

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO.	SHEET NO.
B-4033	TCP-1

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

B-4033

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
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW PANELS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	TRUCK MOUNTED IMPACT ATTENUATOR
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY-DRUM
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
1205.06	PAVEMENT MARKINGS - THRU LANE DROPS
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS & WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS (TEMPORARY & PERMANENT)
1253.01	SNOWPLOWABLE RAISED PAVEMENT MARKERS
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS

INDEX OF SHEETS

SHEET NO.	TITLE
TCP-1	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, INDEX OF SHEETS AND TEMP. MARKING SCHEDULE
TCP-2	PROJECT NOTES
TCP-3	PROJECT PHASING
TCP-4	PHASE I, STEP 3 (NB PIPE INSTALLATION)
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TCP-6	PHASE I, STEP 5 (NB NC 112 CONSTRUCTION)
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TCP-8	PHASE II, STEP 2 (SB NC 112 CONSTRUCTION)
TCP-9	PHASE II, STEP 2 (SB NC 112 CONSTRUCTION)
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TCP-11	RSD (WORK ZONE WARNING SIGNS)
PM-1	FINAL PAVEMENT MARKING SCHEDULE
PM-2	FINAL PAVEMENT MARKING DETAIL
PM-3	FINAL PAVEMENT MARKING DETAIL

LEGEND

- GENERAL**
- DIRECTION OF TRAFFIC FLOW
 - NORTH ARROW
 - PROPOSED PVMT. EXIST. PVMT.
 - WORK AREA
 - WEDGING OPERATION
- 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

TEMPORARY PAVEMENT MARKING SCHEDULE

SYMBOL	PAY ITEM DESCRIPTION	QUANTITY	BREAKDOWN	TOTAL QUANTITY
P4	WHITE STOPBAR	84	LF	TOTAL 84 LF
PA	WHITE EDGELINE	1900	LF	TOTAL 7313 LF
PD	2 FT. WHITE MINISKIP	213	LF	
PE	WHITE SOLID LANE LINE	400	LF	
PI	YELLOW DOUBLE CENTER	4800	LF	
PV	YELLOW DIAGONAL	200	LF	TOTAL 200 LF
QA	PAINTMARKING SYMBOLS	6	EA	TOTAL 12 EA
QC	LEFT TURN ARROW (1X) STRAIGHT ARROW (1X)	6	EA	
MH	MARKERS	44	EA	TOTAL 69 EA
MI	TEMPORARY RAISED PAVEMENT MARKERS YELLOW & YELLOW CRYSTAL & RED	25	EA	
CA	COLD APPLIED PLASTIC (4") Type4 - Removable Tape	300	LF	TOTAL 600 LF
CI	WHITE EDGELINE YELLOW DOUBLE CENTER	300	LF	

APPROVED: *Meredith McDiarmid*
DATE: 5/15/08



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

- STUART BOURNE, PE **TRAFFIC CONTROL ENGINEER**
- MEREDITH McDIARMID, PE **TRAFFIC CONTROL PROJECT ENGINEER**
- CHRIS HOWARD **TRAFFIC CONTROL PROJECT DESIGN ENGINEER**
- MARK MANRIQUEZ **TRAFFIC CONTROL DESIGN ENGINEER**

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TIP PROJECT:

PROJECT NOTES

PROJ. REFERENCE NO.	SHEET NO.
B-4033	TCP-2

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 UNDESIRABLE 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.

TIME RESTRICTIONS

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

ROAD NAME	DAY AND TIME RESTRICTIONS
NC 112 (Sand Hills Rd)	MONDAY THRU FRIDAY 6:00 AM TO 8:30 AM MONDAY THRU FRIDAY 4:00 PM TO 6:00 PM

- B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AS FOLLOWS:

ROAD NAME
NC 112 (Sand Hills Rd)

HOLIDAY

- FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- FOR NEW YEAR'S, BETWEEN THE HOURS OF 4:00 PM DECEMBER 31st AND 8:30 AM JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 8:30 AM THE FOLLOWING TUESDAY.
- FOR EASTER, BETWEEN THE HOURS OF 4:00 PM THURSDAY AND 8:30 AM MONDAY.
- FOR MEMORIAL DAY, BETWEEN THE HOURS OF 4:00 PM FRIDAY TO 8:30 AM TUESDAY.
- FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 4:00 PM THE DAY BEFORE INDEPENDENCE DAY AND 8:30 AM THE TUESDAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 4:00 PM THE THURSDAY BEFORE INDEPENDENCE DAY AND 8:30AM THE TUESDAY AFTER INDEPENDENCE DAY.
- FOR LABOR DAY, BETWEEN THE HOURS OF 4:00 PM FRIDAY AND 8:30 AM TUESDAY.
- FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 4:00 PM TUESDAY TO 8:30 AM MONDAY.
- FOR CHRISTMAS, BETWEEN THE HOURS OF 4:00 PM THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 8:30 AM THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS DAY.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- C) 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.
- D) 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.
- E) 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.
- F) 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.

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.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- I) 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.
- J) PROVIDE PERMANENT SIGNING.
- K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- L) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 500 ft IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

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 MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED IMPACT ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE 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
60 MPH or HIGHER	30 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 NOT 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.

LOCAL NOTES

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
NC 112 (Sand Hills Rd) Bridge	Thermoplastic Cold Applied Plastic-Type3	Snowplowable

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

ROAD NAME	MARKING	MARKER
NC 112 (Sand Hills Rd) Bridge	Paint Temp. Tape-Type4	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.



TEMPORARY / FINAL SIGNALS

- V) NOTIFY THE ENGINEER TWO (2) MONTHS BEFORE A TRAFFIC SIGNAL INSTALLATION BY OTHERS IS REQUIRED.
- W) OTHERS WILL SHIFT AND REVISE ALL SIGNAL HEADS AS SHOWN ON THE SIGNAL PLANS.

MISCELLANEOUS

- X) POLICE MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS, AS DIRECTED BY THE ENGINEER.
- Y) REFER TO MUTCD, PART 6D AND 6H1, AND PROVIDE FOR PEDESTRIAN SAFETY AND ACCESSIBILITY CONSIDERATIONS.

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APPROVED: <i>M. McDaniel</i> DATE: 5/15/08		PROJECT NOTES	
	SCALE: NONE		REVISIONS
	DATE: APR 08		
	DWG. BY: MRM		
	DESIGN BY: MRM		
	REVIEWED BY: CBH		

PROJECT PHASING

PHASE I

NOTE: PROVIDE APPROPRIATE LOCATIONS FOR PEDESTRIAN CROSSING AND TRAVEL THROUGHOUT THE CONSTRUCTION SITE AS DIRECTED BY THE ENGINEER. (SEE NOTE Y ON TCP-2)

STEP 1: PLACE ADVANCE WORK ZONE WARNING SIGNS ALONG NC 112 (SAND HILLS RD) -L- AND ALL -Y- LINES AS SHOWN ON TCP-11.

STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.04 SHEET 1:

-- MAY BEGIN CLEARING/GRUBBING AND GRADING OPERATION, AND CONSTRUCTION OF PROPOSED DRAINAGE, ALONG NC 112 (SAND HILLS RD) AS DIRECTED BY THE ENGINEER.

-- MAY BEGIN CONSTRUCTION OF STAGE 1 OF THE PROPOSED STRUCTURE.

ICT #1: COMPLETE THE WORK REQUIRED OF PHASE 1, STEP 3 IN A CONTINUOUS MANNER IN ONE WEEKEND. SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES

STEP 3: USING FLAGGERS, POLICE AND PILOT CAR, CLOSE THE NORTH BOUND LANES OF NC 112 AS SHOWN ON TCP-4 AND CONSTRUCT THE FOLLOWING: (SET SIGNALS TO FLASH MODE DURING CONSTRUCTION)

-- CONSTRUCT NORTH BOUND SECTION OF 18" PIPES AT STA. 16+50+/- -L- AND STA. 32+80+/- -L-. CONSTRUCT OPEN CUT SECTION OF ROADWAY BACK TO EXISTING ELEVATION AND REPLACE MARKINGS THAT WERE OBLITARETED DURING CONSTRUCTION.

ICT #2: COMPLETE THE WORK REQUIRED OF PHASE 1, STEP 4 IN A CONTINUOUS MANNER IN ONE WEEKEND. SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES

STEP 4: USING FLAGGERS, POLICE AND PILOT CAR, CLOSE THE SOUTH BOUND LANES OF NC 112 AS SHOWN ON TCP-5 AND CONSTRUCT THE FOLLOWING: (SET SIGNALS TO FLASH MODE DURING CONSTRUCTION)

-- CONSTRUCT REMAINING SOUTH BOUND SECTION OF 18" PIPES AT STA. 16+50+/- -L- AND STA. 32+80+/- -L-. CONSTRUCT OPEN CUT SECTION OF ROADWAY BACK TO EXISTING ELEVATION AND REPLACE MARKINGS THAT WERE OBLITARETED DURING CONSTRUCTION.

STEP 5: USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEETS 1,2 AND 3 OF 9, SHEETS TCP-6 AND TCP-7 CONSTRUCT THE FOLLOWING:

-- NORTH BOUND PORTION OF NC 112 (SAND HILLS RD) FROM STA. 16+05+/- -L- TO STA. 34+97.68 -L- UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE INCLUDING CURB AND GUTTER, PIPES AND TEMPORARY GUARDRAIL. NORTH BOUND CONSTRUCTION SHALL INCLUDE PAVEMENT REMOVAL OF EXISTING AS SHOWN ON TCP-6 FROM STA. 20+00+/- TO 25+82+/-.(SEE NOTE G ON TCP-2 FOR BACKFILL REQUIREMENTS)

-- WEDGE UNDER TRAFFIC EXISTING ROADWAY UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE FORM STA. 16+05+/- -L- TO STA. 20+00+/- AND STA. 27+50+/- TO 37+97+/- . (BACKFILL AT 6:1 SLOPE) INSTALL ORANGE "BUMP" SIGNS 200' (W8-1) IN ADVANCE OF WEDGING OPERATION. (SEE SHEETS TCP-6 AND 7)

-- IN A CONTINUOUS MANNER, INSTALL 18" PIPE LOCATED RIGHT SIDE OF -L- NEAR STA. 28+20+/- -L- ACROSS 18' DRIVEWAY. PIPE MAY BE INSTALLED IN HALF SECTIONS TO KEEP DRIVEWAY OPEN AT ALL TIMES USING ROADWAY STANDARD DRAWING 1101.02 SHEET 1 OF 9 AND SHEET TCP-7.

-- INSTALL PORTABLE CONCRETE BARRIER (PCB) (TIE TO EXISTING BRIDGE RAILS) AND TEMPORARY CRASH CUSHIONS ON EXISTING NC 112 (SAND HILLS RD) AS SHOWN ON TCP-6 AND TCP-7.

-- INSTALL TEMPORARY SHORING IN CONJUNCTION WITH THE NORTH BOUND STAGE 1 CONSTRUCTION. (SEE TCP-7 FOR STATION LOCATION AND TCP-10 FOR NOTES AND SHORING PARAMETERS)

-- CONSTRUCT STAGE 1 OF STRUCTURE.

