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**CITY OF BATTLE CREEK, MICHIGAN
 NOTICE OF REQUEST FOR PROPOSALS
 RFP #2020-026R
 Airport Gate Project**

RFP DUE DATE and TIME: **October 31, 2019, 2:00 pm local time (office hours 8-12 and 1-5).** Bids will not be read aloud, Because the City will choose the best solution proposed, price being a factor, but not the deciding factor, there will not be a formal bid opening. All proposers will be notified in writing of the City's final decision.

NOTE! City Hall has security on the 1st floor. Please allow extra time to get through security when dropping off your proposal.

BID SUBMITTAL: Bids must be submitted in a sealed envelope with the RFP number and the proposer's name and address clearly indicated on the envelope. Bids must be in the actual possession of the Purchasing Department Room 214, City Hall, 10 N. Division Street, Battle Creek, Michigan 49014 on or prior to the exact time and date indicated above. The prevailing clock shall be www.time.gov. Late bids shall not be considered.

BIDS WILL NOT BE READ ALOUD: Because the City will choose the best solution proposed, price being a factor, but not the deciding factor, there will not be a formal bid opening. All proposers will be notified in writing of the City's final decision.

PROJECT DESCRIPTION: The City of Battle Creek will accept sealed bids for the Airport Gate Project. This project consists of, but is not limited to, Project consists of the installation of a new vehicle gate operator (gate 1) and pedestrian gate (gate2). Both access points will be integrated into the airport's access control system by a third party. Project includes installation of approximately 85' of 10' black vinyl chain link fence. **See page 3 for submittal requirements.**

<p>PRE-BID CONFERENCE: If you'd like a site visit, contact Larry Bowron at 269-966-3470</p>	<p>FUNDING: This project has NO federal or state funding. All project funding is provided by the City of Battle Creek. None of the CDBG requirements are applicable for this contract.</p>
<p>TECHNICAL QUESTIONS OR SITE VISITATION: Larry Bowron 269-966-3470</p>	<p>PREVAILING WAGES: <u>NOT</u> REQUIRED FOR THIS PROJECT.</p>
<p>COPIES OF RFP and PLANHOLDERS' LIST: Purchasing Division 269-966-3390</p>	<p>FEE: No fee</p>
	<p>RFP ISSUE DATE: October 18, 2019</p>
<p>DOCUMENT EXAMINATION: during normal business hours City of Battle Creek, Purchasing Division Dodge Corporation in Kalamazoo, Michigan Builders Exchange in Grand Rapids, Kalamazoo & Lansing, Michigan</p>	<p>ADDENDA: Each addendum will be on file in the Office of the Purchasing Agent. To the extent possible, copies will be mailed to each person registered as having received a set of proposal documents. It shall be the proposer's responsibility to make inquiry as to addenda issued. All such addenda shall become a binding part of the contract.</p>
<p>BID BOND: NOT REQUIRED FOR THIS PROJECT</p>	<p>PERFORMANCE/LABOR/MATERIALS BONDS: NOT REQUIRED FOR THIS PROJECT</p>

Bids may be withdrawn up to the time and date of the proposal opening. After the proposal opening, bids may not be withdrawn for a period of ninety (90) days thereafter. The City of Battle Creek reserves the right to waive any irregularity or informality in bids, to reject any and/or all bids, in whole or in part, or to award any contract to other than the low proposer, should it be deemed in its best interest to do so.

SECTION I – SUBMITTALS and EVALUATION

Please provide 1 copy: we need to make copies and scan this, so loose and clipped. No binders and staples, etc.

1. Company name, address, contact information.
2. Brief overview of your company's experience.
3. Examples of three projects in the last five years of similar size and scope. Provide references' contact information for these projects.
4. Proposed system: lump sum, all-inclusive price and also details of timetable and parts and labor required. Costs for permits, everything, must be included in the price.
5. Completed Price Page: page 7
6. Signed Offer and Contract (complete top portion): page 8
7. Completed Subcontractor and DBE form: page 9
8. Completed Statement of Experience of Proposer: page 10
9. Copy of your company's W9

Bid bonds are NOT required, nor will PLM bonds be required.

Prevailing wages not applicable for this project.

Contact Larry Bowron at 269-966-3370 for questions or site visits.

Evaluation Criteria

Points will be awarded as follows:

- 40 Proposed system
- 40 Price
- 20 Company experience

SECTION II - SPECIAL INFORMATION FOR BIDDERS

1. General Contract Specification

The following sections of the General Contract Specifications BC-19-08, will be applicable for this contract General Instructions to Proposers and General Conditions of City Contracts.

2. Order Of Precedence

The plans and specifications shall be considered to be one complete document and what is called for in one shall be considered as being called for in all. In the event that there is a conflict between the parts, the following order of precedence shall govern:

Vendor proposal
Addenda to bidding documents
The Contract Drawings
Contract Specifications

3. Special Conditions

The purpose of Special Conditions, Special Instructions, and Project Specifications are to change, delete, clarify or add to General Conditions, General Instructions or General Specifications found in GENERAL CONTRACT SPECIFICATIONS BC 19-08, issued 1998. Only those items addressed in Special Conditions, Special Instructions, or Project Provisions are affected. All other conditions in General Conditions, General Instructions and General Specifications still apply. Special Conditions, Special Instructions, Project Specifications, supersedes General Conditions, General Instructions and General Specifications, and in all cases shall take precedence.

4. Registration Requirements for Contractors

All proposers, including General Contractors and Specialty Contractors, shall hold or obtain such Contractors or Business Licenses as required State and Local statutes.

5. Currency

Prices calculated by the proposer shall be stated in U.S. dollars.

