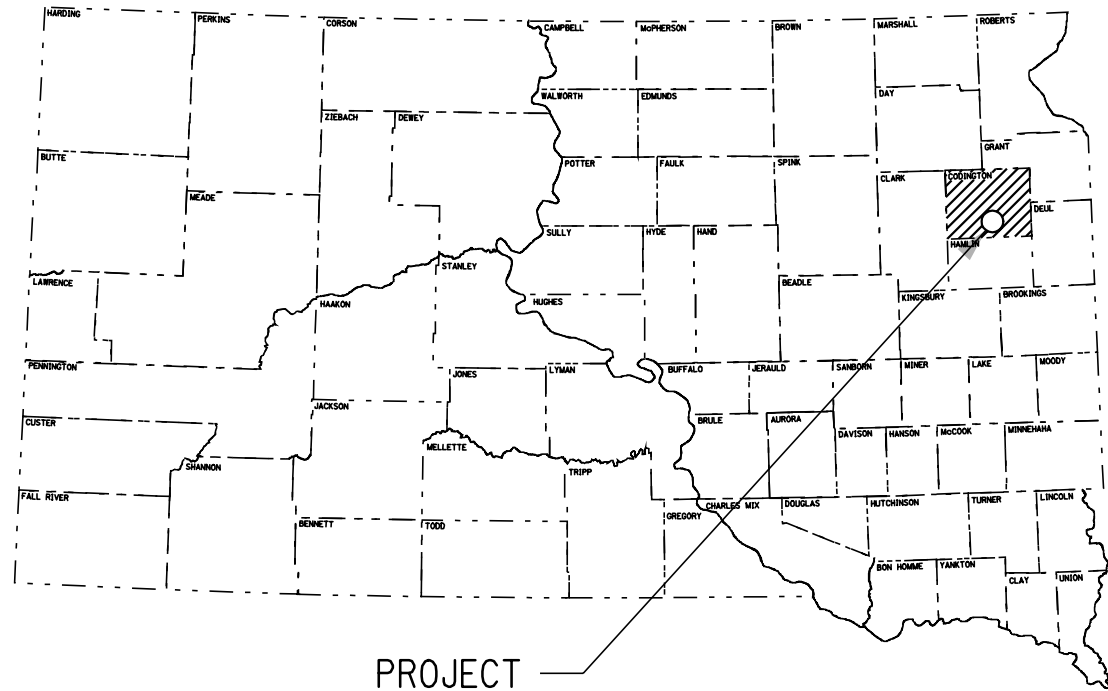


PLOT SCALE - 200,000000:1,000000

PLOTTED FROM - TRAB17879



STATE OF SOUTH DAKOTA
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED
PROJECT 212 E - 171
US HIGHWAY 212
CODINGTON COUNTY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	212 E - 171	1	10

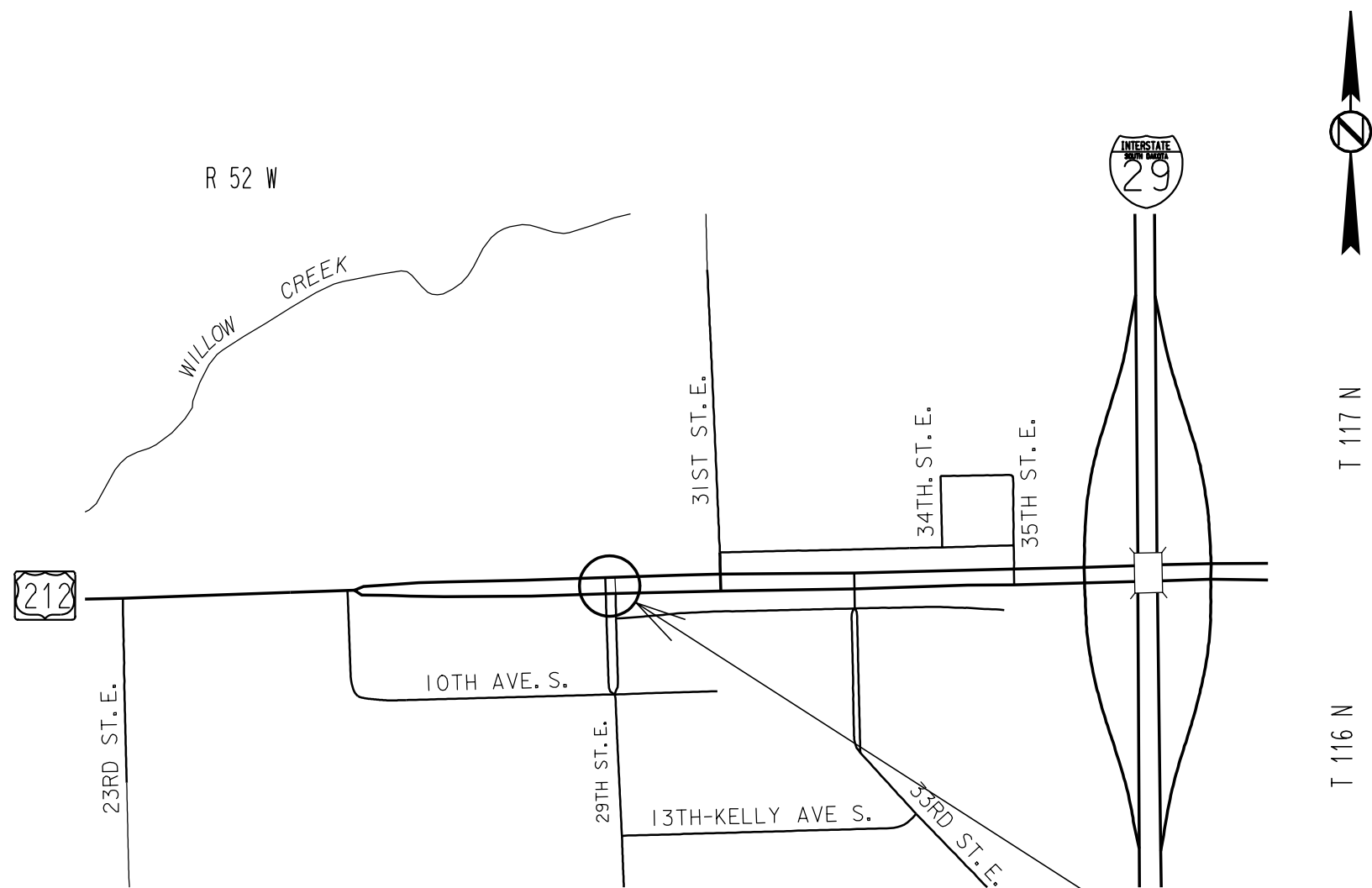
Plotting Date: 26-JAN-2009

Replace Traffic Signal Cabinet
 Back Panel
 PCN i1dd

INDEX OF SHEETS

- Sheet 1: Title Sheet
- Sheet 2: Estimate of Quantities, Plan Notes
- Sheet 3-5: Existing Conduit Layout
- Sheet 6: Existing Signal Layout
- Sheet 7-8: Existing Wiring Diagram
- Sheet 9: Standard Plates
- Sheet 10: Itemized List of Traffic Control

WATERTOWN



DESIGN DESIGNATION

ADT (2006)	17505
ADT (2026)	23790
DHV	2595
D	50%
T DHV	5.9%
T ADT	12.9%
V	50mph

PROJECT 212 E -171
 MRM 379.18

FILE - U:\REGIONAL\PRJ\CODNT11DD\DESIGN FILES\TITLEA.DGN

PLOT NAME - TITLEA

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	LUMP SUM	L S
634E0100	Traffic Control	408	Unit
634E0120	Traffic Control, Miscellaneous	LUMP SUM	L S
635E5800	Miscellaneous Signal Parts	LUMP SUM	L S

SPECIFICATIONS

Standard Specifications for Roads & Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

SCOPE OF WORK

Work shall consist of but not be limited to the replacement of existing back panel in the traffic signal controller cabinet located at US 212 and 29th Street East, in Watertown SD.

