

# **Washington State Permanent Traffic Recorder Site Installation Best Practices**

# Лефортово- тоннель смерти

# Main type of axle sensor used for a PTR site by the TDO

- Roadtrax BL sensor

Roadtrax BL sensors come in two classifications and varying lengths.  
Class 1 (used for WIM sites) 11'-15'  
Class 2 (used for PTR sites) 6'



# PTR Equipment used at TDO

## Diamond Phoenix



## IRD TCC540



# Lane configurations used by the TDO

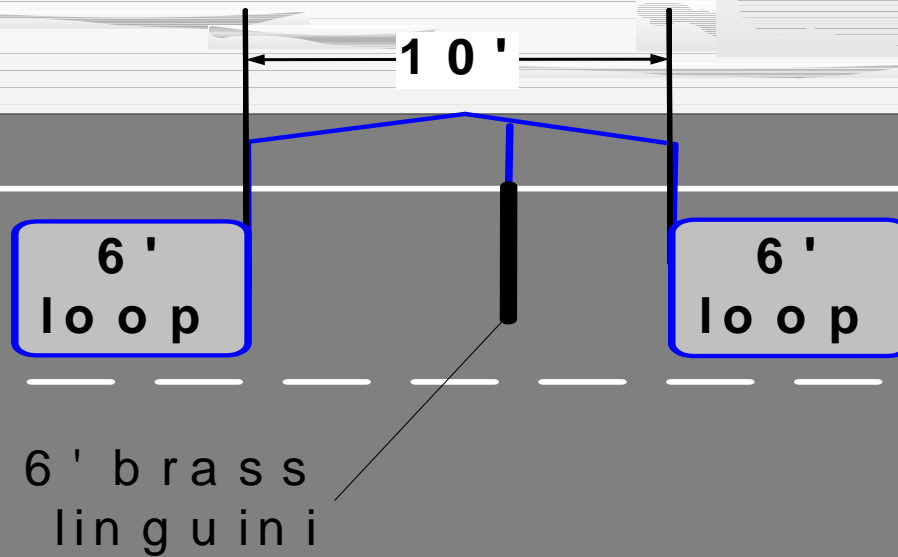
Loop/Axle/Loop (P/A/P)

Axle/Loop/Axle (A/P/A)

Loop/Loop (P/P)

# Loop/axle/Loop layout

Drawing not to scale



Site: R073    Name: Sapho  
SR: 101        mp: 203.93

scale 1"=20'

Needs  
measurements

Pavement: asphalt  
Power: full time  
Phone: line  
Loop Spacing: 16' leading  
edge to leading edge

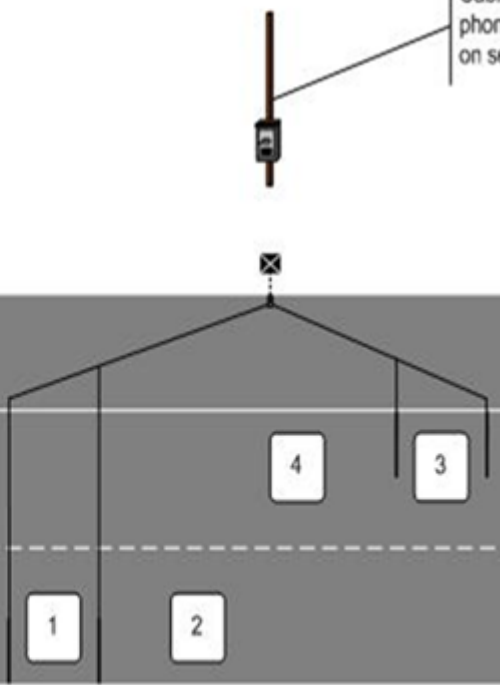
### Park & Ride

Original Installation: 1983 loops only (GR)  
Reinstalled: 8/19/97 w/ class II brass linguini piezos (Diamond) P-A-P configuration  
Reinstalled: 6/1/05 after grind and widening of shoulders, loops still good. Added 2 class II brass linguini piezos per lane for log truck splitting. A-P-A configuration

