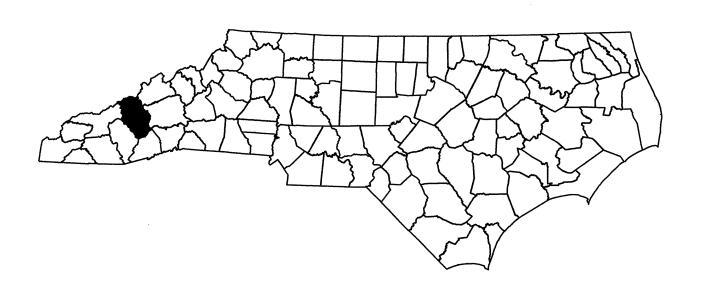
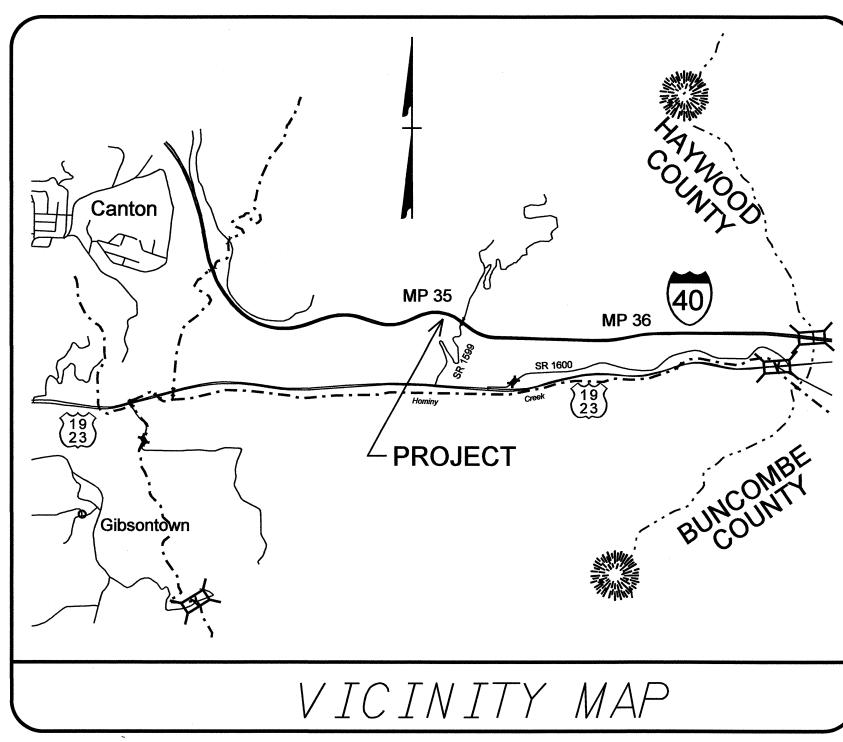
## STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## TRANSPORTATION MANAGEMENT PLAN

## HAYWOOD COUNTY





FIX SLOPE INSTABILITY ALONG I-40 EBL BETWEEN MP35 AND MP36

# INDEX OF SHEETS

SHEET NO.

TITLE

TITLE SHEET, AND INDEX OF SHEETS

TMP-1A

LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND TEMPORARY PAVEMENT MARKINGS / MARKERS

TRANSPORTATION OPERATIONS PLAN AND PROJECT NOTES

TMP-1B, TMP-1C

SPECIAL SIGN DESIGN

TMP-2

**PHASING** 

TMP-3 TMP-4 THRU TMP-6 PLAN DETAILS

TMP-7

WORK ZONE VEHICLE ACCESS TYPICAL DETAILS

APPROVED:

SEAL

DATE:\_

SHEET NO.



N.C.D.O.T. WORK ZONE TRAFFIC CONTROL 1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. STATE TRAFFIC MANAGEMENT ENGINEER

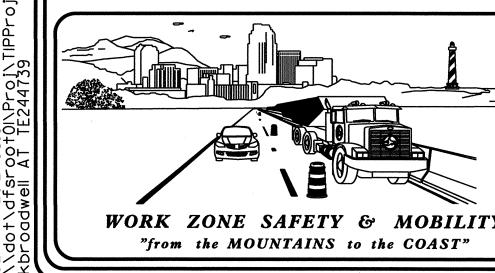
G. L. GETTIER, P.E. TRAFFIC CONTROL PROJECT ENGINEER

