

**CONTRACT DOCUMENTS**

**CITY OF LINCOLN  
NEBRASKA**

**ANNUAL SUPPLY  
OF  
TIRE CHAINS  
BID NO. 12-211**

**Wallingford's Inc.  
1010 Kennedy Memorial Drive  
Oakland, ME 04963  
207.465.9576**

**CITY OF LINCOLN  
CONTRACT AGREEMENT**

THIS CONTRACT, made and entered into this \_\_\_\_\_ day of \_\_\_\_\_ 2012, by and between **Wallingford's Inc., 1010 Kennedy Memorial Drive, Oakland, ME 04963**, hereinafter called "Contractor", and the City of Lincoln, Nebraska, a municipal corporation, hereinafter called "City".

WHEREAS, the City has caused to be prepared, in accordance with law, Specifications, Plans, and other Contract Documents for the Work herein described, and has approved and adopted said documents and has caused to be published an advertisement for and in connection with said Work, to-wit:

For providing Annual Supply of Tire Chains, Bid No. 12-211 and,

WHEREAS, the Contractor, in response to such advertisement, has submitted to the City, in the manner and at the time specified, a sealed Proposal/Supplier Response in accordance with the terms of said advertisement; and,

WHEREAS, the City, in the manner prescribed by law has publicly opened, read aloud, examined, and canvassed the Proposals/Supplier Responses submitted in response to such advertisement, and as a result of such canvass has determined and declared the Contractor to be the lowest responsible bidder for the said Work for the sum or sums named in the Contractor's Proposal/Supplier Responses, a copy thereof being attached to and made a part of this Contract;

NOW, THEREFORE, in consideration of the sums to be paid to the Contractor and the mutual covenants herein contained, the Contractor and the City has agreed and hereby agree as follows:

1. The Contractor agrees to (a) furnish all tools, equipment, supplies, superintendence, transportation, and other accessories, services, and facilities; (b) furnish all materials, supplies, and equipment specified to be incorporated into and form a permanent part of the complete work; (c) provide and perform all necessary labor in a substantial and workmanlike manner and in accordance with the provisions of the Contract Documents; and (d) execute and complete all Work included in and covered by the City's award of this Contract to the Contractor, such award being based on the acceptance by the City of the Contractor's Proposal, or part thereof, as follows:

**Agreement to lines four (4) and five (5) only for \$1,169.30 of Contractor's Proposal.**

2. The City agrees to pay to the Contractor for the performance of the Work embraced in this Contract, the Contractor agrees to accept as full compensation therefore, the following sums and prices for all Work covered by and included in the Contract award and designated above, payment thereof to be made in the manner provided by the City:

**City will pay for products/service, according to the Line Item pricing as listed in Contractors Proposal/Supplier Response, a copy thereof being attached to and made a part of this Contract. The City shall order on an as needed basis for the duration of the contract.**

3. Equal Employment Opportunity. In connection with the carrying out of this project, the contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, ancestry, disability, age or marital status. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, national origin, ancestry, disability, age or marital status. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other compensation; and selection for training, including apprenticeship.

4. E-Verify. In accordance with Neb. Rev. Stat. 4-108 through 4-114, the contractor agrees to register with and use a federal immigration verification system, to determine the work eligibility status of new employees performing services within the state of Nebraska. A federal immigration verification system means the electronic verification of the work authorization program of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, 8 U.S.C. 1324 a, otherwise known as the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee pursuant to the Immigration Reform and Control Act of 1986. The Contractor shall not discriminate against any employee or applicant for employment to be employed in the performance of this section pursuant to the requirements of state law and 8 U.S.C.A 1324b. The contractor shall require any subcontractor to comply with the provisions of this section.
  
