R-2414A

TIP PROJECT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

METRIC

STATE PROJECT REFERENCE NO.	SHEET NO.
R-2414A	TTC-1

PLAN FOR TEMPORARY TRAFFIC CONTROL, MARKING & DELINEATION

CAMDEN 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
1101.04	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
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
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS (TEMPORARY & PERMANENT)
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
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1262.01	GUARDRAIL END DELINEATION

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

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J.W. WOOLARD, P.E.	TRAFFIC CONTROL PROJECT DESIGN ENGINEER
	TRAFFIC CONTROL DESIGN ENGINEER / TECHNICIAN

APPROVED: B.A. May 10-28-08
DATE:

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NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

PLAN PREPARED FOR NCDOT BY:

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- C.L. MULLEN — DESIGN ENGINEER
- A.B. PRIDGEN, P.E. — DESIGN TECHNICIAN

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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.

TIME RESTRICTIONS

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

ROAD NAME	DAY AND TIME RESTRICTIONS
1. US 158/NC 34	PHASE I CONSTRUCTION 7:00AM TO 7:00PM (MON-SUN)
2. US 158/NC 34	PHASES II & III CONSTRUCTION 7:00AM TO 9:00AM AND 4:00PM TO 7:00PM (MON-THUR) AND 12:00 NOON (FRI) TO 7:00AM (MON)

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

ROAD NAME

1. US 158/NC 34

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 7:00 P.M. DECEMBER 31st TO 9:00 A.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 9:00 A.M. THE FOLLOWING TUESDAY.
3. FOR EASTER, BETWEEN THE HOURS OF 7:00 P.M. THURSDAY AND 9:00 A.M. MONDAY.
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 7:00 P.M. FRIDAY TO 9:00 A.M. TUESDAY.
5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 7:00 P.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 7:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
6. FOR LABOR DAY, BETWEEN THE HOURS OF 7:00 P.M. FRIDAY AND 9:00 A.M. TUESDAY.
7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 7:00 P.M. TUESDAY TO 9:00 A.M. MONDAY.
8. FOR CHRISTMAS, BETWEEN THE HOURS OF 7:00 P.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 9:00 A.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.
9. FOR THE JULY 4TH FIREWORKS DISPLAY - DATES TO BE COORDINATED WITH THE ENGINEER.
10. FOR THE SAILING BOAT REGATTA - DATES TO BE COORDINATED WITH THE ENGINEER.
11. FOR THE POWER BOAT RACES - DATES TO BE COORDINATED WITH THE ENGINEER.

C) DO NOT CONDUCT MULTI-VEHICLE HAULING AS FOLLOWS; INGRESS AND EGRESS FROM RAMPS WILL BE ALLOWED:

ROAD NAME	DAY AND TIME RESTRICTIONS
1. US 158/NC 34	PHASE I CONSTRUCTION 7:00AM TO 7:00PM (MON-SUN)

D) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

E) 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.

F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 5 M OF AN 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.

G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 1.5m 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 3m 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.

H) 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.

I) DO NOT WORK SIMULTANEOUSLY WITHIN 5m ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

J) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

PAVEMENT EDGE DROP OFF REQUIREMENTS

K) 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 50mm ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 75mm 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.

L) DO NOT EXCEED A DIFFERENCE OF 50mm IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 40mm. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 150M IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

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APPROVED: DATE: 1/29/09

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A MAY

PROJECT NOTES

SCALE:	NONE
DATE:	5/08
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REVISIONS

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PROJECT NOTES

PROJ. REFERENCE NO.	SHEET NO.
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GENERAL NOTES

SIGNING

N) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 12m FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

O) PROVIDE PERMANENT SIGNING.

P) PROVIDE DETOUR SIGNING WITHIN THE PROJECT LIMITS.

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

R) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 150M IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC BARRIER

S) 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 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.

T) 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	4.6m
45 - 50	6m
55	7.6m
60 MPH or HIGHER	9m

TRAFFIC CONTROL DEVICES

U) SPACE CHANNELIZING DEVICES IN WORK AREAS EQUAL IN METERS TO 2/3rds THE POSTED SPEED LIMIT (MPH), EXCEPT 3m ON-CENTER IN RADII, AND 1m 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.

V) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

W) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES DRUMS PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 150m CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
1. US 158/NC 34	THERMOPLASTIC	PERMAMENT RAISED
2. US 158/NC 34 (BRIDGE DECK)	COLD APPLIED PLASTIC	PERMANENT RAISED
3. -Y- LINES	THERMOPLASTIC	PERMANENT RAISED

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

ROAD NAME	MARKING	MARKER
1. US 158/NC 34	PAINT	TEMPORARY RAISED
2. US 158/NC 34 (BRIDGE DECK)	COLD APPLIED	TEMPORARY RAISED
3. ALL -Y- LINES	PAINT	TEMPORARY RAISED

Z) 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.

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

BB) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

CC) POLICE MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS, AS DIRECTED BY THE ENGINEER.

DD) 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) 150M AND 300M RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

LOCAL NOTES

1) REFER TO SHEET TTC-21 "PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS" FOR MINIMUM CLEAR DISTANCES AND OFFSETS WHEN INSTALLING PORTABLE CONCRETE BARRIER FOR PROTECTION OF TEMPORARY SHORING.

2) THE CONTRACTOR SHALL CONDUCT HIS WORK OPERATIONS SO AS TO MINIMIZE IMPACTS TO ACTIVITIES HELD AT THE CAUSEWAY PARK AND THE GEORGE M. WOOD PARK.

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APPROVED: [signature] DATE: 10-28-08

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

PROJECT NOTES

SCALE:	NONE
DATE:	5/08
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REVISIONS

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INTERMEDIATE PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM
		INTERMEDIATE PAVEMENT MARKINGS
		COLD APPLIED PLASTIC (100MM) TYPE 4- REMOVABLE TAPE
CA	WHITE EDGELINE	
CB	YELLOW EDGELINE	
CI	YELLOW DOUBLE CENTER	
		PAINT (100MM)
PA	WHITE EDGELINE (2X)	
PB	YELLOW EDGELINE (2X)	
PC	3 M. WHITE SKIP (2X)	
PD	0.5 M. WHITE MINISKIP (2X)	
PE	WHITE SOLID LANE LINE (2X)	
PF	3 M. YELLOW SKIP (2X)	
PG	0.5 M. YELLOW MINISKIP (2X)	
PH	YELLOW SINGLE CENTER (2X)	
PI	YELLOW DOUBLE CENTER (2X)	
		PAINT (200MM)
PV	YELLOW DIAGONAL (2X)	
		PAINT MARKING SYMBOLS
QA	LEFT TURN ARROW (2X)	
QC	STRAIGHT ARROW (2X)	
QD	COMBO.STRAIGHT/LEFT (2X)	
QE	COMBO.STRAIGHT/RIGHT (2X)	
		MARKERS TEMPORARY RAISED PAVEMENT MARKERS
MH	YELLOW & YELLOW	
MI	CRYSTAL & RED	

(SEE PMP-1 FOR FINAL PAVEMENT MARKING SCHEDULE)

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APPROVED: [signature] DATE: 10-28-08

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INTERMEDIATE PAVEMENT MARKING SCHEDULE

SCALE:	NONE
DATE:	5/08
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DESIGN BY:	CLM
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REVISIONS

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PROJ. REFERENCE NO.	SHEET NO.
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PHASE I

STEP 1) INSTALL ADVANCE WORK ZONE SIGNING ON US 158/NC 34 AND -Y- (HAVENWOOD DRIVE) ACCORDING TO TTC-22.

STEP 2) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, BEGIN PROPOSED DRAINAGE INSTALLATIONS, GRADING, AND CONSTRUCTING -L- (US 158/NC 34) LEFT SIDE WIDENING UP TO, BUT NOT INCLUDING, THE FINAL LAYER THROUGH THE FOLLOWING STATION LOCATIONS (SEE LOCAL NOTE #2 AND TTC-5 THRU TTC-9):

-L- STA. 8+92+/- TO STA.41+00+/-

PERFORM WEDGING OF EXISTING US 158/NC 34 PAVEMENT (FULL-WIDTH) THROUGH THE FOLLOWING STATION LOCATIONS:

-L- STA. 10+50+/- TO STA. 41+00+/-
-L- STA. 45+20+/- TO STA. 46+50+/-

WORK IN A CONTINUOUS MANNER TO COMPLETE PHASE I, STEP 3 AND STEP 4 ON A WEEKEND FROM SATURDAY NIGHT AT 9:00PM UNTIL MONDAY MORNING AT 7:00AM (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES):

STEP 3) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, PLACE EXISTING US 158/NC 34 TRAFFIC IN THE NORTHBOUND LANE IN A ONE-LANE, TWO-WAY PATTERN THROUGH THE FOLLOWING STATION LOCATIONS:

-L- STA. 43+40+/- TO STA. 46+50+/-

OBLITERATE CONFLICTING MARKINGS AND PLACE PAINTED YELLOW DOUBLE CENTERLINE AND TEMPORARY MARKERS FOR TEMPORARY TWO-LANE, TWO-WAY TRAFFIC PATTERN (SEE TTC-8 AND TTC-9).

STEP 4) UPON COMPLETION OF STEP 3, USE FLAGGERS TO SHIFT EXISTING US 158/NC 34 TRAFFIC INTO THE EXISTING SOUTHBOUND LANE IN A ONE-LANE, TWO-WAY PATTERN AND PLACE REMAINING PAINTED WHITE EDGELINE FOR THE TEMPORARY TWO-LANE, TWO-WAY TRAFFIC PATTERN (SEE TTC-8 AND TTC-9). INSTALL DRUMS ALONG THE NORTHBOUND LANE WHITE EDGELINE.

OPEN EXISTING US 158/NC 34 TRAFFIC TO THE TEMPORARY TWO-LANE, TWO-WAY SHIFTED PATTERN (SEE TTC-8 AND TTC-9).

STEP 5) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, INSTALL PORTABLE CONCRETE BARRIER AND CRASH CUSHIONS ON THE RIGHT SIDE OF EXISTING US 158/NC 34 THROUGH THE FOLLOWING STATION LOCATIONS (SEE TTC-8):

-L- STA. 42+20+/- TO STA. 44+00+/-

STEP 6) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9 BEGIN PROPOSED GRADING, AND PAVING OF -L- (US 158/NC 34) RIGHT SIDE WIDENING UP TO, BUT NOT INCLUDING, THE FINAL LAYER THROUGH THE FOLLOWING STATION LOCATIONS (SEE TTC-7 THRU TTC-9):

-L- STA. 38+60+/- TO STA. 46+50+/-

BEHIND PORTABLE CONCRETE BARRIER, INSTALL TEMPORARY SHORING FOR PROPOSED STAGE I STRUCTURE WORK AT THE FOLLOWING STATION LOCATIONS (SEE TTC-8):

-L- STA. 42+90+/- TO STA. 43+40+/-

BEGIN PROPOSED STAGE I STRUCTURE ACCORDING TO THE STRUCTURE PLANS (SEE TTC-8). INSTALL PROPOSED GUARDRAIL FOR PHASE II TEMPORARY TWO-LANE, TWO-WAY TRAFFIC PATTERN (SEE TTC-8).

STEP 7) COMPLETE PROPOSED LEFT SIDE WIDENING AND WEDGING BEGUN IN PHASE I, STEP 2.

PHASE I-A

STEP 1) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, PERFORM THE FOLLOWING WORK:

INSTALL AND COVER TEMPORARY TWO-LANE, TWO-WAY SIGNING AND ON-SITE DETOUR ALONG US 158/NC 34 (SEE TTC-9A THRU TTC-9D).

INSTALL & COVER NORTHBOUND US 158/NC 34 RIGHT LANE CLOSURE STATIONARY SIGNING PRIOR TO THE BEGINNING OF THE PROJECT LIMITS (SEE TTC-9A).

PLACE PAVEMENT MARKING WHITE EDGELINE AS MUCH AS POSSIBLE FOR PHASE I-A LEFT SIDE TEMPORARY TWO-LANE, TWO-WAY TRAFFIC PATTERN (SEE TTC-9A THRU TTC-9D).

WORK IN A CONTINUOUS MANNER TO COMPLETE PHASE I-A, STEP 2 THRU STEP 4 ON A WEEKEND FROM SATURDAY NIGHT AT 9:00PM UNTIL MONDAY MORNING AT 7:00AM (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES):

STEP 2) USING CHANGEABLE MESSAGE SIGNS AND ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, PLACE US 158/NC 34 TRAFFIC IN THE EXISTING NORTHBOUND TRAVEL LANE IN A ONE-LANE, TWO-WAY PATTERN THROUGH THE FOLLOWING STATION LOCATIONS:

-L- STA. 7+13+/- TO STA. 41+00+/-

PLACE PAVEMENT MARKINGS AS MUCH AS POSSIBLE FOR PHASE I-A LEFT SIDE TEMPORARY TWO-LANE, TWO-WAY TRAFFIC PATTERN (SEE TTC-9A THRU TTC-9D).

STEP 3) USING CHANGEABLE MESSAGE SIGNS AND ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, SHIFT EXISTING US 158/NC 34 TRAFFIC ONTO THE TEMPORARY SOUTHBOUND OUTSIDE TRAVEL LANE IN A ONE-LANE, TWO-WAY PATTERN THROUGH THE FOLLOWING STATION LOCATIONS:

-L- STA. 8+59+/- TO STA. 41+00+/-

PLACE REMAINING RIGHT SIDE PAVEMENT MARKINGS FOR PHASE I-A TEMPORARY TWO-LANE, TWO-WAY TRAFFIC PATTERN (SEE TTC-9A THRU TTC-9D).

STEP 4) USING CHANGEABLE MESSAGE SIGNS AND ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, SHIFT EXISTING US 158/NC 34 NORTHBOUND TRAFFIC ONTO THE TEMPORARY NORTHBOUND LANE IN A ONE-LANE, ONE-WAY PATTERN THROUGH THE FOLLOWING STATION LOCATIONS:

-L- STA. 7+13+/- TO STA. 41+00+/-

OPEN EXISTING US 158/NC 34 TRAFFIC TO THE TEMPORARY TWO-LANE, TWO-WAY SHIFTED PATTERN (SEE TTC-9A AND TTC-9D).

STEP 5) COMPLETE PROPOSED UTILITY WORK ALONG THE RIGHT SIDE OF US 158/NC 34.

COMPLETE PROPOSED RIGHT SIDE WIDENING AND STAGE I STRUCTURE BEGUN IN PHASE I, STEP 6.

