DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01110 GENERAL REQUIREMENTS

PART 1: GENERAL

1.1 LOCATION AND PLANS

The location of the work is the Chehalis-Centralia Airport. A location map is shown on the cover sheet of the contract plans. The contract plans for this project consist of three (3) sheets entitled 2010 Airport Perimeter Fencing Project.

1.2 AIRPORT SECURITY

During the course of the contract, the contractor shall be responsible for maintaining security against unauthorized access to the airport.

The contractor shall be fully responsible for compliance by himself and all of his employees with the airport security program and following regulations and orders of the airport management. These regulations may affect identification of employees, movement around the airport, parking, entry, and other circumstances affecting the safety or protection of persons or property.

For the purpose and intent of these regulations, air operations area is constructed to mean any area used or intended to be used for take-offs, landing, or surface maneuvering of aircraft, and all other areas restricted to public access on the field. Work boundaries within the air operations area shall be established as shown on the drawings. Only contractor's employees are permitted in the work sites.

The contractor must enter and exit the air operations area only through the haul routes shown on the Construction Site & Safety Plan. Deliveries to work sites will be controlled by the contractor.

Within the air operations area, all equipment, vehicle, and personnel travel shall be restricted to designated work sites.

Only vehicles used for construction purposes shall enter the air operations area. Contractor personnel shall park their personal vehicles within a designated staging area.

All trucks and construction equipment shall be equipped with FAA approved flags or an amber flashing light.

In the event of an emergency, men and equipment shall move immediately to the staging area.

1.3 LAYOUT OF THE WORK

The contractor is responsible for construction surveying other than listed in Section 01406. The contractor should refer to Section 01406 for specific requirements. All staking and surveying not specifically listed in this Section 01406 will be the responsibility of the contractor. All grade checking and transferring of lines and grades from the engineer's stakes will be the contractor's responsibility.

1.4 COMPLETION TIME

All items of contract work shall be substantially complete within twenty working days.

1.5 ENVIRONMENTAL CODES AND REGULATIONS

The contractor shall comply with provisions of Federal, State and local statutes, ordinances and regulations dealing with the prevention of environmental pollution and the preservation of natural resources that affect the project.

If the contractor must undertake additional work due the enactment of new or the amendment of existing statutes, ordinances and regulations dealing with the prevention of the successful bid, the owner will issue a supplemental agreement setting forth the additional work that must be undertaken. The supplemental agreement shall not invalidate the contract and there shall be, in addition to a reasonable extension of contract time, if necessary, a reasonable adjustment in the contract price to compensate the successful bidder for all costs and expenses incurred, including overhead and profits, as a result of the additional work.

1.6 INSPECTION AND TESTING

All tests called for in the specifications or deemed necessary by the engineer will be performed by the engineer except when indicated otherwise in the specifications. The engineer will perform quality assurance testing when, in the opinion of the contractor, the work area to be tested is prepared and will meet the required specifications. Contractor shall schedule testing at least 24 hours in advance of when he is ready for the test. In the event test results do not meet the specifications, any cost for re-testing as may be required by the engineer shall be at the contractor's expense, charged at the rate established in the engineer's standard fee schedule.

1.7 CONTRACTOR'S STAGING AREA AND PLANT SITE

An area will be set aside on the airport property for the contractor's use as a staging area for men, equipment, and materials. The contractor shall obtain all necessary building permits and operating licenses from local governmental agencies. The engineer will define the actual location in the field. The contractor may install his own security fence. The area shall be restored to its original condition at the conclusion of the work.

1.8 DISPOSAL OF WASTE MATERIAL

Waste asphaltic concrete, aggregate, and earthen material shall be wasted off-airport at the contractor's expense unless designated otherwise. Disposal of waste materials shall be in accordance with governing agency safety and health requirements. Disposal sites shall be smooth graded and drain properly at the completion of the contractor’s operations.

1.9 SITE INVESTIGATION AND REPRESENTATION

The contractor acknowledges that he has satisfied himself as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during the prosecution of the work and all other matters which can in any way affect the work or the cost thereof under this contract.

The contractor further acknowledges that he has satisfied himself as to the character, quality, and quantity of surface and subsurface materials to be encountered from inspecting the site.

