

# **Construction of Bison Containment Game Fence Grasslands National Park - Parks Canada Agency**

## **General Specifications:**

### **1.0 General**

These specifications address the construction of fences to be built along permanent boundaries and or Bison paddock fences of Grasslands National Park (GNP). Such fences will be built on Parks Canada land, owned and maintained by Parks Canada, and be built between park-owned lands and: private landowners, provincial pastures and, along the United States/Canada International Boundary.

In addition GNP will require the construction of a game containment fence near the bison handling facility (Approximately 7.5 miles)

As part Grasslands National Park's commitment to the environment integrity of the park and surrounding area, new fences will be built in such a manner as to facilitate wildlife movements, while addressing the containment considerations associated with grazing management and the re-introduce the plains bison.

Specific environmental protection issues associated with the construction of fences on Parks Canada lands are addressed in the attached, generic environmental assessment (**Annex I**). Site specific amendments may be made to the environmental assessment to ensure protection of cultural and natural resource. Mitigations identified in the environmental assessment must be adhered to, or other measures employed after consultation with the Parks Canada project officer.

### **2.0 Scope of Work**

#### **2.1 Location**

The location of the fence to be salvaged and new fence constructed. See Appendix 1 for land descriptions, locations and maps.

#### **2.2 Optional Site Visit**

As identified in the Tender Package documents an optional site visit for is available for prospective bidders in order to submit a bid. Parks Canada staff will have met with landowners adjacent to the park to discuss: fence construction; construction time table; access; storing and staging of materials/equipment, and any special considerations that might arise.

#### **2.3 Salvage**

Contractor will be responsible for the salvaging of the existing fence. Disposal of the salvaged materials are the responsibility of the contractor. All materials must be removed from Parks Canada property.

## **2.4 - Survey**

Fence line demarcation. Contractor will be responsible for boundary surveying and demarcation. The fence line shall be surveyed inside GNP boundary by 0.3 to 1 meter. In the event the line is beside a road allowance, the road allowance will be left with the neighbouring property and the line shall be demarked 0.3 to 1 meter inside GNP property. Rough terrain may warrant constructing the fence outside of the designated line. This would only be done in consultation with the GNP Representative.

## **2.5 Fence Construction - General**

The work is to drill and set or pound posts, affix wire and install gates as per approved specifications outlined in the following details, using the listed materials provided by the contractor and in accordance with attached **Annex II – VII**.

## **3.0 Materials**

Materials used for construction of fence to be supplied by the contractor include:

- 8' pressure treated, square/diamond sharpened posts, 5-7" in diameter (for use as anchor, brace and gate posts)
- 7' pressure treated, square/diamond sharpened posts, 4-5" in diameter (for use as fence posts)
- four point 12.5 gauge double strand barbed wire (950 lb. breaking strength)
- barbless double strand wire (950 lb breaking strength)
- 9 gauge smooth wire
- gate slats
- metal gate closing levers
- 16' metal swing gates and mounting hardware (if requested in advance)
- 2" barbed staples
- wire splicers
- anchor wire-hooks
- spikes

## **4.0 Construction**

### **4.1 Posts**

#### **4.1.1 Anchor Posts and Brace Posts**

Anchor and brace post sets shall be used approximately every 1320 feet (ie. one wire length), at all changes in direction, corners and at all gates. Posts for anchors shall be a minimum of 5" in diameter.

Like line posts, anchor and brace posts shall be placed into the soil to a depth which leaves 58" above the ground.

Cross bracing shall be used between all anchor and brace posts. Cross braces shall be cut to fit from 7' cull posts and cross wired with barbed wire.

#### **4.1.2 Line Posts**

Spacing for line posts shall be 16' 6". Where obstacles (ie. rock piles) interfere with these spacing, posts may be situated closer or farther apart.

The posts shall be placed into the soil to a depth which leaves between 58" above the ground.

### **4.2 Gates**

#### **4.2.1 Wire Gates**

All wire gates shall be constructed using 6 wires of double strand barbed wire and independently mounted with gate fasteners. There will be one wire gate constructed per half mile of fence. The location will be predetermined and marked by GNP

#### **4.2.2 Metal Gates**

There may be metal gates required by GNP. Contractors will determine a price for metal gates and place them where designated by GNP. There is not expected to be many metal gates

### **4.3 Wire**

#### **4.3.1 Spacing**

The 5 wires shall be spaced at 18" from the ground, then every 9". This will result in wires at 18", 27", 36", 45" and 54" above the ground. The top two wires are to be smooth barbless as well as the bottom wire.

