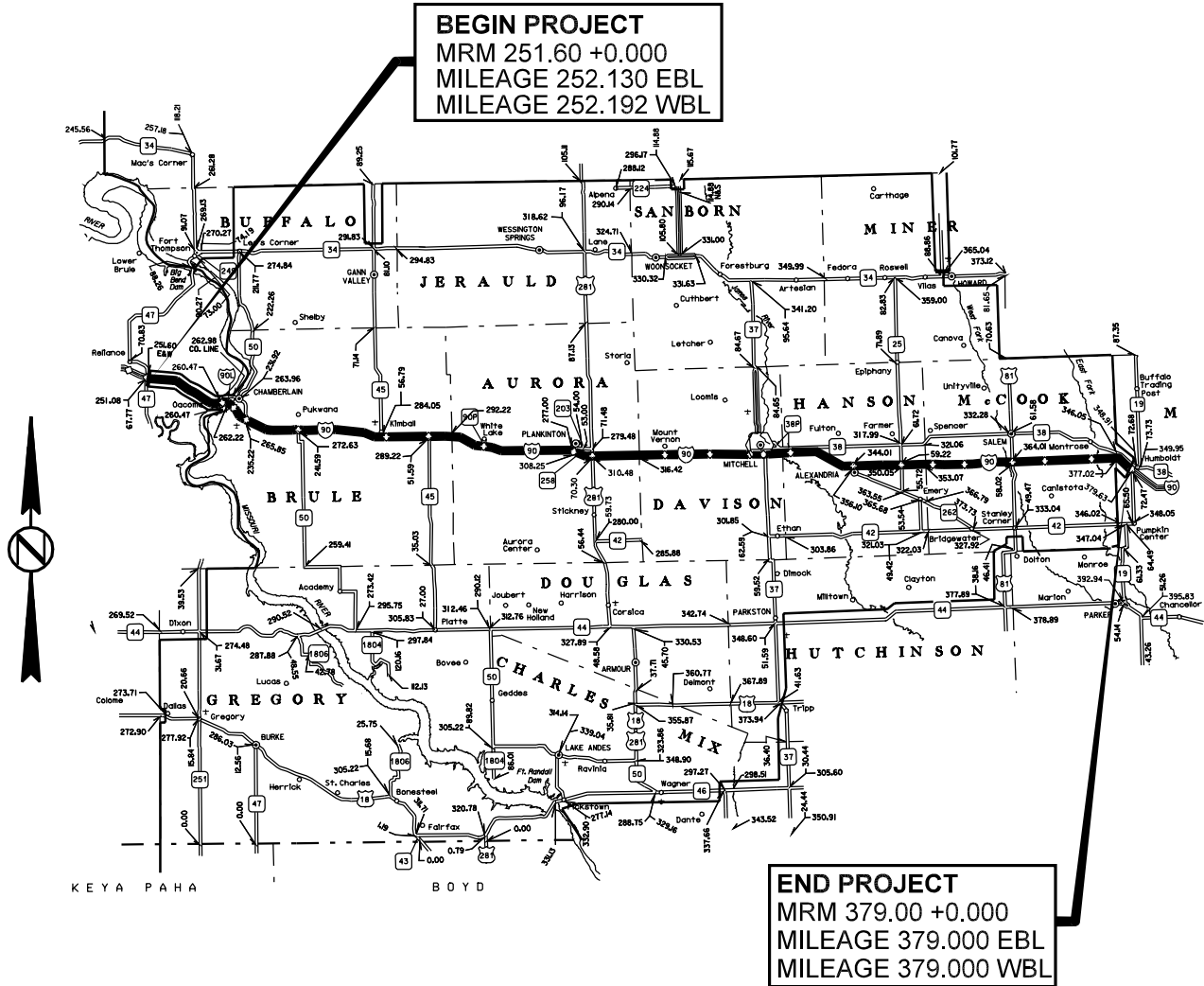


**IM 0905(89)251
 LYMAN, BRULE, AURORA, DAVISON,
 HANSON & McCOOK COUNTIES
 FENCE REPLACEMENT
 PCN 01LW**



DESIGN DESIGNATION	
ADT (2006)	7300
ADT (2026)	11,830
DHV	1635
D	50%
T DHV	11.5%
T ADT	25.3%
V	75 MPH

INDEX OF SHEETS

Sheet No. 1	Layout Map
Sheet No. 2	Index of Sheets
Sheet No. 3	Estimate of Quantities
Sheet No. 4 and 5	Table of Fence Quantities
Sheet Nos. 6 – 8	Plan Notes
Sheet No. 9	Traffic Control
Sheet Nos. 10 – 16	Details for Right-of-Way Fence

IM 0905(89)251
LYMAN, BRULE, AURORA, DAVISON, HANSON & McCOOK COUNTIES

ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0600	Remove Fence	93,000	Ft
620E0030	Type 3 Right-of-Way Fence	33,195	Ft
620E0260	Modified Type 6 Right-of-Way Fence	59,805	Ft
620E1020	2 Post Panel	133	Each
620E1030	3 Post Panel	107	Each
620E1110	Wood Fence Post	30	Each
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

