

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO.	SHEET NO.
R-4738	TCP-1

**PLAN FOR PROPOSED
TRAFFIC CONTROL, MARKING & DELINEATION
RICHMOND COUNTY**

R-4738

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS"- PROJECT SERVICES UNIT-N.C. DEPARTMENT OF TRANSPORTATION-RALEIGH, N.C., DATED JULY 2006 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW PANELS
1130.01	DRUM
1135.01	CONES
1150.01	FLAGGING DEVICES
1165.01	TRUCK MOUNTED IMPACT ATTENUATOR
1180.01	SKINNY-DRUM
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

PHASING

STEP 1: INSTALL GUARDRAIL AND GUIDERAIL IN ACCORDANCE WITH ROADWAY PLANS, GENERAL NOTES, ROADWAY STANDARD DRAWINGS, AND SHEETS TCP-2 THROUGH TCP-6.

NOTES:

- FOR INTERCHANGES WITHIN THE WORK ZONE, INSTALL ALL SIGNS SHOWN ON SHEET TCP-4, DETAIL B.
- FOR MEDIAN WORK ON MULTI-LANE DIVIDED FACILITIES, USE SHEET TCP-3.
- FOR TEMPORARY LANE CLOSURES ON DIVIDED MULTI-LANE FACILITIES, USE RSD 1101.02, SHEET 3 OF 9, AND TCP-4.
- MAY USE "MOVING OPERATION CARAVAN" (SEE SHEET TCP-5) FOR SEEDING AND WATERING OPERATIONS ONLY.
- REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND RETURN TRAFFIC TO ITS EXISTING TRAFFIC PATTERN AT THE END OF EACH WORK DAY.

STEP 2: UPON COMPLETION OF THE PROJECT, REMOVE ALL TRAFFIC CONTROL DEVICES.

INDEX OF SHEETS

SHEET NO.	TITLE
TCP-1	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, INDEX OF SHEETS, AND PHASING
TCP-2	GENERAL NOTES
TCP-3	WORK ZONE WARNING SIGNS FOR GUIDERAIL AND GUARDRAIL INSTALLATION IN MEDIANS
TCP-4	"TEMPORARY SPEED LIMIT" REDUCTION WITH PORTABLE CMS'S- 10 MPH OR LESS
TCP-5	MOVING OPERATION CARAVAN
TCP-6	SIGN DESIGN

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- NORTH ARROW
- PROPOSED PVMT. EXIST. PVMT.
- WORK AREA
- REMOVAL OF EXISTING PAVEMENT

TRAFFIC CONTROL DEVICES

- TYPE I BARRICADE
- TYPE II BARRICADE
- TYPE III BARRICADE
- CONE
- DRUM SKINNY DRUM
- FLASHING ARROW PANEL (TYPE C)
- STATIONARY SIGN
- PORTABLE SIGN
- STATIONARY OR PORTABLE SIGN
- CRASH CUSHION
- CHANGEABLE MESSAGE SIGN
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- POLICE
- FLAGGER

PAVEMENT MARKINGS

- CRYSTAL/CRYSTAL PAVEMENT MARKER
- YELLOW/YELLOW PAVEMENT MARKER
- CRYSTAL/RED PAVEMENT MARKER
- PAVEMENT MARKING SYMBOLS

APPROVED: _____
DATE: _____

March 21 2007

PLAN PREPARED BY: N.C.D.O.T. WORK ZONE TRAFFIC CONTROL UNIT

- STUART BOURNE, PE TRAFFIC CONTROL ENGINEER
- JOSEPH ISHAK, PE TRAFFIC CONTROL PROJECT ENGINEER
- HABIB A. LAWANDOS TRAFFIC CONTROL PROJECT DESIGN ENGINEER
- WALID DAKDUK TRAFFIC CONTROL DESIGN ENGINEER

TIP PROJECT:

GENERAL NOTES

ADAPT THE TRAFFIC CONTROL PLANS, WHEN DIRECTED BY THE ENGINEER, TO MEET FIELD CONDITIONS TO PROVIDE SAFE AND EFFICIENT TRAFFIC MOVEMENT. CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE, OR RESULT IN DUPLICATE, OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING OR REMOVAL OF DEVICES.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, OR AS DIRECTED BY THE ENGINEER.
- B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 30 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- E) DO NOT PERFORM WORK INVOLVING HEAVY EQUIPMENT WITHIN 15 FT OF THE EDGE OF TRAVELWAY WHEN WORK IS BEING PERFORMED BEHIND A LANE CLOSURE ON THE OPPOSITE SIDE OF THE TRAVELWAY.
- F) DO NOT INSTALL MORE THAN 2 MILES OF LANE CLOSURE ON US 74 MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.