ON-SITE INSPECTION

An on-site inspection of the traffic signal shall be conducted before acceptance of the project, once the traffic signal is completed and operational. The on-site inspection shall be conducted by the Contractor, Region Traffic Engineer, City Traffic Engineer, Project Engineer and the Traffic Design Engineer.

SHOP DRAWING AND CATALOG CUTS SUBMITTALS

The Contractor shall submit shop drawings and catalog cuts according to the South Dakota Standard Specifications for Roads and Bridges or in Adobe PDF format.

Adobe PDF submittals shall be sent to the following email addresses:

Pete.Longman@state.sd.us
Dan.Martell@state.sd.us

MISCELLANEOUS SIGNAL PARTS

Existing back panel shall be removed and replaced with a new back panel. Existing plug-in components including, load switches, BIU, and relays shall be reused in the new back panel.

All costs associated with furnishing and installing the new back panel and installation of the existing plug-in components shall be incidental to the contract Lump Sum price for "Miscellaneous Signal Parts",

EXISTING TRAFFIC SIGNAL CABINET

The existing traffic signal cabinet is a NEMA type 3R. Cabinet size is; 44" wide, 49 1/2" high and 26" deep.

Existing back panel shall become the property of the Contractor.

MAIN BACK PANEL

The new cabinet back panel shall conform to NEMA TS2 Type 1 Traffic Signal Cabinet standards. The main back panel shall be constructed of 5052-H32 brushed aluminum of 0.090 inches minimum thickness and formed so as to minimize any flexing when plug-in components are installed.

The new back panel shall be fully wired to accommodate twelve Load Switch sockets, six flash transfer relay sockets, and one flasher socket.

Terminal strips located on the back panel shall be accessible to the extent that it shall not be necessary to remove the electronic equipment from the cabinet to make an inspection or connection.

MAINTENANCE OF TRAFFIC

Traffic shall be maintained in accordance with the Manual on Uniform Traffic Control Devices and as follows:

Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost for this work shall be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	212 E - 171	2	10

Storage of vehicles and equipment shall be outside the clear zone and as near as possible to the right-of-way line. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work.

Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

All breakaway sign supports shall comply with FHWA NCHRP 350 crash-worthy requirements. The Contractor shall provide post installation details at the preconstruction meeting for all steel post breakaway sign support assemblies.

The new back panel shall be replaced between the hours of 11:00 PM to 5:00 AM. The Contractor shall replace the back panel in such a manner as to minimize the time the traffic signal will not operate in programmed phases or flash mode.

During the time the signal is not operable, traffic shall be controlled by the use of 48" Stop signs on each approach to the intersection. A Stop Ahead Symbol shall be installed 750' in advance of the Stop sign, except on 29th Street east, the Stop Ahead Symbol shall be placed 300' in advance of the stop sign.

After installation of the new back panel and at a point when the traffic signal can be operated in flash mode, stop signs, and Stop Ahead Symbol signs shall be removed and traffic shall be controlled by the traffic signal in flash mode until wiring of the signal system in the controller cabinet is complete.

EXISTING CONDUIT LAYOUT

US HWY 212

STATE OF SOUTH DAKOTA	PROJECT 212 E -171	SHEET 3	TOTAL SHEETS 10
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Plotting Date: 26-JAN-2009

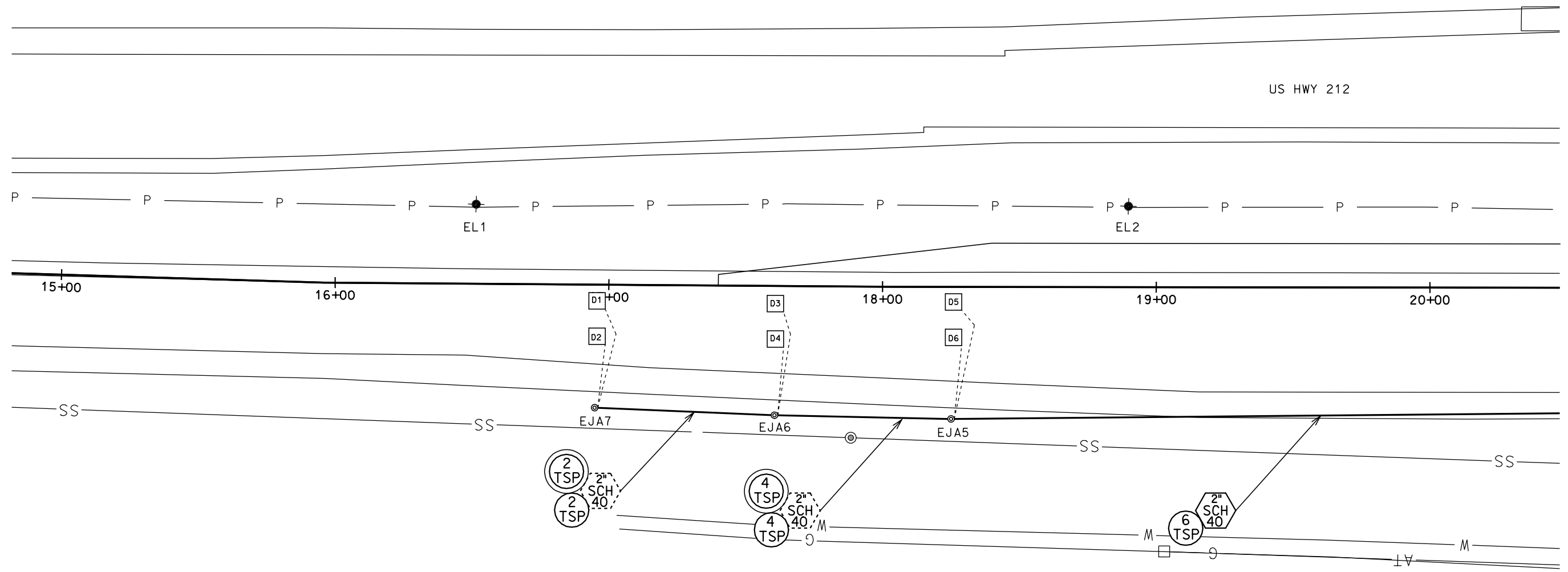
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PLOT SCALE - 40.000000:1.000000