6. Unit Price

When the Proposal for the work is to be submitted on a unit price basis, unit price Proposals will be accepted on all items of work set forth in the Proposal, except those designated to be paid for as a lump sum. The estimated of quantities of work to be done is tabulated in the Proposal and although stated with as much accuracy as possible, are approximate only and is assumed solely for the basis of calculation upon which the award of Contract shall be made. Payment to the Contractor will be made on the measurement of the work actually performed by the Contractor as specified in the Contract Documents. Unit prices will prevail in event of discrepancy.

7. Liquidated Damages

Failure of the Contractor to complete the work within the time allowed will result in damages being sustained by the City. Such damages are, and will continue to be, impracticable and extremely difficult to determine. Unless otherwise provided in the Special Conditions, the Contractor will pay to the City for the liquidated damages and not as penalty one hundred (\$100.00) for each calendar day of delay in finishing the work in excess of the time specified for completion, plus any Contractor will pay the City for the liquidated damages herein before mentioned are in lieu of the actual damages arising from such breaches of this contract; which said sums the City shall have the right to deduct from any monies in its hands, otherwise due, or to become due, to said Contractor or to sue for and recover compensation or damages for non-performance of this Contract at the time stipulated herein and provided for. The attention of proposers is directed to the provisions and the General Conditions of contract requiring the Contractor to pay for all excess cost of field engineering and inspection as therein defined.

8. Listing of Subcontractors

Proposers must list in the appropriate place in their proposal the names of all subcontractors and major suppliers that will be used in the construction of the project. Failure to list subcontractors may be cause for rejection of the Proposer's proposal as non-responsive.

9. Non-collusion:

By signing the Offer to Contract, the proposer, by its officers and authorized agents or representatives present at the time of filing this proposal, being duly sworn on their oaths say, that neither they nor any of them have in any way, directly or indirectly entered into any arrangement or agreement with any other proposer or with any public officer of such City of Battle Creek, Michigan, whereby such affidavit or affiants or either of them has paid or is to pay to such other proposer or public officer any sum of money, or has given or is to give to such other proposer or public officer anything of value whatever, or such affidavit or affiants or either of them has not directly or indirectly, entered into any arrangement or agreement with any other proposer or proposers, which tends to or does lessen or destroy free competition in the letting of the contract sought for by the attached bids, that no inducement of any form or character other than that which appears on the face of the proposal will be suggested, offered, paid or delivered to any person whomsoever to influence the acceptance of the proposal or awarding of the contract, nor has this proposer any agreement or understanding of any kind whatsoever, with any person whomsoever to pay, deliver to, or share with any other person in any way or manner, any of the proceeds of the contract sought by this proposal.

10. Contractor's Insurance

- a. The Contractor shall at the time of execution of this contract, file with the City the Certificate of Insurance, which shall cover all of his insurance as required herein, including evidence of payment of premiums thereon, and the policy or policies or insurance covering said City and their officers, agents and employees. Each such policy and certificate shall be satisfactory to the City. Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's responsibility for payment of damages resulting from his operations under this Contract. The contractor shall maintain insurances in force at all times during the term of this agreement at the minimum amounts and types as indicated.

<u>Coverage Afforded</u>	<u>Limits of Liability</u>
Workers' Compensation:	\$ 100,000 or statutory limit
Commercial General Liability: Bodily Injury	\$1,000,000 each occurrence
(including XCU if appropriate) Property Damage	\$1,000,000 each occurrence
or Combined Single Limit	\$2,000,000
Automobile Liability: Bodily Injury	\$ 300,000 each person
Liability	\$ 500,000 each occurrence
Property Damage	\$ 500,000
or Combined Single Limit	\$ 500,000

The City of Battle Creek shall be listed as an **additional insured** on general liability coverage, and shall be provided with a Certificate of Insurance that reflects this additional insured status. A 30-day notice of cancellation or material change shall be provided to the City and so noted on the Certificate of Insurance. All certificates and notices shall be sent to City of Battle Creek, 10 N. Division, Suite 214, Battle Creek, MI 49014.

11. Vendor Evaluation: Experience with the City shall be taken into consideration when evaluating responsibility of the vendor.
12. Permits: Contractor shall secure all necessary permits to complete the work as described in this RFP. These costs shall be included in the proposal price.
13. Michigan Constitutional Requirement:
- a). Notwithstanding any provision in this Contract to the contrary, and in accordance with Article I, Section 26 of the Michigan Constitution as adopted by the electorate November 7, 2006, the City and its general contractors shall not discriminate against, or grant preferential treatment to, any individual or group on the basis of race, sex, color, ethnicity, or national origin in the operation of this Contract.
- b). This section shall not prohibit any action that must be taken to establish or maintain eligibility for any federal program if ineligibility would result in a loss of federal funds in connection with this Contract, nor shall this section be interpreted as prohibiting bona fide qualifications based on sex that are reasonable necessary to the execution of this Contract.
- c). In the event of conflict between any term of this Contract and this section, the language of this section shall control.
- d). "Any party bringing a legal action or proceeding against any other party arising out of or relating to this Agreement or the transactions it contemplates shall bring the legal action or proceeding: (i) in the United States District Court for the Western District of Michigan; or (ii) in any court of the State of Michigan sitting in Calhoun County, if there is no federal subject matter jurisdiction."

14. VENUE: Any party bringing a legal action or proceeding against any other party arising out of or relating to this Agreement or the transactions it contemplates shall bring the legal action or proceeding:

- (i) in the United States District Court for the Western District of Michigan; or
- (ii) in any court of the State of Michigan sitting in Calhoun County, if there is no federal subject matter jurisdiction.