- G) DO NOT INSTALL MORE THAN 2 SIMULTANEOUS LANE CLOSURES, IN ANY ONE DIRECTION, ON US 74.
- H) PROVIDE A MINIMUM OF 5 MILES BETWEEN LANE CLOSURES MEASURED FROM THE END OF THE CLOSURE TO THE FIRST SIGN OF THE NEXT LANE CLOSURE.
- I) COMPLETE EACH GUARDRAIL SECTION BEFORE MOVING TO ANOTHER SECTION AND/OR BY THE END OF EACH WORKDAY UNLESS INCLEMENT WEATHER OR OTHER CONDITIONS BEYOND THE CONTROL OF CONTRACTOR, INTERFERE WITH THE WORK.
- J) AT END OF EACH WORK DAY, ALL INSTALLED POSTS SHALL HAVE A GUARDRAIL ON THEM AND FOR UNFINISHED WORK PLACE TEMPORARY END UNITES OR OTHER METHODS APPROVED BY THE ENGINEER TO PROTECT THE TRAVELING PUBLIC FROM THE INCOMPLETE GUARDRAIL SECTION AT NO EXPENSE TO THE DEPARTMENT.
- K) WHEN A PERIOD OF INACTIVITY IS ANTICIPATED TO BE GREATER THAN 4 HOURS WITHIN THE 2 MILES WORK ZONE, STAGE THE WORK SO THAT ALL LANES OF TRAFFIC CAN BE REOPENED TO TRAFFIC AND ALL CONSTRUCTION AND TRAFFIC CONTROL EQUIPMENT CAN BE REMOVED TO A LOCATION GREATER THAN 30 FEET FROM EDGE OF PAVEMENT UNLESS DIRECTED OTHERWISE BY THE ENGINEER.

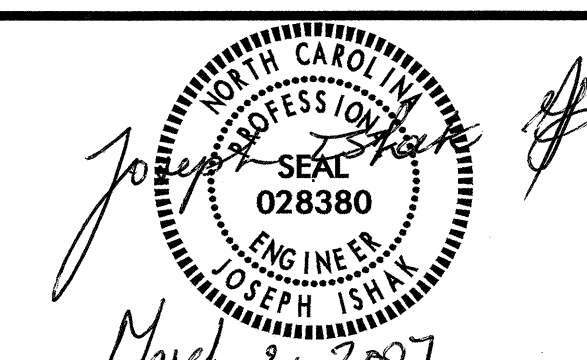
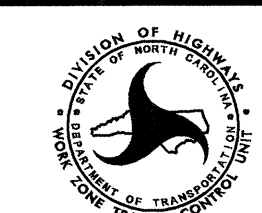
TRAFFIC CONTROL DEVICES

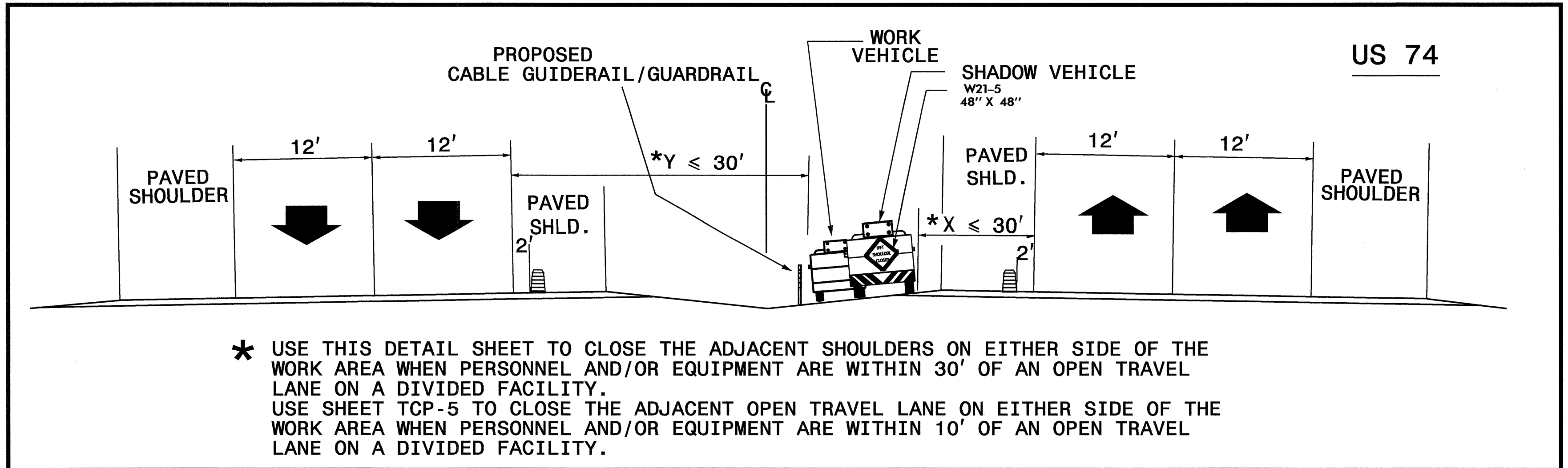
- L) SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY, WHEN LANE CLOSURES ARE NOT IN EFFECT.
- M) PLACE SETS OF THREE DRUMS PERPENDICULAR TO THE EDGE OF THE TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC. THESE DRUMS SHALL BE IN ADDITION TO CHANNELIZING DEVICES.