The contractor warrants that as a result of his examination and investigation of all the aforesaid data that he can perform the work in a good and workmanlike manner and to the satisfaction of the owner. The owner assumes no responsibility for any representations made by any of its officers or agents during or prior to the execution of this contract, unless (1) such representations are expressly stated in the contract, and (2) the contract expressly provides that the responsibility therefore is assumed by the owner. Representations for which liability is not expressly assumed by the owner in the contract shall be deemed only for the information of the contractor.

1.10 INFORMATION ON SITE CONDITIONS

All information obtained by the owner regarding site conditions, subsurface information, ground water elevations, existing construction of site facilities as applicable, and similar data will be available for inspection at the airport office upon request. Such information is offered as supplementary information only. The owner does not assume any responsibility for the completeness or interpretation of such supplementary information.

1.11 SUBSURFACE AND SITE INFORMATION

Information derived from inspection of test results, of topographic maps, or from plans showing location of utilities and structures will not in any way relieve the contractor from any risk, or from properly examining the site and making such additional investigations as he may elect, or from properly fulfilling all the terms of the contract documents.

The submission of a proposal shall be conclusive evidence that the bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and quantities of work to be performed and materials to be furnished, and as to the requirements of the contract documents.

1.12 UNDERGROUND UTILITIES

Known utilities and structures expected to be adjacent to or encountered in the work are shown on the plans. It is expected that there may be some discrepancies and omissions in the locations and quantities of utilities and structures shown. Those shown are for the convenience of the contractor only, and no responsibility is assumed by the owner for their accuracy or completeness.

1.13 FIRE PREVENTION AND PROTECTION

The contractor shall perform all work in a fire-safe manner. The contractor shall comply with applicable local and State fire prevention regulations.

1.14 TEMPORARY WATER

No potable water supply is immediately available at the designated contractor's staging area and plant site. The contractor shall make his own arrangements for obtaining water and pay all costs for same.

1.15 TEMPORARY ELECTRIC POWER

No electric power is immediately available at the designated contractor's staging area and plant site. The contractor shall make arrangements for electric power for use during the construction period until final acceptance by the owner, and pay all costs for same.

1.16 SANITARY FACILITIES

The contractor shall provide and maintain sanitary facilities for his employees and his subcontractor's employees that will comply with the regulations of the local and State departments of health and as directed by the engineer.

PART 2: EXECUTION

2.1 SITE RESTORATION AND CLEAN UP

Upon completion of the project, all areas used by the contractor in connection with the work shall be properly cleared of all temporary structures, rubbish, and waste materials and properly graded to drain and blend in with the abutting property. Any grass areas disturbed are to be graded flat, raked of rocks greater than ¾" diameter, and hydroseeded.

2.2 HAUL ROUTES AND MAINTENANCE

The contractor shall abide by prevailing legal load limit regulations when hauling over city, state or county roads. The contractor shall perform all necessary maintenance of haul routes during construction and shall perform all work as necessary to restore the routes used by his equipment to their original condition at the conclusion of construction. New construction haul roads shall be obliterated and original vegetation re-established. Existing roadways, runways, and taxiways shall be patched or overlaid as necessary to restore them. The contractor shall vary their haul routes across airfield pavements to protect them from damage caused by over use.

Unsurfaced haul roads shall be sprinkled with water as necessary to prevent dust diffusion during the course of the work. All maintenance and restoration work shall be completed to the engineer's satisfaction before final payment is awarded. No direct payment will be made for this work.

2.3 RESPONSIBILITY FOR DAMAGE TO EXISTING STRUCTURES

Where any existing structures or facilities which are intended to remain are damaged by the contractor during demolition or construction, the contractor shall promptly repair or replace the damaged portion or facility at no additional cost to the Owner.

2.4 STORAGE OF MATERIALS

Materials shall be so stored as to insure the preservation of their quality and fitness of the work. When considered necessary, they shall be placed on wooden platforms or other hard, clean surfaces, and not on the ground, and/or they shall be placed under cover. Stored materials shall be located so as to facilitate prompt inspection. Private property shall not be used for storage purposes without the written permission of the owner or lessees.

2.5 CLEAN UP

The contractor shall at all times during the work keep the premises clean and orderly. He shall promptly remove all waste materials and rubbish. All directions from the engineer and other authorized public officials having jurisdiction over health and safety shall be obeyed. Areas to be opened up to aircraft operations shall be swept thoroughly clean with power broom equipment. Any debris resisting sweeping shall be removed by hand labor or other suitable means.

Upon completion of the work, all materials, equipment, and appurtenances not required, as a part of, or appurtenant to, the completed structure or facility shall be completely removed from the owner's property.

