GENERAL NOTES DEER CREEK STATION

NOTE:

FENCES QUOTED MUST MEET THE FOLLOWING STANDARD. REFERENCE USED IN THE DEVELOPMENT OF THIS STANDARD IS "1989 ANNUAL BOOK OF ASTM STANDARDS VOLUME 01.06 COATED STEEL PRODUCTS."

GENERAL SPECIFICATION:

THE CHAIN LINK FENCE SHALL STAND 8'4" ABOVE GRADE, INCLUDING 3 STRANDS OF BARBED WIRE ON THE OUTWARD EXTENSION BRACKETS WITH THE DIMENSIONS AND GATE(S) LOCATED PER THE ATTACHED DRAWING. THIS FENCE IS TO BE QUOTED AS

___MATERIALS ONLY FOR ERECTION BY OTHERS
___INSTALLED IN PLACE INCLUDING MATERIALS AND LABOR
___MATERIALS ONLY WITH INSTALLED IN PLACE AS AN ALTERNATE

THE MATERIALS SUPPLIED FOR THIS FENCE AND THE INSTALLATION (WHERE APPLICABLE) SHALL BE IN ACCORDANCE WITH THE FOLLOWING:

CHAIN LINK FABRIC:

THE CHAIN LINK FABRIC SHALL BE 84" HIGH 9 GAUGE AND HAVE A 2" MESH, KNUCKLED AT ONE SELVAGE AND TWISTED AT THE OTHER AND HAVE CLASS 2 ZINC COATING OF NOT LESS THAN 2 OUNCES PER SQUARE FOOT OF UNCOATED WIRE SURFACE ALL IN ACCORDANCE WITH ASTM A-392.

LINE POSTS:

LINE POSTS SHALL BE 2" NPS (2.375" OD) SCHEDULE 40 (5.79 LBS/FT) WITH A ZINC COATING OF NOT LESS THAN 1.8 OUNCES PER SQUARE FOOT IN ACCORDANCE WITH ASTM F-1083 AND SHALL BE SPACED NOT MORE THAN 10' APART. POST LENGTH SHALL ALLOW FOR 36" EMBEDMENT IN CONCRETE.

END, CORNER AND PULL POSTS:

END, CORNER AND PULL POSTS SHALL BE 2½" NPS (2.875" OD) SCHEDULE 40 (5.79 LBS/FT) WITH A ZINC COATING OF NOT LESS THAN 1.8 OUNCES PER SQUARE FOOT. IN ACCORDANCE WITH ASTM F-1083. POST LENGTH SHALL ALLOW FOR 36" EMBEDMENT IN CONCRETE.

GATE POSTS:

POSTS FOR SWING GATES SHALL BE SIZED PER THE FOLLOWING TABLE AND SHALL BE NPS SCHEDULE 40 WITH A ZINC COATING OF NOT LESS THAN 1.8 OUNCES PER SQUARE FOOT IN ACCORDANCE WITH ASTM F-1083. POST LENGTH SHALL ALLOW FOR 36" EMBEDMENT IN CONCRETE.

INDIVIDUAL GATE LEAF WIDTH	NPS	OUTSIDE DIAMETER	LBS PER LINEAL FOOT
UP TO 6'	2½	2.875"	5.79 #/FT
OVER 6' TO 13'	3½	4.000"	9.11 #/FT

TOP RAIL:

THE TOP RAIL SHALL BE 1¼" NPS (1.660" OD) SCHEDULE 40 (2.27 LBS/FT) WITH A ZINC COATING OF NOT LESS THAN 1.8 OUNCES PER SQUARE FOOT IN ACCORDANCE WITH ASTM F-1083 AND SHALL BE SUPPLIED IN LENGTHS OF NOT LESS THAN 18'. THE TOP RAIL SHALL PASS THROUGH AND BE SUPPORTED AT EACH POST SO THAT A CONTINUOUS BRACE FROM END TO END OF EACH STRETCH OF FENCE IS FORMED AND SHALL BE SECURELY FASTENED TO THE TERMINAL POSTS. ALSO, THE TOP RAIL SHALL BE JOINED WITH SLEEVES OR COUPLINGS TO ALLOW FOR EXPANSION AND CONTRACTON.

BARBED WIRE:

THE ZINC-COATED STEEL BARBED WIRE SHALL BE CHAIN LINK FENCE GRADE CONSISTING OF TWO 12-1/2 GAUGE STRANDED LINE WIRES AND 14 GAUGE BARBS IN A 4 POINT PATTERN ON 5" CENTERS WITH A CLASS 3 COATING ALL IN ACCORDANCE WITH ASTM A-121.

TENSION WIRE:

TENSION WIRE TO BE USED IN LIEU OF BOTTOM RAIL SHALL NOT BE LESS THAN NO. 7 USING GALVANIZED STEEL WIRE.