#### **4.3.2 Attachment to Posts**

The wire is to be attached to the posts with 2" barbed staples. The staples shall be securely driven into the posts across the grain of the post at an angle of approximately 45 degrees (from vertical) to a depth which will allow free movement of the wire within the staple.

Each wire at all anchor post locations shall be wrapped around the post at least once and tied off. Wire is to be stapled to Canada's side of the posts.

#### **4.3.3 Wire Tension**

Wire tension shall be such as to allow for a maximum of 3" side pull deflection.

Double strand wire is required to be over tightened initially, before stapling, in order to remove a portion of the natural stretch of the wire.

#### **4.4 Screw/Bin Anchors**

Screw or bin anchors shall be installed where the topography dictates they would be beneficial to the long term integrity of the fence (ie. where tight wire may lift posts out of the ground). This includes places where: anchor/brace posts are situated, corners, at fence ends/gates, one or more posts are lower than on those either side, where brace posts are situated in lower spots, or where the angle of a fence changes 10 degrees or more.

## **Annex I - Generic Environmental Assessment for Fence Construction**

### **PROJECT DESCRIPTION**

Fences that restrict movement of livestock between national park lands and adjacent properties are needed to allow for park management. These fences may be built between GNP and provincial pasture, private lands (leased and/or deeded), and where GNP lands are adjacent to the International Border with the USA. Fence will be constructed to allow for possible future grazing (bison and other livestock) on GNP side. For detailed project location and design see Appendices II - VIII in this document. Equipment used will be tractors, post-pounders, augers, pick-up trucks and all terrain vehicles. Standard Operating Procedures will be followed.

### **DESCRIPTION OF ENVIRONMENT**

GNP is situated in SW Saskatchewan, a semi-arid area dominated by mixed grass species of vegetation. Coulee slopes often are shrub dominated and wetter coulee bottoms infrequently have aspen stands. Coulees can be quite steep and non-stabilized by any sort of vegetation. Rivers and ephemeral creeks are usually bordered by flood plains. Wildlife is abundant and includes several ungulate species, small to medium sized predators, migrant and seasonal birds, amphibians/reptiles, and a very diverse invertebrate complex. GNP provides habitat for a number of species listed in the Species At Risk Act.

### **NATURE AND EXTENT OF ENVIRONMENTAL EFFECTS, INCLUDING CUMULATIVE EFFECTS**

#### **1) Construction of fence, operation and transport of equipment**

- noise, fuel and oil spillage
- disturbance of wildlife
- damage to vegetation
- introduction of exotic species

- soil compaction
- disturbance of archaeological resources

## 2) Selection and disposal of construction material

- treated posts (environmental contamination)

## MITIGATION MEASURES

### 1) Equipment

- equipment must be in good running order
- vehicles must not have any fuel or oil leaks
- equipment must be cleaned, tires washed and radiators thoroughly cleaned to prevent the introduction of exotic species
- designated areas, away from water courses and dugouts, will be marked for re-fuelling, and spill containment kits will be on site
- ground must be dry/solid enough to minimize vegetation destruction and soil compaction

### 2) Disposal of solid waste

- collection of shavings and waste
- only in approved landfill.

### 3) Selection of construction material

- only approved pressure treated wood

### 4) Employee/contractor safety

- Standard Operating Procedures shall be read, understand and implemented for all procedures
- personal protective equipment will be used as required
- first aid equipment will be available on all work sites

-all close-calls, accidents and injuries will be properly documented and reported

#### 5) Fence Design

-consideration in design will enable the travel of wildlife

#### 6) Construction

-scheduling avoid disturbance of nesting birds to the greatest extent possible

-fence placement will be moved to avoid crossing or passing through sensitive  
wildlife habitat or travel corridors

-known cultural resources will be considered during the development of the location  
plan

- if during any excavation, hole drilling or surface surveys previously unknown  
archaeological artefacts are discovered, the work will immediately be suspended at that  
site until Parks Canada staff can assess the resources

