MEMORANDUM

TO: Design Professional
FROM: Victor Palma
       Airport Engineer
RE: Security Fencing / Security Gate: Standard Requirements
DATE: May 23, 2018

The attached Tucson Airport Authority standard security fence guide specification and details shall be incorporated in all projects requiring fencing by the Design Professional. Edit specifications and details as required to specific project requirements. Note that it is intended that the specifications and details match the latest edition of FAA Advisory Circular 150/5370-10.

FOR AIRPORT COMPUTER ACCESS SECURITY SYSTEM (CASS) CONTROLLED GATES, CONTACT TAA PLANNING & ENGINEERING FOR ADDITIONAL REQUIREMENTS.

GENERAL REQUIREMENTS:

1. Consult with TAA Planning and Engineering Department (P&E), regarding specific project fencing requirements. **ALL STEEL FENCE AND GATE MATERIALS INCLUDING TRACKS, DRIVE RAILS, AND FITTINGS SHALL BE HOT DIPPED GALVANIZED. AREAS DAMAGED BY FIELD ASSEMBLY OR WELDING SHALL BE REPAIRED USING MATERIAL SPECIFIED IN SECTION 3.10 OF THESE SPECIFICATIONS.**

2. Distance between bottom of gate leaves and ground line shall not exceed 2".

3. A strain panel shall be installed on each side of gate locations.

4. All braces, tension rods and tension wires (including gates) shall be tied to fence fabric at indicated intervals.

5. Minimum gate frame stock shall be 1.90" outside diameter galvanized pipe.

6. All vertical gate frame members or posts not requiring barbed wire supports shall be provided with domed post tops.

7. Plans shall show gate locations, width, type, and direction of swing or slide. Fence lines requiring security reinforcement shall also be clearly shown.

8. All gates shall be detailed on plans or otherwise adequately described and reviewed with TAA P&E.

9. Gate posts for swing and sliding gates shall be a minimum of 4" outside diameter minimum and be installed in 18" diameter by 3' concrete foundation. Post bottom will be 6" minimum above bottom of foundation.

10. Detailed Shop drawings and materials submittals shall be required for all gates and equipment. These shall be reviewed by the Design Professional and TAA prior to construction. These shop drawings shall include the installation of all electrical and relocated work to demonstrate a complete, working installation.

11. Vehicle gate openings shall be 2' wider than designed travel way.

12. Minimum concrete gate stop foundation shall be 18" diameter x 24" deep.

13. Special care shall be given to fence crossing drainage swales, structures, loose sand areas, etc. where special closure details may be required.

Revised: 5/23/18
14. Padlocks and chains shall be provided by TAA.

15. When electric slide gates are required, the designer shall ensure that the proper details are provided and that the gate equipment matches the current TAA standard for security gates. Unless otherwise directed, gates are to function in a similar manner and be compatible with TAA security control needs.

16. On a case-by-case basis, a mortared Cement Masonry Units (CMU) or concrete wall with angled barbed wire support arms with three strands of barbed wire may be used in place of the standard security fencing. The total height of the wall and barbed wire shall be a minimum of seven (7) feet from the adjacent ground elevation of the non-protected side of the wall and support arms shall be spaced at ten (10) feet apart maximum. All metal materials and barbed wire shall be per the specifications. Angled barbed wire support arms shall be constructed of galvanized steel tube stock of sufficient strength to meet or exceed the strength of standard chain link fence support arms and be adequately fastened to the CMU wall.

If you have any questions, please call me at (520) 573-4853.
DESCRIPTION

1.1 This item shall consist of furnishing and erecting a non-reinforced and/or reinforced 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.

1.2 The fence shall be the product of a manufacturer who has demonstrated by actual installations of a similar nature that its product is of the type required. This item shall include all accessories, fittings and fastenings necessary for a complete and satisfactory installation within the intent of the drawings. All runs of the fence shall present the same general appearance. The product of only one manufacturer will be accepted, except for items that do not influence the appearance of the completed fence. No used, rerolled, or open-seam steel shall be permitted in posts, gate frames, or braces.

1.3 If shown on plans, electric gate operators shall operate by means of a metal rail passing between a pair of solid aluminum wheels with polyurethane treads. Operator motors shall be hydraulic, roller type, and system shall not include belts, gears, pulleys, roller chains or sprockets to transfer power from operator to gate panel. The operation shall generate a minimum horizontal pull of 300 pounds without the drive wheels slipping and without distortion of supporting arms. Gate panel velocity shall not be less than 1.2 feet per second and shall be stopped gradually to prevent shock loads to the gate and operator assembly. The “soft stop” feature of the gate operator shall be adjustable from a minimum of one-second, to accommodate gates of all sizes.

MATERIALS

2.1 FABRIC. The fabric shall be woven with a 9-gauge galvanized steel wire in a 2-inch mesh and shall meet the requirements of ASTM A 392, Class 2. Metallic-coated fabric shall have a clear acrylic coating applied to the selvage area after weaving.

2.2 BARBED WIRE. Barbed wire shall be 2-strand 12-1/2 gauge zinc-coated wire with 4-point barbs and shall conform to the requirements of ASTM A 121, Class 3, Chain Link Fence Grade.

2.3 POSTS, RAILS AND BRACES. Line posts, rails, and braces shall conform to the requirements ASTM F1043 or ASTM F1083 as follows: Galvanized tubular steel pipe shall conform to the requirements of Group I, (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.

2.4 GATES. Gate frames shall consist of galvanized steel pipe and shall conform to the specifications for the same material under paragraph 2.3. The fabric shall be of the same type material as used in the fence. Submit shop drawings to the Design Professional for approval.

2.4.1 GATE OPERATORS AND EQUIPMENT. Gate operators shall be Hy-Security brand model 222 SS ST mounted on 12” Hy-security extension pedestal.

2.4.1.1 SHOP DRAWINGS AND MATERIAL SUBMITTAL. The contractor shall submit shop drawings and material submittals for the gates and associated equipment. This submittal shall show manufacturer’s data, installation details, and plan layouts for all gates and operator equipment for the Design Professional’s approval prior to ordering any equipment or materials.
2.4.1.2 ELECTRICAL. The electrical work for the gate operators and equipment shall be in accordance with current applicable electrical codes and good practice. For all underground wiring, use only XHHW stranded wire in conduits. For vehicle "detection" use Hy-5A Hy-security integral loop detector or equal that will plug into control board.

