



OFFICE OF FACILITIES AND PLANNING

309 Young Hall • 820 Chestnut Street
Jefferson City, MO 65101
Phone: (573) 681-5088
Fax: (573) 681-5098

Project #LU24013
FREEMAN FARM FENCE PROJECT

LINCOLN UNIVERSITY

James N. Freeman Farm
9317 Tanner Bridge Rd.
Jefferson City, Missouri 65101

November 27, 2023

Project Specifications

**FREEMAN FARM FENCE PROJECT
JAMES N. FREEMAN FARM
LINCOLN UNIVERSITY**

9317 Tanner Bridge Rd
Jefferson City, Missouri

Owner

Lincoln University
820 Chestnut St., Young Hall Rm 309
Jefferson City, Missouri 65101

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NOTICE TO CONTRACTORS

RFP #; LU24013

TITLE: Freeman Farm Fence Project

ISSUE DATE: November 27, 2023

Lincoln University is requesting proposals for the construction of approximately five thousand, five hundred (5,500) feet of fencing at the Lincoln University Freeman Farm located at 9317 Tanner Bridge Rd. The project will include removal of brush and trees for site preparation as well as three (3) creek crossings.

A Pre-bid walkthrough for the project will be conducted at 1:00 PM, Monday, December 11, 2023, at the Freeman farm.

Attendance at the Pre-bid conference and walkthrough is mandatory of each bidder submitting a proposal.

Full details and the scope of work can be found at: <https://www.lincolnu.edu/about-lincoln/vice-president-of-administration-and-finance/facilities-and-planning.html>

Submissions must be delivered by 2:00 PM, Friday, December 15, 2023 to:

Lincoln University
Facilities & Planning
309 Young Hall
820 Chestnut St.
Jefferson City, Missouri 65101

SCOPE OF WORK

The scope of work will be to install approximately five thousand, five hundred (5,500) feet of fencing at the James N. Freeman Farm located at 9317 Tanner Bridge Rd., Jefferson City, MO 65101. The project will include the removal of brush and trees for site preparation as determined by the Lincoln University Farm Crew as well as three (3) creek crossings. The Farm Superintendent must approve the water gap construction and placement. This portion of the project will be bid on a time and materials not to exceed a certain amount. The proposed fence costs, except for the site preparation and water gaps, must be bid on a per foot basis.

Materials to be used:

48 inch tall 12 gauge 4" X 4" Woven Wire
12-gauge Barb Wire
6.5 ft. steel posts
2 7/8" Pipe for Line and Corner Posts with Caps
12 ft Heavy Duty Metal Gates (??)

Site Preparation:

The Contractor must clear a 12-foot-wide strip of all trees and brush on owners side of the fence, including trees with limbs which hang over the fence line. All brushes and materials may be piled on site as directed by Lincoln University Personnel. Final determination of which specific trees shall or shall not be removed will be the responsibility of the Farm Superintendent.

Fence Construction:

All fencing shall consist of 48 inch tall woven wire with steel posts placed on ten (10) feet spacing with a single strand of 12 gauge barb wire on top of the woven wire. Steel pipe 2 7/8 inches in diameter with welded caps will be used for corner posts and line posts. Corner posts and brace posts must be a minimum of 10 feet in length with 54 inches left exposed above the ground surface with welded X-bracing. Line posts must be placed at a maximum of 100 foot spacing and more frequently when there is a change in direction or change in ground slope which requires a line post to be utilized. The overall fencing project will consist of four separate sections as labeled on Map Attachments A & B and described below.

Fence Section 1: Fence Section 1 consists of an overall length of approximately two thousand, two hundred (2,200) with a creek crossing near the middle of the section.

Part 1 of this section, as marked on Map A, will be constructed as either the red line (Option A) or green line (Option B). The final decision by University personnel on Option A or Option B will be made at the mandatory on-site pre-bid meeting after consultation with participating Contractors as to the best approach to constructing a water gap for the creek crossing located at the intersection of the green, red and blue lines on Map A. It is estimated that Option A will consist of approximately one thousand, fifty (1,050) feet of fencing while Option B will be closer to one thousand two hundred (1,200) feet in length. Part 1 WILL NOT require removal of the existing fence.

Part 2 of this section (blue line on Map A) is approximately one thousand, fifty (1,050) in length. The existing fence consists of multiple strands of barb wire attached to T-posts. The construction of this section of fence will require the removal of the existing barb wire, except for the top strand, and installation of the 48 inch 4" X 4" woven wire. The existing T-posts and line posts will remain in place.

Fence Section 2 (Red line on Map B): Fence section 2 will consist of approximately seven hundred, fifty (750) feet of fencing and brush removal as outlined above, and a water gap on the north (?) end. This section SHOULD NOT require removal of existing fence.

Fence Section 3 (Green line on Map B): Section 2 will entail the removal of brush and existing fence to be replaced with new fence and installation of a water gap as outlined above. This section is approximately one thousand, eight hundred (1,800) feet in length.

Optional Fence Section 4 (Blue line on Map B): Section 4 is approximately two thousand, four hundred (2,00) feet in length with an existing barb wire fence. It would entail the removal of existing barb wire, except for the top strand, and installing woven wire in its place. The existing T-posts and line posts may be re-used. Pricing for Fence Section 4 must be included as a component of this bid package; however, Lincoln University retains the right to decline the inclusion of this section of fencing to be completed later.

Measurements are approximate. All measurements must be field verified by the Contractor.

Attached are the Fence Specifications from the Department of Agriculture as well as some guidelines for water gaps. As specified above, water gap designs must be approved by the Farm Superintendent prior to construction.

PROPOSAL FORM

Bid time: _____
Bid date: _____

FROM: _____

Hereinafter called the **Bidder**.

TO:
Lincoln University
820 Chestnut Street
Jefferson City, Missouri 65101

Hereinafter called the **Owner**.

FOR: FREEMAN FARM FENCE PROJECT

LINCOLN UNIVERSITY

JEFFERSON CITY, MISSOURI

Hereinafter called the **Work**.

1. The undersigned, having examined and being familiar with the local conditions affecting the work and with the contract documents including the drawings, the Notice to Contractors, Instructions to Bidders, Statement of Bidder's Qualifications, General Conditions, Special Conditions and the body of technical specifications, including

Addenda number _____ through _____ inclusive,

As issued, hereby propose to furnish all labor, materials, equipment, services, etc. required for the performance and completion of the work, as follows:

BASE BID – Not to Exceed

_____ Dollars (\$ _____)

Price Quote for Fence Sections 1,2 and 3:

Cost of site preparation: \$ _____ per hour
Approximate number of hours anticipated for site prep: _____
Cost of fencing per foot: \$ _____
Cost for 12-foot heavy duty metal gates: \$ _____ each
Additional costs for water gap construction: \$ _____ (total for all water gaps)

Price Quote for Fence Section 4:

Cost of site preparation: \$ _____ per hour
Approximate number of hours anticipated for site prep: _____
Cost of Fence per foot \$ _____
Cost for 12 foot heavy duty metal gates: \$ _____ each

2. In submitting this bid, it is understood that the right is reserved by Lincoln University to reject any and all bids and it is agreed that the bids may not be withdrawn for a period of 60 days from the specified time for receiving bids.
3. Accompanying this bid is a certified check or cashier's check in the amount of _____ Dollars (\$ _____) or a 5% bid bond payable without condition to Lincoln University, State of Missouri, which it is agreed shall be retained as liquidated damages for the delay and extra expense caused Lincoln University if the undersigned fails to execute the contract and furnish the Performance/Payment bond required by the contract documents.
4. The Bidder agrees to complete the work required within _____ consecutive Calendar days from the date on which he receives a written "Notice to Proceed", and Further agrees to pay to, or allow Lincoln University as liquidated damages the sum of \$500 Dollars for each day thereafter, Sundays and holidays accepted that the work remains complete.
5. The Bidder agrees to pay not less than the hourly rate of wages as determined by the Department of Labor and Industrial Relations, State of Missouri, in accordance with Section 290.210 to 290.340 as amended RSMo 1978.
6. The Bidder hereby certifies that all business and/or individuals employed on this Project are enrolled in the Federal Work Authorization Program as required by RSMo 285.525 and 285.530 and shall submit the Affidavit of Work Authorization along with this bid as discussed in the specifications.

7. The Bidder hereby certifies that the following subcontractors will be used in the Performance of the work:

IF NONE,SO STATE

Name of Contractor

Work to be performed

8. The Bidder hereby certifies:

That this proposal is genuine and is not made in the Interest of or on behalf of any undisclosed person, firm or corporation, and is not submitted in conformity with any agreement or rules of any group, association or corporation.

That they have not directly or indirectly induced or solicited any other bidder to put in a false or sham proposal; That they have not solicited or induced any person, firm or corporation to refrain from bidding:

That they have not sought by collusion or otherwise to obtain for themselves and advantage over any other bidder or over the Owner: and

That they will not discriminate against any employee or application for employment because of race, creed, color or national origin in connection with the performance of the work.

9. MBE/WBE Percentage Goal:

The bidder shall have as a goal subcontracting not less than ten percent (10%) MBE and five percent (5%) WBE and desired participation goals of Fifteen percent (15%) MBE and the percent (10%) WBE. The goals may be through the use of prime contractors, suppliers, joint ventures, or other arrangements that afford meaningful opportunities.

Dated this _____ day of _____, 20_____

IF AN INDIVIDUAL / PARTNERSHIP / CORPORATION

Name of Firm / Partnership / Corporation

Individual / Partner / Name and Title of Officer

Signature

Additional Partner

Address of Communications

(Each bidder must complete the Proposal Form by signing on the proper signature line above and by supplying the required information called for in connection with the signature.)

Sealed bids will be received at the Office of Facilities and Planning, Lincoln University, 820 Chestnut Street, Room 309 Young Hall, Jefferson City, MO 65101.

LU CONTRACTOR'S QUALIFICATIONS

Name of Firm

Address with Zip Code

Date

Area Code and Telephone/Fax

Corporation or Partnership or Individual

CONSTRUCTION CAPABILITIES:

General Electrical Plumbing Heating, Air Conditioning and Ventilation Other _____

FOR CORPORATION ONLY Federal I.D. Number _____

Date of incorporation Name of State(s) in which incorporated.

If not incorporated in Missouri, give Certificate of Authority to do business in Missouri.

Certificate No. _____ Date _____.

President's Name Vice President's Name

Secretary's Name Treasurer's name

FOR PARTNERSHIP ONLY

Is the Partnership: General Limited Association

Date of Organization: _____

Names and addresses of all partners with zip codes.

GENERAL INFORMATION

Federal I.D. Number _____

or Social Security Number _____

Percent (%) of work done by own staff

No. of permanent employees.

Geographical limits of operation

No. years in business

If you have done business under different name, please give name and location.

Has firm ever failed to complete project or default on a contract?

If so, state where and why. _____

Has firm ever been engaged in litigation over any contract?

If so, explain. _____

LIST OF PROJECTS CURRENTLY UNDER CONSTRUCTION, INCLUDING COST OF EACH AND NAME AND ADDRESS OF OWNER CONTACT.

LIST OF COMPLETED PROJECTS WITHIN PAST FOUR YEARS, INCLUDING COST OF EACH AND
NAME AND ADDRESS OF OWNER CONTACT.

PARTIAL RECEIPT OF PAYMENT AND RELEASE FORM

KNOW ALL PERSONS BY THESE PRESENTS

THAT: _____, hereinafter called "Subcontractor," who entered into a subcontract with _____, hereinafter called "Contractor", for the performance of work and/or the furnishing of material for the construction of a project entitled:

_____ *Freeman Farm Fence Project*

(Project Name)

_____ *LU24013*

(Project Number)

at: _____ *Lincoln University Campus, 9315 Tanner Bridge Rd. Jefferson City, Missouri 65101*

(Project Address)

for the State of Missouri (Owner) which said subcontract is by this reference incorporated herein, in consideration of

such payment by Contractor,

DOES HEREBY:

1. ACKNOWLEDGE that he/she has been paid all sums due them to date for everything done by him, or done by his subcontractors, material vendors, equipment and fixture suppliers, agents and employees, or otherwise in the performance of the work called for by the aforesaid contract and all modifications or extras or additions approved to date, for the construction of said project or otherwise.
2. REPRESENT that all of his/her employees, subcontractors, material vendors, equipment and fixture suppliers and everyone else has been paid all sums due them to date, or any of them, in connection with performance of said work, or anything done or omitted by them or any of them in connection with the construction of said improvements, or otherwise.
3. RELEASES the Owner from any claim for nonpayment for any work performed or material supplied up through _____(date).

DATED this _____ day of _____, _____(year).

(Name of Subcontractor)

(Typed or Printed Name)

(Signature)

(Title)

LU FINAL RECEIPT OF PAYMENT AND RELEASE FORM

KNOW ALL PERSONS BY THESE PRESENT THAT :

hereinafter called "Subcontractor" who heretofore entered a subcontract with

hereinafter called "Contractor" for the performance of work and/or furnishing of material for the construction of a project entitled:

Freeman Farm Fence Project LU24013
(Project title & Project number)
Lincoln University Campus, 820 Chestnut St, Jefferson City, Missouri 65101
(Address of Project)

for Lincoln University, (Owner) which said subcontract is by this reference incorporated herein, in consideration of such final payment by Contractor, DOES HEREBY:

1. ACKNOWLEDGE that the Contractor has been paid in full all sums due to the Contractor for everything done by the Contractor, or done by subcontractors, material vendors, equipment and fixture suppliers, agents and employees, or otherwise in the performance of the work called for by the aforesaid contract and all modifications of extras or additions thereto, for the construction of said project or otherwise.
2. RELEASE and fully, finally and forever discharge Contractor and the Owner of and from any and all suits and actions, claims and demands of whatsoever kind or character arising out of or in any manner related to anything and everything done or omitted by Subcontractor, its subcontractors, material vendors, equipment and fixture suppliers, agents and employees, in the performance of or connected with its/their performance of said work, or otherwise.

REPRESENT that all employees, subcontractors, material vendors, equipment and fixture suppliers and everyone else has been paid in full all sums due them, or any of them, in connection with performance of said work, or anything done or omitted by them or any of them in connection with the construction of said improvements, or otherwise.

DATED THIS _____ day of _____, 20__

(Name of subcontractor)

BY _____
(Typed or printed name)

(Signature)

TITLE: _____

AFFIDAVIT FOR AFFIRMATIVE ACTION

State of Missouri)
) ss.
County of)

_____ first being duly sworn on his/her oath states: that he/she is the (sole proprietor, partner, or officer) of _____ a (sole proprietorship, partnership, corporation), and as such (sole proprietorship, partner of officer) is duly authorized to make this affidavit on behalf of said (sole proprietorship, partnership, corporation); that under the contract known as "Lincoln University Freeman Farm Fence Project" Project No. 24013 less than 50 persons in the aggregate will be employed and therefore, the applicable Affirmative Action requirements as set forth in Article 6 of the General Conditions of Lincoln University have been met.

Subscribed and sworn to before me this _____ day of _____, 20_____.
My commission expires _____, 20_____.

AFFIDAVIT OF COMPLIANCE WITH PREVAILING WAGE LAW

I, _____ do hereby certify under penalty of perjury:

Project Name: Freeman Farm Fence Project – Project #LU24013

- 1) That all of the information in the payroll reports for this project is true and correct.
- 2) All Persons employed on said project have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly from the full wages earned by any person, other than permissible deductions such as FICA, Medicare, Federal Income Taxes, State Income Taxes, State Disability (SDI) Court Ordered Wage Attachments, 401K Plans.
- 3) That any payrolls otherwise under this contract required to be submitted for the project are correct and complete; that the wage rate for the workers are not less than the applicable wage rates contained in the Prevailing wage determination, as provided by the Division of Labor Standards and incorporated into the contract; that the classifications set forth therein for each worker conform with the work performed.

DATED THIS _____ day of _____, 20__

(Name of Contractor)

BY _____
(Typed or printed name)

(Signature)

TITLE: _____

FORM OF PERFORMANCE AND PAYMENT BOND

KNOW PERSONS BY THESE PRESENT, THAT we _____ as Principal, and _____ as Surety, are held and firmly bound unto LINCOLN UNIVERSITY, in the sum of _____ Dollars (\$ _____), for payment whereof the Principal and Surety bind themselves, their heirs, executors, administrators and successors, jointly and severally, firmly by these presents WHEREAS, The Principal has, by means of a written agreement dated the _____ day of _____, 20____, entered into a contract with LINCOLN UNIVERSITY for _____

(Insert Base Proposal)

NOW, THEREFORE, if the Principal shall faithfully perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said contract during the original term of said contract and any extension thereof that may be granted by Lincoln University, with or without notice to the Surety and during the life of any guaranty required under the contract; and shall also faithfully perform and fulfill all undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said contract that may hereafter be made with or without notice to the Surety; and shall also promptly make payment for material, lubricants, oil, gasoline, grain, hay, feed, coal and coke, repairs on machinery, groceries and food stuffs, equipment, and tools, consumer or used in connection with the work set forth in the contract referred to above, and all insurance premiums, both compensation and all other kinds of insurance, on said work, and for all other kinds of insurance, on said work, and for all labor performed on such work, whether by subcontractor or otherwise, at not less than the prevailing hourly rate of wages for work of a similar character (exclusive of maintenance work) in the locality in which the work is performed and not less than the prevailing hourly rate of wages for legal holiday and overtime work (exclusive of maintenance work) in the locality in which the work is performed both as determined by the Department of Labor and Industrial Relations or determined by the Court on appeal, as provided for in said contract and in any and all duly authorized modifications of said contract that may be hereafter made, with or without notice to the Surety, then this obligation shall be void and of no effect, but it is expressly understood that if the Principal should make default in or should fail to strictly, faithfully and efficiently do, perform and comply with any or more of the covenants, agreements, stipulations, conditions, requirements or undertakings, as specified in or by the terms of said contract, and with the time therein named, then this obligation shall be valid and binding upon each of the parties hereto and this bond shall remain in full force and effect; and the same may be sued on at the instance of any material man, laborer, mechanic, subcontractor, individual, or otherwise to whom such payment is due in the name of Lincoln University, to the use of any such person.

AND, IT IS FURTHER specifically provided that any modifications which may hereinafter be made in the terms of the contract or in the work to be done under it or the giving by the Owner of any extension of the time for the performance of the contract or any other forbearance on the part of either the Owner or the Principal to the other, shall not in any way release the Principal and the Surety, or either or any of them, their heirs, executors, administrators and successors, from their liability hereunder, notice to the Surety of any such extension, modifications or forbearance being here waived.

IN WITNESS WHEREOF, the above bounden parties have executed the within instrument this _____ day of _____, 20_____.

Form of Performance and Payment Bond

AS APPLICABLE:

A. An Individual _____
(Signature)

B. A Partnership _____
(Signature) Partner

(Signature) Partner

C. A Corporation _____
(Firm Name)

(Signature) President

D. Surety _____
(Surety)

(Attorney-in-Fact)

(Address of Attorney-in-Fact)

(A/C & Number)
(Telephone and Fax #, Attorney-in-Fact)

(Signature, Attorney-in-Fact)

NOTE: Surety shall attach Power of Attorney

AFFIDAVIT OF WORK AUTHORIZATION

STATE OF _____)

COUNTY OF _____)

On this _____ day of _____, 20_____, before me appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be a person whose name is subscribed to this affidavit, who being by me duly sworn, deposed as follows:

My name is _____, and I am of sound mind, capable of making this affidavit, and personally certify the facts herein stated, as required by Section 285.530, RS Mo, to enter into any contract agreement with the state to perform any job, task, employment, labor, personal services, or any other activity for which compensation is provided, expected, or due, including but not limited to all activities conducted by business entities:

I am the _____ of _____, and I am duly authorized, directed, and/or empowered to act officially and properly on behalf of this business entity.
title business name

I hereby affirm and warrant that the aforementioned business entity is enrolled in a federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, and the aforementioned business entity shall participate in said program with respect to all employees working in connection with the contracted services related to the work performed for Lincoln University. I have attached documentation to this affidavit to evidence enrollment/participation by the business entity in a federal work authorization program, as required by Section 285.530, RS Mo.

In addition, I hereby affirm and warrant that the aforementioned business entity does not and shall not knowingly employ, in connection to work under the within state contract agreement with Lincoln University an alien who does not have the legal right or authorization under federal law to work in the United States, as defined in 8 U.S.C. § 1324a(h)(3).

I am aware and recognize that, unless certain contract and affidavit conditions are satisfied pursuant to Section 285.530, RS Mo, the business entity may be held liable under Section 285.525 through 285.559, RS Mo, for subcontractors that knowingly employ or continue to employ any unauthorized alien to work within the state of Missouri.

I acknowledge that I am signing this affidavit as a free act and deed of the aforementioned business entity and not under duress.

Affidavit Signature

Subscribed and sworn to before me this _____ day of _____, 20 ____.

Notary Public

My commission expires:

INSTRUCTIONS TO BIDDERS

ARTICLE 1 - SPECIAL NOTICE TO BIDDERS

These specifications have bound hereto a complete set of bidding forms. These are for the bidder's convenience only and are not to be detached from the specifications or filled out or executed. One unbound proposal form will be furnished to each bidder and shall be executed and submitted in a sealed envelope.

ARTICLE 2 - CONTRACT DOCUMENTS

- A. Specifications and drawings are the property of the Owner. Electronic copies will be distributed by the owner as requested by the contractors bidding the job. All copies must be destroyed or deleted by those contractors not selected for the job once the bidding process has completed.
- B. Electronic copies of drawings and specifications are on file at the Office of Facilities and Planning, 309 Young Hall, 820 Chestnut Street, Lincoln University.

ARTICLE 3 - BIDDERS OBLIGATIONS

- A. Bidders must carefully examine the entire site of the work and shall make all necessary investigations to inform themselves thoroughly as to the facilities available as well as to all the difficulties involved in the completion of all work in accordance with the specifications and plans. Bidders are also required to examine all maps, plans and data mentioned in the specifications. No plea of ignorance of conditions that exist, or that may hereafter exist, or of conditions of difficulties that may be encountered in the execution of the work under this contract will be accepted as an excuse for any failure or omission on the part of the Contractor to fulfill in every detail all the requirements of the contract, nor accepted as a basis for any claims for extra compensation.
- B. Under no circumstances will a Contractor give plans and specifications to another Contractor. Any proposal received from a Contractor whose name does not appear on the list of bidders having made deposit for the plans and specifications will be subject to rejection.

ARTICLE 4 - INTERPRETATIONS

- A. No oral interpretations will be made to any bidder as to the meaning of the Plans and Specifications or the acceptability of alternate products, materials, form, or type of construction. Every request for interpretation shall be made in writing and submitted with all supporting documents not less than seven (7) calendar days before opening of bids. The request shall be sent directly to the Project Consultant. A copy of said request shall be mailed concurrently to the Director of Facilities and Planning, 309 Young Hall, Lincoln University, 820 Chestnut St., Jefferson City, Missouri 65101. Every interpretation made to a bidder will be sent as promptly as is practicable to all persons to whom Plans, and Specifications have been issued. All such addenda shall become part of the contract documents.

ARTICLE 5 - PROPOSALS AND BIDDING PROCEDURES

- A. All proposals shall be submitted without modification or reservation on the Proposal Form with each space properly filled. Proposals not on this form will be rejected. Modifications of the proposals after delivery to the Director of Facilities and Planning will not be accepted unless submitted on a new proposal form and delivered to the Director of Facilities and Planning in lieu of the original proposal prior to the time set For opening proposals
- B. All proposals shall be accompanied by a Bid Bond, executed by the bidder and a duly authorized surety company, Certified Check, Cashier's Check or Bank Draft made payable to Lincoln University, State of Missouri, in the amount as set forth in the official advertisement for bid. Failure of the Contractor to submit the full amount required shall be sufficient cause to reject bid. The bidder agrees that the proceeds of the check, draft or bond shall become the property of Lincoln University, if for any reason the bidder withdraws bid after closing or if on notification of award refuses or is unable to execute tendered contract, provide an acceptable Performance and Payment Bond, provide evidence of required insurance coverage, and provide required copies of affirmative action plans within fourteen (14) consecutive calendar days after such tender. It is further agreed that, if a contract is not awarded within thirty (60) days after the opening of bids, a bidder may file a written notice with the Director of Facilities and Planning for the withdrawal of bid.
- C. The check, draft or bond submitted by the successful bidder will be returned after the receipt of an acceptable Performance and Payment Bond and execution of formal contract. Checks, drafts or bonds of all other bidders will be returned within a reasonable time after it is determined that the bid represented by same will receive no further consideration by Lincoln University.

- D. All proposals shall be accompanied by a signed and notarized Affidavit of Work Authorization. As part of RsMo 285.525 and 285.530 require business Entities to enroll and participate in a federal work authorization program to be eligible to receive an award of any State contract more than five thousand dollars (\$5,000).

ARTICLE 6 - SIGNING OF THE PROPOSAL

- A. Proposals from a partnership shall be signed in the firm name by at least one partner, or in the firm name by Attorney-in-Fact. If signed by Attorney-in-Fact there shall be attached to the proposal a Power of Attorney evidencing authority to sign the proposal, dated and executed by all partners of the firm.
- B. Proposals from a corporation shall have the correct corporate name thereon and the signature of an authorized officer of the corporation manually written below the corporate name followed by the words "By _____". Title of office held by the person signing for the corporation shall appear below the signature of the officer.
- C. Proposals from an individual doing business under a firm name shall be signed in the name of the individual doing business under the proper firm's name.

ARTICLE 7 - RECEIVING BIDS

- A. Bids received prior to the time of opening will be securely kept, unopened. The office whose duty is to receive bids will decide when the specified time for opening bids has arrived, and no bid received thereafter will be considered. No responsibility will attach to any officer for the premature opening of a bid not properly submitted.
- B. Proposals are to be presented in sealed envelopes that shall be plainly marked with Project Title, Bid Date and Bid Time and delivered to the place specified in the Advertisement for Bids. Bidders shall be responsible for actual delivery of proposals during business hours, and it shall not be sufficient to show that a proposal was dispatched in time to be received before scheduled closing time for receipt of proposal.
- C. Bidders are cautioned to allow ample time for transmittal of bids by mail or otherwise. If bid is mailed, bidder should secure correct information relative to the probable time of arrival and distribution of mail at the place where bid is to be received and make-do allowance for possible delays.

- D. No Contractor shall stipulate in proposal any conditions not contained in the specifications or standard proposal form contained in the contract documents.
- E. Proposals will be received separately or in combination as shown in and required by the Form of Proposal. Proposals will be completed to include insertion of all amounts for alternate proposals, unit prices and cost accounting data, etc. Failure to complete all required information may be cause for rejection of bid.
- F. Bidder's attention is directed to the fact that no bid will be accepted or considered if delivered after the specified time for receiving bids.
- G. No telephonic or total telegraphic bids will be accepted or allowed.
- H. The completed forms shall be without interlineations, alteration, or erasure. Contractor may request additional copies of forms.
- I. The Owner reserves the right to waive informalities in proposals and reject any or all proposals.

ARTICLE 8 - MODIFICATION AND WITHDRAWAL OF BIDS

- A. Bidder may withdraw proposal at any time prior to scheduled closing time for receipt of proposals, but no bidder may withdraw proposal after the scheduled closing time for receipt of bids.
- B. Only telegrams, letters and other written requests for modifications or correction of previously submitted proposals, which are addressed in the same manner as proposals and are received by Owner prior to scheduled closing time for receipt of proposals, will be accepted and the proposal corrected in accordance with such written requests with the following provisions:
 - (a) Any such written request must be contained in a sealed envelope which is plainly marked "Modification of proposal on (project title and bid date)".
 - (b) Telegraphic modifications must be received prior to the bid opening time.
 - (c) Telegraphic modifications must be followed by a written notice from the bidder within forty-eight (48) hours after bid opening time confirming the contents of such telegraphic modification.

ARTICLE 9 - STATEMENT OF BIDDERS QUALIFICATIONS

- A. Each bidder must submit as part of bid proposal, a statement of bidder's qualifications which is a part of the proposal form. The Owner shall have the right to take such steps as it deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner such additional information and data for this purpose as the Owner may request. The right is reserved to reject any bid where an investigation or consideration of the information submitted by such bidder does not satisfy the Owner that the bidder is qualified to carry out properly the terms of the contract documents.

ARTICLE 10 - AWARD OF CONTRACT

- A. The Owner reserves the right to reject any and/or all bids and further to waive all informalities in bidding when deemed in the best interest of Lincoln University.
- B. The Owner reserves the right to let other contracts in connection with the work, including but not by way of limitation, contracts for the furnishing and installation of furniture, equipment, machines, appliances, and other apparatus.
- C. In awarding the contract the Owner may take into consideration the bidder's skill, facilities, capacity, experience, responsibility, previous work record and financial standing; and the necessity of prompt and efficient completion of work herein described. Inability of any bidder to meet the requirements mentioned above may be cause for rejection of proposal, however, no contract will be awarded to any individual, partnership or corporation, who has had a contract with the State of Missouri declared in default within the preceding twelve months.
- D. Award of Alternates, if any - the Owner reserves the right to award alternates in any order which results in the maximum amount of work being accepted within available construction funds.
- E. RSMo 285.525 and 285.530 require business entities to enroll and participate in a federal work authorization program to be eligible to receive an award of any state contract more than \$5,000. Bidders should submit with their bid an Affidavit of Work Authorization along with appropriate documentation evidencing such enrollment and participation. Affidavit of Work Authorization is in the bid packet. Submittal of this form and appropriate documentation is required before the award of any contract. In addition, the contractor shall be responsible for compliance with these requirements by all subcontractors and suppliers, at any tier associated with this contract.