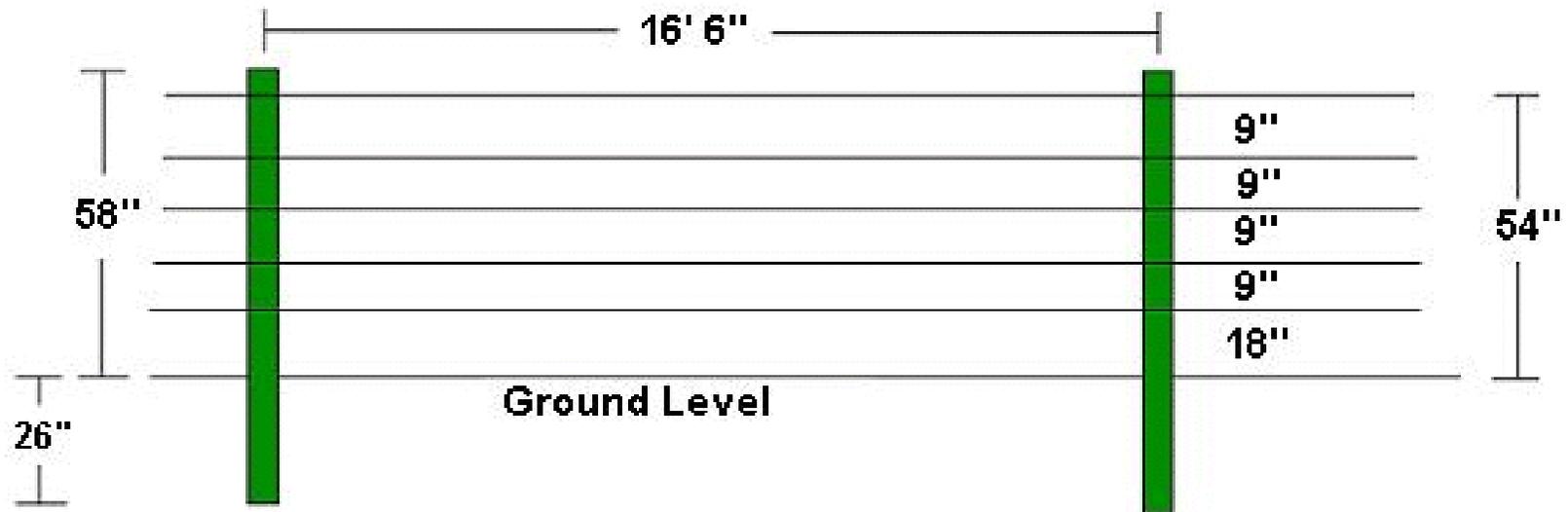


Annex II - General Fence Specifications

**GNP Fence Specifications - Bison Standard**

Prepared by R. Cherepak,  
June 2004

**General - Wire height and spacing  
Post height, depth and spacing**



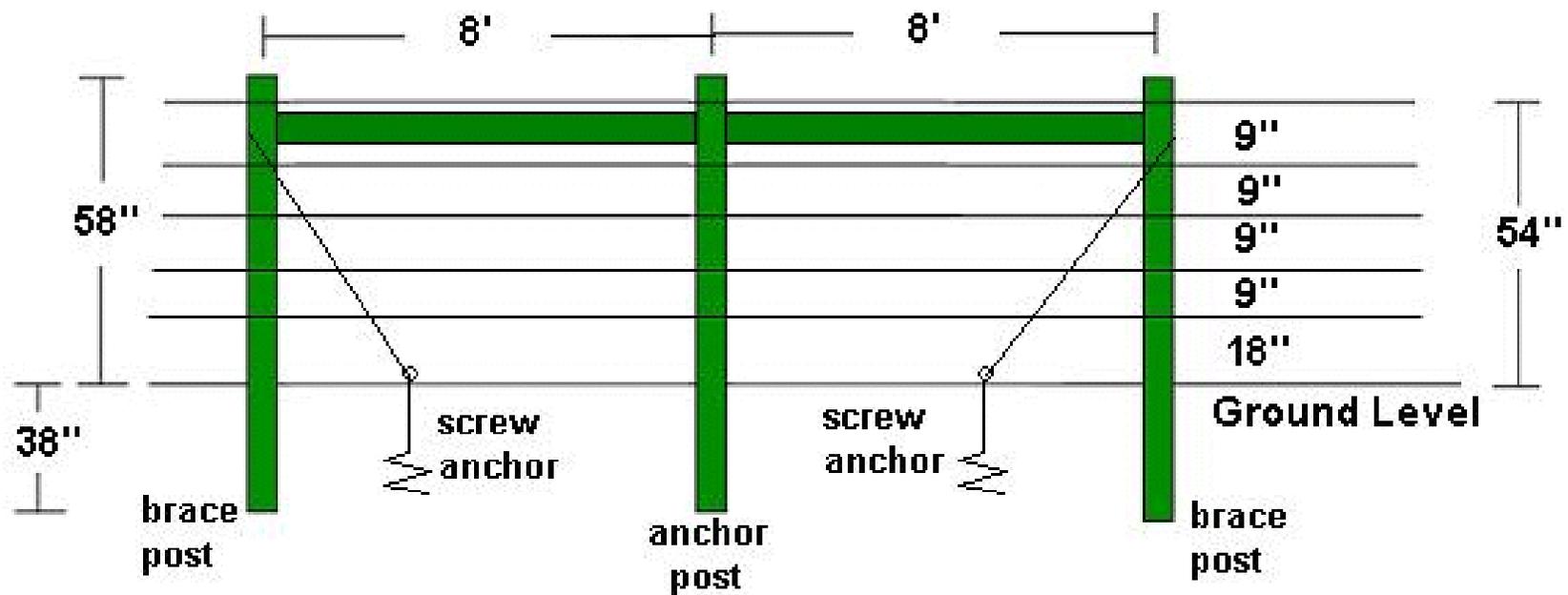
**Note: numeric values are accurate and reflect requirement,  
drawing not to scale**

