

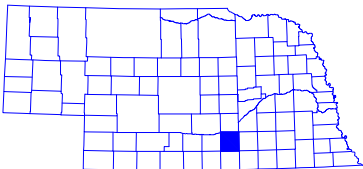
CITY OF HASTINGS

E STREET - Burlington Ave. to Pine Ave.

City Project: CH00068 City Contract: CH 2026-57



ONE CALL
Contractor shall verify location
(including depth or height) of all
utilities before construction within the
project area.



INDEX OF SHEETS

SHEET NO. 1	COVER SHEET
SHEET NO. 2-3	TYPICAL CROSS SECTION AND NOTES
SHEET NO. 4-5	AERIAL OVERVIEW
SHEET NO. 6	BURLINGTON AVE TO HASTINGS AVE
SHEET NO. 7	HASTINGS AVE TO ST. JOSEPH AVE
SHEET NO. 8	ST. JOSEPH AVE TO COLORADO AVE
SHEET NO. 9	COLORADO AVE TO WABASH AVE
SHEET NO. 10	WABASH AVE TO PINE AVE



LEGEND

○ UP	Utility Pole	■	Sign
◆	Control Point - Nail Set	●	Light
🌳	Deciduous Tree	—1912—	Contour Line
🌲	Coniferous Tree	—	Flowline
○	Manhole	—	Property Line
○ FH	Fire Hydrant	—	Fence
⋈ WW	Water Valve		
✱ GV	Gas Valve		

Burlington Ave
and E Street.

E Street and Pine Ave.



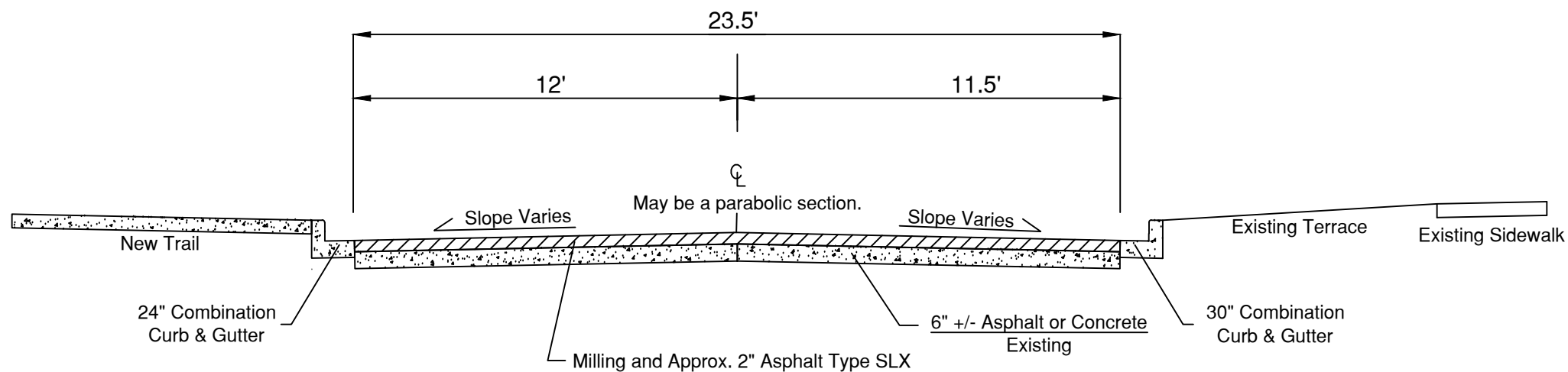
APPROVED FOR CONSTRUCTION: Lee Vrooman 9-18-26

DIRECTOR OF ENGINEERING DATE

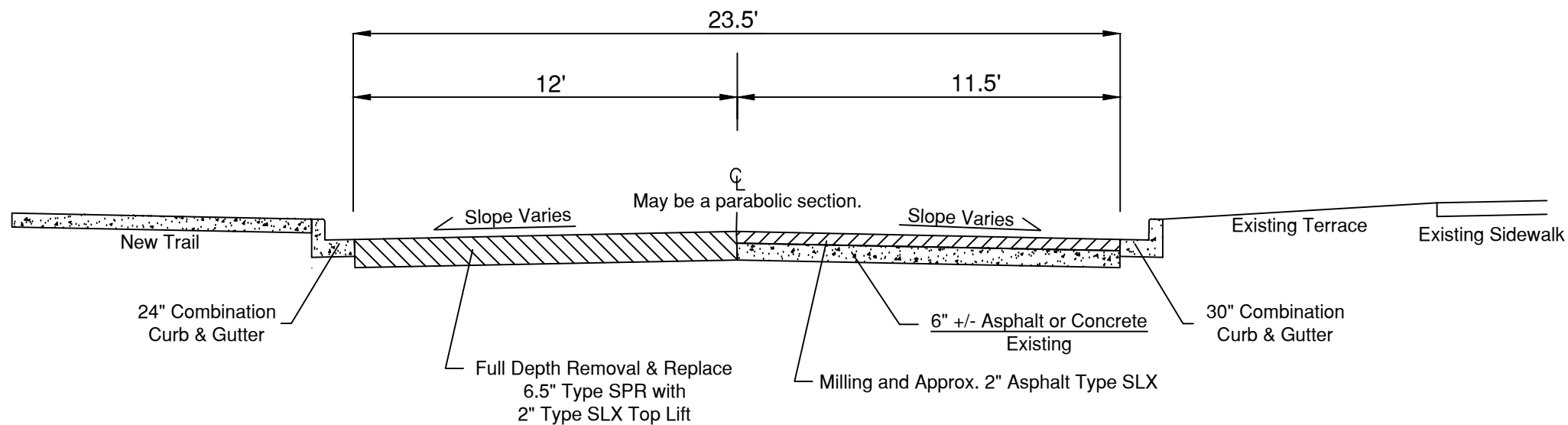
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						Elev.	Remarks			
	Dir. of Engineering: <u>SPR</u>						FOR BID	E Street Resurfacing		
	Checked By: <u>SPR</u>									
	Drawn By: <u>TD</u>									
Project Engineer						Drawing No. <u>TD / BB</u>			Date: <u>9/16/2026</u>	Sheet No. <u>1 of 10</u>

Typical Section, Quantities, & General Notes

E Street - Burlington Ave. to Pine Ave.



E St. - Burlington Ave. to Lincoln Ave.
272' East of St. Joseph Ave. to Wabash Ave.
Ross Ave. to Pine Ave. including Intersection
Not To Scale



E St. - Lincoln Ave. to Hastings Ave.
Hastings Ave. to 272' East of St. Joseph Ave.
Not To Scale

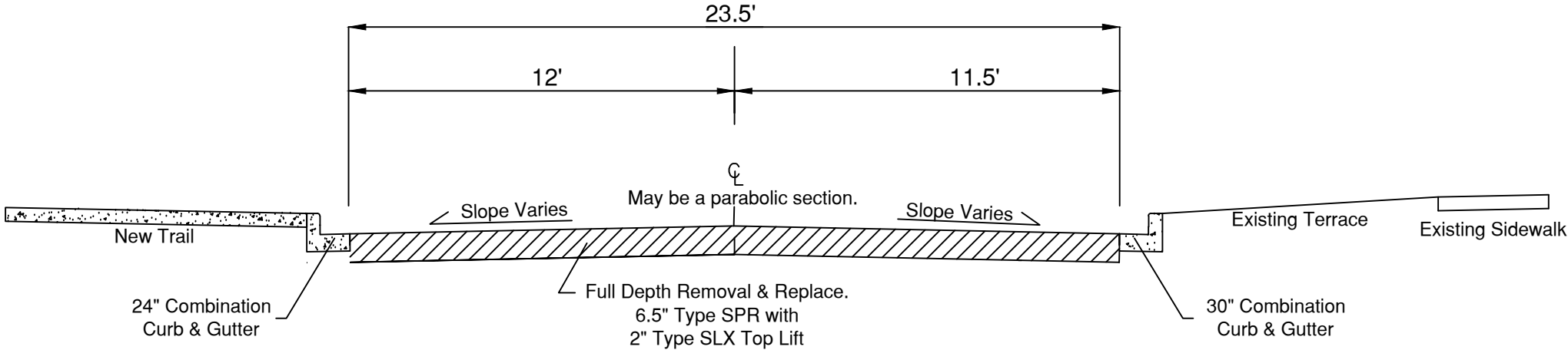
ITEM NO.	DESCRIPTION	ESTIMATED QUANTITIES		UNIT
1	Mobilization	1.00		L.S.
2	Cold Milling, Class 3 (approx 2")	6,189.00		S.Y.
3	Cold Milling, Class 4 (Full Depth)	2,170.00		S.Y.
4	Subgrade Preparation - Scarify and Recompact	2,170.00		S.Y.
5	Asphaltic Concrete for Patching (Removal, Replacement, AC Binder & Tack are subsidiary)	50.00		Tons
6	Placement of Asphaltic Concrete Intersections	771.00		S.Y.
7	Asphaltic Concrete Type SPR PG Binder 58V-34 (Binder is Subsidiary)	768.00		Tons
8	Asphaltic Concrete Type SLX PG Binder 58V-34 (Binder is Subsidiary)	941.00		Tons
9	Emulsified Asphalt Tack Coat (SS1H or approved equal) based on 0.10 Gal. per S.Y.	836.00		Gallons
10	Adjust Manhole to Grade	10.00		Each
11	Adjust Valve Box to Grade	9.00		Each
12	Traffic Control and Maintenance Theroof	1.00		L.S.



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Typical Section & General Notes

E Street - Burlington Ave. to Pine Ave.



E St. - Wabash Ave. to Ross Ave.
Not To Scale

MATERIALS-GENERAL REQUIREMENTS

Asphaltic Oil for Tack coat:

Water used to dilute emulsified asphalt shall be mixed in approximate 50-50 proportion with the oil. The rate of application of the diluted emulsified asphalt shall generally be from 0.10 to 0.12 gallon per square yard.

Asphaltic Concrete:

New Base Course: Type SPR asphalt according to State Specifications
New Top Lift Course: Type SLX asphalt according to State Specifications

ASPHALT PAVING NOTES:

The Asphalt sub-base may require various patching to be determined by Engineer after milling operation and street has been cleaned.

Millings are to become the property of the Contractor.

SUBGRADE NOTES:

Where roadway is removed to soil sub-base, the contractor shall scarify and re-compact the upper 6" to meet the compaction requirements outlined below.

The embankment and subgrade shall be adjusted to conform to the lines and grades on the plans in accordance with Section 205 and 302 of the 2017 NDOT Standard State Specifications and its supplements. The upper six (6) inches of the subgrade shall be scarified, mixed and recompacted to the following compaction requirements:

Percent Density	Moisture Minimum	Requirements Maximum	95
Min.	Opt. -3%	Opt. +3%	

Areas not meeting specified moisture density test requirements shall be removed and recompacted at the Contractor's expense.

CONTRACTOR NOTE:

Contractor will need to coordinate with Trail Contractor in order to work together and complete the Project.

It will be the responsibility of the Contractor to dispose of all pavement removal.

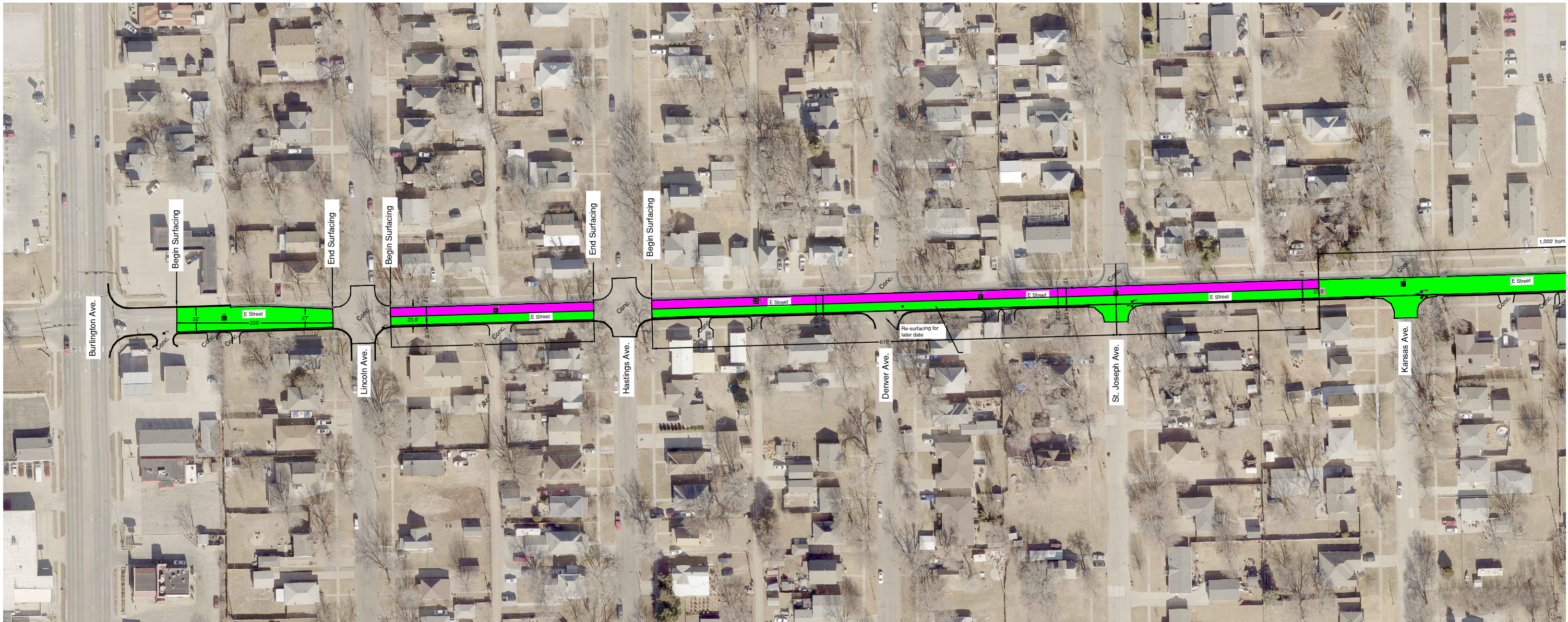
Contractor will be required to have all utilities located prior to start of work.

Water necessary for subgrade preparation shall not be paid for directly but shall be considered subsidiary to the Subgrade Preparation item of the contract. Contact Hastings Utilities to make arrangement for water and to set up an account for billing.

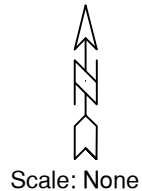
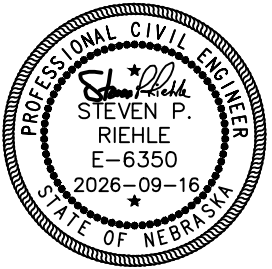


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E Street From Burlington Ave. to Kansas Ave.

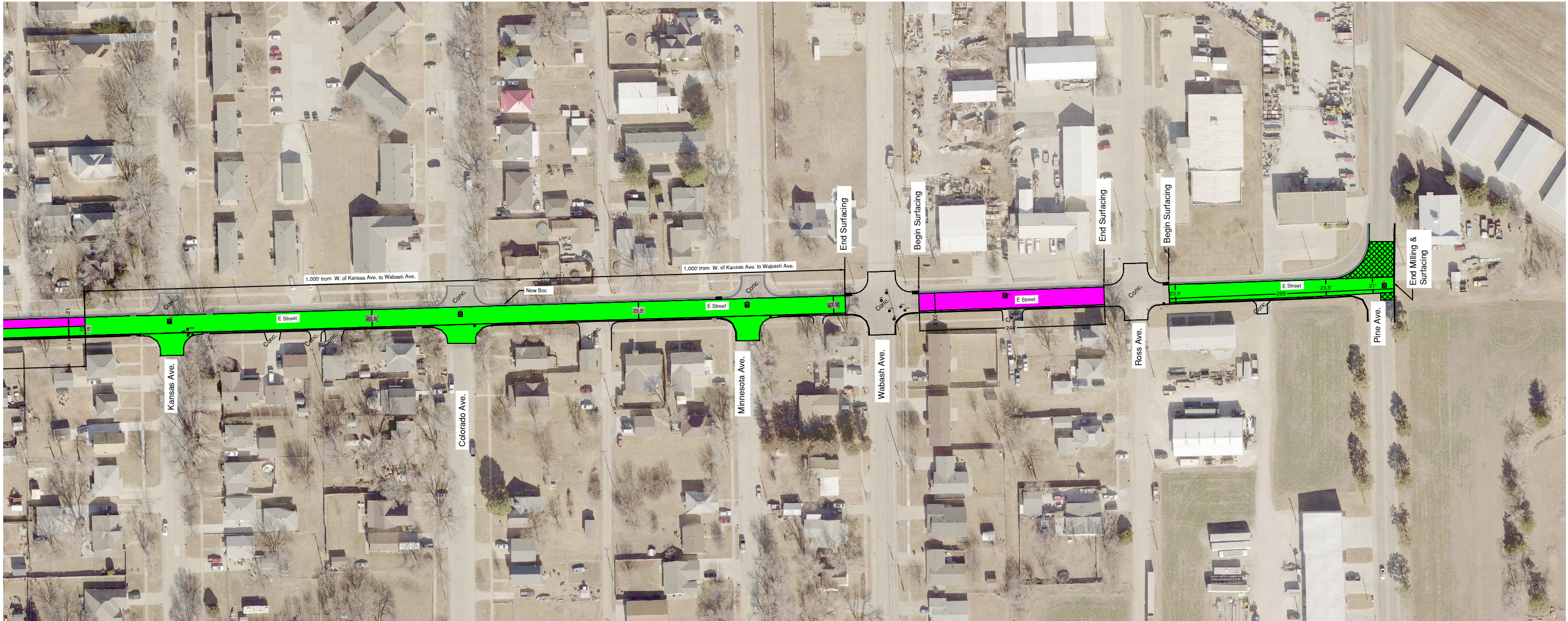


-  2" Mill and Fill Type SLX
-  Full Depth Removal
6.5" Base - SPR
2" Top - SLX

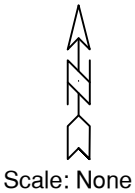


 Know what's below. Call before you dig.	Revision	By	Date	Ckd	App	Bench Mark Information	
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E Street From Kansas Ave. to Pine Ave.

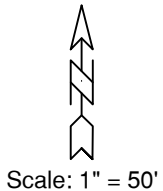
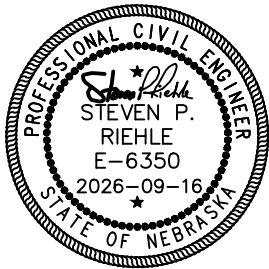
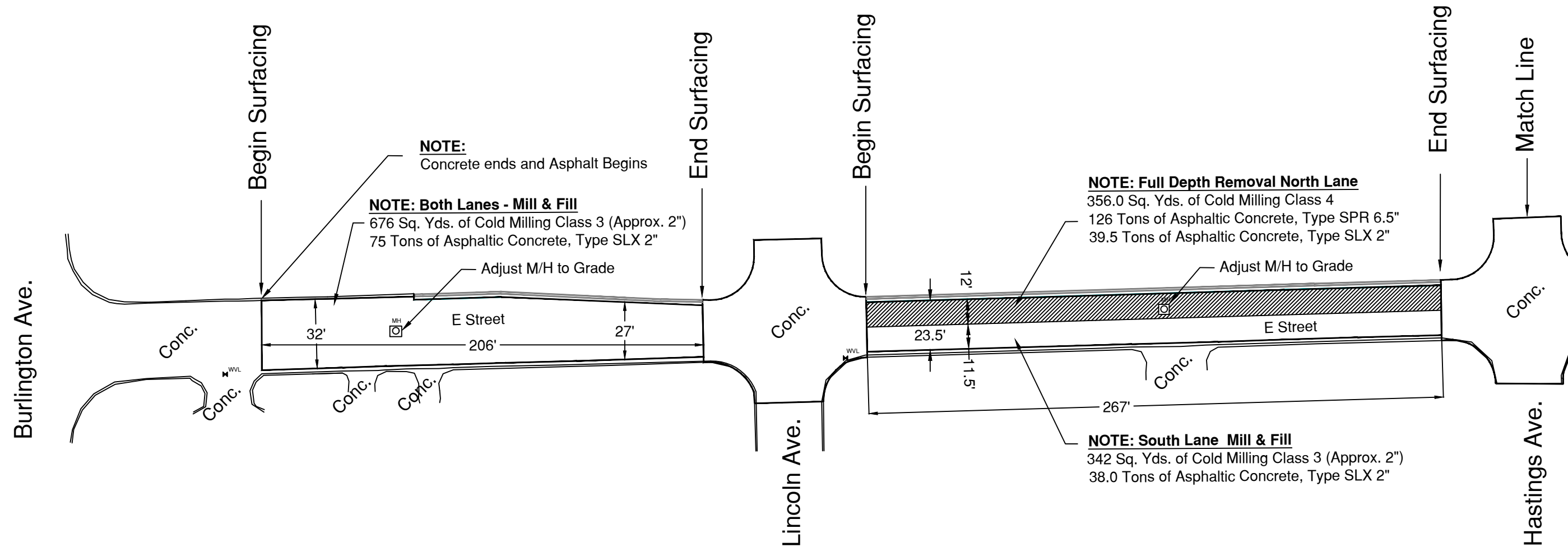


- 2" Mill and Fill Type SLX
- Full Depth Removal
6.5" Base - SPR
2" Top - SLX



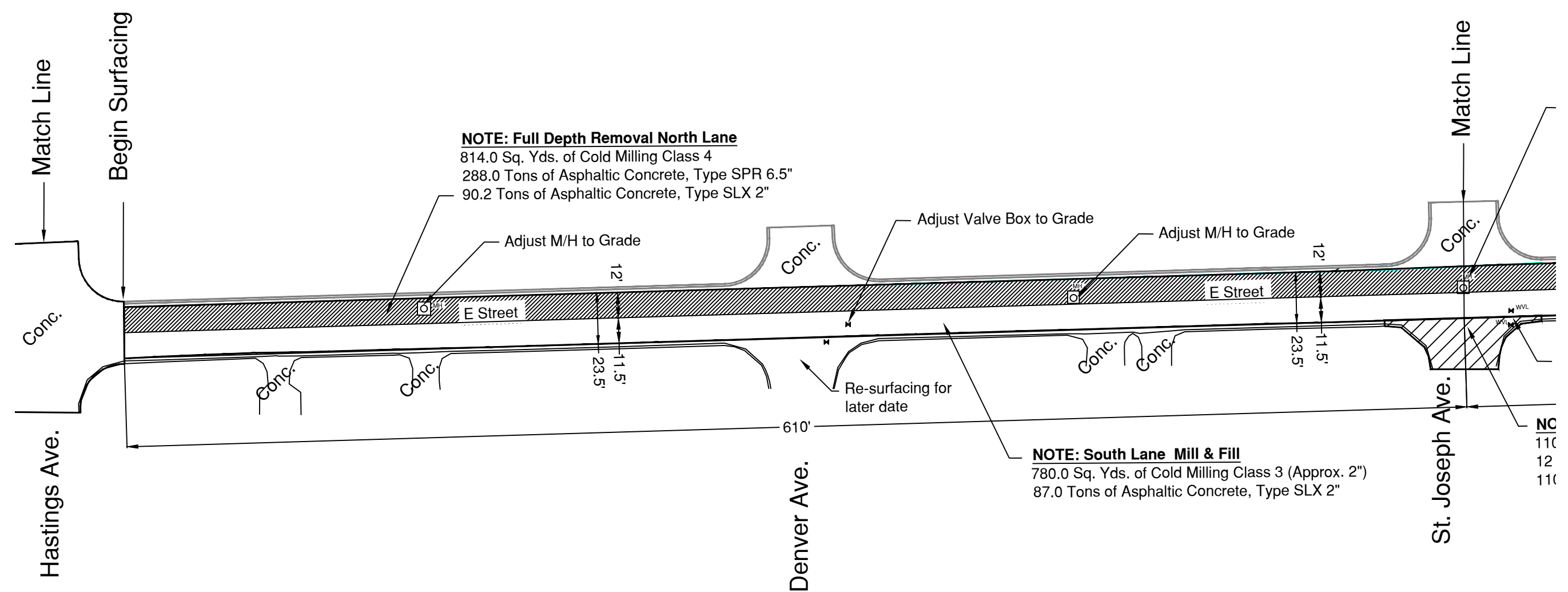
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						E street Resurfacing		
						Drawing No. <u>TD / BB</u>	Date: <u>9/16/2026</u>	Sheet No. <u>5 of 10</u>
						Project Engineer: _____		

E Street From Burlington Ave. to Hastings Ave.



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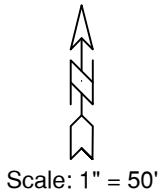
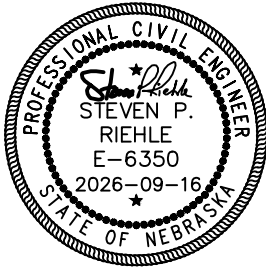
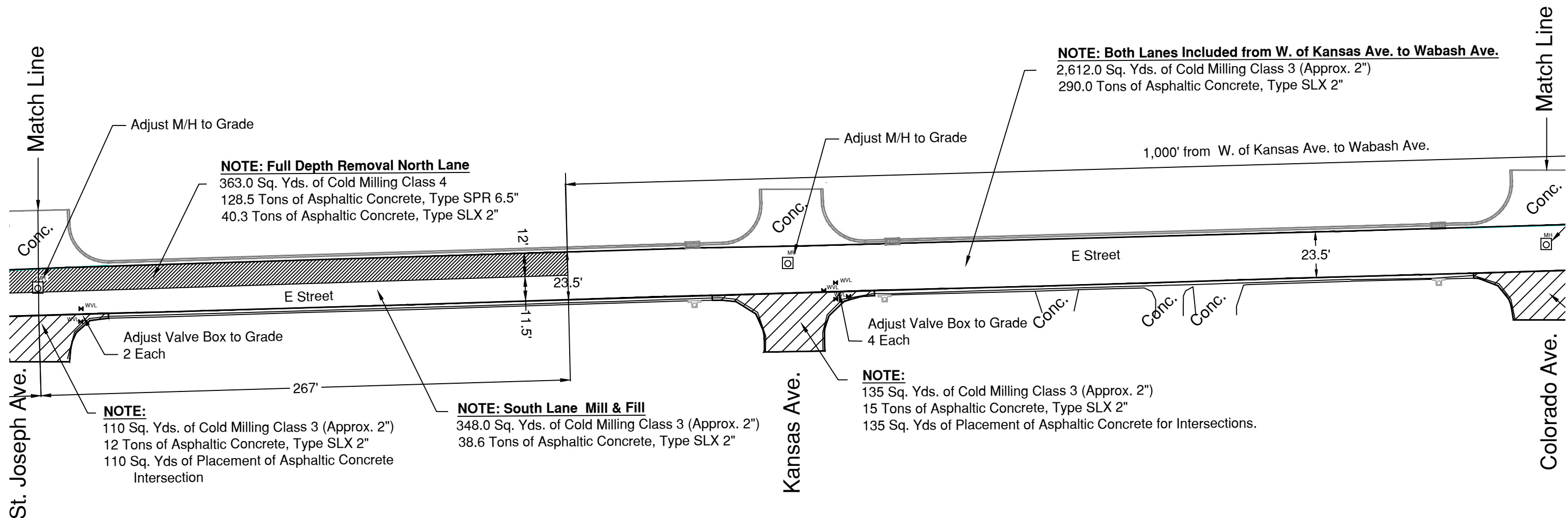
E Street From Hastings Ave. to St. Joseph Ave.



Scale: 1" = 50'

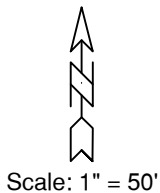
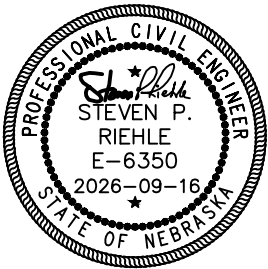
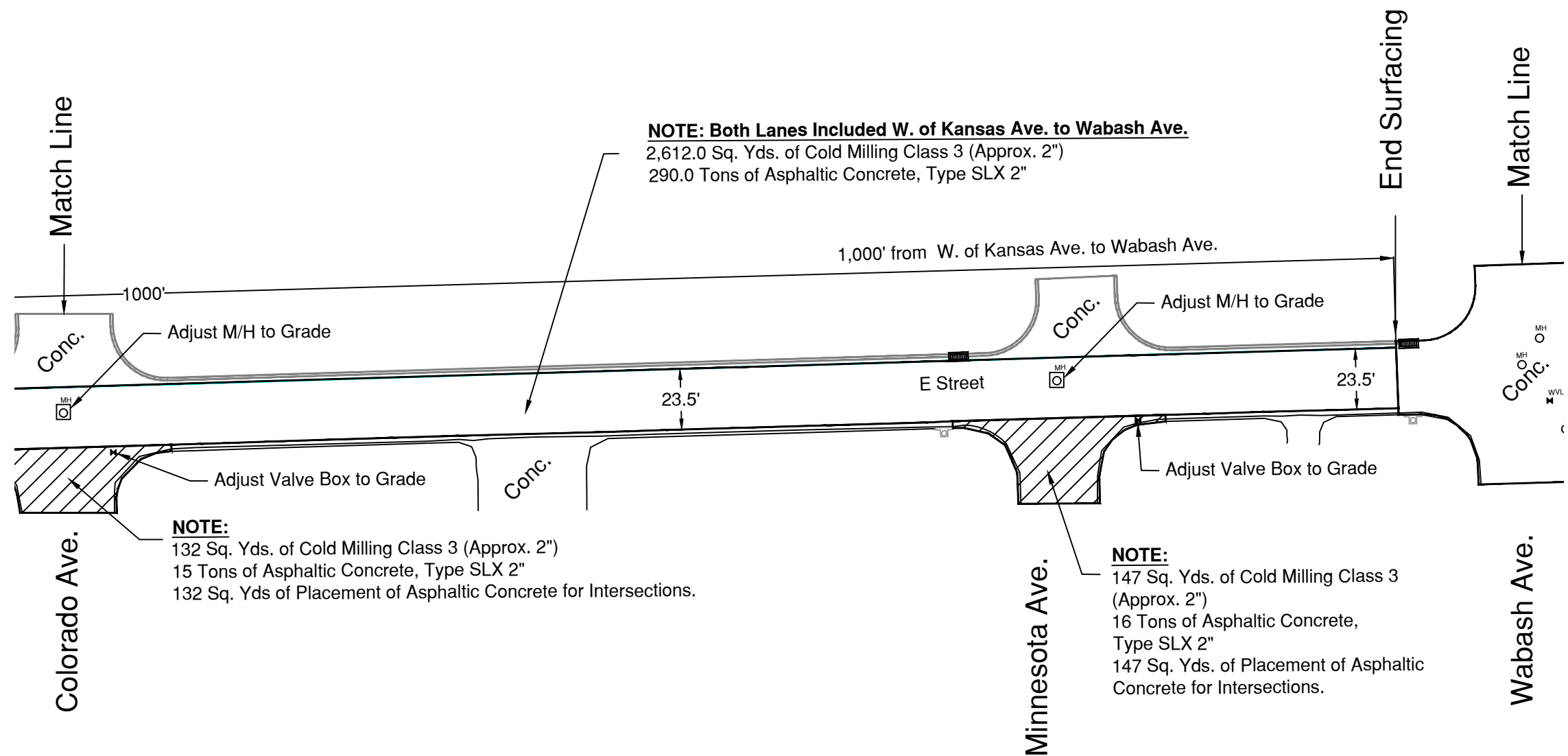
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E Street From St. Joseph Ave. to Colorado Ave.



