

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO. SHEET NO.  
B-4052 TCP-1

B-4052

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

**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
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	TRUCK MOUNTED IMPACT ATTENUATOR
1170.01	PORTABLE CONCRETE BARRIER
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS & WORD MESSAGES
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS (TEMPORARY & PERMANENT)
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

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TCP-7B	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
TCP-8	DETAIL FOR ADVANCED WORK ZONE WARNING SIGNS

**LEGEND**

- GENERAL**
- DIRECTION OF TRAFFIC FLOW
  - NORTH ARROW
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  - WORK AREA
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- TRAFFIC CONTROL DEVICES**
- TYPE I BARRICADE
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  - DRUM SKINNY DRUM
  - FLASHING ARROW PANEL (TYPE C)
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  - PORTABLE SIGN
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  - TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
  - POLICE
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- PAVEMENT MARKINGS**
- CRYSTAL/CRYSTAL PAVEMENT MARKER
  - YELLOW/YELLOW PAVEMENT MARKER
  - CRYSTAL/RED PAVEMENT MARKER
  - PAVEMENT MARKING SYMBOLS

**TEMPORARY PAVEMENT MARKING SCHEDULE**

SYMBOL	DESCRIPTION	PAY ITEM QUANTITY	TOTAL QUANTITY
TEMPORARY PAVEMENT MARKINGS			
PAINT (24")			
P4	WHITE STOPBAR (2X)	68 LF	68 LF
COLD APPLIED PLASTIC (4") Type 4-Removable Tape			
CA	WHITE EDGELINE (2X)	300 LF	600 LF
CI	YELLOW DOUBLE CENTER (2X)	300 LF	
PAINT (4")			
PA	WHITE EDGELINE (2X)	3554 LF	7151 LF
PD	2 FT. WHITE MINISKIP (1X)	43 LF	
PI	YELLOW DOUBLE CENTER (2X)	3554 LF	
MARKERS			
TEMPORARY RAISED PAVEMENT MARKERS			
MH	YELLOW/YELLOW	39 EA	39 EA

(SEE TCP-7 FOR FINAL PAVEMENT MARKING SCHEDULE)

TIP PROJECT:

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**N.C.D.O.T. TRAFFIC CONTROL, MARKING & DELINEATION SECTION  
LIST OF CONTACTS**

<u>STUART BOURNE, P.E.</u>	TRAFFIC CONTROL ENGINEER
<u>JOSEPH ISHAK, P.E.</u>	TRAFFIC CONTROL PROJECT ENGINEER
<u>HABIB LAWANDOS</u>	TRAFFIC CONTROL PROJECT DESIGN ENGINEER
<u>J.L. FUTRELL</u>	TRAFFIC CONTROL DESIGN ENGINEER

*B.A. May* APPROVED:  
2-19-2008 DATE:



SEAL

**PLAN PREPARED FOR NCDOT BY:**

<u>B.A. MAY, P.E.</u>	PROJECT ENGINEER
<u>C.L. MULLEN</u>	DESIGN ENGINEER
	DESIGN TECHNICIAN



# PROJECT NOTES

## GENERAL NOTES

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

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 15 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 OR A LANE CLOSURE IS INSTALLED.
- 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 WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.
- F) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

### PAVEMENT EDGE DROP OFF REQUIREMENTS

- G) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:  
  
BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.  
  
BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.  
  
BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.
- H) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

### TRAFFIC PATTERN ALTERATIONS

- I) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

### SIGNING

- J) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- K) STATE FORCES WILL BE RESPONSIBLE FOR PERMANENT SIGNING.
- L) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

### TRAFFIC BARRIER

- M) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRAFFIC CONTROL PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION, PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE/RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW, BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW, BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

- N) PROTECT THE APPROACH END OF TEMPORARY BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY A TRUCK MOUNTED IMPACT ATTENUATOR (MAXIMUM 72 HOURS).

PROTECT THE APPROACH END OF TEMPORARY BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF TEMPORARY BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS:

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT

### TRAFFIC CONTROL DEVICES

- O) SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT ON-CENTER IN RADIUS, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY, WHEN LANE CLOSURES ARE IN EFFECT. WHEN SKINNY DRUMS ARE ALLOWED, REFER TO SECTION 1180 OF STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES OR AS SHOWN IN THE PLANS.
- P) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

### PAVEMENT MARKINGS AND MARKERS

- Q) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
1. -L- DECK & ROADWAY	POLYUREA	SNOWFLOWABLE
2. ALL OTHER ROADS	POLYUREA	NONE
- R) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
1. ALL ROADWAYS	PAINT	TEMPORARY RAISED
2. -L- CONCRETE DECK	COLD APPLIED PLASTIC	TEMPORARY RAISED
- S) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- T) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- U) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

### MISCELLANEOUS

- V) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAYS TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION, AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) AND RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

## LOCAL NOTES

- 1) THE CONTRACTOR SHALL SCHEDULE ANY TRAFFIC SHIFTS, STOPPING OF TRAFFIC, AND BLASTING OPERATIONS ON NC 268 AND SR 1560 SO AS TO MINIMIZE IMPACTS TO HAPPY VALLEY SCHOOL AND TO PATTERSON SCHOOL AS DIRECTED BY THE ENGINEER.