5. Termination. This Contract may be terminated by the following:
  - 5.1) Termination for Convenience. Either party may terminate this Contract upon thirty (30) days written notice to the other party for any reason without penalty.
  - 5.2) Termination for Cause. The City may terminate the Contract for cause if the Contractor:
    - 5.2.1) Refuses or fails to supply the proper labor, materials and equipment necessary to provide services and/or commodities.
    - 5.2.2) Disregards Federal, State or local laws, ordinances, regulations, resolutions or orders.
    - 5.2.3) Otherwise commits a substantial breach or default of any provision of the Contract Document. In the event of a substantial breach or default the City will provide the Contractor written notice of said breach or default and allow the Contractor ten (10) days from the date of the written notice to cure such breach or default. If said breach or default is not cured within ten (10) days from the date of notice, then the contract shall terminate.
  
6. Independent Contractor. It is the express intent of the parties that this contract shall not create an employer-employee relationship. Employees of the Contractor shall not be deemed to be employees of the City and employees of the City shall not be deemed to be employees of the Contractor. The Contractor and the City shall be responsible to their respective employees for all salary and benefits. Neither the Contractor's employees nor the City's employees shall be entitled to any salary, wages, or benefits from the other party, including but not limited to overtime, vacation, retirement benefits, workers' compensation, sick leave or injury leave. Contractor shall also be responsible for maintaining workers' compensation insurance, unemployment insurance for its employees, and for payment of all federal, state, local and any other payroll taxes with respect to its employees' compensation.
  
7. Contract Term. This Contract shall be effective upon execution by both parties. The term of the Contract shall be a **one (1) year term** with option to renew for three (3) additional one (1) year terms.
  
8. The Contract Documents comprise the Contract, and consist of the following:
  1. Contract Agreement
  2. Accepted Proposal/Response
  3. Specifications
  4. Table 1
  5. Table 2
  6. Notice to Bidders
  7. Instructions to Bidders
  8. Special Provisions
  9. Sales Tax Exemption Form 13

These Contract Agreements, together with the other Contract Documents herein above mentioned, form this Contract, and they are as fully a part of the Contract as if hereto attached or herein repeated.

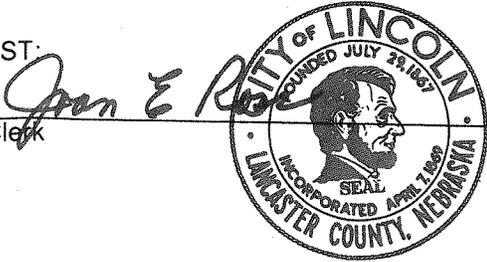
The Contractor and the City hereby agree that all the terms and conditions of this Contract shall be binding upon themselves, and their heirs, administrators, executors, legal and personal representatives, successors, and assigns.

IN WITNESS WHEREOF, the Contractor and the City do hereby execute this contract.

**EXECUTION BY THE CITY OF LINCOLN, NEBRASKA**

ATTEST:

City Clerk



CITY OF LINCOLN, NEBRASKA

Mayor

Approved by Executive No. 085380

dated Sept. 25, 2012

**EXECUTION BY CONTRACTOR**

IF A CORPORATION:

ATTEST:

Secretary

(SEAL)

Wallingford's INC  
Name of Corporation

1010 KMD Oakland ME  
(Address)

By: [Signature]  
Duly Authorized Official

Sales  
Legal Title of Official

IF OTHER TYPE OF ORGANIZATION:

Name of Organization

Type of Organization

(Address)

By: \_\_\_\_\_  
Member

By: \_\_\_\_\_  
Member

IF AN INDIVIDUAL:

