## EAGLE MOUNTAIN BLVD & PONY EXPRESS PARKWAY INTERSECTION RECONSTRUCTION

# Project Name Traffic Signal at Pony Express & Eagle Mountain Blvd X APPROVED REVISE NOT REVIEWED BY David Salazar DATE 05/05/2025

This review is only for general conformance of the project and general compliance. Corrections or comments made on these drawings during this review do not relieve Contractor/Subcontractor from compliance with the requirements of the plans and specifications. Contractor is responsible for all dimensions and fabrication to be confirmed and correlated at the job site

# BHI CONSTRUCTION UTAH COUNTY TRAFFIC CONTROL

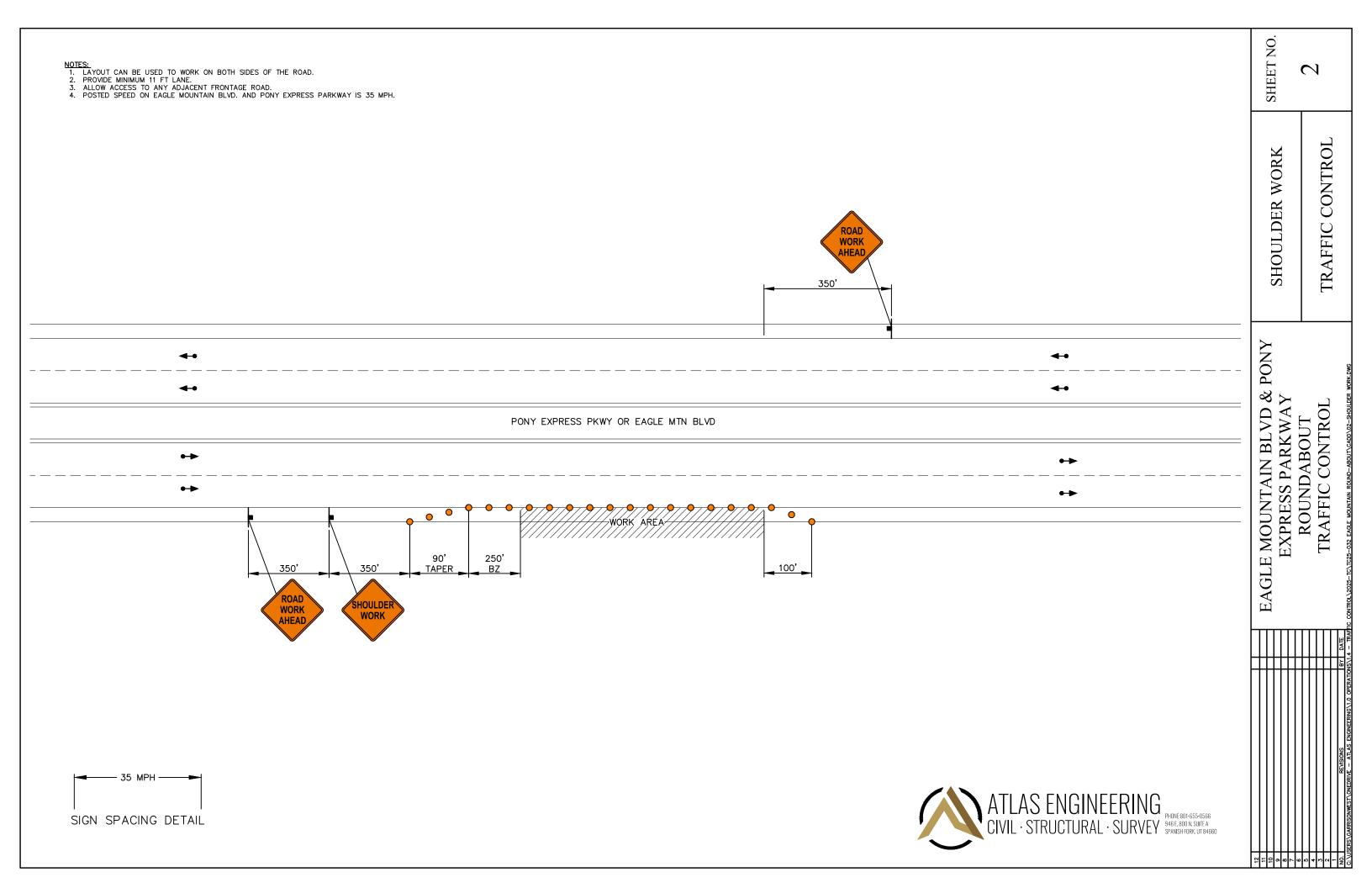
PAGE #	DESCRIPTION
1 2 3 4 5 6 7 8	COVER & INDEX SHOULDER WORK SINGLE RIGHT LANE CLOSURE SINGLE LEFT LANE CLOSURE ROUNDABOUT WORK ZONE PONY EXPRESS PKWY & EAGLE MTN BLVD — PHASE 1 PONY EXPRESS PKWY & EAGLE MTN BLVD — PHASE2 TEMP INTERSECTION #1
PAGE #	UDOT STANDARD DRAWINGS
TC 3A TC 3B TC 4A	HAZARD MITIGATION HAZARD MITIGATION AND POSITIVE PROTECTION DEVICES STANDARD WORK ZONE SIGNING GENERAL