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E Street From Colorado Ave. to Wabash Ave.



Revision	By	Date	Ckd	App	Bench Mark Information
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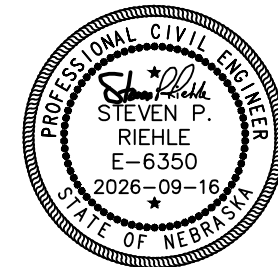
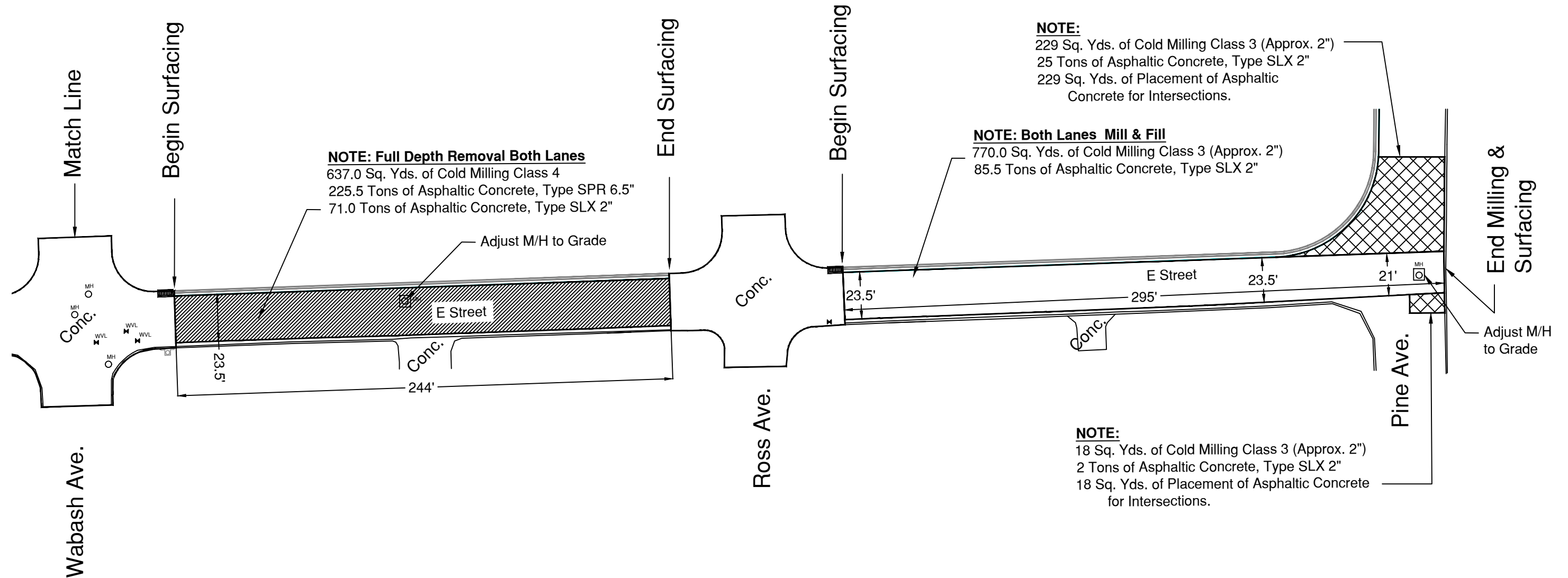
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Drawn By: TD

FOR BID

E street Resurfacing

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Date: 9/16/2026
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E Street From Wabash Ave. to Pine Ave.



Scale: 1" = 50'

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CHANNELIZATION DEVICES

THE FUNCTION OF CHANNELIZATION DEVICES IS TO WARN ROAD USERS OF CONDITIONS CREATED BY WORK ACTIVITIES IN OR NEAR THE TRAVELED WAY, TO PROTECT WORKERS IN THE TEMPORARY TRAFFIC CONTROL ZONE, AND TO GUIDE DRIVERS AND PEDESTRIANS SAFELY. CHANNELIZING DEVICES INCLUDE BUT ARE NOT LIMITED TO CONES, TUBULAR POSTS, VERTICAL PANELS, DRUMS, BARRICADES, TRAFFIC LANE DIVIDERS, TEMPORARY RAISED ISLANDS, AND BARRIERS.

DEVICES USED FOR CHANNELIZATION SHOULD PROVIDE FOR SMOOTH AND GRADUAL TRAFFIC MOVEMENT FROM ONE LANE TO ANOTHER, ONTO A BYPASS OR DETOUR, OR TO REDUCE THE WIDTH OF THE TRAVELED WAY. THEY MAY ALSO BE USED TO SEPARATE TRAFFIC FROM THE WORK SPACE, PAVEMENT DROP-OFFS, PEDESTRIAN PATHS, OR OPPOSING DIRECTIONS OF TRAFFIC.

CHANNELIZING DEVICES SHALL MEET THE CRASHWORTHY PERFORMANCE CRITERIA CONTAINED IN THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH). THEY SHOULD BE CONSTRUCTED AND BALLASTED TO PERFORM IN A PREDICTABLE MANNER WHEN INADVERTENTLY STRUCK BY A VEHICLE. IF STRUCK, THE DEVICE SHOULD YIELD OR BREAK AWAY, FRAGMENTS OR OTHER DEBRIS FROM THE DEVICE SHOULD NOT PENETRATE THE PASSENGER COMPARTMENT OF THE VEHICLE OR BE A POTENTIAL HAZARD TO WORKERS OR PEDESTRIANS IN THE IMMEDIATE AREA.

SPACING OF CHANNELIZING DEVICES SHOULD NOT EXCEED A DISTANCE IN FEET EQUAL TO THE SPEED WHEN USED FOR THE TAPER CHANNELIZATION, AND A DISTANCE IN FEET OF TWICE THE SPEED WHEN USED FOR TANGENT CHANNELIZATION.

SPACING OF CHANNELIZATION DEVICES		
SPEED (MPH) S	SPACING OF DEVICES (FEET)	
	TAPER	TANGENT
25	25	50
35	35	70
45	45	90
55	55	110
60	60	120
65	65	130
75	75	150

WARNING LIGHTS MAY BE ADDED TO CHANNELIZING DEVICES IN AREAS WITH FREQUENT FOG, SNOW, OR SEVERE ROADWAY CURVATURE, OR WHERE VISUAL DISTRACTIONS ARE PRESENT, EXCEPT FOR THE SEQUENTIAL FLASHING WARNING LIGHTS, WARNING LIGHTS PLACED ON CHANNELIZING DEVICES USED IN A SERIES TO CHANNELIZE ROAD USERS SHALL BE STEADY-BURN.

THE RETROREFLECTIVE MATERIAL USED ON CHANNELIZING DEVICES SHALL HAVE A SMOOTH, SEALED OUTER SURFACE, MEETING THE REQUIREMENTS OF THE ASTM SPECIFICATION D4956, FOR TYPE IV SHEETING OR TYPE V REBOUNDABLE SHEETING (OR GREATER).

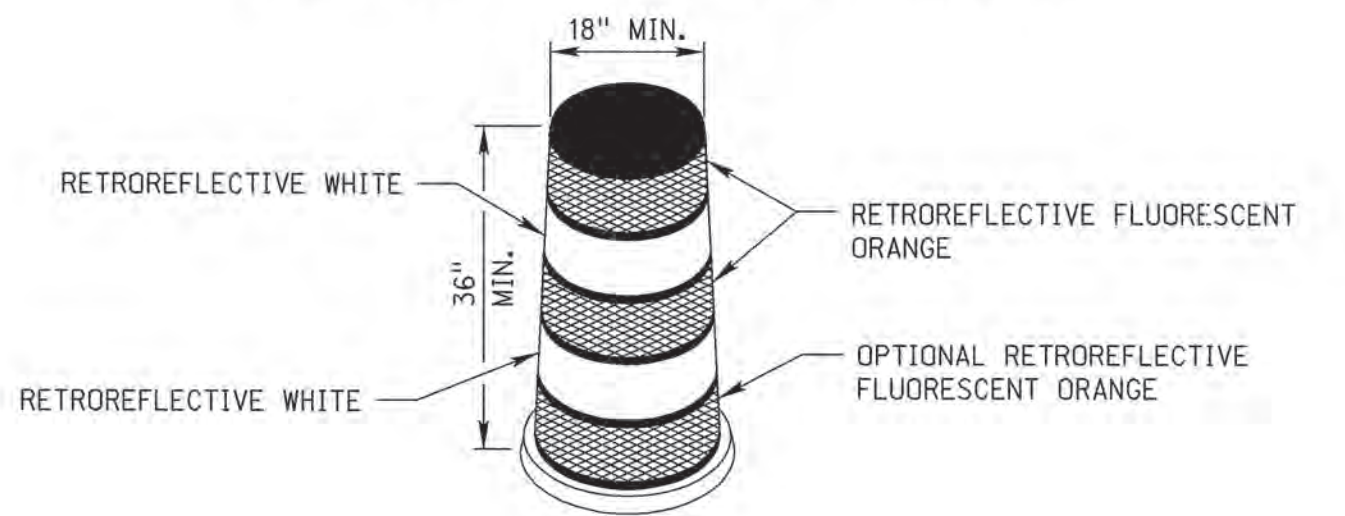
COEFFICIENT OF RETROREFLECTION (CD/LUX/M ²)			
WHITE	ORANGE	RED	YELLOW
250	100	45	170

THE AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION (ATSSA) "QUALITY GUIDELINES FOR WORK ZONE TRAFFIC CONTROL DEVICES" SHALL BE USED AS A VISUAL GUIDE FOR DETERMINING IF A TRAFFIC CONTROL DEVICE/OR SIGN IS ACCEPTABLE, MARGINAL OR UNACCEPTABLE.

THE NAME AND TELEPHONE NUMBER OF THE AGENCY, CONTRACTOR, OR SUPPLIER MAY BE SHOWN ON THE CHANNELIZING DEVICE BACK OR SUPPORT, BUT NOT ON THE DEVICE FACE. THE LETTERS AND NUMBERS SHALL BE A NON-REFLECTIVE COLOR AND NOT OVER 15 SQUARE INCHES IN TOTAL AREA.

PARTICULAR ATTENTION SHOULD BE GIVEN TO MAINTAINING THE CHANNELIZING DEVICES TO KEEP THEM CLEAN, VISIBLE, AND PROPERLY POSITIONED. DEVICES SHALL BE REPLACED THAT ARE DAMAGED AND/OR HAVE LOST A SIGNIFICANT AMOUNT OF THEIR RETROREFLECTIVITY AND EFFECTIVENESS.

REFLECTORIZED PLASTIC DRUMS



DESIGN

REFLECTORIZED PLASTIC DRUMS USED FOR TRAFFIC WARNING OR CHANNELIZATION SHALL BE CONSTRUCTED OF LIGHTWEIGHT, FLEXIBLE, AND DEFORMABLE MATERIALS AND BE A MINIMUM OF 36 INCHES IN HEIGHT AND HAVE A MINIMUM WIDTH OF AT LEAST A 18 INCHES, REGARDLESS OF ORIENTATION. THE PREDOMINANT COLOR OF THE DRUM SHALL BE ORANGE. METAL DRUMS SHALL NOT BE USED. THE MARKINGS ON DRUMS SHALL BE HORIZONTAL, SHALL BE CIRCUMFERENTIAL, AND SHALL DISPLAY FOUR 6 INCH WIDE BANDS OF RETROREFLECTIVE SHEETING, ALTERNATING FLUORESCENT ORANGE-WHITE-FLUORESCENT ORANGE-WHITE, DRUMS SHALL HAVE CLOSED TOPS THAT WILL NOT ALLOW COLLECTION OF CONSTRUCTION OR OTHER DEBRIS.

APPLICATION

DRUMS ARE MOST COMMONLY USED TO CHANNELIZE OR DELINEATE TRAFFIC FLOW BUT MAY ALSO BE USED INDIVIDUALLY OR IN GROUPS TO MARK SPECIFIC LOCATIONS. DRUMS ARE HIGHLY VISIBLE AND HAVE GOOD TARGET VALUE; THEY GIVE THE APPEARANCE OF BEING FORMIDABLE OBSTACLES AND, THEREFORE, COMMAND THE RESPECT OF ROAD USERS.

BALLAST SHALL NOT BE PLACED ON TOP OF THE DRUM. DRUMS SHOULD NOT BE WEIGHTED WITH SAND, WATER, OR ANY MATERIAL.

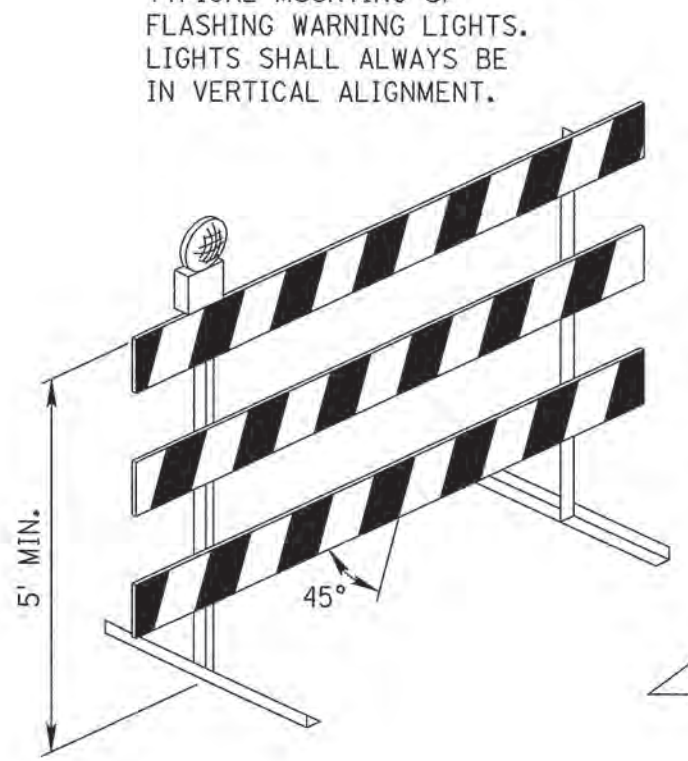
BARRICADES

BARRICADE TYPE	TYPE II	TYPE III
WIDTH OF RAIL*	8 INCHES MIN. – 12 INCHES MAX.	8 INCHES MIN. – 12 INCHES MAX.
LENGTH OF RAIL	36 INCHES	8 FEET **
WIDTH OF STRIPES	6 INCHES	6 INCHES
HEIGHT	36 INCHES	5 FEET
REFLECTIVE SHEETING	TYPE IV	TYPE IV
NUMBER OF REFLECTORIZED RAIL FACES	4 (TWO EACH DIRECTION)	6 (THREE EACH DIRECTION)

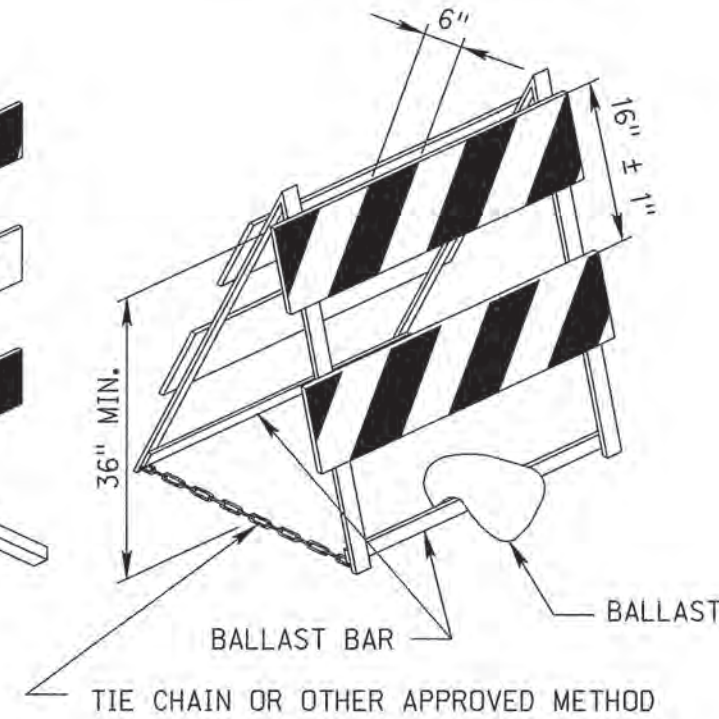
*NOMINAL DIMENSIONS ARE PERMISSIBLE WHEN CONSTRUCTED FROM LUMBER.
**WHEN LATERAL SPACE IS LIMITED, SOME TYPE III BARRICADES WITH A 4 FOOT LENGTH OF RAIL, MAY BE ALLOWED WHEN APPROVED BY THE ENGINEER.

TYPE III BARRICADE

TYPICAL MOUNTING OF FLASHING WARNING LIGHTS. LIGHTS SHALL ALWAYS BE IN VERTICAL ALIGNMENT.



TYPE II BARRICADE



BALLAST SHALL NOT BE PLACED OVER ANY REFLECTIVE DEVICE

DESIGN

A BARRICADE IS A PORTABLE OR FIXED DEVICE HAVING TWO OR THREE RAILS WITH APPROPRIATE MARKINGS. IT IS USED TO CONTROL ROAD USERS BY CLOSING, RESTRICTING, OR DELINEATING ALL OR A PORTION OF THE RIGHT-OF-WAY.

BARRICADES SHALL BE ONE OF TWO TYPES; TYPE II OR TYPE III.

STRIPES ON BARRICADE RAILS SHALL BE ALTERNATING ORANGE AND WHITE RETROREFLECTIVE STRIPES SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION ROAD USERS ARE TO PASS. THE STRIPES SHALL BE 6 INCHES WIDE. THE MINIMUM RAIL LENGTH FOR A TYPE II BARRICADE IS 36 INCHES.

WHERE BARRICADES EXTEND ENTIRELY ACROSS A ROADWAY, THE STRIPES SHOULD SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH ROAD USERS MUST TURN. WHERE BOTH RIGHT AND LEFT TURNS ARE PROVIDED, THE STRIPES MAY SLOPE DOWNWARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE OR BARRICADES. WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES.

BARRICADE RAILS SHOULD BE SUPPORTED IN A MANNER THAT WILL ALLOW THEM TO BE SEEN BY THE ROAD USER, AND IN A MANNER THAT PROVIDES A STABLE SUPPORT THAT IS NOT EASILY BLOWN OVER OR DISPLACED.

ON HIGH-SPEED ROADWAYS OR IN OTHER SITUATIONS WHERE BARRICADES MAY BE SUSCEPTIBLE TO OVERTURNING IN THE WIND, SANDBAGS SHOULD BE USED FOR BALLASTING. SANDBAGS MAY BE PLACED ON LOWER PARTS OF THE FRAME OR STAYS TO PROVIDE THE REQUIRED BALLAST BUT SHALL NOT BE PLACED ON TOP OF ANY STRIPED RAIL. BARRICADES SHALL NOT BE BALLASTED BY HEAVY OBJECTS SUCH AS ROCKS OR CHUNKS OF CONCRETE.

THE BARRICADE OWNERS NAME, NOT TO EXCEED 15 SQUARE INCHES SHALL BE SHOWN ON THE BARRICADE BACK OR SUPPORT BUT NOT ON ITS FACE.

** WHEN LATERAL SPACE IS LIMITED, SOME TYPE III BARRICADES WITH A 4 FOOT LENGTH OF RAIL, MAY BE ALLOWED WHEN APPROVED BY THE ENGINEER.

APPLICATION

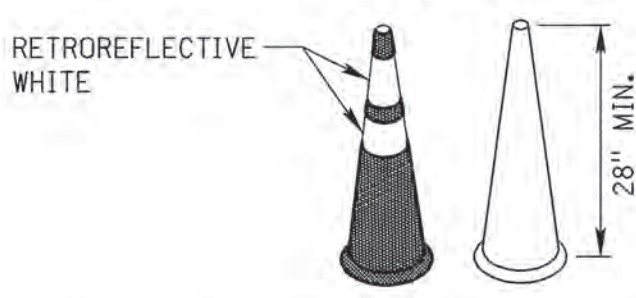
TYPE II BARRICADES ARE INTENDED FOR USE IN SITUATIONS WHERE TRAFFIC IS MAINTAINED THROUGH THE TEMPORARY TRAFFIC CONTROL ZONE. THEY MAY BE USED INDIVIDUALLY OR IN GROUPS TO MARK A SPECIFIC CONDITION, OR THEY MAY BE USED IN A SERIES FOR CHANNELIZING TRAFFIC. ON THE INTERSTATE, FREEWAY AND EXPRESSWAY SYSTEM, TYPE II BARRICADES SHALL NOT BE USED FOR CHANNELIZATION.

TYPE III BARRICADES USED AT A ROAD CLOSURE MAY EXTEND COMPLETELY ACROSS A ROADWAY FROM CURB TO CURB. WHERE PROVISION IS MADE FOR ACCESS OF AUTHORIZED EQUIPMENT AND VEHICLES, THE RESPONSIBILITY FOR THE TYPE III BARRICADES SHOULD BE ASSIGNED TO A PERSON WHO SHALL PROVIDE PROPER CLOSURE AT THE END OF EACH WORK DAY.

WHEN A HIGHWAY IS LEGALLY CLOSED BUT ACCESS MUST STILL BE ALLOWED FOR LOCAL TRAFFIC, THE TYPE III BARRICADES MAY NOT BE EXTENDED COMPLETELY ACROSS A ROADWAY. A SIGN WITH THE APPROPRIATE LEGEND CONCERNING PERMISSIBLE USE BY LOCAL TRAFFIC SHALL BE MOUNTED.

NORMALLY PERMANENT SIGNS MOUNTED ON BARRICADES SHALL BE ERECTED ABOVE THE BARRICADE. THE SIGNS "ROAD CLOSED", OR "ROAD WORK AHEAD", FOR EXAMPLE CAN EFFECTIVELY BE MOUNTED ABOVE THE BARRICADE THAT CLOSSES THE ROADWAY. TYPE III BARRICADES SHALL BE SUPPLEMENTED WITH A LIGHTING DEVICE UNLESS SPECIFICALLY OMITTED BY THE ENGINEER. DETOUR ARROW AND LARGE WARNING ARROW SIGNS SHOULD BE PLACED ON THE FACE OF BARRICADE.

CONES



DESIGN

CONES SHALL BE PREDOMINANTLY ORANGE, FLOURESCENT RED-ORANGE, OR FLOURESCENT YELLOW/ORANGE, NOT LESS THAN 28 INCHES IN HEIGHT, AND SHALL BE MADE OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING VEHICLES ON IMPACT. CONES WHEN ALLOWED ON THE INTERSTATE, FREEWAY OR EXPRESSWAY SYSTEM SHALL BE A MINIMUM OF 36 INCHES IN HEIGHT.

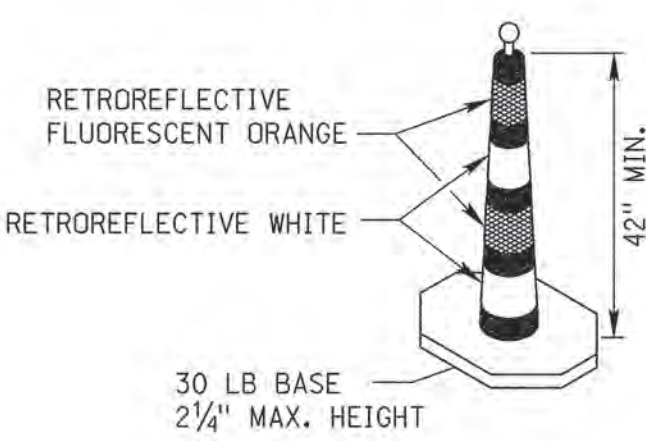
FOR NIGHTTIME USE, CONES SHALL BE RETROREFLECTIVE OR EQUIPPED WITH LIGHTING DEVICES FOR MAXIMUM VISIBILITY. RETROREFLECTION OF 28 INCH OR 36 INCH CONES SHALL BE PROVIDED BY A WHITE BAND 6 INCHES WIDE, NO MORE THAN 4 INCHES FROM THE TOP OF THE CONE, AND AN ADDITIONAL 4 INCH WIDE WHITE BAND A MINIMUM OF 2 INCHES BELOW THE 6 INCH BAND.

APPLICATION

TRAFFIC CONES ARE USED TO CHANNELIZE TRAFFIC, DIVIDE OPPOSING TRAFFIC LANES, DIVIDE TRAFFIC LANES WHEN TWO OR MORE LANES ARE KEPT OPEN IN THE SAME DIRECTION, AND DELINEATE SHORT-DURATION MAINTENANCE AND UTILITY WORK. CONES SHALL NOT BE USED FOR LANE CLOSURE TAPERS OR SHIFTS, CONES SMALLER THAN 42 INCHES SHALL NOT BE USED AT NIGHT ON RURAL HIGHWAYS, UNLESS SHOWN ON THE PLANS OR AS APPROVED OR DIRECTED BY THE ENGINEER.

STEPS SHOULD BE TAKEN TO ENSURE THAT CONES WILL NOT BE BLOWN OVER OR DISPLACED BY WIND OR MOVING TRAFFIC. CONES CAN BE DOUBLED UP TO INCREASE THEIR WEIGHT. SOME CONES ARE CONSTRUCTED WITH BASES THAT CAN BE FILLED WITH BALLAST. OTHERS HAVE SPECIAL WEIGHTED BASES, OR WEIGHTS SUCH AS SANDBAG RINGS THAT CAN BE DROPPED OVER THE CONES AND ONTO THE BASE TO PROVIDE ADDED STABILITY. BALLAST, HOWEVER, SHOULD NOT PRESENT A HAZARD IF THE CONES ARE INADVERTENTLY STRUCK.

42 INCH CONES



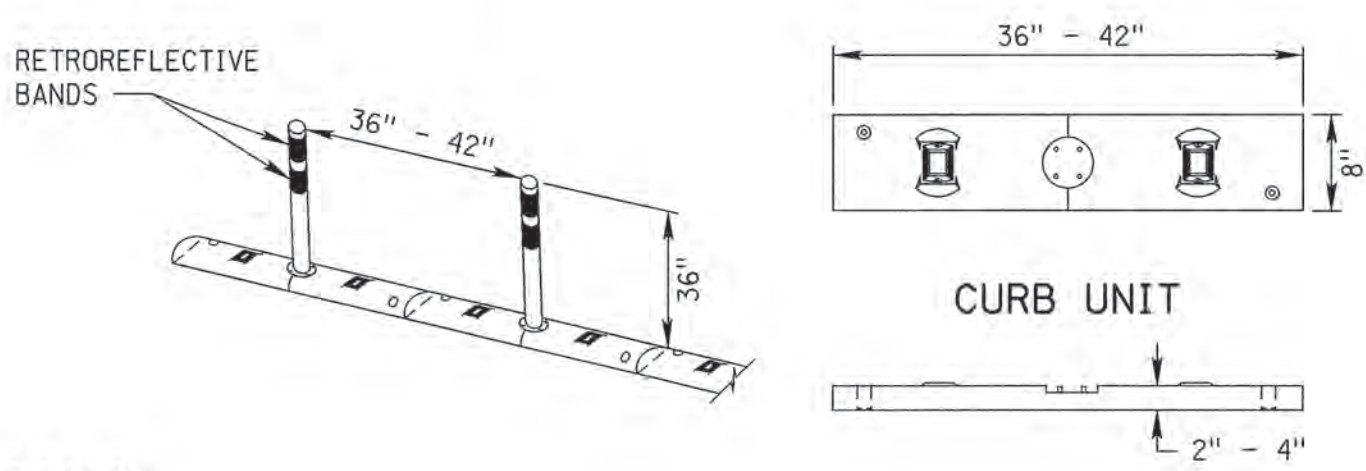
DESIGN

42 INCH CONES SHALL INCLUDE A 30 POUND RUBBER BASE AND DISPLAY FOUR 6 INCH WIDE BANDS OF RETROREFLECTIVE SHEETING, ALTERNATING FLUORESCENT ORANGE-WHITE-FLUORESCENT ORANGE-WHITE.

APPLICATION

WHEN APPROVED BY THE ENGINEER OR SHOWN IN THE PLANS, 42 INCH REFLECTIVE CONES MAY BE USED IN LIEU OF TYPE II BARRICADES OR REFLECTORIZED DRUMS. 42 INCH CONES SHALL NOT BE USED FOR LANE-CLOSURE TAPERS OR SHIFTS. IF A RECTANGULAR BASE IS USED, THE LONG SIDE OF THE BASE SHOULD BE ORIENTED PARALLEL TO THE DIRECTION OF TRAFFIC.

TUBULAR POST AND CURB SYSTEM



DESIGN

TUBULAR POSTS USED IN THE SYSTEM SHALL BE 36 INCHES HIGH AND A MINIMUM OF 2 INCHES WIDE WHEN FACING TRAFFIC. THE TUBULAR POST AND CURB SYSTEM SHALL BE MADE OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING IMPACTING VEHICLES. THE COLOR SHALL BE AS SHOWN IN THE PLANS.

THE TUBULAR POSTS SHALL BE RETROREFLECTIVE. RETROREFLECTION OF TUBULAR POSTS SHALL BE PROVIDED BY TWO 3-INCH WIDE RETROREFLECTIVE BANDS PLACED A MAXIMUM OF 2 INCHES FROM THE TOP WITH A MAXIMUM OF 6 INCHES BETWEEN THE BANDS. EACH CURB SECTION SHALL CONTAIN ONE RETROREFLECTIVE MARKER FACING EACH DIRECTION OF TRAFFIC. THE COLOR OF THE RETROREFLECTIVE BANDS AND MARKERS SHALL MATCH THE POST/CURB COLOR.

THE CURB SECTIONS SHALL BE CONFIGURED TO ALLOW FOR DRAINAGE FROM THE PAVEMENT SURFACE.

