TIP PROJECT: I-4407

STATE PROJECT REFERENCE NO.	SHEET NO.
I-4407	TCP-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED TRAFFIC CONTROL, MARKING & DELINEATION

RANDOLPH COUNTY

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW PANELS
1130.01	DRUM
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
1205.03	PAVEMENT MARKINGS - INTERCHANGES
1205.08	PAVEMENT MARKINGS - SYMBOLS & WORD MESSAGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS (TEMPORARY)
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES

INDEX OF SHEETS

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- NORTH ARROW
- PROPOSED PVMT. / EXIST. PVMT.
- PROPOSED CONSTRUCTION
- REMOVAL OF EXISTING PAVEMENT

TRAFFIC CONTROL DEVICES

- TYPE I BARRICADE
- TYPE II BARRICADE
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- CONE
- DRUM
- SKINNY DRUM
- FLASHING ARROW PANEL (TYPE C)
- STATIONARY SIGN
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PAVEMENT MARKINGS

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

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

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JOSEPH ISHAK, P.E.	CENTRAL WZTC ENGINEER
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	WZTC DESIGN ENGINEER/TECHNICIAN

APPROVED: Michelle Ward
DATE: 3/1/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

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P. MICHELLE WARD, P.E.	PROJECT ENGINEER
P. MICHELLE WARD, P.E.	PROJECT DESIGNER
A. G. (PETE) THOMPSON	DESIGN TECHNICIAN

$$$$SYSTIME$$$$
$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$
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PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-1A

TEMPORARY PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM	QUANTITY BREAKDOWN	TOTAL QUANTITY
		PAVEMENT MARKING LINES		
		PAINT (4")		299,601 FT
PA	WHITE EDGELINE		138,350 FT	
PB	YELLOW EDGE LINE		137,750 FT	
PC	10 FT WHITE SKIP		22,025 FT	
PD	2 FT WHITE MINISKIP		1,476 FT	
		PAINT (8")		14,900 FT
PR	WHITE GORELINE		14,900 FT	
		REMOVABLE TAPE (4")		94,413 LF
CA	WHITE EDGELINE		47,100 LF	
CB	YELLOW EDGE LINE		47,100 LF	
CD	2 FT WHITE MINISKIP		213 LF	
		REMOVABLE TAPE (8")		2,400 FT
CR	WHITE GORELINE		2,400 FT	
		PAVEMENT MARKING SYMBOLS & CHARACTERS		
		PAINT SYMBOL		33 EA
QC	STRAIGHT ARROW		33 EA	

NOTE: FOR EACH PAINT PAVEMENT MARKING ITEM, REFER TO GENERAL NOTE (FF) FOR NUMBER OF APPLICATIONS.

APPROVED: Michelle Ward DATE: 3/1/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

TEMPORARY PAVEMENT MARKING SCHEDULE

SCALE:	NONE
DATE:	3/1/10
DWG. BY:	AGT
DESIGN BY:	
REVIEWED BY:	PMW

REVISIONS

CADD FILE

$$$$SYSTIME$$$$
$$$$SYSNAME$$$$
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PROJ. REFERENCE NO.	SHEET NO.
I-4407	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 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.

AREA I INCLUDES: STA. 14+00.00 -L- TO STA. 252+52.71 -L-, AND ALL ROADS CROSSING US 220 IN THIS AREA.

AREA II INCLUDES: STA. 252+52.71 -L- TO STA. 343+29.23 -L-, STA. 343+29.23 -L2- TO STA. 394+60.36 -L2-, STA. 343+29.23 -L3- TO STA. 394+60.36 -L3-, STA. 10+00.00 -L1- TO STA. 48+50.00 -L1-, AND ALL ROADS CROSSING US 220 IN THESE AREAS.

TIME RESTRICTIONS

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

ROAD NAME	DAY AND TIME RESTRICTIONS
1. US 220 NB IN AREA I	BETWEEN MEMORIAL DAY AND LABOR DAY SUNDAY: 10:00AM-7:00PM
2. US 220 SB IN AREA I	BETWEEN MEMORIAL DAY AND LABOR DAY SATURDAY: 10:00AM-7:00PM
3. US 64, US 220 NB & SB, AND ALL NB & SB RAMPS IN AREA II	MONDAY-FRIDAY: 6:00AM-7:00PM SATURDAY-SUNDAY: 10:00AM-7:00PM

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

ROAD NAME

1. US 64, US 220 NB & SB IN AREAS I & II

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 6:00 A.M. DECEMBER 31ST TO 7:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.
3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.
5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.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 6:00 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 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.
7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 7:00 P.M. MONDAY.
8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

C) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	DURATION AND OPERATION
US 64, US 220 NB & SB IN AREAS I & II, AND ALL RAMPS	MONDAY-SUNDAY: 6:00AM-10:00PM	30 MINUTES FOR TRAFFIC SHIFTS AND INSTALLING OVERHEAD SIGN STRUCTURES

D) DO NOT CONDUCT SINGLE VEHICLE HAULING AS FOLLOWS; INGRESS AND EGRESS FROM RAMPS WILL BE ALLOWED:

ROAD NAME	DAY AND TIME RESTRICTIONS
1. US 220 NB & SB AND ALL RAMPS IN AREA II	MONDAY-FRIDAY: 6:00AM-9:00AM 4:00PM-7:00PM

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

ROAD NAME	DAY AND TIME RESTRICTIONS
1. US 220 NB & SB AND ALL NB & SB RAMPS IN AREA II	MONDAY-FRIDAY: 6:00AM-7:00PM SATURDAY-SUNDAY: 10:00AM-7:00PM

F) 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 CLOSURE REQUIREMENTS

G) 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.

H) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

I) 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.

J) 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 REMAINS WITHIN THE CLOSED TRAVEL LANE.

K) 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.

L) DO NOT INSTALL MORE THAN 2 MILES OF LANE CLOSURE ON US 220, MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.

M) DO NOT INSTALL MORE THAN TWO (2) SIMULTANEOUS LANE CLOSURES, IN ANY ONE DIRECTION, ON US 220.

N) PROVIDE A MINIMUM OF 4 MILES BETWEEN LANE CLOSURES, MEASURED FROM THE END OF ONE CLOSURE TO THE FIRST SIGN OF THE NEXT LANE CLOSURE.

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

PAVEMENT EDGE DROP OFF REQUIREMENTS

P) 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.

Q) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 1000' IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

S) 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.

T) PROVIDE PERMANENT SIGNING.

U) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

V) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

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

X) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 1000' IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

APPROVED: Michelle Ward DATE: 4-26-10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

PROJECT NOTES

SCALE:	NONE
DATE:	4/26/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

$$$$$$$$SYSTIME$$$$$$$$
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$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$

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PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-3

GENERAL NOTES

TRAFFIC BARRIER

Y) 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.

Z) 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

AA) SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPENED 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.

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

CC) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES (DRUMS) PERPENDICULAR TO THE EDGE OF THE TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

DD) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS SHOWN IN THE PAVEMENT MARKING PLAN.

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

ROAD NAME	MARKING	MARKER
1. US 220, All RAMPS	PAINT/REMOVABLE TAPE	TEMPORARY RAISED MARKERS

FF) 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.

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

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

II) TRACE THE EXISTING AND PROPOSED MONOLITHIC ISLAND LOCATIONS WITH PROPER COLOR PAVEMENT MARKINGS PRIOR TO REMOVAL AND INSTALLATION. PLACE DRUMS TO DELINEATE ANY EXISTING AND PROPOSED MONOLITHIC ISLANDS AFTER REMOVAL AND BEFORE INSTALLATION.

MISCELLANEOUS

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

LOCAL NOTES

1.) PLACE TEMPORARY MARKING AS SHOWN ON SHEETS TCP-8, 9 & 10 IF LANE CLOSURE IS TO REMAIN IN PLACE FOR MORE THAN 6 DAYS.

2.) IMPLEMENT "TEMPORARY SPEED LIMIT" REDUCTION SHOWN ON SHEET TCP-7A DURING ALL LANE CLOSURE OPERATIONS IN AREAS WHERE THE POSTED SPEED LIMIT IS GREATER THAN 55 MPH.

APPROVED: Michelle Ward DATE: 3/1/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

PROJECT NOTES

SCALE:	NONE
DATE:	3/1/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS

CADD FILE

$$$$SYSTIME$$$$
$$$$TIME$$$$
$$$$DGN$$$$
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PHASING

AREA 1 & AREA 2 NOTES

NOTES:

REPLACE MARKINGS AND RETURN TRAFFIC TO THE CURRENT TRAFFIC PATTERN AT THE END OF EACH WORK PERIOD UNLESS OTHERWISE NOTED IN THE PHASING OR DIRECTED BY THE ENGINEER.

AT THE END OF THE WORK PERIOD, BACKFILL THE SHOULDER ACCORDING TO GENERAL NOTE (P) BEFORE OPENING THE ADJACENT LANE BACK UP TO TRAFFIC.

MAINTAIN VEHICULAR ACCESS TO ALL RESIDENCES AND BUSINESSES DURING THE LIFE OF THE CONTRACT UNLESS OTHERWISE NOTED IN THE PHASING OR DIRECTED BY THE ENGINEER.

COMPLETE ANY PROPOSED WIDENING IN SUCH A MANNER THAT PONDING OF WATER WILL NOT OCCUR IN THE TRAVEL LANE.

PAVE UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE IN PHASES 1 AND 2 UNTIL MILLING AND OVERLAY IS CONSTRUCTED IN PHASE 3.

THE CONTRACTOR MAY WORK SIMULTANEOUSLY IN AREA 1 & AREA 2.

DESCRIPTION OF AREAS:

AREA I:
STA. 14+00.00 -L- TO STA. 252+52.71 -L-
ALL ROADS CROSSING US 220 IN THIS AREA

AREA II:
STA. 252+52.71 -L- TO STA. 343+29.23 -L-
STA. 343+29.23 -L2- TO STA. 394+60.36 -L2-
STA. 343+29.23 -L3- TO STA. 394+60.36 -L3-
STA. 10+00.00 -L1- TO STA. 48+50.00 -L1-
ALL ROADS CROSSING US 220 IN THESE AREAS

AREA 1

PHASE 1 - (SEE PHASE 1, AREA 1 OVERVIEW, SHEET TCP-7)

STEP 1:
INSTALL ADVANCED WORK ZONE WARNING SIGNS ON -L- (US 220), ALL RAMPS, SR 1138 (DAWSON MILLER RD), AND SR 1150 (MCDOWELL RD) AS SHOWN ON SHEET TCP-39.

STEP 2:
USING RSD 1101.02, SHEET 3 OF 9 ON -L- (US 220), IN CONJUNCTION WITH RSD 1101.02, SHEETS 6 & 7 OF 9 ON THE RAMPS, CONSTRUCT THE WIDENING, GUARDRAIL, DRAINAGE, AND EXPRESSWAY GUTTER ON THE OUTSIDE SHOULDER OF -L- (US 220). WHEN PLACING 1.5″ OF SURFACE COURSE ON THE OUTSIDE SHOULDER, USE RSD 1101.02, SHEETS 3, 6 & 7 OF 9 TO PLACE 1.5″ OF SURFACE COURSE ON EXISTING TRAVEL LANES AND INSIDE SHOULDER TO PREVENT PONDING OF WATER. (SEE GENERAL PHASE 1 PATTERN ON SHEET TCP-7 AND LOCAL NOTES 1 & 2)

USING RSD 1101.02, SHEETS 6 & 7 OF 9 ON THE RAMPS, IN CONJUNCTION WITH RSD 1101.02, SHEET 3 OF 9 ON -L- (US 220) AND RSD 1101.02, SHEET 1 OF 9 ON DAWSON MILLER RD AND MCDOWELL RD, CONSTRUCT WIDENING, GUARDRAIL, AND DRAINAGE ON -RAMPA1-, -RAMPB1-, -RAMPC1-, AND -RAMPD1- AT SR 1138 (DAWSON MILLER RD) AND -RAMPA2-, -RAMPB2-, -RAMPC2-, AND -RAMPD2- AT SR 1150 (MCDOWELL RD). WHEN PLACING 1.5″ OF SURFACE COURSE ON THE RAMP SHOULDERS, USE RSD 1101.02, SHEETS 1, 3, 6 & 7 OF 9 TO PLACE 1.5″ OF SURFACE COURSE ON EXISTING RAMP TRAVEL LANES TO PREVENT PONDING OF WATER. (SEE LOCAL NOTES 1 & 2)

USING RSD 1101.02, SHEETS 1, 3, 6 & 7 of 9 AND RSD 1101.03, SHEET 9 OF 9 AS NECESSARY, BEGIN INSTALLATION & COVER NEW SIGN STRUCTURES (INCLUDING ALL OVERHEAD SIGNS) ON ALL ROADS. (NOTE: THE EXISTING SIGNS ARE TO REMAIN IN PLACE AND OPERATIONAL UNTIL THE NEW SIGNS ARE IN PLACE FOR THE ENTIRE PROJECT.)

AREA 1

PHASE 2 - (SEE PHASE 2, AREA 1 OVERVIEW, SHEET TCP-11)

STEP 1:
USING RSD 1101.02, SHEET 3 OF 9, BEGIN CONSTRUCTION OF GUARDRAIL, DRAINAGE, AND PERMANENT BARRIER IN THE MEDIAN ON -L- (US 220). (SEE LOCAL NOTES 1 & 2)

PRIOR TO PROCEEDING TO AREA 1, PHASE 2, STEP 2, REMOVE MONOLITHIC ISLANDS ON -RAMPA1- & -RAMPC1- USING RSD 1101.02, SHEET 7 OF 9, IN CONJUNCTION WITH RSD 1101.02, SHEET 1 OF 9 ON DAWSON MILLER RD AND REPLACE WITH MARKING.

THE CONTRACTOR SHALL COMPLETE THE PAVEMENT REPAIR REQUIRED OF AREA 1, PHASE 2, STEPS 2 & 3 AS STATED BELOW IN 10 CONSECUTIVE HOURS FROM 8:00 PM TO 6:00 AM (EXCLUDING THE SUMMER MONTHS FROM MEMORIAL DAY TO LABOR DAY). (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

REPEAT THIS INTERMEDIATE CONTRACT TIME FOR EACH APPROACH. EACH LOCATION WILL BE A SEPARATE NIGHT-TIME OPERATION.

STEP 2:
USING RSD 1101.03, SHEET 7 or 9 of 9, CLOSE -L- (US 220 NB OR SB). -L- (US 220) TRAFFIC WILL BE DETOURED VIA THE INTERCHANGE RAMPS USING POLICE AT THE RAMP TERMINALS TO DIRECT TRAFFIC.

STEP 3:
COMPLETE FULL DEPTH PAVEMENT REPAIR AS SHOWN ON THE ROADWAY PLANS IN THE FOLLOWING AREAS:

STA. 32+79 +/- -L- NB TO STA. 33+29 +/- -L- NB (BEGIN BRIDGE)
STA. 32+79 +/- -L- SB TO STA. 33+29 +/- -L- SB (BEGIN BRIDGE)
STA. 34+76 +/- -L- NB (END BRIDGE) TO STA. 35+26 +/- -L- NB
STA. 34+76 +/- -L- SB (END BRIDGE) TO STA. 35+26 +/- -L- SB

NOTE: EACH LOCATION (BRIDGE APPROACH) WILL BE COMPLETED IN FOUR (4) SEPARATE NIGHT-TIME CLOSURE OPERATIONS.

STEP 4:
IMMEDIATELY UPON COMPLETION OF AREA 1, PHASE 2, STEP 3, INSTALL MONOLITHIC ISLANDS ON -RAMPA1- & -RAMPC1- USING RSD 1101.02, SHEET 7 OF 9, IN CONJUNCTION WITH RSD 1101.02, SHEET 1 OF 9 ON DAWSON MILLER RD.

USING RSD 1101.02, SHEET 3 OF 9, COMPLETE CONSTRUCTION BEGUN IN PHASE 2, AREA 1, STEP 1.

USING RSD 1101.02, SHEETS 1, 3, 6 & 7 of 9 AND RSD 1101.03, SHEET 9 OF 9 AS NECESSARY, COMPLETE INSTALLATION & UNCOVER NEW SIGN STRUCTURES (INCLUDING ALL OVERHEAD SIGNS) ON ALL ROADS. ONCE THE NEW SIGN INSTALLATIONS ARE COMPLETE, REMOVE THE OLD SIGNS. (NOTE: THE EXISTING SIGNS ARE TO REMAIN IN PLACE AND OPERATIONAL UNTIL THE NEW SIGNS ARE IN PLACE FOR THE ENTIRE PROJECT.)

PHASE 3 - (SEE PHASE 3, AREA 1 OVERVIEW, SHEET TCP-12)

STEP 1:
COMPLETE THE FOLLOWING WORK IN A CONTINUOUS MANNER:
(SEE LOCAL NOTES 1 & 2)

- USING RSD 1101.02, SHEETS 3, 6 & 7 OF 9 ON -L- (US 220) AND RSD 1101.02, SHEET 1 OF 9 ON DAWSON MILLER RD AND MCDOWELL RD, PLACE THE FINAL LAYER OF SURFACE COURSE ON -L- (US 220) AND ALL RAMPS AS SHOWN ON THE ROADWAY PLAN.

- USING RSD 1101.02, SHEETS 3, 6 & 7 OF 9 AS NECESSARY ON -L- (US 220) AND RAMPS, MILL UNDER EACH SIDE OF THE FOLLOWING BRIDGES AND OVERLAY 3″ AS SHOWN ON THE ROADWAY PLAN:

  SR 1114 (PISGAH COVERED BRIDGE RD)
  SR 1145 (SOUTHMONT DR)
  SR 1150 (MCDOWELL RD)

AREA 1

- USING RSD 1101.02, SHEETS 3, 6 & 7 OF 9 ON -L- (US 220) AND RAMPS AND RSD 1101.02, SHEET 1 OF 9 ON DAWSON MILLER RD AND MCDOWELL RD, PLACE FINAL MARKINGS AND MARKERS ON ALL ROADS, AS SHOWN ON THE FINAL PAVEMENT MARKING PLANS, AND OPEN ALL LANES TO TRAFFIC.

STEP 2:
REMOVE ALL REMAINING TRAFFIC CONTROL DEVICES.

AREA 2

PHASE 1 - (SEE PHASE 1, AREA 2 OVERVIEW, SHEET TCP-13)

STEP 1:
INSTALL ADVANCED WORK ZONE WARNING SIGNS ON -L- (US 220), ALL RAMPS, AND PRESNELL STREET AS SHOWN ON SHEET TCP-39.

STEP 2:
USING RSD 1101.02, SHEET 3 OF 9 ON -L- NB (US 220 NB), IN CONJUNCTION WITH RSD 1101.02, SHEETS 6 & 7 OF 9 ON THE RAMPS, INSTALL MOVEABLE BARRIER ON THE OUTSIDE SHOULDER OF -L- NB (US 220 NB) AS SHOWN ON TYPICAL SECTION #1 ON SHEET TCP-13, THEN BEGIN AS MUCH WORK AS POSSIBLE BEHIND BARRIER.

STEP 3:
USING RSD 1101.02, SHEETS 6, 7 & 8 OF 9, ALONG WITH RSD 1101.02, SHEET 9 OF 9 CONDUCT THE FOLLOWING:

A. SHIFT MOVEABLE BARRIER ON -L- NB (US 220 NB) AS SHOWN ON TYPICAL SECTION #2 ON SHEET TCP-13 AND DETAILS 1 THRU 7 ON SHEETS TCP-14 THRU 20.
B. BEHIND BARRIER, CONSTRUCT WIDENING (UP TO EXISTING EDGE OF TRAVEL LANE), GUARDRAIL, DRAINAGE, AND EXPRESSWAY GUTTER ON THE OUTSIDE SHOULDER OF -L- NB (US 220 NB).
C. RETURN BARRIER TO THE OUTSIDE SHOULDER OF -L- NB (US 220 NB) AS SHOWN ON TYPICAL SECTION #1 ON SHEET TCP-13 AT THE END OF THE WORK PERIOD.
D. PLACE 1.5″ OF SURFACE COURSE ON THE EXISTING TRAVEL LANES OF -L- NB (US 220 NB) SIMULTANEOUSLY WITH 1.5″ ON THE OUTSIDE SHOULDER TO PREVENT PONDING OF WATER.

USING RSD 1101.02, SHEETS 6 & 7 OF 9, IN CONJUNCTION WITH RSD 1101.02, SHEET 8 OF 9 ON -L- NB (US 220 NB) AND RSD 1101.02, SHEET 1 OF 9 ON PRESNELL ST, CONSTRUCT WIDENING (UP TO EXISTING EDGE OF TRAVEL LANE), GUARDRAIL, EXPRESSWAY GUTTER, CURB AND GUTTER AND DRAINAGE ON THE FOLLOWING RAMPS:

-64RAMPC-
-64RAMPD-
-1713RAMPD-
-RAMPC5-
-RAMPD5-

USING RSD 1101.02, SHEETS 6 & 7 OF 9, IN CONJUNCTION WITH RSD 1101.02, SHEET 8 OF 9 ON -L- NB (US 220 NB) AND RSD 1101.02, SHEET 1 OF 9 ON PRESNELL ST. PLACE 1.5″ OF SURFACE COURSE ON THE EXISTING RAMP TRAVEL LANES SIMULTANEOUSLY WITH 1.5″ ON THE RAMP SHOULDERS TO PREVENT PONDING OF WATER.

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343 E. Six Forks Road, Suite 200
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PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-4

APPROVED: Michelle Ward DATE: 3/1/10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE W. WARD

PHASING NOTES AND AREA 1 & 2 PHASING

SCALE:	NONE
DATE:	3/1/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS

CADD FILE

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGN$$$$

PHASING

AREA 2

USING RSD 1101.02, SHEETS 1, 3, 6, 7 & 8 of 9 AND RSD 1101.03, SHEET 9 OF 9 AS NECESSARY, CONDUCT THE FOLLOWING:

- BEGIN INSTALLATION & COVER NEW SIGN STRUCTURES (INCLUDING ALL OVERHEAD SIGNS) ALONG -L- NB (US 220 NB)
- BEGIN INSTALLATION OF NEW OVERHEAD SUPPORTS ON US 64
- BEGIN INSTALLATION OF ALL SIGNS AND COVER ON ALL OTHER ROADS CROSSING US 220 AS SHOWN ON THE SIGNING PLANS

(NOTE: THE EXISTING SIGNS ARE TO REMAIN IN PLACE AND OPERATIONAL UNTIL THE NEW SIGNS ARE IN PLACE FOR THE ENTIRE PROJECT.)

INSTALL AND COVER OFF-SITE DETOUR SIGNS FOR -64RAMPC-, -64LOOPC- & -64LOOPD- AS SHOWN ON SHEETS TCP-20A AND TCP-21.

THE CONTRACTOR SHALL COMPLETE THE CONSTRUCTION REQUIRED OF AREA 2, PHASE 1, STEPS 4 & 5 AS STATED BELOW IN 58 CONSECUTIVE HOURS FROM 8:00 PM FRIDAY TO 6:00 AM MONDAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 4:
UNCOVER OFF-SITE DETOUR SIGNS FOR -64RAMPC- AS SHOWN ON SHEET TCP-20A AND PLACE IN THE OFF-SITE DETOUR PATTERN.

STEP 5:
USING RSD 1101.02, SHEET 8 OF 9 ON -L- NB (US 220 NB) ALONG WITH RAMP CLOSURE, CONSTRUCT THE DRAINAGE IN THE GORE AREA OF -64RAMPC-, THEN REMOVE OFF-SITE DETOUR SIGNS AND OPEN THE RAMP BACK UP TO TRAFFIC.

THE CONTRACTOR SHALL COMPLETE THE CONSTRUCTION REQUIRED OF AREA 2, PHASE 1, STEPS 6 & 7 AS STATED BELOW IN 58 CONSECUTIVE HOURS FROM 8:00 PM FRIDAY TO 6:00 AM MONDAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 6:
UNCOVER OFF-SITE DETOUR SIGNS FOR -64LOOPC- AND -64LOOPD- AS SHOWN ON SHEET TCP-21 AND PLACE LOOPS IN THE OFF-SITE DETOUR PATTERN.

STEP 7:
USING RSD 1101.02, SHEET 8 OF 9 ON -L- NB (US 220 NB) ALONG WITH LOOP CLOSURES, CONSTRUCT THE FOLLOWING THEN REMOVE OFF-SITE DETOUR SIGNS AND OPEN THE LOOPS BACK UP TO TRAFFIC:

STA. 11+40+/- -64LOOPC- TO STA. 11+39 +/- -64LOOPD-
(INCLUDING 1.5" OF SURFACE COURSE ON LOOP WIDENING AND TRAVEL LANES IN THIS AREA, SINGLE-FACED BARRIER UNDER THE US 64 BRIDGE, AND ALL DRAINAGE ALONG THE LOOPS AND GORE AREAS)

STEP 8:
USING RSD 1101.02, SHEET 3 OF 9 ON -L- (US 220), IN CONJUNCTION WITH RSD 1101.02, SHEETS 6 & 7 OF 9 ON THE RAMPS, RESET MOVEABLE BARRIER FROM THE OUTSIDE SHOULDER OF -L- NB (US 220 NB) TO -L- SB (US 220 SB) AS SHOWN ON TYPICAL SECTION #1 ON SHEET TCP-13, THEN BEGIN AS MUCH WORK AS POSSIBLE BEHIND BARRIER.

STEP 9:
USING RSD 1101.02, SHEETS 6, 7 & 8 OF 9, ALONG WITH RSD 1101.02, SHEET 9 OF 9 CONDUCT THE FOLLOWING:

A. SHIFT MOVEABLE BARRIER ON -L- SB (US 220 SB) AS SHOWN ON TYPICAL SECTION #2 ON SHEET TCP-13 AND DETAILS 1 THRU 7 ON SHEETS TCP-14 THRU 20.
B. BEHIND BARRIER, CONSTRUCT WIDENING (UP TO EXISTING EDGE OF TRAVEL LANE), GUARDRAIL, DRAINAGE, AND EXPRESSWAY GUTTER ON THE OUTSIDE SHOULDER OF -L- SB (US 220 SB).
C. RETURN BARRIER TO THE OUTSIDE SHOULDER OF -L- SB (US 220 SB) AS SHOWN ON TYPICAL SECTION #1 ON SHEET TCP-13 AT THE END OF THE WORK PERIOD.
D. PLACE 1.5" OF SURFACE COURSE ON THE EXISTING TRAVEL LANES OF -L- SB (US 220 SB) SIMULTANEOUSLY WITH 1.5" ON THE OUTSIDE SHOULDER TO PREVENT PONDING OF WATER.

USING RSD 1101.02, SHEETS 6 & 7 OF 9, IN CONJUNCTION WITH RSD 1101.02, SHEET 8 OF 9 ON -L- SB (US 220 SB) AND RSD 1101.02, SHEET 1 OF 9 ON PRESNELL ST, CONSTRUCT WIDENING (UP TO EXISTING EDGE OF TRAVEL LANE), GUARDRAIL, EXPRESSWAY GUTTER, CURB AND GUTTER AND DRAINAGE ON THE FOLLOWING RAMPS:

-64RAMPB-
-1713RAMPA- (NOT INCLUDING COLLAR AND 18" PIPE EXTENSION AT STA. 15+50 +/- -1713RAMPA-)
-RAMPA5-
-RAMPB5-

USING RSD 1101.02, SHEETS 6 & 7 OF 9, IN CONJUNCTION WITH RSD 1101.02, SHEET 8 OF 9 ON -L- SB (US 220 SB) AND RSD 1101.02, SHEET 1 OF 9 ON PRESNELL ST. PLACE 1.5" OF SURFACE COURSE ON THE EXISTING RAMP TRAVEL LANES SIMULTANEOUSLY WITH 1.5" ON THE RAMP SHOULDERS TO PREVENT PONDING OF WATER.

USING RSD 1101.02, SHEETS 6, 7 & 8 of 9 AND RSD 1101.03, SHEET 9 OF 9 AS NECESSARY, BEGIN INSTALLATION & COVER NEW SIGN STRUCTURES (INCLUDING ALL OVERHEAD SIGNS) ALONG -L- SB (US 220 SB). (NOTE: THE EXISTING SIGNS ARE TO REMAIN IN PLACE AND OPERATIONAL UNTIL THE NEW SIGNS ARE IN PLACE FOR THE ENTIRE PROJECT.)

INSTALL AND COVER OFF-SITE DETOUR SIGNS FOR -64RAMPB-, -64LOOPA-, -64LOOPB- & -1713RAMPA- AS SHOWN ON SHEETS TCP-21A, TCP-22 AND TCP-23.

THE CONTRACTOR SHALL COMPLETE THE CONSTRUCTION REQUIRED OF AREA 2, PHASE 1, STEPS 10 & 11 AS STATED BELOW IN 58 CONSECUTIVE HOURS FROM 8:00 PM FRIDAY TO 6:00 AM MONDAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 10:
UNCOVER OFF-SITE DETOUR SIGNS FOR -64RAMPB- AS SHOWN ON SHEET TCP-21A AND PLACE IN THE OFF-SITE DETOUR PATTERN.

STEP 11:
USING RSD 1101.02, SHEET 8 OF 9 ON -L- SB (US 220 SB) ALONG WITH RAMP CLOSURE, CONSTRUCT THE DRAINAGE IN THE GORE AREA OF -64RAMPB-, THEN REMOVE OFF-SITE DETOUR SIGNS AND OPEN THE RAMP BACK UP TO TRAFFIC.

THE CONTRACTOR SHALL COMPLETE THE CONSTRUCTION REQUIRED OF AREA 2, PHASE 1, STEPS 12 & 13 AS STATED BELOW IN 58 CONSECUTIVE HOURS FROM 8:00 PM FRIDAY TO 6:00 AM MONDAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 12:
UNCOVER OFF-SITE DETOUR SIGNS FOR -64LOOPA- AND -64LOOPB- AS SHOWN ON SHEET TCP-22 AND PLACE LOOPS IN THE OFF-SITE DETOUR PATTERN.

STEP 13:
USING RSD 1101.02, SHEET 8 OF 9 ON -L- (US 220 SB) ALONG WITH LOOP CLOSURES, CONSTRUCT THE FOLLOWING THEN REMOVE OFF-SITE DETOUR SIGNS AND OPEN THE LOOPS BACK UP TO TRAFFIC:

STA. 11+33+/- -64LOOPB- TO STA. 12+00 +/- -64LOOPA-
(INCLUDING 1.5" OF SURFACE COURSE ON LOOP WIDENING AND TRAVEL LANES IN THIS AREA, SINGLE-FACED BARRIER UNDER THE US 64 BRIDGE, AND ALL DRAINAGE ALONG THE LOOPS AND GORE AREAS)

THE CONTRACTOR SHALL COMPLETE THE DRAINAGE INSTALLATION REQUIRED OF AREA 2, PHASE 1, STEPS 14 & 15 AS STATED BELOW IN 58 CONSECUTIVE HOURS FROM 8:00 PM FRIDAY TO 6:00 AM MONDAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 14:
UNCOVER OFF-SITE DETOUR SIGNS FOR -1713RAMPA- AS SHOWN ON SHEET TCP-23 AND PLACE RAMP IN THE OFF-SITE DETOUR PATTERN.

STEP 15:
CONSTRUCT THE DRAINAGE AROUND STA. 15+56 +/- -1713RAMPA- ALONG WITH ANY SHOULDER AND EXPRESSWAY GUTTER THAT COULD NOT BE COMPLETED UNTIL DRAINAGE WAS INSTALLED, THEN REMOVE OFF-SITE DETOUR SIGNS AND OPEN -1713RAMPA- BACK UP TO TRAFFIC.