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 559 Jones Franklin Rd. Suite 164 Raleigh, N.C. 27606 Bus: 919 851 8077 Fax: 919 851 8107	APPROVED: <i>Bob A. May</i> DATE: <i>2/19/08</i>	<h2 style="margin: 0;">PROJECT NOTES</h2>																							
			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">REVISIONS</th> </tr> </thead> <tbody> <tr> <td style="width: 50%;">SCALE: NONE</td> <td style="width: 50%;"></td> </tr> <tr> <td>DATE: 8/07</td> <td></td> </tr> <tr> <td>DWG. BY: CLM</td> <td></td> </tr> <tr> <td>DESIGN BY: CLM</td> <td></td> </tr> <tr> <td>REVIEWED BY: BAM</td> <td></td> </tr> </tbody> </table>	REVISIONS		SCALE: NONE		DATE: 8/07		DWG. BY: CLM		DESIGN BY: CLM		REVIEWED BY: BAM		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">REVISIONS</th> </tr> </thead> <tbody> <tr> <td style="width: 50%;"></td> <td style="width: 50%;"></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>	REVISIONS								
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**PHASE I**

- STEP 1) INSTALL ADVANCE WORK ZONE WARNING SIGNS ON NC 268, SR 1560 (YADKIN RIVER RD.), AND SR 1516 (TRAILS END LANE) (SEE TCP-4 AND TCP-8).  
BEGIN ANY PROPOSED -DETOUR- WORK THAT DOES NOT INTERFERE WITH EXISTING TRAFFIC.
- STEP 2) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, CONSTRUCT PROPOSED -Y- RIGHT SIDE WIDENING, EXPRESSWAY GUTTER, AND WEDGING UP TO, BUT NOT INCLUDING, THE FINAL LAYER THROUGH THE FOLLOWING STATIONS (SEE LOCAL NOTE #1 ON TCP-2 AND "DETAIL A" ON TCP-4):  
-Y- STA. 12+00+/- TO -Y- STA. 16+05+/-
- PERFORM THE FOLLOWING WORK OF PHASE I, STEP 3 THRU STEP 5 IN ONE WORKDAY:
- STEP 3) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, PLACE -Y- TRAFFIC IN A ONE-LANE, TWO-WAY PATTERN IN THE EXISTING NORTHBOUND TRAVEL LANE.  
PLACE TEMPORARY RIGHT SIDE PAVEMENT MARKING WHITE EDGELINE, YELLOW DOUBLE CENTERLINE AND TEMPORARY RAISED MARKERS (SEE TCP-4).  
REPOSITION ADVANCE WARNING SIGNING, INSTALL W1-4L/W1-4R SIGNS AND W13-1 SIGNS (SEE TCP-4).
- STEP 4) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, SHIFT -Y- TRAFFIC TO THE SOUTHBOUND TRAVEL LANE IN A ONE-LANE, TWO-WAY PATTERN.  
PLACE REMAINING TEMPORARY LEFT SIDE WHITE EDGELINE AND INSTALL PORTABLE CONCRETE BARRIER AND TEMPORARY CRASH CUSHION (SEE TCP-4).
- STEP 5) OPEN SR 1560 TO THE TWO-LANE, TWO-WAY PATTERN (SEE TCP-4).
- STEP 6) COMPLETE TEMPORARY -DETOUR- STRUCTURE AND APPROACHES UP THROUGH THE FINAL LAYER AS SHOWN IN THE CONSTRUCTION PLANS. INSTALL TEMPORARY SHORING #1 (SEE TCP-4, TCP-7A, AND TCP-7B).  
MAINTAIN TRAFFIC ON EXISTING SR 1516 (TRAILS END LANE) AT ALL TIMES DURING TEMPORARY -DETOUR- CONSTRUCTION.