PLOT NAME - 015C

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PLOTTED FROM - TRAB17879

EXISTING CONDUIT LAYOUT

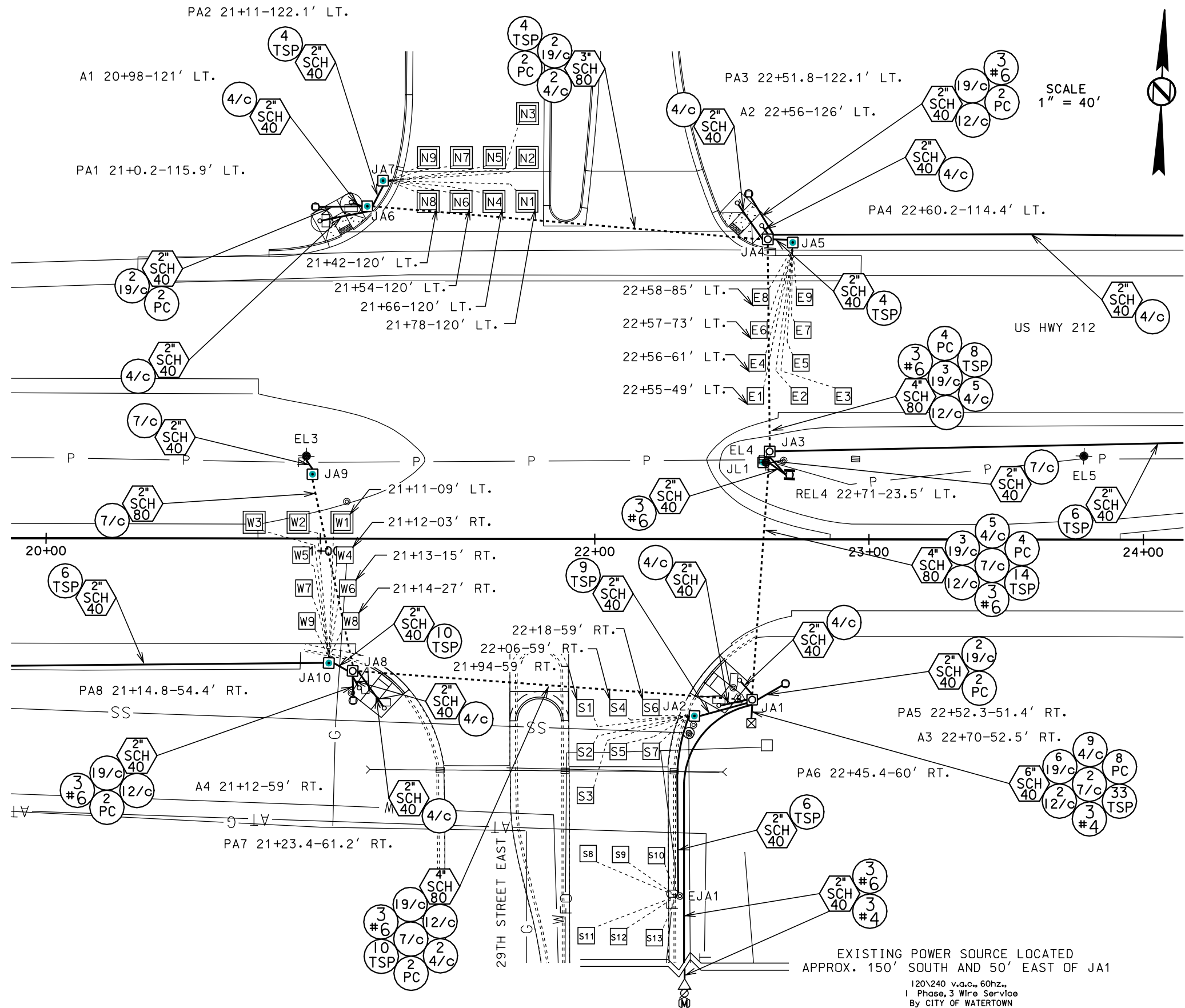
US HWY 212 & 29TH STREET EAST

STATE OF SOUTH DAKOTA	PROJECT 212 E - 171	SHEET 4	TOTAL SHEETS 10
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Plotting Date: 26-JAN-2009

EXISTING ITEMS

KEY	ITEM
⊘	POWER POLE
⬤	LUMINAIRE POLE (EL1-EL5)
⊘	WOOD UTILITY POLE
⊙	JUNCTION BOX (EJA1-EJA7)
△	ELECTRICAL SERVICE CABINET
⊠	TRAFFIC SIGNAL CONTROLLER
Ⓜ	METER SOCKET
□	DETECTOR LOOPS (D1-D12, S8-S13)
⊥	SIGN POST (ES1)
◀	1 SECTION VEHICLE SIGNAL HEAD FLASHING AMBER (29)
○	2' DIAMETER FOOTING (REL4)
○	3' DIAMETER FOOTING (A1-A4)
⊠	18" DIAMETER JUNCTION BOX (JA2, JA5-JA7, JA9, JA10)
⊠	24" DIAMETER JUNCTION BOX (JA1, JA3, JA4, JA8)
□	PREFORMED DETECTOR LOOP (N1-N9, W1-W3)
□	SAWED-IN DETECTOR LOOP (E1-E9, S1-S7, W4-W9)
□	DETECTOR UNIT
⊠	LUMINAIRE POLE (REL4)
2" SCH 40	2" RIGID GALVANIZED STEEL CONDUIT
2" SCH 40	2" RIGID CONDUIT, SCHEDULE 40
6" SCH 40	6" RIGID CONDUIT, SCHEDULE 40
2" SCH 80	2" RIGID CONDUIT, SCHEDULE 80
3" SCH 80	3" RIGID CONDUIT, SCHEDULE 80
4" SCH 80	4" RIGID CONDUIT, SCHEDULE 80
#4	1/C #4 AWG COPPER WIRE
#6	1/C #6 AWG COPPER WIRE
4/c	2/C #14 AWG COPPER TRAY CABLE, K2
7/c	7/C #14 AWG COPPER TRAY CABLE, K2
12/c	12/C #14 AWG COPPER TRAY CABLE, K2
19/c	19/C #14 AWG COPPER TRAY CABLE, K2
TSP	#16 AWG COPPER TWISTED SHIELDED PAIR
2/c	2/C #10 AWG COPPER POLE & BRACKET CABLE
PC	PREEMPTION CABLE (NOT A BID ITEM)



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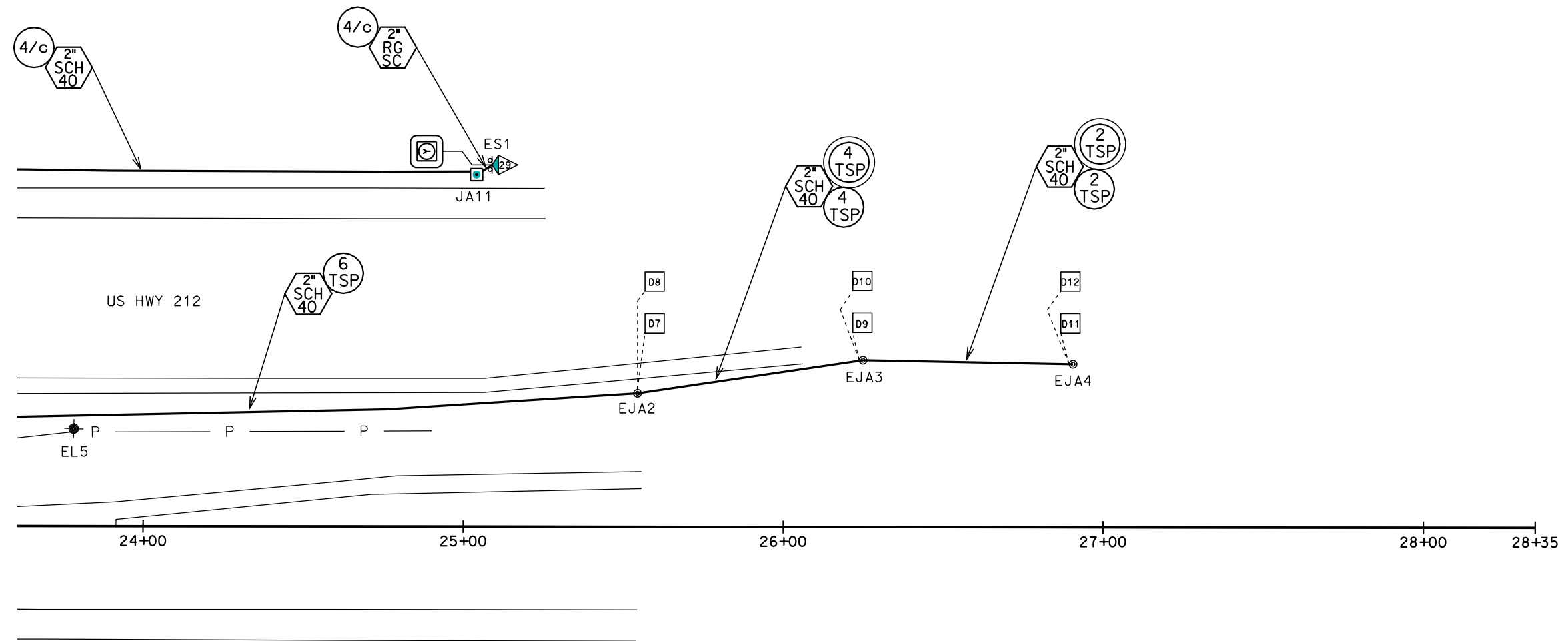
EXISTING CONDUIT LAYOUT

