

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO.	SHEET NO.
B-3922	TCP-1

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

**WATAUGA COUNTY**

B-3922

**ROADWAY STANDARD DRAWINGS**

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - ROADWAY DESIGN UNIT-N.C. DEPARTMENT OF TRANSPORTATION-RALEIGH, N.C., DATED JANUARY 2002 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
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1135.01	CONES
1150.01	FLAGGERS
1165.01	TRUCK MOUNTED IMPACT ATTENUATOR
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS
1264.02	PLACEMENT OF OBJECT MARKERS

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PM-1	FINAL PAVEMENT MARKING PLAN

**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
  - FLASHING ARROW PANEL (TYPE C)
  - TYPE 'B' WARNING LIGHT
  - STATIONARY SIGN
  - PORTABLE SIGN
  - STATIONARY OR PORTABLE SIGN
  - WARNING FLAGS
  - 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

**FINAL PAVEMENT MARKING SCHEDULE**

SYMBOL	DESCRIPTION	PAY ITEM	QUANTITY BREAKDOWN	TOTAL QUANTITY
<b>PAVEMENT MARKINGS</b>				
		PAINT (4")		
PA	WHITE EDGELINE (2X)		5000 LF	
PI	YELLOW DOUBLE CENTER (2X)		5000 LF	
			TOTAL	10000 LF
		PAINT (24")		
P4	WHITE STOPBAR (2X)		50 LF	
			TOTAL	50 LF

NOTE: FOR EACH PAINT PAVEMENT MARKING ITEM, 1X IMPLIES A SINGLE APPLICATION, 2X IMPLIES TWO APPLICATIONS AND 3X IMPLIES THREE APPLICATIONS.

APPROVED: DATE: 1-03-05	PLAN PREPARED BY: N.C.D.O.T. TRAFFIC CONTROL, MARKING & DELINEATION SECTION
SEAL	J. S. BOURNE, PE <b>TRAFFIC CONTROL ENGINEER</b>
	JOSEPH ISHAK, P.E. <b>TRAFFIC CONTROL PROJECT ENGINEER</b>
	BETSY L. WATSON, P.E. <b>TRAFFIC CONTROL PROJECT DESIGN ENGINEER</b>
	ALLA LYUDMIRSKAYA <b>TRAFFIC CONTROL DESIGN ENGINEER / TECHNICIAN</b>

TIP PROJECT:

# GENERAL NOTES

PROJ. REFERENCE NO.	SHEET NO.
B-3922	TCP-2

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.

### TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
1. US 321	MONDAY THROUGH FRIDAY FROM 7:00 A.M. TO 9:00 A.M.

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME	HOLIDAY
1. US 321	
	1. FOR ANY EVENT THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY ENGINEER.  2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 5:00 P.M. DECEMBER 31ST TO 9:00 A.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A SATURDAY OR A SUNDAY, THEN UNTIL 9:00 A.M. THE FOLLOWING TUESDAY.  3. FOR EASTER, BETWEEN THE HOURS OF 5:00 P.M. THURSDAY AND 9:00 A.M. MONDAY.  4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 5:00 P.M. FRIDAY TO 9:00 A.M. TUESDAY.  5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 5:00 P.M. THE DAY BEFORE INDEPENDENCE DAY AND 9:00 A.M. THE DAY AFTER INDEPENDENCE DAY.  IF INDEPENDENCE DAY IS ON A SATURDAY OR SUNDAY, THEN BETWEEN THE HOURS OF 5:00 P.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 9:00 A.M. THE TUESDAY AFTER INDEPENDENCE DAY.  6. FOR LABOR DAY, BETWEEN THE HOURS OF 5:00 P.M. FRIDAY TO 9:00 A.M. TUESDAY.  7. FOR THANKSGIVING, BETWEEN THE HOURS OF 5:00 P.M. TUESDAY TO 9:00 A.M. MONDAY.  8. FOR CHRISTMAS, BETWEEN THE HOURS OF 5:00 P.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 9:00 A.M. THE FOLLOWING MONDAY AFTER THE WEEK OF CHRISTMAS.  9. FOR APPALACHIAN STATE UNIVERSITY FOOTBALL HOME GAMES, FROM 4 HOURS BEFORE THE START OF EACH GAME UNTIL 4 HOURS AFTER THE END OF THE GAME.

C) DO NOT STOP TRAFFIC OR CLOSE ROADS AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
1. US 321	MONDAY THROUGH SUNDAY 6 A.M. TO 6 P.M.

D) DO NOT STOP TRAFFIC FOR MORE THAN FIFTEEN (15) MINUTES AS FOLLOWS:

ROAD NAME	OPERATION
1. US 321	HANGING GIRDERS AND ANY OTHER WORK OPERATION

E) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR OTHERWISE DIRECTED BY THE ENGINEER.

### LANE AND SHOULDER CLOSURE REQUIREMENTS

- F) 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.
- G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 40 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING SHEET TCP-7 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- H) 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.
- I) 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.
- J) DO NOT WORK SIMULTANEOUSLY, ON BOTH SIDES OF AN OPEN TRAVELWAY, WITHIN THE SAME LOCATION, ON A TWO-LANE, TWO-WAY ROAD.
- K) 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.
- L) DO NOT INSTALL MORE THAN 0.1 MILE OF LANE CLOSURE ON US 321 AND/OR SR 1149 (HOWARD EDMISTEN RD.), MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.
- M) DO NOT INSTALL MORE THAN ONE LANE CLOSURE, IN ANY ONE DIRECTION, ON US 321 AND/OR SR 1149 (HOWARD EDMISTEN RD.).

### PAVEMENT EDGE DROP OFF REQUIREMENTS

- N) 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 A 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.
- O) DO NOT EXCEED A DIFFERENCE OF 1.5 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 500 FT IN ADVANCE AND A MINIMUM OF ONCE EVERY MILE THROUGHOUT THE UNEVEN AREA.

### TRAFFIC PATTERN ALTERATIONS

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

### SIGNING

Q) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 100 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

WHEN NO WORK IS BEING CONDUCTED FOR A PERIOD LONGER THAN ONE WEEK, REMOVE OR COVER ALL ADVANCE WORK ZONE WARNING SIGNS, AS DIRECTED BY THE ENGINEER, AT NO COST TO THE DEPARTMENT.

R) STATE FORCES WILL BE RESPONSIBLE FOR PERMANENT SIGNING.

S) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

### TRAFFIC CONTROL DEVICES

- T) WHEN USING ROADWAY STANDARD NO. 1101.02, DRUMS MAY BE USED IN LIEU OF CONES ON US 321 AND SR 1149 (HOWARD EDMISTEN RD).
- U) 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.
- V) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY. STAGGER OR OVERLAP BARRICADES TO ALLOW FOR INGRESS OR EGRESS.

### PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
1. SR 1149	PAINT	NONE
2. US 321	PAINT	NONE

X) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
1. SR 1149	PAINT	NONE
2. US 321	PAINT	NONE

Y) PLACE AT LEAST TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE ON NEW ASPHALT PAVEMENT. PLACE ADDITIONAL APPLICATIONS OF PAINT UPON SUFFICIENT DRYING TIME, AS DETERMINED BY THE ENGINEER.

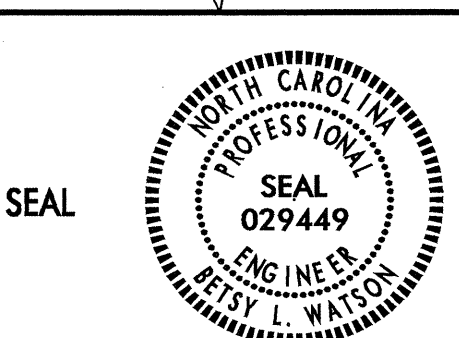
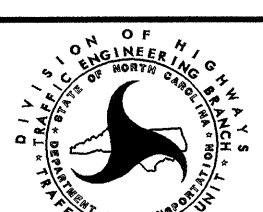
Z) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

AA) REPLACE ANY PAVEMENT MARKINGS THAT HAVE BEEN DAMAGED BY THE END OF EACH DAY'S OPERATION.

BB) PLACE AT LEAST TWO APPLICATIONS OF PAINT ON NEW ASPHALT WITH TEMPORARY TRAFFIC PATTERNS WHICH WILL REMAIN IN PLACE OVER THREE (3) MONTHS. PLACE ADDITIONAL APPLICATIONS OF PAINT UPON SUFFICIENT DRYING TIME, AS DETERMINED BY THE ENGINEER.

### MISCELLANEOUS

CC) IN THE EVENT A TIE-IN BETWEEN -L- AND -Y- (US 321) AT -L- STA.12+11+/- OR BETWEEN -L- AND -Y1- (SR 1149) AT -L- STA.10+08+/- CANNOT BE MADE IN ONE DAY'S 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) 500 FT AND 1000 FT RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

APPROVED: <i>[Signature]</i> DATE: 8/25/04  	<h2 style="margin: 0;">GENERAL NOTES</h2>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left;">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> </tbody> </table>	REVISIONS							
REVISIONS										
SCALE: NONE DATE: 8/18/04 DWG. BY: AYL DESIGN BY: AYL REVIEWED BY: BLW		CAD FILE								



**PHASING**

STEP 1: USING SHEETS TCP-4 AND TCP-6, INSTALL ADVANCE WORK ZONE WARNING SIGNS ON US 321 & SR 1149 (-Y1-).

STEP 2: AWAY FROM TRAFFIC, BEGIN CONSTRUCTION OF THE PROPOSED STRUCTURE AND APPROACHES ON PROPOSED -L-.

STEP 3: USING RSD 1101.02, SHEET 1 OF 7, PERFORM THE FOLLOWING: AT THE END OF EACH WORK DAY RETURN TRAFFIC TO THE EXISTING PATTERN ON US 321 & SR 1149 (-Y1-). SEE SHEETS TCP-4, TCP-5, AND ROADWAY PLANS.

1. COMPLETE CONSTRUCTION OF PROPOSED STRUCTURE AND APPROACHES UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE.
2. COMPLETE CONSTRUCTION OF TIE-INS UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE BETWEEN -L- AND -Y- AT -L- STA.12+11+/- AND BETWEEN -L- AND -Y1- AT -L- STA. 10+08+/-.
3. INSTALL ALL PERMANENT GUARDRAIL EXCEPT FOR PORTION EXTENDING FROM THE SE END OF PROPOSED STRUCTURE TO -Y1- STA. 18+36+/-.
4. PLACE TEMPORARY PAVEMENT MARKINGS (PAINT) ON -L- FROM -L- STA.10+09+/- TO -L- STA.11+93+/-, AND REPLACE ANY MARKINGS ON -Y- THAT WERE OBLITERATED BY CONSTRUCTION OF TIE-INS.
5. CLOSE PORTION OF EXISTING -Y1- FROM -Y1- STA.20+50+/- TO -Y1- STA.22+30+/-, AND OPEN ALL ROADS TO FINAL TRAFFIC PATTERN.

STEP 4: USING RSD 1101.02, SHEET 1 OF 7, PERFORM THE FOLLOWING: AT THE END OF EACH WORK DAY RETURN TRAFFIC TO THE FINAL TRAFFIC PATTERN ON -L-, -Y- AND -Y1-.

1. REMOVE EXISTING STRUCTURE AND APPROACHES. SEE ROADWAY PLANS FOR LOCATION.
  - REMOVE PORTION OF EXISTING -Y1- FROM -Y1- STA.18+20+/- TO THE END OF EXISTING DRIVEWAY, AS SHOWN IN ROADWAY PLANS.
2. INSTALL END OF ROAD OBJECT MARKERS AND TERMINAL END SECTION AT THE END OF EXISTING DRIVEWAY. SEE ROADWAY PLANS FOR LOCATION.
  - INSTALL PERMANENT GUARDRAIL EXTENDING FROM THE SE END OF PROPOSED STRUCTURE TO -Y1- STA. 18+36+/-.
3. CONSTRUCT FINAL LAYER OF SURFACE COURSE ON -L- FROM -L- STA.10+09+/- TO -L- STA.11+93+/-.
4. PLACE FINAL PAVEMENT MARKINGS (PAINT) ON -L-, -Y- AND -Y1- AS SHOWN ON SHEET PM-1, REPLACING MARKINGS ON -Y- THAT HAVE BEEN OBLITERATED BY CONSTRUCTION OF THE FINAL LAYER OF SURFACE COURSE AND TIE-INS.
5. REMOVE ALL TRAFFIC CONTROL DEVICES.