-- INSTALL TEMPORARY SIGNALS (13-1215 Temp. and 13-0530 T2) AND COVER. (SEE SIGNAL PLAN AND TCP-8 FOR TEMP. STOP BAR LOCATIONS)

STEP 6: USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEETS 1,2 AND 3 OF 9:

-- PLACE TEMPORARY PAVEMENT MARKING (PAINT ON ASPHALT AND REMOVABLE TAPE TYPE-4 ON BRIDGE) AND MARKERS (TEMPORARY RAISED) WITHOUT INTERFERING WITH EXISTING TRAFFIC ON THE NEWLY COMPLETED WIDENING AND STAGE I OF BRIDGE FOR AN INTERMEDIATE TWO-LANE, TWO-WAY TRAFFIC PATTERN FROM STA. 16+05+/- -L- TO STA. 34+47+/- -L- (SEE TCP-8 AND TCP-9):

NOTE: MAINTAIN ACCESS TO ALL DRIVEWAYS DURING CONSTRUCTION.

PHASE II

STEP 1: USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEETS 1,2 AND 3 OF 9:

-- IN A CONTINUOUS MANNER, TIE-IN REMAINDER OF TEMPORARY PAVEMENT MARKING (PAINT ON ASPHALT) AND MARKERS (TEMPORARY RAISED) WITH EXISTING MARKINGS. INSTALL PORTABLE CONCRETE BARRIER, SHIFT TRAFFIC TO THE INTERMEDIATE TRAFFIC PATTERN AND ACTIVATE TEMPORARY TRAFFIC SIGNALS USING FLAGGERS AND POLICE (13-1215 Temp. and 13-0530 T2). (SEE SIGNAL PLAN AND TCP-8 AND TCP-9)

STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEETS 1,2 AND 3 OF 9, SHEETS TCP-8 AND TCP 9 CONSTRUCT THE FOLLOWING:

-- PROPOSED SOUTH BOUND WIDENING (INCLUDING STAGE II OF THE PROPOSED BRIDGE) FORM STA. 16+05.00 -L- TO STA 34+98.68 -L-. PROPOSED CONSTRUCTION SHALL INCLUDE RESURFACING, DRIVEWAYS, DRAINAGE, PIPES AND CURB/GUTTER, UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE.

-- IN A CONTINUOUS MANNER AND IN CONJUNCTION WITH THE SOUTH BOUND CONSTRUCTION COMPLETE PAVEMENT REMOVAL OF THE PROPOSED SOUTH BOUND AND CONSTRUCT UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE OF PROPOSED FROM STA. 20+00+/- -L- TO STA. 25+82+/- -L-.

NOTE: MAINTAIN ACCESS TO ALL DRIVEWAYS AND -Y1- DURING CONSTRUCTION.

STEP 3: USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEETS 1,2 AND 3 OF 9, FLAGGERS AND POLICE THRU THE INTERSECTIONS:

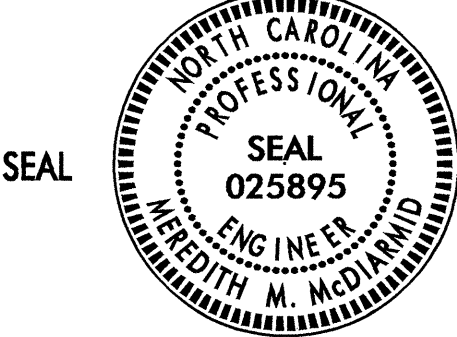

-- REMOVE PORTABLE CONCRETE BARRIER (PCB), TEMPORARY CRASH CUSHION (TCC) AND TEMPORARY SHORING. PLACE REMAINDER OF TEMPORARY PAVEMENT MARKING AND MARKERS ON PROPOSED NC 112 (SAND HILLS RD.) -L- FROM STA. 16+05.00 -L- TO STA 34+98.68 -L- AND ACTIVATE THE PROPOSED SIGNALS TO THE FINAL PATTERN.

STEP 4: USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEETS 1,2 AND 3 OF 9:

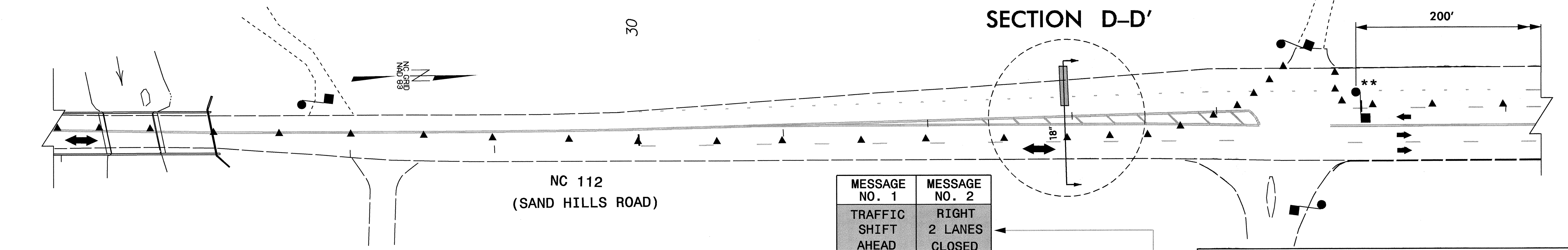
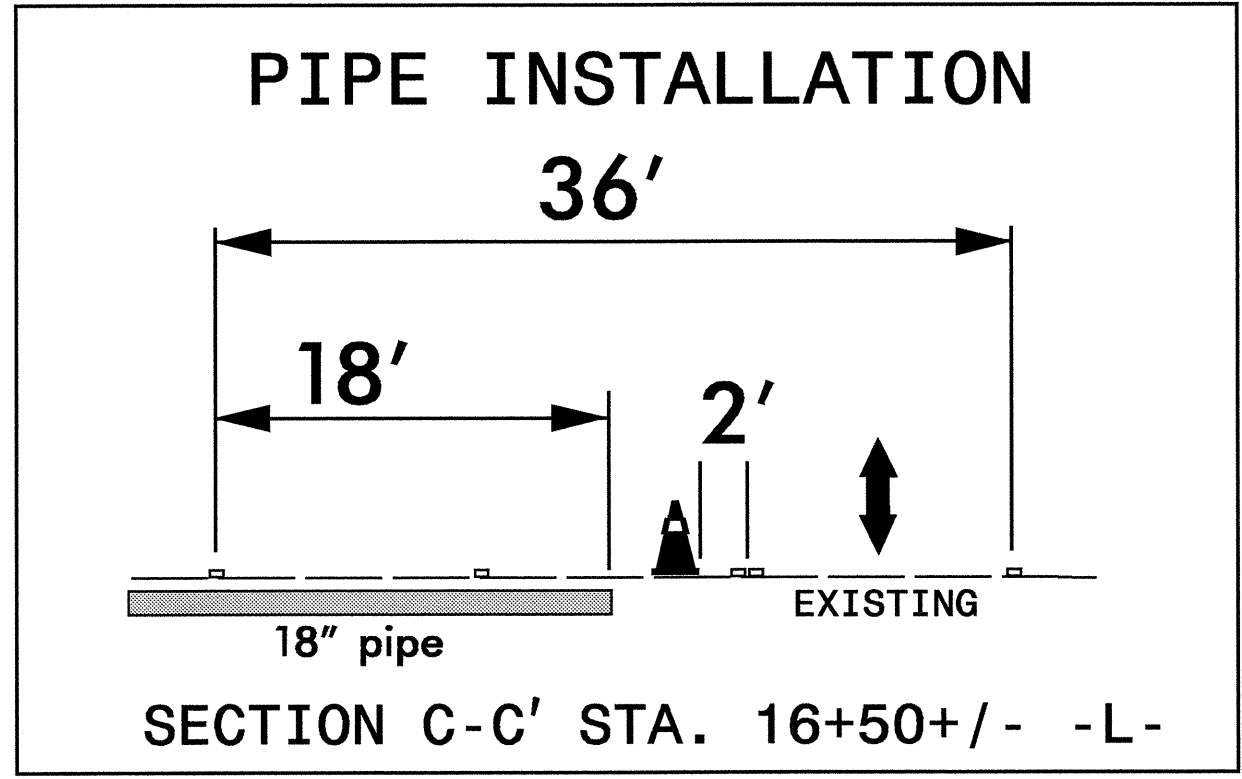
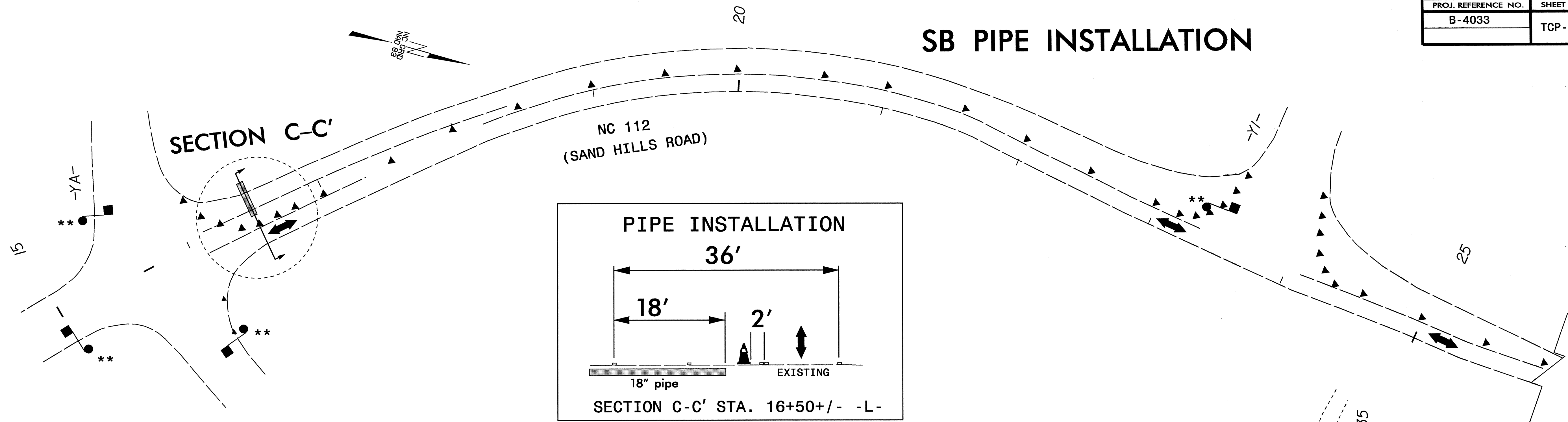
-- ACTIVATE PROPOSED FINAL SIGNALS AND PLACE FINAL LAYER OF SURFACE COURSE, FINAL PAVEMENT MARKING (THERMOPLASTIC COLD APPLIED PLASTIC TYPE 3 ON BRIDGE) AND MARKERS (SNOWPLOWABLE) ON NC 112 (SAND HILLS RD.) -L- AND SHIFT TO FINAL TRAFFIC PATTERN. (SEE SHEETS PM-1 THRU PM-3)

STEP 5: REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN NC 112 (SAND HILLS RD.) AND Y LINES TO THE FINAL PROPOSED TRAFFIC PATTERN.