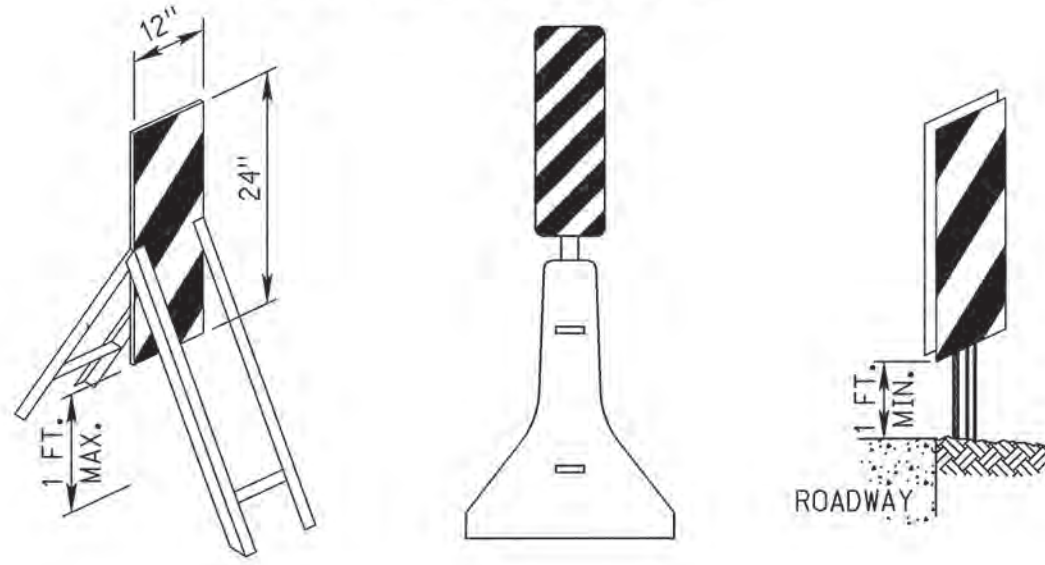
APPLICATION

TUBULAR POST AND CURB SYSTEMS MAY BE USED TO DIVIDE OPPOSING LANES OF TRAFFIC OR TO DIVIDE TRAFFIC LANES WHEN TWO OR MORE LANES ARE KEPT OPEN IN THE SAME DIRECTION.

FASTENING THE CURBS TO THE PAVEMENT WITH ANCHOR BOLTS OR OTHER SUITABLE METHODS AS DIRECTED BY THE MANUFACTURER IS REQUIRED TO MINIMIZE THE CHANCE OF BEING MOVED BY TRAFFIC.

TUBULAR POST AND CURB SYSTEMS SHALL BE INSTALLED IN THE LOCATIONS SHOWN IN THE PLANS OR DIRECTED BY THE ENGINEER.

VERTICAL PANELS



DESIGN

RETROREFLECTIVE MATERIAL ON VERTICAL PANELS SHALL BE 12 INCHES WIDE AND AT LEAST 24 INCHES HIGH. THEY SHALL HAVE ALTERNATING ORANGE AND WHITE STRIPES, WHERE THE HEIGHT OF THE RETROREFLECTIVE MATERIAL ON THE VERTICAL PANEL IS MORE THAN 36 INCHES, A PANEL STRIPE WIDTH OF 6 INCHES SHALL BE USED. WHERE THE HEIGHT OF THE RETROREFLECTIVE MATERIAL ON THE VERTICAL PANEL IS 36 INCHES OR LESS, A PANEL STRIPE WIDTH OF 4 INCHES SHALL BE USED. IF USED FOR TWO-WAY TRAFFIC, BACK-TO-BACK PANELS SHALL BE USED.

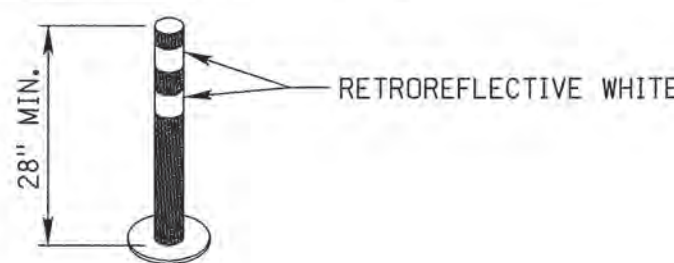
MARKINGS FOR VERTICAL PANELS SHALL BE ALTERNATING ORANGE AND WHITE RETROREFLECTORIZED STRIPES SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC IS TO PASS.

POST MOUNTED VERTICAL PANELS SHALL BE MOUNTED WITH THE BOTTOM A MINIMUM OF 1 FOOT ABOVE THE ROADWAY. VERTICAL PANELS ON A TEMPORARY STAND SHALL BE MOUNTED WITH THE BOTTOM A MAXIMUM OF 1 FOOT ABOVE THE ROADWAY.

APPLICATION

WHERE SPACE IS LIMITED VERTICAL PANELS MAY BE USED TO CHANNEL TRAFFIC, DIVIDE OPPOSING LANES OF TRAFFIC, DIVIDE TRAFFIC LANES OR REPLACE BARRICADES. WHEN APPROVED BY THE ENGINEER, VERTICAL PANELS MAY BE POST-MOUNTED ALONG THE SIDE OF THE ROADWAY.

TUBULAR POSTS



DESIGN

TUBULAR POSTS SHALL BE PREDOMINANTLY ORANGE, NOT LESS THAN 28 INCHES HIGH, BE A MINIMUM OF 2 INCHES WIDE WHEN FACING TRAFFIC, AND MADE OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING IMPACTING VEHICLES.

TUBULAR POSTS SHALL BE RETROREFLECTIVE. RETROREFLECTION OF TUBULAR POSTS SHALL BE PROVIDED BY TWO 3 INCHES WIDE WHITE BANDS PLACED A MAXIMUM OF 2 INCHES FROM THE TOP, WITH A MAXIMUM OF 6 INCHES BETWEEN THE BANDS. THE BASE SHALL NOT BE WIDER THAN 12 INCHES OR HIGHER THAN 2 INCHES.

APPLICATION

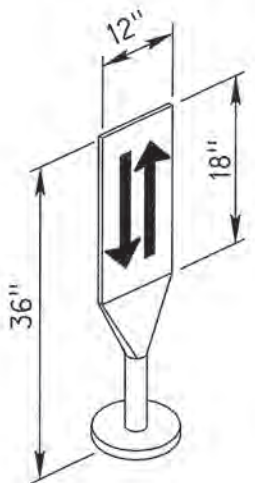
TUBULAR POSTS HAVE LESS VISIBLE AREA THAN OTHER DEVICES AND SHOULD BE USED ONLY WHERE SPACE RESTRICTIONS DO NOT ALLOW FOR THE USE OF OTHER MORE VISIBLE DEVICES. THEY MAY BE USED EFFECTIVELY TO DIVIDE OPPOSING LANES OF TRAFFIC OR TO DIVIDE TRAFFIC LANES WHEN TWO OR MORE LANES ARE KEPT OPEN IN THE SAME DIRECTION.

STEPS SHOULD BE TAKEN TO ASSURE THAT TUBULAR POSTS WILL NOT BE BLOWN OVER OR DISPLACED BY TRAFFIC BY EITHER AFFIXING THEM TO THE PAVEMENT WITH ANCHOR BOLTS OR ADHESIVE, IF A NONCYLINDRICAL DEVICE IS USED, IT SHALL BE ATTACHED TO THE PAVEMENT TO ENSURE THAT THE WIDTH FACING TRAFFIC MEETS THE MINIMUM REQUIREMENTS.

TUBULAR POSTS SHOULD NOT BE USED FOR PEDESTRIAN CHANNELIZATION OR A PEDESTRIAN BARRIERS IN TEMPORARY TRAFFIC CONTROL ZONES ON OR ALONG SIDEWALKS.

R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	JUN 14	2009 MUTCD UPDATE
R5	OCT 98	REVISE CHANNELIZATION DEVICES, TAPER
REV. NO.	DATE	DESCRIPTION OF REVISION
NEBRASKA DEPARTMENT OF TRANSPORTATION STANDARD PLAN NO. 920-R7 TRAFFIC CONTROL, CONSTRUCTION AND MAINTENANCE		
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:		
9-1-2017		DATE
ORIGINAL: OCTOBER 1998		DATE
		1 3

OPPOSING TRAFFIC LANE DIVIDERS



DESIGN

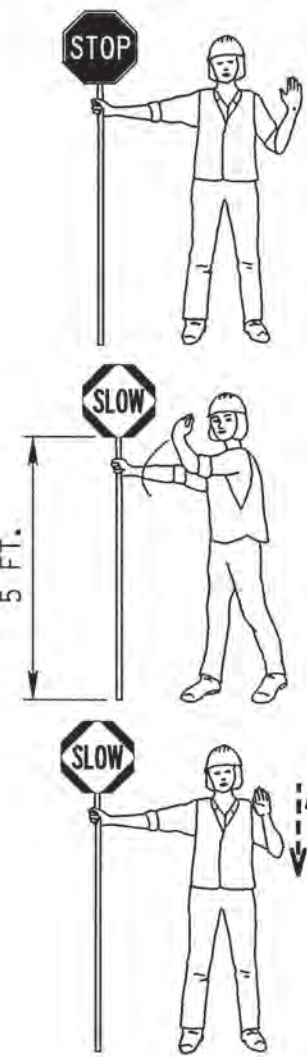
OPPOSING TRAFFIC LANE DIVIDERS SHALL BE A TWO SIDED UPRIGHT RETROREFLECTORIZED ORANGE PANEL, WITH A WIDTH OF 12 INCHES AND A HEIGHT OF 18 INCHES. THE TOP OF THE PANEL SHALL BE 36 INCHES ABOVE THE PAVEMENT. THE SYMBOL ON EACH SIDE SHALL BE TWO OPPOSING BLACK ARROWS. THE LANE DIVIDER SHALL BE MADE OF LIGHTWEIGHT MATERIAL THAT WILL YIELD UPON IMPACT BY A VEHICLE. THE LANE DIVIDER BASE SHALL NOT BE WIDER THAN 12 INCHES OR HIGHER THAN 4 INCHES. THE BASE SHALL BE ATTACHED TO THE EXISTING SURFACE BY EPOXY OR OTHER SUITABLE ADHESIVE, TO ENSURE THAT THE PANEL REMAINS FACING TRAFFIC.

APPLICATION

OPPOSING TRAFFIC LANE DIVIDERS ARE DELINEATION DEVICES USED AS CENTER LANE DIVIDERS TO SEPARATE OPPOSING TRAFFIC ON A TWO-LANE, TWO-WAY OPERATION.

FLAGGERS

REQUIRED METHOD

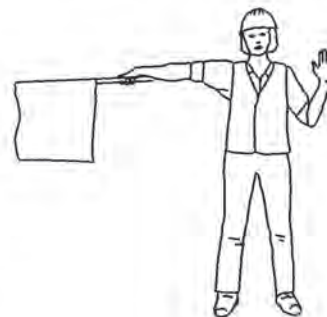


TO STOP TRAFFIC

TRAFFIC PROCEED

TO ALERT AND SLOW TRAFFIC

EMERGENCY USE ONLY



FLAGGER PADDLE

THE STOP/SLOW PADDLE SHALL HAVE AN OCTAGONAL SHAPE ON A RIGID HANDLE. STOP/SLOW PADDLES SHALL BE AT LEAST 18 INCHES WIDE WITH LETTERS AT LEAST 6 INCHES HIGH. IF THE STOP/SLOW PADDLE IS PLACED ON A RIGID STAFF, THE MINIMUM LENGTH OF THE STAFF, MEASURED FROM THE BOTTOM OF THE SIGN TO THE END OF THIS STAFF THAT RESTS ON THE GROUND, SHOULD BE 5 FEET. THE STOP/SLOW PADDLE SHOULD BE THE PRIMARY AND PREFERRED HAND-SIGNALING DEVICE BECAUSE THE STOP/SLOW PADDLE GIVES ROAD USERS MORE POSITIVE GUIDANCE THAN RED FLAGS. USE OF FLAGS SHOULD BE LIMITED TO EMERGENCY SITUATIONS.

FLAGGERS

A FLAGGER MUST BE DRESSED FOR SAFETY. IN ADDITION TO THE REQUIREMENTS OF THE "WORKER VISIBILITY" SECTION LISTED BELOW, FLAGGERS SHALL WEAR:

1. AN ORANGE OR YELLOW/GREEN CAP OR HARD HAT.
2. A SHIRT WITH SLEEVES, PANTS AND SHOES (TANK TOPS, SHORTS OR SANDALS SHALL NOT BE WORN).

FLAGGERS SHALL BE INSTRUCTED IN THE PROPER LOCATION, DUTIES AND PROCEDURES FOR FLAGGING AS OUTLINED IN THE CURRENT MUTCD AND THE DEPARTMENT OF ROADS FLAGGER'S HANDBOOK, AS REQUIRED BY THE DEPARTMENT OF ROADS. THE FLAGGER SHALL BE CERTIFIED, AND HAVE IN THEIR POSSESSION, A VALID FLAGGER CERTIFICATION CARD.

WORKER VISIBILITY

ALL WORKERS WITHIN THE RIGHT-OF-WAY WHO ARE EXPOSED EITHER TO TRAFFIC (VEHICLES USING THE HIGHWAY FOR PURPOSES OF TRAVEL) OR TO CONSTRUCTION EQUIPMENT WITHIN THE WORK AREA SHALL WEAR HIGH-VISIBILITY SAFETY APPAREL. HIGH-VISIBILITY SAFETY APPAREL IS DEFINED TO MEAN PERSONAL PROTECTIVE SAFETY CLOTHING THAT:

1. IS INTENDED TO PROVIDE CONSPICUITY DURING BOTH DAYTIME AND NIGHTTIME USAGE, AND
2. MEETS THE PERFORMANCE CLASS 2 OR CLASS 3 REQUIREMENTS OF THE ANSI/ISEA 107-2004 PUBLICATION ENTITLED "AMERICAN NATIONAL STANDARDS FOR HIGH-VISIBILITY SAFETY APPAREL AND HEADWEAR"

LIGHTING DEVICES

FUNCTION

CONSTRUCTION AND MAINTENANCE ACTIVITIES OFTEN CREATE CONDITIONS ON OR NEAR THE TRAVELED WAY THAT ARE PARTICULARLY HAZARDOUS AT NIGHT. IT IS OFTEN DESIRABLE AND NECESSARY TO SUPPLEMENT THE REFLECTORIZED SIGNS, BARRIERS, AND CHANNELIZING DEVICES WITH LIGHTING DEVICES. STROBE TYPE LIGHTS ARE NOT PERMITTED.

BARRICADE WARNING LIGHTS DESIGN (BATTERY OPERATED)

TYPE "A" LOW INTENSITY FLASHING WARNING LIGHTS ARE MOST COMMONLY MOUNTED ON BARRICADES, OR WITH SIGNS AND ARE INTENDED TO WARN THE DRIVER THAT THEY ARE PROCEEDING IN A HAZARDOUS AREA. THESE LIGHTS SHALL NOT BE USED FOR DELINEATION, AS A SERIES OF FLASHING LIGHTS IN A ROW WOULD TEND TO OBSCURE THE DESIRED PATH.

TYPE "A" HIGH INTENSITY FLASHING WARNING LIGHTS ARE NORMALLY MOUNTED ON THE TYPE III BARRICADE THAT ACCOMPANIES THE ADVANCE WARNING SIGNS.

TYPE "C" STEADY BURN LIGHTS AS USED HEREIN, SHALL MEAN A SERIES OF LOW WATTAGE YELLOW ELECTRIC LIGHTS. WHERE LIGHTS ARE NEEDED TO DELINEATE OR MARK THE TRAVELED WAY THROUGH AND AROUND OBSTRUCTIONS IN A CONSTRUCTION MAINTENANCE AREA, THE DELINEATION SHALL BE ACCOMPLISHED BY USE OF STEADY BURNING LIGHTS. WHEN USED TO SUPPLEMENT CHANNELIZATION, THE MAXIMUM SPACING FOR WARNING LIGHTS SHOULD BE IDENTICAL TO THE CHANNELIZING DEVICE SPACING REQUIREMENTS. WHEN USED TO DELINEATE A CURVE, TYPE "C" WARNING LIGHTS SHOULD ONLY BE USED ON DEVICES ON THE OUTSIDE OF THE CURVE, AND NOT ON THE INSIDE OF THE CURVE.

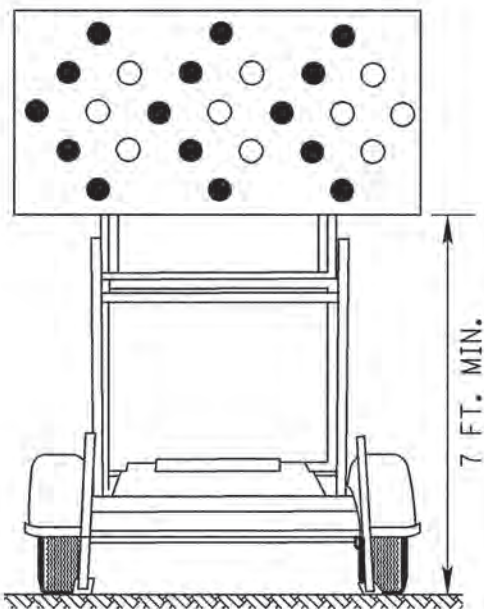
FLASHING ARROW PANEL (DISPLAY)

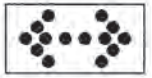
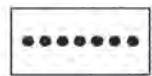
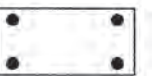
AN ARROW PANEL IS A SIGN WITH A MATRIX OF ELEMENTS, CAPABLE OF EITHER FLASHING OR SEQUENTIAL DISPLAYS. THIS SIGN SHALL PROVIDE ADDITIONAL WARNING AND DIRECTIONAL INFORMATION TO ASSIST IN MERGING AND CONTROLLING ROAD USERS THROUGH OR AROUND A TEMPORARY TRAFFIC CONTROL ZONE. AN ARROW PANEL SHOULD BE USED IN COMBINATION WITH APPROPRIATE SIGNS, CHANNELIZING DEVICES OR OTHER TRAFFIC CONTROL DEVICES.

DESIGN

ARROW PANELS SHALL MEET THE SIZE AND SPECIFICATIONS OF THE MUTCD FOR TYPE "C" ARROW DISPLAYS.

FLASHING ARROW PANEL SHALL BE RECTANGULAR, OF SOLID APPEARANCE AND FINISHED IN NON-REFLECTIVE BLACK. THE PANEL SHALL BE MOUNTED ON A VEHICLE, TRAILER OR OTHER SUITABLE SUPPORT. MINIMUM MOUNTING HEIGHT MEASURED VERTICALLY FROM THE BOTTOM OF THE PANEL TO THE ROADWAY BELOW IT OR TO THE ELEVATION OF THE NEAR EDGE OF THE ROADWAY, SHALL BE 7 FEET EXCEPT ON VEHICLE-MOUNTED PANELS, WHICH SHOULD BE AS HIGH AS PRACTICAL.



THE FOLLOWING SELECTIONS SHALL BE PROVIDED ON THE ARROW PANEL	
OPERATING MODE	PANEL DISPLAY
FLASHING ARROW	 RIGHT SHOWN; LEFT OPPOSITE
SEQUENTIAL ARROW	 RIGHT SHOWN; LEFT OPPOSITE
SEQUENTIAL CHEVRON	 RIGHT SHOWN; LEFT OPPOSITE
FLASHING DOUBLE ARROW	 RIGHT SHOWN; LEFT OPPOSITE
FLASHING OR ALTERNATING CAUTION	 OR  OR  FLASHING LINE FLASHING CORNERS ALTERNATING DIAMOND CAUTION

THE ARROW PANEL SHALL HAVE A MINIMUM SIZE OF 96 INCHES WIDE AND 48 INCHES HIGH. THE MINIMUM LEGIBILITY DISTANCE SHALL BE 1 MILE. THE PANEL SHALL CONTAIN 25 LAMP ELEMENTS. ARROW PANEL ELEMENTS SHALL BE CAPABLE OF A MINIMUM 50 PERCENT DIMMING, AUTOMATICALLY WHEN AMBIENT LIGHT FALLS BELOW 50 LUX.

THE MINIMUM ELEMENT "ON TIME" SHALL BE 50 PERCENT FOR THE FLASHING MODE AND EQUAL INTERVALS OF 25 PERCENT FOR EACH SEQUENTIAL CHEVRON PHASE. THE FLASHING RATE SHALL BE NO FEWER THAN 25 NOR MORE THAN 40 FLASHES PER MINUTE.

APPLICATION

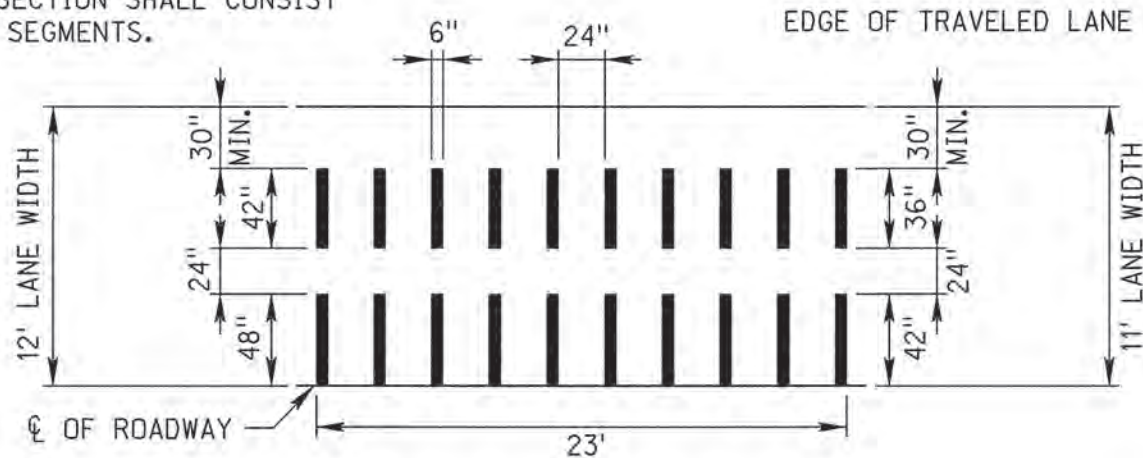
A FLASHING ARROW OR SEQUENTIAL CHEVRON MODE SHALL ONLY BE USED FOR STATIONARY OR MOVING LANE CLOSURES.

FOR SHOULDER WORK BLOCKING THE SHOULDER, FOR ROADSIDE WORK NEAR THE SHOULDER, OR FOR TEMPORARILY CLOSING ONE LANE ON A TWO-LANE, TWO-WAY ROADWAY, AN ARROW PANEL SHALL BE USED ONLY IN THE CAUTION MODE.

AN ARROW DISPLAY MODE SHALL NOT BE USED ON A TWO-LANE TWO-WAY ROADWAY FOR TEMPORARY ONE-LANE OPERATION OR LANE SHIFTS. AN ARROW DISPLAY SHALL NOT BE USED TO Laterally SHIFT TRAFFIC.

TEMPORARY RUMBLE STRIPS

EACH SECTION SHALL CONSIST OF 10 SEGMENTS.



DESIGN

TEMPORARY RUMBLE STRIPS MAY BE MADE OF ASPHALT PAVING MATERIAL, EPOXY AND AGGREGATE OR OTHER SUITABLE MATERIAL WHICH WILL MAINTAIN A DESIRABLE RUMBLE EFFECT. THE TEMPORARY RUMBLE STRIP SHOULD HAVE AN INSTALLED HEIGHT OF 5/8". PREFORMED RUMBLE STRIPS MAY BE USED PROVIDED THEY HAVE A MINIMUM 1/2" HEIGHT.

TRAFFIC SIGNALS

TRAFFIC SIGNALS MAY BE ALLOWED AT CERTAIN EQUIPMENT CROSSINGS WHERE THE VOLUME OF FILL MATERIAL AND THE NUMBER OF EQUIPMENT CROSSINGS PER HOUR IS HIGH. TRAFFIC SIGNALS MAY BE ALLOWED AT CERTAIN BRIDGE CONSTRUCTION SITES WHERE A COMBINATION OF ONE-WAY TRAFFIC AND HIGH TRAFFIC VOLUMES WOULD BE BEST SERVED WITH THIS TYPE OF TRAFFIC CONTROL.

ALL TRAFFIC SIGNAL REQUESTS AND METHOD OF INSTALLATION ON THE STATE HIGHWAY SYSTEM SHALL BE IN COMPLIANCE WITH THE MUTCD AND MUST BE APPROVED BY THE STATE TRAFFIC ENGINEER.

IF, AFTER THE SIGNAL ASSEMBLIES ARE ERECTED AND THE ROAD IS OPEN TO PUBLIC TRAVEL, THE SIGNAL SYSTEM IS NOT PUT IMMEDIATELY INTO OPERATION, THE SIGNAL FACES SHALL BE COVERED WITH BURLAP OR OTHER OPAQUE MATERIAL SUBJECT TO THE APPROVAL OF THE ENGINEER. INOPERATIVE SIGNALS ON ROADS OPEN TO THE PUBLIC SHALL ALWAYS BE COVERED. TILTING THE SIGNALS UPWARD IS NOT AN ACCEPTABLE ALTERNATIVE TO COVERING THE HEADS.

FLOODLIGHTS

WHEN NIGHTTIME WORK IS REQUIRED, FLOODLIGHTS SHALL BE USED TO ILLUMINATE FLAGGER STATIONS. FLOODLIGHTS SHOULD BE USED TO ILLUMINATE EQUIPMENT CROSSINGS, AND OTHER AREAS WHERE EXISTING LIGHT IS NOT ADEQUATE FOR THE WORK TO BE PERFORMED SAFELY.

IN NO CASE SHALL FLOODLIGHTING BE PERMITTED TO CREATE A DISABLING GLARE FOR DRIVERS. THE ADEQUACY OF THE FLOODLIGHT PLACEMENT AND ELIMINATION OF POTENTIAL GLARE SHOULD BE CHECKED BY DRIVING THROUGH THE PROJECT.

PAVEMENT MARKING

IT IS INTENDED TO THE EXTENT POSSIBLE, THAT MOTORISTS BE PROVIDED MARKINGS WITHIN A WORK AREA COMPARABLE TO THE MARKINGS NORMALLY MAINTAINED ALONG ADJACENT ROADWAYS, PARTICULARLY AT EITHER END OF THE WORK AREA.

ALL MARKINGS AND DEVICES USED TO DELINEATE VEHICLE AND PEDESTRIAN PATHS SHALL BE CAREFULLY REVIEWED DURING DAYTIME AND NIGHTTIME PERIODS TO AVOID INADVERTENTLY LEADING DRIVERS OR PEDESTRIANS FROM THE INTENDED PATH.

PAVEMENT MARKINGS NO LONGER APPLICABLE SHALL BE REMOVED UNLESS OTHERWISE APPROVED BY THE ENGINEER.

TAPERS

TAPERS ARE CREATED USING A SERIES OF CHANNELIZING DEVICES OR PAVEMENT MARKINGS TO MOVE TRAFFIC OUT OF OR INTO ITS NORMAL PATH.

MERGING TAPER

A MERGING TAPER REQUIRES THE LONGEST DISTANCE BECAUSE DRIVERS ARE REQUIRED TO MERGE INTO COMMON ROAD SPACE. THE TAPER SHOULD BE LONG ENOUGH TO ENABLE MERGING DRIVERS TO HAVE ADEQUATE ADVANCE WARNING AND SUFFICIENT LENGTH TO ADJUST THEIR SPEEDS AND MERGE INTO A SINGLE LANE BEFORE THE DOWNSTREAM END OF THE TRANSITION.

SHIFTING TAPER

A SHIFTING TAPER IS USED WHEN MERGING IS NOT REQUIRED, BUT A LATERAL SHIFT IS NEEDED. APPROXIMATELY ONE-HALF "L" HAS BEEN FOUND TO BE ADEQUATE. WHERE MORE SPACE IS AVAILABLE, IT MAY BE BENEFICIAL TO USE LONGER TAPERS. GUIDANCE FOR CHANGES IN ALIGNMENT MAY ALSO BE ACCOMPLISHED BY USING HORIZONTAL CURVES DESIGNED FOR NORMAL HIGHWAY SPEEDS.

SHOULDER TAPERS

A SHOULDER TAPER MAY BE BENEFICIAL ON HIGH-SPEED ROADWAYS WHERE SHOULDERS ARE PART OF THE ACTIVITY AREA AND ARE CLOSED, OR WHEN IMPROVED SHOULDERS MIGHT BE MISTAKEN AS A DRIVING LANE IN THESE INSTANCES, THE SAME TYPE, BUT ABBREVIATED, CLOSURE PROCEDURES USED ON A NORMAL PORTION OF THE ROADWAY CAN BE USED. IF USED, SHOULDER TAPERS APPROACHING THE ACTIVITY AREA SHOULD HAVE A LENGTH OF ABOUT ONE-THIRD "L".

DOWNSTREAM TAPERS

THE DOWNSTREAM TAPER MAY BE USEFUL IN TERMINATION AREAS TO PROVIDE A VISUAL CUE TO THE DRIVER THAT ACCESS IS AVAILABLE TO THE ORIGINAL LANE OR PATH THAT WAS CLOSED. WHEN USED, IT SHOULD HAVE A MINIMUM LENGTH OF ABOUT 100 FEET PER LANE, WITH DEVICES SPACED ABOUT 20 FEET APART.

ONE LANE, TWO WAY TAPER

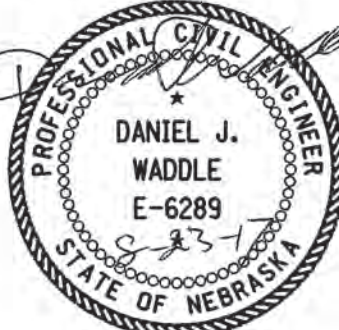
THE ONE-LANE, TWO-WAY TAPER IS USED IN ADVANCE OF AN ACTIVITY AREA THAT OCCUPIES PART OF A TWO-WAY ROADWAY IN SUCH A WAY THAT A PORTION OF THE ROAD IS USED ALTERNATELY BY TRAFFIC IN EACH DIRECTION. A SHORT TAPER HAVING A MINIMUM LENGTH OF 50 FEET AND A MAXIMUM LENGTH OF 100 FEET WITH CHANNELIZING DEVICES AT APPROXIMATELY 20 FOOT SPACINGS SHOULD BE USED TO GUIDE TRAFFIC INTO THE ONE-LANE-SECTION AND A DOWNSTREAM TAPER WITH A LENGTH OF APPROXIMATELY 100 FEET SHOULD BE USED TO GUIDE TRAFFIC BACK INTO THEIR ORIGINAL LANE.

TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES	
TYPE OF TAPER	TAPER LENGTH (FEET)
MERGING TAPER	L MINIMUM
SHIFTING TAPER	1/2 L MINIMUM
SHOULDER TAPER	1/3 L MINIMUM
TWO-WAY TAPER	100 FEET MAXIMUM

FORMULAS FOR L	
SPEED	FORMULA
40 MPH OR LESS	$L = \frac{WS^2}{60}$
45 MPH OR GREATER	$L = WS$

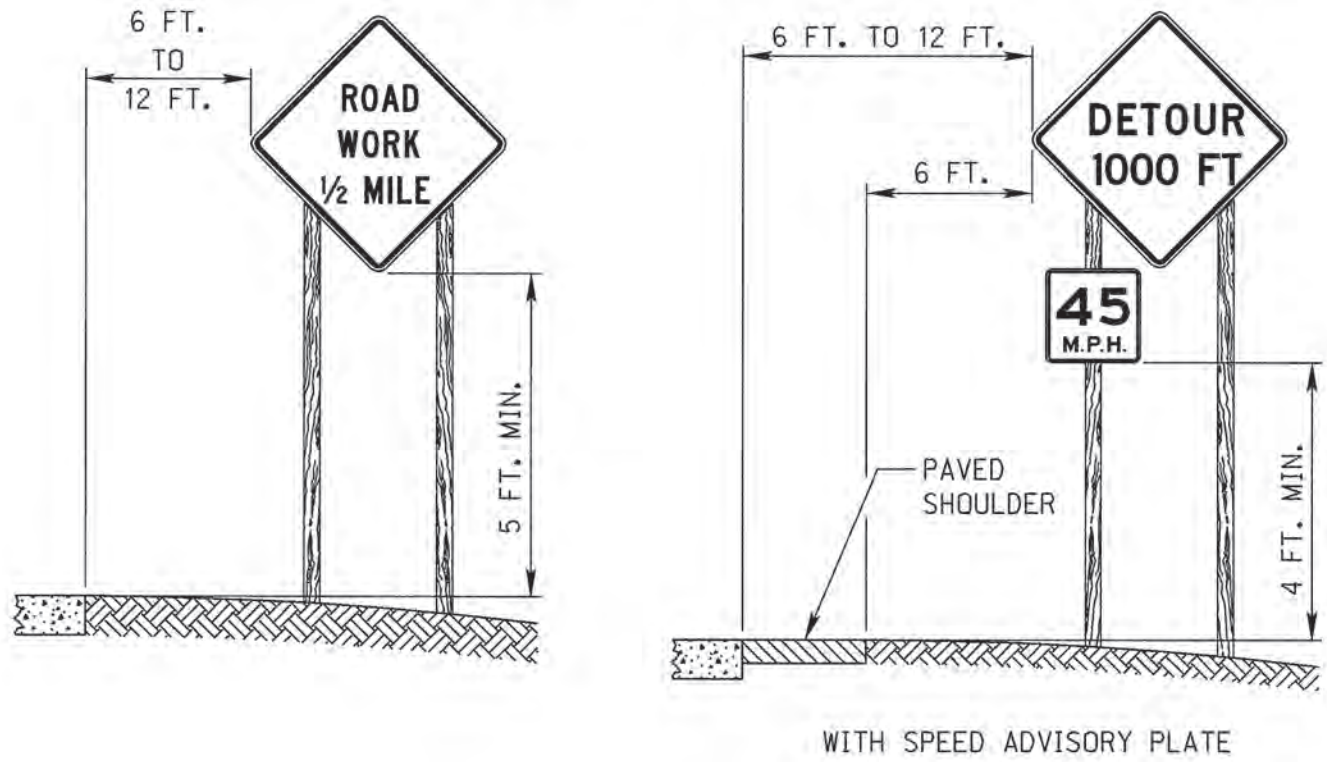
L = TAPER LENGTH IN FEET
W = WIDTH OF OFFSET IN FEET
S = POSTED SPEED LIMIT PRIOR TO WORK IN MPH

TAPER LENGTH L (FEET)			
SPEED (MPH)	LANE WIDTH		
S	10 FT.	11 FT.	12 FT.
25	105	115	125
30	150	165	180
35	205	225	245
40	270	295	320
45	450	495	540
50	500	550	600
55	550	605	660
60	600	660	720
65	650	715	780
75	750	825	900

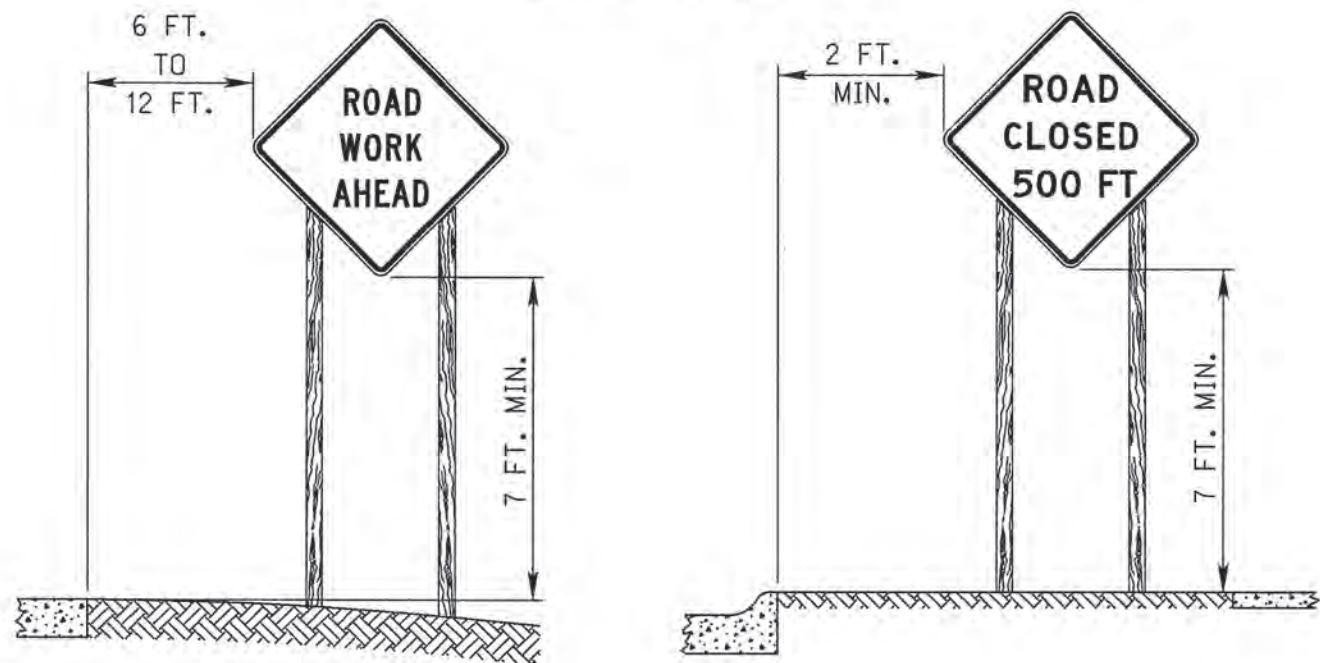
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 DANIEL J. WADDE E-6289 STATE OF NEBRASKA <i>Daniel Mung</i> 9-1-2017 DATE		
ORIGINAL: OCTOBER 1998 DATE		

ROADSIDE SIGNS

HEIGHT AND LATERAL LOCATION OF SIGNS
RURAL AREA



URBAN AREA



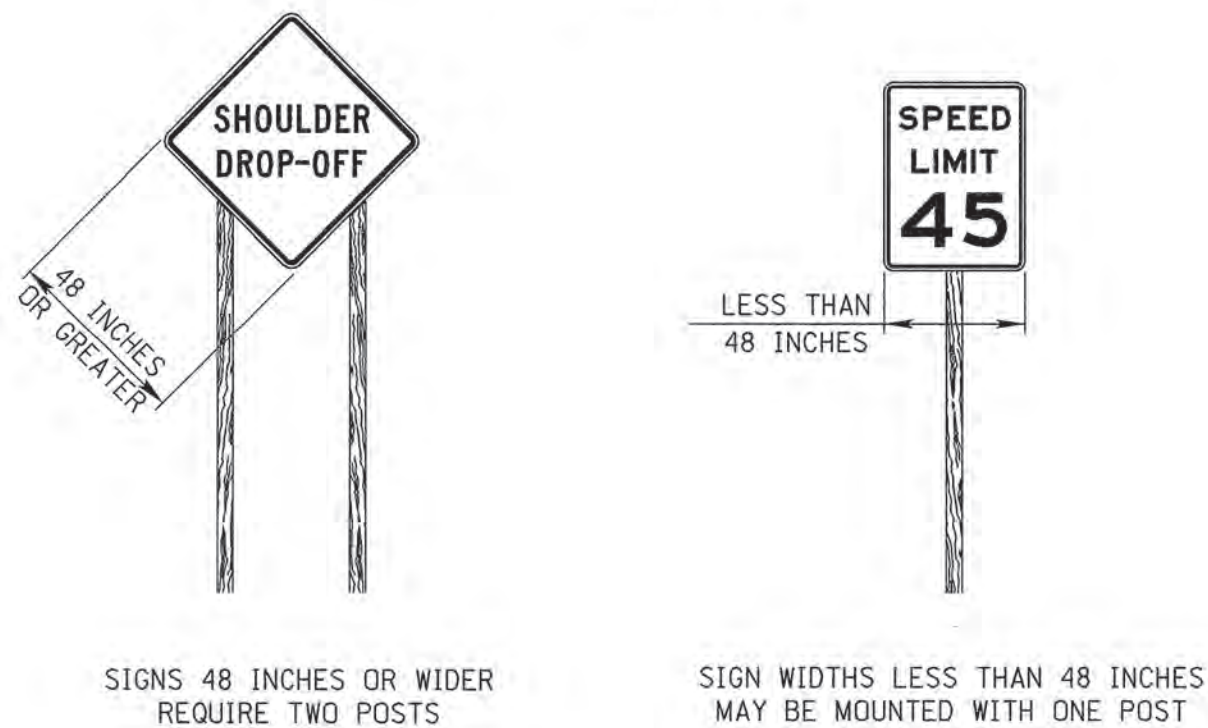
TYPICAL FIRST SIGN AT
CONSTRUCTION SITE



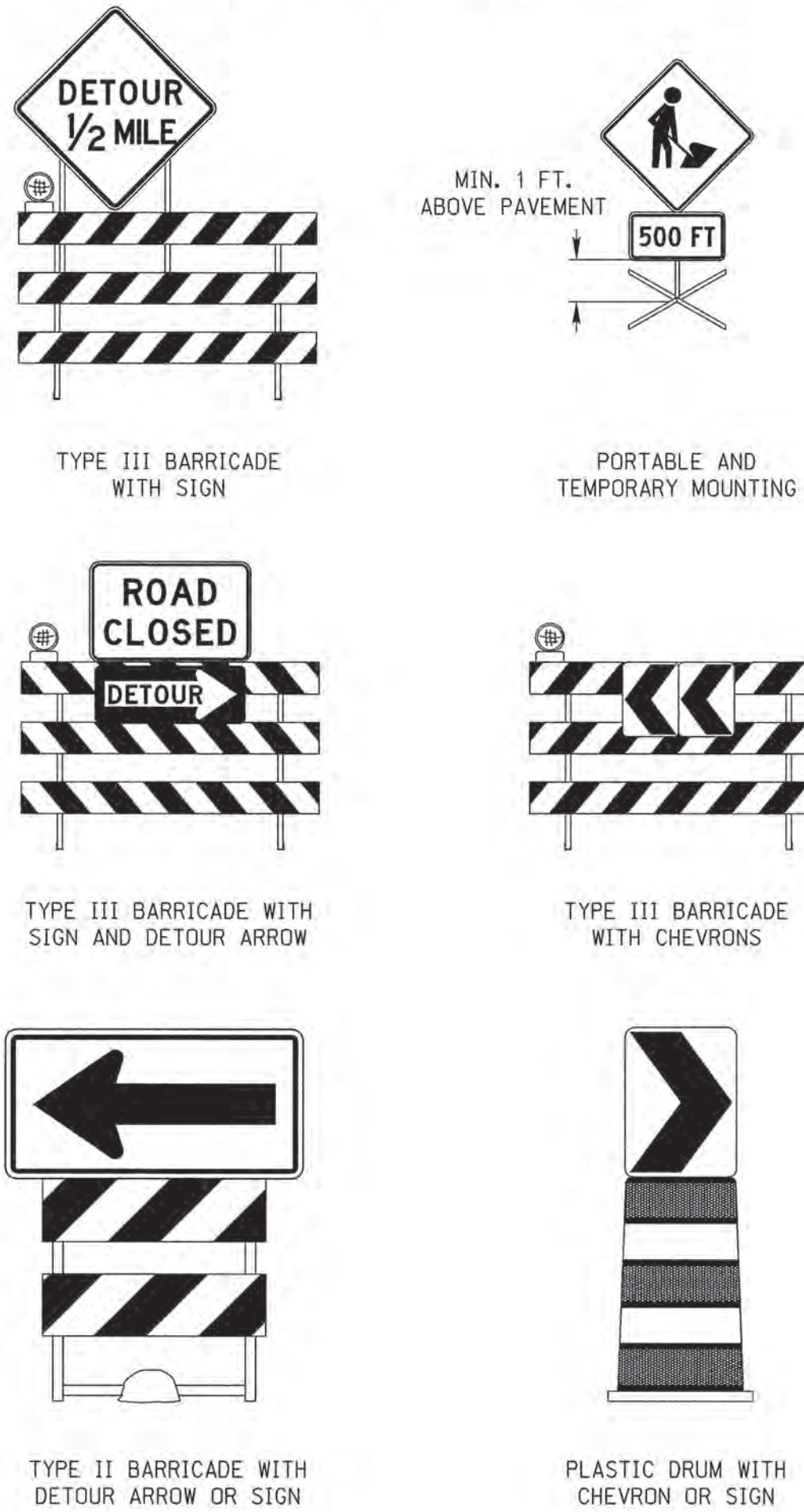
PORTABLE AND
TEMPORARY MOUNTING



TYPICAL SIGN MOUNTINGS
POST MOUNTED



TYPICAL SIGN MOUNTINGS
OTHER THAN POST MOUNTED



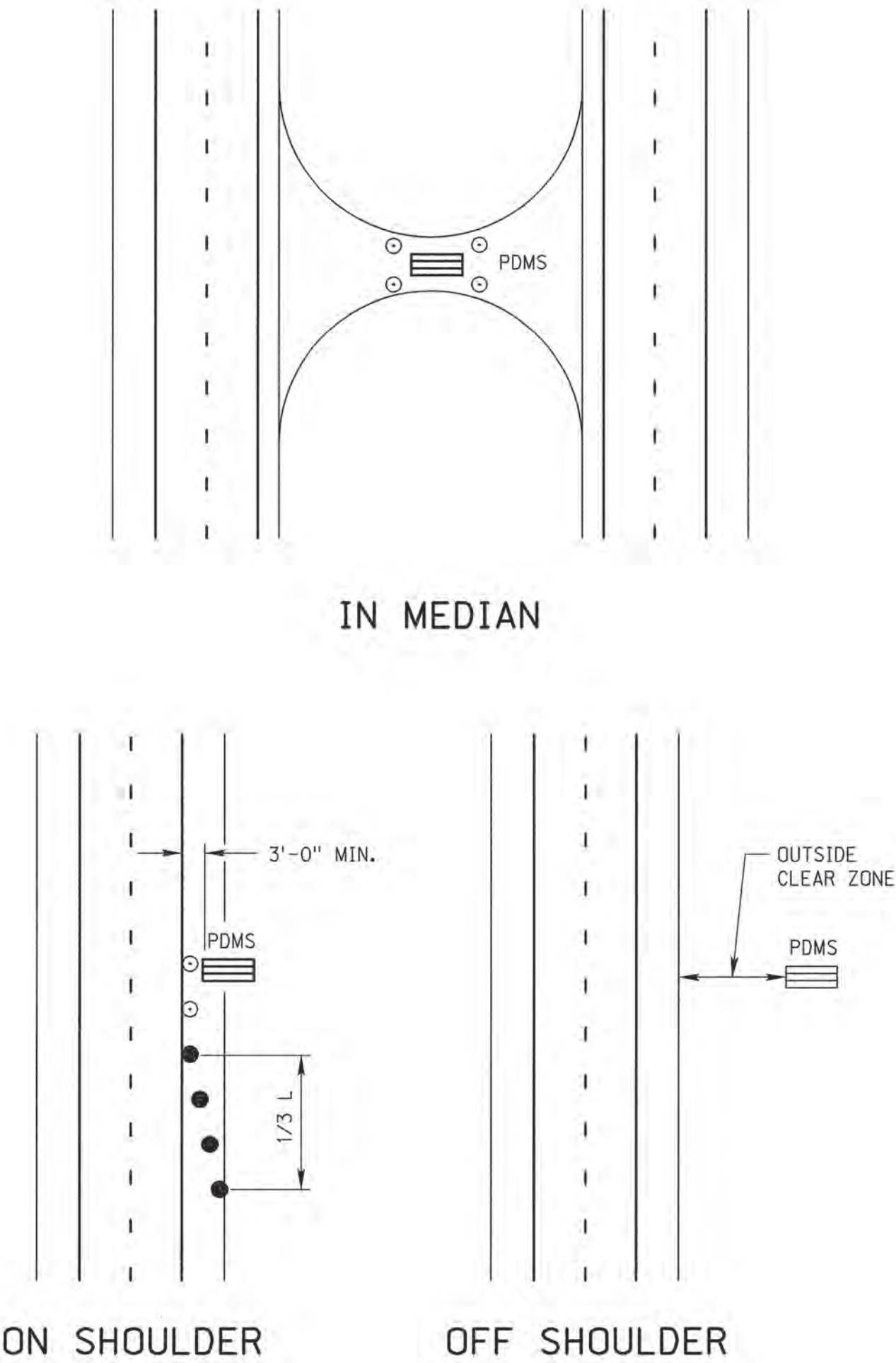
TEMPORARY SIGN SUPPORTS

ALL "TEMPORARY SIGN" SUPPORTS (BASES) SHALL BE NCHRP 350 OR MASH (TL-3) APPROVED.

"TEMPORARY SIGNS" ARE ALL TEMPORARILY MOUNTED WORK ZONE SIGNS THAT ARE NOT POST MOUNTED IN THE GROUND AT THE TYPICAL 5 FOOT MOUNTING HEIGHT. TEMPORARY SIGNS ARE CONSIDERED NCHRP 350 OR MASH CATEGORY 2 DEVICES AND ARE MOUNTED ON TEMPORARY SIGN STANDS. TEMPORARY SIGNS SHALL BE MOUNTED A MINIMUM OF 1 FOOT ABOVE THE GROUND, UNLESS OTHERWISE REQUIRED TO BE MOUNTED AT A HIGHER HEIGHT.

TEMPORARY SIGNS AND THEIR SUPPORTS SHALL NOT BE IN PLACE LONGER THAN 3 DAYS. ANY SIGN THAT IS TO BE IN PLACE LONGER THAN 3 DAYS SHALL BE POST MOUNTED OR MOUNTED TO A DRUM, BARRICADE, OR BARRIER, AS REQUIRED BY THE PLANS OR SPECIFICATIONS.

PORTABLE DYNAMIC MESSAGE SIGN DELINEATION



PORTABLE DYNAMIC MESSAGE SIGNS (PDMS)

THE PLACEMENT OF PDMS SHOULD BE IN THE FOLLOWING ORDER:

WHENEVER POSSIBLE, PDMS SHOULD BE PLACED OFF OF ANY USABLE PORTION OF THE ROADWAY ON THE RIGHT SIDE OF THE ROADWAY. WHEN PLACED OUTSIDE THE CLEAR ZONE OR BEHIND GUARDRAIL OR CONCRETE PROTECTION BARRIERS, DELINEATION IS NOT REQUIRED.

WHERE FIELD CONDITIONS DO NOT ALLOW FOR THIS PLACEMENT, THE SIGNS MAY BE LOCATED ON THE OUTSIDE SHOULDER OF THE ROADWAY OR WITHIN THE MEDIAN.

A. A MINIMUM CLEARANCE OF 3 FEET MEASURED HORIZONTALLY FROM THE EDGE OF THE SIGN TO THE EDGE OF THE TRAVELED WAY IS RECOMMENDED.

B. THE PDMS SHOULD HAVE A MINIMUM MOUNTED HEIGHT OF 7 FEET ON FREEWAYS, EXPRESSWAYS AND IN URBAN AREAS.

C. ALL OTHER RURAL APPLICATIONS SHOULD HAVE A MINIMUM HEIGHT OF 5 FEET.

THESE HEIGHTS ARE MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE ELEVATION OF THE NEAR EDGE OF THE PAVEMENT.

REFLECTORIZED PLASTIC DRUMS SHOULD BE USED TO DELINEATE EACH SIGN USING A 1/3 L TAPER. THESE DRUMS SHOULD BE POSITIONED ON THE UPSTREAM END OF THE SIGN TO FORM A TAPER LEADING UP TO THE TRAFFIC SIDE OF THE SIGN. FOR A SIGN LOCATED IN THE MEDIAN, THE SIGN SHOULD BE DELINEATED WITH A 42 INCH CONE ON ALL FOUR CORNERS.

WHEN DEPLOYED, THE SIGN SHALL BE SIGHTED AND ALIGNED WITH APPROACHING TRAFFIC TO ENSURE VISIBILITY OF THE MESSAGE. IF MULTIPLE SIGNS ARE USED, THE SIGNS SHOULD BE LOCATED ON THE SAME SIDE OF THE ROAD AND SEPARATED ACCORDING TO PROPER SIGN SPACING.

WHEN PRACTICAL, PDMS SHOULD NOT BE USED TO REPLACE STATIC SIGNS FOR LONG TERM USAGE (OVER 10 DAYS).

WHEN PDMS ARE TO BE DEPLOYED FOR LONG PERIODS, SUCH AS INCIDENT MANAGEMENT ROLES, CONCRETE PADS WITH APPROPRIATE TIE DOWNS SHOULD BE CONSTRUCTED FOR THEIR PLACEMENT.

PDMS NOT ACTIVELY BEING USED IN A CONSTRUCTION OR INCIDENT MANAGEMENT ROLE SHOULD BE REMOVED.

REFER TO NDOR "DMS GUIDELINES" FOR PROPER PDMS MESSAGE INFORMATION.

NOTES

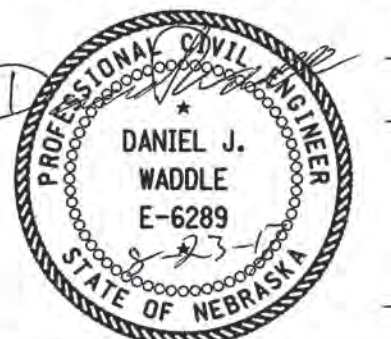
- ALL TRAFFIC CONTROL DEVICES SHALL MEET THE APPLICABLE STANDARDS AND SPECIFICATIONS PRESCRIBED IN PART 6 OF THE LATEST ADOPTED EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (MUTCD)" AND THE STATE OF NEBRASKA SUPPLEMENT TO THE MUTCD. ALL TRAFFIC CONTROL DEVICES SHALL BE CRASHWORTHY AND QUALIFY AS SUCH ACCORDING TO THE TESTING AND ACCEPTANCE GUIDELINES OF THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
- TRAFFIC CONTROL PLANS AND DEVICES SHOULD FOLLOW THE PRINCIPLES SET FORTH, BUT MAY DEVIATE FROM THE TYPICAL DRAWINGS TO ALLOW FOR CONDITIONS AND REQUIREMENTS OF THE PROJECT.
- TRAFFIC CONTROL DEVICES SHALL BE INSTALLED SO AS NOT TO OBSTRUCT THE VIEW OF OTHER TRAFFIC CONTROL DEVICES.
- THE ENGINEER SHALL HAVE THE AUTHORITY TO REQUIRE THE USE, AND APPROVE THE LOCATION OF ANY OF THE DEVICES SHOWN IN THESE PLANS.

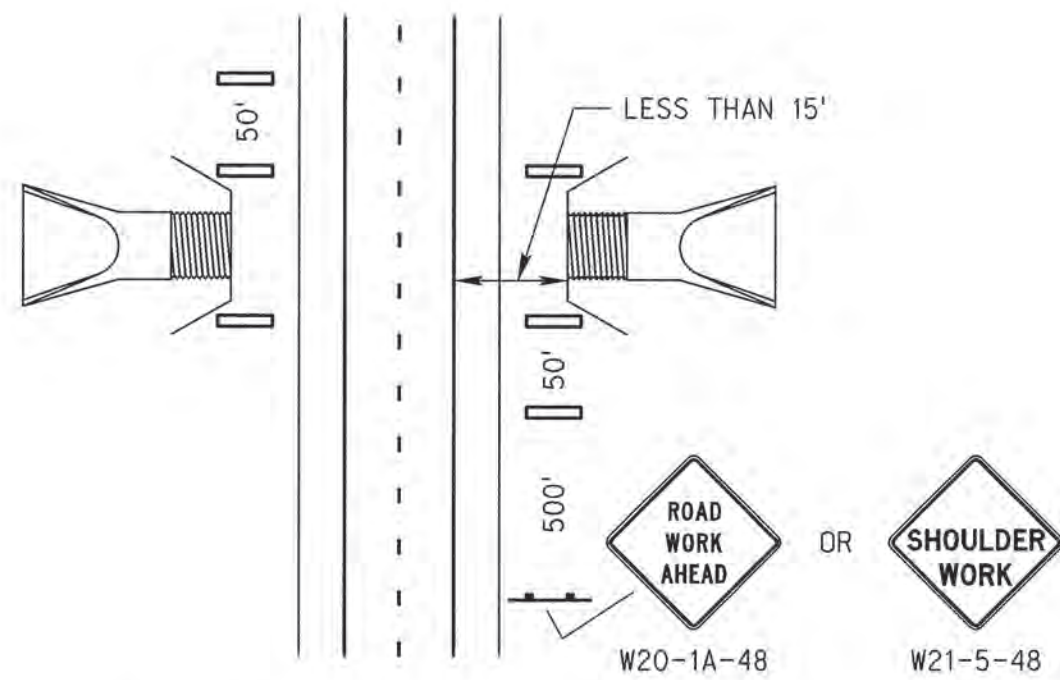
WORK ZONE SPEED LIMIT NOTES

- WORK ZONE SPEED LIMITS SHALL NOT BE INSTALLED WITHOUT A SPEED ZONE AUTHORIZATION COMPLETED BY THE DEPARTMENT.
- REDUCED SPEED LIMITS SHOULD BE USED ONLY IN THE SPECIFIC PORTION OF THE WORK ZONE WHERE CONDITIONS OR RESTRICTIVE FEATURES ARE PRESENT. HOWEVER, FREQUENT CHANGES IN THE SPEED LIMIT SHOULD BE AVOIDED. THE REDUCTION OF SPEED SHOULD BE DESIGNED SO VEHICLES CAN SAFELY TRAVEL THROUGH THE WORK ZONE WITH A SPEED LIMIT REDUCTION OF NO MORE THAN 10 MPH UNLESS OTHERWISE NOTED IN THE PLANS.
- WORK ZONE SPEED LIMITS SHOWN ARE TYPICAL APPLICATIONS ONLY AND ARE NOT TO BE ASSUMED AS THE SPEED LIMITS REQUIRED FOR THE WORK.
- EXISTING SPEED LIMIT SIGNS SHALL BE REMOVED OR COVERED WHEN A REDUCED WORK ZONE SPEED LIMIT IS IN EFFECT IN THE SAME AREA.
- WORK ZONE SPEED LIMIT SIGNS SHALL BE INSTALLED EVERY MILE THROUGH THE WORK AREA WHEN SPEED ZONE IS REDUCED.
- A SPEED LIMIT SIGN ENDING THE REDUCED SPEED ZONE SHALL BE INSTALLED AT THE END OF EACH ZONE.
- DOUBLE FINES AND REDUCED SPEED ZONE SIGNING ARE NOT REQUIRED FOR SHORT-DURATION WORK LESS THAN 12 HOURS.