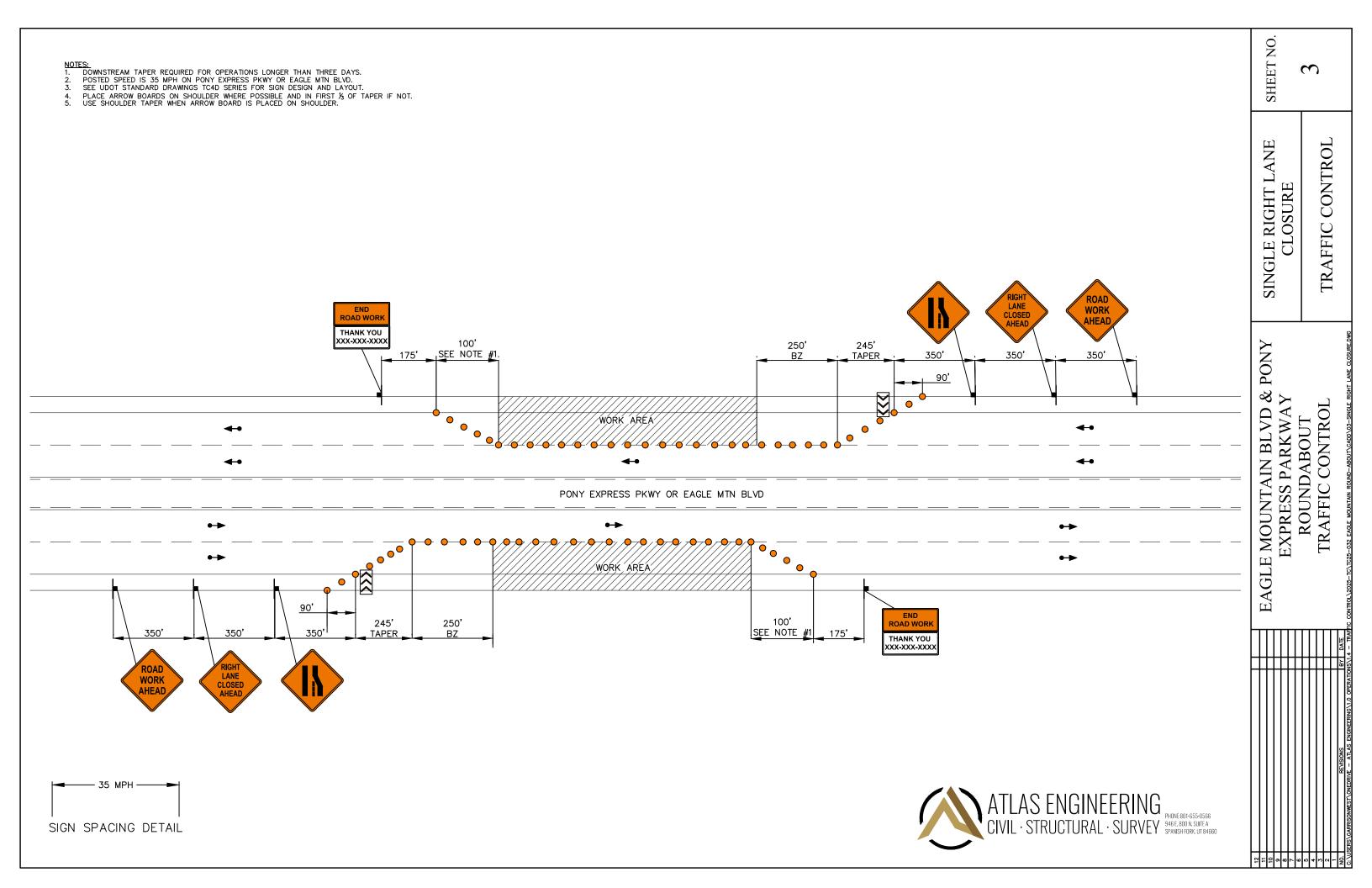


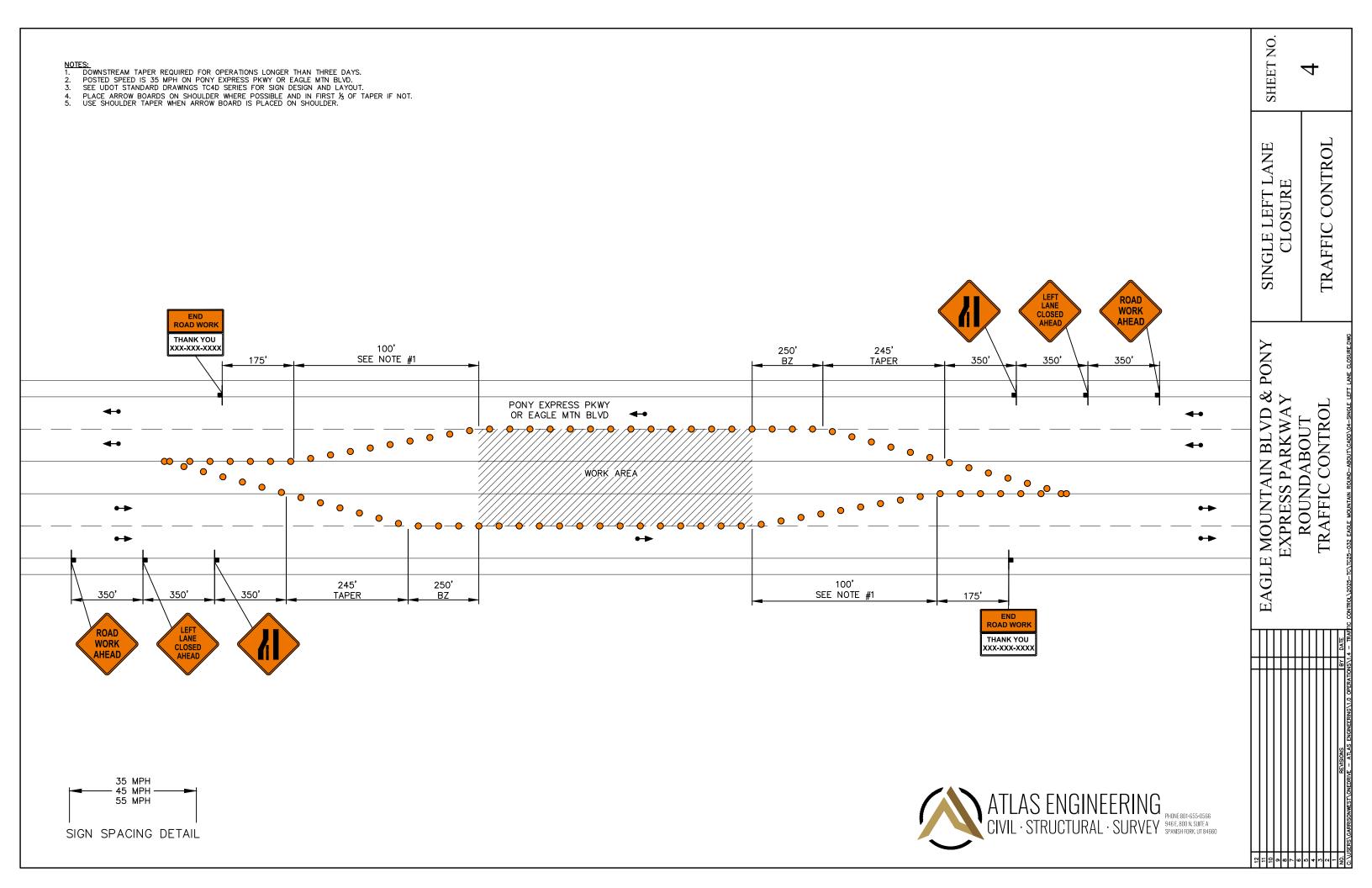
#### NOTES

- 1. ALL SIGNS TO BE 48"X48" UNLESS NOTED OTHERWISE.
- 2. WHEN VEHICLE QUEUES ARE EXPECTED AND/OR OCCUR IN ADVANCE OF THE INSTALLED ADVANCE WARNING SIGNS, PLACE ADDITIONAL WARNING SIGNS IN ADVANCE OF THE ANTICIPATED QUEUE OF VEHICLES.
- 3. IN CASE OF TRAFFIC EMERGENCY, PROJECT SUPERINTENDENT TO NOTIFY HIGHWAY PATROL. CLEAR TRAFFIC FROM FLAGGING QUEUES TO PROVIDE ACCESS FOR EMERGENCY VEHICLES. RELOCATE CONSTRUCTION VEHICLES AND/OR ADVANCE WARNING SIGNS IF QUEUES INCREASE DURING EMERGENCY.
- 4. PROVIDE, INSTALL, AND MAINTAIN VARIABLE MESSAGE BOARDS (6) DAYS PRIOR TO BEGINNING ANY CONSTRUCTION ON THE PROJECT AND THROUGHOUT THE MAJOR ITEMS OF WORK THAT WILL IMPACT TRAFFIC. PROVIDE ONE ADDITIONAL VMS DURING CONSTRUCTION TO BE USED AT THE DISCRETION OF THE ENGINEER. INFORM THE PUBLIC OF THE DATE CONSTRUCTION WILL START AND THE LANE RESTRICTIONS THAT WILL BE IN PLACE DURING THE PROJECT. COORDINATE MESSAGES, DURATION, AND LOCATION OF THE BOARDS WITH THE ENGINEER. ANY RELOCATION NECESSARY FOR CONSTRUCTION ACTIVITIES WILL BE DONE AT NO COST TO THE DEPARTMENT.