Name

Address

Signature

# City of Lincoln/Lancaster County (Lincoln Purchasing) Supplier Response

Bid Information		Contact Information		Ship to Information	
Bid Creator	Sharon R. Mulder Asst Purchasing Agent	Address	Purchasing 440 S. 8th St. Lincoln, NE 68508	Address	
Email	smulder@lincoln.ne.gov	Contact	Sharon R. Mulder Asst Purchasing Agent	Contact	
Phone	(402) 441-7410				
Fax	(402) 441-6513				
Bid Number	12-211	Department	Purchasing	Department	
Title	Annual Supply of Tire Chains	Building		Building	
Bid Type	Bid		Suite 200	Floor/Room	
Issue Date	07/25/2012	Floor/Room		Telephone	
Close Date	8/8/2012 12:00:00 PM CST	Telephone	(402) 441-7428	Fax	
Need by Date		Fax	(402) 441-6513	Email	
		Email	smulder@lincoln.ne.gov		

## Supplier Information

Company Wallingford's Inc.  
 Address 1010 Kennedy Memorial Drive  
  
 Oakland, ME 04963  
 Contact Craig Rhoda  
 Department  
 Building  
 Floor/Room  
 Telephone 1 (207) 4659575  
 Fax 1 (207) 4659601  
 Email bids@wallingfords.com  
 Submitted 7/27/2012 2:36:55 PM CST  
 Total \$7,191.50

Signature \_\_\_\_\_

Supplier Notes \_\_\_\_\_

Bid Notes \_\_\_\_\_

Bid Activities \_\_\_\_\_

Bid Messages \_\_\_\_\_

Please review the following and respond where necessary

#	Name	Note	Response
1	Instructions to Bidders	I acknowledge reading and understanding the Instructions to Bidders.	Yes
2	Sample Contract	I acknowledge reading and understanding the sample contract.	Yes
3	Specifications	I acknowledge reading and understanding the specifications.	Yes
4	Contact	Name of person submitting this bid:	Craig Rhoda
5	Special Provision Term Contract Provisions	I acknowledge reading and understanding the Special Provision Term Contract Provisions.	Yes
6	Renewal is an Option	Contract Extension Renewal is an option.	Yes
7	Term Clause of Contract	I acknowledge that the term of the contract is for a one (1) year term with the option for three (3) additional one (1) year renewals from the date of the executed contract.  (a) Are your bid prices firm for the first one (1) year contract period. YES or NO  (b) Are your bid prices subject to escalation/de-escalation YES or NO  (c) If (b), state period for which prices will remain firm: through _____	a-yes b-yes c-bid price firm through 3/13
8	Delivery	State number of delivery days ARO. FOB to the City/County at the location specified with all transportation charges paid.	14 days ARO
9	Quantities	I acknowledge that the quantities listed for each line item are an estimated yearly amount. The City does not guarantee any dollar amount or order quantities for the term of the contract.	Y
10	Tax Exempt Certification Forms	Materials being purchased in this bid are tax exempt and unit prices are reflected as such. A Purchasing Agent Appointment form and a Exempt Sales Certificate form shall be issued with contract documents. (Note: State Tax Law does not provide for sales tax exemption for proprietary functions for government, thereby excluding the purchases of pipes to be installed in water lines and purchase of water meters.)	Yes
11	Bid award	I acknowledge and understand that the City, County and/or Public Building Commission reserves the right to award bids item-by-item, with or without alternates/options, by groups, or "lump sum" such as shall best serve the requirements and interests of the City, County and/or Public Building Commission.  If your pricing is based on an all-or-nothing basis, please indicate so in the Supplier Notes section of your E-Bid response.	Yes
12	Electronic Signature	Please check here for your electronic signature.	Yes

Line Items

#	Qty	UOM	Description	Response
1	75	EA	Size: 18.4 x 42, Cross Chain - 11/0 (20 link), Side Chain, 9/0 Design - (FTH) Swivelloyd	No Bid

Item Notes: <br>Approximate Weight - 285 lbs. per pair.

Supplier Notes:

Item Attributes: Please review the following and respond where necessary

#	Name	Note	Response
1	Manufacturer/Model	Please provide the Manufacturer and Model Number of the chains you are bidding.	

2	20	EA	Size - 14.00 x 24, Cross Chain - 9/0 (18 link), Side Chain -7/0, Design - (O.T.R.) Swivelloyd	\$163.99
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Item Notes: <br>Approximate Weight - 100 lb. per pair.