2.4.1.3 MISCELLANEOUS POWERED ROLLING GATE OPERATOR AND EQUIPMENT REQUIREMENTS. The following miscellaneous requirements shall be provided for:

1. Mechanical components shall include the following:

   a. Supporting Arms: Cast aluminum channel. Arms shall incorporate a fully bushed, 1 1/2" bearing surface.
   b. Arm Pivots: 3/4" diameter, stainless steel pins, in hinge configuration with supporting arm channel.
   c. Tension Spring: 2 1/2" heavy-duty, 800-pound capacity.
   d. Tension Adjustment: Finger tightened nut, not requiring the use of tools.
   e. Drive Release: Must instantly release tension of both drive wheels and be capable of disengaging, from contact with rail in a single motion, for manual operation.
   f. Push-button Operation: 3-button station: open / close / stop shall be provided for local maintenance purposes located inside of each gate operator enclosure or closure enclosing and shall not be visible after enclosure cover is in place.
   g. Limit Switches: Fully adjustable, toggle type, NEMA 4 tamper protected and shall not be accessible from the outside of the gate operator.
      1. Limit switch shall have multiple contacts isolated from each other.
      2. Minimum 2-sets of contacts that are isolated that are 1) normally open; 2) normally closed.
      3. Limit switch that monitors the true closed condition will be used to tie into security system.
      4. No logic programming of relays will be allowed for monitoring gate position. Physical position of gate will be allowed for monitoring position.
   h. Chassis Base: 1/4" steel plated, welded and ground edges, powder paint finish smooth to the touch.
   i. Cover: 16 FA galvanized sheet metal with a powder paint finish. All joints welded, filled and ground smooth. Finished corners square and true with no visible joints.
   j. Finish: High gloss powder paint finish coat, withstanding 1000-hour salt spray test.
   k. Drive Wheels: Aluminum hub with polyurethane tread and durometer hardness not less than 80.
   l. Drive Rail: Shall be extruded 6061 T6, not less than 1/8" thick. Drive rail shall incorporate alignment pins for ease of replacement, splicing and for break-away design. Pins shall provide perfect butt splice.
   m. Hydraulic Valves: Shall be individually replaceable in an integrated hydraulic manifold.
   n. Hose Fittings: At manifold shall be quick-disconnect type, other locations shall be swivel type.
   o. Hydraulic Fluid: High performance type with a viscosity index greater
than 375.

p. Gate Operator: Shall have override so that gate may be opened manually in case of power failure or gate operator failure.

2. Minimum standard electrical components: Operator assembly shall be "Listed" by Underwriters Laboratories, Inc.
   a. Pump Motor: Shall be 1 HP, with a minimum service factor of 1.15. Standard voltages available, single or three phase. Coordinate required voltages with TAA Electrical Department for approval.
   b. All components shall have overload protection and pre-wired.
   c. Controls: Industrial grade relays, hard-wired with individually numbered wires.
   d. Transformer: 75 VA, non-jumpered taps, for all common voltages.
   e. Maximum Run Timer: Included in all operators.
   f. Control Circuit: 24VAC.

3. Control Devices: Contractor to provide post-mounted key switch system consisting of post foundation, bollards, stanchion, wiring, box and control wiring (receiver supported by TAA) and vehicle loop detector. Key switch box and switch mechanism provided by others as manufactured by Door King Systems or approved equal.

Switch posts shall be protected by two 3" I.D. steel posts with 12" diameter x 24" deep concrete foundation. Posts shall be concrete filled, extend 3.5' above grade, painted black with four, 4" bands of white reflectorized tape. Top of concrete fill shall be domed or capped.

4. Safety Devices: Automatic safety system that shall sense obstructions in the path of the gate and shall automatically stop the gate operators then continue forward. This shall consist of vehicle detector loops in the roadway and a photo-eye system mounted adjacent to the gate opening. Loops shall consist of preformed vehicle detection wiring type XHHHW enclosed in non-metallic conduit (rigid or flexible).

5. Electrical service. Each gate shall be provided with a rack mounted minimum 12 circuit panelboard with circuit breakers for each gate controller, light, and receptacle shown on the plans.

Each equipment rack shall be fitted with a steady burning white light and weatherproof receptacle. The fixture shall be Cooper Light Fixtures Model XTOR1A-HA or approved equal. The outlet shall be NEMA 5-15R GFCI receptacle in NEMA 3R metal enclosure.

6. Gate operators shall include all attachments, controllers, and accessory equipment needed for a complete fully functional gate.

7. All gate hardware to be galvanized steel.

8. Existing functional gate controls shall be included in any gate replacement project.
2.5 **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. The 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 Federal Spec. RR-F-191/4.

Wire rope clips required for reinforced fencing shall be 3/16" size, galvanized, per Federal Specification FF-C-450 D, Type 1, Class 2.

2.6 **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 applied vertically to the outermost end of the arm.

2.7 **Welding.** Structural members of gates or fittings shall be fully welded by a method that will produce a continuous weld on all sides and faces of joints at exposed edges. Surplus welding material shall be removed. Welded areas shall be cleaned and covered with field applied galvanizing coating, not painted.

2.8 **Concrete.** Concrete shall be of a commercial grade with a minimum 28-day compressive strength of 3,000 psi unless shown otherwise on the plans.

2.9 **Marking.** Each roll of fabric shall carry a tag showing the kind of base metal (steel 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 number), and kind of coating.

**CONSTRUCTION METHODS**

3.1 **General.** The fence shall be constructed in accordance with the details on the plans. All work shall be performed in a manner satisfactory to the Design Professional. Prior to the beginning of the work the location of the work shall be established and marked.

3.2 **Clearing and Grading Fence Line.** Unless otherwise shown on the plans, 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 5 feet on each side of the fence centerline before starting fencing operations. The fence line shall be graded to provide a minimum of 2" between the bottom of the fence and the ground. Holes or depressions shall be filled with suitable material and compacted to match the compaction of the surrounding ground. The cost of grading and removing and disposing of the material shall not constitute a pay item and shall be considered incidental to fence construction.

3.3 **Installing Posts.** All posts shall be set in concrete at the required dimension and depth and at the spacing shown on the plans. Posts shall be spaced not more than ten (10) feet apart and set in concrete footings to depths indicated on the plans or these specifications.

If the ground is not level, the upgrade gate post shall be set first to determine the proper height for the downgrade gate post.
Longer posts shall be provided if necessary at no additional cost, to accommodate grade requirements. 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 seven (7) days after the individual post footing is completed.

