

ARTICLE I

NOTICE TO BIDDERS

NOTICE IS HEREBY GIVEN that sealed bids are sought by Montgomery County, New York according to Project Specifications for the Radio Communications Shelter Project.

Sealed bids will be received by Jaclyn Hernigle, Purchasing Agent, c/o Montgomery County Purchasing, 20 Park Street, Annex Building, Fonda, New York 12068, on Wednesday, August 2, 2023 until 2:00 p.m. Prevailing Time, and will then and there be publicly opened and read. Project Specifications may also be examined at the office of Jaclyn Hernigle, Purchasing Agent.

A Pre-Bid meeting will be held at 10:00 a.m. on Friday May 21, 2023 at 10:00 a.m. Prevailing Time. The meeting will be held at Emergency Management, 200 Clark Drive, Fultonville, NY. Prospective Bidders are strongly encouraged to attend.

Each Bidder shall deposit, with his or her bid, security in an amount not less than five percent (5%) of the amount of the bid in the form and subject to the requirements set forth in the Instructions to Bidders. No Bidder may withdraw his or her bid within forty-five (45) days after the date set for opening thereof, but any bid may be withdrawn at any time prior to closing time for the receipt of bids.

The Successful Bidder shall be required to provide a Performance and Labor and Material Bonds in the amount of their Bid in accordance with the Project Specifications.

Bidders shall not include sales and compensating use taxes in the cost of materials that are to be incorporated into this project. All work under this contract shall comply with all applicable ordinances, regulations, laws and with all applicable rules of the New York State Department of Labor.

The Owner reserves the right to waive any informality in bids, or to reject any or all bids, or to make an award to other than the low bidder.

This shall be a prevailing wage rate project.

ARTICLE II
INSTRUCTIONS TO BIDDERS

1. COPIES OF PROJECT SPECIFICATIONS:

A. The project Specifications shall Be obtained from:

JACLYN HERNIGLE, PURCHASING AGENT
ANNEX BUILDING
20 PARK STREET
FONDA, NY 12095

2. QUALIFICATIONS OF BIDDERS:

- A. All Bidder shall complete and attach to their bid the Bidder's Qualification Form containing such information as similar work experiences and evidence of authority to conduct business in New York State.
- B. Each Bid must contain evidence of Bidder's qualifications to do business in New York State.
- C. The Successful bidder shall demonstrate to the Owner its successful performance on similar work to that included in these Project Specifications.

3. PPOJECT SITES:

A. Communications Shelter:

Sanders Road, Fort Plain, NY

4. EXAMINATION OF PROJECT SPECIFICATIONS AND SITES:

- A. Before submitting a Bid, each Bidder must:
 - 1. Examine the Project Specifications.
 - 2. Visit the Project sites to familiarize himself or herself with local conditions that may in any manner affect cost, progress or performance of the work.
 - 3. Familiarize himself or herself with Federal, State and local laws, ordinances, rules and regulations that may in any manner affect cost, progress or performance of the work.
 - 4. Study and carefully correlate Bidder's observations with the Project Specifications.
- B. Before submitting his or her Bid, each Bidder will, at his or her own expense, make such additional investigations and test as the Bidder may deem necessary to determine his or her Bid for performance of the work in accordance with the time, price and other terms and conditions of the Project Specifications.

- C. On request, Owner will provide each Bidder access to the Project Sites to conduct such investigations and test as each Bidder deems necessary for submission of his or her Bid.
- D. The submission of the Bid will constitute an incontrovertible representation by the Bidder that he or she has complied with every requirement of Project Specifications.

5. QUESTIONS

- A. All Questions about the meaning or intent of the Project Specifications shall be submitted to:

Jeffery T. Smith, Sheriff
Montgomery County Sheriff's Office
200 Clark Drive/PO Box 432
Fultonville, NY 12072
518-853-5533

- B. All questions shall be in writing and submitted within ten (10) calendar days of the Bid Due Date. Replies will be issued by Addenda, mailed or delivered to all parties recorded by Owner as having received the Project Specifications.
- C. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications, including answers by telephone, will be without legal affect.

6. BID SECURITY:

- A. A Bid Security, made payable to the Montgomery County Treasurer, in an amount of five percent (5%) of the Bidder's Total Bid Price shall be submitted with each Bid. Bid Security shall be in the form of a certified bank check or a Bid Bond issued by a surety.
- B. The Bid Security of the successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required Performance and Labor and Materials Bonds and insurances, whereupon it will be returned. If the successful Bidder fails to execute and deliver the Agreement and furnish the required bonds and insurances within fifteen (15) days of the Notice of Award, Owner may annul the Notice of Award and the Bid Security of that Bidder will be forfeited. Bid Security of other Bidders will be returned once an Agreement has been executed.

7. CONTRACT TIME:

- A. All work shall be completed by August 1, 2024.

8. SUBCONTRACTORS:

- A. The identity of all subcontractors and other person and organizations to be utilized shall be identified on the List of Subcontractors Form attached to the Bid Form.

9. BID FORM:

- A. The Bid Form shall be completed in ink or by typewriter. The Total Bid on the Bid Form shall be stated in both words and numerals. In case of conflict, words will take precedence.
- B. Bids by corporations must be executed in the corporate name by the president or vice president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.
- C. Bids by partnerships must be executed in the partnership name and signing by a partner, who title must appear under the signature and the official address of the partnership must be shown below the signature.
- D. All names must be typed or printed below the signature.
- E. Bidders shall acknowledge on the Bid Form the receipt of all Addenda (the number of which shall be filled in on the Bid Form).
- F. The Bid Form shall include pages 7-19 of the Project Specifications. All Bids shall be stapled and must include the following:

- Bid Form
- Bid Security Form
- List of Subcontractors
- Communications Shelter Manufacturers
- Bidder's Qualification
- Non-Collusion Affidavit
- Certified Copy of Resolution of Board of Directors, if applicable

10. SUBMISSION OF BIDS:

- A. Bids shall be submitted at the time and place indicated in the Notice to Bidders and shall be included in an opaque sealed envelope, marked with project title and name and address of the Bidder and accompanied by the Bid Security and other required documents.
- B. Bids shall be submitted in sealed envelope with the notation "Radio Communications Shelter Project Bid Enclosed" on the face thereof.

11. BIDDER REPRESENTATIONS:

A. In submitting a Bid, a Bidder represents that:

1. Bidder has visited the Sites and become familiar with and is satisfied as to the general, local and Site Conditions that may affect cost, progress, and performance of the Work.
2. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.
3. Bidder has carefully studied the physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Sites.
4. Bidder does not consider that any further examinations, investigations, explorations, test, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Project Specifications.
5. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Project Specifications.
6. Bidder has correlated the information know to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Project Specifications and all additional examinations, investigations, explorations, test, studies, and data with the Project Specifications.
7. Bidder has given Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Project Specifications, and the written resolution thereof by Owner is acceptable to Bidder.
8. The Project specifications are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

12. MODIFICATION AND WITHDRAWAL OF BIDS:

A. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the office of Jaclyn Hernigle at any time prior to the opening of Bids.

13. AWARD OF CONTRACT:

- A. Owner shall award a contract to the lowest, responsible Bidder who complies with all requirements of the Project Specifications.
- B. Owner reserves the right to reject any and all Bids, to reject Bids deemed frivolous or incomplete, to waive any and all informalities in Bids and the right to disregard all non-conforming, non-responsive or conditional Bids.
- C. In evaluating Bids, Owner shall consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and alternates and unit prices if requested in the Bid Forms. It is Owner's intent to accept alternates (if any are accepted) in the order in which they are listed in the Bid Form but Owner may accept them in any order or combination.
- D. Owner may conduct such investigations as deemed necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of the Bidders, proposed subcontractors and other persons and organizations to do the work in accordance with the Project Specifications to Owner's satisfaction within the prescribed time.
- E. Owner reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to Owner's satisfaction.

BID FORM

Radio Communications Shelter Project

The Undersigned, as Contractor, having examined the Project Specifications and Project Sites, shall provide all of the labor, materials, tools, equipment, machinery, parts, insurance, transportation and the completion of the Project in accordance with the Project Specifications and Addenda issued thereto for the price shown below.

1. Total Base Bid: Total Bid, including labor, material, tools, equipment, machinery, parts, insurance, transportation, incidentals, overhead and profit and the Allowance identified in Article V: Section 2. Allowances to perform all work identified and described in Project Specifications.

\$ _____
(figures)

(words)

2. Alternate Bid 1: Total Alternate Bid including labor, material, tools, equipment, machinery, parts, insurances, transportation, incidentals overhead and profit to supply and install Fencing and Gates at Sanders Road site per Article V: Section 3: Alternates.