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Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: [signature] DATE: 1/27/09

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

PHASE I & I-A

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

REVISIONS

CADD FILE

1/27/2009
8:25:40 AM
P:\R-2414A\Traffic\TrafficControl\TCP\R-2414A_phaseI_psh4.DGN

PROJ. REFERENCE NO.	SHEET NO.
R-2414A	TTC-5

METRIC

8

9

10

BEGIN STATE PROJECT R-2414A
-L- STA. 7+13.855

-L- US 158/NC 34

-L1-

-L- STA. 8+92+/-

30m

MATCHLINE SEE SHEET TTC-6 -L- STA. 10+25

9:34:21 AM
P:\R-2414A\Traffic\TrafficControl\TCP\R-2414A_phase1_psh5.DGN
10/28/2008

WETHERILL ENGINEERING

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

APPROVED: Bob A May DATE: 10-28-08

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A MAY

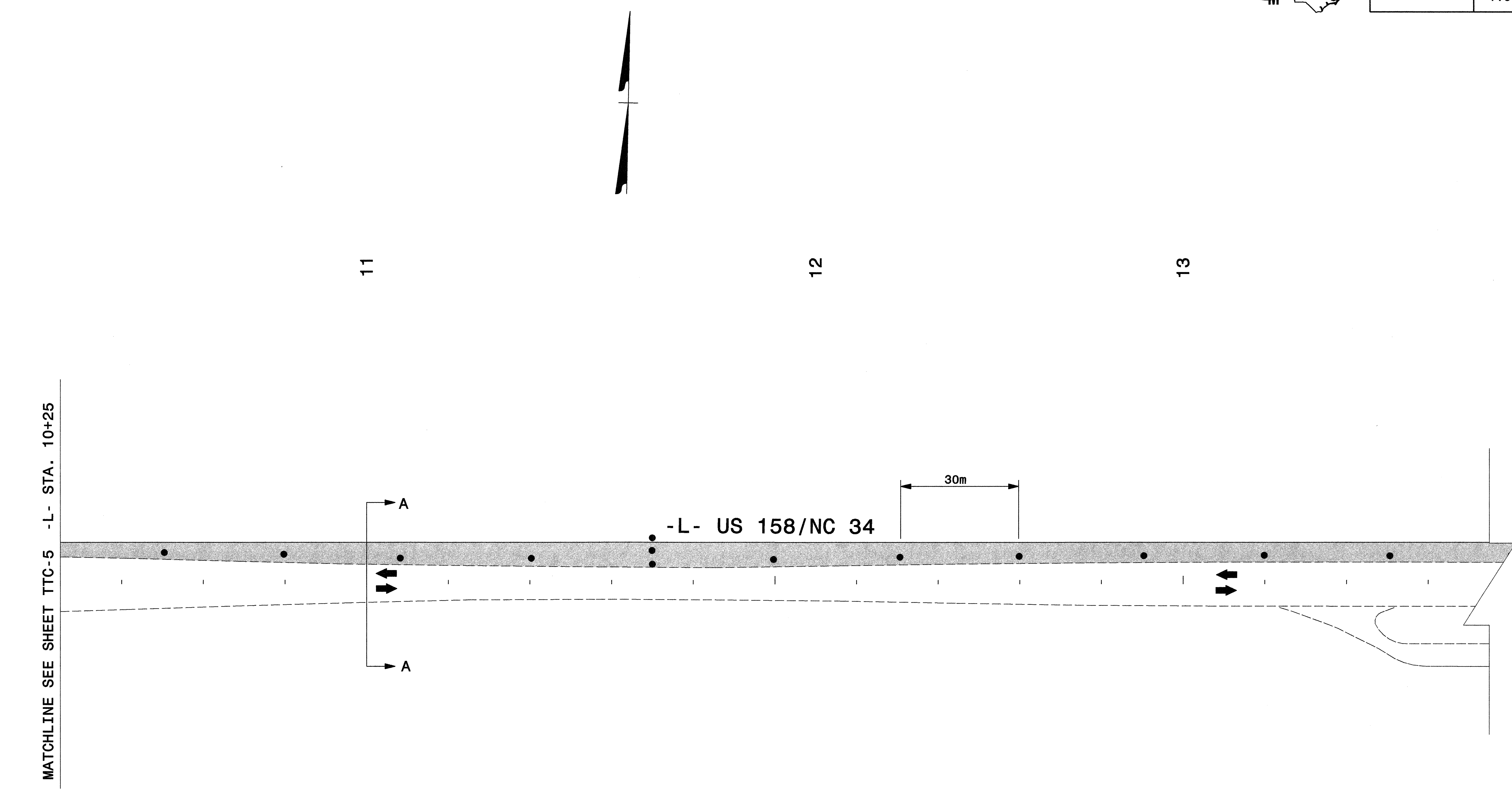
PHASE I

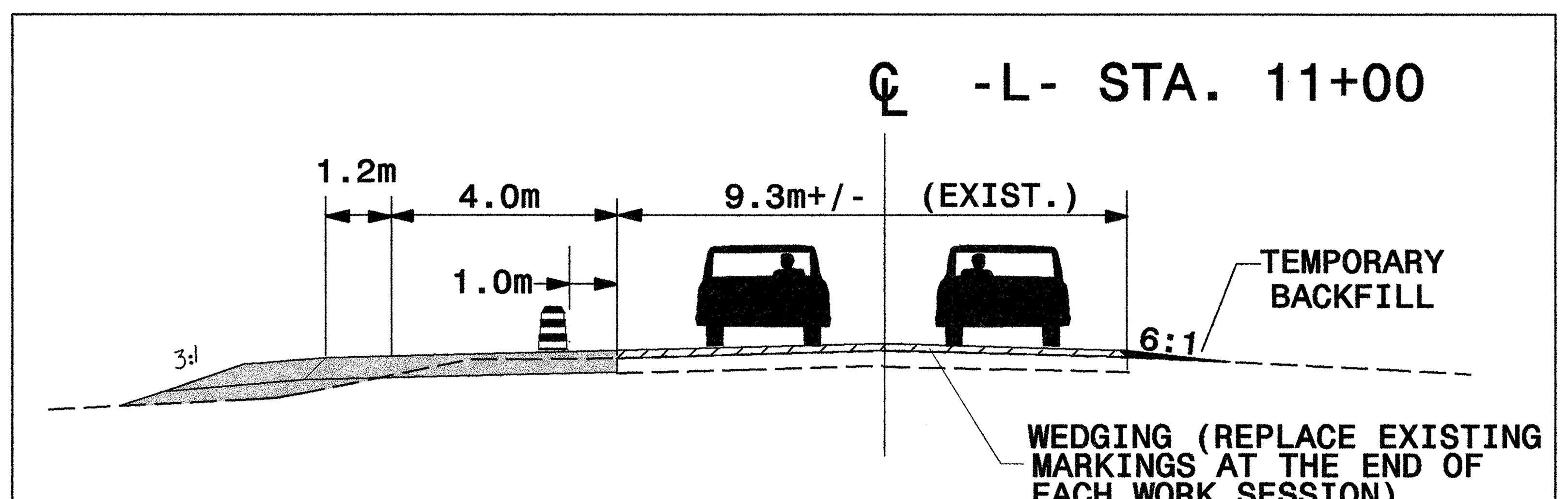
SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

DIVISION OF HIGHWAYS
STATEWIDE PLANNING BRANCH
DEPARTMENT OF TRANSPORTATION
CONCEPT

REVISIONS

CADD FILE





SECTION A-A

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Fax: 919 851 8107

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

APPROVED: [signature] DATE: 10.28.08

SEAL — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 21116 BOB A. MAY

PHASE I

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

DIVISION OF HIGHWAYS — TRAFFIC ENGINEERING BRANCH — STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION — TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

9:35:49 AM
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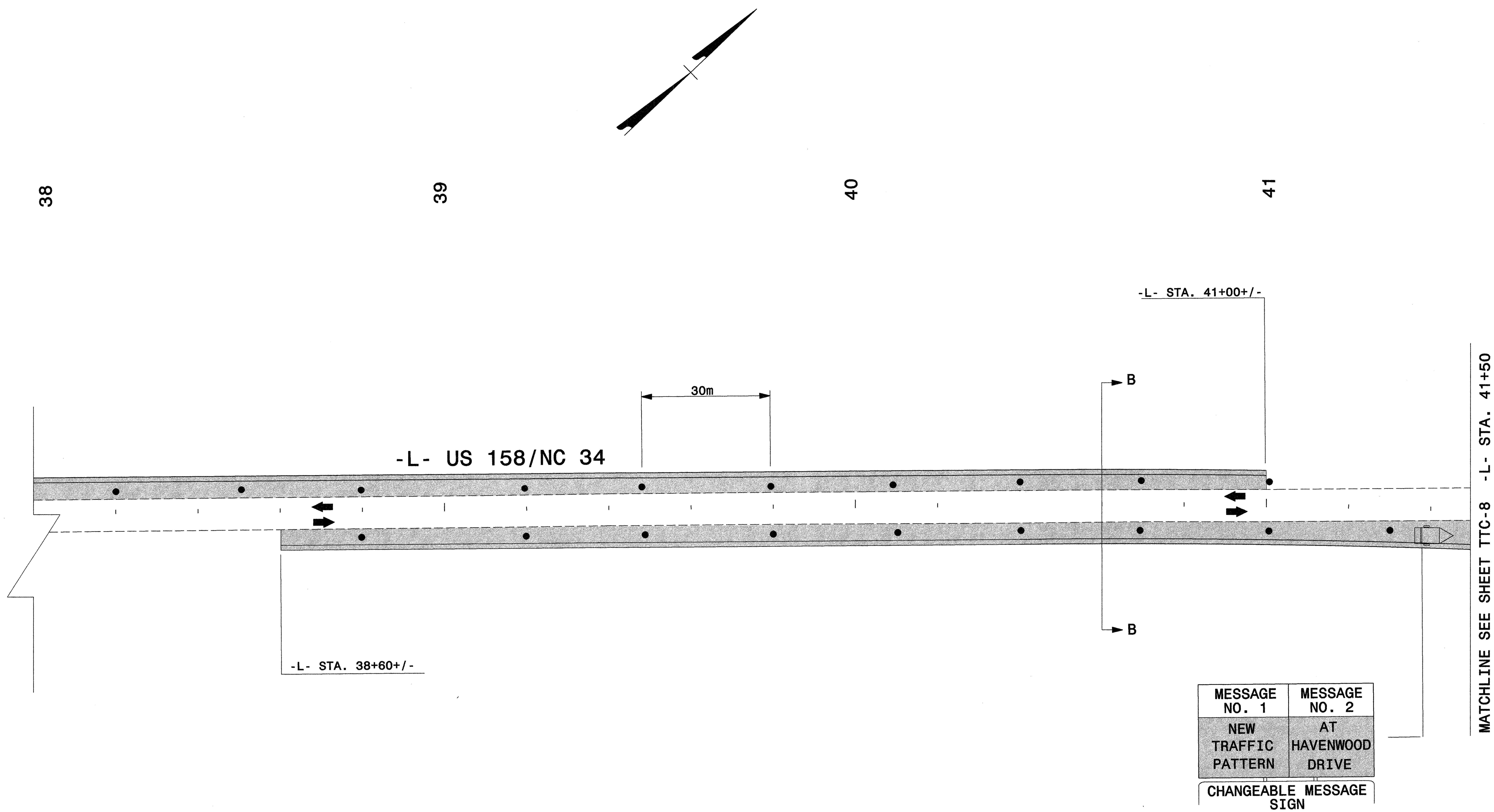
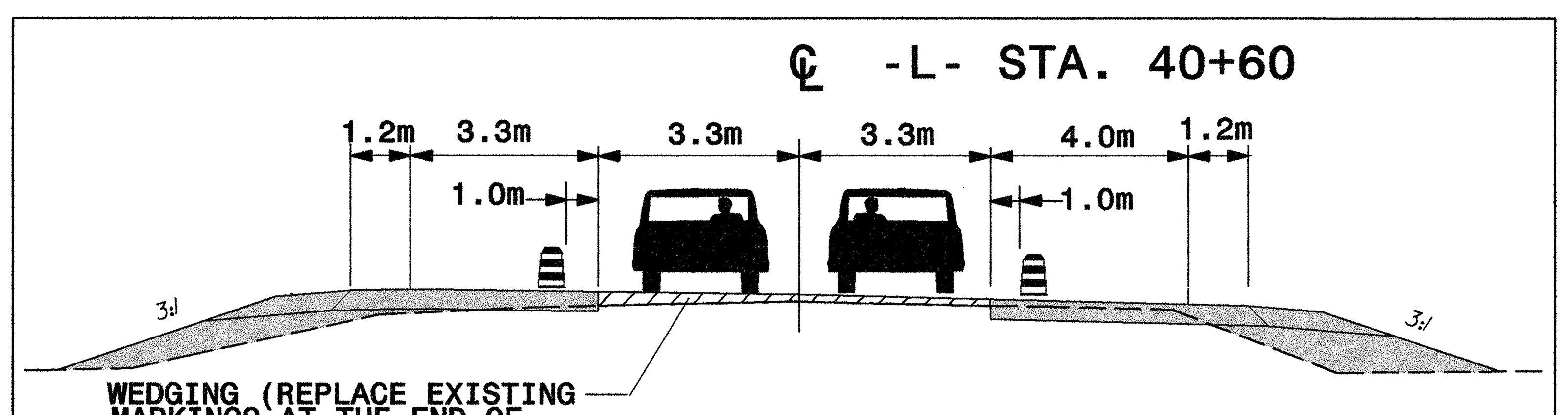
10/28/2008

PROJ. REFERENCE NO.	SHEET NO.
R-2414A	TTC-7

METRIC





SECTION B-B

9:46:44 AM
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10/28/2008

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

APPROVED: Bob A. May DATE: 10-28-08

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

PHASE I

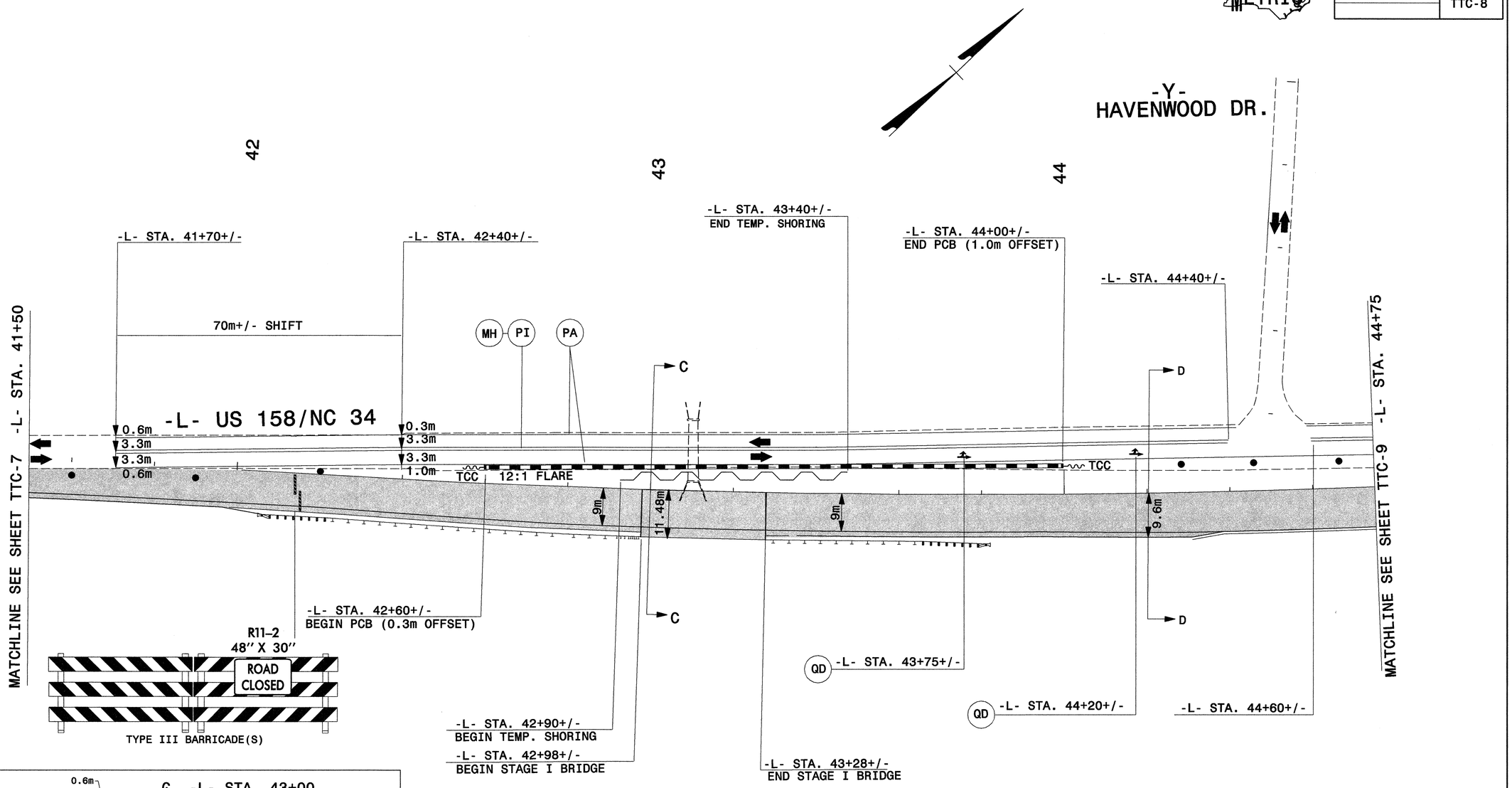
SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