15. GOVERNING LAW: This agreement shall be enforced under the laws of the State of Michigan. Contractor must comply with all applicable federal, state, county, and City laws, ordinances, and regulations. Contractor shall ensure payment of all taxes, licenses, permits, and other expenses of any nature associated with the provision of services herein. Contractor shall maintain in current status all Federal, State and Local licenses and permits required for the operation of the business conducted by the Contractor.

16. NON-DISCRIMINATION CLAUSE: The proposer agrees not to discriminate against any employee or applicant for employment, to be employed in the performance of such contract with respect to hire tenure, terms, conditions or privileges, of employment, or any matter directly or indirectly related to employment because of his or her actual or perceived race, color, religion, national origin, sex, age, height, weight, marital status, physical or mental disability, family status, sexual orientation, or gender identity. Breach of this covenant may be regarded as a material breach of the contract as provided for in Act 220 and Act 453 of the Public Acts of 1976, as amended, entitled "Michigan Handicapper's Civil Rights Act" and/or the "Michigan Elliott Larson Civil Rights Act" and/or City of Battle Creek Chapter 214 "Discrimination Prohibited" Ordinance. The proposer further agrees to require similar provisions from any subcontractors, or suppliers. The proposer agrees to comply with the Executive Order 11246 of September 24, 1965, entitled "Equal Employment Opportunity," as amended by Executive Order 11375 of October 13, 1967, as supplemented in Department of Labor regulations (41 CFR, Chapter 60).

SECTION III – PRICE PAGE

Acknowledgement of addenda: _____; _____; _____; _____; _____; _____

TOTAL all-inclusive lump sum PRICE \$ _____

See page 3 for complete submittal information

BID CONDITIONS

It is expressly understood and agreed that the total base proposal as reflected on the attached Bidding Schedule is the basis for establishing the amount of the proposal security on this proposal and that this total base proposal is not to be construed a Lump Sum Bid. It is further understood that quantities in the Bidding Schedule for unit price items are approximate only, and that payment of a contract will be made only on the actual quantities or work completed in place, measured on the basis defined in the General Provisions, Contract Specifications or other Contract Documents.

The undersigned has carefully checked the attached Bidding Schedule against the Contract Drawings and Specifications and other Contract Documents before preparing this Bid and accepts the said quantities to be substantially correct, both as to classification and amount, and as correctly listing the complete work to be done in accordance with the Contract Drawings, Specifications and other Contract Documents.

COMPLETION

If awarded a contract under this proposal, the undersigned agrees to start work at the site after the receipt from the Owner of a Notice to Proceed. The undersigned further agrees to complete the project by **November 22, 2019**.

LIQUIDATED DAMAGES

Liquidated damages of \$100.00 per calendar day will be assessed for failure to meet any deadline, as noted in the Project Specifications.

BIDDER'S SIGNATURE

Complete the TOP "Offer" portion of the following page:

OFFER TO CONTRACT

TO THE CITY OF BATTLE CREEK: We propose to furnish all labor, materials, equipment, tools, transportation and services required to complete the work in accordance with the specifications and conditions contained herein in consideration of the sum or sums stated below and agree that this document will constitute the contract if accepted by the City.

We hereby offer and agree to furnish the material or service in compliance with all terms, conditions, specifications, and amendments in the Request for Proposals and any written exceptions in the offer. We understand that the items in this Invitation to Bid, including, but not limited to, all required certificates are fully incorporated herein as a material and necessary part of the contract. Warranty: Contractor shall remove and replace at no additional cost to the City any defects in workmanship or materials that may be apparent or may develop within a period of one (1) year from the date of final acceptance.

We agree to complete the contract within the times specified in this Request for Proposals.

We acknowledge receipt of the following addendum(s): _____, _____, _____, _____.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder, and that our firm is not debarred from doing business under the Federal Excluded Parties List System (epls.gov).

I, the Contractor or Contractor's legally authorized signer, further certify compliance with the City of Battle Creek Ordinance Chapter 214, Discrimination Prohibited. I further acknowledge and agree that the Contractor's violation of Chapter 214 shall be a material breach of this contract. In addition, Contractor acknowledges and agrees that it shall be liable for any costs or expenses incurred by the City in obtaining from other sources, the work and services to be rendered or performed or the goods or properties to be furnished or delivered to the City under the contract as a result of a material breach in the Contract for violations of Chapter 214.

Company Name

Address

City State Zip

Signature of Person Authorized to Sign

Printed Name

Title

For clarification of this offer, contact:

Name: _____

Phone: _____

Fax: _____

E-mail: _____

ACCEPTANCE OF OFFER:

The Offer is hereby accepted.

The Contractor is now bound to sell the materials or services listed by the attached contract and based upon the Request for Proposals, including all terms, conditions, specification, amendments, etc. and the Contractor's Offer as accepted by the City.

This contract shall henceforth be referred to as Contract No. 2020-026R. The Contractor has been cautioned not to commence any billable work or to provide any material or service under this contract until Contractor receives purchase order and/or a notice to proceed from the City of Battle Creek Purchasing Agent.

COUNTERSIGNED:

City Manager Date

Witness Signature

APPROVED AS TO FORM BY:

City Attorney

Date

SUBCONTRACTOR AND DBE FORM

I. YOUR FIRM'S BACKGROUND:

- Is your firm an MBE (at least 51% minority ownership)? YES NO
- Is your firm a WBE (at least 51% woman ownership)? YES NO
- Are you subcontracting any part of this project? YES NO

II. SUBCONTRACTING INFORMATION: If subcontracting any part of the project, the proposer/contractor expressly agrees that:

- (1) If awarded a contract as a result of this proposal, the major subcontractors used in the prosecution of the work will be those listed below, and
- (2) The following list includes all subcontractors who will perform work representing approximately five percent (5%) or more of the Total Base Bid.
- (3) The Proposer represents that the subcontractors listed below are financially responsible and are qualified to do the work required.