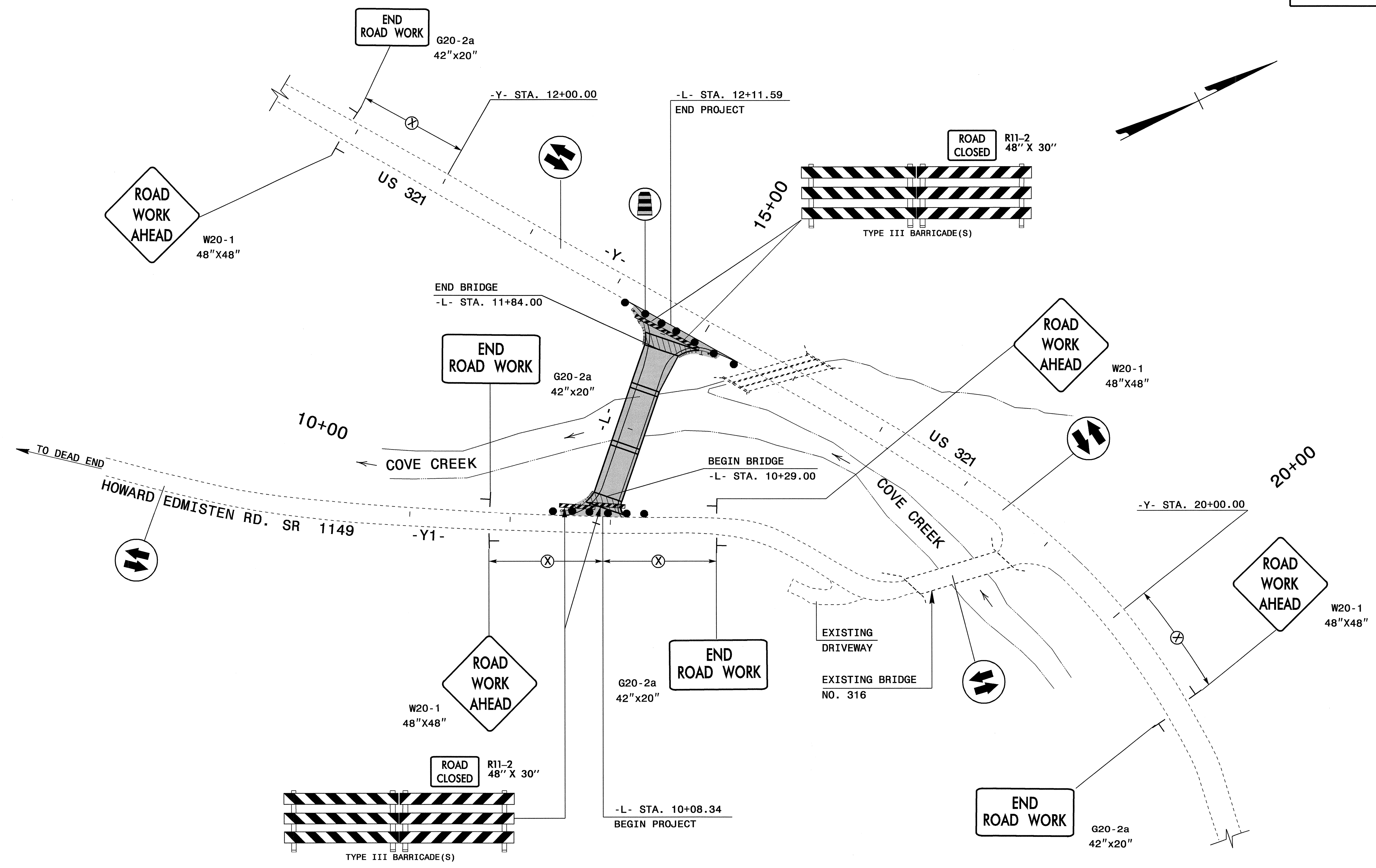
**TEMPORARY PAVEMENT MARKING SCHEDULE**

SYMBOL	DESCRIPTION	PAY ITEM	QUANTITY BREAKDOWN		TOTAL QUANTITY	
<b>PAVEMENT MARKINGS</b>						
		PAINT (4")				
PA	WHITE EDGELINE (2X)		5000	LF		
PI	YELLOW DOUBLE CENTER (2X)		5000	LF		
					TOTAL	10000 LF
PAINT (24")						
P4	WHITE STOPBAR (2X)		50	LF		
					TOTAL	50 LF

NOTE: FOR EACH PAINT PAVEMENT MARKING ITEM, 1X IMPLIES A SINGLE APPLICATION, 2X IMPLIES TWO APPLICATIONS AND 3X IMPLIES THREE APPLICATIONS.

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APPROVED: <i>P. Watson</i> DATE: 1-3-05		<b>PHASING AND TEMPORARY PAVEMENT MARKING SCHEDULE</b>	
	SCALE: NONE		REVISIONS
	DATE: 12/16/04		
	DWG. BY: AYL		
	DESIGN BY: AYL		
REVIEWED BY: BLW			



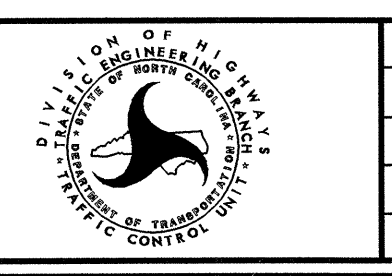
⊗ - SEE SHEET TCP-6 FOR SPACING OF SIGNS W20-1 AND W20-2a