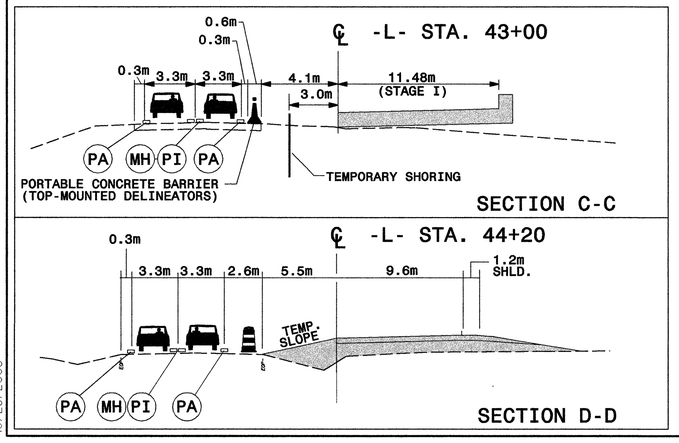
DIVISION OF HIGHWAYS - TRAFFIC ENGINEERING BRANCH - STATE OF NORTH CAROLINA - DEPARTMENT OF TRANSPORTATION - TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

PROJ. REFERENCE NO.	SHEET NO.
R-2414A	TTC-8





SEE TTC-3A FOR INTERMEDIATE PAVEMENT MARKING SCHEDULE
SEE TTC-20 FOR TEMPORARY SHORING RECOMMENDATIONS
SEE STRUCTURE PLANS FOR STAGE 1 CONSTRUCTION

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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: [signature] DATE: 10-28-08

SEAL — NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER ROB A MAY

PHASE I

SCALE:	NONE
DATE:	5/08
DWG. BY:	CLM
DESIGN BY:	CLM
REVIEWED BY:	BAM

REVISIONS

CADD FILE

9:48:12 AM
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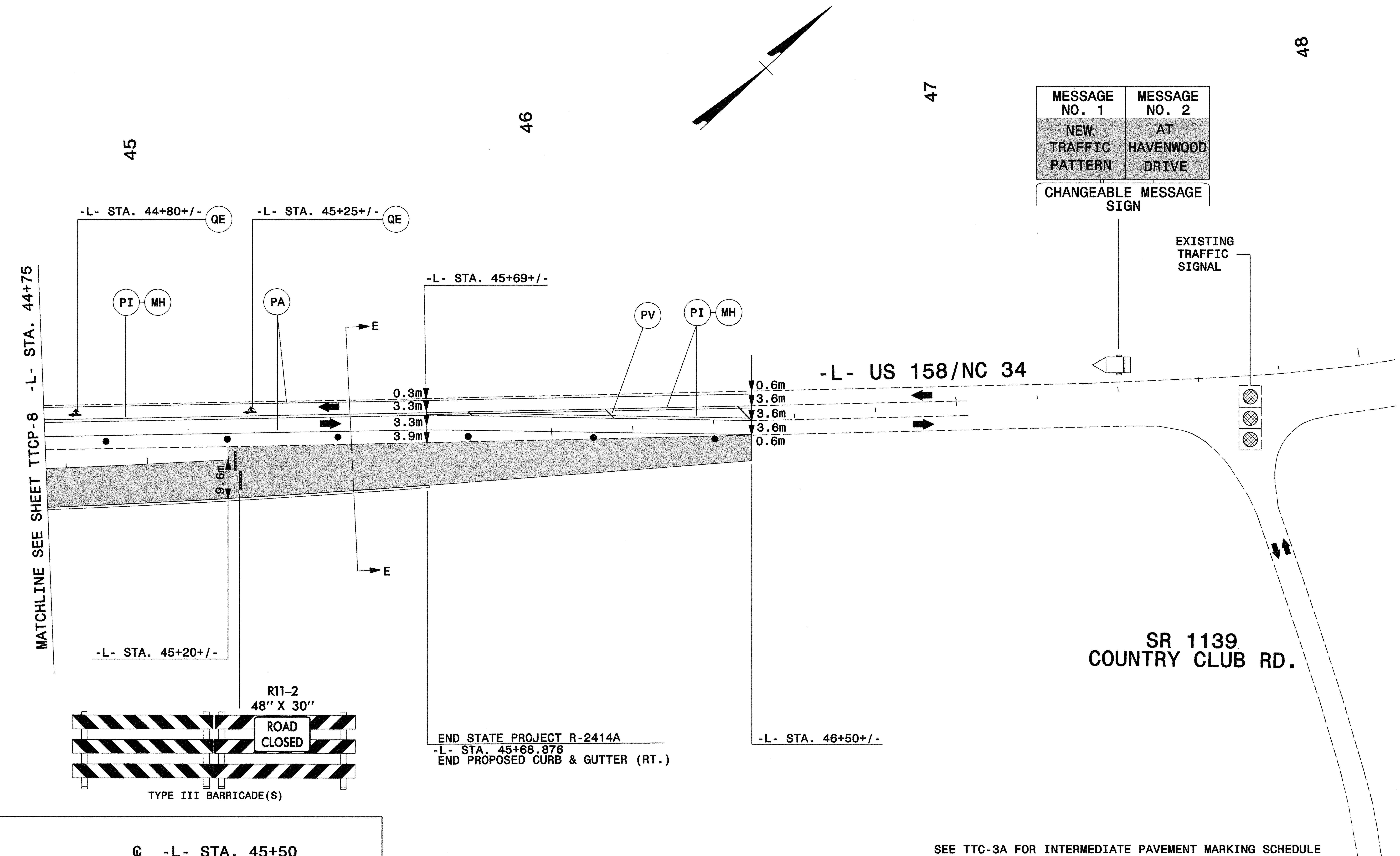
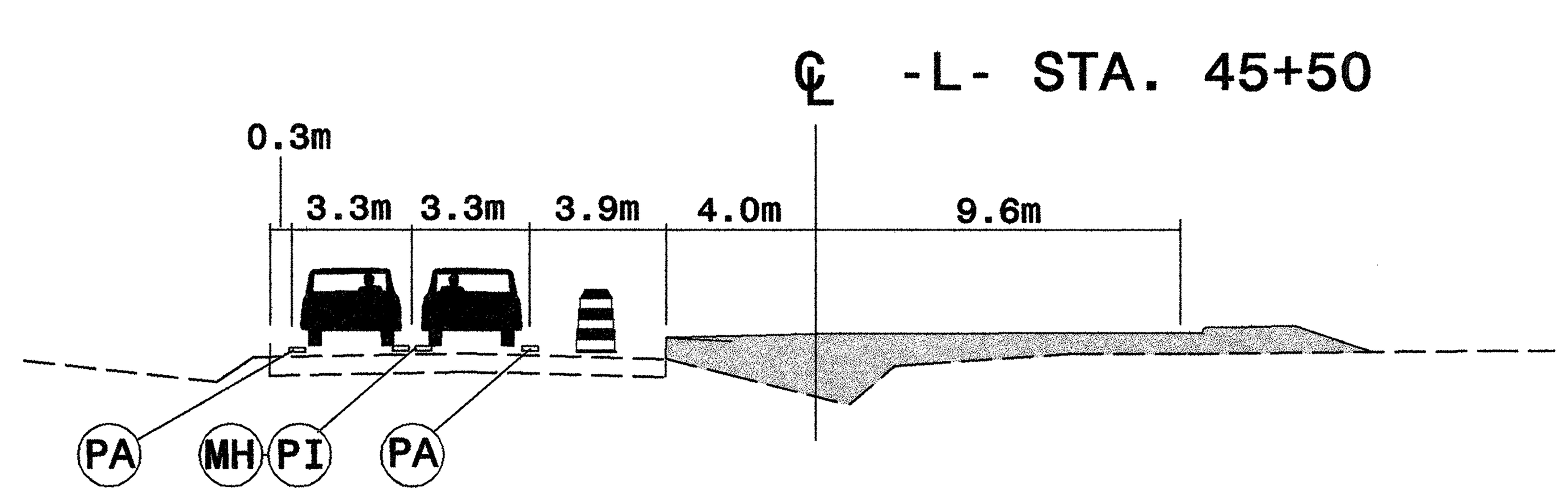
10/28/2008

PROJ. REFERENCE NO.	SHEET NO.
R-2414A	TTC-9

METRIC



SEE TTC-3A FOR INTERMEDIATE PAVEMENT MARKING SCHEDULE



SECTION E-E

WETHERILL ENGINEERING
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Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: Bob A. May DATE: 10.28.08

SEAL — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 21116 BOB A. MAY

PHASE I

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

DIVISION OF HIGHWAYS — TRAFFIC ENGINEERING BRANCH — STATE OF NORTH CAROLINA — DEPARTMENT OF TRANSPORTATION — TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

9:49:30 AM
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10/28/2008

PROJ. REFERENCE NO.	SHEET NO.
R-2414A	TTC-9A

METRIC

8

9

10

COLD APPLIED PLASTIC
(REMOVABLE TAPE)
ON EXISTING NBL BRIDGE DECK

CA

BEGIN STATE PROJECT R-2414A
-L- STA. 7+13.855

-L- US 158/NC 34

30m

-L- STA. 8+59+/-
TIE TO EXISTING
MARKINGS

-L- STA. 8+89+/-

-L- STA. 9+33+/-

PC

PA PV PD MH PI

3.6m
3.6m
3.6m

4.2m
3.3m

3.6m

PROPOSED
UTILITY
CONSTRUCTION

TRANSITION 160m+/-

PA

W1-4L
1219mm X 1219mm

45
M.P.H.

W13-1
610mm X 610mm

MATCHLINE SEE SHEET TTC-9B -L- STA. 10+25

NOTE: REFER TO RSD 1101.02, SHT. 3 OF 9, FOR RIGHT LANE CLOSURE (USE STATIONARY SIGNING).

OBLITERATE ANY EXISTING MARKING SYMBOLS FOR EXISTING LEFT LANE MERGE CONDITION AND COVER OR REMOVE ASSOCIATED SIGNING.

SEE TTC-3A FOR INTERMEDIATE PAVEMENT MARKING SCHEDULE
SEE RSD 1205.09 FOR PAVEMENT MARKING PAINTED ISLANDS
MAINTAIN ACCESS TO EXISTING DRIVEWAYS AT ALL TIMES

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

APPROVED: _____ DATE: 10-24-08

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A MAY

PHASE I-A

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

REVISIONS

CADD FILE

10:41:08 AM
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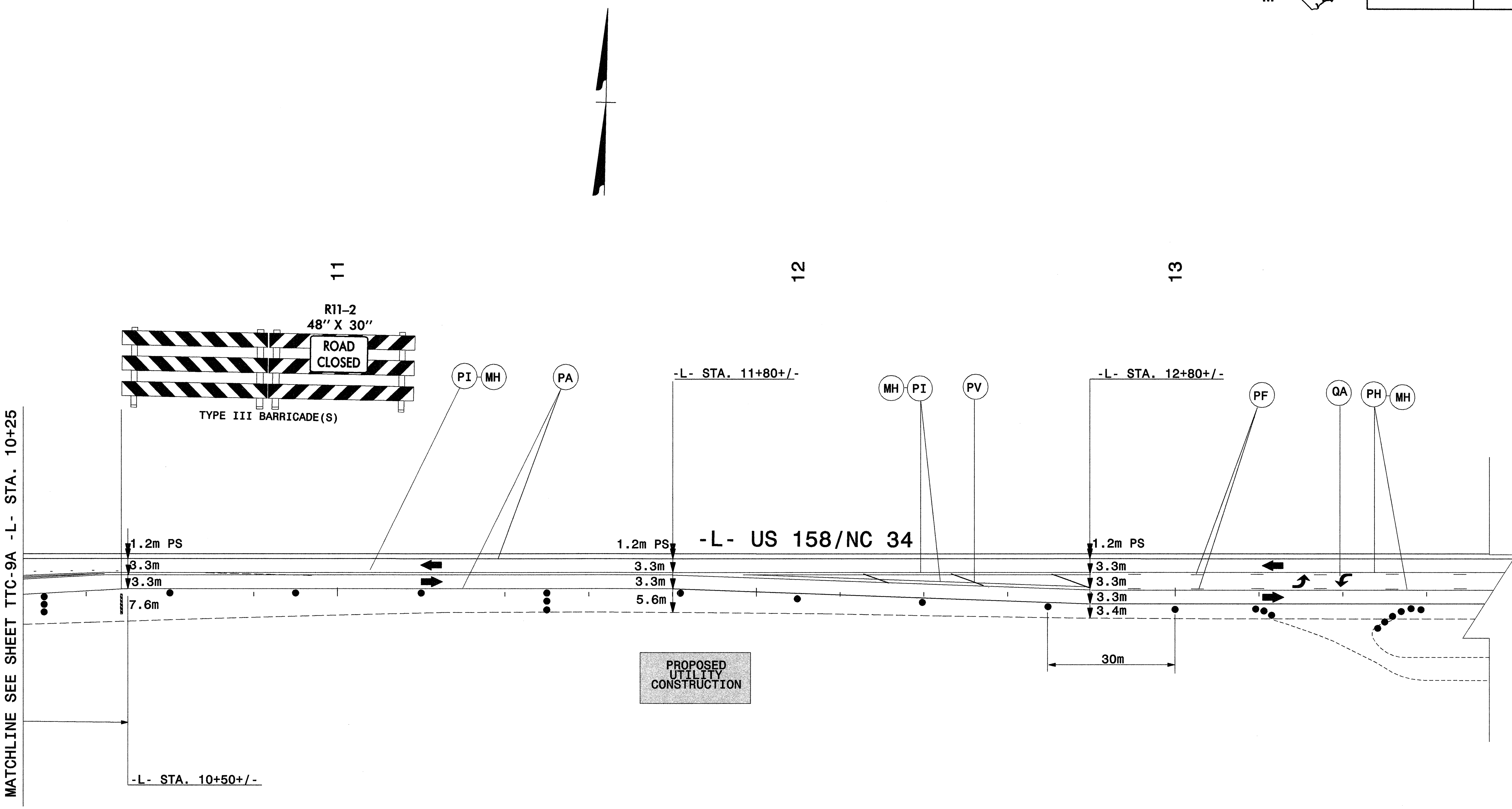
10/28/2008