MISCELLANEOUS

- N) MAINTAIN CONTINUOUS AND SAFE VEHICULAR ACCESS, INCLUDING BUT NOT LIMITED TO ALL RESIDENCES, BUSINESSES, SCHOOL, POLICE AND FIRE STATIONS, HYDRANTS, OTHER EMERGENCY SERVICES, HOSPITAL AND MAILBOXES USING SUITABLE BACKFILL MATERIAL APPROVED BY THE ENGINEER.
- O) DO NOT BEGIN ANY WORK ON ANY SECTION OF NEW CABLE GUIDERAIL UNTIL PREPARATIONS HAVE BEEN MADE TO COMPLETE THE INSTALLATION OF THE SECTION, INCLUDING POSTS, CABLE AND CONCRETE ANCHORS, AS A CONTINUOUS OPERATION.

01-MAR-2007 09:28
 C:\p01\projects\4738\trafficcontrol\tcp-r-4738-1c-top-2.dgn
 W:\C224165
 W:\C224165

APPROVED:	DATE:	GENERAL NOTES							
	SCALE:	NONE							
	DATE:	02/07							
	DWG. BY:	WRD							
	DESIGN BY:	WRD							
REVIEWED BY:	HAL								
			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">REVISIONS</th> </tr> </thead> <tbody> <tr> <td style="width: 50%; height: 20px;"></td> <td style="width: 50%;"></td> </tr> <tr> <td style="height: 20px;"></td> <td></td> </tr> </tbody> </table>	REVISIONS					
REVISIONS									



* USE THIS DETAIL SHEET TO CLOSE THE ADJACENT SHOULDERS ON EITHER SIDE OF THE WORK AREA WHEN PERSONNEL AND/OR EQUIPMENT ARE WITHIN 30' OF AN OPEN TRAVEL LANE ON A DIVIDED FACILITY. USE SHEET TCP-5 TO CLOSE THE ADJACENT OPEN TRAVEL LANE ON EITHER SIDE OF THE WORK AREA WHEN PERSONNEL AND/OR EQUIPMENT ARE WITHIN 10' OF AN OPEN TRAVEL LANE ON A DIVIDED FACILITY.