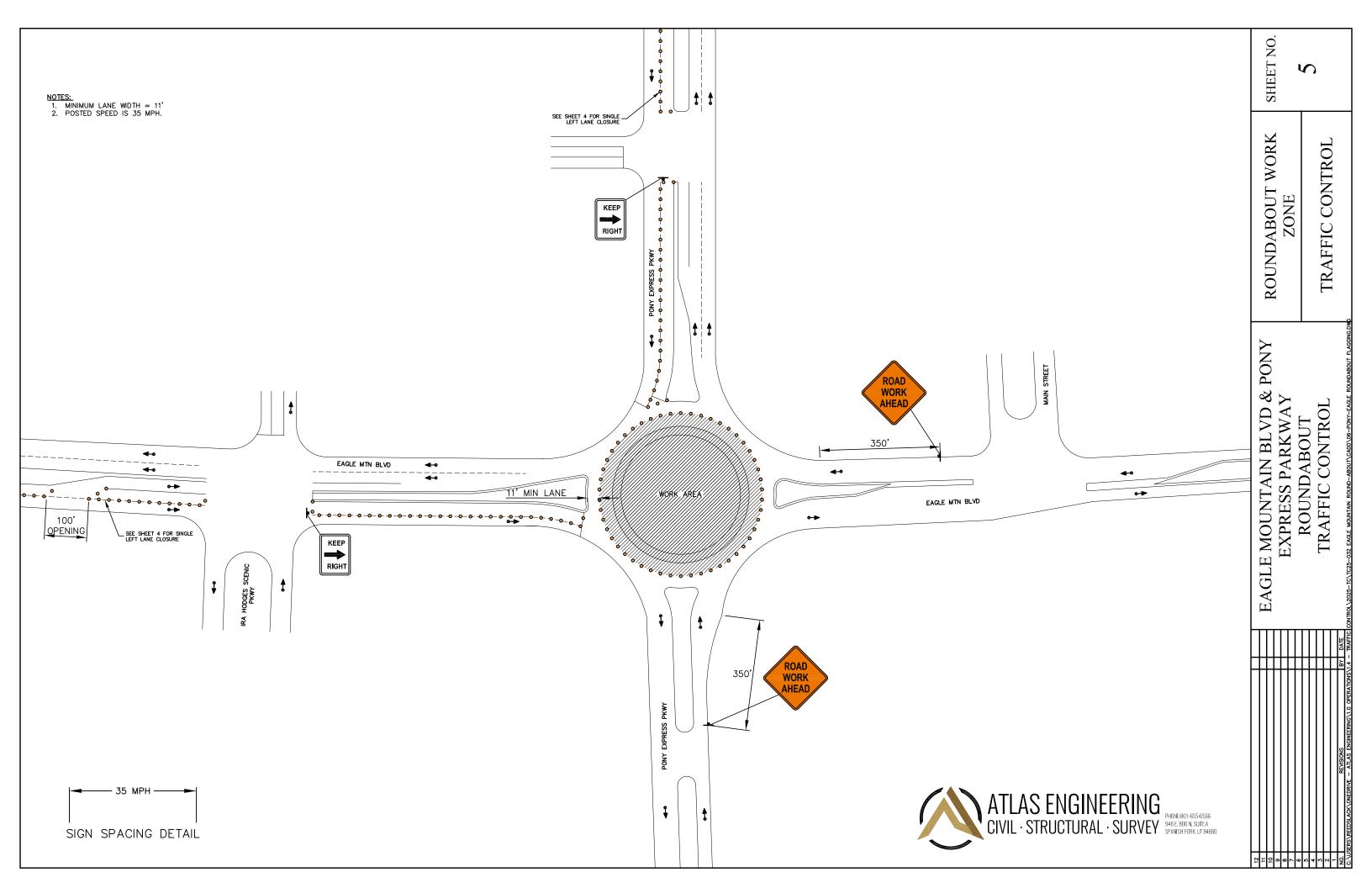


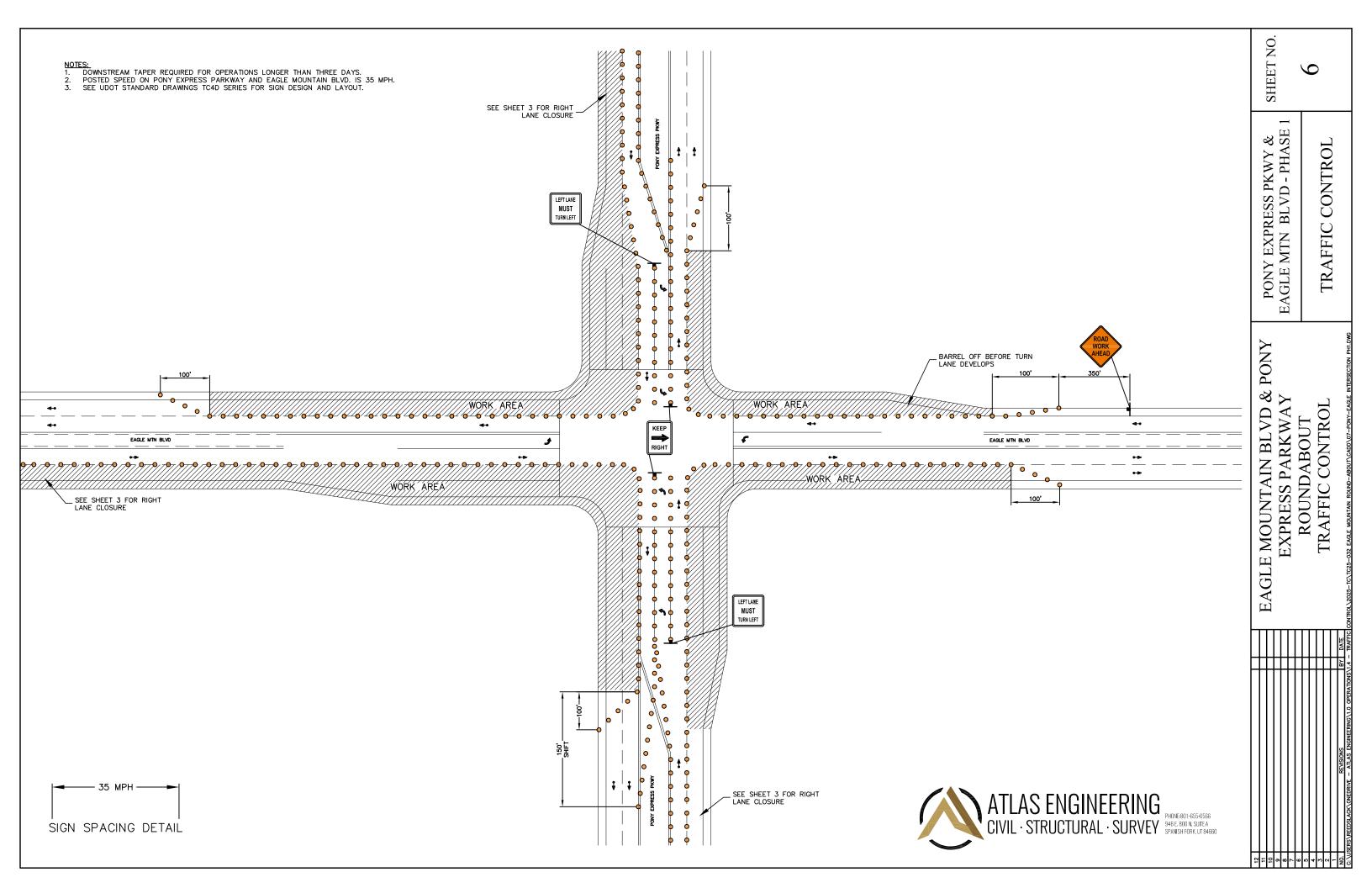


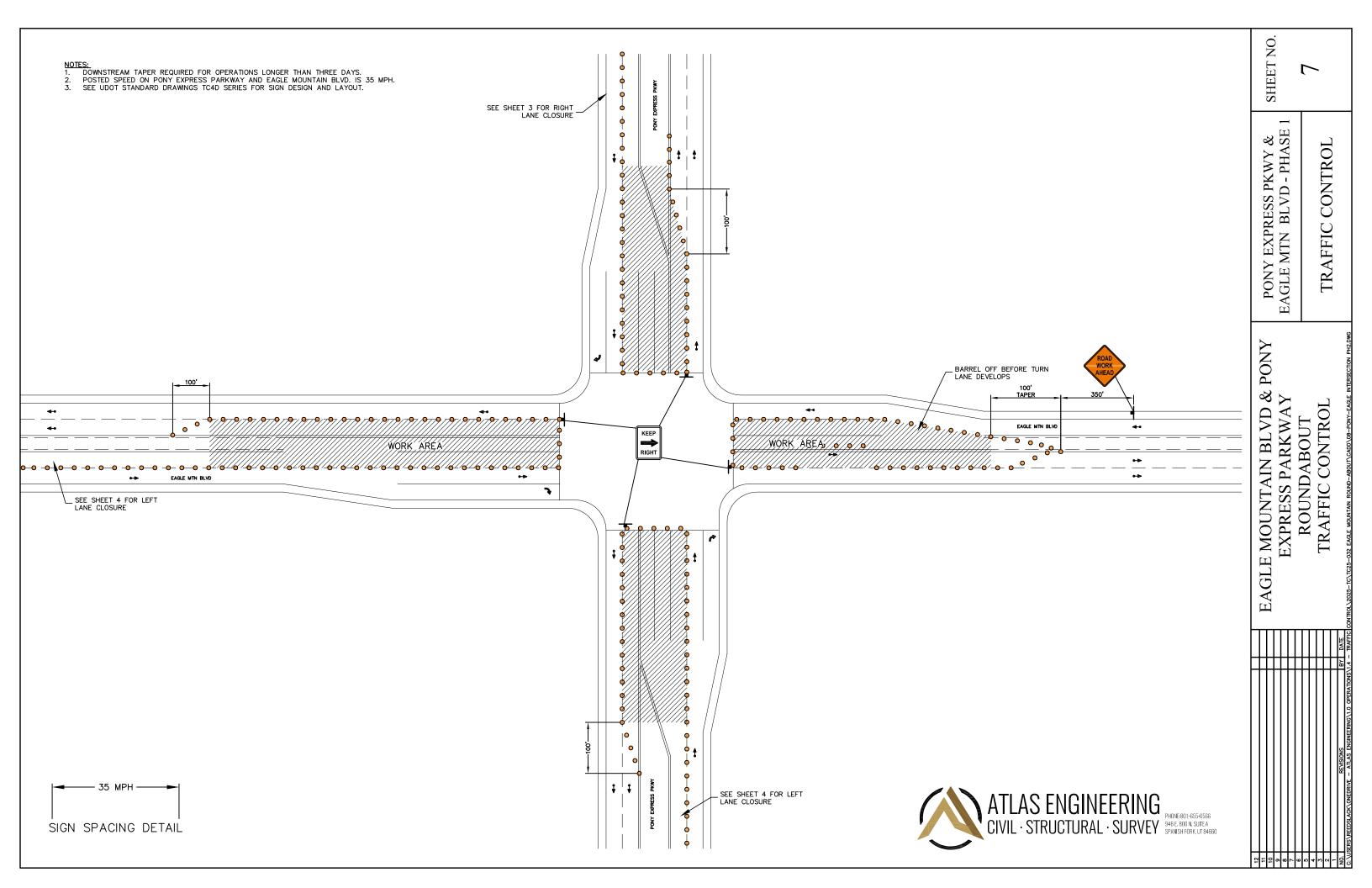


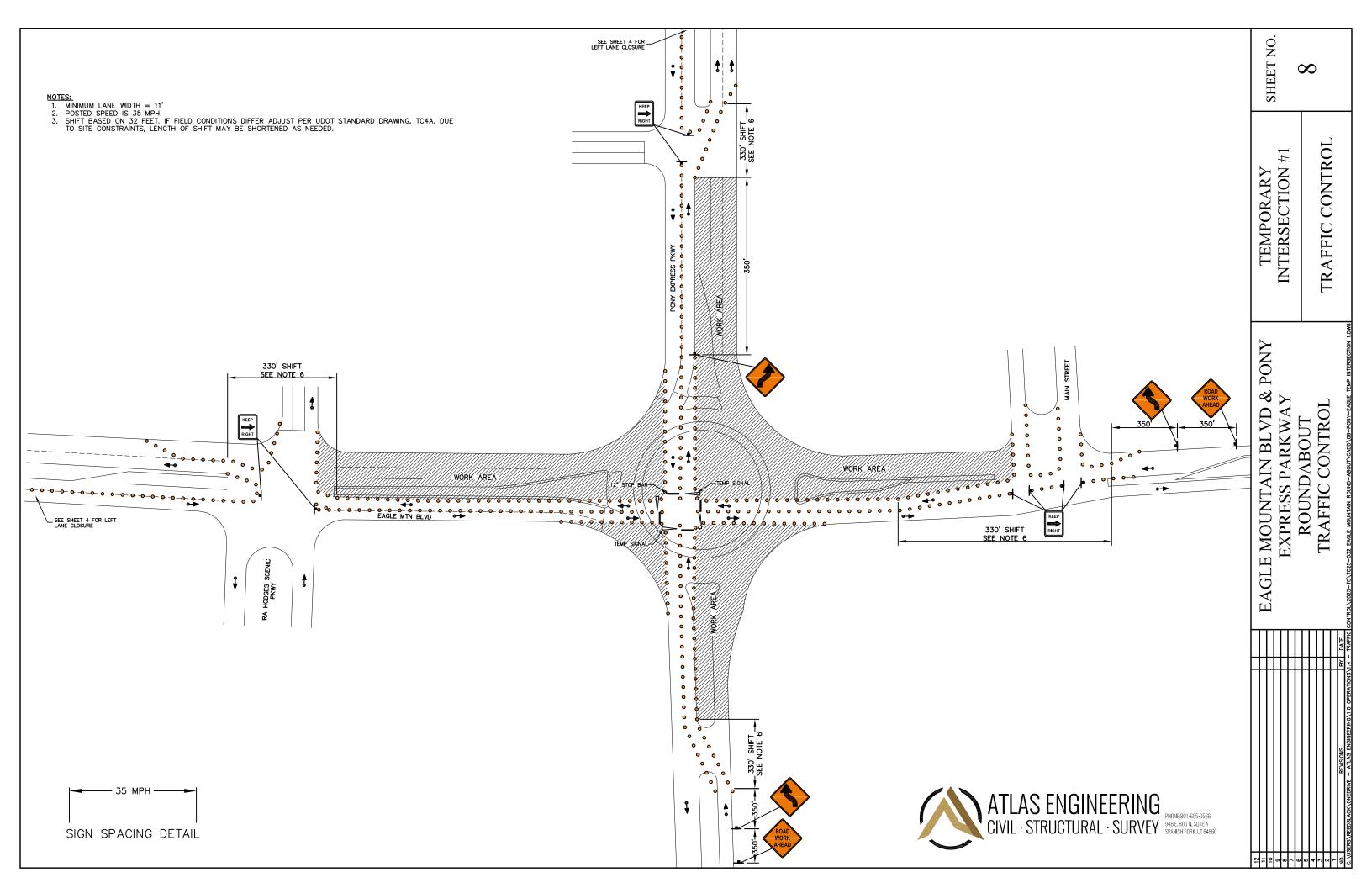
### \*\*\*This configuration to only be used during off-peak hours.\*\*\* NOTES: 1. SIGNING CAN BE USED TO FLAG EITHER LANE. 2. WHEN VEHICLES QUEUES ARE EXPECTED AND/OR OCCUR IN