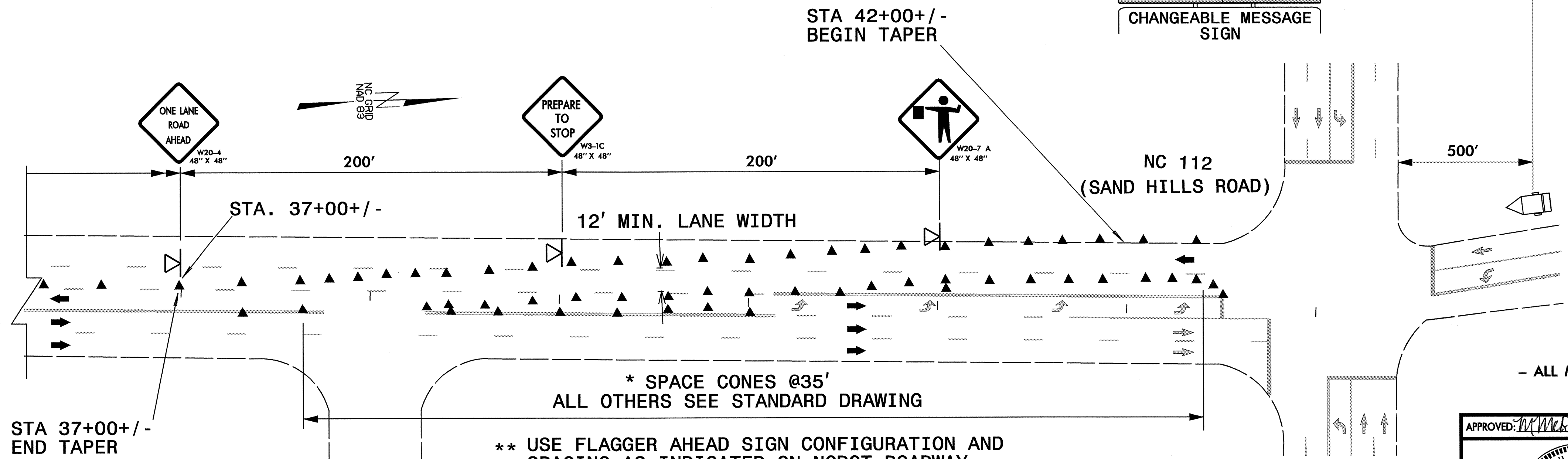
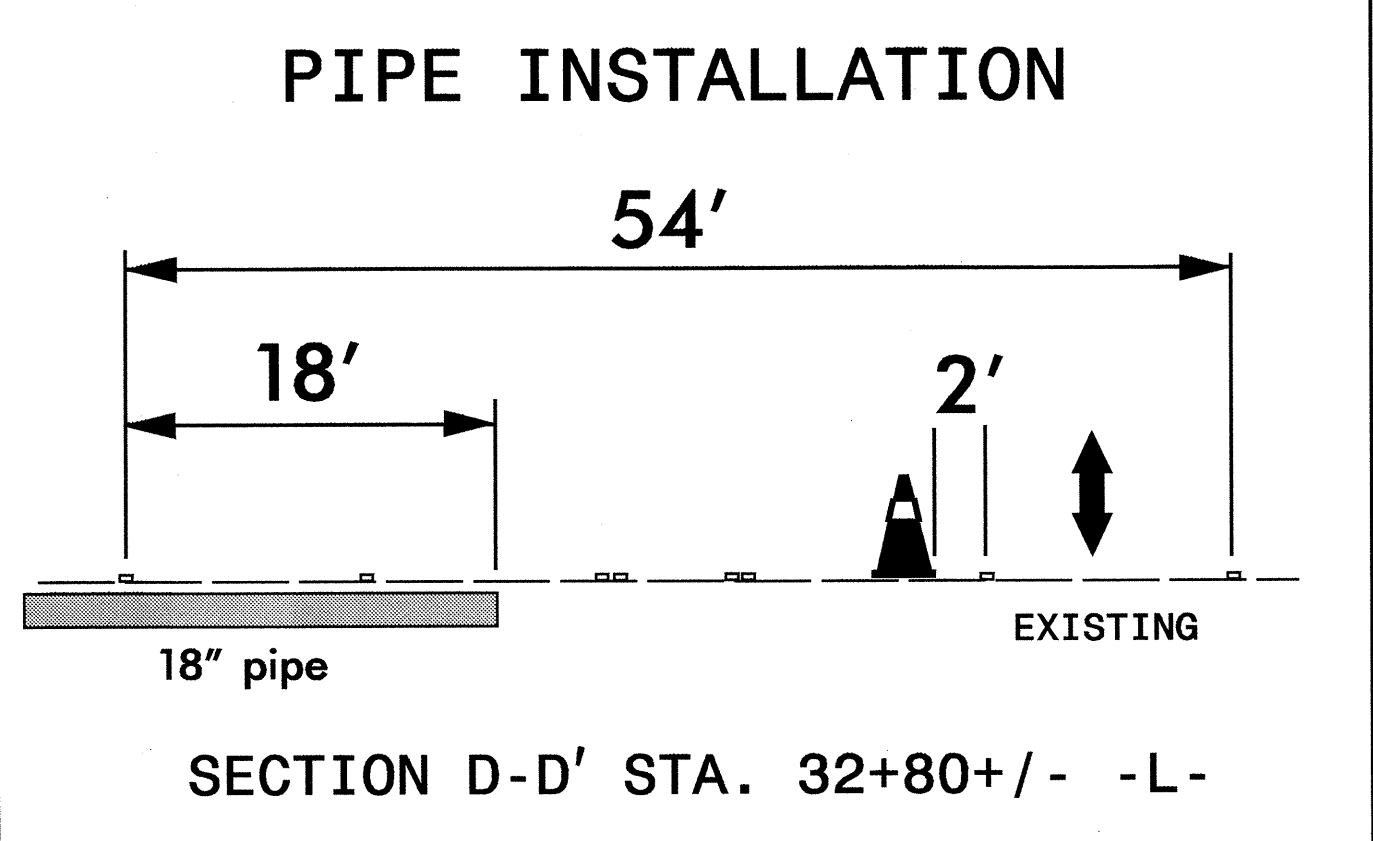
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 mmanriquez AT 11/21/08

APPROVED: <i>M. McDaniel</i> DATE: <i>6/2/08</i>		PROJECT PHASING	
	SCALE: NONE		REVISIONS
	DATE: APR 08		
	DWG. BY: MRM		
	DESIGN BY: MRM		
	REVIEWED BY: CBH		

SB PIPE INSTALLATION



MESSAGE NO. 1	MESSAGE NO. 2
TRAFFIC SHIFT AHEAD	RIGHT 2 LANES CLOSED
CHANGEABLE MESSAGE SIGN	



- * SPACE CONES @35'
- ALL OTHERS SEE STANDARD DRAWING
- ** USE FLAGGER AHEAD SIGN CONFIGURATION AND SPACING AS INDICATED ON NCDOT ROADWAY STANDARD DRAWING 1101.02 SHEET 1 OF 9.
- * REFER TO NCDOT ROADWAY STANDARD DRAWING 1101.02 SHEET 1 OF 9 FOR CONE SPACING UNLESS OTHERWISE SPECIFIED IN THE PLANS.

- ALL MARKINGS ARE EXISTING

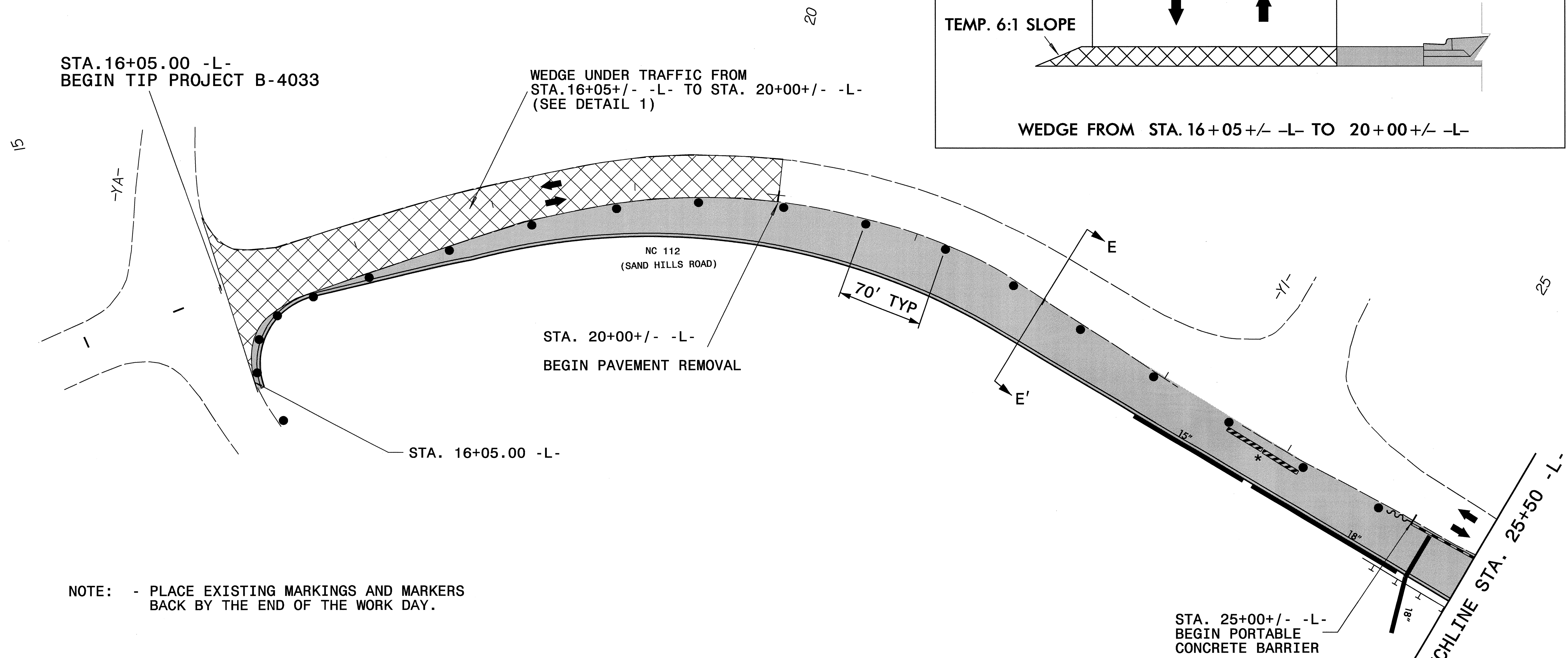
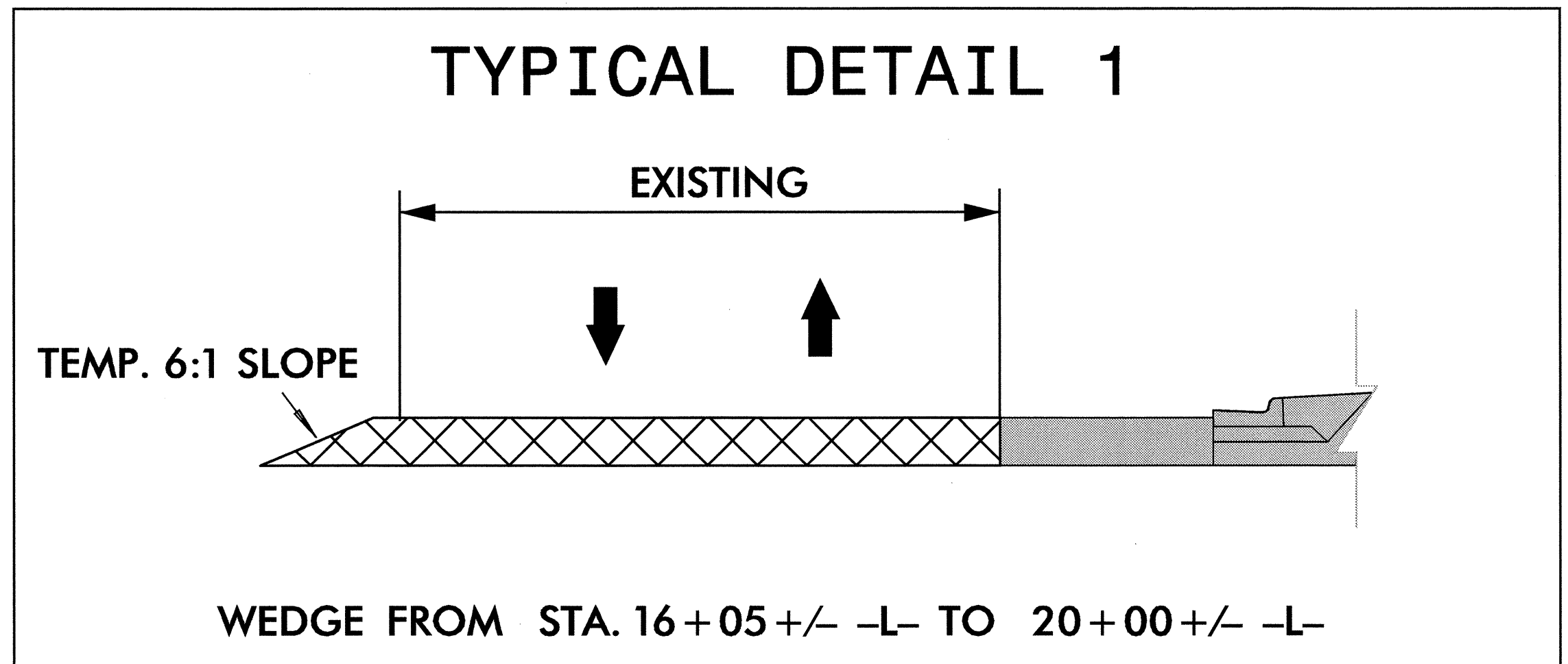
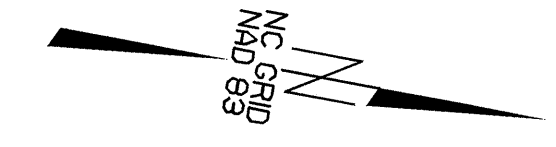
APPROVED: *M. McDermid* DATE: 5/15/08