THE CONTRACTOR SHALL COMPLETE THE FOLLOWING PIPE INSTALLATIONS REQUIRED OF AREA 2, PHASE 1, STEP 16 AS STATED BELOW IN 58 CONSECUTIVE HOURS FROM 8:00 PM FRIDAY TO 6:00 AM MONDAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 16:
USING RSD 1101.02, SHEETS 6, 7 & 8 OF 9 AS NECESSARY, CLOSE THE TRAVEL LANE AND CONSTRUCT THE DRAINAGE AT STA. 287+50 +/- -L- LT AND STA. 291+38 +/- -L- LT. (SEE DETAIL 3, SHEET TCP-16 FOR PIPE LOCATIONS.)

PHASE 2 - (SEE PHASE 2, AREA 2 OVERVIEW, SHEET TCP-24)

STEP 1:
ONCE ALL WORK IN AREA 2, PHASE I HAS BEEN COMPLETED, USING RSD 1101.02, SHEETS 6, 7 & 8 OF 9, ALONG WITH RSD 1101.03, SHEET 9 OF 9, SHIFT MOVEABLE BARRIER TO THE INSIDE SHOULDER OF -L- SB (US 220 SB) AS SHOWN ON TYPICAL SECTION #3 ON SHEET TCP-24, THEN COMPLETE THE FOLLOWING:

- USING RSD 1101.02, SHEETS 6, 7 & 8 OF 9, ALONG WITH RSD 1101.03, SHEET 9 OF 9, PLACE TEMPORARY MARKINGS AND MARKERS ON -L- NB & SB (US 220 NB & SB) AND ALL RAMPS AND SHIFT TRAFFIC TO THE PHASE 2 PATTERN AS SHOWN ON TYPICAL SECTION #4 ON SHEET TCP-24 & DETAILS 1 THRU 11 ON SHEETS TCP-25 THRU 35.

- USING RSD 1101.02, SHEETS 6, 7 & 8 OF 9, ALONG WITH RSD 1101.03, SHEET 9 OF 9, SHIFT MOVEABLE BARRIER FROM THE INSIDE SHOULDER TO THE PHASE II POSITION ON -L- SB (US 220 SB) AS SHOWN ON TYPICAL SECTION #4 ON SHEET TCP-24 & DETAILS 1 THRU 11 ON SHEETS TCP-25 THRU 35.

- USING RSD 1101.02, SHEETS 3, 6, & 7 OF 9, INSTALL PORTABLE CONCRETE BARRIER IN THE PHASE II POSITION ON -L- NB (US 220 NB) AS SHOWN ON TYPICAL SECTION #4 ON SHEET TCP-24 & DETAILS 1 THRU 11 ON SHEETS TCP-25 THRU 35.

STEP 2:
BEHIND BARRIER, BEGIN CONSTRUCTION IN THE MEDIAN (INCLUDING 1.5" OF FINAL SURFACE COURSE), NOT INCLUDING EXTRA DEPTH DRAINAGE BOXES.

AS NEEDED, USE RSD 1101.02, SHEET 6, 7 & 8 OF 9, ALONG WITH RSD 1101.03, SHEET 9 OF 9 AND SHIFT THE BARRIER AS SHOWN ON TYPICAL SECTION #5 ON SHEET TCP-24 AND CONTINUE CONSTRUCTION IN THE MEDIAN (INCLUDING 1.5" OF FINAL SURFACE COURSE), OPENING TRAFFIC BACK UP TO TWO LANES AT THE END OF THE WORK PERIOD.

USING RSD 1101.02, SHEETS 6 & 7 OF 9 ON THE RAMPS, IN CONJUNCTION WITH RSD 1101.02, SHEET 8 OF 9 AND RSD 1101.03, SHEET 9 OF 9 ON -L- (US 220), CONSTRUCT RAMP WIDENING, GUARDRAIL, EXPRESSWAY GUTTER, AND CURB & GUTTER ON -RAMPB3- & -RAMPC3- AT SUNSET AVENUE AND -RAMPA4- & -RAMPD4- AT NC 42. WHEN PLACING 1.5" OF SURFACE COURSE ON THE RAMP SHOULDERS, USE RSD 1101.02, SHEETS 6, 7, 8 & 9 OF 9 TO PLACE 1.5" OF SURFACE COURSE ON EXISTING RAMP TRAVEL LANES TO PREVENT PONDING OF WATER.

USING RSD 1101.02, SHEETS 6, 7, & 8 OF 9, ALONG WITH RSD 1101.03, SHEET 9 OF 9, INSTALL SHORING 3' FROM THE BACK OF THE BARRIER IN THE FOLLOWING LOCATIONS AND CONSTRUCT EXTRA DEPTH DRAINAGE BOXES: (SEE DETAILS 4, 5, & 8, SHEETS TCP-28, 29 & 32 FOR SHORING LOCATIONS)

STA. 336+60 +/- -L- LT & RT	TO	STA. 283+95 +/- -L- LT & RT
STA. 347+77 +/- -L2- LT	TO	STA. 348+07 +/- -L2- LT
STA. 347+79 +/- -L3- RT	TO	STA. 348+09 +/- -L3- RT
STA. 348+72 +/- -L2- LT	TO	STA. 349+02 +/- -L2- LT
STA. 348+72 +/- -L3- RT	TO	STA. 349+02 +/- -L3- RT
STA. 351+71 +/- -L3- RT	TO	STA. 352+01 +/- -L3- RT
STA. 386+64 +/- -L2- LT	TO	STA. 386+94 +/- -L2- LT
STA. 386+68 +/- -L3- RT	TO	STA. 386+98 +/- -L3- RT

APPROVED: Michelle Ward DATE: 3/1/10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE W. WARD

AREA 2 PHASING

SCALE:	NONE
DATE:	3/1/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH

REVISIONS

CADD FILE

$$$$USERNAME$$$$ $$$$SYSTIME$$$$ $$$$DGNFILE$$$$

PHASING

AREA 2

USING RSD 1101.02, SHEETS 1, 3, 6, 7 & 8 of 9 AND RSD 1101.03, SHEET 9 OF 9 AS NECESSARY, COMPLETE INSTALLATION & UNCOVER NEW SIGN STRUCTURES (INCLUDING ALL OVERHEAD SIGNS) ON ALL ROADS. ONCE THE NEW SIGN INSTALLATIONS ARE COMPLETE, REMOVE THE OLD SIGNS. (NOTE: THE EXISTING SIGNS ARE TO REMAIN IN PLACE AND OPERATIONAL UNTIL THE NEW SIGNS ARE IN PLACE FOR THE ENTIRE PROJECT.)

INSTALL AND COVER OFF-SITE DETOUR SIGNS FOR -RAMPA4-, -RAMPB3-, -RAMPC3-, -RAMPD4-, US 220 NB & US 220 SB AS SHOWN ON SHEETS TCP-35A, TCP-35B, TCP-35C, TCP-35D, TCP-36 & TCP-37.

THE CONTRACTOR SHALL COMPLETE THE WORK REQUIRED IN AREA 2, PHASE 2, STEP 3 AS STATED BELOW IN 58 CONSECUTIVE HOURS FROM 8:00 PM FRIDAY TO 6:00 AM MONDAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

REPEAT THIS INTERMEDIATE CONTRACT TIME UNTIL ALL PIPE INSTALLATIONS ARE COMPLETE. EACH LOCATION WILL BE A SEPARATE WEEKEND OPERATION UNLESS MULTIPLE LOCATIONS CAN BE COMPLETED SIMULTANEOUSLY BEHIND THE MAXIMUM 2 MILE LANE CLOSURE IN ONE WEEKEND OPERATION.

STEP 3:
USING RSD 1101.02, SHEETS 6, 7 & 8 OF 9, CLOSE THE TRAVEL LANE ON -L- (US 220) AND RAMPS AS NECESSARY AND CONSTRUCT THE DRAINAGE IN THE FOLLOWING LOCATIONS: (SEE AREA II, PHASE II OVERVIEW, SHEET TCP-24 AND DETAILS 2, 3, 6, 7, 8 & 11 ON SHEETS TCP-26, 27, 30, 31, 32 & 35 FOR PIPE LOCATIONS)

STA. 268+70 +/- -L- MEDIAN
STA. 271+67 +/- -L- MEDIAN
STA. 279+62 +/- -L- MEDIAN
STA. 286+70 +/- -L- MEDIAN
STA. 294+83 +/- -L- MEDIAN
STA. 297+04 +/- -L- MEDIAN
STA. 302+39 +/- -L- MEDIAN
STA. 314+31 +/- -L- MEDIAN
STA. 355+88 +/- -L3- RT
STA. 359+29 +/- -L3- RT
STA. 363+13 +/- -L3- RT
STA. 374+89 +/- -L2- LT
STA. 377+38 +/- -L2- LT
STA. 386+83 +/- -L2- LT
STA. 36+02 +/- -L1- MEDIAN
STA. 44+64 +/- -L1- MEDIAN

THE CONTRACTOR SHALL COMPLETE THE CONSTRUCTION REQUIRED OF AREA 2, PHASE 2, STEPS 4 & 5 AS STATED BELOW IN 58 CONSECUTIVE HOURS FROM 8:00 PM FRIDAY TO 6:00 AM MONDAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 4:
UNCOVER OFF-SITE DETOUR SIGNS FOR -RAMPA4- AS SHOWN ON SHEET TCP-35A AND PLACE IN THE OFF-SITE DETOUR PATTERN.

STEP 5:
USING RSD 1101.02, SHEET 8 OF 9 ON -L- SB (US 220 SB) ALONG WITH RAMP CLOSURE, CONSTRUCT THE DRAINAGE ALONG -RAMPA4-, THEN REMOVE OFF-SITE DETOUR SIGNS AND OPEN THE RAMP BACK UP TO TRAFFIC.

THE CONTRACTOR SHALL COMPLETE THE CONSTRUCTION REQUIRED OF AREA 2, PHASE 2, STEPS 6 & 7 AS STATED BELOW IN 58 CONSECUTIVE HOURS FROM 8:00 PM FRIDAY TO 6:00 AM MONDAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 6:
UNCOVER OFF-SITE DETOUR SIGNS FOR -RAMPB3- AS SHOWN ON SHEET TCP-35B AND PLACE IN THE OFF-SITE DETOUR PATTERN.

STEP 7:
USING RSD 1101.02, SHEET 8 OF 9 ON -L- SB (US 220 SB) ALONG WITH RAMP CLOSURE, CONSTRUCT THE DRAINAGE ALONG -RAMPB3-, THEN REMOVE OFF-SITE DETOUR SIGNS AND OPEN THE RAMP BACK UP TO TRAFFIC.

THE CONTRACTOR SHALL COMPLETE THE CONSTRUCTION REQUIRED OF AREA 2, PHASE 2, STEPS 8 & 9 AS STATED BELOW IN 58 CONSECUTIVE HOURS FROM 8:00 PM FRIDAY TO 6:00 AM MONDAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 8:
UNCOVER OFF-SITE DETOUR SIGNS FOR -RAMPC3- AS SHOWN ON SHEET TCP-35C AND PLACE IN THE OFF-SITE DETOUR PATTERN.

STEP 9:
USING RSD 1101.02, SHEET 8 OF 9 ON -L- NB (US 220 NB) ALONG WITH RAMP CLOSURE, CONSTRUCT THE DRAINAGE ALONG -RAMPC3-, THEN REMOVE OFF-SITE DETOUR SIGNS AND OPEN THE RAMP BACK UP TO TRAFFIC.

THE CONTRACTOR SHALL COMPLETE THE CONSTRUCTION REQUIRED OF AREA 2, PHASE 2, STEPS 10 & 11 AS STATED BELOW IN 58 CONSECUTIVE HOURS FROM 8:00 PM FRIDAY TO 6:00 AM MONDAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 10:
UNCOVER OFF-SITE DETOUR SIGNS FOR -RAMPD4- AS SHOWN ON SHEET TCP-35D AND PLACE IN THE OFF-SITE DETOUR PATTERN.

STEP 11:
USING RSD 1101.02, SHEET 8 OF 9 ON -L- NB (US 220 NB) ALONG WITH RAMP CLOSURE, CONSTRUCT THE DRAINAGE ALONG -RAMPD4-, THEN REMOVE OFF-SITE DETOUR SIGNS AND OPEN THE RAMP BACK UP TO TRAFFIC.

THE CONTRACTOR SHALL COMPLETE THE PAVEMENT REPAIR REQUIRED OF AREA 2, PHASE 2, STEPS 12 & 13 AS STATED BELOW IN 10 CONSECUTIVE HOURS FROM 8:00 PM TO 6:00 AM (EXCLUDING THE SUMMER MONTHS FROM MEMORIAL DAY TO LABOR DAY). (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

REPEAT THIS INTERMEDIATE CONTRACT TIME FOR EACH APPROACH. EACH LOCATION WILL BE A SEPARATE NIGHT-TIME OPERATION.

STEP 12:
UNCOVER OFF-SITE DETOUR SIGNS ALONG US 220 BUSINESS FOR US 220 NB OR SB AS SHOWN ON SHEETS TCP-36 OR 37, THEN USING RSD 1101.03, SHEET 7 OR 9 OF 9, CLOSE -L- (US 220 NB OR SB) AND PLACE IN THE OFF-SITE DETOUR PATTERN

STEP 13:
COMPLETE FULL DEPTH PAVEMENT REPAIR AS SHOWN ON THE ROADWAY PLANS IN THE FOLLOWING AREAS:

STA. 341+05 +/- -L- NB TO STA. 341+55 +/- -L- NB (BEGIN BRIDGE)
STA. 341+05 +/- -L- SB TO STA. 341+55 +/- -L- SB (BEGIN BRIDGE)
STA. 343+04 +/- -L- NB (END BRIDGE) TO STA. 343+29.23 -L1- NB
STA. 343+04 +/- -L- SB (END BRIDGE) TO STA. 343+29.23 -L1- SB

NOTE: EACH LOCATION (BRIDGE APPROACH) WILL BE COMPLETED IN FOUR (4) SEPARATE NIGHT-TIME CLOSURE OPERATIONS.

PHASE 3 - (SEE PHASE 3, AREA 2 OVERVIEW, SHEET TCP-38)

STEP 1:
USING RSD 1101.02, SHEETS 3, 6 & 7 OF 9, ALONG WITH RSD 1101.03, SHEET 9 OF 9, REMOVE BARRIER AND REPLACE WITH DRUMS.

STEP 2:
COMPLETE THE FOLLOWING WORK IN A CONTINUOUS MANNER:

- USING RSD 1101.02, SHEETS 3, 6 & 7 OF 9 ON -L- (US 220) AND RSD 1101.02, SHEET 1 OF 9 ON PRESNELL ST, PLACE THE FINAL LAYER OF SURFACE COURSE ON -L- (US 220) AND ALL RAMPS AS SHOWN ON THE ROADWAY PLAN.
- USING RSD 1101.02, SHEETS 3, 6 & 7 OF 9, INSTALL MONOLITHIC ISLANDS AT RAMP GORE AREAS AS SHOWN ON THE ROADWAY PLANS.
- USING RSD 1101.02, SHEETS 3, 6 & 7 OF 9 ON -L- (US 220) AND RAMPS AS NECESSARY, MILL UNDER EACH SIDE OF THE FOLLOWING BRIDGES AND OVERLAY 3″ AS SHOWN ON THE ROADWAY PLAN:

  US 64
  SR 1713 (ALBEMARLE RD)
  SUNSET AVE / SR 1004 (LEXINGTON RD)
  NC 42 (W. SALISBURY ST)
  PRESNELL ST

- USING RSD 1101.02, SHEETS 3, 6 & 7 OF 9 ON -L- (US 220) AND RSD 1101.02, SHEET 1 OF 9 ON PRESNELL ST, PLACE FINAL MARKINGS AND MARKERS ON ALL ROADS AS SHWON ON THE FINAL PAVEMENT MARKING PLANS, AND OPEN ALL LANES TO TRAFFIC.

STEP 3:
REMOVE ALL REMAINING TRAFFIC CONTROL DEVICES.

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343 E. Six Forks Road, Suite 200
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C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-6

APPROVED: Michelle Ward DATE: 3/1/10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA 2 PHASING

SCALE:	NONE
DATE:	3/1/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS

CADD FILE

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGNFILE$$$$

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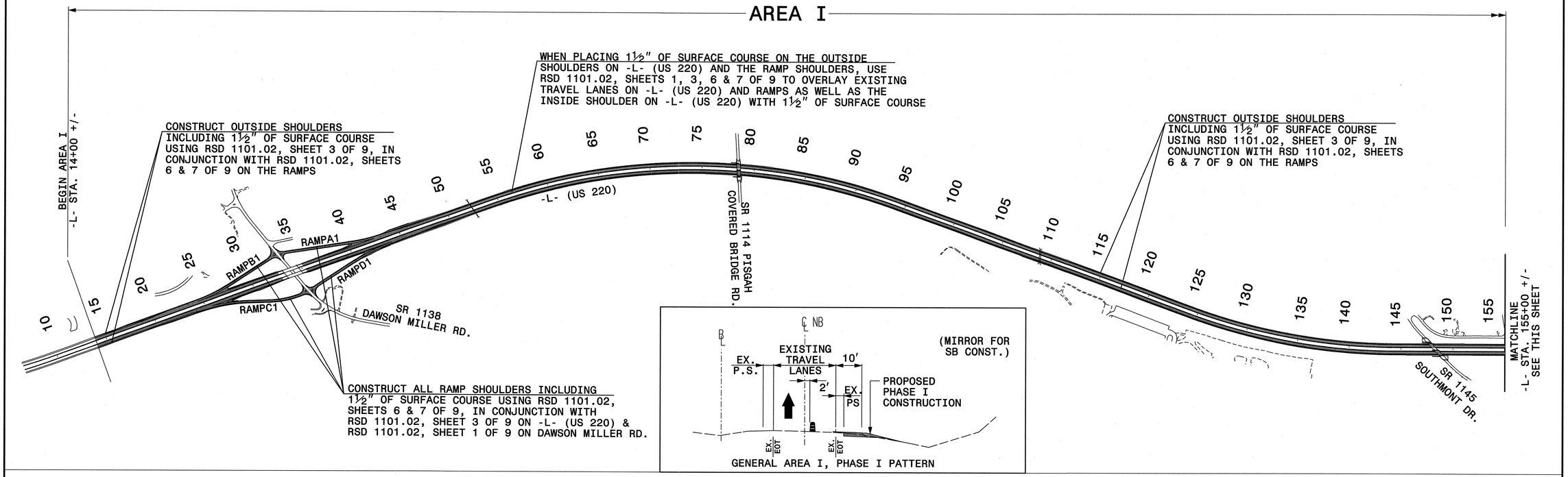
PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-7



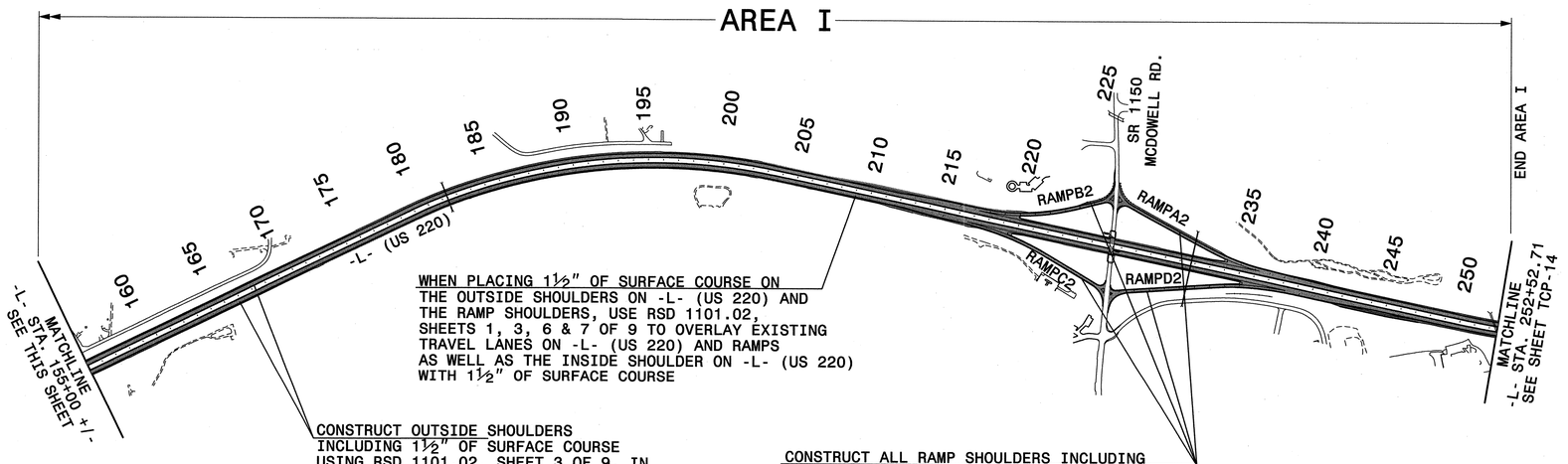
GENERAL AREA I, PHASE I PATTERN

WHEN PLACING 1½" OF SURFACE COURSE ON THE OUTSIDE SHOULDERS ON -L- (US 220) AND THE RAMP SHOULDERS, USE RSD 1101.02, SHEETS 1, 3, 6 & 7 OF 9 TO OVERLAY EXISTING TRAVEL LANES ON -L- (US 220) AND RAMPS AS WELL AS THE INSIDE SHOULDER ON -L- (US 220) WITH 1½" OF SURFACE COURSE

CONSTRUCT OUTSIDE SHOULDERS INCLUDING 1½" OF SURFACE COURSE USING RSD 1101.02, SHEET 3 OF 9, IN CONJUNCTION WITH RSD 1101.02, SHEETS 6 & 7 OF 9 ON THE RAMPS

CONSTRUCT OUTSIDE SHOULDERS INCLUDING 1½" OF SURFACE COURSE USING RSD 1101.02, SHEET 3 OF 9, IN CONJUNCTION WITH RSD 1101.02, SHEETS 6 & 7 OF 9 ON THE RAMPS

CONSTRUCT ALL RAMP SHOULDERS INCLUDING 1½" OF SURFACE COURSE USING RSD 1101.02, SHEETS 6 & 7 OF 9, IN CONJUNCTION WITH RSD 1101.02, SHEET 3 OF 9 ON -L- (US 220) & RSD 1101.02, SHEET 1 OF 9 ON DAWSON MILLER RD.



WHEN PLACING 1½" OF SURFACE COURSE ON THE OUTSIDE SHOULDERS ON -L- (US 220) AND THE RAMP SHOULDERS, USE RSD 1101.02, SHEETS 1, 3, 6 & 7 OF 9 TO OVERLAY EXISTING TRAVEL LANES ON -L- (US 220) AND RAMPS AS WELL AS THE INSIDE SHOULDER ON -L- (US 220) WITH 1½" OF SURFACE COURSE

CONSTRUCT OUTSIDE SHOULDERS INCLUDING 1½" OF SURFACE COURSE USING RSD 1101.02, SHEET 3 OF 9, IN CONJUNCTION WITH RSD 1101.02, SHEETS 6 & 7 OF 9 ON THE RAMPS

CONSTRUCT ALL RAMP SHOULDERS INCLUDING 1½" OF SURFACE COURSE USING RSD 1101.02, SHEETS 6 & 7 OF 9, IN CONJUNCTION WITH RSD 1101.02, SHEET 3 OF 9 ON -L- (US 220) & RSD 1101.02, SHEET 1 OF 9 ON MCDOWELL RD.

APPROVED: Michelle Ward DATE: 2/22/10

SEAL
SEAL 33789
MICHELLE WARD

AREA I, PHASE I OVERVIEW
SHEET 1 OF 1

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	DCK

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL UNIT

REVISIONS	
CADD FILE	

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Raleigh, North Carolina 27609
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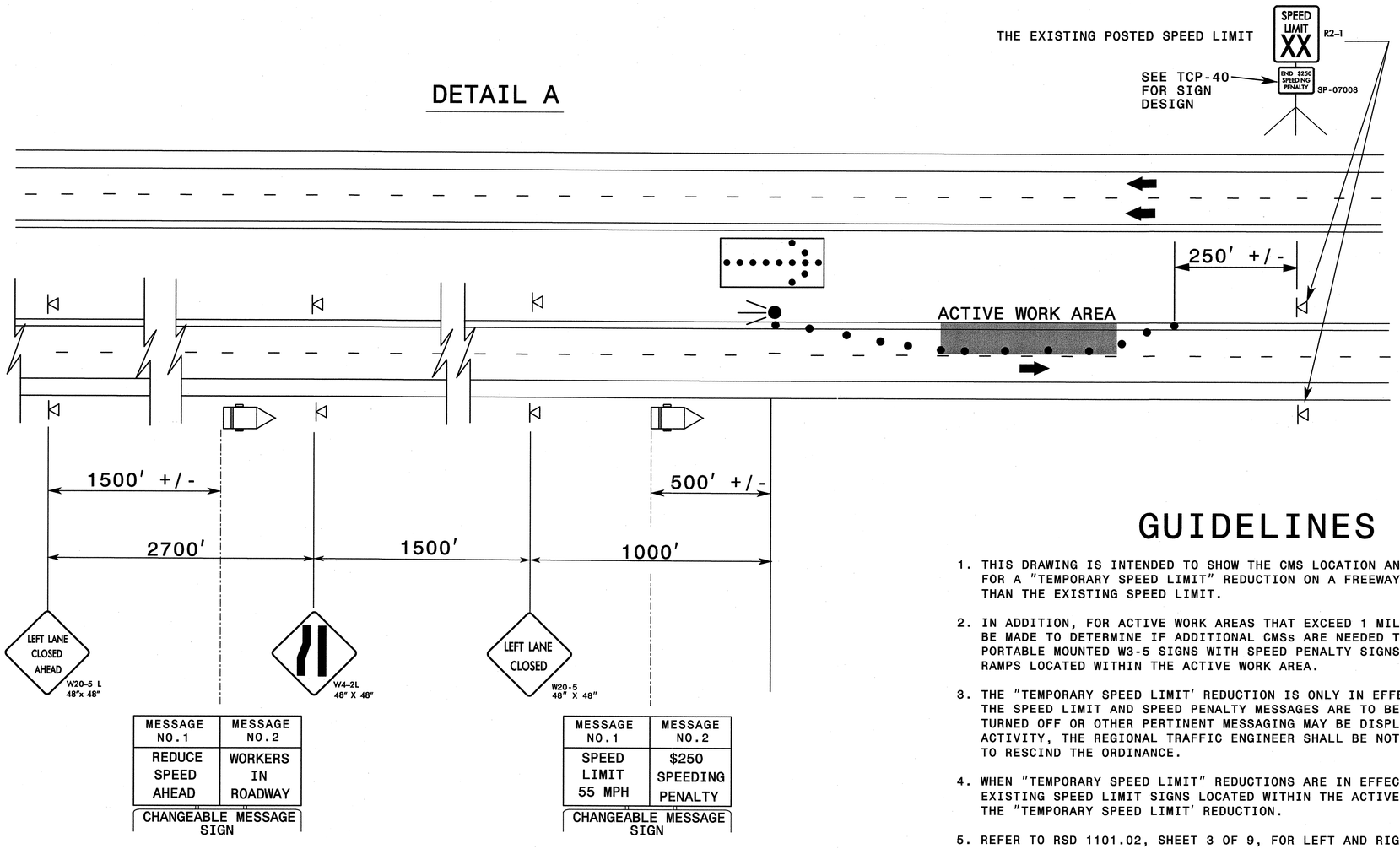
PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-7A

DETAIL A



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

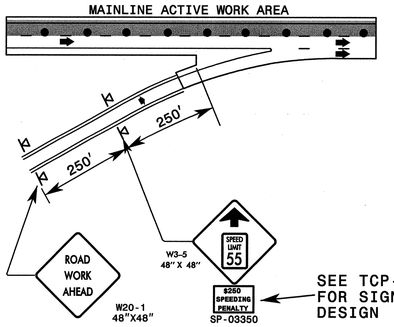
CHANGEABLE MESSAGE SIGN

MESSAGE NO.1	MESSAGE NO.2
SPEED LIMIT 55 MPH	$250 SPEEDING PENALTY

CHANGEABLE MESSAGE SIGN

DETAIL B

ENTRANCE RAMPS



GUIDELINES

1. THIS DRAWING IS INTENDED TO SHOW THE CMS LOCATION AND MESSAGING REQUIRED FOR A "TEMPORARY SPEED LIMIT" REDUCTION ON A FREEWAY WHICH IS 10 MPH OR LESS THAN THE EXISTING SPEED LIMIT.

2. IN ADDITION, FOR ACTIVE WORK AREAS THAT EXCEED 1 MILE IN LENGTH, AN EVALUATION IS TO BE MADE TO DETERMINE IF ADDITIONAL CMSs ARE NEEDED TO SUPPLEMENT THE INITIAL ONES. PORTABLE MOUNTED W3-5 SIGNS WITH SPEED PENALTY SIGNS ARE TO BE PLACED ALONG ENTRANCE RAMPS LOCATED WITHIN THE ACTIVE WORK AREA.

3. THE "TEMPORARY SPEED LIMIT' REDUCTION IS ONLY IN EFFECT WHEN WORKERS ARE PRESENT. THE SPEED LIMIT AND SPEED PENALTY MESSAGES ARE TO BE REMOVED AND THE SIGNS ARE TO BE TURNED OFF OR OTHER PERTINENT MESSAGING MAY BE DISPLAYED. AT THE COMPLETION OF THE ACTIVITY, THE REGIONAL TRAFFIC ENGINEER SHALL BE NOTIFIED BY THE RESIDENT ENGINEER TO RESCIND THE ORDINANCE.

4. WHEN "TEMPORARY SPEED LIMIT" REDUCTIONS ARE IN EFFECT, THE CONTRACTOR IS TO COVER ANY EXISTING SPEED LIMIT SIGNS LOCATED WITHIN THE ACTIVE WORK AREA THAT CONFLICT WITH THE "TEMPORARY SPEED LIMIT' REDUCTION.

5. REFER TO RSD 1101.02, SHEET 3 OF 9, FOR LEFT AND RIGHT LANE CLOSURES.

6. ONE ADDITIONAL CMS IS REQUIRED TO COMPLY WITH RSD 1101.02, SHEET 3 OF 9.

7. WHEN TWO SINGLE LANE CLOSURES ARE INSTALLED IN ANY ONE DIRECTION, EXTEND THE LIMITS OF THE SPEED REDUCTION AND $250 SPEEDING PENALTY TO THE END OF THE SECOND SINGLE LANE CLOSURE.

8. ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE. FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.