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

3.5 INSTALLING FABRIC AND BARBED WIRE. The tension wires, wire fabric, barbed support arms and barbed wire shall be firmly attached to the posts and braced in the manner shown on the plans. The fabric, the top and bottom tension wire shall be pulled taut. The top tension wire shall pass thru a hole in the barbed wire support arms. The bottom tension wire shall be installed on the unsecured side of the posts and tied to each post with 9-gauge tie to secure the wire to the post. The fabric shall then be tied to the top and bottom tension wires using 9-gauge wire ties at 12" on center. Hog rings will not be accepted. Terminations of tension wires and fabric ties shall be tightly twisted a minimum of four and three turns respectively and the end clipped neatly.

The fence shall generally follow the contour of the ground following grading. The space between the ground surface and the bottom of the fence fabric shall be consistently maintained from 0" to 2" maximum (including gate locations). Grading shall be performed where necessary to provide a neat appearance, relatively free from excessive loose material which would allow easy access under the fence by digging.

Long fence runs shall be stretched at approximately 100-foot intervals to insure proper tension of fabric. Loose fabric shall be rejected.

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 2-inches or less. Unless otherwise shown on the plans, steel vertical supports shall be provided and driven a minimum of 12-inches into the ground at 12-inches on center. The supports shall overlap and be woven into the bottom of the fence fabric 12-inches minimum and tied to fabric with 9-gauge wire ties at 6-inches on center.

Single barbed wire support arms shall be installed to slope away from the area being secured. The support arms shall be securely fastened to the fence posts with self-tapping screws to prevent removal. All barbed wire shall be stretched taut and terminal ends tightly twisted a minimum of four turns and the end clipped neatly. Nine (9) gauge wire ties shall be inserted into the top of support arms between the arm and the wire to prevent the barbed wire from being removed from support arms. Completed barbed wire shall be secure within the support arm notches. Loose wire or wire that may be removed with bare hands shall be rejected. All posts which do not require barbed wire supports shall be fitted with domed post tops.

a. SIGNAGE.

Install "No Trespassing" signs (English/ Spanish) at 200' intervals along all fence runs. Install one sign midway of runs less than 200' and one on public side of gate leaf.

Install stop signs (per UTC) on each side of gate, centered on gate leaf.

Install signs instructing personnel to clear gate and wait for gate closure before leaving gate, on public and secured side, clear of painted box for traffic loops.
Any existing signs shall be salvaged and returned to TAA.

All signage shall be incidental to the fence installation.

3.6 **Security Reinforcement (If Shown on the Plans).** Security reinforcement shall be installed at locations and as detailed on the plans. 3/8-inch, 7 x 19 galvanized braided wire reinforcement cables and fittings shall be installed in place of top and bottom tension wires as follows:

a. Install one cable 4-inches above bottom selvage of taut fence fabric, one cable 33-inches from the top selvage of the taut fence fabric and one cable approximately 2-inches from the top selvage of the taut fence fabric.

b. Each cable shall be woven in and out of at least four openings before and after each post and in and out of six opening at the halfway point of each fence panel.

c. All cables shall be carefully woven to prevent damage to fence fabric and pulled taut with a suitable device at approximately 30-foot intervals.

d. When the cables are properly drawn taut, a 3/8-inch cable clamp shall be installed at the center point of the fence panel to secure the cable to the fabric. Fasteners shall be located on the inside or protected side of the fence and the threads shall be tack welded to prevent removal.

e. Terminations of cables to anchor posts shall be accomplished by weaving the free end of the cable through six fabric openings before the post, bringing the cable around the post once and weaving back through at least two fabric openings. The cable end shall be fastened to the cable and the fence fabric with a 3/8-inch cable clamp. The clamp shall be installed on the inside or protected side of the fence and the threads shall be tack welded to prevent removal.

f. Cables shall be routed around line posts so that bottom cable alternates on the front side of every other post and wrap once around every fourth post starting with the first post. The center cable shall wrap around every third post in addition to alternating in front of and behind every other post starting from the third post from the anchor post. The top cable shall wrap around every fourth post in addition to alternating in front of and behind every other post starting with the first post.

When the 3/8-inch cable must be spliced, the cable ends shall be overlapped a minimum of 12-inches and secured with two 3/8-inch cable clamps. The clamps shall be attached a minimum of 2-inches from the cable ends, securing tightened and the bolt threads tack welded to prevent removal. All splices shall be secured on the protected or inside of the fence.

The anchor post terminations of all cables shall be trimmed after the clamp is tightened so that no more than 6-inches of loose cable end remains.

3.7 **Installing Gates.** Gates shall be provided at locations and of lengths and types shown on the plans.

Gates shall be constructed with adequate bracing to prevent twisting or sagging. Vertical frame members for large gates shall be spaced not more than six feet apart.

Hinges for swing gates shall be of the size and type to suit the gate size. All hinges shall be lift off proof and capable of swinging 180°. Provide one pair of hinges per each gate leaf.
Latches for swing gates shall be forked type for single leaf or plunge-bar type for double leaf gates. Latches shall permit operation from either side of gate.

Gate keepers for swing gates shall be installed for vehicle gates to automatically hold the gate open until manually released. Double swing gates shall be constructed with appropriate fixture set in concrete to receive center drop rod or plunger bar. Top of concrete shall be set flush with grade.

Rolling manual and powered gates shall be constructed as detailed on the plans.

SHOP DRAWINGS OF ALL GATES AND EQUIPMENT SHALL BE SUBMITTED FOR REVIEW PRIOR TO ANY ORDERING OF MATERIALS OR FABRICATION.

3.7.1 Gate Operator Installation. The gate operators and equipment shall be installed per the manufacturer's recommendation and as shown on the plans.

3.7.2 The following requirements shall be provided:

1. Factory Testing
   a. Fully assemble and test, at the factory, each gate operator to assure smooth operations, sequencing and electrical connection integrity. Apply physical loads to the operator to simulate field conditions. Tests shall simulate physical and electrical loads equal to the fully rated capacity of the operator components.
   b. Check all mechanical connection for tightness and alignment. Check all welds for completeness and continuity. Check welded corners and edges to assure they are square and straight.
   c. Inspect painted finish for completeness and gloss. Touch up any imperfections prior to shipment.
   d. Check all hydraulic hoses and electrical wires to assure that chafing cannot occur during shipping or operation.
   e. Test Reports
      A. Submit affidavits from the manufacturer demonstrating that the gate mechanism has been tested to 200,000 cycles without breakdown.
      B. Each operator shall bear a label indicating that the operator mechanism has been tested for full power and pressure of all hydraulic components, full stress tests of all mechanical components and electrical tests of all overload devices.