APPROVED: *[Signature]* DATE: 1-3-05

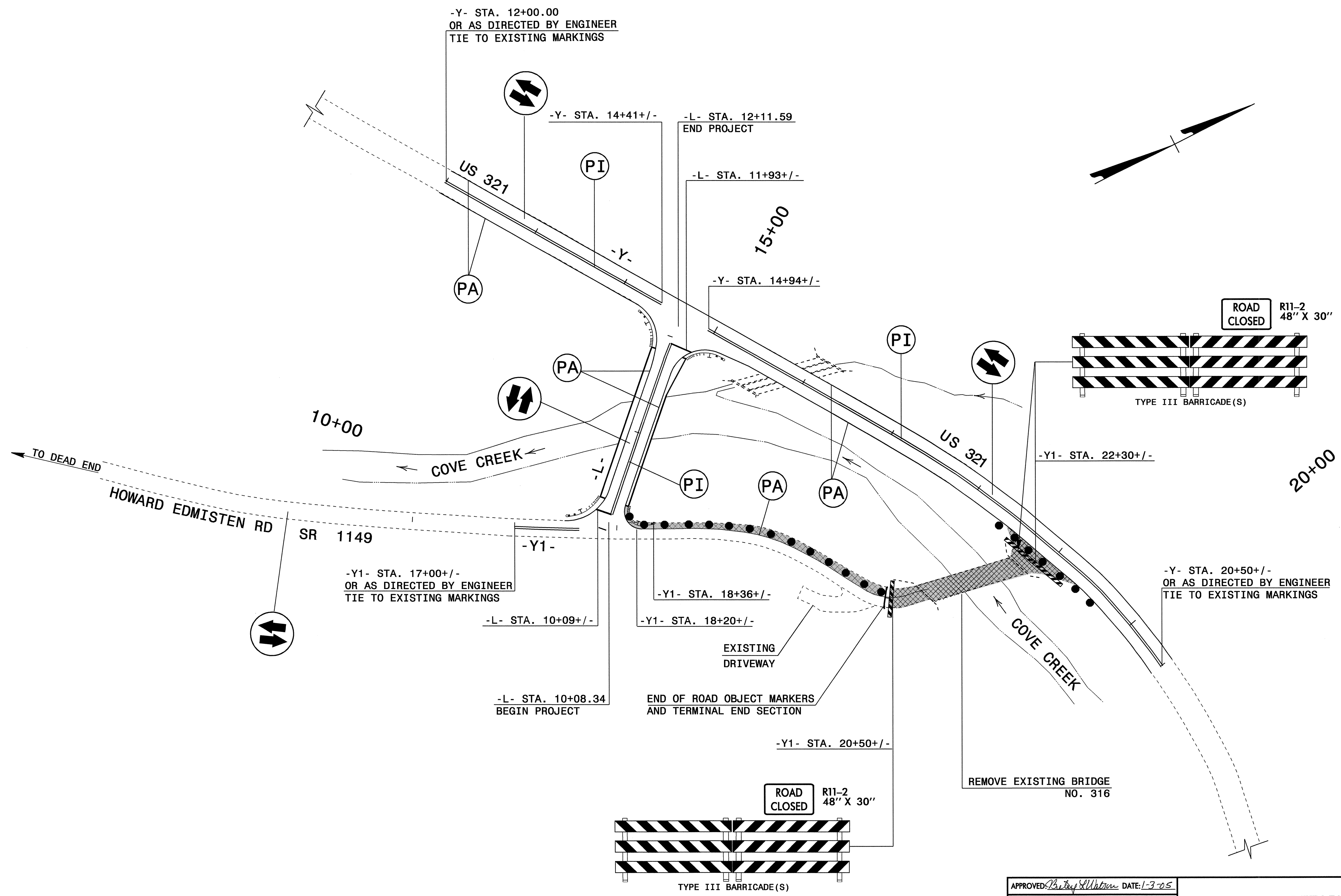
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DETAIL 1