SUBCONTRACTOR NAME	City/State	Trade or Commodity	MBE	WBE	Approximate dollar value
_____	_____	_____	Y / N	Y / N	\$ _____
_____	_____	_____	Y / N	Y / N	\$ _____
_____	_____	_____	Y / N	Y / N	\$ _____
_____	_____	_____	Y / N	Y / N	\$ _____
_____	_____	_____	Y / N	Y / N	\$ _____
_____	_____	_____	Y / N	Y / N	\$ _____
_____	_____	_____	Y / N	Y / N	\$ _____
_____	_____	_____	Y / N	Y / N	\$ _____

III. DBE RECRUITMENT ACTIVITY LOG: List the MBE's and WBE's that were approached about being a subcontractor for this job, but who are NOT listed above as a subcontractor.

NAME OF FIRM APPROACHED, BUT NOT USED ON THIS PROJECT	City/State	Trade or Commodity	MBE	WBE	Reason not used on this project
_____	_____	_____	Y / N	Y / N	_____
_____	_____	_____	Y / N	Y / N	_____
_____	_____	_____	Y / N	Y / N	_____
_____	_____	_____	Y / N	Y / N	_____

STATEMENT OF EXPERIENCE OF BIDDER

NOT REQUIRED FOR CONTRACTORS WHO HAVE SUCCESSFULLY DONE WORK FOR THE CITY IN THE LAST TWO YEARS; HOWEVER, THE CITY RESERVES THE RIGHT TO REQUEST THIS INFORMATION OF THOSE BIDDERS IF IT IS OUR BEST INTEREST TO DO SO.

The Proposer shall state below the work of similar magnitude or character that he has done, and shall give references that will enable the City of Battle Creek to judge his experience, skill and business standing and of his ability to conduct the work as completely and as rapidly as required under the terms of this contract.

PROJECT AND LOCATION

REFERENCES (include name and phone number)

(1)	_____

(2)	_____

(3)	_____

(4)	_____

(5)	_____

(6)	_____

(7)	_____

(8)	_____

(9)	_____

SECTION IV – SCOPE OF WORK

Provide and install one Linear GSLG-A-121 Series slide gate operator

- provide and install all required conduit
- include thermostatically controlled strip heater with auto/off/manual control switch
- include interior cabinet mounted 3-button station, open/close/stop
- include safety photo eye system with heat
- safety bollards, 2 on each side of operator cabinet, made from 4" galvanized post
- include Entrance ground loop with detector
- include dual ground loop free exit system with detectors
- include mounting pedestal for entrance controls consisting of Aiphone & card reader, pedestal mount should be protected with bollards made from 4" galvanized post.
- access control hardware will be connected by EPS, contractor to coordinate all details with EPS

Provide and install one 25'x10' aluminum ZipTrack Single Track, Box frame only, cantilever gate.

- opening when gate is open shall be 15'
- include radio controlled 5' gate safety edge
- cover with black vinyl chain link fencing.

Provide and install one chain link, black vinyl, 5'x10' walk-through gate.

- include 1200 lb. Maglock and hardware, all required, wiring, conduit, etc.
- include hardware for future mounting of card reader and all required wiring, conduit, etc.

Provide and install approximately 120' of 10' black vinyl fence to match existing

Provide and install 2 - 4" galvanized posts with caps (EPS to install 2 - NEMA rated enclosures on uni-strut)

- spaced 64" on center, protruding 68" above ground. 4' deep in the ground in 12" hole, filled with concrete.

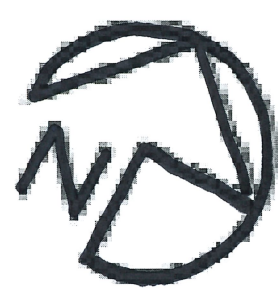
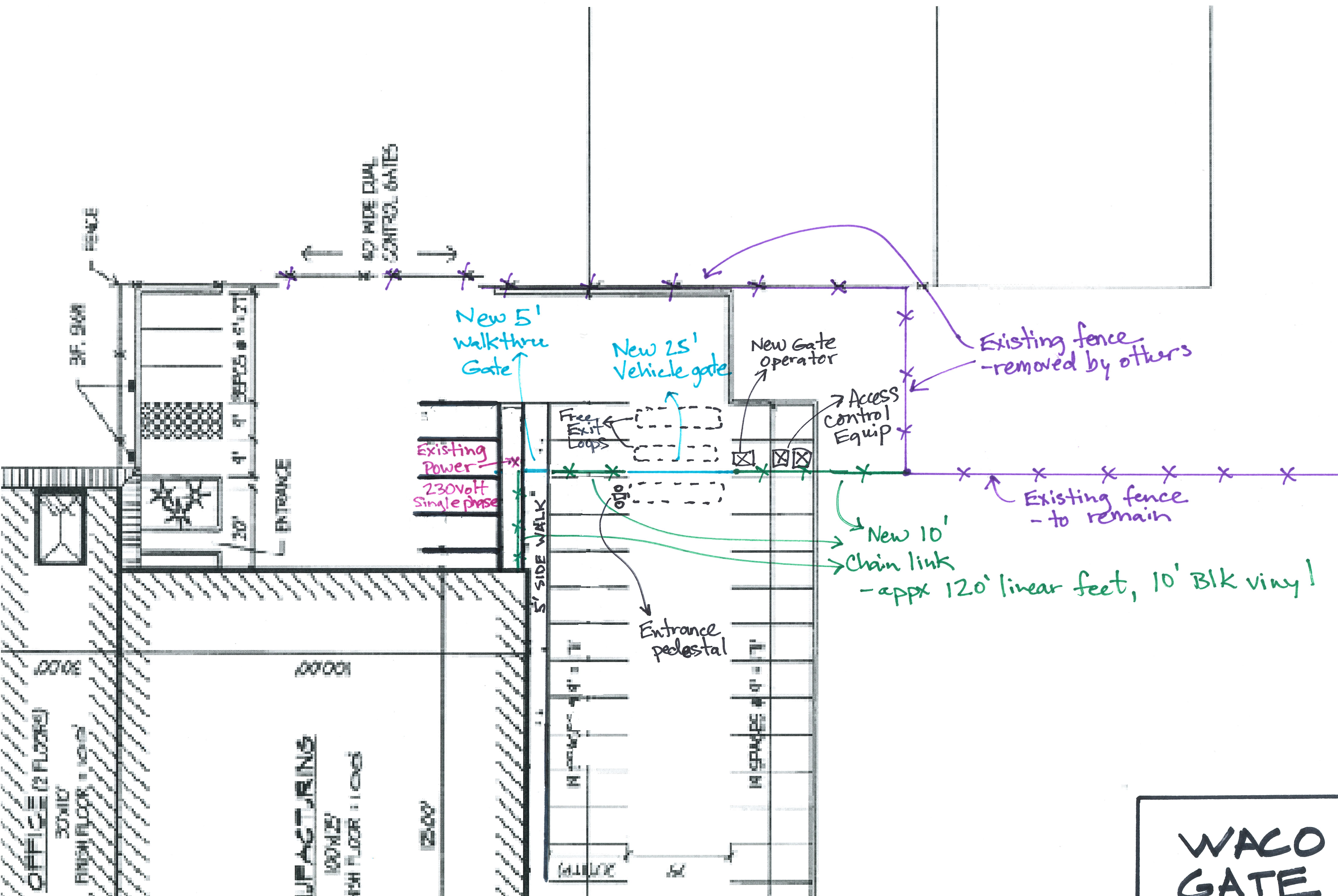
General Notes -