**PHASE II**

- STEP 1) PLACE PAVEMENT MARKINGS AND TEMPORARY MARKERS AS MUCH AS POSSIBLE ON THE TEMPORARY -DETOUR- (SEE TCP-5). INSTALL TEMPORARY GUARDRAIL AS SHOWN IN THE CONSTRUCTION PLANS.  
PERFORM THE FOLLOWING WORK OF PHASE II, STEP 2 THRU STEP 4 IN ONE WORKDAY:
- STEP 2) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, PLACE -Y- TRAFFIC IN A ONE-LANE, TWO-WAY PATTERN IN THE SOUTHBOUND TRAVEL LANE. PLACE EXISTING NC 268 TRAFFIC IN A ONE-LANE, TWO-WAY PATTERN IN THE EASTBOUND TRAVEL LANE.  
REPOSITION ADVANCE WARNING SIGN ON NC 268 AND INSTALL W1-3R/W13-1 SIGNING. INSTALL TEMPORARY STOP SIGNS AT THE -Y-/-DETOUR- INTERSECTION AND AT THE SR 1516/NC 268 INTERSECTION (SEE TCP-5).  
REMOVE PHASE I PORTABLE CONCRETE BARRIER AND CRASH TEMPORARY CUSHION FROM -Y-.
- STEP 3) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, SIMULTANEOUSLY SHIFT -Y- TRAFFIC AND NC 268 ONTO THE TEMPORARY DETOUR WESTBOUND LANE IN A ONE-LANE, TWO-WAY PATTERN. PLACE TYPE III BARRICADES TO CLOSE THE EXISTING NC 268 BRIDGE TO TRAFFIC.  
PLACE REMAINING PAVEMENT MARKINGS AND MARKERS FOR THE TEMPORARY TWO-LANE, TWO-WAY PATTERN (SEE TCP-5).
- STEP 4) OPEN -Y- AND THE TEMPORARY -DETOUR TO TWO-LANE, TWO-WAY TRAFFIC PATTERNS (SEE TCP-5).
- STEP 5) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, INSTALL PORTABLE CONCRETE BARRIER AND TEMPORARY CRASH CUSHION ON -Y- (SEE TCP-5)  
INSTALL TEMPORARY SHORING #2 ON THE RIGHT SIDE OF THE TEMPORARY -DETOUR- AS FOLLOWS (SEE TCP-5, TCP-7A, AND TCP-7B):  
-DET- 10+30+/- TO STA. 10+40+/-  
CONSTRUCT -L- (NC 268) STRUCTURE AND APPROACHES AS MUCH AS POSSIBLE UP TO, BUT NOT INCLUDING, THE FINAL LAYER AT THE FOLLOWING STATIONS (SEE LOCAL NOTE #1 ON TCP-2 AND TCP-5):  
-L- 10+15+/- TO -L- STA. 12+90+/-  
CONSTRUCT PROPOSED -L- RIGHT TURN LANE UP TO THE EDGE OF PAVEMENT ELEVATION (SEE TCP-5).

**PHASE III**

- STEP 1) PLACE TEMPORARY PAVEMENT MARKINGS AND TEMPORARY MARKERS AS MUCH AS POSSIBLE ON -L- (SEE TCP-6).  
INSTALL PERMANENT GUARDRAIL AS SHOWN IN THE CONSTRUCTION PLANS.  
PERFORM THE FOLLOWING WORK OF PHASE III, STEP 2 THRU STEP 4 IN ONE WORKDAY:
- STEP 2) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, PLACE -Y- TRAFFIC IN A ONE-LANE, TWO-WAY PATTERN IN THE SOUTHBOUND TRAVEL LANE. PLACE TEMPORARY -DETOUR- TRAFFIC IN A ONE-LANE, TWO-WAY PATTERN IN THE WESTBOUND TRAVEL LANE.  
RESET PHASE II PORTABLE CONCRETE BARRIER AND TEMPORARY CRASH CUSHION FROM -Y- ONTO THE -L- STRUCTURE AS MUCH AS POSSIBLE (SEE TCP-6).
- STEP 3) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, SIMULTANEOUSLY SHIFT -Y- TRAFFIC AND TEMPORARY -DETOUR- TRAFFIC ONTO THE NEW -L- EASTBOUND LANE IN A ONE-LANE, TWO-WAY PATTERN. PLACE TYPE III BARRICADES TO CLOSE OFF THE TEMPORARY -DETOUR-.  
PLACE REMAINING PAVEMENT MARKINGS AND MARKERS FOR THE TEMPORARY TWO-LANE, TWO-WAY PATTERN. INSTALL REMAINING PORTABLE CONCRETE BARRIER AND TEMPORARY CRASH CUSHION ON -Y- TO CLOSE OFF THE TEMPORARY -DETOUR- (SEE TCP-6).
- STEP 4) OPEN -L- AND -Y- TO TEMPORARY TWO-LANE, TWO-WAY TRAFFIC PATTERNS (SEE TCP-6). REMOVE PHASE II TEMPORARY -DETOUR- SIGNING FROM NC 268 AND MAINTAIN ADVANCE WARNING SIGNING.
- STEP 5) REMOVE TEMPORARY -DETOUR- STRUCTURE AND APPROACHES AS SHOWN IN THE CONSTRUCTION PLANS. MAINTAIN -Y1- TRAFFIC AT ALL TIMES.  
COMPLETE PROPOSED -L- STRUCTURE APPROACH SLAB WORK BEHIND PORTABLE CONCRETE BARRIER AS SHOWN IN THE STRUCTURE PLANS (SEE TCP-6).
- STEP 6) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, REMOVE PORTABLE CONCRETE BARRIER AND TEMPORARY CRASH CUSHION FROM -Y- AND -L- AND REPLACE WITH DRUMS.