SCALE: NONE  
 DATE: 8/18/04  
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 DESIGN BY: AYL  
 REVIEWED BY: BLW



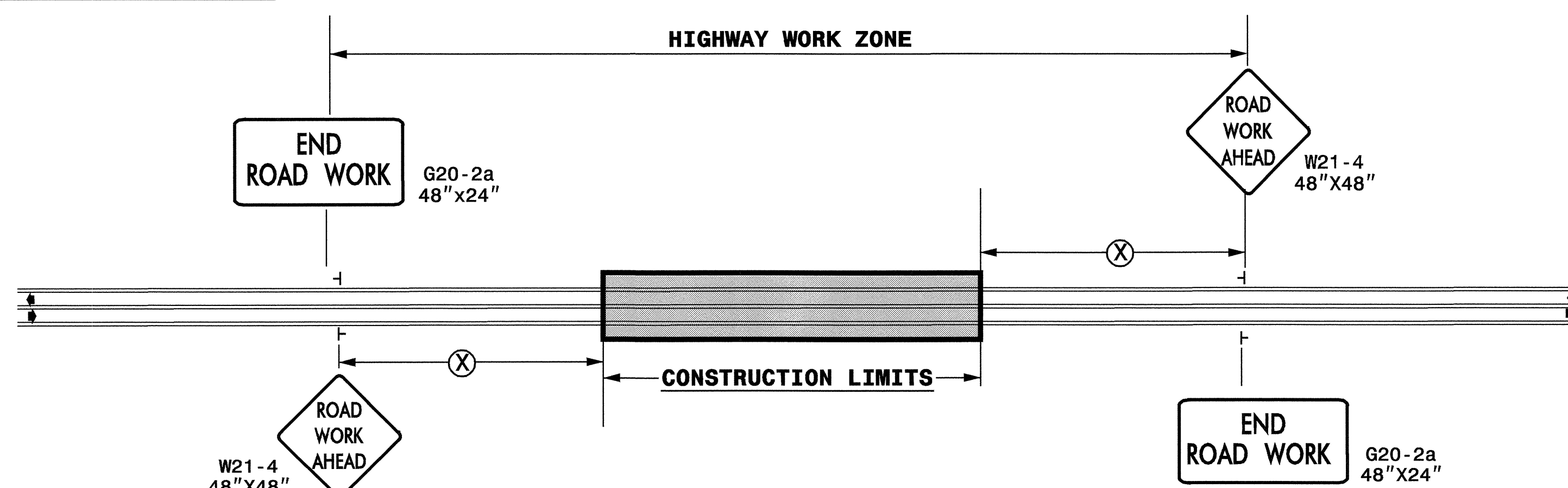
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APPROVED: <i>[Signature]</i> DATE: 1-3-05		<b>DETAIL 2</b>	
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	DATE: 8/18/04		
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	DESIGN BY: AYL		
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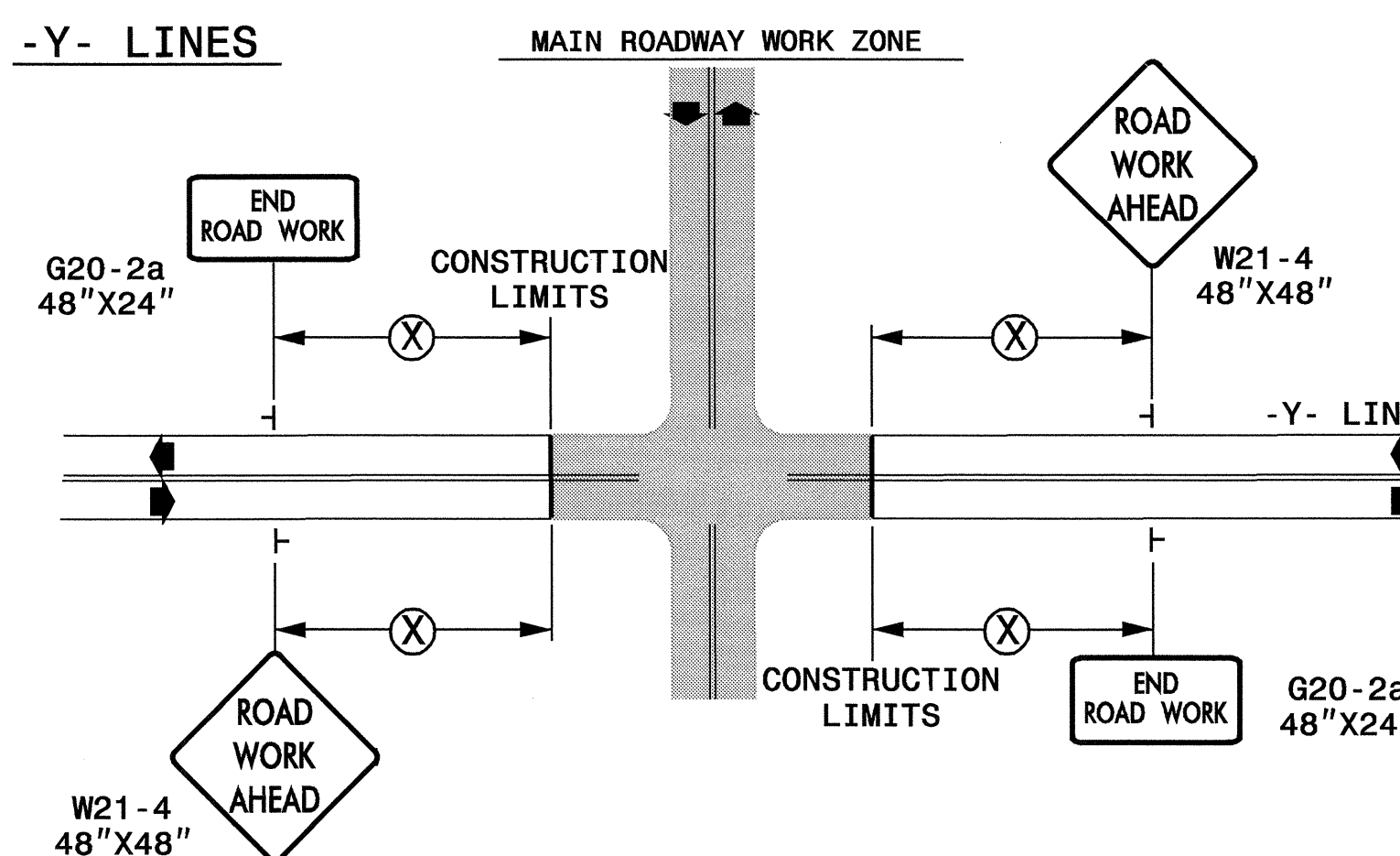
**TWO-WAY UNDIVIDED \*\* (L-LINES)**



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)**



DETAIL DRAWING FOR  
TWO-WAY UNDIVIDED  
WORK ZONE WARNING SIGNS

**GENERAL NOTES**

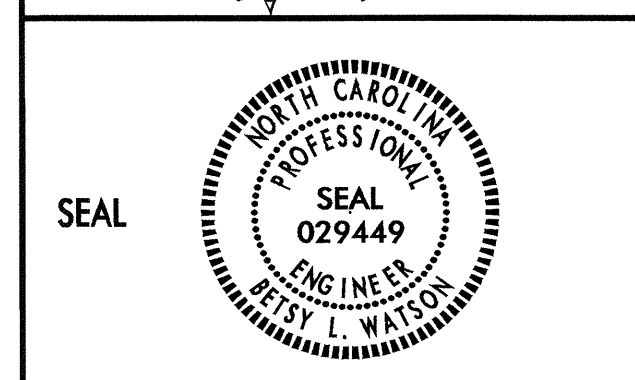
- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, 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

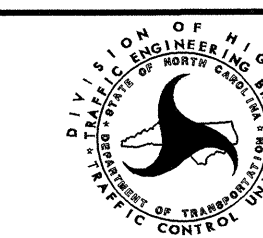
SHEET 1 OF 1

APPROVED: *[Signature]* DATE: 1-3-05



DETAIL DRAWING FOR TWO-WAY UNDIVIDED AND URBAN FREEWAYS ADVANCED WORK ZONE WARNING SIGNS

SCALE: NONE  
DATE:  
DWG. BY:  
DESIGN BY:  
REVIEWED BY:



REVISIONS	
7-98	10/01
10-98	03/04
01/01	11/04



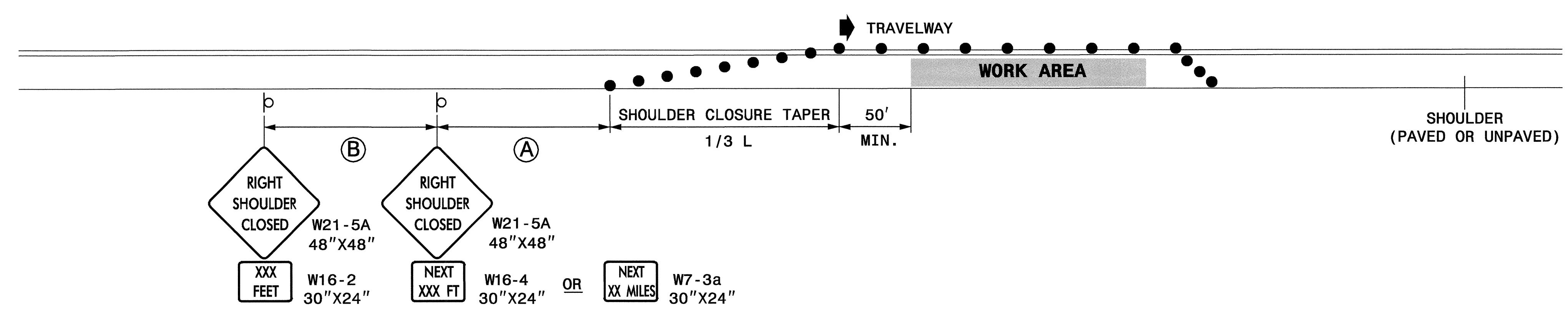
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