2. Quality Assurance
a. Manufacturer: A company specializing in the manufacture of hydraulic security gate operators of the type specified, with a minimum of ten-years experience and minimum of five-years experience with gate operators of this type and design.

b. Installer: A firm with not less than five-years of successful installation experience of installing operator systems similar to those required for this project and which is certified by the manufacturer of gate operators.

c. Project Coordination: Provide coordination with sliding gate manufacturer and provide all necessary parts and attachments for gate, if required. Coordinate with existing gate control systems for incorporation into new gate operator. Field verify prior to submitting shop drawings.

3. Codes and Regulatory Requirements: Operators shall be built to standards of the Underwriters Laboratories and bear a U.L. Listed label. Complete all electrical work according to local codes and National Electrical code. All fieldwork shall be performed in a neat and professional manner, completed to journeyman standards.

4. Product Delivery and Storage: Store products upright in the original shipping containers, covered, ventilated and protected from all weather conditions.

5. Warranty: Provide a five-year limited warranty against all defects in materials or workmanship. Defective material shall be replaced with comparable materials furnished by the manufacturer, at no cost to the owner. Freight, labor and other incidental costs are not covered under the factory warranty.

3.8 Existing Fence Connections. Wherever the new fence joins an existing fence, either at a corner or at the intersection of straight fence lines, a corner post shall be set at the junction. The first panel of the new fence shall be a strain panel. The connecting panel of the existing fence shall be refitted as necessary to convert to a strain panel. New and existing fabric shall be connected to the new post in the manner required for a strain post.

3.9 Electrical Grounds. Electrical grounds shall be constructed where a power line passes over the fence (directly below the point of crossing), at 500-foot (on total runs less than 500-feet, provide one ground) intervals along the total run of the fence, and at both ends of all gates. The ground shall be accomplished with a copper clad rod 8-feet long and a minimum of 5/8-inch in diameter driven vertically until the top is 6-inches 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.

3.10 Galvanizing Repair. Galvanized surfaces which have become damaged from welding, handling, or installation shall be repaired immediately after installation with galvanizing repair material in accordance with ASTM A780.

3.11 Temporary Security Fence. NOTE: When temporary fencing replaces TAA perimeter security fencing, "T" bases are not allowed. All posts must be driven (dirt or pavement) to a minimum depth of 18"). All other projects requiring temporary security fencing shall meet or exceed the following:

a. 6' portable chainlink fence panels with 3-strands of barbed wire on top shall be used. The fabric shall be in good condition to prevent entry of small animals or personnel.
b. Fencing fabric and barbed wire fastened with #11 GA steel ties (no aluminum).

c. Posts used to join panels shall be tack welded or clamped (nuts & bolts located on the secure side) to discourage removal.

d. Contractor locks on gates shall meet TAA's security standards.

e. The ends of temporary security fencing shall be chained to adjacent permanent fencing. Chains and locks will be provided by TAA P&E department.

f. TAA P&E personnel will inspect temporary security fencing installation prior to being used as a primary security fence.

3.12 CLEANING UP. The Contractor shall remove from the vicinity of the completed work all tools, buildings, equipment, etc., used during construction. Earth spoil from the post holes shall be removed from the site or raked smooth (in non-pavement areas)

BASIS OF MEASUREMENT

4.1 Chain-link fence will be measured for payment by the linear foot. 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.

BASIS OF PAYMENT

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

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

The price shall be full compensations 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  6' Chain-Link Fence – per linear foot
- Item F-162-5.2  8' Chain-Link Fence – per linear foot
- Item F-162-5.3  Gates – per each

MATERIAL REQUIREMENTS
ASTM A 121  Zinc-coated (galvanized) steel barbed wire
ASTM A 153  Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A 392  Zinc-coated steel chain-link fence fabric
ASTM A780  Galvanizing Repair
ASTM A 824  Metallic-coated steel Marcelled tension wire for use with chain-link fence
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 G 153  Operating Enclosed Carbon-Arc Light Apparatus for Exposure of Nonmetallic Materials
Fed. Spec. FF-C-450 D (1)  Clamps, Wire Rope
Fed. Spec. RR-F-191/3  Fencing, Wire and Post, Metal (Chain-Link Fence Posts, Top Rails and Braces)
Fed. Spec. RR-F-191/4  Fencing, Wire and Post, Metal (Chain-Link fence accessories)

FENCE KEY NOTES
1. 12" from top edge of fabric.
2. 2-strand 12¼-gauge barbed wire with 4-point barbs, spaced at 4", typical.
3. One piece barbed wire extension arm. Secure to fence post with #12 x 1" self-tapping screws with hex head washer, wing tip.
4. Barbed wire extension arms shall angle away from area being protected.
5. 2.375" (6') / 2 7/8" (8') outside diameter minimum corner or end post, typical.
6. ¼" x 3/4" x 6'-0" Stretcher bar.
7. Stretcher band at 1'-3" on center, typical.
8. 9 gauge wire ties at 12" on center for braces, tension rods, and tension wires; 1'-2" on center for post ties.
9. 12" maximum.
10. 6'0" / 8'0"
11. 9 gauge, 2" fabric galvanized, typical.
12. 0" to 2" maximum from bottom of fabric to ground.
13. 1.66" outside diameter brace, typical.
14. 3/8" diameter tension rod, typical.
15. Rod tightener.
16. 1.90" (6') or 2 3/8" (8') outside diameter line post.
17. Concrete foundation (3000 P.S.I. at 28 days), typical. Slope top to drain (1"± above ground).
18. 7-gauge marcelled galvanized steel tension wire. Tie with 9 gauge wire ties at 12" on center, typical. Tension wire shall be installed on the unsecured side of the posts. The bottom tension wires shall be tied to each post with a 9-gauge tie to secure them to the posts. Top tension wires shall pass through the hole in the extension arm. All wires shall be pulled taut.
19. 3'-0" minimum, typical end post foundation depth.
20. 6" minimum.
21. 18" minimum diameter – full depth.
22. 10" minimum diameter – full depth.
23. 2'-0" minimum, typical line post foundation depth.
24. 10'0" maximum spacing.


26. Ground elevation at centerline of fence run.

27. Strain panel, typical.

28. 3.0' minimum, typical strain post foundation depth.

29. 2.375" outside diameter minimum strain post.

30. Post cap.

31. Top or bottom of 6'-0" or 8'-0" width fabric.

32. All twisted ends shall be neatly clipped short.

33. Reinforced fence only: Weave free end of cable through 6 fabric openings prior to anchor post, wrap once around post and weave back through two fabric openings and clamp to cable and fabric with 3/8" clamp.