230 volt single phase power exists at site

Contractor to provide drawing of all conduit for review.

- conduit for power to operator
- conduit from operator to entrance pedestal
- other conduit as necessary

SECTION V – ADDITIONAL ATTACHMENTS



SITE PLAN
Not to scale

WACO GATE PROJECT
10/18/19
lcb

GATE FRAME AND GATE POST, DIMENSIONS AND WEIGHTS					
DESCRIPTION	SECTION	STEEL FRAMES		ALUMINUM FRAME *	
		OUTSIDE DIMENSION (INCHES)	WEIGHT (LBS./FT.)	OUTSIDE DIMENSION (INCHES)	WEIGHT (LBS./FT.)
FABRIC HEIGHT 6' AND LESS, AND LEAF WIDTH 8' OR LESS	○	1.66	2.27	1.90	0.94
	□	1.50	1.90	2.00	0.94
FABRIC HEIGHT OVER 6' AND/OR ALL LEAF WIDTHS OVER 8'	○	1.90	2.72	1.90	0.94
	□	2.00	2.60	2.00	0.94
INTERIOR BRACING	○	1.66	2.27	1.90	0.94
	□	1.50	1.90	2.00	0.94
GATE POSTS	○	2.875	5.79	2.875	2.00
	□	2.50	5.70	3.00	2.00
GATE LEAF WIDTH OVER 4' THRU 6'	○	4.00	9.11	4.00	3.00
	□	6.625	18.97	6.625	7.00
GATE LEAF WIDTH OVER 6' THRU 18'	○	6.625	28.55	8.625	10.50
	□	6.625	28.55	8.625	10.50

* SEE F.A.A. SPEC. F-162 FOR DETAILS. TO BE USED ONLY WITH ALUMINUM ALLOY FENCE.

DIMENSION	GATE WIDTH (ONE LEAF)			
	6' AND LESS	OVER 6' THRU 10'	OVER 10' THRU 15'	OVER 15' THRU 18'
A	12"	16"	20"	24"
B	48"	56"	62"	68"
CYD. CONC.	0.13	0.26	0.45	0.70

GENERAL NOTES :

DIMENSIONS :

ALL DIMENSIONS, SIZES, GAUGES, WEIGHTS OR THICKNESSES SHOWN ARE THE MINIMUM ACCEPTABLE, UNLESS OTHERWISE INDICATED.

SPECIFICATIONS :

THE FEDERAL, A.S.T.M. AND A.A.S.H.T.O. SPECIFICATIONS SHOWN SHALL BE INTERPRETED TO MEAN THE LATEST ISSUE OR AMENDMENT OF SUCH SPECIFICATION, IN EFFECT ON THE DATE OF THE PLAN APPROVAL.

SPECIFICATIONS REFERRED TO ON THIS STANDARD PLAN ARE A PART OF THE CONTRACT DOCUMENTS.

MATERIALS AND CONSTRUCTION METHODS NOT DETAILED HEREON, SHALL BE IN ACCORDANCE WITH THE SPECIFICATION LISTED FOR EACH CLASS OF FENCE, UNLESS OTHERWISE NOTED ON THE CONTRACT PLANS.

MEASUREMENT :

FENCES ARE MEASURED IN PLACE, FROM OUTSIDE TO OUTSIDE OF END, CORNER OR GATE POSTS. MEASUREMENT DOES NOT INCLUDE GATE OPENINGS.

GATES ARE MEASURED IN UNITS FOR EACH TYPE AND SIZE INSTALLED.

FABRIC INSTALLATION :

WIRE OR FABRIC ON BOUNDARY AND SECURITY FENCES SHALL BE ON THE SIDE OF POSTS AWAY FROM AIRPORT PROPERTY.