J. W. GILSTRAP KEN BROADWELL KPB

M TRAFFIC CONTROL PROJECT DESIGN ENGINEER TRAFFIC CONTROL DESIGN ENGINEER







### ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE	
1101.01	WORK ZONE ADVANCE WARNING SIGNS	
1101.02	TEMPORARY LANE CLOSURES	
1101.02	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 BOARDS	
1130.01	DRUM	
1160.01	TEMPORARY CRASH CUSHION - REFLECTIVE END TREATMENT	
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION	
1170.01	POSITIVE PROTECTION	
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS	
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTI-LANE ROADWAYS	
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING	
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY	
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE	
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING	
1261.02	GUARDRAIL AND BARRIER DELINEATOR - TYPES AND MOUNTING	
1262.01	GUARDRAIL END DELINEATION	

### **LEGEND**

#### **GENERAL**

DIRECTION OF TRAFFIC FLOW

----- EXIST. PVMT.

NORTH ARROW
PROPOSED PVMT.

WORK AREA

REMOVAL

\_

## TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

CONE

DRUM 

SKINNY DRUM 

TUBULAR MARKER

TEMPORARY CRASH CUSHION

FLASHING ARROW PANEL (TYPE C)

FLAGGER

LAW ENFORCEMENT

TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)

CHANGEABLE MESSAGE SIGN

#### TEMPORARY SIGNING

PORTABLE SIGN

— STATIONARY SIGN

STATIONARY OR PORTABLE SIGN

#### TEMPORARY PAVEMENT MARKING / MARKER

#### PAVEMENT MARKING - PAINT

- P6 WHITE EDGELINE (6")
- P7) YELLOW EDGELINE (6")
- PK) 10 FT. WHITE SKIP (6")

#### PAVEMENT MARKER

- MI CRYSTAL / RED TEMPORARY RAISED
- MH) YELLOW / YELLOW TEMPORARY RAISED

SEAL B973

SEAL GINERAL GETTILITIES

ROADWAY STANDARD DRAWINGS & LEGEND

srootOI/Proj/TIPProjects-I/I5402/Traffic/TrafficControl/TCP/I-5402 TMP-I-2-3f I At tF244739 DRAINAGE MODIFICATIONS REQUIRED TO ADDRESS SLOPE INSTABILITY.

WORK INCLUDES A PORTION OF THE RIGHT PAVED SHOULDER TO BE REMOVED AND REPLACED, NEW CONCRETE SHOULDER BERM GUTTER, NEW DRAINAGE STRUCTURES AND DRAINAGE PIPING, AND EXISTING GUARDRAIL TO BE REMOVED AND RESET.

#### TMP DESIGN PARAMETERS

TRAFFIC WILL BE SHIFTED TO LEFT ONTO A PORTION OF THE MEDIAN PAVED SHOULDER AND WORK WILL BE PERFORMED BEHIND PORTABLE CONCRETE BARRIER. LANE CLOSURES WILL BE ALLOWED AT NIGHT.

THE "WORK ZONE VEHICLE ACCESS TYPICAL DETAILS" SHALL BE UTILIZED FOR ALL CONSTRUCTION VEHICLES ENTERING AND EXITING THE WORK AREA OR AS DIRECTED BY THE ENGINEER (SEE SHEET TMP-7).

## GENERAL NOTES

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

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

#### TIME RESTRICTIONS

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

<b>ROAD</b>	NAME
-------------	------

DAY AND TIME RESTRICTIONS

I-40

MONDAY THRU SUNDAY 6:00AM - 8:00PM

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

#### **ROAD NAME**

I-40

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

- 6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 8:00 P.M. TUESDAY.
- 7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 8:00 P.M. MONDAY.
- 8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 8:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

PROJ. REFERENCE NO. SHEET NO. I - 5402 TMP - 1B

C) DO NOT CLOSE ROADS AS FOLLOWS:

ROAD NAME

DAY AND TIME RESTRICTIONS

I-40

ANYTIME

D) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME

DAY AND TIME RESTRICTIONS

ANYTIME

I-40

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

#### LANE AND SHOULDER CLOSURE REQUIREMENTS

- F) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- ) 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.
- H) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

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.

- I) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- J) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

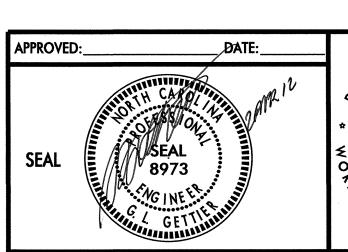
#### PAVEMENT EDGE DROP OFF REQUIREMENTS

K) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 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.