34. Anchor post may be end, corner, gate or strain post.

35. Reinforced fence only: Weave cable through 6 fabric openings at midpoint of panel and install 3/8" clamp, typical.

36. Reinforced fence only: 3/8", 7 x 19 galvanized braided cable.

37. 9 gauge wire tie, typical all support arms. See detail.

38. Bend over each end a minimum of 3".

39. Reinforced fence only: Weave cable in and out of at least four openings before and after each line post. Wrap/alternate cable at posts as shown.

40. 4" outside diameter gate post.
NOTE: VIEWED FROM UNSECURED SIDE.

2 TYPICAL TOP OR BOTTOM TENSION WIRE INSTALLATION
NOT TO SCALE

NOTE: THESE DRAWINGS ARE PRODUCED AS SCHEMATIC GUIDES TO TYPICAL FENCING BARS AND ROPING INSTALLATION THROUGHOUT THEアジア FACILITY. IT IS THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR TO INSTALL ALL FENCING AND HANGING TO SPECIFY ALL DETAILS AND MOUNTINGS. DETERMINE THE APPROPRIATE TYPICAL FENCING BARS AND INSTALLATION TO MATCH THE DESIGNS AND SPECIFICATIONS OF THE AUTORITY OR ANY DESCRIPTIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE THESE DRAWINGS TO MATCH ANY DESCRIPTIONS PRIOR TO CONSTRUCTION, AND DESIGNS AND SPECIFICATIONS OF THE AUTHORITY OR ANY DESCRIPTIONS PRIOR TO CONSTRUCTION. AND SHALL SUBMIT THESE DRAWINGS TO THE AUTHORITY.
NOTE: STRAIN POSTS SHALL BE INSTALLED AT 500' INTERVALS.
NOTE: SEE ATTACHED KEY NOTES.

Routing of Top Cable
(PLAN VIEW)

Routing of Center Cable
(PLAN VIEW)

Routing of Bottom Cable
(PLAN VIEW)

Security Fence Reinforcement
NOT TO SCALE

Note:
These drawings are intended as schematic guides to typical fence and barrier installations throughout the facility. It is the contractor's responsibility to install all fences consistent with all applicable regulations. Verify all quantities and materials. Examine the applicability of these designs toward specific site conditions, and to notify the designer or the authority of any discrepancies prior to construction. The contractor shall provide shop drawings of all Reservation drawings for the reviewing agency. Review drawings, prior to construction. The contractor shall provide these drawings to the authority.
NOTE: SEE ATTACHED KEY NOTES.

NOTE: STRAIN POSTS SHALL BE INSTALLED AT 500 INTERVALS.

(PARTIAL SECTION)

(PUBLIC SIDE)

(SECURED SIDE)

5 BARBED WIRE TIE DETAIL

NOT TO SCALE

NOTE:

WIRE GUARDING IS PROVIDED AS Schematic guidance TO PHYSICAL BARRIERS BASED AND COLORING ATTACHMENTS THROUGHOUT THE TIA FACILITY. IT IS THE CONSULTANT'S AND CONTRACTOR'S RESPONSIBILITY TO INVESTIGATE ALL CONDITIONS, VERIFY ALL GUARDING AND ATTACHMENTS, DETERMINE THE APPROPRIATENESS OF THESE GUARDING TOWARDS ATTACHING AREA CONDITIONS, AND TO IDENTIFY THE AUTHORITY OR THE AUTHORITY OF ANY STRUCTURE PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REFER TO THE DRAWINGS FOR ALL INSTALLATIONS FOR THE REHABILITATION PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REFER TO THE DRAWINGS TO VERIFY AS-BUILT CONDITIONS AND ANY ALTERATIONS CONDUCTED DURING CONSTRUCTION. AND SHALL SUBMIT THESE ALTERATIONS DRAWINGS TO THE AUTHORITY.
NOTE: SEE ATTACHED KEY NOTES.

- ALL TWISTED ENDS SHALL BE NEATLY CUT OFF SHORT.
- SPACING BETWEEN EACH SET OF SIGNS 200'.
- 11 GA. GALVANIZED STEEL WIRE TIES.
- .060 SIGN BLANK.
- RED VINYL LETTERING.

6 WARNING SIGN INSTALLATION DETAIL
NOT TO SCALE

NOTE: THESE DRAWINGS ARE PROVIDED AS SCHEMATICAL GUIDES TO TYPICAL FENCE-GATE AND FENCING INSTALLATIONS. THEY SHOW THE FACILITIES AT THE CONSULTANT'S MAJOR CONTRACTORS RESPONSIBILITY TO IMPROVE ALL NEW CONDITIONS. VERIFY ALL QUANTITIES AND OTHERS.

This facility is for the protection of the site against unauthorized access. All work shall be performed in accordance with these drawings and any changes made shall be submitted to the Authority.

AVISO
ENTRADA PROHIBIDA

PLANING AND ENGINEERING
PROJECT:

DRIED: 04/01/93

AUTHORIZED SIGN

AUGMENT:"TUCSON" AIRPORT AUTHORITY
Sheet 6 of 27
GATE TRACK FOOTING DETAIL

1-1/2" x 1-1/2" GALV. STEEL ANGLE WITH 1/4" WELDS @ 12" O.C. EACH SIDE.这张图被描述为一个门轨脚基础详图。根据图中的指示，门轨安装时应当使用镀锌角钢，并在每侧焊接1/4英寸的焊点，间距为12英寸。脚基础的斜率应符合制造商的建议。

CONCRETE FOOTING

IN SLOPE VARIOUS

2-4" REBAR CONTINUOUS

7" THICKENED EDGE

10" MIN. TYP.

WIDTH & DEPTH

PER MANUFACTURER RECOMMENDATION

OPENING AC

EXISTING ELEVATION TYP.

INSTALL PER MANUFACTURER RECOMMENDATION

NOT TO SCALE

NOTE:
SLOPE CONCRETE 1/4" AWAY FROM GATE TRACK ON BOTH SIDES

额外的提示包括：斜坡混凝土应在门轨两侧各1/4英寸。图中还提到了斜坡混凝土的具体细节以及制造商的建议。
TEMPORARY FENCE NOTES:

1. 2-STRAND 12 1/2 GAUGE BARBED WIRE WITH 14 GAUGE BARBS, (3 TOTAL).

2. 1.90" OUTSIDE DIAMETER LINE POST, TYPICAL

3. 11 GUAGE, 2" FABRIC, TYPICAL

4. 1 5/8" OUTSIDE DIAMETER LINE POST, TYPICAL

5. TACK WELDED OR CLAMPED TO END POST TO PREVENT REMOVAL

6. GROUND LINE

7. 11 GA. STEEL TIES AT 12" O.C. OR WRAPPED CONTINUOUSLY, TYP. ALL SIDES

NOTE: See attached key notes.