EXTENSION ARMS

THE EXTENSION ARMS SHALL EXTEND UPWARD AND OUTWARD FROM THE FENCE AT AN ANGLE OF 45 DEGREES. THERE SHALL BE PROVISIONS FOR THREE EQUALLY SPACED LINES OF BARBED WIRE ON THE EXTENDED ARMS. THE UPPERMOST WIRE SHALL BE APPROXIMATELY 1 FOOT VERTICALLY ABOVE THE FABRIC.
THE EXTENSION ARM SHALL BE MADE OF PRESSED STEEL OR MALLEABLE IRON AND SHOULD BE DESIGNED FOR A 250-LB MINIMUM PULL-DOWN LOAD BEING APPLIED AT ARM'S TIP AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS B1.

STRETCHER BAR

STRETCHER BARS SHALL BE GALVANIZED STEEL BARS NOT LESS THAN ¼" X ¾". THEY SHALL BE APPROXIMATELY 1" LESS THAN THE FABRIC HEIGHT. THE STRETCHER BAR SHALL BE USED FOR SECURING THE FABRIC TO ALL TERMINAL POSTS. ONE BAR IS REQUIRED FOR EACH GATE AND END POST, AND TWO ARE REQUIRED FOR EACH CORNER AND PULL POST.

POST BRACES

POST BRACES ARE REQUIRED AT EACH GATE, CORNER, PULL, AND END POST. THEY SHALL CONSIST OF A STRUT, WHICH SHALL NOT BE LESS IN SIZE THAN THE TOP RAIL, AND A TENSION ROD WITH TURNBUCKLE. THE ROD SHALL BE STEEL AND HAVE A MINIMUM DIAMETER OF ⅜". THE STRUT SHALL BE SECURED TO THE ADJACENT LINE POST AT APPROXIMATELY MID-HEIGHT OF THE FABRIC. THE TENSION ROD IS ALSO SECURED NEAR THIS AREA ON THE LINE POLE AND IS ANCHORED NEAR THE BASE OF THE CORNER, GATE, PULL, OR END POST. BRACING MEMBERS SHALL ALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM 153.

FENCE FITTINGS:

ALL FENCE FITTINGS INCLUDING BUT NOT LIMITED TO POST AND LINE CAPS, RAIL AND BRACE ENDS, TOP RAIL SLEEVES, TIE WIRES AND CLIPS, TENSION AND BRACE BANDS, TENSION BARS, TRUSS RODS AND BARB ARMS SHALL BE IN ACCORDANCE WITH ASTM F-626.

GATES:

GATES SHALL BE SWING TYPE, COMPLETE WITH LATCHES, STOPS, KEEPERS AND HINGES. GATE FRAMES SHALL BE CONSTRUCTED OF ROUND TUBULAR MEMBERS, WELDED AT ALL JOINTS. WELDS SHALL BE PAINTED WITH ZINC BASED PAINT. GATES SHALL HAVE TRUSS RODS OF ⅜" OR GREATER NOMINAL DIAMETER TO PREVENT SAG AND TWIST. GATE FRAME MEMBERS SHALL BE ROUND TUBULAR STEEL 1.90" O.D., 2.28 LBS/FT WITH A ZINC COATING OF 1.8 OUNCES PER SQUARE FOOT. THE END MEMBERS OF THE GATE FRAME SHALL BE EXTENDED IN HEIGHT TO ACCOMMODATE THREE STRANDS OF BARBED WIRE UNIFORMLY SPACED AND POSITIONED SO THAT THE TOP STRAND IS APPROXIMATELY 1' ABOVE THE TOP HORIZONTAL MEMBER OF THE GATE FRAME. BARBED WIRE SHALL BE ATTACHED BY SUITABLE MEANS TO PREVENT WIRE FROM MOVING OUT OF POSITION AND SHALL BE SUPPORTED BY A GATE FRAME MEMBER ON EACH END OF EACH GATE LEAF.
GATE FILLER FABRIC SHALL BE THE SAME FABRIC AS SPECIFIED FOR THE FENCE AND SHALL BE SECURELY FASTENED AT INTERVALS OF NO MORE THAN 15".
WALK THROUGH GATES SHALL HAVE AN OPENING OF NOT LESS THAN 3'-0" NO MORE THAN 4'-6". DRIVE THROUGH GATES SHALL BE 12'-0".
GATES SHALL BE LOCATED AS SHOWN ON THE INTERCONNECT AND PLANT SITE PLOT PLANS.