**PHASE IV**

- STEP 1) PLACE -L- PAVEMENT MARKINGS IN THE FINAL TRAFFIC PATTERN AS MUCH AS POSSIBLE (SEE TCP-7).  
PERFORM THE FOLLOWING WORK OF PHASE IV, STEP 2 THRU STEP 4 IN A CONTINUOUS MANNER. AT THE END OF EACH WORKDAY, RETURN TRAFFIC TO A TWO-LANE, TWO-WAY TRAFFIC PATTERN ON ALL ROADS.
- STEP 2) USING RSD 1101.02, SHT. 1 OF 9, SHIFT -Y- TRAFFIC TO THE SOUTHBOUND LANE IN A ONE-LANE, TWO-WAY PATTERN. SHIFT -L- TRAFFIC TO THE EASTBOUND LANE IN A ONE-LANE, TWO-WAY PATTERN.  
PLACE PAVEMENT MARKINGS AS MUCH AS POSSIBLE ON -Y- AND -L- FOR THE FINAL TRAFFIC PATTERN (SEE TCP-7).
- STEP 3) USING RSD 1101.02, SHT. 1 OF 9, SHIFT -Y- TRAFFIC TO THE NORTHBOUND LANE IN A ONE-LANE, TWO-WAY PATTERN. SHIFT -L- TRAFFIC TO THE WESTBOUND LANE IN A ONE-LANE, TWO-WAY PATTERN.  
