED	—	φ1 RED	φ5 RED
GREEN	—	φ1 GREEN	φ5 GREEN
ORANGE	—	φ1 YELLOW	φ5 YELLOW
BLUE	—	SPARE	SPARE
WHITE	BLACK	SPARE	SPARE
RED	BLACK	φ2 RED	φ6 RED
GREEN	BLACK	φ2 GREEN	φ6 GREEN
ORANGE	BLACK	φ2 YELLOW	φ6 YELLOW
BLUE	BLACK	φ2P WALK	φ6P WALK
BLACK	WHITE	φ2P DON'T WALK	φ6P DON'T WALK
RED	WHITE	φ3 RED	φ7 RED
GREEN	WHITE	φ3 GREEN	φ7 GREEN
BLUE	WHITE	φ3 YELLOW	φ7 YELLOW
BLACK	RED	φ4 RED	φ8 RED
WHITE	RED	φ4 GREEN	φ8 GREEN
ORANGE	RED	φ4 YELLOW	φ8 YELLOW
BLUE	RED	φ4P WALK	φ8P WALK
RED	GREEN	φ4P DON'T WALK	φ8P DON'T WALK

WIRING REQUIREMENTS

AT THE BASE OF SIGNAL POLE, SPLICE ONE (1)
MCC20 CABLE WITH SIGNAL & PEDESTRIAN HEAD
CABLES.

AT THE ADJACENT PULL BOX, SPLICE ONE (1) MCC20 CABLE COMING FROM BASE OF SIGNAL POLE WITH TWO (2) MCC20 CABLES RINGS.

SPlicing AT THE BASE OF POLE AND AT THE
ADJACENT PULL BOX SHALL BE DONE PER THE COLOR
SCHEME SHOWN IN THE FUNCTION CHARTS ON THIS
SHEET.

IN CASE OF RIGHT TURN OVERLAP SIGNAL HEAD
(THROUGH + RIGHT PHASE), GREEN ARROW AND
YELLOW ARROW ON THE RIGHT TURN OVERLAP PHASE
SHOULD BE CONNECTED TO BLACK AND WHITE SPARE
CONDUCTORS ON ONE (1) MCC20 CABLE.

NOTES

- 1/ IDENTIFY CONDUCTORS LISTED AS "115 VOLTS".
- 2/ MARK RING 1 CABLE AT EACH SPLICE POINT WITH 1 PIECE OF WHITE ELECTRICAL TAPE. MARK RING 2 CABLE AT EACH SPLICE POINT WITH 2 PIECES OF WHITE ELECTRICAL TAPE. THE IDENTIFICATION MARKING SHALL BE PROVIDED ON EACH RING CABLE AT EACH SPLICE AND LOCATED 6" BACK FROM THE END.
- 3/ IDENTIFY CONDUCTORS LISTED AS "PPB-LOW VOLTAGE" AT EACH SPLICE POINT. FIVE (5) CONDUCTOR CABLE SHALL BE 24 VOLTS AND USED FOR PUSH BUTTONS ONLY.

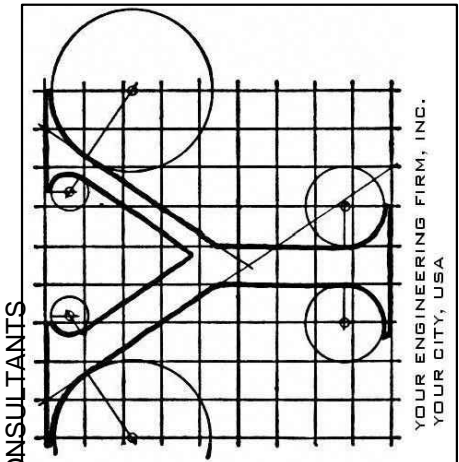
FUNCTION CHART – 115 VOLT CIRCUIT ^{1/}				
MCC7 – SIGNAL HEADS				
	3 SECTION HEADS (THROUGH PHASES)	3 SECTION HEADS (LEFT TURN PHASES)	5 SECTION HEADS (THROUGH+LEFT PHASES)	5 SECTION HEADS (THROUGH+RIGHT PHASES)
BASE COLOR	SIGNAL INTERVAL	SIGNAL INTERVAL	SIGNAL INTERVAL	SIGNAL INTERVAL
RED	RED	RED ARROW	RED	RED
GREEN	GREEN	GREEN ARROW	GREEN	GREEN
ORANGE	YELLOW	YELLOW ARROW	YELLOW	YELLOW
BLUE	SPARE	SPARE	GREEN ARROW	GREEN ARROW
BLACK	SPARE	SPARE	YELLOW ARROW	YELLOW ARROW
WHITE	COMMON	COMMON	COMMON	COMMON
WHITE/BLACK	SPARE	SPARE	SPARE	SPARE

FUNCTION CHART – 115 VOLT CIRCUIT ¹	
MCC5—PEDESTRIAN HEADS	
BASE COLOR	SIGNAL INTERVAL
GREEN	WALK
RED	DON'T WALK
WHITE	COMMON
ORANGE	SPARE
BLACK	SPARE

FUNCTION CHART – 24 VOLT CIRCUIT ³	
MCC5–PUSH BUTTONS	
BASE COLOR	FIELD CONNECTION
BLACK	ϕ 2P
WHITE	COMMON
RED	ϕ 4P
GREEN	ϕ 6P
ORANGE	ϕ 8P

DETECTOR RACK ASSIGNMENTS													
UNIT # →	POWER SUPPLY	1	2	3	4	5	6	7	8	9	10	11	
CHANNEL 1 →		Φ2	Φ1	Φ4	Φ3					EVPD(Φ2)	EVPD(Φ4)		
CHANNEL 2 →		Φ6	Φ5	Φ8	Φ7					EVPD(Φ6)	EVPD(Φ8)		
DETECTOR MODULE REQUIRED	*	√	√	√	√					√	√		

* POWER SUPPLY IS INCIDENTAL TO CONSTRUCTION



BENCH MARKS

TO REACH THE STATION FROM THE INTERSECTION OF BROADWAY BOULEVARD AND CENTRAL AVENUE. TRAVEL NORTH 0.45 MILES ON BROADWAY AVENUE TO LOMAS AVENUE. TURN LEFT ONTO LOMAS AND GO WEST 0.7 MILES TO EIGHTH STREET AND THE STATION IN THE MEDIAN ON THE WEST SIDE OF THE INTERSECTION. THE SURVEY CONTROL IS A CITY OF ALBUQUERQUE ALUMINUM DISC 3 1/4 INCH ALUMINUM DISC STAMPED "17-J14 1983" SET FLUSH WITH THE TOP OF THE CONCRETE

SEAL

[illegible]

DESIGNED BY: ABC

DRAWN BY: QRS

CHECKED BY: XYZ

DATE 2/2011



CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

STREET "A" & STREET "B"
TRAFFIC SIGNAL CABLES &
CONDUITS - II

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	ZONE MAP NO. K-13
		CITY PROJECT NO. 123456
		SHEET NO. 9-6