TAPER FORMULA

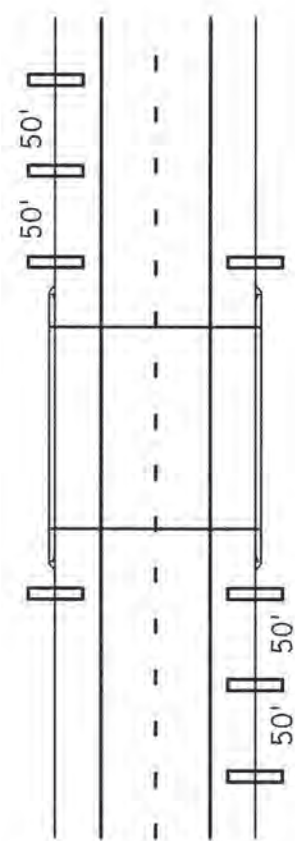
- L - S x W FOR SPEEDS OF 45 MPH OR MORE
- L - $\frac{WS^2}{60}$ FOR SPEEDS OF 40 MPH OR LESS.
- WHERE:
- L - MINIMUM LENGTH OF TAPER.
- S - NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK.
- W - WIDTH OF OFFSET (LANE WIDTH).
- LEGEND
- TYPE III BARRICADE
 - REFLECTORIZED PLASTIC DRUM
 - REFLECTORIZED PLASTIC DRUM OR 42" CONE
 - PORTABLE DYNAMIC MESSAGE SIGN

R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	JUN 14	2009 MUTCD UPDATE
R5	OCT 98	REVISE CHANNELIZATION DEVICES, TAPER
REV. NO.	DATE	DESCRIPTION OF REVISION
NEBRASKA DEPARTMENT OF TRANSPORTATION STANDARD PLAN NO. 920-R7 TRAFFIC CONTROL, CONSTRUCTION AND MAINTENANCE		
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:		
		
9-1-2017 DATE		
ORIGINAL: OCTOBER 1998 DATE		
3 3		



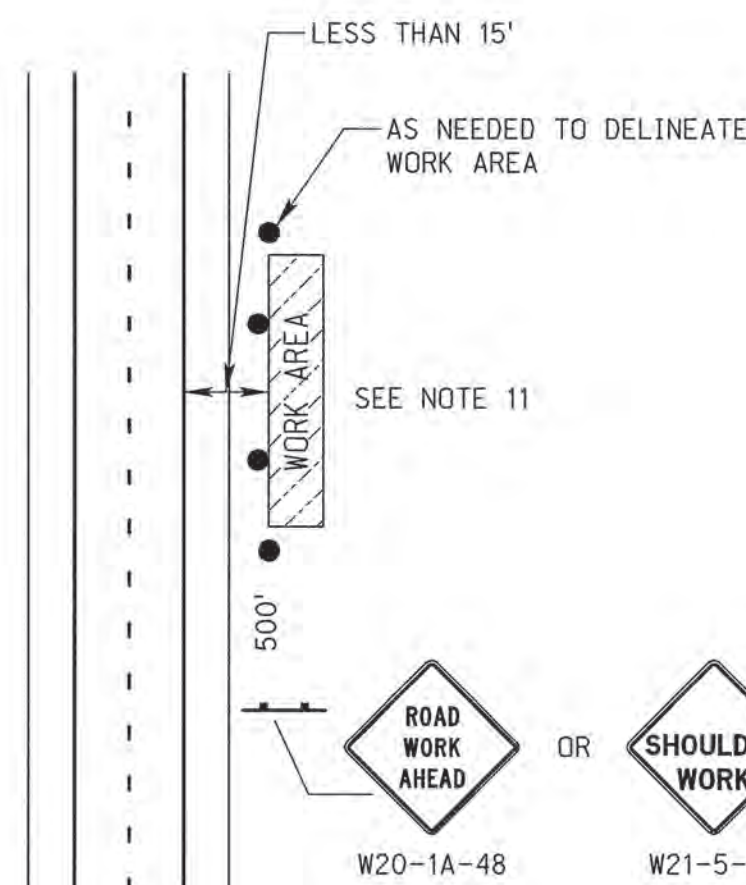
CULVERT DELINEATION

WHEN GUARDRAIL IS REMOVED AND/OR EXCAVATION IS LESS THAN 15 FEET FROM EDGE OF TRAVELED WAY



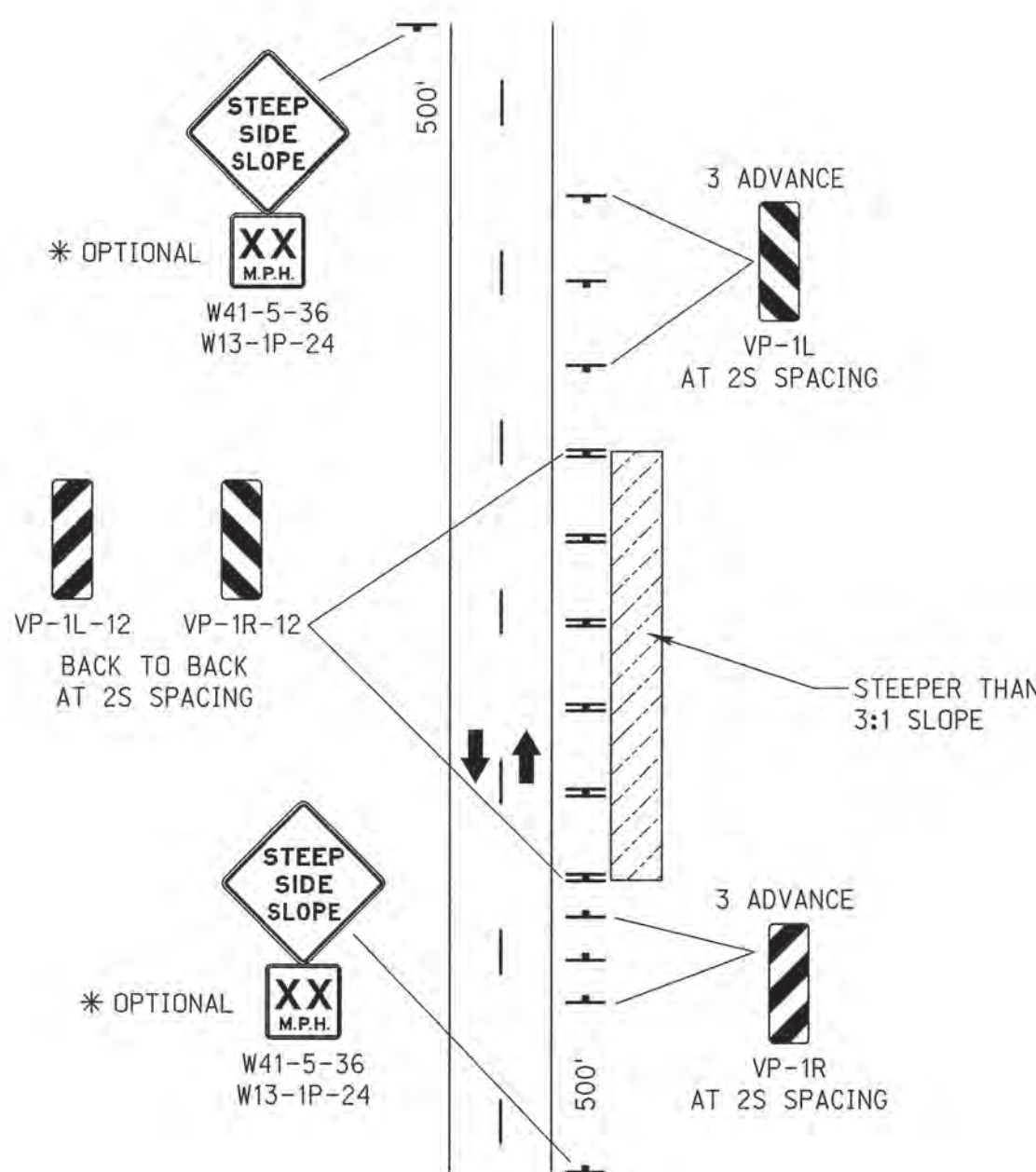
BRIDGE RAIL END DELINEATION

WHEN GUARDRAIL IS REMOVED



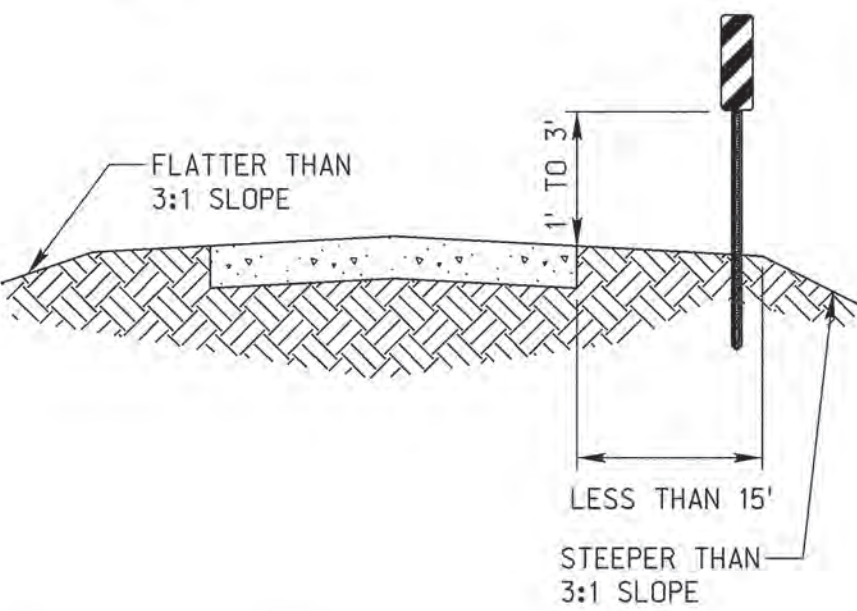
WORK BEYOND THE SHOULDER

TA-1



STEEP SLOPE DELINEATION

VERTICAL PANELS SHOULD BE USED FOR AREAS WHERE GUARDRAIL IS REMOVED, OR PROJECT GRADING HAS CREATED A FORESLOPE STEEPER THAN 3:1, AND WITHIN 15 FEET OF THE TRAVELED WAY. NOT USED FOR CULVERT OR BRIDGE END DELINEATION. VERTICAL PANEL SPACING MAY BE REDUCED FOR HORIZONTAL CURVES. CONES/DRUMS MAY BE USED AS A SUBSTITUTE WHEN APPROVED BY THE ENGINEER.



LEGEND

- FLAGGER
- REFLECTORIZED PLASTIC DRUM
- REFLECTORIZED PLASTIC DRUM OR 42" CONE
- TYPE III BARRICADE
- SINGLE POSTED SIGN
- DOUBLE POSTED SIGN
- TRAFFIC SIGNAL

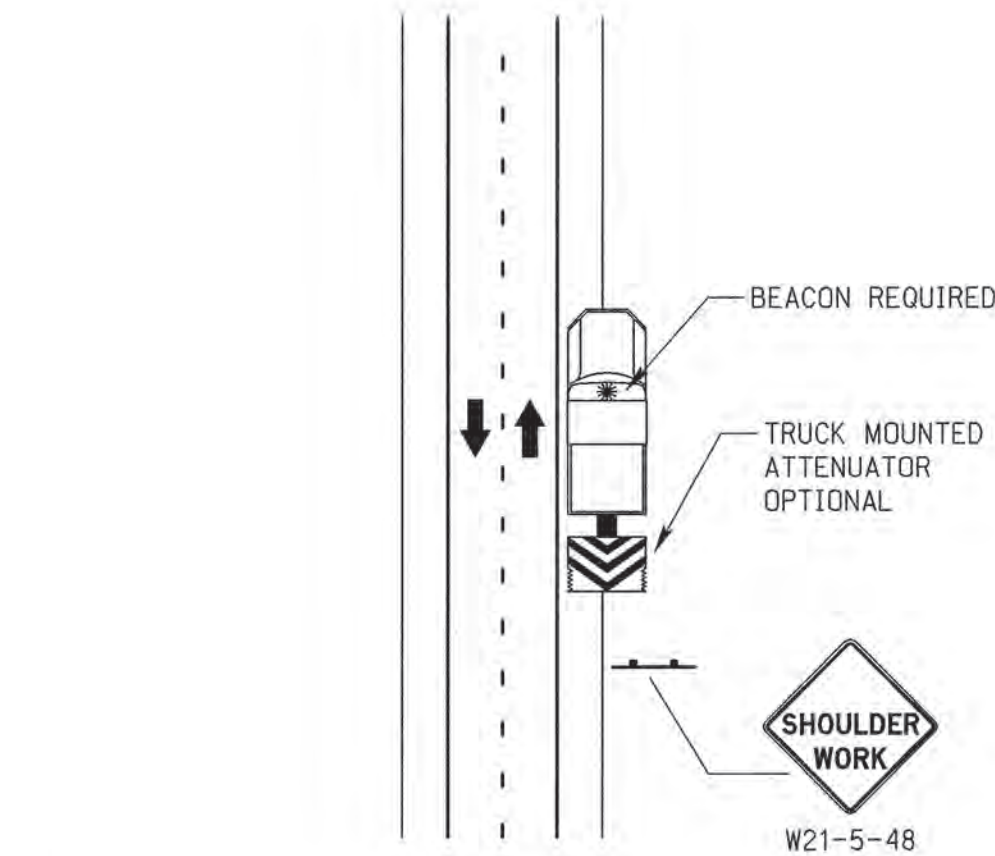
TAPER FORMULA

$L = S \times W$ FOR SPEEDS OF 45 MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 MPH OR LESS.

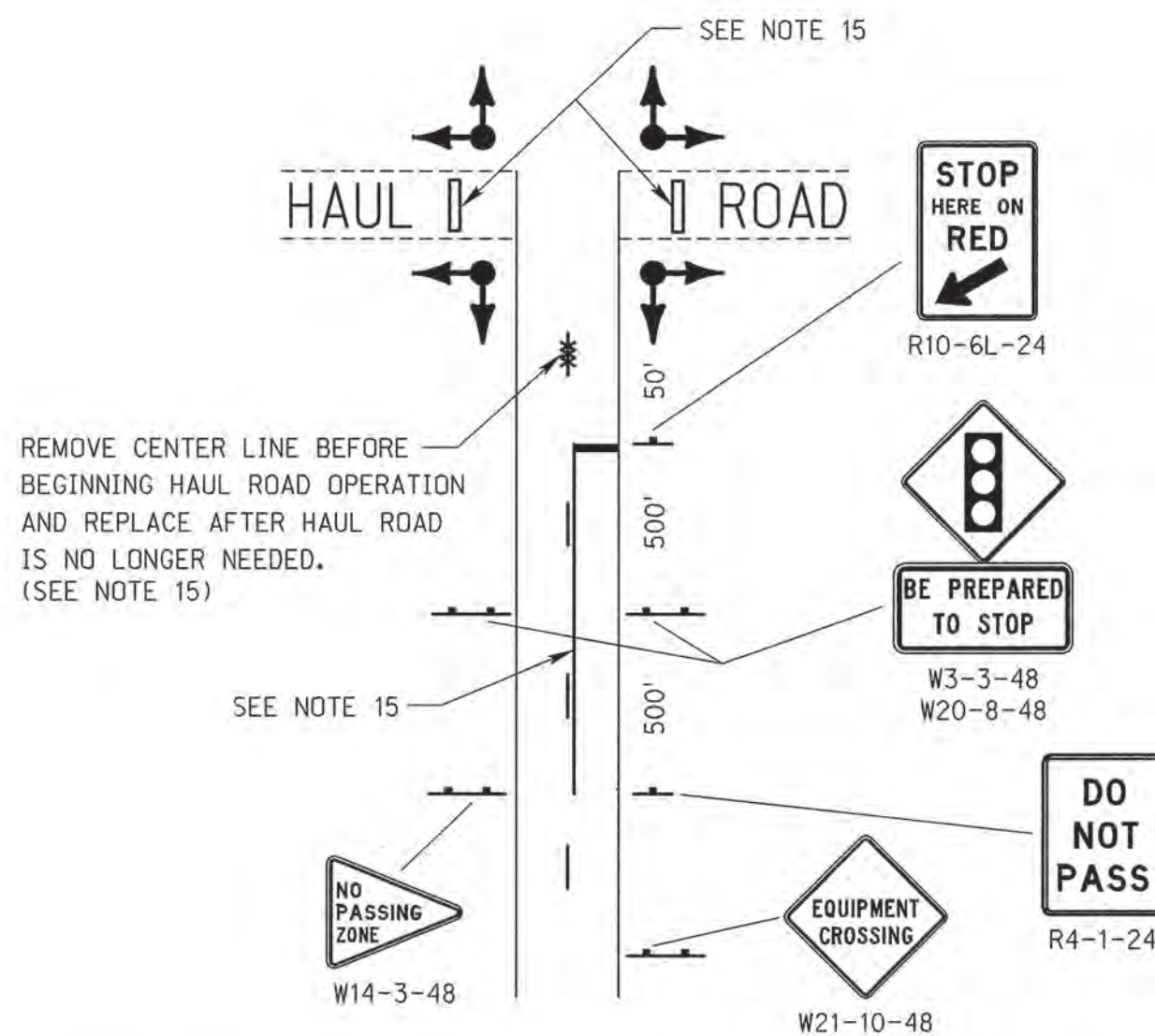
WHERE:

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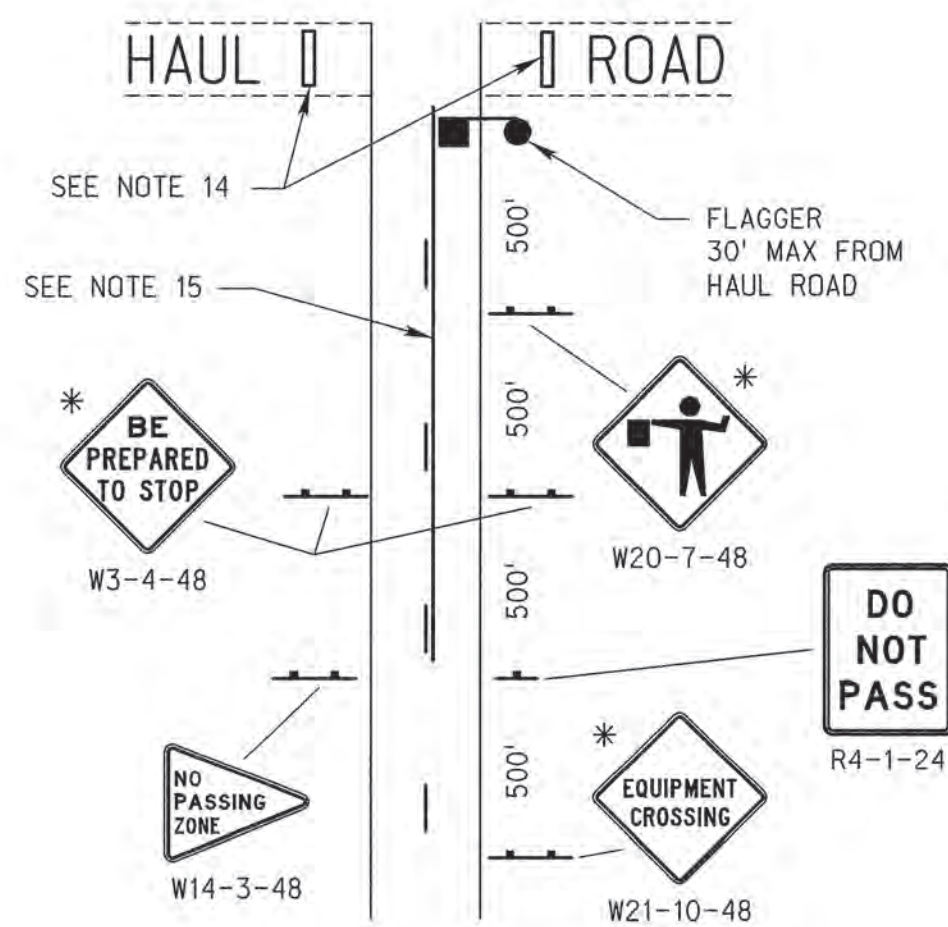
MOBILE OPERATION ON SHOULDER

NO ENCROACHMENT ON TRAVEL LANE
TA-4



HAUL ROAD CROSSING IN CONSTRUCTION AREA USING TEMPORARY TRAFFIC SIGNAL

TA-14



HAUL ROAD CROSSING IN CONSTRUCTION AREA USING FLAGGERS

TA-14

* SIGNS ARE SUBSIDIARY TO THE FLAGGING OPERATION.

NOTES

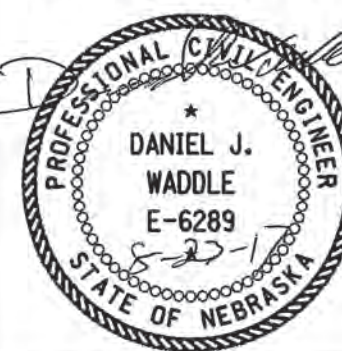
- SIGNS SHOWN ARE USUALLY FOR ONE DIRECTION OF TRAVEL ONLY.
- DESIGNATION OF SPEED SHOWN ON ADVISORY SPEED SIGNS (W13-1P) SHALL BE DETERMINED BY THE ENGINEER IN ACCORDANCE WITH MUTCD. THE SPEED DESIGNATION SHALL BE AS HIGH AS PRACTICAL AND FEASIBLE.
- "FLAGGER AHEAD SYMBOL" SIGN (W20-7) SHALL BE USED WHEN A FLAGGER IS PRESENT, AND REMOVED WHEN NOT APPLICABLE.
- THE CONTRACTOR SHALL INSTALL, MAINTAIN, AND REMOVE ALL SIGNS IN ACCORDANCE WITH THE DETAILS OF AND AT THE LOCATIONS SHOWN IN THE PLANS. SIGNS INSTALLED BY THE DEPARTMENT OF ROADS OR OTHER GOVERNMENT AGENCY SHALL BE MAINTAINED AND REMOVED BY THEIR FORCES.
- G20-1 "ROAD WORK NEXT X MILES" SHALL BE USED ON ANY CONSTRUCTION OR MAINTENANCE PROJECT LONGER THAN 2 MILES.
- WHEN MESSAGE IS NOT PERTINENT, SIGNS SHALL BE TAKEN DOWN, COVERED OR FOLDED. TAPE IS NOT PERMITTED ON THE FACE OF THE SIGN.
- VEHICLES OR EQUIPMENT SHALL NOT BE PARKED SO AS TO OBSCURE OR DISTRACT FROM TRAFFIC CONTROL DEVICES.
- ORANGE FLAGS MAY BE USED TO CALL ATTENTION TO WARNING SIGNS.
- CULVERT, BRIDGE AND STEEP SLOPE DELINEATION. EXISTING GUARDRAIL SHOULD REMAIN IN PLACE AS LONG AS PRACTICAL FOR THE PROTECTION IT PROVIDES, AND REINSTALLED AS SOON AS PRACTICAL.
- TA-1 AND TA-3 FOR SHORT-DURATION OPERATIONS 60 MINUTES OR LESS, ALL SIGNS AND CHANNELIZING DEVICES MAY BE ELIMINATED IF A VEHICLE WITH AN ACTIVATED HIGH-INTENSITY ROTATING, FLASHING, OSCILLATING OR AMBER STROBE LIGHTS ARE USED, AND THE WORK DOES NOT ENCROACH INTO THE OPEN TRAVEL LANE.
- TA-1 AND TA-3 WHEN PAVED SHOULDERS HAVING A WIDTH OF 8 FEET OR MORE ARE CLOSED, AT LEAST ONE ADVANCE WARNING SIGN SHALL BE USED. IN ADDITION, CHANNELIZING DEVICES SHALL BE USED TO CLOSE THE SHOULDER IN ADVANCE TO DELINEATE THE BEGINNING OF THE WORK SPACE AND DIRECT VEHICULAR TRAFFIC TO REMAIN WITHIN THE TRAVELED WAY.
- TA-4 VEHICLE HAZARD WARNING SIGNALS SHALL NOT BE USED INSTEAD OF THE VEHICLE'S HIGH-INTENSITY ROTATING, FLASHING OR AMBER STROBE LIGHTS.
- TA-10 IF THE QUEUING OF VEHICLES ACROSS ACTIVE RAILROAD TRACKS CANNOT BE AVOIDED, A FLAGGER SHALL BE PROVIDED AT THE RAILROAD CROSSING TO PREVENT VEHICLES FROM STOPPING WITHIN THE RAILROAD CROSSING EVEN IF AUTOMATIC WARNING DEVICES ARE IN PLACE.
- TA-14 WHEN THE HAUL ROAD IS NOT IN USE, TYPE III BARRICADES SHALL BE IN PLACE. THE "FLAGGER", "SIGNAL AHEAD", AND "BE PREPARED TO STOP" SIGNS SHALL BE COVERED OR REMOVED, AND THE TRAFFIC SIGNAL SHALL BE PUT INTO FLASH YELLOW ON THE HIGHWAY, RED ON THE HAUL ROAD.
- TA-14 THE "NO PASSING" SIGNS (R4-1-24 AND W14-3-48) AND PAVEMENT MARKINGS ARE NOT REQUIRED IF HAULING OPERATION IS IN EFFECT ONLY DURING DAYLIGHT HOURS.
- APPLICATIONS SHOWN ARE FOR LOCAL SITUATIONS IN PROPERLY MARKED CONSTRUCTION ZONES AND DO NOT INCLUDE LEAD SIGNS WHICH ARE INSTALLED AT THE BEGINNING OF THE PROJECT.
- THE LEAD SIGNS ARE NOT NEEDED IF TWO PROJECTS ARE LESS THAN 1 MILE APART. THE "END CONSTRUCTION" SIGN (G20-2B-48) SHOULD NOT BE INSTALLED BETWEEN THE PROJECTS.
- REFER TO STANDARD PLAN 920 FOR GENERAL INFORMATION NOT SHOWN.
- A MINIMUM OF 7-36" OR 42" CONES SHALL BE PLACED ON THE CENTERLINE IN ADVANCE OF THE FLAGGER. THE CONES SHOULD BE SPACED AT 250 FEET.
- THE SPEED IN FLAGGING/PILOT CAR OPERATIONS IS GENERALLY CONTROLLED BY THE PILOT CAR, A SPEED REDUCTION MAY NOT BE NECESSARY IF THE WORK ZONE CONDITIONS WILL NOT EXIST UPON COMPLETION OF EACH DAYS WORK. W3-5 SIGN IS NOT NEEDED IF SPEED LIMIT IS NOT REDUCED.

R8	JAN 18	NDOR BORDER TO NDOT BORDER
R7	JAN 17	ADD CONES ON CENTERLINE
R6	JUN 14	2009 MUTCD UPDATE
REV. NO.	DATE	DESCRIPTION OF REVISION

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 921-R8

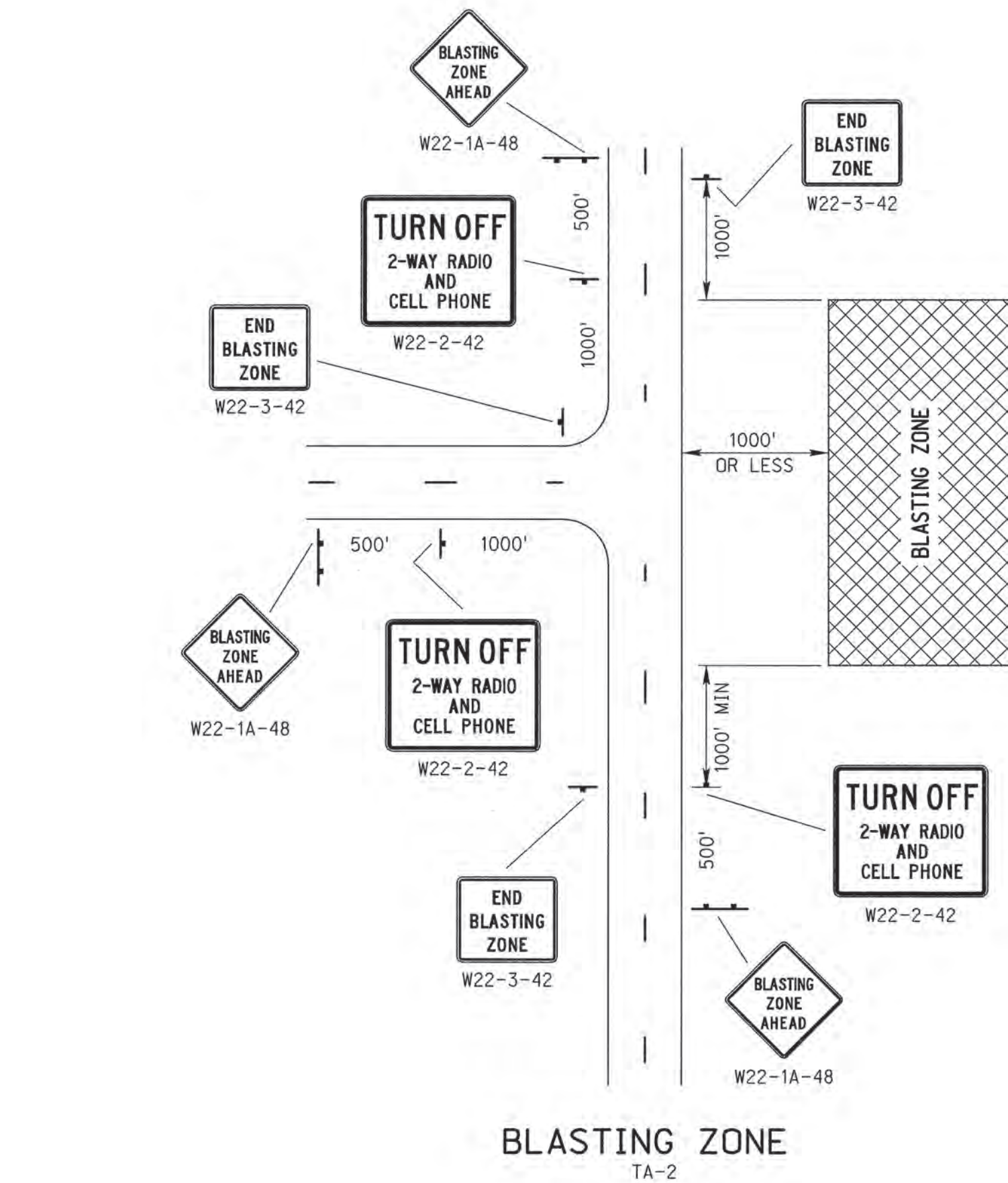
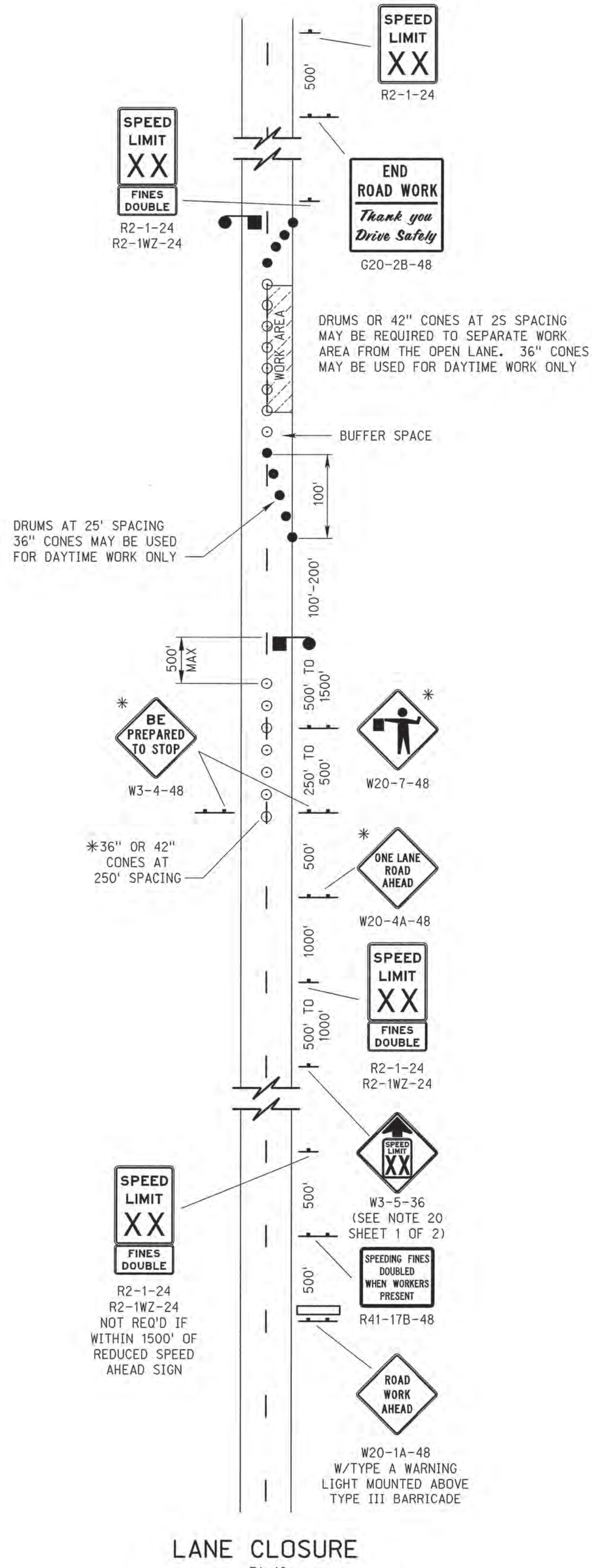
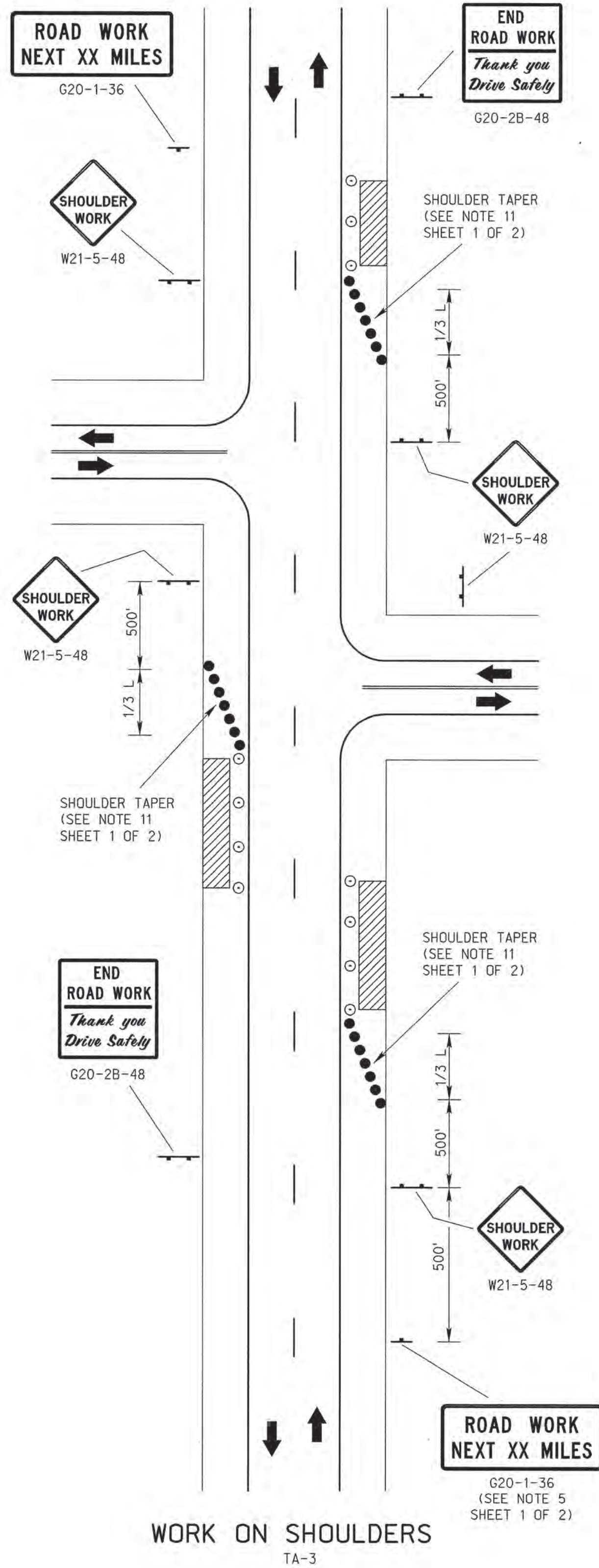
TRAFFIC CONTROL, CONSTRUCTION AND MAINTENANCE

ACCEPTED BY FHWA FOR USE ON THE
NATIONAL HIGHWAY SYSTEM:



9-1-2017
DATE

ORIGINAL:
JUNE 3, 1980
DATE



- LEGEND
- FLAGGER
 - REFLECTORIZED PLASTIC DRUM
 - REFLECTORIZED PLASTIC DRUM OR 42" CONE
 - TYPE III BARRICADE
 - SINGLE POSTED SIGN
 - DOUBLE POSTED SIGN
 - TRAFFIC SIGNAL

TAPER FORMULA

$L = S \times W$ FOR SPEEDS OF 45 MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 MPH OR LESS.