Cabinet and phone interface on service poll

Decreasing mp

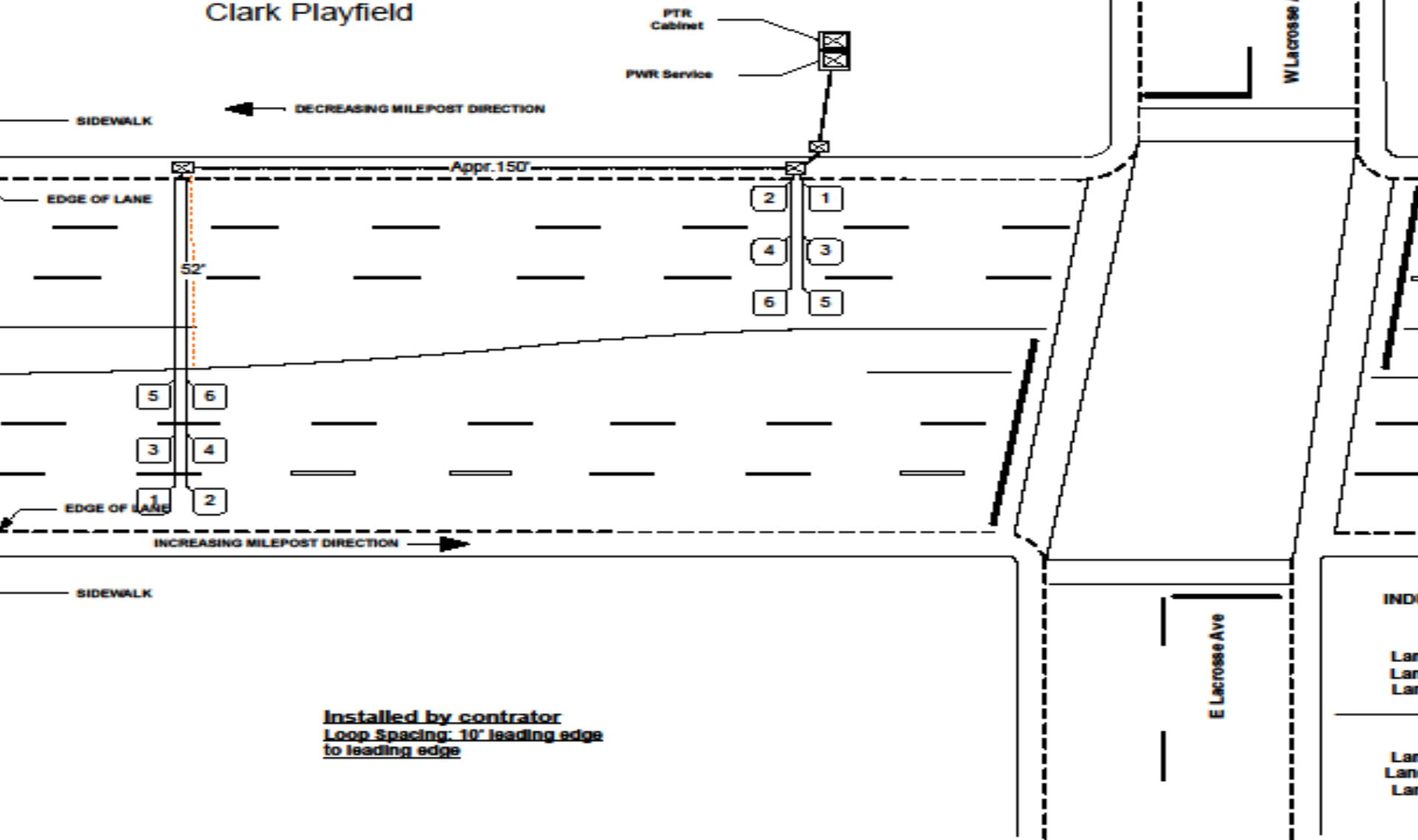
Increasing mp







# Clark Playfield



**Installed by contractor**  
Loop Spacing: 10' leading edge to leading edge

Pavement type:	ASPHALT	Counter type:	DIAMOND
Power:	FULLTIME	Counter Serial #:	2158
Original install date:	1959	Modem type:	ZDX
Last complete reinstall date:	02/01/1999	Modem serial #:	5212653



Washington State  
 Department of Transportation

# PTR site data reliability

- PTR sites are continually monitored by the TDO data collection crew for errors.
- PTR Data accuracy rate is approximately 97% on vehicle classifications.
- Sites completely down due to construction, power failure or any other unforeseen events, have top priority for repairs.