ARTICLE 11 - FORM OF CONTRACT AND PERFORMANCE/PAYMENT BOND

- A. The forms of the contract and performance/payment bond to be executed are standard forms which are on file with the Office of the Director of Facilities and Planning. The contract and performance/payment bond shall be executed in ten (10) and five (5) original counterparts, respectively.
- B. The Owner will prepare and forward copies of the contract and performance/payment bonds to the bidders to whom the contracts for the work are awarded and such bidders shall return the properly executed prescribed copies of the contract, bond, evidence of required insurance and required copies of affirmative action plans to the Owner within fourteen (14) consecutive calendar days after their receipt.
- C. No proposal shall be considered binding upon the Owner until the written contract has been properly executed, a satisfactory bond has been furnished, evidence of required insurance coverage has been received and appropriate affirmative action plan submitted. Failure to execute and return the contract and associated documents within the prescribed period shall be treated, at the option of the Owner, as a breach of bidder's obligation and the Owner shall be under no further obligation to bidder.
- D. If the successful bidder is doing business in the State of Missouri under a fictitious name, bidder shall furnish to Owner, attached to the Proposal Form, a properly certified copy of the Certificate of Registration of Fictitious Name from the State of Missouri, and such certificate shall remain on file with the Owner. No contract will be awarded by the Owner until such certificate is furnished by the bidder.
- E. Any successful bidder which is a corporation organized in a state other than Missouri shall furnish to the Owner, attached to the Proposal Form, a properly certified copy of its current Certificate of Authority to do business in the State of Missouri, such certificate to remain on file with the Owner. No contract will be awarded by the Owner unless such a certificate is furnished by the bidder.
- F. Any successful bidder which is a corporation organized in the State of Missouri shall furnish, at its own cost, to the Owner, if requested, a Certificate of Good Standing issued by the Secretary of State, such certificate to remain on file with the Owner.

ARTICLE 12 - CONTRACT SECURITY

- A. The Contractor shall furnish a performance/payment bond in an amount at least equal to 100% of the contract price as security for the faithful performance of contract and for the payment of all persons performing labor on the project and furnishing materials in connection therewith under contract as set forth in the standard form of performance/payment bond. The Surety on such bond shall be a duly authorized surety company satisfactory to the Owner.
- B. The Contractor shall furnish at no cost to the Owner, if requested, a properly certified copy of the current Certificate of Authority to transact business in the State of Missouri of the surety company executing the required bond, such certificate to remain on file with the Owner.
- C. If at any time the Owner, for justifiable cause, shall be or become dissatisfied with any surety or sureties then upon the performance/payment bond, the Contractor shall within five (5) days after notice from the Owner substitute an acceptable bond signed by such other surety or sureties as may be satisfactory to the Owner. The premiums on such bond shall be paid by the Contractor. No further payments shall be due nor made until the new acceptable bond is furnished to the Owner.

ARTICLE 13 - TIME OF COMPLETION AND LIQUIDATED DAMAGES

- A. Bidders must agree to commence work on a date to be specified in a written "Notice To Proceed" from the Owner, and the entire work shall be completed within the time specified. Liquidated damages for the delay in completion of the work shall be as prescribed. (See Article 14 of General Conditions.)

ARTICLE 14 - NUMBER OF CONSTRUCTION DOCUMENTS

- A. The Owner will furnish the Contractor a copy of the executed contract.
- B. The Owner will furnish the Contractor free of charge the number of complete sets of plans and specifications for the work and all applicable subdivisions thereof, as set forth in the special conditions. Additional sets may be obtained from the Consultant at the cost of reproduction.
- C. The Owner will furnish the Contractor the number of copies of explanatory or change drawings required during construction as set forth in the special conditions

ARTICLE 15 - LIST OF SUBCONTRACTORS

- A. Each bidder must submit as part of bid proposal, a list of subcontractors to be used in performing the work. The list shall specify the single designated subcontractor's name and address for each category of work listed in the Proposal Form. If work within a category will be performed by more than one subcontractor, list the name and address of each subcontractor, and specify the exact portion of the work to be done. If acceptance/nonacceptance of alternates will affect the designation of a subcontractor, provide information for each affected category.
- B. Failure to include a complete subcontractor list shall be grounds for rejection on the bid proposal.

ARTICLE 16 – MINORITY BUSINESS ENTERPRISE/WOMEN BUSINESS ENTERPRISE
(MBE/WBE) PARTICIPATION

1. MBE/WBE Percentage Goal:

The bidder shall have as a goal subcontracting not less than ten percent (10%) MBE and five percent (5%) WBE and desired participation goals of fifteen percent (15%) MBE and ten percent (10%) WBE. The goals may be met using prime contractors, suppliers, joint ventures, or other arrangements that afford meaningful opportunities.

2. Computation of MBE/WBE Percent Goal Participation:

- a. The total dollar value of the work granted to the MBE/WBE by the successful bidder is counted towards the applicable goal of the entire contract.
- b. A bidder may count toward his/her MBE/WBE goal only expenditures to MBE/WBEs that perform a commercially useful function in the work of a contract. An MBE/WBE is considered to perform a commercially useful function when it is responsible for executing a distinct element of the work contract and carrying out its responsibilities by performing, managing, and supervising the work involved.
- c. A bidder may count toward its MBE/WBE goals expenditures for materials and supplies obtained from MBE/WBE suppliers and manufacturers, provided that the MBE/WBE assumes the actual and contractual responsibility for the provision of the materials and supplies.

- d. A bidder may count towards his/her MBE/WBE goals that portion of the total dollar value granted to a certified joint venture equal to the percentage of the ownership and control of the MBE/WBE partner in the joint venture.

3. Certification by bidder of MBE/WBE Subcontractors:

- a. The bidder shall submit with his/her bid proposal the information requested in the MBE/WBE Compliance Evaluation Form for every MBE/WBE subcontractor the bidder intends to use on the contract work.
- b. If the MBE/WBE subcontractor that the bidder proposes to use on the project is not certified, the bidder shall submit with his/her proposal the information requested in the MBE/WBE Eligibility Determination Form. The bidder may determine the status of certification by referring to the State of Missouri Minority Business Enterprise Directory. Additional information, clarifications, etc., regarding the listings in the Directory may be obtained by calling the Division of Design and Construction at (573) 751-3339. Also, if the proposed subcontractor is certified as an MBE/WBE firm by the federal government, any other state or government agencies or any State of Missouri city or county government agencies, the bidder shall so note and provide particulars.
- c. If the MBE/WBE subcontractor that the bidder intends to use is a joint venture, and one (1) or more co-ventures is not certified as an MBW/WBE, the bidder shall submit with his/her proposal the information requested in the MBE/WBE Eligibility Determination Form for Joint Ventures.
- d. Once an MBE/WBE is certified, the certification shall be effective for a period not to exceed five (5) years.

4. The following information is provided to assist bidders in obtaining certification of subcontractors as MBE/WBE(s).
- a. The owner shall use but shall not be limited to the following standards in determining whether a firm is owned and controlled by one (1) or more minority/woman and is therefore eligible to be certified as an MBE/WBE.
- Bona fide membership in a minority group shall be established based on the individual's claim that he or she is a member of such a minority community. However, the owner is not required to accept this claim if he/she determines the claim to be invalid.
 - An eligible MBE/WBE under these regulations shall be an independent business. The ownership and control by the minority/woman shall be real, substantial, and continuing and shall go beyond the pro forma ownership of the firm as reflected in its ownership documents. The minority/woman shall enjoy the customary incidents of ownership and shall share in the risks and profits commensurate with ownership interests, as demonstrated by examination of the substance rather than form of the arrangement. Recognition of the business as a separate entity for tax or corporate purposes is not necessarily sufficient for recognition as an MBE/WBE. In determining whether a potential MBE/WBE is an independent business, the owner shall consider all relevant factors, including the date the business was established, the adequacy of its resources for the work of the construction contract, and the degree to which financial, equipment leasing, and other relationships with non-minority firms vary from industry practices.
 - The MBE/WBE owners shall also possess the power to direct or cause the direction of the management and policies of the firm and to make the day-to-day as well as major decisions on matters of management, policy, and operation. The firm shall not be subject to any formal or informal restrictions for cumulative voting rights or otherwise that prevent the minority/woman owner(s) from making a business decision of the firm without the cooperation or vote of any owner who is not a minority/woman.
 - If the owners of the firm who are not minorities/women are disproportionately responsible for the operation of the firm, then the firm is not controlled by minorities/women and shall not be considered. MBE/WBE within the meaning of these regulations. Where the actual management of the firm is contracted to individuals other than the owner, those persons who have the ultimate power to hire and fire the managers can, for the purposes of these regulations be considered as controlling the business.

5. All securities which constitute ownership and/or control of a corporation for purposes of establishing it as an MBE/WBE under these regulations shall be held directly by minorities/women. No securities held in trust, or by any guardian or a minor, shall be considered as held by minority/women in determining the ownership or control of a corporation.
6. The contributors of capital or expertise by the minorities/women to acquire their interests in the firm shall be real and substantial. Examples of insufficient contributions include a promise to contribute capital, a note payable to the firm or its owners who are not minorities/women, or the mere participation as an employee rather than as a manager.
7. In addition to the standards set out in this section, the owner shall give special consideration to the following circumstances in determining eligibility.
 - b. A joint venture is eligible under these regulations if the minority/women partner of the joint venture meets the standards for eligible minorities/women set forth above the minority/woman partner is responsible for a clearly defined portion of the work to be performed and shares in the ownership, control, management responsibilities, risks, and profits of the joint venture.
 - c. Once certified, an MBE/WBE shall update its submission annually. Anytime there is a change in ownership or control of the firm, the MBE/WBE shall update the previously filed information requested in the MBE/WBE Eligibility Determination Form.
 - d. Failure of a certified MBE/WBE to update or submit this information shall disqualify the firm or individual from further participation as an MBE/WBE until such time that the information is filed by the firm or individual and approved by the owner.
 - e. If an appeal has been made and the owner had denied certification, that decision shall be final for that contract and other contracts being let by the owner at the time of the denial of certification. MBE/WBE and joint venture denied certification may correct deficiencies in their ownership and control and apply for certification only for future contracts.

8. Waiver of MBE/WBE Participation:

- a. The bidder is required to make a good faith effort to locate and contract with MBE/WBEs. If a bidder has made a good faith effort to secure the required MBE/WBEs and has failed, he/she may submit with his/her bid proposal the information requested in Application for MBE/WBE Participation Waiver. The owner will review the bidder's actions as set forth in the bidder's Application for Waiver, and any other factors deemed relevant by the owner, to determine if a good faith effort has been made to meet the applicable percentage goal. If the bidder is judged not to have made a good faith effort, the bid shall be rejected.
Bidders who demonstrate that they have made a good faith effort to include MBE/WBE participation may be awarded the contract regardless of the percent of MBE/WBE participation provided the bid is otherwise acceptable.
- b. In reaching his/her determination of good faith. The owner may evaluate, but is not limited to, the following factors.
 - (1) Attendance at pre-bid meetings scheduled by the owner to inform bidders and MBE/WBEs of contracting and subcontracting opportunities and responsibilities associated with MBE/WBE participation.
 - (2) Attempts by the bidder to advertise in general circulation trade association and minority focus media concerning subcontracting opportunities.
 - (3) Attempts to provide written notice to specific MBE/WBEs that their services were being solicited, in sufficient time to allow for their effective participation.
 - (4) Follow-up attempts by the bidder to the initial solicitation(s) to determine with certainty whether MBE/WBEs were interested.
 - (5) The extent to which the bidder divided work into projects suitable for subcontracting to MBE/WBEs.
 - (6) Whether the bidder provided interested MBE/WBEs with sufficiently detailed information about the plans, specifications, and requirements about the contract.

- (7) Efforts by the bidder to negotiate in good faith with MBE/WBEs for specific sub-bids. Documentation should include names, addresses, and telephone numbers of firms contacted, a description of all information provided the MBE/WBEs, and an explanation as to why agreements were not reached.
- (8) Reasons for rejecting MBE/WBE's proposal.
- (9) The bidder's efforts to locate MBE/WBEs not on the directory list and assist MBE/WBEs in becoming certified as such.
- (10) The bidder's initiatives to encourage and develop MBE/WBEs.
- (11) The efforts of the bidder to help the MBE/WBE overcome any legal or other barriers impeding the participation of MBE/WB in the construction contract.
- (12) The availability of MBE/WBEs and the adequacy of the bidder's efforts to increase the participation of such businesses provided by the persons and organizations consulted by the bidder.

A. The owner reserves the right to provide bidders the opportunity to correct or amplify information concerning MBE/WBE goals. The additional information will be telephonically transmitted to the owner within 48 hours of a phone request from the owner. The telephonic requests will normally be made within 48 hours after bid opening. The telephonic information will be confirmed in writing. The written document must be postmarked no later than midnight of the second day following the telephonic request.

ARTICLE 17 –TAX EXEMPTION

- A. Lincoln University is a tax-exempt organization. Sales to contractors who purchase construction materials and supplies to fulfill their contract for exempt organizations are not subject to sales tax provided the exempt organizations furnish a copy of their current exemption letter and a project exemption certificate to the contractor authorizing the purchases for the project. The exempt organization may monitor all supplies purchased, used, and consumed in fulfilling the project.
- B. A project exemption certificate shall include, but may not be limited to, the following:
 - 1. The exempt entity's name, address, Missouri Tax Identification Number and signature or authorized representative of the exempt entity.
 - 2. The project location, description, and unique identification number.
 - 3. Date the contract is entered.
 - 4. The estimated project completion date; and
 - 5. The certificate expiration date.
- C. Contractor must provide a copy of the exempt organization's exemption letter and the project exemption certificate to suppliers when purchasing materials and supplies to be consumed in the project.
- D. Contractors are not exempt from sales tax on the purchase of machinery, equipment or tools used in fulfilling these contracts.
- E. Suppliers shall render to the contractor invoices bearing the name of the exempt organization and the project identification number. The purchasing contractor must retain these invoices for a period of five (5) years.
- F. Contractors must file a sales tax return for all excess resalable materials and supplies, which are not returned to the supplier. This return must be filed and paid no later than the due date of the contractor's sales tax return following the month in which the contractor determines that the materials were not used in the project.
- G. An exempt organization that fails to revise the project exemption certificate's expiration date as necessary to complete the work required by the contract will be liable for any sales tax due as determined by an audit of the contractor.

ARTICLE 18 –TOBACCO POLICY

- A. Lincoln University strives to present a healthy, safe, and clean campus environment for its students, employees, and visitors. For this reason, the use of any tobacco product, including but not limited to cigarettes, smokeless tobacco, and e-cigarettes is prohibited on campus. This policy applies to all buildings on and off the main campus whether owned or leased by Lincoln University, University vehicles, open-air spaces, and common areas.

LU GENERAL CONDITIONS

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GENERAL CONDITIONS

- A. These General Conditions apply to each section of these specifications and must be carefully read by each contractor, as all contractors are subject to the provisions contained herein.
- B. The General Conditions are intended to define the relationship of the Owner Consultant and all contractors thereby establishing certain rules and provisions governing the operation and performance of the work so that the work may be continued and completed in a safe, orderly, expeditious and workmanlike manner.

ARTICLE 1 - DEFINITIONS

- A. As used in these contract documents, the following terms shall have the meanings and refer to the parties designated in these definitions.
 - (a) "OWNER": Lincoln University. Owner may act through any duly authorized committee or representative thereof. Communications to Owner shall be forwarded via Director of Facilities and Planning, Lincoln University, Room 309 Young Hall, 820 Chestnut Street, Jefferson City, Missouri 65101.
 - (b) "CONSULTANT": When the term "Consultant" is used herein, it shall refer to the Architect or Engineer specified and defined in Paragraph 1 of the Special Conditions, or a duly authorized representative.
 - (c) "UNIVERSITY REPRESENTATIVE": University Representative is the Director of Facilities Planning of Lincoln University; or such person authorized to act for the Director, shall be the authorized representative of the Owner.
 - (d) "CONTRACTOR": Party or parties who have entered into a contract with the Owner to furnish work under these specifications and drawings.
 - (e) "SUBCONTRACTOR": Party or parties who contract under, or for the performance of part or all of, the Contract between the Owner and Contractor. The subcontract may or may not be direct with the Contractor.
 - (f) "WRITTEN NOTICE": Any notice to the Contractor from the Owner relative to any part of this contract shall be in writing and considered delivered and service thereof complete when said notice is posted by registered or certified mail to said Contractor at Contractor's last given address, or delivered in person to said Contractor or authorized representative on the work.

- (g) "WORK": Labor, material, supplies, plant and equipment required to perform and complete the service agreed to by the Contractor in safe, expeditious, orderly and workmanlike manner so that the project shall be complete and finished in the best manner known to each respective trade.
- (h) "CONTRACT DOCUMENTS": The "Contract Documents" shall consist of the executed contract, the Special Conditions, the General Conditions, the Advertisement for Bids, the Instructions to Bidders, the Proposal, the Prevailing Wage Determination, the Specifications and Drawings, including all modifications as set forth in Addenda or Change Orders to any of the above, the required Certificates of Insurance and Performance/Payment Bond and Notice to Proceed.
- i. JOINT VENTURE": An association of two (2) or more businesses to carry out a single business enterprise for profit for which purpose they combine their property, capital, efforts, skills and knowledge.
- (j) "KANSAS METROPOLITAN AREA" The City of Kansas City and the Missouri counties of Ray, Platte, Jackson, Cass and Clay.
- (k) "MBE": Minority Business Enterprise.
- (l) "MINORITY":
1. "Black Americans," which includes persons having origins in any of the black racial groups of Africa;
 2. "Hispanic Americans", which includes persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin regardless of race;
 3. "Native Americans," which includes person who are American Indians, Eskimos,Aleuts, or Native Hawaiians;
 4. "Asian-Pacific Americans, "which includes persons whose origins are from Japan, China, Taiwan, Korea, Vietnam, Laos, Cambodia, the Philippines, Samoa, Guam, the US Trust Territories of the Pacific, or the Northern Marianas; or
 5. "Asian-Indian Americans," which includes persons whose origins are from India, Pakistan or Bangladesh.

- (m) "MINORITY BUSINESS ENTERPRISE": A business concern which is at least fifty-one percent (51%) owned by one (1) or more minority as defined in (l) above or in the case of any publicly-defined in (l) above and whose management and daily business operations are controlled by one (1) or more minority as defined herein.
- (n) "ST. LOUIS METROPOLITAN AREA": The City of St. Louis and the Missouri counties of Franklin, St. Charles, St. Louis and Jefferson.
- (o) "WBE": Women Business Enterprise.
- (p) "WOMEN BUSINESS ENTERPRISE": A business concern which is at least fifty-one percent (51%) owned by one (1) or more women in the case of any publicly-owned fifty-one percent (51%) of the stock of which is owned by one (1) or more women AND whose management and daily business operations are controlled by one (1) or more women.
- (q) "SUBSTANTIALLY COMPLETE:" Substantial Completion is the stage in the progress of the work when the work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the work for its intended use.

ARTICLE 2 - DRAWINGS AND SPECIFICATIONS

- A. Drawings are intended to show general arrangements, design and extent of work and are partly diagrammatic. As such, they are not intended to be scaled for roughing-in measurements or to serve as shop drawings.
- B. Specifications are separated into titled divisions for convenience of reference only and to facilitate letting of contracts and subcontracts. Such separations shall not, however, operate to make the Consultant or Owner an arbiter to establish limits of subcontracts or to establish jurisdiction.
- C. Figured dimensions take precedence over scaled measurements and details over smaller scale general drawings.
- D. In case of discrepancy between drawings and specifications, specifications shall govern. Should discrepancies in architectural drawings, structural drawings and mechanical drawings occur, architectural drawings shall govern and, in case of conflict between structural and mechanical drawings, structural drawings shall govern.

- E. Anything shown on drawings and not mentioned in these specifications or vice versa, as well as any work which is obviously necessary to complete the project within the limits established by the drawings and specifications, although not shown on or described therein, shall be performed by the Contractor as a part of the contract.
- F. Data concerning lot size, ground elevations, present obstructions on or near the site, locations and depth of sewers, conduits, pipes, wires, etc., position of sidewalks, curbs, pavements, etc., and nature of ground and subsurface conditions have been obtained from sources the Consultant and/or Owner believe reliable, although accuracy of such data is not guaranteed.
- G. Upon encountering conditions differing materially from those indicated in the contract documents, the Contractor shall promptly notify the Consultant and University Representative before such conditions are disturbed. The Consultant shall promptly investigate said conditions and report to the University Representative, with recommendations. If conditions do materially differ and cause increase or decrease in contract cost or time required for completion of any portion of the work, a Change Order will be initiated as outlined in Article 26 of these General Conditions.
- H. Only work included in the contract documents is authorized, and the Contractor shall do no work other than that described therein or in accordance with appropriately authorized and approved Change Orders.

ARTICLE 3 - RIGHTS AND RESPONSIBILITIES OF CONSULTANT AND DIRECTOR

- A. The Consultant shall give all orders and directions contemplated under the contract relative to the execution of the work. The Consultant shall determine the amount, quality, acceptability and fitness of kind of work and materials which are to be paid for under this contract. In the event any question shall arise between the parties hereto, relative to the contract of specifications, determination or decision of the Consultant shall be a condition precedent to the right of the Contractor to receive any money or payment for work under the contract affected in any manner or to any extent by such question.
- B. The Owner may file a written notice to the Contractor to dismiss forthwith any subcontractors, superintendents, foremen, workmen, watchmen or other employees whom the Owner may deem incompetent, careless or a hindrance to proper or timely execution of the work, and Contractor shall comply with such notice as promptly as practicable without detriment to the work or its progress.

- C. If Contractors refuse to cooperate with the instructions and reasonable requests of other contractors in the overall coordinating of the work, the Owner's Representative may take such appropriate action and issue such instructions as in Owner's judgment may be required to avoid unnecessary and unwarranted delay.
- D. If in the judgment of the Owner's Representative it becomes necessary at any time to accelerate work, the Contractor, when ordered by the Owner's Representative in writing, shall cease work at any point and transfer employees to such point or points and execute such portions of work as may be required to enable others to hasten and properly engage and carry out their work, all as directed by the Owner.

ARTICLE 4 - INSPECTION OF THE WORK

- A. The Consultant, the Owner and any representative of either shall at all times have access to the work whenever it is in preparation or progress, and the Contractors shall provide proper facilities for such access and for inspection and supervision.
- B. During progress of work the Owner will be represented at the project by the Consultant, whose duty it will be to see that the contract is properly fulfilled.
- C. The Consultant's inspection is for the purpose of assuring the Owner that the drawings and specifications are being properly executed. Although Consultant is instructed to confer with Contractor regarding interpretation of plans and specifications, such assistance shall not relieve Contractor of any responsibility for the work.
- D. The fact that the Consultant or Owner has failed to observe faulty work, or work done which is not in accordance with the drawings and specifications, shall not relieve the Contractor from responsibility for correcting such work without additional compensation.
- E. If any work is covered up without approval or consent of the Consultant, it must, if requested by the Owner, be uncovered by the Contractor. No compensation shall be allowed for this work. If such work is found to be defective in any respect, due to fault of the Contractor, or subcontractors, the Contractor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the actual cost of labor and material necessarily involved in the examination and replacement plus 10% shall be allowed the Contractor. If the Contractor fails to proceed at once with the correction of rejected defective materials or workmanship, the Owner may by contract or otherwise have the defects remedied or rejected, materials removed from the site and charge the cost of the same against any monies which may be due the Contractor without prejudice to any other rights or remedies of the Owner on the premises.

ARTICLE 5 - COMPLIANCE WITH LAWS, PERMITS, REGULATIONS AND INSPECTIONS

- A. Although the Owner is Lincoln University, municipal or political subdivision ordinances, zoning ordinances, construction codes and other like ordinances are not applicable to construction on Owner's property, the Contractor will be required to submit plans and specifications to any municipal or political subdivision authority, obtain construction permits or any other licenses or permits from or submit to inspections by any municipality or political subdivision relating to the construction of this project. All permits or licenses required by municipality or political subdivision for operation on property not belonging to Owner shall be obtained by and paid for by Contractor. Each Contractor shall comply with all applicable laws, ordinances, rules and regulations as it is not the intent of the Owner to arbitrarily dismiss the authorities identified above.

ARTICLE 6 - NONDISCRIMINATION IN EMPLOYMENT

- A. The Contractor and subcontractors will not discriminate based on affected group status unless with respect to sex, age, or handicapped status such restrictions relate to the bona fide occupational qualification. Specifically, the Contractor and subcontractors shall not discriminate:
- (a) Against recipients of service on the basis of race, color, religion, national origin, sex, handicap or age.
 - (b) Against any employee or applicant for employment on the basis of race, color, religion, national origin, sex or otherwise qualified handicapped status.
 - (c) Against any applicant for employment or employee on the basis of age, where such Applicant or employee is between ages 40 and 70 and where such contractor employs at least 20 persons.
 - (d) Against any applicant for employment or employee on the basis of that person's status as
a disabled or Vietnam-era veteran.

The Contractor and subcontractors will take affirmative action to insure applicants are employed and employees are treated during employment without regard to the above considerations. Such action shall include, but not be limited to, the following: employment, upgrading, demotion and transfer; recruitment or recruitment advertising; and selection for training, including apprenticeship. The Contractor and Subcontractors will give written notice of their commitments under this clause to any labor union with which they have bargaining or other agreements.

B. The Contractor and subcontractors shall develop, implement, maintain and submit in writing to the Director an affirmative action program if at least fifty (50) persons in the aggregate are to be employed under this contract.

If less than fifty (50) persons in the aggregate are to be employed under this contract, the Contractor shall submit, in lieu of the written affirmative program, a properly executed Affidavit for Affirmative Action in the form as included in the contract specifications. For the purpose of this section, an "affirmative action program" means positive action to influence all employment practices (including, but not limited to, recruiting, hiring, promoting and training) in providing equal employment opportunity regardless of race, color, sex, national origin, religion, age (where the person affected is between 40 and 70), disabled and Vietnam-era veteran status, and handicapped otherwise qualified status. Such "affirmative action program" shall include:

- (a) A written policy statement committing the total organization to affirmative action and assigning management responsibilities and procedures for evaluation and dissemination;
- (b) The identification of a person designated to handle affirmative action;
- (c) The establishment of non-discriminatory selection standards, objective measure to analyze recruitment, an upward mobility system, a wage and salary structure, and standards applicable to lay-off, recall, discharge, demotion and discipline;
- (d) The exclusion of discrimination from all collective bargaining agreements, and
- (e) Performance of an internal audit of the reporting system to monitor execution and to provide for future planning.

In the enforcement of this non-discrimination clause, the Owner may use any reasonable procedures available, including, but not limited to: requests, reports, site visits and inspection of relevant documents of contractors and subcontractors.

C. In the event of the Contractor's or a subcontractor's noncompliance with any provisions of this Article of the Contract, the Owner may cancel this contract in whole or in part or require the Contractor to terminate contract with the subcontractor.

- D. The Contractor and subcontractors shall provide the Owner accurate information for a quarterly report of the number and percentage of minority workpeople, classified by trade, and a list of all minority subcontractors involved on this construction project. The Contractor shall be responsible for obtaining and reporting this information with respect to the Contractor's firm and for all subcontractors. The report shall be submitted in the manner and on the form prescribed by the Owner. The report shall include:
- (a) The total number of minority workpeople on the construction project, classified by trade, on the last regular working day of the month of February, May, August or November, as applicable.
 - (b) The percentage of minority workpeople classified by trade as reported in (a).
 - (c) A list of all minority subcontractors including the trade classification and mailing address of each firm working on the project.
 - (d) An estimate of the dollar-value of work completed by each minority subcontractor during the quarterly reporting period and as a cumulative total through the reporting period.

The report shall be submitted with the corresponding March, June, September or December application for payment throughout the project until completed.

ARTICLE 7 - ANTI-KICKBACK

- A. No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept or approve, or to take part in negotiating, making, accepting, or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the project, shall become directly or indirectly interested personally in this contract or in any part hereof. No officer, employee, architect, attorney, engineer or inspector of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the project shall become directly or indirectly interested personally in this contract, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the project.

ARTICLE 8 - PATENTS AND ROYALTIES

- A. The Contractor shall hold and save the Owner and its officers, agents, servants and employees harmless from liability of any nature of kind, including cost and expense, for, or on account of, any patented or unpatented invention, process, article or appliance manufactured or used in the performance of the contract, including its use by the Owner, unless otherwise specifically stipulated in the contract documents.
- B. If the Contractor uses any design, device or materials covered by letters, patent or copyright, the Contractor shall provide for such use by suitable agreement with the Owner of such patented or copyrighted design, device or material. It is mutually agreed and understood, without exception, that the contract prices shall include all royalties or costs in any way involved in the work. The Contractor and/or the Contractor's sureties shall indemnify and save harmless the Owner of the project from any and all claims for infringement by reason of the use of such patented or copyrighted design, device or materials or any trademark or copyright in connection with work agreed to be performed under this contract and shall indemnify the Owner for any cost, expense or damage it may be obliged to pay by reason of such infringement at any time during the prosecution of the work or after completion of the work.

ARTICLE 9 - STATUTORY PREFERENCE

- A. By virtue of statutory authority a preference will be given to Missouri labor and to products of mines, forests and quarries of the State of Missouri when they are found in marketable quantities in the State, and all such materials shall be of the best quality and suitable character that can be obtained at reasonable market prices, all as provided for in Section 8.280, Missouri Revised Statutes 1978 and Cumulative Supplements.

ARTICLE 10 – COMMUNICATIONS

- A. All notices, requests, instructions, approvals and claims must be in writing. All papers required to be delivered to the Owner shall, unless otherwise specified by the Owner in writing to the contrary, be delivered to the Director of Facilities and Planning, Lincoln University, Room 309 Young Hall, 820 Chestnut Street, Jefferson City, Missouri 65101. Any such notice shall be deemed to have been given as of the time of actual receipt.

ARTICLE 11 - DUTIES OF CONTRACTOR

- A. The Contractor shall supply sufficient labor, material, plant and equipment and pay when due any laborer, subcontractor or supplier for supplies furnished and otherwise prosecute the work with diligence to prevent work stoppage and insure completion thereof within the time specified. The Contractor shall pay not less than the prevailing hourly rate of wages for work of a similar character in the locality in which the work is performed, as determined by the Department of Labor and Industrial Relations of the State of Missouri and as set out in the contract specifications.
- B. The Contractor and each subcontractor shall submit to the Owner, through the Consultant, such schedules of quantities and costs, progress schedules, payrolls, reports, estimated records and other data as the Owner may request concerning work performed or to be performed under the contract.
- C. The Contractor shall give access to, upon written request from the Owner, all time cards, material invoices, payrolls, profit and loss statements, and all other direct or indirect costs related to this work.
- D. Each Contractor shall be responsible for laying out own work and for any damage which may occur to work of any other contractor because of errors or inaccuracies, as well as be responsible for unloading, uncrating and handling of all materials and equipment to be erected or placed by Contractor, whether furnished by Contractor or others. Layout of mechanical and electrical work shall be coordinated with layouts of Contractor for general construction work. Unless otherwise directed by Consultant, salvage materials, waste and scrap resulting from such work shall be promptly removed from the site by the responsible Contractor.
- E. Contractors shall limit operations and storage of materials to the area within the project, except as necessary to connect to existing utilities, and shall not encroach on neighboring property.
- F. Contractors shall prearrange time with the University Representative in case it becomes necessary for the interruption of any service to make connections, alterations or relocations and shall fully cooperate with Owner in doing work so as to cause the least annoyance and interference with the continuous operation of the institution. Unless otherwise specified in these documents, all connections, alterations or relocations will be performed during normal working hours.