1-05

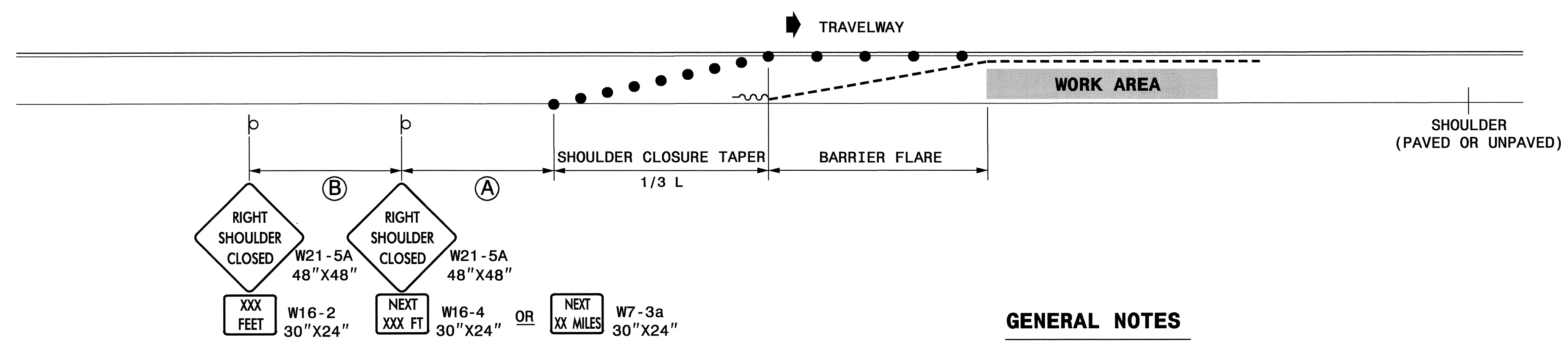
ENGLISH STANDARD DRAWING FOR  
**TEMPORARY SHOULDER CLOSURES**

SHEET 1 OF 1  
**1101D04**

**SHOULDER CLOSURES UTILIZING DRUMS**



**SHOULDER CLOSURES UTILIZING TEMPORARY BARRIER**



**GENERAL NOTES**

- PLACE SHOULDER CLOSURE SIGNS ON THE SAME SIDE AS THE SHOULDER THAT IS CLOSED.
- PLACE DRUMS IN THE SHOULDER TAPER AT THE MAXIMUM SPACING EQUAL IN FEET TO THE POSTED SPEED LIMIT. THE MAXIMUM SPACING OF DRUMS ALONG THE WORK AREA AND BARRIER FLARE IS EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT.
- FLARE THE APPROACH END OF PORTABLE CONCRETE BARRIER BEYOND THE SHOULDER AND USE A CRASH CUSHION FOR PROTECTION IF THE EXPOSED END OF THE BARRIER IS WITHIN THE "CLEAR ZONE".
- USE STATIONARY SIGNS FOR LONG TERM OPERATIONS (LONGER THAN 3 DAYS).
- REFER TO STD. 1101.11 SHEETS 1, 3, & 4, FOR "L" DISTANCE, BARRIER FLARE RATES, AND SIGN SPACING.

**LEGEND**

	TEMPORARY CRASH CUSHION
	PORTABLE CONCRETE BARRIER
	DRUM
	STATIONARY OR PORTABLE SIGN
	DIRECTION OF TRAFFIC FLOW

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

1-05

ENGLISH STANDARD DRAWING FOR  
**TEMPORARY SHOULDER CLOSURES**

SHEET 1 OF 1  
**1101D04**

APPROVED: <i>Benjamin Watson</i> DATE: 1-3-05	<b>REPLACEMENT DETAIL FOR RSD 1101.04</b>	
	SCALE: NONE	
	DATE: 11/04	
	DWG. BY: MMM	
	DESIGN BY: MMM	
REVIEWED BY: MMM	REVISIONS	

03-JAN-2005 09:08  
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by:ddml AT 11/10/05 9:04

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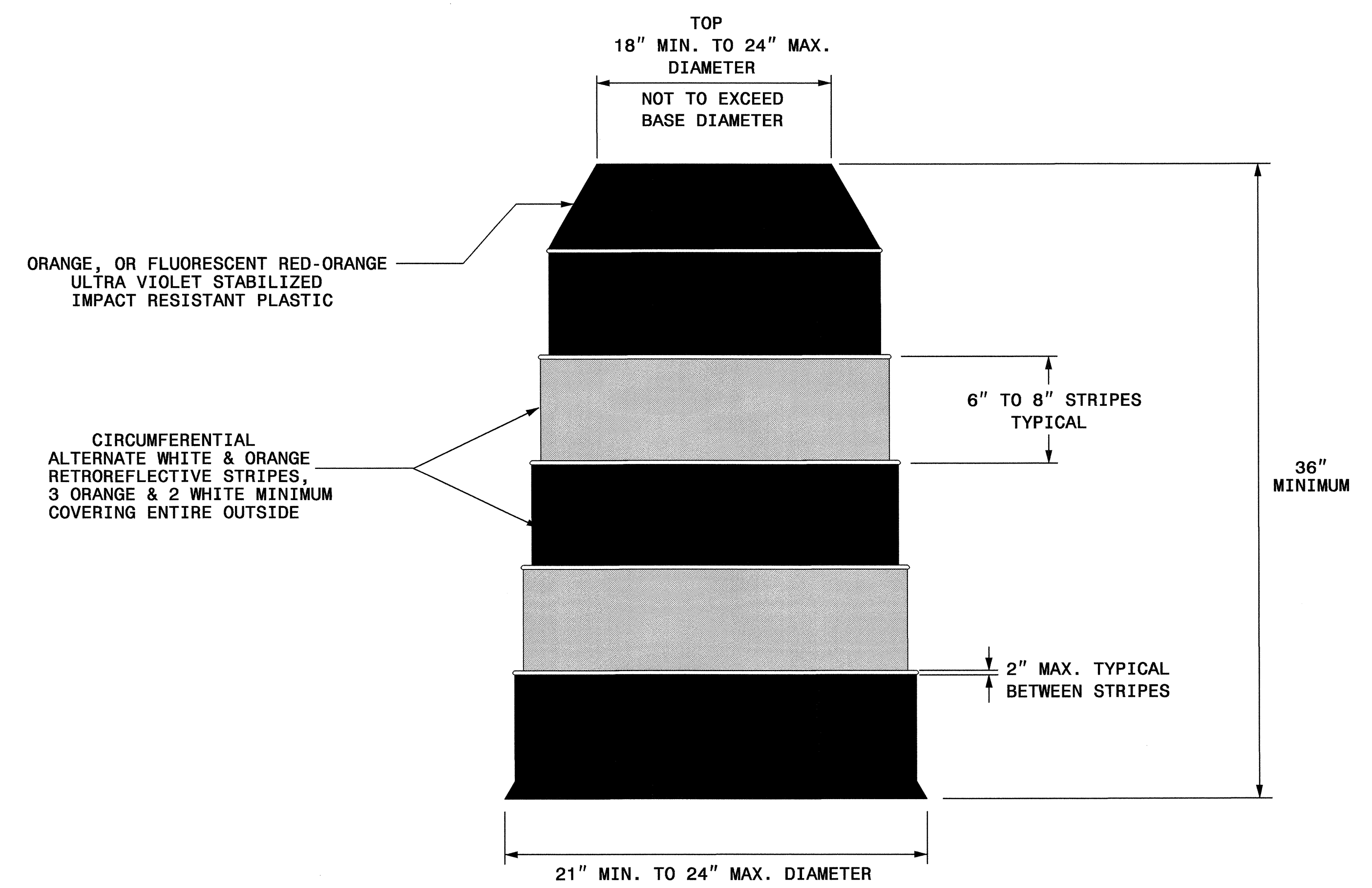
ENGLISH STANDARD DRAWING FOR  
**DRUMS**