## **Annex III - Anchor and Brace Post Specifications**

# GNP Fence Specifications - Bison Standard

Prepared by R. Cherepak,  
June 2004

## Anchor and Brace Posts - spacing, configuration



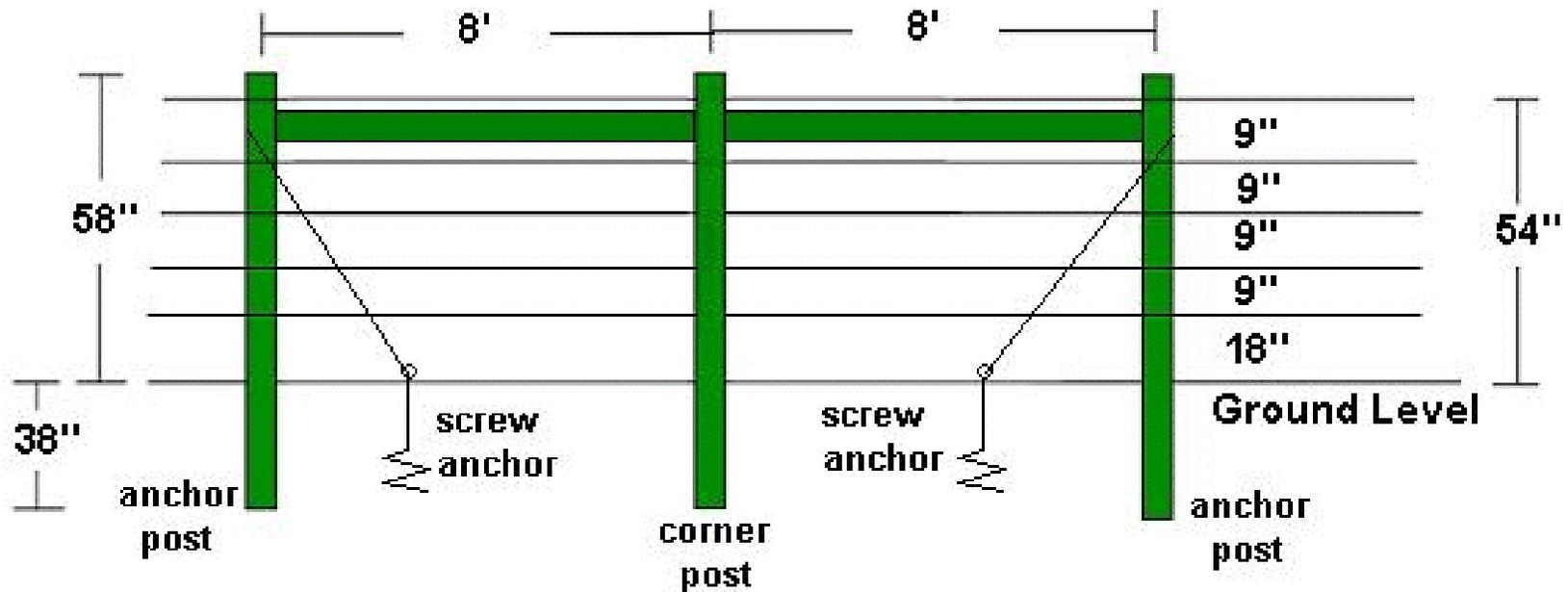
Note: numeric values are accurate and reflect requirement,  
drawing not to scale