- G. Each Contractor shall coordinate all work so there shall be no prolonged interruption of existing equipment. All existing plumbing, heating, ventilation, air conditioning or electrical disconnections necessary which affect portions of this construction or building or any other building must be scheduled with the University Representative to avoid any disruption of operation within the building or construction or other building or utilities. In no case, unless previously approved in writing by the University Representative, shall utilities be left disconnected at the end of a work day or over a weekend. Any interruption of utilities whether intentionally or accidentally, shall not relieve the Contractor responsible for the interruption from repairing and restoring the utility to normal service. Repairs and restoration shall be made before the workers responsible for the repair and restoration leave the job.
- H. Each Contractor shall be responsible for repair of damage to property on or off the project occurring during construction of project, and all such repairs shall be made to the satisfaction of the Owner.
- I. Contractors shall not overload, or permit others to overload, any part of any structure during building operations.
- J. Each Contractor shall be responsible for shoring required to protect work or adjacent property and improvements of Owner and shall be responsible for shoring or for giving any required notice to adjacent property owners and shall pay for any damage caused by failure to shore or by improper shoring or by failure to give proper notice. Shoring shall be removed only after completion of permanent supports.
- K. During the performance of work the Contractor shall be responsible for providing and maintaining warning signs, lights, signal devices, barricades, guard rails, fences and other devices appropriately located on site which will give proper and understandable warning to all persons of danger of entry onto land, structure or equipment. Such warning and protective devices shall be removed only when approved by the Consultant.
- L. The Contractor shall be responsible for protection, including weather protection, and proper maintenance of all equipment and materials installed or to be installed by Contractor.
- M. The Contractor shall be responsible for care of finished work and must protect and defaced work shall be repaired or replaced to Owner's satisfaction at the expense of Contractor.

- N. The Contractor shall designate a responsible member of the organization available at the job site whose duty shall be the prevention of accidents.
- O. The Contractor may always employ a person or persons for watch duty service outside of regular working hours, and at such times during working hours when work is not in progress at the building, from the time the excavation work is started until the entire work is complete. This watch duty service will in no way relieve the Contractor of responsibility for replacing or making good any theft or damage.
- P. Before commencing work, Contractors shall confer with the Owner's Representative to ascertain full knowledge of all rules and regulations affecting working conditions. Rules and regulations in force at the institution shall take precedence over rules and regulations that exist outside the institution's jurisdiction. If the Contractor observes that the drawings and specifications are at variance therewith, the Contractor shall promptly notify the Consultant in writing, and any necessary changes shall be adjusted as provided in the contract for changes in the work. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations and without such notice, the Contractor shall bear all costs arising therefrom and saving the Owner "harmless".
- Q. No project signs shall be erected without the written approval of the Owner, unless said sign complies with a specific requirement of these specifications, in which case approval of the University Representative must be obtained prior to erection.
- R. Contractor shall verify all measurements. No extra charges or compensation will be allowed as a result of failure to verify dimensions before ordering materials or fabricating items.
- S. The Contractor shall provide at the proper time such material as is required for support of work. If openings or chases are required, whether shown on drawings or not, the Contractor shall see that they are properly constructed by the Contractor or subcontractor whose duty it is to construct the same.
- T. All rubbish, debris, and dirt resulting from the Contractor's work shall be cleaned up as required, and removed from the building. The premises shall at all times be kept in a clean, safe and professional manner.
- U. The Contractor shall, prior to requesting final inspection, remove manufacturer's advertising labels from windows, fixtures, equipment and shall leave work "broom-clean" or its equivalent, unless more exactly specified in the contract documents. Prior to receiving final payment, the Contractor shall remove all rubbish, tools, scaffold, etc., from the site.

- V. If any work is required to be specially tested or approved, Contractor shall give the Consultant timely notice of date for such inspection.

ARTICLE 12 - BOND

- A. Contractor shall furnish a performance/payment bond in an amount at least equal to 100% of the contract price as security for the faithful performance of the contract and for the payment of all persons performing labor on the project and furnishing materials in connection therewith under this contract as set forth in the standard form of performance/payment bond included in the contract documents. The Surety on such bond shall be a duly authorized Surety Company satisfactory to the Owner.

ARTICLE 13 - COMMENCEMENT AND COMPLETION OF WORK

- A. Before a "Notice to Proceed" with the work will be issued the Contractor must submit the following properly executed instruments to the Owner:
- (a) Contract;
 - (b) Performance/payment bond as described in Article 12;
 - (c) Certificates of Insurance, or the actual policies themselves, showing that the Contractor has obtained the insurance coverage required by Article 21. If provided, the certificates of insurance shall comply with the requirements of Article 21 (D) and;
 - (d) Written Affirmative Action Plans as required in Article 6.

These items must be received by the Owner within fourteen (14) consecutive calendar days after the Contractor receives the letter directing him to submit them. If not, the Owner may treat the failure to timely submit them as a refusal by the Contractor to accept a contract for this work and may retain as liquidated damages the Contractor's bid bond, cashier's check or certified check as provided in the Instructions to Bidders.

- B. Within ten (10) days following receipt of the "Notice to Proceed", the Contractor shall submit to the Consultant for approval the following:
- (a) A progress and payment schedule as described in Article 15; and
 - (b) A complete breakdown of the Contractor's proposal as described in Article 27

No payments to the Contractor will be made until the Contractor has submitted these items and they have been approved by the Consultant and the Owner; provided, however, that should the Contractor not receive written notification from either the Consultant or the Owner of the disapproval of any of these items within twenty-one (21) calendar days of their receipt by the Consultant, the Contractor may consider them approved and may proceed accordingly.

- C. Contractor shall commence work upon a date to be specified by the Owner in the "Notice to Proceed". Contractor shall prosecute the work with faithfulness and energy, and shall complete the entire work on or before the completion time stated in the contract documents, or pay to the Owner the damages resulting from the failure to timely complete the work as set out in Article 14.
- D. Extension of time stipulated in the Contract for completion of the work will be made when changes in the work occur, as provided in Article 26, when the work is suspended as provided in Article 13 (F); or when the work of the Contractor is delayed on account of conditions which could not have been foreseen, or which were beyond the control of the Contractor, subcontractors or suppliers, and which were not the result of their fault or negligence. Extension of time for completion shall also be allowed for any delays in the progress of the work caused by any act (except as provided elsewhere in these General Conditions) or neglect of the Owner or the Owner's employees or by other Contractors employed by the Owner, or for any delay in the furnishing of drawings and necessary information by the Consultant, or delay in return of shop drawings, or for any other cause which in the opinion of the Owner entitles the Contractor to an extension of time, including but not restricted to fires, floods, unusually severe weather or labor strike.
- E. The Contractor shall notify the Consultant and University Representative promptly of any occurrence or conditions which in the Contractor's opinion entitle him/her to an extension of time. Such notice shall be in writing and shall include all necessary supporting materials and be submitted in ample time to permit full investigation and evaluation of the

Contractor's claim. The Consultant shall promptly acknowledge the Contractor's notice, and with the University Representative, shall provide information and recommendation to the Owner for decision. Failure on the part of the Contractor to provide such notice shall constitute a waiver by the Contractor of any claim.

- F. When conditions at the site of the proposed work are considered by the Owner to be unsatisfactory for prosecution of the work, Contractor may be ordered in writing to suspend the work or any part thereof until reasonable conditions exist. When such suspension is not due to fault or negligence of the Contractor, time allowed for completion of such suspended work will be extended by a period of time equal to that lost due to delay occasioned by ordered suspension.

ARTICLE 14 - LIQUIDATED DAMAGES/SUBSTANTIAL COMPLETION

- A. It is agreed that the Owner may deduct from the contract price and retain as liquidated damages, and not as penalty or forfeiture, the sum stipulated in the contract for each calendar day, Sunday and holidays excepted, after date specified for completion of the project that the entire work is not substantially complete.
- B. The term "substantially complete" as used herein shall be construed to mean the completion of the entire work in strict accord with all requirements of the drawings and specifications except minor items which in the opinion of the Owner will not interfere with complete and satisfactory use of the facilities. However, this does not relieve the Contractor of the requirements concerning final completion and of Article 33 - General Guarantee.
- C. Only certification by the Owner as to substantial completion of the work within the time specified shall be conclusive and binding on the Owner and Contractor for the purpose of determining whether or not liquidated damages shall be assessed under the terms hereof and the sum total amount due.
- D. Liquidated damages or any matter related thereto shall not relieve the Contractor or the Contractor's surety of any responsibility or obligation under this contract.
- E. If the work embraced by the terms of this contract is not substantially completed on or before the time specified in this contract because of any act or omission of the Contractor, then, without prejudice to any other rights, claims or remedies the Owner may have the architectural, engineering and inspection costs and expenses incurred by the Consultant upon the work, from the originally agreed upon completion date to the substantial completion date of all work, shall be borne by the Contractor and may be deducted by the Owner from any amount owing and due the Contractor.

ARTICLE 15 - PROGRESS AND SCHEDULING

- A. Each Contractor shall submit for the Consultant's approval, in reproducible form, a progress schedule showing rate of progress the Contractor agrees to maintain and order in which the Contractor proposes to carry on various phases of work. Schedule shall show percentage of work completed at any time, anticipated monthly payments by Owner, as well as significant dates (such as completion of excavation, concrete foundation work, underground lines, superstructure, roughing-in, enclosure, hanging of fixtures, etc.) which shall serve as check points to determine compliance with approved schedule. Progress schedule of the Contractor shall be submitted to subcontractors to permit coordinating their progress schedules to the general construction work.
- B. Values employed in preparation of any schedules will be used only for determining the basis for partial payments and will not be considered as a basis for additions to or deductions from the contract price.
- C. There will be no payments of any periodic estimates until the progress schedule has been approved by the Consultant, and subsequent payments of periodic estimates will be suspended if the project schedule has not been adequately updated to reflect actual conditions.
- D. Contractor shall employ and supply a sufficient force of workers, material, and equipment and shall pay when due, any workers, subcontractor or supplier and otherwise prosecute the work with such diligence so as to maintain the rate of progress indicated on the progress schedule, prevent work stoppage, and insure completion of the project within the time specified.

ARTICLE 16 - SUBSTITUTIONS AND/OR APPROVED EQUAL

- A. Whenever in any of the contract documents any article, appliance, device or material is designated by the name of the manufacturer or vendor or by any proprietary or trade name and such name is followed by the words "or approved equal", "or as approved" or preceded by the words "similar and equal to", the standard products of manufacturers other than those specified will be accepted when, prior to the order or use thereof, it is proven to the satisfaction of the Consultant and Owner that they are equal in design, strength, durability, usefulness and convenience for the purpose intended.

- B. The Contractor may request use of any article, device, product, material, fixture, form or type of construction which in the judgment of the Consultant is equal in all respects to that named. Any changes required in the details and dimensions indicated on the drawings for the substitution of products other than those called for shall be properly made as approved by the Consultant at the expense of the Contractor requesting the substitution or change.
- C. In the event the Contractor desires to substitute any article, device, product, material, fixture, form or type of construction for that specified, the Contractor shall submit a request for such substitution in writing to the Consultant within thirty (30) days after the date of the "Notice to Proceed". A copy of said request shall be sent concurrently to the Owner, Lincoln University, Jefferson City, Missouri. Thereafter no consideration will be given to alternate forms of accomplishing the work. This article does not preclude the Owner exercising the provisions of Article 26 hereof.

ARTICLE 17 - SUPERINTENDENCE

- A. The Contractor shall keep at the work site during its progress, a competent superintendent satisfactory to the Owner. The Superintendent shall represent the Contractor in the Contractor's absence and all directions given to the Superintendent shall be as binding as if given to the Contractor. The Superintendent shall carefully study and compare all drawings, specifications and other instructions and shall, at once, report to the Consultant any error, inconsistency or omission which may be discovered. The Superintendent shall not be changed except with the consent of the Owner.

ARTICLE 18 - SHOP DRAWINGS

- A. The Contractor shall submit, with such promptness as to cause no delay in work or in that of any other contractors, all shop and setting drawings. Such drawings shall be submitted to the Consultant in four (4) copies for the Owner's use and additional copies as required for the Contractors, subcontractors, material suppliers, and to meet the requirements for maintenance manuals, etc., as described in Article 32.
- B. Each drawing and/or series of drawings submitted must be accompanied by a letter of transmittal giving a list of the titles and numbers of the drawings. Each series shall be numbered consecutively for ready reference and each drawing shall be marked with the following information:
 - (a) Date of Submission
 - (b) Name of Project
 - (c) Location

(d) Branch of Work

(e) Project Number

(f) Name of Submitting Contractor

(g) Name of Subcontractor

- C. All subcontractor's shop drawings and schedules shall be submitted by the Contractor and shall bear the stamp of approval by the Contractor as evidence that the Contractor has checked them. Any shop drawings and schedules submitted without this stamp, or without having been checked, will be returned to the Contractor for resubmission and the drawings and schedules will be considered as never having been submitted.
- D. The Contractor shall include with the shop drawings, a letter indicating all deviations from the drawings and/or specifications. Failure to so notify of such deviations will be grounds for subsequent rejection of the related work or materials. If, in the opinion of the Consultant, the deviations are not acceptable, the Contractor will be required to furnish the item as specified and indicated on the drawings.
- E. It is the Contractor's obligation and responsibility to check all shop drawings and schedules and to be fully responsible for them and for their coordination with connecting work. Shop drawings and schedules shall indicate in detail all parts of an item of work, including erection and setting instructions and engagements with the work of other trades.
- F. The Consultant shall check shop drawings and schedules with reasonable promptness and approve them only in conformance with the design concept of the project and compliance with the information given in the contract documents. The approval shall not relieve the Contractor from the responsibility for deviations from the drawings and specifications, unless the Contractor has called the Consultant's attention to same, in writing, at the time of submission. An approval of any such modification will be given only if it is in the interest of the Owner, to affect an improvement in the work, does not increase the contract sum and/or completion time, is subject generally to all contract stipulations and covenants, and is without prejudice to any and all rights under the surety bond.

- G. No extension of time will be granted the Contractor because of failure to submit shop drawings and schedules in ample time to allow for review, possible resubmittals and approval. Fabrication of work shall not commence until the Contractor has received approval. The Contractor shall furnish prints of approved shop drawings and schedules to all contractors whose work is in any way related to the work under the contract. Only prints bearing this approval will be allowed on the site of construction.
- H. All shop drawings must be submitted prior to the receipt of the third partial payment request. After the second payment has been made, no further payments will be made without the written consent of the Owner until all shop drawings have been submitted.
- I. On completion of the work, and as a condition precedent to receiving final payment, all shop drawings and schedules of all work for all trades shall be corrected to a true and actual representation of the work actually performed, erected and installed. Drawings showing the actual installation of all underground services, utilities and structures of every description shall be furnished the Consultant upon completion of the work. (See Article 31.)

ARTICLE 19 - SAMPLES, TESTS AND CERTIFICATES

- A. The Contractor shall prepare samples of all items requested or required by the specification. Samples shall be properly identified and submitted with such promptness as to cause no delay in work or in that of any other contractor and to allow for consideration by the Consultant and Owner.
- B. Each set of samples submitted must be accompanied by a letter of transmittal containing the following information:
 - (a) Date of Submission
 - (b) Name of Project
 - (c) Location
 - (d) Branch of Work
 - (e) Project Number
 - (f) Name of Submitting Contractor
 - (g) Name of Subcontractor

- C. No materials shall be delivered to the site of construction or incorporated into the work until the Contractor has received approval. Any materials installed prior to receipt of such approval shall be subject to rejection by the Consultant.
- D. Samples shall be labeled to designate material or product represented, grade, place of origin, name of producer and name of Contractor.
- E. Approval of material is general and shall not constitute waiver of Owner's right to demand full compliance with contract requirements.
- F. Unless Consultant is authorized at the time of submittal to return samples at Contractor's expense, rejected samples will be destroyed.
- G. After delivery of materials Consultant may, with concurrence of the Owner, make such tests as deemed necessary with samples required for such tests being furnished and at the cost of the appropriate Contractor. If the material, equipment or accessory fails to meet the contract requirements, all costs of testing shall be paid by the Contractor. If the item meets the contract requirements, costs of testing will be paid by Owner.
- H. On the basis of the test results, materials, workmanship, equipment of accessories may be rejected even though general approval has been given. If items have been incorporated in work, Consultant shall have the right to cause their removal and replacement by items meeting contract requirements or to demand and secure such reparation to the Owner from the Contractor as is equitable.
- I. The Consultant reserves the right to require Contractor to furnish a certificate guaranteeing that material or equipment as submitted complies with contract requirements. Certificates shall be in notarized affidavit form. If statement originates with manufacturer, Contractor shall endorse all claims and submit statement in the Contractor's name.
- J. When directed by the Consultant, and unless otherwise specified with the technical design section, samples of finished masonry and field applied paints and finishes shall be located as directed and shall include sample panels constructed at site of approximately 20 square feet each.
- K. All tests required by the specifications shall be paid for by the Contractor to testing laboratories approved by the Consultant.

ARTICLE 20 - MATERIALS AND WORKMANSHIP

- A. Unless otherwise specified, all materials shall be new and both workmanship and materials shall be of the best quality. If required by the Consultant, satisfactory evidence shall be furnished as to the kind and quality of the materials and workmanship.
- B. All materials and workmanship used in the work shall be subject to the inspection of the Consultant, and any work which is deemed defective shall be removed, rebuilt or made good. The cost of such correction shall be borne by the Contractor. All condemned materials shall be immediately removed from the site of the work.
- C. Failure or neglect on the part of the Owner to condemn or reject bad or inferior materials workmanship shall not be construed to imply an acceptance of any work. The work herein specified to be done is not to be considered as finally accepted until it is so stated in writing by the Owner.
- D. Unless otherwise provided and stipulated within these specifications, the Contractor shall furnish, construct, and/or install and pay for materials, devices, mechanisms, equipment, all necessary personnel, utilities including, but not limited to water, heat, light and electric power, transportation services, applicable taxes of every nature, and all other facilities necessary for the proper execution and completion of the work,
- E. All temporary shoring, bracing, etc., required for the removal of existing work and/or for the installation of new work shall be included in this contract. This must be done to the entire satisfaction of the Owner but the Contractor must assume full responsibility for the work. The Contractor shall make good, at no cost to the Owner, any damage caused by improper support or failure of shoring in any respect.
- F. Contractor shall, at all times, enforce strict discipline and good order among employees, and shall not employ on the work any unfit person or anyone not skilled in the work assigned.
- G. Contractor shall carefully examine the plans and drawings and shall be responsible for the proper fitting of material, equipment and apparatus into the building.
- H. Contractor shall base proposal only on materials, method of construction and equipment indicated. Contractor may make a written proposal to Consultant to use alternate materials, methods or fixtures, in accordance with Article 16, Substitutions.

- I. Contractor shall promptly remove at own expense all rejected materials from the site of work.
- J. When a material has been approved no change in brand or make will be permitted unless:
 - (a) Written verification is received from the manufacturer stating they cannot make delivery on the date previously agreed, or
 - (b) Materials delivered fails to comply with contract requirements.

ARTICLE 21 - INSURANCE

- A. The Contractor shall not commence work under this contract until the Contractor has obtained and submitted to the Owner "Certificate of Insurance" for all insurance required under this Article and such insurance has been approved by the Owner; nor shall the Contractor allow any subcontractor to commence on subcontract until all similar insurance required of the subcontractor has been obtained and approved.
 - B. Contractor shall provide and maintain during the life of the contract and until final acceptance of the work, insurance acceptable to the Owner which will afford protection and coverage in accordance with the requirements set forth below.
 - (a) Worker's Compensation Insurance: Worker's Compensation Insurance for all employees at the site of the project, and, in case any work is sublet, Contractor shall require any and/or all subcontractor(s) similarly to provide Worker's Compensation Insurance for all their employees unless such employees are covered by the protection afforded by Contractor. In case any class of employees engaged in hazardous work under this contract at the site of the project is not covered under the Worker's Compensation Statute, the Contractor shall provide and shall cause each subcontractor to provide Employer's Liability Insurance. Contractors shall provide coverage under the "Occupational Disease Act" of the State of Missouri, in addition to the above requirements, if the operations of the Contractor or any subcontractor are applicable thereunder. Worker's Compensation Insurance shall comply in all respects with the requirements of the Statutes of the State of Missouri.
 - (b) Public Liability and Property Damage Insurance: Public Liability and Property Damage Insurance in comprehensive general liability form as Shall protect

Contractor and any subcontractor performing work covered by this contract from claims for damages for personal injury, including wrongful death; and from claims for property damage which may arise from the operations under the contract, including all trucks and automobiles used, whether owned or not, and whether such operations be by the Contractor or any subcontractor or by anyone directly employed by either of them. The amount of insurance shall not be less than the following:

1. Public Liability and Property Damage -

Bodily Injury:

each person	\$ 100,000.00
each accident	\$ 800,000.00

Property Damage:

each accident	\$ 500,000.00
aggregate	\$ 500,000.00

2. Automobile Public Liability & Property Damage -

Bodily Injury:

each person	\$ 100,000.00
each accident	\$ 800,000.00

Property Damage:

each accident	\$ 100,000.00
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Such policy or policies shall by proper endorsement cover any liability of Contractor under the indemnification provision, Article 25 of the General Conditions.

- (c) Insurance Covering Special Hazards: The Public Liability and Property Damage Insurance policy or policies of the Contractor shall provide coverage for special hazards such as operation of material hoists, blasting or other use of explosives, and damage to underground property.
- (d) Owner's Protective Liability Insurance: Owner's Protective Liability Insurance for protection of the Owner and the Consultant protecting them against the standard hazards, except liability from operation of trucks and automobiles, and with the amount of coverage provided in the Public Liability and Property Damage Insurance of Contractor.
- (e) Builder's Risk and Installation Floater Insurance: Insurance upon the work and all materials, equipment, supplies, temporary structures and similar items which may be incident to the site, against loss or damage from fire and such other casualties as are included in extended coverage in broad comprehensive form, vandalism and malicious mischief, in an amount not less than the replacement cost of the work or the contract price, whichever is greater, with loss payable to Contractor and Owner as their respective interest may appear. Such insurance may be written with Building and Contents Form of Endorsement. In the event Building and Contents Form Endorsement contains an alterations and repair permit, Contractor shall maintain sufficient insurance to cover the full value of the work and materials as the work progresses, and shall furnish Owner copies of all endorsements. If Builder's Risk Reporting Form of Endorsement is used, Contractor shall make all reports as required therein so as to keep in force an amount of insurance which will equal to the replacement cost of the work, materials, equipment, supplies, temporary structures, and other property covered thereby; and if, as a result of Contractor's

- (f) failure to make any such report, the amount of insurance so recoverable shall be less than such replacement cost, Contractor's interest in the proceeds of such insurance, if any, shall be subordinated to Owner's interest to the end that Owner may receive full reimbursement for its loss.
- C. All insurance shall be procured through and be written by insurance companies which are acceptable to and approved by the Owner and shall be obtained and paid for by Contractor.
- D. Within fourteen (14) consecutive calendar days after receipt of the letter directing the Contractor to do so, the Contractor shall furnish the Owner with certificates showing that the Owner is covered by the required insurance and showing the type, amount, class of operations covered, effective dates and dates of expiration of the policies. All certificates shall contain substantially the statement: "The insurance covered by this certificate will not be canceled or altered except after ten days' written notice has been received by the Owner." In addition, the original Owner's protective policy shall be forwarded to the Owner.
- E. Upon receipt of any notice of cancellation of alteration, Contractor shall within five (5) days procure other policies of insurance similar in all respects to the policy or policies about to be canceled or altered; and if Contractor fails to provide, procure and deliver acceptable evidence thereof, Owner may obtain such insurance at the cost and expense of Contractor without notice to Contractor.
- F. It is understood and agreed that the insurance required by the provisions of this Article is required in the public interest and that Owner does not assume any liability for acts of the Contractor, any subcontractor or their employees in the performance of the contract.

ARTICLE 22 - SEPARATE CONTRACTS AND COOPERATION

- A. The Owner reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate work with theirs.
- B. The Contractor shall consult the drawings for all other contractors in connection with this work. Any work conflicting with the above shall be brought to the attention of the Consultant before the work is performed. If the Contractor fails to do this, the Contractor shall remove any part so conflicting and rebuild same, as directed by the Consultant, at no additional cost to the Owner.

- C. No Contractor shall delay any other Contractor by neglecting to perform their work at the proper time. Each Contractor shall be required to coordinate own work with other Contractors so as to afford others reasonable opportunity for execution of their work.
- D. Each Contractor shall be responsible for damage to Owner's or other Contractor's property done by the Contractor or persons in their employ through the Contractor's or their fault or negligence.
- E. Should a Contractor sustain any damage through any act of omission of any other contractor having a contract with the Owner, the Contractor so damaged shall have no claim or cause of action against the Owner for such damage, but shall have a claim or cause of action against the other Contractor to recover any and all damages sustained by reason of the acts of omissions of such contractor. The phrase "act of omission" as used in this section shall be defined to include, but not be limited to, any unreasonable delay on the part of any such contractors.

ARTICLE 23 - SUBCONTRACTS

- A. Subcontractor assignments as identified in the bid proposal shall not be changed without written approval of the Owner.
- B. Contractor is as fully responsible to the Owner for the acts and omissions of subcontractors and of persons either directly or indirectly employed by them as the Contractor is for the acts and omissions of persons directly employed by the Contractor.
- C. Every subcontractor shall be bound by the applicable terms and provisions of the contract documents, by no contractual relationship shall exist between any subcontractor and the Owner unless the right of the Contractor to proceed with the work is suspended or the contract is terminated as herein provided, and the Owner in writing elects to assume the subcontract.
- D. The Contractor shall upon receipt of "Notice to Proceed" and prior to submission of the first payment request, notify the Consultant and University Representative in writing of the names of any subcontractors to be used in addition to those identified in the bid proposal and all major materials suppliers proposed for all parts of the work.

ARTICLE 24 - ASSIGNMENT OF CONTRACT

- A. No assignment by Contractor of any amount or any part of the Contract or of funds to be received thereunder will be recognized unless such assignment has had the written approval of the Owner and the surety has been given due notice of such assignment and has furnished written consent thereto. In addition to the usual recitals in assignment contracts, the following language must be set forth: "It is agreed that the funds to be paid to the assignee under this assignment are subject to performance by the Contractor of the contract and to claims or liens for services rendered or materials supplied for the performance of the work called for in said contract in favor of all persons, firms or corporations rendering such services or supplying such materials."

ARTICLE 25 - INDEMNIFICATION

- A. Contractor agrees to indemnify and save harmless Owner and Consultant, their agents, servants and employees, from and against any and all liability for damage arising from injuries to persons or damage to property occasioned by any acts of omissions of Contractor, any subcontractors, agents, servants or employees, including any and all expense, legal or otherwise, which may be incurred by Owner or Consultant, its agents, servants or employees, in defense of any claim, action or suit, irrespective of any claims that an act, omission or negligence of Owner or Consultant, its agents, servants or employees contributed to such injury or damage.
- B. The obligations of the Contractor under this paragraph shall not extend to the liability of the Consultant, the Consultant's agents or employees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, design or specifications, or (2) giving of or the failure to give directions or instructions by the Consultant, the Consultant's agents or employees as required by the contract documents provided such giving or failure to give is the primary cause of the injury or damage.

ARTICLE 26 - CHANGES IN THE WORK

- A. The Owner, without giving notice to the surety and without invalidating this contract may order extra work or make changes by altering, adding to or deducting from the work, this contract sum being adjusted accordingly. All such work shall be executed under the conditions of the original contract. A claim for extension of time caused by any change must be adjusted at the time of ordering such change. No future request for time will be considered.

B. Each Contract Change shall include all costs required to perform the work including all Labor, material, equipment, overheads and profit, delay, disruptions, or other miscellaneous expenses. No requests for additional compensation including claims for delay, disruption, or reduced efficiency as a result of this change will be considered.

C. The amount of any adjustment in this contract price for authorized changes shall be agreed upon before such changes become effective and shall be determined, through submission of a request for proposal, as follows:

1. By an acceptable unit price or fixed price proposal from Contractor and subcontractor. Breakdown shall include all takeoff sheets of each Contractor and subcontractor. Breakdown shall include a listing of each item of material with unit prices and number of hours of labor for each task. Labor costs per hour shall be included with labor burden identified, which shall be not less than the prevailing wage rate, etc. Overhead and profit shall be shown separately for each subcontractor and the Contractor.
2. By a cost-plus-fixed-fee (time and material) basis with maximum price, total cost not to exceed said maximum. Breakdown shall include a listing of each item of material with unit prices and number of hours of labor for each task. Labor costs per hour shall be included with labor burden identified, which shall be not less than the prevailing wage rate, etc. Overhead and profit shall be shown separately for each subcontractor and the Contractor.
3. By unit prices contained in Contractor's original bid form and incorporated in the construction contract.

D. Overhead and Profit on Contract Changes shall be applied as follows:

1. The overhead and profit charge by the Contractor and all subcontractors shall be considered to include, but is not limited to: incidental job burdens, small truck (under 1 ton) expense, mileage, small hand tools, company benefits and general office overhead. Project supervision including field supervision and job site office expense shall be considered a part of overhead and profit unless a compensable time extension is granted.

The percentages for overhead and profit charged on Contract Changes shall be negotiated, and may vary according to the nature, extent, and complexity of the work involved. However, the overhead and profit for the Contractor or subcontractor actually performing the work shall not exceed 15%. When one or more tiers of subcontractors are used, in no event shall any Contractor or subcontractor receive as overhead and profit more than 7% of the cost of the work performed by any of his/her subcontractors. In no case shall the total overhead and profit paid by the Owner on any Contract Changes exceed twenty five percent (25%) of the cost of materials, labor and equipment necessary to put the contract change work in place

2. The Contractor will be allowed to add the cost of bonding and insurance to their cost of work. This bonding and insurance cost shall not exceed 2% and shall be allowed on the total cost of the added work including overhead and profit.