PROJ. REFERENCE NO.	SHEET NO.
R-2414A	TTC-9B



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10/28/2008

SEE TTC-3A FOR INTERMEDIATE PAVEMENT MARKING SCHEDULE

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

APPROVED: [signature] DATE: 10-28-08

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

PHASE I-A

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

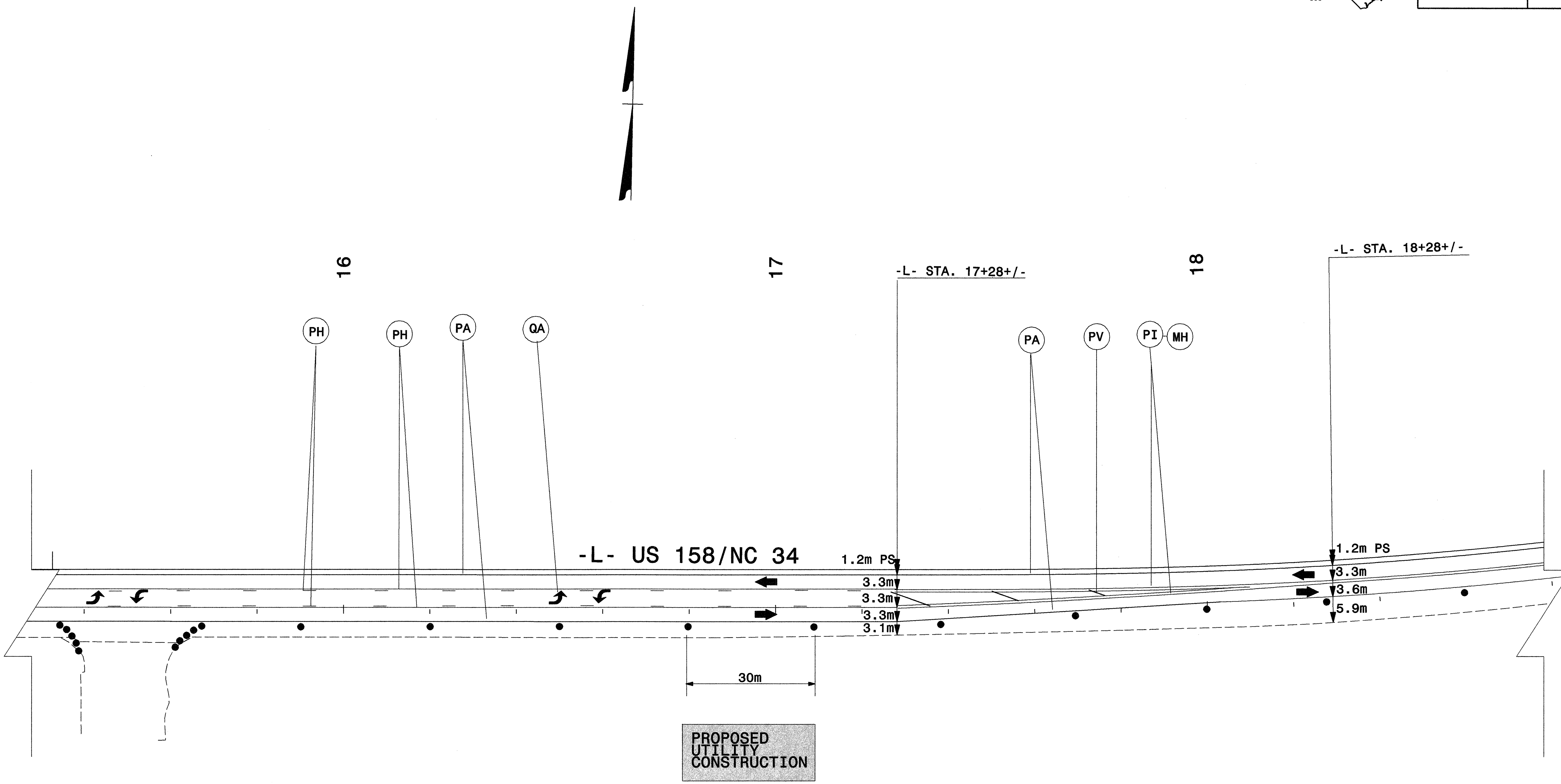
DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

PROJ. REFERENCE NO.	SHEET NO.
R-2414A	TTC-9C

METRIC



SEE TTC-3A FOR INTERMEDIATE PAVEMENT MARKING SCHEDULE

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559 Jones Franklin Rd. Suite 164
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Fax: 919 851 8107

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

APPROVED: *[signature]* DATE: 10-28-08

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

PHASE I-A

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

10:33:54 AM
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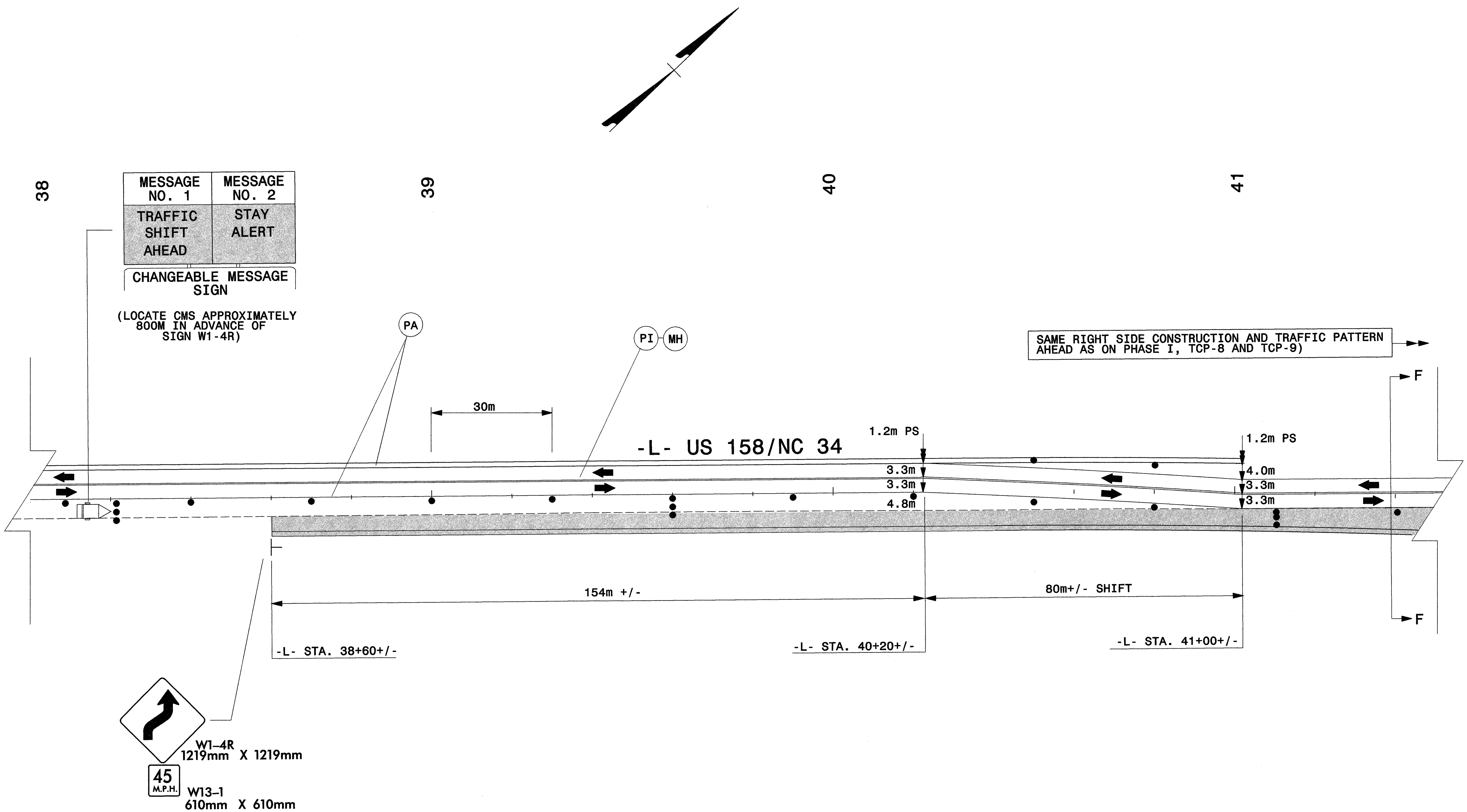
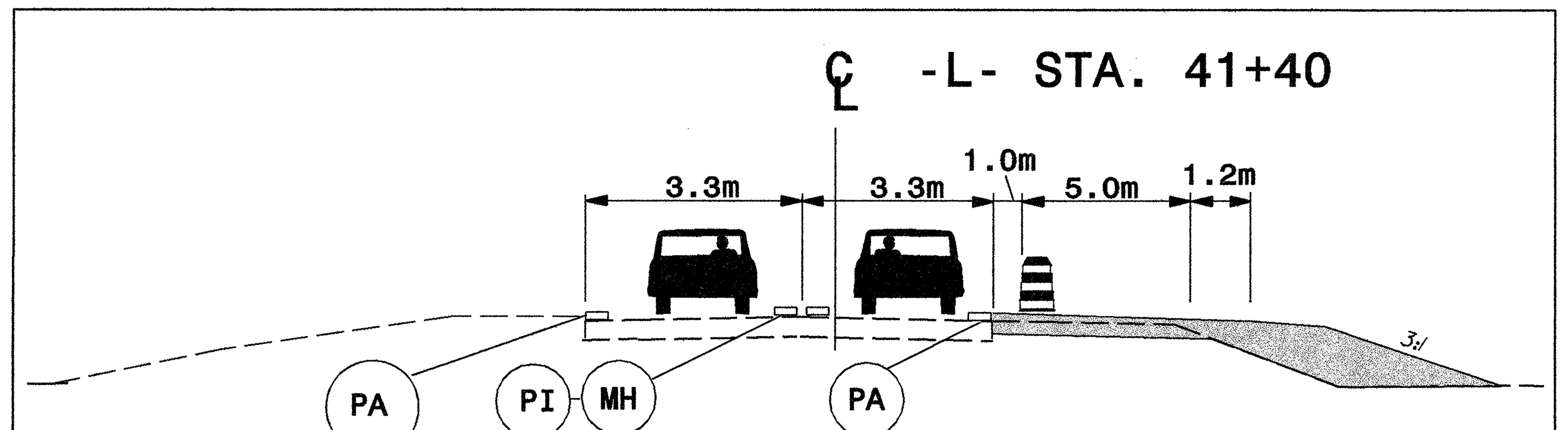
10/28/2008

METRIC

PROJ. REFERENCE NO.	SHEET NO.
R-2414A	TTC-9D





SECTION F-F

SEE TTC-3A FOR INTERMEDIATE PAVEMENT MARKING SCHEDULE

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10/28/2008

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

APPROVED: [signature] DATE: 10-28-08

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

PHASE I-A

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

DIVISION OF HIGHWAYS · TRAFFIC ENGINEERING BRANCH · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

PROJ. REFERENCE NO.	SHEET NO.
R-2414A	TTC-10

PHASE II

STEP 1) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, INSTALL & COVER ON-SITE DETOUR SIGNING ALONG EXISTING US 158/NC 34 FOR PHASE II TEMPORARY TRAFFIC PATTERN (SEE TTC-14 AND TTC-15).

BEHIND PREVIOUSLY INSTALLED PHASE I PORTABLE CONCRETE BARRIER, INSTALL AS MUCH PORTABLE CONCRETE BARRIER AND TEMPORARY CRASH CUSHION AS POSSIBLE ON -L- (US 158/NC 34) AND STAGE I STRUCTURE (SEE TTC-14).

AWAY FROM TRAFFIC, PLACE PAVEMENT MARKINGS AND MARKERS AS MUCH AS POSSIBLE FOR PHASE II TEMPORARY TWO-LANE, TWO-WAY TRAFFIC PATTERN THROUGH THE FOLLOWING STATION LOCATIONS:

-L- STA. 38+60+/- TO STA.46+50+/-

PLACE INCIDENTAL STONE AT THE -Y- INTERSECTION WITH -L- (SEE TTC-15).

WORK IN A CONTINUOUS MANNER TO COMPLETE PHASE II, STEP 2 THRU STEP 5 ON A WEEKEND FROM SATURDAY AT 9:00PM UNTIL MONDAY MORNING AT 7:00AM (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES):

STEP 2) USE CHANGEABLE MESSAGE SIGNS AND ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, PLACE US 158/NC 34 NORTHBOUND AND SOUTHBOUND TRAFFIC IN A ONE-LANE, TWO-WAY PATTERN ON THE EXISTING SOUTHBOUND LANE THROUGH THE FOLLOWING STATION LOCATIONS:

-L- STA. 38+60+/- TO STA. 46+50+/-

PLACE TEMPORARY NORTHBOUND LANE EDGELINE AND YELLOW DOUBLE CENTER LINE TIE-IN PAVEMENT MARKINGS (SEE TTC-13 THRU TTC-15).

STEP 3) USE CHANGEABLE MESSAGE SIGNS AND ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, SHIFT US 158/NC 34 NORTHBOUND TRAFFIC INTO THE TEMPORARY NORTHBOUND TRAVEL LANE AND STAGE I STRUCTURE THROUGH THE FOLLOWING STATION LOCATIONS:

-L- STA. 38+60+/- TO STA. 46+50+/-

PLACE TEMPORARY SOUTHBOUND LANE EDGELINE AND YELLOW DOUBLE CENTER LINE TIE-IN PAVEMENT MARKINGS (SEE TTC-13 THRU TTC-15).

STEP 4) USE CHANGEABLE MESSAGE SIGNS AND ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, SHIFT US 158/NC 34 SOUTHBOUND TRAFFIC INTO THE TEMPORARY SOUTHBOUND TRAVEL LANE AND STAGE I STRUCTURE THROUGH THE FOLLOWING STATION LOCATIONS:

-L- STA. 38+60+/- TO STA. 46+50+/-

UNCOVER ALL ON-SITE DETOUR SIGNING ASSOCIATED WITH TEMPORARY TWO-LANE, TWO-WAY TRAFFIC OPERATION (SEE TTC-11 THRU TTC-15).

INSTALL REMAINING PORTABLE CONCRETE BARRIER SECTIONS THAT COULD NOT BE INSTALLED IN PHASE II, STEP 1 AT FOLLOWING STATION LOCATIONS (SEE TTC-14):

-L- STA. 40+50+/- TO STA. 42+14+/-

USE FLAGGERS TO STOP/SLOW DIRECT TRAFFIC ON -Y- (HAVENWOOD DRIVE) AND CONSTRUCT A TEMPORARY TIE TO -L- (SEE TTC-15). MAINTAIN -Y- TRAFFIC AT ALL TIMES IN A MANNER APPROVED BY THE ENGINEER.

STEP 5) OPEN -L- (US 158/NC 34) TO A TWO-LANE, TWO-WAY TRAFFIC PATTERN THROUGH THE ENTIRE PROJECT LIMITS (SEE TTC-11 THRU TTC-15).