PLACE REMAINING PAVEMENT MARKINGS ON -Y- FOR THE FINAL TRAFFIC PATTERN (SEE TCP-7).
- STEP 4) OPEN -Y- AND -L- TO THE FINAL TWO-LANE, TWO-WAY TRAFFIC PATTERN (SEE TCP-7).
- STEP 5) USING RSD 1101.02, SHT. 1 OF 9, PLACE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS, SYMBOLS, AND MARKERS ON THE PROJECT.  
REMOVE ALL TRAFFIC CONTROL DEVICES FROM THE PROJECT LIMITS.

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2/2/2008

**WETHERILL ENGINEERING**  
559 Jones Franklin Rd. Suite 164  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *[Signature]* DATE: 2-21-08

SEAL  

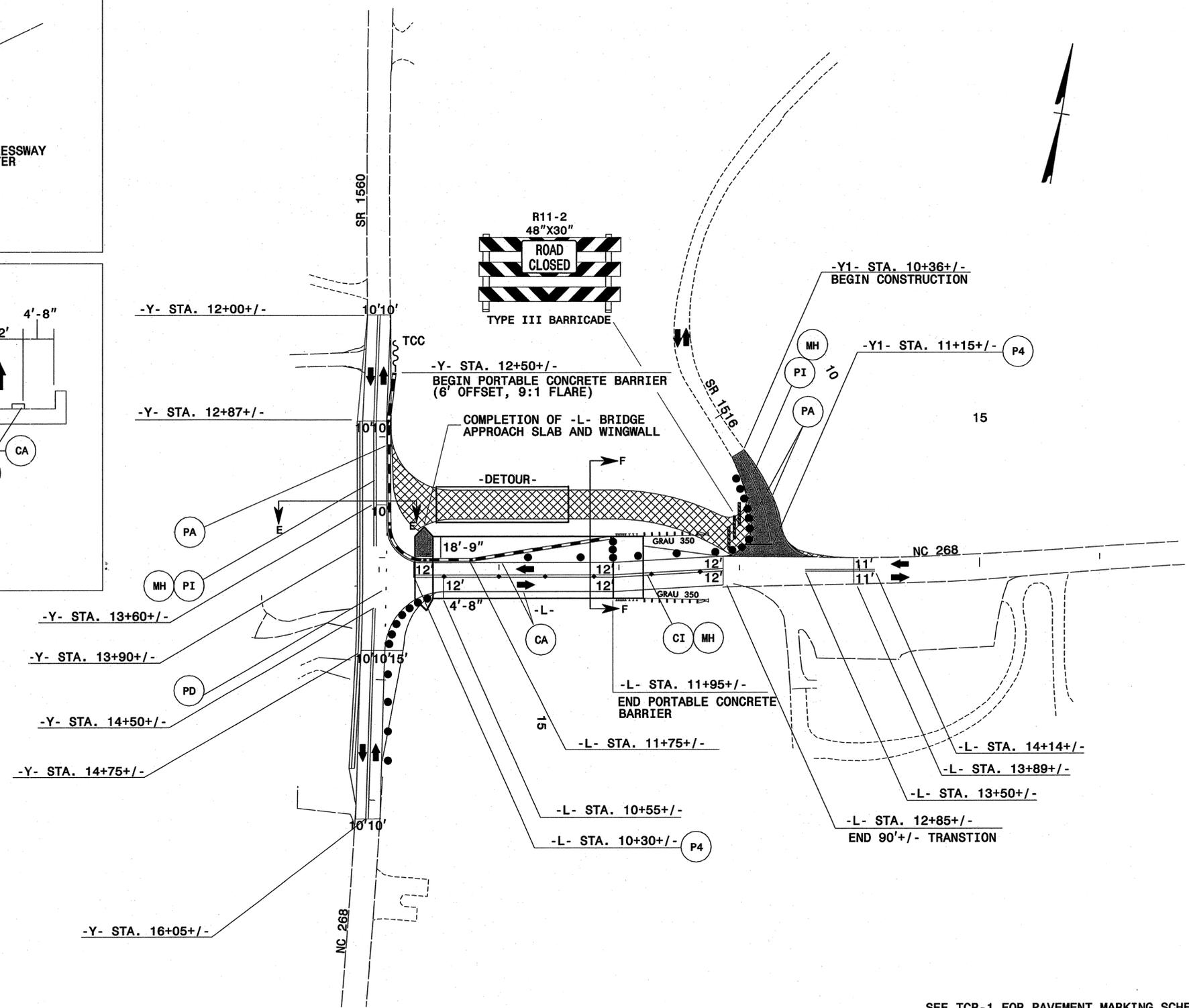
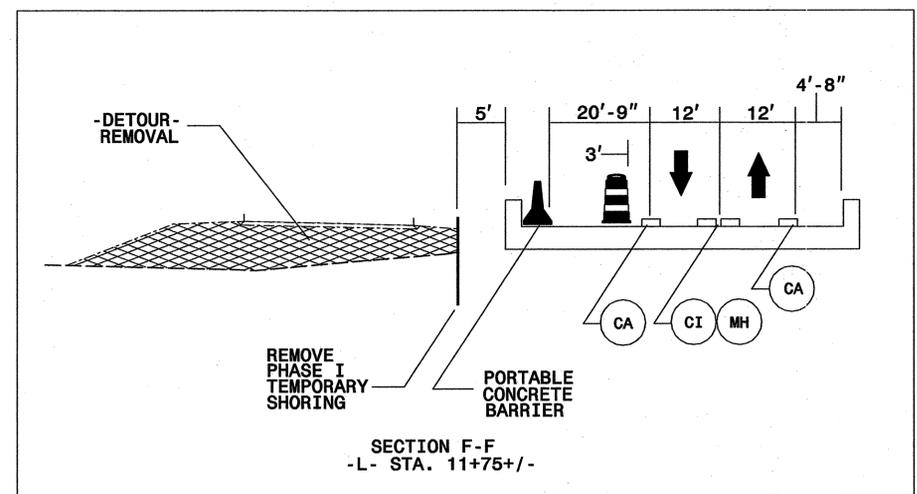
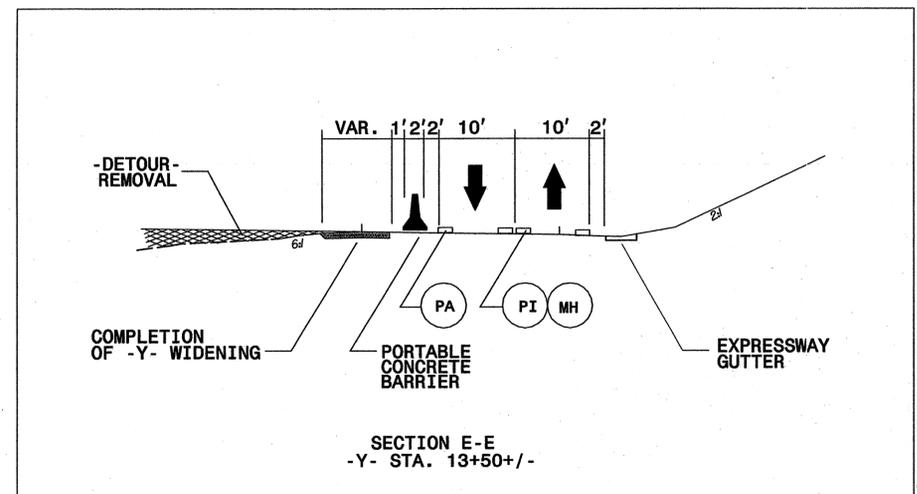