3. On proposals covering both increases and decreases in the amount of this Contract, the application of overhead and profit shall be on the net change in the cost of the work.
 4. The percentage for overhead and profit to be credited to the Owner on Contract Changes that are solely decreases in the quantity of work or materials shall be negotiated, and may vary according to the nature, extent and complexity of the work involved, but in no case shall be less than ten percent (10%), unless the percentage for overhead and profit charged for Contract Changes for this contract, has been negotiated to less than 10%. The negotiated rate shall then apply to credits as well.
- E. No claim for an addition to this contract sum shall be valid unless authorized as aforesaid in writing by the Owner. In the event that none of the foregoing methods are agreed upon, the Owner may order work performed by force account or accounts. The cost of such work shall be determined by the Contractor's actual labor and material cost to perform the work plus overhead and profit as outlined in paragraph C above. The Owner's representative Administrator shall approve the Contractor's daily time and material invoices for the work involved.
- F. If the Contractor claims that any instructions involve extra cost under this contract, he/she shall give the Owner written notice thereof within a reasonable time after the receipt of such instructions, and in any event before proceeding to execute the work. No such claim shall be valid unless so made and authorized by the Owner, in writing.
- G. In an emergency affecting the safety of life or of the structure or of adjoining property, the Contractor, without special instruction or authorization from the Owner, is hereby permitted to act at his/her discretion to prevent such threatened loss or injury. Any compensation claimed by the Contractor on account of such emergency work shall be submitted in writing and determined by agreement with the Owner. ARTICLE 27 –

PAYMENT TO CONTRACTORS

A. PAYMENTS:

- (a) Payments on account of this contract will be made monthly as the work progresses. The Contractor shall submit to the Owner, in the manner and form prescribed an application for each payment, and, if requested, receipts or other vouchers showing payments for materials and labor, including payments to subcontractors. The Owner will make partial payments as soon thereafter as possible, for work done during the preceding calendar month on estimates certified to the Owner subject to the approval of the Owner. The Owner shall retain ten percent (10%) of the amount of each such estimate until final completion and acceptance of all work covered by the contract, except that on completion of fifty percent (50%) of the work the retainage may be reduced to five percent (5%) of the value of the work in place and materials properly stored on the site if in the opinion of the Owner the work has progressed satisfactorily and there is no reason to believe the Contractor may default in the execution of the balance of the work. All bills, claims and demands for labor performed, work done or materials furnished, shall be submitted in six (6)

- (b) copies by the Contractor. The terms and conditions of this paragraph shall be executed in strict accord with Section 8.260 RSMo 1978 and Cumulative Supplements.
 - (c) For contracts, the cost of which is \$5,000.00 or less, paragraph (a) of this article shall not apply. Contracts falling within this category shall merit but a single payment which shall become due and payable on completion and acceptance of all work specified thereunder. The terms and provisions of this paragraph shall be executed in strict accord with Section 8.270 RSMo 1978 and Cumulative Supplements.
 - (d) Each payment made to Contractor shall be on account of the total amount payable to Contractor and all material and work covered by paid partial payment shall thereupon become the sole property of Owner. No such payment shall be deemed to be approval for any item or items for which such payment is made, and this provision shall not be construed as relieving Contractor from sole responsibility for care and protection of materials and work upon which payments have been made or restoration of any damaged work or as a waiver of the right of Owner to require fulfillment of all terms of the contract.
 - (e.) Ordinarily no allowance will be made in estimates for materials delivered on site of work and not incorporated in work; however, items considered by Consultant to be major items of considerable magnitude, if suitably stored on the site, will be allowed in estimates on the basis of ninety percent (90%) of value, the value calculated in proportion to contract price.
- B. PAYMENTS WITHHELD: The Owner may withhold or nullify in whole or part any certificate to such extent as may be necessary to protect the Owner from loss on account of:
- (a) Defective work not remedied.
 - (b) Failure of the Contractor to make payment properly to subcontractors for material or labor.
 - (c) Claims files or reasonable evidence indicating probable filing of claims.
 - (d) A reasonable doubt that the contract can be completed for the balance then unpaid.
 - (e) Damage to another Contractor.
 - (f) Failure to properly submit the Quarterly Minority Worker Report required in Article 6

When the Owner is satisfied the Contractor has remedied above grounds, payments shall be made for amounts withheld.

C. FINAL PAYMENT:

(a) Final payment shall be due at such time as the work is fully completed and all provisions of the contract have been satisfactorily fulfilled.

for (b) Upon receipt of written notice from the Contractor to the Consultant that the work is ready for final inspection and acceptance, the Consultant and University Representative shall promptly make such inspection. If the work is acceptable and the contract fully performed, the Contractor will be directed to submit a final estimate for certifications. If the Owner approves the same, the entire balance shall be due and payable.

(c) Where the specifications provide for the performance by the Contractor of certain tests for the purpose of balancing and checking the air conditioning and heating equipment and the Contractor shall have furnished and installed all such equipment in accordance with the specifications, but said test cannot then be made because of weather conditions, such test shall be considered as required under the provisions of the specifications, Article 19 of General Conditions, and the contract may be certified as satisfactorily completed and the work accepted and full payment made, even though the tests have not been made.

D. RELEASES: Neither the final payment nor any part of the retained percentage shall become due until the Contractor delivers to the University Representative a complete file of releases, on a standard form prescribed by the Owner and included in the contract documents, from subcontractors and material persons evidencing payment in full for services, equipment and materials, as the case may require, and a properly executed Affidavit of Compliance with Prevailing Wage Law in the form as included in the contract specifications.

E. If any lien or claim remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the latter may be compelled to pay in discharging such a lien or claim including all costs and a reasonable attorney's fee.

ARTICLE 28 - PARTIAL OCCUPANCY/SUBSTANTIAL COMPLETION

A. The Owner may fully occupy the facility as soon as it is substantially completed. No provisions in this document shall be construed to prevent partial occupancy by the Owner so long as the partial occupancy does not materially affect the construction process.

- B. Contractor agrees that Owner upon advance notification to Contractor in writing will be permitted to occupy and use any completed or partially completed portions of the project when such occupancy and use is to the Owner's best interest.
- C. If such prior occupancy increases the cost of the work or delays its completion, provided that the same occur prior to the completion date fixed by the "Notice to Proceed", and as amended by contract Change Orders, and provided the Contractor submits written notification of such cost increase or time delay, the Contractor shall be entitled to extra compensation or extension of time, or both.

ARTICLE 29 - ARBITRATION, DISPUTES AND DISAGREEMENTS

- A. In order to prevent all disputes or disagreements between the parties in this contract in relation to their performance hereof on the part of this Contractor, it is hereby expressly agreed and understood that in case any controversy or difference of opinion shall arise between the parties aforesaid as to quality, quantity or value of the work, or material, the interpretation of the provisions of this Contract or any other matter connected with this work, the decision of the Attorney General of the State of Missouri, shall be final and binding on all parties.

ARTICLE 30 - RIGHTS OF OWNER ON BREACH OF CONTRACT

- A. If the Contractor shall be judged bankrupt, or if the Contractor should make a general assignment for the benefit of its creditors, or if a receiver should be appointed on account of its insolvency, or if the Contractor should persistently or repeatedly refuse or fail to supply enough properly skilled workers or proper materials or if the Contractor should fail to make prompt payments to subcontractor or for material or labor, or persistently disregard laws, ordinances or the instructions of the Owner, or otherwise be guilty of a substantial violation of any provision of the contract, then the Owner may serve notice on the Contractor and the Contractor's surety setting forth the violations and demanding compliance with the contract. Unless within ten (10) consecutive calendar days after serving such notice, such violations shall cease and satisfactory arrangements for corrections be made, the Owner may suspend the Contractor's right to proceed with the work or terminate the contract.
- B. In the event the Owner suspends Contractor's right to proceed with the work or terminates the contract, the Owner may demand that the Contractor's surety take over and complete the work on the contract, after the surety submits a written proposal to the Owner and receives written approval and upon the surety's failure or refusal to do so within ten (10) consecutive calendar days after demand therefor, the Owner may take over the work and prosecute the same to completion by bid or negotiated contract, or the Owner may elect to take possession of and utilize in completing the work such materials, supplies, appliances and plant as may be on the site of the work, and all subcontractors, if the Owner elects, shall be bound to perform their contracts.

- C. The Contractor and the Contractor's surety shall be and remain liable to the Owner for any excess cost or damages occasioned to the Owner as a result of the actions above set forth.
- D. The Contractor, in the event of such suspension or termination, shall not be entitled to receive any further payments under the contract until the work is wholly finished. Then, if the unpaid balance under the contract, shall exceed all expenses of the Owner as certified by the Consultant, such excess shall be paid to the Contractor; but, if any such expenses shall exceed the unpaid balance as certified by the Consultant, the Contractor and the Contractor's surety shall be liable for and shall pay the difference and any damages to the Owner.
- E. In exercising Owner's right to secure completion of the work under any of the provisions hereof, the Owner shall have the right to exercise Owner's sole discretion as to the manner, methods and reasonableness of costs of completing the work.
- F. The rights of the Owner to suspend or terminate as herein provided shall be cumulative and not exclusive and shall be in addition to any other remedy provided by law.
- G. The Contractor, in the event of such suspension or termination, may be declared ineligible for Owner contracts for a minimal period of twelve (12) months. Further, no contract will be awarded to any Contractor who lists in proposal any subcontractor whose prior performance has contributed, as determined by the Owner, to a breach of a contract. In order to be considered for State awarded contracts after this period, the Contractor/subcontractor will be required to forward acceptance reports to the Owner regarding successful completion of non-State projects during the intervening twelve (12) months from the date of default. No State contracts will be awarded to a Contractor/subcontractor until the ability to perform responsibly in the private sector has been proven to the Owner.

ARTICLE 31 - RECORD DRAWINGS

- A. Contractors shall, at the completion of their work and prior to submission of request for final payment, complete and turn over to the Consultant a marked up set of drawings provided for construction. The corrections shall show all field changes that were made to adopt to field conditions, changes resulting from contract Change Orders and all buried installations of piping, conduit, and utility services. All buried and concealed items both inside and outside the building shall be accurately located as to depth and referenced to two permanent features such as interior or exterior wall faces and dimensions shall be given in a neat and legible manner in a contrasting colored pencil or ink.

ARTICLE 32 - WARRANTIES AND OPERATING INSTRUCTIONS

- A. Warranties and operating instructions of various equipment items, according to the manufacturer's policy covering their products, shall be delivered in three (3) copies to the Consultant prior to submission of the final pay estimate.

ARTICLE 33 - GENERAL GUARANTEE

- A. Neither the final certificate of payment nor any provision in the contract documents for partial use or occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with the contract documents or relieve the Contractor or the Contractor's sureties of liability in respect to any express warranties or responsibility for faulty materials, workmanship or liquidated damages.
- B. The Contractor or the Contractor's sureties shall remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of one (1) year from the date of final acceptance unless a longer period is otherwise specified. The Owner will give notice of observed defects with reasonable promptness.
- C. In case of default on the part of the Contractor in fulfilling this part of the contract, the Owner may correct the work or repair the damage and the cost and expense incurred in such event shall be paid by or recoverable from the Contractor.
- D. Should Contractor be required to perform tests that due to climatic conditions must be delayed, it is understood that such tests will be accomplished by Contractor at the earliest possible date with the provisions of the General Guarantee beginning upon satisfactory completion of said test. The responsibility of the Contractor under this section will not be abrogated if the Owner should elect to initiate final payment.

ARTICLE 34 – MBE / WBE REQUIREMENTS

- A. The contractor is bound to subcontracting not less than the dollar amount indicated in the awarded contract to MBE/WBE(s) unless amount is revised in writing by the owner.
- B. If the contractor fails to meet or maintain stated percent, he/she must satisfactorily explain to the owner why the requirement cannot be achieved and why meeting the requirement was beyond the contractor's control.

- C. If the owner finds the contractor's explanation unsatisfactory, the owner may take any appropriate action including, but not limited to:
 - 1. Declaring the contractor ineligible to participate in any state contracts administered through the University for a period not to exceed six (6) months, and
 - 2. Directing that the contractor be declared in breach of this contract.
- D. If a MBE/WBE is replaced during the course of this contract, the contractor shall make a good faith effort to replace it with another MBE/WBE. All substitutions shall be approved by the owner.
- E. The contractor shall provide the owner with regular reports on its progress in meeting its MBE/WBE obligations. As a minimum, the dollar-value of work completed by each MBE/WBE subcontractor during the preceding month and as a cumulative total shall be reported with each monthly application for payment. A final report shall include the total dollar-value of work completed by each minority subcontractor during the total contract.

ARTICLE 35 – DOMESTIC PRODUCTS PROCUREMENT

- A. In accordance with the Missouri Domestic Products Procurement Act (Senate Bill 74, 84th General Assembly, First Regular Session), any manufactured goods or commodities used or supplied in the performance of this contract or any subcontract thereto shall be manufactured, assembled or produced in the United States, unless the specified products are not manufactured, assembled or produced in the United States in sufficient quantities to meet the contracts requirements, or if obtaining the specified products manufactured, assembled or produced in the United States would increase the cost of this contract for purchase of the product by more than ten percent.
- B. The contractor shall certify, through each pay application, that all manufactured goods or commodities used or supplied in the performance of the work for which payment is requested were manufactured, produced or assembled in the United States. If the goods used or supplied in the performance of the work for which payment is requested were not manufactured, produced or assembled in the United States, (2) are not manufactured in sufficient quantities to meet the needs of this contract, (3) cannot be manufactured, assembled or produced in the United States within the necessary time to meet the requirements of this contract, or (4) would increase the cost of this contract for the purchase of the product by more than ten percent (10%) if purchased from a manufacturer or producer in the United States.

LU MWBE COMPLIANCE EVALUATION FORM

This form is to be completed by bidders and submitted to the Owner with the bid proposal. A condition for remaining in competition for award is the satisfactory completion of this form for each minority/woman owned firm who will function as a subcontractor on the contract.

The undersigned submits the following data with respect to this firm's assurance to meet the University's goal for MBE/WBE participation.

1. Project: _____

2. Name of General Contractor: _____

3. Name of MBE/WBE Firm: _____

Address: _____

Telephone: _____

Type of Business: _____

Officer: _____ Title: _____

4. Describe the subcontract work to be performed. (List Base Bid work and any Alternate work separately):

Base Bid: _____

Alternate(s), (identify separately): _____

5. Dollar amount of contract to be subcontracted to the MBE/WBE Firm:

Base Bid: \$ _____

Alternate(s) (identify separately): _____

6. Is the proposed subcontractor listed in the Minority/Women Business Enterprise Directory maintained by the State of Missouri Division of Design and Construction?

Yes _____ No _____

7. Is the proposed subcontractor certified as an MBE/WBE firm by any of the following: federal government agencies, state agencies, State of Missouri city or county government agencies?

Yes _____ No _____ If yes, provide details.

8. If the answer is no to both questions above, please attach the information requested in the MBE/WBE Eligibility Determination Form.

9.

Signature: _____

Name: _____

Title: _____

Date: _____

LU MBE/WBE Eligibility Determination Form

1. Name of firm _____
2. Address of firm _____
3. Phone Number of firms _____
4. Indicate whether firm is sole proprietorship, partnership, joint venture, corporation, or other business entity (please specify) _____

5. Nature of firm's business _____
6. Number of years firm has been in business _____
7. Ownership of firm: Identify those who own 5 percent or more of the firm's ownership. E and F need to be filled out only if the firm is less than 100 percent minority owned.

- A. Name
- B. Race
- C. Sex
- D. Year of Ownership
- E. Ownership Percentage
- F. Voting Percentage

For firms less than 100 percent minority/woman-owned, list the contributions of money, equipment, real estate, or expertise of each of the owners.

8. Control of firm: (a) Identify by name, sex, and title those individuals (including owners and non-owners) who are responsible for day-to-day management and policy decision making, including, but not limited to, those with prime responsibility for:

- (1.) Financial decisions _____
- (2.) Management decisions, such as:
 - a. Estimating _____
 - b. Marketing and Sales _____
 - c. Hiring and firing of management personnel _____
 - d. Purchases of field operations _____
- (3.) Supervision of field operations _____

LU MWBE ELIGIBILITY DETERMINATION FORM FOR JOINT VENTURES

This form need not be filled in if each of the firms in the joint venture is minority/woman owned

1.Name of JointVenture_____

2.Address of Firm_____

3.Phone Number of Joint Ventures_____

4.Identify the Firms which comprise the Joint Venture (The MBE partner must complete the MBE/WBE Eligibility Determination Form_____

(a)Describe the role of the MBE Firm in the Joint Venture_____

(b)Describe very briefly the experience and business qualifications of each non-MBE coventurer_____

5.Nature of the joint venture's business aimed percentage of MBE ownership_____

6.What is the claimed percentage of MBE ownership?_____

7.Ownership of joint venture. Attach a copy of the joint venture agreement. (The following need not be filled in if described in the joint venture agreement_____

(a)Description of profit and loss sharing_____

(b)Description of capital contributions, including equipment_____

(c)Description of other applicable ownership interests_____

8.Control of and participation in this contract. Identify by name, race, sex, and "firm" those individuals (and their titles) who are responsible for day-to-day management and policy decision-making, including but not limited to those with prime responsibility for:

(a)Financial Decisions

(b) Management Decisions such as:

Estimating_____

Marketing and
Sales_____

Hiring and Firing of management
personnel_____

Purchasing of major items and
supplies_____

NOTE: If after filing this information and before the completion of the joint venture's work on the contract covered by this regulation there is any significant change in the information submitted, the joint venture must inform the owner, either directly or through the prime contractor

AFFIDAVIT

The undersigned swear that the foregoing statements are correct and include all material and information necessary to identify and explain the terms and operation of our joint venture and the intended participation by each joint venture in the undertaking. Further, the undersigned covenant and agree to provide the owner current, complete and accurate information regarding actual joint venture work and the payment therefor and any proposed changes in any of the joint venture arrangements and to permit the audit and examination of the books, records, and files of the joint venture, or those of each joint venture relevant to the joint venture, by authorized representatives of the owner. Any material misrepresentation will be grounds for terminating any contract which may be awarded and for initiating action under Federal or State laws concerning false statements."

Name of Firm

Name of Firm

Signature

Signature

Name

Name

Title

Title

Date

Date

Date _____

State of _____

County of _____

On this ____ day of _____, 20____, before me appeared (name) _____
To me personally known, who, being duly sworn, did execute the foregoing affidavit, and did state that he or she was properly authorized by (name of firm) _____
To execute the affidavit and did so as his or her own fee act and deed.

(Seal) Notary Public _____
Commission expires _____

MWBE APPLICATION FOR WAIVER

This form is to be completed when appropriate and submitted with the bid proposal to the Owner. Firms wishing to be considered for award are required to demonstrate that a good faith effort has been made to include minority/woman owned enterprises as subcontractors. This form will be used to evaluate the extent to which a good faith effort has been made. The undersigned submits the following data with respect to the firm's efforts to meet Lincoln University's goal for MBE/WBE participation.

1. List pre-bid conferences your firm attended where MBE/WBE requirements were discussed

2. Identify advertising efforts undertaken by your firm which were intended to recruit potential minority/woman subcontractors for various aspects of this project. Provide names of newspapers, dates of advertisements and copies of ads that were run

—

3. Note specific efforts to contact in writing those MBE/WBEs capable of and likely to participate as subcontractors for this project

4. Describe steps taken by your firm to divide work into areas in which MBE/WBE would be capable of performing

—

5. What efforts were taken to negotiate with perspective MBE/WBEs for specific sub-bids? Include the names, addresses, and telephone numbers of MBE/WBEs contacted, a description of information given to MBE/WBEs regarding the plans and specifications for the assigned work, and a statement as to why additional agreements were not made with MBE/WBEs

—

6. List reasons for rejecting an MBE/WBE which has been contacted

7. Describe efforts your firm may have taken to assist an MBE/WBE in overcoming legal or other requirements, which may have to be met

8. Describe follow-up contacts with MBE/WBE made by your firm after the initial solicitation

9. Describe the efforts made by your firm to provide interested MBW/WBEs with sufficiently detailed information about the plans, specifications and requirements of the contract

10. Describe your firm's efforts to locate MBE/WBEs not on the directory list and assist MBE/WBEs in becoming certified as such

Based on the above stated good faith efforts made to locate and supply MBE/WBEs, the bidder hereby requests that the MBE/WBE percentage goal set by this regulation be waived and that the percentage goal for this project be set at _____ percent.

The undersigned hereby certifies having read the answers contained in the foregoing Application for Waiver, that they are true and correct to the best of his or her knowledge, information and belief.

Signature _____

—

Name _____

—

Title _____

Company _____

—

Date _____

—

MAP A



ASDa

MAP B



FENCE SPECIFICATIONS

NATURAL RESOURCES CONSERVATION SERVICE

Locate fences to help facilitate management of different land uses and special management areas within land uses such as ecological sites, pasture types, riparian areas, critical eroding areas, etc.

For domestic livestock, install fences in areas that will best facilitate the handling, feeding, watering and movement of the type of livestock managed.

For horses, consider avoiding the use of barbed wire and steel T-Posts when possible in order to minimize potential injury, especially when areas of confinement are small.

Consider introducing animals to electric fencing in a designated training facility. Select a well fenced area and construct an electric fence across or around the area to allow animals to come in contact with the electric fence. Normally, a minimum 12 hour exposure to the electric fence is required. Most animals will be trained in 48 hours.

When installing fences in areas of heavy wildlife movement / traffic (such as riparian areas) consideration should be given to wire types and spacing. Spacing of top and bottom wires should be adequate for the movement of the types of wildlife managed for. Where white-tailed deer range, and the height of fence is less than 48 inches, space the top two wires 10 inches apart to reduce the hazard of catching deer in the fence. However, if 47 inch net wire is used, consider not using another wire. Where barbed wire is used, the cooperators may choose smooth wire as the top wire to reduce potential for harm to deer jumping over a fence.

Where applicable, right-of-ways may need to be established for the facilitation of fence installation and maintenance.

In order to minimize maintenance and installation costs, where practical, avoid areas such as rough and irregular terrain, excessive trees and brush, areas with long-standing water, and water crossings.

Consider fencing along the contour to minimize livestock trailing and subsequent erosion.

When installing interior fences to facilitate livestock movement, temporary fences may be considered in order to minimize costs and allow for flexibility in the system. Locations should allow for the shortest and straightest distances.

FENCE TYPES

There are several types of fences used in Louisiana. They can be designed and installed as permanent or temporary. The overall effectiveness of each type of fence and the costs for installation and maintenance, depends on the type of animal controlled, the number and size of wires used, and posts type, and spacing.

Permanent fence types are designed to be in place for a period of many years with minimal maintenance requirements. Therefore, components are designed for a life span of 20 years. Permanent fences are used for exterior (boundary) fencing of property and fencing of specific land uses (such as cropland) as well as for interior division fencing.

Temporary, or moveable fences, are designed to be in place for short periods of time. Temporary fences are best used as division fences for controlled grazing and fencing of areas where livestock exclusion is needed for periods of 60 days or less.

Standard Post and Wire Fences are the most common fence type used for controlling all types of livestock. They are suitable as permanent fences in areas that receive moderate to heavy pressure from livestock. They are typically barbed wire or double strand smooth wire.

Suspension Fences are a low cost variation of the standard post and wire fence and can be used as either boundary or interior cross fencing. They are typically used on large pastures with level terrain. They can be either barbed wire or smooth wire. The fence design allows it to sway (move) in the wind and when contacted by animals.

Both High Tensile and non-High Tensile Woven, Net and Mesh Wire Fences are best suited in areas where tight control is necessary such as with sheep, goats, horses, hogs, or predator control. These fences consist of multiple rows of horizontal smooth wires held apart by vertical wires, usually of different sizes and configurations. Space between wires varies depending on designated use.

Permanent Energized (Electric) Fences provide a low cost alternative and more flexibility than the other types of fences. They are mostly used for interior cross fencing. They can be powered by a variety of types of energizers. Livestock must be trained to respect electric fences if they are to be effective.

Temporary Electric Fences are only used for interior cross fencing and areas where pressure from livestock is not heavy. They can be easily attached to permanent fences and can be of either high tensile smooth wire, net fencing (for use with sheep and goats), or polyethylene twine and/or tape.

High Tensile, non-energized fences are suitable as permanent fence in areas that receive moderate to heavy pressure from livestock but require more strands of wire than barbed wire to maintain the same level of control. These fences are safer for domestic animals, especially horses, and wildlife, than are the barbed wire fences.

Wooden Board Fences are recommended in areas where the main concerns are safety and aesthetics. Costs of installation and maintenance are higher than most other types of fencing. They are best suited for control of horses and when used for corrals and barn lots.

Other Fence Types include chain link, pipe, vinyl, galvanized panel and cable fences. These fences are generally more expensive to install and maintain. They are generally used around corrals and homesteads. They may be used to restrict access to unsafe areas such as lagoons, abandoned mines and other unsafe or sensitive areas. When used for livestock control, they will be designed based on the type of animal controlled.

MATERIALS AND INSTALLATION SPECIFICATIONS

The materials used in construction and installation of fences must be in accordance with and meet or exceed, in size, strength, durability and lifespan, the requirements listed in the Fence (382) Specifications.

VARIATIONS FROM MATERIALS AND CONSTRUCTION MAY BE APPROVED BY THE STATE RESOURCE CONSERVATIONIST IF SUFFICIENT DOCUMENTATION IS PROVIDED WHICH PROVES THAT THE VARIATIONS WILL RESULT IN AN INSTALLATION THAT WILL MEET OR EXCEED THAT WHICH IS DESCRIBED IN THIS FENCE STANDARD AND SPECIFICATIONS.

Electric fence materials and installation requirements can be found in Appendix A. Various figures of fence design and components mentioned throughout the specifications can be found in Appendix B.

Fence Construction Check-sheets for Electric and Non-electric fence are shown as Attachments 1 & 2.

I. WIRE

All wire will be of new galvanized material and in accordance with criteria outlined in Table 1 which follows ASTM - A 116 (woven wire), and/or ASTM-121 (barbed wire) standards.

Galvanization is critical to rust protection of wire and different classes of galvanization provide different levels of protection. Wire with Class I and Class III galvanization meets the minimum level of treatment required to protect the wire from rust for the expected life span. **Wires designated as regular, commercial and utility grade are available but do not offer the level of treatment to prevent rust and are not allowed for installation.**

Most wire manufacturers include wire specifications on fence tags. If information is not provided or known, lab testing may be needed to determine strength of wire.

A. WIRE INSTALLATION

Fence wire will be stretched to sufficient tension prior to being fastened to posts. Temperature variations must be considered (wire will tighten in cold weather and expand in hot weather).

For suspension fences, wire tension is critical and wires should be stretched to allow no more than 3 inches of sag between posts set at 100 feet and 1.5 inches for posts at 50 feet.

Wherever possible, wire will be attached to fence post on side receiving most pressure, at top wire heights based on intended use (Table 1). Wires below top wire will be spaced at equal intervals depending on animal to be controlled. Wires will be installed from top wire down.

Boundary and exclusion fences shall be constructed so that the wire is on the side of the post facing the animals to be controlled. Wire may be on either side of the post when cross fencing.

B. WIRE ATTACHMENTS

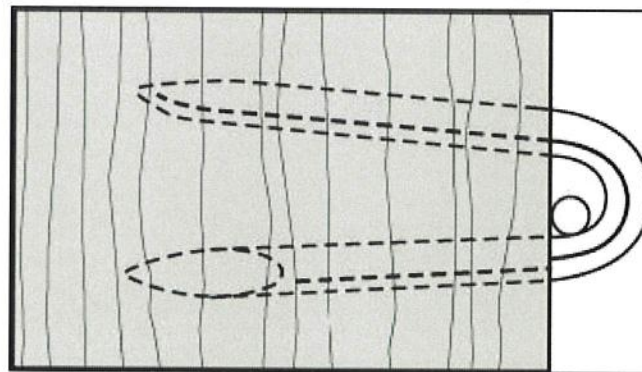
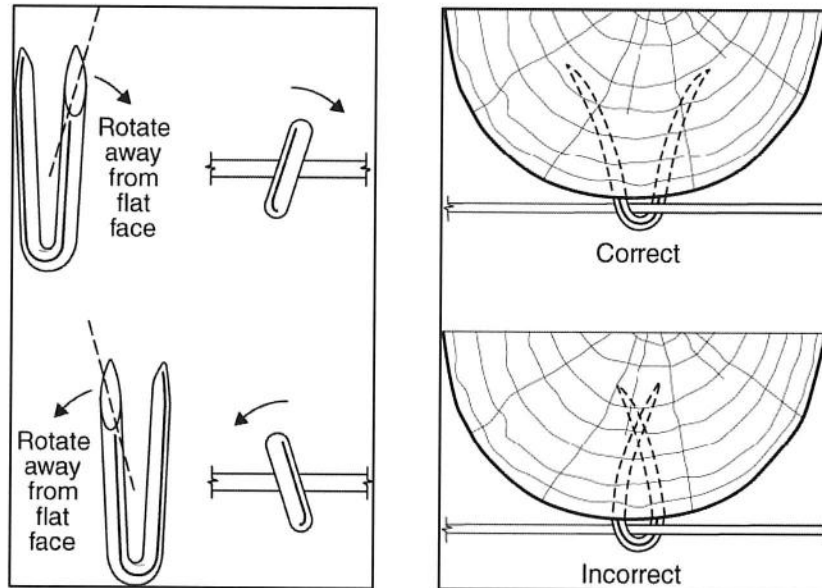
The following criteria will be followed for attaching wires to all posts:

1. *Wire clips*

- Wire clips should be 12 – 12 ½ gauge galvanized.
- Wire clips or drilled holes could also be used for fiberglass posts.
- Wire clips or fasteners must be galvanized and similar to strength of fence wire.

2. Staples

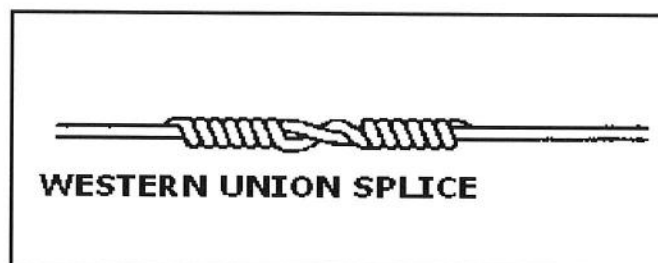
- 9-gauge steel staples with a minimum length of 1½ inches for soft woods (pine) and 1 inch for hardwoods (cedar, oak, mulberry, mesquite, black locust and Osage orange).
- Drive staples diagonally to the wood grain at a slight downward angle (upward if pull is up) to avoid splitting the post.
- Space will be left between post and staple to allow free movement of wire and to avoid damage to zinc coating.



