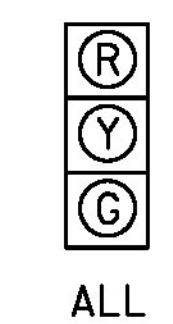


CONTROLLER TIMING CHART

PHASE	1	2	3	4	5	6	7	8	9
IN USE	-	X	-	-	-	-	X	X	-
TRAFFIC MOVEMENT		WBT					SBLR	EBLT	
MIN GREEN		8					8	8	
MAX GREEN		23					20	24	
YELLOW CLEARANCE		5					5	5	
ALL RED CLEARANCE		6					6	6	
VEHICLE EXTENSION		3					3	3	
RECALL MODE		SOFT					NONE	SOFT	

SEE TRAFFIC CONTROL PLAN FOR PHASED CONSTRUCTION PLANS.

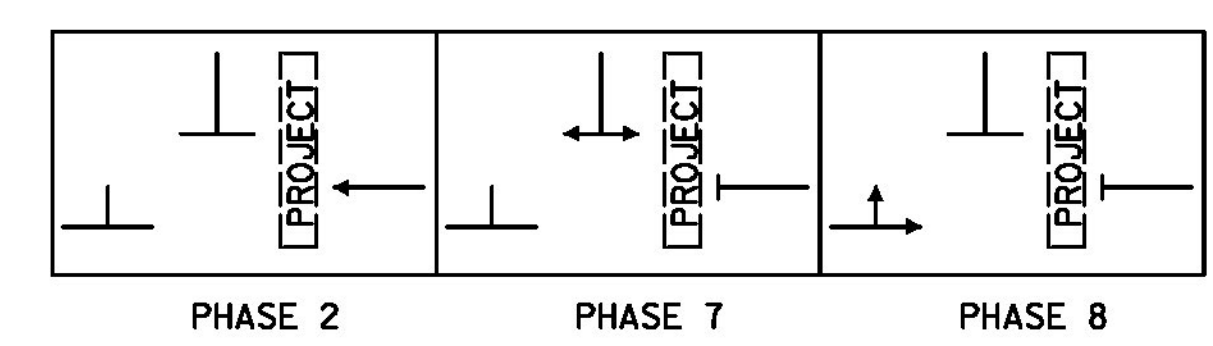
SIGNAL FACE ARRANGEMENT (12" LENSES)



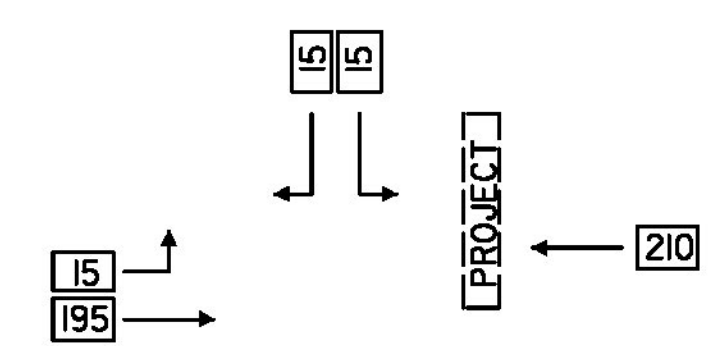
ALL

NOTE:
RED BALL AND RED ARROW INDICATIONS REQUIRE LED LAMPS WITH A VISIBLE BEAM SPREAD OF 80 DEGREES OFF AXIS

PHASING DIAGRAM



MOVEMENT VOLUME ASSUMPTIONS



NOTES:

- DESIGN OF THE SIGNAL SUPPORT(S) AND ANY REQUIRED GUYING IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL WORK SHALL BE COMPLETED WITHIN THE EXISTING ROW.
- SIGNAL TIMING/TIMING ADJUSTMENTS REQUESTED BY THE ENGINEER SHALL BE ACCOMPLISHED AS DIRECTED BY THE ENGINEER AND PAYMENT SHALL BE INCIDENTAL TO THE TRAFFIC SIGNAL ITEM. THE ALL-RED CLEARANCE INTERVAL IS BASED ON AN ASSUMED SPEED OF 10-20 MPH, THE ENGINEER SHALL MAKE SEVERAL TRIAL RUNS TO DETERMINE THE PROPER ALL-RED CLEARANCE INTERVAL.
- SIGNAL FACES SHALL CONSIST OF 12" LENSES. (RED, YELLOW, AND GREEN)
- THE BOTTOM OF THE HOUSING OF A SIGNAL FACE SUSPENDED OVER A ROADWAY SHALL NOT BE LESS THAN 16 1/2 FEET NOR MORE THAN 19 FEET ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE ROADWAY. THE BOTTOM OF A SIGNAL FACE NOT MOUNTED OVER A ROADWAY, SHALL NOT BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE GROUND. CAUTION SHOULD BE USED TO ENSURE COMPLIANCE WITH THE HEIGHT REQUIREMENTS IN THE EVENT THE NEW APPROACH GRADES DIFFER SIGNIFICANTLY FROM THE OLD ROAD GRADE.
- SIGNAL FACES FOR ANY ONE APPROACH SHALL NOT BE LESS THAN 8 FEET APART MEASURED HORIZONTALLY BETWEEN CENTER OF FACES.
- SIGNAL HEADS MAY BE HUNG ON A SPAN WIRE OR ON A CANTILEVER MAST ARM. AT LEAST ONE SIGNAL HEAD SHALL BE UNMISTAKABLY IN LINE WITH THE CENTER OF APPROACHING TRAFFIC AT ALL TIMES. THE SECOND SIGNAL HEAD MAY BE POST MOUNTED, LOCATED AT A DISTANCE NO GREATER THAN 14 1/2 FEET FROM THE CENTER OF THE APPROACH LANE WHEN THE STOP BAR IS 40 FEET FROM THE SIGNAL HEAD. CONSULT THE M.U.T.C.D. FOR ADDITIONAL INFORMATION CONCERNING SIGNAL PLACEMENT.
- SIGNAL HEAD PLACEMENT IS CRITICAL. HEADS SHALL BE ADJUSTED TO REFLECT LANE LOCATION CHANGES.
- THE CONTRACTOR SHALL PROVIDE AN ACTUATED CONTROLLER. THE APPROACHES NOTED SHALL HAVE A TEMPORARY VEHICLE DETECTOR (VIA MICROWAVE EQUIPMENT). LOOPS ARE SHOWN FOR PLACEMENT PURPOSES ONLY. THE CONTROLLER, DETECTOR AND ALL OTHER SIGNAL EQUIPMENT SHALL MEET OR EXCEED ALL NEMA STANDARDS.
- VEHICLE DETECTION SHALL BE VIA MICROWAVE DETECTION AND SHALL BE 6' X 40' FOR PRESENCE DETECTION AT THE STOP BAR WITH THE NEAR PORTION LOCATED 5 FEET BEYOND THE STOP BAR.
- INTERVAL TIMING SHOWN IN SECONDS.
- INTERCONNECT BETWEEN SIGNAL POLES BY WHATEVER MEANS POSSIBLE OR CONVENIENT TO PROVIDE FOR A SAFE INSTALLATION.
- PLACE TEMPORARY POLES BEHIND GUARDRAIL WHERE POSSIBLE.
- POLES SUPPORTING SPAN WIRES AND/OR MAST ARMS SHALL BE ADEQUATELY BRACED OR GUYED AND SHALL NOT BE PLACED SO AS TO CREATE A HAZARD TO THE TRAVELLING PUBLIC.
- ALL TEMPORARY SIGNAL EQUIPMENT, SIGNS, ETC., SHALL BELONG TO THE CONTRACTOR AT THE END OF THE PROJECT AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS REMOVAL, INCLUDING ANY TEMPORARY PAVEMENT MARKINGS, UTILITY POLES, WIRES, ETC.