ADVANCE OF INSTALLED ADVANCE WARNING SIGNS, PLACE ADDITIONAL "ROAD WORK AHEAD" SIGNS WITH A "XX MILES" PLAQUE IN ADVANCE OF THE ANTICIPATED QUEUE OF VEHICLES. 3. IF TURNING LANES ARE PRESENT, EXTEND WORK ZONE TO KEEP TRAFFIC CHANNELED INTO SINGLE LANE. 5. ALLOW ACCESS TO ANY ADJACENT FRONTAGE ROAD. 6. POSTED SPEED IS 35 MPH ON PONY EXPRESS PKWY & EAGLE MTN BLVD. ONE LANE ROAD AHEAD 100' TAPER 100' 250' TAPER 350' 350' 350' 0 0 WORK AREA •• PONY EXPRESS PKWY OR EAGLE MTN BLVD ROAD WORK AHEAD ONE LANE ROAD AHEAD - 35 MPH SIGN SPACING DETAIL

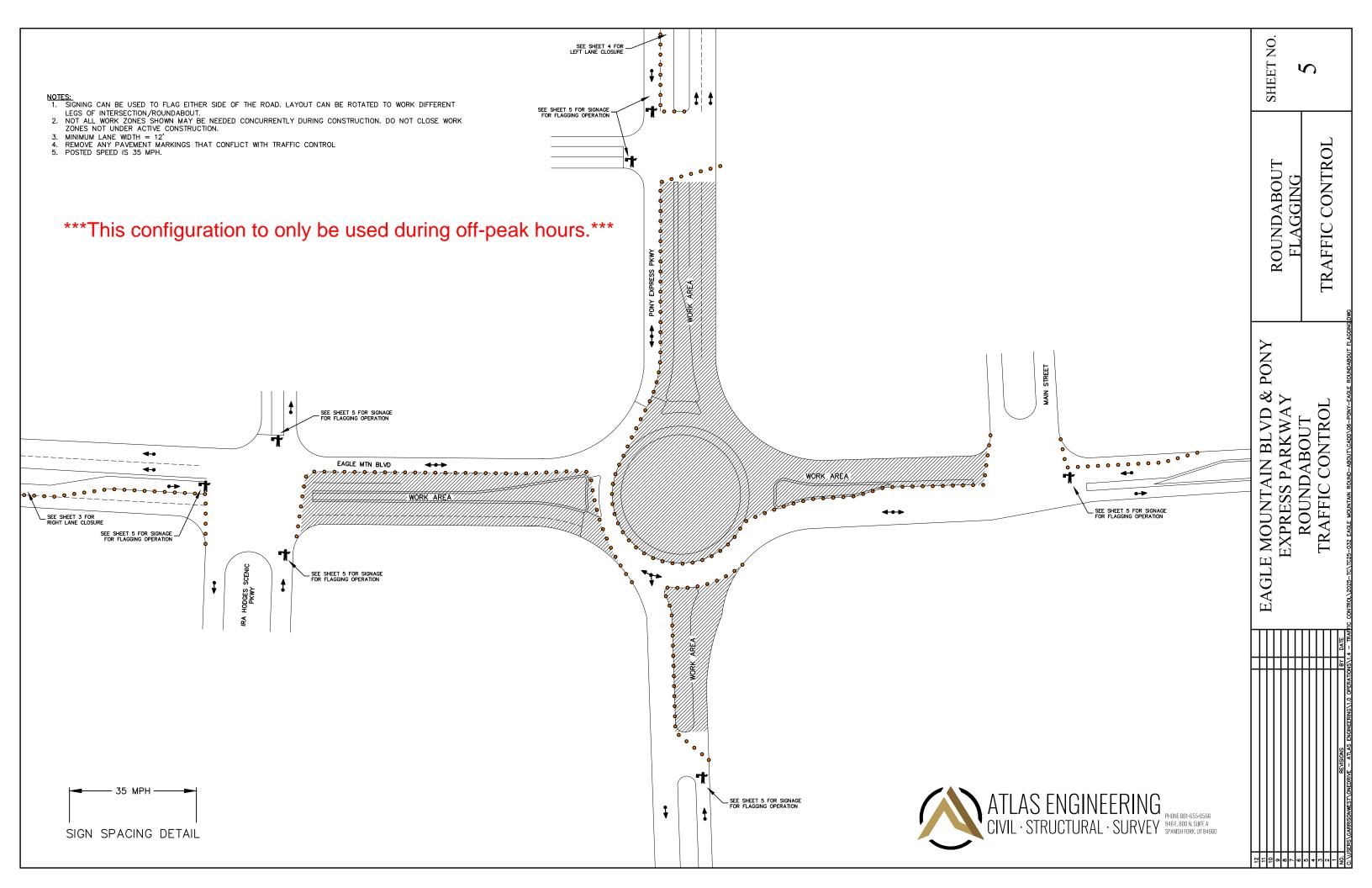
SHEET NO. 9 FLAGGING OPERATION CONTROL TRAFFIC EAGLE MOUNTAIN BLVD & PONY
EXPRESS PARKWAY
ROUNDABOUT
TRAFFIC CONTROL