\$ _____
(figures)

(words)

3. Addenda:

A. The Undersigned hereby acknowledges receipt of the following Addenda:

Addendum No.	Dated
_____	_____
_____	_____
_____	_____

4. Required Attachments to Bid Form:

- Bid Security Form
- List of Subcontractors

Communications Shelter Manufacturers
Bidder's Qualification
Non-Collusion Affidavit
Certified Copy of Resolution of Board of Directors, if applicable

5. Signatures:

If Bidder is:

1. INDIVIDUAL

Name (typed or printed): _____

By: _____

Doing Business as: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Email: _____

Employer Tax ID No.: _____

State Contractor License No.: _____ (if applicable)

2. PARTNERSHIP

Partnership Name: _____ (SEAL)

By: _____

(Signature of general partner – attach evidence of authority to sign)

Name (typed or printed): _____

Business address: _____

Phone No.: _____ FAX No. _____

Email: _____

Employer Tax ID No.: _____

State Contractor License No. _____ (if applicable)

3. CORPORATION

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____

(Signature – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____ (CORPORATE SEAL)

Attest: _____

(signature of Corporate Secretary)

Business address: _____

Phone No.: _____ FAX No.: _____

Email: _____

Employer Tax ID No.: _____

State Contractor License No. _____ (if applicable)

4. JOINT VENTURE

Joint Venturer Name: _____ (SEAL)

By: _____

(Signature of joint venture partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Email: _____

State Contractor License No. _____ (if applicable)

Joint Venturer Name: _____ (SEAL)

By: _____

(Signature – attach evidence of authority to sign)

Employer Tax ID No. _____

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Email: _____

Phone and FAX Number, and Address for receipt of official communications:

(Each joint venture must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

BID SECURITY FORM

BIDDER (Name and address):

SURETY (Name and address of Principal Place of Business):

OWNER (Name and Address):

BOND:

BOND NUMBER: _____

DATE (Not later than Bid due date): _____

PENAL SUM: _____

(Words)

(Figures)

IN WITNESS WHEREOF, Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

SURETY

_____(Seal)

_____(Seal)

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____

By: _____

Attest: _____

Attest: _____

Signature and Title

Signature and Title

Note:

- (1) Above address are to be used for giving required notice.
- (2) any singular reference to Bidder, Surety, OWNER or other party shall be considered plural where applicable.
5. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to OWNER upon default of Bidder the penal sum set forth on the face of this Bond.
6. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents.
7. This obligation shall be null and void if:
 - 7.1 OWNER accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents, or
 - 7.2 All Bids are rejected by OWNER, or
 - 7.3 OWNER fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by paragraph 5 hereof).
8. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from OWNER, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
9. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by OWNER and Bidder, provided that the total time for issuing Notice of Award including extension shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
10. Surety shall cause to be attached to the Bond a current and effective Power or Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.

LIST OF SUBCONTRACTORS

1. Do you plan to subcontract any part of the Work? YES _____ NO _____
2. If YES, list the names and address of all Subcontractors that you propose to use on this Contract and the Work assigned to each. Please print in ink or type in the spaces provided. Attach additional sheets if necessary.

Name of Subcontractor	Address	Work to be Performed

3. This identification of subcontractors is **required** of all Bidders as part of their Bid and is in partial fulfillment of requirements of the Instructions to Bidders. Additional data on proposed Subcontractors may be requested from selected Bidders after the Bid Opening by the Owner.

COMMUNICATIONS SHELTER MANUFACTURERS

List the make and model of the Communications Shelter the Bidder proposes to provide. In addition, list the name of the supplier for the Building. Please print in ink or type in the spaces provided. Attach additional sheets if necessary.

1. Radio Communications Shelter:

A. Manufacturer : _____

B. Model # : _____

C. Supplier : _____

D. Installer : _____

E. Lead Time for Delivery : _____

F. List all Components/Accessories to be Supplied and Installed:

BIDDER'S QUALIFICATIONS

The undersigned Bidder guarantees the accuracy of all statements made herein. Please print in ink or type in the spaces provided. Attach additional sheets if necessary.

This statement of Bidder's qualifications is required of all Bidders as part of their Bid and is in partial fulfillment of requirements of the Instructions of Bidders. Additional data on Bidder's qualifications may be requested from selected Bidders after the Bid Opening by Owner.

1. List up to three (3) projects that are of the same or related nature to the one now being bid that you have completed in the last ten (10) years. For each project, list the name, address, and telephone number of the Owner and/or the Engineer, the original bid price, the completion date, and the completed contract price.

<u>Project Name</u>	<u>Address</u>	<u>Engineer/Owner</u>	<u>Phone #</u>	<u>Bid Price</u>	<u>Final Cost</u>
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- 1.
- 2.
- 3.

2. List projects presently under construction by your firm, including information requested below:

<u>Project Name</u>	<u>Address</u>	<u>Contract Amount</u>	<u>State</u>	<u>Date</u>	<u>Completions Date</u>	<u>%Complete</u>
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- 1.
- 2.
- 3.
- 4.
- 5.

3. Is your firm qualified to do business in New York State?

_____ YES _____ NO

If NO, by signing the Qualification Statement at the end you are agreeing to obtain such qualification prior to award of contract within fourteen (14) days of Owner's request.

4. How many years has your firm been in business as a Contractor? _____ Years

5. List equipment that you own that is available for this work.

6. List equipment that you plan to rent or purchase for this work and specify whether rent or purchase. If none, so state.

7. Have you ever failed to complete a contract awarded to you? YES ___ NO ___ If YES, state where and why.

8. Give the name, address, and telephone number of an individual who represents each of the following and whom the Owner may contact to investigate your financial responsibility: a surely, a bank, and a major material supplier.

	<u>Name</u>	<u>Title</u>	<u>Phone</u>
Bank			
Surety			
Supplier			

The undersigned hereby authorizes and request any person, firm, or corporation to furnish any information requested by the Owner in certification of the recitals comprising this Statement of Bidder's Qualifications.

(Name of Bidder)

By: _____
(signature)

(individual's name & title)

NON-COLLUSION AFFIDAVIT

(Required by Section 103-d of the New York State General Municipal Law)

By Submission of this Bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

1. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
2. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to the opening, directly or indirectly, to any other bidder or to any competitor; and
3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

(print or type name of Bidder)

By:

(signature)

(individual's name & title)

**CERTIFIED COPY OF RESOLUTION OF
BOARD OF DIRECTORS**

(NAME OF CORPORATION)

“RESOLVED that _____, _____
(Person Authorized to Sign) (Title)

of _____ authorized to sign and submit the Bid of this corporation for
(NAME OF CORPORATION)

the following Project:

and to include in such bid the certificate as to non-collusion, and for any inaccuracies or misstatements in such certificate this corporate Bidder shall be liable under the penalties of perjury.

The foregoing is a true and correct copy of the resolution adopted by

(NAME OF CORPORATION)

at a meeting of its Board of Directors held on the _____ day of _____ 20_____.

By: _____

Title _____

(SEAL)

The above form must be completed if the Bidder is a Corporation.

ARTICLE III
SCOPE OF WORK

3.1 GENERAL

A. The Project generally consists of the following work component:

2. Sanders Road Site:

- a. Design, supply and install a new radio communications shelter, foundation and ice bridge. Remove existing ice bridge. Demolish existing communications shelter
- b. Relocate all radio communications cables from equipment in existing shelter to equipment to be installed in new shelter. Coordinate all work with Owner, Alcatel-Lucent, Motorola, NYS Department of Transportation, National Grid and Lexington Center.

3.2 SCOPE OF WORK:

A. the Contractor shall, at a minimum, be responsible for the following as part of the Base Bid. This list is not intended to be all inclusive.

1. Bleecker Mountain Site:

a. New Radio Communications Shelter:

- 1) Perform clearing and grubbing and site grading as required to prepare site for new shelter.
- 2) Perform all soils and geotechnical testing and analysis work necessary to prepare foundation design.
- 3) Supply and install reinforced concrete foundation including footers and walls.
- 4) Supply and install new 12' x 30' concrete communications shelter.
- 5) Supply and install new ice bridge between existing tower and new shelter.
- 6) Remove existing chain link fencing in locations shown on Site Plan.
- 7) Coordinate with National Grid:
 - 1. Disconnect electrical service to existing building.
 - 2. Supply and install new electrical service to new shelter.
 - 3. Pay all national Grid fees.
- 8) Demolish/Remove existing shelter. Leave existing concrete floor in place. Unhook generator and hook into new structure for turnkey operation.
- 9) Coordinate with Montgomery County's propane supplier on the placement of a new propane tank on the concrete floor of the existing communications building. Connect new propane tank to new shelter.

10) Perform all other work necessary to provide a complete and operational communications system.

b. Disconnect Existing Communications Cables from Existing Shelter and Relocate and Reconnect Cables to Equipment in New Shelter.

- 1) Coordinate and schedule all this work with Owner, Alcatel-Lucent and Motorola.
- 2) Disconnect and label all existing cables from all equipment in existing Communications Building.
- 3) Remove existing ice bridge between existing tower and new shelter.
- 4) Supply and install new ice bridge between existing tower and new shelter.
- 5) Relocate all existing cables to all equipment in new communication shelter.

c. Security Fencing and Gates (Alternate Bid 1):

- 1) Remove and dispose of existing fencing.
- 2) Supply and install new security fencing barbed wire and gates.
- 3) Site work and restoration as required.