APPROVED: Michelle Ward DATE: 2/2/10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

"TEMPORARY SPEED LIMIT" REDUCTION WITH A SINGLE LANE CLOSURE

SCALE:	NONE
DATE:	2/10
DWG. BY:	NCDOT
DESIGN BY:	NCDOT
REVIEWED BY:	PMW

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH

REVISIONS	
CADD FILE	

$$$$USERNAME$$$$
$$$$SYSTIME$$$$
$$$$DGN$$$$

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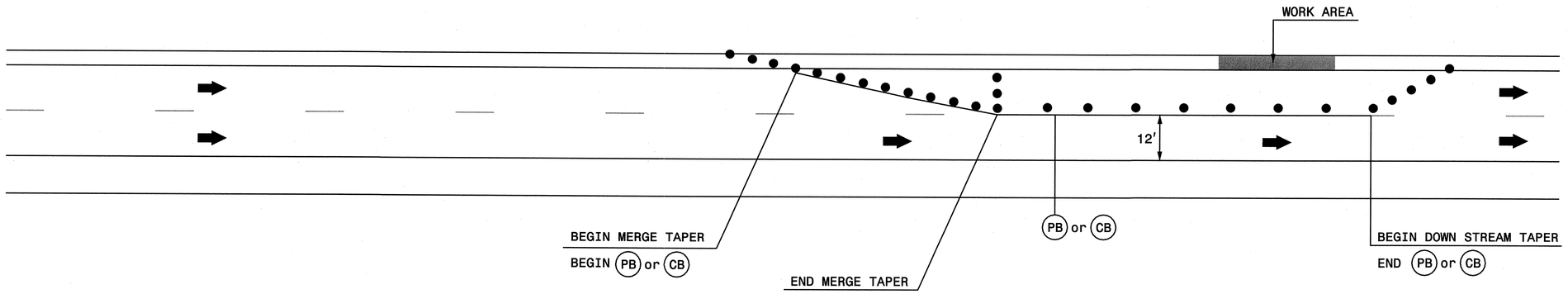
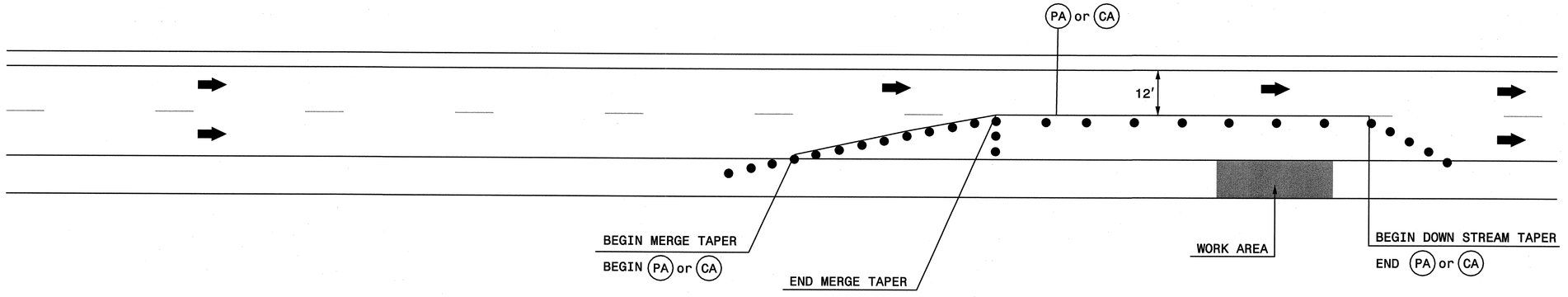
PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-8

LEFT LANE CLOSURE



NOTES:
1.) INSTALL LANE CLOSURE PER RSD 1101.02, SHEET 3 OF 9.
2.) PLACE TEMPORARY MARKING IF LANE CLOSURE IS TO REMAIN IN PLACE FOR MORE THAN SIX DAYS.

RIGHT LANE CLOSURE



APPROVED: _____ DATE: 2/22/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA I - TEMPORARY MARKINGS FOR LEFT & RIGHT LANE CLOSURE ON -L- (US 220)

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

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

REVISIONS	
CADD FILE	

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$$$

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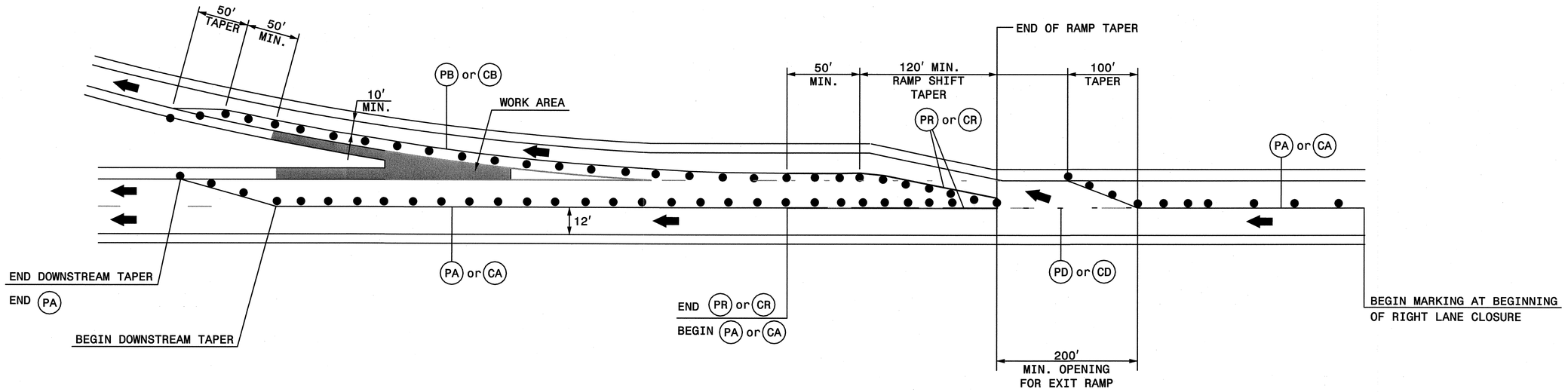
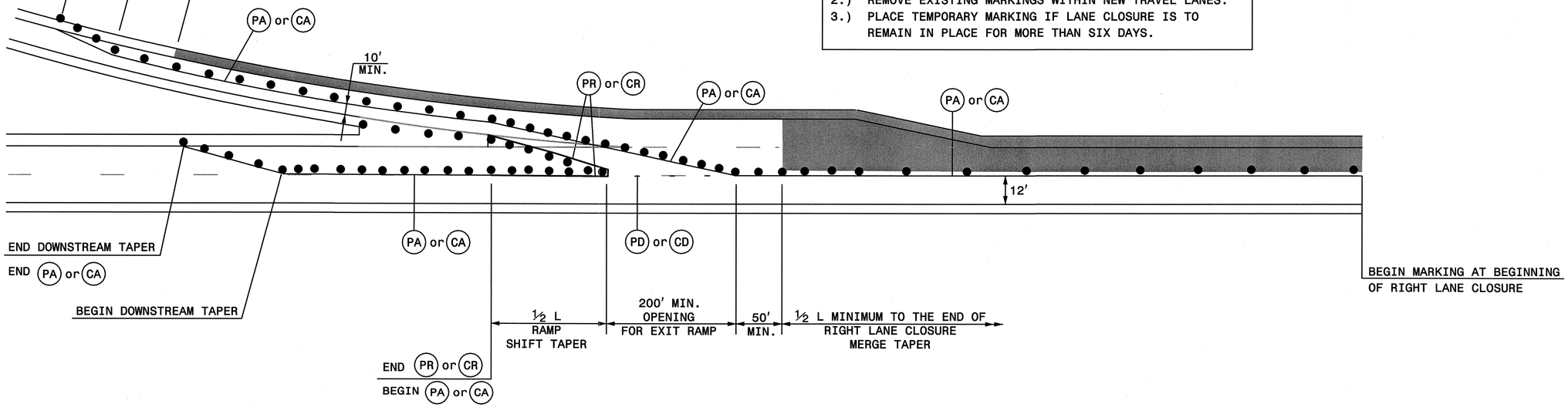
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-9





NOTES:
1.) INSTALL LANE CLOSURE PER RSD 1101.02, SHEET 7 OF 9.
2.) REMOVE EXISTING MARKINGS WITHIN NEW TRAVEL LANES.
3.) PLACE TEMPORARY MARKING IF LANE CLOSURE IS TO REMAIN IN PLACE FOR MORE THAN SIX DAYS.

APPROVED: [signature] DATE: 2/22/10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA I - TEMPORARY MARKINGS FOR EXIT RAMPS

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS

CADD FILE

$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

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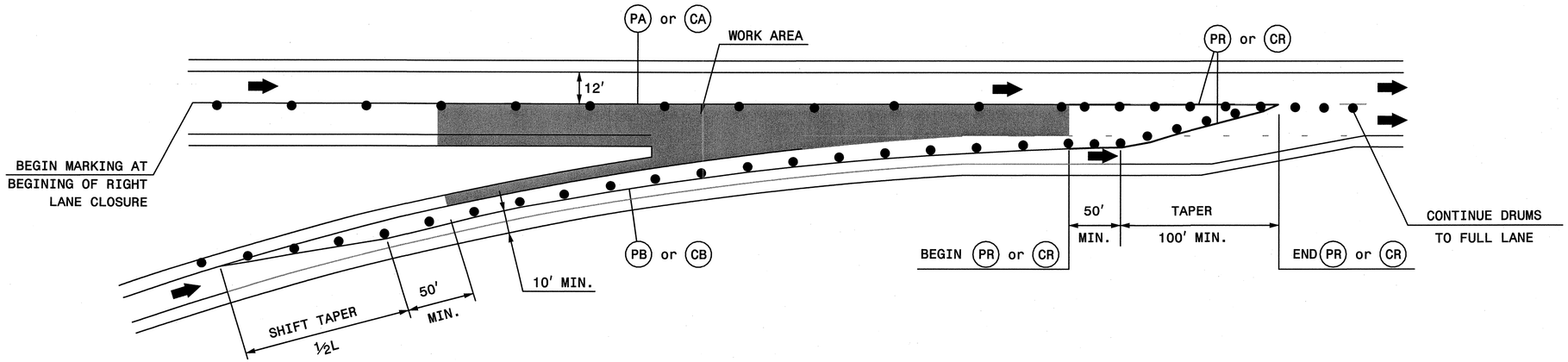
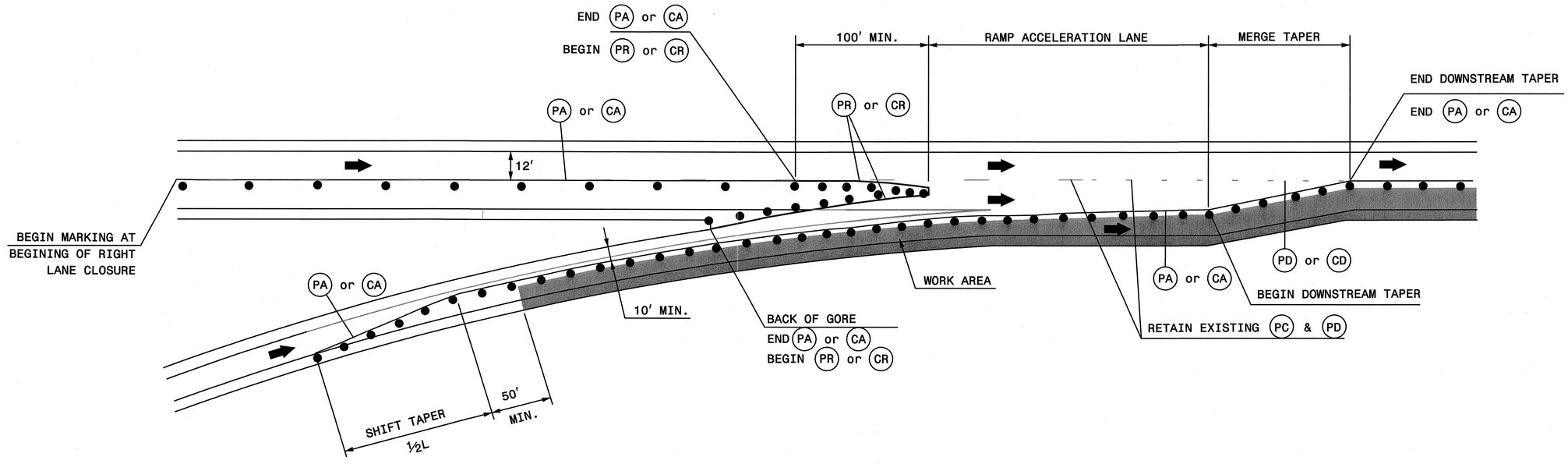
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-10





NOTES:
1.) INSTALL LANE CLOSURE PER RSD 1101.02, SHEET 6 OF 9.
2.) REMOVE EXISTING MARKINGS WITHIN NEW TRAVEL LANES.
3.) PLACE TEMPORARY MARKING IF LANE CLOSURE IS TO REMAIN IN PLACE FOR MORE THAN SIX DAYS.

APPROVED: Michelle Ward DATE: 2/22/10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA I - TEMPORARY MARKINGS FOR ENTRANCE RAMPS

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH

REVISIONS	
CADD FILE	

$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$

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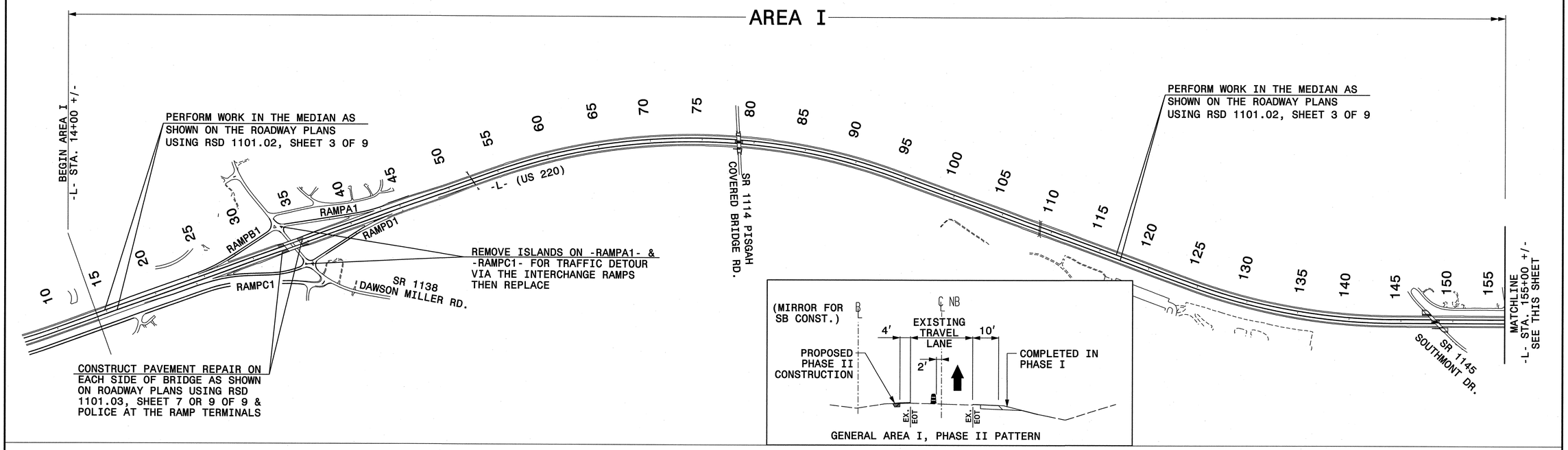
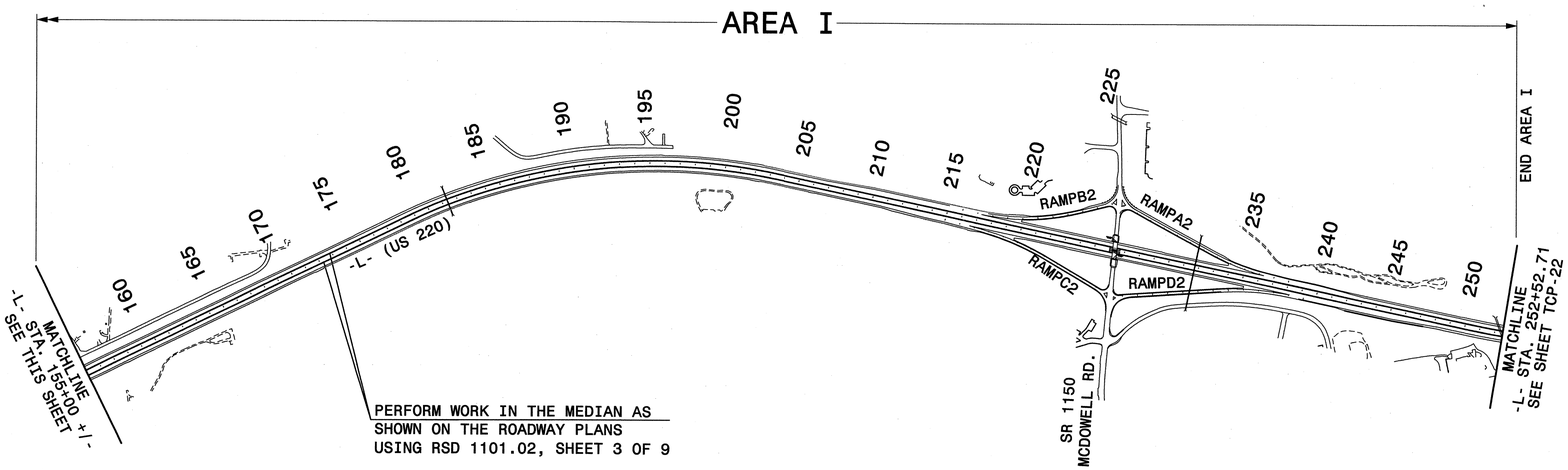
PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-11



GENERAL AREA I, PHASE II PATTERN



APPROVED: Michelle Ward DATE: 4/22/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELE WARD

AREA I, PHASE II OVERVIEW
SHEET 1 OF 1

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	DCK

REVISIONS

CADD FILE

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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Raleigh, North Carolina 27609
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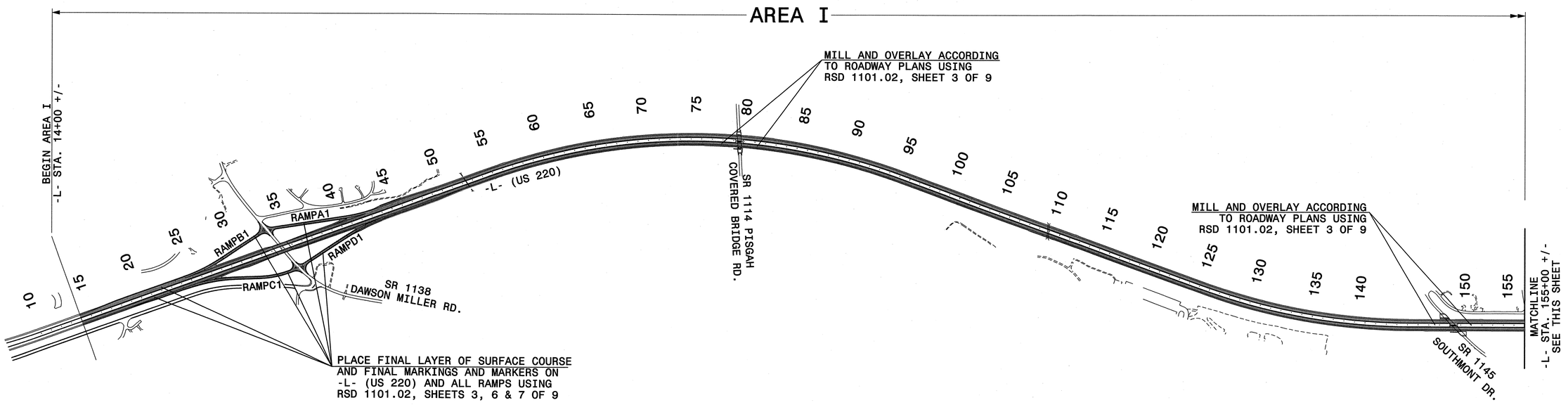
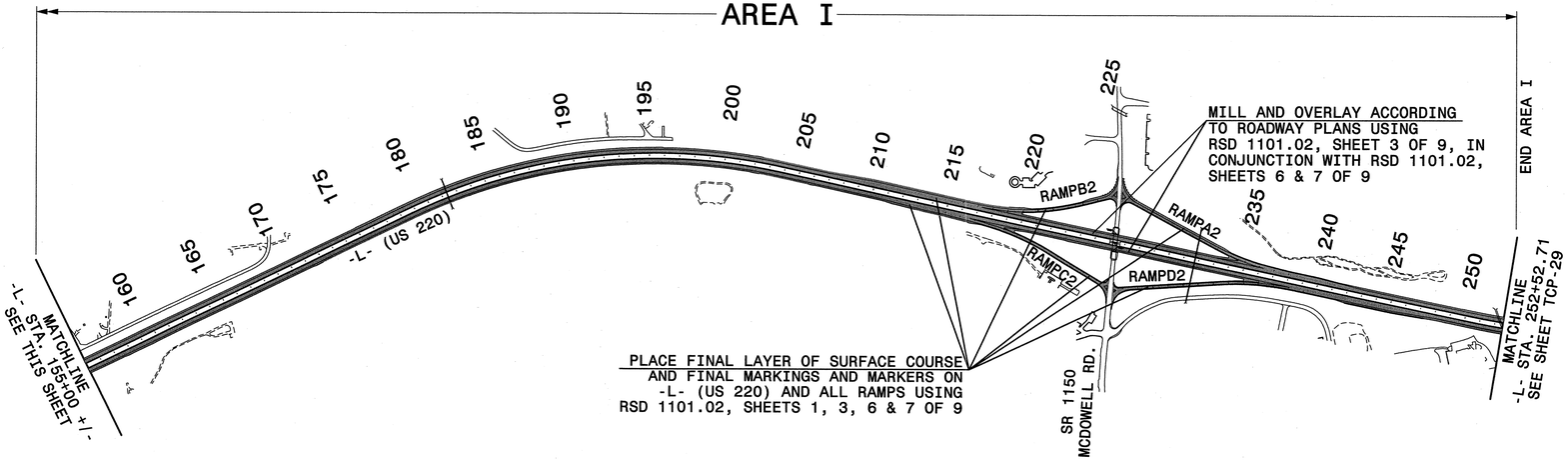
PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-12





APPROVED: Michelle Ward DATE: 2/22/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA I, PHASE III OVERVIEW
SHEET 1 OF 1

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	DCK

REVISIONS	
CADD FILE	

$$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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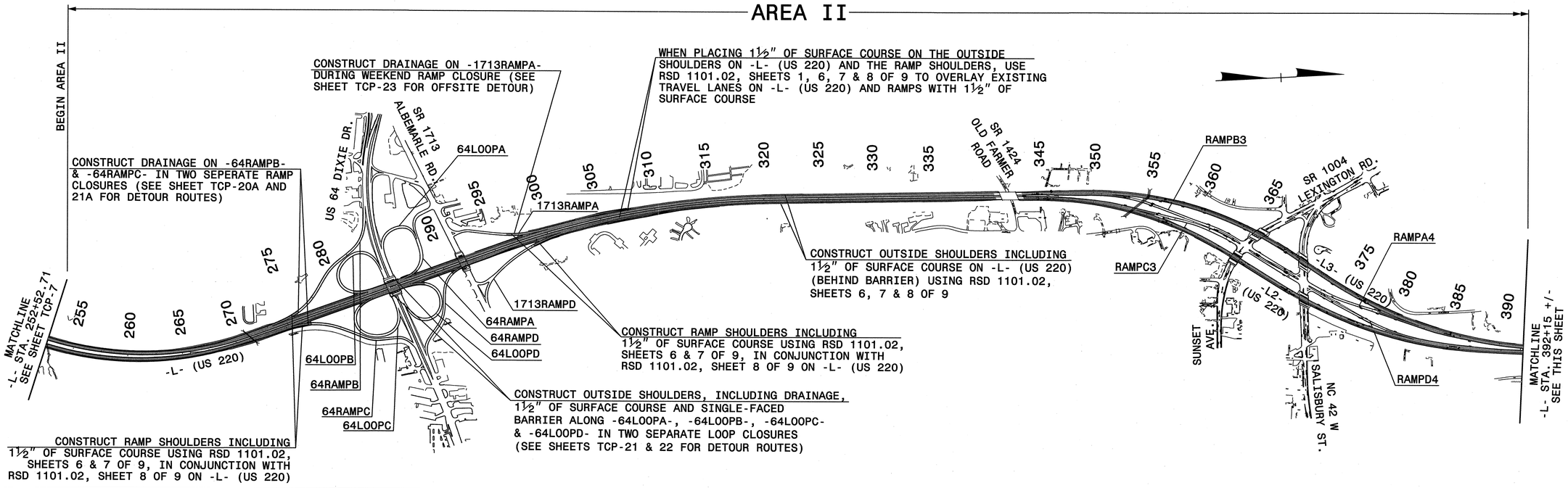
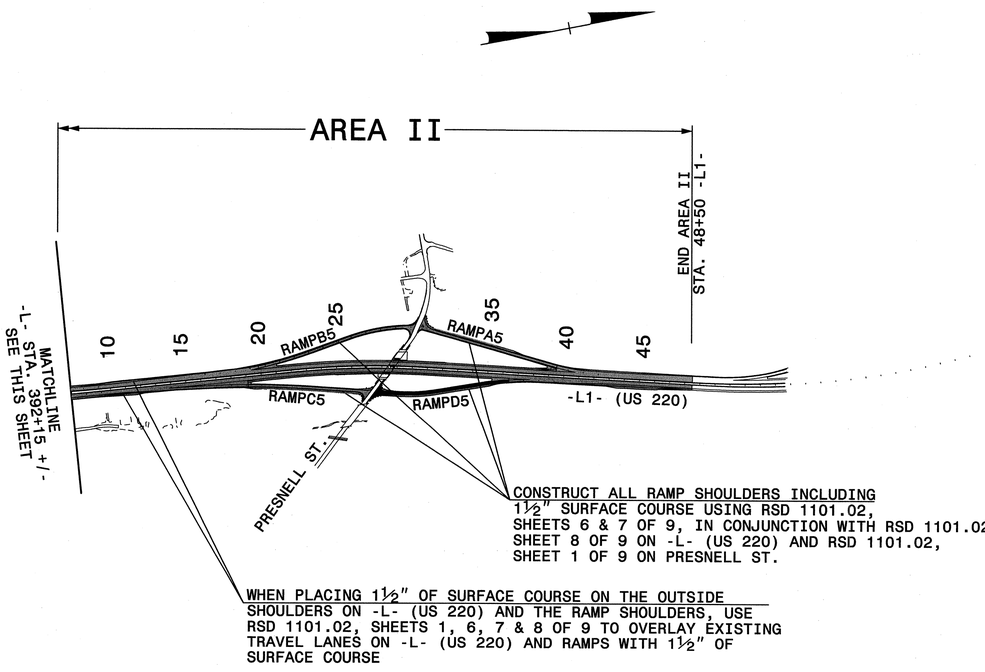
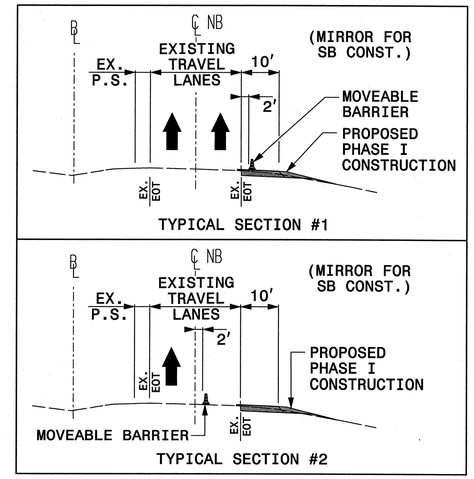
PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-13







APPROVED: _____ DATE: 2/22/10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA II, PHASE I OVERVIEW SHEET 1 OF 1

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	DCK

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH

REVISIONS

CADD FILE

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$$$

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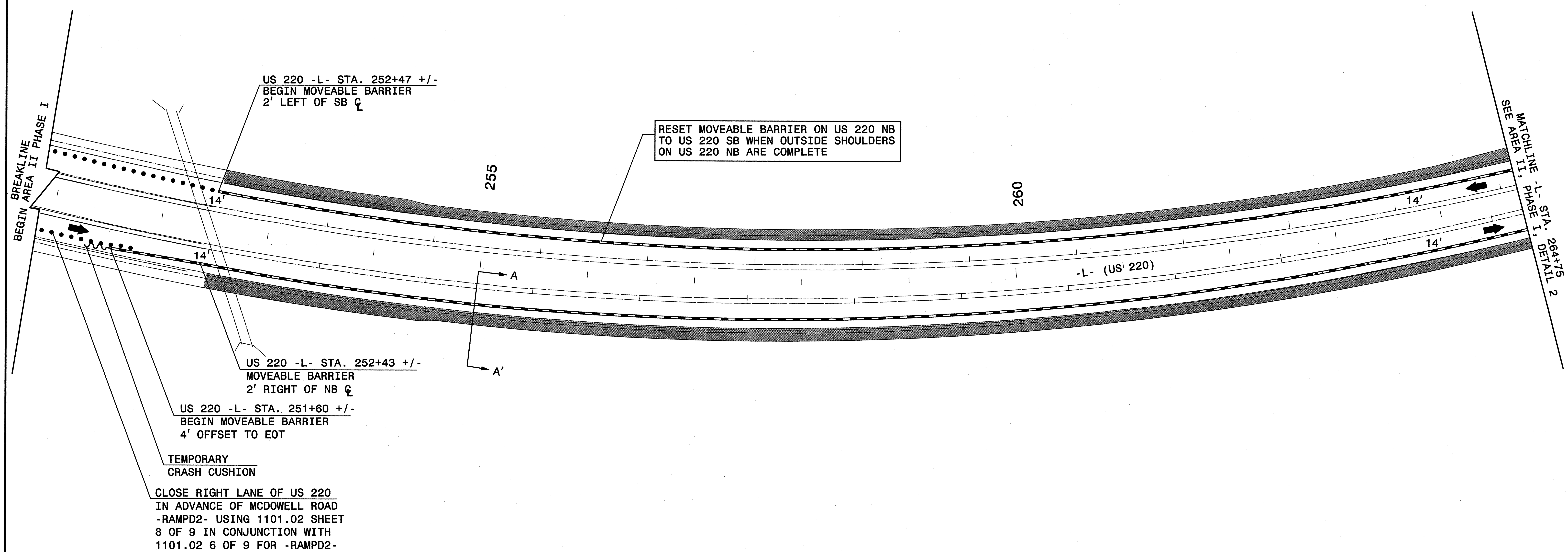
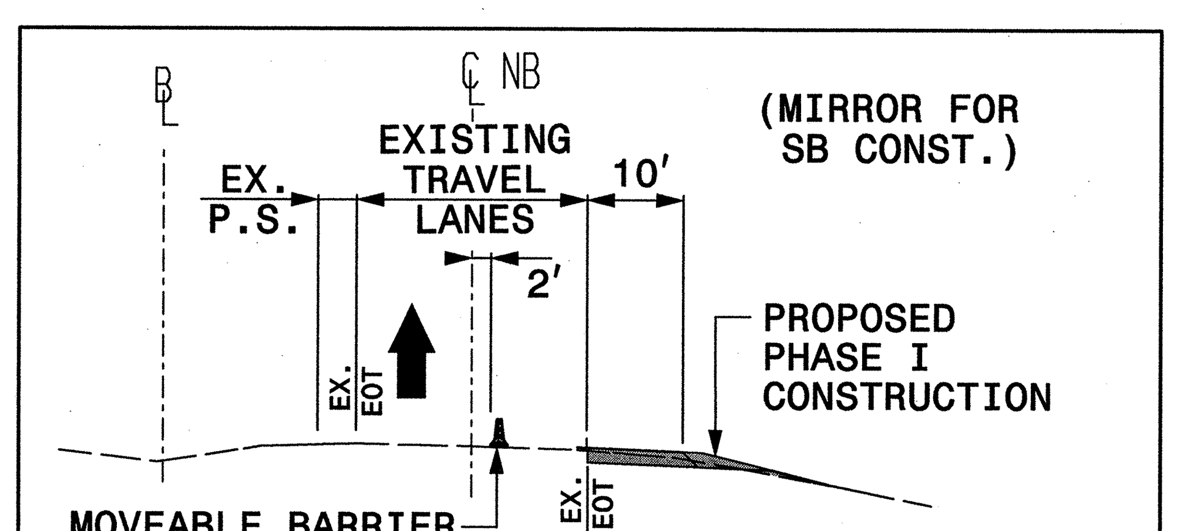
PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-14