2.6 WORK PROGRESS SCHEDULE

A. Scope: The work specified in this subsection includes planning, scheduling, and reporting that is required to be performed by the contractor.

B. Method: A critical path or bar graph type schedule shall be submitted to the engineer for review and approval by the apparent low bidder within five (5) calendar days after Notice of Award. When the schedule has been approved, the contractor shall submit five (5) copies of it, one of which shall be approved and signed by the engineer and returned to the contractor.

C. Schedule Requirements: Distinct items of contract work shall be defined and separated on the schedule. As a minimum, the work items shall include each contract pay item, mobilization, de-mobilization, and cleanup. Pay items that are partially subcontracted shall be split up to distinctly show the subcontracted work. These items of work shall be plotted on a graph with calendar days duration as a horizontal reference. Anticipated start and finish dates for each work stage and

for each of the work items within a stage, shall be shown. The project name, the contractor's name, and the date of the schedule submittal shall be clearly shown on the submittal.

END OF SECTION 01110

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01115 CONSTRUCTION OPERATION PLAN

PART 1: GENERAL

1.1 SCOPE

This specification outlines safety procedures and regulations to be followed by the Contractor during the course of this work. Construction operations plans are provided in the contract plans as the “Construction Site and Safety Plan” and/or “Construction Phasing Plan”. The work item "Temporary Flagging, Marking and Signing" shall consist of furnishing, installing, and removing temporary marking, signing, lighting, and barricades required during the course of this work. It shall also include furnishing sufficient flaggers for traffic control. All work shall be in conformance with F.A.A. AC 150/5370-2E “Operational Safety on Airports During Construction," the "Manual of Uniform Traffic Control," and WSDOT Standard Specifications for road, bridge, and municipal construction.

The construction operations plan has been developed to mitigate the adverse impacts of construction on aeronautical operations on the airport. Strict adherence to the provisions of the construction operations plan by all personnel assigned to or visiting the construction site is mandatory for all construction projects. In the event contractor activities are not in conformance with the provisions of the construction operations plan, the contractor shall immediately cease those operations involved in the violation of the provisions of the construction operations plan and conduct a safety meeting. The owner may direct the contractor, in writing to immediately cease those operations involved in the violation of the provisions of the construction operations plan. The contractor shall not resume construction operations until an appropriate action is taken as determined by the Owner.

In the event that construction activities are found to not be in conformance with the provisions of the Construction Operations Plan, the resident engineer will direct the Contractor to take the appropriate action. The goal is to prevent accidents. The plans shall be continually reviewed and adjusted at the weekly safety meetings with input from various users during the course of the project. Changes to the Contract shall be accomplished by a change order. All changes are to be coordinated with the FAA Airport District Office.

1.2 GENERAL SAFETY REQUIREMENTS

During performance of this contract, the airport runways, taxiways, and aircraft parking aprons shall remain in use by aircraft to the maximum extent possible, CONSISTENT WITH CONTINUAL SAFETY. Aircraft use of areas near the Contractors work will be controlled to minimize disturbance to the Contractor's operation. The Contractor shall not allow employees, subcontractors, suppliers, or any other unauthorized person to enter or remain in any airport area, which would be hazardous to persons or to aircraft operations.

1.3 CONTRACTOR’S RESPONSIBILITY FOR CONSTRUCTION AND FACILITIES MAINTENANCE

A. Be aware of the types of hazards and marginal conditions identified in F.A.A. AC 150/5370-2E “Operational Safety on Airports During Construction.”
B. Be aware of and conduct activities so as not to violate any safety standard in F.A.A. AC 150/5370-2E “Operational Safety on Airports During Construction.”
C. Inspect all Contractor work, construction, and storage areas as often as necessary to be aware of conditions, and
D. Promptly take all steps needed to prevent/remedy any unsafe or potentially unsafe conditions/activities discovered.

E. Before commencement of construction/maintenance activity, Contractor shall coordinate with the Engineer to give notice (using the Notice to Airmen {NOTAM} system) of completion of construction/maintenance.

F. Upon completion of work and return of all such areas to standard conditions, Contractor shall coordinate with the Engineer to issue notice (using the NOTAM system) of completion of construction/maintenance.