**IM 0905(89)251
 LYMAN, BRULE, AURORA, DAVISON, HANSON & McCOOK COUNTIES**

TABLE OF FENCE QUANTITIES

EB LANES

LANE	INTERSTATE 29 MRM TO MRM (LOCATION)	REMOVE FENCE Ft	TYPE 3 R/W FENCE Ft	MODIFIED TYPE 6 R/W FENCE Ft	2 POST PANEL Each	3 POST PANEL Each	(NOTE)
EB	286.3 to 286.7	2140		2140	3	2	
EB	311.4 to 312.4	5230	5230		6	2	
EB	321.2 to 321.4	835		835	4	0	
EB	335.6 to 335.9	1481		1481	2	1	
EB	339.1 to 339.7	3168		3168	6	5	
EB	342.9 to 343.1	682		682	1	1	
EB	345.5 to 345.5	667		667	0	1	
EB	349.5 to 350.0	684		684	0	1	
EB	350.1 to 350.2	469		469	0	1	
EB	351.2 to 351.5	1240		1240	1	0	
EB	351.8 to 351.9	612		612	0	0	
EB	357.6 to 358.2	5211		5211	4	11	Bridgewater ramp
EB	358.5 to 358.9	1665		1665	3	2	
EB	359.5 to 359.9	1410		1410	3	1	
EB	362.2 to 363.4	5600		5600	6	8	
EB	363.5	70	70		2	0	median
EB	371.6 to 372.1	3525		3525	5	2	
EB	375.0 to 375.2	630		630	1	0	
EB	378.7 to 379.1	1890	1890		1	6	
	EB TOTALS:	37209	7190	30019	48	44	

**IM 0905(89)251
 LYMAN, BRULE, AURORA, DAVISON, HANSON & McCOOK COUNTIES**

TABLE OF FENCE QUANTITIES

WB LANES

LANE	INTERSTATE 29 MRM TO MRM (LOCATION)	REMOVE FENCE Ft	TYPE 3 R/W FENCE Ft	MODIFIED TYPE 6 R/W FENCE Ft	2 POST PANEL Each	3 POST PANEL Each	(NOTE)
WB	376.5 to 375.8	3100		3100	8	2	
WB	376.0	70	70		2	0	median
WB	375.4 to 374.9	2265		2265	4	4	
WB	375.0	70	70		2	0	median
WB	374.0 to 373.0	5343	5343		5	8	
WB	360.6 to 360.0	3317	3317		4	4	
WB	353.9 to 353.8	782		782	1	0	
WB	352.6 to 352.5	632		632	0	1	
WB	350.0 to 349.8	903		903	1	2	
WB	349.0 to 348.9	555		555	2	0	
WB	348.6 to 348.5	655		655	2	0	
WB	341.9 to 341.5	2069		2069	4	1	
WB	335.2 to 334.6	3705		3705	7	6	
WB	322.0 to 321.7	1850		1850	2	2	
WB	321.6 to 321.5	650		650	2	0	
WB	319.0 to 318.0	5150		5150	5	6	
WB	318.0 to 317.5	2320	2320		2	2	
WB	317.5 to 317.0	2550	2550		2	4	
WB	313.0 to 312.8	675	675		0	1	
WB	308.2 to 307.1	5870		5870	12	6	
WB	306.1	200	200		2	2	West and East of Overhead
WB	305.3 to 305.1	830	830		2	1	
WB	304.9 to 304.7	1500	1500		2	1	
WB	297.7 to 297.5	1130	1130		0	2	
WB	296.9 to 296.7	1600		1600	1	6	
WB	295.5 to 295.1	1800	1800		2	0	
WB	286.4 to 285.7	3400	3400		5	0	
WB	281.7 to 281.2	2800	2800		4	2	
	WB TOTALS:	55791	26005	29786	85	63	

IM 0905(89)251
LYMAN, BRULE, AURORA, DAVISON, HANSON & McCOOK COUNTIES

SPECIFICATIONS

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

COMPLETION DATE

All work shall be completed on or before November 21, 2008.

COORDINATION BETWEEN CONTRACTORS

The Contractor shall schedule his work so as not to interfere with or hinder the progress of the work performed by other Contractors on the concrete pavement repair project and 2007 fence replacement project.

UTILITIES

The Contractor shall contact the involved utility companies through South Dakota One Call (Phone 1-800-781-7474) prior to starting work. It shall be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

WASTE DISPOSAL SITE

The Contractor will be required to furnish a site(s) for the disposal of construction/demolition debris generated by this project.

Construction/demolition debris may not be disposed of within the State ROW.

All construction/demolition debris generated by this project shall be cleaned up and disposed of by the Contractor.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction/demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction/demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".
2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

Cost for furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs) and reclamation of the waste disposal site(s) shall be incidental to the contract unit prices for the various items.

IM 0905(89)251
LYMAN, BRULE, AURORA, DAVISON, HANSON & McCOOK COUNTIES

RESTORATION OF INSLOPES AND DITCHES

Any slope area or ditch that is rutted or otherwise unduly disturbed during fencing operations shall be restored and seeded by the Contractor, at no expense to the State. Cost for this work shall be incidental to the contract unit prices for the various items.

REMOVE FENCE

The Contractor shall remove the existing right-of-way fence that is to be replaced as designated in the plans and/or as ordered by the Engineer.

Limited Access Security - All fence removed during any one working day is to be replaced during the same day if livestock are being restrained.