TRANSPORTATION
OPERATIONS &
PROJECT NOTES

PROJ. REFERENCE NO. SHEET NO. TMP-1C

## GENERAL NOTES

#### TRAFFIC PATTERN ALTERATIONS

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

#### SIGNING

- M) 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.
- N) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

#### TRAFFIC BARRIER

O) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT 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 TRANSPORTATION MANAGEMENT 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 TRANSPORTATION MANAGEMENT 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.

P) 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 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: (SEE ALSO 1101.05)

OSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
<b>55</b>	25 FT
60 MPH or HIGHER	30 FT

#### TRAFFIC CONTROL DEVICES

Q) WHEN LANE CLOSURES ARE NOT IN EFFECT 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 OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

NOTE: SKINNY DRUMS AND CONES ARE NOT TO BE UTILIZED ON THIS PROJECT.

#### PAVEMENT MARKINGS AND MARKERS

- R) REPLACE PAVEMENT MARKINGS REMOVED DURING CONSTRUCTION WITH 6" WIDE THERMOPLASTIC AND REPLACE REFLECTIVE LENSES IN EXISTING SNOWPLOWABLE PAVEMENT MARKERS WHEN CONSTRUCTION HAS BEEN COMPLETED.
- S) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER	
I - 40	PAINT	TEMPORARY RAISE	

- T) 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.
- U) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- V) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.
- W) RECORD EXISTNG PAVEMENT MARKING CONFIGURATION PRIOR TO MARKING REMOVAL.
  THIS RECORD SHALL BE UTILIZED TO PLACE THE FINAL PAVEMENT MARKINGS.