FENCES BETWEEN TERMINAL BUILDINGS AND APRONS, OR ADJACENT TO SIDEWALKS, SHALL HAVE FABRIC ON THE BUILDING OR SIDEWALK SIDE OF POSTS. ALL OTHER BUILDING AREA FENCES SHALL HAVE FABRIC ON THE SIDE OF POSTS AWAY FROM BUILDINGS OR INSTALLATION BEING FENCED, UNLESS OTHERWISE NOTED.

BARBED WIRE :

BARBED WIRE SHALL BE 2-STRAND TWISTED STEEL OF No. 12 1/2 MINIMUM WIRE GAUGE, WITH FOUR POINT BARBS OF No. 14 MINIMUM WIRE GAUGE, AND SHALL CONFORM TO SPECIFICATIONS.

CONCRETE :

CONCRETE SHALL BE PRODUCED AND PLACED IN ACCORDANCE WITH SPECIFICATION P-610. FOOTING TOPS SHALL BE 1" MINIMUM ABOVE GROUND AT THE POST, AND TROWEL FINISHED TO SLOPE AWAY FROM THE POST.

OPENINGS UNDER FENCE :

ANY OPENING UNDER FENCE, WHEREIN THE BOTTOM FENCE WIRE IS MORE THAN 4" ABOVE GROUND AND THE TOTAL AREA OF OPENING IS 96 SQUARE INCHES OR MORE, SHALL BE CLOSED.

OPENINGS LESS THAN 18" HIGH SHALL BE CLOSED BY INSTALLING ONE OR MORE ADDITIONAL LINE POSTS NEAR THE OPENING CENTER AND STRETCHING STRANDS OF BARBED WIRE BETWEEN THE EXTRA POSTS AT 6" MAXIMUM VERTICAL SPACING. VERTICAL STRANDS OF BARBED WIRE SHALL BE INSTALLED AT 12" MAXIMUM HORIZONTAL SPACING AND TIED TO ALL HORIZONTAL STRANDS AND THE FABRIC BOTTOM WIRE. THIS WORK SHALL BE INCIDENTAL TO FENCE INSTALLATION COSTS.

OPENINGS 18" OR MORE IN HEIGHT, OPENINGS IN HIGH SECURITY AND HAZARD AREAS, DITCHES, DRAINAGE COURSES, ETC., SHALL BE CLOSED BY METHODS DETAILED ON THE CONTRACT PLANS. PAYMENT FOR CLOSURES DETAILED ON THE PLANS SHALL BE AS NOTED ON THE CONTRACT PLANS.

FENCE LINE AND ALIGNMENT :

FENCE LINES SHALL BE CLEARED AND GRUBBED OF ALL OBSTRUCTIONS AS PER SPECIFICATIONS.

THE FENCE SHALL BE CONSTRUCTED VERTICAL, STRAIGHT AND TRUE TO LINE, THE LONGITUDINAL GRADIENT SHALL PARALLEL THE GENERAL SLOPE OF THE GROUND.

GROUND RODS :

GROUND RODS SHALL BE INSTALLED AT 500' MAXIMUM INTERVALS, AND WHERE POWER LINES PASS OVER THE FENCE. EACH SECTION OF FENCE SEPARATED BY GRASS, BUILDINGS OR OTHER OPENINGS SHALL HAVE A MINIMUM OF ONE ROD. COST TO FURNISH AND INSTALL GROUND RODS SHALL BE INCLUDED IN PRICE QUOTED FOR CHAIN LINK FENCE, CLASS E.

ADDITIONAL GROUND RODS SHALL BE INSTALLED, AS DIRECTED BY THE ENGINEER, SO THE RESISTANCE TO GROUND OF ANY FENCE SECTION WILL NOT EXCEED 25 OHMS. MEASUREMENT OF RESISTANCE SHALL BE MADE BY THE CONTRACTOR UNDER SUPERVISION OF THE ENGINEER. COST TO FURNISH AND INSTALL ADDITIONAL GROUND RODS SHALL BE THE PER EACH PRICE QUOTED FOR ITEM NO. 1620550.

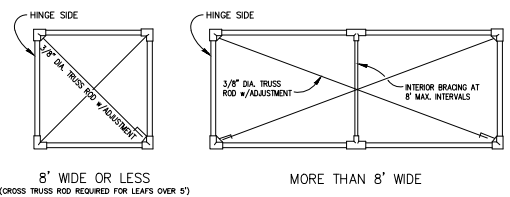
GROUND RODS SHALL BE 5/8" x 8' MINIMUM SIZE, COPPER OR COPPER-CLAD GROUND CABLE SHALL BE No. 6 AWG MINIMUM, BARE STRANDED COPPER WIRE. CONNECTIONS TO FENCE AND RODS SHALL BE MADE WITH SUITABLE NONCORROSIVE METAL CLAMPS, LUGS OR CONNECTORS.

FENCE IN PAVEMENT :

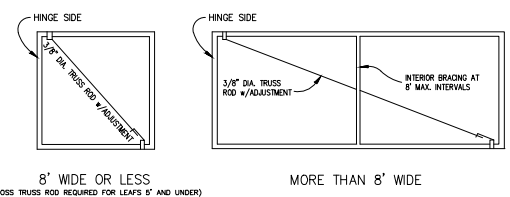
FENCES LOCATED ALONG THE EDGE OF SIDEWALKS, SERVICE RAMP AND TERMINAL APRON PAVEMENTS SHALL EITHER BE INSTALLED IN SUCH PAVEMENT OR IN A SEPARATE PAVED STRIP ADJACENT TO THE PRIMARY PAVEMENT.