**PROJECT PHASING**

SCALE: NONE		REVISIONS
DATE: 8/07		
DWG. BY: CLM		
DESIGN BY: CLM		
REVIEWED BY: BAM		

CADD FILE







SEE TCP-1 FOR PAVEMENT MARKING SCHEDULE

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**WETHERILL ENGINEERING**  
 559 Jones Franklin Rd. Suite 164  
 Raleigh, N.C. 27606  
 Bus: 919 851 8077  
 Fax: 919 851 8107

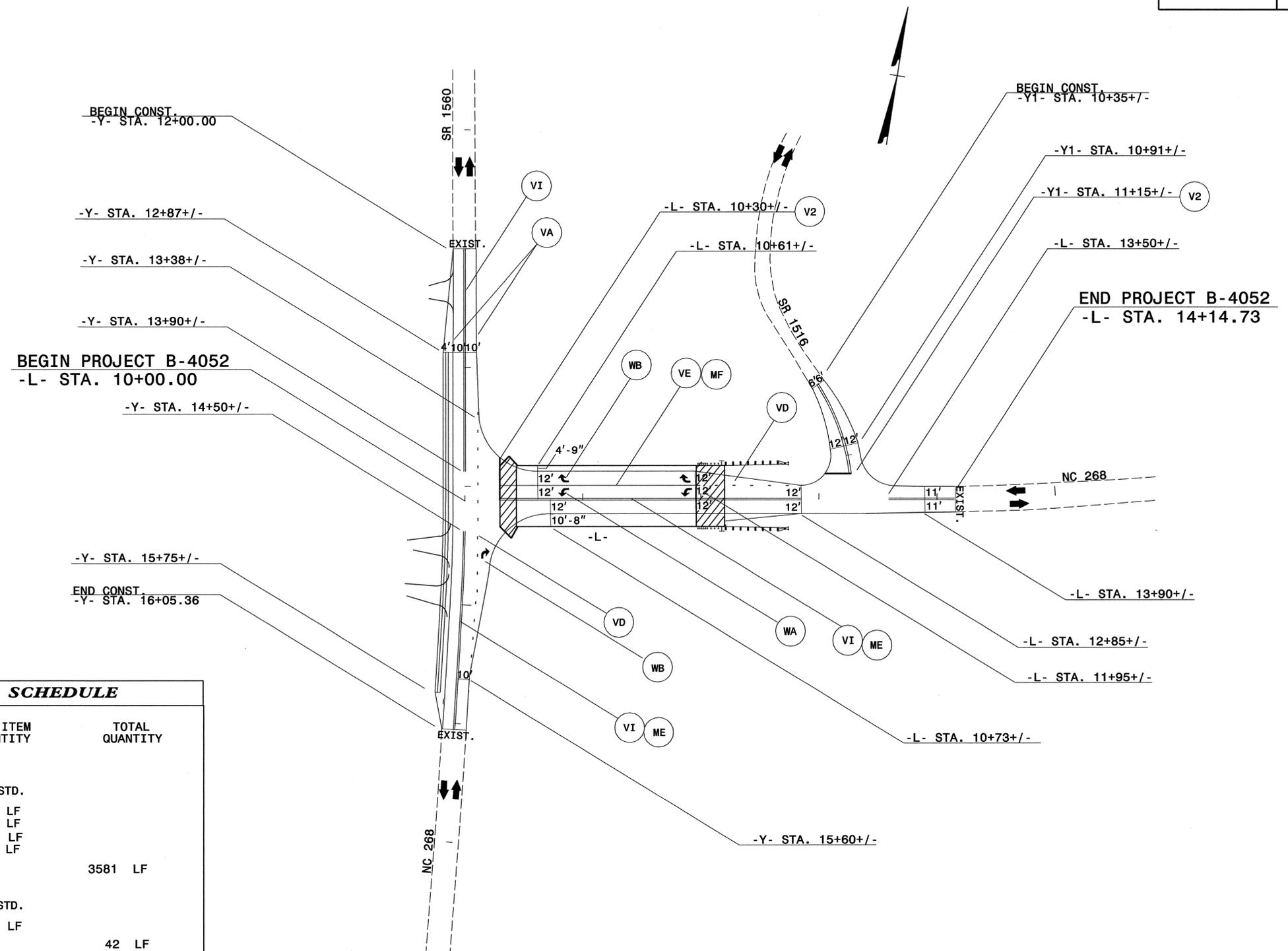
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: *Bob A. May* DATE: 2-21-07

SEAL  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 SEAL 21116  
 BOB A. MAY

**PHASE III**

SCALE: NONE		REVISIONS
DATE: 8/07		
DWG. BY: ABP		
DESIGN BY: CLM		
REVIEWED BY: BAM		



**FINAL PAVEMENT MARKING SCHEDULE**

SYMBOL	DESCRIPTION	PAY ITEM QUANTITY	TOTAL QUANTITY
FINAL PAVEMENT MARKINGS			
POLYUREA (4") TYPE 1 - PERMANENT STD.			
VA	WHITE EDGELINE	1638 LF	
VI	YELLOW DOUBLE CENTER	1736 LF	
VE	WHITE SOLID LANE LINE	165 LF	
VD	2' WHITE MINISKIP	42 LF	
			3581 LF
POLYUREA (24") TYPE 1- PERMANENT STD.			
V2	WHITE STOPBAR	42 LF	
			42 LF
POLYUREA PAVEMENT MARKING SYMBOL TYPE 1 - PERMANENT STD.			
WA	LEFT TURN ARROW	2 EA	
WB	RIGHT TURN ARROW	3 EA	
			5 EA
SNOWPLOWABLE RAISED PAVEMENT MARKERS			
MF	CRYSTAL & RED	9 EA	
ME	YELLOW & YELLOW	14 EA	
			23 EA