US HWY 212

STATE OF SOUTH DAKOTA	PROJECT 212 E -171	SHEET 5	TOTAL SHEETS 10
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Plotting Date: 26-JAN-2009

SCALE
1" = 40'



PLOT SCALE - 40.000000:1.000000

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EXISTING SIGNAL LAYOUT

US HWY 212 & 29TH STREET EAST

STATE OF SOUTH DAKOTA	PROJECT 212 E - 171	SHEET 6	TOTAL SHEETS 10
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Plotting Date: 26-JAN-2009

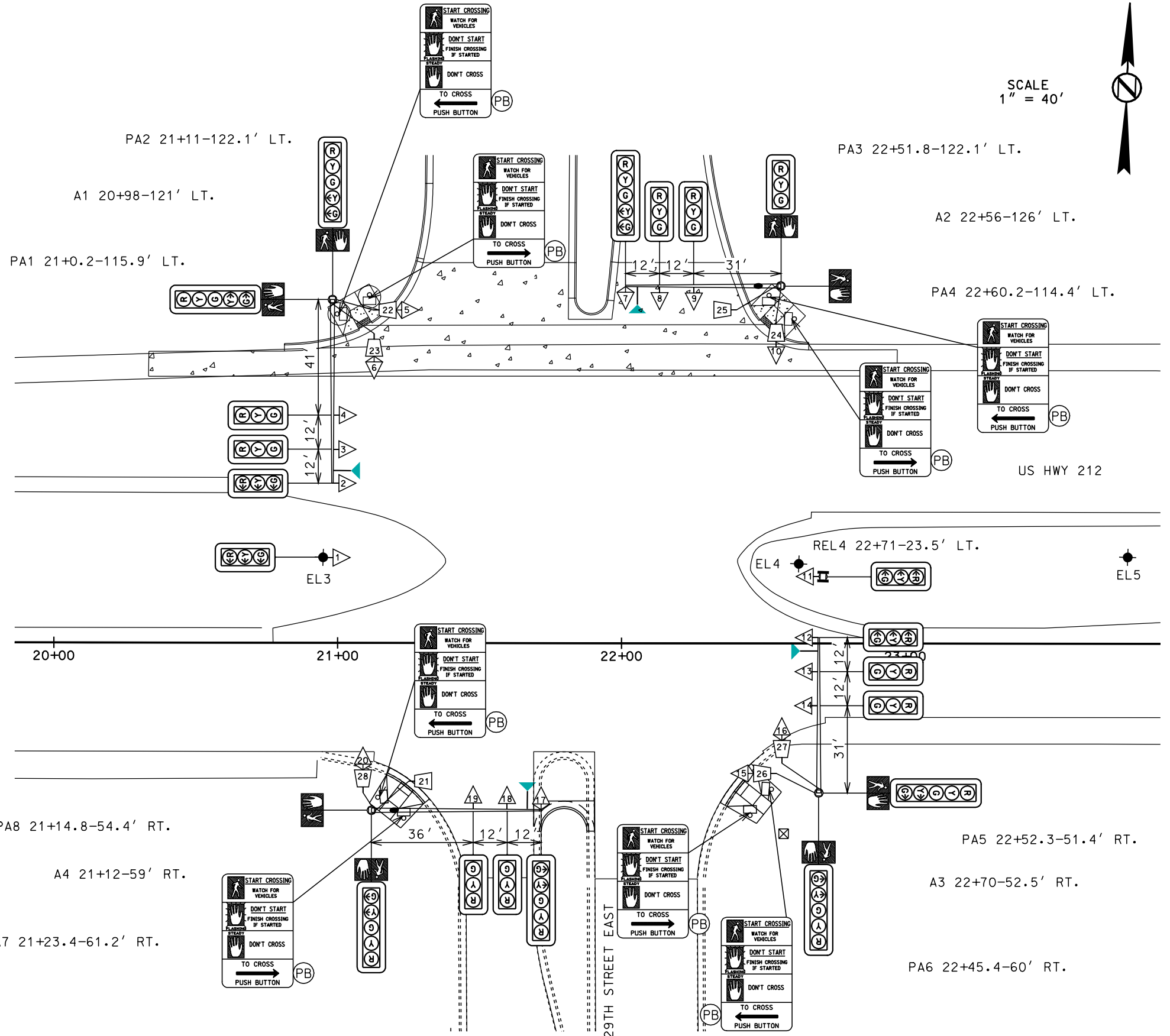
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EXISTING EQUIPMENT