CLEARING

Prior to installing right-of-way fence, the fence alignment shall be cleared of all trees, tree branches, tree stumps, brush, vegetation, debris, bladed and leveled to the satisfaction of the Engineer.

Clearing will be paid for at the contract lump sum price. Payment shall be full compensation for labor and equipment necessary to clear the entire line for fence and smooth ground irregularities.

FENCE ALIGNMENT

Where fence is being removed and replaced, fence shall be installed on the same alignment as existing. It shall be the Contractor's responsibility to preserve the fence alignment.

TYPE 3 RIGHT-OF-WAY FENCE

New barbed wire shall be used in fence construction adjacent to farmland. The Contractor shall furnish new posts. Install alternate wood and steel posts at 16'-6" spacing for Type 3 Right-of-Way Fence.

MODIFIED TYPE 6 RIGHT-OF-WAY FENCE

New woven and barbed wire shall be used in the fence construction. The Contractor shall furnish new posts. Install alternate wood and steel posts at 14' spacing for Modified Type 6 Right-of-Way Fence.

Note specification change for Modified Type 6 Woven Wire Fence to Design No. 832-6-11.

NEW POST PANELS

Existing post panels shall be replaced. Existing 5 Post and 4 Post Panels shall be replaced with a combination of 2 Post and 3 Post Panels as determined by the Engineer.

The number of 2 Post and 3 Post Panels will be the actual number installed and will be paid for at the contract unit price per each. Payment shall be full compensation for furnishing material, (including posts, brace post, diagonal brace wire, and dowels), labor, equipment and incidentals necessary to construct the post panels.

At the beginning or end of a fence installation an additional panel shall not be added nor the existing panel reconfigured unless approved by the Engineer. The existing panel shall be utilized, in its entirety, if it does not require replacement. If the existing panel requires replacement, a new panel shall be replaced in the same location as the removed panel.

WOOD FENCE POSTS

Wood Fence Posts shall be 5" diameter X 8' Posts. They shall replace line posts in depressions when directed by the Engineer.

GENERAL MAINTENANCE OF TRAFFIC

Removing, relocating, covering, salvaging and resetting of permanent 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.

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.

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

Cost for traffic control, including signs, shall be included in the contract lump sum price for Traffic Control Miscellaneous.

**IM 0905(89)251
 LYMAN, BRULE, AURORA, DAVISON, HANSON & McCOOK COUNTIES**

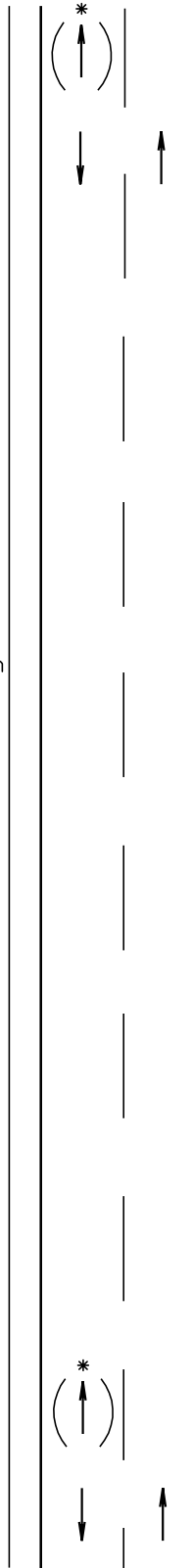
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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.

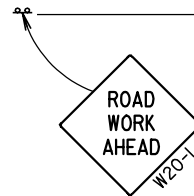
The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* 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. 2008