PART 2: PRODUCTS

2.1 VEHICLE AND EQUIPMENT MARKINGS

All trucks and construction equipment shall be equipped with FAA approved flags or an amber flashing light. Contractor shall be responsible for providing these items

PART 3: EXECUTION

3.1 CONSTRUCTION AND MAINTENANCE

A. GENERAL

Construction/maintenance activity may not commence prior to issuance of a NOTAM. The Contractor shall advise the Engineer two (2) days in advance of the planned commencement of construction/maintenance activity so a NOTAM can be issued and shall not commence such activity until advised by the Engineer. Upon completion of work to the satisfaction of the Engineer, the NOTAM will be canceled. No further work in affected areas will be permitted.

B. RUNWAY SIDES

If an appropriate NOTAM has been issued, construction (using equipment under 10 feet tall) is permissible as close as the following distances from the centerline of runway indicated:

SEE CONSTRUCTION OPERATION PLAN DRAWING C3

C. RUNWAY ENDS

If appropriate NOTAM has been issued, construction activity is permissible off the ends of the runway indicated below provided at least the indicated minimum safety area and indicated unobstructed approach slope are maintained:

Runway End Number	Minimum Safety Area Behind Threshold	Minimum Unobstructed Approach Slope
34	300 Feet	20:1 to 200' behind threshold

Construction activities which reduce the available behind-threshold safety area below 200 feet, or which would penetrate or be above the indicated minimum unobstructed approach slope are prohibited unless temporarily relocated threshold markings are placed and the activities have been approved by the Engineer.

D. TAXIWAYS AND APRONS This section deleted.

E. EXCAVATION AND TRENCHES This section deleted.

F. STOCKPILED MATERIAL This section deleted.

G. ADDITIONAL CONSTRUCTION LIMITATIONS

Open flame welding or torch-cutting operations should be prohibited unless adequate fire and safety precautions are provided and have been approved by the airport operator.

Open trenches, excavation, and stockpiled material at the construction site should be prominently marked with orange flags and lighted with flashing red light units (acceptable to the airport operator and the F.A.A.) during hours of restricted visibility and/or darkness. Under no circumstances are flare pots to be near aircraft turning areas.

3.2 BARRICADES AND CLOSURES

A. Permanently Closed Runways and Taxiways: This section deleted.

B. Temporarily Closed Runways and Taxiways: Temporarily closed runways are treated in the same manner as permanently closed runways, except runway markings are not obliterated. Rather, crosses are usually of the temporary type (constructed of material such as fabric or plywood) and they are required only at runway ends. The crosses should be located on top of the runway numerals. For temporary marking, the dimensions of the crosses may be reduced to permit use of standards sheets of 4 by 8 foot (1.22 by 2.44m) plywood. Temporarily closed taxiways should be treated as an unusable area and indicated in the same manner as hazardous areas (see paragraph D, below).

C. Closed Airports: When all runways are closed temporarily, the runways are marked as in paragraph B (above), and the airport beacon and runway lighting are turned off.

D. Hazardous Areas: Hazardous areas, in which no part of an aircraft may enter, are indicated by use of barricades with alternate orange and white markings. The barricades are supplemented with orange flags at least 20 by 20 inches (50 by 50 cm) square and made and installed so that they are always in the extended position and properly oriented. For nighttime use, the barricades are supplemented with flashing red lights. The intensity of the lights and spacing for barricades, flags, and lights must be such to delineate adequately the hazardous area.

E. Stabilized Areas: This section deleted.

F. Runway Shoulder Marking: This section deleted.

G. Barricades, flagging, and flashers shall be installed around all work areas. Hazard markings and lighting shall be located as shown on the plans.

H. The contractor is required to have someone on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades.

3.3 TEMPORARY RUNWAY THRESHOLD DISPLACEMENTS This section deleted.

3.4 VEHICLE IDENTIFICATION AND PARKING

A. Contractor vehicles and equipment shall be identified by painted or magnetic signing identifying the Contractor's company. Each vehicle operating on the airport operations area (AOA) shall have either an omni-directional amber flashing light or an FAA-approved orange and white checkered flag. The flag

shall be at least three-foot square having a checkered pattern of international orange and white squares at least one foot on each side.

B. Employee parking shall be confined to the Contractor's staging area shown on the plans.

3.5 CONSTRUCTION SITE ACCESS AND HAUL ROADS

Access to the job site shall be as shown on the plans.