**

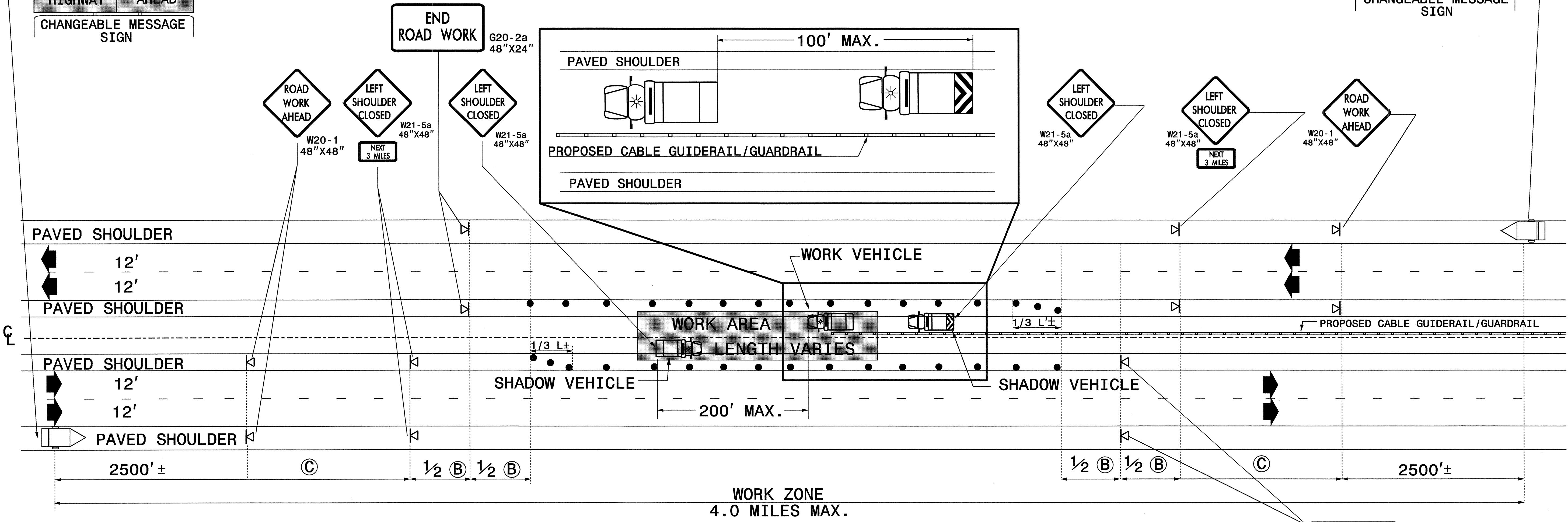
MESSAGE NO. 1	MESSAGE NO. 2
TRUCKS ENTERING HIGHWAY	MEDIAN WORK AHEAD

CHANGEABLE MESSAGE SIGN

**

MESSAGE NO. 1	MESSAGE NO. 2
TRUCKS ENTERING HIGHWAY	MEDIAN WORK AHEAD

CHANGEABLE MESSAGE SIGN



WORK ZONE 4.0 MILES MAX.

NOTES

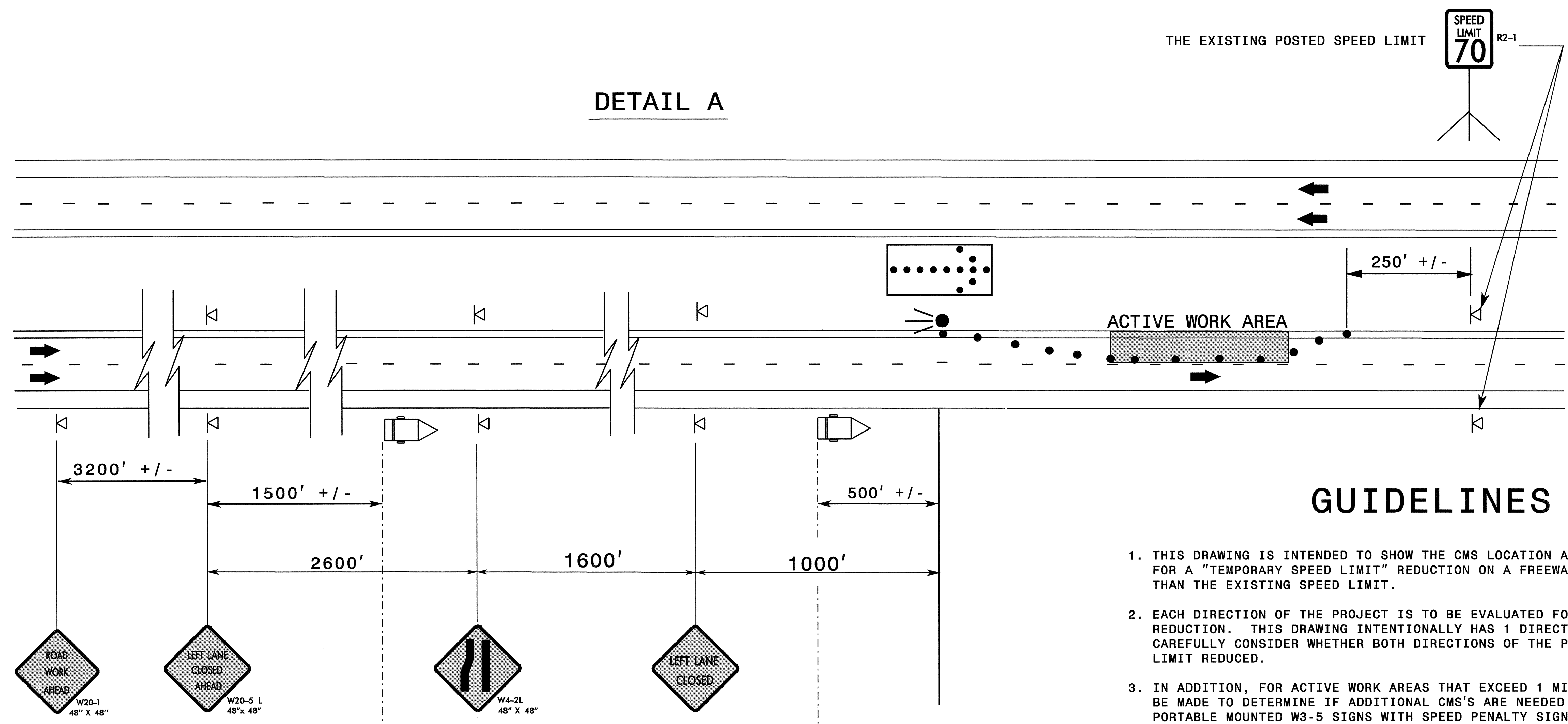
- USE PORTABLE MOUNT WORK ZONE WARNING SIGNS.
- WHEN WORK IS COMPLETED IN THE WORK ZONE, REMOVE ALL SIGNING AND SET UP NEXT WORK ZONE.
- MOUNT FLASHING ARROW BOARDS ON ALL WORK ZONE VEHICLES.
- OPERATE FLASHING ARROW BOARDS IN FOUR (4) CORNER CAUTION MODE ONLY.
- REFER TO RSD 1101.11 (SHEET 4 OF 4) FOR SIGN SPACING.