STEP 6) CONSTRUCT PROPOSED GRADING, DRAINAGE INSTALLATIONS, UTILITIES, AND PAVING OF PROPOSED -L- (US 158/NC34) RIGHT SIDE WIDENING UP TO, BUT NOT INCLUDING THE FINAL LAYER THROUGH THE FOLLOWING STATION LOCATIONS (SEE TTC-11 THRU TTC-13):

-L- STA. 10+50+/- TO STA. 38+60+/-

USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, CONSTRUCT PROPOSED DRAINAGE, GRADING, AND PAVING OF PROPOSED -L- (US 158/NC 34) (LEFT SIDE) AND -Y- (HAVENWOOD DRIVE) WIDENING/WEDGING UP TO, BUT NOT INCLUDING THE FINAL LAYER AT THE FOLLOWING STATION LOCATIONS (SEE TTC-14 AND TTC-15):

-L- STA. 41+00+/- TO STA. 45+68+/-
-Y- STA. 10+40+/- TO STA. 10+94+/-

CONSTRUCT PROPOSED STAGE II STRUCTURE ACCORDING TO THE STRUCTURE PLANS (SEE TTC-14).

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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: _____ DATE: 10-28-08

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

PHASE II

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

REVISIONS

CADD FILE

10:37:55 AM
H:\R-2414A\Traffic\TrafficControlTCP\R-2414A_phase2_pshi0.dgn
10/29/2008

PROJ. REFERENCE NO.	SHEET NO.
R-2414A	TTC-11

8

9

10

BEGIN STATE PROJECT R-2414A
-L- STA. 7+13.855

-L- US 158/NC 34

30m

3.6
3.6
3.6

3.3

1.2m PS
3.6
3.6

MATCHLINE SEE SHEET TTC-12 -L- STA. 10+25

W1-4L
1219mm X 1219mm

45 M.P.H.

W13-1
610mm X 610mm

PHASE I-A RIGHT LANE CLOSURE

PAVEMENT MARKINGS SHOWN WERE INSTALLED IN PHASE I-A UNLESS NOTED OTHERWISE

DASHED SIGNING INDICATES PHASE I-A INSTALLATION

MAINTAIN ACCESS TO EXISTING DRIVEWAYS AT ALL TIMES

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APPROVED: _____ DATE: 10-28-08

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A MAY

PHASE II

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

REVISIONS

CADD FILE

10:39:25 AM
P:\R-2414A\Traffic\TrafficControl\TCP\R-2414A_phase2_pshII.DGN
10/28/2008

PROJ. REFERENCE NO.	SHEET NO.
R-2414A	TTC-12

11 12 13

R11-2
48" X 30"
ROAD CLOSED

TYPE III BARRICADE(S)

MATCHLINE SEE SHEET TTC-5 -L- STA. 10+25

-L- STA. 10+50+/-

G

1.2m PS
3.3m
3.3m

-L- US 158/NC 34

1.2m PS
3.3m
3.3m

1.2m PS
3.3m
3.3m

30m

G

$\mathbb{C}_L$ -L- STA. 11+00

1.2m 3.6m 3.6m 1.8m 4.5m 4.5m 1.2m

1m

3:1 3:1

(PHASE I-A TRAFFIC PATTERN)

SECTION G-G

PAVEMENT MARKINGS SHOWN WERE INSTALLED IN PHASE I-A UNLESS NOTED OTHERWISE

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

APPROVED: _____ DATE: 10-28-08

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A MAY

PHASE II

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

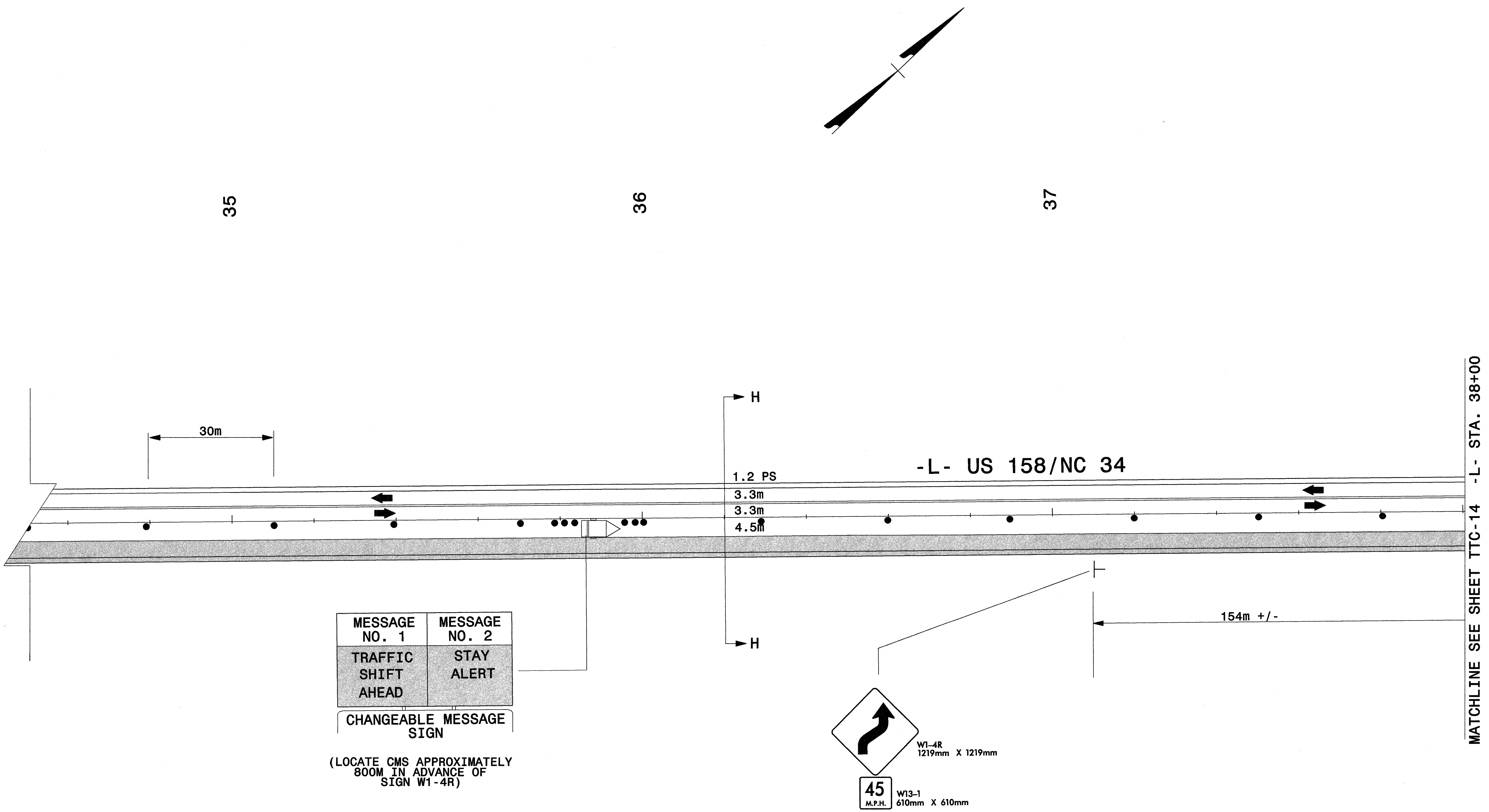
REVISIONS

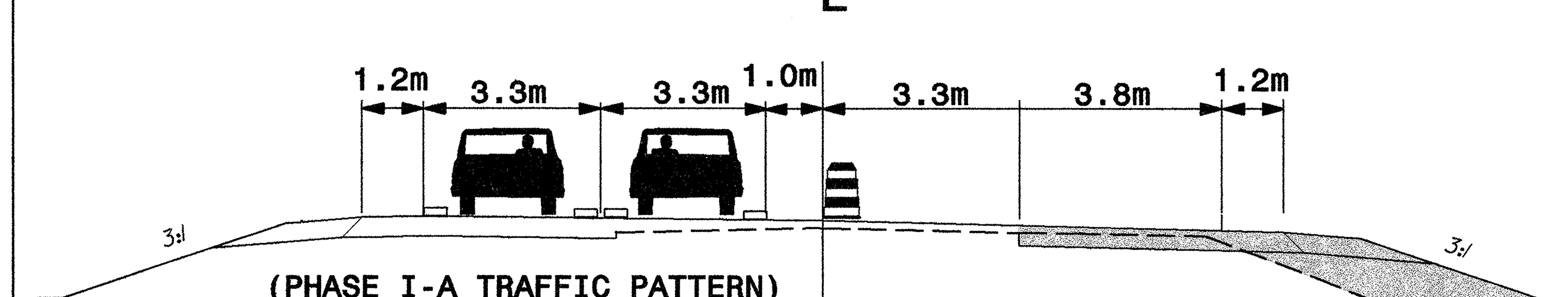
CADD FILE

10:40:50 AM
P:\R-2414A\Traffic\TrafficControl\TCP\R-2414A_phase2_pshl2.DGN
10/28/2008

PROJ. REFERENCE NO.	SHEET NO.
R-2414A	TTC-13

METRIC





SECTION H-H

PAVEMENT MARKINGS SHOWN WERE INSTALLED IN PHASE I-A UNLESS NOTED OTHERWISE

WETHERILL ENGINEERING
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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: 10-28-08

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

PHASE II

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

10:42:20 AM
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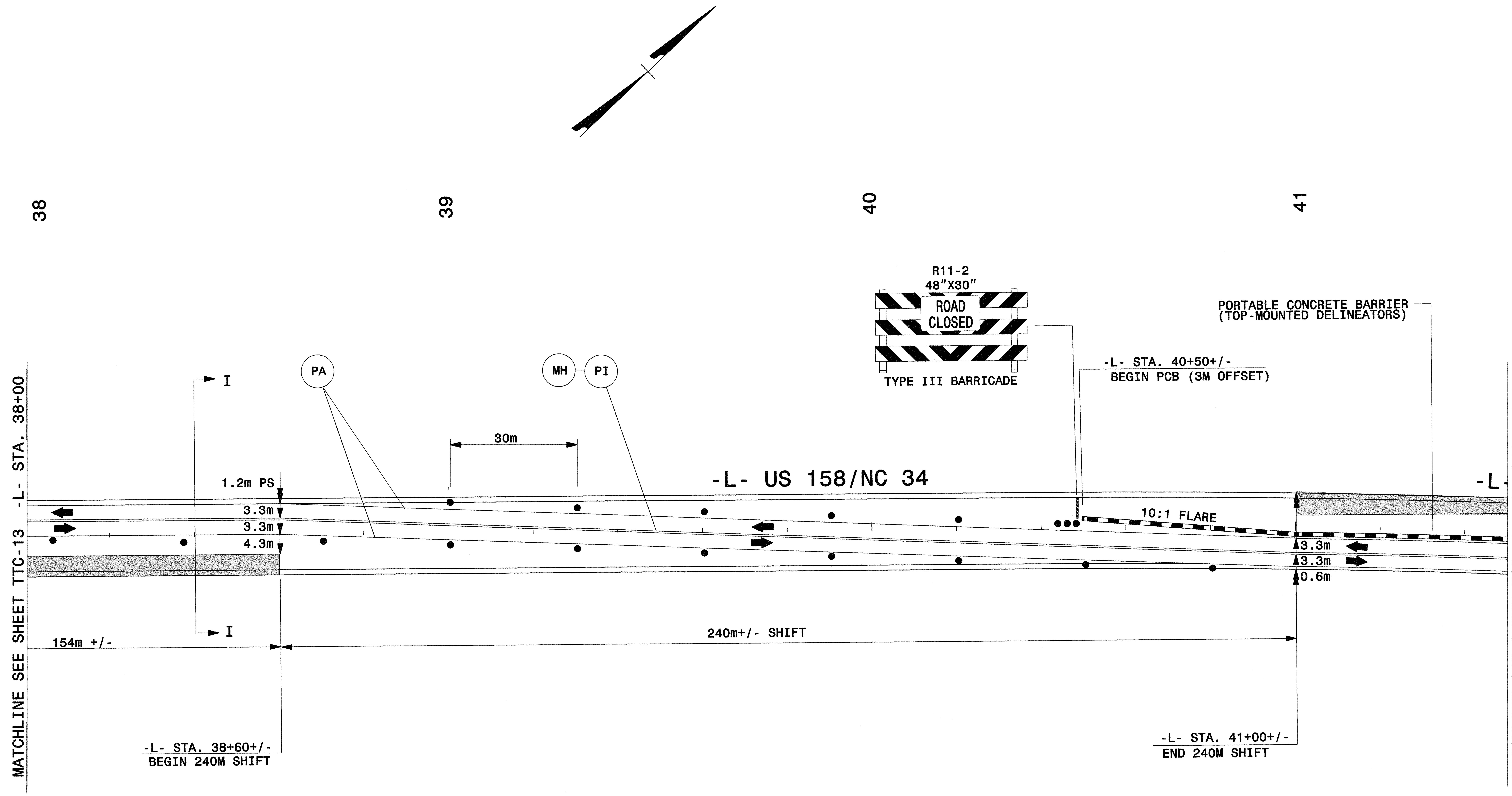
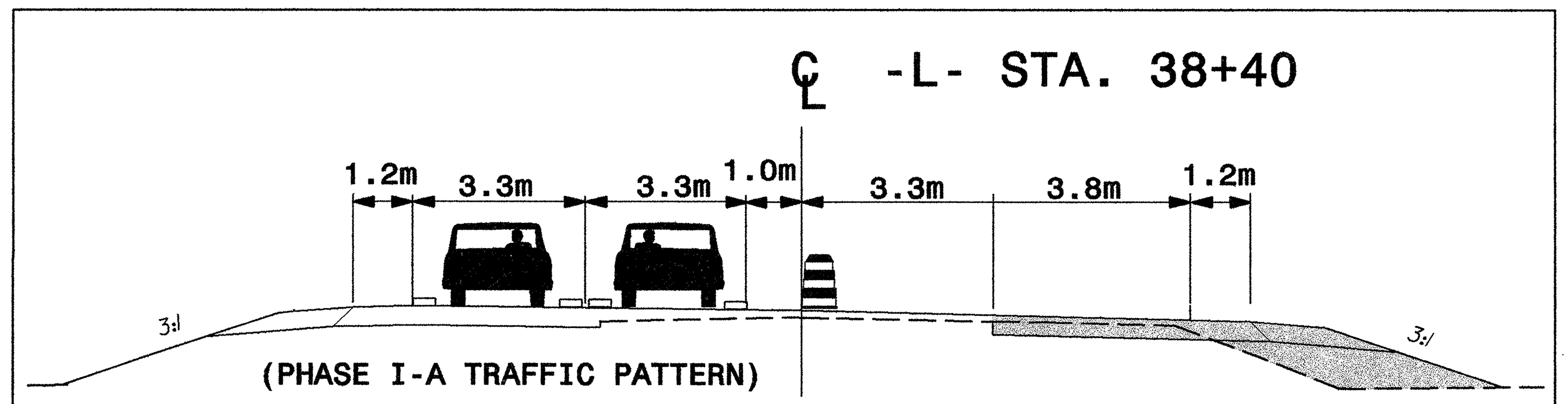
10/28/2008

METRIC





SECTION I-I

SEE TTC-3A FOR INTERMEDIATE PAVEMENT MARKING SCHEDULE

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: 10-28-08

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

PHASE II

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

DIVISION OF HIGHWAYS · TRAFFIC ENGINEERING BRANCH · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · TRAFFIC CONTROL UNIT