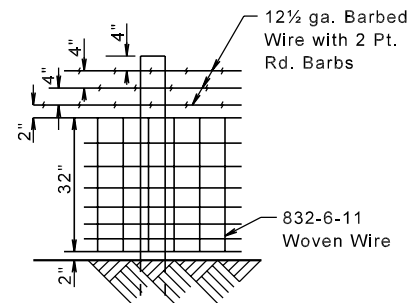
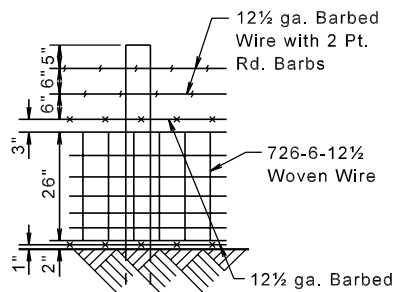
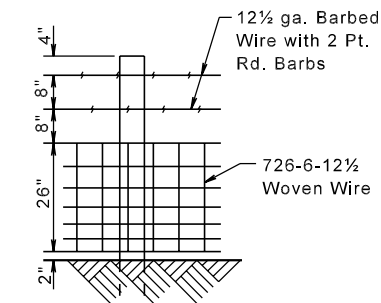
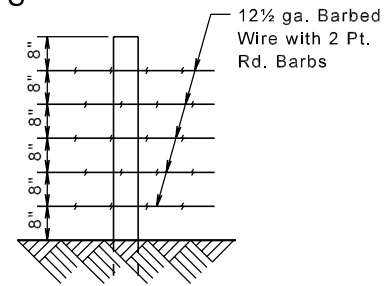
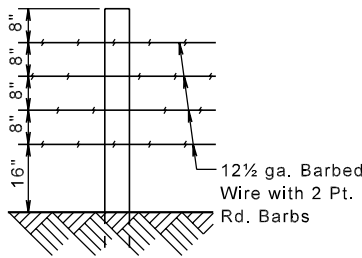
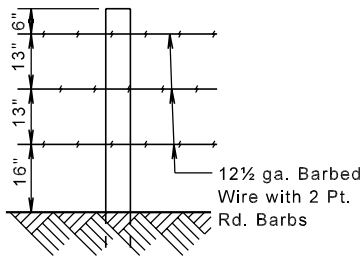
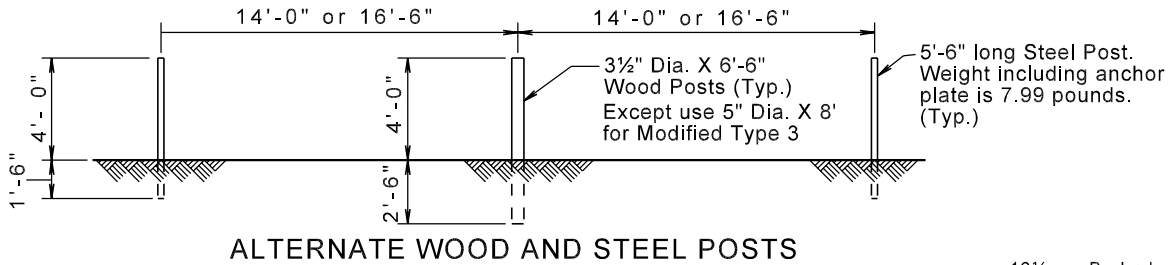
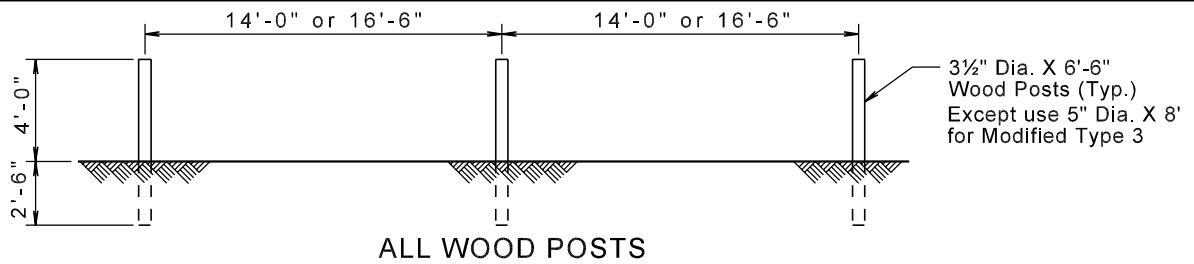
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**GUIDES FOR TRAFFIC CONTROL DEVICES
 WORK BEYOND THE SHOULDER**

PLATE NUMBER
 634.01

Sheet 1 of 1

IM 0905(89)251
LYMAN, BRULE, AURORA, DAVISON, HANSON & McCOOK COUNTIES



TYPE	DESCRIPTION	LINE POST SPACING	WIRE GAGE	BARBED WIRE		WOVEN WIRE	
				NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.		
1	3 Barbed Wires	16'-6"	12½	2 Point Round	---		
2	4 Barbed Wires	16'-6"	12½	2 Point Round	---		
3	5 Barbed Wires	16'-6"	12½	2 Point Round	---		
MOD 3	5 Barbed Wires	14'-0"	12½	2 Point Round	---		
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12½	2 Point Round	726-6-12½		
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 2 wires with 4 Pt. Rd.	726-6-12½		
MOD 6	32" Woven Wire with 3 Barbed Wires	14'-0"	12½	3 wires with 2 Pt. Rd.	832-6-11		

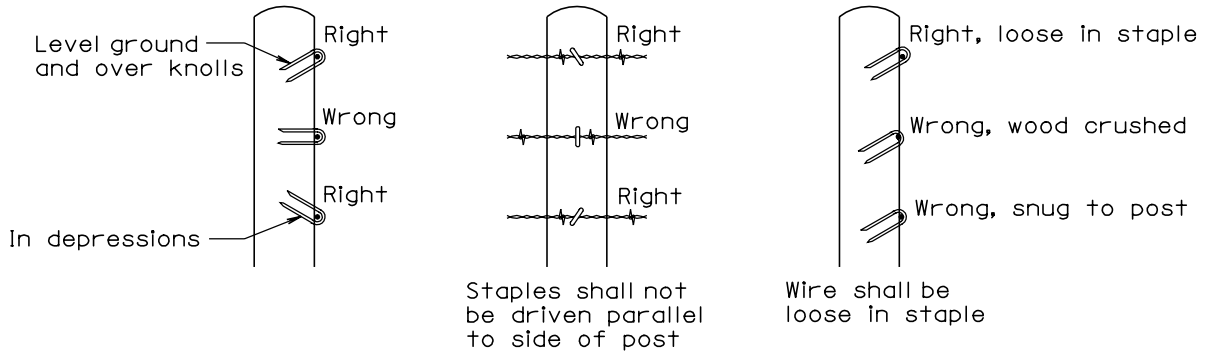
GENERAL NOTES:

Fence types designated on the plans that are followed by the letter S shall have smooth (barbless) wires.