3.6 RADIO COMMUNICATIONS

It is required that the Contractor monitor the Unicom frequency while working on the airfield. The Unicom frequency at Chehalis-Centralia Airport is 122.8.Mhz

3.7 CONSTRUCTION PHASING REQUIREMENTS

See Construction Site and Safety Plan.

PART 4: MEASUREMENT AND PAYMENT

4.1 TEMPORARY FLAGGING, MARKING AND SIGNING

Temporary flagging, marking and signing will be paid for at the contract lump sum price stated in the proposal. This price shall be full compensation for furnishing flaggers, barricades, lights, relocated threshold markings, pavement marking and lighting and other temporary markings and for maintenance of those items during the work, any necessary relocations, and for all labor, equipment, tools and incidentals necessary to complete the item.

END OF SECTION 01115

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01340 SUBMITTALS

PART 1: GENERAL

1.1 SCOPE
In addition to requirements in each Section of this Specification, comply with the following listed herein.

1.2 SHOP DRAWINGS
Provide in accordance with General Conditions. In addition, comply with the following requirements specified hereinafter.

Submit shop drawings to the engineer sufficiently in advance in accord with prearranged schedule to cause no delay in the contractor's own work or in that of any other subcontractor and to afford ample time for consideration, checking, correcting and re-checking. Show complete details of construction and methods of installation including sizes, dimensions, setting numbers, types of materials, provisions for hardware, accessory items, built-ins opening sizes, cut-outs, joints, required blocking, welds, anchorage to other construction and other pertinent items. Verify dimensions on job and correlate work with adjoining work.

All shop drawings must be submitted on the same size sheets as engineer's drawings or on 8-1/2" x 11" or 11" x 17" size sheets. (Shop drawings on any other size sheet will not be accepted). Three (3) copies of approved shop drawings will be required for engineer's use unless otherwise indicated. Contractor shall determine the number of and furnish such additional copies as may be needed.

NO SHOP DRAWINGS SHALL BE DISTRIBUTED FOR FIELD USE WITHOUT APPROPRIATE ENGINEER'S AND CONTRACTOR'S STAMP.

1.3 SUBMITTALS
Submit for work in the following specification sections:

Section 01110	2.6c	Construction Schedule
Section P-162	2.1	Fabric
	2.2	Posts, Rails and Braces
	2.4	Wire Ties and Tension Wires
	2.5	Misc Fitting and Hardware
	2.6	Concrete

END OF SECTION 01340

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 01710 PROJECT CLOSEOUT

PART 1: GENERAL

1.1 SCOPE

Engineer shall prepare a punch list when notified by the contractor that work is completed. Engineer will conduct one final inspection only. All further inspections or punch lists as required will be made at $500.00 per trip, at contractor's expense. (Note: Failure of engineer to include any item on punch list does not alter responsibility of contractor to complete work in accordance with Contract Documents). Deliver all items called for herein and under various specifications sections to engineer at completion of work.

1.2 PROJECT RECORD/AS-BUILT DRAWINGS

As job progresses, contractor shall keep at project site, an accurately marked job set of contract documents showing all changes and deviations from original drawings. These shall be available to engineer. (Note: Above requirements shall not be construed as authorization to make changes in work or layout without definite instructions in each case). Upon completion of project and before final payment, contractor shall forward to engineer two complete new sets of contract documents covering all work including his changes under this contract, showing all above information, changes and deviations from the original drawings.

1.3 CLEANUP

Upon completion of the project and prior to final payment, the contractor shall restore the work area to a satisfactory condition as determined by the engineer. All materials, equipment, and appurtenances not required as a part of, or appurtenant to the completed project shall be removed from the project site and legally disposed of. All slopover from construction operations and the scattering of unused aggregate or waste material shall be removed. The work site shall be graded smooth to establish grade or if no grade is established, to a neat uniform condition as determined by the engineer.

1.4 CLOSEOUT

The contractor shall furnish the following items required for acceptance and final payment before final payment will be released.

A. Submit the Owner a signed affidavit, satisfactory to the Owner, stating that so far as he has knowledge or information, all accounts for materials, labor, and incidentals in connection with the work have been paid in full.
B. Submit State "Certificate of Payment of State Excise Taxes by Public Works Contractor."
C. Furnish to the Owner an "Affidavit of Wages Paid" according to the provisions of RCW 60.28.010.
D. Notify the Engineer, in writing, that he has completed his part of the contract and request final payment.
E. Submit a summary of project DBE expenditures and DBE expenditures as a percentage of total construction cost.