PHASE I, STEP 4

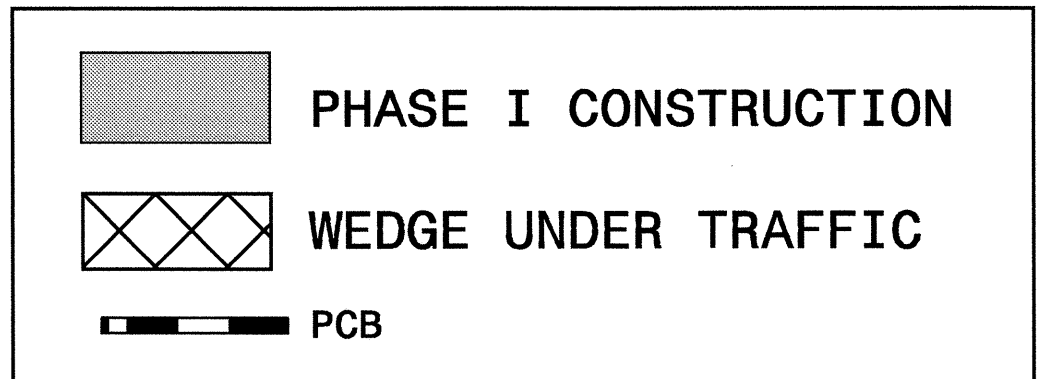
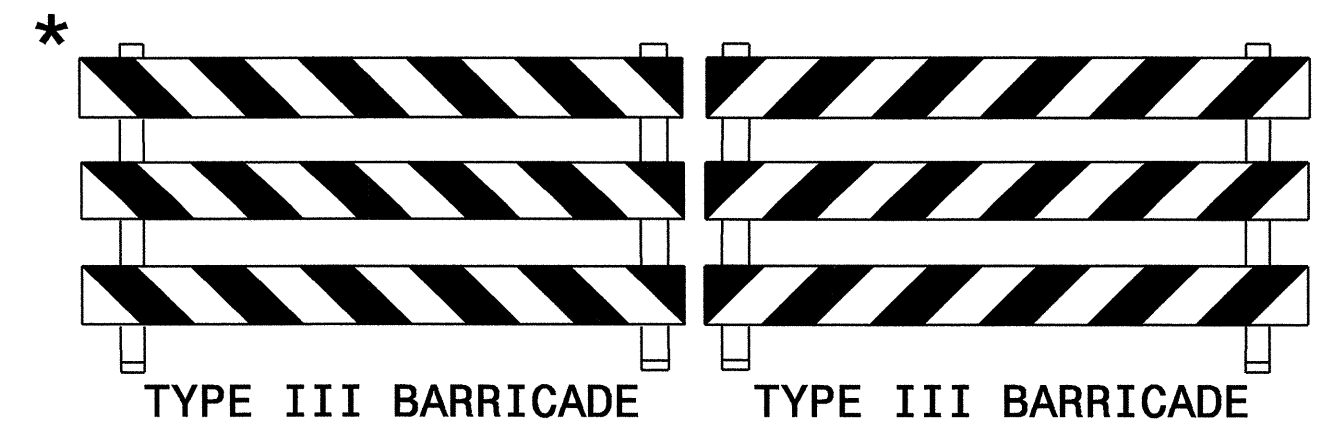
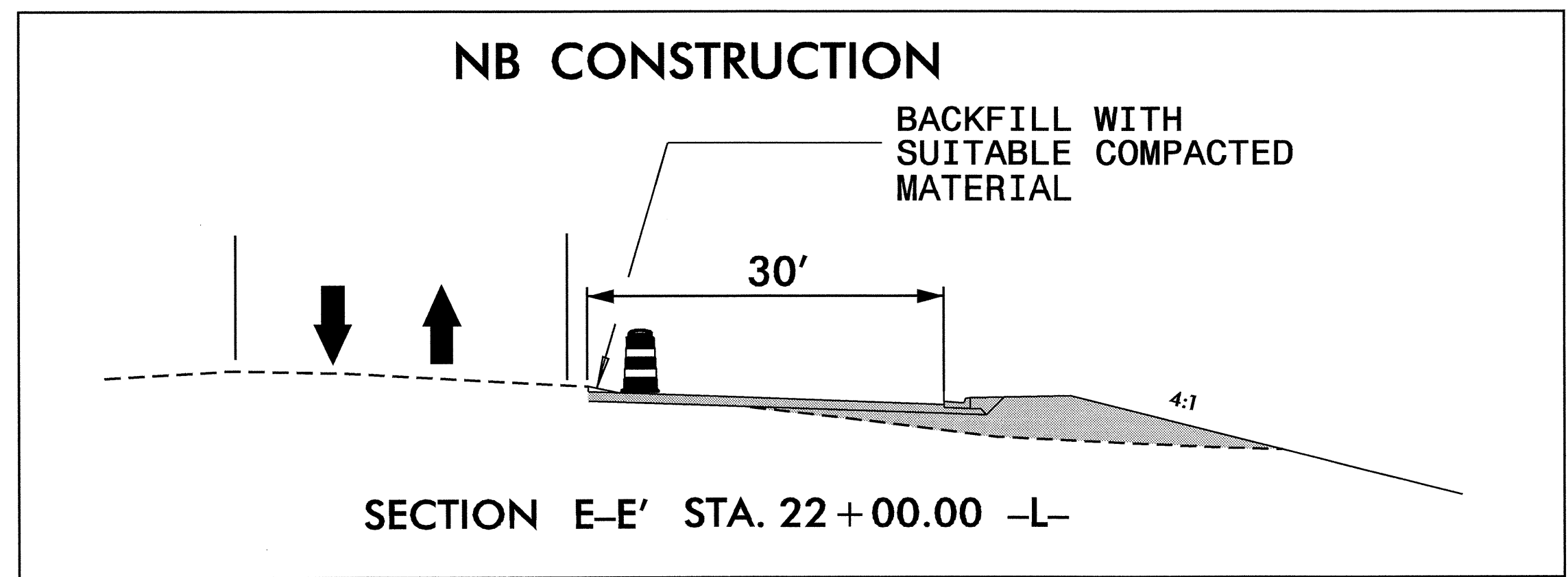
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DATE: 03-08		
DWG. BY: MRM		
DESIGN BY: MRM		
REVIEWED BY: CBH		

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 mmanriquez AT WZ1C224099

NB NC 112 CONSTRUCTION



NOTE: - PLACE EXISTING MARKINGS AND MARKERS
BACK BY THE END OF THE WORK DAY.