3.3 RELATED WORK

1. New Communications Shelter:

A. Motorola Shall:

- 1) Relocate existing communications equipment from existing communications shelter to new Shelter.
- 2) Supply and install new communications equipment in new shelter.

B. Alcatel-Lucent Shall:

- 1) Relocate microwave equipment from existing communications building to new Shelter.
- 2) Re-locate microwave dishes from old tower to new Tower.
- 3) Supply and install cables from new dishes to microwave equipment in new shelter.
- 4) Supply and install some new microwave communications equipment in new shelter.

C. Ferrell Gas Company shall:

- 1) Supply and install a new 1,000 gallon propane tank on the concrete slab that will remain in place after the existing shelter is demolished.
- 2) Supply and install a temporary connector from the existing 500 gallon propane tank onsite to the new generator in the new shelter.
- 3) Connect the new 1,000 gallon propane tank to the ¾" black pipe connection being provided in the new shelter. This will be completed once the existing shelter is demolished and the new 1,000 gallon tank installed.
- 4) Remove the existing 500 gallon propane tank.

D. Others:

- 1) NYS Department of Transportation, National Grid and Lexington Center have radio communications equipment in the existing shelter. They will be responsible for relocating and reconnecting this equipment to new shelter.

ARTICLE IV

GENERAL REQUIREMENTS

4.1 PERFORMANCE AND LABOR AND MATERIAL BONDS

- A. The successful bidder, at the time of execution of the Agreement, shall furnish Montgomery County with a Performance and labor and material Bonds of a surety company licensed to do business in New York State satisfactory to Montgomery County, equal to the full amount of the Agreement.
- B. The Bonds shall guarantee the full and faithful performance of all work of the Agreement, including any additions or deletions and the full payment of all laborers, workers, subcontractors, suppliers and others who may have claim upon their work or materials.

4.2 INSURANCE

- A. The Contractor and all subcontractors shall secure and maintain insurance in the types and amounts as shown below during the duration of the project.
- B. The Contractor and all subcontractors shall furnish Montgomery County a Certificate of Insurance verifying the existence of the following insurance prior to commencement of work on the project:

<u>Types</u>	<u>Limits</u>	
1. <u>Workman's Compensation</u>		
A. Each Occurrence	:	Statutory
B. Aggregate	:	Statutory
2. <u>General Liability</u>		
A. Each Occurrence	:	\$1,000,000
B. Each Accident	:	\$1,000,000

3. Employer's Liability

A. Each Accident : \$1,000,000

4. Automotive Liability

A. Bodily Injury : \$1,000,000

B. Property Damage : \$1,000,000

C. The Insurance Certificate shall specifically state: Montgomery County and its assigns shall be named additional insured party on all insurance policies.”

4.3 PROJECT ADMINISTRATION

- A. The Contractor shall designate an individual as the Project Manager. The Project Manager shall be the sole source of contact between Montgomery County and the Contractor. This designation shall be transmitted to, and approved by, Montgomery County prior to the commencement of the installation.
- B. The Project Manager shall bear full responsibility for supervising and coordinating the installation of the new communication shelter described in the Project Specification. It shall also be the responsibility of the Project Manager, as a minimum, to ensure completeness of the material list, correct equipment failures in timely manner, participate in the performance of the acceptance testing, and administer as directed by Montgomery County.
- C. The Project Manager shall be employed by the Contractor. Assignment of other personnel to replace the existing project manager during the term of this contract shall be subject to the approval of Montgomery County.

4.4 INFORMATION TO BE FURNISHED BY CONTRACTOR

- A. Within thirty (30) days of executing an Agreement with Montgomery County, the Contractor shall supply the County with:
 - 1. A detailed schedule showing the order in which the Contractor proposes to carry out the work, with dates at which the Contractor will begin the distinct segments of the work and estimated dates of completion of the distinct segments.
 - 2. A schedule of values, Montgomery County shall review and approve this schedule of values. The approved schedule of values shall be used as basis of preparing payment applications.

4.5 SUBCONTRACTOR QUALIFICATIONS

- A. The Contractor shall submit, in writing, for Montgomery County's approval, qualification information for all subcontractors.
- B. Qualification information will include years in business, related experience and specific work to be performed.
- C. Subcontractors proposed by the Contractor must be approved by Montgomery County before starting any work.

4.6 LABOR AND MATERIALS

- A. The contractor shall provide and pay for all materials and labor necessary for the execution and completion of work. Unless otherwise specified, all materials incorporated in the permanent work shall be new and meet the requirements of this specification.
- B. All material furnished and work completed shall be subject to inspections by Montgomery County. Such inspection shall not relieve the Contractor of the responsibility of furnishing the best labor and materials in strict accordance with the specification.
- C. The Contractor shall promptly remove from the premises all materials and work condemned by Montgomery County as failing to meet the contract requirements, whether incorporated in the work or not. The Contractor shall promptly replace the work, without expense to Montgomery County.
- D. The labor required to execute the work shall be performed by individuals qualified to do the work. The assurance of the quality of workmanship for the work is the responsibility of the contractor. The contractor shall, if requested by Montgomery County, remove from the job site any employee whom Montgomery County determines to be incompetent or undesirable.
- E. The contractor shall comply with the requirements of Article 8 (Section 220-223) of the New York State Labor Law.

4.7 RESPONSIBILITIES FOR WORK

- A. The Contractor assumes full responsibility for the acts and omissions of all employees, suppliers, subcontractors, their agents and employees, and all other persons performing any of the work or supplying any materials and equipment under the project.
- B. Until final acceptance by Montgomery County, the Contractor shall be fully responsible for damage to or destruction to all materials, equipment, buildings, towers, equipment and facilities.

4.8 SAFETY

- A. All employees of the Contractor, and subcontractors, shall be instructed in and be familiar with local NYS Department of Labor and OSHA safety rules and regulations applicable to the nature of the work being performed under this contract.
- B. The Contractor shall have sole responsibility to see that their employees are so informed and that they follow safety practices.

4.9 INSPECTION OF WORK

- A. Montgomery County will inspect the work in progress, to ascertain that the completed work will comply in all respect with the standards and requirements set forth in the Project Specifications. Notwithstanding such inspection, the Contractor will be held responsible for the acceptability of the finished work.
- B. Montgomery County and its representatives shall, at all times, have access to all project sites. The Contractor shall provide proper facilities for such access and for inspection.

4.10 ROYALTIES, PATENTS, COPYRIGHTS, AND TRADEMARKS

- A. The Contractor shall assume the defense of all claims and suits against Montgomery County, its officers, agent and employees for infringement of the patents, copyrights or trademarks of any person arising out of any article supplied under the Project Specification by the Contractor.
- B. The Contractor shall indemnify and hold harmless Montgomery County, its officers, agents, or employees for many and all liability, loss or damage arising from such claims or suits, including attorney fees.

4.11 APPLICABLE STANDARDS

- A. All equipment, installation and maintenance work to be performed under this contract shall comply, unless otherwise specified, with the applicable sections of the standards and or regulations of the following organizations:
 - NYS Uniform Fire Prevention and Building Code
 - American National Standard Institute (ANSI)
 - National Electric Code (NEC)
 - Electronics Industries Association (EIA) standard RS-222E
 - Federal Aviation Administration (FAA) Advisory Circular AC 70/7460 1G
 - National Fire Protection Agency (NFPA)
 - American Institute of Steel Construction (AISC)
 - American Welding Society (AWS)
 - American Concrete Institute (ACI)
 - American Society for Testing and Materials (ASTM)
 - Occupational, Safety and Health Administration (OSHA)

- Local ordinances, building and zoning codes

4.12 OTHER EQUIPMENT

- A. The Contractor shall not be relieved of the responsibility for the performance of the equipment procured from other contractors, nor is the Contractor to whom the award is made relieved of the responsibility for the timely delivery and cooperation during installation of such equipment when such equipment is an integral part of the shelter described in this document.

4.13 PERMITS

- A. All permits or licenses and the cost thereof required for the successful installation of new communications building shall be incorporated into each Bidder's Bid.
- B. The Contractor shall be required to obtain Building & Certificate of Occupancy Permits from Montgomery County's Code Enforcement Officer. There shall be no fees for these permits.

4.14 NYS DEPARTMENT OF LABOR PREVAILING WAGES

- A. This shall be a NYS Department of Labor Prevailing Wage Rate Project.
- B. The Project's PRC # is 2015003774 and can be viewed online. The Contractor shall be responsible for complying with any updated PRC's issued by the Department of Labor.
- C. Certified payrolls shall be submitted with all payment requisitions.
- D. Contractor shall be responsible for complying with all NYS Department of Labor rules and regulations.

ARTICLE V

TECHNICAL SPECIFICATION

SECTION 1 – SUBMITTALS

1.01 SUMMARY

- A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including, but not necessarily limited to:
1. Shop Drawings (specially prepared technical data specific to this project)
 2. Product Data (standard printed information by manufacturers, for products not specific to this project).