SECTION A-A'

APPROVED: [signature] DATE: 2/22/10

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33789 MICHELLE WARD

AREA II, PHASE I, DETAIL 1
SHEET 1 OF 7

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS

CADD FILE

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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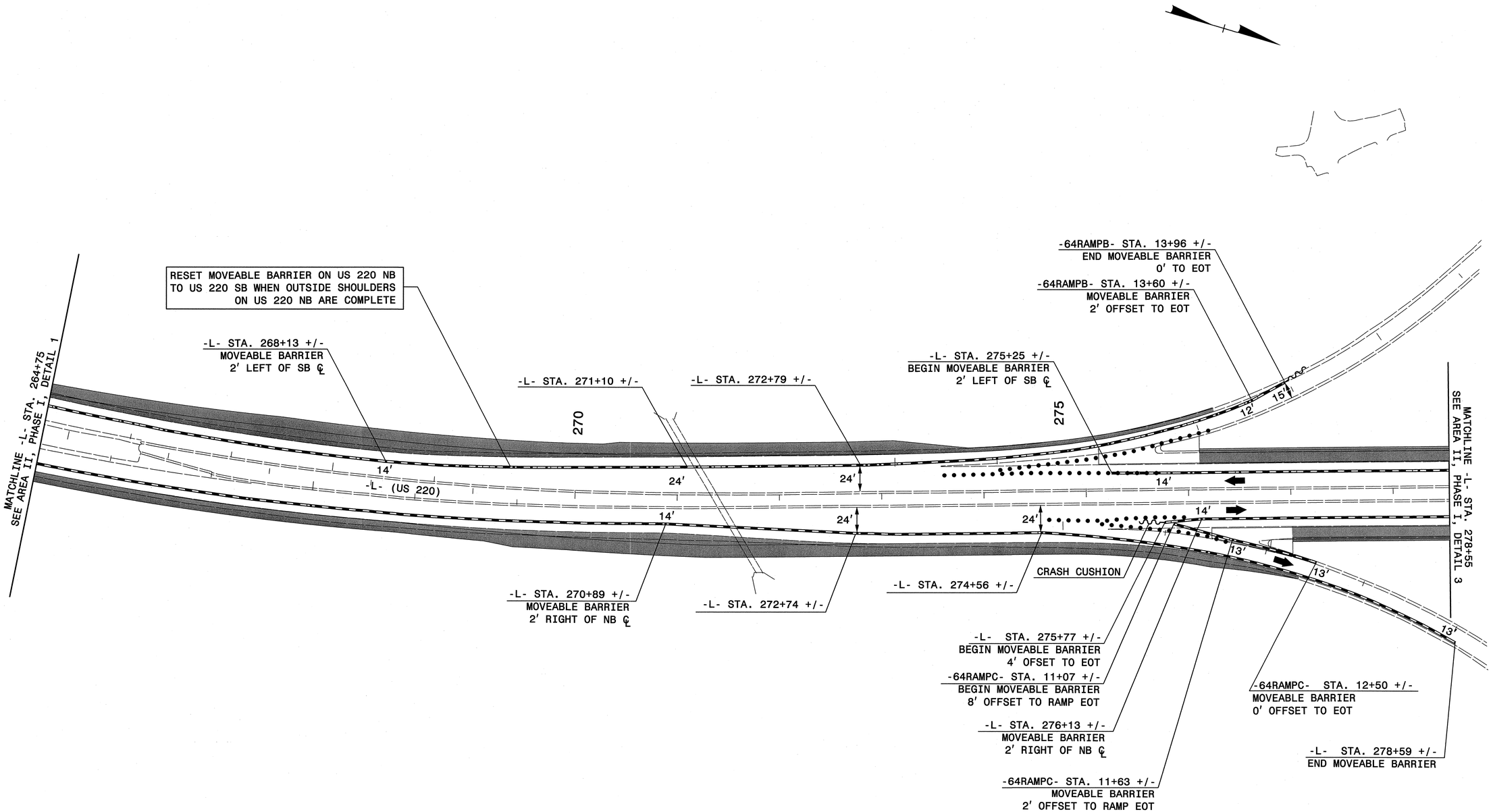
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-15



APPROVED: Michelle Ward DATE: 2/22/10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA II, PHASE I, DETAIL 2
SHEET 2 OF 7

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS	
CADD FILE	

$$$$$$$$SYSTIME$$$$$
$$$$$$$$USERNAME$$$$DGN$$$$$$$$$$$$$$$$$

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Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-16

RESET MOVEABLE BARRIER ON US 220 NB TO US 220 SB WHEN OUTSIDE SHOULDERS ON US 220 NB ARE COMPLETE

-L- STA. 281+61 +/-
MOVEABLE BARRIER
2' LEFT OF SB ℄

-L- STA. 281+95 +/-
END MOVEABLE BARRIER

CRASH CUSHION

280

MATCHLINE -L- STA. 278+55
SEE AREA II, PHASE 1, DETAIL 2

14'
14'
17'
14'
14'
-L- (US 220)

CONC BRIDGE COLUMNS
CONC BRIDGE COLUMNS
CONC BRIDGE COLUMNS
CONC BRIDGE COLUMNS

-L- STA. 282+20 +/-
END MOVEABLE BARRIER
2' RIGHT OF NB ℄

-L- STA. 287+25 +/-
BEGIN MOVEABLE BARRIER
2' LEFT OF SB ℄

-L- STA. 287+50 +/- &
-L- STA. 291+38 +/- -L-
INSTALL DRAINAGE USING
WEEKEND LANE CLOSURE
OPERATION

290

20'
14'
17.5'
13.5'
13.5'

CRASH CUSHION

-L- STA. 287+59 +/-
BEGIN MOVEABLE BARRIER

-L- STA. 287+95 +/-
MOVEABLE BARRIER 2'
RIGHT OF NB ℄

-L- STA. 290+87 +/-
END MOVEABLE BARRIER
2' RIGHT OF NB ℄

CONC BRIDGE COLUMNS
CONC BRIDGE COLUMNS
CONC BRIDGE COLUMNS
CONC BRIDGE COLUMNS

MATCHLINE -L- STA. 292+75
SEE AREA II, PHASE 1, DETAIL 4

APPROVED: [signature] DATE: 2/22/10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA II, PHASE I, DETAIL 3
SHEET 3 OF 7

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH

REVISIONS

CADD FILE

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$

HNTB NORTH CAROLINA, P.C.
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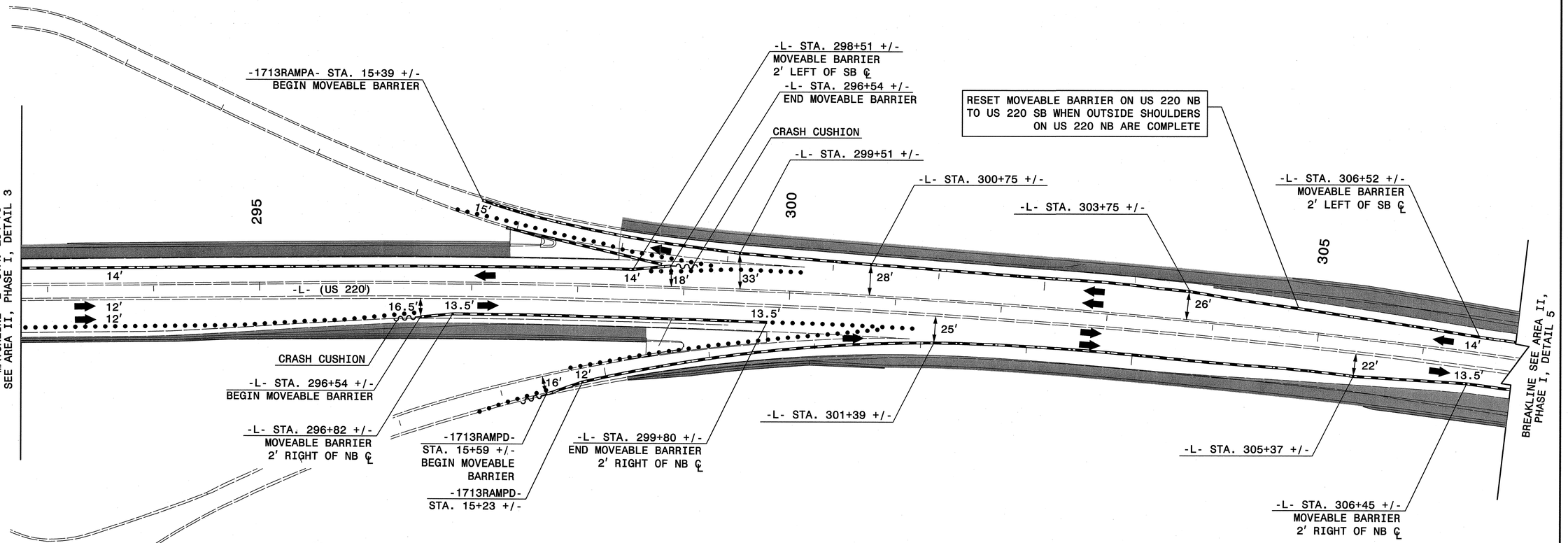
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-17



$$$$$$$$SYSTIME$$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$

APPROVED: Michelle Ward DATE: 2/22/10

SEAL
NORTH CAROLINA PROFESSIONAL
SEAL
33789
ENGINEER
MICHELLE WARD

AREA II, PHASE I, DETAIL 4
SHEET 4 OF 7

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

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

REVISIONS	
CADD FILE	

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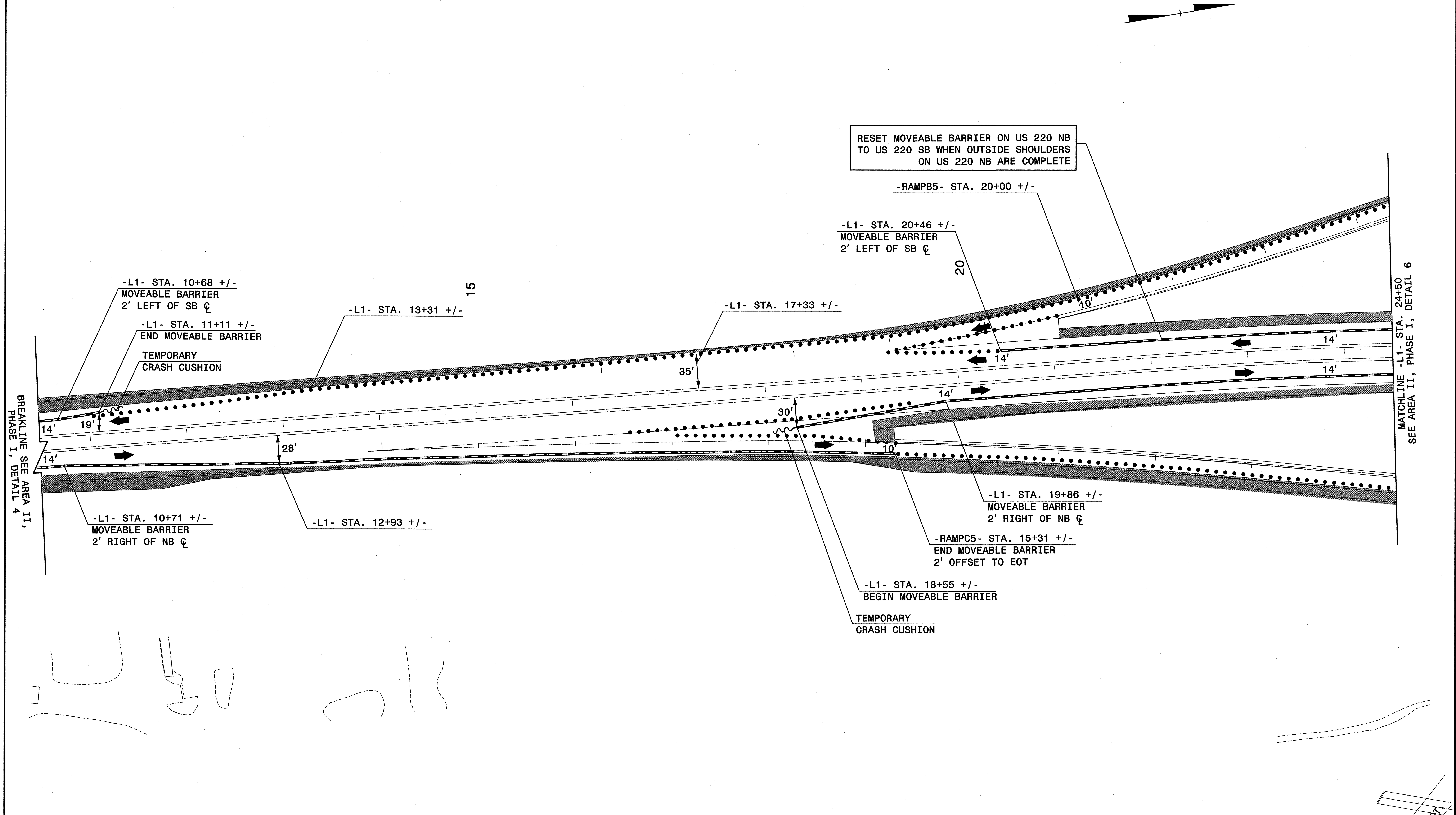
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-18



APPROVED [signature] DATE 2/22/10

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33789 MICHELLE WARD

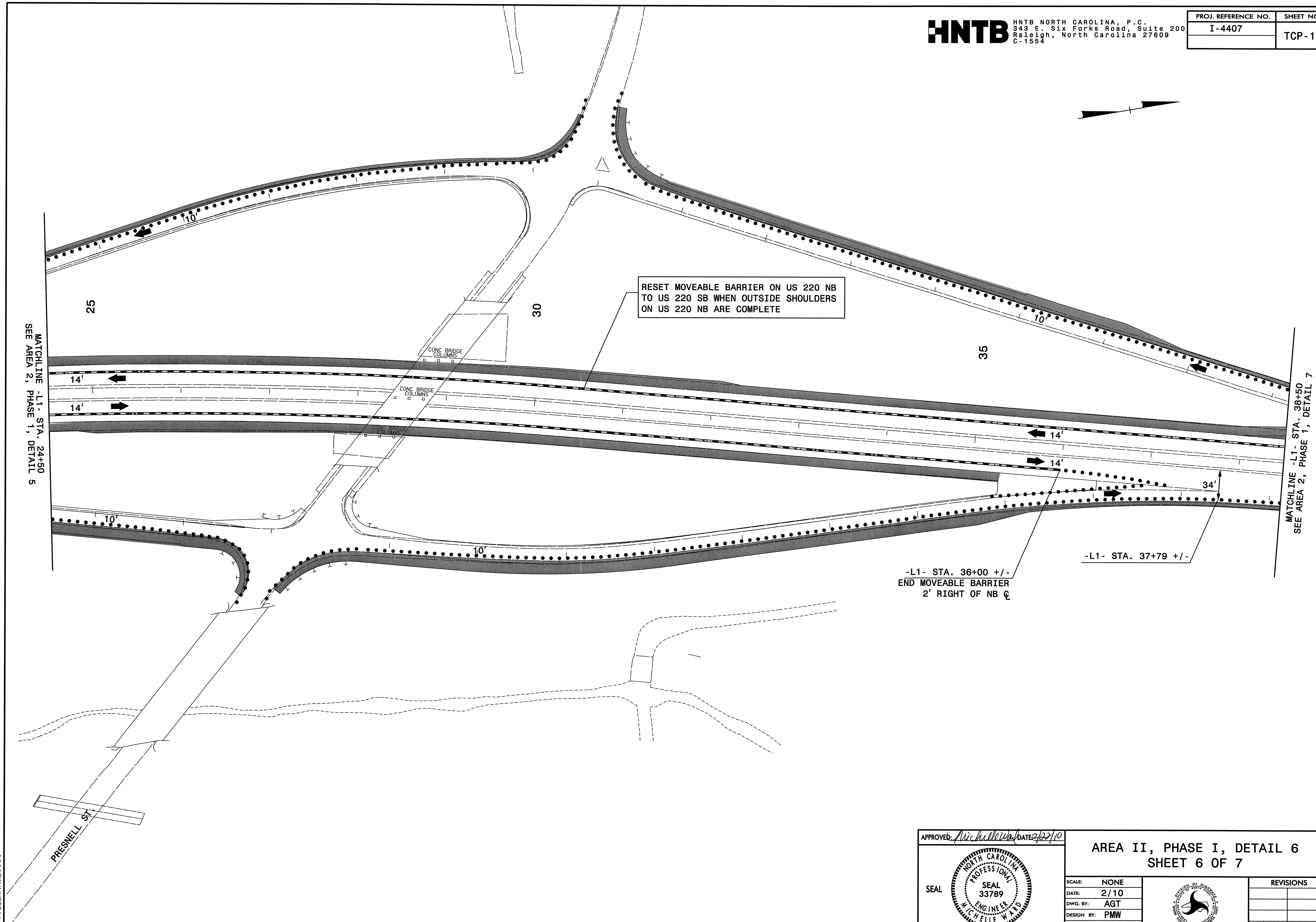
AREA II, PHASE I, DETAIL 5
SHEET 5 OF 7

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS

CADD FILE

$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$



APPROVED: Michelle Ward DATE: 2/22/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA II, PHASE I, DETAIL 6
SHEET 6 OF 7

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS

CADD FILE

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$$

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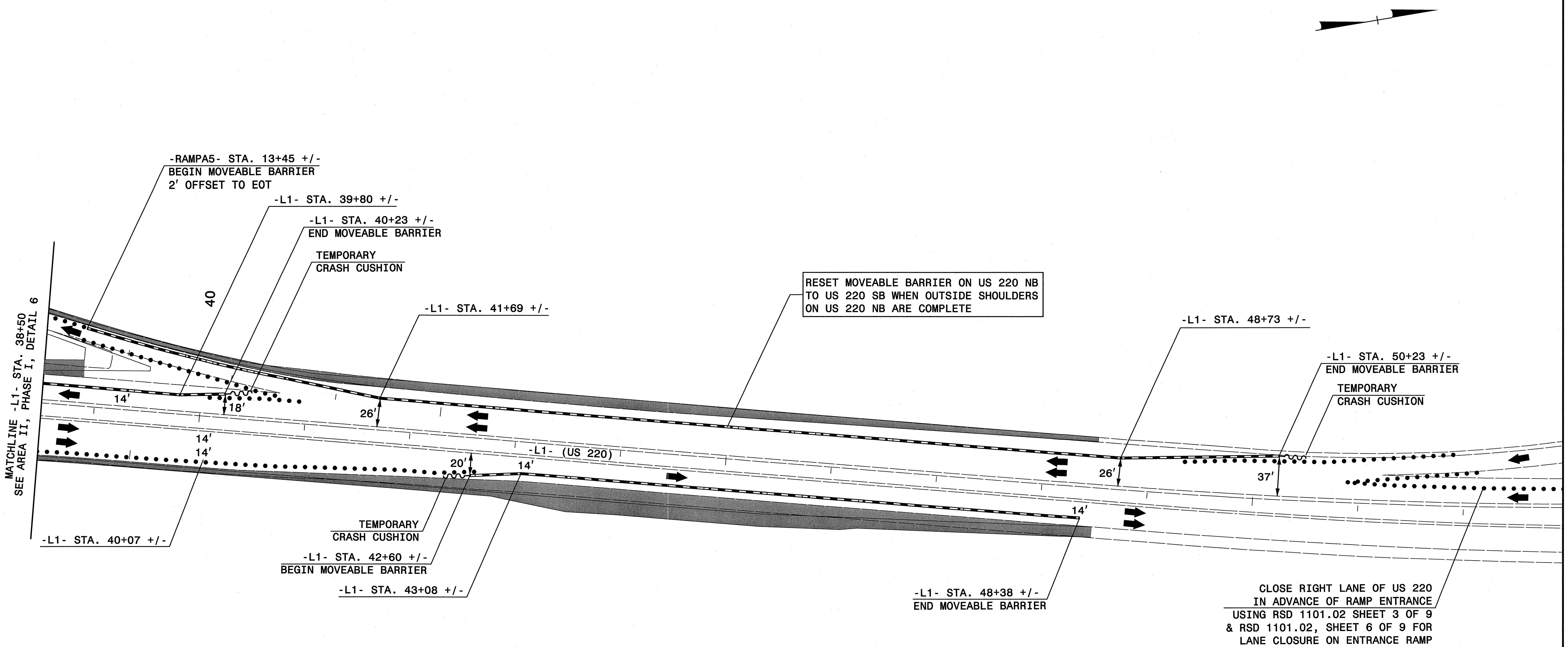
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-20



APPROVED: [signature] DATE: 2/22/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA II, PHASE I, DETAIL 7
SHEET 7 OF 7

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL UNIT

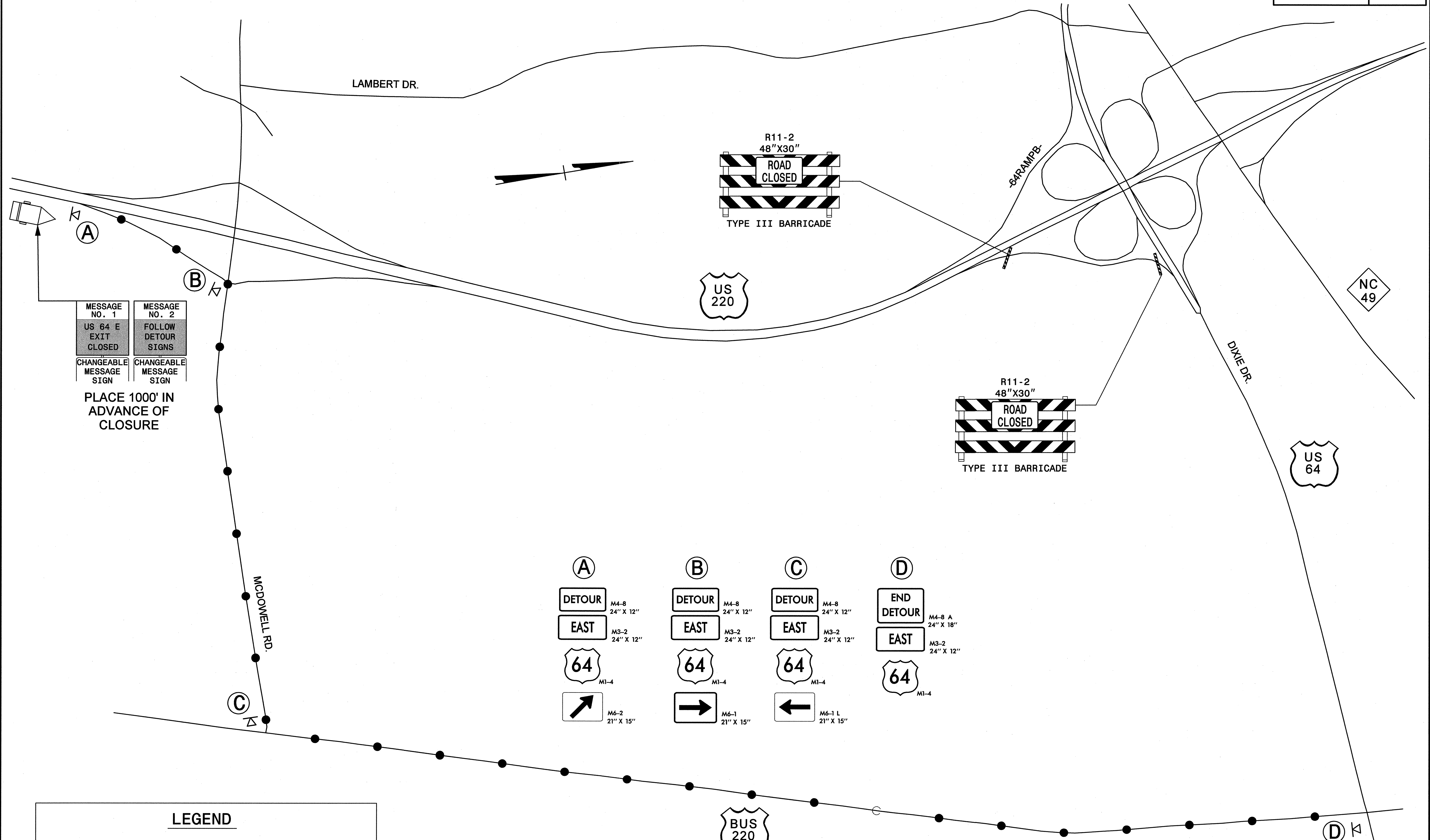
REVISIONS

CADD FILE

$$$$SYSTIME$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-20A



LAMBERT DR.
R11-2
48"X30"
ROAD CLOSED
TYPE III BARRICADE
-64RAMPB-
US 220
NC 49
DIXIE DR.
US 64
MESSAGE NO. 1
US 64 E EXIT CLOSED
CHANGEABLE MESSAGE SIGN
MESSAGE NO. 2
FOLLOW DETOUR SIGNS
CHANGEABLE MESSAGE SIGN
PLACE 1000' IN ADVANCE OF CLOSURE
MCDOWELL RD.
BUS 220
A
DETOUR
M4-8 24" X 12"
EAST
M3-2 24" X 12"
64
M1-4
M6-2 21" X 15"
B
DETOUR
M4-8 24" X 12"
EAST
M3-2 24" X 12"
64
M1-4
M6-1 21" X 15"
C
DETOUR
M4-8 24" X 12"
EAST
M3-2 24" X 12"
64
M1-4
M6-1 L 21" X 15"
D
END DETOUR
M4-8 A 24" X 18"
EAST
M3-2 24" X 12"
64
M1-4

LEGEND

● -64RAMPC-

DETOUR FOR -64RAMPC- CONSTRUCTION INCLUDING DRAINAGE INSTALLATION

APPROVED: [signature] DATE: 2/22/10

SEAL

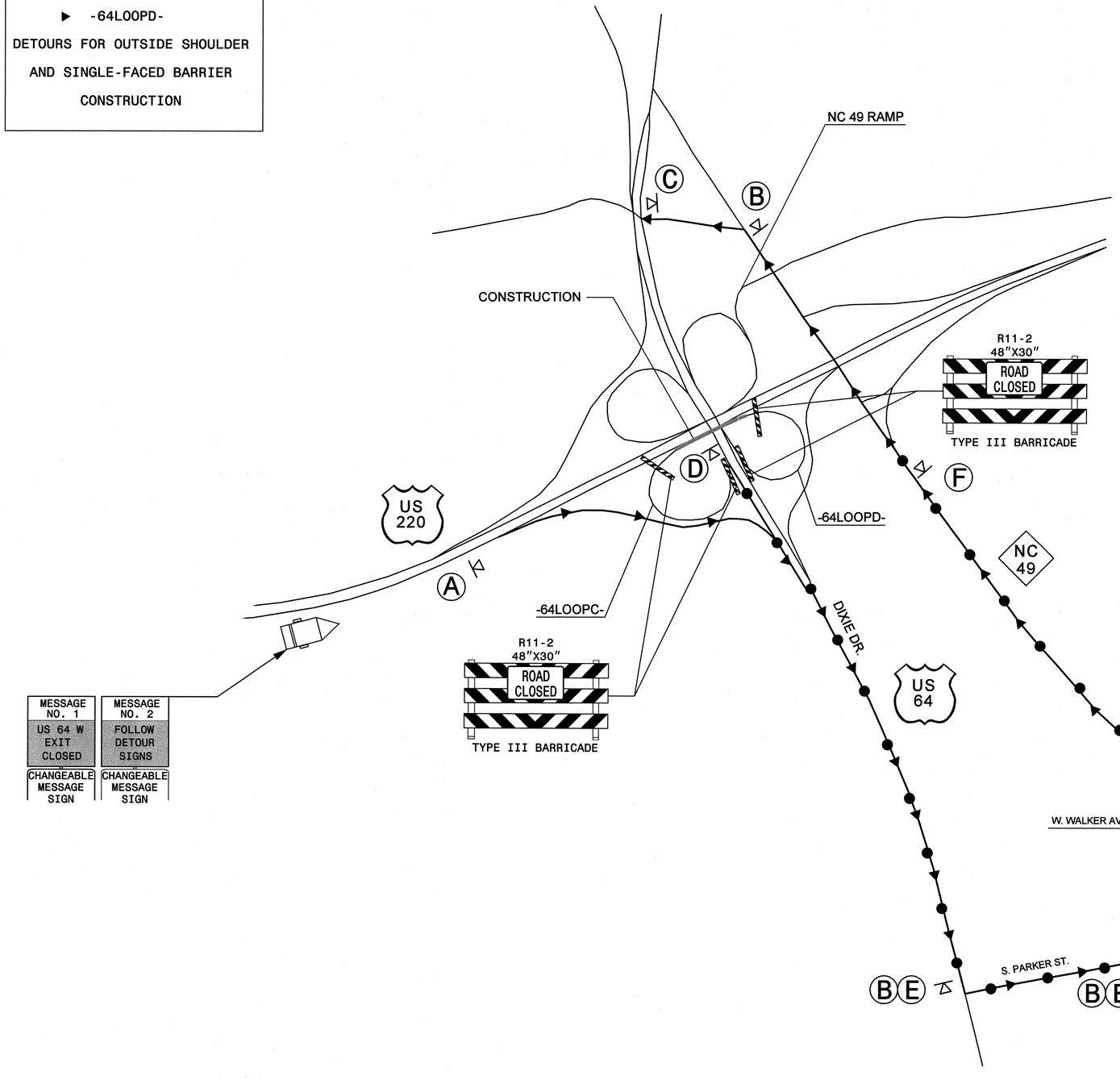
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

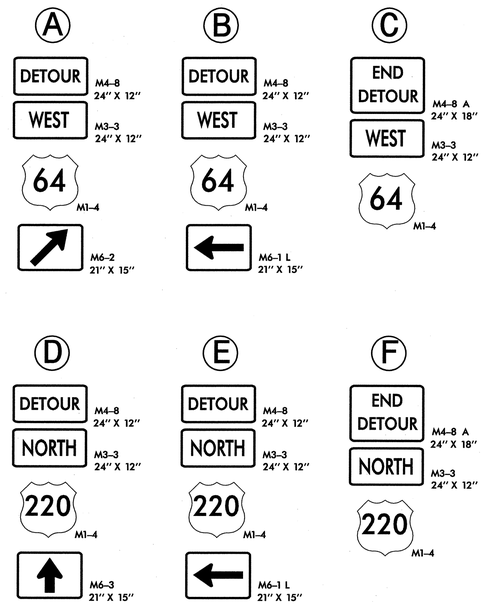
-64RAMPC-
OFFSITE DETOUR ROUTE

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$
$$$USERNAME$$$$





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Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-21

LEGEND

● -64LOOPC-

▶ -64LOOPD-

DETOURS FOR OUTSIDE SHOULDER AND SINGLE-FACED BARRIER CONSTRUCTION

APPROVED Michelle Ward DATE: 2/22/10

SEAL

SEAL 33789 MICHELLE WARD

-64LOOPC- & -64LOOPD-
OFFSITE DETOUR ROUTES

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	

REVISIONS

CADD FILE

$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$USERNAME$$$$

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C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-21A

LAMBERT DR.