WHERE:

L = MINIMUM LENGTH OF TAPER.

S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK.

W = WIDTH OF OFFSET (LANE WIDTH).

R8	JAN 18	NDOR BORDER TO NDOT BORDER
R7	JAN 17	ADD CONES ON CENTERLINE
R6	JUN 14	2009 MUTCD UPDATE
REV. NO.	DATE	DESCRIPTION OF REVISION

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 921-R8
TRAFFIC CONTROL,
CONSTRUCTION AND MAINTENANCE

ACCEPTED BY FHWA FOR USE ON THE
NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL SEAL
DANIEL J. WADDLE
E-6289
STATE OF NEBRASKA

Daniel J. Waddle
9-1-2017
DATE

ORIGINAL:
JUNE 3, 1980
DATE

2
2



12. WORK ZONE SPEED LIMITS SHALL NOT BE INSTALLED WITHOUT A SPEED ZONE AUTHORIZATION COMPLETED BY THE DEPARTMENT. THE WORK ZONE SPEED LIMIT SHALL BE ESTABLISHED ACCORDING TO DOR-OI 60-18. SEE WORK ZONE SPEED LIMIT NOTES ON STANDARD PLAN 920.
13. A SPEED LIMIT SIGN ENDING THE REDUCED SPEED ZONE SHALL BE INSTALLED AT THE END OF EACH ZONE.
14. IF THE QUEUEING OF VEHICLES ACROSS ACTIVE RAILROAD TRACKS CANNOT BE AVOIDED, A FLAGGER SHALL BE PROVIDED AT THE RAILROAD CROSSING TO PREVENT VEHICLES FROM STOPPING WITHIN THE RAILROAD CROSSING EVEN IF AUTOMATIC WARNING DEVICES ARE IN PLACE. AT NO TIME, WILL THE QUEUE FROM A FLAGGING OPERATION EXTEND ACROSS A RAILROAD CROSSING.
15. EARLY COORDINATION WITH THE RAILROAD COMPANY SHOULD OCCUR BEFORE WORK STARTS.
16. THE "DO NOT STOP ON TRACKS" SIGN SHOULD BE USED ON ALL APPROACHES TO A HIGHWAY-RAIL GRADE CROSSING WITHIN THE LIMITS OF A TEMPORARY TRAFFIC CONTROL ZONE.
17. PLACE TYPE II BARRICADES, REFLECTORIZED PLASTIC DRUMS, OR 42" CONES ON THE TRAFFIC SIDE OF THE DROP-OFF WHERE SUFFICIENT LATERAL DISTANCE EXISTS BETWEEN THE TRAVEL LANE AND THE DROP-OFF (DROP-OFF DETAIL ON SHEET 2).
18. THE LEAD SIGNS ARE NOT NEEDED IF TWO PROJECTS ARE LESS THAN 1 MILE APART. THE "END CONSTRUCTION" SIGN (G20-2B-4B) SHOULD NOT BE INSTALLED BETWEEN THE PROJECTS.
19. ON ARMOR COAT SURFACING, A "LOOSE GRAVEL" SIGN (W8-7-36) IS REQUIRED AT THE BEGINNING OF THE DAYS WORK AND SHALL REMAIN IN PLACE UNTIL THE LOOSE GRAVEL HAS BEEN SWEEPED OFF.
20. SIGN SIZES SHOWN ARE FOR TYPICAL SITUATIONS- REFER TO NEBRASKA SUPPLEMENT TO THE MUTCD FOR FURTHER SIZE INFORMATION.
21. REFER TO STANDARD PLAN 920 FOR GENERAL INFORMATION NOT SHOWN.
22. A MINIMUM OF 7-36" OR 42" CONES SHALL BE PLACED ON CENTERLINE IN ADVANCE OF THE FLAGGER. THE CONES SHOULD BE SPACED AT 250 FEET.

	FLAGGER
	REFLECTORIZED PLASTIC DRUM
	REFLECTORIZED PLASTIC DRUM OR 42" CONE
	TYPE III BARRICADE
	SINGLE POSTED SIGN
	DOUBLE POSTED SIGN

$L = S \times W$ FOR SPEEDS OF 45 MPH OR MORE.
 $L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 MPH OR LESS.

WHERE:
L = MINIMUM LENGTH OF TAPER.
S = NUMERICAL VALUE OF POSTED
SPEED LIMIT PRIOR TO WORK.
W = WIDTH OF OFFSET (LANE WIDTH).

ADDITIONAL SIGNS
USE WHERE APPLICABLE

R11	JAN 18	NDDOR BORDER TO NDOT BORDER
R10	JAN 17	ADD CONES TO CENTERLINE
R9	JUN 14	2009 MUTCD UPDATES
REV. NO.	DATE	DESCRIPTION OF REVISION

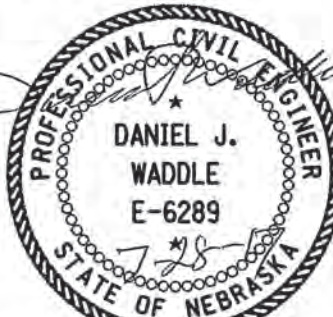
NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 922-R11

TRAFFIC CONTROL

FOR ASPHALT SURFACING

ACCEPTED BY FHWA FOR USE ON THE
NATIONAL HIGHWAY SYSTEM:



Daniel Waddle

8-16-2017

DATE

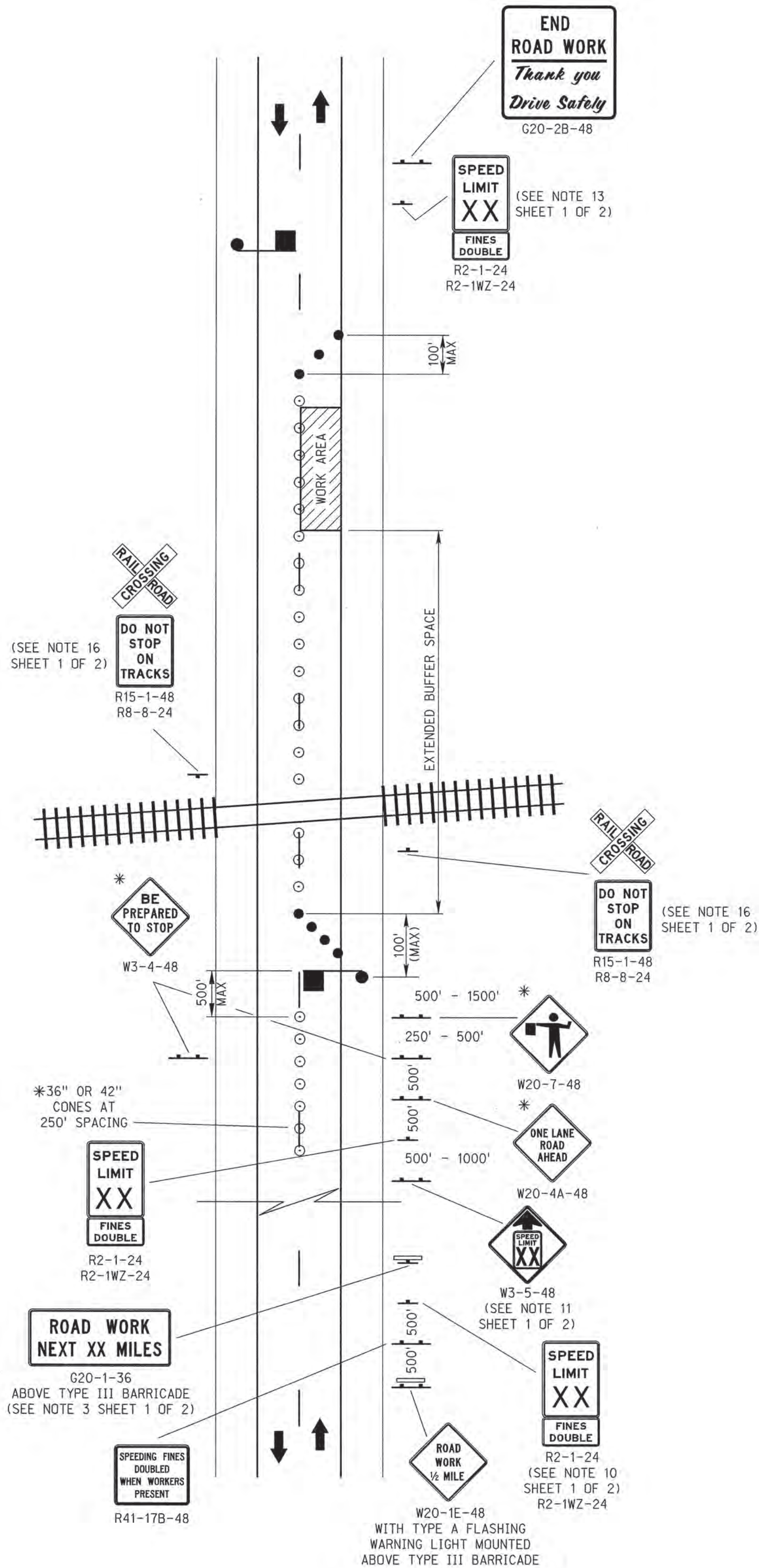
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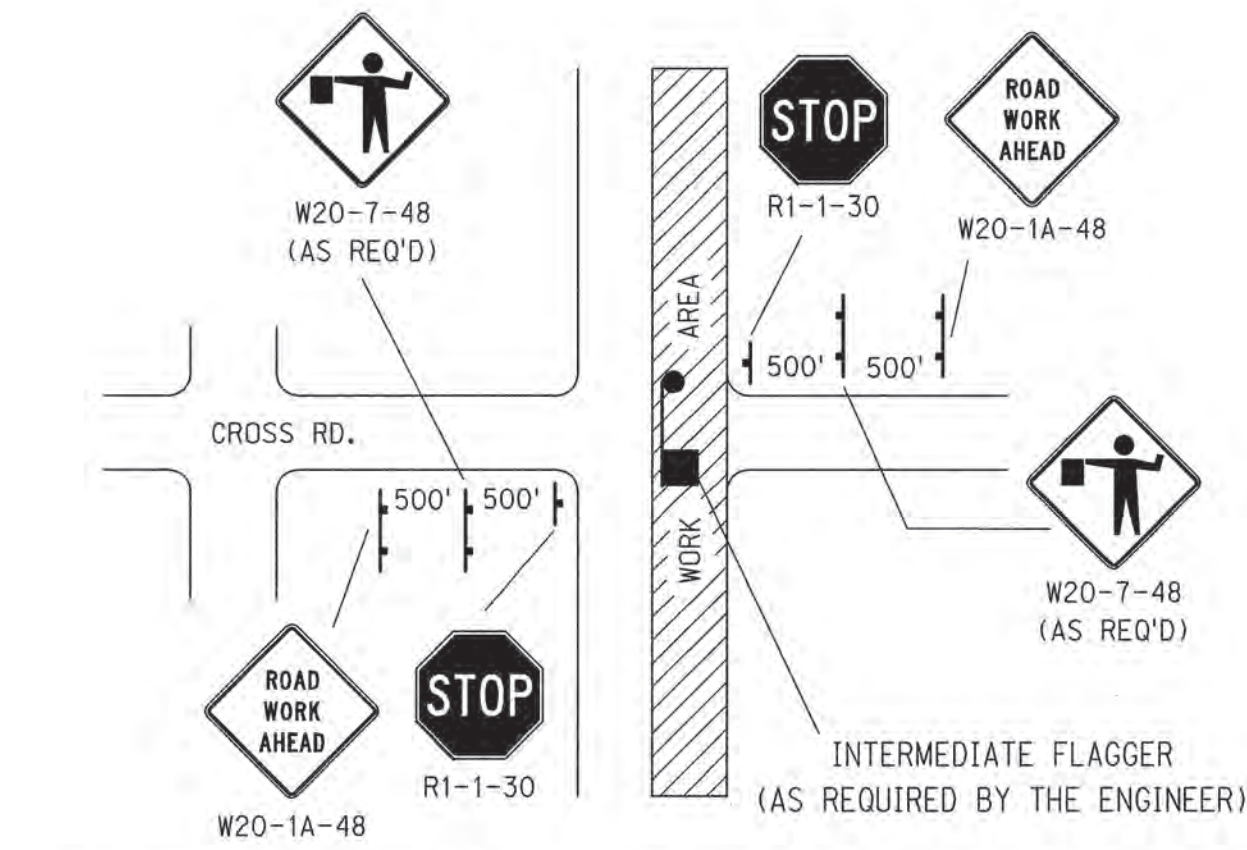
JUNE 3, 2010

DATE

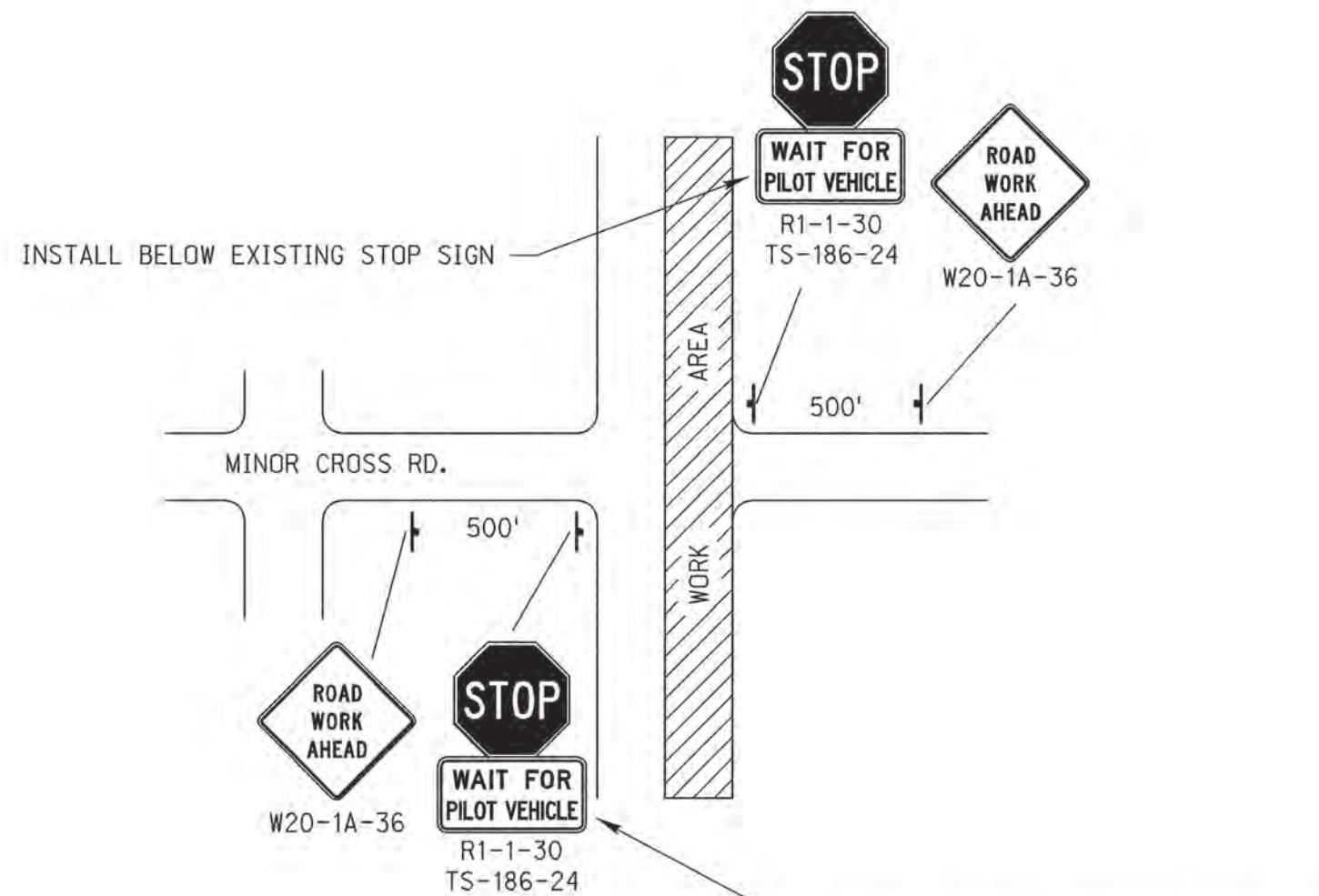


WORK IN VICINITY OF
RAILROAD CROSSING

* SIGNS AND CONES ARE SUBSIDIARY TO THE FLAGGING OPERATION.



MINOR OR MAJOR CROSS ROAD WITH FLAGGER

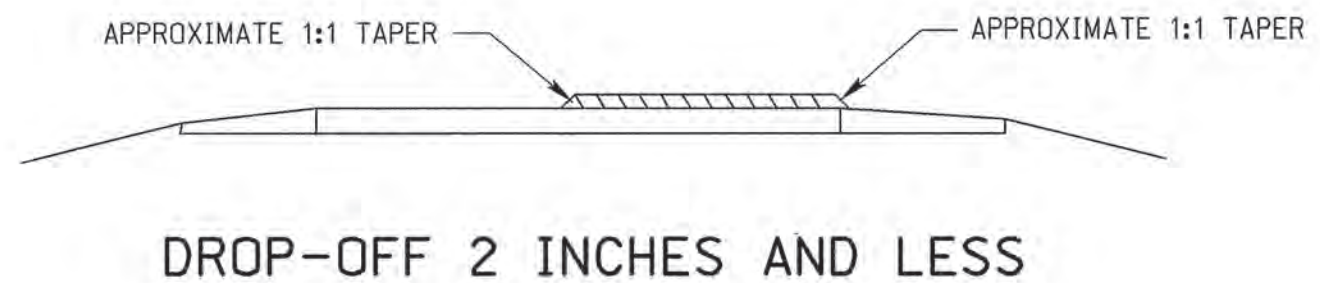
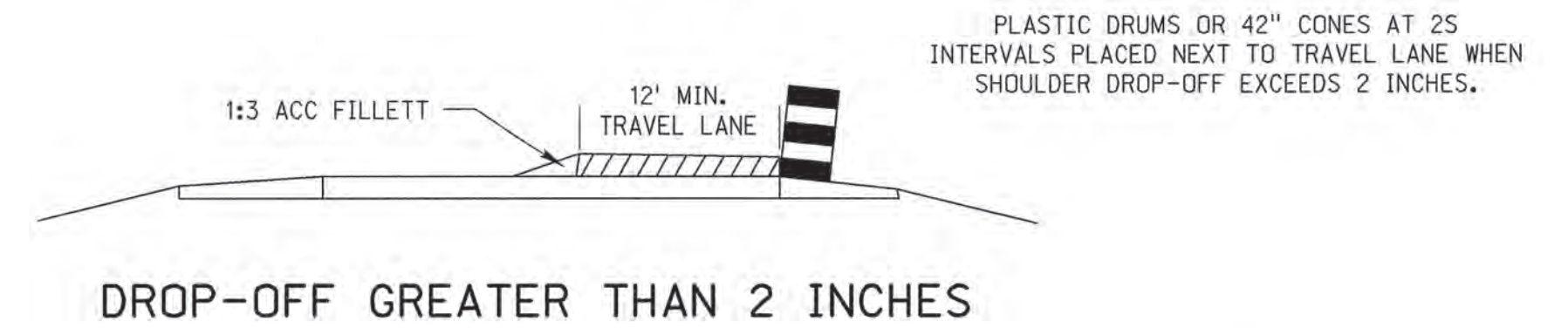
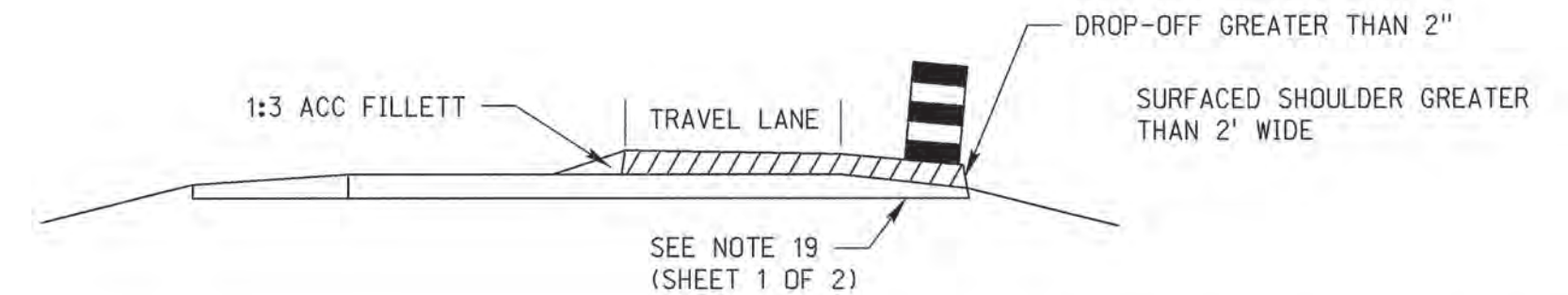
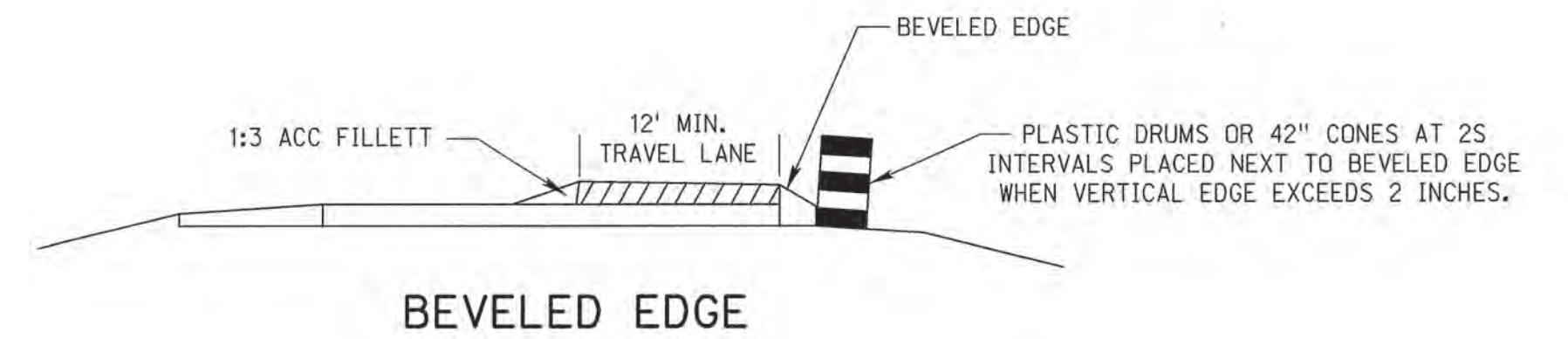


MINOR CROSS ROAD NO FLAGGER
WITH PILOT CAR OPERATION



THE BOTTOM OF THE SIGN SHALL BE MOUNTED A MINIMUM OF 1 FOOT ABOVE THE VEHICLE'S ROOF. THE SIGN SHALL BE SECURELY COVERED OR REMOVED WHEN NOT IN USE.

PILOT CAR SIGN



LEGEND

- FLAGGER
- REFLECTORIZED PLASTIC DRUM
- REFLECTORIZED PLASTIC DRUM OR 42" CONE
- TYPE III BARRICADE
- SINGLE POSTED SIGN
- DOUBLE POSTED SIGN

TAPER FORMULA

$L = S \times W$ FOR SPEEDS OF 45 MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 MPH OR LESS.