SEE RSD'S 1205.01, 1205.02, 1205.04, 1205.05, 1205.08, 1205.12, 1261.01, 1261.02, AND 1262.01

**WETHERILL ENGINEERING**

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

559 Jones Franklin Rd. Suite 164  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107

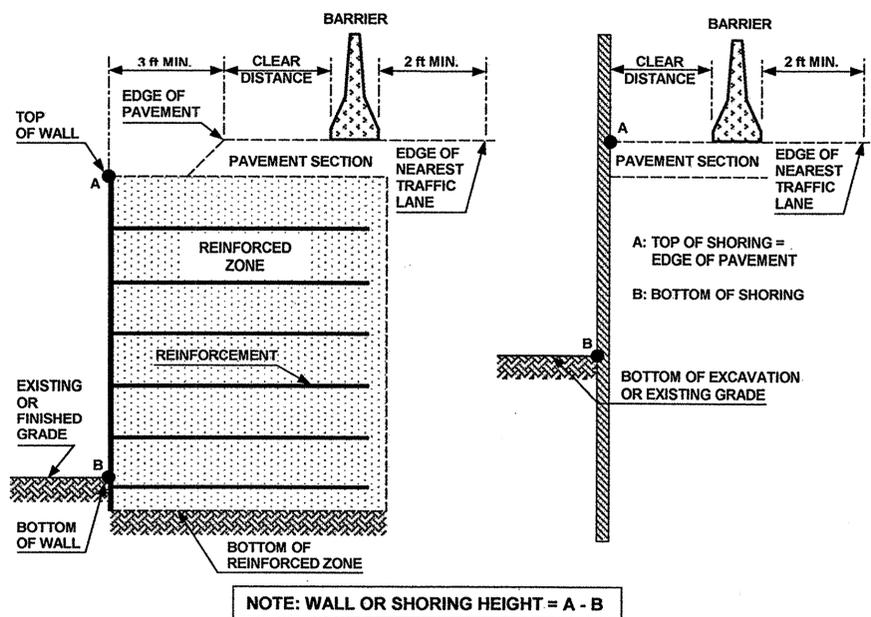
APPROVED: *[Signature]* DATE: 8-5-08

SEAL

**PHASE IV**

SCALE: NONE		REVISIONS
DATE: 8/07		
DWG. BY: ABP		
DESIGN BY: CLM		
REVIEWED BY: BAM		





**FIGURE A**

**NOTES**

- REFER TO THE TRAFFIC CONTROL PLANS FOR SHORING LOCATIONS AND SOIL PARAMETERS.
- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR MORE INFORMATION ABOUT TEMPORARY SHORING, MEASUREMENT AND PAYMENT.
- PROVIDE PORTABLE CONCRETE BARRIER TO PROTECT TEMPORARY SHORING IF SHORING IS LOCATED WITHIN THE CLEAR ZONE AS DEFINED IN THE AASHTO ROADSIDE DESIGN GUIDE.
- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED PCB, ANCHORED PCB OR AN OREGON BARRIER FROM THE TABLE SHOWN IN FIGURE B. FOR TRAFFIC LANES AND PORTABLE CONCRETE BARRIER LOCATED ABOVE AND BEHIND TEMPORARY SHORING, THE FOLLOWING ARE DEFINED AS:
 

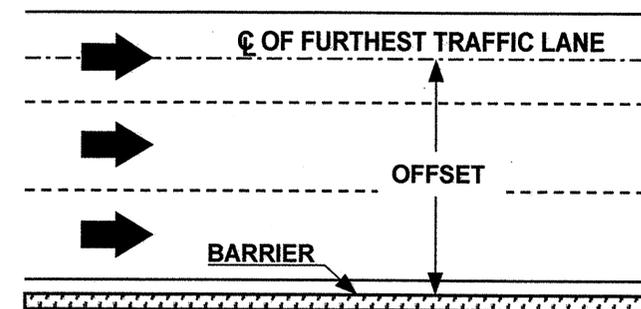
CLEAR DISTANCE - HORIZONTAL DISTANCE FROM THE BACK FACE OF THE BARRIER TO THE EDGE OF PAVEMENT FOR TEMPORARY MSE WALL OR TO THE FACE OF NON-ANCHORED TEMPORARY SHORING AS SHOWN IN FIGURE A.

OFFSET - HORIZONTAL DISTANCE FROM THE FRONT FACE OF THE BARRIER TO CENTERLINE OF THE FURTHEST TRAFFIC LANE AS SHOWN IN FIGURE B FOR 3 TRAFFIC LANES.
- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET AN UNANCHORED PCB AGAINST THE TRAFFIC SIDE OF THE SHORING AND DESIGN SHORING FOR TRAFFIC IMPACT OR USE THE "SURCHARGE CASE WITH TRAFFIC IMPACT" FOR THE STANDARD TEMPORARY SHORING.
- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.
- USE OREGON TALL F-SHAPE CONCRETE BARRIER IN ACCORDANCE WITH DETAIL DRAWING AND SPECIAL PROVISION OBTAINED FROM: [HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/WZTC/DESRES/ENGLISH/DESRESENG.HTML](http://www.ncdot.org/doh/preconstruct/wztc/desres/english/desreseng.html)
- UNLESS NOTED OTHERWISE ON THE PLANS, SET PORTABLE CONCRETE BARRIER WITH A MINIMUM DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A.
- FOR PORTABLE CONCRETE BARRIER ABOVE AND BEHIND TEMPORARY MSE WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.
- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200' IN LENGTH AND WET OR DRY PAVEMENT.

**MINIMUM REQUIRED CLEAR DISTANCE, inches**

Barrier Type	Pavement Type	Offset * ft	Design Speed, mph						
			<30	31-40	41-50	51-60	61-70	71-80	
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40	
		8-14	26	28	31	35	38	42	
		14-20	27	29	34	36	39	43	
		20-26	28	31	35	38	40	44	
		26-32	29	32	36	39	42	45	
		32-38	30	34	38	41	43	46	
		38-44	31	34	41	43	45	48	
		44-50	31	35	41	43	46	49	
		50-56	32	36	42	44	47	50	
	>56	32	36	42	45	47	51		
	Concrete	<8	17	18	21	22	25	26	
		8-14	19	20	23	25	26	29	
		14-20	22	22	24	26	28	31	
		20-26	23	24	26	27	30	34	
		26-32	24	25	27	28	32	35	
		32-38	24	26	27	30	33	36	
		38-44	25	26	28	30	34	37	
		44-50	26	26	28	32	35	37	
50-56		26	26	28	32	35	38		
>56	26	27	29	32	36	38			
Anchored PCB or Oregon Barrier	Asphalt	All Offsets	24 for All Design Speeds						
Anchored PCB or Oregon Barrier	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds						