# GNP Fence Specifications - Bison Standard

Prepared by R. Cherepak,  
June 2004

## Corner Posts - anchors, spacing and configuration

side view  
see next page for top view



**Note: numeric values are accurate and reflect requirement,  
drawing not to scale**

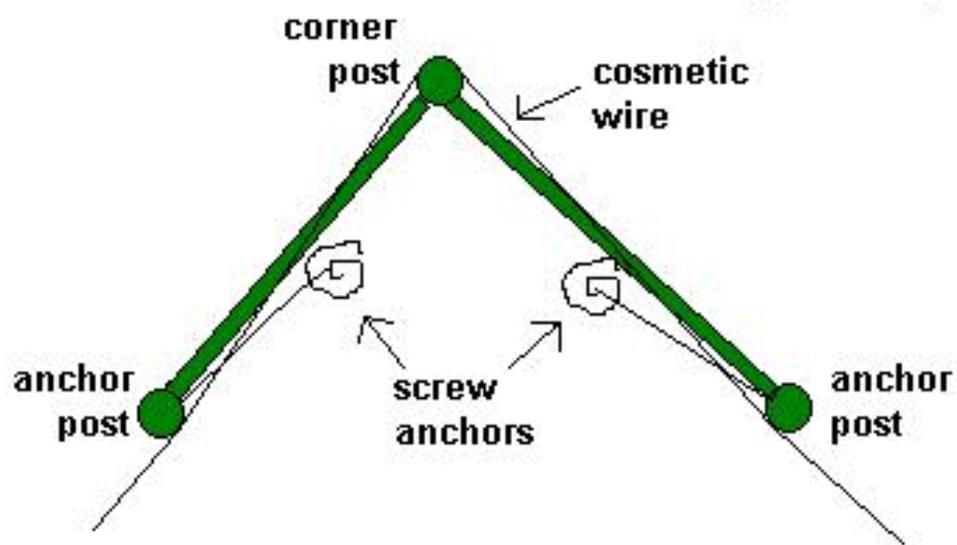
**Annex V - Corner Post Specifications (Top View)**

