Tioga County
Emergency Services

Michael S. Simmons
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103 Corporate Drive
Owego, New York 13827
607-687-2023

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PROPOSAL

CARMICHAEL TOWER FENCING BID

The Tioga County Office of Emergency Services will receive sealed proposals at the Emergency Services Department, 103 Corporate Drive, Owego, New York, until 11:00 A.M. Friday, November 30, 2018.

All bids shall be submitted in accordance with the attached instruction sheets.

All bids shall be made on the attached proposal sheets. Exceptions may be rejected. All bids shall be submitted in a sealed envelope marked:

"CARMICHAEL TOWER FENCING BID"

"DO NOT OPEN UNTIL 11-30-18 AT 11:00 AM"

All bidders shall submit signed copies of the required NON-COLLUSION CERTIFICATES with their bid proposals. Failure to do so may constitute grounds for rejection.

The County Director of Emergency Services or his agents reserves the right to reject any or all proposals.

Tioga County reserves the right to reject or accept all or any part of any bid solely as it deems in the best interest of Tioga County.

The award of this contract shall be based on the lowest responsible bid. Bidders must bid on all components of each section and all items bid must be from a single manufacturer to be eligible for award. An award will be based on all products meeting Tioga County's specifications as outlined in the bid document. A no bid on any item within a group may disqualify the bidder from the group award. Considerations will be made to availability of material, delivery, and past history as well as the current standing of the supplier within the industry.

There shall be no assignment of this contract to any other party by the successful bidder without County authorization.

Prevailing Wage Rates must be used. PRC# will be supplied at a later date.

Minority and Women Business Enterprises (MWBE's) are encouraged to participate in the bidding process.

DETAILED SPECIFICATIONS:

The Fencing bid must meet the ATTACHED detailed specifications and details:

INSURANCE:

The successful bidder, at its own cost and expense, agrees to the insurance, indemnification, and general terms and conditions set forth as attached hereto entitled "Tioga County, New York – General Contract and Insurance Specifications", which are to be incorporated herein by reference as if fully set forth.

The successful bidder shall agree and stipulate that the status of fencing personnel while performing any services pursuant to this bid, is that of an employee, officer or agent of Tioga County in any matter, whatsoever, including, but not limited to Worker's Compensation insurance, unemployment insurance, medical or health insurance, civil service status, union membership, retirement membership or pension plan benefits.

FENCING BID PRICES:

Description	Unit	Quantity	Price	Cost
8' HIGH CHAIN LINK FENCING	LF	700		
4' WIDE SINGLE GATE	EACH	2		
16' WIDE SLIDE GATE	EACH	1		
			Total	

The undersigned proposes and offers to furnish, to Tioga County, Fencing, Installed, the Specifications for which are attached. This proposal and offer is fully guaranteed to fulfill, in all respects, the minimum specifications as prepared by Tioga County. It is hereby certified that, in accordance with Section 103-D of the General Municipal Law, THERE HAS BEEN NO COLLUSION IN THIS BIDDING.

Name of Company: _____

Address of Company: _____

_____

Telephone Number: _____

Name of Officer: _____

Signature: _____

Date: _____

THE REQUIRED NON-COLLUSION FORM MUST ACCOMPANY BID.

Michael S. Simmons

Director

Tioga County Emergency Services

TO ALL BIDDERS

In accordance with the New York State General Municipal Law the following Non-Collusion form must accompany each proposal.

NON-COLLUSIVE BIDDING CERTIFICATE

By submission of this bid or proposal, the bidder certifies that:

(A) this bid or proposal has been independently arrived at without collusion with any other bidder or with any competitor or potential competitor;
(B) or proposal has not been knowingly disclosed and will not be knowingly disclosed prior to the opening of bids or proposals for this project, to any other bidder, competitor or potential competitor;
(C) no attempt has been or will be made to induce any other person, partnership or corporation to submit or not to submit a bid or proposal;
(D) the person signing this bid or proposal certifies that he has fully informed himself regarding the accuracy of the statements contained in this certification, and under the penalty of perjury, affirms the truth thereof, such penalties being applicable to the bidder as well as to the person signing in its behalf;
(E) that attached hereto (if a corporate bidder) is a certified copy of resolution authorizing the execution of this certificate by the signature of this bid or proposal in behalf of the corporate bidder.

_____

(Authorized Representative)

_____

(Signature)

TIOGA COUNTY, NEW YORK
General Contract and Insurance Specifications

Project Description or Contract Number:	Carmichael Tower Fencing Bid
Date Issued:	Monday, November 05, 2018 9:02 AM
Vendor name ("Contractor"):	TBD
County Department:	Tioga County Emergency Services

Please read these specifications very carefully. These specifications are part of your contract with Tioga County. It is advisable that you forward a copy of these specifications to your insurance agent. Tioga County's waiver of any requirement(s) set forth herein shall not constitute a waiver of any other contract provision.

Part I. General Provisions

1. The Contractor shall procure and maintain during the term of this contract, at the Contractor's expense, the insurance policies listed in Part II with limits equal to or greater than the enumerated limits.
2. Every required policy, including any required endorsements and any umbrella / excess policy, shall be primary insurance. Insurance carried by Tioga County, its officers, or its employees, if any, shall be excess and not contributory insurance to that provided by the Contractor.
3. Every required coverage type shall be on an "occurrence basis" unless otherwise specified or allowed.
4. The Contractor may utilize a combination of primary and umbrella/excess liability coverage to achieve the limits required hereunder; such coverage must be at least as broad as the primary coverage.
5. Proof of insurance coverage shall be provided on an ACORD 25 form or acceptable equivalent. All insurance certificates must be approved by the County Department of Law or its designee.
6. The amount of self-insured retention or deductibles must be disclosed on the certificates of insurance. The contractor shall be solely responsible for any self-insured retention or deductible losses under each of the required policies.
7. Tioga County reserves the right to request a certified copy of any policy and any endorsement thereto.
8. All insurance shall be provided by insurance carriers licensed & admitted to do business in the State of New York and must be rated "A–, XI" or better by A.M. Best (Current Rate Guide).
9. If the Contractor fails to procure and maintain the required coverage(s) and minimum limits such failure shall constitute a material breach of contract, whereupon Tioga County may exercise any rights it has in law or equity, including but not limited to the following:
   (a) immediate termination of the contract;
   (b) withholding any / all payment(s) due under this contract or any other contract it has with the vendor (common law set-off); OR
   (c) procuring or renewing any required coverage(s) or any extended reporting period thereto and paying any premiums in connection therewith. All monies so paid by Tioga County shall be

repaid upon demand, or at the County's option, may be offset against any monies due to the Contractor.