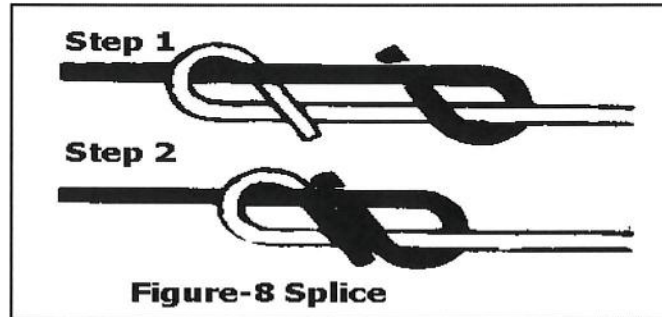
- See figures above to view the proper use of staples for fence construction.

3. Wire Splices

- Standard Wire - Western Union splices, as shown below, shall have a minimum of 8 wraps on each side of center, tightly wound and closely spaced.

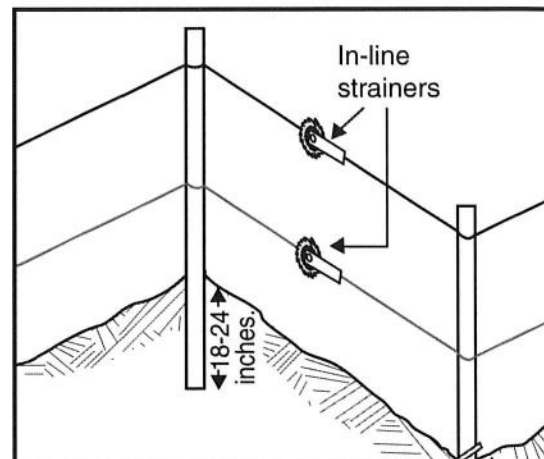


- Standard and High Tensile Wire - Compression fittings or splice sleeves will have a tensile strength not less than 80% of the wire. Ends of wire will be overlapped at least 2 inches with two sleeves fitted over wires and firmly crimped.
- Standard wire may also have "loop" splices where the wire has a minimum of 8 wraps on each side. (Western union is the preferred method, followed by compression fittings, but "loop" splicing is acceptable).
- High Tensile Wire – "The Figure 8", as shown below, can be used by overlapping wires 2 inches, looping each wire over and back through, then pulling together. As fence is stretched, the splice will tighten.



4. In-Line Strainers

- Used to maintain tension in permanent, high tensile steel, smooth wire fences.
- Will be placed near center of fence line to achieve equal tension at both ends of the line.
- Should be installed on each wire between each pull assembly and a distance not to exceed:
 - 4000 feet for straight line stretches
 - 1200 feet for uneven terrain or non-straight stretches.
- See illustrations below to view what one acceptable In-line Strainer looks like and the strainer's proper placement on the fence:



II. POSTS

Type, height, size, and spacing of posts will be used that best provides the needs for the types of fences required and is best suited for the topography of the landscape. See Table 1 for line post criteria and attached diagrams for brace assembly criteria.

A. POST MATERIALS

1. Wood Posts

In order for wooden posts to be used, the following criteria must be met:

- Must be new material, sound and free from decay
- Except for cedar, mesquite, Osage orange, catalpa, and black locust, all wood posts shall be new and treated with pentachlorophenol, creosote or chromated copper arsenate (CCA) by a method to ensure that complete penetration of the sapwood is obtained.
- Common treatments for Pine and Oak species is as follows:

<u>Treatment</u>	<u>Retention lb/ft³</u>
creosote coal tar	6.0
pentachlorophenol	0.3
chromated copper arsenate	0.4

- Minimum lengths will allow for required buried depth and fence height plus at least 2 inches of post above top wire for wire fences (to the top board of board fences).

2. Steel pipe posts

In order for steel pipe posts to be used, the following criteria must be met:

- Will be of good quality, painted or galvanized for rust resistance and components will be repainted if rusting occurs.
- Will have the top permanently capped to prevent rainfall from entering the post.
- Minimum lengths will allow for required buried depth and fence height plus at least 1 inch of post above top wire for wire fences.

3. Steel “T” or “U Section” posts

In order for Steel “T” or “U Section” posts to be used, the following criteria must be met:

- Shall be of high carbon steel weighing not less than 1.25 pounds per foot of length, exclusive of anchor plate. (T-posts that are 1.33 lbs/ft are preferred)
- Will have an anchor plate and be studded, embossed, or punched for wire attachment.
- Will be new, galvanized, enameled and baked, or painted with weather resistant steel paint and components will be repainted if rusting occurs.
- Minimum lengths will allow for minimum setting depth and fence height plus at least 2 inches of post above top wire.
- Buried depth will be approximately 18 inches. Anchor plate must be fully into and below ground surface.

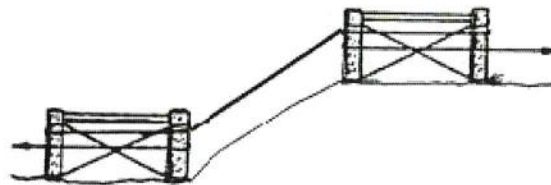
4. Wooden Board Fence

A wooden board fence shall have a minimum of 3 boards. The maximum board spacing shall be 16 inches center to center. The top edge of the uppermost board shall be at least 48 inches above the ground line, and the top edge of the lowest board shall be no greater

than 16 inches above the ground line. The board shall be a minimum size of 1" X 6" (nominal) and a minimum of 8 feet in length. Use untreated durable wood of such species as red cedar, black locust, or a non-durable wood that is preservative pressure treated. Treated lumber shall be treated with a minimum of 0.40 pounds/cubic foot chromated copper arsenate (cca) type A, B, or C or equivalent non-cca treatments. Boards and posts may be painted if desired. Nails should be galvanized and not less than 3 ½ inches long.

B. TYPE OF BRACE ASSEMBLIES

Braces determine the structural soundness and longevity of any fence line. Corners are braces that are located where there are changes in fence direction due to alignment. In-line braces are built where there are changes in slope. If any brace fails, there is a loss of wire tension and fence effectiveness. Design and spacing are determined from factors such as number of wires used, type of wire, soil type, terrain and animals to be restrained.



Braces on the top and bottom of steep slopes.

Fence braces fail because of structural failure, soil movement or failure or corner or end post pullout. Structural failure of an end brace is usually due to improper design, poorly selected materials, or over-stressed members. By carefully designing fence braces and properly proportioning and sizing the members, structural failures can be all but eliminated. Fence braces also fail when the soil is too weak to support the load, which allows the fence brace to move through the soil. Soil failures can usually be eliminated by using larger posts or by applying plates. Corner post pullouts, when braces lift out of the ground, can be eliminated by using longer fence braces and placing cleats on the post.

Bracing of anchor (pull) posts is required at all corners, gates and ends of the fence line. They are also needed at slope and alignment changes of the fence lines. See figures for selection criteria and design specifications of single and double brace assemblies.

1. In-Line Pull (H-Brace) Post

In-Line Pull Post assemblies are located in straight sections of the fence line and where there are sudden changes in elevation, such as the bottom and top of steep slopes greater than eight (8) percent. An In-Line Pull (H-Brace) Post assembly may be a Single Post Pull Assembly, H-Brace Pull Assembly or a Three-Post Welded Pull Assembly. Refer to **Figures 9 & 10**: H-Brace and Single Post Pull Assemblies and Three-Post Welded Pull Assembly for further descriptions of the various Pull Post Assemblies available.

- a. Wood - On single H-Braces, a minimum of 6 inch top diameter (nominal) of treated timber or durable wood listed above for upright post and a 4 inch diameter (nominal) for the horizontal cross post.
- b. Steel- Minimum 2-3/8 inches outside diameter (OD) metal pipe or equivalent. Steel cross-post must be a minimum of 2-3/8 inches OD.
- c. Spacing for non-electric fences between pull posts or pull post assemblies may be the length of the spool (normally 1320') on straight pulls on flat topography or at corners and points of extreme changes in slope and at curves.

2. Corner and End/Gate Post

Corner Braces are required at all points and will be installed when the fence alignment has a change of 20 degrees or more and the pull is from two directions. Braces should be used when the angle of the fence changes more than 20 degrees and/or when the slope change is greater than eight (8) percent (Strongly sloping).

End braces are required where fence ends and on both sides of gate openings.

- a. **Wood** - (Pressure treated or durable wood) shall have minimum top diameter of 6 inches, (nominal) 8 ft. in length, and be set firmly 3 ft. in the ground. Cross post will have a minimum 4 inch (nominal) top diameter.
- b. **Steel** - Minimum 2-3/8 inch steel pipe or equivalent, 8 ft. in length, set 3 ft. in ground. Steel cross-posts must be a minimum 2-3/8 inch diameter.
- c. Braces where angle of the fence changes more than 20 degrees can be an H-Brace or a Steel Welded Single Post End/Angle (Diagonal) Brace. See Figure 3.
- d. Allow newly-installed braces and assemblies to settle and/or pack dirt sufficiently around all post; do not over-tighten wires.
- e. **Figures 1** through **6** are illustrations of various Corner and End/Gate Post Braces used for construction of fences. **Figure 1** is the Welded Steel 3-Post Diagonal End Brace Assembly. **Figure 2** is the Single (1) Post Corner or Angle Brace Assembly. **Figure 3** is the Steel Welded Single Post/End Corner Brace. **Figure 4** is the Two (2) Post End Brace with Deadman Brace. **Figure 5** is the Three (3) Post Corner Brace with Optional Deadman. **Figure 6** is the Five (5) Post Corner Brace with Optional Deadman.

4. Anchor Post

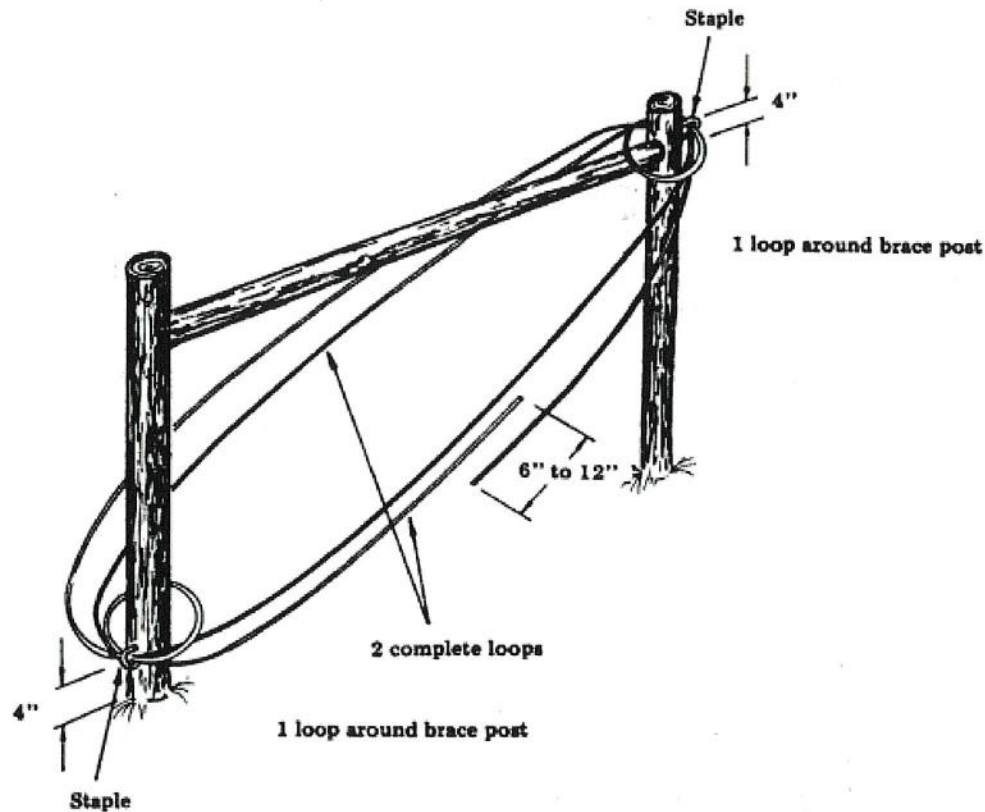
Water Crossings require adequate anchor posts of the same kind, grade and size of materials as adjacent fences on both sides of the water crossing. Special considerations are needed when crossing draws and water crossings to prevent washout or uplifting of posts out of the ground:

- For crossings wider than 20 feet, use the **End Brace** guidance. This guidance requires a single brace assembly (H brace) or single post brace (a single post with an angle brace).
- Where needed, flood gates will be attached below bottom wire and will be designed to allow water and debris to pass and still control livestock. Some type of hinged or breakaway floodgate works best.

Attaching wire to Anchor / Pull Posts - For standard wire fences, wires will be attached to anchor (pull) posts by two complete wraps around post, stapled (wood posts) or wired (steel posts) and ends tightly twisted around stretched wire at least six times.

For woven or mesh wire, determine amount of wire needed to fully wrap around post twice then remove enough vertical stays to provide the length needed. The wire ends are then attached as described above.

The figure below shows the proper way of attaching wire to anchor or pull posts if a deadman is not used:



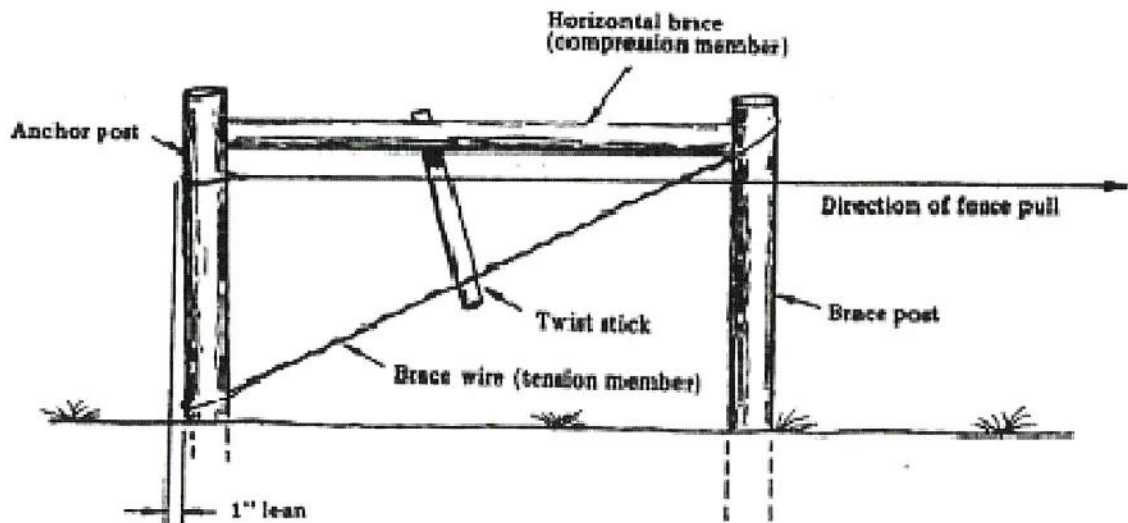
C. Setting Posts

1. When backfilled with dirt, posts will be centered in a hole at least 6 inches larger in diameter than the diameter of the post and tamped in 4 to 6 inch lifts up to ground level.
2. When backfilled with concrete, posts will be centered in a hole that is a minimum of 12 inches in diameter. The hole will be completely filled and crowned (mounded) at post base to prevent water from ponding around post at ground level.
3. When driven, wood posts greater than 4 inches will have an end sharpened into a dull point for ease of setting and to achieve a firmer setting. An auger-drilled pilot hole can also be used.
4. All dug post will be set at a depth of 3 feet. Driven post will be as follows:

Pipe Size	Depth Driven
2 3/8 in.	5 ft.
2 7/8 – 4 1/2 in.	4 ft.
5 + in.	3 ft.

5. Horizontal Braces (H Brace)

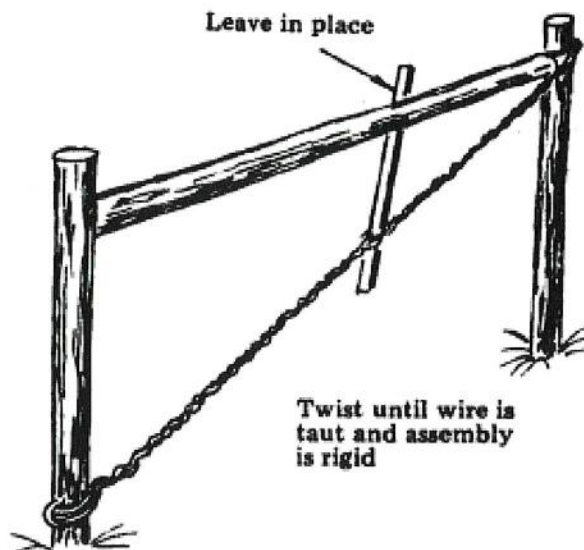
- Horizontal Braces (H Brace) are the most commonly used design in the construction of post braces. An example of a H Brace is shown below:



- Placement of the Horizontal brace should be a minimum of 2/3 height of the top wire height and no higher than 8 inches from the top of the post (See **Figure 4**).
- Diagonal braces will be attached to brace post a minimum of 6 feet from anchor post and set into concrete as specified for steel pipe posts or attached to a steel reinforced concrete block (See **Figure 3**).
- For slip braces, the steel reinforced concrete block must equal or exceed 225 square inches of surface area (Cinder pads are unacceptable).
- The slip brace must be at least 3 ½ inches width. (See **Figure 8**)
- Wood posts used for horizontal braces will be straight and free of splintering. The brace post and anchor posts should be notched to achieve a secure fit and the horizontal brace should be attached using screws, nails, or steel dowel pin (drilled to fit, and at least 2 inches into each post).
- Steel and angle iron members will be installed into a ¾ - 1 inch notch in brace posts.
- All steel assemblies will be welded and painted for rust protection.

6. Tension / Brace (Guy) Wires (where applicable)

- Two complete loops of 9-gauge smooth wire, 12½ gauge double strand barbed or smooth wire or 12½ gauge high tensile smooth wire.
- Wire will be twisted or strained to provide necessary rigidity with a twist rod that should be 18-24 inches long and will remain in place approximately midway along brace wire.
- For horizontal braces, brace wire will be double wrapped and stapled to brace post at a height 4-6 inches above brace member and anchor (pull) post at a point 4 inches above the ground level.
- If a deadman is used, the tension wire extending to the deadman must be one continuous loop.
- An illustration of a tension wire being used for the H Brace is shown below:



7. Deadman Brace

Deadman braces can be used as an alternative to a second brace in double brace assemblies. Use 1/2 inch or larger painted rebar or screw anchor for corrosive soils. A single H-brace may be used without a deadman if the length of pull is less than 300 feet and H-brace posts are buried 36 inches OR 600 feet and the H-brace posts are buried 42 inches. **Figure 4** shows a Deadman Brace being used for a Two-Post End Brace and **Figure 5** shows Three-Post Corner Brace with Optional Deadman.

D. Line Posts

1. Shall have a minimum length of 6 ft.; be set approximately 24 inches in the ground (18" in rocky soils).
 - Untreated wood (Cedar, Osage orange, mesquite, catalpa, or black locust) having a minimum top diameter of 3 inches.
 - Pressure treated wood (Pine most commonly available) with a minimum top diameter of 2-1/2 inches. Wood preservation treatment shall be in accordance with Federal Specifications No. TT-W-571i (.4 retention).
 - Steel - Standard T or U section steel post (1.25 lbs/ft) or equivalent metal rod or pipe. Galvanized steel post will be used in low-lying wet areas and/or wetlands. (5 1/2 foot length can be used in rocky soils set approximately 18 inches in the ground).
2. Maximum spacing is provided in Table 1. For wooden board fences, posts shall be spaced a maximum of 8 feet on center to accommodate board lengths.
3. Spacing may need to be narrower depending on terrain and pressure from livestock. Lanes, holding pens, areas around watering and feeding facilities as well as property boundaries will have a maximum spacing of 20 feet.
4. Installation shall ensure that adequate fence height is maintained based on its purpose.
5. Line posts will be set in as straight a line as possible between corners or turns.
6. Post should be set at definite slope and alignment changes. Posts that are set in low areas or gullies need to be weighted down to prevent lifting out. Using weights (rocks, blocks) or setting post in concrete can do this.

E. Stays

1. When line post spacing exceeds the maximum without stays, stays will be included and spaced at equal distances between posts with spacing not to exceed the maximum specified in Table 1.
2. Length of stays will be fence height plus 2 inches and installed so that stays swing free of the ground and allow fence to move when touched by animal.
3. Stays will be constructed of durable materials designed for this purpose.

F. Gates

1. Gates will be designed to accommodate cooperator objectives.
2. Wire gates shall be made of the same materials of the same kind, grade and size specified for the field fence and stays will not exceed a 4-foot spacing.
3. Gates constructed of wood, panels, aluminum or steel will have galvanized or painted hinges and be attached directly to a braced end / gate post.
4. Gates for energized fences shall be installed according to manufacturer's recommendations.

Table 1. Criteria for selection and installation of fences. Fence design and construction must meet or exceed these minimum criteria.

Kind of Grazing Animal	Kind of Fence	Galvanized Wire (New Only)		Type	Minimum Number of Wires	Maximum Line Post Spacing		Average Height of Top Wire	Wire Spacing		
		Non- Electric	Electric			Gauge	With 2 or More Stays			Without Stays	
Cattle/ Horses	Barbed			12 ½	Malleable	4	30'	20'	44"	a/	
	Barbed			13 ½	High Tensile	4	30'	20'	44"	a/	
	Barbed			14	High Tensile	4	30'	20'	44"	a/	
	Barbed			15 ½	High Tensile	4	30'	20'	44"	a/	
	Woven (net)/ Barbed				Malleable		30'	20'	44"	b/	
	Woven (net)/ Barbed			12 ½	High Tensile		N/A	25'	44"	b/	
			Smooth	12 ½	High Tensile 3/	1 9/ 5/	150'	100'	32"	c/	
			Smooth	12 ½	High Tensile 3/	2 9/ 5/	150'	100'	35"	d/	
			Smooth	12 ½	High Tensile 3/	3 9/	150'	100'	39"	e/	
			Smooth	12 ½	High Tensile 3/	4 9/	150'	100'	43"	f/	
			Smooth	12 ½	High Tensile 3/	5 9/	150'	100'	43"	g/	
		Barbed (suspension)		12 ½ 13 ½ 14 15 ½	Malleable or High Tensile	4	100' 4/		44"	a/	
	Sheep	Barbed			12 ½	Malleable	7 8/	30'	20'	36"	j/
Barbed				12 ½ 13 ½ 14	High Tensile	7 8/	30'	20'	36"	j/	
Woven (net)					Malleable	8/	30'	20'	39"	b/	
Woven (net)				12 ½	High Tensile	8/	N/A	25'	39"	b/	
			Smooth	12 ½	High Tensile 3/	4 9/ 5/	150'	75'	36"	h/	
			Smooth	12 ½	High Tensile 3/	5 9/	150'	75'	46"	i/	
Goats		Barbed			12 ½	Malleable	7 8/	20'	15'	36"	j/
		Barbed			13 ½ 14	High Tensile	7 8/	20'	15'	36"	j/
	Barbed			15 ½	High Tensile	7 8/	20'	15'	36"	j/	
	Woven (net)				Malleable	8/	30'	20'	39"	b/	
	Woven (net)			12 ½	High Tensile	8/	N/A	25'	39"	b/	
			Smooth	12 ½	High Tensile 3/	4 9/ 5/	150'	75'	36"	h/	
			Smooth	12 ½	High Tensile 3/	5 9/	150'	50'	36"	i/	
	Deer	Woven (net)				Malleable		20'	20'	96"	k/
Woven (net)					High Tensile		20'	20'	96"	k/	

TABLE 1 FOOTNOTES

- 1/ Gauge – Foreign-made 12 ½ gauge and heavier malleable steel barbed wire (not high tensile) must equal or exceed 950 pounds (lbs.) force break strength.
- 2/ At least 32" of woven (net) wire having at least 11 gauge top and bottom strands, 14 ½ gauge intermediate and stay wires, with stay wires spacing 12" or less. If cattle are the only livestock being managed, include two strands of 12 ½ gauge barbed wire or equivalent in tensile strength on top or 35" net wire with 1 strand of 12 ½ gauge barbed wire on top. When managing only sheep or goats, 39" net wire with 10 gauge top and bottom strands, and 12 ½ gauge intermediate and stay wires with spacing of 12" or less can be used in lieu of the first alternative.
- 3/ 170,000 PSI minimum strength or greater for 3 or more wire fences, 130,000 PSI minimum strength or greater for 2 wire or less fences, and minimum Type III galvanization which has .80 ounces of zinc per square inch of wire surface.
- 4/ Stays must be installed at not more than 15 foot intervals between line posts. All stays should swing free of the ground to permit the fence to sway when contacted by animals. Suspension fences shall not be constructed on a curve. Directional changes in the line shall be by definite angles and properly braced. Suspension fences should be constructed with approximately a 3 inch sag in the wire between posts to permit maximum sway of the fence.
- 5/ For use as cross-fence in a grazing system. Introducing animals to electric fencing in a designated training facility is recommended. Not recommended for exterior fences.
- 6/ Bottom section of at least 48" woven wire, 11 gauge or larger top and bottom strands, 14 ½ gauge or larger intermediate and stay wires, and stay wires spaced no more than 6 inches. Top section of at least 35" woven wire and made of 11 gauge or larger top and bottom strands, 14 ½ gauge or larger intermediate and stay wires spaced no more than 12 inches.
- 7/ Line posts must be set at significant high and low points along fence to maintain proper spacing and wire height.
- 8/ When cattle are grazed in addition to sheep and/or goats, use one barbed wire above the top wire or above 39 inch net, with approximately 10 inch spacing between top two wires.
- 9/ In some instances, an all-positive-charge fence will normally suffice. If experience shows that the soil on the site will dry to the point that it will not cause sufficient shock to the animal, then a combination of positive (+) and negative (-) wires should be used.
- 10/ 12 ½ gauge smooth wire with minimum Type III galvanization can be substituted for barbed wire when fencing is constructed for horses only.
- 11/ Wire must be new and have a minimum Class I galvanization.

TABLE 1 WIRE SPACING FOOTNOTES

- a/ Bottom wire set a minimum of 14" above ground with middle two wires set at 10" intervals, and top wire set at not less than 44" above ground.
- b/ At a minimum 32" woven (net) wire set at ground level with one strand of 12 ½ gauge barbed wire or equivalent set 3" above the woven wire, and another strand of 12 ½ gauge barbed wire set 10" above the first barbed wire, or 35" woven (net) wire set at ground level with one 12 ½ gauge barbed wire or equivalent set 10" above the net wire. For sheep and goats alone, 39" net wire set at ground level will suffice.
- c/ One "hot" wire set 24" - 40" above ground level, depending on the size of the animal to be controlled. This spacing also includes offset wire on existing fences.
- d/ Top wire shall be set from 30" - 42" above ground, with second wire set below at 14" - 24" above ground level.
- e/ Top wire shall be set from 34" - 48" above ground, with middle wire set at 24" - 36" above ground, and bottom wire set at 12" - 24" above ground.
- f/ Interior or boundary fence. Top wire shall be set from 42" - 60" above ground, second wire from top set at 34" - 48" above ground, third wire from top set at 20" - 34" above ground, and bottom wire set at 10" - 20" above ground. Wire spacing needs to be constructed in a manner **not** to allow the animal's head to penetrate the fence without being shocked.
- g/ Boundary fence with top wire set 50" - 60" above ground level, 4th wire set 40" - 50" above ground level, 3rd wire set 30" - 40" above ground level, 2nd wire set 20" - 30" above ground level, and bottom wire set 10" - 20" above ground level. Wire spacing needs to be constructed in a manner not to allow the animal's head to penetrate the fence without being shocked.
- h/ Top wire (hot) shall be set at 36" above ground level with the lower wires (grounded or hot) spaced at 24", and 14" above ground, with bottom wire (hot) no higher than 6" above ground level.
- i/ Top wire (hot) shall be set at 36" above ground level with lower wires (hot or alternating ground/hot) spaced at 26", 18", and 12" above ground level, with the bottom wire (hot) no higher than 6" above ground level.
- j/ Top wire shall be set at 34" - 36" above the ground level, with the remaining 6 wires set no more than 5" apart and the bottom wire set no higher than 5" above ground level.
- k/ Wildlife fencing. See **Figures 19** and **20**.

APPENDICES

Section A

GENERAL MATERIAL AND INSTALLATION CRITERIA APPLICABLE TO PERMANENT ELECTRIC FENCES ONLY

I. ENERGIZERS & COMPONENTS

A. ENERGIZERS

For permanent electric fences, energizers should contain high voltage/low impedance short pulse which can produce at least 4000 volts output, with all livestock containment fences charged (on) when under maximum anticipated load. Electric energizers (power fence controllers) will be installed according to manufacturer's recommendations and will meet the following minimum criteria:

1. Recommend one DIGITAL read out volt meter to be accompanied with energizer.
2. The energizer may be solar, 110 or 220 volt, or 12 volt battery units. For 110 volt or 220 volt energizers, install a voltage spike/surge protector to protect energizer from power surges from the energizer plug.
3. High power, low impedance with a 5,000 volt peak output and a pulse that is less than 300 milliamps (mAmps) in intensity, finished within 0.0003 of a second, and at a rate of 35-65 pulses per minute.
4. Solid state circuitry and high impact weather resistant case.
5. Safety pace fuse to prevent over-pulsing
6. Joule rating high enough to provide a minimum shock at the farthest point as follows:
 - Cattle – 1600 volts
 - Sheep and hair goats – 2000 volts
 - Horses, hogs and meat goats – 1200 volts
7. Chargers will be grounded and protected from lightning according to energizer manufacturer's recommendations.
8. See **Figures 11** and **12** for the typical installation of an electric fence energizer and grounding system.

B. GROUNDING RODS

A minimum of three (1/2 inch diameter) 6 ft. long galvanized steel rods will be installed near the energizer and spaced at 10 ft. intervals (See **Figures 11, 12** and **14**).

1. Avoid mixing dissimilar materials to prevent electrolysis (do not use copper components).
2. For large energizer systems (14 or more joules), use a minimum of 3 additional feet of ground rods per joule of energizer output capacity.