APPROVED: *M. McDaniel* DATE: 6/2/08

PHASE I, STEP 5

SCALE: NONE

DATE: 03-08

DWG. BY: MRM

DESIGN BY: MRM

REVIEWED BY: CBH

SEAL

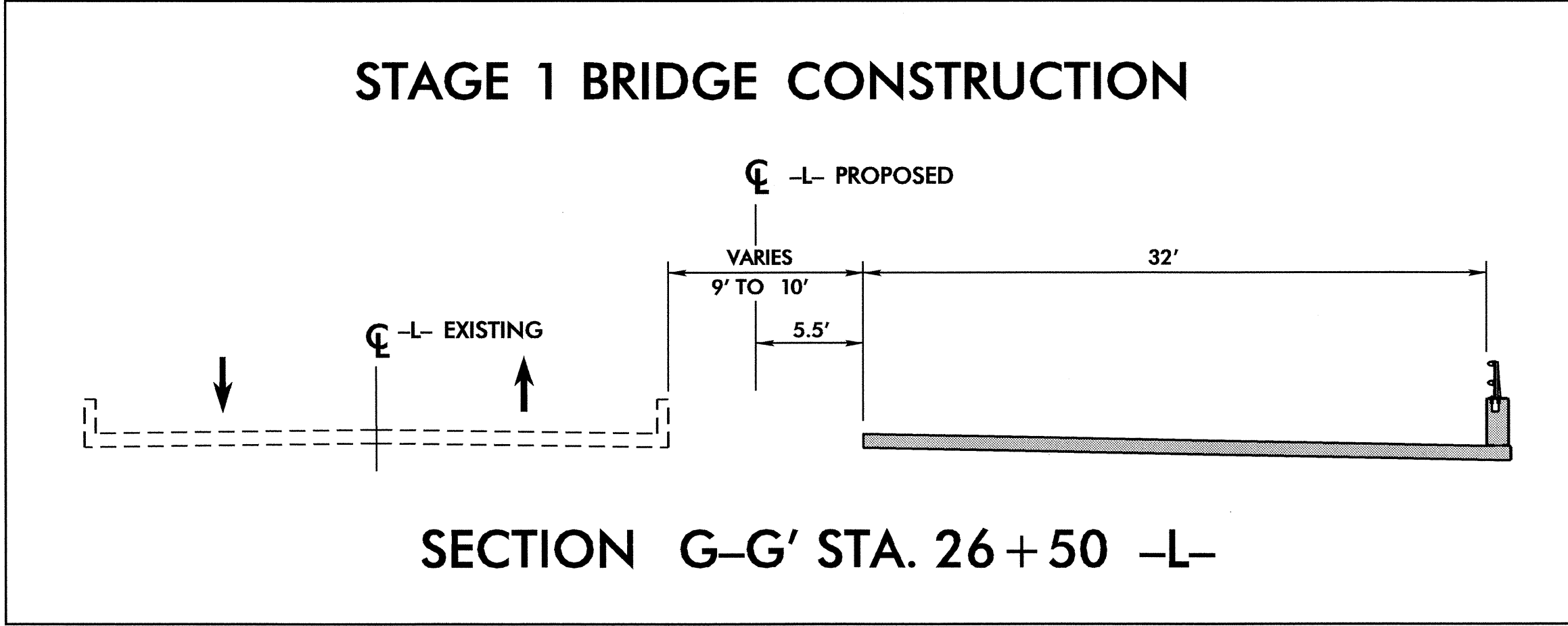
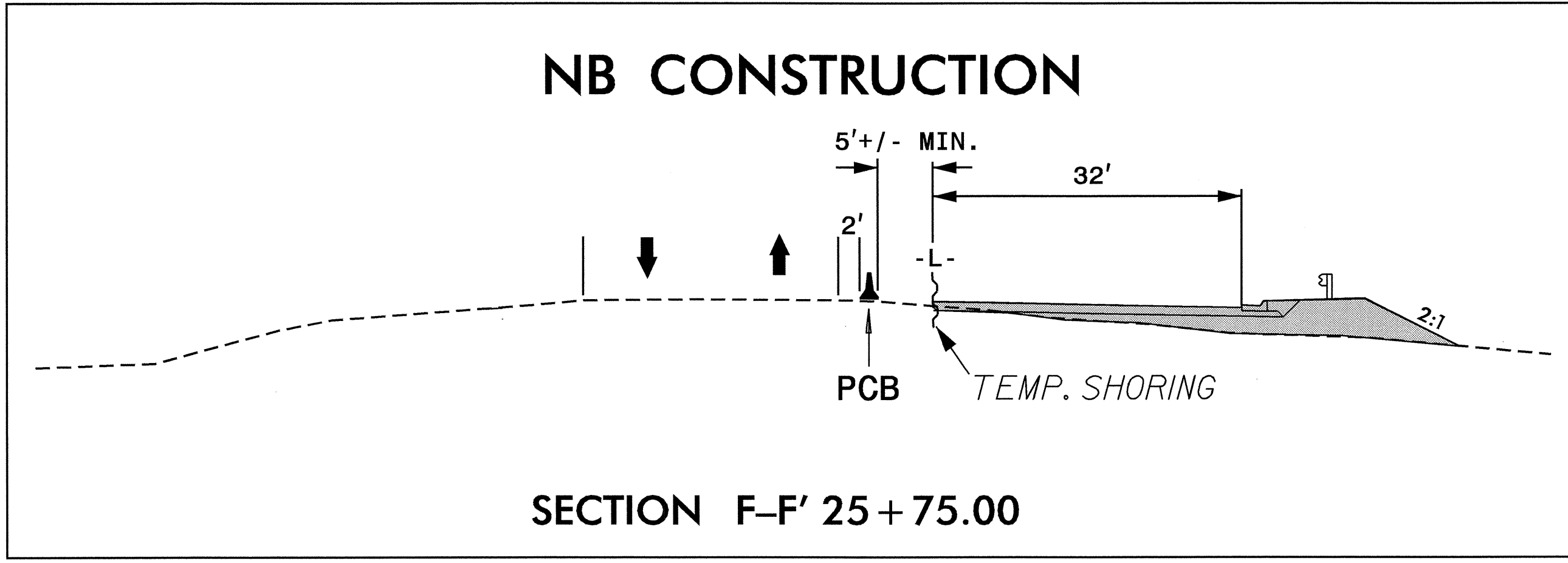
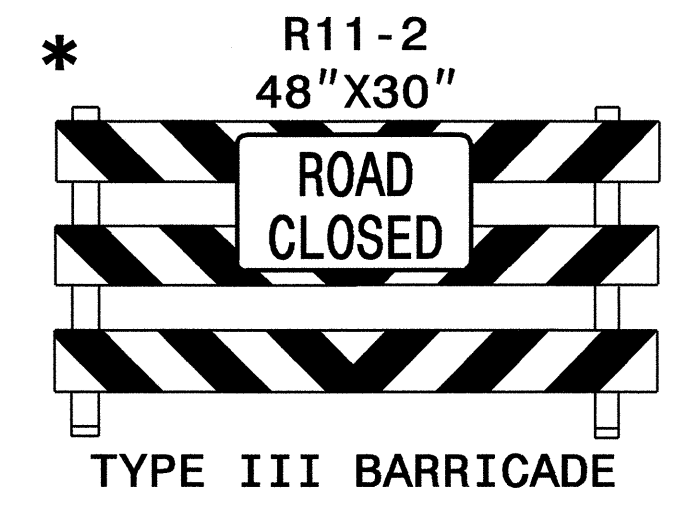
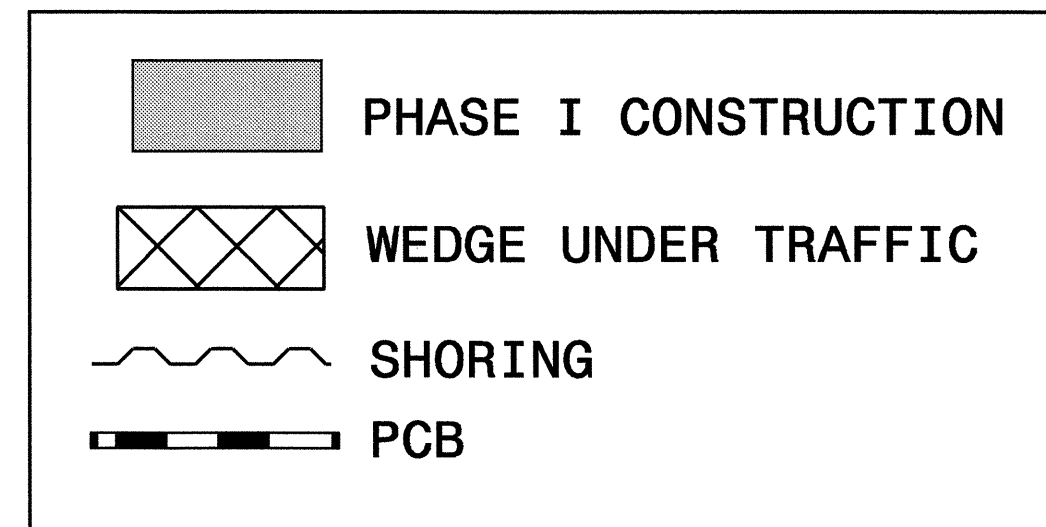
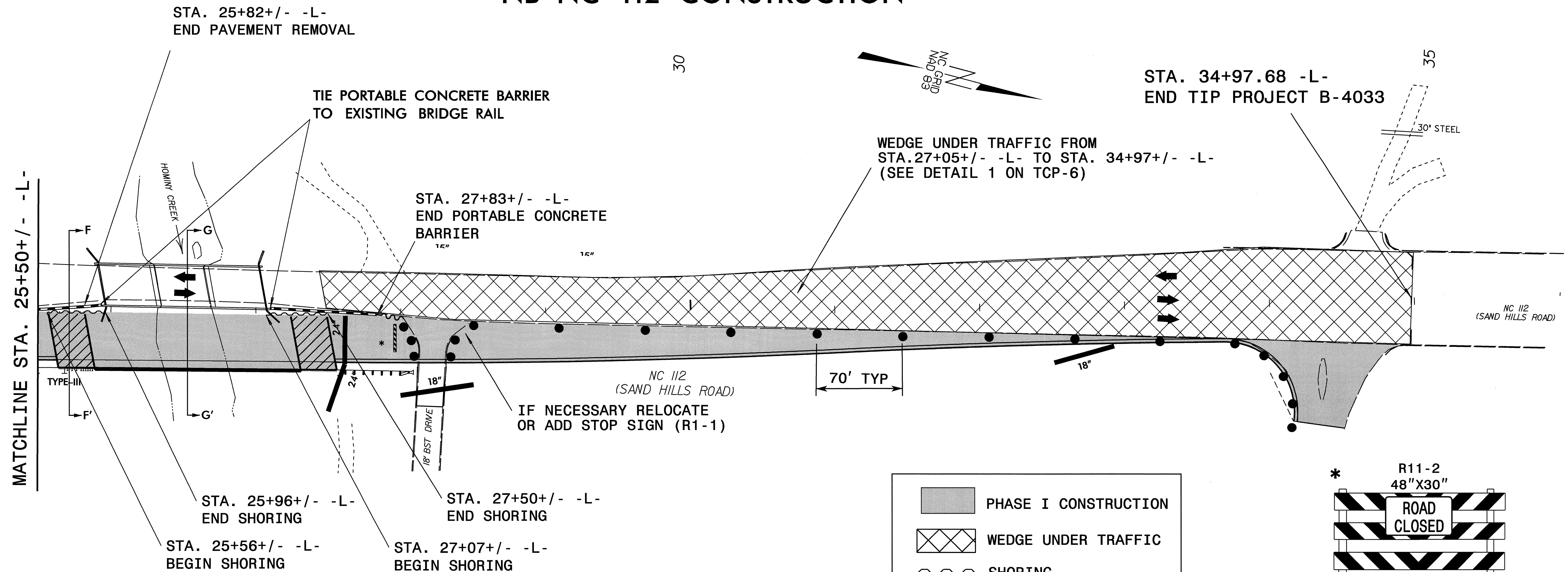
REVISIONS

NO.	DESCRIPTION

CADD FILE

02-JUN-2008 10:26
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 mmdr\lque AT WZTC224099