Part II. Required Insurance – Minimum coverage types and amounts

1.

Coverage Type	Minimum Limits
Commercial General Liability per standard ISO form or equivalent with no modification of coverage for contractual liability • All endorsed policy exclusions shall be disclosed by submittal of forms	General Aggregate $2,000,000 Products & Completed Operations Aggregate $2,000,000 Personal & Advertising Injury $1,000,000 Each Occurrence $1,000,000 Medical Expense $5,000
• Tioga County shall be named Additional Insured, on a primary, non-contributory basis. The additional insured requirement shall be provided by ISO endorsement forms CG 20 10, CG 20 37 and CG 20 01 (or equivalent forms) and shall not contain any exclusion for bodily injury or property damage arising from completed operations. Submittal of the specified Additional Insured forms is required with the ACORD 25.	
Automobile Liability (Comprehensive Form) Must cover owned, non-owned, leased and hired vehicles.	$1,000,000 Combined Single Limit
Pollution Liability (Occurrence Basis) If work includes remediation of Hazardous Substances	$1,000,000 Each Occurrence
Umbrella / Excess Liability (Following Form) • To extend over CGL, Auto	$1,000,000 Each Occurrence $1,000,000 Annual Aggregate
Workers' Compensation and Employer's Liability If you have no employees (sole proprietor) a NYS Workers' Compensation Board issued waiver of the Workers' Compensation requirement is acceptable	Part 1 – Statutory Part 2 – (Unlimited in NYS) $100,000 Each Accident $500,000 Disease Policy Limit $100,000 Disease Each Employee
(Proof of either Workers' Compensation Insurance or a NYS Workers' Compensation Board issued waiver of the Workers' Compensation insurance requirement is mandated by state law. There are no exceptions to this law.	

2. The certificate face shall:
   - indicate coverages and minimum amounts required in part II.1
   - provide that the coverage(s) shall not be cancelled, terminated or materially changed (including an insurance limits reduction) unless prior written notice has been given to the Tioga County.

3. The Additional Insured & Certificate Holder should read:
   County Of Tioga
   Attn: Law Department
   56 Main Street, Owego, NY 13827

Part III Defense and Indemnification

The following provisions concerning indemnification shall not be construed to indemnify the County for damages arising from bodily injury to persons or property contributed to, caused by or resulting from the sole negligence of the County or its employees.

The Contractor agrees to indemnify and hold the County of Tioga and any officer, employee and/or agent thereof free and harmless from any and all losse(s), penalty(ies), damages, settlement(s), cost(s), charge(s), professional fee(s) or other expense(s) or liability(ies) of every kind arising from or relating to any and all claim(s), lien(s), demand(s), obligation(s), action(s), proceedings or causes of action of any kind in connection with, or arising directly or indirectly from the negligent error(s) and/or omission(s) and/or act(s) of the Contractor (including Contractor's employees, agents and/or subcontractors) in the performance of this agreement.

Without limiting the generality of the preceding paragraphs, the following shall be included in the indemnity hereunder: any and all such claims, etc., relating to personal injury, death, damage to property, or any actual or alleged violation of any applicable statute (including specifically but not limited to New York State Labor Law §§ 200; 202; 240 & 241), ordinance, administrative order, executive order, rule or regulation, or decree of any court of competent jurisdiction in connection with, or arising directly or indirectly from, errors and/or negligent acts by the Contractor, as aforesaid,.

Part IV Safety

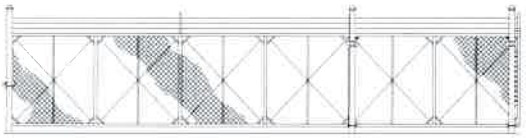
Tioga County specifically reserves the right to suspend or terminate all work under this contract whenever Contractor and/or contractor's employees or subcontractors are proceeding in a manner that threatens the life, health or safety of any of contractor's employees, subcontractor's employees, county employees or member(s) of the general public on county property. This reservation of rights by Tioga County in no way obligates Tioga County to inspect the safety practices of the Contractor.

If Tioga County exercises its rights pursuant to this part, the contractor shall be given three days to cure the defect, unless Tioga County, in its sole and absolute discretion, determines that the service cannot be suspended for three days due to Tioga County's legal obligation to continuously provide contractor's service to the public or Tioga County's immediate need for completion of the Contractor's work. In such case, Contractor shall immediately cure the defect.

If the Contractor fails to cure the identified defect(s), Tioga County shall have the right to immediately terminate this contract. In the event that Tioga County terminates this contract, any payments for work completed by the Contractor shall be reduced by the costs incurred by Tioga County in re-bidding the work and /or by the increase in cost that results from using a difference vendor.

Specification Section 32 31 00

FORTRESS HEAVY DUTY CANTILEVER SLIDE GATE (CHAIN LINK)



PART 1 - GENERAL:

1.01 SECTION INCLUDES:

A. The work in this section shall include furnishing all labor, materials, equipment and appliances necessary to complete all Fortress Heavy Duty Cantilever Slide Gate(s) required for this project in strict accordance with this specification section and drawings.

1.02 REFERENCES:

A. Underwriters Laboratory Gate Operator Requirements (UL 325). See 3.02 C.

1. Automated/operated vehicular gates are not to be used for pedestrian traffic. Separate pedestrian gates must always be provided if pedestrian traffic is expected.

B. ASTM F 2200 – Standard Specification for Automated Vehicular Gate Construction. See 2.01 C.

C. ASTM F 1184 – Standard Specification for Industrial and Commercial Horizontal Slide Gates, Type II, Class 2. See 3.02 B.

D. American Welding Society AWS D1.2 Structural Welding Code. See 2.01 D and 2.03 D.

1.03 SUBMITTAL:

A. Product Data:

1. Provide manufacturer's catalog cuts with printed specifications and installation instructions.
2. If operated gate system, furnish two (2) copies of operation and maintenance data covering the installed products.

B. Shop Drawings:

1. Supply shop drawings showing the gate system, including details of all major components.
2. Include details of gate construction, gate height, and post spacing dimensions.