C. LIGHTNING ARRESTORS OR LIGHTNING CHOKE

1. Lightning arrestors or chokes will be required as shown in **Figures 11** and **12**.
2. Install an additional set of four 6 ft. ground rods for lightning arrestor. Locate rods 65 ft. away from ground rods set for the energizer. These rods will also be spaced 10 ft. apart.

3. Energizer manufacturers' requirements for lightning protection must be met or exceeded.

D. IN-LINE STRAINERS

1. Used to maintain tension in permanent, high tensile steel, smooth wire fences.
2. Will be placed near center of fence line to achieve equal tension at both ends of the line.
3. Should be installed on each wire between each pull assembly and a distance not to exceed:
 - 4000 feet for straight line stretches
 - 1200 feet for uneven terrain or non-straight stretches.
4. See **Figure 13** for In-Line Strainers being used to maintain tension in high tensile steel smooth wire fences.

E. ELECTRIC INSULATORS

1. Porcelain, ceramic, high quality UV Stabilized polyethylene or equivalent insulators will be used on wood and steel posts.
2. Offset Brackets can be attached to standard fences at intervals of 50-60 feet and a height equal to 2/3 the height of the animal controlled.
3. Any electric insulators used shall be capable of withstanding a minimum of 10,000 volts.

F. OTHER ACCESSORIES

1. Warning signs

Electric fence warning signs are recommended every 300 ft. on exterior fences. Warning signs are also recommended to be posted around barns, troughs, and other facilities as specified by any local, state, and/or federal laws or regulations.

2. Gate handles, switches, and other hardware used to conduct electrical current must be galvanized or contain aluminum components. See **Figure 14** for illustration for electric fencing and a single strand gate and placement of galvanized ground rods.
3. For areas that cross creeks and streams, an electric fence flood gate is necessary to allow debris to pass through but keeping the livestock in. See **Figure 16** to see an electric fence flood gate and their components.

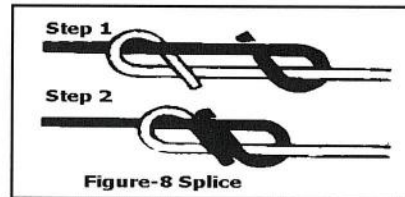
G. HOT WIRE PLACEMENT

When two or more wires are used, the top wire should always be hot. With two wires, the bottom can be hot or grounded. Three or more wires will alternate hot and ground with top and bottom wires being hot.

II. WIRE REQUIREMENTS

- A. Galvanized 12 ½ gauge high tensile steel wire with Class III galvanized coating. Minimum strength for 3 or more wires should be 170,000 PSI or greater and 130,000 PSI minimum strength for 1 or 2 wires.
- B. Wires attached to line post must be allowed to slip and be locked to stay post if applicable.
- C. For splicing high tensile strength wire, use only the equivalent of crimping sleeves, figure eight knots or thread through knot. All electrical connections (both ground and positive) must use the equivalent of crimping sleeves or galvanized joint clamps. See **Figure 15** in the proper methods of tying High Tensile Wires.

1. High Tensile Wire - Compression fittings or Splice sleeves will have a tensile strength not less than 80% of the wire. Ends of wire will be overlapped at least 2 inches with two sleeves fitted over wires and firmly crimped.
2. High Tensile Wire – “The Figure 8”, as shown below, can be used by overlapping wires 2 inches, looping each wire over and back through, then pulling together. As fence is stretched, the splice will tighten.



- D. Underground wire - All underground wire(s) must be insulated, molded, high tensile strength steel 12½ gauge or larger wire. The insulation must be high density polyethylene or polypropylene with ultraviolet (UV) stabilizer and capable of withstanding a minimum of 10,000 volts. See **Figure 14** to see the underground wire being used where a gate is located.

III. POSTS

- A. **LINE POST** Note: PVC, composite, fiberglass and similar posts may melt when exposed to fires.

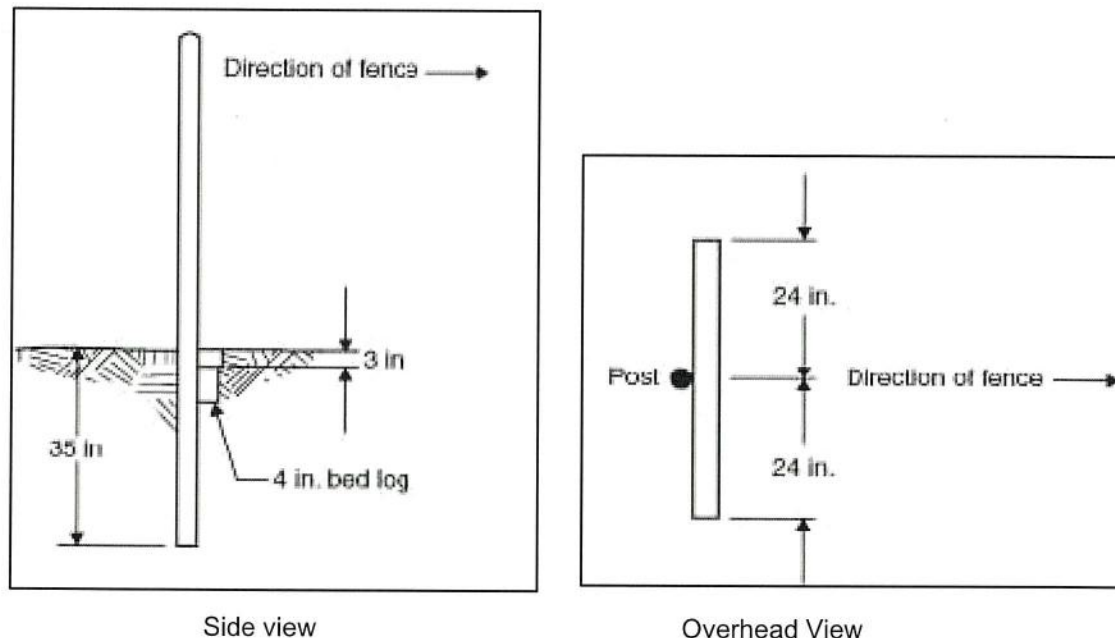
Maximum line post spacing with 2 or more stays will be 150 ft. apart. The maximum line post spacing without stays will be 100 ft.

Fiberglass sucker rods of no less than 3/8 inch diameter can be used on 1 and 2 wire fences. Fiberglass sucker rods must be at least 5/8 inch in diameter on fences more than 2 wires.

1. Fiberglass T-post must be new and at least one (1) inch in cross-section for fences with more than 2 wires. Steel T-post and other conductive material post can be used ONLY if polyethylene or polypropylene with ultraviolet (UV) stabilizer insulators are used.
2. Fiberglass posts will be a composite of marble fiberglass and polymer resin, treated by thermosetting.
3. PVC post can be used as stays if material is UV treated. PVC stays must be at least ½ inch in diameter.
4. Composite, non-conductive, UV protected posts made of 30% wood fiber and 70% polypropylene at least 1 1/8" diameter.
5. Pull post or pull post assemblies for electric permanent fence shall be spaced no more than 1/2 mile apart on undulating terrain. On flat terrain, spacing may be increased to end of spool (normally 4000 ft.).

- B. **CORNER AND END/GATE POST** (See **Figures 1-8**, 17 & 18 for specifications)

1. Minimum post length will be determined by the number of wires used. The length of the post should be 36" (below ground) plus 6" above the height of the top wire (For example: a 2-wire fence with the top wire set at 30"; the minimum post length will be 72" or 6 ft.).
2. Braces for electric fences with two wires or less can use a Bed Log Brace as shown below. A Bed Log Brace shall consist of a wood (pressure treated or durable wood) post with a minimum top diameter of 4" set 3 ft. below ground or a steel post with a minimum 2-3/8 inch outside diameter, permanently capped, set 3 ft. below ground. The bed log shall be 4 ft. long and set at a minimum of 3 inches below ground.



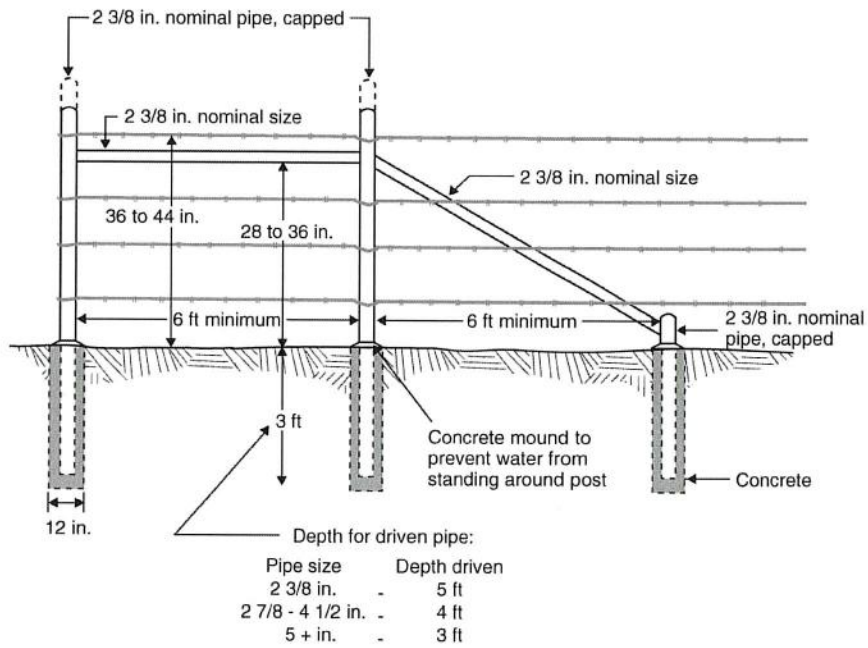
3. Wood Post - (Pressure treated or durable wood) Single pole post are for low tension applications only. A single wood post can be used on fences with 2 wires or less. Post will have a minimum top diameter of 6 inches and be set firmly in concrete, 3 ft. in the ground.
4. Steel Pipe Post – Single Post Brace Assemblies: These will be used for low tension applications only. A single steel pipe can be used on fences with 2 wires or less. Minimum of 2-3/8 inch steel pipe or equivalent, permanently capped, set 3 ft. in ground in concrete. These types of steel post bracing system are adequate for permanent electric fences that are 2 wires or less with a 1600 feet or less pull distance between braces.
5. Steel “T” Post - There are several commercially manufactured systems that incorporate “T” post into bracing assemblies. These should meet or exceed the strength, durability and effectiveness of those provided here (1.33 lbs. /ft) and be installed according to manufacturer guidelines. Commercial or shop-made steel T post brace assemblies comparable to **Figure 17** are acceptable where length of pull is 1600 feet or less and number of wires is 3 or less. See **Figures 17** and **18** for various illustrations of a Steel T Post bracing system for electric fences.
5. For 3 or more wire fences or when heavy duty gates will be installed, a minimum of 2 posts in line will be installed to provide a suitable anchor for the fence. Post will have a minimum top diameter of 6 inches, 8 ft. in length, and be set firmly 3 ft. in the ground. Cross post will be minimum 4 inches (See **Figure 4**).
6. Allow newly installed braces and assemblies to settle and/or pack dirt sufficiently around all posts, do not over-tighten wires.
7. Steel pipes must be permanently capped to exclude rainwater and all metal components used must be painted with a durable permanent rust resistant coating or be galvanized; components will be repainted if rusting occurs.

APPENDICES

Section B

FIGURES & ILLUSTRATIONS FOR
NON-ELECTRIC AND ELECTRIC FENCES

FIGURE 1: WELDED STEEL 3-POST DIAGONAL END BRACE ASSEMBLY



Pipe must be painted or galvanized

FIGURE 2: SINGLE POST CORNER OR ANGLE BRACE ASSEMBLY

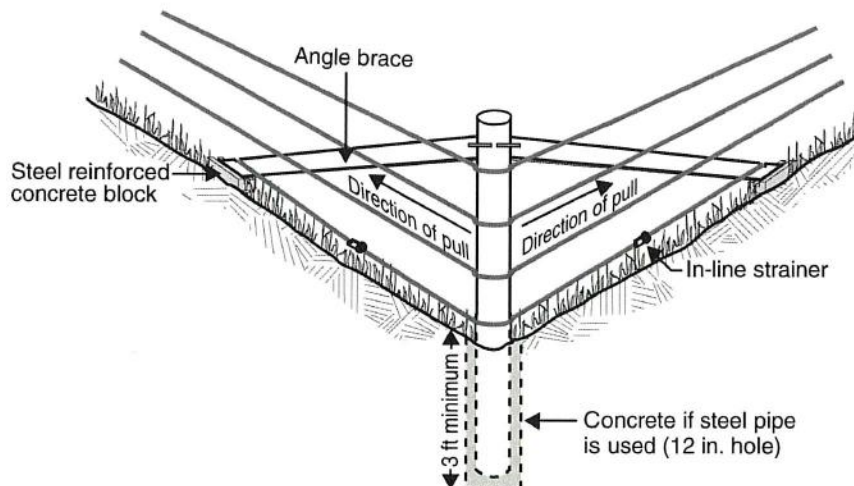
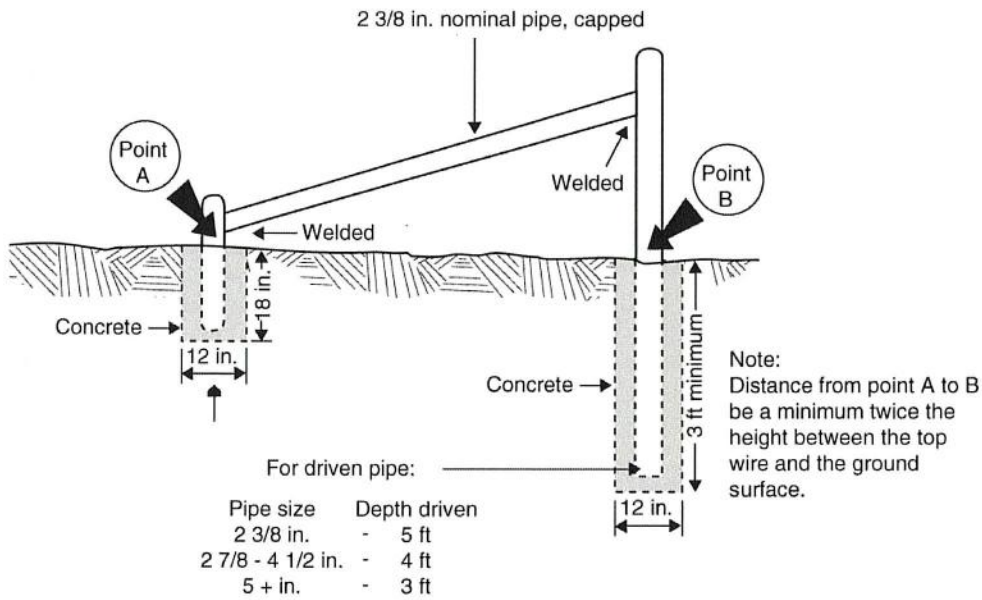


FIGURE 3: STEEL WELDED SINGLE POST END/CORNER BRACE



Materials must be painted or galvanized

FIGURE 4: TWO (2) POST END BRACE WITH DEADMAN

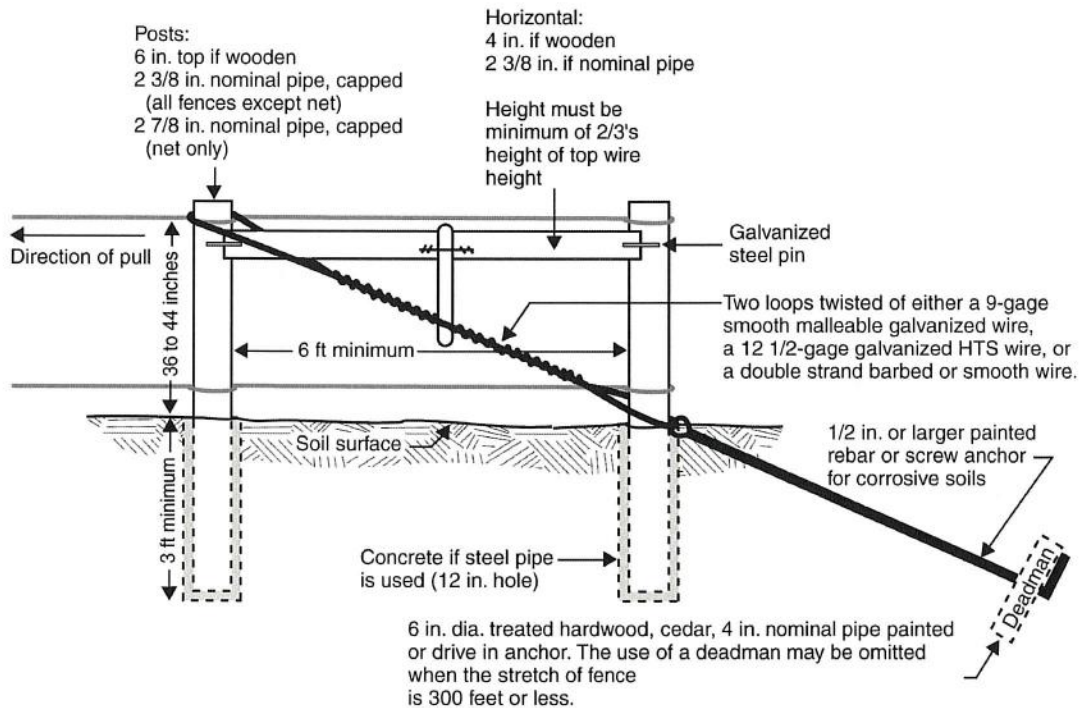


FIGURE 5: THREE (3) POST CORNER BRACE WITH OPTIONAL DEADMAN

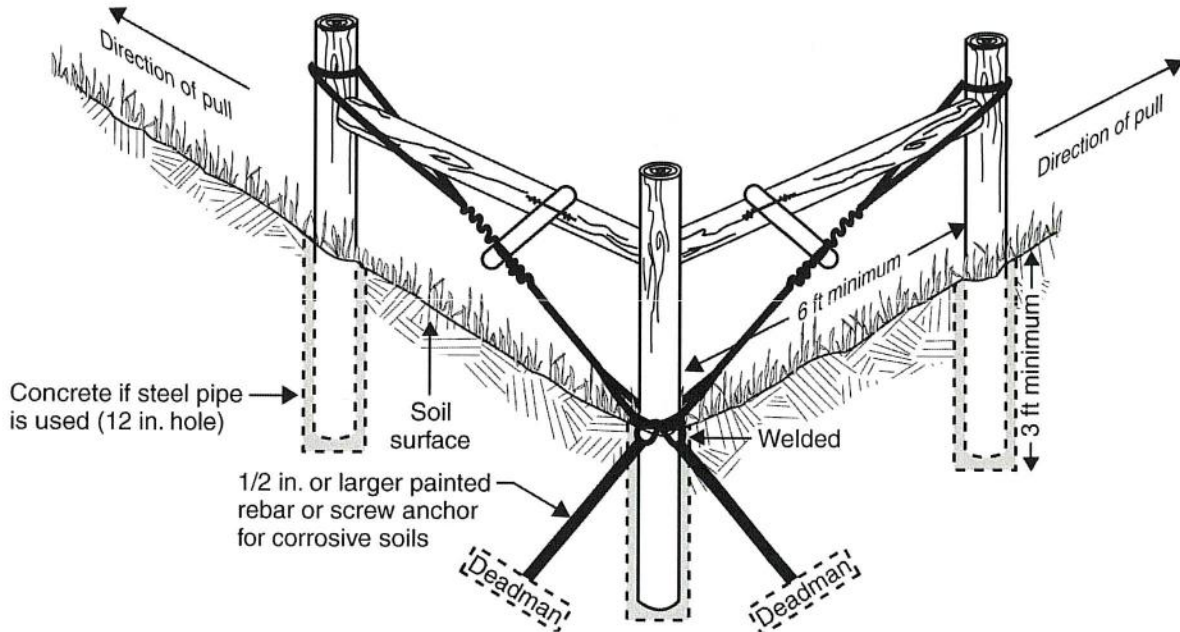


FIGURE 6: FIVE POST CORNER BRACE WITH NO DEADMAN SHOWN

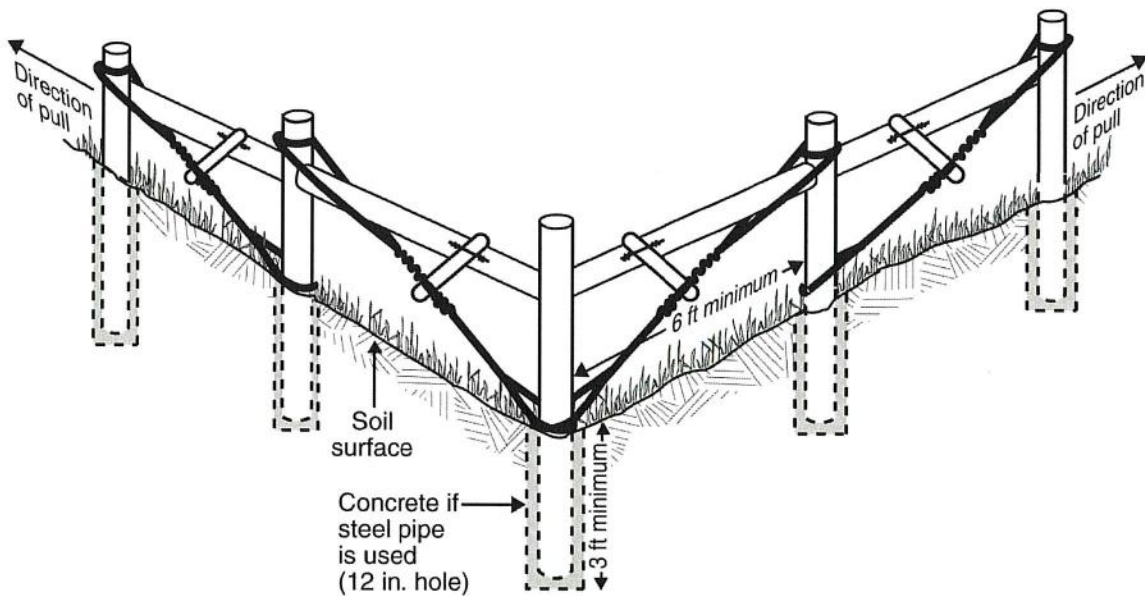
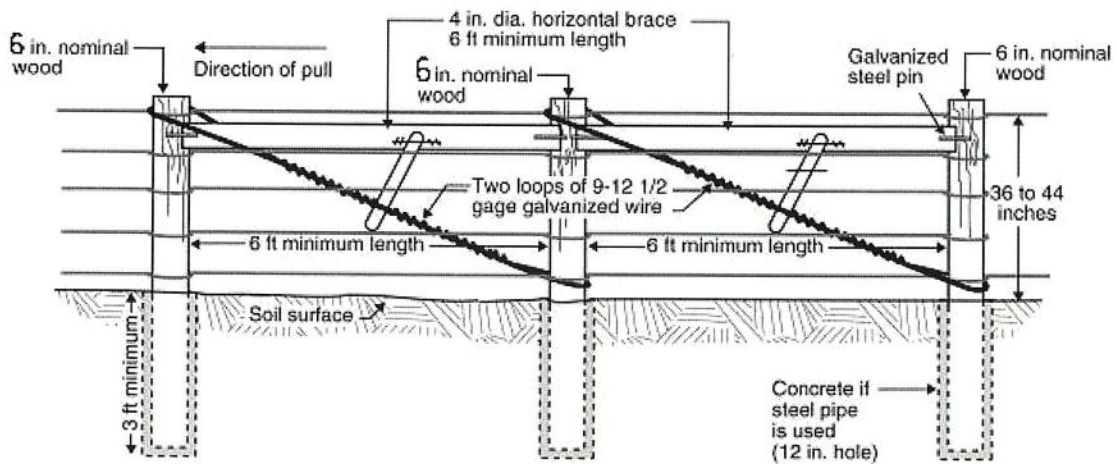


FIGURE 7: THREE POST DOUBLE "H" BRACE END ASSEMBLY WITHOUT DEADMAN



Note: Materials shown above may be substituted using 2 3/8 in. steel pipe, capped, set in concrete (12 in. diameter hole). Pipe must be painted or galvanized

When using steel pipe, an option for the second brace may be a diagonal brace installed according to the diagram for the Steel Single Post Welded brace.

FIGURE 8: SINGLE POST END SLIP BRACE ASSEMBLY

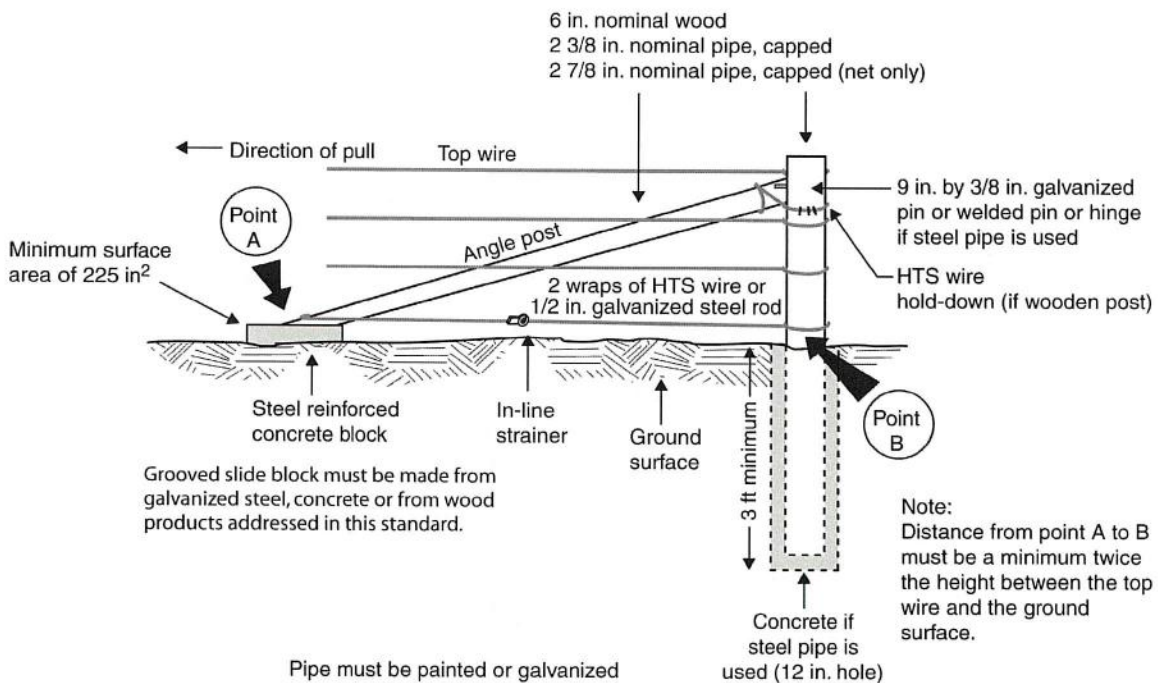


FIGURE 9: "H" BRACE AND SINGLE POST PULL ASSEMBLIES

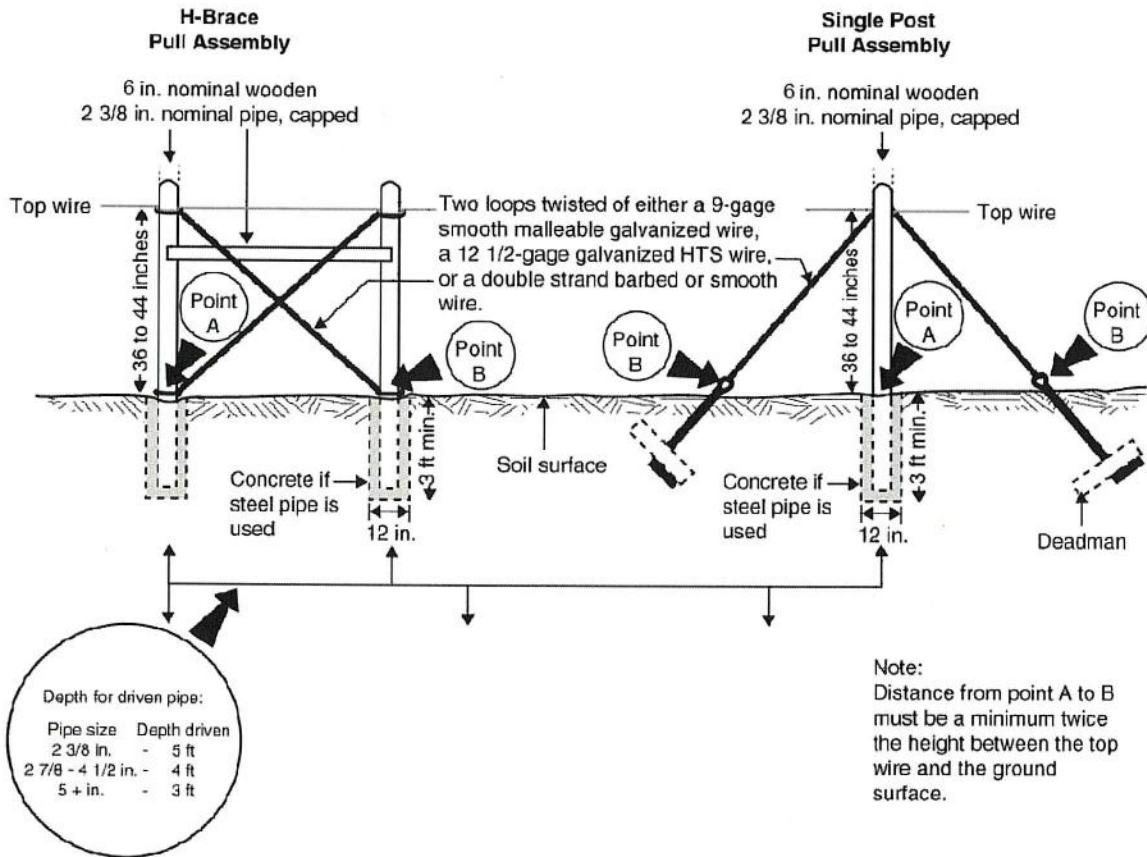
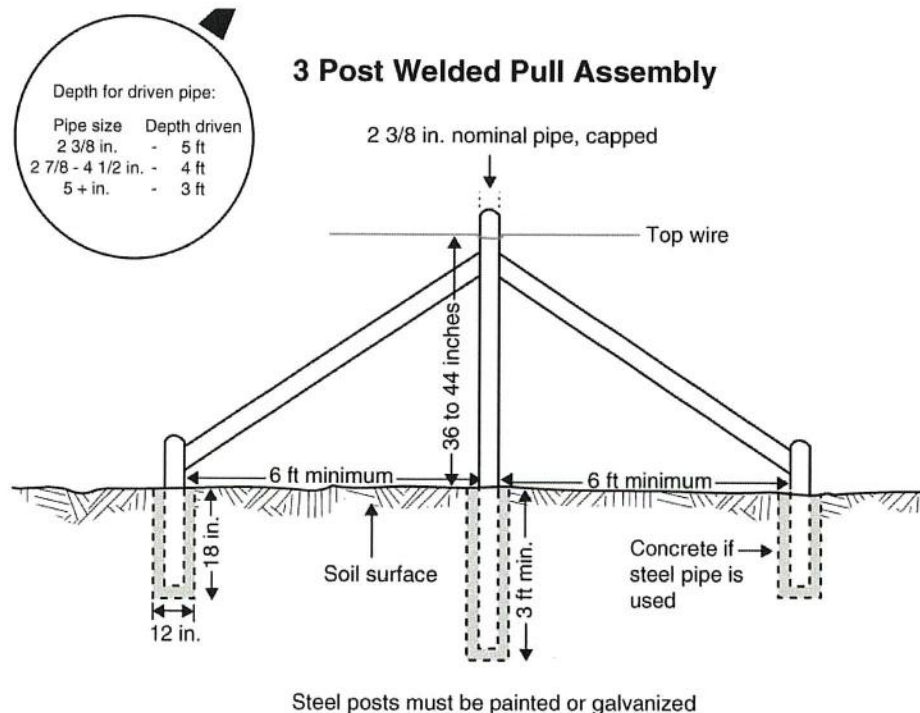