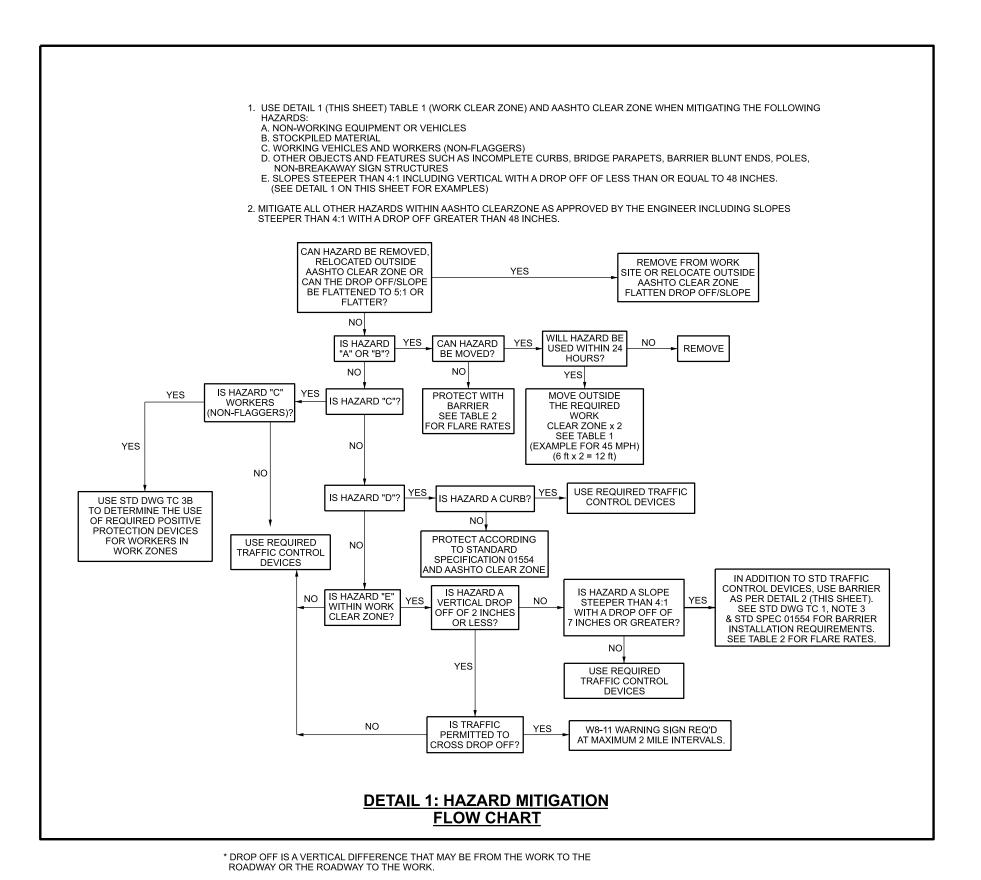


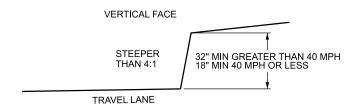








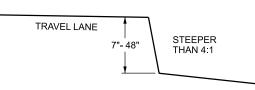




BARRIER REQUIRED FOR SLOPES STEEPER THAN 4:1 AND GREATER THAN INDICATED HEIGHT UNLESS BACKSLOPE IS A SMOOTH UNIFORM SURFACE OF SUITABLE MATERIAL.

SLOPE MUST REMAIN STABLE AND NOT SPALL AT HEIGHT AND SPECIFIED SPEED.

SLOPE STEEPER THAN 4:1 AND VERTICAL EXCAVATION



WITHIN WORK CLEAR ZONE USE BARRIER

**OUTSIDE WORK CLEAR ZONE USE DEVICES** 

GREATER THAN 48 INCH OBTAIN APPROVAL FROM THE ENGINEER

#### DETAIL 2: TYPE "E" VERTICAL DROP OFF HAZARDS

TABLE 1 WORK CLEAR ZONE						
POSTED MPH	FT					
40 & LESS	3					
45	6					
50	6.5					
55	7.5					
60	8					
65	8.5					
70	9					
75	10.5					
80	12					

TABLE 2							
WORK ZONE FLARE RATES TEMPORARY BARRIER							
POSTED MPH	FLARE						
70 OR GREATER	20:1						
65 18:1							
60 17:1							
55 16:1							
50 14:1							
45 10:1							
40 OR GREATER 6:1							

#### NOTES:

1. USE ROADSIDE DESIGN GUIDE FOR AASHTO CLEAR ZONE,

Drawing UTAH DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION SALT LAKE CITY, UTAH Standard 2 02 HAZARD MITIGATION

STD. DWG. NO.