- A 250 WATT MER/150 WATT HPS LUMINAIRE AND MAST ARM SHALL BE PROVIDED ON A POLE ON EACH APPROACH AT A MOUNTING HEIGHT OF 30' ABOVE ROADWAY CENTERLINE. THE INTENT IS TO LIGHT UP THE AREA AROUND THE SIGNAL HEADS AND STOP BAR FOR INCREASED VISIBILITY. THE ENGINEER SHALL DETERMINE THE ADEQUACY OF THE LIGHTING AND DIRECT CHANGES IF THE LIGHTING IS INSUFFICIENT.
- STOP BARS SHALL BE LOCATED A MINIMUM OF 40' AND A MAXIMUM OF 120' FROM THE NEAREST SIGNAL HEAD.
- PAYMENT FOR THE VEHICLE DETECTORS SHALL BE FOR EACH UNIT INSTALLED UNDER ITEM 678.42.
- SEE STANDARDS E-171A, E171B, AND E-171C FOR ADDITIONAL INFORMATION ON SIGNALS AND DETECTORS.
- A "SIGNAL AHEAD" SIGN SHALL BE PLACED AT LEAST 500' FROM THE SIGNAL OR AT A POSITION TO BE DETERMINED BY THE ENGINEER. THE COST OF THIS SIGN SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 678.40.
- ADDITIONAL PROJECT CONSTRUCTION SIGNS SHALL BE INSTALLED AS REQUIRED BY THE ENGINEER PER STANDARDS T-10, T-28, T-29 AND T-30. PAYMENT FOR THESE SIGNS, THE REFLECTORIZED PLASTIC DRUMS, ETC, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 641.10.
- THE "TO GET GREEN LIGHT" SIGN IS TO BE USED ONLY ON APPROACHES WITH VEHICLE DETECTORS.
- WHEN TEMPORARY BARRIER IS USED, BARRIER ENDS FACING ONCOMING TRAFFIC SHALL BE TAPERED BEYOND THE CLEAR ZONE, OR PROTECTED WITH AN APPROVED END TREATMENT DESIGNED FOR THE 85TH PERCENTILE SPEED OR THE POSTED SPEED LIMIT OF THE ROAD WAY.
- THE CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO ACTIVATING THE TRAFFIC SIGNALS SUCH THAT THEY CAN FIELD REVIEW CONDITIONS. THE SIGNAL SYSTEM SHALL BE PAID FOR UNDER ITEM 678.40 AND SHALL CONSIST OF POLES, SIGNS AND POSTS, WARNING SIGNS, LUMINAIRES (IF USED) AND SIGNAL EQUIPMENT TO PROVIDE FOR AN ADEQUATE DESIGN. ALSO INCLUDED ARE PERMITS AND COSTS ASSOCIATED WITH PROVIDING ELECTRICAL POWER.
- PAYMENT FOR ALL TEMPORARY TRAFFIC CONTROL DEVICES NOT ASSOCIATED DIRECTLY WITH THE TEMPORARY TRAFFIC SIGNAL SYSTEM, INCLUDING BUT NOT LIMITED TO CONSTRUCTION APPROACH SIGNING, SHALL BE MADE UNDER ITEM 641.10.
- SIGNS, POSTS, TEMPORARY PAVEMENT MARKINGS, RAISED PAVEMENT MARKINGS AND PAVEMENT MARKING REMOVAL RELATED TO THE TEMPORARY TRAFFIC SIGNAL SYSTEM INSTALLATION AS SHOWN ON THE TRAFFIC CONTROL PLAN ("STOP HERE ON RED", "SIGNAL AHEAD", "TO GET GREEN LIGHT", ETC.) ARE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 678.40.
- PAYMENT FOR TEMPORARY TRAFFIC BARRIER, REMOVING AND RESETTING TEMPORARY TRAFFIC BARRIER, AND ASSOCIATED ENERGY ABSORPTION ATTENUATORS USED, SHALL BE MADE UNDER THE APPROPRIATE ITEMS. PAYMENT FOR THE REMOVING AND RESETTING OF THE ENERGY ABSORPTION ATTENUATORS SHALL BE INCIDENTAL TO THE ENERGY ABSORPTION ATTENUATOR ITEM.

TYLIN INTERNATIONAL	PROJECT NAME: ROCKINGHAM	FILE NAME: z10j072bdr_mot_03.dgn	PLOT DATE: 8/26/2014
	PROJECT NUMBER: BRF 0126(12)	PROJECT LEADER: R. HEBERT	DRAWN BY: C. SARGEANT
		DESIGNED BY: C. SARGEANT	CHECKED BY: D. BRYANT
		TRAFFIC CONTROL NOTES	SHEET 17 OF 69