** USE CHANGEABLE MESSAGE SIGNS ON HIGHWAYS WITH SPEED LIMIT OVER 55 MPH

APPROVED:	DATE:
WORK ZONE WARNING SIGNS FOR GUIDERAIL AND GUARDRAIL INSTALLATION IN MEDIANS	
SCALE: NONE	REVISIONS
DATE: 02/07	
DWG. BY: WRD	
DESIGN BY: WRD	
REVIEWED BY: HAL	

01-MAR-2007 09:29 \\j\proj\traffic\trafficcontrol\tcp-4738-tc-top-3.dgn

DETAIL A



GUIDELINES

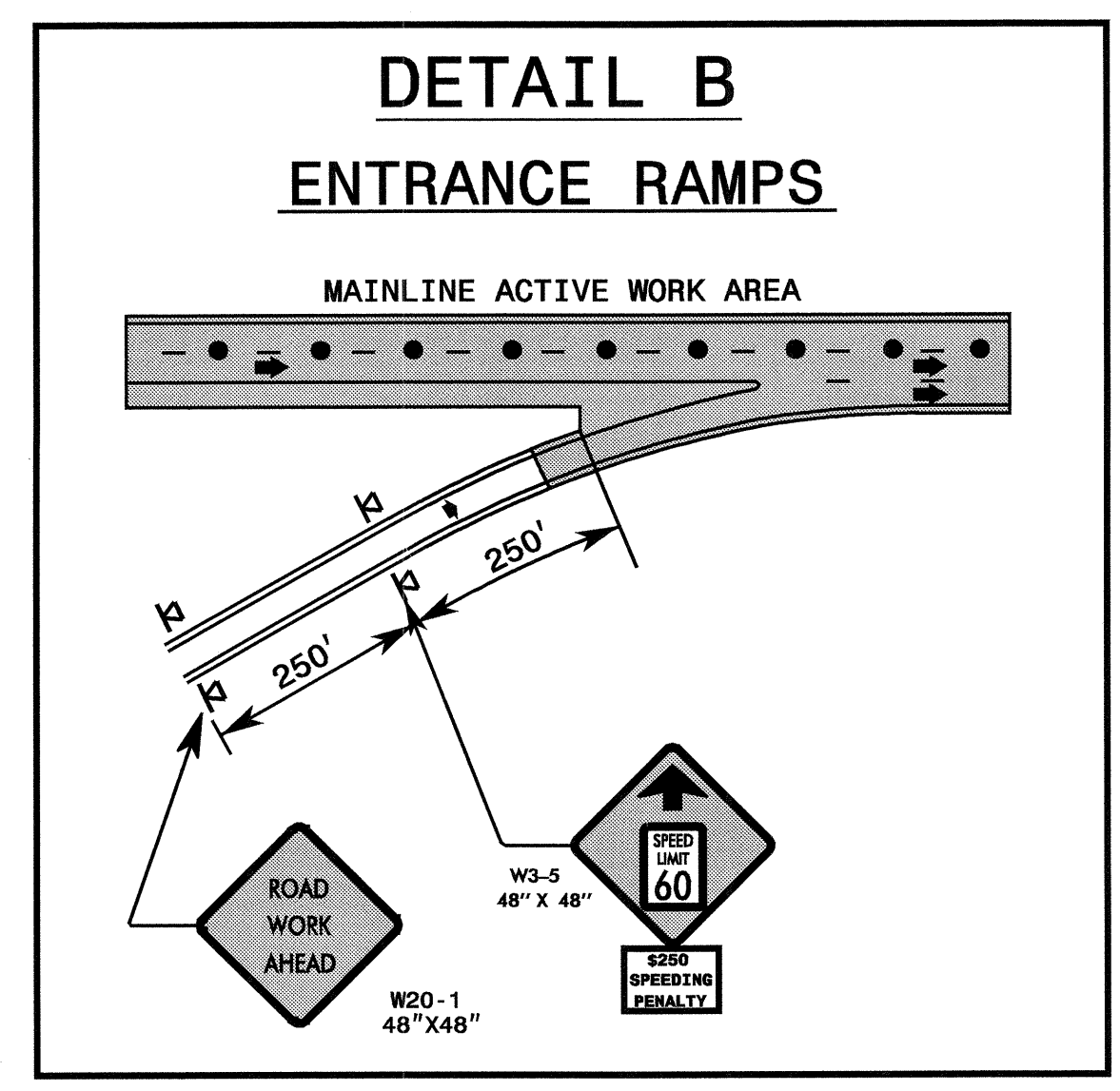
1. THIS DRAWING IS INTENDED TO SHOW THE CMS LOCATION AND MESSAGING REQUIRED FOR A "TEMPORARY SPEED LIMIT" REDUCTION ON A FREEWAY WHICH IS 10 MPH OR LESS THAN THE EXISTING SPEED LIMIT.
2. EACH DIRECTION OF THE PROJECT IS TO BE EVALUATED FOR THE "TEMPORARY SPEED LIMIT" REDUCTION. THIS DRAWING INTENTIONALLY HAS 1 DIRECTION SIGNED AS A REMINDER TO CAREFULLY CONSIDER WHETHER BOTH DIRECTIONS OF THE PROJECT NEED TO HAVE THE SPEED LIMIT REDUCED.
3. IN ADDITION, FOR ACTIVE WORK AREAS THAT EXCEED 1 MILE IN LENGTH, AN EVALUATION IS TO BE MADE TO DETERMINE IF ADDITIONAL CMS'S ARE NEEDED TO SUPPLEMENT THE INITIAL ONES. PORTABLE MOUNTED W3-5 SIGNS WITH SPEED PENALTY SIGNS ARE TO BE PLACED ALONG ENTRANCE RAMP LOCATED WITHIN THE ACTIVE WORK AREA.
4. THE \$250 SPEEDING PENALTY APPLIES FOR ALL PROJECTS THAT QUALIFY FOR A "TEMPORARY SPEED LIMIT" REDUCTION.
5. THE "TEMPORARY SPEED LIMIT" REDUCTION IS ONLY IN EFFECT WHEN WORKERS ARE PRESENT. THE SPEED LIMIT AND SPEED PENALTY MESSAGES ARE TO BE REMOVED AND THE SIGNS ARE TO BE TURNED OFF OR OTHER PERTINENT MESSAGING MAY BE DISPLAYED. AT THE COMPLETION OF THE ACTIVITY, THE REGIONAL TRAFFIC ENGINEER SHALL BE NOTIFIED BY THE RESIDENT ENGINEER TO RESCIND THE ORDINANCE.
6. WHEN "TEMPORARY SPEED LIMIT" REDUCTIONS ARE IN EFFECT, THE CONTRACTOR IS TO COVER ANY EXISTING SPEED LIMIT SIGNS LOCATED WITHIN THE ACTIVE WORK AREA THAT CONFLICT WITH THE "TEMPORARY SPEED LIMIT" REDUCTION.
7. REFER TO RSD 1101.02, SHEET 3 OF 9, FOR LEFT AND RIGHT LANE CLOSURES.
8. ONE ADDITIONAL CMS IS REQUIRED TO COMPLY WITH RSD 1101.02, SHEET 3 OF 9.