3. Samples
4. Letters of Acceptance (from manufactures approving Installers, from Installers approving substrate conditions, etc.).
5. Qualification Statements (from manufacturers or Installers indicating their experience and qualifications to perform the Work).
6. Copies or Samples of Warranties (unsigned).

B. Administrative Submittals: Such submittals include, but are not necessarily limited to:

1. Permits.
2. Project Schedule.
3. Schedule of Values.
4. Applications for payment.
5. Signed Warranties and Owner's Manuals.
6. Material Safety Data Sheets.

1.02 SUBMITTAL PROCEDURES:

- A. Coordination: Within ten (10) working days after the signing of the Agreement, submit to the Owner a schedule of all submittals including the dates they will each be submitted. Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
- B. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
- C. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.
 1. Allow two weeks for initial review after receipt by Owner.
 2. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Owner will promptly advise that Contractor when a submittal being processed must be delayed for coordination.
 3. If an intermediate submittal is necessary, process the same as the initial submittal.
 4. Allow two weeks for reprocessing each submittal.
 5. No extension of Contract Time will be Authorized because of failure to transmit submittals sufficiently in advance of the Work to permit processing.
- D. Submittal Preparation: Place a cover sheet, permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block. Include the following information on the label for processing and recording action taken.
 1. Project name
 2. Description of Submittal, including date Submittal was prepared for transmittal to

- Owner.
3. Name of Contract.
 4. Name and address of Contractor.
 5. Name and address of supplier.
 6. Name of manufacturer, make and model #.
 7. Number and title of appropriate Specification Section.
 8. Drawing number and retail references, as appropriate.
 9. Additional information appropriate to the submittal.
- E. submission for review must be made prior to delivery of equipment or materials to Project Site. If any materials or equipment are installed before approval of submittals, the Contractor shall be liable for removal and/or replacement of the materials at no charge if, in the option of the Owner, the material and/or equipment does not meet the intent of the Project Specifications.
- F. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Owner using a Transmittal form. Submittals received from sources other than the Contractor will be returned without action.
1. On the transmittal, record relevant information and request for data.
 2. On the form, or separate sheet, records deviations from Project Specifications' requirements, including minor variations and limitations.
 3. Include Contractor's certification that information complies with Project Specifications' requirements.

1.03 SHOP DRAWINGS:

- A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Project Specifications. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.
- B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
1. Dimensions.
 2. Identification of products and materials included.
 3. Compliance with specified standards.
 4. Notation of coordination requirements.
 5. Notation of dimensions established by field measurements.

- C. Initial Submittal and Resubmissions: Submit three (3) blue or black line prints and one (1) sepia reproducible (optional) for the Owner's review; one (1) print and the sepia will be returned. The returned prints shall be marked-up and maintained as a "Record Document."

1.01 PRODUCT DATA:

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."
- B. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
1. Manufacturer's printed recommendations.
 2. Compliance with recognized trade association standards.
 3. Compliance with recognized testing agency standards.
 4. Application of testing agency labels and seals.
 5. Notation of dimensions verified by field measurement.
 6. Notation of coordination requirements.
- C. Do not submit product Data until compliance with requirements of the Project Specifications has been confirmed.
- D. Submittals: Submit three (3) copies of each required submittal. The Owner will retain two (2) copies, and will return the other one (1) marked with action taken and corrections or modifications required. If the Contractor requires more than one (1) marked copy, the contractor shall submit additional copies of the Owner.
- E. Distribution: Furnish copies for final submittal to Installers, Subcontractors, suppliers, manufacturers, fabricator, and other required for performance of construction activities. Show distribution on transmittal forms.
1. Do not proceed with installation until an approved, applicable copy of Product Data is in the Installer's possession.
 2. Do not permit use of unmarked copies of Product Data in connection with construction.

1.05 OWNER'S ACTION:

- A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Owner will review each submittal, mark to indicate action taken, and return within two (2) weeks of receipt.
- B. Compliance with specified characteristics is the Contractor's responsibility.

SECTION 2 – ALLOWANCE

1.01 SUMMARY:

- A. Cost and authorization for Allowances:
 - 1. Overhead and profit for Allowances shall not be included in the Allowance price. Overhead and profit for Allowances shall be incorporated into the Base Bid.
 - 2. An Allowance Charge shall be approved by written authorization of the Owner.
 - 3. Upon completion of the Project, any money remaining for the Allowance shall be credited back to the Owner by Change Order.
- B. Bidder shall include the Allowance in their Base Bid.

1.02 ALLOWANCE SCHEDULE:

- A. Total Allowance: \$10,000

SECTION 3 – ALTERNATES

1.01 SUMMARY:

- A. This Section specifies administrative and procedural requirements for Alternates.
- B. An Alternate is an amount proposed by Bidders and stated on the Bid Form for Certain construction activities defined in the Project specifications that may be added to the Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to a completed, or in the products, materials, equipment, systems or installation methods described in Project Specifications.
- C. Coordinate related Work and modify or adjust adjacent Work as necessary to ensure that Work affected by each accepted. Alternate is complete and fully integrated into the project.
- D. Immediately following the award of the Contract, the Owner shall advise the Contractor whether each Alternate was accepted or rejected.

1.02 SCHEDULE OF ALTERNATES:

A. Alternate Bid 1: Fencing

1. Supply and install all fencing, gates and concrete where shown on Site Plan.
2. Fencing, gates and concrete shall be provided in accordance with Section 7 of the Technical Specifications.

**SECTION 6 – TECHNICAL SPECIFICATIONS FOR
RADIO COMMUNICATIONS SHELTER**

PART 1 – GENERAL

1.1 SUMMARY:

- A. This Section describes one (1) complete Radio Communication Shelter including foundation, procurement and delivery to site, construction, erection and inspection, of shelter and related equipment as described herein.

B. Shelter Location:

Sanders Road, Town of Minden-current radio tower location

[42.971375, -74.680666](#)

1.2 SUBMITTALS:

- A. The Contractor shall provide, for Owner review and approval, prior to the commencement of any work on the new shelter, complete and detailed design drawings and calculations for the:
- a. Shelter and all components
 - b. Shelter foundation include concrete design mix and reinforcing.
 - c. Ice Bridge
 - d. Site Plan
- B. All drawings and calculations shall be stamped and sealed by a Professional Engineer, registered in the State of New York, and competent in civil and structural design.
- C. By submittal and seal, Contractor's submittal shall attest that the designs are in full compliance with the mechanical, structural, and electrical parameters established by the Project Specifications, the Shelter manufacturer's requirements and the NYS Uniform fire Prevention and Building Code.

1.3 AS-BUILT DRAWINGS:

- A. Upon completion of the work, the Contractor shall provide to the Owner:

1. Two complete sets of all final design plans and as-built drawings, prepared in AutoCad.
2. Two (2) CD's with design and as-built plans in format acceptable to Owner.
3. Final inspection and testing report.

1.4 QUALITY ASSURANCE:

- A. The Contractor shall have the complete and total responsibility for:
1. Licenses and liability insurance of any required items for Contractor, manufacturer and any required subcontractors during shipping, handling and installation.
 2. Shipping, receiving, handling and unloading of shelter at Sanders Road site.
 3. Supplying and installing a new concrete Shelter and Foundation.
 4. Demolish existing Communications Shelter. Montgomery County shall provide dumpster.
 5. Provide all site work and grading required to install the shelter, foundation and fencing.
 6. Topsoiling, fertilizing and seeding all disturbed areas.
 7. Remove existing generator, electric panels and any other equipment from existing shelter prior to demolishing shelter as directed by Owner.
 8. Remove existing ice bridge, poles and concrete foundations.
 9. Supply and install new ice bridge.
 10. Disconnect electric service to existing shelter.
 11. Supply and install new electric service to new shelter.
 12. Demolish existing fencing as shown on Site Plan.
 13. Supply and installing new security fencing and gates as shown on Site Plan Specifications if Alternate Bid is awarded.
 14. Backfill holes, topsoil, fertilize and seed all areas disturbed.
 15. All other work required to provide a complete and operational communications shelter and communications system.

1.5 DELIVERY, STORAGE AND HANDLING:

- A. The Contractor shall schedule and coordinate the shipping and delivery of the shelter and components with the Owner.
- B. The Contractor shall be responsible for the protection, safety and security of the shelter, components and accessories during transport and prior to and during installation.

1.6 COORDINATION:

- A. Contractor shall coordinate the scheduling, site preparation, foundation construction and shelter installation with the Shelter manufacturer, Owner and others as needed.
- B. The site contains an existing guyed communications tower communications and shelter that shall remain in operation during the installation of the new shelter. The Contractor shall not cause any interruption to the function of the existing tower or shelter during construction. No modification to any existing tower guys shall be allowed. Any damage done to the existing communication system (including tower, guys, antennas, shelter, equipment etc.) shall be repaired by the Contractor at no cost to the Owner.