TC 3A

	FACTOR 1 - DURATION OF SPECIFIC WORK ELEMENT (SEE NOTE 3)		POINTS	POINTS	POINTS	POINTS			
	LONG TERM STATIONARY WORK WITH DURATION GREATER THAN TEN MONTHS		10				111		
U U U U	LONG TERM STATIONARY WORK WITH DURATION OF THREE THROUGH TEN MONTHS		8						
OSE ON	LONG TERM STATIONARY WORK WITH DURATION OF MORE THAN THREE DAYS TO LESS THAN THREE MONTHS, AND THE PROCURMRNT AND INSTALLATION OF POSITVE PROTECTION DEVICES CAN BE COMPLETED PRIOR TO WORK STARTING		6	6					
몽	INTERMEDIATE TERM STATIONARY WORK, AND PROCUREMENT & INSTALLATION OF POSITIVE PROTECTION DEVICES CAN BE COMPLETED PRIOR TO WORK STAF	RTING	3				SNC		
	SHORT TERM STATIONARY, SHORT DURATION, AND MOBILE WORK		0				NSIC		
				·					
	FACTOR 2 - EXPOSURE (WORK CLEAR ZONE, SEE STD. DWG. TC 3A TABLE 1)						.		
	WORKERS ARE EXPECTED TO BE WITHIN WORK CLEAR ZONE		10						
	WORKERS ARE EXPECTED TO BE OUTSIDE OF THE WORK CLEAR ZONE, BUT WITHIN TWICE THE WORK CLEAR ZONE		6	10			╽╏	+++	++
SOOS	WORKERS ARE EXPECTED TO BE OUTSIDE OF TWICE THE WORK CLEAR ZONE		3	10				$\perp \downarrow \downarrow$	$\perp \downarrow \downarrow$
동	WORKERS ARE EXPECTED TO BE OUTSIDE OF THE AASHTO CLEAR ZONE		0						
			<u>'</u>	•	<u>'</u>	•	¹ ┃ │		
	FACTOR 3 - POSTED SPEED (PRIOR TO CONSTRUCTION)						╮┞	$\bot$	
l yz	POSTED SPEED IS 55 MPH OR GREATER		10					ļ	
	POSTED SPEED IS 40 MPH, 45 MPH, 50 MPH, OR PILOT CAR OPERATION REGARDLESS OF POSTED SPEED		6	2				7	
SOOS	POSTED SPEED IS 30 MPH OR 35 MPH		3	3			TATION STRUCTION	į į	;
동	POSTED SPEED IS 25 MPH OR LESS		0					- PRUC	
			•	•		•	' <b> </b> }	CONST	9
	FACTOR 4 - LOCATION OF WORK							) o	<sub>.</sub> C
Ш-	BRIDGE STRUCTURES, DROP-OFFS 5 FEET OR GREATER, FILLS OR CUTS STEEPER THAN 2:1, OR CONFINED AREAS WITH NO ESCAPE ROUTE FOR WORKERS		10				2	S HO	Ĭ Ţ
NOF	AREAS WITH BARRIERS OR OTHER IMPEDIMENTS THAT HAVE A VIABLE ESCAPE ROUTE FOR WORKERS		6				6	5 05 yr	р Б
SOS	AREAS WITH DROP-OFFS LESS THAN 5 FEET THAT HAVE A VIABLE ESCAPE ROUTE FOR WORKERS		3	0				CITY C	AWA A
동호	OPEN AREA WITH MULTIPLE ESCAPE ROUTE FOR WORKERS		0				l I⊦	ROAL AKE (	O DR
					<u> </u>		┘ <b>╽</b> ┇		DARI
	COMMENTS:		TOTAL	19			] <b> </b>	AKINGS FO NINGS FO SALT	STAN
			POINTS		<u> </u>		<b>  6</b>	ì ≷ 1	, ,
		[SP	EED LIMIT:	35mph			] [ ]	ו ה כ	
								TANDAR	
							=	STA	
	UNDER EACH FACTOR CHOOSE WHICH CONDITION BEST DESCRIBES EACH WORK AREA IN THE WORK ZONE. THE POINTS ACCUMULATED WILL DETERMINE WHA	T ACTION NEEDS TO BE TAK	EN.					l	
	RESULTS:						L		
	TOTAL IS 31 POINTS OR MORE - POSITIVE PROTECTION DEVICES ARE REQUIRED IN ADDITION TO STANDARD TRAFFIC CONTROL AND ANY OTHER MITIGA	ATION EFFORTS.							
	TOTAL IS FROM 20 THRU 30 POINTS  - POSITIVE PROTECTION DEVICES OR OTHER MITIGATION EFFORTS AND STANDARD TRAFFIC CONTROL ARE REQUIRED TO MITIGATE WORKER EXPOSURE. MITIGATION WILL INCLUDE, AT A MINIMUM, ONE OF THE FOLLOWING AT THE WORKER LOCATION:							NO :	<u>NO</u>
	<ol> <li>PROVIDING POSITIVE PROTECTION DEVICES.</li> <li>REDUCING TRAFFIC DEVICE SPACING TO A MAXIMUM OF ONE-HALF THE REQUIRED DEVICE SPACING.</li> <li>PROVIDING A LONGITUDINAL OR LATERAL BUFFER SPACE OR BOTH AND PROVIDING A TRUCK MOUNTED ATTENUAT</li> </ol>	NOTES:						MITIGATIO	TECTION ES
	TOTAL IS LESS THAN 20 POINTS - USE OF STANDARD TRAFFIC CONTROL IS REQUIRED.	1. POSITIVE	POSITIVE PROTECTION DEVICES ARE DEVICES THAT CONTAIN AND REDIRECT VEHICLES AND MEET CRASH WORTHINESS CRITERIA.					ΕÇ	PRO VICE
	TO ME TO LEGG THAN 201 GIATO GOL OF GAMELAND THOU THE GOLD TREAD.	2. POSITIVE FILLED B <i>i</i>	PROTECTION DI ARRIERS, STEEL	EVICES INCLUDE P BARRIERS, MOVAE	ORTABLE CONCRET BLE BARRIERS, SHAI	E BARRIER, BALLAST DOW VEHICLES WITH		ARD M	VE PI DEVI
			JRATION DEFINIT	CLE ARRESTING SY	OTENIO.			ZA	E
		A. LONG B. INTER	-TERM IS WORK RMEDIATE-TERM	THAT OCCUPIES A STATIONARY IS WO		HAN THREE DAYS. S A LOCATION MORE WORK LASTING MORE		HA	POSITIVE P DEV

**USE OF POSITIVE PROTECTION DEVICES FOR WORKERS IN WORK ZONES** 

- FILLED BARRIERS, STEEL BARRIERS, MOVABLE BARRIERS, SHADOW VEHICLES WITH ATTENUATORS AND VEHICLE ARRESTING SYSTEMS.
- 3. WORK DURATION DEFINITIONS:
  A. LONG-TERM IS WORK THAT OCCUPIES A LOCATION MORE THAN THREE DAYS.
  B. INTERMEDIATE-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN ONE DAYLIGHT PERIOD UP TO 3 DAYS, OR NIGHTTIME WORK LASTING MORE

  THAN ONE HOUR

  THAN O
- THAN ONE HOUR.

  C. SHORT-TERM STATIONARY IS DAYTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN ONE HOUR WITHIN A DAYLIGHT PERIOD.

  D. SHORT DURATION IS WORK THAT OCCUPIES A LOCATION UP TO ONE HOUR.

  E. MOBILE IS WORK THAT MOVES INTERMITTENTLY OR CONTINUOUSLY.

STD. DWG. NO.