REVISIONS	
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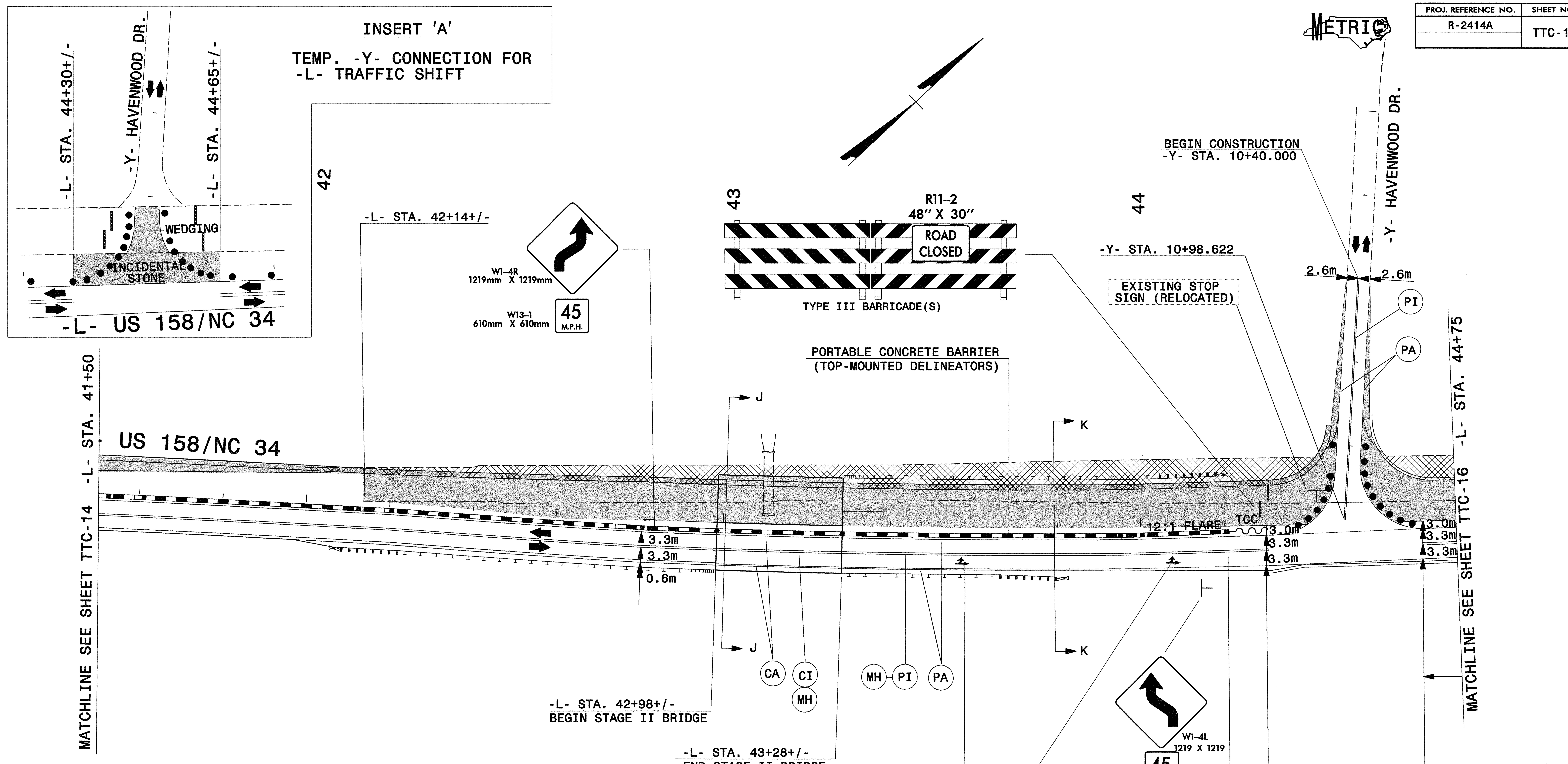
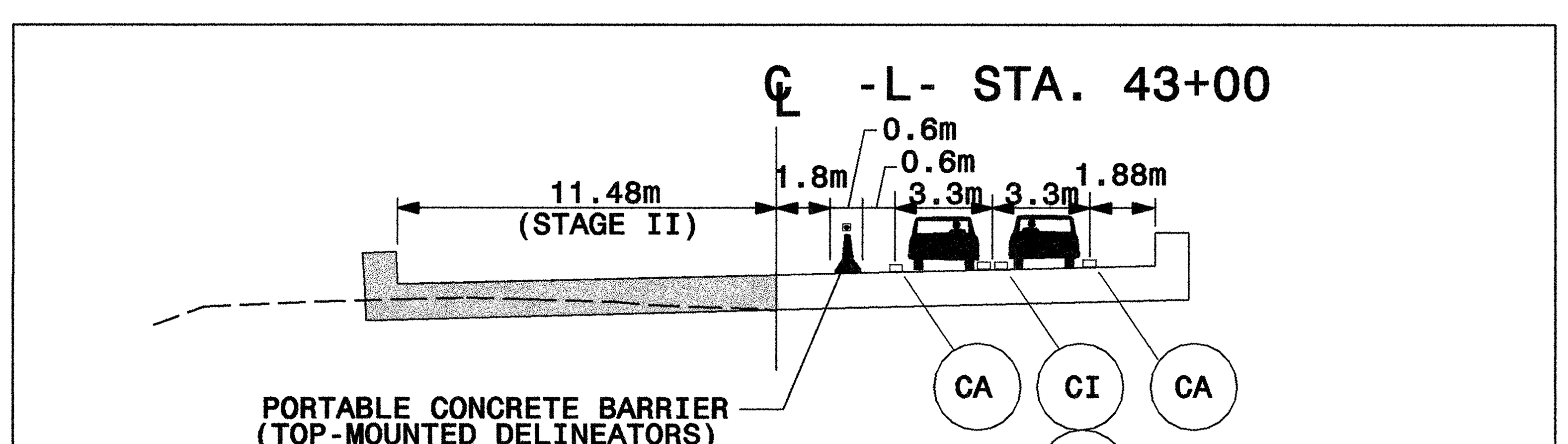
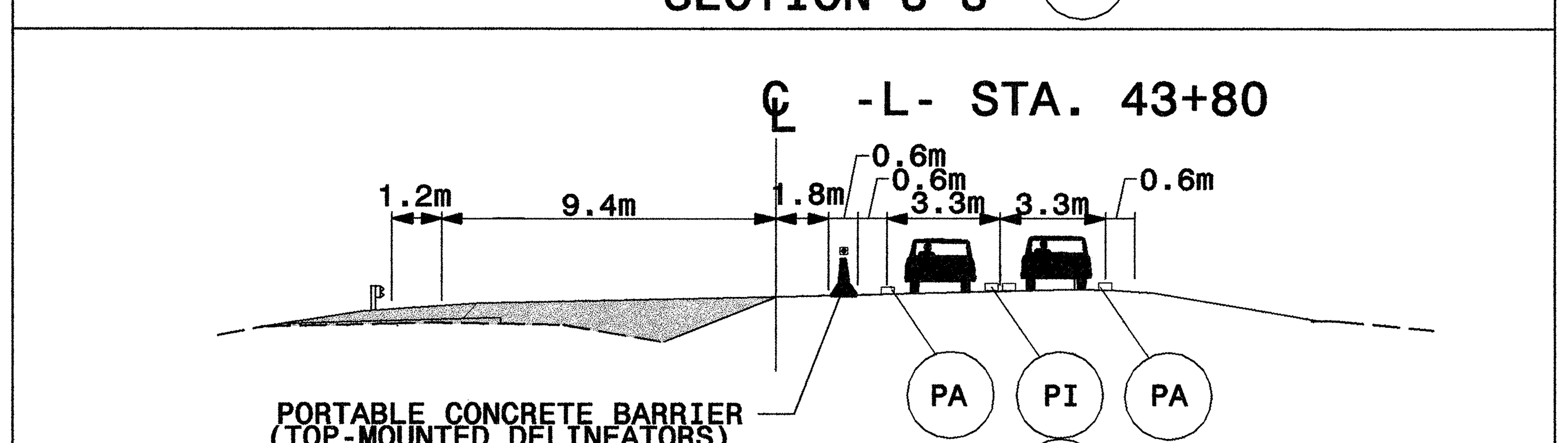




SECTION J-J



SECTION K-K

SEE TTC-3A FOR INTERMEDIATE PAVEMENT MARKING SCHEDULE
SEE STRUCTURE PLANS FOR STAGE II BRIDGE CONSTRUCTION
MAINTAIN -Y- TRAFFIC AT ALL TIMES DURING CONSTRUCTION

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Fax: 919 851 8107
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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: [signature] DATE: 10-28-08

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 21116 BOB A. MAY

PHASE II

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION TRAFFIC CONTROL UNIT

REVISIONS

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10/28/2008

PROJ. REFERENCE NO.	SHEET NO.
R-2414A	TTC-16

45

46

47

48

END STATE PROJECT R-2414A
-L- STA. 45+68.876

R11-2
48"X30"

ROAD CLOSED

W1-6L
48"x24"

TYPE III BARRICADE

W1-4L
1219mm X 1219mm

W13-1
610mm X 610mm

45 M.P.H.

MESSAGE NO. 1	MESSAGE NO. 2
TRAFFIC SHIFT AHEAD	STAY ALERT

CHANGEABLE MESSAGE SIGN
(LOCATE CMS APPROXIMATELY 800m+/- IN ADVANCE OF SIGN W1-4L)

QE -L- STA. 45+35+/-

-L- STA. 44+90+/- QE

L

15m

-L- US 158/NC 34

3.6m
3.6m
3.6m

3.3m
3.3m
6.3m

MH PI

-L- STA. 45+58+/-
MIDPOINT (183m+/- TRANSITION)

MH PI PA PV

L

183m+/- TRANSITION

-L- STA. 46+50+/-

MATCHLINE SEE SHEET TTC-15 -L- STA. 44+75

-L- STA. 47+40+/-

SR 1139 COUNTRY CLUB RD.

℄ -L- STA. 45+00

PROPOSED CONSTRUCTION

9.6m
5.63m 3.97m
1.0m
3.3m 3.3m
1.3m

PA PI PA
MH

SECTION L-L

SEE TTC-3A FOR INTERMEDIATE PAVEMENT MARKING SCHEDULE
SEE RSD 1205.09, SHEET 1 OF 1, FOR PAINTED ISLANDS

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

APPROVED: Bob A May DATE: 10-28-08

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A MAY

PHASE II

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

REVISIONS

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10/28/2008

PHASE III

WORK IN A CONTINUOUS MANNER TO COMPLETE PHASE III, STEP 1 THRU STEP 8 AND OPEN -L- (US 158/NC 34) NORTHBOUND AND SOUTHBOUND LANES IN THE FINAL PAINTED FOUR-LANE, TWO-WAY TRAFFIC PATTERN.

STEP 1) WITH TRAFFIC OPERATING IN THE PHASE II TWO-LANE, TWO-WAY PATTERN, PERFORM PROPOSED DRAINAGE WORK, AND GRADING AND PAVING UP TO, BUT NOT INCLUDING, THE FINAL LAYER ON -L1- (US 158/NC 34) OUTSIDE NORTHBOUND LANE THROUGH THE FOLLOWING STATION LOCATIONS (SEE TTC-18 AND TTC-19):

-L1- STA. 7+12+/- TO STA. 10+50+/- (RIGHT)

AWAY FROM TRAFFIC, PLACE PAINT PAVEMENT MARKINGS IN THE FINAL PATTERN ALONG -L- (US 158/NC 34) AS MUCH AS POSSIBLE THROUGH THE FOLLOWING STATION LOCATIONS (SEE PMP-2 THRU PMP-6):

-L- STA. 10+50+/- TO STA. 41+00+/- (RIGHT)
-L- STA. 38+60+/- TO STA. 46+50+/- (LEFT)

WORK IN A CONTINUOUS MANNER TO COMPLETE PHASE III, STEP 2 THRU STEP 5 ON A WEEKEND FROM SATURDAY NIGHT AT 9:00 PM UNTIL MONDAY MORNING AT 7:00 AM (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES):

STEP 2) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 1 OF 9, PLACE -L- (US 158/NC 34) NORTHBOUND AND SOUTHBOUND TRAFFIC IN THE NORTHBOUND LANE IN A ONE-LANE, TWO-WAY PATTERN THROUGH THE FOLLOWING STATION LOCATIONS:

-L- STA. 40+40+ TO STA. 46+50+/-

STEP 3) USING FLAGGERS, REMOVE CONFLICTING MARKINGS AND SHIFT -L- (US 158/NC 34) SOUTHBOUND TRAFFIC INTO THE FINAL SOUTHBOUND OUTSIDE TRAVEL LANE THROUGH THE FOLLOWING STATION LOCATIONS:

-L- STA. 40+40+ TO STA. 46+50+/-

USING FLAGGERS, PLACE PAINT PAVEMENT MARKINGS AND MARKERS IN THE FINAL PATTERN ON -Y- (HAVENWOOD DRIVE) AND INSTALL PERMANENT STOP SIGN ACCORDING TO THE SIGNING PLANS (SEE PMP-6).

STEP 4) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 3 OF 9, SHIFT -L- (US 158/NC 34) NORTHBOUND TRAFFIC TO THE FINAL NORTHBOUND OUTSIDE TRAVEL LANE THROUGH THE ENTIRE PROJECT LIMITS.

REMOVE STATIONARY RIGHT LANE CLOSURE SIGNING INSTALLED IN PHASE I-A, STEP 1 ON US 158/NC 34 NORTHBOUND.

INSTALL & COVER PERMANENT SIGNING FOR -L- (US 158/NC 34) ACCORDING TO THE SIGNING PLANS.

STEP 5) AT THE END OF THE WEEKEND, -L- (US 58/NC 34) TRAFFIC SHALL BE OPERATING IN A ONE-LANE, ONE-WAY SPLIT TRAFFIC PATTERN IN BOTH NORTHBOUND AND SOUTHBOUND DIRECTIONS THROUGH THE ENTIRE PROJECT LIMITS (SEE TTC-19A AND TTC-19B).

STEP 6) USE CHANGEABLE MESSAGE SIGNS TO ADVISE MOTORISTS, CONSTRUCT PROPOSED MEDIAN DRAINAGE, MEDIAN RAISED ISLAND, CURB & GUTTER, PAVEMENT WEDGING AND PAVING UP TO, BUT NOT INCLUDING, THE FINAL LAYER ON -L1- (US 158/NC 34) NORTHBOUND AND SOUTHBOUND MEDIAN LANES THROUGH THE FOLLOWING STATION LOCATIONS (SEE TTC-19A AND TTC-19B):

-L1- STA. 7+12+/- TO STA. 10+50+/-

STEP 7) USE ROADWAY STANDARD DRAWING 1101.02, SHT. 3 OF 9, TO CONSTRUCT REMAINING -L1- (US 158/NC 34) MEDIAN LANE WEDGING UP TO, BUT NOT INCLUDING THE FINAL LAYER THROUGH THE FOLLOWING STATION LOCATIONS AND PLACE PAVEMENT MARKINGS FOR THE FINAL PATTERN:

-L1- STA. 7+12+/- TO STA. 7+97+/-

STEP 8) USING FLAGGERS, SLOW/DIRECT -L- (US 158/NC 34) NORTHBOUND AND SOUTHBOUND TRAFFIC AND REMOVE YELLOW DOUBLE CENTERLINES AND WHITE EDGELINES FROM THE PHASE II TWO-LANE, TWO-WAY TRAFFIC PATTERN THROUGH THE FOLLOWING STATION LOCATIONS AND REPLACE WITH FINAL PAVEMENT MARKING SKIP LINES (SEE TTC-19A AND TTC-19B, AND PMP-2 THRU PMP-6):

-L- STA. 8+59+ TO STA. 40+40+/- (LEFT SIDE)
-L- STA. 40+40+ TO STA. 45+68+/- (RIGHT SIDE)

OPEN -L- (US 158/NC 34) TO THE FINAL PAINTED TRAFFIC PATTERN (SEE PMP-2 THRU PMP-6).