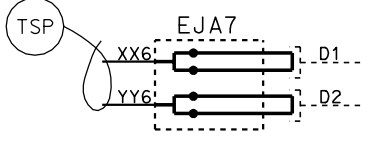
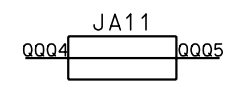
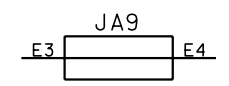
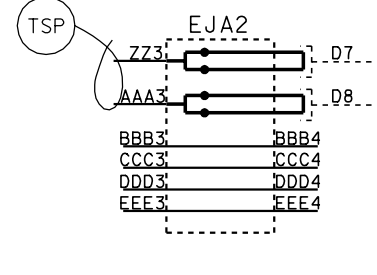
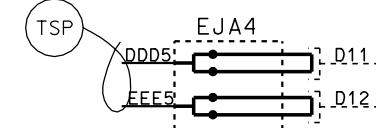
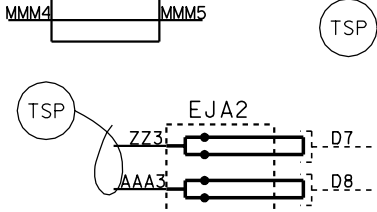
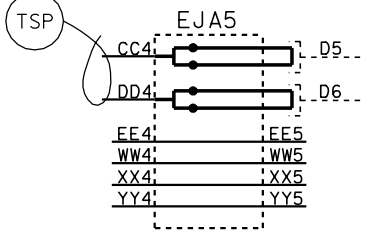
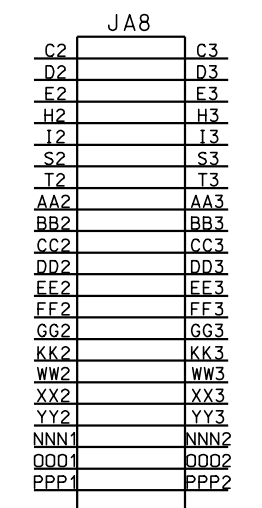
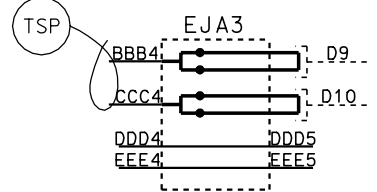
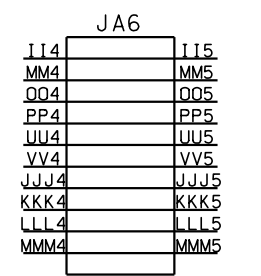
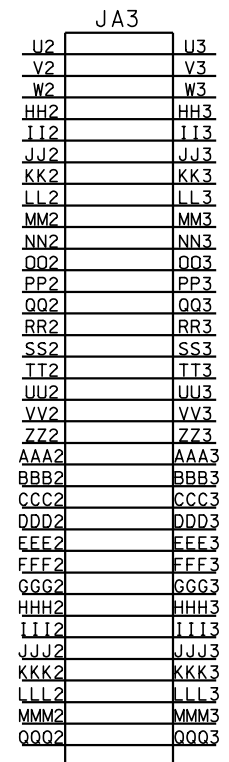
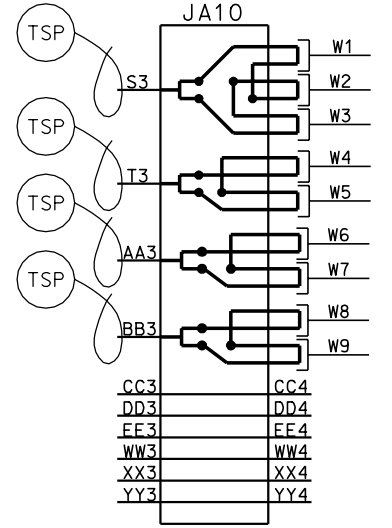
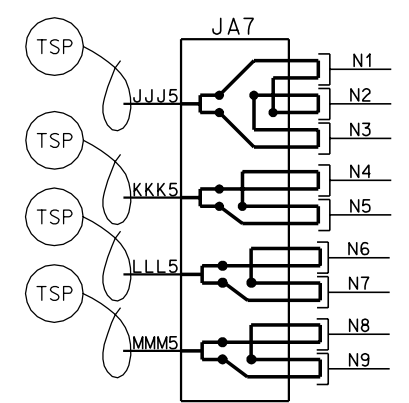
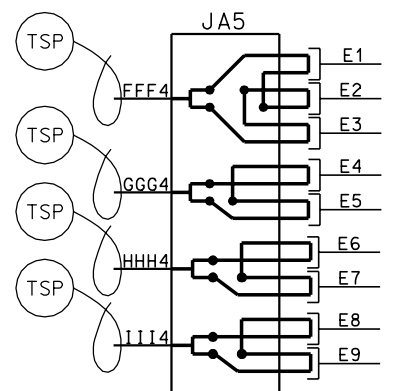
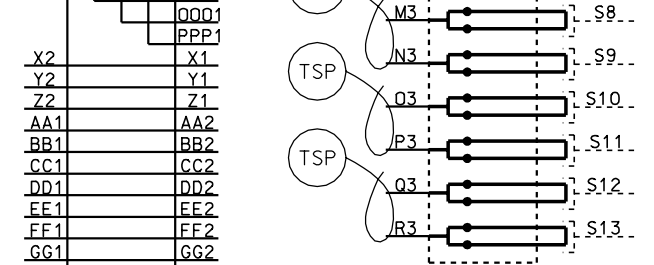
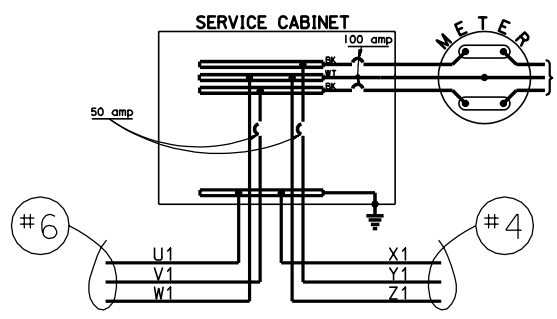
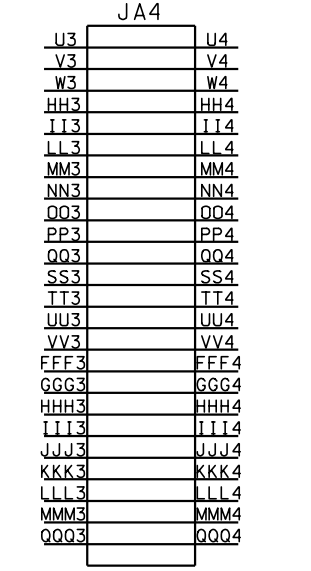
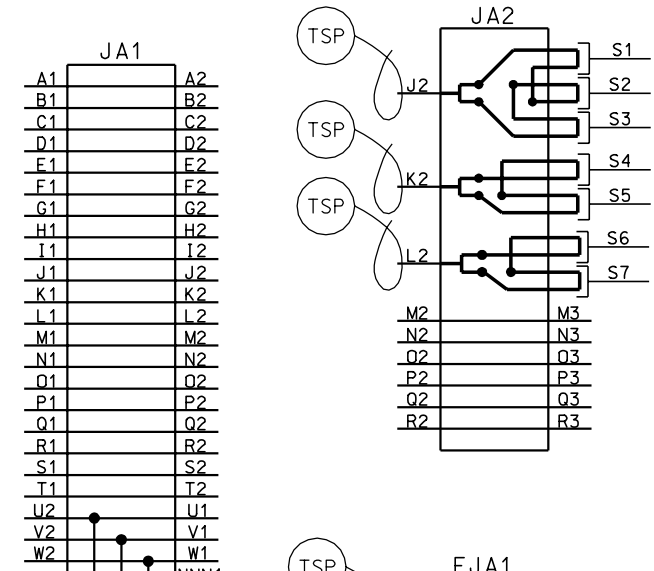
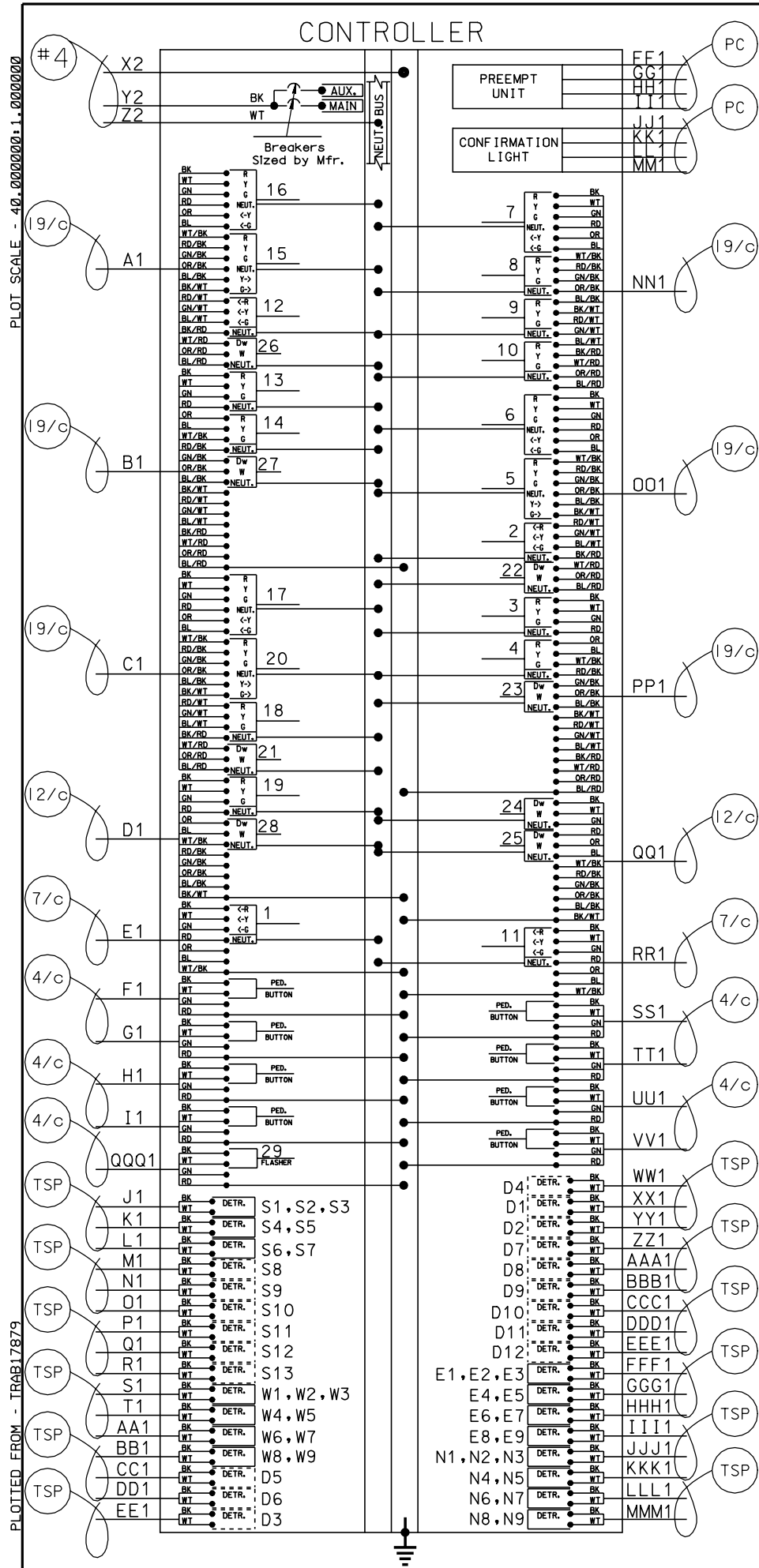
KEY	ITEM
	INSTALL SIGNAL POLE W/55' MAST ARM 50' MT HT (A3)
	INSTALL SIGNAL POLE W/65' MAST ARM 50' MT HT (A1)
	INSTALL SIGNAL POLE W/55' MAST ARM & 6' LUMIN ARM 50' MT HT (A2)
	INSTALL SIGNAL POLE W/60' MAST ARM & 6' LUMIN ARM 50' MT HT (A4)
	ROADWAY LUMINAIRE, 400W WITH P.E. (A2,A4)
	3 SECTION VEHICLE SIGNAL HEAD (1-4,8-14,18,19)
	5 SECTION VEHICLE SIGNAL HEAD (5-7,15-17,20)
	EMERGENCY VEHICLE PREEMPTION UNIT (4-CHANNEL)
	OPTICAL DETECTOR
	PEDESTRIAN PUSH BUTTON POLE (PA1-PA8)
	PEDESTRIAN SIGNAL HEAD (21-28)
	PEDESTRIAN CROSSING SIGN R10-35 (LEFT-4,RIGHT-4)
	EXISTING TRAFFIC SIGNAL CONTROLLER