NB NC 112 CONSTRUCTION

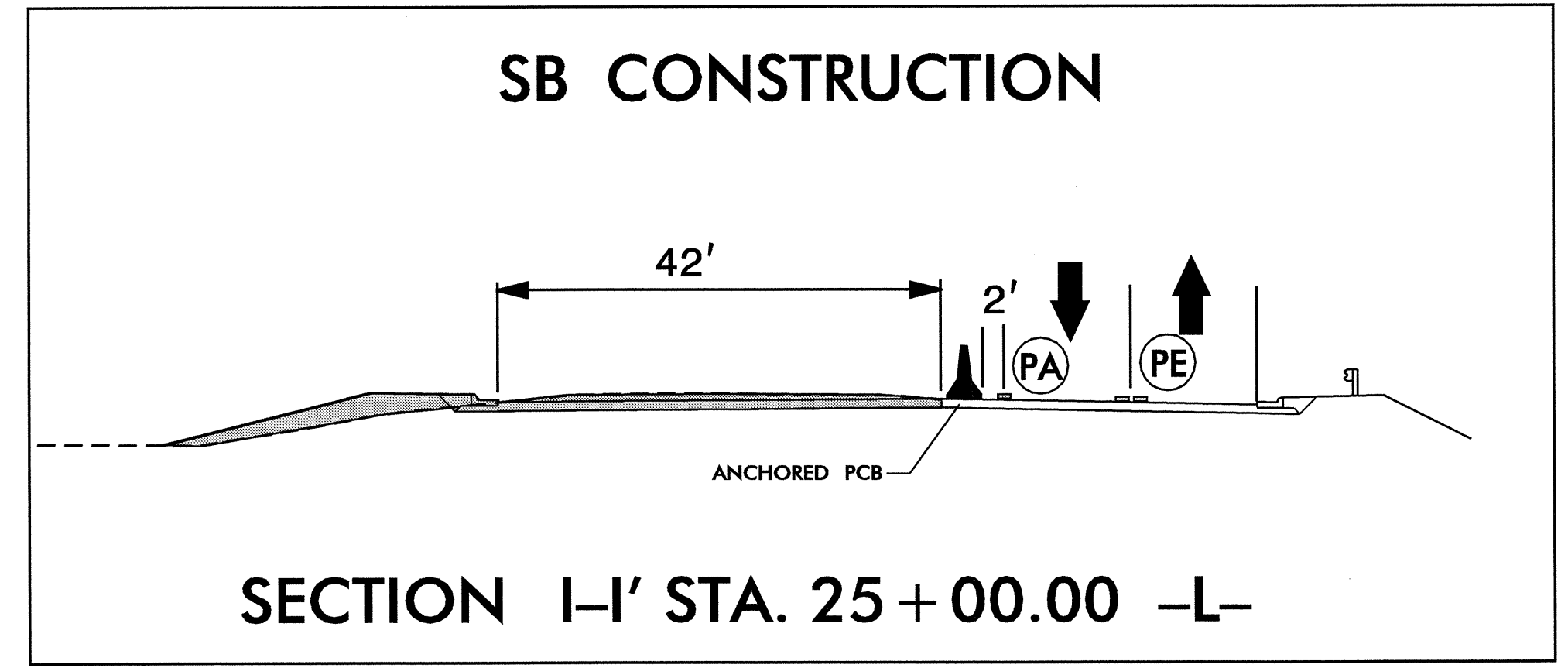
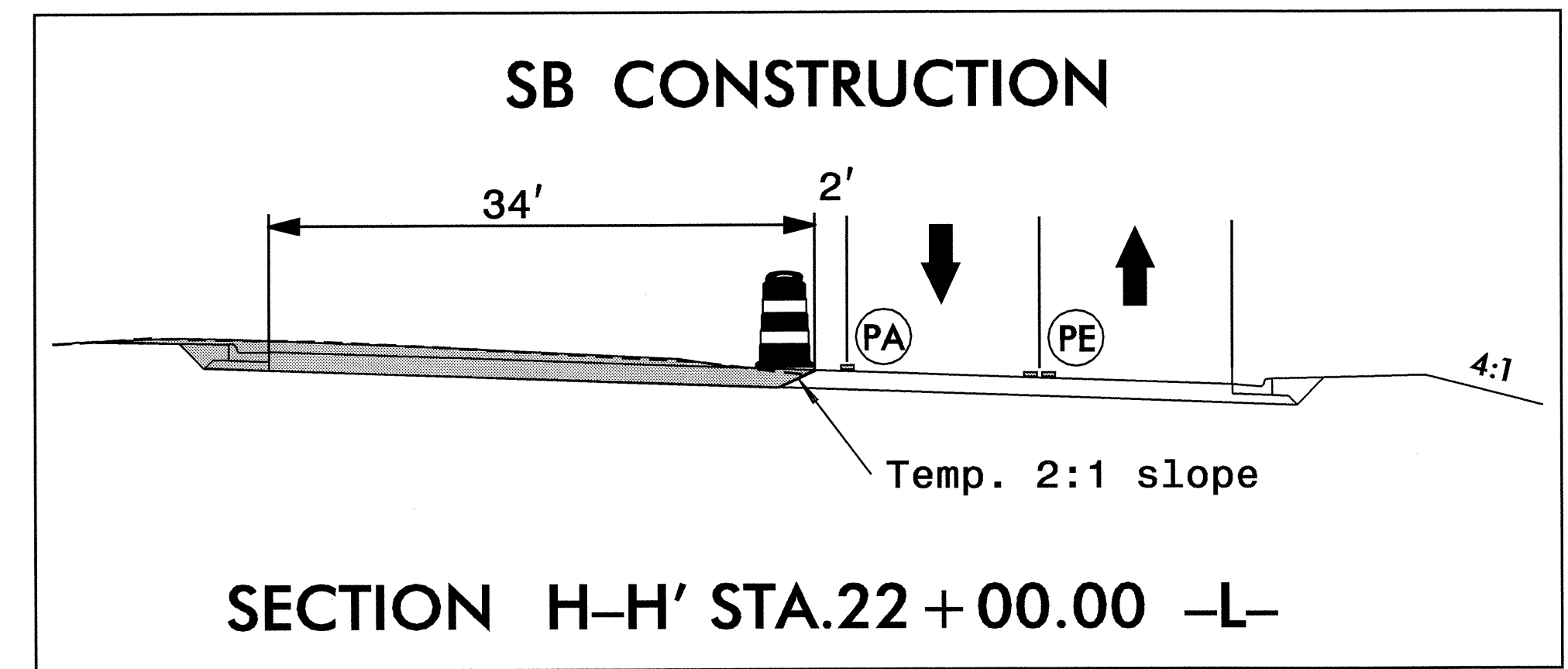
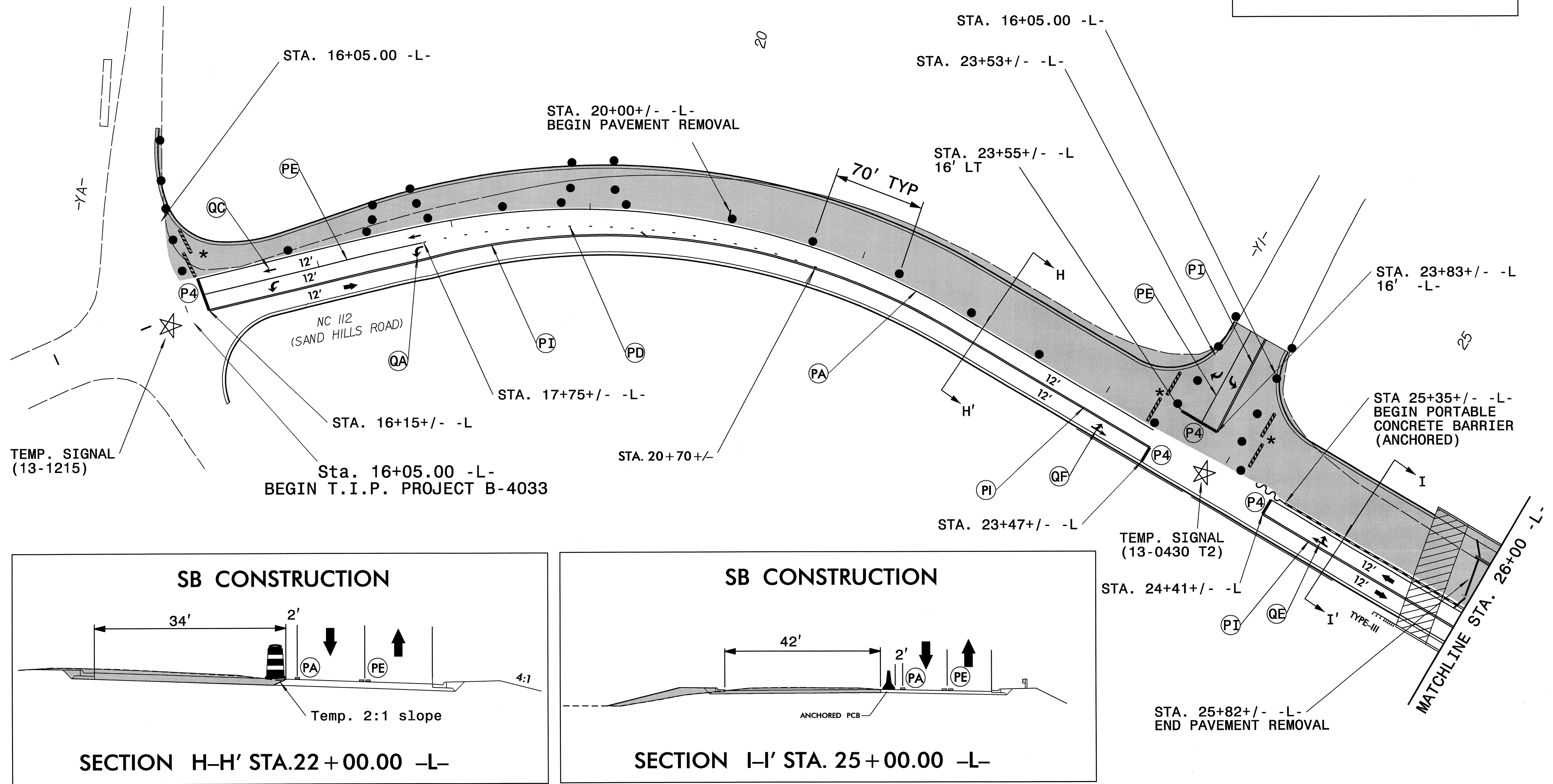
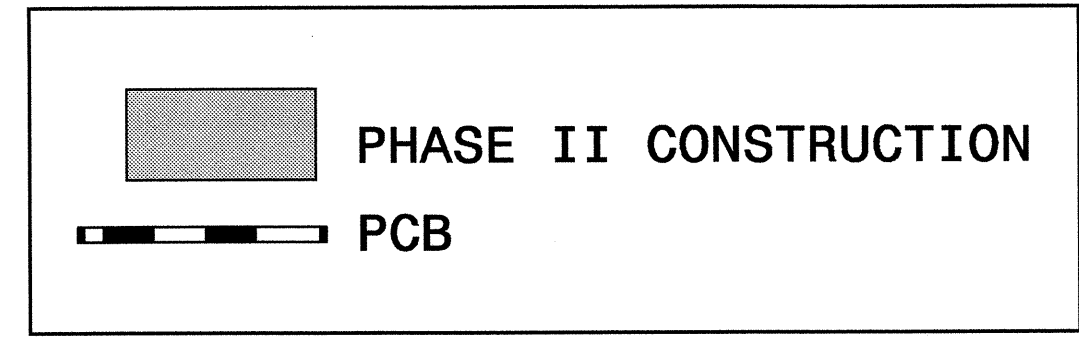
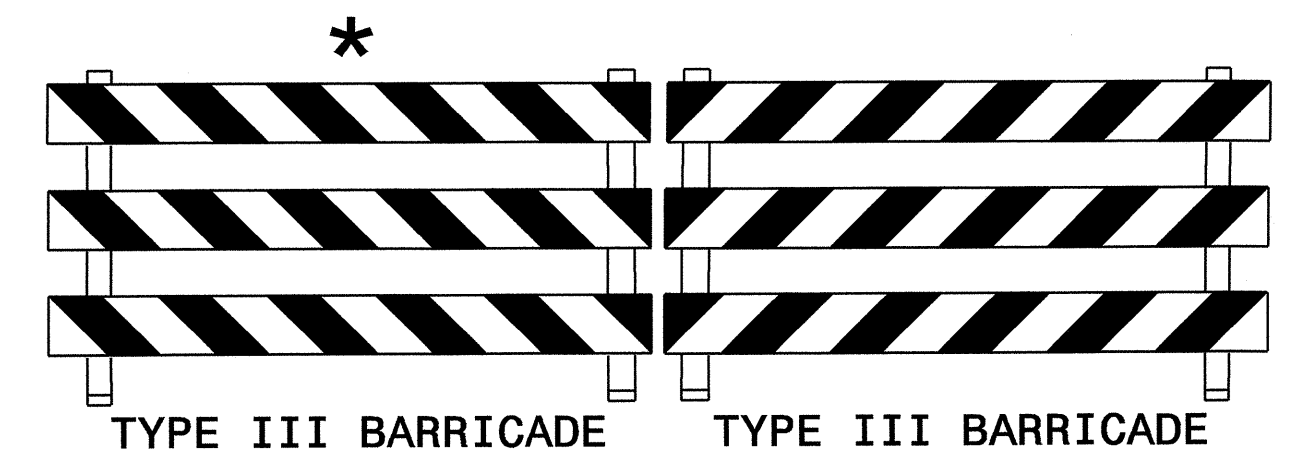


NOTE: -REFER TO TCP-10 FOR SHORING PARAMETERS
 -PLACE EXISTING MARKINGS AND MARKERS BACK BY THE END OF EACH WORK DAY.