The Owner shall, within thirty (30) days, pay to the Contractor all monies due him under the conditions of the contract upon the following:

A. The Owner's acceptance of the Engineer's final estimate.
B. The Owner's approval of the affidavit of the release of liens.
C. Inspection and approval by the Federal Aviation Administration as required for Airport Improvement program.

The acceptance by the Contractor of the final payment shall release the Owner and the Engineer as agent of the Owner from all claims and all liability to the Contractor for all things done or furnished in connection with the work, and every act of the Owner and others relating to or arising out of the work. No payment, however, final or otherwise, shall operate to release the Contractor or his sureties from obligations under this contract and the "Performance and Payment Bond", as herein provided.

END OF SECTION 01710

DIVISION 2 – SITE WORK
ITEM F-162 CHAIN-LINK FENCES

PART 1: DESCRIPTION

1.1 This item shall consist of furnishing and erecting a chain-link fence in accordance with these specifications and the details shown on the plans and in conformity with the lines and grades shown on the plans or established by the Engineer.

PART 2: MATERIALS

2.1 FABRIC
The fabric shall be woven with a 9-gauge galvanized steel wire in a 2-inch (50 mm) mesh and shall meet the requirements of ASTM A 392, Class 2.

2.2 POSTS, RAILS AND BRACES
Line posts, rails, and braces shall conform to the requirements of ASTM F-1043 or ASTM F 1083 as follows:

Galvanized tubular steel pipe shall conform to the requirements of Group IA, (Schedule 40) coatings conforming to Type A, or Group IC (High Strength Pipe), External coating Type B, and internal coating Type B or D.

The dimensions of the posts, rails, and braces shall be in accordance with Tables I through VI of Fed. Spec. RR-F-191/3.

2.3 GATES
Gate frames shall consist of **galvanized steel pipe** and shall conform to the specifications for the same material under paragraph 2.2. The fabric shall be of the same type material as used in the fence.

2.4 WIRE TIES AND TENSION WIRES
Wire ties for use in conjunction with a given type of fabric shall be of the same material and coating weight identified with the fabric type. Tension wire shall be 7-gauge marcelled steel wire with the same coating as the fabric type and shall conform to ASTM A 824.

All material shall conform to Fed. Spec. RR-F-191/4.

2.5 MISCELLANEOUS FITTINGS AND HARDWARE
Miscellaneous steel fittings and hardware for use with zinc-coated steel fabric shall be of commercial grade steel or better quality, wrought or cast as appropriate to the article, and sufficient in strength to provide a balanced design when used in conjunction with fabric posts, and wires of the quality specified herein. All steel fittings and hardware shall be protected with a zinc coating applied in conformance with ASTM A 153. Barbed wire support arms shall withstand a load of 250 pounds (113 kg) applied vertically to the outermost end of the arm.

2.6 CONCRETE
Concrete shall be of a commercial grade with a minimum 28-day compressive strength of 2500 psi (17 240 kPa).

2.7 MARKING
Each roll of fabric shall carry a tag showing the kind of base metal (steel, aluminum, or aluminum alloy number), kind of coating, the gauge of the wire, the length of fencing in the roll, and the name of the manufacturer. Posts, wire, and other fittings shall be identified as to manufacturer, kind of base metal (steel, aluminum, or aluminum alloy number), and kind of coating.

PART 3: CONSTRUCTION METHODS

3.1 CLEARING FENCE LINE
All trees, brush, stumps, logs, and other debris which would interfere with the proper construction of the fence in the required location shall be removed a minimum width of 2 feet (61 cm) on each side of the fence centerline before starting fencing operations. The cost of removing and disposing of the material shall not constitute a pay item and shall be considered incidental to fence construction.

3.2 INSTALLING POSTS
All posts shall be set in concrete at the required dimension and depth and at the spacing shown on the plans.

The concrete shall be thoroughly compacted around the posts by tamping or vibrating and shall have a smooth finish slightly higher than the ground and sloped to drain away from the posts. All posts shall be set plumb and to the required grade and alignment. No materials shall be installed on the posts, nor shall the posts be disturbed in any manner within 7 days after the individual post footing is completed.

Should rock be encountered at a depth less than the planned footing depth, a hole 2 inches (50 mm) larger than the greatest dimension of the posts shall be drilled to a depth of 12 inches (300 mm). After the posts are set, the remainder of the drilled hole shall be filled with grout, composed of one part Portland cement and two parts mortar sand. Any remaining space above the rock shall be filled with concrete in the manner described above.