## GNP Fence Specifications - Bison Standard

Prepared by R. Cherepak,  
June 2004

Corner Posts - anchors, spacing and configuration

top view  
see previous page for side view

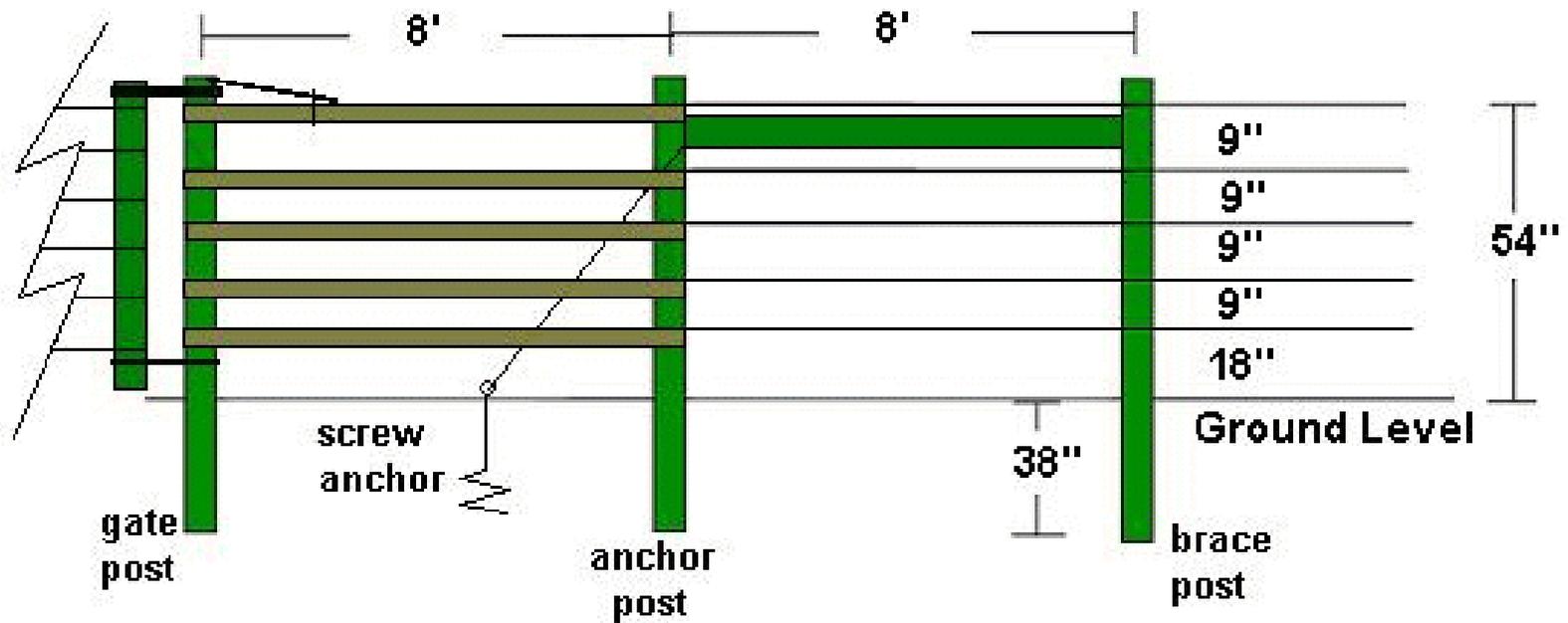


**Note: numeric values are accurate and reflect requirement,  
drawing not to scale**

# GNP Fence Specifications - Bison Standard

Prepared by R. Cherepak,  
June 2004

## End of Fence at Wire Gate - rails, spacing and anchors

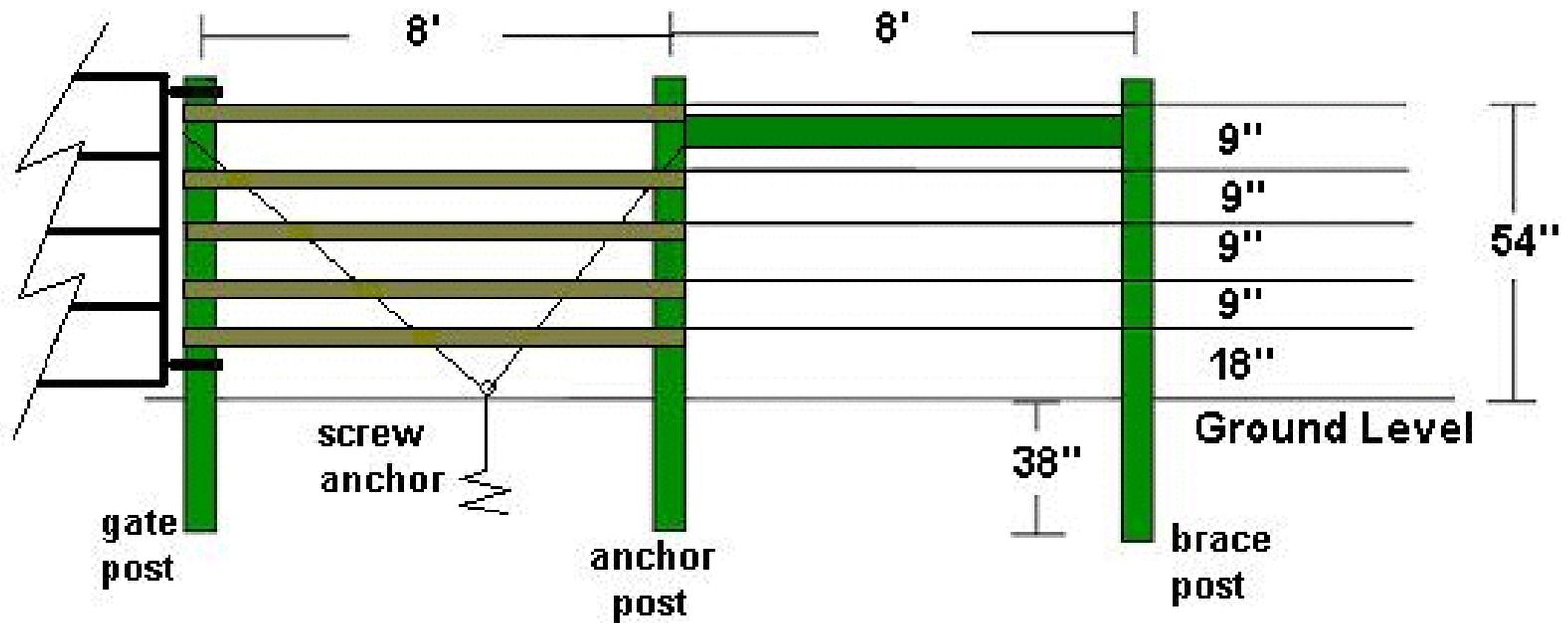


**Note: numeric values are accurate and reflect requirement,  
drawing not to scale**