C. Certification of Performance Criteria:

1. Manufacturer of gate system shall provide certification stating the gate system includes the following material components that provide superior performance and longevity. Alternate designs built to minimum standards that do not include these additional structural features shall not be accepted.

   a. Gate track system shall be keyed to interlock into gate frame member (providing 200% additional strength when compared to weld only keyless systems). When interlocked with and welded to the "keyed" frame top member, gate track forms a composite structure.

   b. Gate shall have a minimum counterbalance length of 50% opening width which provides a 36% increase in lateral resistance (when compared to ASTM minimum

of 40% counterbalance). If gate is ever to be automated, counterbalance section shall be filled with fabric or other specified material.

c. To provide superior structural integrity, intermediate vertical members shall be used - with spacing between verticals to be less than 50% of the gate frame height.

d. Entire gate frame (including counterbalance section) shall include 2 adjustable stainless or galvanized steel cables (minimum 3/16") per bay to allow complete gate frame adjustment (maintaining strongest structural square and level orientation).

e. Gate truck assemblies shall be tested for continuous duty and shall have precision ground and hardened components. Bearings shall be pre-lubricated and contain shock resistant outer races and captured seals.

f. Gate truck assemblies shall be supported by a minimum 5/8" plated steel bolt with self aligning capability, rated to support a 2,000 # reaction load.

g. Hanger brackets shall be hot dipped galvanized steel with a minimum 3/8" thickness that is also gusseted for additional strength.

h. Gate top track and supporting hangar bracket assemblies shall be certified by a licensed professional engineer to withstand a 2,000 lb. vertical reaction load without exceeding allowable stresses.

D. Certifications:

1. Gate in compliance with ASTM F 2200, Standard Specification for Automated Vehicular Gate Construction per section 2.01 C.
2. If operated gate system, gate operator shall be in compliance with UL 325 as evidenced by UL listing label attached to gate operator.
3. The aluminum welders and welding process must be certified per section 2.03 D.
4. Manufacturer shall supply gate design performance certification as per section 1.03 C.

PART 2 - PRODUCTS:

2.01 CANTILEVER SLIDE GATE MANUFACTURERS:

A. The cantilever sliding gate system shall be manufactured by Tymetal Corp., 678 Wilbur Avenue, Greenwich, NY 12834 - (800) 328 - 4283.

B. Approved substitution – All other systems must be submitted to the design team in accordance with substitution requirements as set forth in the general provisions of the specification manual for approval prior to the bid date. Products submitted must meet performance criteria as per section 1.03 C. Products submitted after the bid date will not be approved.

C. Gate manufacturer shall certify gate is manufactured in compliance with ASTM F 2200, Standard Specification for Automated Vehicular Gate Construction. See 1.03 D.1.

D. Gate manufacturer shall provide independent certification as to the use of a documented Welding Procedure Specification and Procedure Qualification Record to insure conformance to the AWS D1.2 welding code. Upon request, Individual Certificates of Welder Qualification documenting successful completion of the requirements of the AWS D1.2 code shall also be provided. See 1.03 D.3.

2.02 GATE DIMENSIONS:

A. Fortress Heavy Duty Cantilever Slide Gate dimensions shall be as shown on the detail drawings.

2.03 GATE CONSTRUCTION DETAILS:

A. Gate Frame:

1. The gate frame shall be fabricated from 6063-T6 aluminum alloy extrusions. The top member shall be a 3" x 5" (76mm x 127mm) aluminum structural channel/tube extrusion weighing not less than 3.0 lb/lf (4.4kg/m). To maintain structural integrity this frame member shall be "keyed" to interlock with the "keyed" track member. If fabricated as a single horizontal piece, the bottom member shall be a 2" x 5" (51mm x 127mm) aluminum structural tube weighing not less than 2.0 lb/lf (2.9kg/m). If fabricated in two horizontal pieces, the bottom member shall be a 5" (127mm) aluminum structural channel weighing not less than 2.6 lb/lf (3.8kg/m). When the gate frame is manufactured in two horizontal pieces or sections, they shall be spliced in the field (the gate frame shall be fabricated in one or multiple sections depending on size requirements or project constraints).

B. Vertical Members (Chain Link):

1. The vertical members at the ends of the gate frame shall be "P" shaped in cross section with a nominal base dimension of no less than 2" x 2" (51mm x 51mm) and weighing not less than 1.6 lb/lf (2.3kg/m). Major 2" x 2" (51mm x 51mm) vertical members weighing not less than 1.1 lb/lf shall separate each bay and shall be spaced at less than gate height intervals.

2. Intermediate 1" x 2" (25mm x 51mm) vertical members weighing not less than .82 lb/lf shall alternate between 2" x 2" major members.

C. Gate Track:

1. The gate frame shall have a separate semi-enclosed "keyed" track, extruded from 6005A-T61 or 6105-T5 aluminum alloy, weighing not less than 2.9 lb/lf (4.2kg/m). The track member is to be located on only one side of the top primary. Welds to be placed alternately along the top and side of the track at 9" (229mm) centers with welds being a minimum of 2" (51mm).

D. All welds on the gate frame shall conform to Welding Procedure Specification and Procedure Qualification Record to insure conformance to the AWS D1.2 Structural Welding Code. All individual welders shall be certified to AWS D1.2 welding code. See 1.02 D.

E. Gate Mounting:

1. The gate frame is to be supported from the track by two (2) swivel type, self-aligning, 4-wheeled, sealed lubricant, ball-bearing truck assemblies.

2. The bottom of each support post shall have a bracket equipped with a pair of 3" (76mm) UHMW guide wheels Wheel cover protectors shall be included with bottom guides to comply with UL325.

3. Gap protectors shall be provided and installed, compliant with ASTM F 2200-05.

F. Diagonal Bracing:

1. Diagonal "X" bracing of 3/16" or 1/4" diameter stainless or galvanized steel cable

shall be installed throughout the entire gate frame.

G. The gate shall be completed by installation of approved filler as specified.

1. Chain Link: 2" x 2" x 9 gauge aluminized steel chain link fabric shall extend the entire length of the gate (if operated gate, counterbalance must also have fabric to prevent reach through and comply with ASTM F2200, see 1.03 C.1) Fabric shall be attached at each end of the gate frame by standard fence industry tension bars and tied at each 2" x 2" (51mm x 51mm) vertical member with standard fence industry ties. ASTM F2200 requires attachment method that leaves no leading or bottom edge protrusions (cannot exceed 0.5 inch).