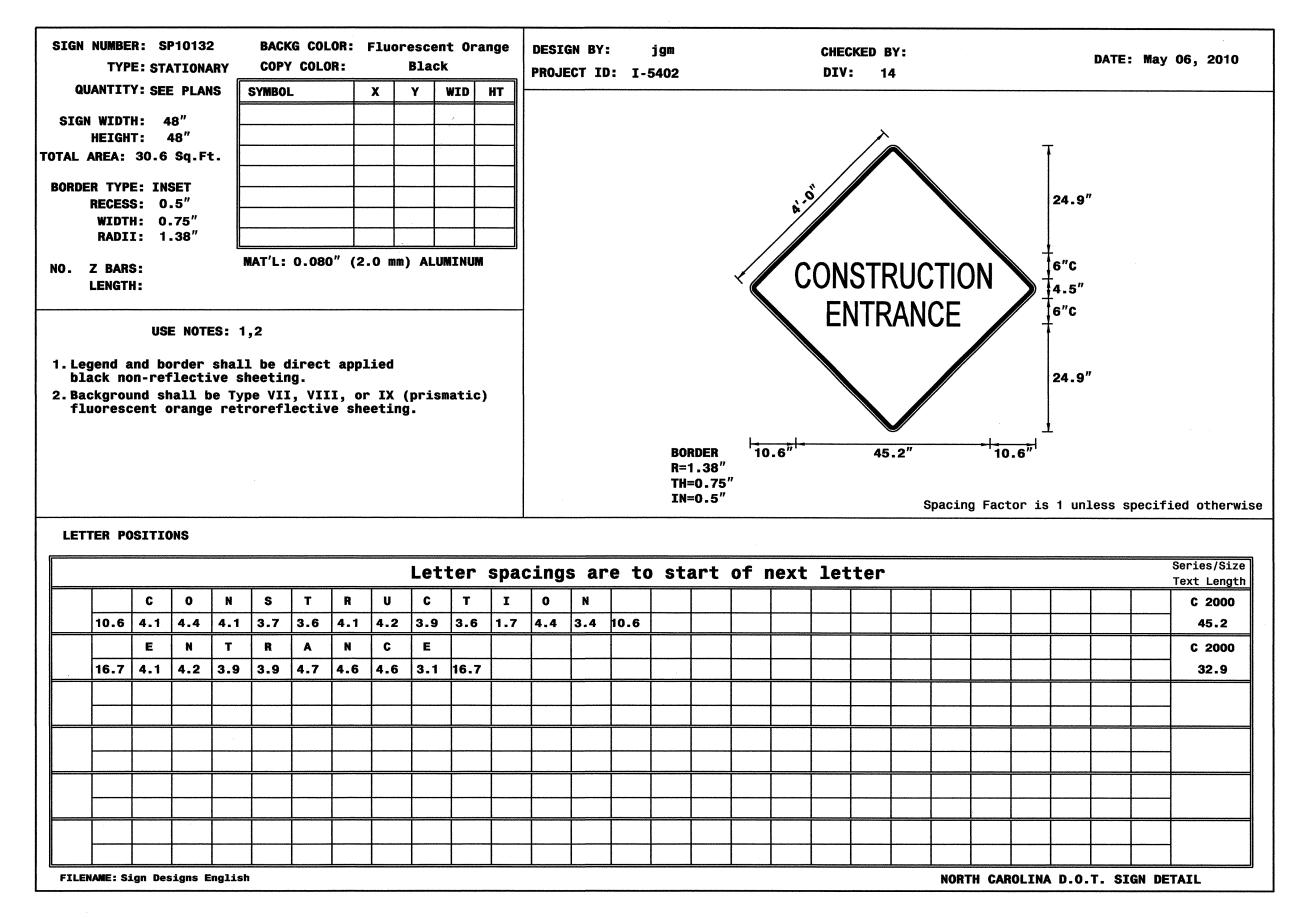
#### MISCELLANEOUS

X) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AS DIRECTED BY THE ENGINEER.



PROJ. REFERENCE NO.	SHEET NO.
I-5402	TMP-2

### SP10132



### NOTES

1. ADAPT THIS DETAIL TO MAKE SIGN # SP 10132 A PORTABLE SIGN.

THE SPECIAL SIGN DESIGN SHOWN ON THIS SHEET WAS PROVIDED THROUGH A SEALED DOCUMENT FROM SIGNING AND DELINEATION. THIS DOCUMENT WAS SUBMITTED TO WZTC ON MAY 6, 2010 AND SEALED BY A PROFESSIONAL ENGINEER, AYMAN I. ALQUDWAH, LICENSE # 0028387.