FIGURE 10: THREE POST WELDED PULL ASSEMBLY



FIGURES 11, 12, 13, 14, 15: ELECTRIC FENCE COMPONENTS

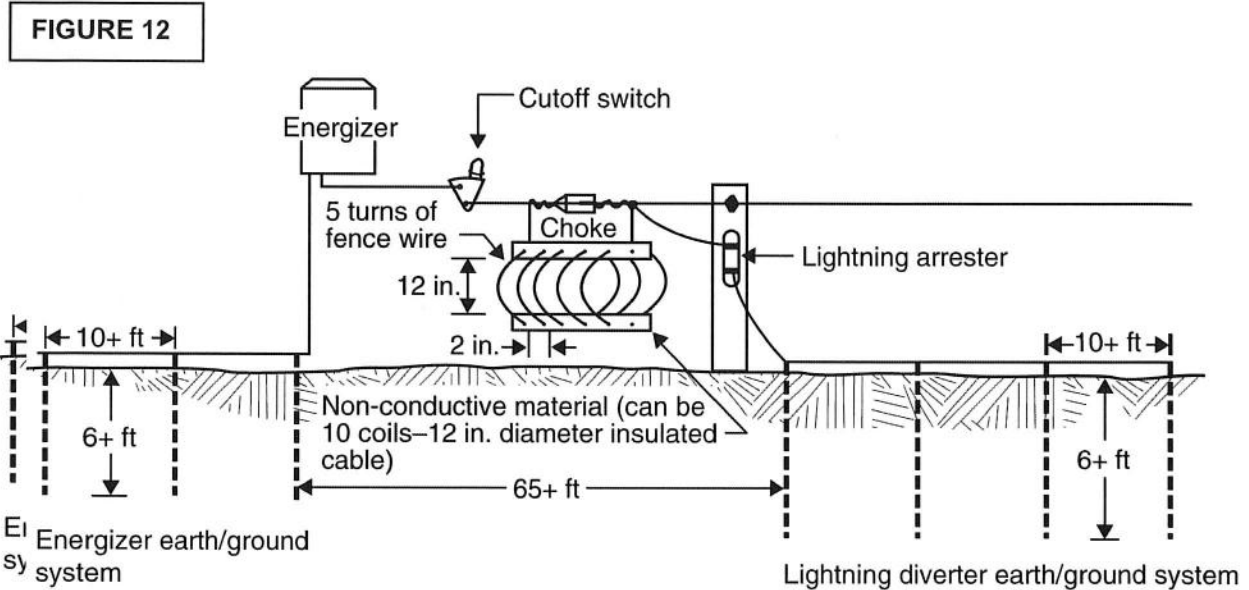
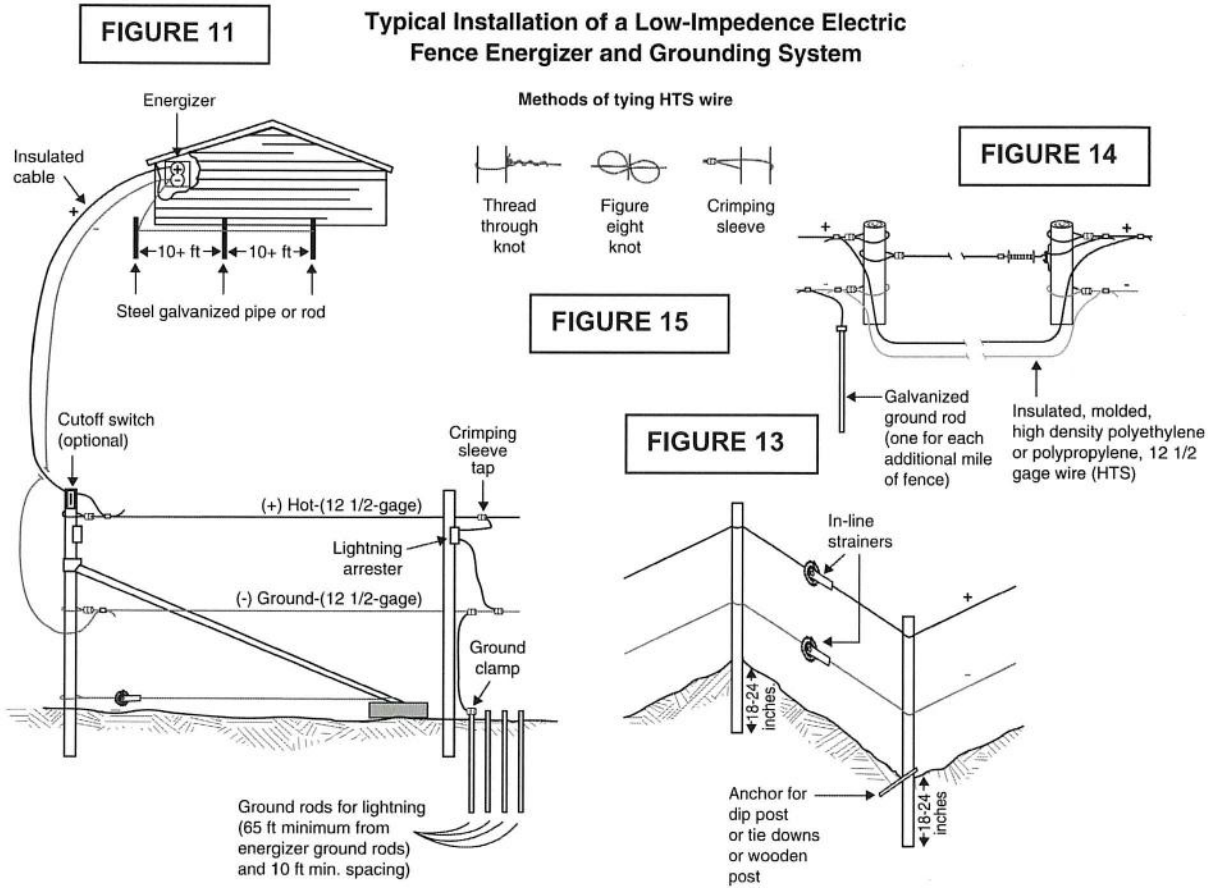


FIGURE 16: ELECTRIC FENCE FLOOD GATE

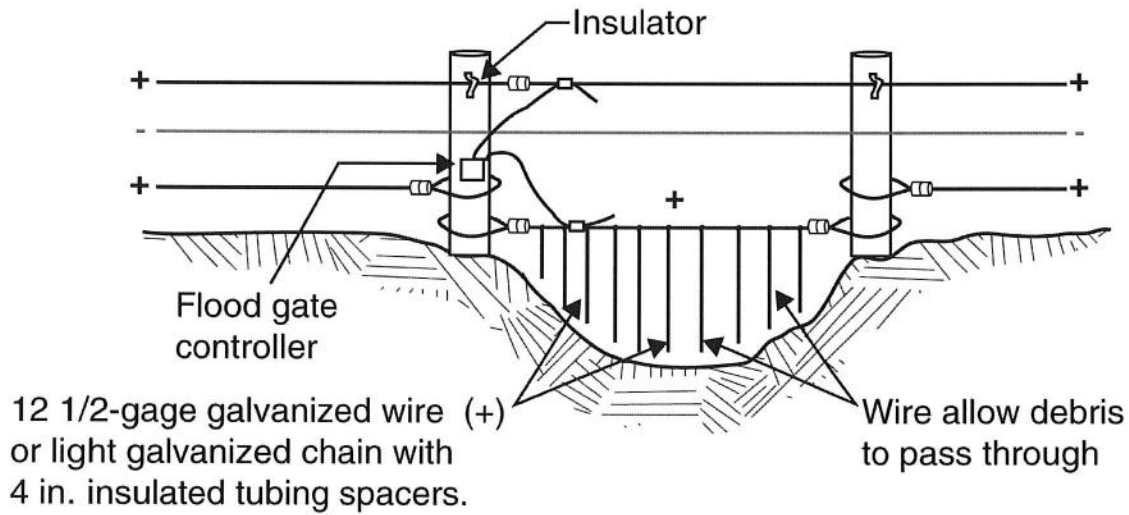


FIGURE 17: STEEL T – POST DIAGONAL CORNER POST FOR ELECTRIC FENCE

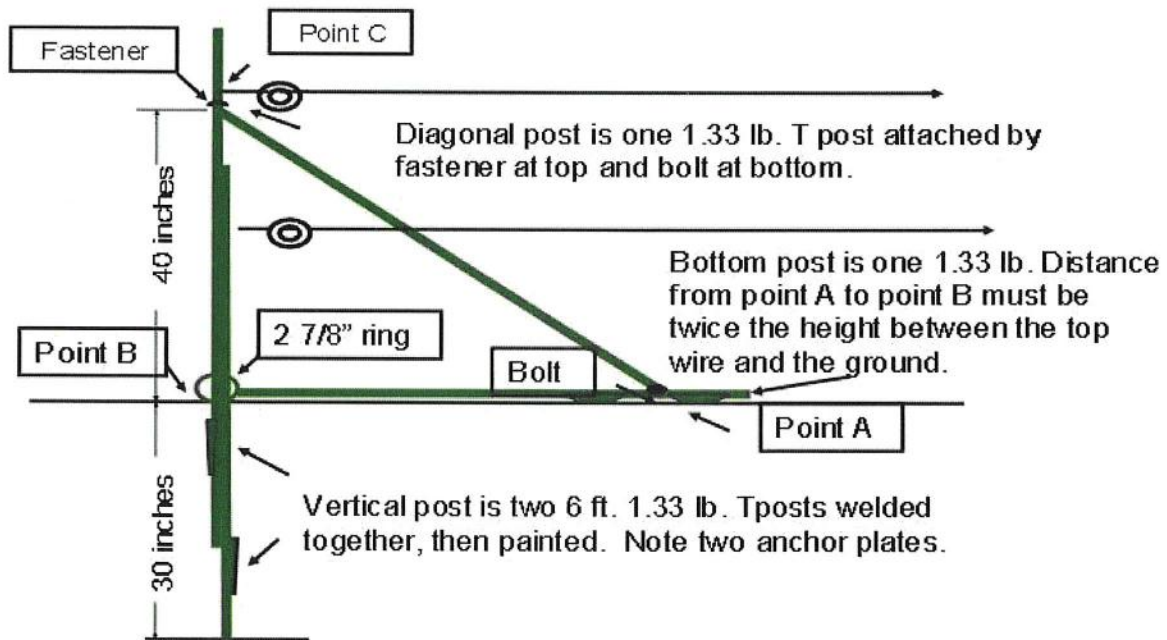


FIGURE 18: CLIP AND FASTENER ASSEMBLY ELECTRIC FENCE – SIDE AND REAR VIEWS

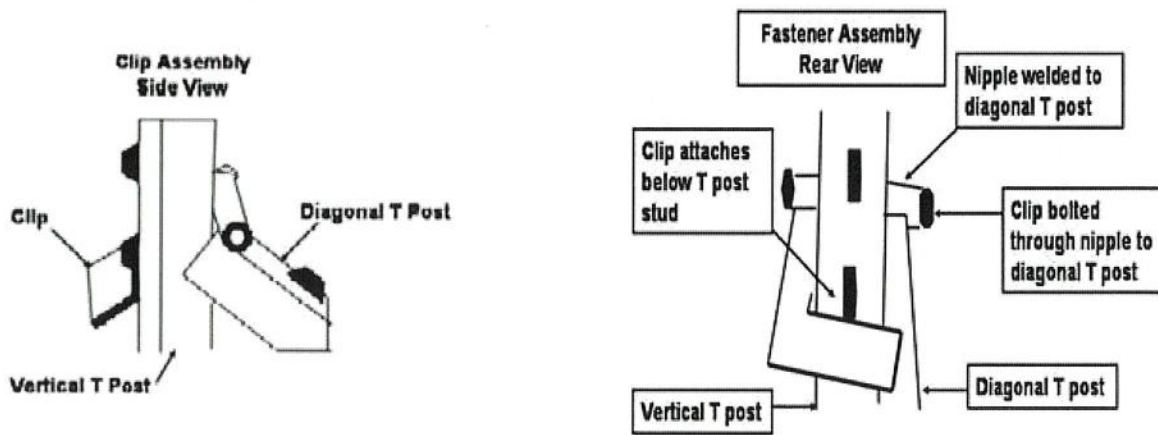
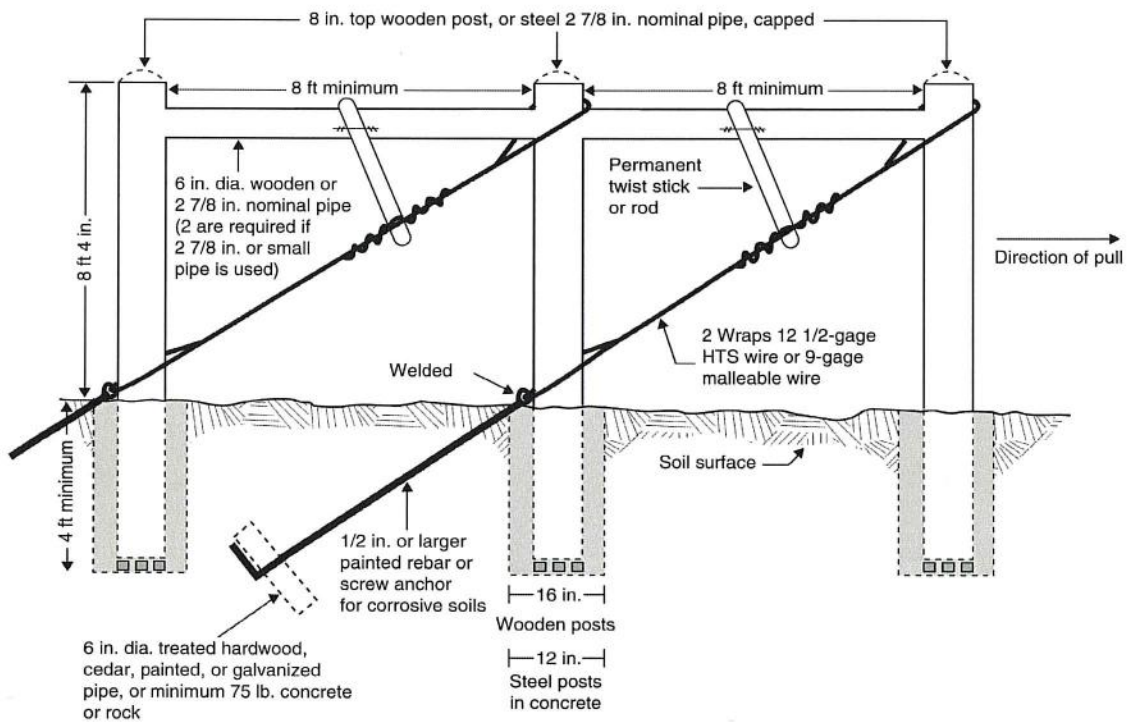


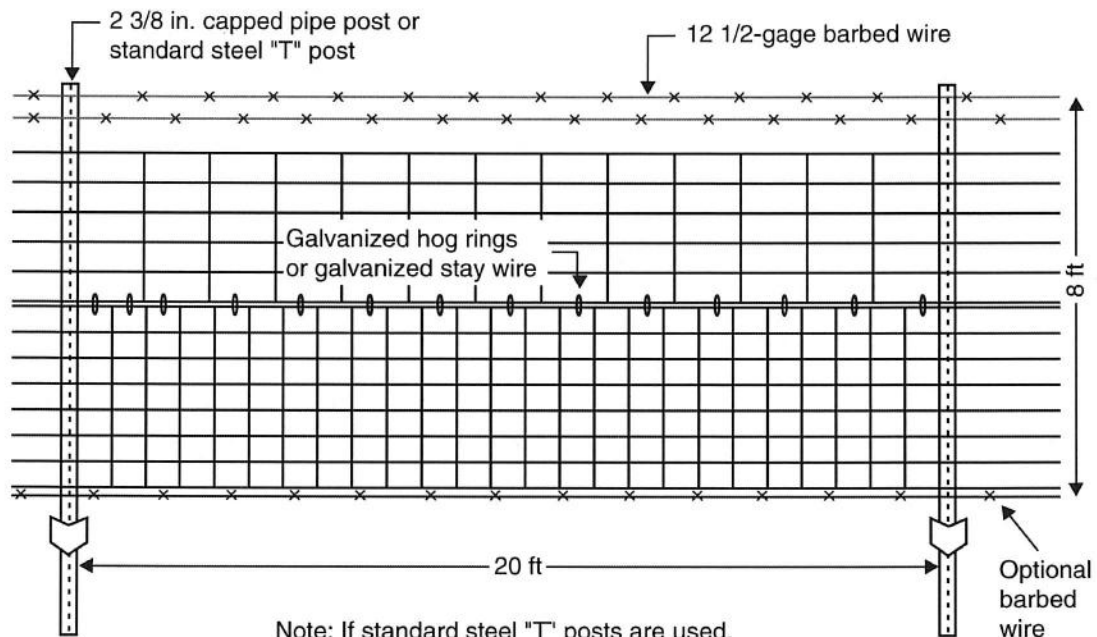
FIGURE 19: END BRACE ASSEMBLY FOR DEER MANAGEMENT FENCES



Deadman is optional except where surface layer of soil is more than 20 inches in depth of loamy fine sand or coarser.

Steel posts must be painted or galvanized.

FIGURE 20: FENCE CONSTRUCTION SPECIFICATIONS FOR DEER MANAGEMENT FENCES



Note: If standard steel "T" posts are used, Install 2 3/8 in. pipe post (capped) or 6 in. top wooden post every 150 ft (Wooden stays may be placed between line post as needed.

Steel posts must be painted or galvanized.

ATTACHMENT 1

U.S. Department Of Agriculture

Natural Resources Conservation Service

LA-10/01

Fence Construction Check Sheet (Non-Electric)

Landowner: _____		Planned	Installed
Field No: _____	Tract No: _____	By: _____	_____
Fence No: _____	Length: _____	Date: _____	_____

	<u>Unit</u>	<u>Minimum</u>		
I. Wire				
A. Barbed wire (galvanized)	Total Footage		_____	_____
1. Size	Gauge	_____	_____	_____
2. Strands	Number	_____	_____	_____
1. Height of top wire	Inches	_____	_____	_____
2. Splice used?				
B. Net Wire (galvanized)	Total Footage		_____	_____
1. Size (Top and bottom strand)	Gauge	_____	_____	_____
(Intermediate and stay stands)	Gauge	_____	_____	_____
2. Spacing of stay wire	Inches	_____	_____	_____
3. Height of net wire	Inches	_____	_____	_____
4. Height of fence (top wire)	Inches	_____	_____	_____
5. Strands above/below net wire	Number	_____	_____	_____
II. Corner, End/Gate, and H-Brace Posts (See attached diagram)				
A. Corner and End/Gate Post				
1. Kind	Material	_____	_____	_____
2. Length	Feet	_____	_____	_____
3. Nominal Top Diameter	Inches	_____	_____	_____
4. Depth to Set	Inches	_____	_____	_____
5. Amount	Number	_____	_____	_____
B. Cross-member				
1. Kind	Material	_____	_____	_____
2. Length	Feet	_____	_____	_____
3. Nominal Top Diameter	Inches	_____	_____	_____
4. Amount	Number	_____	_____	_____
5. Distance below top wire.	Inches	_____	_____	_____
C. H-Brace Post				
1. Kind	Material	_____	_____	_____
2. Length	Feet	_____	_____	_____
3. Nominal Top Diameter	Inches	_____	_____	_____
4. Depth to Set	Inches	_____	_____	_____
5. Amount	Number	_____	_____	_____
III. Line Posts (2)				
A. Wood or Pipe Posts				
1. Kind	Material	_____	_____	_____
2. Length	Feet	_____	_____	_____
3. Nominal Diameter	Inches	_____	_____	_____
4. Spacing	Feet	_____	_____	_____
5. Amount	Number	_____	_____	_____
B. Steel Posts				
1. Kind	Coating	_____	_____	_____
2. Length	Feet	_____	_____	_____
3. Weight per Foot	Pounds	_____	_____	_____
4. Spacing	Feet	_____	_____	_____
5. Amount	Number	_____	_____	_____

All gates used must meet or exceed standard for type of fence constructed. The Vicinity Map/Diagram must be attached to this Check Sheet for meeting Fence Standard 382.

The design of this practice has been discussed with me and I concur with the design (PRODUCER)
Signature: _____ Date _____

This practice meets Louisiana Standards and Specifications (DISTRICT CONSERVATIONIST)
Signature: _____ Date _____

ATTACHMENT 2

U.S. Department Of Agriculture

Natural Resources Conservation Service

LA-10/01

Fence Construction Check Sheet (Electric)

Landowner: _____			Planned	Installed
Field No: _____	Tract No: _____	By: _____	_____	_____
Fence No. _____	Length: _____	Date: _____	_____	_____

	<u>Unit</u>	<u>Minimum</u>		
I. Wire	Total Footage		_____	_____
A. Size (12 1/2 gauge)	Gauge	_____	_____	_____
B. Strands	Number	_____	_____	_____
C. Average height of wires	Inches	_____	_____	_____
II. Brace Assemblies (See attached diagram)	Number	_____	_____	_____
A. Post				
1. Kind (1)	Material	_____	_____	_____
2. Length	Feet	_____	_____	_____
3. Nominal Top Diameter	Inches	_____	_____	_____
4. Depth to Set	Inches	_____	_____	_____
5. Concrete (80 lbs. bag)	Number	_____	_____	_____
6. Amount	Number	_____	_____	_____
B. Cross-member (when required)				
1. Kind (1)	Material	_____	_____	_____
2. Length	Feet	_____	_____	_____
3. Nominal Top Diameter	Inches	_____	_____	_____
4. Amount	Number	_____	_____	_____
5. Distance below top wire	Inches	_____	_____	_____
III. Line Posts				
A. Wood, Fiberglass, or Composite Posts				
1. Kind (1)	Material	_____	_____	_____
2. Length	Feet	_____	_____	_____
3. Nominal Top Diameter	Inches	_____	_____	_____
4. Spacing	Feet	_____	_____	_____
5. Amount	Number	_____	_____	_____
B. Steel Posts				
1. Kind	Coating	_____	_____	_____
2. Length	Feet	_____	_____	_____
3. Weight per Foot	Pounds	_____	_____	_____
4. Spacing	Feet	_____	_____	_____
5. Amount	Number	_____	_____	_____
IV. Accessories (All conducting materials will be galvanized)				
1. Strainers or wire tightners	Number	_____	_____	_____
2. Pull post insulators	Number	_____	_____	_____
3. Line post insulators	Number	_____	_____	_____
4. Ground Rods	Number	_____	_____	_____
5. Lightning arrestors	Number	_____	_____	_____
6. Insulated cable	Feet	_____	_____	_____
7. Offset brackets	Number	_____	_____	_____
8. Warning Signs	Number	_____	_____	_____
9. Cut off switches	Number	_____	_____	_____
10. Digital Volt Meter	Number	_____	_____	_____
11. _____	_____	_____	_____	_____
12. _____	_____	_____	_____	_____
V. Power Unit	Type	_____	_____	_____

A. The energizer selected must be high voltage/low impedance, short pulse which can produce at least 4000 volts Output with all livestock containment fences charged (on) when under maximum anticipated load.

(1) Certificate required for treated posts and metal pipe must be permanently capped and painted or galvanized.

The Vicinity Map/Diagram must be attached to this Check Sheet for meeting Fence Standard 382.

The design of this practice has been discussed with me and I concur with the design (PRODUCER)
Signature: _____ Date _____

This practice meets Louisiana Standards and Specifications (DISTRICT CONSERVATIONIST)
Signature: _____ Date _____

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE SPECIFICATION
LET-DOWN FENCING, WATER GAPS,
CATTLE GUARDS, AND OTHER FENCE COMPONENTS**

(FEET)
CODE 382(h)

I. SCOPE

The work shall consist of furnishing materials and installing fence components at the location(s) shown on the plan map and, if needed, on the drawings or as staked in the field.

Fencing includes brace assemblies, gates, cattle guards, and other components required to meet site conditions and achieve objectives for practice application.

II. CONSIDERATIONS

Let-down fences are designed for mountainous areas with heavy snow pack that can loosen or break fence wires and pull over fence posts.

This fence design also offers unhindered movement to big game and is suited for use where seasonal movements of big game is to be allowed for. To accommodate passage of resident big game while the fence span is upright, the top line wire is set at no more than 42-inches and the bottom wire is set at least 16-inches above the ground line.

Although let-down fences greatly reduce fence damage due to snow or wildlife, several disadvantages of this fence design should be noted: (1) cannot protect against stray or trespass livestock when fence is down; (2) must be raised and lowered each year; and, (3) over winter contact with the ground corrodes fence wire more quickly.

Water gaps control livestock where fence lines cross streams or drainage ways.

Flood gates are installed in low areas of a fence line that are subject to flash flooding.

Cattle guards are metal structures constructed over a excavated pit. Gates should be constructed next to cattle guards to allow for livestock access and wildlife.

MATERIALS

All materials will be new, unless an exception is noted, with a minimum life expectancy of at least 10-years.

Where appropriate, all materials used for installation and not specifically listed below shall be in accordance with the requirements set forth for standard post-and-wire fence.

II. SPECIFICATIONS

LET-DOWN FENCE

The let-down fence is basically a four-strand barbed-wire fence that can be laid on the ground during winter after the grazing season or during periods of expected big game movement, but remains under tension at all times. See Exhibits 1 and 2.

With let-down fencing, line posts remain set but wood or metal stubs are used to attach line wires to each line post.

- If wood stubs are used, they must be at least 46-inches long and have a 2-inch top diameter.
- Steel stubs must be at least 46-inches long and meet the material quality specifications for steel line posts set forth for conventional post-and-wire fence.

CATTLE GUARD

Cattle guard grids shall be fabricated of the structural steel shapes shown in Exhibit 5 or other drawings approved by the State Resource Conservationist.

All structural steel shall conform to current ASTM-A-7 specifications. All welds shall be secure and complete along both edges of the cross pieces and at all frame joints. All structural steel and welds shall be given at least one coat of rust proofing paint after fabrication is completed. All bolts, nuts, and washers shall be galvanized.

Cattle guards fabricated using pipe rails do not meet practice specification requirements.

Commercially fabricated cattle guards are acceptable for use providing:

- Such structures are designed for, and will support, H-20 loading. H-20 loading refers to a gross vehicle weight of 20-tons based on a weight distribution of 4,000-pounds on each side of the front axles and 16,000-pounds on each side of the rear axles.
- The structures are all steel and welded construction.
- The structures are of the nominal overall dimensions as shown in Exhibit 5. Powder River Model H-20 and Lincoln Steel Corporation Super Duty Autogate (both with clean-out sections), or their equal, meet practice specification requirements.

Conservation practice specifications are reviewed periodically and updated if needed. To obtain the current version of this specification contact the Natural Resources Conservation Service.

CONSTRUCTION SPECIFICATIONS

Unless otherwise specified, all construction requirements for installing posts, wire, and fasteners shall be in accordance with the specifications set forth for standard post-and-wire fence.

LET-DOWN FENCE

ALIGNMENT

Let-down fence spans shall be planned and constructed as straight stretches.

FENCE HEIGHT

The intended use of the fence determines fence height and line wire spacing. The minimum height (measured from the ground at post locations) of conventional post-and-barbed wire fences shall not be less than 36-inches.

IN-LINE BRACE UNITS

In-line brace assemblies are critical to the let-down fence design as they support the span that will be let down.

- In-line fence brace assemblies shall be separated by no more than 180-feet.

Line wire strands are stretched between brace posts. Construction will allow each section between brace units (anchor points) to be laid down.

LINE POSTS

Line posts may be wood or steel.

Line posts remain set, but wood or metal stubs are used to attach line wires to each line post. See Exhibit 1.

Line wires are stapled or clipped to the stubs.

Loops of No. 9-gauge, galvanized, wire are stapled at the bottom and top of wood line posts or are attached through holes drilled in steel posts. These wire loops are used to hold stubs to the line posts during the period when fence is upright.

When a fence section is let down, each stub should remain attached to the bottom wire loop of its associated line post so animals do not become entangled in the wire. See Exhibit 2.

The fence is raised by placing the upper end of the stubs in the top loops of line posts.

LINE POST SPACING is the same for all line post materials (metal, wood, etc.): Line post intervals shall be as follows:

- 3-wire fence
 - 16½-foot (1 rod) maximum line post interval.
- 4-wire fence
 - 20-foot maximum line post interval without stays.
 - 25-foot maximum line post interval when one stay is set mid-way between line posts.
 - 30-foot maximum line post spacing when two stays are set at 10-foot intervals between posts.