\* See Figure Below

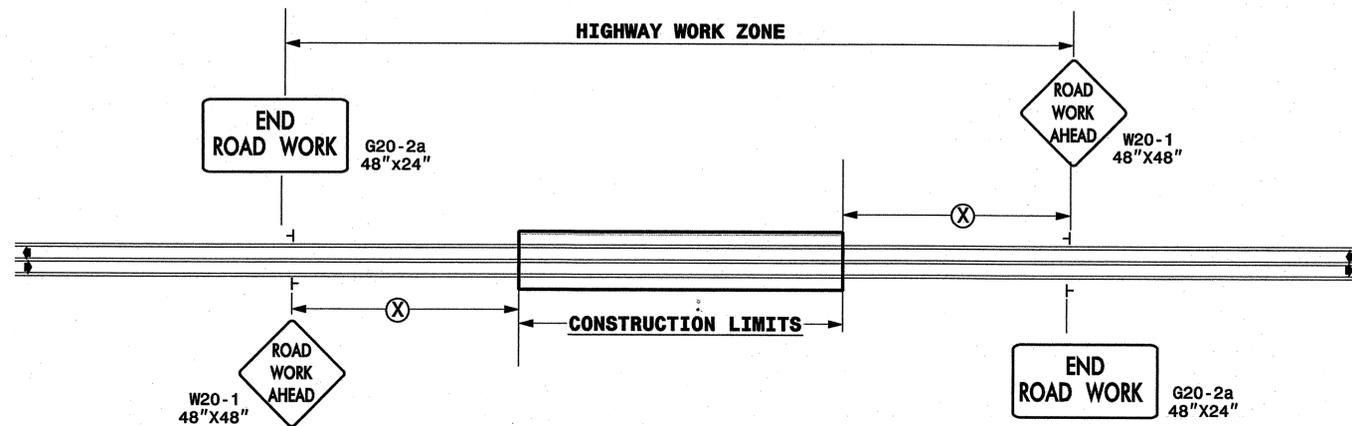


**FIGURE B**

APPROVED: <i>Joseph J. Blak</i>	DATE: 3/07	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS	
	SCALE: NONE		REVISIONS
	DATE: 3/07		
	DWG. BY: JI		
	DESIGN BY: JI		
	REVIEWED BY: JI		

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 AT WZTC2229  
 pmgarrrett

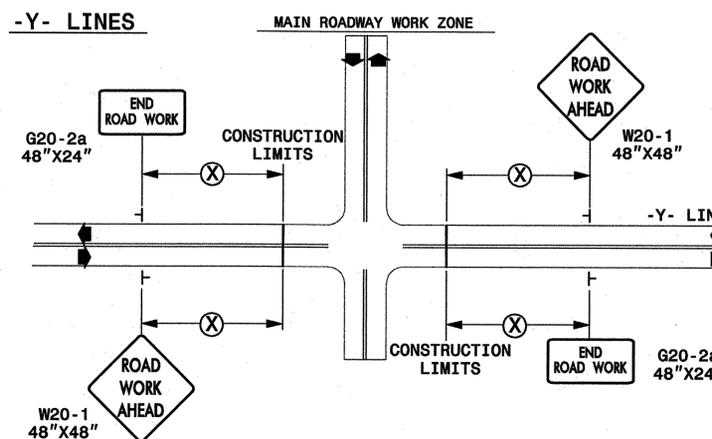
**TWO-WAY UNDIVIDED \*\* (L-LINES)**



POSTED SPEED LIMIT (M.P.H.)	RECOMMENDED MINIMUM SIGN SPACING
≤ 50	500'
≥ 55	1000'

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

**ROADWAYS INTERSECTING ALONG 2 WAY UNDIVIDED WORK ZONE (Y-LINES)**



**GENERAL NOTES**

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, THIS SIGNING APPLICATION IS OPTIONAL; MAY USE ONLY APPLICABLE ROADWAY STANDARD DRAWINGS INSTEAD. HOWEVER, IF THIS SIGNING APPLICATION IS USED, SIGNS MAY BE PORTABLE MOUNTED.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE 3LB STEEL U-CHANNEL POST OR 4" X 4" WOOD POST FOR ALL WORK ZONE SIGNS. 3LB STEEL U-CHANNEL POSTS MUST MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 1094-1(B), MAY BE GALVANIZED STEEL, OR MAY BE PAINTED GREEN BY THE POST MANUFACTURER. SQUARE STEEL TUBING POSTS HAVING EQUIVALENT STRENGTH OF THE 3 LB STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATION "WORK ZONE SIGNS" SECTION 1110.
- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01. REMOVE ENTIRE POST WHEN REMOVING SIGNS WITH SPLICED POSTS.
- DO NOT BACK BRACE SIGN SUPPORTS.
- \*\* TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON URBAN MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

**LEGEND**

- ┆ STATIONARY SIGN
- ◄ DIRECTION OF TRAFFIC FLOW

SHEET 1 OF 1

APPROVED: <i>Bob A. May</i> DATE: 1-9-08	<p><b>DETAIL DRAWING FOR TWO-WAY UNDIVIDED AND URBAN FREEWAYS ADVANCED WORK ZONE WARNING SIGNS</b></p>									
										
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