Drawing

Standard

2025

TC 3B

#### TAPER, BUFFER ZONE & SIGN SPACING CHART

ROAD	POSTED SPEED	MINIMUM TAPER LENGTH (L)	LENGTH OF BUFFER (BZ)*	MINIMUM SIGN SPACING (SS)**				ONE LANE TWO-WAY FLAGGING		
TYPE	MPH (S)	12 FT LANE CLOSURE		Α	В	С	D	TAPER LENGTH		
		FT	FT	FT	FT	FT	FT	FT		
	30 AND LOWER	180	200	100	100	100	100			
	35	245	250	350	350	250	475	50		
	40	320	305			350	175			
CONVENTIONAL	45	540	360	500			250	100		
	50	600	425		500 500					
	55	660	495			500				
	60	720	570							
	65	780	645							
EDEE!MAN//	65	780	645	1000						
FREEWAY/ EXPRESSWAY	70	840	730							
	75	900	820		1640	2640	500			
	80	960	910							

<sup>\*</sup> THE LENGTH OF BUFFER (BZ) MAY BE REDUCED WITH THE APPROVAL OF THE ENGINEER

**SEE NOTES 6, 7, 8** 

#### 1- TAPER LENGTH FORMULAS

SPEED	FORMULA
FOR SPEEDS OF 40 MPH AND LESS	$L = \frac{WS^2}{60}$
FOR SPEEDS OF 45 MPH AND GREATER	L= WS

L = TAPER LENGTH IN FEET

W = WIDTH OF SHIFT, LANE OR SHOULDER CLOSURE OFFSET IN FEET S = SPEED IN MPH

- 1/3 L = FOR SHOULDER CLOSURE TAPER
- ½ L = FOR LANE SHIFT TAPER

#### 2- CHANNELIZING DEVICES

- A) MERGING AND SHIFTING TAPERS: USE A MINIMUM OF ONE DEVICE PER FT OF LANE CLOSURE WIDTH, PLUS ONE ADDITIONAL DEVICE TO START.
- B) SHOULDER, ONE-LANE TWO-WAY, AND DOWNSTREAM TAPERS: USE A MINIMUM OF ONE DEVICE PER 3 FT OF WIDTH (OR PORTION THEREOF), PLUS ONE ADDITONAL DEVICE TO START.
- C) ON TANGENT: S x 2 = SPACING UP TO 120 FT MAXIMUM.
- D) LENGTH OF BUFFER ZONE (BZ) IS THE DISTANCE FROM END OF LANE CLOSURE TAPER TO WORK SPACE, OR ANY OBSTRUCTION PRIOR TO WORK SPACE.

100'

#### TRAFFIC CONTROL DEVICE LEGEND

SIGN (FIXED OR PORTABLE)

CHANNELIZING DEVICE (SEE STD DWG TC 2A)

DRUMS OR DIRECTIONAL INDICATOR BARRICADE (SEE STD DWG TC 2A)

FLAGGING STATION

ARROW BOARD

→ BARRIER

DIRECTION OF TRAFFIC

DIRECTION OF WORK VEHICLE

TYPE 3 BARRICADE

END ROAD WORK THANK YOU

SEE NOTE 6

SPEED LIMIT

POSTED SPEED

OTES:

- USE THE PRE-CONSTRUCTION POSTED SPEED LIMIT PRIOR TO WORK ZONE TO COMPUTE THE SIGN SPACING, TAPER LENGTH, BUFFER ZONE, AND WORK CLEAR ZONE DISTANCE. USE THE POSTED WORK ZONE SPEED LIMIT DURING WORK TO DETERMINE THE TANGENT SPACING FOR CHANNELIZING DEVICES.
- 2. SIGN MAY BE USED IN WORK ZONES WHERE SPEED LIMIT IS NOT REDUCED.

  A. REPLACE EXISTING SPEED LIMIT SIGNS WITH RS2-6c ASSEMBLIES.

SEE STD DWG TC 1

NOTE 4

- B. PLACE ADDITIONAL WORK ZONE SPEED LIMIT ASSEMBLIES (RS2-1a), FINES DOUBLE (RS2-6c), AND FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS AT ALL MAJOR INTERSECTIONS AND INTERCHANGES WITHIN THE PROJECT WHEN REDUCED SPEEDS AND THE FINES DOUBLE OR THE FINES DOUBLE WITH FINE NOTIFICATION SIGNING OPTION IS USED.
- 3. PLACE ARROW BOARD ON SHOULDER WHEN AVAILABLE. PLACE ARROW BOARD IN FIRST 1/3 OF TAPER IN THE CLOSED LANE WHEN NO ADEQUATE SHOULDER IS AVAILABLE.
- 4. USE SHOULDER TAPER WHEN ARROW BOARD IS PLACED ON SHOULDER.
  - USE IDENTICAL LEFT SIDE SIGNING FOR HIGH-SPEED DIVIDED HIGHWAYS WITH TWO OR MORE TRAVELED LANES. USE ONE SIDED SIGNING FOR WORK ZONES WITH ONE TRAVELD LANE.
  - SEE TC 4D SERIES STD DWGS FOR SIGN DESIGN AND LAYOUT.
- FINES DOUBLE (RS2-6c) AND FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS MAY BE USED INTERCHANGEBLY.
- SEE PROJECT SPECIFIC REQUIREMENTS FOR USE OF OPTIONAL ZIPPER MERGE SIGNING.
  A. USE ALTERNATE "USE OPEN LANES TAKE TURNS AT MERGE" SIGN WHEN FACILITY HAS 3 OR MORE LANES IN THE SAME
- B. USE ZIPPER MERGE SIGNING WITHIN FINAL LANE CLOSURE SIGNING IF MULTIPLE LANE CLOSURES ARE BEING
- C. ON FREEWAYS (65 MPH OR GREATER), USE CHANGEABLE MESSAGE SIGN (CMS) IN PLACE OF STATIC SIGN "USE BOTH LANES TAKE TURNS AT MERGE" OR "USE OPEN LANES TAKE TURNS AT MERGE" MESSAGES IN TWO PHASES.

	C B OR OR B A A	TAPER (L)	BUFFER (BZ)	WORK SPAC
SEE STD DWG TC 4C FOR PROJECT LIMIT SIGNING	<b>)</b>	TAPER SEE NOTES 3,4	EXAMPLE ( SETUP TO  SEE STD DWG TC 1  NOTE 3	ONLY - NOT TO SCALE BE SITE SPECIFIC
ROAD WORK AHEAD			WORK ZONE SPEED LIMIT XX	<b>NOTE</b> 1. 2.
RIGHT LANI CLOSED AHEAD	USE BOTH LANES TAKE TURNS AT MERGE  OPTIONAL SEE NOTE 8		FINES DOUBLE  SEE  NOTES 2 & 6	3.
FINES DOUBLE OR FOR SPEEDING	OR	OR ^		4.
OR	USE OPEN LANES TAKE TURNS			5.
WORK ZONE LEFT LANE CLOSED	» ———			6.
FINES DOUBLE FOR SPEEDING MAY EXCEED \$600	OPTIONAL SEE NOTE 8			7.
THE LACE TO SOLVE THE PARTY OF				8.

STANDARD WORK ZONE SIGNING

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IMENT OF TRANSPORTATION SS FOR ROAD AND BRIDGE CONSTRUCTIC SALT LAKE CITY, UTAH

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STD. DWG. NO.

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TC 4A

<sup>\*\*</sup> MAXIMUM SPACING IS THE GIVEN VALUE (SS) MULTIPLIED BY 1.5