R11-2
48"X30"
ROAD CLOSED
TYPE III BARRICADE

R11-2
48"X30"
ROAD CLOSED
TYPE III BARRICADE

-64RAMPB-

US 220

NC 49

DIXIE DR

US 64

MCDOWELL RD.

BUS 220

A

DETOUR M4-8 24" X 12"
SOUTH M3-3 24" X 12"
220 M1-4
M6-3 21" X 15"

B

DETOUR M4-8 24" X 12"
SOUTH M3-3 24" X 12"
220 M1-4
M6-1 21" X 15"

C

END DETOUR M4-8 A 24" X 18"
SOUTH M3-3 24" X 12"
220 M1-4

LEGEND

● -64RAMPB-

DETOUR FOR -64RAMPB- CONSTRUCTION INCLUDING DRAINAGE INSTALLATION

APPROVED: Michelle Ward DATE: 2/22/10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

-64RAMPB- OFFSITE DETOUR ROUTE

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH

REVISIONS

CADD FILE

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-22

LEGEND

▶ -64LOOPA-

■ -64LOOPB-

● -NC 49 RAMP-

DETOURS FOR OUTSIDE SHOULDER AND SINGLE-FACED BARRIER CONSTRUCTION

A

DETOUR M4-8 24" X 12"
EAST M3-3 24" X 12"
64 M1-4
M6-2 21" X 15"

B

DETOUR M4-8 24" X 12"
EAST M3-3 24" X 12"
64 M1-4
M6-1 21" X 15"

C

END DETOUR M4-8 A 24" X 18"
EAST M3-3 24" X 12"
64 M1-4

D

DETOUR M4-8 24" X 12"
SOUTH M3-3 24" X 12"
220 M1-4
M6-3 21" X 15"

E

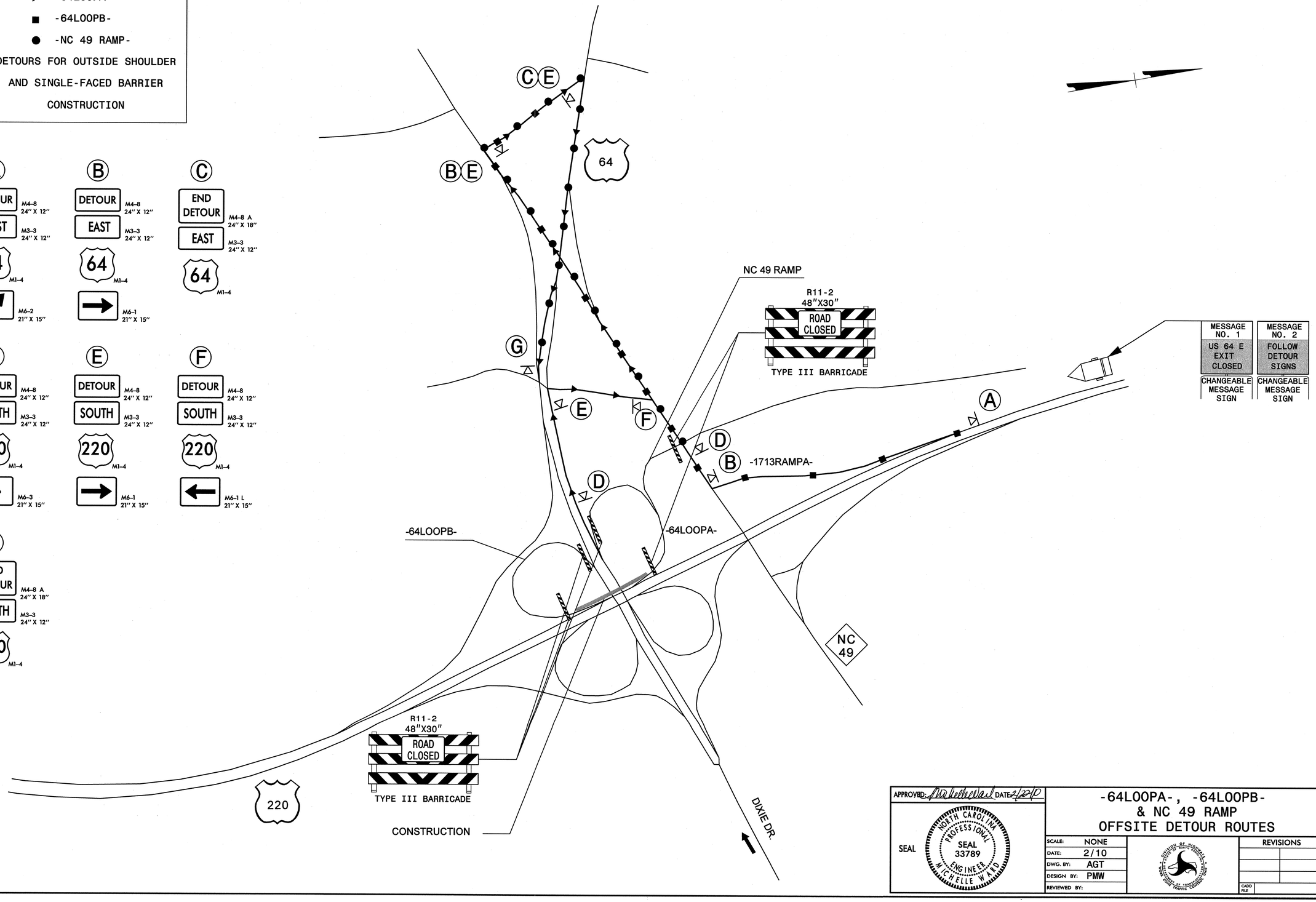
DETOUR M4-8 24" X 12"
SOUTH M3-3 24" X 12"
220 M1-4
M6-1 21" X 15"

F

DETOUR M4-8 24" X 12"
SOUTH M3-3 24" X 12"
220 M1-4
M6-1 L 21" X 15"

G

END DETOUR M4-8 A 24" X 18"
SOUTH M3-3 24" X 12"
220 M1-4



APPROVED: Michelle Ward DATE: 2/22/10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

-64LOOPA-, -64LOOPB- & NC 49 RAMP OFFSITE DETOUR ROUTES

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	

REVISIONS

CADD FILE

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$USERNAME$$$$$$DGN$$$$$$$$$$$$$$$$$$$$

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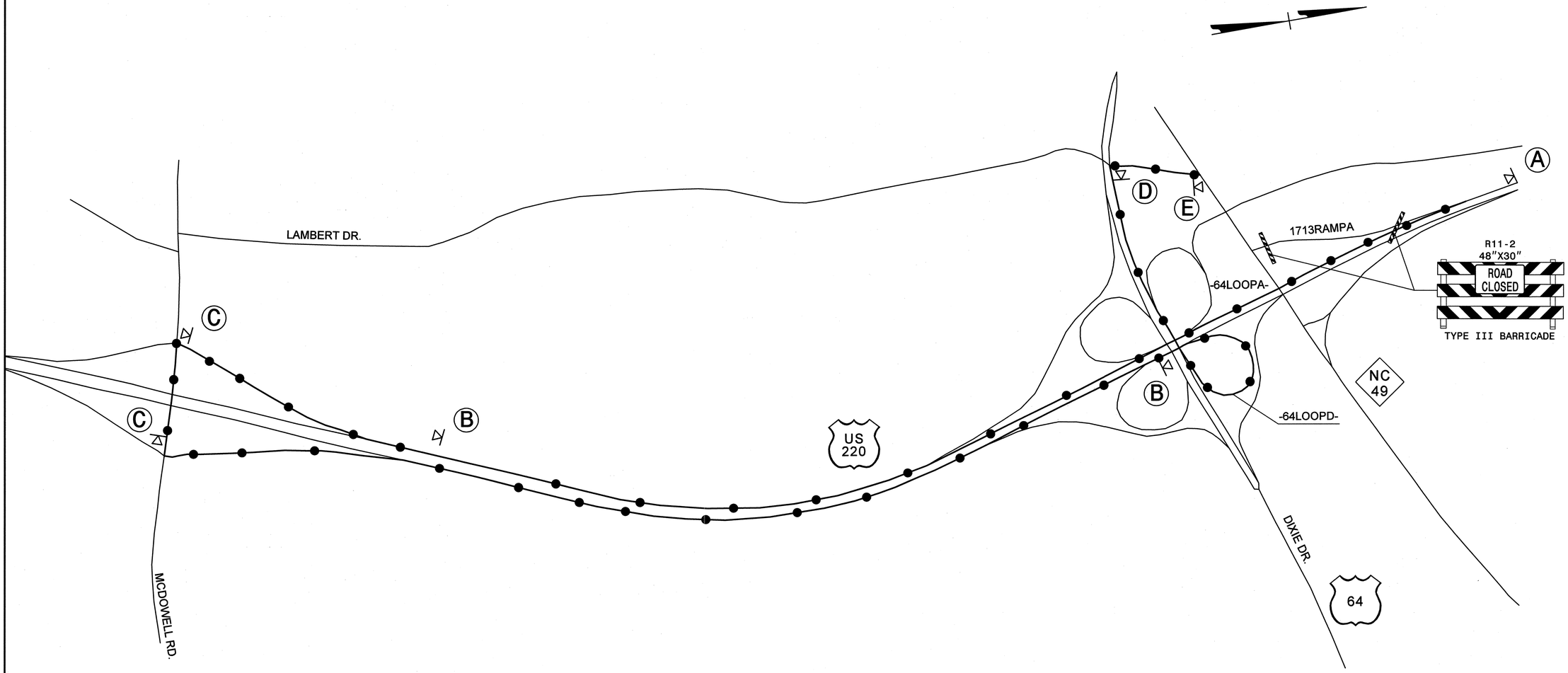
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-23

LEGEND

● -1713RAMPA-
DETOUR FOR RAMP COMPLETION
& DRAINAGE INSTALLATION



A
DETOUR M4-8 24" X 12"
49 M1-5 24" x 24"
M6-3 21" X 15"

B
DETOUR M4-8 24" X 12"
49 M1-5 24" x 24"
M6-2 21" X 15"

C
DETOUR M4-8 24" X 12"
49 M1-5 24" x 24"
M6-1 L 21" X 15"

D
DETOUR M4-8 24" X 12"
49 M1-5 24" x 24"
M6-1 21" X 15"

E
END DETOUR M4-8 A 24" X 18"
49 M1-5 24" x 24"

$$$$$$SYSTIME$$$$$$
$$$$$$USERNAME$$$$$$DGN$$$$$$$$$$$$$$$$$$$$

APPROVED: Michelle Ward DATE: 4/22/10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

-1713RAMPA-
OFFSITE DETOUR ROUTE

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	

DIVISION OF HIGHWAYS - TRAFFIC ENGINEERING BRANCH - TRAFFIC CONTROL UNIT

REVISIONS	
CADD FILE	

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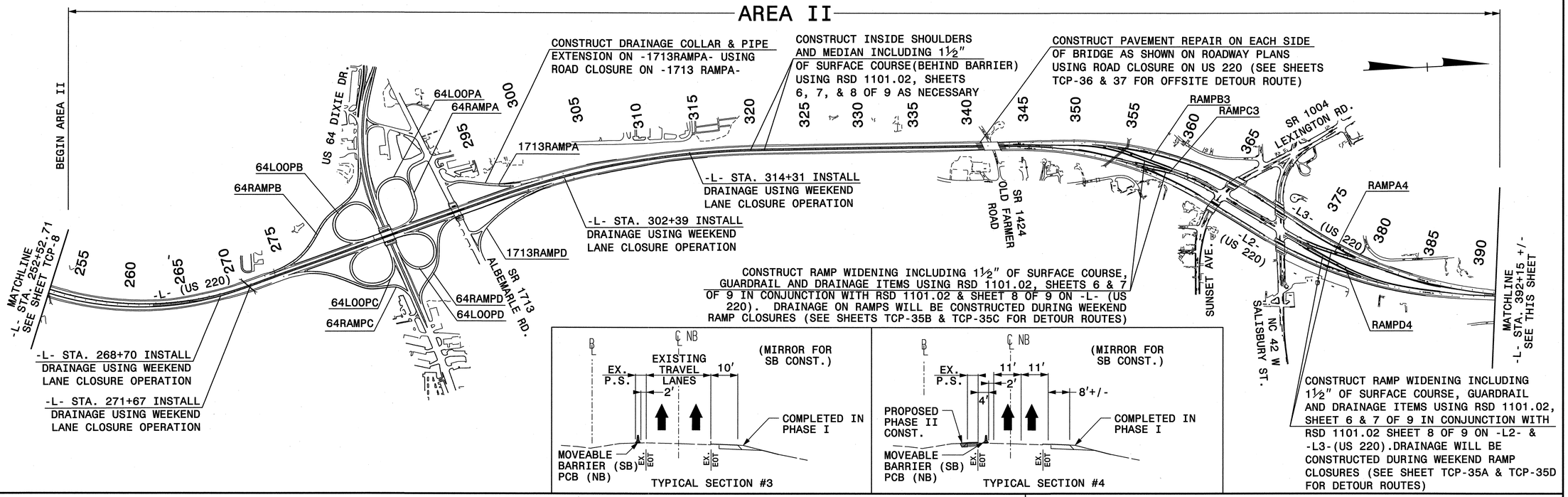
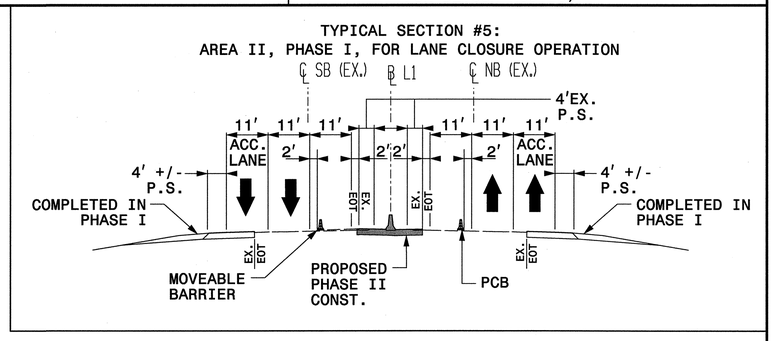
Raleigh, North Carolina 27609
C-1554

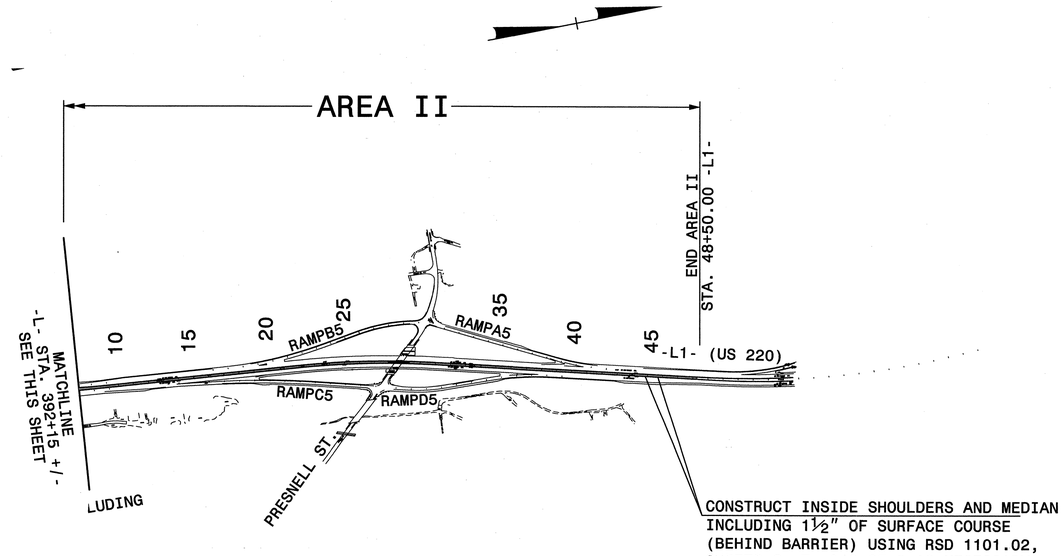
PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-24



TYPICAL SECTION #3

TYPICAL SECTION #4





CONSTRUCT INSIDE SHOULDERS AND MEDIAN INCLUDING 1½" OF SURFACE COURSE (BEHIND BARRIER) USING RSD 1101.02, SHEETS 6, 7, & 8 OF 9 AS NECESSARY

APPROVED: Michelle Ward DATE: 2/22/10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA II, PHASE II OVERVIEW
SHEET 1 OF 1

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	DCK

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION TRAFFIC CONTROL

REVISIONS	
CADD FILE	

$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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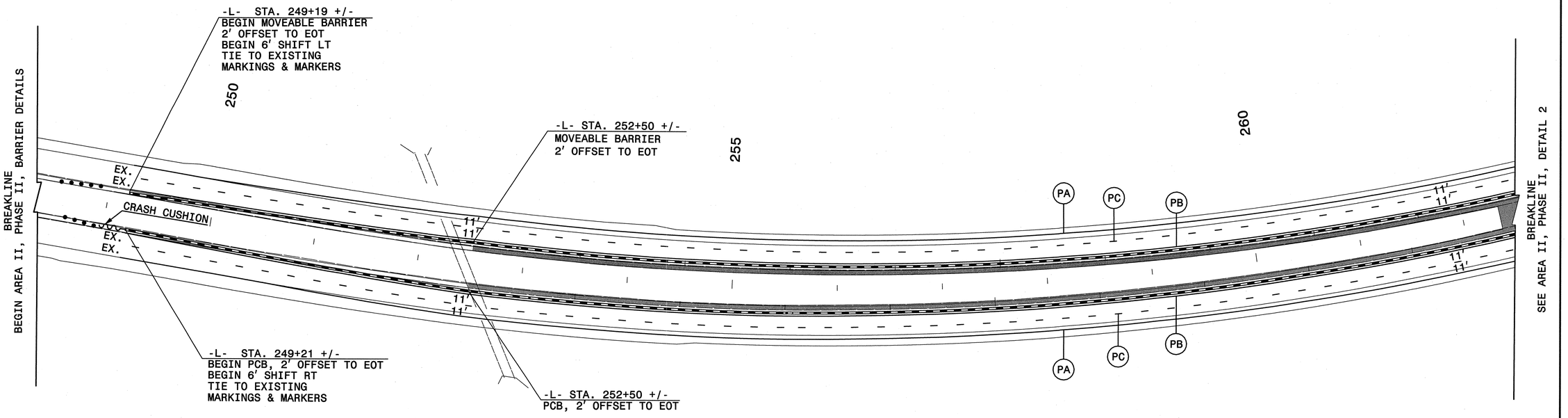
PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-25



$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$$$

APPROVED: Michelle Ward DATE: 2/2/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA II, PHASE II, DETAIL 1
SHEET 1 OF 11

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH

REVISIONS	
CADD FILE	

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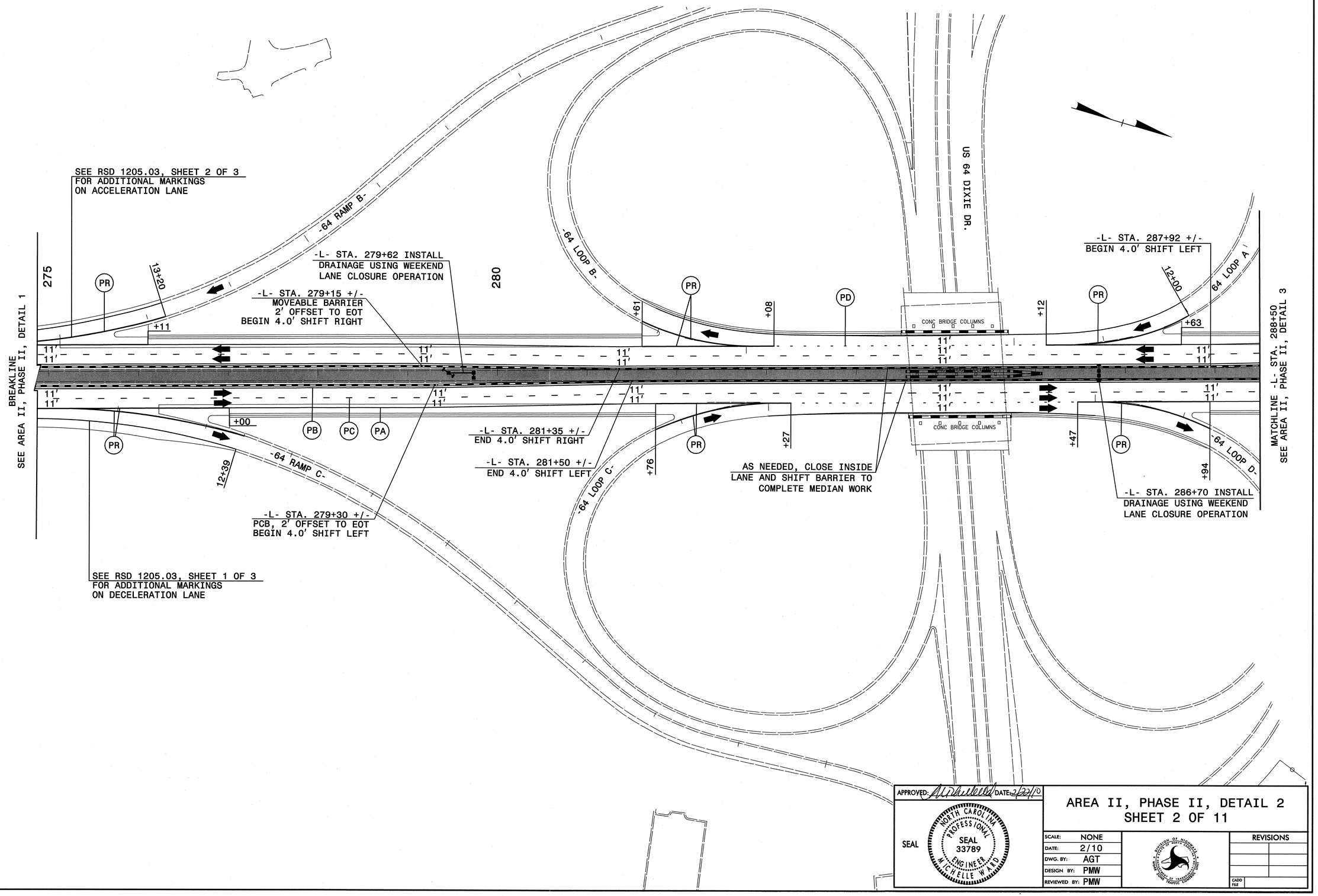
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-26



APPROVED: _____ DATE: 2/22/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA II, PHASE II, DETAIL 2
SHEET 2 OF 11

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS

CADD FILE

$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-27

MATCHLINE -L- STA. 288+50
SEE AREA II, PHASE II, BARRIER DETAIL 2

SR 1713 ALBEMARLE RD.

-1713 RAMP A-

290

295

300

-L- STA. 290+12 +/-
MOVEABLE BARRIER
2' OFFSET TO EOT
END 4.0' SHIFT LEFT

-L- STA. 294+83 INSTALL
DRAINAGE USING WEEKEND
LANE CLOSURE OPERATION

-L- STA. 297+04 INSTALL
DRAINAGE USING WEEKEND
LANE CLOSURE OPERATION

SEE RSD 1205.03, SHEET 1 OF 3
FOR ADDITIONAL MARKINGS
ON DECELERATION LANE

CONC BRIDGE COLUMNS

CONC BRIDGE COLUMNS

-L- (US 220)

-64 RAMP D-

-1713 RAMP D-

PA PC PB PR PD QC

+35 +61 +45 +39 +66 +05 +30

11'

AS NEEDED, CLOSE INSIDE
LANE AND SHIFT BARRIER TO
COMPLETE MEDIAN WORK

-L- STA. 297+20 +/-
BEGIN 4.0' SHIFT RIGHT

-L- STA. 299+40 +/-
PCB, 2' OFFSET TO EOT
END 4.0' SHIFT RIGHT

SEE RSD 1205.03, SHEET 2 OF 3
FOR ADDITIONAL MARKINGS
ON ACCELERATION LANE

BREAKLINE
SEE AREA II, PHASE II, BARRIER DETAIL 4

END PROPOSED
WOVEN WIRE FENCE

$$$$SYSTIME$$$$ $$$$DGN$$$$ $$$$USERNAME$$$$

APPROVED: Michelle Ward DATE: 2/22/10

SEAL
NORTH CAROLINA PROFESSIONAL
SEAL 33789 ENGINEER
MICHELLE WARD

AREA II, PHASE II, DETAIL 3
SHEET 3 OF 11

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

DIVISION OF HIGHWAYS
TRAFFIC ENGINEERING BRANCH
TRAFFIC CONTROL UNIT

REVISIONS

CADD FILE

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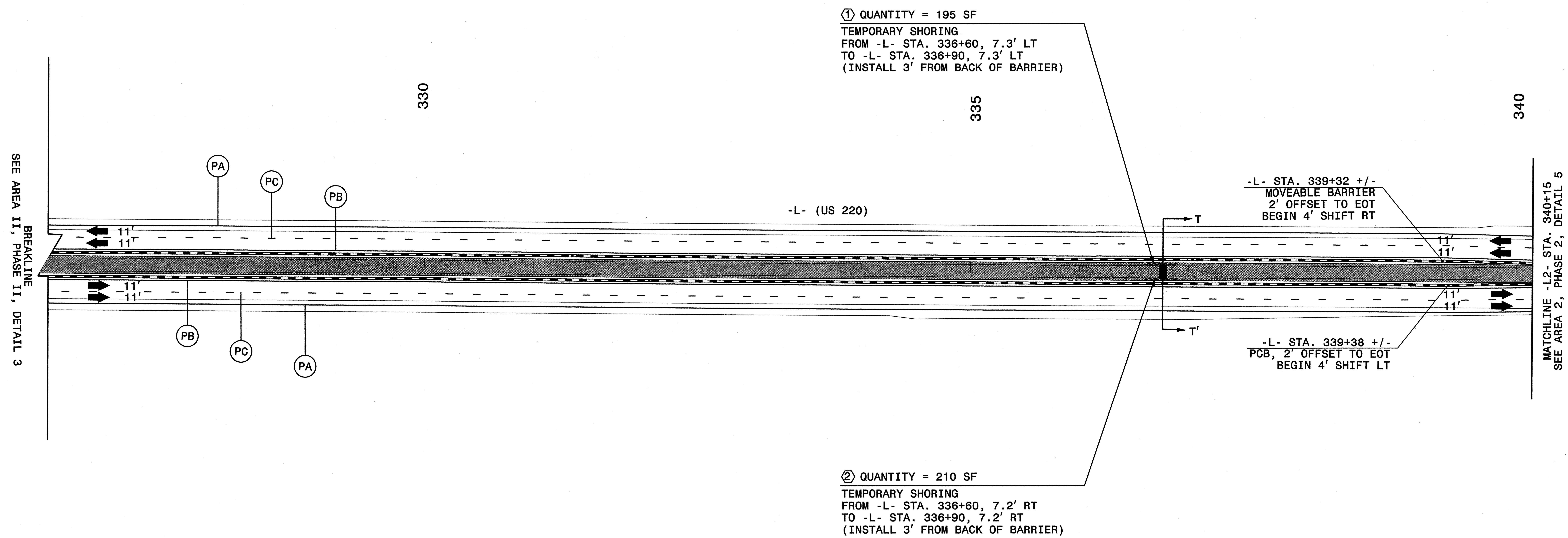
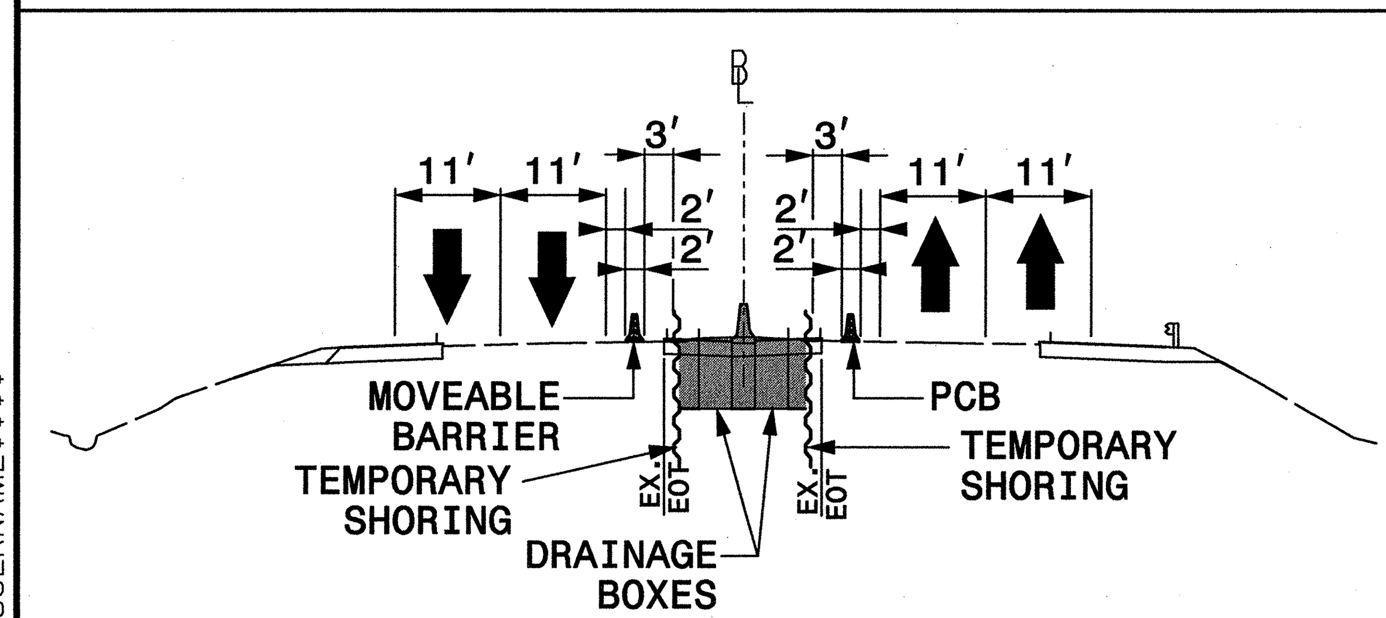
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-28





TYPICAL SHORING SECTION (SECTION T-T')

SHORING LOCATIONS:
STA. 336+60 +/- -L- LT & RT TO STA. 336+90 +/- -L- LT & RT
STA. 347+77 +/- -L2- LT TO STA. 348+07 +/- -L2- LT
STA. 347+79 +/- -L3- RT TO STA. 348+09 +/- -L3- RT
STA. 348+72 +/- -L2- LT TO STA. 349+02 +/- -L2- LT
STA. 348+72 +/- -L3- RT TO STA. 349+02 +/- -L3- RT

APPROVED: DATE:

SEAL — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33789 MICHELLE WARD

AREA II, PHASE II, DETAIL 4
SHEET 4 OF 11

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS

$$$$SYSTIME$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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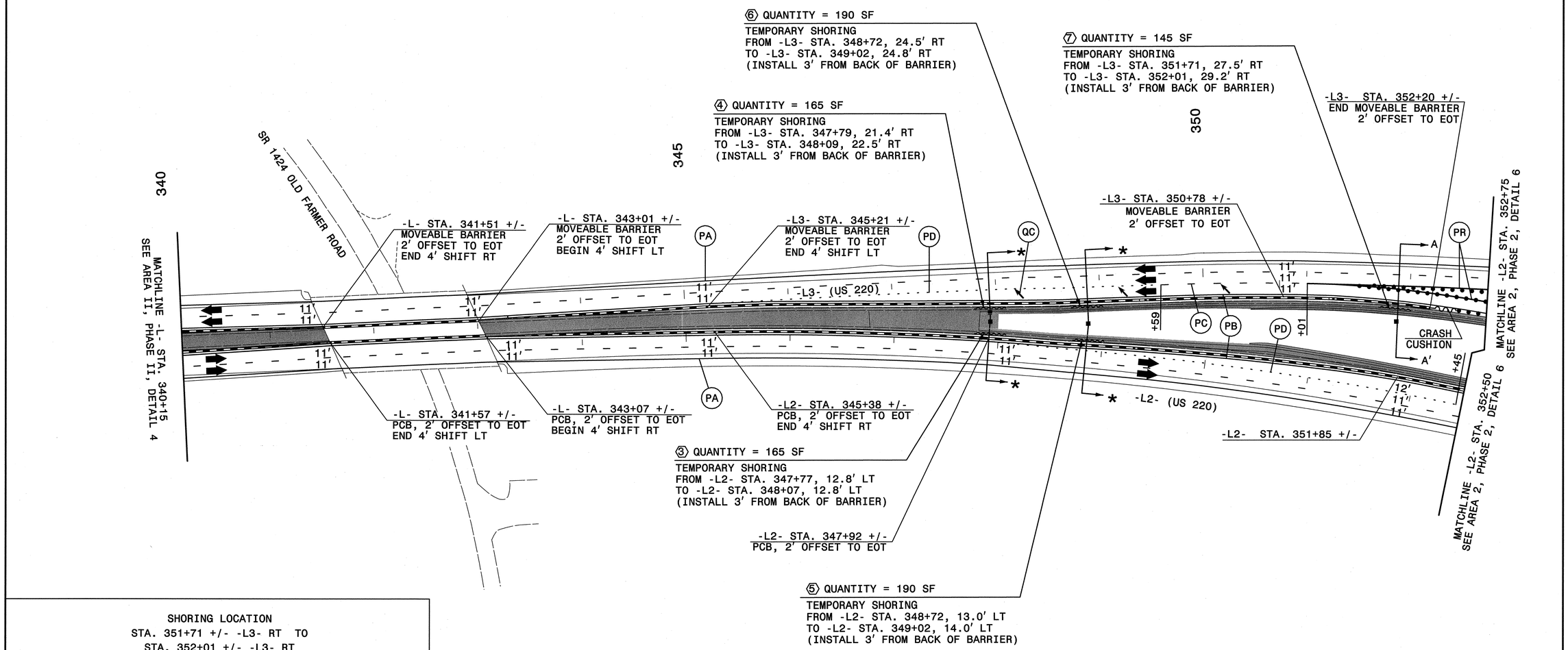
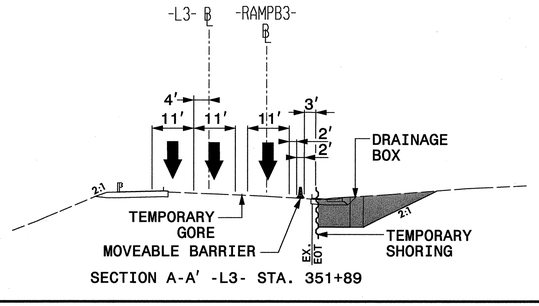
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-29



SHORING LOCATION
STA. 351+71 +/- -L3- RT TO
STA. 352+01 +/- -L3- RT



* REFER TO TYPICAL SECTION T-T' ON SHEET TCP-28

APPROVED: [signature] DATE: 3/24/10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA II, PHASE II, DETAIL 5
SHEET 5 OF 11

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

DIVISION OF HIGHWAYS - NORTH CAROLINA DEPARTMENT OF TRANSPORTATION - TRAFFIC ENGINEERING BRANCH

REVISIONS	
CADD FILE	

$$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$

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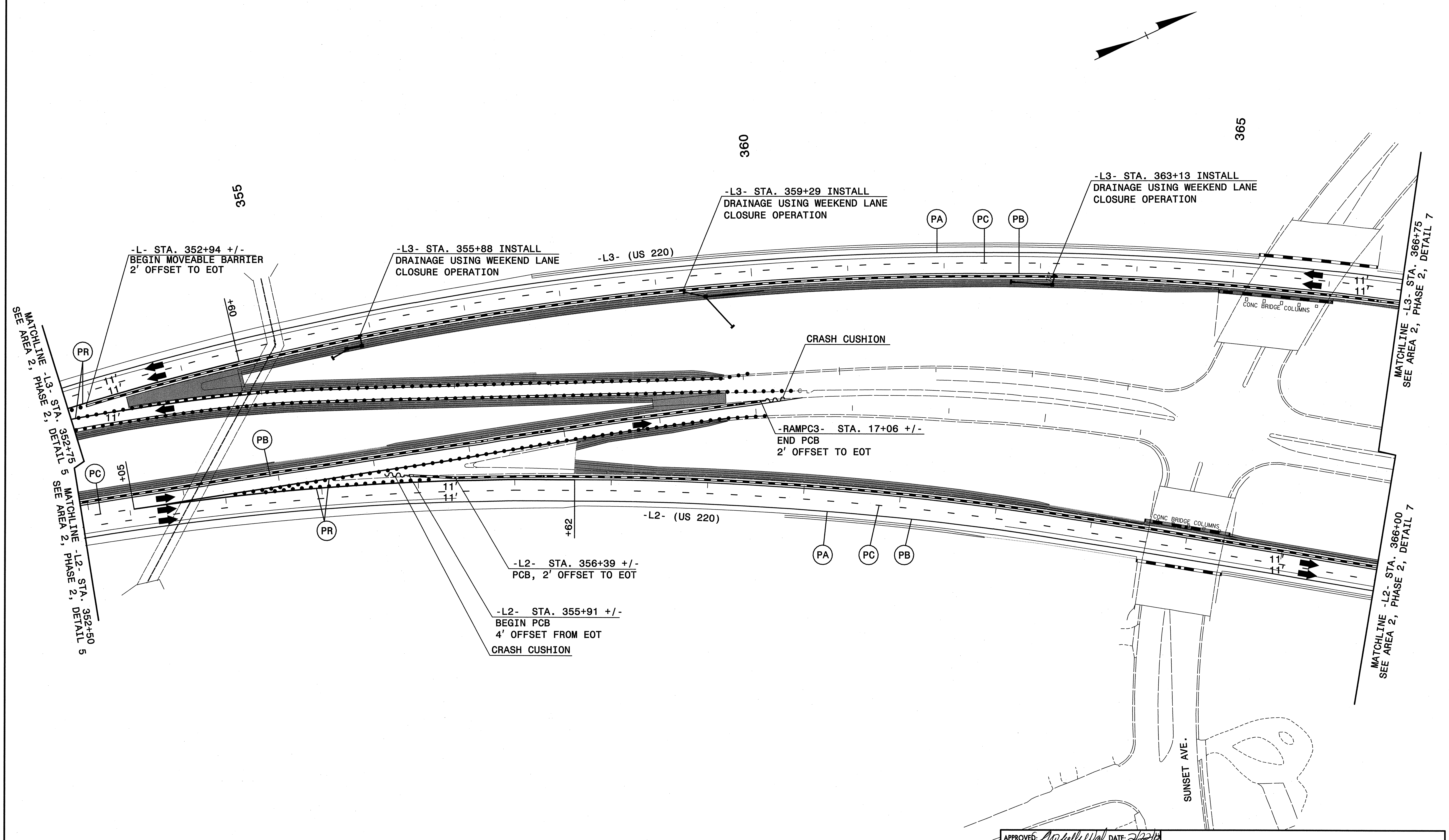
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-30



APPROVED: [signature] DATE: 2/22/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA II, PHASE II, DETAIL 6
SHEET 6 OF 11

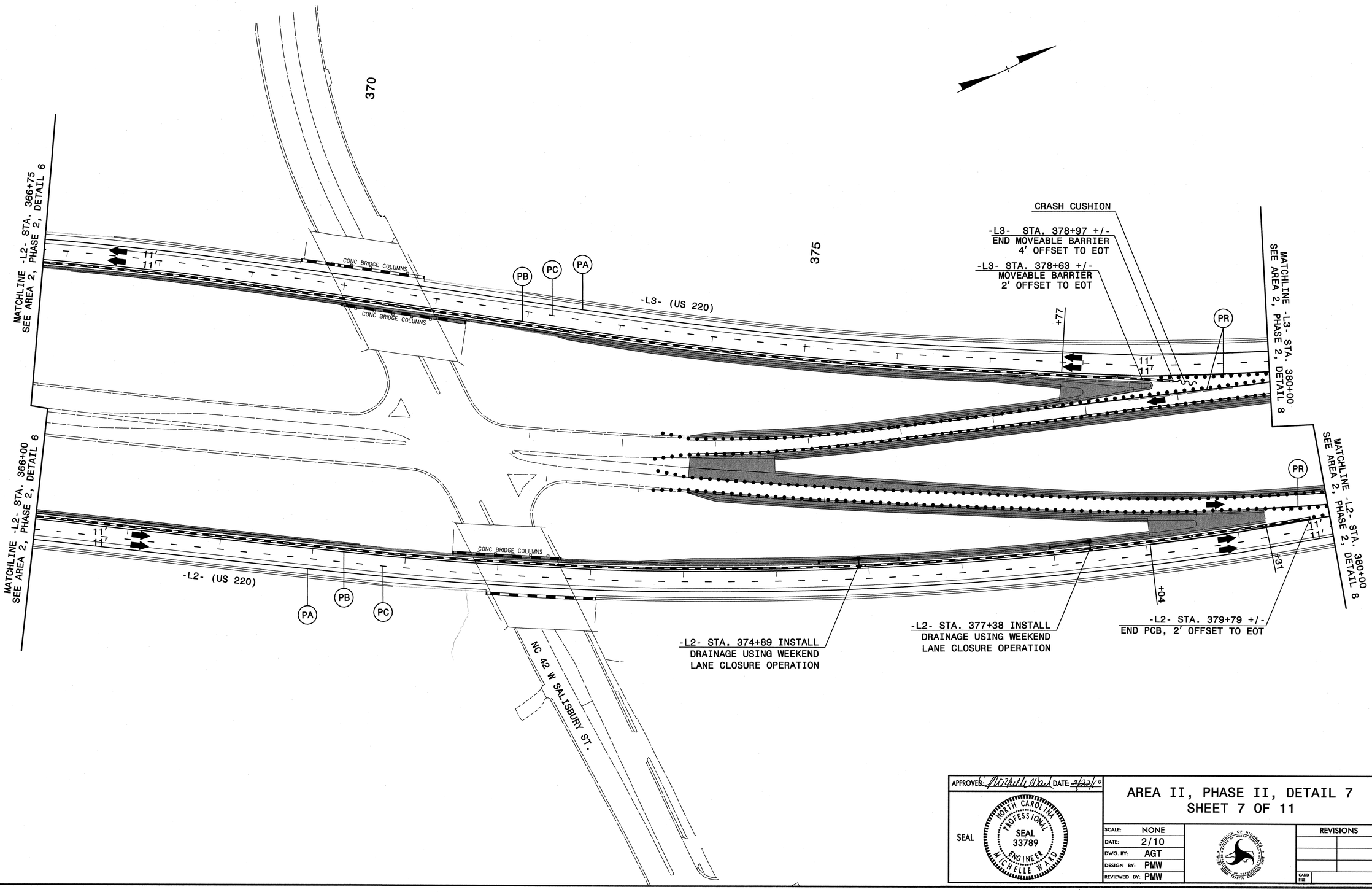
SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS

$$$$SYSTIME$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-31



APPROVED: Michelle Ward DATE: 2/22/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA II, PHASE II, DETAIL 7
SHEET 7 OF 11

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

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

REVISIONS	
CADD FILE	

$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$

HNTB NORTH CAROLINA, P.C.
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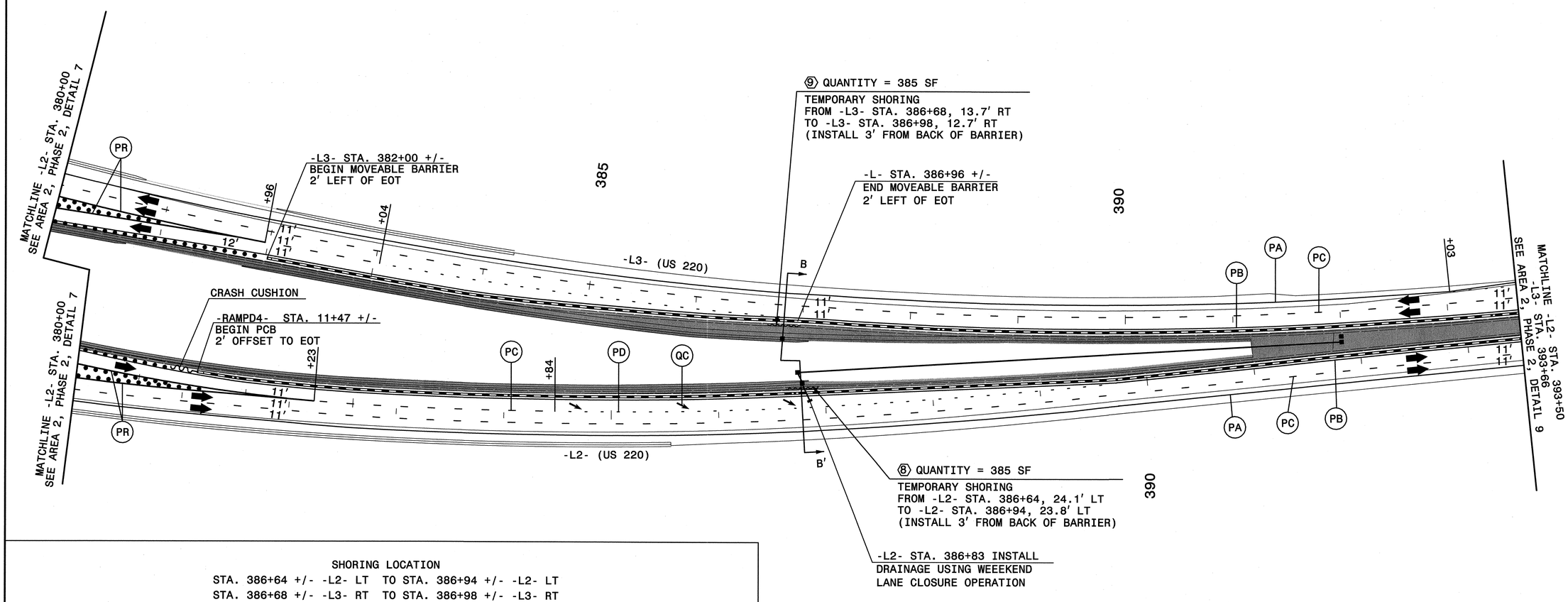
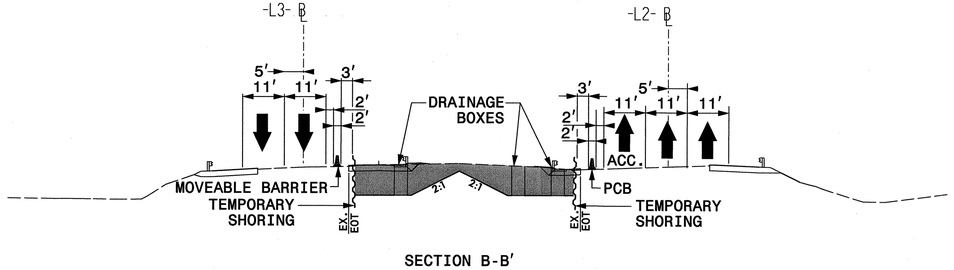
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-32



SHORING LOCATION

STA. 386+64 +/- -L2- LT TO STA. 386+94 +/- -L2- LT
STA. 386+68 +/- -L3- RT TO STA. 386+98 +/- -L3- RT



SECTION B-B'

APPROVED Michelle Ward DATE: 2/22/10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE W. WARD

AREA II, PHASE II, DETAIL 8
SHEET 8 OF 11

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

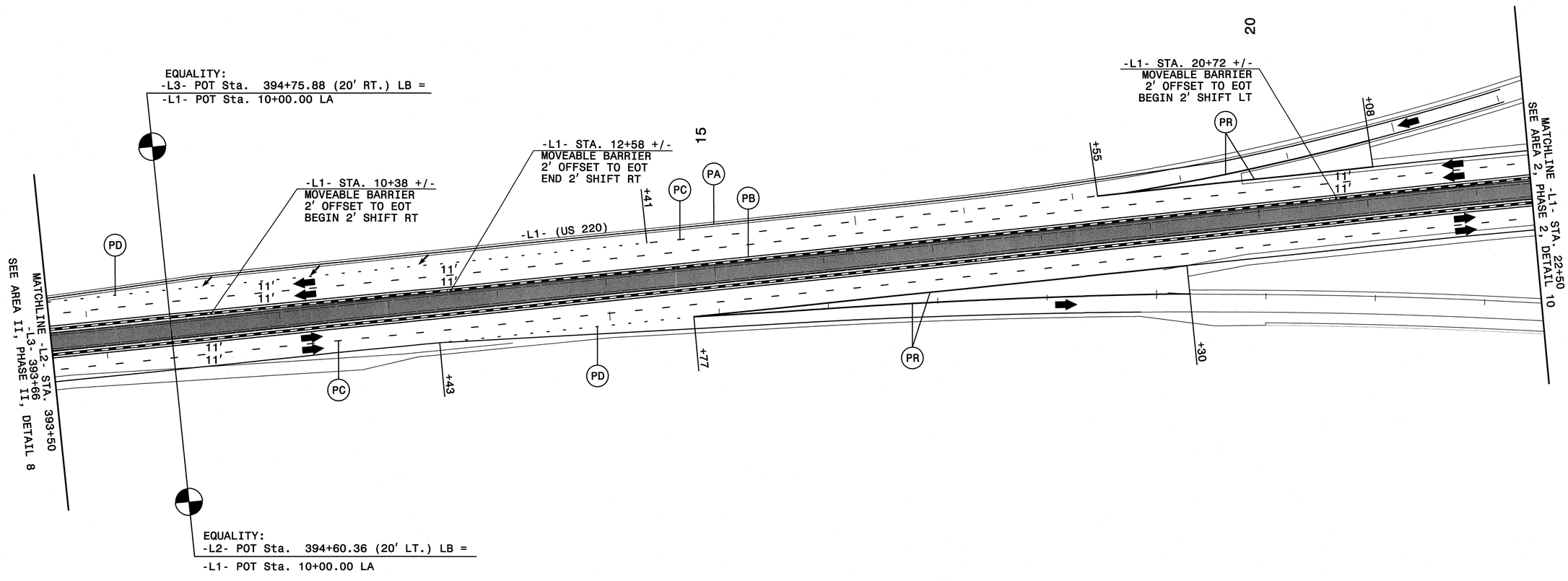
REVISIONS

CADD FILE

$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$DGN$$$$$$$$
$$$$$$$$USERNAME$$$$$$$$

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-33



APPROVED: _____ DATE: 2/21/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA II, PHASE II, DETAIL 9
SHEET 9 OF 11

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH TRAFFIC CONTROL UNIT

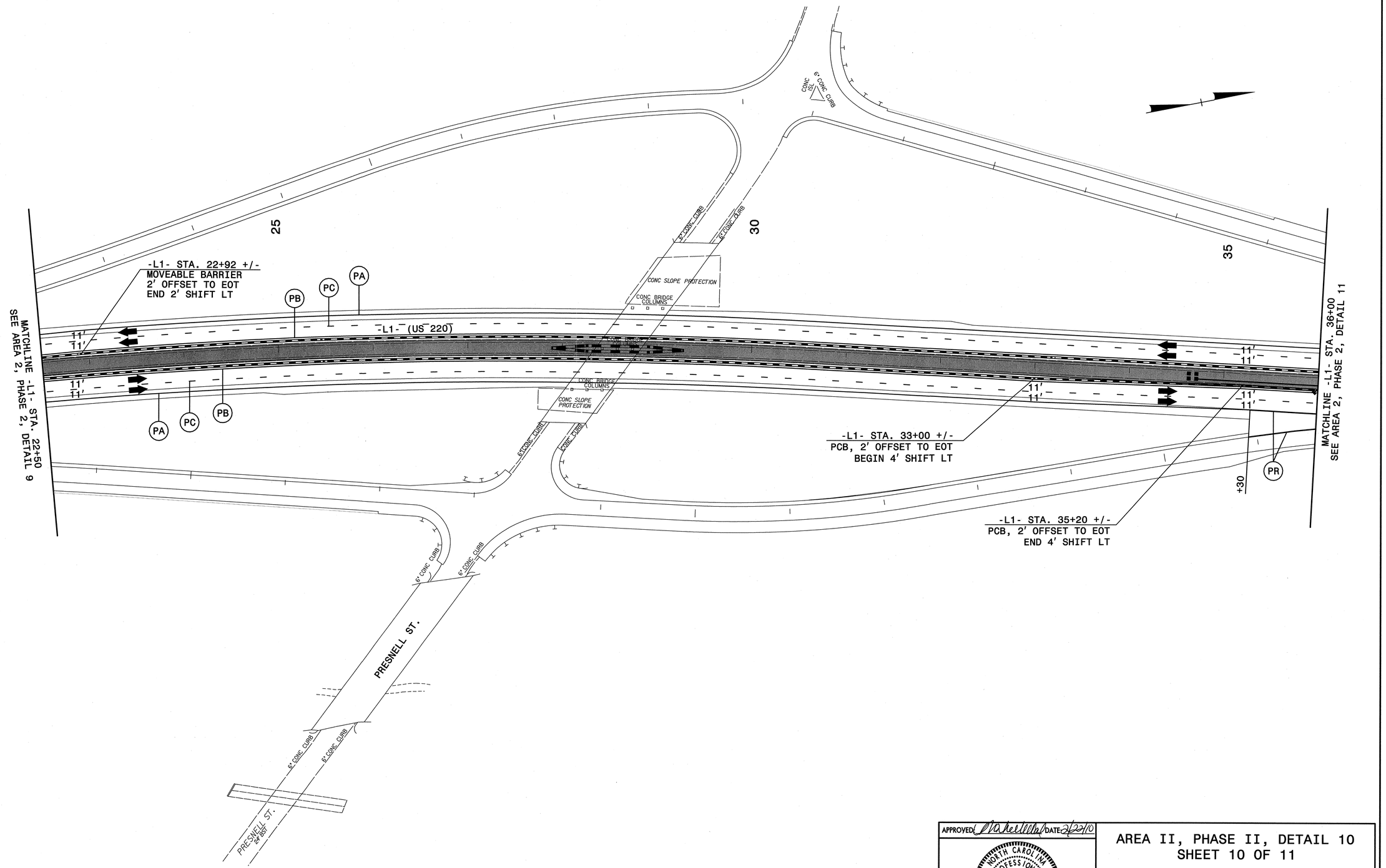
REVISIONS

CADD FILE

$$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-34



APPROVED: _____ DATE: 2/22/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA II, PHASE II, DETAIL 10
SHEET 10 OF 11

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

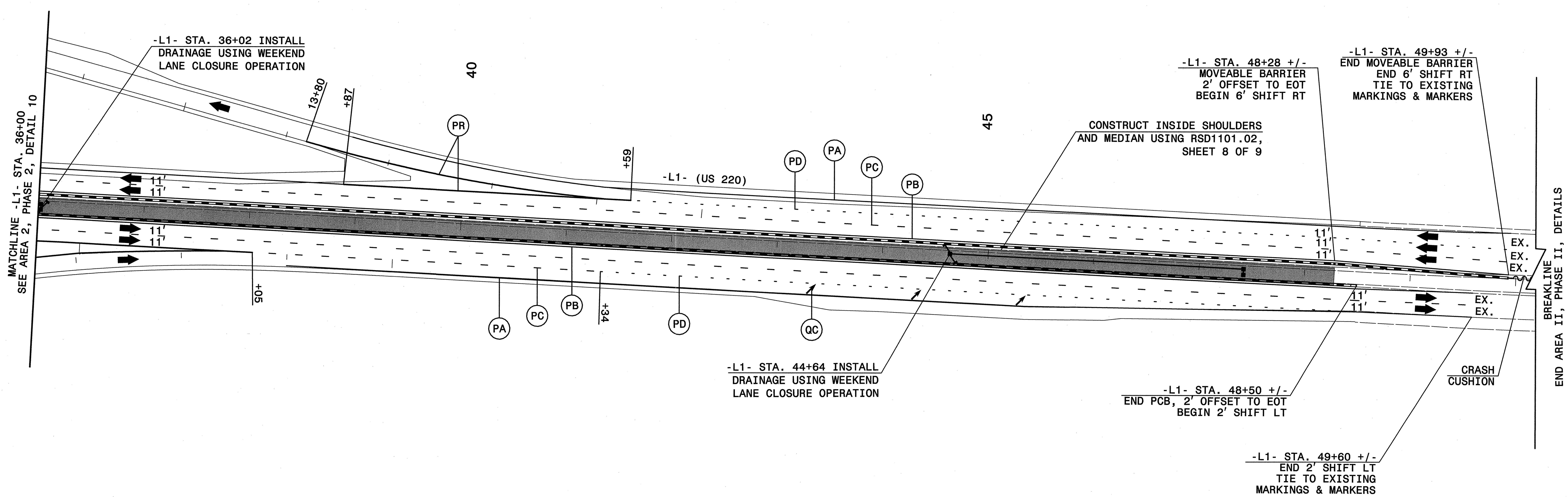
DIVISION OF HIGHWAYS - TRAFFIC ENGINEERING BRANCH - NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

REVISIONS	
CADD FILE	

$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-35



APPROVED: [signature] DATE: 2/22/10

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33789 MICHELLE WARD

AREA II, PHASE II, DETAIL 11
SHEET 11 OF 11

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS

CADD FILE

$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$$$

HNTB NORTH CAROLINA, P.C.
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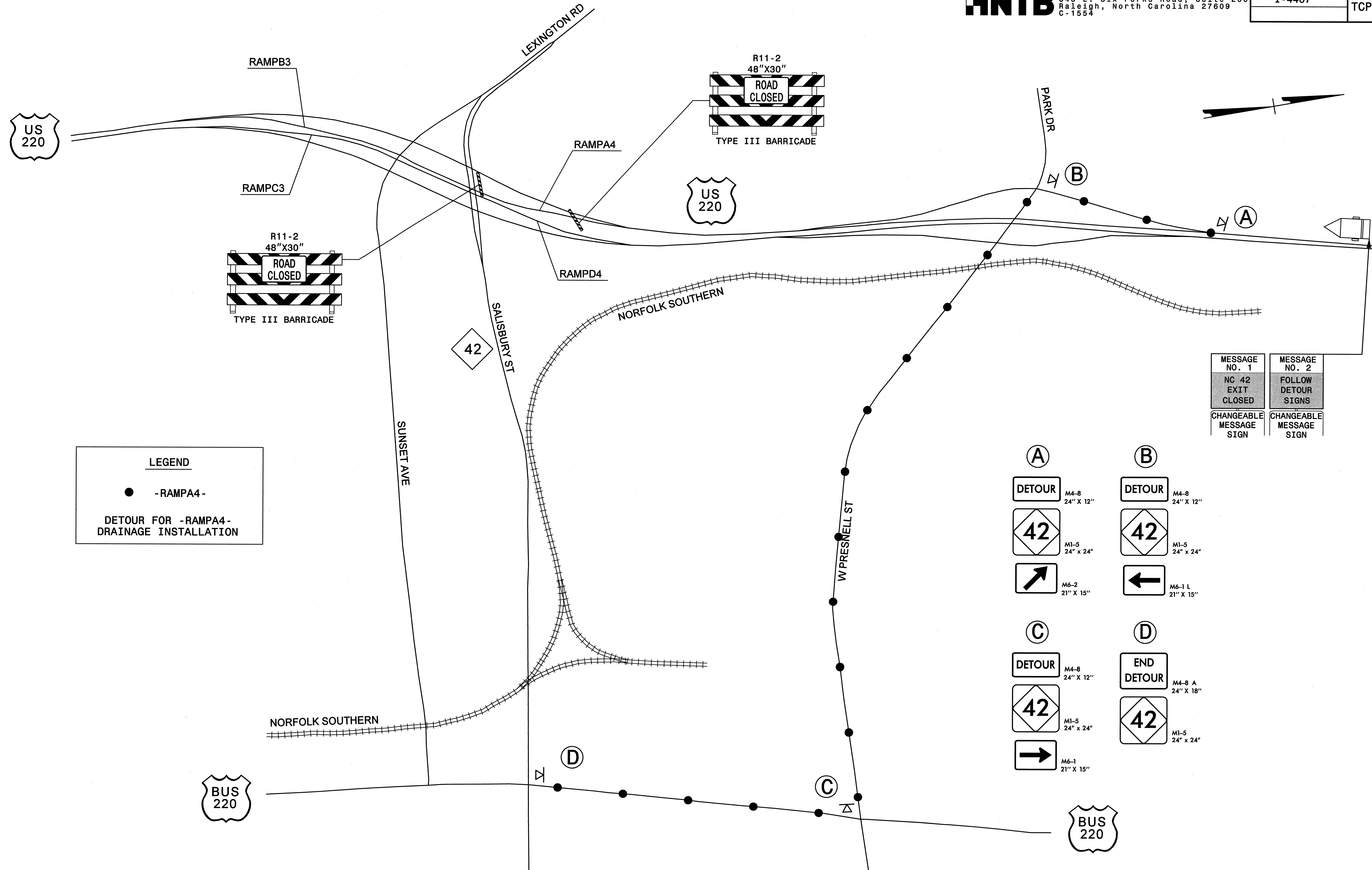
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-35A



APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33789 MICHELLE WARD

-RAMPA4- OFFSITE DETOUR ROUTE

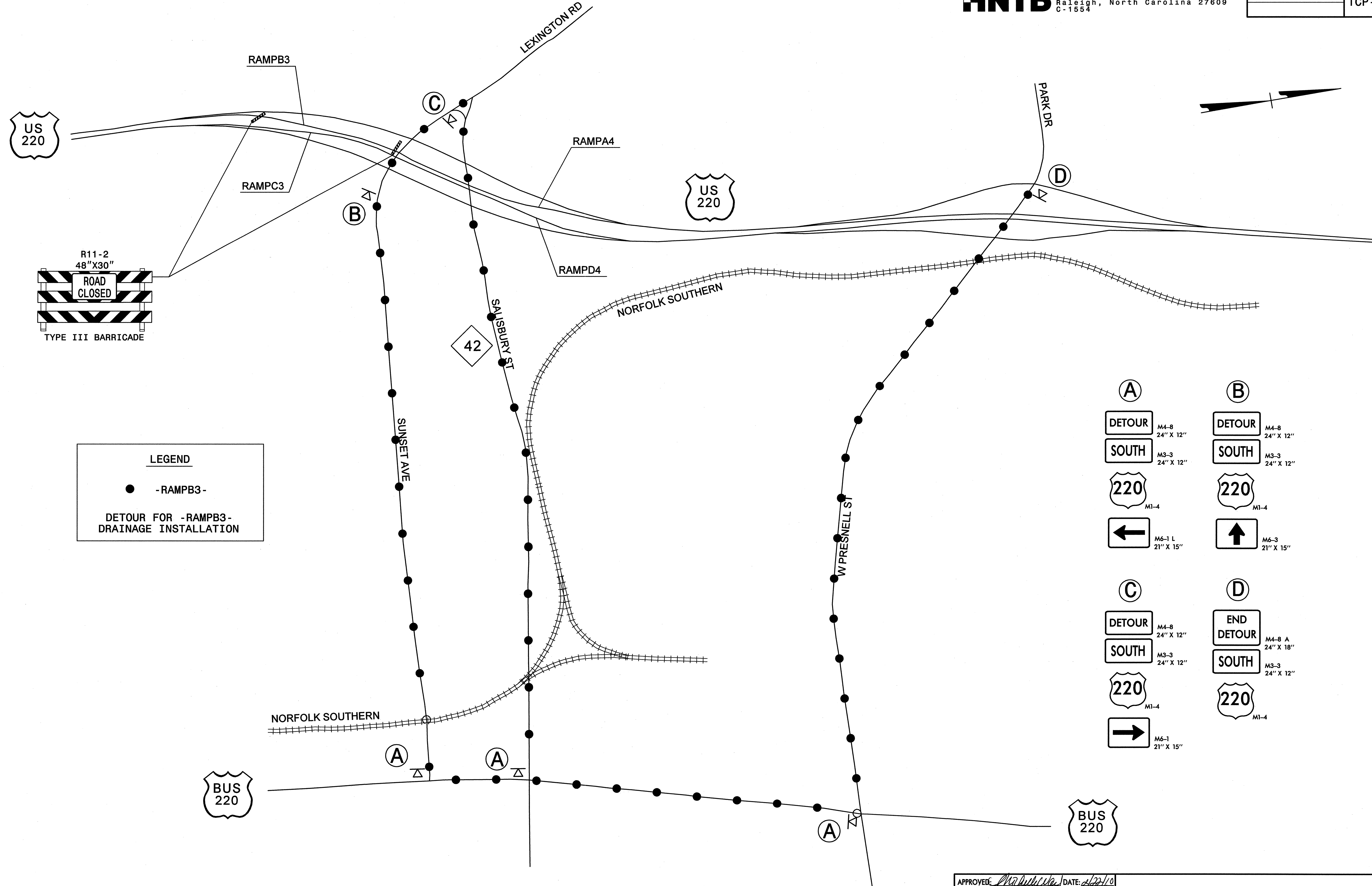
SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS

$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-35B



APPROVED: [signature] DATE: 2/22/10

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33789 MICHELLE WARD

-RAMPB3-
OFFSITE DETOUR ROUTE

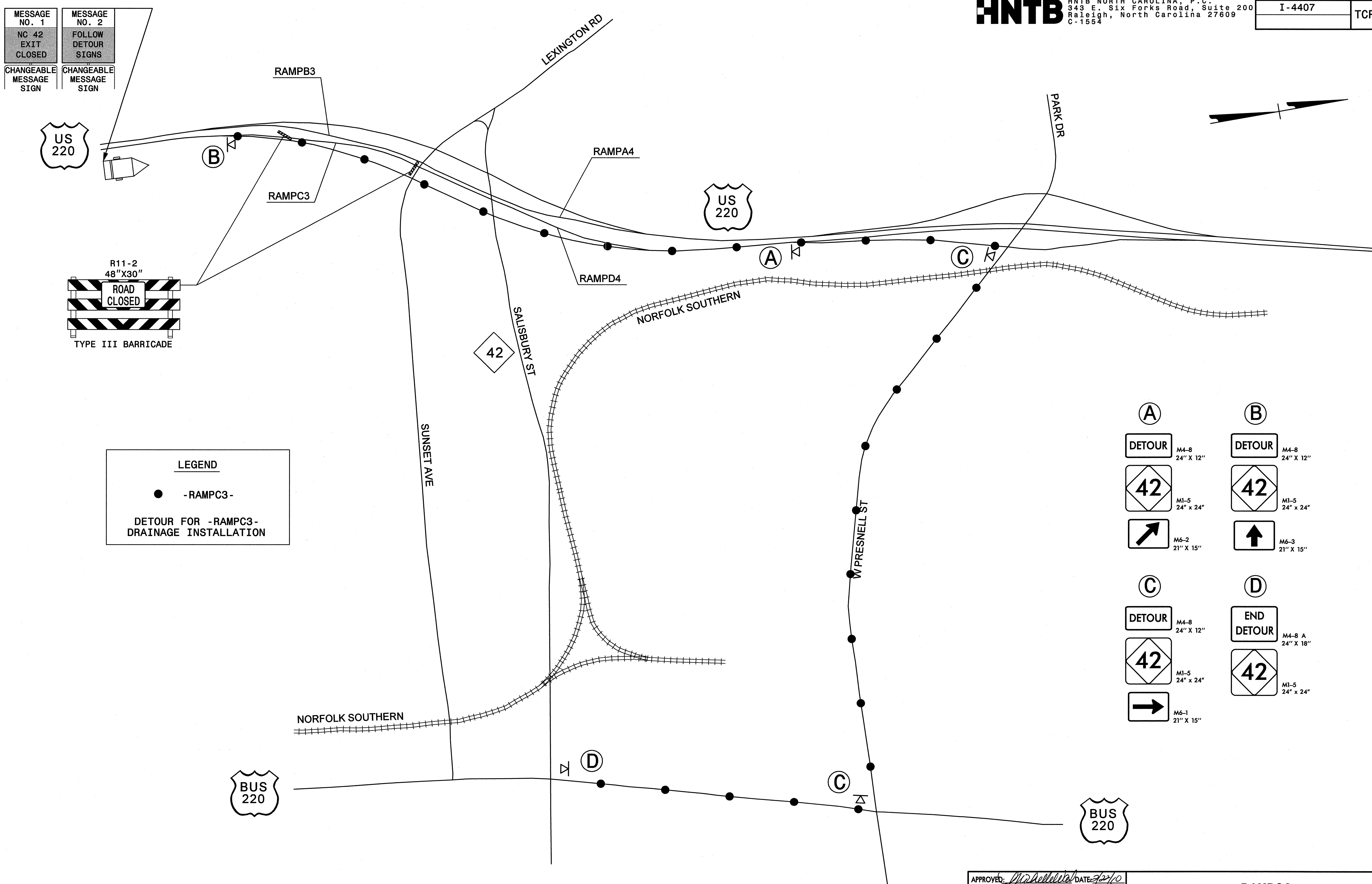
SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS

CADD FILE

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-35C



MESSAGE NO. 1
NC 42 EXIT CLOSED
CHANGEABLE MESSAGE SIGN
MESSAGE NO. 2
FOLLOW DETOUR SIGNS
CHANGEABLE MESSAGE SIGN
US 220
RAMPB3
RAMPC3
RAMPA4
RAMPD4
LEXINGTON RD
PARK DR
R11-2
48"X30"
ROAD CLOSED
TYPE III BARRICADE
NORFOLK SOUTHERN
SALISBURY ST
42
SUNSET AVE
W PRESNELL ST
BUS 220
LEGEND
-RAMPC3-
DETOUR FOR -RAMPC3- DRAINAGE INSTALLATION
A
DETOUR
M4-8 24" X 12"
M1-5 24" x 24"
M6-2 21" X 15"
B
M6-3 21" X 15"
C
M6-1 21" X 15"
D
END DETOUR
M4-8 A 24" X 18"

APPROVED: [signature] DATE: 2/22/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

-RAMPC3-
OFFSITE DETOUR ROUTE

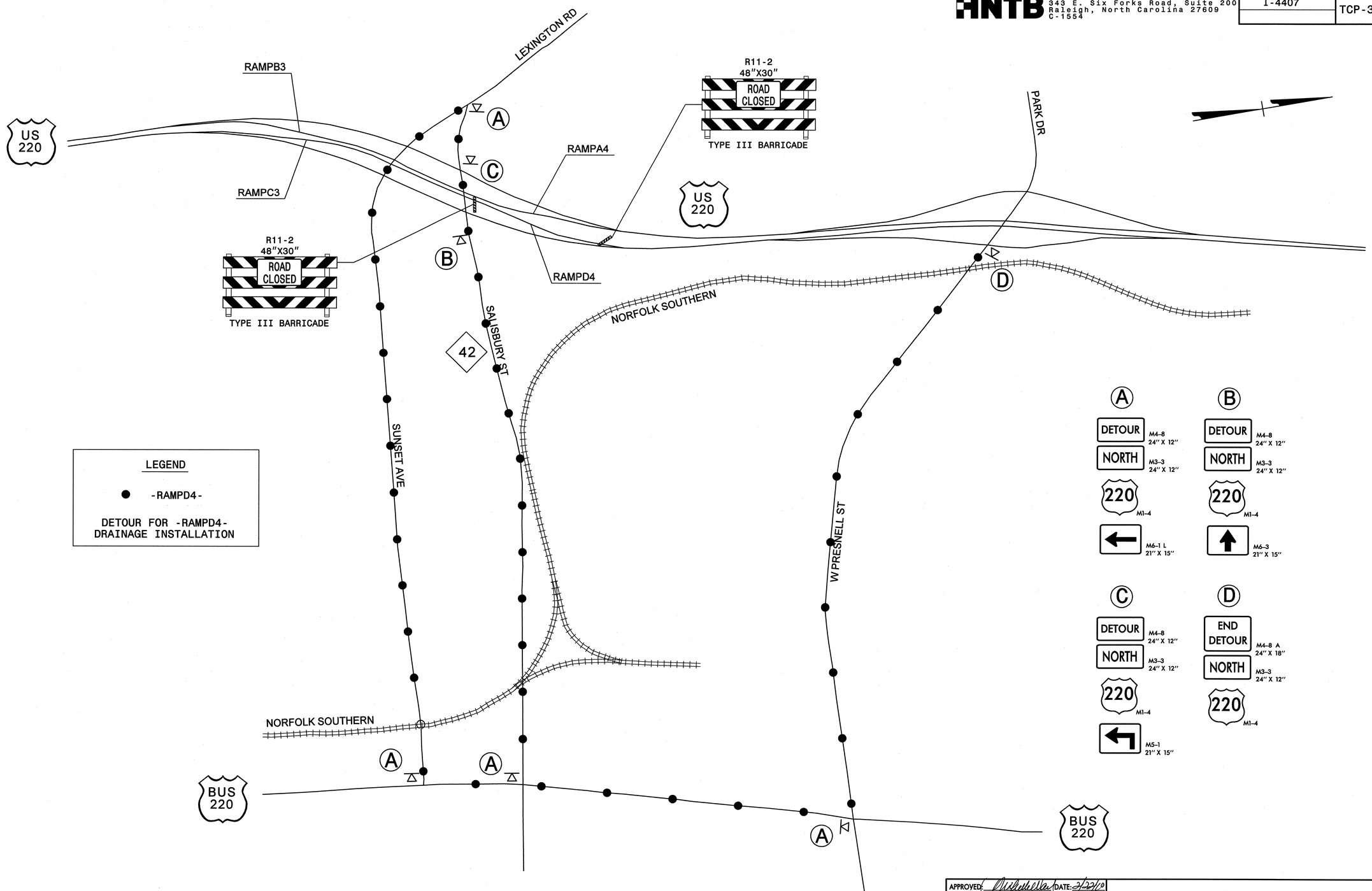
SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS

$$$$SYSTIME$$$$
$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$
$$$$USERNAME$$$$

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-35D



LEGEND

● -RAMPD4-

DETOUR FOR -RAMPD4-
DRAINAGE INSTALLATION

A

DETOUR M4-8 24" X 12"
NORTH M3-3 24" X 12"
220 M1-4
M6-1 L 21" X 15"

B

DETOUR M4-8 24" X 12"
NORTH M3-3 24" X 12"
220 M1-4
M6-3 21" X 15"

C

DETOUR M4-8 24" X 12"
NORTH M3-3 24" X 12"
220 M1-4
M5-1 21" X 15"

D

END DETOUR M4-8 A 24" X 18"
NORTH M3-3 24" X 12"
220 M1-4

APPROVED: [signature] DATE: 2/22/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

-RAMPD4-
OFFSITE DETOUR ROUTE

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH

REVISIONS	
CADD FILE	

$$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$

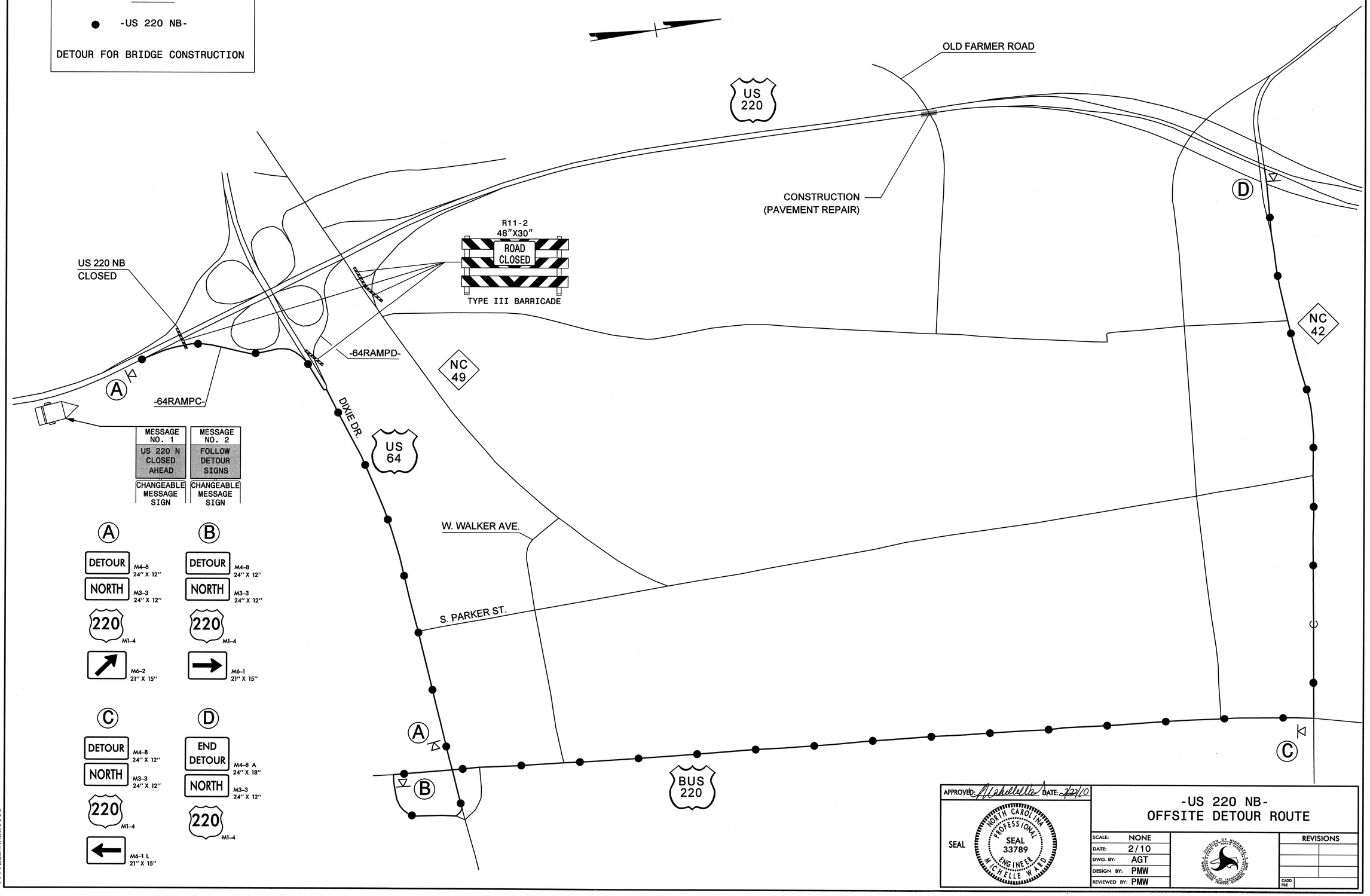
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-36

LEGEND

-US 220 NB-

DETOUR FOR BRIDGE CONSTRUCTION



MESSAGE NO. 1	MESSAGE NO. 2
US 220 N CLOSED AHEAD	FOLLOW DETOUR SIGNS
CHANGEABLE MESSAGE SIGN	CHANGEABLE MESSAGE SIGN

A

DETOUR M4-8 24" X 12"
NORTH M3-3 24" X 12"
220 M1-4
M6-2 21" X 15"

B

DETOUR M4-8 24" X 12"
NORTH M3-3 24" X 12"
220 M1-4
M6-1 21" X 15"

C

DETOUR M4-8 24" X 12"
NORTH M3-3 24" X 12"
220 M1-4
M6-1 L 21" X 15"

D

END DETOUR M4-8 A 24" X 18"
NORTH M3-3 24" X 12"
220 M1-4

APPROVED: Michelle Ward DATE: 2/2/10

SEAL
NORTH CAROLINA PROFESSIONAL
SEAL 33789
ENGINEER
MICHELLE WARD

-US 220 NB- OFFSITE DETOUR ROUTE

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH TRAFFIC CONTROLS UNIT

REVISIONS

CADD FILE

$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$DGN$$$$$$$$
$$$$$$$$USERNAME$$$$$$$$

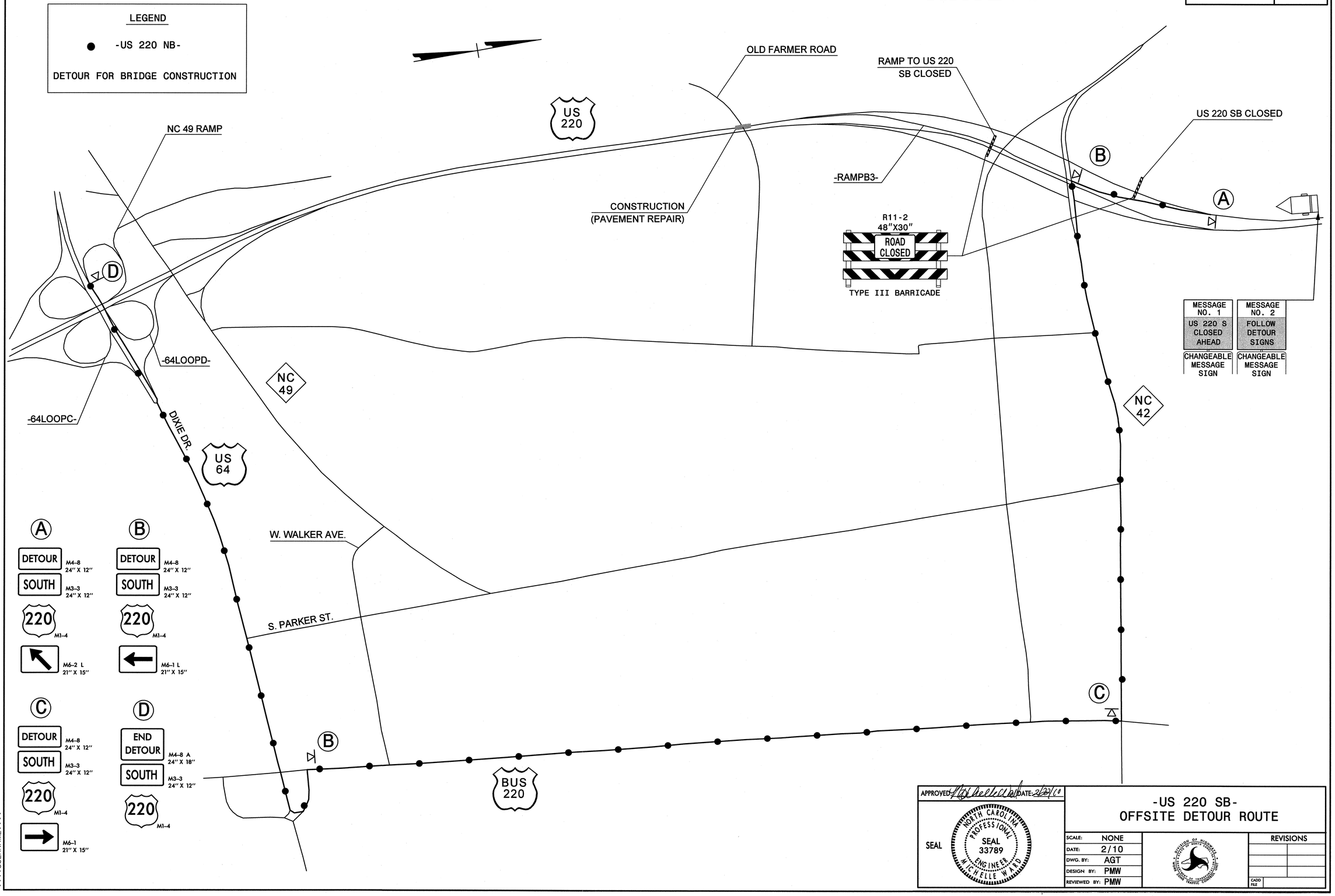
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-37

LEGEND

-US 220 NB-

DETOUR FOR BRIDGE CONSTRUCTION



A

DETOUR — M4-8 24" X 12"
SOUTH — M3-3 24" X 12"
220 — M1-4
M6-2 L 21" X 15"

B

DETOUR — M4-8 24" X 12"
SOUTH — M3-3 24" X 12"
220 — M1-4
M6-1 L 21" X 15"

C

DETOUR — M4-8 24" X 12"
SOUTH — M3-3 24" X 12"
220 — M1-4
M6-1 21" X 15"

D

END DETOUR — M4-8 A 24" X 18"
SOUTH — M3-3 24" X 12"
220 — M1-4

APPROVED: [signature] DATE: 2/23/10

SEAL — NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

-US 220 SB- OFFSITE DETOUR ROUTE

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

DIVISION OF HIGHWAYS — BRANCH OF TRAFFIC ENGINEERING — TRAFFIC CONTROL

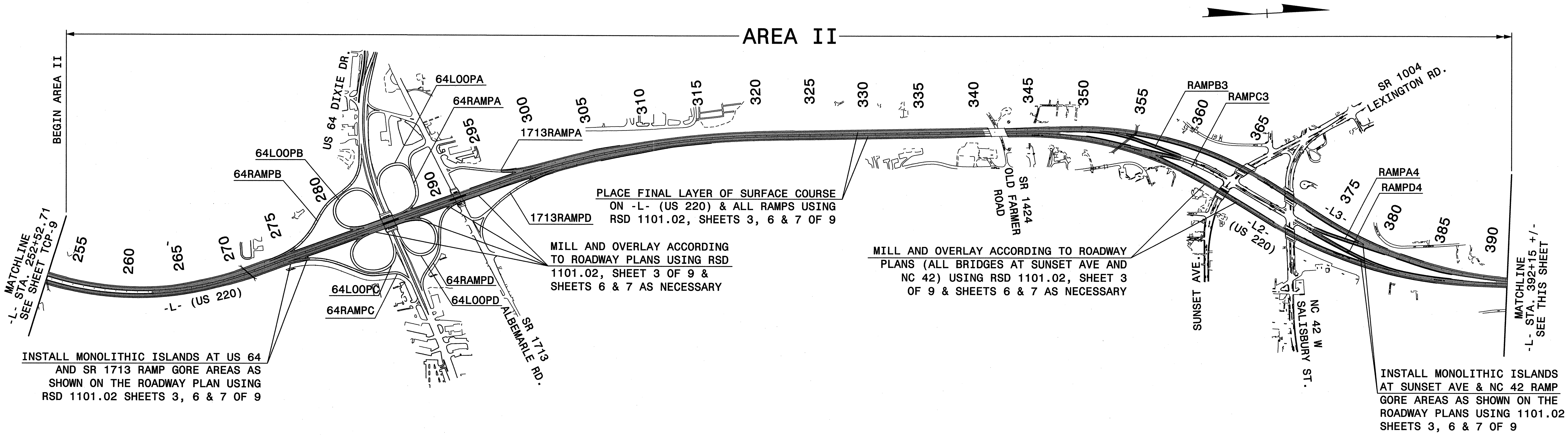
REVISIONS

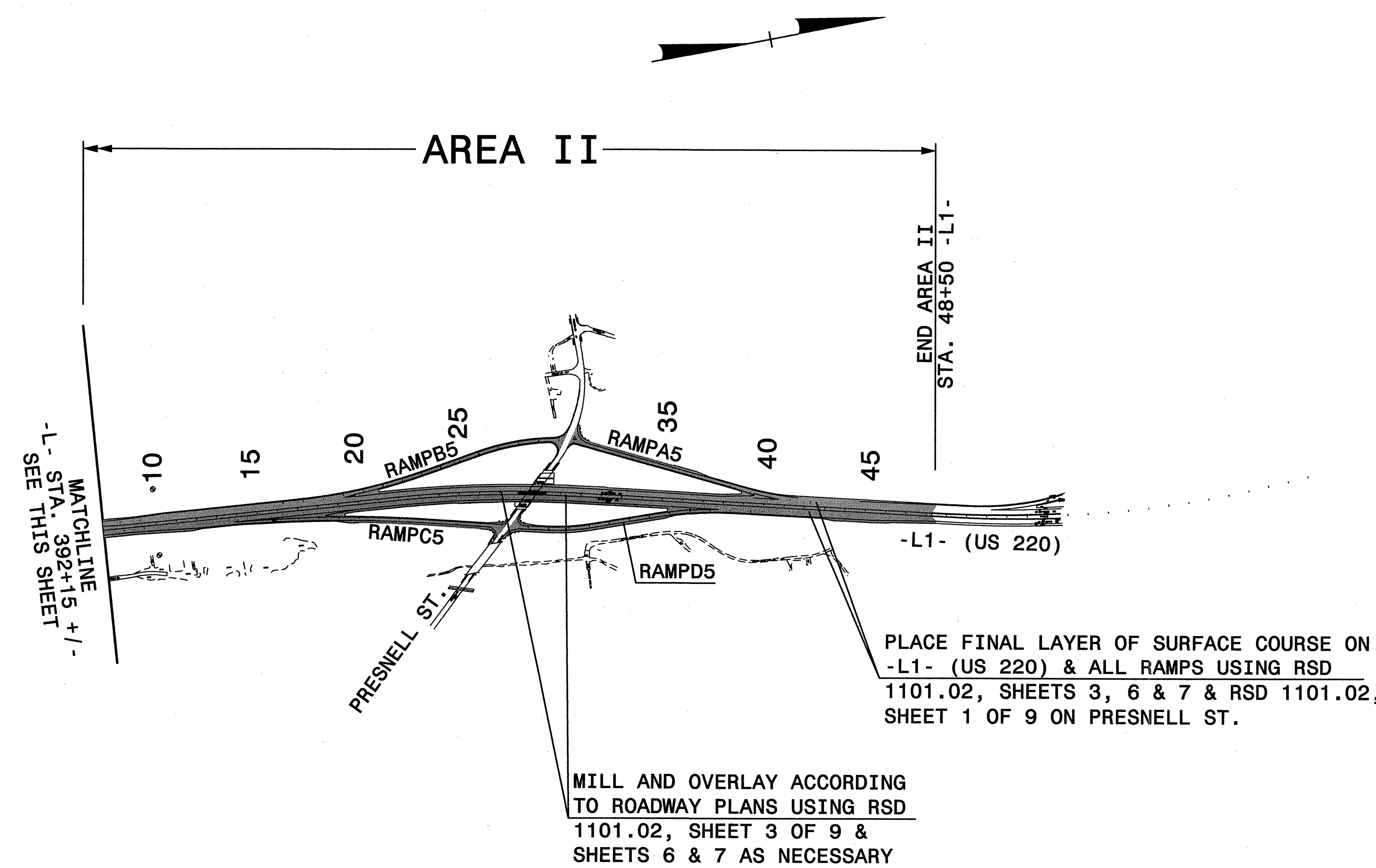
CADD FILE

$$$$SYSTIME$$$$ $$$$DGNFILE$$$$

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-38





APPROVED: Michelle Ward DATE: 2/22/10

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 33789 ENGINEER MICHELLE WARD

AREA II, PHASE III OVERVIEW
SHEET 1 OF 1

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	DCK

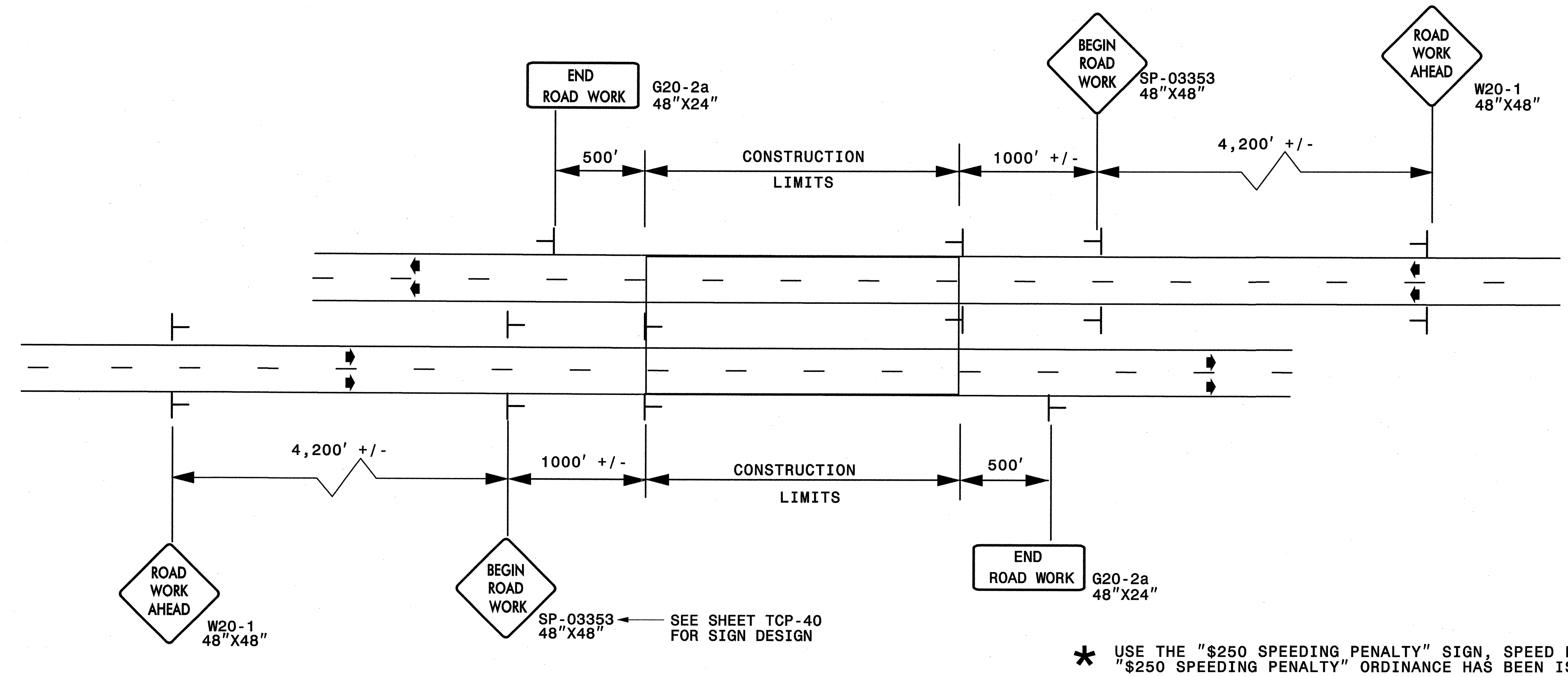
REVISIONS

CADD FILE

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$$

ADVANCED WORK ZONE WARNING SIGNING FOR FREEWAYS (4 LANES OR GREATER)

DETAIL A

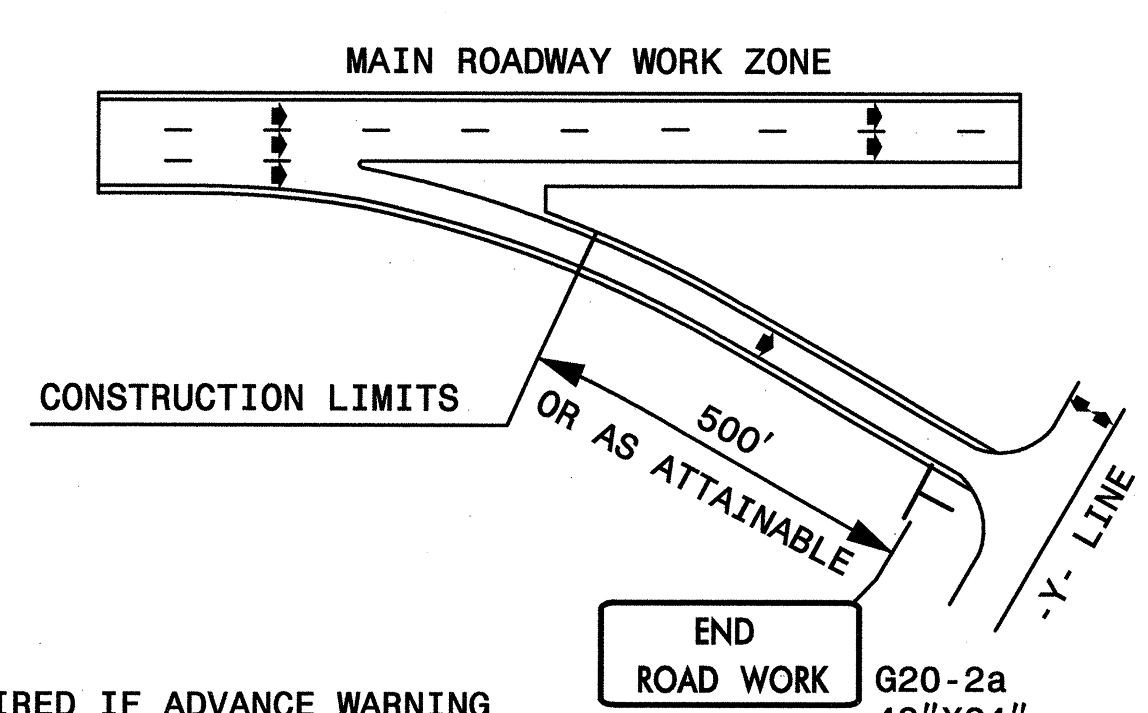


LEGEND
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW

* USE THE "$250 SPEEDING PENALTY" SIGN, SPEED LIMIT SIGN, AND ORANGE PANEL; ONLY WHEN A "$250 SPEEDING PENALTY" ORDINANCE HAS BEEN ISSUED BY THE REGIONAL TRAFFIC ENGINEER.