When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.

All degrees of curvature stated for fence are at centerline of roadway.

RIGHT-OF-WAY FENCE



STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence shall consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire shall be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts shall be used for brace panels. Gates shall be of the type designated in the plans or as otherwise directed by the Engineer. Fence shall be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

Right-of-Way fence on Interstate Projects shall be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Right-of-Way fence other than on Interstate Projects shall be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

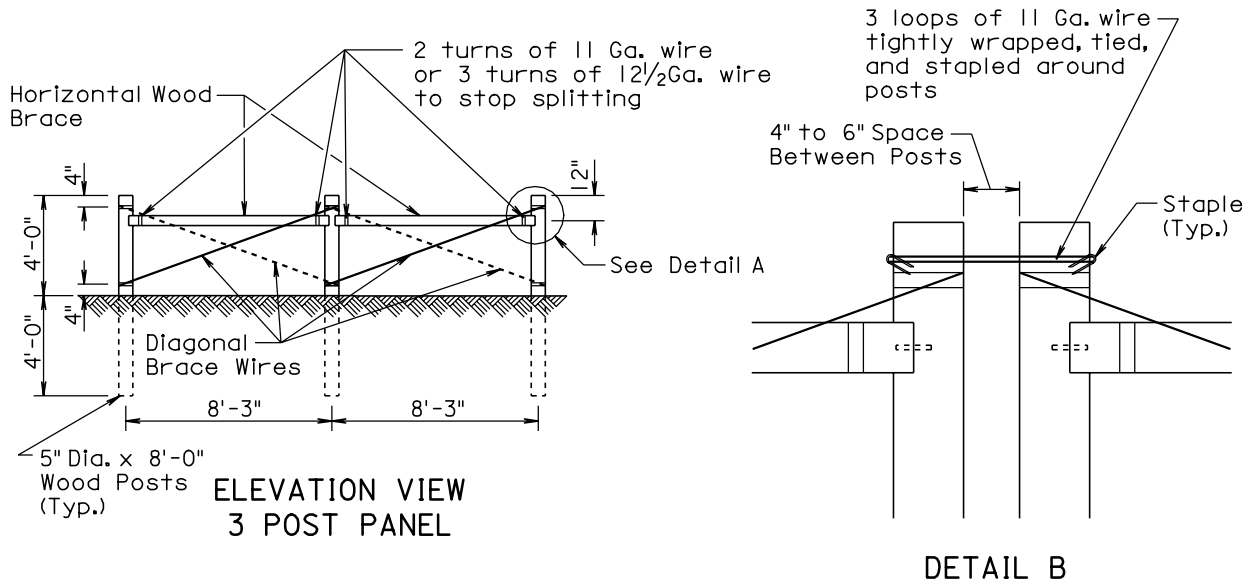
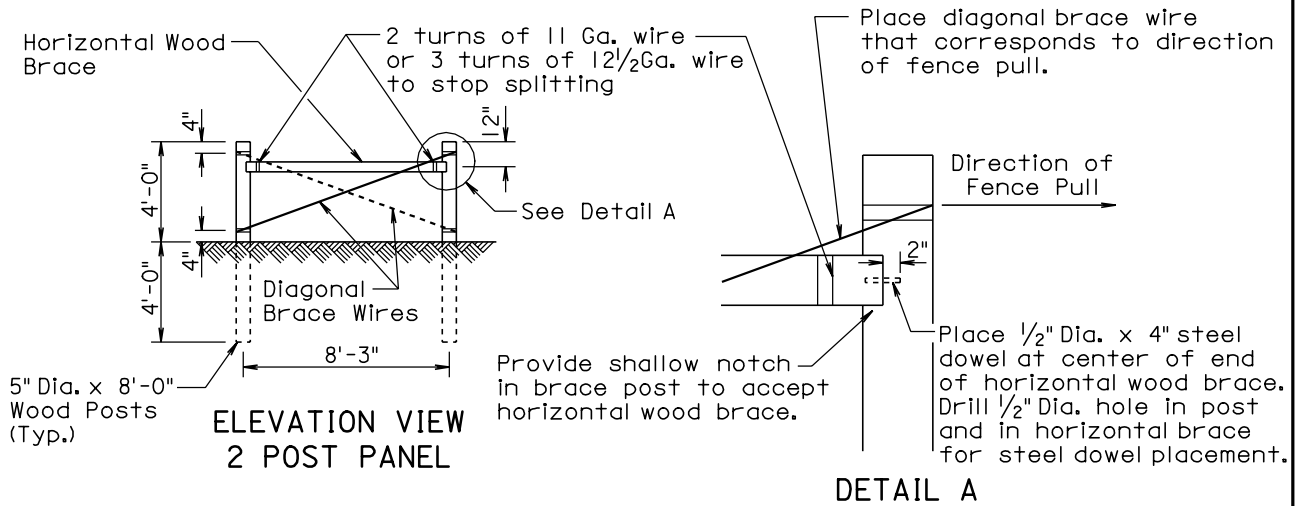
Barbs shall be fabricated from zinc coated 14 ga. wire. Two point barbs shall be wrapped twice around one main strand at 4" spacings and the four point barbs shall be interlocked and wrapped around both main strands at 5" spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts shall be as stated in AASHTO M281. Woven wire shall conform to design and specifications of ASTM A116 and barbed wire shall conform to ASTM A121.