1.7 FOUNDATION DESIGN AND GEOTECHNICAL INVSTIGATIONS:

- A. The contractor shall be responsible for designing a foundation capable of supporting the new shelter given existing soil condition in accordance with the shelter manufacturer recommendations, and the latest edition of the New York State Uniform Fire Prevention and Building Code.
- B. The Shelter’s foundation design shall be prepared by a Professional Engineer licensed in the State of New York. Two signed and sealed copies of the foundation plans and design calculations shall be provided to the Owner prior to construction of the foundation.
- C. The Contractor shall include in the Base Bid all cost associated with the following work:
 - 1. Obtaining on-site geotechnical information necessary to design the shelter foundation including but may not be limited to conducting: soil borings, laboratory testing, etc. and the preparation of a Geotechnical Report.
 - 2. Designing and constructing the shelter foundation including but not limited to furnishing and installing all labor, formwork, concrete, concrete reinforcement, testing etc.

PART 2 – PRODUCTS

2.1 COMMUNICATIONS SHELTER:

A. General

- 1. The specifications contained herein encompass the labor, equipment and materials

for a prefabricated concrete communications shelter. The shelter structure shall be bullet resistant withstanding 30/60 rifle fire at a distance of 15 feet per UL 752 standards. The shelter shall be vandal resistant and be constructed of steel reinforced concrete. The shelter structure shall provide a 2-hour fire rating as defined by the New York State Uniform Fire Prevention Building Code and meet Zone 4 seismic requirements.

2. The Shelter shall be designed for the explicit use of housing electronic equipment within a controlled atmosphere required for the proper conditions for transmitting receiving equipment.
3. The Shelter shall incorporate non-porous wall and roof sections, to preclude capillary action, and shall be so designed, and constructed to provide a minimum useful life period of 20 years, without need for major maintenance actions. Manufacturer shall provide shelter maintenance and warranty information.
4. The Shelter shall include a complete heating, ventilation and air conditioning system as required to comply with the environmental conditions of these specifications.
5. The Shelter shall include a complete heating, ventilation and air conditioning system as required to comply with the environmental conditions of these specifications.
6. The Shelter shall include a complete and operational Generator and Uninterrupted Power Supply (UPS) system sized and capable of supplying emergency power to operate all equipment in the Shelter.
7. The Shelter shall include interior and exterior lighting systems as required by their specifications.
8. The Shelter shall include a grounding system for the Shelter and all equipment compliant with Motorola's R-56 Standard.
9. The Shelter shall include all alarms and alarm systems as required by these specifications.
10. The Shelter shall include all other accessories, parts, components, connectors and equipment as required by these specifications or as required to provide a complete and **operational** communications shelter.
11. The Contractor or Shelter Manufacturer shall be responsible for handling transporting and unloading the Shelter to the Project Site.

B. Manufacturer:

VFP, Inc
1701 Midland Road
Salem, VA 24153

or Equivalent

C. Structural Requirements:

1. Structural/Design Loads:

- a. 300 pounds per square feet (PSF) uniform floor live load per ASCE 7 while on foundation.
- b. 125 PSF distributed floor load while lifting per ASCE 7.
- c. 150 PSF distributed roof load per ASCE 7.
- d. 150 mph wind load per ASCE 7.
- e. Seismic Zone 4.
- f. 2 hour fire resistance per ASTM E911 on exterior walls.
- g. Level 4 high rifle (30-06) bullet resistance per UL 752 requirements. A Test Certificate signed by an officer of the Shelter Manufacturer verifying the shelter's structural design fully meets or exceeds all of the specifications and requirements as set forth in UL752, Level IV bullet resistance must be submitted with bid.

2. Foundation

- a. Reinforced concrete footings and walls designed to support new shelter.
- b. Backfill area under slab and along foundation walls per approved design plan.
- c. Top of foundation wall shall be flush with existing grade or elevation established by Owner.
- d. Top of foundation wall must be within 0.02" of elevation specified by Owner.
- e. Anchor building to foundation walls as recommended by shelter manufacturer.
- f. Foundation shall comply with minimum requirements of shelter manufacturer and NYS Uniform Fire Prevention and Building Code.

3. Concrete:

- a. Use concrete formulation with a minimum of 4,000 psi compressive strength of 28 days and a density of 100 pcf.
- b. Cement: Type I or II Portland Cement per ASTM C150.
- c. Aggregate: lightweight sand compliant with ASTM C33. Lightweight coarse aggregate no larger than ¾-in. diameter. Nominal and compliant with ASTM C330.
- d. If any concrete used in the foundation does not meet specifications, the

Contractor shall remove the foundation and pour one using compliant materials, at no expense to the owner.

4. Embedded Reinforcement and Structural Steel:

- a. Rebar: Must use grade 60 deformed reinforcing bar compliant with ASTM A615.
- b. Welded Wire Fabric: Must use fy-60-ksi wire fabric reinforcement compliant with ASTM A185.
- c. Other steel: Must use steel compliant with ASTM A36 or better for other steel components; eg. Weld plates, lifting and tie-down hardware. A steel frame cast in support of walls, roof, or floor is unacceptable.
- d. glass Fiber: Use of glass fiber integral to the concrete mix is NOT permitted.
- e. Lifting Assemblies: Shall be integral to the floor of the shelter. Screw on or bolt on lifting hardware is NOT permitted. Lifting the shelter from wall or roof sections is unacceptable. The lifting assembly shall be one device in the floor. It shall be hot dipped galvanized.
- f. Quality Control: Building manufacturer must have a least two (2) ACI inspectors on staff to test strength of concrete during break test. Concrete must be from batch within plant, outside contractors for concrete is NOT acceptable.
- g. Construction Methods: Where floor to walls, walls to walls, and roof to walls meet, there shall be step joints to prevent water intrusion. "Butt joints" are NOT acceptable.

D Dimensions:

1. The overall concrete shelter shall be 12 feet wide by 30 feet in length including a roof overhang with a 9 feet interior height.
2. The concrete shelter shall have two (2) rooms. One room shall be for the generator and UPS. The other room shall be for radio communications equipment.

E Fabrication:

1. Construct floor, walls, and roof into pre-cast reinforced concrete panels in conformance with ACI318 with a minimum thickness of 6" on floors and 4" on roof and wall panels. Cast reinforced steel plates in floor, walls, and roof panels to provide for welded panel-to-panel connections.
2. In addition:
 - a. Measure, mix, and transport concrete per ACI304.
 - b. Collect concrete samples for strength testing per ASTM C172, mold into cylinder per ASTM C31 and test for compressive strength per ASTM C39.
 - c. Cure concrete in forms and protect from moisture loss, excessive heat, and freezing

until removal from form; conform to ACI 305 and ACI 306 as required for hot and cold drainage.

- d. consolidate concrete per ACI 309.
- e. Mold and scree minimum ¼" per foot slope on roof in two directions for proper water from entering concrete shelter.
- f. Mold steel door frames into cast panel walls; include step-joint threshold to prevent water from entering concrete shelter.
- g. Mold keyed or step-joint edges into fabricated panels to enhance moisture protection and water runoff; mold roof/wall so that joint is not exposed.
- h. Treat wall panels with retarders as required to permit exposure of coarse aggregate for exterior finish; "seeding" of exterior surface with coarse aggregate is not permitted.

F. Assembly:

1. Install weatherproofing features as concrete panels are assembled.
2. Weld finished panels together to form rigid concrete shell.

G. Additional Shelter Requirements:

1. Shelter exterior shall be an exposed aggregate that is inherent to the concrete mix used for the poured concrete walls. Panels attached to the shelter exterior are NOT acceptable. Exterior finish to be irregular variations of aggregate. A smooth/flat aggregate appearance on the exterior achieved by having the stone introduced at the bottom of the casting table is unacceptable.
2. Shelter walls shall have a minimum 2-hour fire rating.
3. Shelter shall meet the following insulation requirements:
 - a. Walls and ceilings: R-196
 - b. Floor : R-6
4. Shelter interior walls and ceiling shall be sheathed with white nupoly board.
5. The generator and equipment rooms shall be separated by a 1-hour fire-rated wall.
6. Shelter shall be provided with two (2) exterior steel doors to provide access to the tow (2) rooms in the Shelter.
7. Each door shall be a minimum of 42" wide by 84" high, highly insulated exterior door with stainless steel ball-bearing tamper-proof hinges, passage style level handle, dead bolt lockset and fiberglass weatherboard. Supply five (5) keys with each door.
8. Each door shall be supplied with a hydraulic door closer.
9. Outside each door shall be a concrete pad 4' x 4' x 6' with welded wire mesh. Each pad shall be installed on top of 18" of compacted Run of Bank Gravel.
10. Each door shall have an engraved, plastic laminated sign installed on it designating the room. The exact wording shall be determined by the Owner

11. Proved base cove molding along floor and cove molding at all wall corners and all ceiling/wall joints.

H. Electrical Requirements:

1. Electrical Supply:

- a. The Contractor shall contact and coordinate with National Grid to:
 1. Remove electrical service from existing communications shelter.
 2. Supply and install electrical service for new communications shelter.
- b. The Contractor shall pay for any cost associated with National Grid removing the existing and supplying the new electrical service.