STEP 9) USING ROADWAY STANDARD DRAWING 1101.02, SHT. 3 OF 9, PAVE THE FINAL LAYER OF SURFACE COURSE ALONG -L- (US 158/NC 34) AND -Y- (HAVENWOOD DRIVE).

MILL PROPOSED RUMBLE STRIPS AS SHOWN ON THE ROADWAY PLANS.

PLACE FINAL THERMOPLASTIC PAVEMENT MARKINGS AND PERMANENT RAISED PAVEMENT MARKERS ON -L- (US 158/NC 34) AND -Y- (HAVENWOOD DRIVE) (SEE PMP-2 THRU PMP-6).

STEP 10) REMOVE ALL TRAFFIC CONTROL DEVICES FROM THE PROJECT.

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

APPROVED: Bob A. May DATE: 10-28-08

SEAL — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 21116 BOB A. MAY

PHASE III

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

DIVISION OF HIGHWAYS — TRAFFIC ENGINEERING BRANCH — STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION — TRAFFIC CONTROL UNIT

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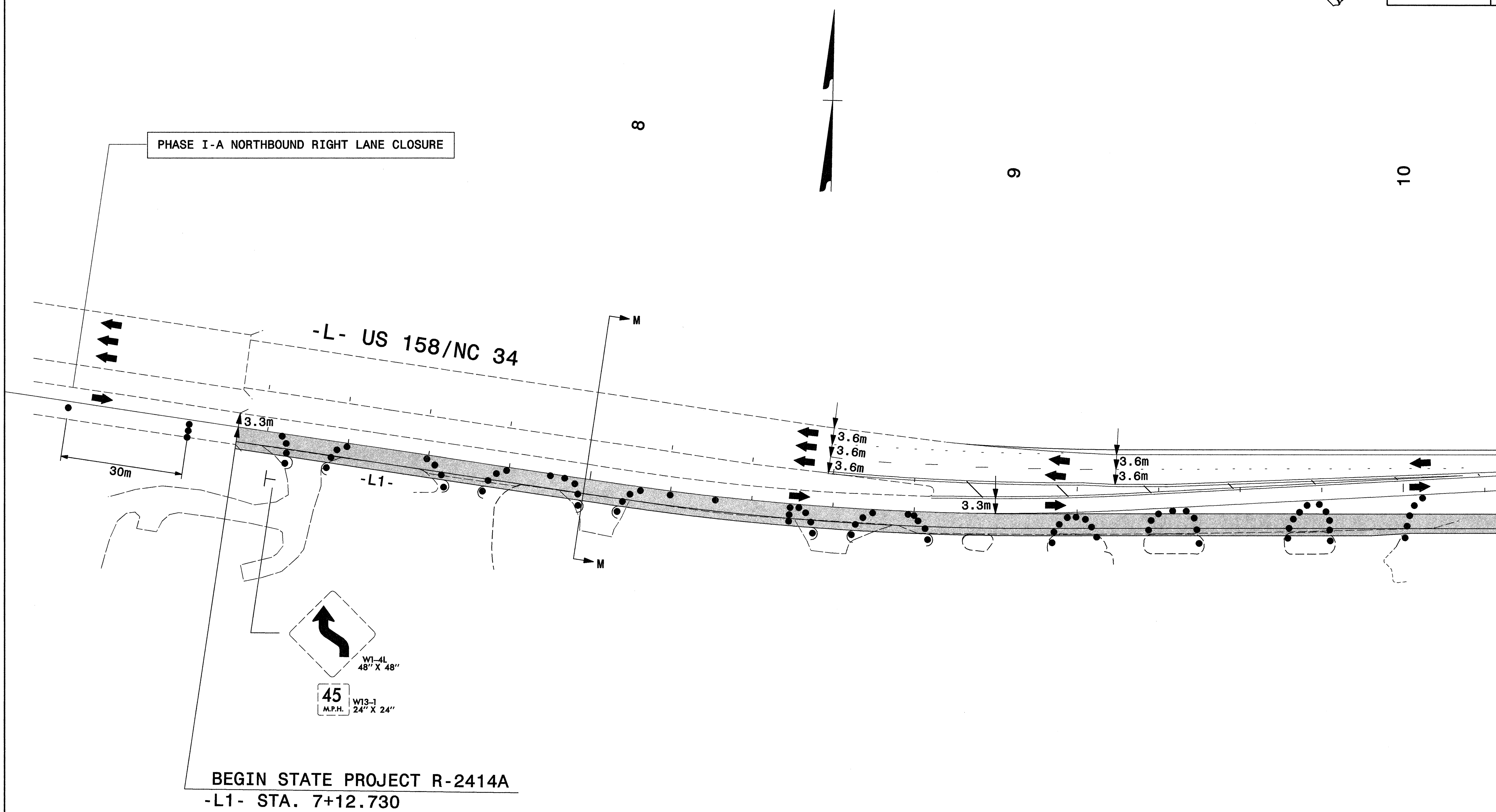

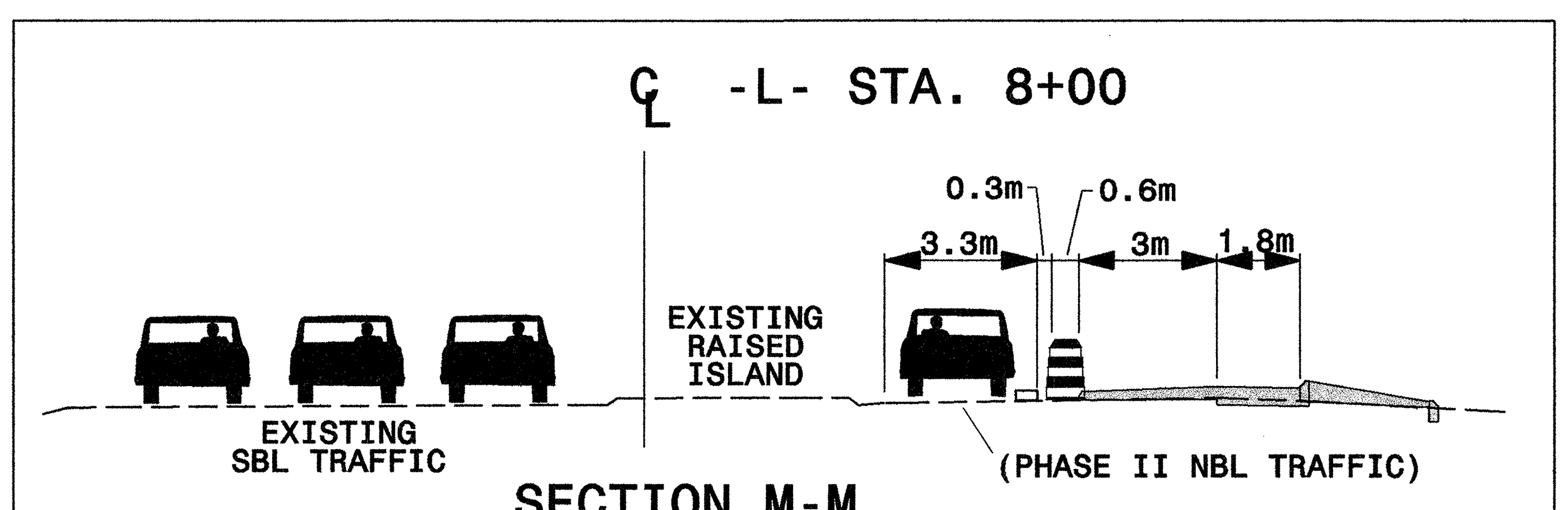

SECTION M-M

PAVEMENT MARKINGS SHOWN WERE INSTALLED IN PHASE I-A UNLESS NOTED OTHERWISE.

DASHED SIGNING INDICATES PHASE I-A INSTALLATION.

MAINTAIN ACCESS TO EXISTING DRIVEWAYS AT ALL TIMES.

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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: Bob A. May DATE: 10-28-08

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

PHASE III

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

DIVISION OF HIGHWAYS - TRAFFIC ENGINEERING BRANCH - STATE OF NORTH CAROLINA - DEPARTMENT OF TRANSPORTATION - TRAFFIC CONTROL UNIT

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10/28/2008

PROJ. REFERENCE NO.	SHEET NO.
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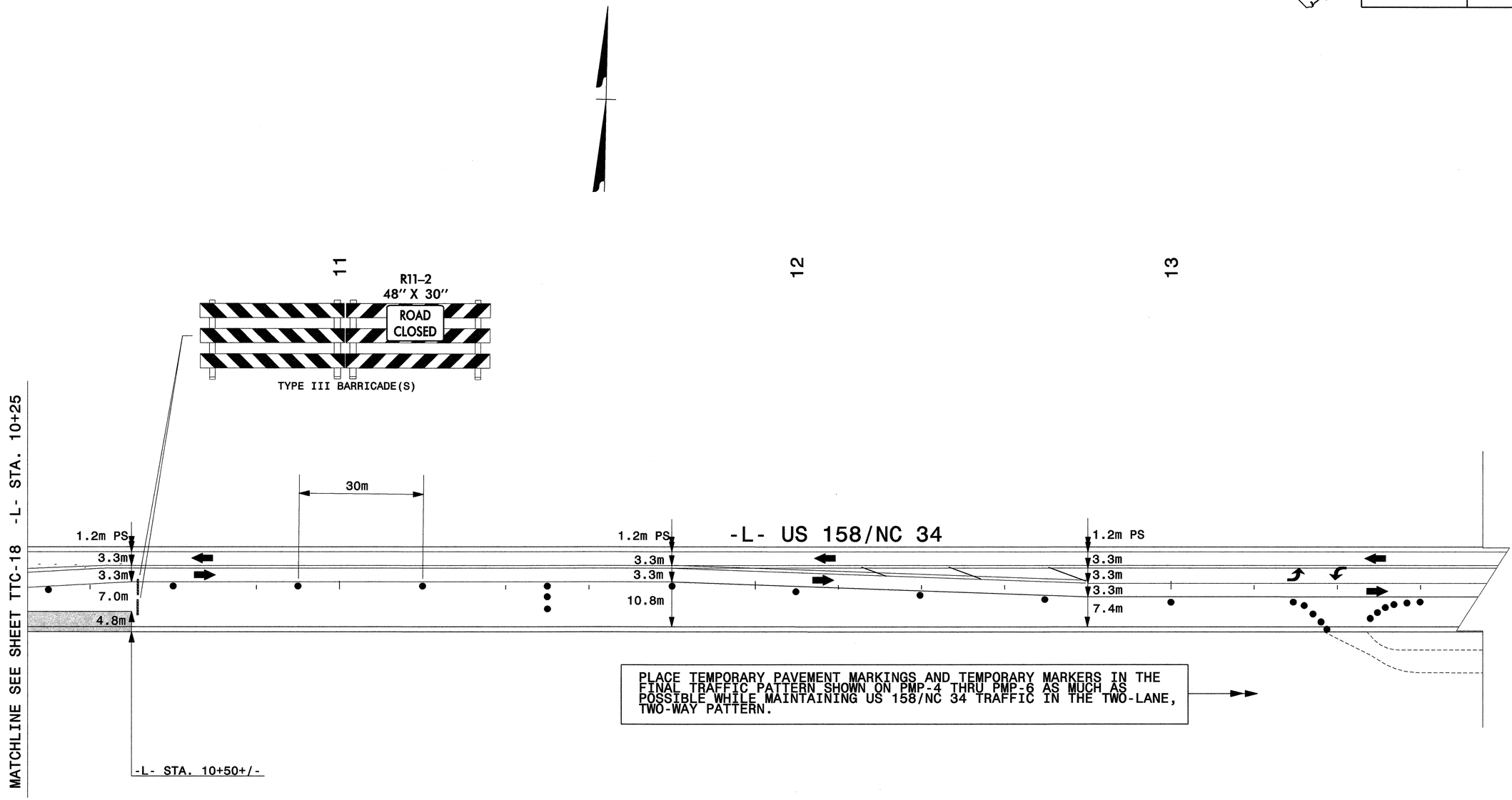

PLACE TEMPORARY PAVEMENT MARKINGS AND TEMPORARY MARKERS IN THE FINAL TRAFFIC PATTERN SHOWN ON PMP-4 THRU PMP-6 AS MUCH AS POSSIBLE WHILE MAINTAINING US 158/NC 34 TRAFFIC IN THE TWO-LANE, TWO-WAY PATTERN.

PAVEMENT MARKINGS SHOWN WERE INSTALLED IN PHASE I-A UNLESS NOTED OTHERWISE.

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

APPROVED: Bob A May DATE: 10.23.08

SEAL — NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A MAY

PHASE III

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

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10/28/2008

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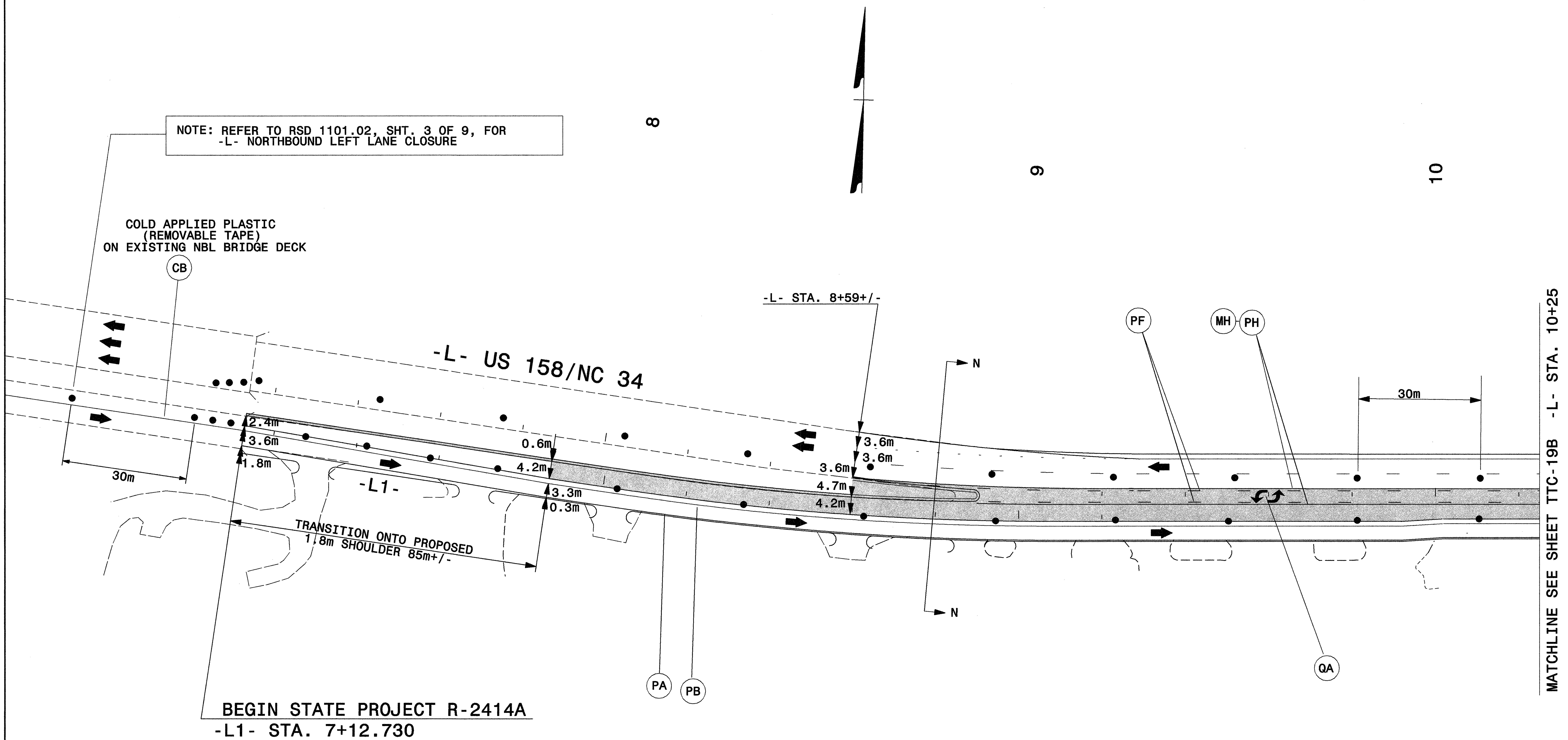