MESSAGE NO. 1	MESSAGE NO. 2
REDUCE SPEED AHEAD	WORKERS IN ROADWAY

CHANGEABLE MESSAGE SIGN

MESSAGE NO. 1	MESSAGE NO. 2
SPEED LIMIT 60 MPH	\$250 SPEEDING PENALTY

CHANGEABLE MESSAGE SIGN



APPROVED: _____	DATE: _____	<h3>"TEMPORARY SPEED LIMIT" REDUCTION WITH PORTABLE CMS'S- 10 MPH OR LESS</h3>	SCALE: NONE		REVISIONS				
			DATE: 02/07		<table border="1"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>				
		DESIGN BY: _____	REVIEWED BY: _____	CADD FILE					








O:\MAR-2007 09:30
 \dot\dfsroot\01\pcc\ipprojects-r\4738\traffic\trafficcontrol\top\4738_fc_top-4.dgn
 workduk AT WZIC22163

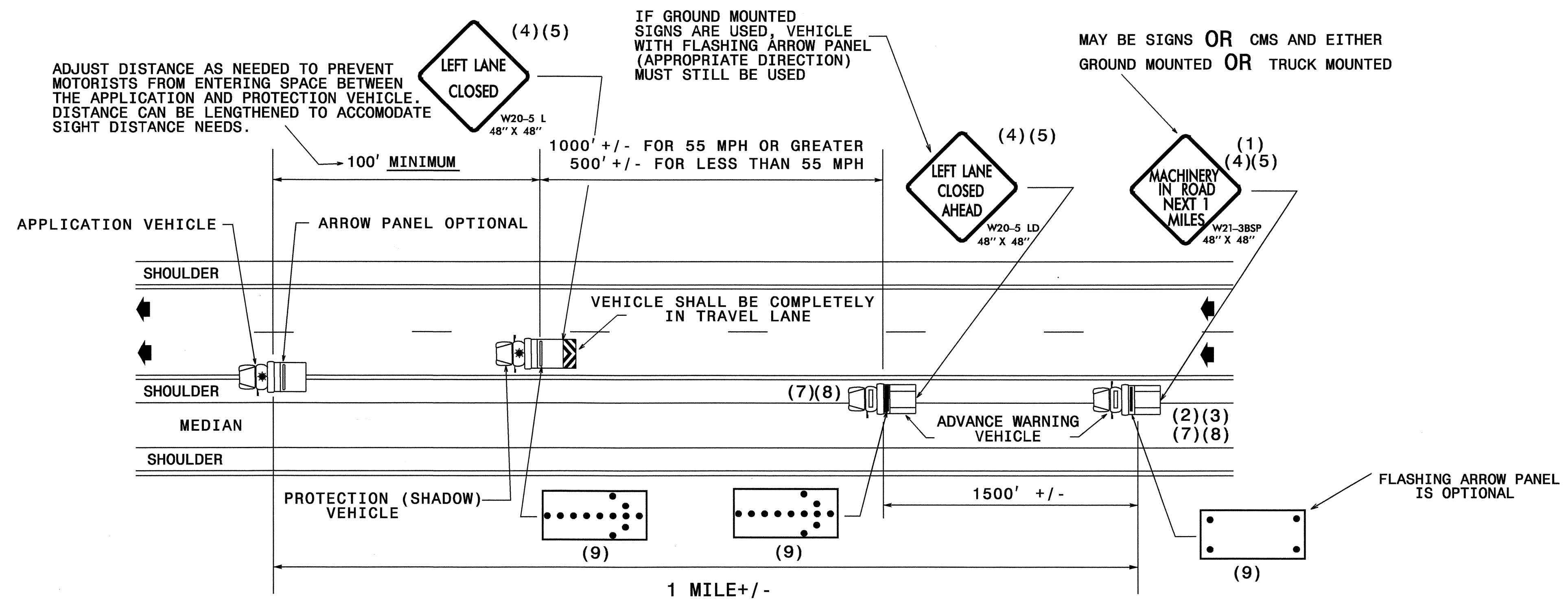
GENERAL NOTES

- (1) THE FOLLOWING OPTIONS MAY BE USED AS THE FIRST ADVANCE WARNING THE MOTORISTS SEES:
 - A. TRUCK MOUNTED ADVANCE WARNING SIGNS
 - B. MOVING CHANGEABLE MESSAGE SIGN (CMS)
 - C. GROUND MOUNTED ADVANCE WARNING SIGNS (MUST USE 'NEXT 10 MILES' AND MAKE CIRCLE TO PICK UP SIGNS)
 - D. STATIONARY CHANGEABLE MESSAGE SIGN (CMS) (MUST USE 'NEXT 10 MILES' AND MAKE CIRCLE TO PICK UP CMS)
- (2) TOTAL DISTANCE BETWEEN FIRST AND LAST VEHICLE IN CARAVAN SHOULD NOT EXCEED ONE (1) MILE IN LENGTH.
- (3) IF USING GROUND MOUNTED ADVANCE WARNING SIGNS OR STATIONARY CMS, THE TOTAL DISTANCE BETWEEN THE FIRST ADVANCE WARNING SIGN OR CMS AND APPLICATION VEHICLE SHOULD NOT EXCEED 10 MILES AND SIGN W21-3BSP SHOULD READ 'MACHINERY IN ROAD NEXT 10 MILES'.