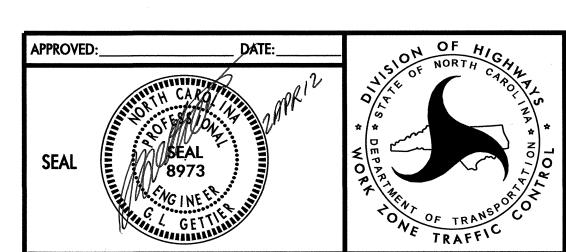
SPECIAL SIGN DESIGN

PROJ. REFERENCE NO.	SHEET NO.
I-5402	TMP-3

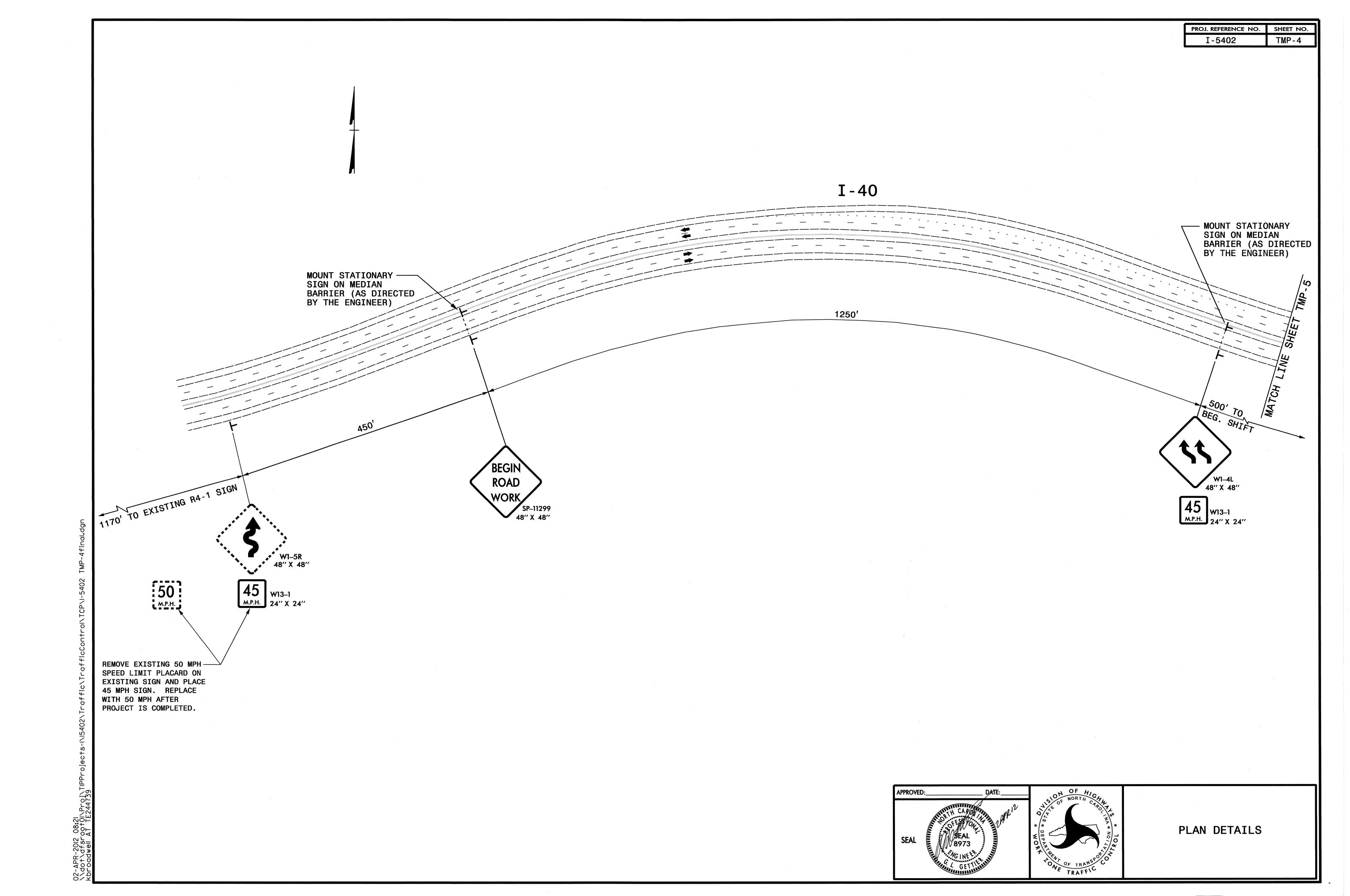