2. Electric Service:

- a. Supply and install a new 200 amp, 10,000 AIC, 120/240 VAC, 60 Hz single-phase service to new shelter per National Grid Electric Code.
- b. supply and install a main disconnect for the 200 amp panel per the National Grid Code.

3. Electrical Distribution:

- a. The concrete shelter shall be constructed with the following:
 1. One (1) 200 Amp, 10,000 AIC, 120/240 VAC, single phase, 60 Hz, 40 space main breaker, snap in Suare D utility power distribution panel, in a NEMA 1 surface mount enclosure.
 2. Tow (2) 200 Amp, 10,000 AIC, 120/240 VAC, Single phase, 60 Hz, 40 space main breakers.
 3. One (1) Metal Oxide Variston (MOV) only lightning arrester.
 4. One (1) MOV/Silicone Avalanche Diode (SAD) lightning arrester.
 5. One (1) 60 amp, enclosed circuit breaker for lightning arrester isolator during maintenance.
 6. Circuit breakers for all customer loads.
 7. One (1) shlter wall penetration to serve as utility power service.
 8. One (1) 200 Amp, 240 Volt, fused, double pole, single throw safety switch.
 9. Ten (10) 20 Amp specification grade exterior duplex receptacles,
 10. One (1) 20 Amp specification grade exterior duplex receptacle on a ground fault interrupted circuit.
 11. Two (2) rows of overhead single, 20 amp receptacles fed from dedicated UPS circuits. Total of 32 receptacles per row for total of 64 receptacles.
 12. Electrical distribution equipment shall be Square D or equivalent.

4. Materials:

- a. Provide materials, components, and devices that are new and of highest quality, and standard products of manufacturers regularly engaged in their production. Ensure that, where applicable, electric materials are listed or recognized by Underwriters Laboratories or other 3rd party agency approved by Owner.
- b. All electrical materials and components shall conform with the following:
 1. Power wiring: 600V THHN or THWN wire sized in accordance with NFPA-70; use size 12 awg minimum.
 2. Control wiring 250V TFFN solid wire sized in accordance with manufacturer or listing instructions for class 2 thermostat, generator, or fire detection systems; use #18 awg minimum.
 3. Alarm wiring: 250V solid shielded, twisted cable assemblies; use #22 awg minimum.
 4. Fixed raceway: EMT, rigid metal conduit, or metal wireway size per NFPA-70.
 5. Flexible raceway; use liquidtite conduit on exterior and flexible metal conduit on interior of concrete shelter.
 6. Branch circuit breakers: thermal magnetic circuit breakers; rate breakers that supply lighting circuits as "SWD" and motor loads as "HACR".
 7. Light fixture: 2-tube, 4-foot surface-mounted fluorescent fixtures with CBM-rated ballast, prismatic wrap-around diffuser, and in-line RFI Filters for noise suppression.
 8. Wiring devices: use UL listed quiet -type lighting toggle switches and grounded receptacles.
 9. Service Disconnects: Fused disconnects or enclosed circuit breakers labeled as "suitable for use as service equipment".

5. Installation:

- a. Perform all wiring in accordance with the best commercial practice in accordance with NFPA-70.
 1. Install wiring in surface mount EMT conduit; where flexible conduit is required by code between equipment and final junction box in circuit, use flexible metal conduit on interior and liquid tite conduit on concrete shelter's exterior.
 2. Where required, use properly sized and insulated wire nuts for conductor splices; locate no splices except in outlet or junction boxes.
 3. Coordinate location of interior light fixtures to maximize illumination of equipment.

I. Power Conversion Systems:

1. Systems:

a. The building shall be constructed with the following power conversion systems:

1. Uninterrupted Power Supply (UPS)

a. The concrete shelter shall be constructed with the following:

1. One (1) 20KVA Uninterruptable Power Supply to support all electrical outlets.
2. External wall mount maintenance bypass switch with over current protection breaker built in
3. Six (6) minutes of battery backup.
4. 120/240V, single Phase
5. Provide all other components, parts and accessories required to provide a complete and operational system.

b. The Contractor shall startup an test the UPS at the site under building load in presence of Owner.

c. Contractor shall have factory authorized representative inspect the UPS system onsite after final utility power connection is complete.

2. Generator:

a. the concrete shelter shall be supplied and constructed with the following:

1. one (1) indoor rated 50kW, LP Vapor Fueled Generac generator Model SG050 or equivalent.
2. 120/240V, single phase, 60Hz
3. Battery and Charger
4. Critical grade muffler
5. One (1) 200 Amp, single phase, 120/240V, GTS "W" Type Automatic Transfer Switch in a NEMA 1 service rated enclosure.
6. Supply and install a ¾" black iron pipe through shelter exterior wall for new propane line. Provide shutoff on inside of shelter.

b. The Contractor shall be responsible for:

1. Connect propane fuel piping to generator
2. Starup of new generator under full building load.
3. The required start-up shall be performed in the presence of the manufacturer's authorized representative to initiate the generator warranty.

3. Generator Accessories:

a. The concrete shelter shall be supplied with the following:

1. A generator air intake louver with weather-hood, equipped with a permanent expanded metal dust filter.
2. A generator radiator air exhaust louver with weather-hood, equipped with an exhaust insect screen.
3. An exhaust pipe thimble.
4. A flexible duct between the generator radiator shroud and shelter air exhaust opening.
5. All other accessories needed to provide complete and operational generator system.

J. Lighting

1. The concrete shelter shall be constructed with the following:
 - a. Seven (7) four foot, two tube surface mount fluorescent light fixtures using F32T8 lamps. Five (5) in Main Room and two (2) in Generator Room. All lights shall be wired to switches located inside entry door.
 - b. One (1) 75-watt exterior door light with vandal resistant lens with photo cell control and switch override.
 - c. Two (2) emergency lights

K. Environmental Conditions

1. The Shelter shall be designed, constructed and equipped with a heating, ventilation and air conditioning system that will maintain interior temperatures under specified operating conditions. Calculate heating and cooling based on heat load of concrete shelter manufacturer's installed equipment, concrete shelter conduction losses, solar loading; sensible and latent losses from radio and communications equipment loads, ventilation and personnel losses.
2. The building's heating ventilation and air conditioning system shall be sized for 100% redundancy under the following operating conditions:
 - a. Ambient temperature: -90°F (-35°C) thru 104°F (40°C)
 - b. Interior temperature: 65°F (18°C) minimum at minimum ambient, and 84°F (30°C)
 - c. Ambient humidity: 5-95%
3. The shelter shall be designed and equipped with an environmental control system consisting of heating and air conditioning capable of maintaining the inside temperature under operating conditions, plus sensible and latent gains from personnel, at 72 degrees F. The systems shall control the internal temperature of the shelter so as to not rise above 80 degrees F nor fall below 65 degrees F.
4. With respect to air conditioning, the concrete shelter shall be supplied and installed with the following:

- a. Two (2) normal 36,000 Btu/hr wall mount air conditioning units, with low ambient and compressor anti cycle controls, integral 5 kW resistance heat strips and washable dust filters.
 - b. Redundant lead/lag controls allowing approximately equal operating time on each air conditioning unit.
 - c. The HVAC units shall be controlled via a separate remote mounted thermostat unit and the necessary controllers for each HVAC unit. The units shall be mounted and secured to the shelter sub structure for adequate structural support. The units shall be sealed weather tight to the Shelter. All hardware shall be mounted, installed, wired and ready for use upon delivery. A drip cap shall be installed to protect the units.
5. Install air conditioners for transport as well as operation. Use stainless steel fastening hardware for mounting air conditioner. Seal exterior with UV-resistant caulk and install drip edge over top of each unit to prevent water entry. Install fixed return grille and supply grille with once-way adjustable slats. Locate units for maximum circulation and behind non equipment obstructions.

L. Alarm Device Contacts

1. The concrete shelter shall be supplied and installed with the following:
 - a. One (1) line voltage smoke detector.
 - b. One (1) heat detector in generator room
 - c. Two (2) intrusion alarm switches with form "C" contact rated. 1 Amps at 28 VDC
 - d. One (1) high temperature alarm
 - e. One (1) low temperature alarm
 - f. Standard set of (8) generator alarms to be defined during shelter design
 - g. Standard set of UPS alarms to be defined during shelter design
 - h. One LP level alarm
 - i. One (1) loss of electrical power alarm
 - j. One (1) alarm to indicate generator is running.
2. Alarms I and j shall be connected into the County's Dispatch Center through the microwave system. Both alarms shall be able to be monitored by dispatcher in the Dispatch Center.
3. All alarms shall be connected/interfaced with the County's microwave system to allow all alarms to be monitored at the County's E-911 Center in the Sheriff's Department. Coordinate this work with Alcatel-Lucent.
4. Alarm device contacts will be wired and brought to a location specified by the Owner.
5. All alarms will be brought to (2) punch down blocks

M. Grounding

1. The concrete shelter shall be constructed with the following:
 - a. A grounding electrode system for the Shelter, all service equipment, cable and radio communications equipment.
 - b. IPG B system compliant to Motorola R-56 standard
 - c. Ground kit consisting of interior and exterior ground bars with exterior ground straps and covers.