- (4) SIGNS ON VEHICLES SHOULD BE MOUNTED A MINIMUM OF ONE (1) FOOT FROM THE GROUND AND SHOULD NOT BLOCK THE MOTORIST'S SIGHT OF THE FLASHING ARROW PANEL AND/OR LIGHT BAR.
- (5) SIGN W20-5L SHOULD BE PLACED ON BACK OF PROTECTION VEHICLE AND SIGN W20-LD ON BACK OF ADVANCE WARNING VEHICLE IN MULTILANE DIVIDED TRAFFIC SO VEHICLES APPROACHING FROM REAR ARE NOTIFIED OF OPERATION
- (6) RADIO COMMUNICATION BETWEEN VEHICLES IS RECOMMENDED.
- (7) USE A LIGHT BAR OR ROTATING BEACON ON THE ADVANCE WARNING VEHICLES.
- (8) USE OF CMS's ARE OPTIONAL WITH ADVANCED WARNING VEHICLES.
- (9) USE A TYPE "B" FLASHING ARROW PANEL.

PANEL TYPE	MIN. SIZE
B	60"X30"

LEGEND

-  PORTABLE SIGN
-  DIRECTION OF TRAFFIC FLOW
-  APPLICATION VEHICLE WITH ROTATING BEACON
-  PROTECTION VEHICLE WITH TRUCK MOUNTED IMPACT ATTENUATOR (TMIA) AND ROTATING BEACON (SEE ROADWAY STANDARD NO. 1165.01)
-  ADVANCE WARNING VEHICLE i.e. PICKUP TRUCK WITH MOUNTED SIGN
-  FLASHING ARROW PANEL, TYPE "B" "CAUTION MODE"
-  FLASHING ARROW PANEL, TYPE "B" APPROPRIATE DIRECTION INDICATED

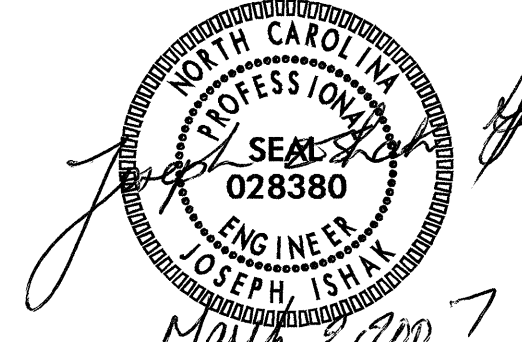



MOVING OPERATION CARAVAN

(OPERATIONS TRAVELING 3 MPH OR FASTER)

FOR INTERSTATE & HIGH VOLUME MULTILANE DIVIDED ROADWAYS
IN MEDIAN AND ON RIGHT SIDE W/PAVED SHOULDERS LESS THAN 10' WIDE

DRAWING NUMBER 1
IMPLEMENTATION DATE: 02/27/97
REVISED: 07/29/02

APPROVED:	DATE:	MOVING OPERATION CARAVAN	
			
SCALE:	NONE		REVISIONS
DATE:	02/07		
DWG. BY:	WRD		
DESIGN BY:	WRD		
REVIEWED BY:	HAL		CADD FILE