2.04 POSTS:

A. A single set of support posts shall be minimum 4" O.D. (102mm) round SS40 or 4" x 4" x 3/16" wall square steel tubing, grade 500. Gate posts shall be galvanized or coated and supported in concrete footings as specified by the design team.

2.05 FINISH:

A. Gate to be mill finish aluminum or color coated with polyester powder as specified. If powder coated, the gate (including track member) and all accessories shall be pretreated chemically by sand blasting or other acceptable method to ensure proper coating adherence.

2.06 WARRANTY:

A. The truck assembly shall be warranted against manufacturing defects by the manufacturer for a period of (5) five years from date of sale.

PART 3 - EXECUTION:

3.01 Final grades and installation conditions shall be examined. Installation shall not begin until all unsatisfactory conditions are corrected.

3.02 INSTALLATION:

A. Equipment in this section shall be installed in strict accordance with the company's printed instructions unless otherwise shown on the contract drawings.

B. The gate and installation shall conform to ASTM F 1184 standards for aluminum cantilever slide gates, Type II, Class 2. See 1.02 C.

C. If the gate system is to be automated, the gate and installation shall also comply with ASTM F 2200 and UL 325. See 1.02 A and 1.02 B..

3.03 SYSTEM VALIDATION:

A. The complete system shall be adjusted to assure it is performing properly.

B. The system shall be operated for a sufficient period of time to determine that the system is in proper working order.

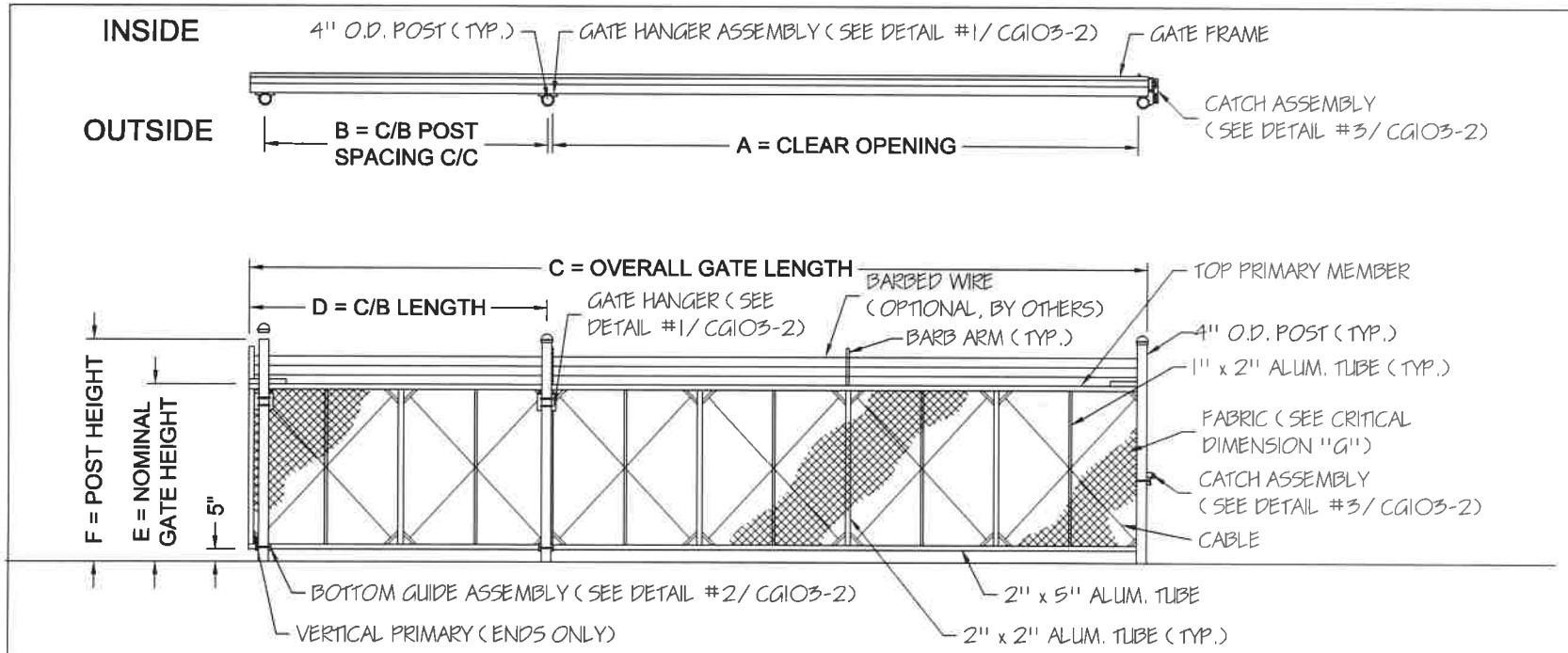
C. For operated gate systems - test and explain safety features:

1. Each system feature and device is a separate component of the gate system.
2. Read and follow all instructions for each component.
3. Ensure that all instructions for mechanical components, safety devices and the gate operator are available for everyone who will be using the gate system.
4. The warning signs shipped with the gate operator must be installed in prominent

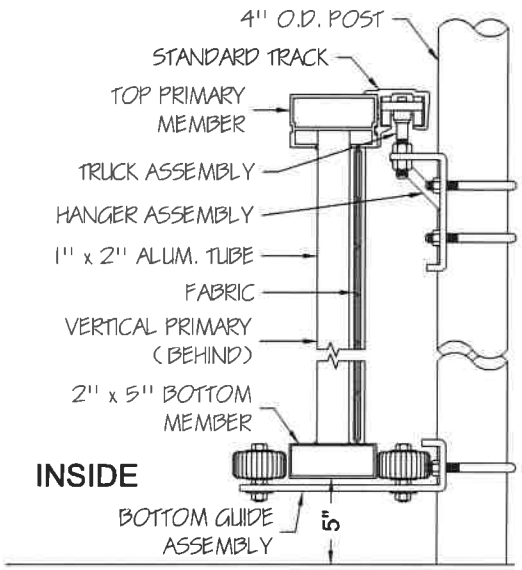
position on both sides of the gate.