NOTE: All posts must be clamped and driven to a minimum depth of 18".
FENCE KEY NOTES:

1. 3 STRAND 12 1/2 GUAGE BARBED WIRE WITH 14 GAUGE BARBS, TYPICAL.

2. 2.375" OUTSIDE DIAMETER MINIMUM CORNER OR END POST, TYPICAL.

3. 9 GUAGE, 2" FABRIC, TYPICAL.

4. 1.90" OUTSIDE DIAMETER LINE POST, TYPICAL.

5. PROVIDE POSITIVE KEEPER DEVICE ON FENCE POST TO PREVENT LIFTING GATE OFF TRACK WHEN CLOSED. FOR DOUBLE GATE INSTALLATION, INSTALL DEVICE ON LEADING EDGE OF ONE OF THE GATE PANELS.

6. GATE GUIDE SYSTEM W/ SUPPORT POST, SEE DETAIL 19.

7. MATCHING CAP, TYP ALL POSTS.

NOTE: ALL EXPOSED MATERIAL AND FITTINGS SHALL BE FIELD GALVANIZED. ALL FIELD WELDS SHALL BE FIELD GALVANIZED.

TYPICAL GATE ELEVATION

NOTE: THESE DRAWINGS ARE PROVIDED AS SCHEMATIC GUIDES TO TYPICAL POWERED GATE AND FENCING BASED UPON THE REQUIREMENTS OF THE FAA FACILITY. IT IS THE CONSULTANT AND CONTRACTOR'S RESPONSIBILITY TO INTERPRET ALL FIELD CONDITIONS. VERIFY ALL QUANTITIES AND MATERIALS, OBTAIN THE APPLICABILITY OF THESE DRAWINGS TOWARDS THE SPECIFICATIONS, AND TO WIPF THE DESIGNS IN ACCORDANCE WITH THE AUTHORITY OF ANY ENFORCEMENT PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ALL INSTALLATIONS FOR FAA APPROVAL PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE DRAWINGS TO THE CONTRACTOR AS-BUILT CONSTRUCTION AND ANY SUBMITTALS CONDUCTED DURING CONSTRUCTION AND SHALL SUBMIT THESE AS-BUILT DRAWINGS TO THE AUTHORITY.
NOTES:
- ELECTRICAL RACK AND EQUIPMENT TO BE ADEQUATELY FAIRED AND PAINTED WITH SHERWIN WILLIAMS STEEL GRAY OR SUPPLY GALVANIZED UNISTRUT INSULATED FITTINGS.
- ALL LUGS BOLTED ACCORDING TO PROJECT REQUIREMENTS.
- ALL ABOVE GROUND PIPING AND FITTINGS SHALL BE RIGID GALVANIZED STEEL.

EQUIPMENT RACK NOTES:

1. LED LIGHT FIXTURE AS MANUFACTURED BY COOPER LIGHT FIXTURES OR APPROVED EQUAL. RUN 1/2" RIGID CONDUIT TO WEATHER PROOF ROUND BELL BOX, 6" ABOVE FINISHED GRADE. MOUNT LIGHT IN WALL PACK FASHION AIMED TOWARD CONTROL CABINET.
2. UNISTRUT FRAME WITH BOLTED FITTINGS SHALL BE 3/4" DOUBLE UNISTRUT.
3. GATE CONTROLLER - MOUNT ON 12" HX-SECURITY EXTENSION PEDESTAL WITH CONCRETE BASE PER MANUFACTURER RECOMMENDATIONS. EXTEND CONC. BASE 4" ABOVE EXISTING GRADE.
4. NEMA 5-15R GFCI RECEPTACLE IN NEMA 3R METAL ENCLOSURE.
5. SRVA, 30, 30, PRIMARY = 120/208V SECONDARY FOR OBSTRUCTION LIGHT AND GFCI RECEPTACLE. LABEL AS SUCH (TRANSFORMER).
6. COOF, 30A, 30A, FUSIBLE, HEAT-DELAY, NEMA 3R, SAFETY SWITCH, TO FEED TRANSFORMER.
7. 6" X 6" NEMA 3R GUTTER WITH LANDING LUG.
8. 12" DIAMETER X 24" DEEP CONCRETE FOOTING.
9. NEMA 3R LOAD CENTER/MAIN BREAKER. MIN. 12-CIR, 500A, 120/208V, 4W, 100 AMP
10. 3/4" PVC CONDUIT @ 12" BELOW FINISHED SUBGRADE ELEVATION WITH 3 #10, 1 #10 BOND TO GATE CONTROLLER RIGID GALVANIZED STEEL BENDS & RIGID.
11. #2 BGC TO (2) 3/4" X 6" LONG COPPER-CLAD GROUND ROCS SEPARATED A MINIMUM OF 10'. CONNECTIONS OF CONDUCTOR TO GROUND RISOS SHALL BE THERMITE WELDED. ROUTE ALONG AND ATTACH TO UNISTRUT WITH NON-PERISHABLE FASTENERS.
12. PVC CONDUIT (SEE PLAN FOR SIZE AND CONDUCTOR FILL) @ 12" BELOW FINISHED SUBGRADE ELEVATION, FROM SERVICE PANEL RIGID STEEL BENDS AND SAVE. 502 AS REQUIRED.
13. 3/4" PVC CONDUIT TO ILY POSTCARD READER & EXIT BUTTON (2 CONDUITS REQUIRED WITH REQUIRED CONDUCTORS).
14. 3/4" CONDUIT TO PHOTO-SENSOR WITH REQUIRED CONDUCTORS.
15. (2) 3/4" CONDUITS TO LOOP DETECTORS AS REQUIRED.
16. CAS Control BOX ENCLOSURES, SEET DETAIL 20.