December 23, 2004

<i>Published Date: 1st Qtr. 2008</i>	<i>S D D O T</i>	<i>STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES</i>	PLATE NUMBER 620.02
			Sheet 1 of 1

**IM 0905(89)251
LYMAN, BRULE, AURORA, DAVISON, HANSON & McCOOK COUNTIES**



GENERAL NOTES:

Two Post Panels shall be installed at least every 1320' between corners.

Two Post Panels shall be installed at any sharp vertical angle crest points and as directed by the Engineer.

Horizontal wood braces shall consist of 4" dia. x 8' wood posts or rough 4" x 4" x 8' timbers.

Diagonal brace wires shall be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires shall be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

December 23, 2004

Published Date: 1st Qtr. 2008	S D D O T	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 1 of 3

IM 0905(89)251
LYMAN, BRULE, AURORA, DAVISON, HANSON & McCOOK COUNTIES

SPACING OF 2 POST PANELS WITHIN CURVES	
DEGREE OF CURVE	SPACING OF 2 POST PANEL
less than 3°15'	** 1320'
3°15' and greater	**At P.C., P.T., and at every 1320' between P.C. and P.T.

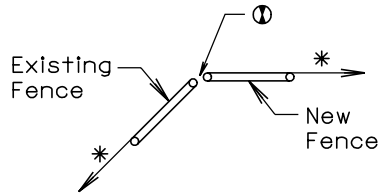
GENERAL NOTE:

All degrees of curvature stated for fence are at centerline of roadway.

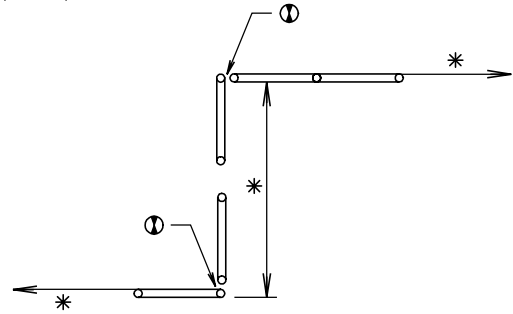
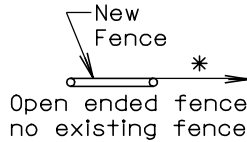
- * If fence length is less than 600' to next corner use a 2 post panel.
- * If fence length is greater than 600' to next corner use a 3 post panel.

- ** Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.

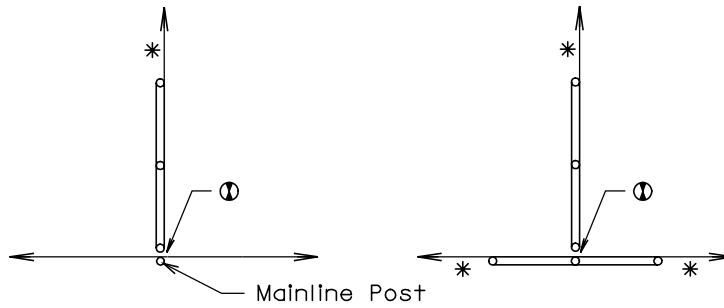
① See Detail B on Sheet 1 of 3.



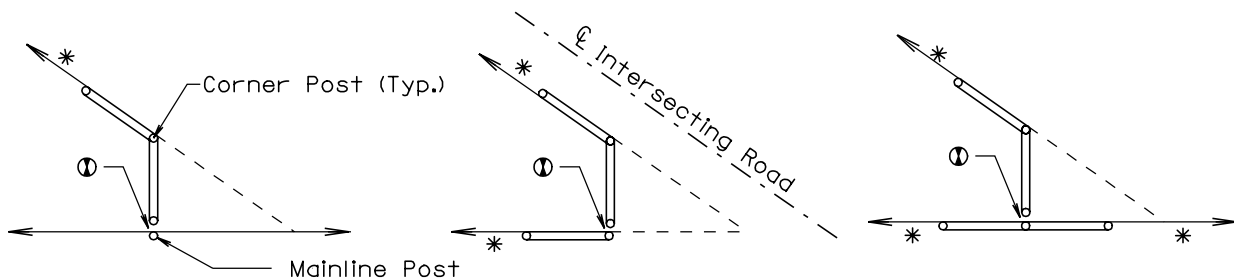
BEGIN OR END FENCE
 (where new fence ties into existing fence)



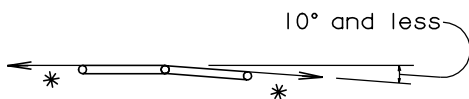
SHORT JOGS IN FENCE



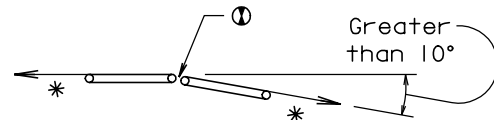
CROSS FENCE



SHARP ANGLES IN CROSS FENCE



Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.

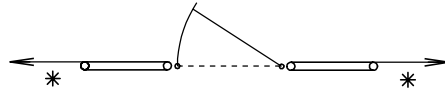


Additional fence panel is required when an angle in the mainline fence is greater than 10°.