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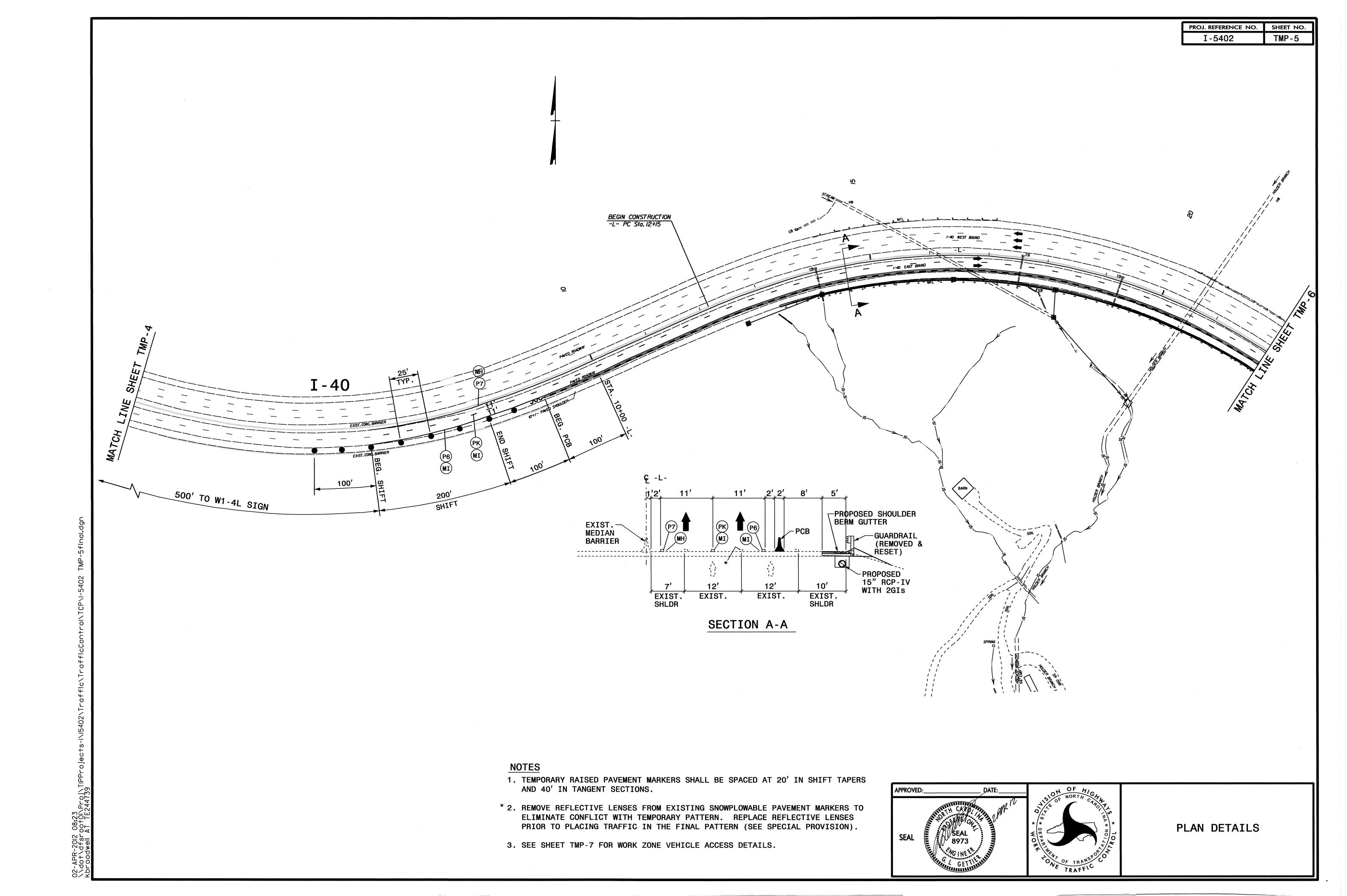
#### PHASE I