PLOTTED FROM - TRAB17879

EXISTING WIRING DIAGRAM

US HWY 212 & 29TH STREET EAST

NOTE:
All circuits shall be bonded in accordance with the NATIONAL ELECTRICAL CODE.
Quantities for bonding conductors are not included in these plans.



PLOT SCALE - 40.000000:1.000000

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PLOT NAME - 022W

NOTE:
All circuits shall be bonded in accordance with the NATIONAL ELECTRICAL CODE.
Quantities for bonding conductors are not included in these plans.

EXISTING WIRING DIAGRAM

US HWY 212 & 29TH STREET EAST

STATE OF SOUTH DAKOTA	PROJECT 212 E -171	SHEET 8	TOTAL SHEETS 10
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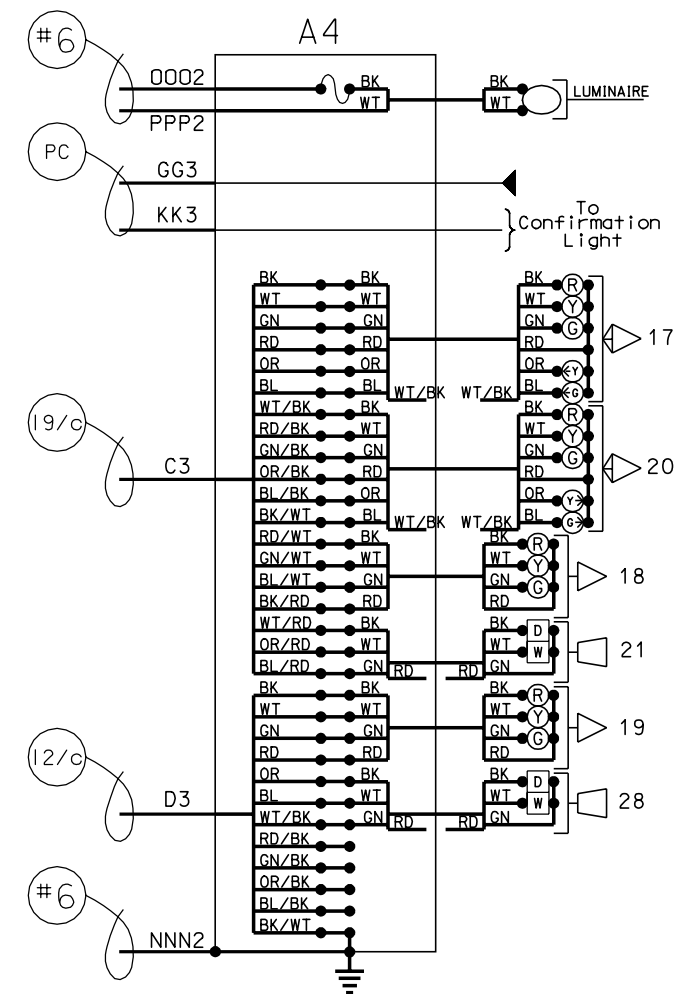
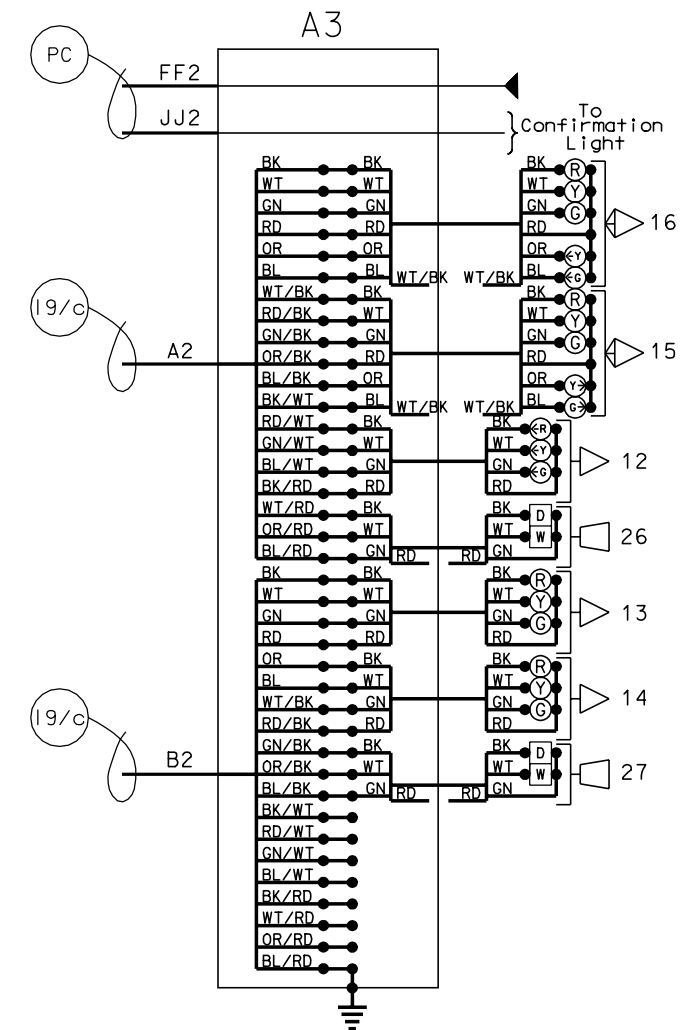
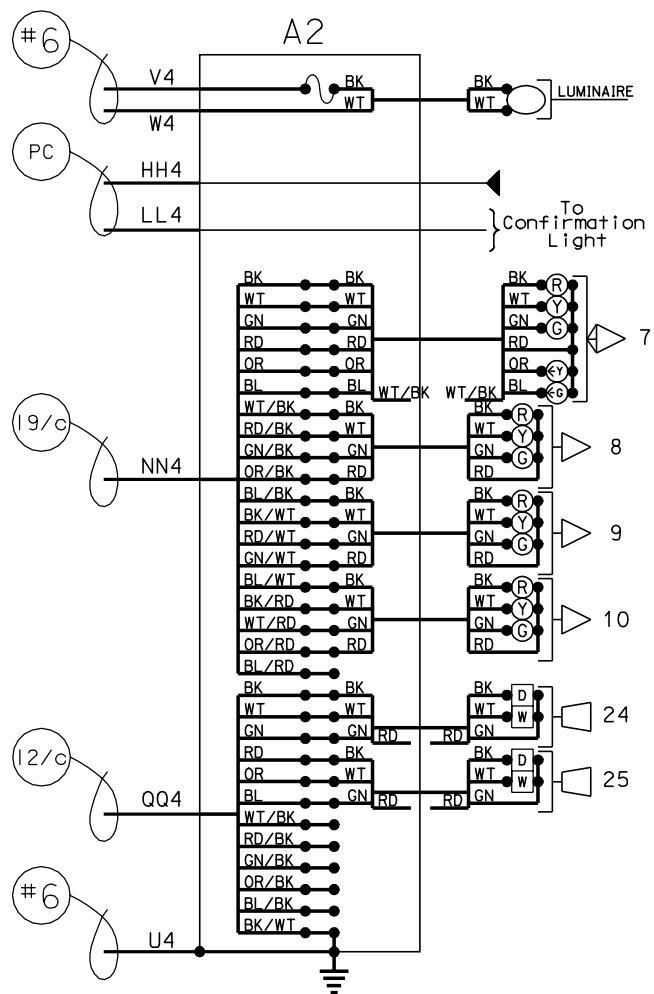
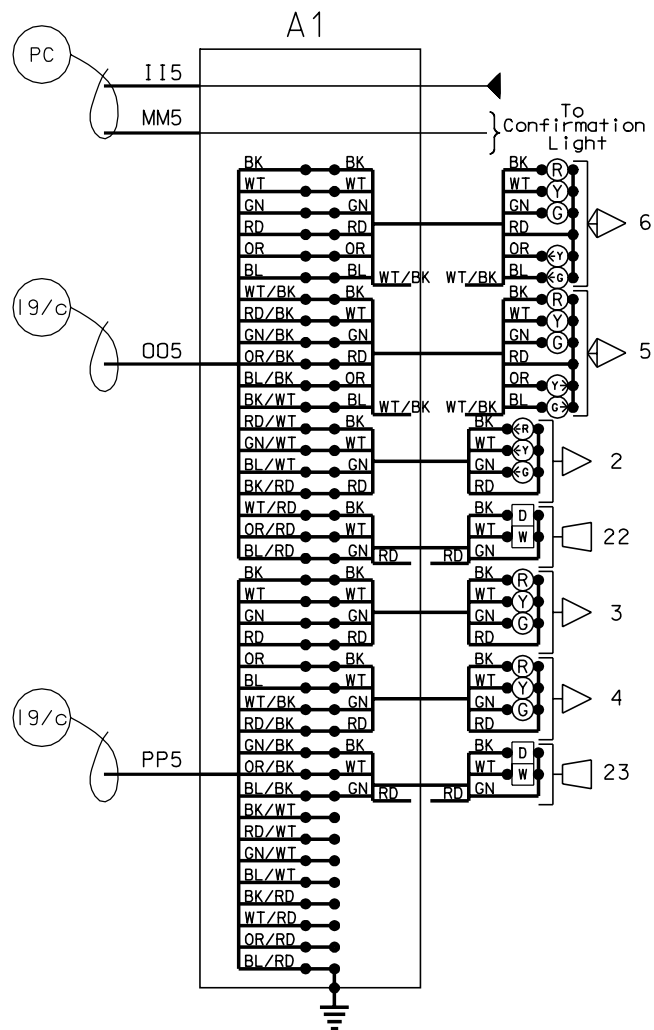
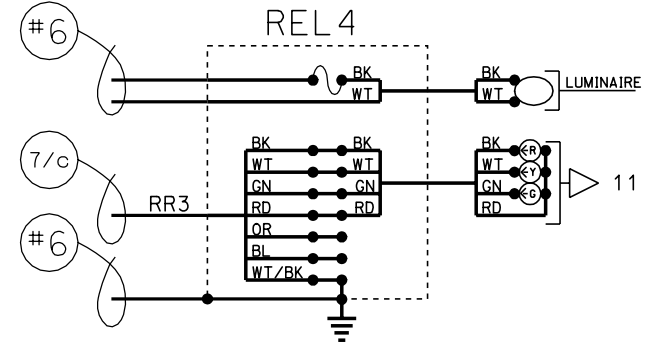
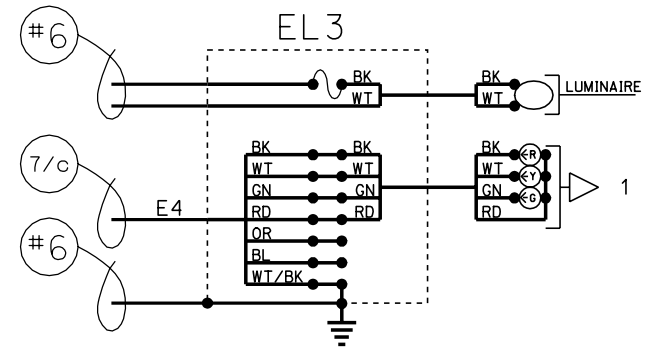
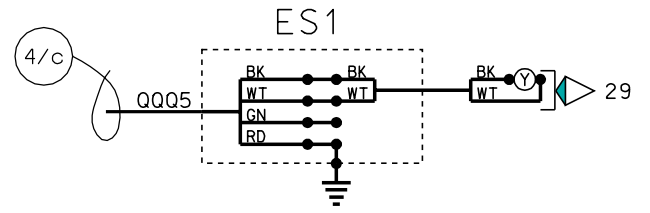
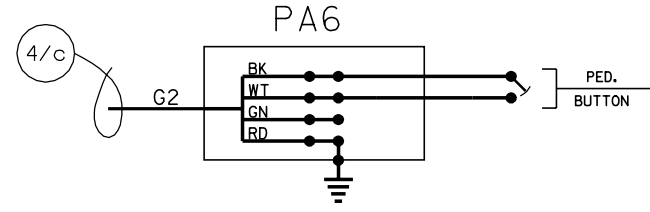
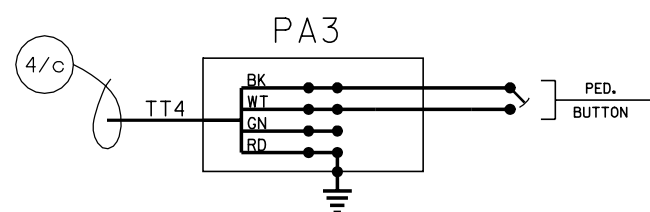
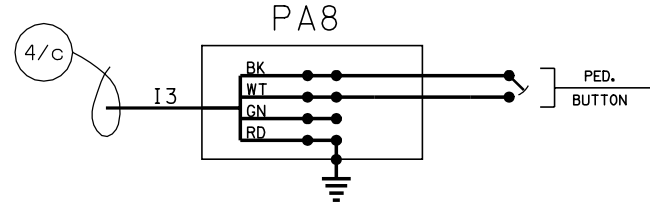
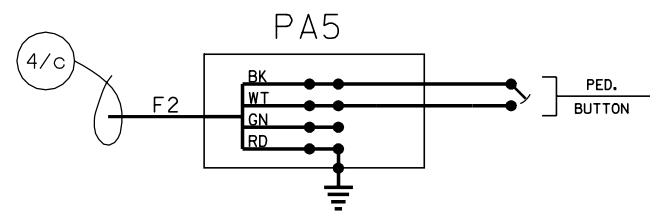
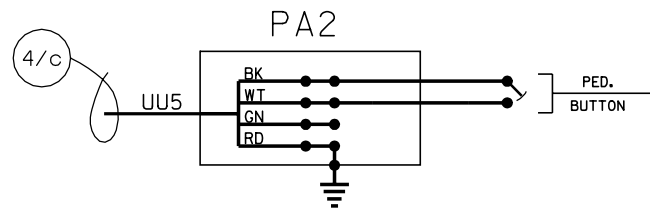
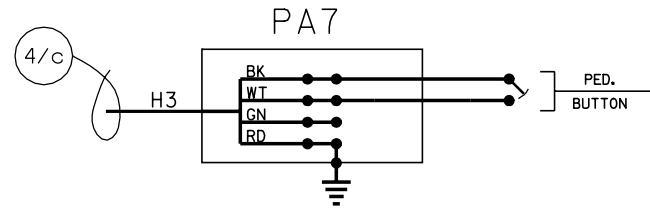
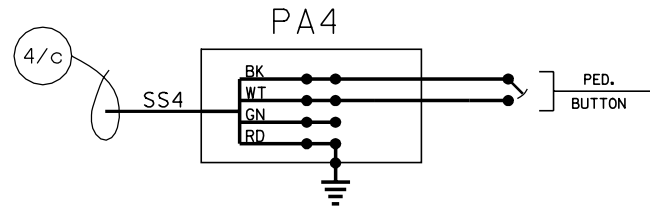
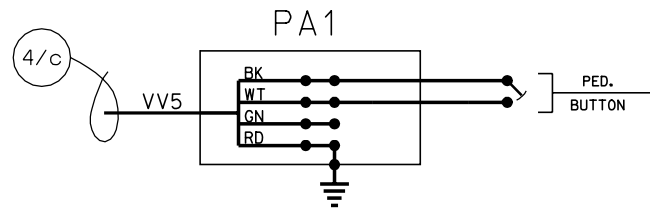
Plotting Date: 26-JAN-2009