APPROVED: <i>M. McDaniel</i> DATE: <i>1/2/08</i>	PHASE I, STEP 5	
	SCALE: NONE	
	DATE: ARP 08	
	DESIGN BY: MRM	
	REVIEWED BY: CBH	
		REVISIONS
		CADD FILE

02-JUN-2008 10:26
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 mmdm\iquez AT 12/22/09

SB NC 112 CONSTRUCTION



NOTE: SEE 2006 NCDOT RSD 1205.04 SHEETS 1 AND 2 FOR PAVEMENT MARKING SYMBOL LOCATION.

APPROVED: *M. McDaniel* DATE: 4/2/08

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 025895 MERRITH M. McDaniel

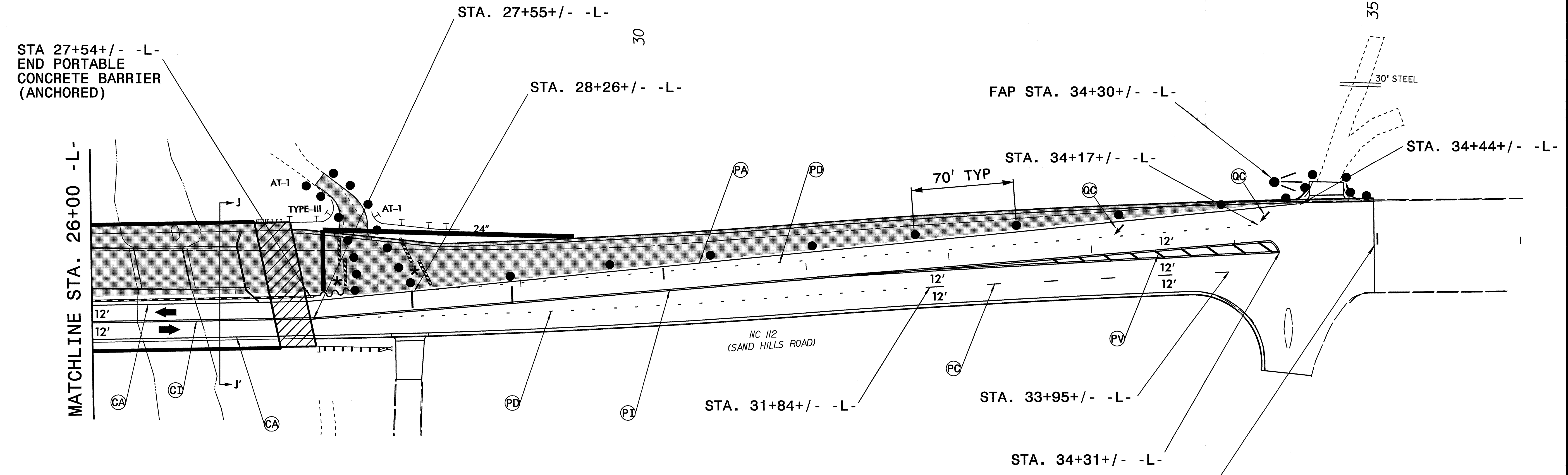
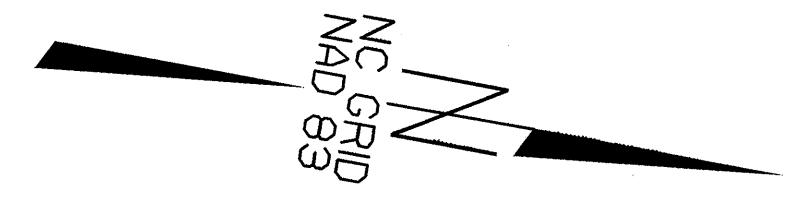
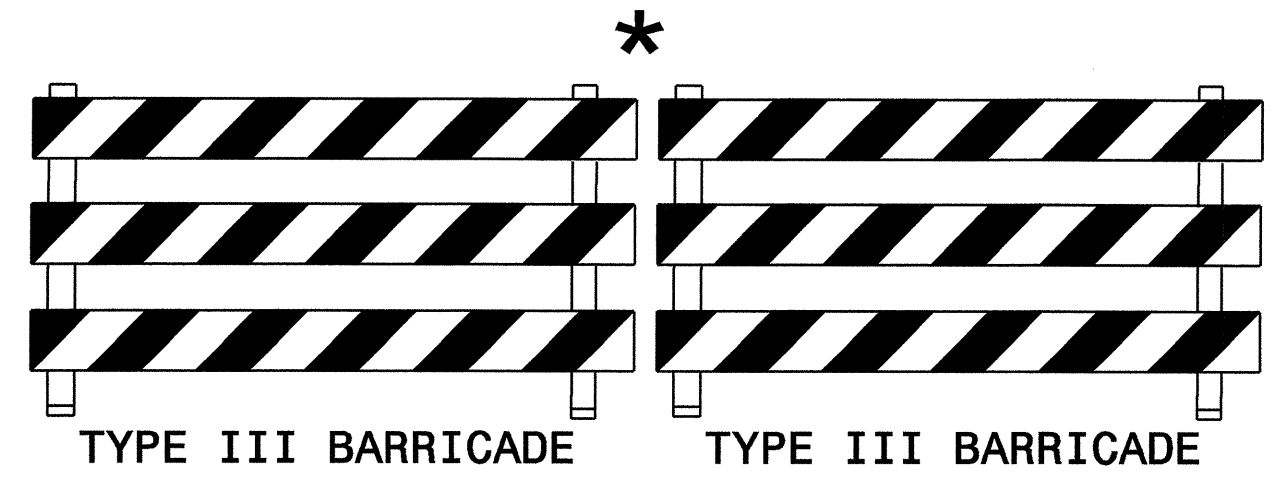
PHASE II, STEP 2

SCALE: NONE		REVISIONS
DATE: APR 08		
DWG. BY: MRM		
DESIGN BY: MRM		
REVIEWED BY: CHB		

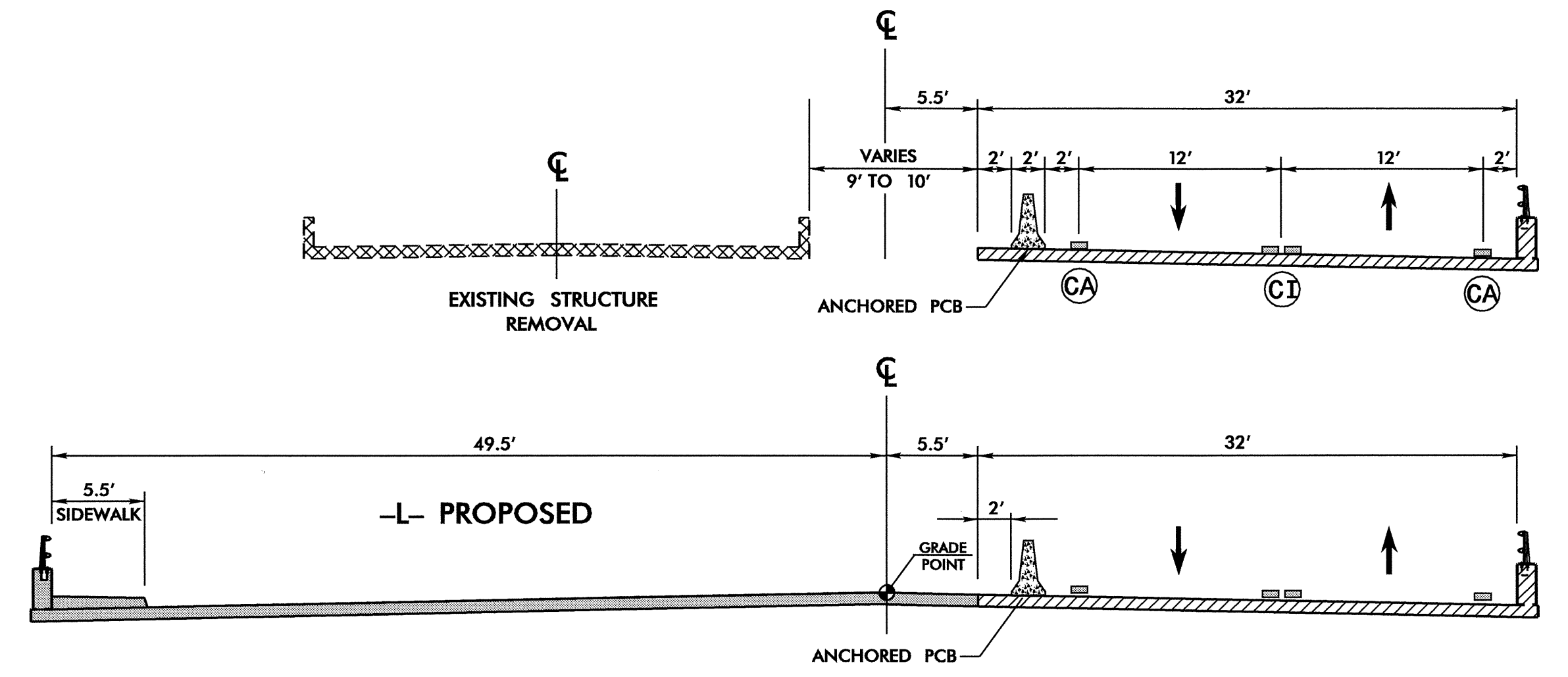
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 mmanriquez AT 12/22/09

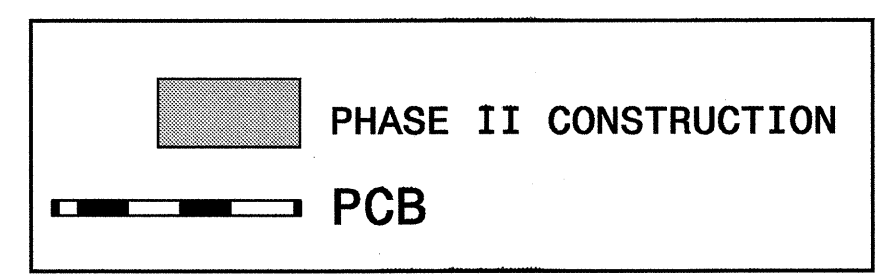
SB NC 112 CONSTRUCTION



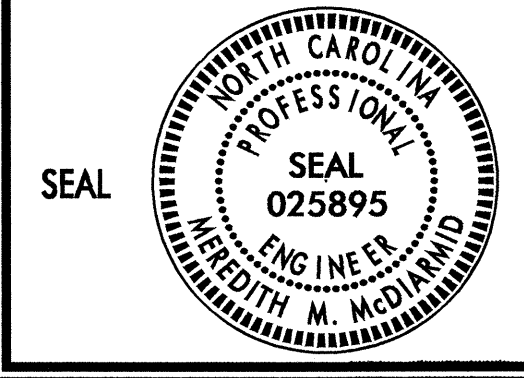
STAGE 2 BRIDGE REMOVAL / CONSTRUCTION



SECTION J-J' STA. 27+00 -L-



APPROVED: *M. McDiarmid* DATE: 5/15/08



PHASE II, STEP 2		REVISIONS	
SCALE: NONE	DATE: APR 08		
DWG. BY: MRM	DESIGN BY: MRM		
REVIEWED BY: CBH			

15-MAY-2008 10:04
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 mmandriquez AT WZ1224099

SHORING NOTES

Temporary Shoring No. 1

FOR TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

DO NOT USE STANDARD SHORING FROM STATION 25+56.00-L, 0 FT. TO STATION 25+96.00-L- 0 FT.