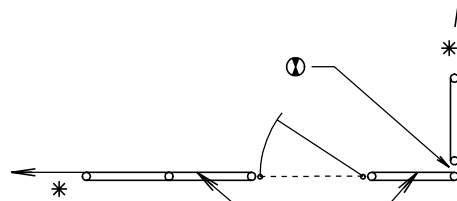
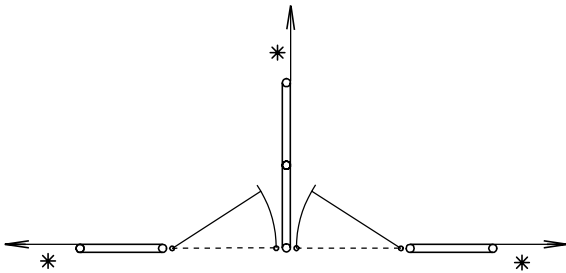
ANGLES IN MAINLINE FENCE

December 23, 2004

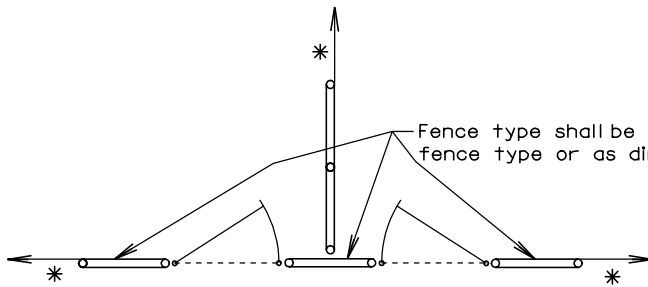
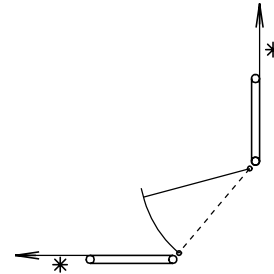
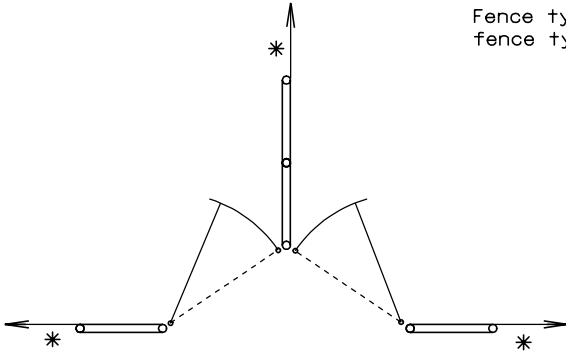
Published Date: 1st Qtr. 2008	S D D O T	BRACE PANELS AND APPLICATIONS OF BRACE PANELS		PLATE NUMBER 620.03
				Sheet 2 of 3



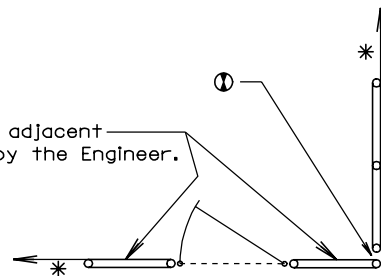
ENTRANCE
 (NOT ON CORNER)



Fence type shall be same as adjacent fence type or as directed by the Engineer.



DOUBLE ENTRANCES



ENTRANCES AT CORNERS

Fence type shall be same as adjacent fence type or as directed by the Engineer.

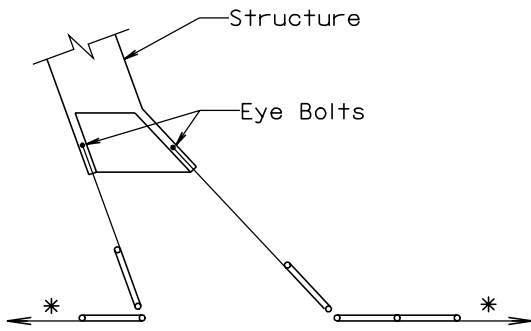
GATES

* If fence length is less than 600' to next corner use a 2 post panel.
 If fence length is greater than 600' to next corner use a 3 post panel.

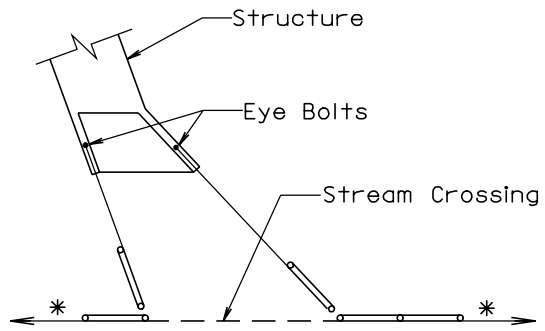
① See Detail B on Sheet 1 of 3.