HARDWARE:

HINGES SHALL BE HEAVY DUTY AND STRUCTURALLY CAPABLE OF SUPPORTING THE GATE LEAF AND ALLOW THE GATE TO OPEN AND CLOSE WITHOUT BINDING, TWISTING OR TURNING. THE GATES SHALL BE CAPABLE OF BEING OPENED AND CLOSED EASILY BY ONE PERSON.
SINGLE LEAF GATE LATCHES SHALL BE CAPABLE OF RETAINING THE GATE IN A CLOSED POSITION AND SHALL HAVE PROVISION FOR A PADLOCK.
DOUBLE LEAF GATE LATCHES SHALL BE A DROP ROD OR PLUNGER BAR ARRANGED TO ENGAGE THE GATE STOP. LOCKING DEVICES SHALL BE CONSTRUCTED SO THAT THE CENTER DROP ROD OR PLUNGER CANNOT BE RAISED WHEN THE GATE IS LOCKED. THE LATCHING DEVICE SHALL HAVE PROVISION FOR A PADLOCK.
GATE STOPS SHALL BE PROVIDED FOR ALL DOUBLE LEAF GATES AND SHALL BE SUITABLE FOR SETTING IN CONCRETE FOR THE CENTER DROP ROD OR PLUNGER.
KEEPERS SHALL BE PROVIDED FOR EACH GATE LEAF OVER 5' WIDE. GATE KEEPERS SHALL CONSIST OF A MECHANICAL DEVICE FOR SECURING THE FREE END OF THE GATE WHEN IN FULL OPEN POSITION AND SHALL BE SUITABLE FOR SETTING IN CONCRETE.

WHEN FENCE INSTALLATION IS INCLUDED, THE FOLLOWING SHALL APPLY:

INSTALLATION:

ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE ABOVE AND WORKMANSHIP SHALL BE OF FIRST CLASS IN EVERY RESPECT AND SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER.

POST SPACING:

LINE POSTS SHALL BE SPACED EQUIDISTANT AT INTERVALS NOT EXCEEDING 10' FROM CENTER TO CENTER OF THE POSTS.

POST SETTING:

ALL LINE POSTS SHALL BE SET IN 10" MINIMUM DIAMETER HOLES OF 36" POST EMBEDMENT IN THE CONCRETE. ALL TERMINAL AND GATE POSTS SHALL BE SET IN 20" MINIMUM DIAMETER HOLES OF 36" DEPTH WITH 36" POST EMBEDMENTS IN THE CONCRETE. AFTER THE POSTS HAVE BEEN SET AND PLUMBED, THE HOLES SHALL BE BACKFILLED WITH 2500 PSI CONCRETE WITH A CROWN EXTENDING 2" ABOVE GRADE.

GATE KEEPER & STOP SETTING:

ALL GATE KEEPERS AND STOP SHALL BE SET IN 10" MINIMUM DIAMETER HOLES OF 18" DEPTH BACKFILLED WITH 2500 PSI CONCRETE CROWNED TO PREVENT STANDING WATER.

CHAIN LINK FABRIC:

THE CHAIN LINK FABRIC SHALL BE PLACED ON THE OUTSIDE OF THE LINE POSTS WITH THE TWISTED END PLACED DOWN. THE FABRIC SHALL BE STRETCHED TAUT APPROXIMATELY 4" ABOVE THE GROUND AND SECURELY FASTENED. THE FABRIC SHALL BE CUT AND EACH SPAN SHALL BE ATTACHED INDEPENDENTLY AT ALL TERMAINAL POSTS. FASTENING TO TERMINAL POSTS SHALL BE WITH STRETCHER BARS AND TENSION BANDS SPACED AT MAXIMUM 15" INTERVALS. FASTENING TO LINE POSTS SHALL BE WITH TIE WIRE AT INTERVALS NOT EXCEEDING 15". THE TOP OF THE FABRIC SHALL BE FASTENED TO THE TOP RAIL WITH TIE WIRES AT INTERVALS NOT EXCEEDING 24". ROLLS OF WIRE FABRIC SHALL BE JOINED BY WEAVING A SINGLE PICKET INTO THE ENDS OF THE ROLLS TO FORM A CONTINUOUS MESH.

GROUNDING

FENCE SHALL BE GROUNDED PER DETAILS BY OTHERS.

AS BUILT

REGISTERED PROFESSIONAL ENGINEER
REG NO. 9918
DAVID P. YEXLEY
SOUTH DAKOTA

NO.	DATE	BY	REVISION
1	12/10/10	GB	REVISED GATE DIMENSIONS

BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative

MONTANA-DAKOTA UTILITIES CO.
A Division of MDU Resources Group, Inc.

GENERAL NOTES SHEET 3 OF 3
DEER CREEK STATION

SCALE	DATE	DRAWN BY	APPROVED BY
NONE	6/2/10	CASSIE PETER	DAVE YEXLEY

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