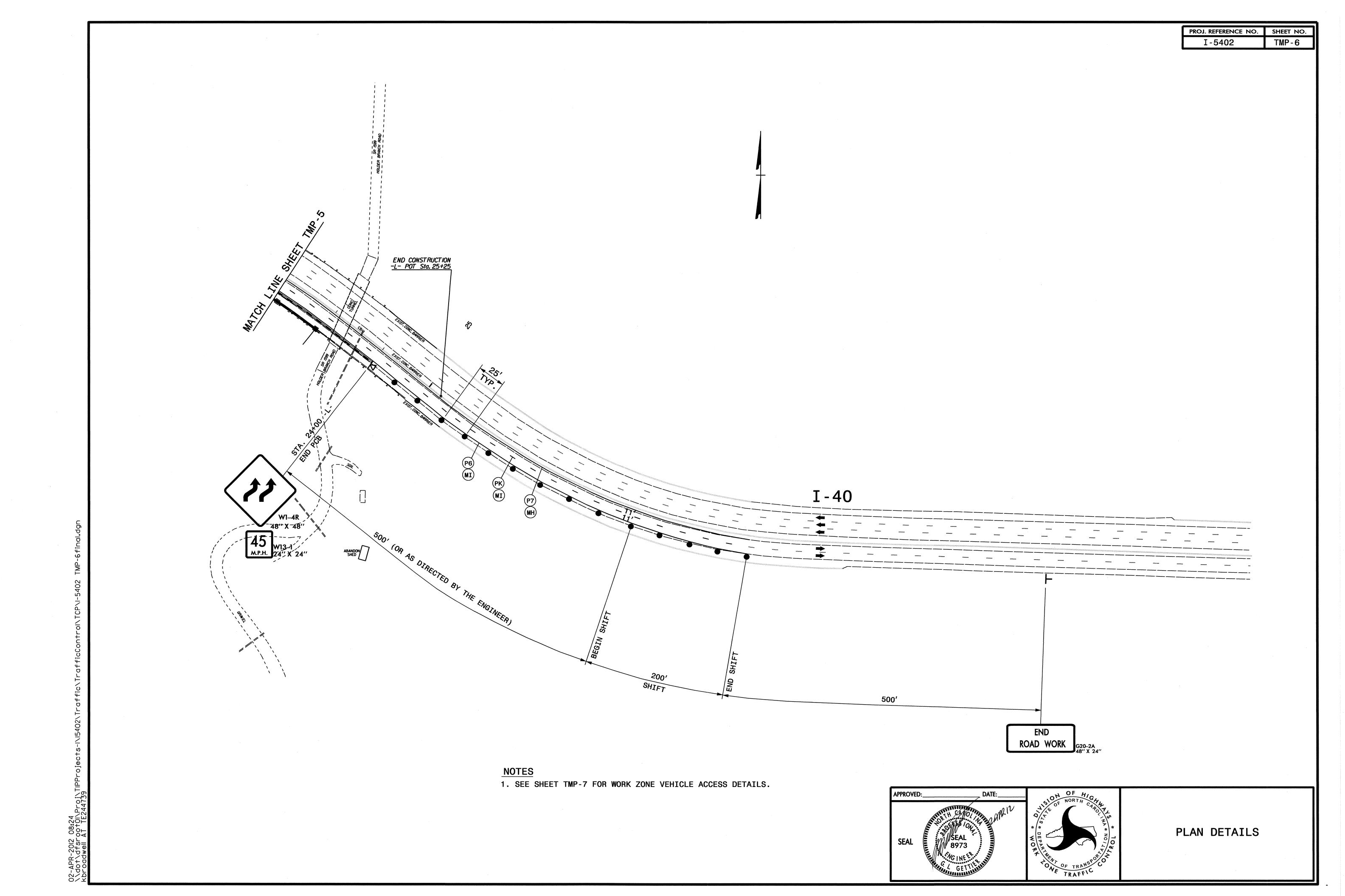
- STEP 1 CONTRACTOR, USING ROADWAY STANDARD DRAWING NO. 1101.01 SHEET 2 OF 3
  AND SHEETS TMP-4 THRU TMP-6, SHALL INSTALL ADVANCE WORK ZONE WARNING SIGNS.
- STEP 2 CONTRACTOR, USING ROADWAY STANDARD DRAWING NOS. 1101.02 SHEET 5 & 6 OF 15 AND 1101.03 SHEET 9 OF 9 (SEE SHEETS TMP-4 THRU TMP-6):
  - REMOVE REFLECTIVE LENSES FROM EXISTING SNOWPLOWABLE PAVEMENT MARKERS.
  - REMOVE EXISTING PAVEMENT MARKINGS.
  - INSTALL PAVEMENT MARKINGS (PAINT) AND TEMPORARY RAISED PAVEMENT MARKERS (TEMPORARY RAISED PAVEMENT MARKERS SHALL BE SPACED AT 20' IN SHIFT TAPERS AND 40' IN TANGENT SECTIONS).
  - INSTALL PORTABLE CONCRETE BARRIER AND TEMPORARY CRASH CUSHION.
  - OPEN TO THE TEMPORARY TRAFFIC PATTERN.
- STEP 3 CONTRACTOR SHALL CONSTRUCT THE PROJECT BEHIND PORTABLE CONCRETE BARRIER (SEE CONSTRUCTION PLANS AND SHEETS TMP-5 THRU TMP-7).
  - NOTE: DURING CONSTRUCTION THE CONTRACTOR SHALL INSTALL ADDITIONAL CHANGEABLE MESSAGE SIGNS, DRUMS, AND WORK ZONE CONSTRUCTION SIGNS UPSTREAM AND DOWNSTREAM OF THE PORTABLE CONCRETE BARRIER TO ALLOW CONSTRUCTION VEHICLES TO ENTER AND EXIT THE WORK AREA AND TO MERGE INTO EXISTING TRAFFIC (SEE SHEET TMP-7).
  - NOTE: DURING PERIODS OF CONSTRUCTION INACTIVITY THE CONTRACTOR SHALL ENSURE THAT THE WORK AREA IS SETUP AS SHOWN ON SHEETS TMP-4 THRU TMP-6.
- STEP 4 CONTRACTOR, USING ROADWAY STANDARD DRAWING NOS. 1101.02 SHEETS 5 & 6 OF 15 AND 1101.03 SHEET 9 OF 9 (SEE TMP-5 THRU TMP-7):
  - REMOVE THE PORTABLE CONCRETE BARRIER.
  - REMOVE TEMPORARY PAVEMENT MARKINGS AND TEMPORARY RAISED PAVEMENT
    MARKERS AND INSTALL FINAL PAVEMENT MARKINGS (THERMOPLASTIC) AND INSTALL
    REFLECTIVE LENSES IN THE EXISTING SNOWPLOWABLE PAVEMENT MARKERS.
  - REMOVE REMAINING TRAFFIC CONTROL DEVICES.
  - OPEN TO THE FINAL TRAFFIC PATTERN.