CONTINUED ON FOLLOWING PAGE.
EQUIPMENT RACK NOTES:

1. LED LIGHT FIXTURE AS MANUFACTURED BY COOPER LIGHT FIXTURES OR APPROVED EQUAL. RUN 1/2" RIGID CONDUIT TO WALL BOX, 8" ABOVE FINISHED GRADE. MOUNT LIGHT IN WALL BOX FASHION AND TOWARD CONTROL CABINET.
2. UNISTRUT FRAME WITH BOLTED FITTINGS SHALL BE 3/4" DOUBLE UNISTRUT.
3. GATE CONTROLLER - MOUNT ON 1/2" HY-SECURITY EXTENSION PEDESTAL WITH CONCRETE BASE PER MANUFACTURER RECOMMENDATIONS. EXTEND CONC. BASE 4" ABOVE EXISTING GRADE.
4. NEMA 5-15R GFCI RECEPTACLE IN NEMA 3R METAL ENCLOSURE.
5. NEMA 3R LOAD CENTER/MAIN BREAKER MIN. 12 CKT. 5 30A, 1 20A, 2 15A, 4W. 100 AMP.
6. 6" X 6" NEMA 3R GUTTER WITH LANDINGS LEGS.
7. 1/8" DIAMETER X 24" DEEP CONCRETE FOOTING.
8. 3/4" PVC CONDUIT @ 18" BELOW FINISHED SUBGRADE ELEVATION WITH 3 #10, 1 #10 BOND TO GATE CONTROLLER RIGID GALVANIZED STEEL BONDS & RISERS. CONTINUE CONDUIT TO GUTTER.
9. 3/4" PVC CONDUIT TO (2) 3/4" X 8' LONG COPPER-CLAD GROUND RODS SEPARATED A MINIMUM OF 10'. CONNECTIONS OF CONDUCTOR TO GROUND ROADS SHALL BE THERMITE WELDED. ROUTE ALONG AND ATTACH TO UNISTRUT RACK WITH NON-FERROUS FASTENERS.
10. PVC CONDUIT SEE PLAN FOR SIZE AND CONDUCTOR PULL @ 18" BELOW FINISHED SUBGRADE ELEVATION. FROM SERVICE PANEL RIGID STEEL BENDS AND RISERS. SIZE AS REQUIRED.
11. 3/4" PVC CONDUIT TO KEY POST/READER & EXIT BUTTON (2 CONDUITS REQUIRED WITH REQUIRED CONDUCTORS).
12. 3/4" PVC CONDUIT TO PHOTO-SENSOR WITH REQUIRED CONDUCTORS.
13. (2) 3/4" CONDUITS TO LOOP DETECTORS AS REQUIRED.
SCHEMATIC GATE PLAN - SINGLE GATE ARRANGEMENT

NOTE:
WHEN NEW ROADWAY IS BEING INSTALLED
USE PREPERFORMED, ENCLOSED LOOPS.

12" TYP.

ROLLING SECURITY GATE

KEY SWITCHCARD READER ON PIPE PEDESTAL WITH (2) 3" PROTECTIVE BOLLARDS, EACH SIDE OF GATE.
TYP., SEE DETAIL 18.

CAMERA TYP.

LOCATE PER MANUFACTURERS RECOMMENDATIONS, TYP.

3/4" PVC CONDUIT WITH STANDARD RADIUS, METAL SWEETS CONTAINING CONDUCTORS FROM KEY SWITCHCARD READER PEDESTAL TO GATE OPERATOR.
TYP.

ROADWAY WIDTH PER PLANS

LETO PVC CONDUIT INSTALLED WITH MARKER TAPE AND CAPED ON BOTH ENDS.
INSTALL #20 COPPER WIRE WITH YELLOW INSULATION PER ADOT STD. C-22-30, PIPE PLUS MARKER DETAIL.
TYP.

SAW CUT 14 GROOVES AND INSTALL WELDED 14 AMG VEHICLE SAFETY DETECTORS ON BOTH SIDES OF GATE. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
TYP.
**NOTE:**
When new roadway is being installed, use preformed, enclosed loops.

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**Schematic Gate Plan - Double Gate Arrangement**

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These drawings are provided as a working guide to typical, powered gate and fencing installations. They are not intended to specify the exact materials or dimensions. They are subject to change and may not meet the specific requirements of any jurisdiction. It is the responsibility of the contractor to verify all details and specifications. Any changes made to the drawings must be approved by the authority having jurisdiction. The contractor shall ensure that all changes to the drawings are clearly indicated on the drawings and that any changes or additions are made in accordance with the approved plans and specifications.
NOTES:

These drawings are provided as schematic guides to typical forced air and heating installations throughout the IAFA Facility. It is the Contractor's and/or subcontractors responsibility to investigate all field conditions, verify all quantities and materials, determine the applicability of these drawings toward site specific conditions, and to notify the designer or the authority of any discrepancies prior to construction. The Contractor shall remove these drawings to indicate original conditions and any alterations conducted during construction, and shall retain these amended diagrams to the authority.
EXISTING SURFACE BARE GROUND, CONCRETE OR PAVING AS APPLICABLE CUT AND REPLACE WITH SIMILAR MATERIAL WHEN FINISHED

PROVIDE BACK FILL & COMPACTION

YELLOW MAGNETIC MARKING HAZARD TAPE

PVC CONDUIT

12'

24'

MINIMUM

A3 REQUIRED

15 UNDERGROUND CONDUIT DETAIL

NOT TO SCALE

NOTE:
THESE DRAWINGS ARE INDICATIVE TO TYPICAL POWERED GATE AND FENCE INSTALLATIONS THROUGHOUT THE SHA FACILITY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL ALL HARDWARE AND FIXTURES TO MEET SPECIFIC SITE CONDITIONS. VERIFY ALL DETAILS AND DIMENSIONS. THE CONTRACTOR SHALL PROVIDE THEIR SEPARATE SUBMITTALS FOR ANY UNFORSEEN ITEMS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL ANNOTATE THESE DRAWINGS TO INDICATE AS-BUILT CONDITIONS AND ANY ALTERATIONS CONDUCTED DURING CONSTRUCTION, AND SHALL SUBMIT THESE ANNOTATED DRAWINGS TO THE AGENCY.
LOOP DETECTOR MARKING NOTES:

1. VEHICLE SAFETY DETECTORS, BOTH SIDES OF GATE. INSTALL PER MANUF. DRAWN, SEE DETAIL # 12.

2. PAINT STRIPES: 12" WIDE YELLOW ENTIRE LOOP
PHOTO-EYE SYSTEM NOTES:

1. SENDING UNIT - GRAINGER TELEMAC ANGLE RP 30.
2. REFLECTOR
3. UNI-STRUT MOUNTING
4. 12" DIA. X 24" DEEP CONCRETE BASE
5. GATE OPERATOR

PHOTO-EYE SYSTEM

NOTE:
These warnings are furnished as a precautionary measure and are not intended to substitute for the regular inspections and maintenance of the facility. It is the responsibility of the owner or contractor to ensure that all work is done in compliance with all relevant regulations. Any discrepancies noted should be brought to the attention of the owner or contractor for correction. The owner or contractor shall be responsible for the correction of any discrepancies noted during construction and shall submit any workmanship concerns to the authority.
Foundation Detail

12" x 12" x 24" deep concrete foundation. Connect with anchor bolts to welded base plate with collar.