SHEET 1 OF 1  
**1130D01**

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ENGLISH STANDARD DRAWING FOR  
**DRUMS**

SHEET 1 OF 1  
**1130D01**



**GENERAL NOTES**

- BALLASTING SHALL BE ACHIEVED BY THE SAND BAG, TIRE-SIDEWALL BALLAST, OR PREFORMED WEIGHTED BASE BALLASTING METHODS. DO NOT PLACE BALLAST ON TOP OF THE DRUM, NOR AS TO PRESENT A HAZARD WHEN STRUCK.
- IF NECESSARY PLACE THE NAME OF THE AGENCY, CONTRACTOR, OR SUPPLIER ON NON-RETROREFLECTIVE DRUM SURFACES. SHOW THE LETTERS AND NUMBERS USING A NON-RETROREFLECTIVE COLOR AND NOT OVER 2" IN HEIGHT.

03-JAN-2005 09:08  
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duyudmi AT TELC865H

APPROVED: <i>Chris Watson</i> DATE: 1-3-05	<b>REPLACEMENT DETAIL FOR RSD 1130.01</b>					
	SCALE: NONE					
	DATE: 8/02					
	DWG. BY: MMM					
	DESIGN BY: MMM					
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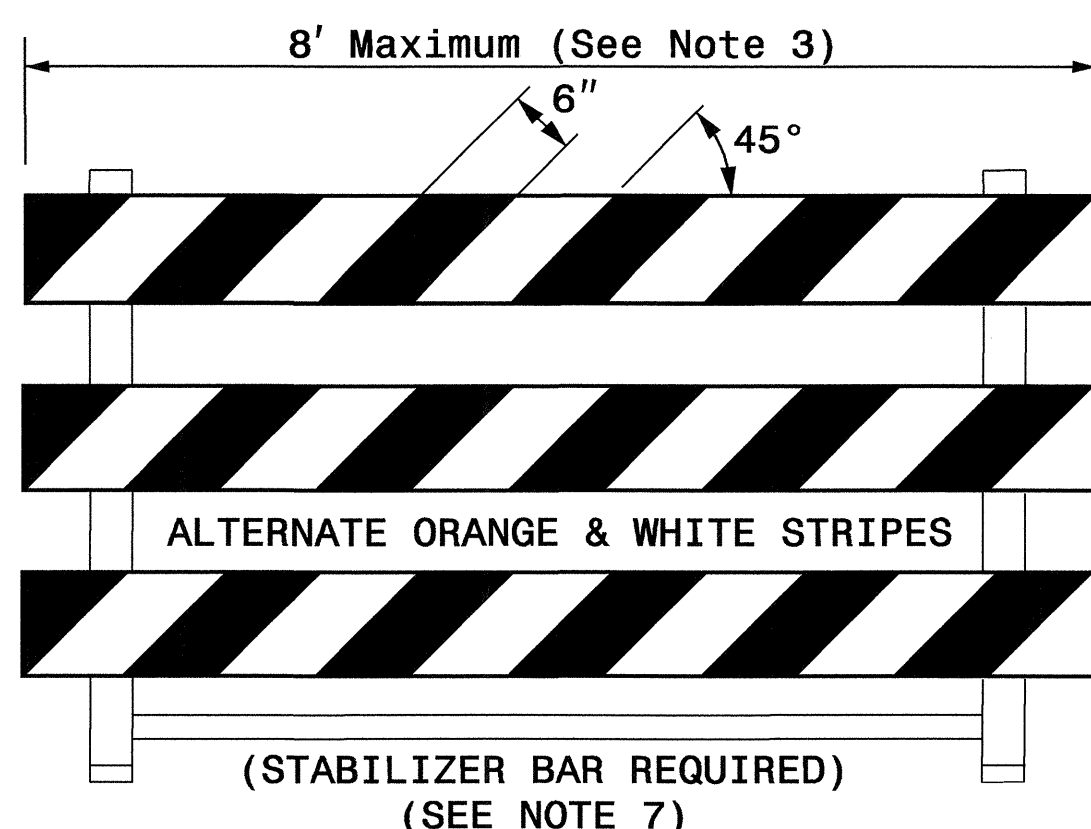
STATE OF NORTH CAROLINA  
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1-05