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R9	JUN 14	2009 MUTCD UPDATES
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NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 922-R11

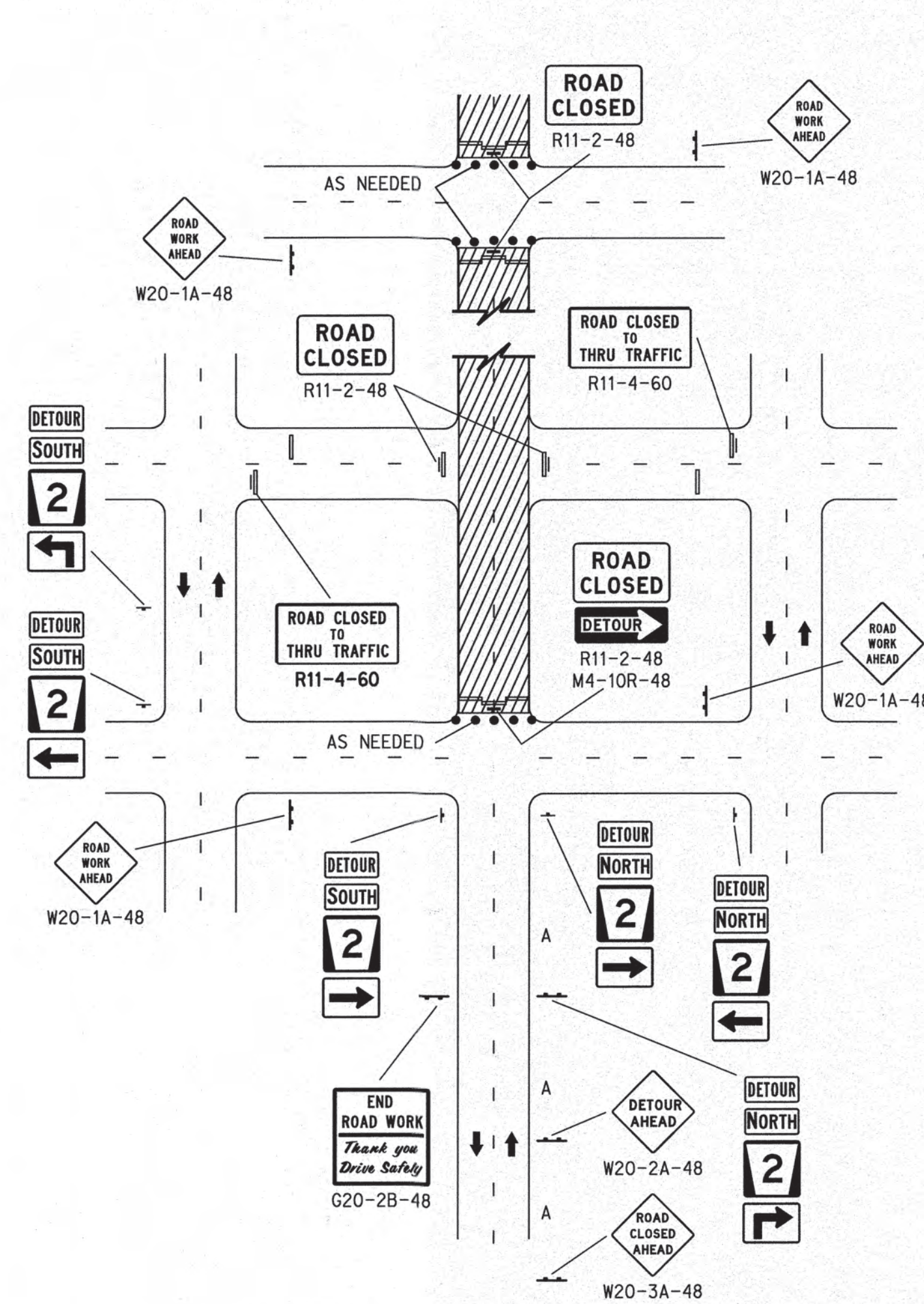
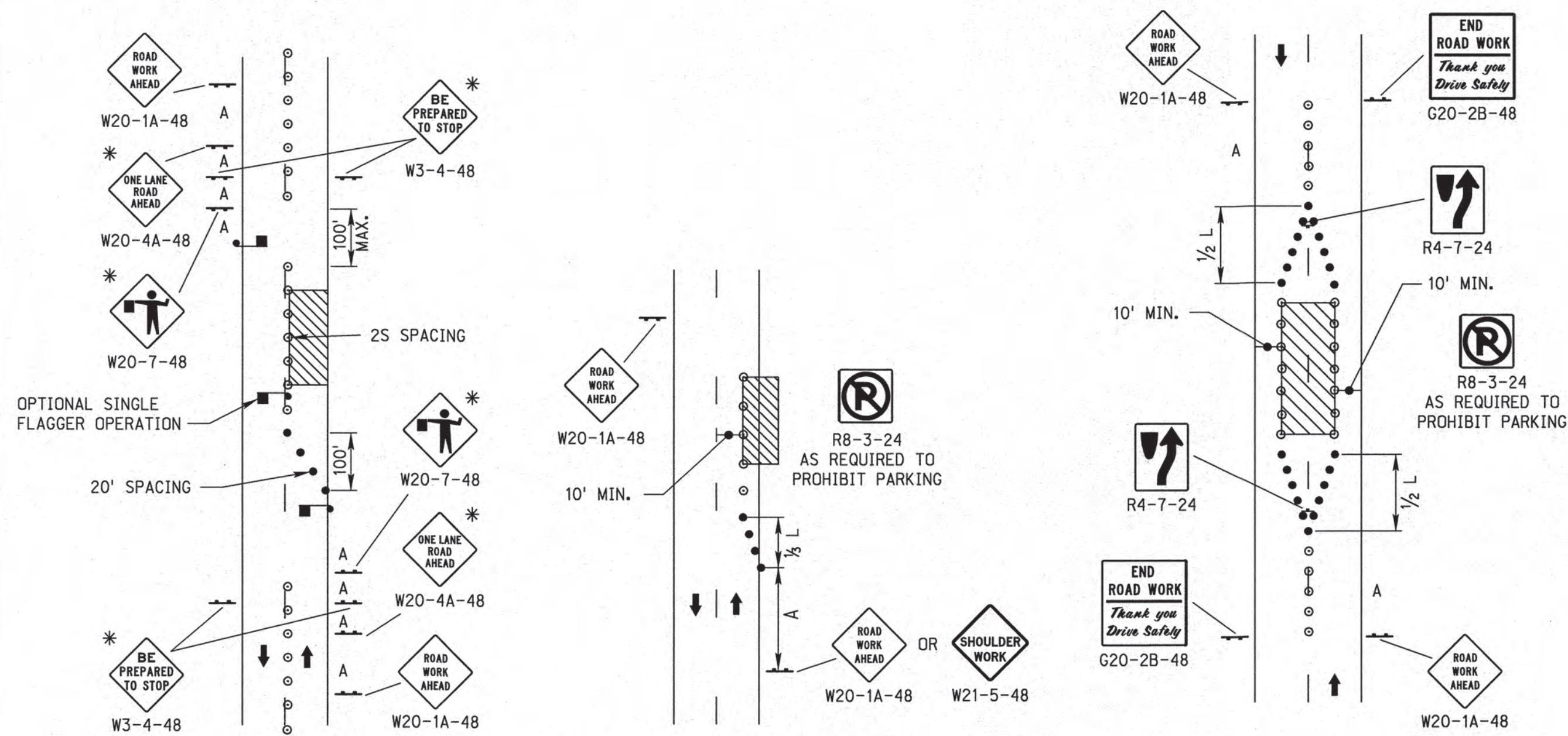
TRAFFIC CONTROL
FOR ASPHALT SURFACING

ACCEPTED BY FHWA FOR USE ON THE
NATIONAL HIGHWAY SYSTEM:

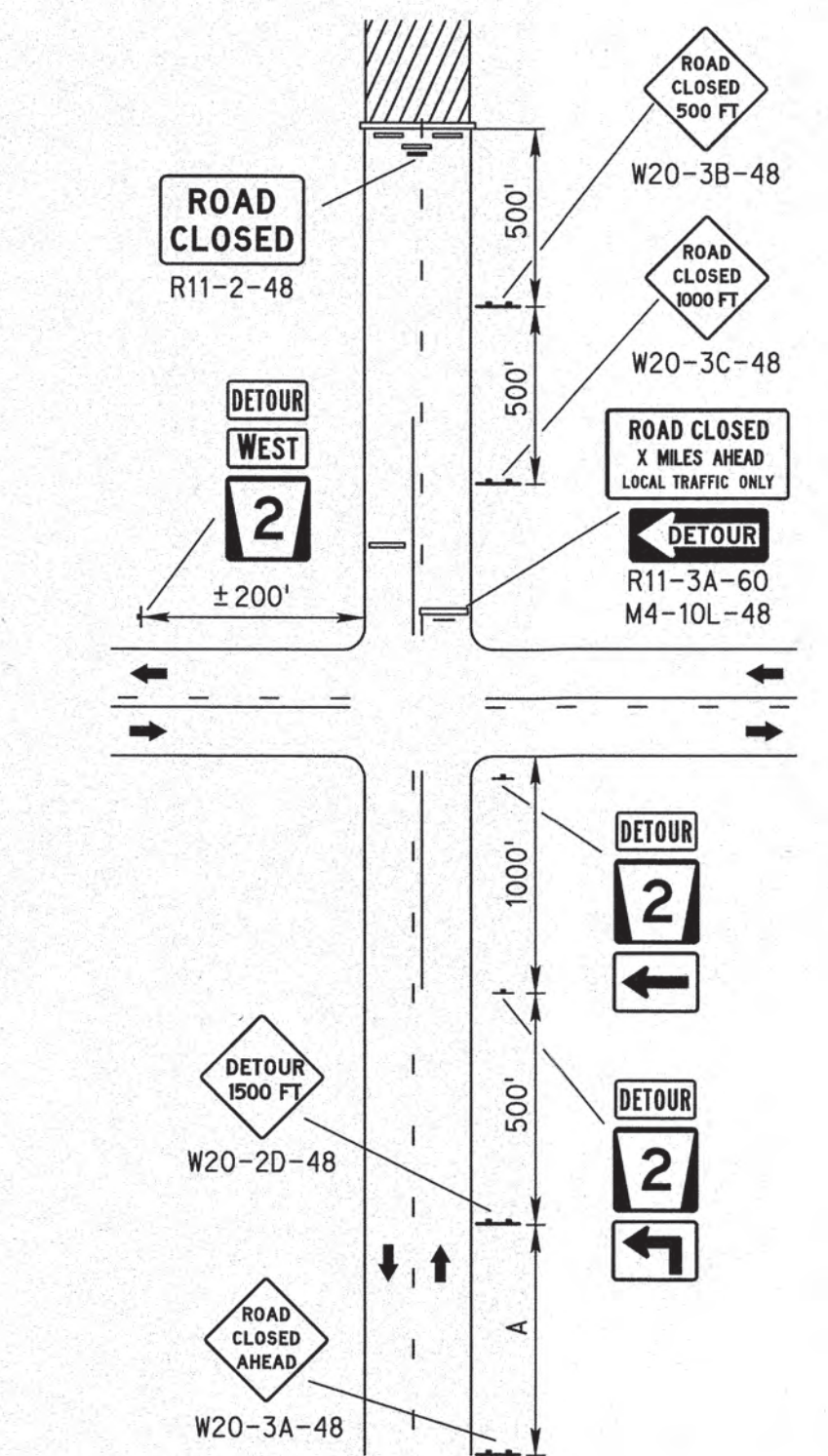


8-16-2017
DATE

ORIGINAL:
JUNE 3, 1980
DATE



ROAD TYPE	MINIMUM DISTANCE BETWEEN SIGNS
	A
URBAN (LOW SPEED - 25 MPH TO 40 MPH)	100'
URBAN (HIGH SPEED - 45 MPH OR HIGHER)	350'



- LEGEND**
- FLASHING ARROW PANEL
 - TYPE III BARRICADE
 - REFLECTORIZED PLASTIC DRUM
 - TUBULAR POST
 - REFLECTORIZED PLASTIC DRUM OR 42" CONE
 - SINGLE POSTED SIGN
 - DOUBLE POSTED SIGN
 - FLAGGER
 - XXXX PAVEMENT MARKING REMOVAL

TAPER FORMULA

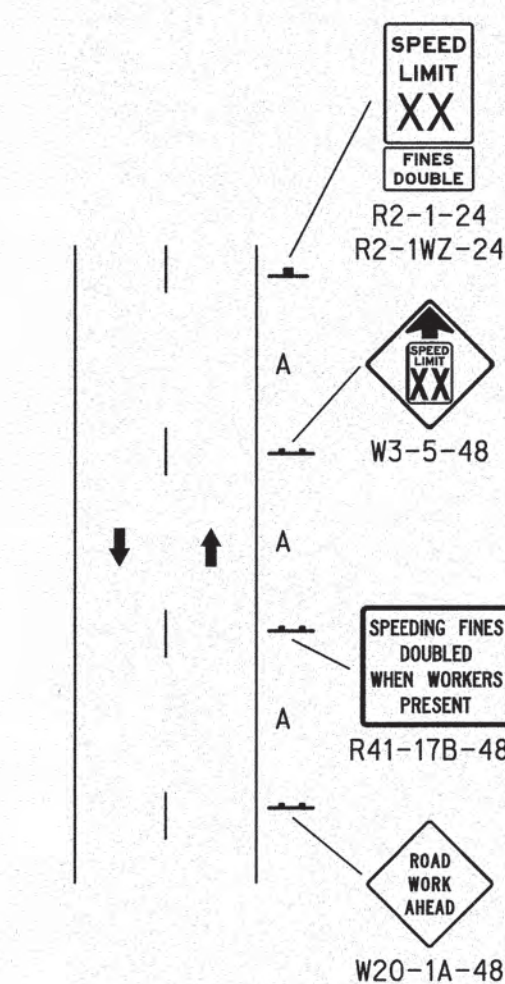
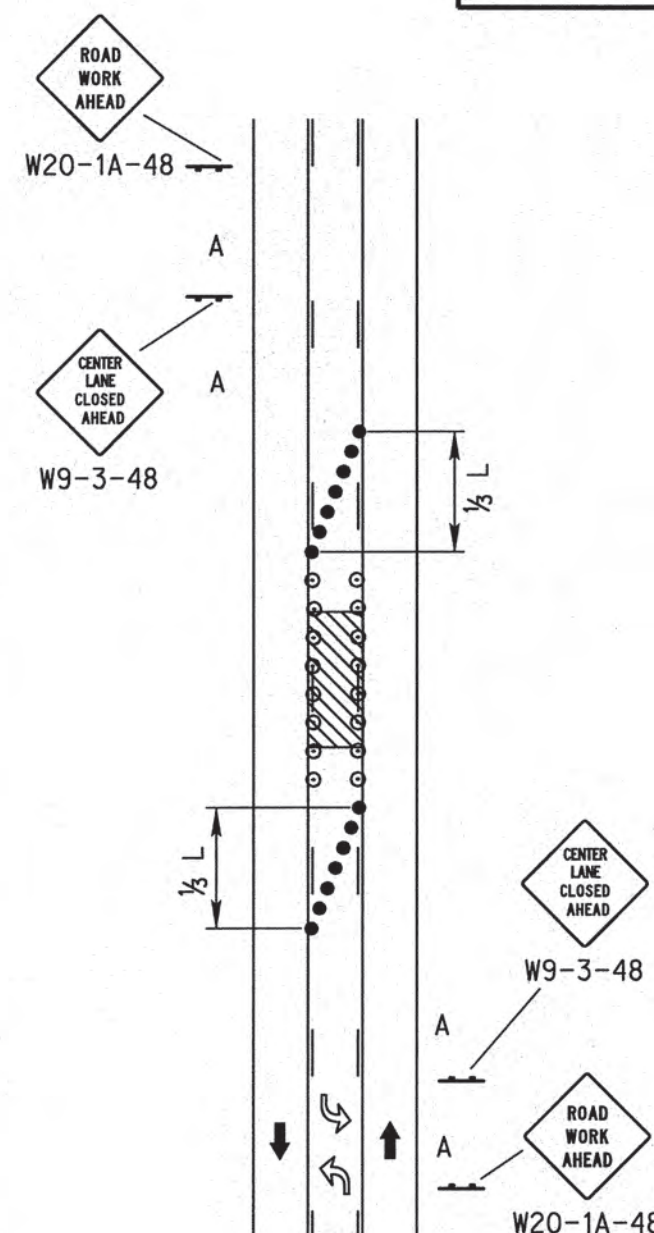
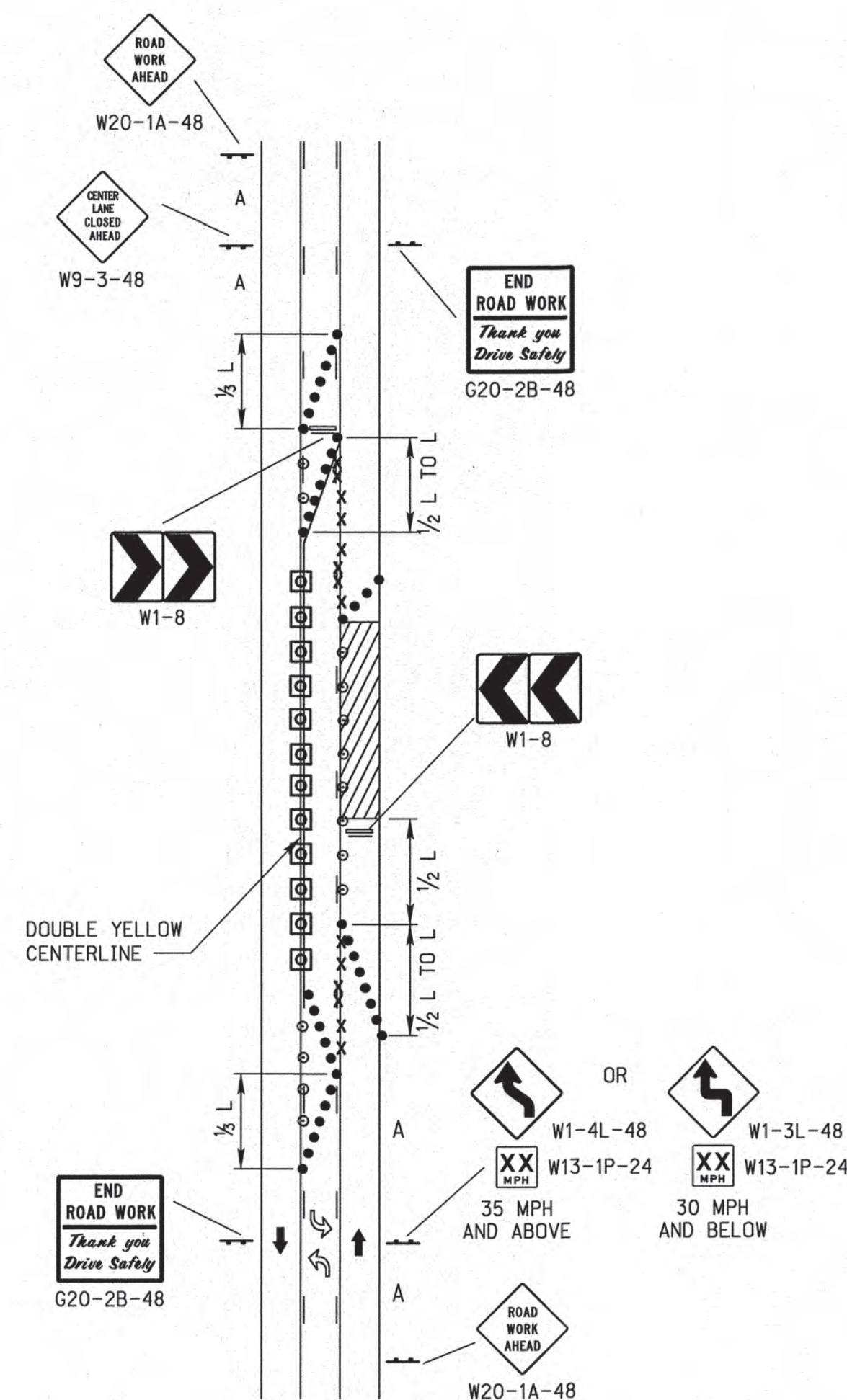
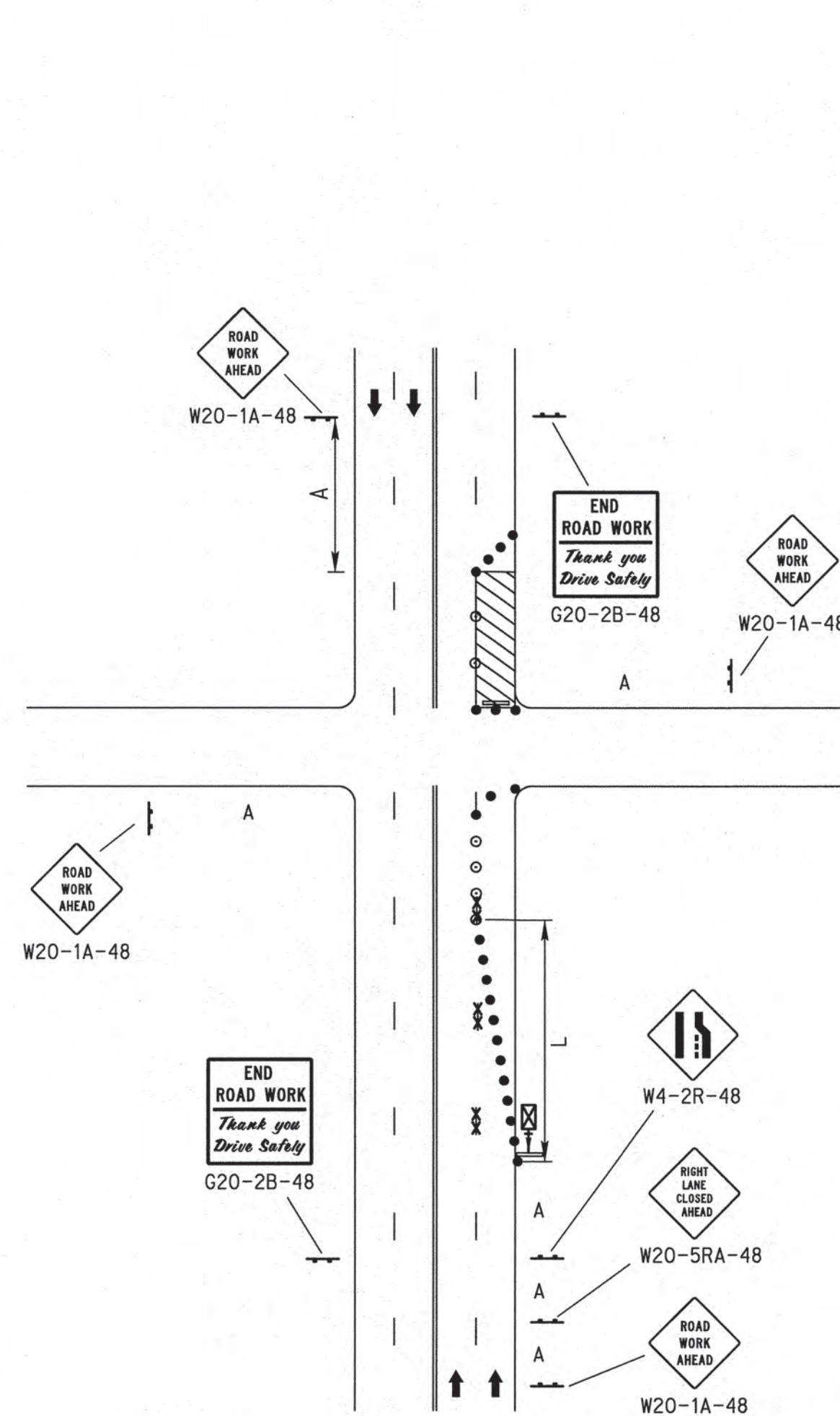
$L = S \times W$ FOR SPEEDS OF 45 MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 MPH OR LESS.

WHERE:
L = MINIMUM LENGTH OF TAPER.
S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK.
W = WIDTH OF OFFSET (LANE WIDTH).

NOTES

- ALL BARRICADE AND SIGN LOCATIONS ON THIS PLAN ARE APPROXIMATE, AND MAY BE ADJUSTED TO FIT FIELD CONDITIONS. THE SIGNS SHALL BE INSTALLED SO AS NOT TO OBSCURE THE VIEW OF OTHER TRAFFIC CONTROL DEVICES.
- MINIMUM WIDTH OF TRAVELLED LANE SHALL BE AS REQUIRED BY THE ENGINEER.
- FLASHING ARROW PANEL REQUIRED ON ALL ROADWAYS WITH POSTED SPEED LIMIT 45 MPH OR HIGHER. THE USE OF A FLASHING ARROW PANEL IS OPTIONAL ON ROADWAYS WITH A POSTED SPEED OF 40 MPH OR LOWER.
- LONG-TERM FLASHING ARROW PANELS IN URBAN RESIDENTIAL AREAS WHERE DIESEL ENGINE NOISE WILL BE DISRUPTIVE TO RESIDENTS, MAY BE REQUIRED TO OPERATE BY 120 VAC, OR IF SIGHT DISTANCE ALLOWS, A SOLAR POWERED ARROW PANEL MAY BE USED.
- FOR SHORT-TERM WORK (LESS THAN 24 HOURS) SIGN G20-2B-48 (END ROAD WORK, THANK YOU, DRIVE SAFELY) MAY BE OMITTED.
- THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT (S). WHERE CHANNELIZING DEVICES ARE USED ALONG THE WORK AREA, THE SPACING MAY BE INCREASED TO THE DISTANCE IN FEET EQUAL TO THE SPEED LIMIT, DOUBLED (2 x S). SEE "TAPER FORMULA" TABLE FOR MORE INFORMATION.
- FOR LANE CLOSURES OVER 72 HOURS, ALL CONFLICTING PAVEMENT MARKINGS SHALL BE REMOVED. ON ASPHALT SURFACES, DURABLE PAVEMENT MARKINGS MAY BE COVERED WITH APPROVED BLACK TEMPORARY PAVEMENT MARKING TAPE.
- DESIGNATION OF SPEED SHOWN ON ADVISORY SPEED SIGNS W13-1P SHALL BE DETERMINED BY THE ENGINEER IN ACCORDANCE WITH MUTCD. THE SPEED DESIGNATION SHALL BE AS HIGH AS PRACTICAL AND FEASIBLE.



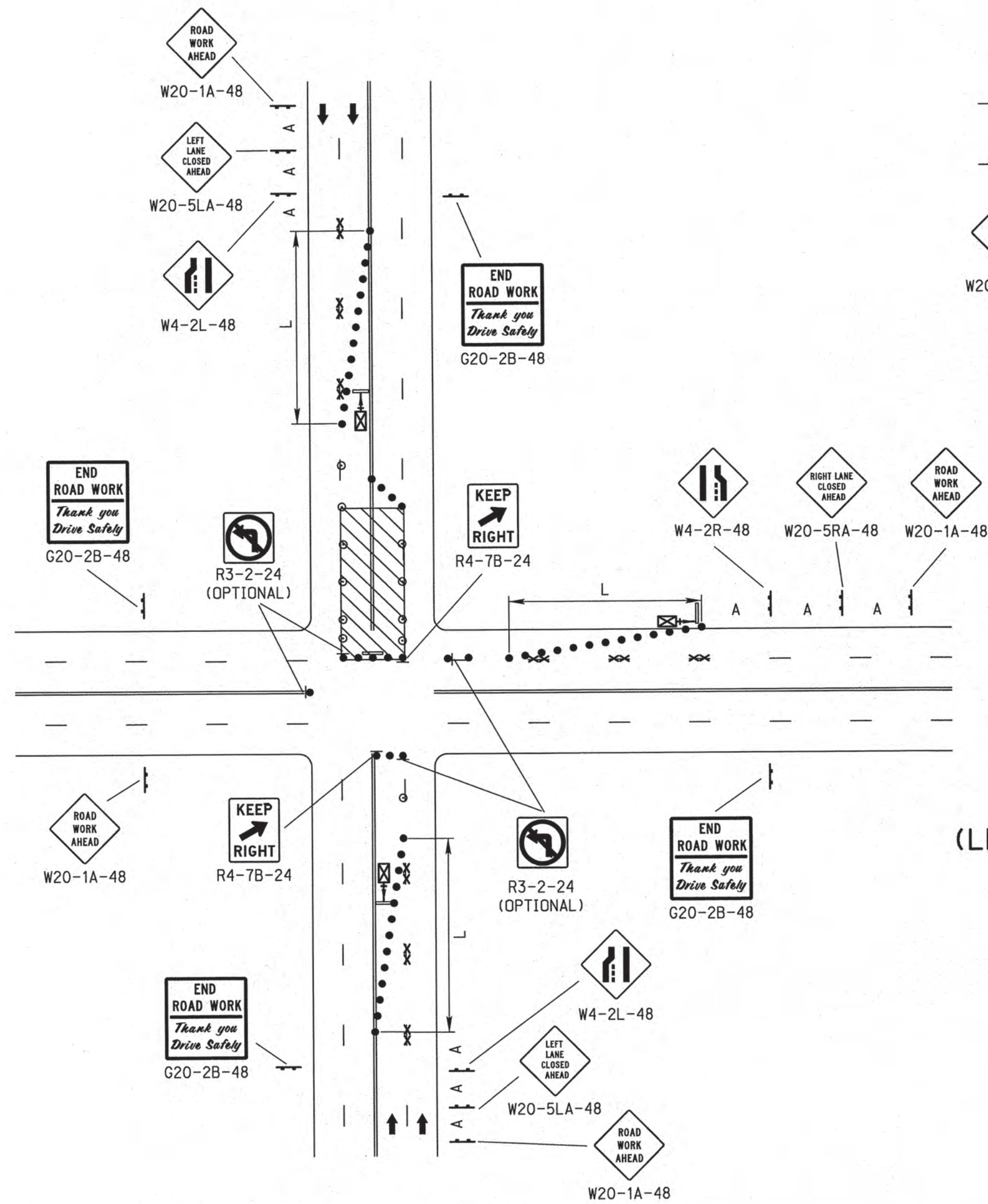
R4	JUL 20	ADDED NOTE TO SHEET ONE
R3	JAN 19	TOOK OUT 1/2 L ON SHEET 2
R2	JAN 18	NDOR BORDER TO NDOT BORDER
REV. NO.	DATE	DESCRIPTION OF REVISION

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 924-R4

URBAN TRAFFIC CONTROL PLAN

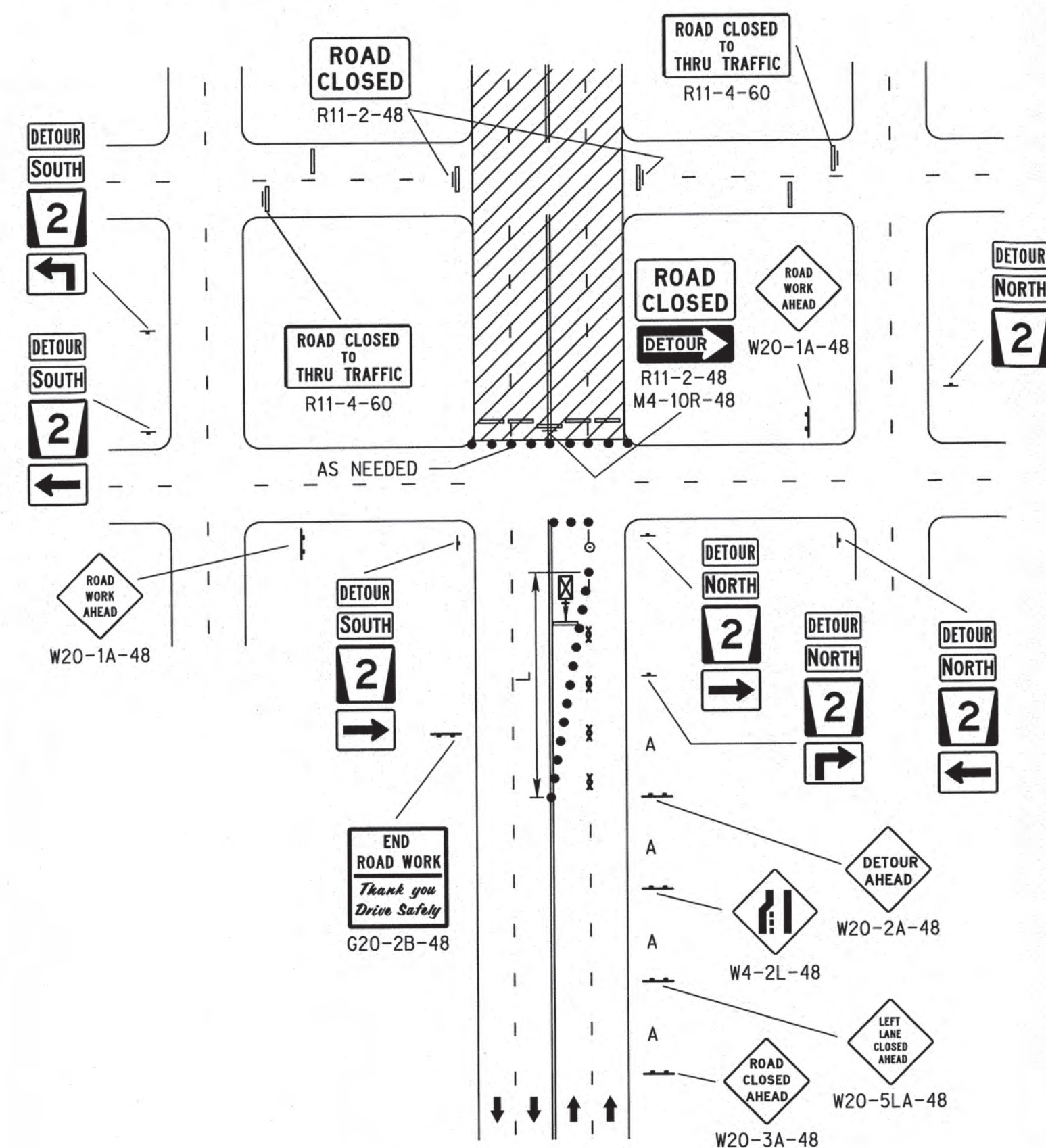
ACCEPTED BY FHWA FOR USE ON THE
NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL ENGINEER
DANIEL J. WADDE
E-6289
3/31/2020
DATE
ORIGINAL:
FEBRUARY 1, 2010
DATE