FOR CONTRACTOR DESIGNED SHORING, SURVEY THE SHORING LOCATION TO DETERMINE EXISTING ELEVATIONS AND ACTUAL DESIGN HEIGHTS BEFORE BEGINNING DESIGN.

WHEN USING CONTRACTOR DESIGNED SHORING, USE THE FOLLOWING SOIL PARAMETERS:

UNIT WEIGHT OF SOIL ABOVE WATER TABLE, $\gamma = 120$ PCF
 UNIT WEIGHT OF SOIL BELOW WATER TABLE, $\gamma = 60$ PCF
 FRICTION ANGLE, $\phi = 30$ DEGREES
 COHESION, $c = 0$ PSF

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

FOR PORTABLE CONCRETE BARRIERS ABOVE AND BEHIND TEMPORARY SHORING, USE AN NCDOT PORTABLE CONCRETE BARRIER (UNANCHORED OR ANCHORED) OR AN OREGON TALL F-SHAPE CONCRETE BARRIER IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS.

Temporary Shoring No. 2

FOR TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

DO NOT USE A TEMPORARY MSE WALL FROM STATION 27+07.00-L, 0 FT. TO STATION 27+50.00-L- 0 FT.

FOR CONTRACTOR DESIGNED SHORING, SURVEY THE SHORING LOCATION TO DETERMINE EXISTING ELEVATIONS AND ACTUAL DESIGN HEIGHTS BEFORE BEGINNING DESIGN.

WHEN USING CONTRACTOR DESIGNED SHORING, USE THE FOLLOWING SOIL PARAMETERS:


UNIT WEIGHT OF SOIL ABOVE WATER TABLE, $\gamma = 120$
 UNIT WEIGHT OF SOIL BELOW WATER TABLE, $\gamma = 60$
 FRICTION ANGLE, $\phi = 30$ DEGREES
 COHESION, $c = 0$ PSF

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

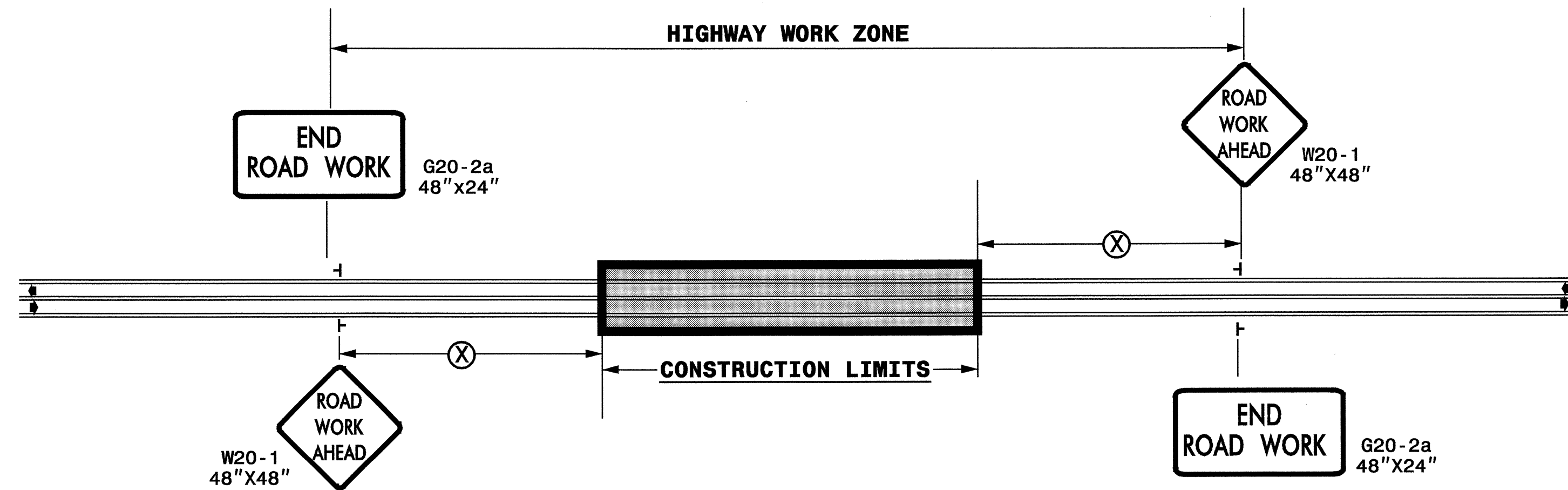
FOR PORTABLE CONCRETE BARRIERS ABOVE AND BEHIND TEMPORARY SHORING, USE AN NCDOT PORTABLE CONCRETE BARRIER (UNANCHORED OR ANCHORED) OR AN OREGON TALL F-SHAPE CONCRETE BARRIER IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS.

* THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENT WAS SUBMITTED TO THE WZTCU ON APRIL 30, 2008 AND SEALED BY A PROFESSIONAL ENGINEER, JOHN S. W. FARGHER, PE (license # 023480)

I5-MAY-2008 10:01
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 mmamr\lquez AT WZTC224099

APPROVED: <i>M. McDiarmid</i> DATE: 5/15/08 	SHORING PARAMETERS																		
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SCALE: NONE																			
DATE: APR 08																			
DWG. BY: MRM																			
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REVISIONS																			

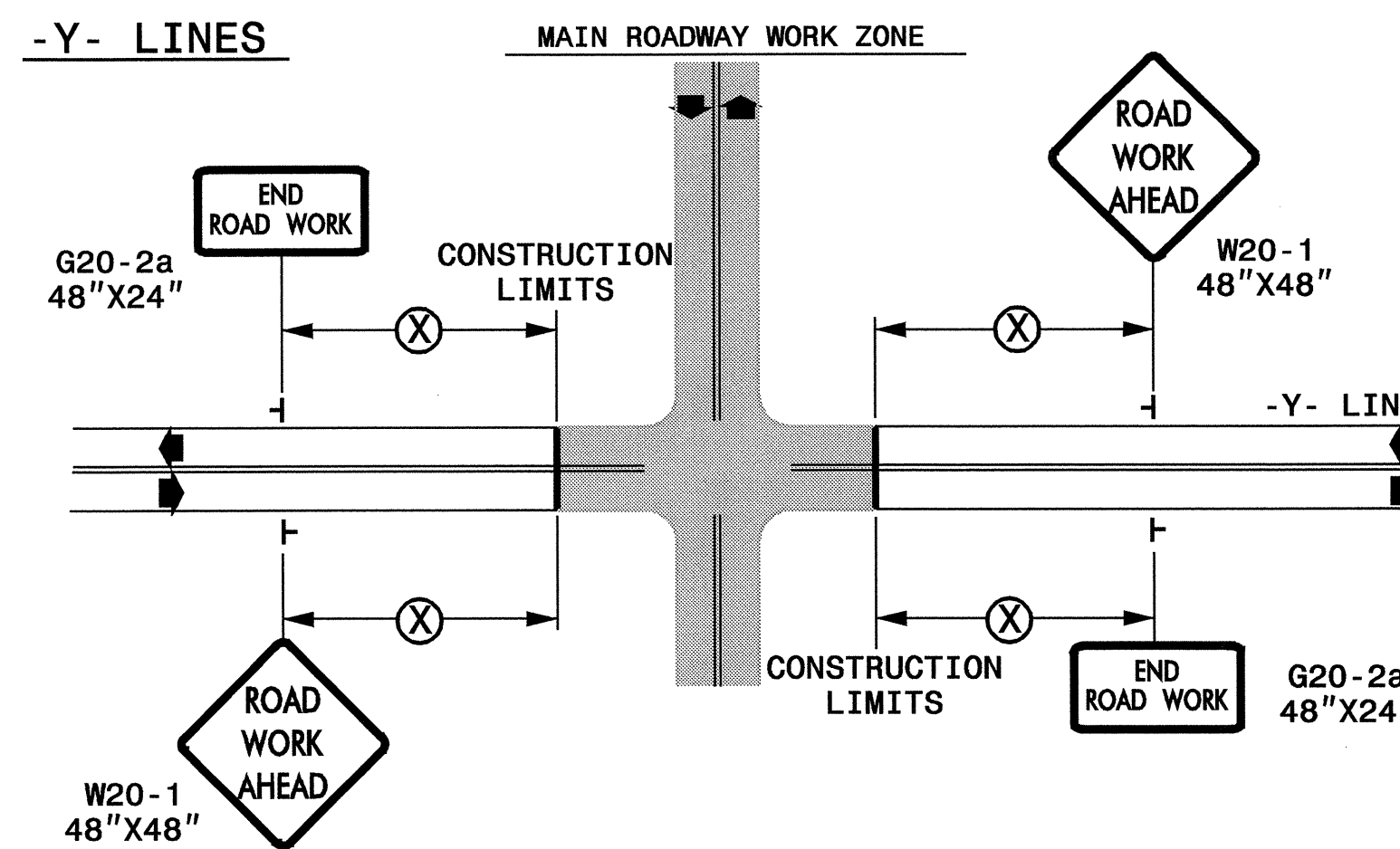
TWO-WAY UNDIVIDED ** (L-LINES)



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

15-MAY-2008 10:01 \\dot\dfisroot\proj\p\projects-b\4033\traff\work\top\B-4033_TC_TCP_11.dgn mmandriquez AT WZTC224059

APPROVED: <i>M. McDaniel</i> DATE: 5/15/08	DETAIL DRAWING FOR TWO-WAY UNDIVIDED AND URBAN FREEWAYS ADVANCED WORK ZONE WARNING SIGNS	
	SCALE: NONE	REVISIONS
	DATE: APR 08	7-98 10/01
	DWG. BY:	10-98 03/04
	DESIGN BY:	01/01 11/04
REVIEWED BY: CBH		