5. Ensure the owner is clear with regard to the safety points concerning the basic operational guidelines of the safety features of the gate operator system. These safety points are listed in the gate operator manual and must be read prior to system use.

Note: Tymetal Corp. reserves the right to modify and/or make changes as deemed necessary without previous notice.



2 CG103-1 **ELEVATION** Scale: None



3 CG103-1 **ASSEMBLY SECTION** Scale: None

NOTES:
1. ALL FITTINGS STANDARDLY PROVIDED FOR 4" O.D. POSTS. OTHER SIZES AVAILABLE UPON REQUEST.
2. BARB ARMS ARE OPTIONAL.
3. GATE ELEVATION IS VIEWED FROM THE OUTSIDE OF THE SECURE AREA LOOKING IN.

NOMINAL GATE SIZE
16' x 8' +1'

CRITICAL DIMENSION CHART

A	CLEAR OPENING	16'-0"
B	COUNTERBALANCE POST SPACING C/C	7'-1"
C	OVERALL GATE LENGTH	24'-0"
D	COUNTERBALANCE LENGTH	8'-0"
E	NOMINAL GATE HEIGHT	8'-0"
F	POST HEIGHT	9'-6"
G	FABRIC HEIGHT	7'-0"

PRELIMINARY
NOT FOR CONSTRUCTION

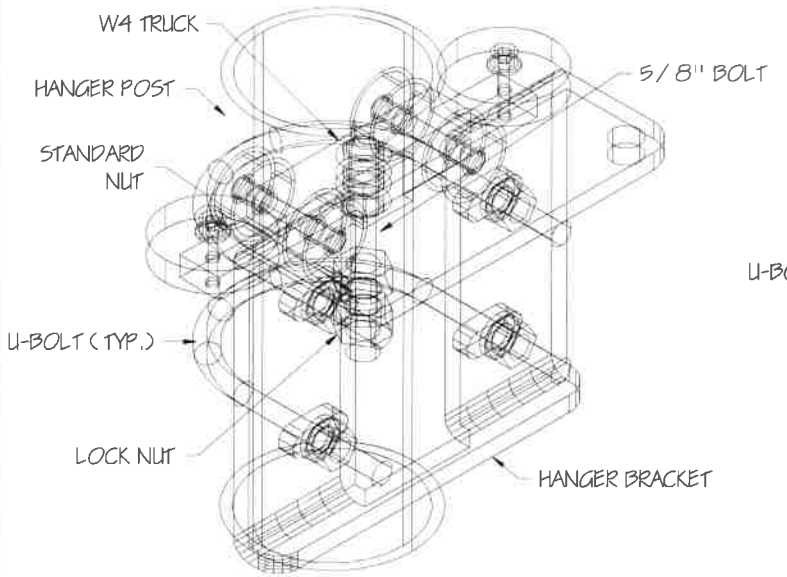
Tioga County, New York

Heavy Duty Cantilever Slide Gate

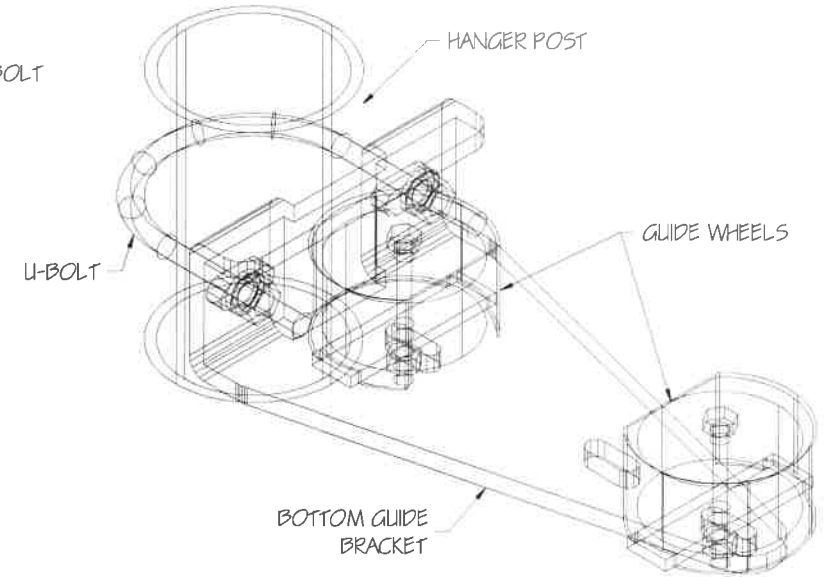
DIRECTORY\CAD FILE: Heavy Duty_CG103_R14
SHEET NUMBER: 1 of 2
DRAWING NUMBER: CG103SL-1

TLR
DATE: 12/16/14
CHECKED BY: BGG
DATE: 12/16/14
SCALE: As Noted
14

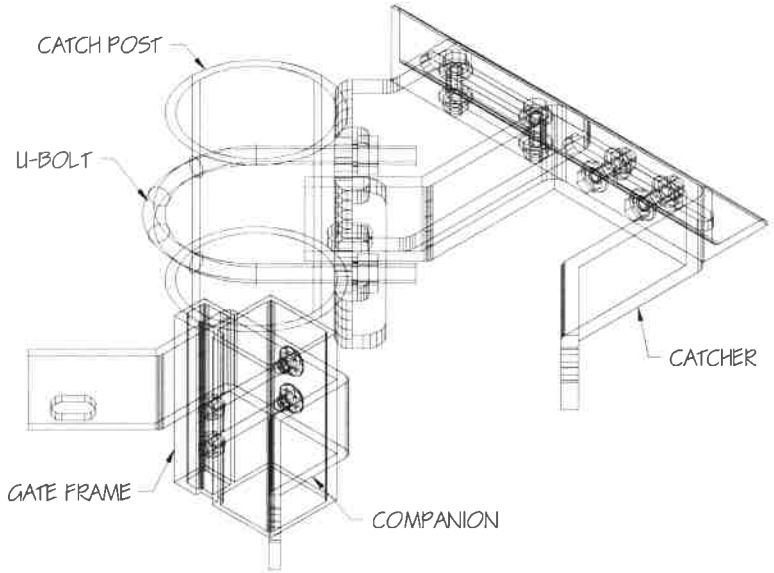
TYMETAL CORP.
www.tymetal.com
67B Wilbur Ave.
GREENWICH, N.Y. 12834
PH:(800) 328-4283 - FX:(518) 692-9404



1 CG103-2 **GATE HANGER ASSEMBLY**
Scale: None



2 CG103-2 **BOTTOM GUIDE ASSEMBLY**
Scale: None



3 CG103-2 **CATCH ASSEMBLY**
Scale: None

NOTES:
1. ALL FITTINGS STANDARDLY PROVIDED FOR 4" O.D. POSTS. OTHER SIZES AVAILABLE UPON REQUEST.