In lieu of drilling, the rock may be excavated to the required footing depth. No extra compensation shall be made for rock excavation.

3.3 INSTALLING TOP RAILS
The top rail shall be continuous and shall pass through the post tops. The coupling used to join the top rail lengths shall allow for expansion.

3.4 INSTALLING BRACES
Horizontal brace rails, with diagonal truss rods and turnbuckles, shall be installed at all terminal posts.

3.5 INSTALLING FABRIC
The wire fabric shall be firmly attached to the posts and braced in the manner shown on the plans. All wire shall be stretched taut and shall be installed to the required elevations. The fence shall generally follow the contour of the ground, with the bottom of the fence fabric no less than 1 inch (25 mm) or more than 4 inches (100 mm) from the ground surface. Grading shall be performed where necessary to provide a neat appearance.

At locations of small natural swales or drainage ditches and where it is not practical to have the fence conform to the general contour of the ground surface, longer posts may be used and multiple strands of barbed wire stretched thereon to span the opening below the fence. The vertical clearance between strands of barbed wire shall be 6 inches (150 mm) or less.

3.6 ELECTRICAL GROUNDS
Electrical grounds shall be constructed where a power line passes over the fence. The ground shall be installed directly below the point of crossing. The ground shall be accomplished with a copper clad rod 8 feet (240 cm) long and a minimum of 5/8 inch (15 mm) in diameter driven vertically until the top is 6 inches (150 mm) below the ground surface. A No. 6 solid copper conductor shall be clamped to the rod and to the fence in such a manner that each element of the fence is grounded. Installation of ground rods shall not constitute a pay item and shall be considered incidental to fence construction.

PART4: METHOD OF MEASUREMENT

4.1 Chain-link fence will be measured for payment by the linear foot (meter). Measurement will be along the top of the fence from center to center of end posts, excluding the length occupied by gate openings.

Gates will be measured as complete units.

PART 5: BASIS OF PAYMENT

5.1 Payment for chain-link fence will be made at the contract unit price per linear foot.

Payment for driveway or walkway gates will be made at the contract unit price for each gate.

The price shall be full compensation for furnishing all materials, and for all preparation, erection, and installation of these materials, and for all labor equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item F-162-5.1 Chain-Link Fence—per linear foot (meter)
Item F-162-5.2 Driveway Gates—per each

MATERIAL REQUIREMENTS

ASTM A 121	Zinc-Coated (Galvanized) Steel Barbed Wire
ASTM A 123	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A 153	Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A 392	Zinc-Coated Steel Chain-Link Fence Fabric
ASTM A 491	Aluminum-Coated Steel Chain-Link Fence Fabric
ASTM A 572	High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Steel Quality
ASTM A 653	Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A 824	Metallic-Coated Steel Marcelled Tension Wire for Use With Chain Link Fence
ASTM A 1011	Steel Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
ASTM B 117	Standard Practice for Operating Salt Spray (Fog) Apparatus
ASTM B 221	Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire Shapes and Tubes
ASTM B 429	Aluminum-Alloy Extruded Structural Pipe and Tube
ASTM F 668	Poly(vinyl Chloride)(PVC) and other Organic Polymer-Coated Steel Chain-Link Fence Fabric
ASTM F 1043	Strength and Protective Coatings on Metal Industrial Chain Link Fence Framework
ASTM F 1083	Pipe, Steel, Hot-Dipped Zinc-coated (galvanized) Welded, for Fence Structures
ASTM F 1183	Aluminum Alloy Chain Link Fence Fabric
ASTM F 1345	Zinc-5% Aluminum-Mischmetal Alloy-Coated Steel Chain Link Fence Fabric
ASTM G 152	Operating Open Flame (Carbon-Arc) Light Apparatus for Exposure of Nonmetallic Materials
ASTM G 153	Operating Enclosed Carbon-Arc Light Apparatus for Exposure of Nonmetallic Materials
ASTM G 154	Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials
ASTM G 155	Operating (Xenon- Arc) Light Apparatus for Exposure of Nonmetallic Materials
FED SPEC	Fencing, Wire and Post, Metal (Chain-Link Fence Posts, Top Rails and Braces) RR-F-191/3
FED SPEC	Fencing, Wire and Post, Metal (Chain-Link Fence Accessories) RR-F-191/4

END OF ITEM F-162