# GNP Fence Specifications - Bison Standard

Prepared by R. Cherepak,  
June 2004

## End of Fence at Metal Gate - rails, spacing and anchors



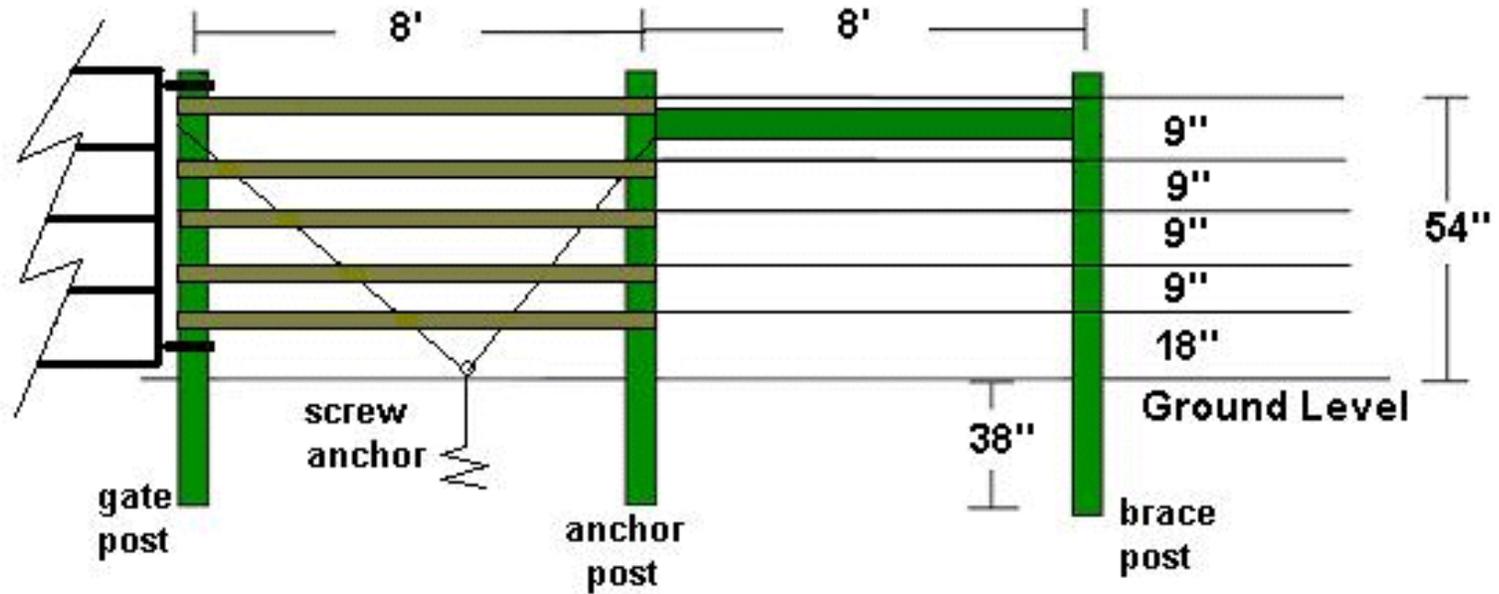
**Note: numeric values are accurate and reflect requirement,  
drawing not to scale**

Annex VII - End of Fence at Metal Gate

**GNP Fence Specifications - Bison Standard**

Prepared by R. Cherepak,  
June 2004

**End of Fence at Metal Gate - rails, spacing and anchors**



**Note: numeric values are accurate and reflect requirement,  
drawing not to scale**