DETAILS AND PAYMENT FOR "IN PAVEMENT" FENCING SHALL BE AS NOTED ON THE CONTRACT PLANS.

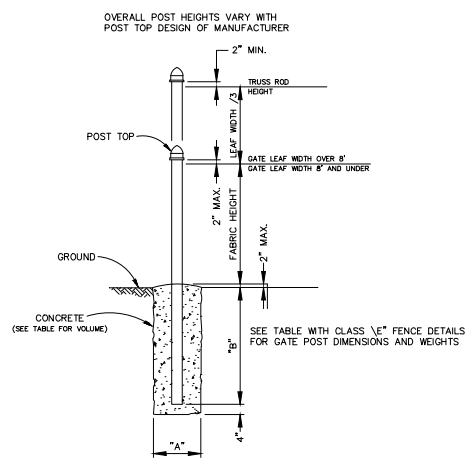
WHEN BARBED WIRE TOP IS SPECIFIED, THE GATE FRAME END MEMBERS SHALL BE EXTENDED 12" ABOVE THE TOP HORIZONTAL SECTION OF THE GATE FRAME. THREE STRANDS OF BARBED WIRE, UNIFORMLY SPACED, SHALL BE ATTACHED BY BANDS, CLIPS OR EYEBOLTS.



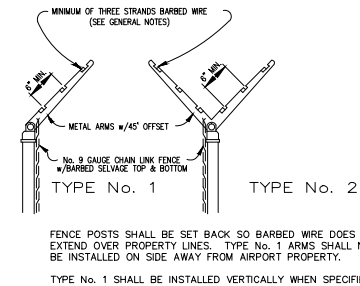
FITTED CONNECTIONS



WELDED CONNECTIONS GATE FRAMES



GATE POST & CONCRETE BASE

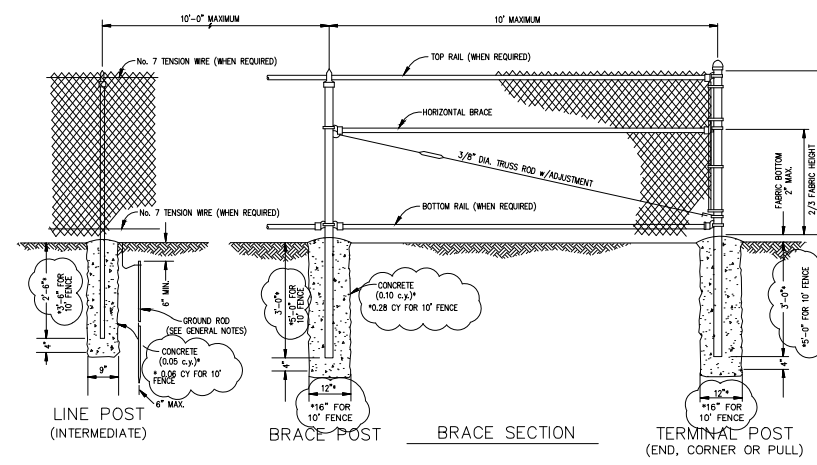


BARBED WIRE EXTENSION ARMS (WHEN SPECIFIED ON CONTRACT PLANS)

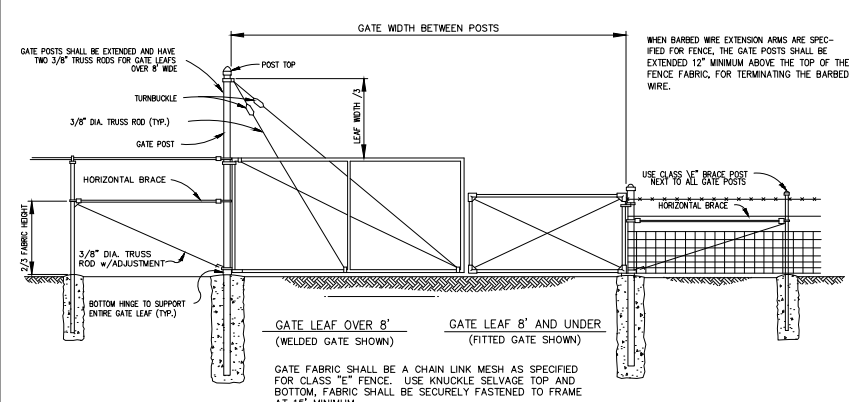
CHAIN LINK FENCE MEMBERS, DIMENSIONS AND WEIGHTS					
DESCRIPTION	SECTION	STEEL FRAME		ALUMINUM FRAME *	
		OUTSIDE DIMENSION (INCHES)	WEIGHT (Lb./Ft.)	OUTSIDE DIMENSION (INCHES)	WEIGHT (Lb./Ft.)
**CORNER, BRACE, END & PULL POSTS FABRIC HEIGHTS 6' & LESS	○	2.375	3.65	2.375	1.264
	□	2.000	2.60	2.500	1.253
	○	2.875	5.79	2.875	2.000
	□	2.500	5.10	2.500	2.900
ALL FABRIC HEIGHTS	ROLL FORM	3.5 x 3.5	5.10	-----	-----
LINE POSTS	□	1.875 x 1.625	2.40	1.875 x 1.625	0.910
		2.250 x 1.700	2.70	-----	-----
	○	1.900	2.72	1.900	0.940
		2.375	3.65	2.375	1.250
	ALL FABRIC HEIGHTS	H	2.250 x 1.700	3.43	2.250 x 1.950
RAILS & BRACES	○	1.660	2.27	1.660	0.760
	ROLL FORM	1.625 x 1.250	1.35	-----	-----