December 23, 2004

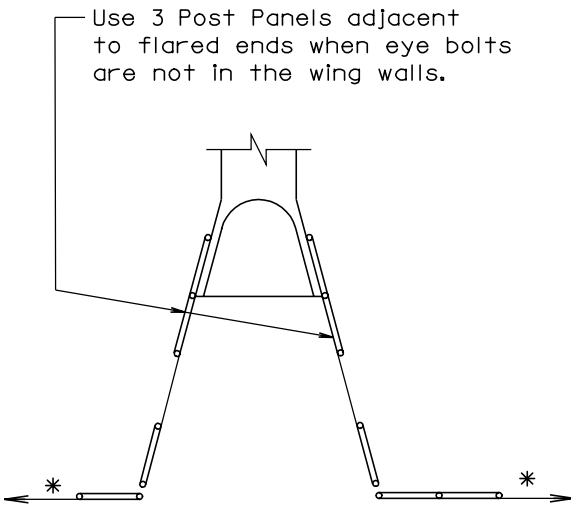
<p><i>Published Date: 1st Qtr. 2008</i></p>	<p>S D D O T</p>	<p>BRACE PANELS AND APPLICATIONS OF BRACE PANELS</p>	<p>PLATE NUMBER 620.03</p>
			<p>Sheet 3 of 3</p>



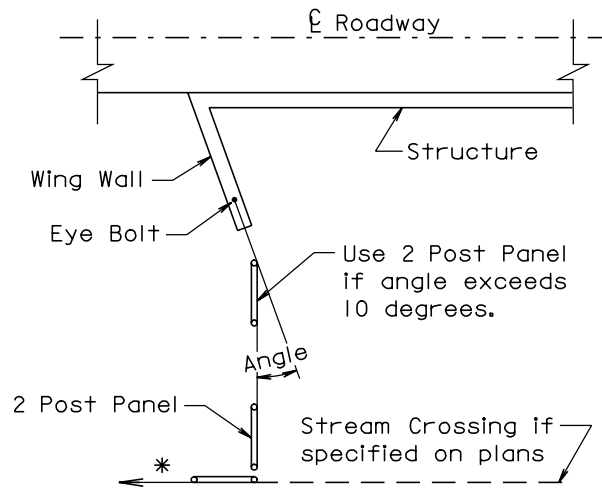
R.C. BOX CULVERT
 OR CATTLE PASS



STRUCTURE WITH STREAM
 CROSSING FENCE



R.C. BOX CULVERT
 OR CATTLE PASS



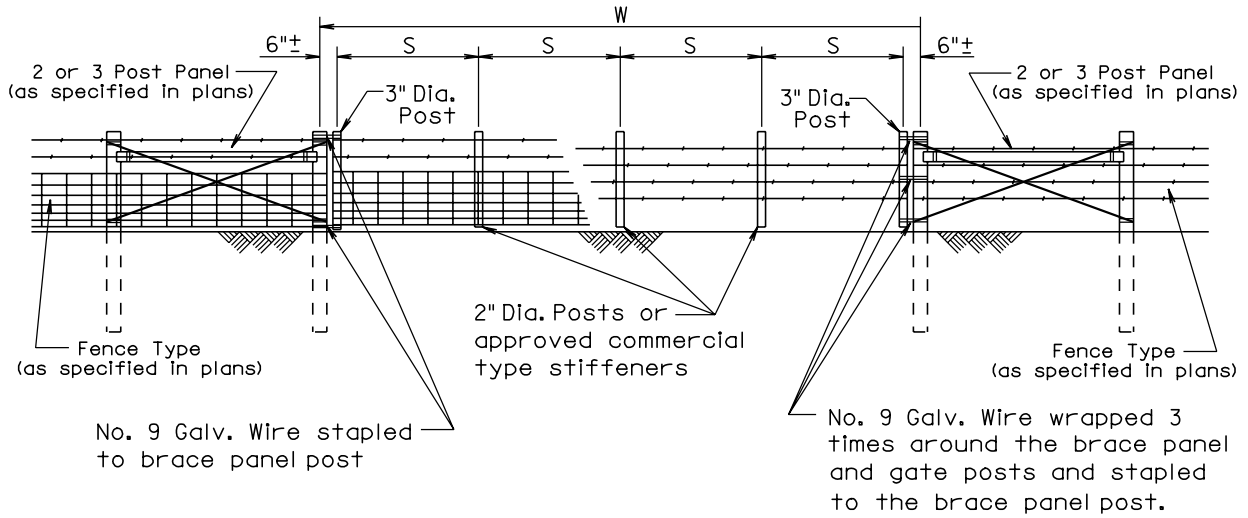
BRIDGE

* If fence length is less than 600' to next corner use a 2 post panel.
 * If fence length is greater than 600' use a 3 post panel.

March 31, 2000

<p><i>Published Date: 1st Qtr. 2008</i></p>	<p>S D D O T</p>	<p>BRACE PANEL APPLICATIONS AT STRUCTURES</p>	<p>PLATE NUMBER 620.04</p>
			<p>Sheet 1 of 1</p>

**IM 0905(89)251
 LYMAN, BRULE, AURORA, DAVISON, HANSON & McCOOK COUNTIES**



W Gate Width (ft.)	S Post Spacing
16	3 @ 5'-0" ±
20	4 @ 4'-9" ±
24	4 @ 5'-9" ±
30	5 @ 5'-10" ±
40	6 @ 6'-6" ±

GENERAL NOTES:

Creosote treatment of the gate posts will not be accepted.

The type of fencing in the gate shall be of the same type as specified for the adjacent Right-of-Way fence.

All costs for furnishing and constructing the wire gate(s) shall be incidental to the contract unit price per Ft for the respective Right-of-Way fence bid item.

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SDDOT	WIRE GATES	PLATE NUMBER 620.20
		Sheet 1 of 1

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