What methods are used to determine a safe and effective location for a PTR installation?

#1

# Personal and Public Safety

Traffic Control

Surroundings/clear zones

Site: R061      Name: Eitopia

SR: 395      MP: 36.24

### Northbound Single Right Lane

#### LEGEND

- MPH 70
- ➡➡➡ Arrow Board
- Barrels
- ▲▲▲▲▲▲▲▲ Cones
- ▨▨▨▨▨ Work Area
- 🚗 Protective vehicle

#### Spacing

- Signs 1500'
- Barrels 40'
- Cones 80'
- Taper 840'
- Buffer Space 730'
- Roll Ahead 150'
- Work Area 200'
- End Taper 100'

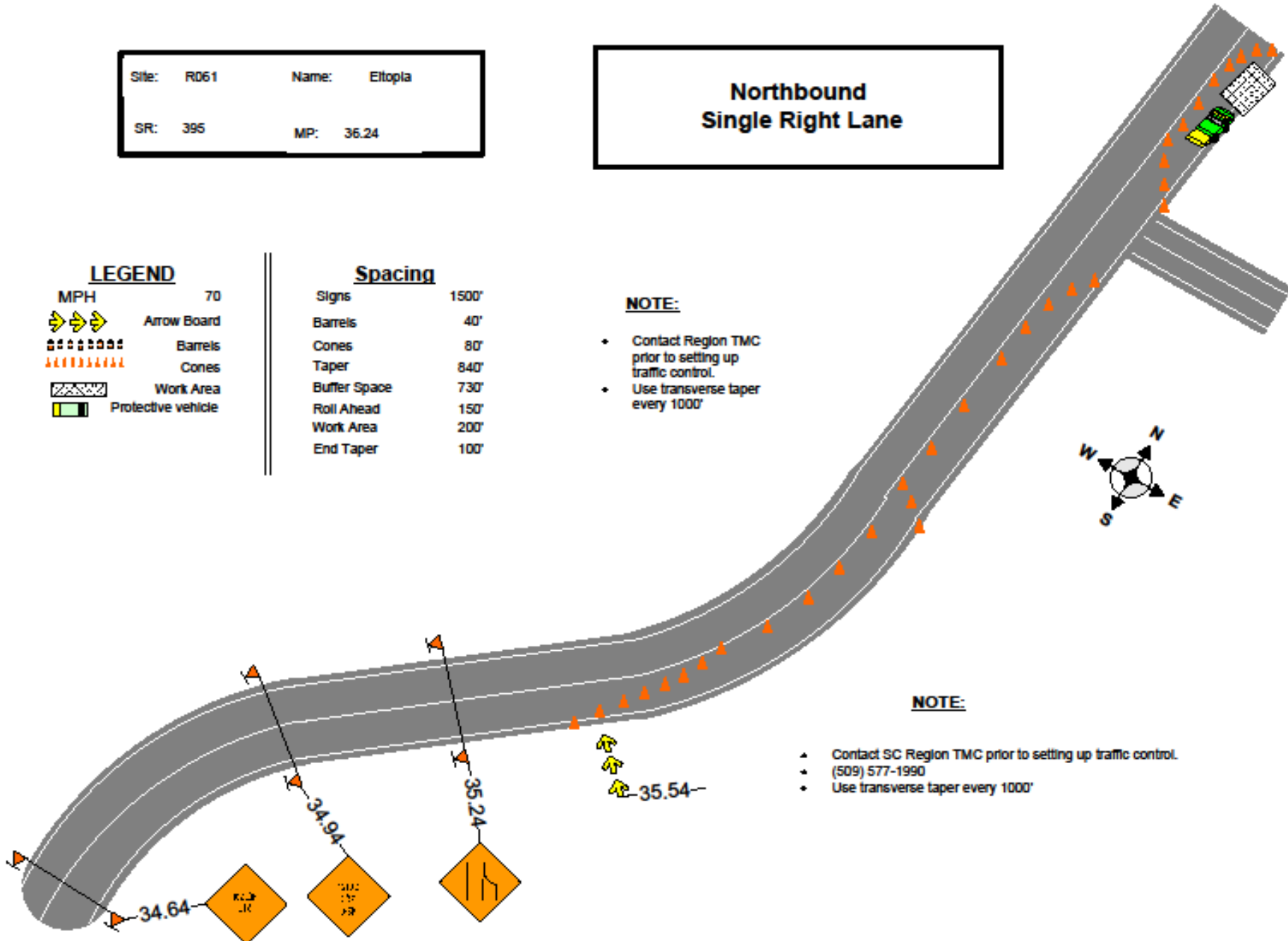
#### NOTE:

- Contact Region TMC prior to setting up traffic control.
- Use transverse taper every 1000'



#### NOTE:

- ▲ Contact SC Region TMC prior to setting up traffic control.
- (509) 577-1990
- Use transverse taper every 1000'



34.64

34.94

35.24

35.54









Surroundings /  
Clear zones





# #2

## Location

Power availability

Phone availability

Roadway layout

(Curves, On/Off Ramps, overpass)

Road surface/condition



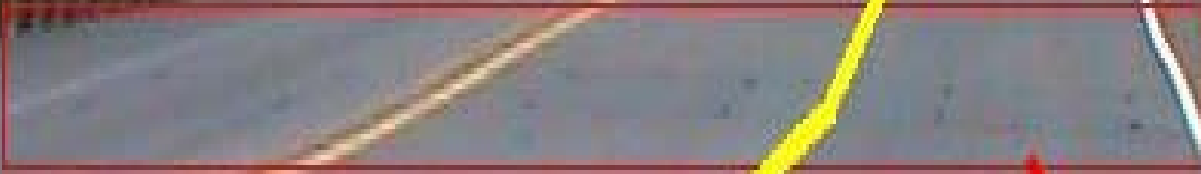
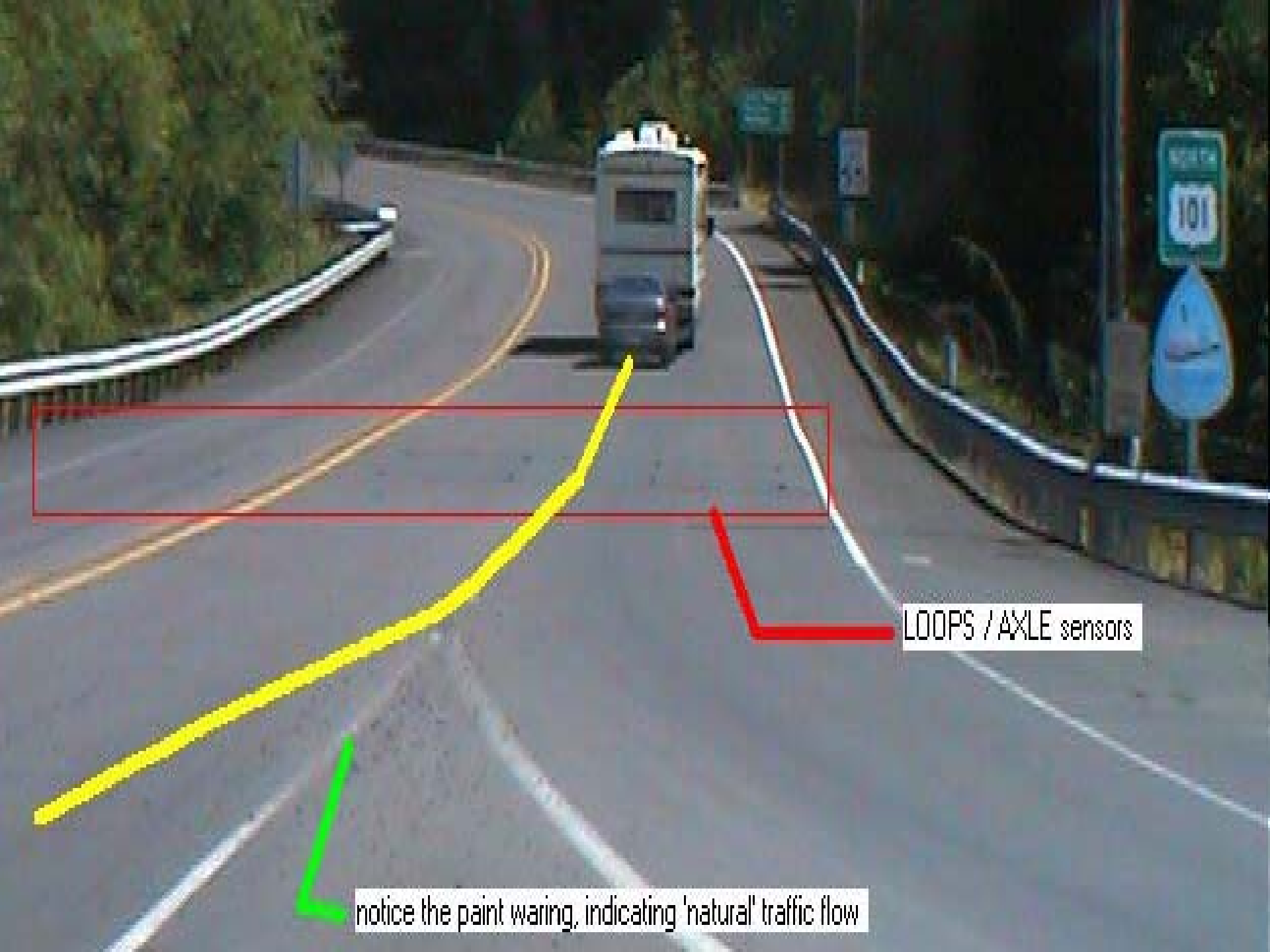
ELECTRO - MATIC