* TO BE USED ONLY IF TYPE D FABRIC (ALUMINUM ALLOY) IS SPECIFIED ON THE CONTRACT PLANS

**FOR 10' FENCE CORNER POSTS SHALL BE 6.000" O.D. (18.97 LB/FT) OR ALUMINUM POSTS 6.625" O.D. (20.00 LB/FT)



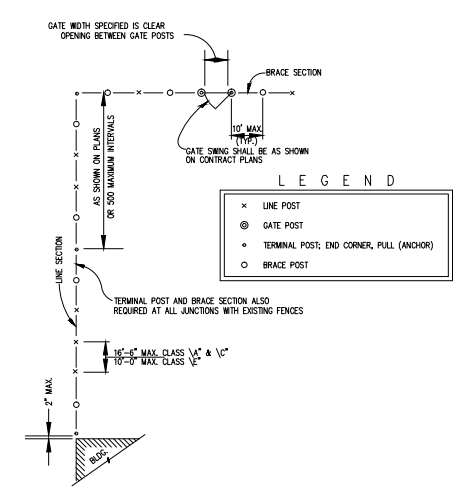
CHAIN LINK FENCE (CLASS E, FAA SPEC. F-162)



TYPICAL GATE INSTALLATIONS

GATE NOTES :
GATE HINGES AND FITTINGS SHALL BE HEAVY PATTERN AND EASILY OPERATED BY ONE PERSON. BOTTOM HINGE SHALL BE BALL AND SOCKET, OR EQUAL, CAPABLE OF SUPPORTING ENTIRE WEIGHT OF GATE LEAF.
GATES SHALL HAVE A SELF LATCHING DEVICE WITH PROVISIONS FOR LOCKING.
GATE KEEPERS SHALL BE PROVIDED FOR ANY LEAF MORE THAN 5' WIDE TO HOLD IT IN AN OPEN POSITION.
DOUBLE GATES WITH LEAFS MORE THAN 4' WIDE SHALL BE PROVIDED WITH LOCKABLE CANE BOLTS AND SOCKETS.
WELDS ON STEEL FRAMES SHALL BE GROUND SMOOTH, THOROUGHLY CLEANED AND COVERED WITH ALUMINUM OR ZINC BASE PAINT.
GATES, FITTINGS AND INSTALLATION SHALL MEET SPECIFICATION F-162.

GATE DETAILS & SPECIFICATIONS (CLASS E, FAA SPEC. F-162)



TYPICAL FENCE LAYOUT (ALL CLASSES)

NOTES : CLASS E FENCE

FABRIC :
WOVEN WITH A 9 GAUGE WIRE IN A 2 INCH MESH AND SHALL BE OF THE TYPE I, II, III OR IV (SPEC. F-162) UNLESS OTHERWISE SPECIFIED ON THE CONTRACT PLANS.

GATES AND GATE HARDWARE :
ALL GATES, GATE POSTS AND HARDWARE MEMBERS ADJACENT TO GATES, SHALL MEET SPECIFICATION F-162 UNLESS OTHERWISE SPECIFIED ON CONTRACT PLANS.

SSELVAGE, RAILS & TENSION WIRES :
FENCES 60" AND LESS IN TERMINAL AREAS SHALL HAVE KNUCKLE SELVAGE AND RAILS TOP AND BOTTOM. HAZARDOUS AND SECURITY AREAS TO BE FENCED SHALL HAVE BARBED SELVAGE, TOP AND BOTTOM, WITHOUT RAILS. WHEN RAILS ARE OMITTED, NO. 7 GAUGE TENSION WIRES OF THE SAME MATERIAL AS THE FABRIC SHALL BE PROVIDED.

IF RAILS AND BARBED SELVAGE ARE SPECIFIED THE BARBS SHALL EXTEND 1" ABOVE THE TOP RAIL.
POSTS, RAILS AND BRACES :
SEE TABLE FOR CHAIN LINK FENCE MEMBERS, DIMENSIONS AND WEIGHTS.

FABRIC FASTENERS :
MINIMUM 3/16" x 3/4" STRETCHER BAR, BANNED TO TERMINAL POSTS; OR INTEGRAL FABRIC FITTINGS ON TERMINAL POSTS. MINIMUM NO. 6 WIRE CLIPS FOR LINE POSTS AND NO. 9 WIRE CLIPS FOR BRACES, RAILS AND TENSION WIRE. ALL FASTENERS SHALL HAVE A MAXIMUM SPACING OF 14" VERTICALLY AND 24" HORIZONTALLY.
COATINGS :
ZINC COATING ON POSTS, RAILS, GATE FRAMES, BRACES AND STEEL FITTINGS SHALL AVERAGE 1.8 OZ./S.F. NO INDIVIDUAL SPECIMAN SHALL HAVE LESS THAN 1.6 OZ./S.F.

COATINGS ON STEEL FABRIC SHALL MEET THE FOLLOWING MINIMUMS :
1. TYPE-I (ZINC COATED) :
CLASS II - 2.00 OZ./S.F.
2. TYPE-II (ALUMINUM COATED) :
No. 9 Ga. - 0.40 OZ./S.F.

MINIMUM 0.015 INCH THICKNESS
FENCE HEIGHT :
THE FABRIC HEIGHT IS THE NOMINAL FENCE HEIGHT.

REVISIONS

NO.	DATE	REMARKS	BY	OKD

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF AERONAUTICS
LANSING, MICHIGAN

STANDARD PLAN FOR
CHAIN LINK FENCE, CLASS E (AS MODIFIED BY MEAD & HUNT)

APPROVED _____ DESIGNED M.W.-Z 2-87
DRAWN FWB 5-87
ORIGINAL SIGNED BY ROBERT E. ADY - 7-30-87
CHECKED _____
CHIEF ENGINEER DATE ST-F-101 (MOD.)