N. Ice Bridge

1. The Contractor shall supply and install a 2-foot wide, galvanized steel ice bridge capable of shredding falling ice between the existing tower and the new Shelter.
2. The ice bridge shall be installed approximately seven to eight feet above ground.
3. The ice bridge shall extend from the tower cable ladder to the exterior wall of the new shelter.
4. The ice bridge shall not be attached to the Tower, be installed such that it will not create additional tower load and not supported by the tower or equipment building.
5. The ice bridge shall be bonded to the tower grounding system.
6. Multiple sections of ice bridge shall be bonded together using tow-hole lugs and stainless steel hardware, or other suitable method.
7. Poles supporting the ice bridge shall be set in 8" sonotubes 5' deep filled with concrete.
8. Acceptable manufacturer shall be a Rohn Heavy-Duty Waveguide Ridge or equal.

O. Accessories

1. The concrete shelter shall be supplied with the following:
 - a. One (1) 24-port/waveguide cable entry panel with 4" sleeves and protective blank covers
 - b. fifty feet (50') of 24" wide cable ladder/tray in equipment room
 - c. One (1) 4' x 8' x 3/4" equipment mounting board with two (2) punch blocks in equipment room
 - d. Two (2) 2" telco penetrations in equipment room
 - e. One (1) 5lb CO2 fire extinguisher in each room

P. Other:

1. All wiring will be installed in Surface mounted conduit or wire ways and will be in full compliance with ANSI/NFPA-70 The National Electric Code, latest version.

PART 3 – INSTALLATION

3.1 GENERAL INSTALLATION AND REQUIREMENTS:

- A. The Contractor shall install the Shelter in strict accordance with all manufacturer requirements, instructions and specifications.
- B. any deviation from manufacturer requirements, instructions and specifications shall be brought to Owner's attention, in writing, prior to performing any work.
- C. The Contractor shall provide all vehicles, equipment, tools, labor, hardware and supplies necessary for the proper and complete transportation, offloading and installation of the Shelter.

3.2 FIELD QUALITY CONTROL:

A. GENERAL

- 1. Installation monitoring and reporting shall be conducted during the installation.
- 2. Inspection of all materials shall be conducted upon arrival to site and prior to installation.
- 3. Written reports of test and observations. Record defective materials and workmanship and unsatisfactory test results. Record repairs and adjustments. These reports shall be supplied to the Owner.
- 4. Repair damaged finishes using methods and materials recommended by manufacturer.

B. CONCRETE

- 1. The contractor shall pay for the cost of employing an approved commercial testing laboratory, approved by the Owner, to provide field inspection of all concrete. Continuous inspection shall be provided during all concrete pours. If any portion of the work shows unacceptable test results, the Owner may require additional testing, load test, cored samples, or replacement of the faulty work, etc., at the Contractor's expense.
- 2. The Contractor shall submit concrete mix designs to be reviewed by the Owner. The mix designs shall be confirmed by making and testing trial mixes for each class of concrete specified.
- 3. The Contractor shall make all laboratory or field test as required and shall furnish all necessary equipment. The Contractor shall transport all test cylinders from the site to the laboratory. The Contractor may substitute certification by the Batch Plant Operator of the above items.
- 4. The contractor shall utilize a competent field concrete inspector to duties as follows:
 - a. check each truck on arrival to make sure that the concrete is not retempered.

- b. Make necessary slump test for uniformity control.
 - c. Make air test and yield test as required.
 - d. Make any and all test cylinders as may be required in the Specifications.
5. Test: Concrete shall be tested as follows:
- a. Standard 6" x 12" compression cylinders shall be in compliance with C-39 in sets of four and shall be moist cured.
 - b. Break 2 at 7 days and 2 at 28 days. One set shall be made for approval of each mix design, one set for first pour of 50 cubic yards or less, and one set for each additional pour of 50 cubic yards. If less than 50 cubic yards are placed in one day, one set shall be made for each day's pour. Slump test shall be made of each batch.
6. All test cylinders shall be cast, water cured and broken under laboratory conditions in accordance with the ASTM C31 and ASTM C39. All four cylinders of a test shall be taken from the middle third of a single load. Each cylinder shall be properly labeled with an identifying mark, the mix proportions, air content, amount of water, slump, and the location in the structure where the concrete was placed. Test reports shall include all this information. Distribute copies of reports as requested by the Owner. Should any results be questionable; the Owner shall be notified immediately so that corrective measures can be taken. Any test cylinder which was broken and fails to meet requirements shall be preserved for inspection by the Owner.
7. The cost of the concrete testing shall be included in Contractor's Base Bid.

3.3 FOUNDATION:

- A. Forms for concrete foundations shall fully support the concrete and be braced accordingly.
- B. Steel used for reinforcement shall be new material and be free of foreign matter.

3.4 DEMOSISHING EXISTING SHELTER:

- A. Once all equipment and cables have been relocated to new shelter and new shelter and new functional, Contractor shall demolish the existing shelter.
- B. Prior to starting demolition work, Contractor shall carefully disconnect and remove the generator, electrical panels and any other equipment identified by Montgomery County from existing shelter and load them onto vehicles supplied by Montgomery County.
- C. Montgomery County shall supply an open top container for the Contractor to use to place all materials from demolished building. Montgomery County shall dispose of all demolished materials and pay all tipping fees.

3.5 RELOCATING EXISTING CABLES:

A. Alcatel-Lucent and Motorola shall:

1. Disconnect existing cables from their communications equipment in the existing shelter.
2. Move existing equipment from the existing to the new shelter as well as installing new equipment in the new shelter to replace some existing equipment.
3. Reconnect relocated cables to equipment in new shelter.

B. NYSDOT, National Grid and Lexington or their contractors shall:

1. Disconnect existing cables from their communications equipment in the existing shelter.
2. Move existing equipment from the existing to the new shelter as well as installing new equipment in the new shelter to replace some existing equipment.
3. Reconnect relocated cables to equipment in new shelter.

C. The Contractor shall be responsible to:

1. Label all existing cables disconnected by others from all existing communications equipment in the existing shelter.
2. Remove all existing cable from the existing shelter and disconnect these cables from the existing ice bridge.
3. Supply and install a new ice bridge from the existing tower to the new shelter.
4. Connect all existing cables to the new ice bridge.
5. Install all existing cables through cable entry panel into the new shelter.
6. All cables shall be labeled in new shelter.

D. The Contractor shall schedule and coordinate all of this work with Alcatel=Lucent, Motorola, NYSDOT, National Grid and Lexington Center.

E. The Contractor shall relocate cables when Alcatel=Lucent, Motorola, NYSDOT, National Grid and Lexington Center are onsite.

F. The Contractor shall coordinate, schedule and complete this work and keep Montgomery County's communications system fully operational at all time.

3.6 FENCING AND GATES (ALTERNATE BID1):

A. Remove and dispose of existing fencing as shown on Site Plan.

- B. Provide new fencing and gates as shown onsite Plan.
- C. All new fencing shall match height of existing fencing (approximately 7'6") and have three (3) strands of barbed wire.
- D. All work shall be performed in accordance with Section 7.

PART 4 – WARRANTIES

- A. The Contractor shall provide the Owner with a copy of the shelter manufacturer's 1-year warranty on the shelter and all components, equipment and systems include. The 1-year warranty shall commence upon final installation and startup of the shelter.
- B. The Contractor shall provide the Owner with the manufacturer's warranties for all components and equipment installed in the new shelter including:
 - Generator
 - UPS
 - Electrical Panels
 - Lights
 - Air Conditioners
 - Heaters
 - Alarms
 - Ice Bridge
 - Accessories
- C. The Contractor shall also provide a one (1) year labor and material warranty on all labor and equipment supplied during the installation of the Shelter. The 1-year warranty period shall commence after final acceptance. It shall include all parts, labor and travel from the Shelter. The cost of this Warranty shall be included in the Total Base Bid.
- D. The contractor shall warrant that all equipment furnished shall be free from defects in workmanship and material.

PART 5 – TRAINING

- A. Contractor shall provide Owner's designated staff with a minimum of four (4) hours of training on the operation and maintenance of the Shelter and all Shelter systems and components.

PART 6 – O & M MANUALS

- A. The Contractor shall provide the Owner with three (3) bound O & M Manuals with a Table of contents and tabs to identify major divisions.
- B. The Manuals shall include:
 - 1. Manufacturer's mode and serial number of Shelter.