TRAFFIC  
CONTROL

**CAUTION**  
**BURIED CABLE**  
Call: (360) 586-2700  
© 1998 ELECTRO-MATIC  
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LOOPS / AXLE sensors

notice the paint waring, indicating 'natural' traffic flow











# Road Surface/Condition

- Type of road surface: Concrete, Asphalt, Chip seal
- Condition of road (cracks, holes)
- Any road wear at the tire tracks
- What is the traffic volumes?





#3

Site Layout

Cabinet placement















#4

Site Layout

Loop and Piezo  
placement

**A 6' square loop with corners eased off to help prevent sharp edges from causing abrasions on loop wire. A 1/4" diamond saw blade is used to cut the slot to accommodate wire with a minimum amount of play. The saw is set to cut 3" deep. Four turns of loop wire minimum for each loop.**

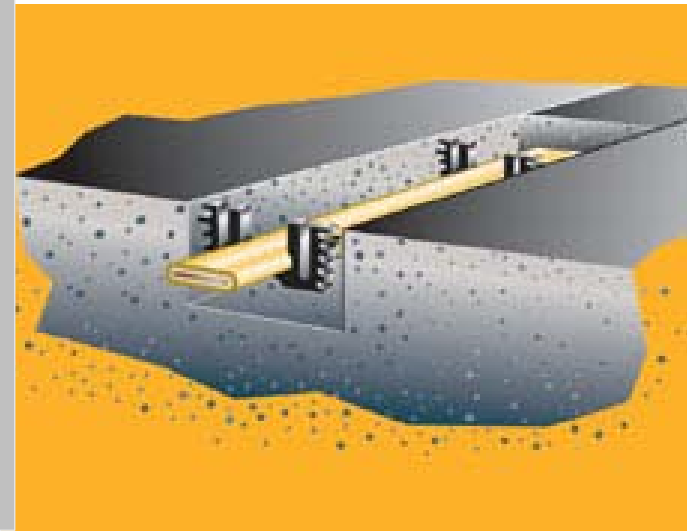
**3/8" saw blade is used on lead-ins from intersection of loop so that the ends of the wire may be twisted together in order to prevent crosstalk.**