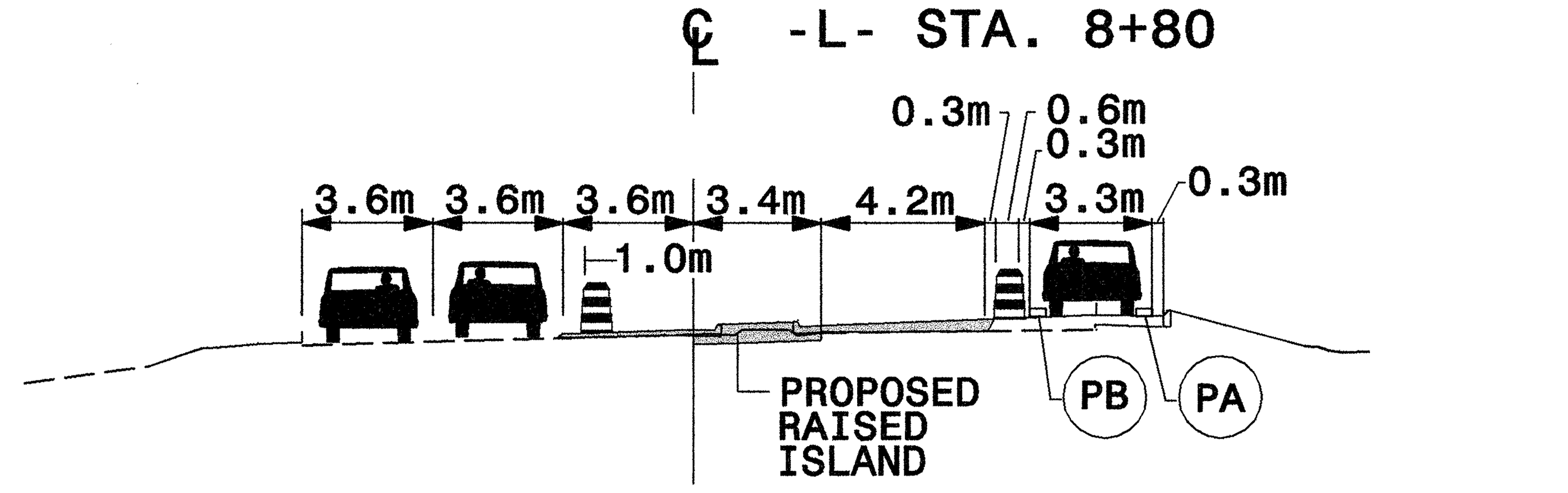

SECTION N-N

SEE TTC-3A FOR INTERMEDIATE PAVEMENT MARKING SCHEDULE

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Fax: 919 851 8107
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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: [signature] DATE: 10-28-08

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

PHASE III

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

DIVISION OF HIGHWAYS - TRAFFIC ENGINEERING BRANCH - STATE OF NORTH CAROLINA - DEPARTMENT OF TRANSPORTATION - TRAFFIC CONTROL UNIT

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PROJ. REFERENCE NO.	SHEET NO.
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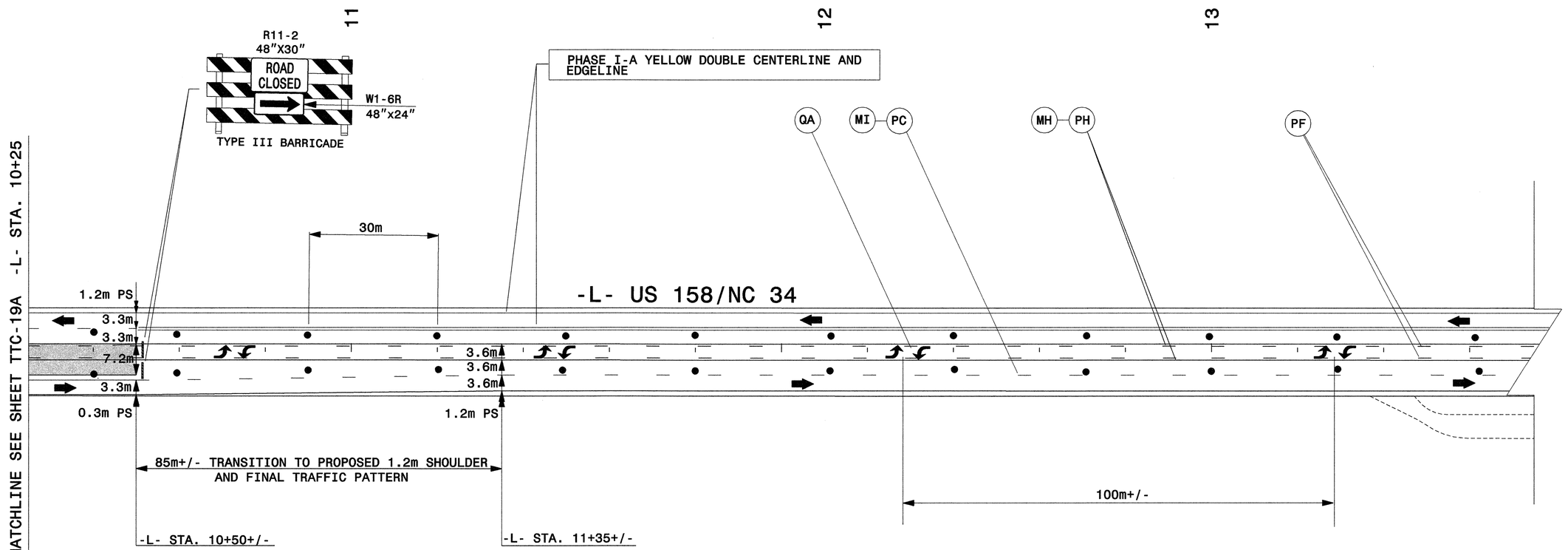

SEE TTC-3A FOR INTERMEDIATE PAVEMENT MARKING SCHEDULE
SEE SIGNING PLANS FOR PERMANENT SIGNING

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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: _____ DATE: 10-28-08

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A MAY

PHASE III

SCALE:	NONE
DATE:	5/08
DWG. BY:	ABP
DESIGN BY:	CLM
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10/28/2008

TEMPORARY SHORING NO. 1

FOR TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

USE A TEMPORARY MSE WALL FROM STA. 42+90+/- -L-, 3 METERS LEFT OF THE CENTER LINE, TO STA. 42+98+/- -L-, 3 METERS LEFT OF THE CENTER LINE.

DO NOT USE STANDARD SHORING FROM STA. 42+98+/- -L-, 3 METERS LEFT OF THE CENTER LINE, TO STA. 43+28+/- -L-, 3 METERS LEFT OF THE CENTERLINE. CONTRACTOR DESIGNED SHORING IS REQUIRED. SEE TEMPORARY SHORING SPECIAL PROVISION.

USE A TEMPORARY MSE WALL FROM STA. 43+28+/- -L-, 3 METERS LEFT OF THE CENTER LINE, TO STA. 43+40+/- -L-, 3 METERS LEFT OF THE CENTER LINE.

WHEN USING CONTRACTOR DESIGNED SHORING FROM STA. 42+90+/- -L-, 3 METERS LEFT OF THE CENTERLINE, TO STA. 43+40+/- -L-, 3 METERS LEFT OF THE CENTERLINE, USE THE FOLLOWING SOIL PARAMETERS:

UNIT WEIGHT OF SOIL ABOVE WATER TABLE, y = 120 PCF
UNIT WEIGHT OF SOIL BELOW WATER TABLE, y = 60 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF

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

FOR PORTABLE CONCRETE BARRIERS AT THE 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 AND THE TEMPORARY SHORING SPECIAL PROVISION.

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STA. 42+90+/- -L-, 3 METERS LEFT OF THE CENTERLINE, TO STA. 43+40+/- -L-, 3 METERS LEFT OF THE CENTERLINE. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

WHEN BACKFILL FOR A REINFORCED BRIDGE APPROACH FILL OVERLAPS WITH THE REINFORCED ZONE OF A TEMPORARY MSE WALL, USE EITHER SHORING BACKFILL OR THE MATERIAL SPECIFIED FOR THE REINFORCED BRIDGE APPROACH FILL, WHICHEVER IS BETTER, IN THE REINFORCED ZONE.

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 AUGUST 22, 2008, BYA PROFESSIONAL ENGINEER, CHARLES A. GOVE, LICENSE # 029413.

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Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: _____ DATE: _____

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD JR.
10/31/08

TEMPORARY SHORING RECOMMENDATIONS

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

REVISIONS

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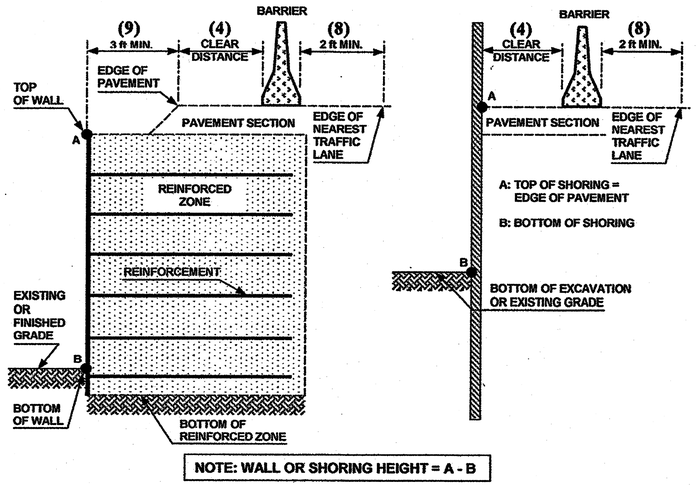

FIGURE A

NOTES

1- REFER TO THE TRAFFIC CONTROL PLANS FOR SHORING LOCATIONS AND SOIL PARAMETERS.

2- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR MORE INFORMATION ABOUT TEMPORARY SHORING, MEASUREMENT AND PAYMENT.

3- PROVIDE PORTABLE CONCRETE BARRIER TO PROTECT TEMPORARY SHORING IF SHORING IS LOCATED WITHIN THE CLEAR ZONE AS DEFINED IN THE AASHTO ROADSIDE DESIGN GUIDE.

4- 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.

5- 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.

6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.

7- 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

8- 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.

9- 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.

10- 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.

25-JAN-2007 12:53
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rmgorrell at WZTC22291

PROJ. REFERENCE NO.	SHEET NO.
R-2414A	TTC-21

MINIMUM REQUIRED CLEAR DISTANCE, inches

Barrier Type	Pavement Type	Offset (4) 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 (4)	24 for All Design Speeds					
Anchored PCB or Oregon Barrier	Concrete (including bridge approach slabs)	All Offsets (4)	12 for All Design Speeds					

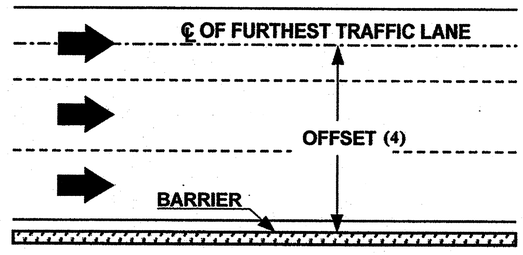


FIGURE B

APPROVED:_____ DATE:_____

SEAL 028380 ENGINEER JOSEPH JI NA

Jan 25 2007

PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS

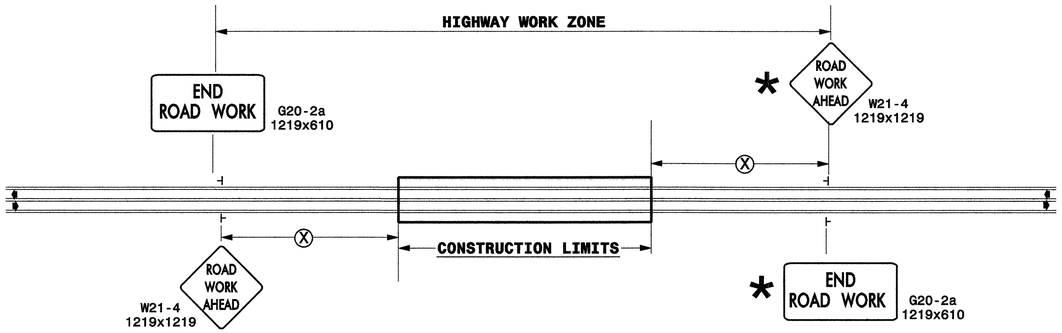
SCALE:	NONE
DATE:	1/07
DWG. BY:	JI
DESIGN BY:	JI
REVIEWED BY:	JI

REVISIONS

CADD FILE	

PROJ. REFERENCE NO.	SHEET NO.
R-2414A	TTC-22

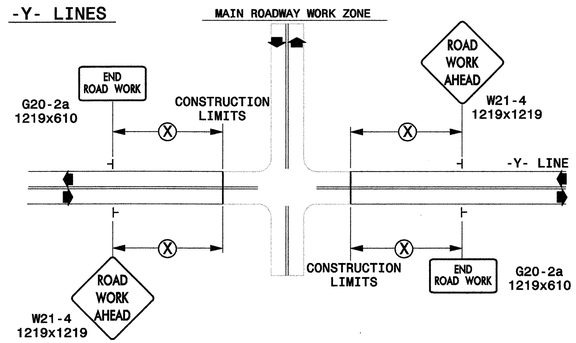
TWO-WAY UNDIVIDED ** (L-LINES)



POSTED SPEED LIMIT (M.P.H.)	RECOMMENDED MINIMUM SIGN SPACING (X)
≤ 50	152m
≥ 55	305m

* TO BE REMOVED WHEN CONSTRUCTION BEGINS ON ADJACENT PROJECT R-2414B OR AS DIRECTED BY THE ENGINEER.

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 1.4Kg STEEL U-CHANNEL POST OR 90mm X 90mm WOOD POST FOR ALL WORK ZONE SIGNS. 1.4Kg 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 1.4Kg STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 1.4Kg 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

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

DETAIL DRAWING FOR TWO-WAY UNDIVIDED WORK ZONE WARNING SIGNS

SHEET 1 OF 1

APPROVED: [signature] DATE: 10-28-08

SEAL — NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER ROB A. MAY

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

SCALE:	NONE
DATE:	6/07
DWG. BY:	ABP
DESIGN BY:	CLM
REVIEWED BY:	BAM

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

CADD FILE

11:44:2 AM
P:\R-2414A\Traffic\TrafficControl\TCP\R-2414A_detail_psh22.dgn
6/28/2008