DRAWING FILE: Heavy_Duty_CG103_R14
SHEET NUMBER: 2 of 2
DRAWING NUMBER: CG103-2

Tioga County, New York
Cantilever Slide Gate Details

DRAWN BY:	TLR	DATE: 12/16/14
CHECKED BY:	BGG	DATE: 12/16/14
SCALE:	As Noted	
	14	

TYMETAL CORP.
www.tymetal.com
575 Wilbur Ave
GREENWICH, N.Y. 12834
P: (518) 338-4233 · FX (518) 692-9404

CHAIN LINK FENCE & PEDESTRIAN GATES

SUMMARY

A. This Section includes the following:
   1. Exterior coated steel chain link fences and gates.
   2. Barbed wire.
   3. Exterior fence and gate posts, rails, ties, band and other accessories.

SUBMITTALS

A. General: Submit the following:

B. Product data in the form of manufacturer's technical data, specifications and installation instructions for fence and gate posts, fabric, gates and accessories.

C. Shop drawings showing location of fence, gates, each post, and details of post installation, extension arms, gate swing, gate hardware coordination and accessories. Show that fence posts are equally spaced.

QUALITY ASSURANCE

A. Single-Source Responsibility: Obtain chain link fences and gates as complete units, including necessary erection accessories, fittings, and fastenings from a single source or manufacturer.

PRODUCT

FABRIC

A. Aluminum Steel Finish: Fabric conforming to ASTM A 491 with not less than 0.40 oz. aluminum per sq. ft. of uncoated surface in accordance with ASTM A 817. Degrease, rinse and coat fabric with clear acrylic lacquer by complete immersion prior to rolling for shipment.

B. Aluminized Steel Fabric: 9-gauge (0.148" diameter) 2" mesh wire. Top and bottom edges shall have knuckled selvages. Mesh size is the distance between the wires forming parallel sides of mesh with tolerance ±0.250". Fabric heights, measured from top of knuckle to bottom of knuckle, shall be as per drawings with tolerance ±1". Mesh shape shall be a grid of 2" squares on a 45° angle.

FRAMING

A. Pipe shall be straight, true to section, material, and sizes specified, and shall conform to the following weights per foot per ASTM F 1083:

Nominal Pipe Size (in inches)	Outside Diameter (OD) in inches	Aluminized or Galvanized Steel (lb/ft)
1-1/2	1.900	2.79
2-1/2	2.875	5.79
3	3.500	7.58
3-1/2	4.000	9.11
4	4.500	10.7
6	6.625	18.9

B. Steel Framework, General: Posts, rails and braces.
   1. Type I Pipe: Hot-dipped galvanized or aluminized steel pipe conforming to ASTM F 1083, plain ends, standard weight (schedule 40) with not less than 1.8 oz. zinc or aluminum per sq. ft. of surface area coated, as determined in accordance with ASTM A90 test method.

FITTINGS AND ACCESSORIES

A. Material: Comply with ASTM F 626. Mill-finished aluminum or galvanized iron or steel, to suit manufacturer's standards. Through bolt rails to sleeves or weld sleeved connections.
   1. Zinc Coating: Unless specified otherwise, galvanize steel fence fittings and accessories in accordance with ASTM A 153, with zinc weights per Table I. Aluminized fittings are also acceptable.

B. Tie Wires: 9-gauge (0.148" diameter) galvanized steel with a minimum of 0.80 oz. per sq. ft. of zinc coating of surface area in accordance with ASTM A 641.

C. Hog Rings: C-Rings 9-gauge (0.148" diameter) tie wire material.

D. Top Rails: Same material as posts; size as per drawings.

E. Bottom and Center Rail: Same material as posts, size as per drawings. Provide manufacturer's standard galvanized steel or cast iron cap for each end.

F. Post and Line Caps: Provide weathertight closure cap for each post. Provide line post caps with loop to receive tension wire or top rail. Provide caps made of same material as posts.

G. Tension Bars: Aluminized steel with minimum length 2" less than full height of fabric, minimum cross-section of 3/16" by 5/8" and minimum 1.8 oz. zinc coating per sq. ft. of surface area per ASTM A 153. Provide one bar for each gate and end post, and two for each corner and pull post.

H. Tension and Brace Bands: Minimum 7/8" wide steel with minimum 1.8 oz. zinc coating per sq. ft. of surface area per ASTM A 153.
   1. Tension Bands: Minimum 12 gauge (0.105") thick.
   2. Tension and Brace Bands: Minimum 12 gauge (0.105") thick.

1. Concrete: Provide concrete consisting of Portland cement, ASTM C 150, aggregates ASTM C 33, and clean water. Mix materials to obtain concrete with a minimum 28-day compressive strength of 3500 psi. Use at least 4 sacks of cement per cu. yd., 1" maximum size aggregate, maximum 3" slump, and 2 to 4% entrained air.

GATES

A. Fabrication: Fabricate perimeter frames of gates from metal and finish to match fence framework. Assemble gate frames by welding. Provide horizontal and vertical members to ensure proper gate operation and attachment of fabric, hardware, and accessories. Space frame members maximum of 8' apart unless otherwise indicated.

   1. Provide same fabric as for fence unless otherwise indicated. Install fabric with tension bars and bands at vertical edges and at top and bottom edges.
   2. Install diagonal cross-bracing consisting of 3/8" diameter adjustable-length truss rods on gates to ensure frame rigidity without sag or twist.
   3. Fabricate perimeter frames of zinc-coated steel pipe for swing gates, in sizes indicated on drawings and schedules.

B. Gate Stops: Provide gate stops for double gates, consisting of mushroom-type flush plate with anchors, set in concrete, and designed to engage center drop rod or plunger bar. Include locking device and padlock eyes as integral part of latch, permitting gate leaf to be locked with single padlock.