Conc. fill with dome top type.

4" wide yellow reflection tape, typ.

Black enamel paint, typ.

New 3" bollards per fence spec. Line up bollards with face of key switch/card reader box.

Key switch/card reader box

Not to scale.

Note:
Locate per manufacturer's recommendation.
GATE GUIDE SYSTEM NOTES:

1. 8" O.D. SUPPORT POST W/ WCAP.
   Height as reqd.

2. WELD 3/4" THICK X 1 1/2" WIDE BAR TO SUPPORT POST ROLLER BEARINGS, LENGTH AS REQD.

3. DOUBLE SEALED ROLLER BEARINGS WITH STAINLESS STEEL BOLT.

4. 2 1/2" X 2 1/2" ANGLE IRON - SPOT WELD TO TOP OF GATE RAIL, WITH 1" WELDS @ 12" O.C.

5. NEW SLIDING GATE

NOTE

THESE DRAWINGS ARE MEANT TO SHOW GENERAL CONSTRUCTION METHODS FOR FIXED OR MOVING FENCE INSTALLATIONS THROUGHOUT THE SITE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFORM TO SITE REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE SHOP WRAPPERS OF ALL DRAWINGS FOR THE ENGINEERING TEAM TO CONSTRUCT. THE CONTRACTOR SHALL SUBMIT THESE DRAWINGS TO THE AUTHORITY AND THE AUTHORITY SHALL REVIEW AND APPROVE THE DRAWINGS.
NOTE:
- ELECTRICAL RACK AND EQUIPMENT TO BE ADEQUATELY PRIMED AND PAINTED WITH SHERWIN WILLIAMS STEEL GRAY OR Supplies GALVANIZED UNISTRUT WELDED FITTINGS.
- ALL WIRING MUST BE ACCORDING TO PROJECT SPECIFICATIONS.
- RADIO CONTROL MAY ONLY BE USED WHEN APPROVED BY FAA.
- ALL ABOVEGROUND PIPING AND FITTINGS SHALL BE RIBBON GALVANIZED STEEL.

EQUIPMENT RACK NOTES:
1. EXTEND ELECTRICAL RACK AS NECESSARY FOR CASS ENCLOSURES.
2. PROVIDE 2 4X36X12" NEMA 12 WHITE ENCLOSURE FOR FUTURE CASS CONTROLLER.
3. PROVIDE 2 4X36X12" NEMA 12 WHITE ENCLOSURE FOR FUTURE FIBER OPTIC CONNECTION.
4. PROVIDE 1" EMPTY CONDUIT WITH FULL STRING TO GATE OPERATOR.
5. PROVIDE 2 1" EMPTY CONDUITS WITH FULL STRINGS FOR FUTURE CCTV CAMERAS. SEE PLAN FOR STUDOUT LOCATION.
6. PROVIDE 2" EMPTY CONDUIT FOR FUTURE FIBER OPTIC FEED.

NOTE:
THESE DRAWINGS ARE INTENDED AS CONCEPTUAL GUIDES TO TYPICAL POWERED GATE AND FENCING INSTALLATION THROUGOUT THE FAAC FACILITY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCURATELY AND FULLY CONSTRUCT THE DRAWINGS. VERIFY ALL DIMENSIONS AND MATERIALS BEFORE SUBMITTING TO THE AUTHORITY. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF ALL INSTALLATION FOR THE AUTHORITY PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL PRACTICE THEIR WELDING TECHNIQUES AS INSTRUCTED AND ANY ALTERATIONS CONDUCTED DURING CONSTRUCTION SHALL BE SUBMITTED TO THE AUTHORITY.

PLANNING AND ENGINEERING

DATE: 04/02/16

TUCSON AIRPORT AUTHORITY

DRAWN
APPROVED
NOTE:
FABRICATE GATE WITH CENTER OF LOCK AND CHAIN OPENING APPROXIMATELY 4" ABOVE FINISHED GRADE MEASURED AT CENTER OF CLOSED GATE WHEN COMPLETED GATE IS INSTALLED ON SITE.

NOTE:
THESE DRAWINGS ARE PROVIDED AS GENERAL GUIDES TO TYPICAL CONSTRUCTION AND ENSURING REGULATIONS. THEY ARE NOT INTENDED TO REPLACE ANY SPECIFIC REGULATIONS. THE CONTRACTOR SHALL DETERMINE THE APPROPRIATENESS AND MODIFICATIONS TO MEET THEIR SPECIFIC REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE THEIR OWN DETAILED WORKS OF INSTALLATION FOR THEIR CONSTRUCTION NEEDS. THE CONTRACTOR SHALL PROVIDE THEIR OWN DETAILED WORKS OF INSTALLATION FOR THEIR CONSTRUCTION NEEDS.
FENCE KEY NOTES:

1. 3 STRANDS OF 12 1/2 GAUGE BARBED WIRE WITH 14 GAUGE BARBS, SPACED 4" APART.

2. 1.90 O.D. LINE POST; TYP.

3. 9 GAUGE, 2" FABRIC, TYP.

4. 3/8 Ø TRUSS RODS, TYP.

5. DROP ROD FOUNDATION WITH APPROPRIATE SIZED PIPE TO RECEIVE CENTER DROP ROD.

NOTE: ALL EXPOSED MATERIAL AND FITTINGS SHALL BE HOT DIPPED GALVANIZED. ALL FIELD WELDS SHALL BE FIELD GALVANIZED.

NOTE: THESE DRAWINGS ARE INTENDED AS SCHEMAS GUIDES TO TYPICAL, PREFERRED SPEC AND DESIGNE MATERIALS AND CONSTRUCTION. THEY ARE NOT TO BE CONSIDERED SETTLED SOLUTIONS OR TO BE USED AS SUCH. THEY ARE MEANT TO PROVIDE A GENERAL IDEA OF THE WORK AND TO ENCOURAGE THE CREATIVE USE OF MATERIALS AND THE INNOVATION OF NEW CONCEPTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE APPROPRIATE MEANS AND MATERIALS TO COMPLETE THE WORK IN COMPLIANCE WITH THE AUTHORITY'S REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE THE AUTHORITY WITH A SUBMITTAL OF ALL PLANS AND SPECIFICATIONS FOR REVIEW AND APPROVAL. ANY ALTERATIONS TO THE CONSTRUCTION MUST BE APPROVED IN WRITING BY THE AUTHORITY.