# Piezo Installation Procedure



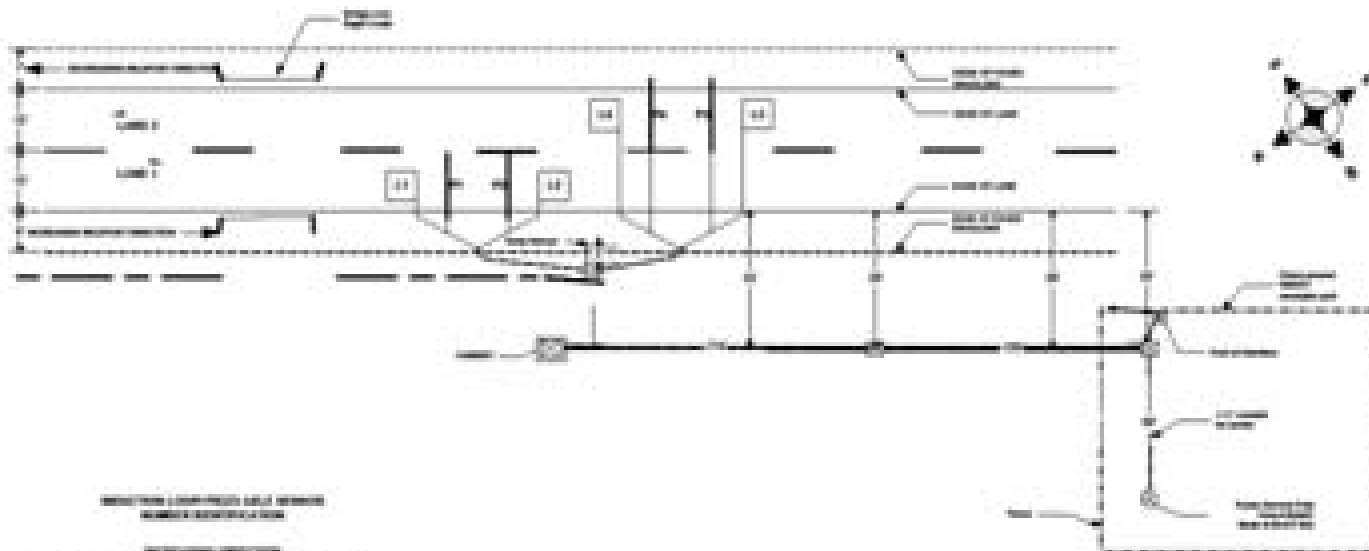
A 3/4" wide by 1" deep slot is cut for the piezo.

A 12' or 13' class 1 piezo slot is cut 8 to 12 inches over the fog line to help prevent sensor misses, except in concrete where an 11' sensor is installed and does not cross the expansion joint or edge of panel. For 6' class 2 piezo 4 to 6 inches over fog line except in concrete.





# TDO site layout Drawing



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Layout drawn by:	WLS/MLP	Approved by:	WLS/MLP	Counter type:	40/100	File number:	PTB
Checked by:	WLS	Counter Serial #:	100/100	Counter Serial #:	100/100	File Location on site:	100/100
Date drawing completed:	1/1/00	Original issued date:	1/1/00	Machine type:	100/100	File name:	100/100
Last drawing update:	1/1/00	Last complete issued date:	1/1/00	Machine Serial #:	100/100	File #/pages:	10/100









#5

# The Basics of Installation















































# Inductive Loops for Data Collection



WASHINGTON

**Give 'em a  
BRAKE**

**Transportation and Utility  
Workers**