BARBED WIRE

A. Barbed Wire: Provide (3) 12-1/2 gauge twisted aluminized line wires with No. 14 gauge all-aluminum 4-point barbs at 3" on center. Provide die-cast aluminum alloy line post 3-strand barbed wire arm (45 degree) sized for appropriate post size. Tilt barbed wire arm according to details

EXECUTION

INSTALLATION

A. General: Install fence in compliance with ASTM F 567. Do not begin installation and erection before final grading is completed, unless otherwise permitted. Connect rails, posts and pipes by sleeved connections. Weld or through-bolt sleeved connections.

B. Excavation: Drill or hand-excavate (using post-hole digger) holes for posts to diameters and spacings indicated, in firm, undisturbed or compacted soil.

1. If not indicated on drawings, excavate holes for each post to minimum diameter recommended by fence manufacturer, but not less than 4 times largest cross-section of post.
2. Unless otherwise indicated, excavate hole depths approximately 3" lower than post bottom, with bottom of posts set not less than 48" below finish grade surface.
3. If a clean vertical hole cannot be maintained in soil prior to concrete placement, use prefabricated round formwork for posts.

C. Setting Posts: Center and align posts in holes 3" above bottom of excavation. Equally space posts maximum 8' o.c., unless otherwise indicated.

1. Protect portion of posts above ground from concrete splatter. Place concrete around posts and vibrate or tamp for consolidation. Check each post for vertical and top alignment, and hold in position during placement and finishing operations.
2. Unless otherwise indicated, extend concrete footings 2" above grade and trowel to a crown to shed water.

D. Top Rails: Run rail continuously through line post caps, bending to radius for curved runs and at other posts terminating into rail end attached to posts or post caps fabricated to receive rail. Provide expansion couplings as recommended by fencing manufacturer.

E. Center Rails: Provide center rails where indicated. Install in one piece between posts and flush with post on fabric side, using rail ends and special offset bands, including boulevards for line posts where necessary. Through bolt rails to sleeves or weld all sleeved connections.

F. Brace Assemblies: Install braces so posts are plumb when diagonal rod is under proper tension.

G. Fabric: Leave approximately 2" (2-1/2" at gates only) between finish grade and bottom of bottom rail unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Install fabric on security side of fence, and anchor to framework so that fabric remains in tension after pulling force is released. Where fabric intersects or laps adjacent or abutting fabric, tie together with hog rings spaced at 16" o.c.

H. Tension or Stretcher Bars: Thread through or clamp to fabric equally spaced at 4" o.c., and secure to end, corner, pull, and gate posts with tension bands equally spaced not over 15" o.c.

I. Tie Wires: Use U-shaped wire of proper length to secure fabric firmly to posts and rails with ends twisted at least 2 full turns. Bend ends of wire to minimize hazard to persons or clothing.

1. Maximum Spacing: Tie fabric to line posts equally spaced at maximum 12" o.c. and to rails and braces equally spaced at 24" o.c.

J. Fasteners: Install nuts for tension bands and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts. Provide sleeved connections, through bolted or welded, at interior, exterior, Exercise, Courtyard and other non-perimeter fencing.

K. Gates: Install gates plumb, level, and secure for full opening without interference. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary. Coordinate work of this Section with work of gate hardware installer. Coordinate installation of electrical gate components with Electrical Contractor.

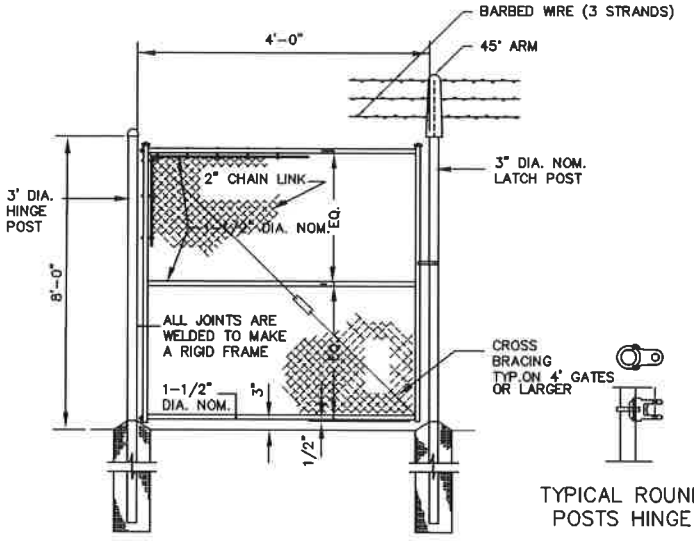
L. Wire Rope: Install rope stretched taut to prevent sag. Tie razor ribbon to rope at specified intervals.

The fence shall be constructed in accordance with the details on the plans and as specified here using new materials. All work shall be performed in a workmanlike manner, satisfactory to the Engineer. Before beginning the work or at the request of the Contractor, the Engineer shall establish and mark the property line or fence line for the work.

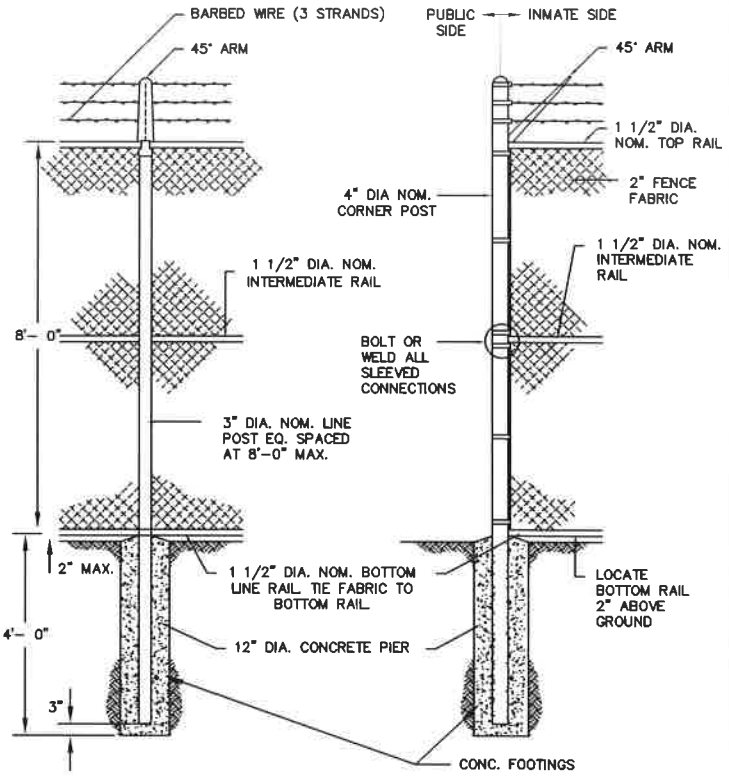
The Contractor shall span the opening below the fence with barbed wire at all locations where it is not practical to conform the fence to the general contour of the ground surface because of natural or manmade features such as drainage ditches. The new fence shall be permanently tied to the terminals of existing fences whenever required by the Engineer. The finished fence shall be plumb, taut, true to line and ground contour, and complete in every detail.