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PLOT NAME - 023W

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The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

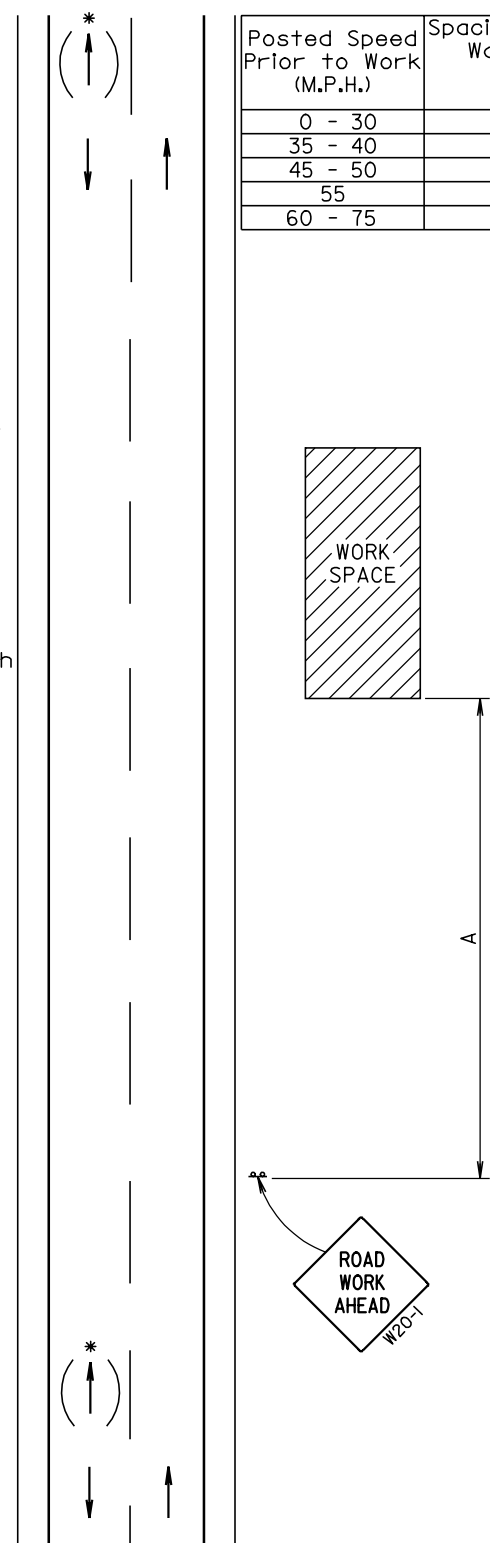
The signs illustrated shall be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 75	1000



July 1, 2005

Published Date: 1st Qtr. 2009

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**GUIDES FOR TRAFFIC CONTROL DEVICES
WORK BEYOND THE SHOULDER**

PLATE NUMBER
634.01

Sheet 1 of 1

ITEMIZED LIST FOR TRAFFIC CONTROL

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
R1-1	48" x 48"	STOP	4	34	136
W3-1A	48" x 48"	STOP AHEAD (SYMBOL)	4	34	136
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	4	34	136
TOTAL UNITS					408

If a sign is required on a project and not listed in the above inventory, the units per sign will be determined as follows:

Signs 36" x 36" will be measured at 27 units each and signs 48" x 48" will be measured at 34 units each, otherwise:

If a sign measures less than 25" high and 25" wide the units per sign will be computed as sign size (sq ft) x 3.

If a sign measures between 23H" and 37H" the units per sign will be computed as sign size (sq ft) x 1.2 +15.