DETAIL B

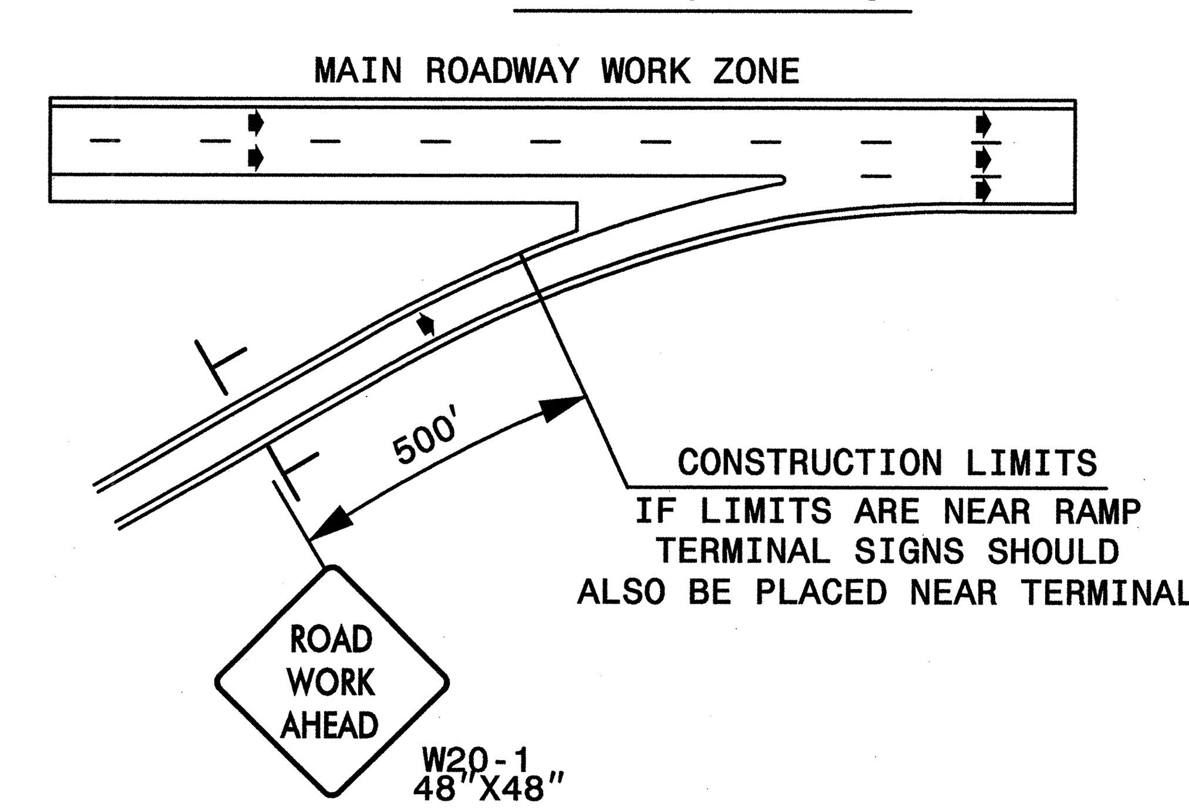
EXIT RAMPS



NOTE: SIGN NOT REQUIRED IF ADVANCE WARNING SIGNS HAVE BEEN PLACED ALONG -Y- LINE THAT RAMP INTERSECTS. IF CONSTRUCTION LIMITS ARE AT END OF RAMP, PLACE SIGN AT END OF RAMP.

DETAIL C

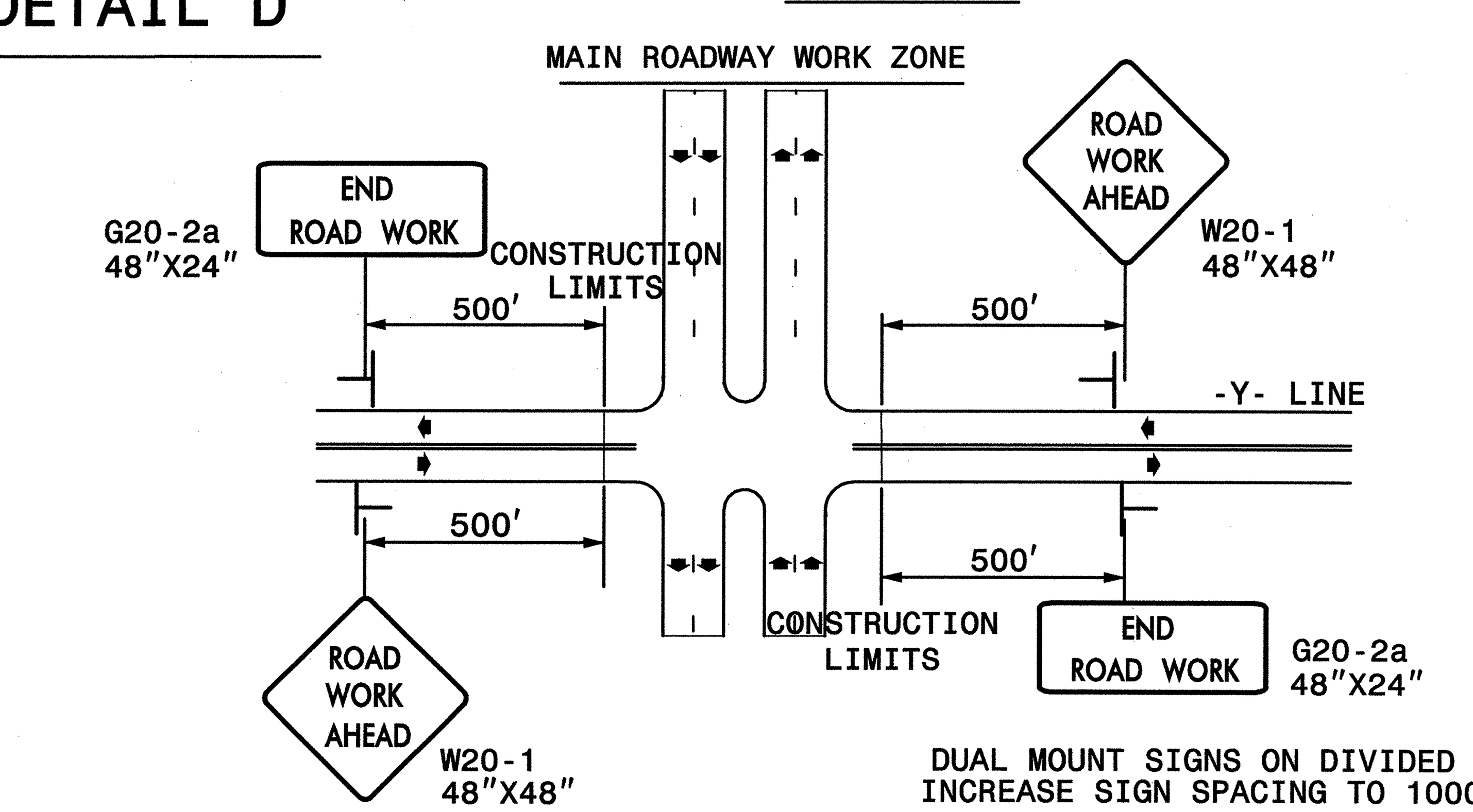
ENTRANCE RAMPS



IF LIMITS ARE NEAR RAMP TERMINAL SIGNS SHOULD ALSO BE PLACED NEAR TERMINAL

DETAIL D

-Y- LINES



DUAL MOUNT SIGNS ON DIVIDED HIGHWAYS AND INCREASE SIGN SPACING TO 1000'+/-.

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.

APPROVED: [signature] DATE: 2/22/10

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33789 MICHELLE WARD

ADVANCED WORK ZONE WARNING SIGNS FOR FREEWAYS (4 LANES OR GREATER)

SCALE:	NONE
DATE:	2/10
DWG. BY:	NCDOT
DESIGN BY:	NCDOT
REVIEWED BY:	PMW

REVISIONS: 03/04

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-40

SIGN NUMBER:SP-03350
TYPE: D
QUANTITY: 1
SIGN WIDTH: 4'-0"
HEIGHT: 2'-6"
TOTAL AREA: 10.0 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0.4"
WIDTH: 0.5"
RADII: 1.5"
NO. Z BARS: N/A
LENGTH: N/A

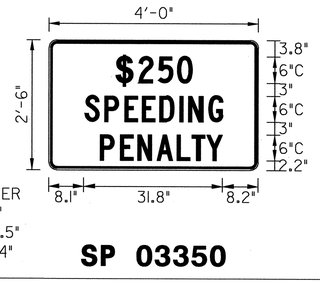
BACKG COLOR: White
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L:

DESIGN BY: CL DOWNEY
PROJECT ID:
CHECKED BY:
DIV: DIV
STD #: REGULATORY
DATE: Aug 18,2003

USE NOTES: 2,4
1. Legend and border shall be direct applied Type III reflective sheeting.
2. Legend and border shall be direct applied non-reflective sheeting.
3. Shields shall be Type III reflective sheeting on 0.032" (0.8mm) aluminum and demountable.
4. Background shall be Type III reflective sheeting.
5. Background shall be Type I reflective sheeting.
6. Center arrow(s) vertically on sign.
7. Bottom panel shall be yellow Type III sheeting. Legend shall be direct applied black non-reflective sheeting. Yellow panel is:



SP 03350

LETTER POSITIONS

Letter spacings are to start of next letter

																												Series/Size Text Length
		$	2	5	0																							C6
	15.1	5.3	4.6	4.2	3.5	15.4																						17.6
		S	P	E	E	D	I	N	G																			C6
	8.1	4.8	4.5	4	4	4.6	2.1	4.4	3.4	8.2																		31.8
		P	E	N	A	L	T	Y																				C6
	11.9	4.6	4	4.3	4.7	3.4	3.3	3.7	8.2																			28

Spacing Factor is 1 unless specified otherwise

SIGN NUMBER: SP07008
TYPE: D
QUANTITY: 1
SIGN WIDTH: 48"
HEIGHT: 30"
TOTAL AREA: 10.0 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0.5"
WIDTH: 0.75"
RADII: 1.88"
NO. Z BARS:
LENGTH:

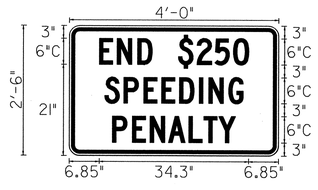
BACKG COLOR: White
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.125" (3.2 mm) ALUMINUM
0.079" COMPOSITE

DESIGN BY: R. HENNEIN
PROJECT ID: N/A
CHECKED BY:
DIV: N/A
STD #: N/A
DATE: Jan 12,2007

USE NOTES:
1. Legend and border shall be direct applied Type III reflective sheeting.
2. Background shall be Type III reflective sheeting.



SP 07008

LETTER POSITIONS

Letter spacings are to start of next letter

																												Series/Size Text Length
		E	N	D		$	2	5	0																			C 2000
	6.9	4.1	4.7	3.4	6	4.3	4.1	4.3	3.5	6.9																		34.3
		S	P	E	E	D	I	N	G																			C 2000
	8.1	4.4	4.6	4.1	4.1	4.6	2.2	4.6	3.4	8.1																		31.7
		P	E	N	A	L	T	Y																				C 2000
	9.9	4.6	4.1	4.2	4.7	3.4	3.4	3.8	9.9																			28.2

Spacing Factor is 1 unless specified otherwise

SP 03353

SIGN NUMBER: SP-03353
TYPE: A
QUANTITY: 1
SIGN WIDTH: 4'-0"
HEIGHT: 4'-0"
TOTAL AREA: 16.0 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0.59"
WIDTH: 0.75"
RADII: 1.38"
NO. Z BARS: N/A
LENGTH: N/A

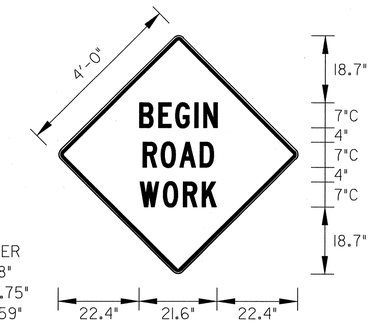
BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L:

DESIGN BY: CL DOWNEY
PROJECT ID: ALL PROJECTS
CHECKED BY: CHECKED
DIV: DIV
STD #: W20-1
DATE: Aug 20,2003

USE NOTES: 2, 4
1. Legend and border shall be direct applied Type VII reflective sheeting.
2. Legend and border shall be direct applied non-reflective sheeting.
3. Shields shall be Type VII reflective sheeting on 0.032" (0.8mm) aluminum and demountable.
4. Background shall be Type VII reflective sheeting.
5. Background shall be Type I reflective sheeting.
6. Center arrow(s) vertically on sign.
7. Bottom panel shall be yellow Type III sheeting. Legend shall be direct applied black non-reflective sheeting. Yellow panel is:



LETTER POSITIONS

Letter spacings are to start of next letter

																												Series/Size Text Length
		B	E	G	I	N																						C7
	22.4	5.3	4.6	5.4	2.5	3.8	22.4																					21.6
		R	O	A	D																							C7
	23.4	5	5.2	5.6	3.8	23.4																						19.6
		W	O	R	K																							C7
	22.6	6.4	5.6	5.2	4	22.6																						21.2

Spacing Factor is 1 unless specified otherwise

SPECIGHAK

APPROVED: [signature] DATE: 2/27/10

SEAL

SIGN DESIGNS

SCALE:	NONE
DATE:	2/10
DWG. BY:	AGT
DESIGN BY:	PMW
REVIEWED BY:	PMW

REVISIONS

CADD FILE

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGN$$$$

TEMPORARY SHORING DATA

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-41

TEMPORARY SHORING NO. ① (SEE SHEET TCP-28)

FOR TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

TEMPORARY SHORING IS REQUIRED FOR THE PIPE, DROP INLET OR UTILITY INSTALLATION FROM STATION 336+60.00 -L-, 7.3 FT LEFT OF -L-, TO STATION 336+90.00 -L-, 7.3 FT LEFT OF -L-.

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

WHEN USING CONTRACTOR DESIGNED SHORING FROM STATION 336+60.00 -L-, 7.3 FT LEFT OF -L-, TO STATION 336+90.00 -L-, 7.3 FT LEFT OF -L-.
USE THE FOLLOWING SOIL PARAMETERS:
UNIT WEIGHT OF SOIL ABOVE WATER TABLE, γ = 120 PCF
UNIT WEIGHT OF SOIL BELOW WATER TABLE, γ = 60 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF

NO SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 336+60.00 -L-, 7.3 FT LEFT OF -L-, TO STATION 336+90.00 -L-, 7.3 FT LEFT OF -L-. 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 (SEE SHEET TCP-28)

FOR TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

TEMPORARY SHORING IS REQUIRED FOR THE PIPE, DROP INLET OR UTILITY INSTALLATION FROM STATION 336+60.00 -L-, 7.3 FT RIGHT OF -L-, TO STATION 336+90.00 -L-, 7.2 FT RIGHTT OF -L-.

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

WHEN USING CONTRACTOR DESIGNED SHORING FROM STATION 336+60.00 -L-, 7.2 FT RIGHT OF -L-, TO STATION 336+90.00 -L-, 7.2 FT RIGHT OF -L-.
USE THE FOLLOWING SOIL PARAMETERS:
UNIT WEIGHT OF SOIL ABOVE WATER TABLE, γ = 120 PCF
UNIT WEIGHT OF SOIL BELOW WATER TABLE, γ = 60 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF

NO SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 336+60.00 -L-, 7.2 FT RIGHT OF -L-, TO STATION 336+90.00 -L-, 7.2 FT RIGHT OF -L-. 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. ③ (SEE SHEET TCP-29)

FOR TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

TEMPORARY SHORING IS REQUIRED FOR THE PIPE, DROP INLET OR UTILITY INSTALLATION FROM STATION 347+77.00 -L2-, 12.8 FT LEFT OF -L2-, TO STATION 348+07.00 -L2-, 12.8 FT LEFT OF -L2-.

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

WHEN USING CONTRACTOR DESIGNED SHORING FROM STATION 347+77.00 -L2-, 12.8 FT LEFT OF -L2-, TO STATION 348+07.00 -L2-, 12.8 FT LEFT OF -L2-.
USE THE FOLLOWING SOIL PARAMETERS:
UNIT WEIGHT OF SOIL ABOVE WATER TABLE, γ = 120 PCF
UNIT WEIGHT OF SOIL BELOW WATER TABLE, γ = 60 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF

NO SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 347+77.00 -L2-, 12.8 FT LEFT OF -L2-, TO STATION 348+07.00 -L2-, 12.8 FT LEFT OF -L2-. 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. ④ (SEE SHEET TCP-29)

FOR TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

TEMPORARY SHORING IS REQUIRED FOR THE PIPE, DROP INLET OR UTILITY INSTALLATION FROM STATION 347+79.00 -L3-, 21.4 FT TO 22.5 FT RIGHT OF -L3-, TO STATION 348+09.00 -L3-, 21.4 FT TO 22.5 FT RIGHTT OF -L3-.

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

WHEN USING CONTRACTOR DESIGNED SHORING FROM STATION 347+79.00 -L3-, 21.4 FT TO 22.5 FT RIGHT OF -L3-, TO STATION 348+09.00 -L3-, 21.4 FT TO 22.5 FT RIGHT OF -L3-.
USE THE FOLLOWING SOIL PARAMETERS:
UNIT WEIGHT OF SOIL ABOVE WATER TABLE, γ = 120 PCF
UNIT WEIGHT OF SOIL BELOW WATER TABLE, γ = 60 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF

NO SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 347+79.00 -L3-, 21.4 FT TO 22.5 FT RIGHT OF -L3-, TO STATION 348+09.00 -L3-, 21.4 FT TO 22.5 FT RIGHT OF -L3-. 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. ⑤ (SEE SHEET TCP-29)

FOR TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

TEMPORARY SHORING IS REQUIRED FOR THE PIPE, DROP INLET OR UTILITY INSTALLATION FROM STATION 348+72.00 -L2-, 13.0 FT TO 14.0 FT LEFT OF -L2-, TO STATION 349+02.00 -L2-, 13.0 FT TO 14.0 FT LEFT OF -L2-.

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

WHEN USING CONTRACTOR DESIGNED SHORING FROM STATION 348+72.00 -L2-, 13.0 FT TO 14.0 FT LEFT OF -L2-, TO STATION 349+02.00 -L2-, 13.0 FT TO 14.0 FT LEFT OF -L2-.
USE THE FOLLOWING SOIL PARAMETERS:
UNIT WEIGHT OF SOIL ABOVE WATER TABLE, γ = 120 PCF
UNIT WEIGHT OF SOIL BELOW WATER TABLE, γ = 60 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF

NO SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 348+72.00 -L2-, 13.0 FT TO 14.0 FT LEFT OF -L2-, TO STATION 349+02.00 -L2-, 13.0 FT TO 14.0 FT LEFT OF -L2-. 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. ⑥ (SEE SHEET TCP-29)

FOR TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

TEMPORARY SHORING IS REQUIRED FOR THE PIPE, DROP INLET OR UTILITY INSTALLATION FROM STATION 348+72.00 -L3-, 24.5 FT TO 24.8 FT RIGHT OF -L3-, TO STATION 349+02.00 -L3-, 24.5 FT TO 24.8 FT RIGHTT OF -L3-.

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

WHEN USING CONTRACTOR DESIGNED SHORING FROM STATION 348+72.00 -L3-, 24.5 FT TO 24.8 FT RIGHT OF -L3-, TO STATION 349+02.00 -L3-, 24.5 FT TO 24.8 FT RIGHT OF -L3-.
USE THE FOLLOWING SOIL PARAMETERS:
UNIT WEIGHT OF SOIL ABOVE WATER TABLE, γ = 120 PCF
UNIT WEIGHT OF SOIL BELOW WATER TABLE, γ = 60 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF

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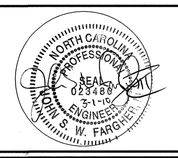
FOR PORTABLE CONCRETE BARRIERS ABOVE AND BEHIND TEMPORARY SHORING, USE AN NCDOT PORTABLE CONCRETE BARRIER (UNANCHORED OR ANCHORED) OR AN OREGON TALL F-SHAPE CONCRETE BARRIER IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS.

APPROVED: _____ DATE: _____

SEAL



TEMPORARY SHORING DATA

SCALE:	NONE
DATE:	2/10
DWG. BY:	
DESIGN BY:	
REVIEWED BY:	

REVISIONS

CADD FILE

TEMPORARY SHORING DATA

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP-41A

TEMPORARY SHORING NO. ⑦ (SEE SHEET TCP-29)

FOR TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

TEMPORARY SHORING IS REQUIRED FOR THE PIPE, DROP INLET OR UTILITY INSTALLATION FROM STATION 351+71.00 -L3-, 27.5 FT TO 29.2 FT RIGHT OF -L3-, TO STATION 352+01.00 -L3-, 27.5 FT TO 29.2 FT RIGHT OF -L3-.

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

WHEN USING CONTRACTOR DESIGNED SHORING FROM STATION 351+71.00 -L3-, 27.5 FT TO 29.2 FT RIGHT OF -L3-, TO STATION 352+01.00 -L3-, 27.5 FT TO 29.2 FT RIGHT OF -L3-.
USE THE FOLLOWING SOIL PARAMETERS:
UNIT WEIGHT OF SOIL ABOVE WATER TABLE, γ = 120 PCF
UNIT WEIGHT OF SOIL BELOW WATER TABLE, γ = 60 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF

NO SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 351+71.00 -L3-, 27.5 FT TO 29.2 FT RIGHT OF -L3-, TO STATION 352+01.00 -L3-, 27.5 FT TO 29.2 FT RIGHT OF -L3-. 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. ⑧ (SEE SHEET TCP-32)

FOR TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

DO NOT USE TEMPORARY STANDARD SHORING FROM STATION 386+64.00 -L2-, 24.1 FT TO 23.8 FT LEFT OF -L2-, TO STATION 386+94.00 -L2-, 24.1 FT TO 23.8 FT LEFT OF -L2-.

TEMPORARY SHORING IS REQUIRED FOR THE PIPE, DROP INLET OR UTILITY INSTALLATION FROM STATION 386+64.00 -L2-, 24.1 FT TO 23.8 FT LEFT OF -L2-, TO STATION 386+94.00 -L2-, 24.1 FT TO 23.8 FT LEFT OF -L2-.

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

WHEN USING CONTRACTOR DESIGNED SHORING FROM STATION 386+64.00 -L2-, 24.1 FT TO 23.8 FT LEFT OF -L2-, TO STATION 386+94.00 -L2-, 24.1 FT TO 23.8 FT LEFT OF -L2-.
USE THE FOLLOWING SOIL PARAMETERS:
UNIT WEIGHT OF SOIL ABOVE WATER TABLE, γ = 120 PCF
UNIT WEIGHT OF SOIL BELOW WATER TABLE, γ = 60 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF

IT MAY BE PREFERED OR NECESSARY TO ANCHOR TEMPORARY SHORING FROM STATION 386+64.00 -L2-, 24.1 FT TO 23.8 FT LEFT OF -L2-, TO STATION 386+94.00 -L2-, 24.1 FT TO 23.8 FT LEFT OF -L2-. THE TEMPORARY SHORING PROVISION DOES NOT APPLY TO ANCHORED TEMPORARY SHORING.
IF ANCHORED SHORING IS PROPOSED, SUBMIT WORING DRAWINGS, DESIGN CALCUATIONS AND AN ANCHORED TEMPORARY SHORING PROVISION FOR REVIEW AND ACCEPTANCE IN ACCORDANCE WITH ARTICLE 105-2 OF THE STANDARD SPECIFICATIONS.

NO SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 386+64.00 -L2-, 24.1 FT TO 23.8 FT LEFT OF -L2-, TO STATION 386+94.00 -L2-, 24.1 FT TO 23.8 FT LEFT OF -L2-. 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. ⑨ (SEE SHEET TCP-32)

FOR TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

DO NOT USE TEMPORARY STANDARD SHORING FROM STATION 386+68.00 -L3-, 13.7 FT TO 12.7 FT RIGHT OF -L3-, TO STATION 386+98.00 -L3-, 13.7 FT TO 12.7 FT RIGH T OF -L3-.

TEMPORARY SHORING IS REQUIRED FOR THE PIPE, DROP INLET OR UTILITY INSTALLATION FROM STATION 386+68.00 -L3-, 13.7 FT TO 12.7 FT RIGHT OF -L3-, TO STATION 386+98.00 -L3-, 13.7 FT TO 12.7 FT RIGH T OF -L3-.

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

WHEN USING CONTRACTOR DESIGNED SHORING FROM STATION 386+68.00 -L3-, 13.7 FT TO 12.7 FT RIGHT OF -L3-, TO STATION 386+98.00 -L3-, 13.7 FT TO 12.7 FT RIGH T OF -L3-.
USE THE FOLLOWING SOIL PARAMETERS:
UNIT WEIGHT OF SOIL ABOVE WATER TABLE, γ = 120 PCF
UNIT WEIGHT OF SOIL BELOW WATER TABLE, γ = 60 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF

IT MAY BE PREFERED OR NECESSARY TO ANCHOR TEMPORARY SHORING FROM STATION 386+68.00 -L3-, 13.7 FT TO 12.7 FT RIGHT OF -L3-, TO STATION 386+98.00 -L3-, 13.7 FT TO 12.7 FT RIGH T OF -L3-. THE TEMPORARY SHORING PROVISION DOES NOT APPLY TO ANCHORED TEMPORARY SHORING.
IF ANCHORED SHORING IS PROPOSED, SUBMIT WORING DRAWINGS, DESIGN CALCUATIONS AND AN ANCHORED TEMPORARY SHORING PROVISION FOR REVIEW AND ACCEPTANCE IN ACCORDANCE WITH ARTICLE 105-2 OF THE STANDARD SPECIFICATIONS.

NO SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 386+68.00 -L3-, 13.7 FT TO 12.7 FT RIGHT OF -L3-, TO STATION 386+98.00 -L3-, 13.7 FT TO 12.7 FT RIGH T OF -L3-. 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.

APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 023480 ENGINEER JOHN S. W. FARGHER

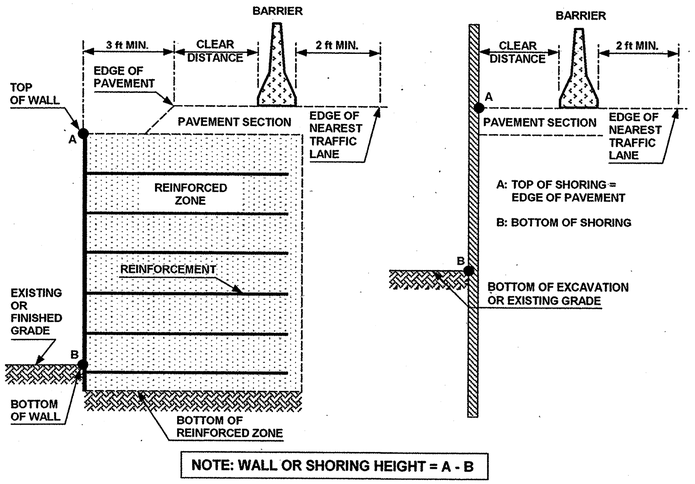
TEMPORARY SHORING DATA

SCALE:	NONE
DATE:	2/10
DWG. BY:	
DESIGN BY:	
REVIEWED BY:	

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH

REVISIONS	
CADD FILE	

PROJ. REFERENCE NO.	SHEET NO.
I-4407	TCP- 42



NOTE: WALL OR SHORING HEIGHT = A - B

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. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT UNIT FOR APPLICABLE PAVEMENT DESIGN).

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. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT UNIT FOR APPLICABLE PAVEMENT DESIGN).

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: WORK ZONE TRAFFIC CONTROL UNIT WEB PAGE.

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.

MINIMUM REQUIRED CLEAR DISTANCE, inches

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

* See Figure Below

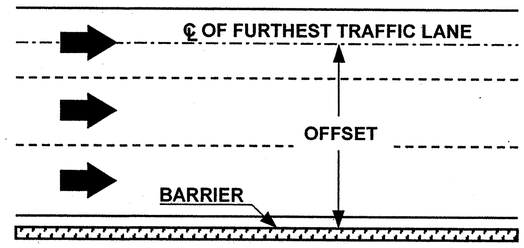


FIGURE B

APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028380 ENGINEER JOSEPH ISHAK

Joe 12/2/2008

PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS

SCALE:	NONE
DATE:	3/07
DWG. BY:	JI
DESIGN BY:	JI
REVIEWED BY:	JI

REVISIONS	
12/08	

CADD FILE

12-DEC-2008 08:45
s:\share\share\stds_in_progress\barrierstd.dgn
rmgarrett AT WZTC24747