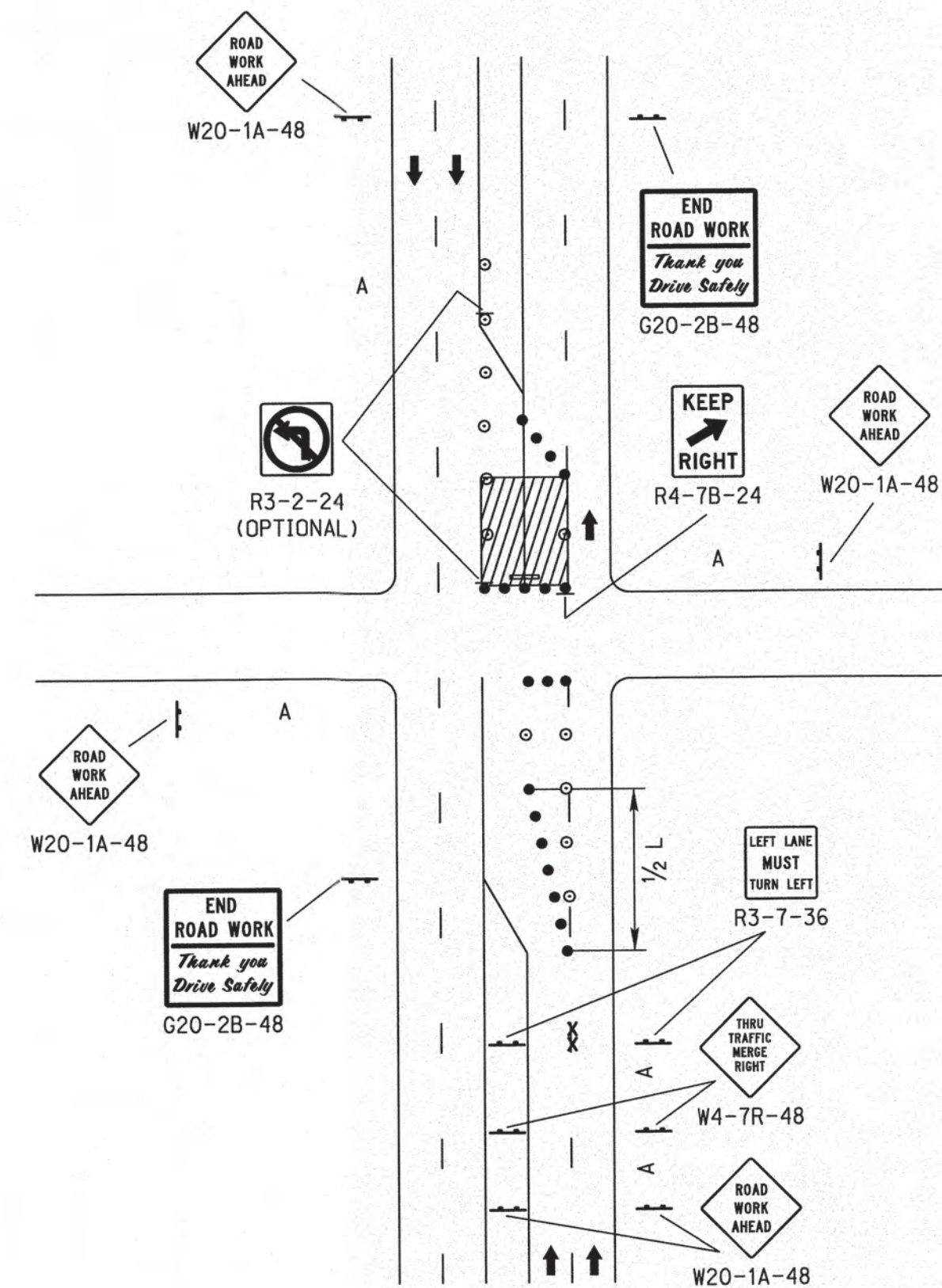


4 LANE UNDIVIDED ROADWAY
CENTER LANES CLOSED
NEAR INTERSECTION

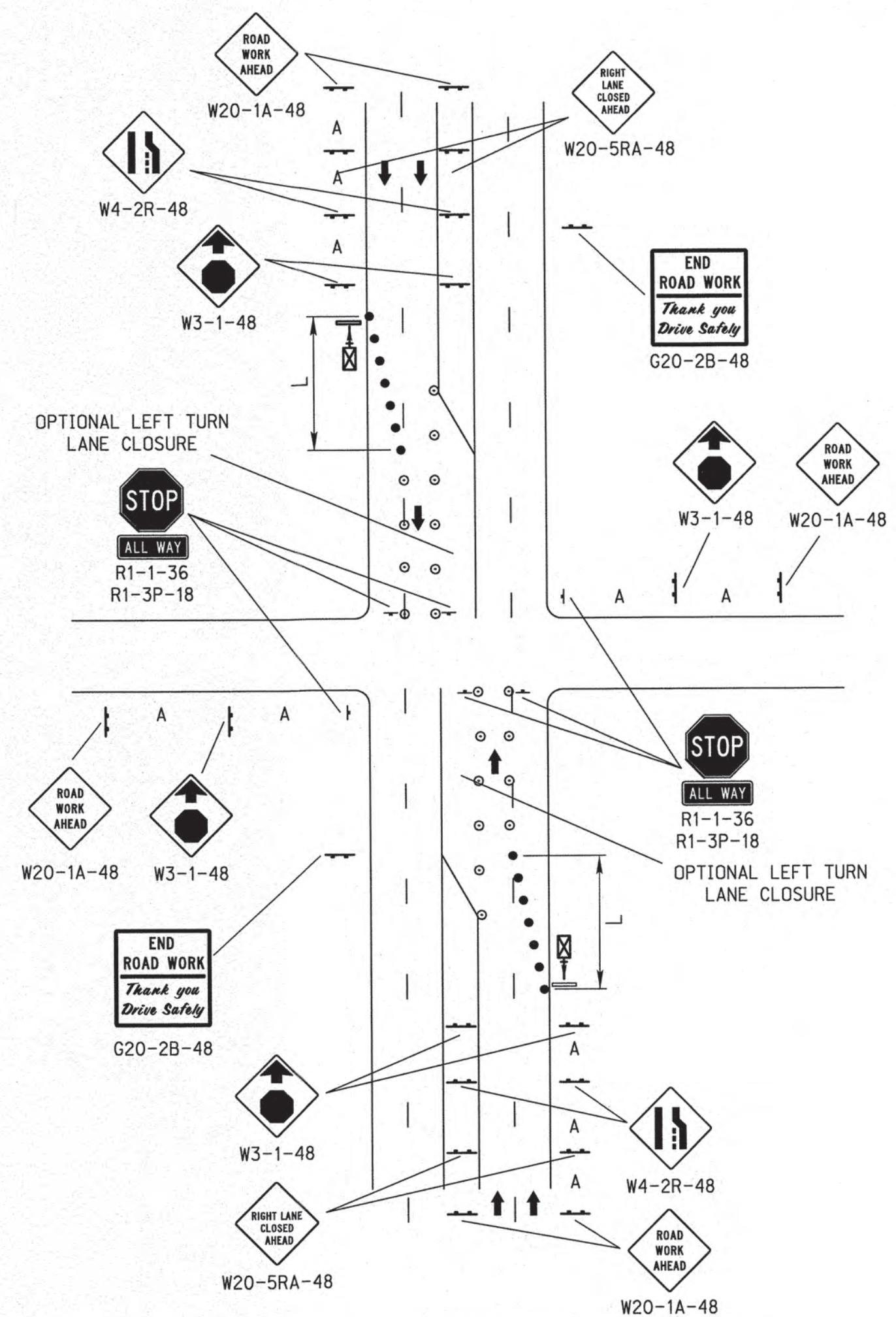
LANE CLOSED NEAR INTERSECTION
(LEFT LANE CLOSURE FORMING A TURNBAY)



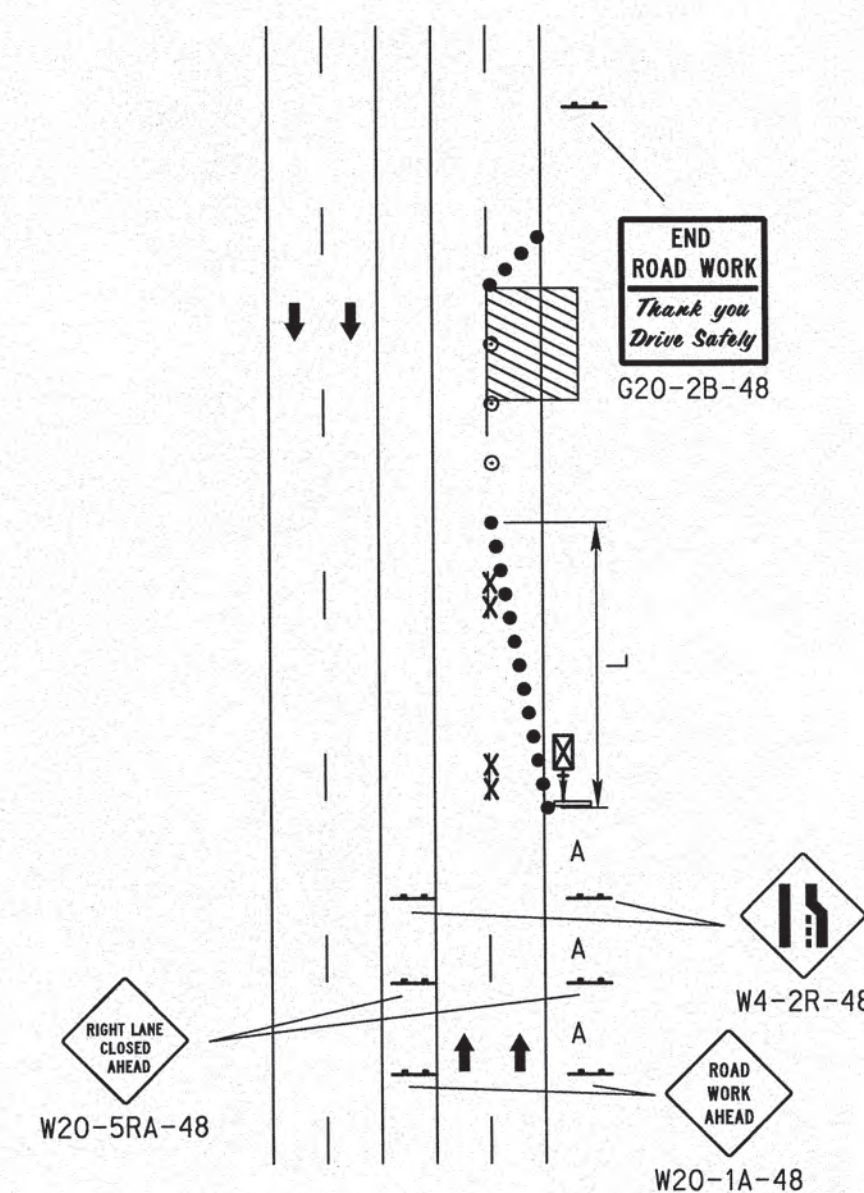
ROAD CLOSED AT DETOUR
(OPTIONAL LANE CLOSURE)



4 LANE DIVIDED ROADWAY
CENTER LANES CLOSED
NEAR INTERSECTION



TEMPORARY ALL-WAY STOP
FOR SIGNAL WORK



DIVIDED ROADWAY
ONE LANE CLOSED

ROAD TYPE	MINIMUM DISTANCE BETWEEN SIGNS	
	A	
URBAN (LOW SPEED - 25 MPH TO 40 MPH)	100'	
URBAN (HIGH SPEED - 45 MPH OR HIGHER)	350'	

LEGEND

- FLASHING ARROW PANEL
- TYPE III BARRICADE
- REFLECTORIZED PLASTIC DRUM
- TUBULAR POST
- REFLECTORIZED PLASTIC DRUM OR 42" CONE
- SINGLE POSTED SIGN
- DOUBLE POSTED SIGN
- FLAGGER
- XXXX PAVEMENT MARKING REMOVAL

TAPER FORMULA

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WHERE:

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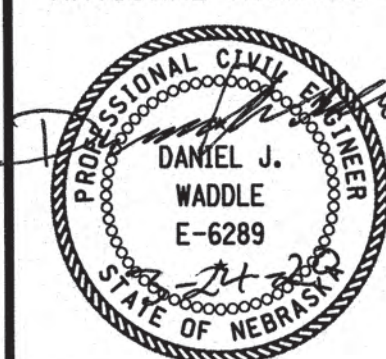
W = WIDTH OF OFFSET (LANE WIDTH).

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NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 924-R4

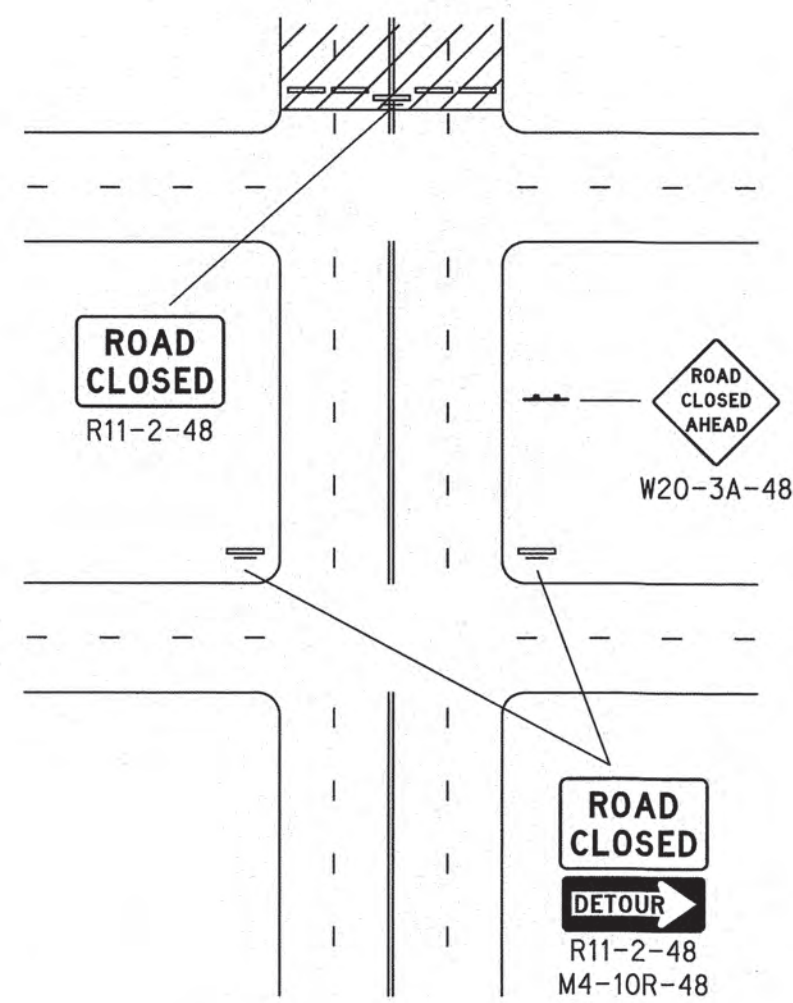
URBAN TRAFFIC CONTROL PLAN

ACCEPTED BY FHWA FOR USE ON THE
NATIONAL HIGHWAY SYSTEM:

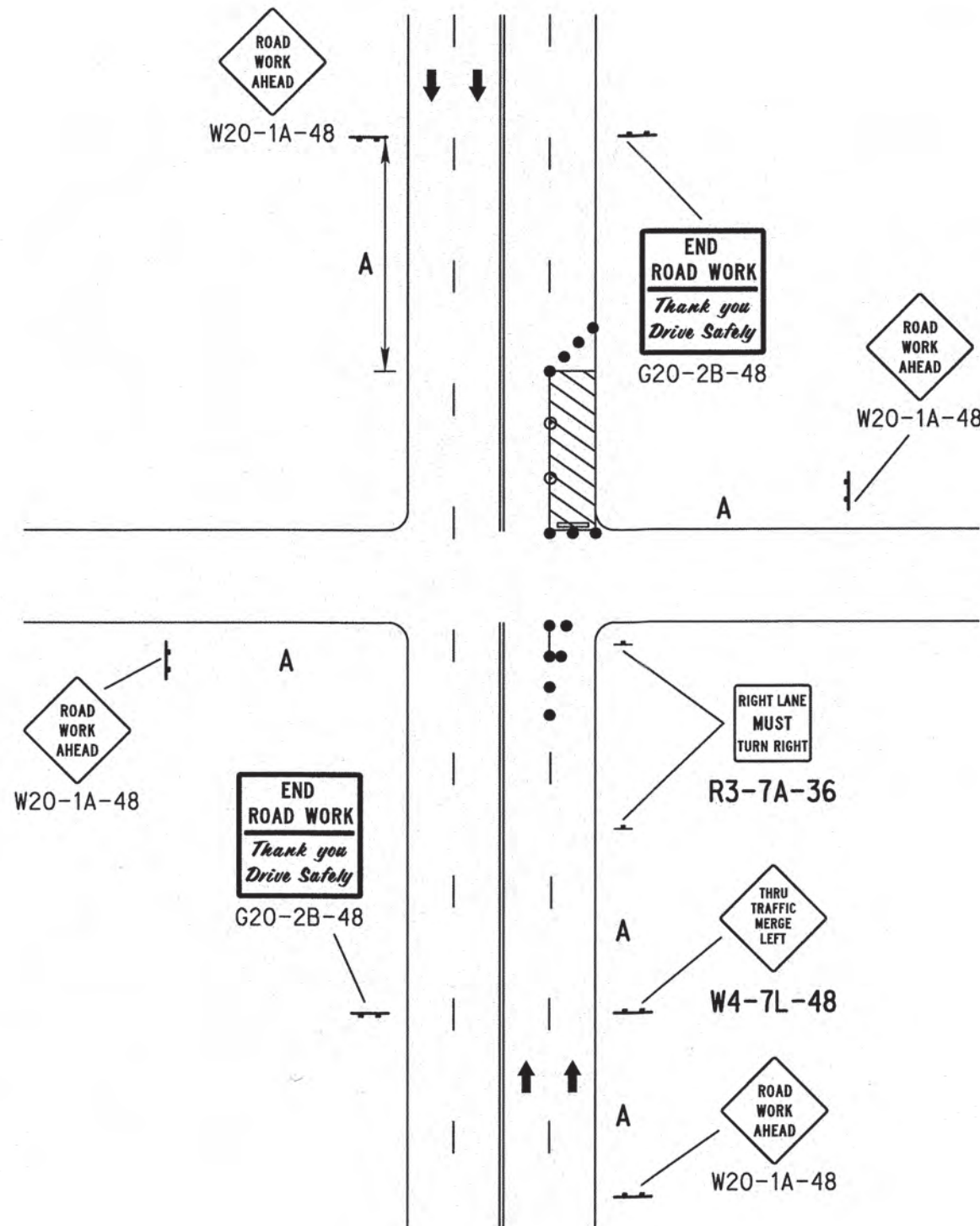


3/31/2020
DATE

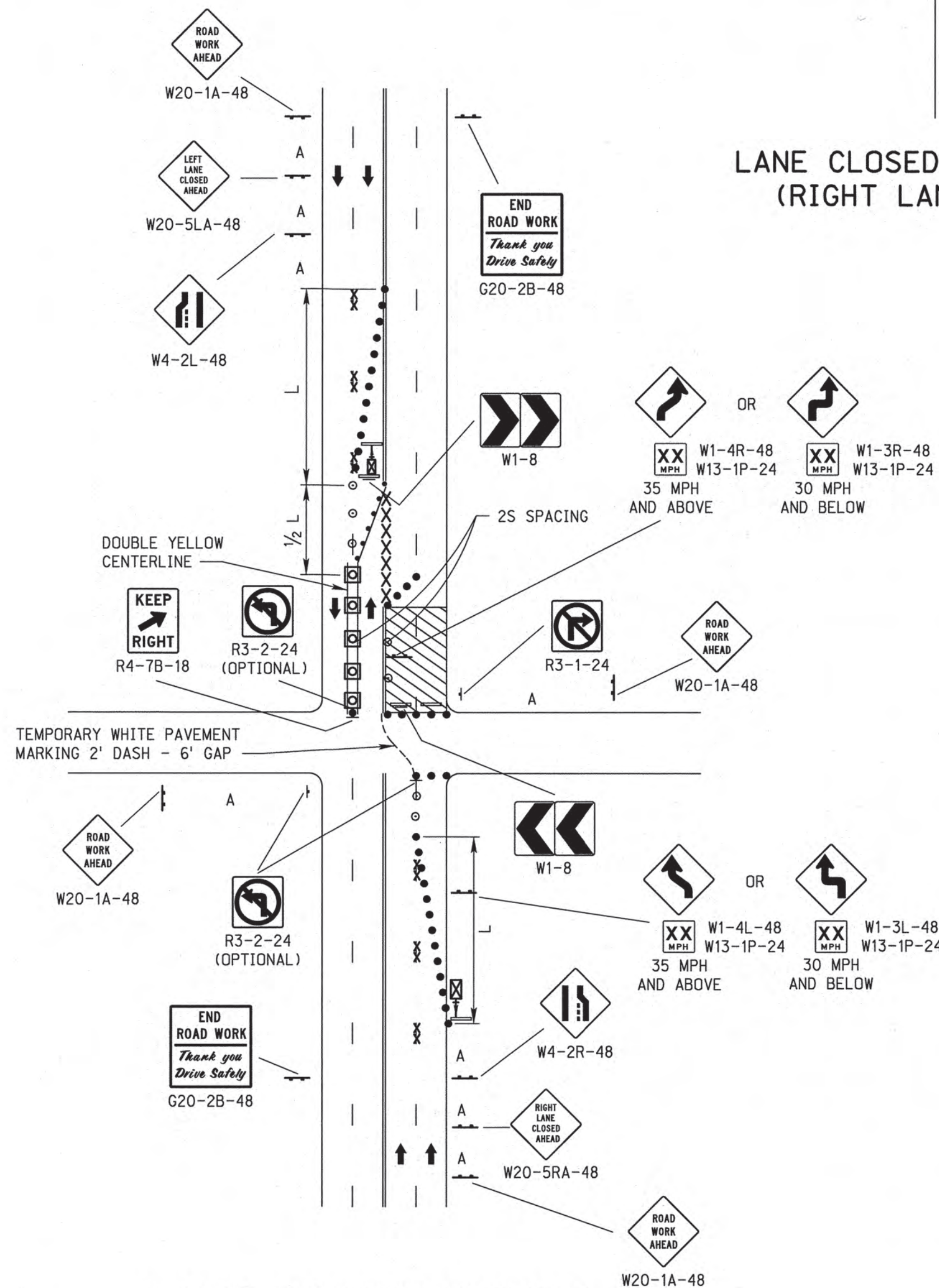
ORIGINAL:
FEBRUARY 1, 2010
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ROAD CLOSED
BEYOND DETOUR



LANE CLOSED NEAR INTERSECTION
(RIGHT LANE REMAINS OPEN)



4 LANE UNDIVIDED ROADWAY
TWO LANES CLOSED NEAR INTERSECTION

- LEGEND
- FLASHING ARROW PANEL
 - TYPE III BARRICADE
 - REFLECTORIZED PLASTIC DRUM
 - TUBULAR POST
 - REFLECTORIZED PLASTIC DRUM OR 42" CONE
 - SINGLE POSTED SIGN
 - DOUBLE POSTED SIGN
 - FLAGGER
 - XXXX PAVEMENT MARKING REMOVAL

TAPER FORMULA

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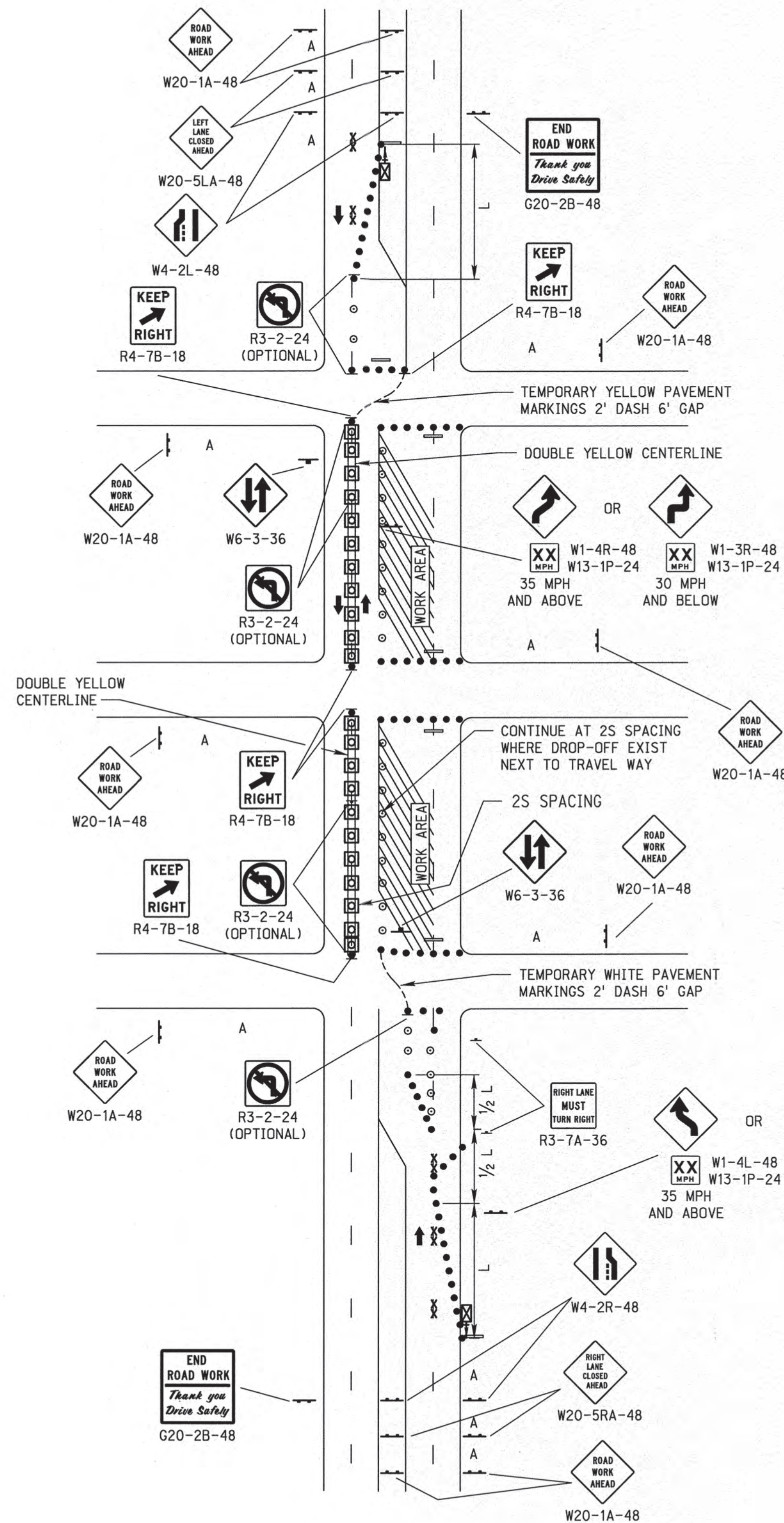
$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 MPH OR LESS.

WHERE:

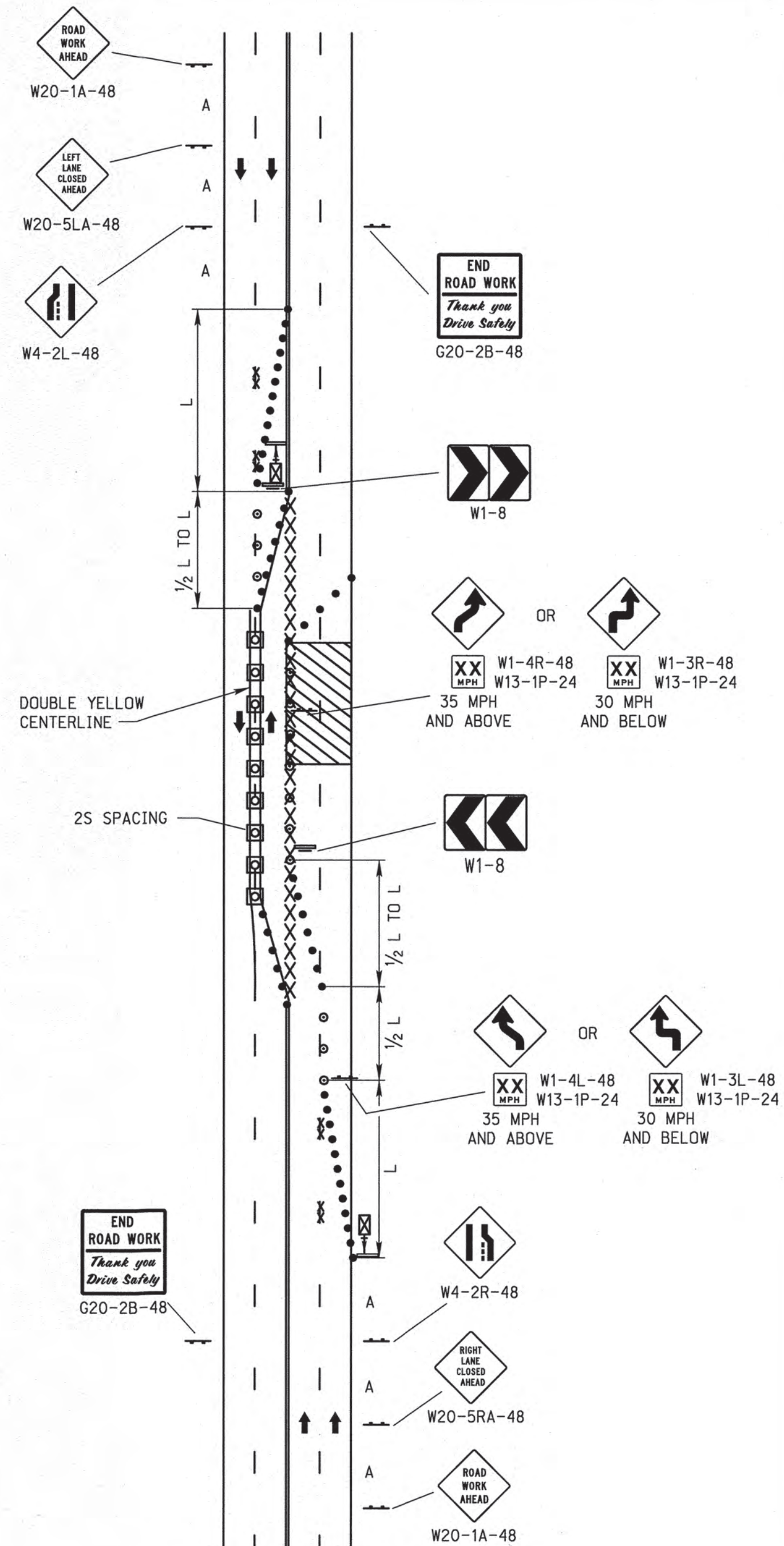
L = MINIMUM LENGTH OF TAPER.

S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK.

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4-LANE DIVIDED
HALF CLOSED



4-LANE UNDIVIDED
2 LANES CLOSED

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