In heavy snow country, wooden posts should be spaced at no more than 16½-foot (1 rod) intervals to assure strength.

STAYS

When required, stays shall be evenly spaced between line posts to ensure that the proper interval between line wire strands is maintained.

FLOOD GATES AND WATER GAPS

Functional flood gates can be fabricated of one or more panels of pressure-treated boards fastened together with high-tensile wire and staples, or with wood stays and galvanized nails. The panels can be formed to fit the contour of the slope on either side of the drainageway or segmented to swing only in areas subjected to flooding.

The panels can also be suspended with loops of high-tensile wire from a horizontal cable consisting of a double wrap of high-tensile wire strung between the line posts on either side of the drainageway. These line posts should be diagonally wired to the adjacent post. See Exhibit 3.

Fence lines that cross streams may be damaged during heavy runoff periods unless water and water-born debris are allowed to pass under the fence.

An engineer should be consulted to assist in planning for water gap placement and appropriate water gap design.

There are two basic types of water gaps: for areas with very little water and only occasional flooding, a breakaway fence will be sufficient. In areas with regular flooding, water gap fencing should be constructed using floating gates or panels.

For depressions less than 16-feet wide, fence across the depression with no braces. For depressions greater than 16-feet wide, construct a fence that will breakaway only in the depression and leave the remaining fence sections undamaged. On wide drainageways brace units are constructed on either side of the depression and a separate fence section is installed within the drainageway. The end posts of the breakaway section are set 6 to 12-inches from the brace posts and attached to the main fence brace units with a light gauge wire. The light gauge tie wire will break if the fencing in the depression fails and damage to the main fence line is avoided.

Post material and dimensions, wire, and wire spacing for the water gap fence section are the same as for the main fence. Posts within the breakaway section can be set less than 12-inches deep to prevent post damage should the fence in the depression fail. See Exhibits 3 and 4.

Where a fenced depression receives regular flooding, a swinging or floating panel can be installed. This panel must be free to swing as water flows through the drainageway. Cross braces are constructed downstream of the swinging panel to offer a smooth edge for debris to pass by.

Although most water gaps and flood gates are designed to be self-cleaning it is necessary to check water gaps and flood gates after heavy flooding.

CONSTRUCTION SPECIFICATIONS (continued)**CATTLE GUARDS**

Cattle guards shall be installed at right angles to the roadway.

Cattle guard bases shall be of reinforced concrete.

The cattle guard base shall have provision for drainage of the pit excavated for cattle guard placement.

All concrete shall be Class A, either ready-mix or field-mix.

Reinforcing bars shall be deformed intermediate grade. Forms shall be used wherever necessary to shape concrete to required lines. Exposed concrete edges shall have a 1-inch x 1-inch chamfer.

Poured concrete is to be protected from freezing during the first 72 hours after placement.

Backfill material shall be placed around the concrete to the finish grade. Backfill material is to be free from rock fragments larger than gravel-size and excess organic matter. Backfill is placed in layers not to exceed 6-inches in thickness and is either hand-tamped or machine compacted. See Exhibit 6.

Cattle guards shall be securely bolted to their base.

See Exhibit 6 for recommended cattle guard wing construction (if metal wings are not part of cattle guard structure) and for fence line connections.

OTHER FENCE COMPONENTS

Materials used will follow Nevada NRCS Standards and Specifications for the standard post-and-wire fence conservation practice as appropriate.

Installation of fence components shall follow construction specifications presented in the USDAS/USDI publication Fencing. 2400-Range 8824 2803 unless otherwise stated above.

IV. INSTALLATION

Installation of cattle guards and other fence components shall conform to the specifications and Exhibits or other drawings, as provided.

The completed job shall be workmanlike and present a good appearance. The installer and other persons will

V. BASIS OF ACCEPTANCE

After the fencing and all fence components have been installed, a site inspection will be made to determine if construction, and the materials used, meet practice specification requirements.

VI. MAINTENANCE

This practice will require the performance of periodic maintenance.

Cattle guard pits must be cleaned out periodically to prevent debris from accumulating below the gates.

Check water gaps and flood gates after heavy flooding.

Fence maintenance items to be alert to and corrected include:

- broken stubs
- bent or broken stays
- stub wires broken
- bent steel posts
- wire corrosion
- post alignment
- tension of wire
- post stability
- broken line wires
- sagging gates
- pulled staples or clips

REFERENCES

The following references provide excellent guidance for fence construction, selection of fencing materials, and the installation of fence components such as brace assemblies, cattle guards, gates, rock jacks and wire cribs.

Henderson, G.E. Planning Farm Fences. American Association for Agricultural Engineering and Vocational Agriculture. June 1966.

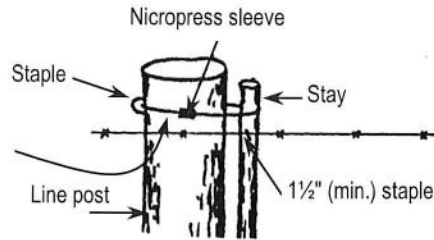
Sanderson, R. et al. Specifications for Structural Range Improvements. General Technical Report PNW-GTR-250. USDA Forest Service-Pacific Northwest Research Station. September 1990.

Valentine, J.F. Range Developments and Improvements. Brigham Young Univ. Press. 1971.

USDI Bureau of Land Management and USDA Forest Service. Fencing. 2400-Range 8824 2803. July 1988.

EXHIBIT 1

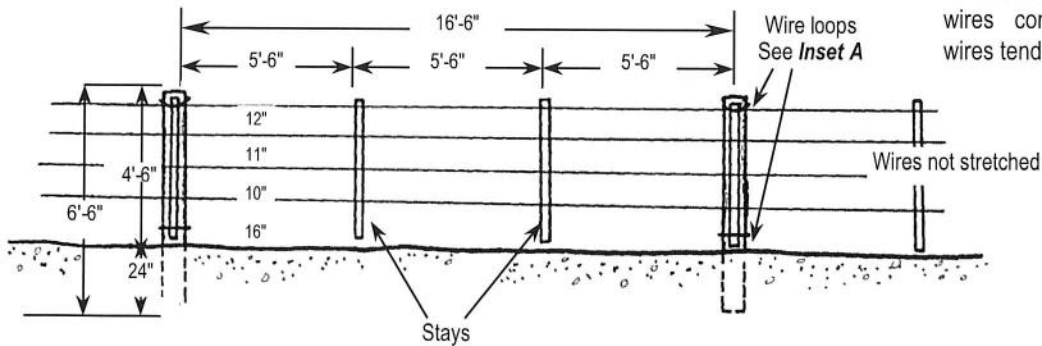
No. 9-gauge wire looped at top and bottom (loose at bottom). Staple lower loop to stay.
Leave enough slack in loop to hold or release stay.



Inset A

STAY LET-DOWN FENCE

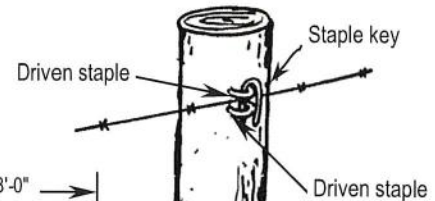
This fence configuration allows fence sections to lay on the ground. Line posts remain set. The bottom of stays are attached to the posts so animals do not become entangled. As fence wires contact the ground, wires tend to corrode quickly.



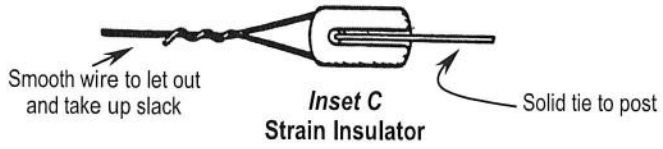
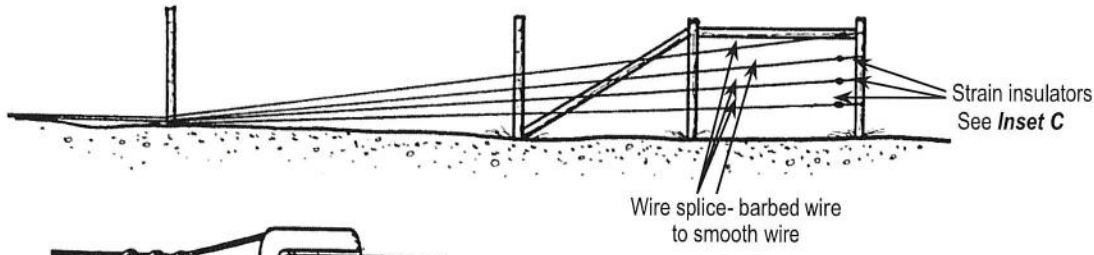
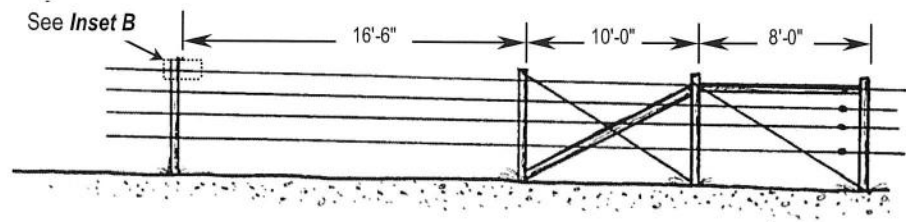
NOTE: Steel posts may also be used

STAPLE LET-DOWN FENCE

This fence configuration allows all fence line wires to be lowered on the line posts by letting the slack out of each wire temporarily. Wire tension is reapplied to raise fence.

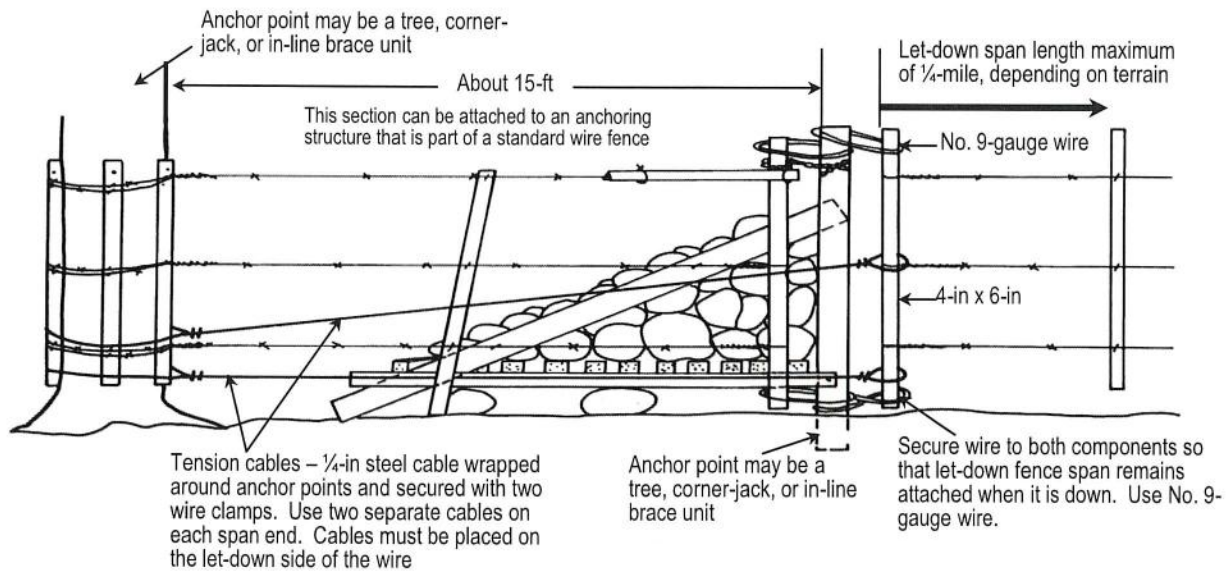
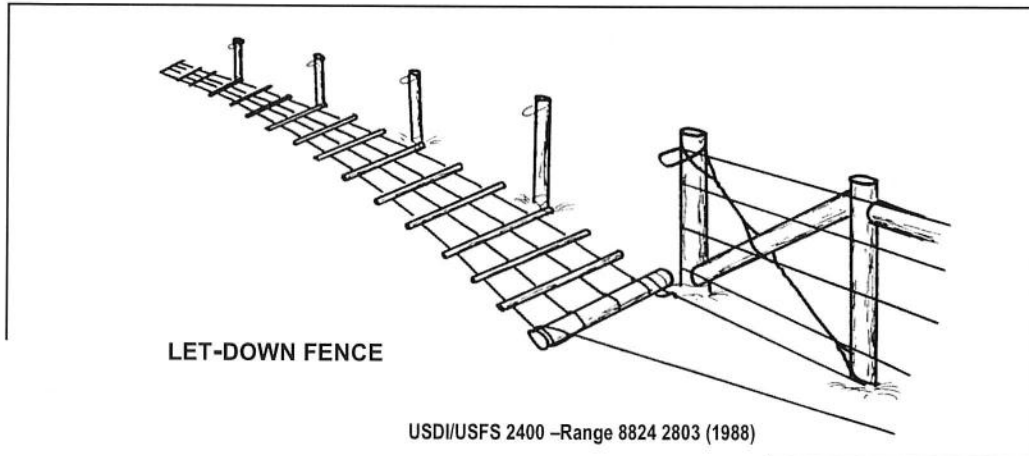


**Inset B
Detail of Staples**



LET-DOWN FENCES

EXHIBIT 2

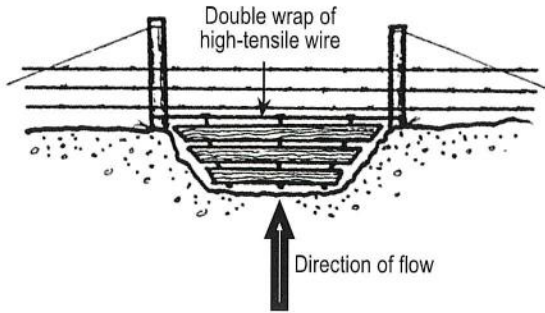


ANCHORING OF LET-DOWN FENCE

Sanderson et al (1990)

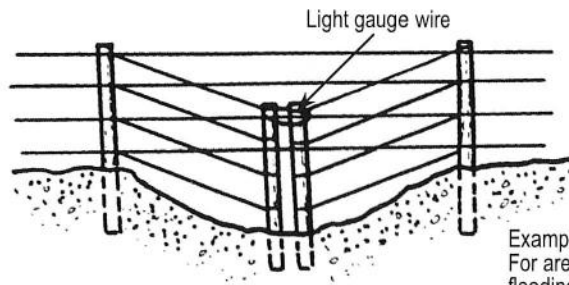
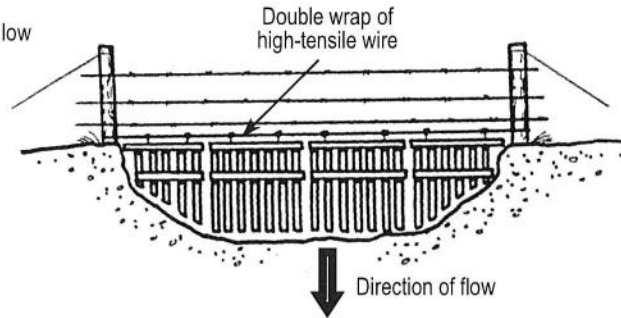
LET-DOWN FENCE

EXHIBIT 3



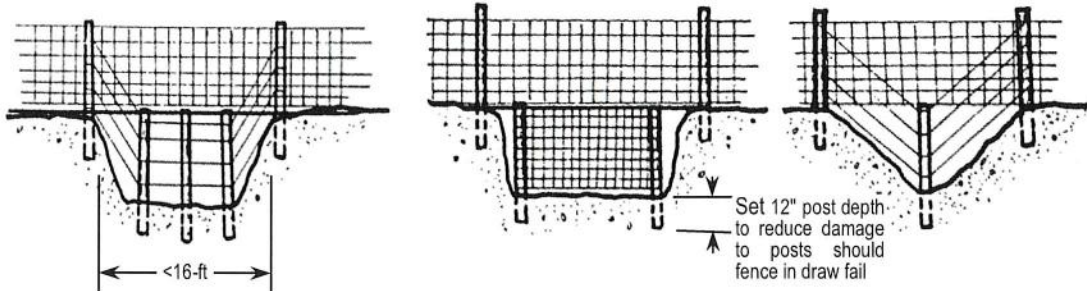
USDI/USFS 2300-Range 8824 2803 (1988)

FLOOD GATES
For fence line crossing of low areas subject to flash floods.



WATER GAPS
For control of livestock where fence lines cross streams or drainageways

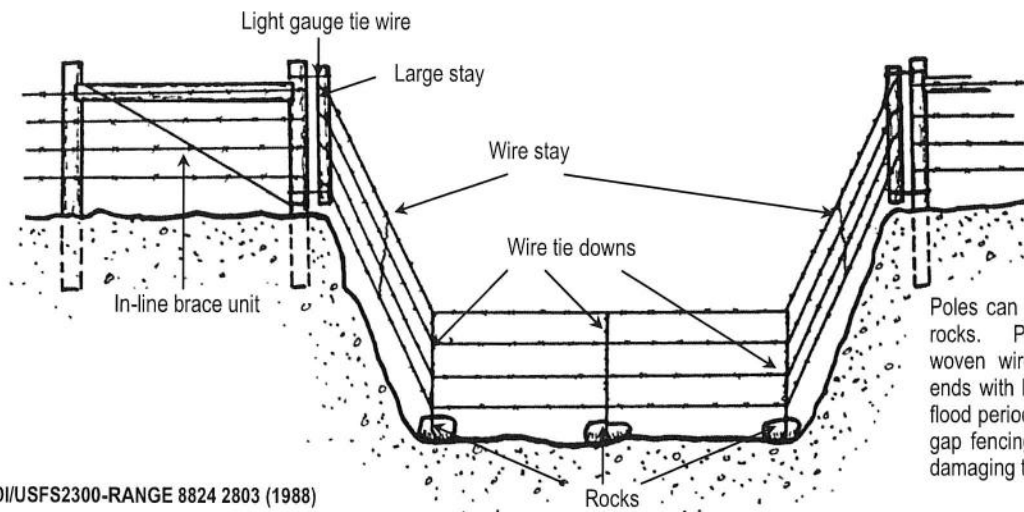
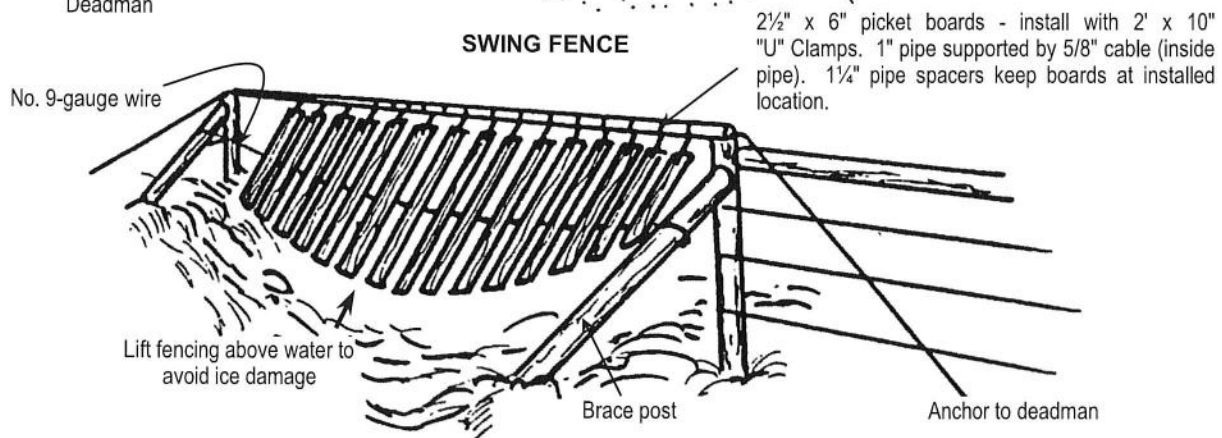
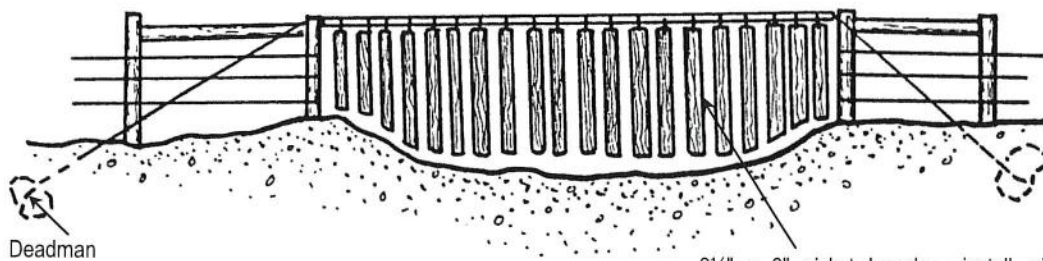
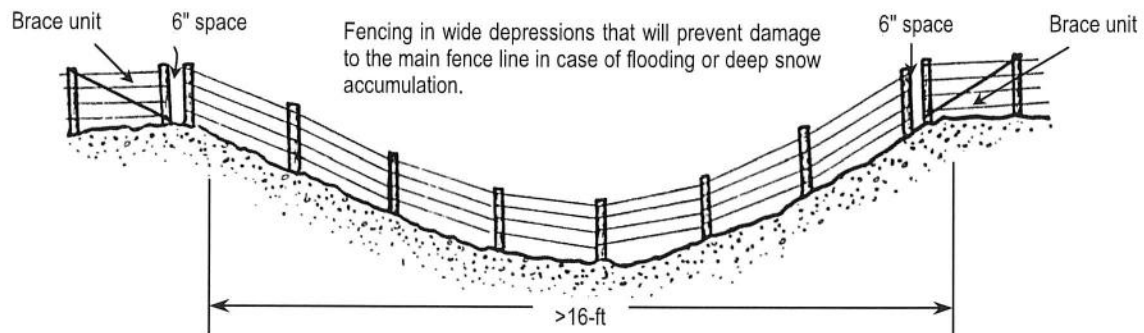
Examples of "breakaway" type water gap fencing:
For areas with very little water and only occasional flooding.
Use flood gate type panels in areas with regular flooding.



For depressions more than 16-ft wide, brace units need to be installed on either side of drainageway

FLOOD GATES AND WATER GAPS

EXHIBIT 4



Poles can be used rather than large rocks. Panels can be made of woven wire or boards. Tie panel ends with light gauge wire so during flood periods one or both ends of the gap fencing will break loose without damaging the main fence line.

USDI/USFS2300-RANGE 8824 2803 (1988)

WATER GAPS

EXHIBIT 5

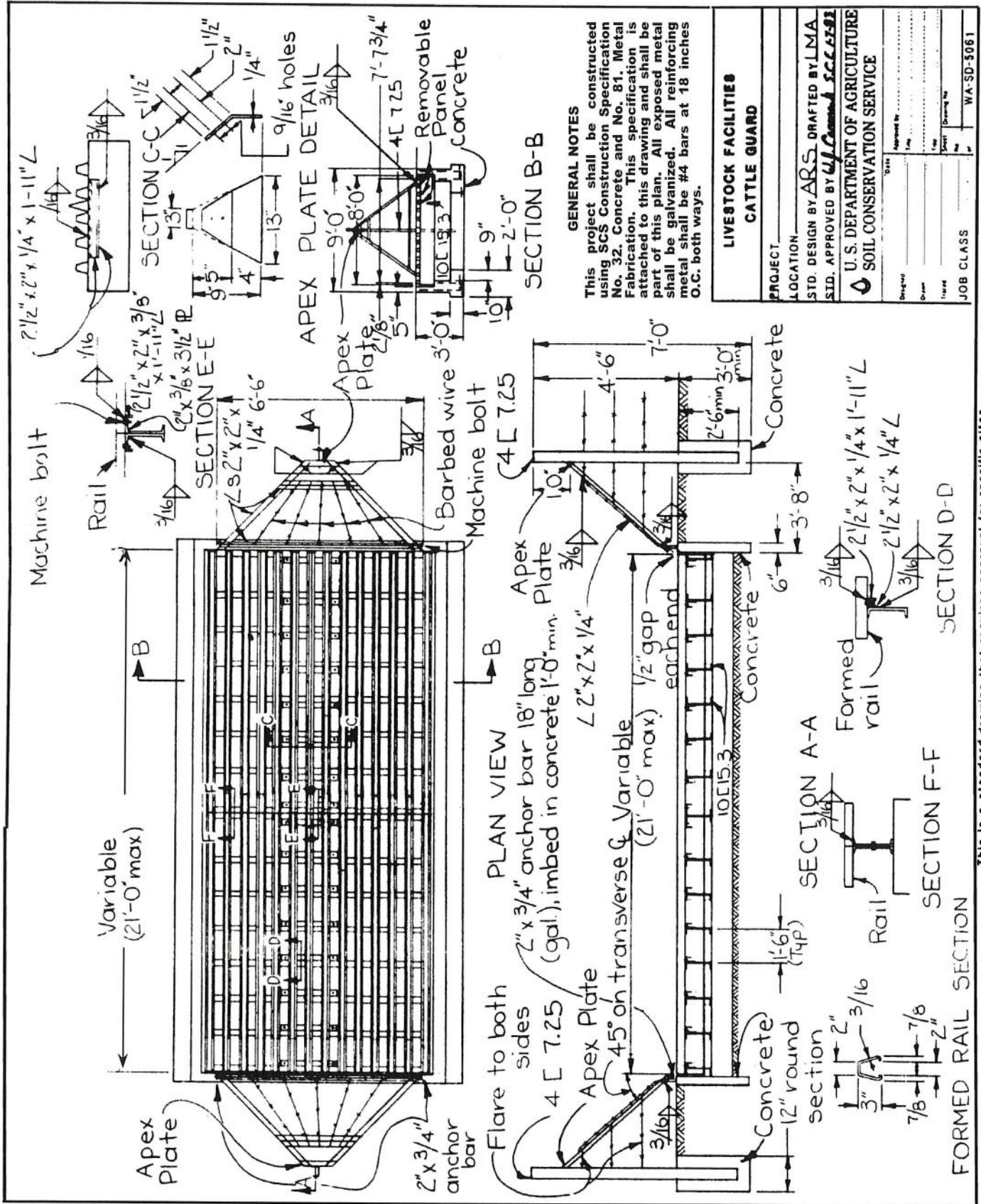
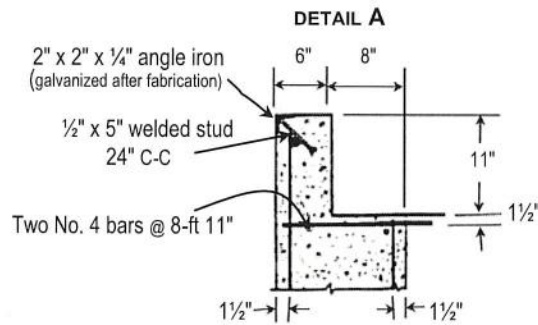


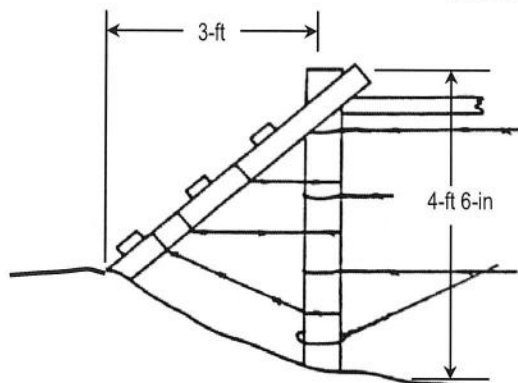
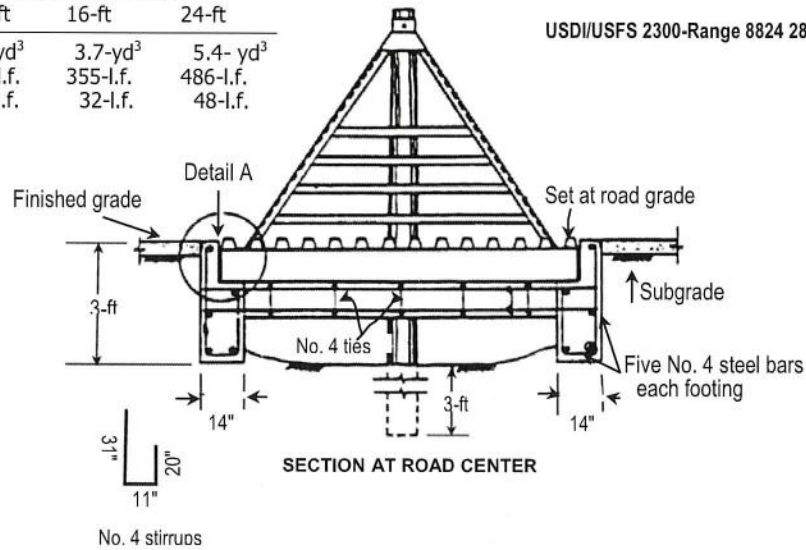
EXHIBIT 6

CONCRETE FOUNDATION



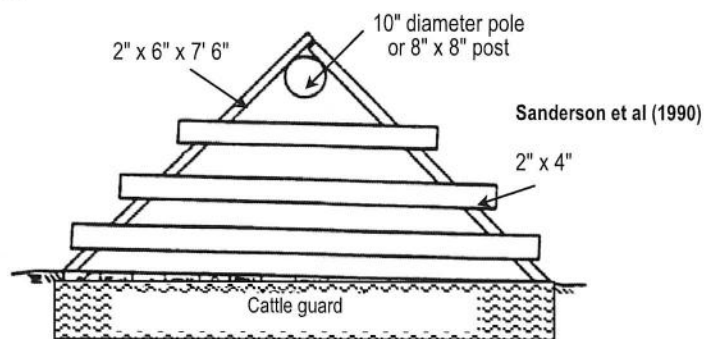
MATERIALS REQUIRED	Cattle Guard Width		
	14-ft	16-ft	24-ft
Concrete	3.3-yd ³	3.7-yd ³	5.4-yd ³
No. 4 reinforcing steel bars	324-l.f.	355-l.f.	486-l.f.
2-in x 2-in angle iron	28-l.f.	32-l.f.	48-l.f.

USDI/USFS 2300-Range 8824 2803 (1988)



Secure fence to end-barrier as needed to prevent passage of livestock.

END-BARRIER



Wooden end-barrier for cattle guard. End-barrier should be painted white with paint that will adhere to treated wood and marked with white reflectors.

CATTLE GUARD