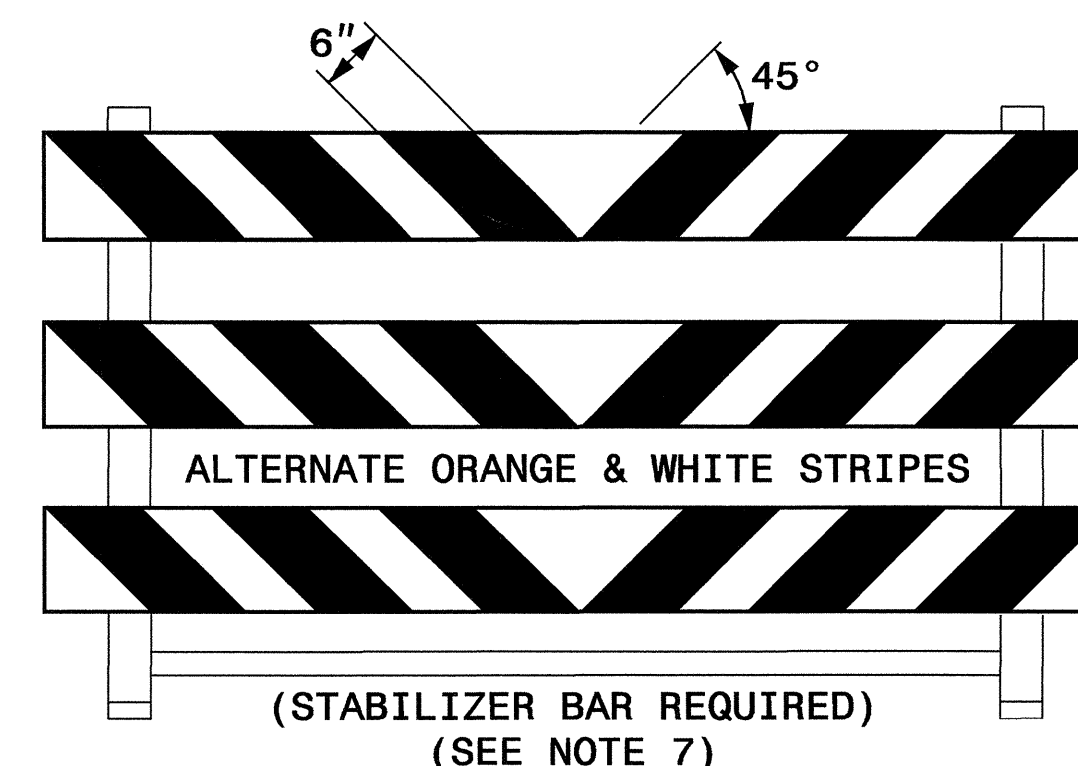
ENGLISH STANDARD DRAWING FOR  
**BARRICADES**  
 TYPE-III

SHEET 1 OF 1  
**1145D01**

**TYPE III BARRICADE**



**TYPE III BARRICADE**  
 END-OF-ROADWAY APPLICATIONS



**GENERAL NOTES**

- 1) HORIZONTAL RAILS FOR TYPE-III BARRICADES MAY BE HOLLOW/CORRUGATED EXTRUDED RIGID POLYOLEFIN, HIGH DENSITY POLYETHYLENE, OR OTHER NCDOT APPROVED RAILS. BARRICADE RAILS OF FRANGIBLE PLASTICS SUCH AS PVC MAY NOT BE USED. IF APPROVED PLASTIC TYPE RAILS ARE USED, THEY MUST BE FLAME TREATED BY THE MANUFACTURER SO THAT REFLECTIVE SHEETING MAY ADHERE PROPERLY.
- 2) BARRICADES AND BARRICADE RAILS ARE APPROVED AS A SINGLE UNIT.
- 3) BARRICADE SHALL BE LIMITED TO A MAXIMUM LENGTH OF 8 FT UNLESS NCHRP 350 CRASH TESTED AND NCDOT APPROVED.
- 4) ONLY NCDOT APPROVED COMPOSITE AND ROLL-UP SIGNS MAY BE MOUNTED ON THE BARRICADE.
- 5) SIGNS MOUNTED ON BARRICADES SHOULD NOT COVER MORE THAN 50 PERCENT OF THE TOP TWO RAILS OR 33 PERCENT OF THE TOTAL AREA OF THE THREE RAILS.
- 6) USE TYPE VII, VIII OR IX SHEETING ON BOTH SIDES OF THE RAILS.
- 7) BARRICADE MUST BE NCHRP 350 AND NCDOT APPROVED WITH STABILIZER BAR OR ADEQUATE LATERAL BRACING.
- 8) ASSEMBLY OF THE GENERIC BARRICADES MUST BE SELF CERTIFIED BY THE ASSEMBLER.
- 9) BARRICADES USED TO CLOSE A ROADWAY SHALL EXTEND ACROSS THE ENTIRE ROADWAY. WHERE LOCAL TRAFFIC MUST BE MAINTAINED, THEY MAY BE PLACED IN A STAGGERED PATTERN.
- 10) STRIPES ON WORK ZONE BARRICADE RAILS SHALL BE ALTERNATE ORANGE AND WHITE RETROREFLECTIVE STRIPES, SLOPED DOWNWARD TOWARDS THE SIDE WHICH TRAFFIC IS TO PASS OR TURN IN DETOURING. WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES. USE RED AND WHITE STRIPES FOR PERMANENT BARRICADES.
- 11) SEE APPROVED PRODUCTS LIST FOR MANUFACTURERS OF APPROVED BARRICADES.
- 12) PLACE MANUFACTURER'S NAME AND FEDERAL HIGHWAY ADMINISTRATION'S NCHRP 350 APPROVAL LETTER NUMBER ON BARRICADE.
- 13) USE SANDBAGS PLACED ON THE LOWER PART OF THE FRAME FOR BALLASTING. DO NOT PLACE SANDBAGS ON TOP OF A STRIPED RAIL. DO NOT BALLAST BARRICADES BY HEAVY OBJECTS SUCH AS ROCKS, CHUNKS OF CONCRETE OR OTHER ITEMS THAT WOULD CAUSE DAMAGE IF THE BARRICADE IS STRUCK BY A VEHICLE.

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1-05

ENGLISH STANDARD DRAWING FOR  
**BARRICADES**  
 TYPE-III

SHEET 1 OF 1  
**1145D01**

APPROVED: <i>[Signature]</i> DATE: 1-3-05		<b>REPLACEMENT DETAIL FOR</b> RSD 1145.01	
	SCALE: NONE		REVISIONS
	DATE: 11/04		
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	DESIGN BY: MMM		
REVIEWED BY: MMM			