Clearing fence line. All existing fence, 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 cost of removing and disposing of the material shall not constitute a pay item and shall be considered incidental to fence construction.

Electrical grounds. Electrical grounds shall be constructed at maximum 200' intervals, or at each corner post. The ground shall be accomplished with a copper clad rod 8 feet (2.4 m) long and a minimum of 5/8 inches (16 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.



TYPICAL ROUND POSTS HINGE



FENCE LINE POST FENCE CORNER POST

NOTE : INTERMEDIATE RAILS (FENCES 8'-0" HIGH OR HIGHER ONLY) NOM.1 1/2" DIA. EQUALLY SPACED SO THAT NO UNSUPPORTED FABRIC PANEL AREA EXCEEDS 50 SQ.FT.

WHERE FABRICS OVER LAP OR INTERSECT CONNECT FABRIC AT 16" o.c. WITH HOG RING.

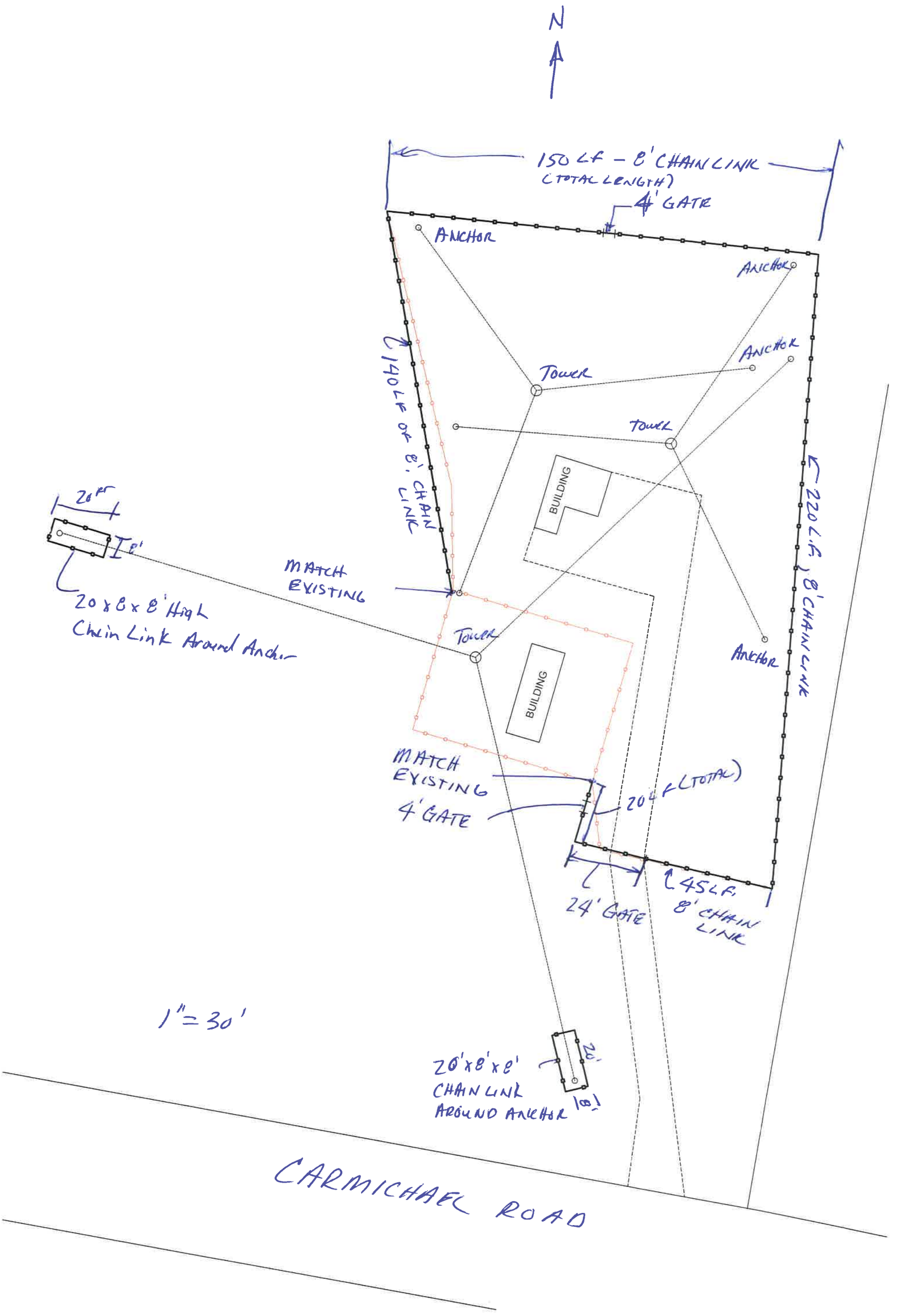
SINGLE GATE

Scale: N.T.S.

PERIMETER FENCE DETAIL

Scale: N.T.S.

Reference(s):


N
150 LF - 8' CHAIN LINK
(TOTAL LENGTH)
4' GATE
ANCHOR
ANCHOR
ANCHOR
TOWER
TOWER
TOWER
BUILDING
BUILDING
140 LF OF 8' CHAIN LINK
220 L.F. 8' CHAIN LINK
20'
8'
20 x 8 x 8' High
Chain Link Around Anchor
MATCH EXISTING
MATCH EXISTING
4' GATE
20' (TOTAL)
24' GATE
45 LF. 8' CHAIN LINK
20'x8'x8'
CHAIN LINK
AROUND ANCHOR
20'
8'
1" = 30'
CARMICHAEL ROAD