2. Manufacturer, model and serial number of all systems, components and equipment included in Shelter including:

- Generator
- UPS
- Electrical Panels
- Lights
- Air Conditioners
- Heaters
- Alarms
- Ice Bridge
- Accessories

3. Warranties for all items in #2.

4. Service/O & M Manuals for all items in Numbers 1 and 2 above.

5. Preventative Maintenance Procedures and Schedules for all items in Numbers 1 and 2 above.

6. Concrete Shelter Repair Procedures.

SECTION 7 – TECHNICAL SPECIFICATIONS FOR CHAIN LINK FENCES AND GATES

PART 1 – GENERAL

1.8 SUMMARY:

A. This section includes the following:

1. Exterior aluminum-coated steel chain link fences and gates.
2. Fence and gate post, ties, band and other accessories.
3. Concrete bases for all post.
4. Barbed Wire.

PART 2 – PRODUCT

2.1 FABRIC:

A. Aluminum Steel Finish: Fabric conforming to ASTM A 491 with not less than 0.40 oz. aluminum pre sq. ft. of uncoated surface in accordance with ASTM A817. Degrease, rinse and coat fabric with clear acrylic lacquer by complete immersion prior to rolling for shipment.

- B. Aluminized Steel Fabric: 9-gauge (0.145-inch diameter) 2-inch mesh wire. Top and bottom edges shall have knuckled selvages. Mesh size is the distance between the wires forming parallel sides of mesh with tolerance plus/minus 0.250 inches. Fabric heights, measured from top of knuckle to bottom of knuckle, shall be as per drawings with tolerance plus/minus 1 inch. Mesh shape shall be a grid of 2" squares on a 45-degree angle.
- C. All fencing shall match height of existing fence which is approximately 7' 6".

2.2 PIPE:

- A. Pipe shall be straight, true to section, material and sizes specified and shall conform to the following weights per foot:

Nominal Pipe Size In Inches	Outside Diameter (OD) in inches	Aluminized or Galvanized Steel (lb/ft)
2-1/2	2.875	5.79

- B. Steel Framework, General: Post, rails and braces.
 - 1. Type I Pipe: Hot-dipped galvanized or aluminized steel pipe to ASTM F 1083, plain ends, standard weight (schedule 40) with not less than 1.8 oz. zinc or aluminum per sq. ft. of surface area coated.

2.3 FITTINGS AND ACCESSORIES:

- A. Material: Comply with ASTM F 626. Mill-finished aluminum or galvanized iron or steel, to suit manufacturer's standards. Bolt or weld sleeved connections.
 - 1. Zinc Coating: Unless specified otherwise, galvanized steel fence fittings and accessories in accordance with ASTM A 153, with zinc weights per Table I. Aluminized fitting are also acceptable.
- B. Tie Wires: 12-gauge (0.106-inc diameter) galvanized steel with a minimum of 0.80 oz. per sq. ft. of zinc coating of surface area in accordance with ASTM A 641, class 3 or 9-gauge (0.106-inch diameter) aluminum wire allow 1100-H14 or equal, to match fabric core material.
- C. Top Rails: Same material and weight as post.
- D. Bottom and Center Rail: Same material, size and weight as top rail.
- E. Post & Line Caps: Provide weathertight closure cap for each post. Provide line post caps with loop to receive tension wire or top rail. Provide caps made of same material as posts.

- F. Tension Bars: Aluminized steel with minimum length 2 inches less than full height of fabric, minimum cross-section of 3/16 inch by 5/8 inch and minimum 1.2 oz. aluminum coating per sq. ft. of surface area. Provide one bar for each gate and end post, and two for each corner and pull post.
- G. Tension and Brace Bands: Minimum 7/8-inch-wide aluminized steel with minimum 1.2 oz. aluminum coating per sq. ft. of surface area.
- H. Concrete: Provide concrete consisting of Portland cement, ASTM C 150, aggregates ASTM C 33, and clean water. Minimum 28-day compressive strength of 4,000 psi.
- I. Barbed Wire Support Arms: Galvanized pressed steel barb arm per ASTM F626 with provisions for attaching barbed wire. Provide arms with loop hole for applications using top rail. Arms shall withstand 250 lbs. downward pull at outermost end of arm without failure. Arms provide an additional 13 inc. fence height. Typed I 45° 3 strand single arm.

2.4 GATES:

- A. Double leaf swing gates with 3 strands barbed wire: Fabricate chain link swing gates in accordance with ASTM F900. Gate frame to be of welded construction. Weld areas to be protected with zinc-rich paint per ASTM A780. The gate from members are to be spaced no greater than 8'0" (2.44m) apart horizontally or vertically. Exterior members to be 1.900" (48.3mm) OD pipe, interior members with required shall be 1.660" (42.2mm) OD pipe. Chain link fabric to match specification of fence system. Fabric to be stretched tightly and secure to vertical outer frame members using tension bar and tension bands spaced 12" (304.8mm) on center using 9 gauge galvanized steel ties per section 2.04.
- B. Hinges, hot dip galvanized pressed steel or malleable iron, structurally capable of supporting gate leaf and allow opening and closing without binding. Non-lift-off type hinge design shall permit gate to swing 180°.
- C. Latch: Galvanized forked type capable of retaining gate in closed position and have provision for padlock. Latch shall permit operation from either side of gate.
- D. Double gates: Provide galvanized drop rod with center gate stop pipe or receiver to secure inactive leaf in the closed position. Provide galvanized pressed steel locking latch requiring one padlock for locking both gate leaves, accessible from either side. Provide padlock and keys (3) to Owner.

- E. Keeper to secure open leafs: Provide galvanized gate hold back keeper for each gate leaf over 5' wide. Gate keeper shall consist of mechanical device for securing free end of gate when in full open position.

2.5 BARBED WIRE:

- A. ASTM A121 Type A aluminum coated 12 ½ gauge (.099") (2.51 mm) double stand twisted line wire with 4-point 14 gauge, (0.080") (2.03 mm) barbs spaced average of 5" on center.

2.6 POST SETTING MATERIALS:

- A. Concrete: Minimum 28-day compressive strength of 3,000 psi.

PART 3 – INSTALLATION

1.1 SITE PREPARATION:

- A. Clean and grub area to receive fencing.
- B. Grade area to receive fencing

1.2 FRAMEWORK:

- A. Install chain link fence system in accordance with ASTM F567 and manufacturer's instructions.
- B. Locate terminal post at each fence termination and change in horizontal or vertical direction of 30° or more.
- C. space lines posts uniformly 8' on center.
- D. Concrete set post: Excavate holes in firm, undisturbed or compacted soil. Holes shall have diameter 4 times greater than outside dimension of post, and depths approximately 6" deeper than post bottom. Excavate deeper as required for adequate support in soft and loose soils, and for post with heavy lateral loads. Set post bottom 48" below surface when in firm, undisturbed soil. Place concrete around post in a continuous pour. Trowel finish around post and slope to direct water away from post.
- E. Check each post for vertical and top alignment, and maintain in position during placement and finishing operations.
- F. Bracing: Install horizontal brace and truss assembly at mid-height or above and over at each fabric connection to the terminal post. The diagonal truss rod is installed at the point where the brace rail is attached to the terminal post and diagonally down to the bottom of the adjacent line post. Place the truss rod in tension by adjusting the turnbuckle.

- G. Tension wire: Install tension wire so that it will be located 4" up from bottom the fabric. If top rail is not specified, install the tension wire so that it will be located 4" down from the top of the fabric. Stretch and install tension wire before installing the chain link fabric and attach it to each post using wire ties.
- H. Top rail: Connect ends with sleeves forming a rigid connection, allow for expansion and contraction.
- I. Bottom Rail: Install bottom rails between post and attach to post using rail end or line rail clamp.

1.3 BARBED WIRE:

- A. Uniformly space and stretch barbed wire between terminal post. Attach barbed wire to the terminal post using brace bands and snap and secure barbed wire into each line post barb arm slot.

1.4 CHAIN LINK FABRIC:

- A. Fabric: Install fabric on security side, pull fabric taut; thread the tension bar through fabric and attach to terminal post with tension bands spaced minimum of 15" on center and attach so that fabric remains in tension after pulling force is released. Install fabric so that it is 2" +/- (25 mm) above finish grade.
- B. Secure fabric using wire ties to line post at 15" on center and to rails and braces 24" on center, and to the tension wire using hog rings 24" on center. Tie wire shall be secured to the fabric by wrapping it two 360 degree turns around the chain link wire spickets. Cut off any excess wire and bend back so as not to protrude so as to avoid injury if a pedestrian may come in contact with the fence.

1.5 CHAIN LINK GATE:

- A. Swing gates: Installation of swing gates and gate posts shall be per ASTM F567. Direction of swing shall be outward. Gates shall be hung plumb in the closed position with minimal space from grade to bottom of gate leaf. Double gate drop bar receiver shall be set in a minimum concrete footing 6" diameter by 24" deep. Gate leaf holdbacks shall be installed on all double gates and all gate leaves greater than 5' in width.

1.6 SITE CLEANUP:

- A. Clean up area adjacent to fence line from debris and unused material created by fence installation.