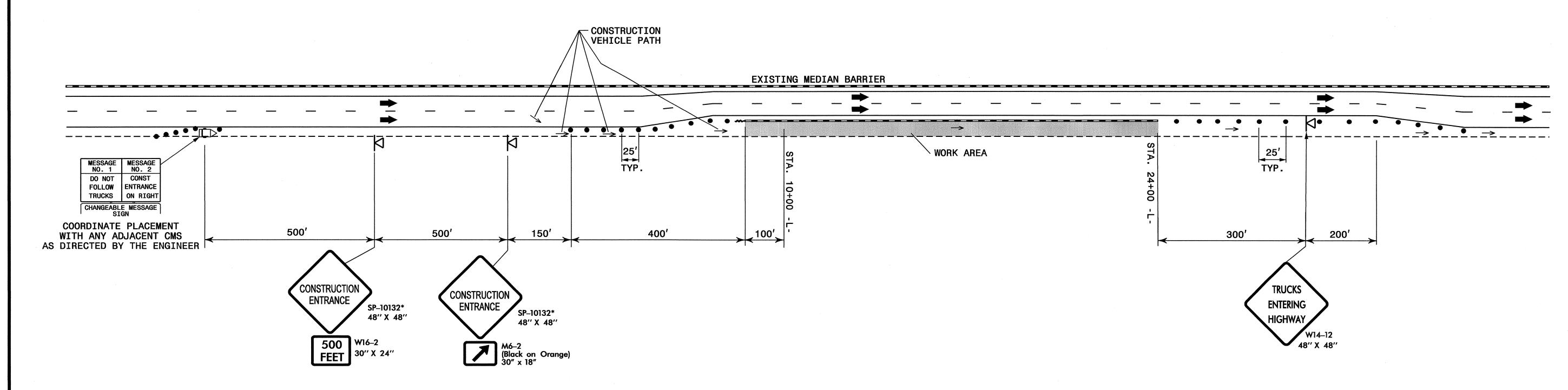
**PHASING** 



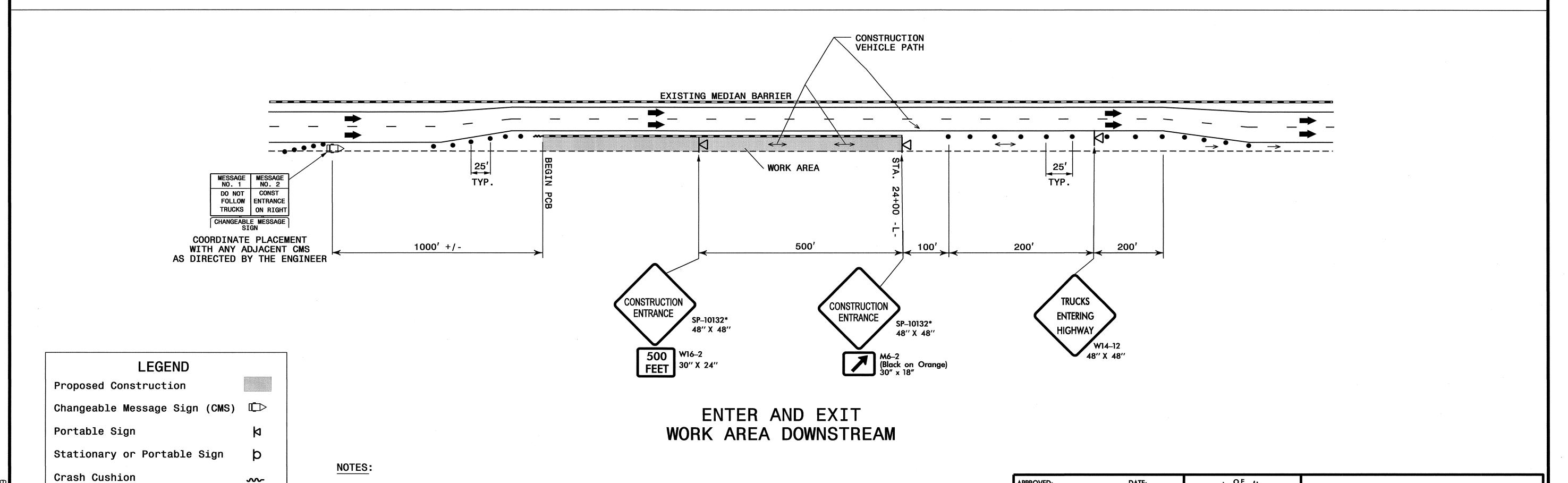




PROJ. REFERENCE NO. SHEET NO. I - 5402 TMP - 7



# ENTER WORK AREA UPSTREAM EXIT WORK AREA DOWNSTREAM



\*1. SEE SHEET TMP-2 FOR SIGN DESIGN.

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Traffic Flow

Drum

Construction Vehicles

 $\bullet$   $\bullet$   $\bullet$ 

WORK ZONE TYPICA

WORK ZONE VEHICLE ACCESS
TYPICAL DETAILS