Supplier Notes: In Stock

Item Attributes: Please review the following and respond where necessary

#	Name	Note	Response
1	Manufacturer/Model	Please provide the Manufacturer and Model Number of the chains you are bidding.	ICC/2612I

3	40	EA	Size: 10.00 x 20, Cross Chain - 6/0, Design - (SH) NACM #2245CAM	\$68.56
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Item Notes: <br>Approximate Weight - 56 lb. per pair.

Supplier Notes: In Stock

Item Attributes: Please review the following and respond where necessary

#	Name	Note	Response
1	Manufacturer/Model	Please provide the Manufacturer and Model Number of the chains you are bidding.	ICC/2245CAM

4	10	EA	Size: P235 x 75R15, Cross Chain - .234, Side Chain - .218, Design - (P)NACM #2216R	\$29.58
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Item Notes: <br>Approximate Weight - 21 lb. per pair.

Supplier Notes: In Stock

Item Attributes: Please review the following and respond where necessary

#	Name	Note	Response
1	Manufacturer/Model	Please provide the Manufacturer and Model Number of the chains you are providing.	ICC/2216I

5	25	EA	Size: P235 x 55R17, Cross Chain - .234, Side Chain - .218, Design - (RP) NACM #2816	\$34.94
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Item Notes: <br>Approximate weight - 25 lb. per pair.

Supplier Notes: In Stock

Item Attributes: Please review the following and respond where necessary

#	Name	Note	Response
1	Manufacturer/Model Number	Please provide Manufacturer and Model Number of the Chains you are bidding.	ICC/28161

6 25 EA Size: P225 x 60R16, Cross Chain - .207, Side Chain - .192, Design - (RP) NACM #1854 No Bid

Item Notes: <br>Approximate weight - 20 lb. per pair.

Supplier Notes:

Item Attributes: Please review the following and respond where necessary

#	Name	Note	Response
1	Manufacturer/Model Number	Please provide Manufacturer and Model Number of the chains you are bidding.	

Response Total: \$7,191.50

**Specifications  
for the  
Annual Supply of Tire Chains**

**1. SCOPE**

- 1.1 This specification covers ladder type chain assemblies designed for use on tires that have been manufactured in accordance with the standards of the Tire & Rim Association, Inc., 3200 West Market St., Akron, Ohio 44313.
  - 1.1.1 All dual tire chains specified herein are designed for use on dual tires mounted in accordance with specifications covering their center to center spacing as outlined by the NACM Chain Clearance Charts.
  - 1.1.2 Oversized tires, snow tires, special service, or special traction tires, etc., may require chains of a larger size or of a size not specified herein.
- 1.2 Classification Tire chains described in this specification shall be of the following types as specified:
  - 1.2.1 Reinforced Tire Chains
    - 1.2.1.1 Type RP Reinforced Passenger Car Chains
    - 1.2.2.2 Type RS Reinforced Single Truck Chains
    - 1.2.2.3 Type RDT Reinforced Dual-Triple Truck Chains
  - 1.2.2 Regular Tire Chains
    - 1.2.2.1 Type P Passenger Car Chains
    - 1.2.2.2 Type PL Passenger Car Chains - Restricted Clearances
    - 1.2.2.3 Type SH Single Truck Chains
    - 1.2.2.4 Type SM Single Truck Chains - Mud Service
    - 1.2.2.5 Type DTH Dual-Triple Truck Chains
    - 1.2.2.6 Type DTM Dual-Triple Truck Chains - Mud Service
    - 1.2.2.7 Type DH Dual and Wide-Base Truck Chains
    - 1.2.2.8 Type OTR Off-the-Road Vehicle Chains
    - 1.2.2.9 Type FTH Farm Tractor Chains - Highway Service

**2. APPLICABLE DOCUMENTS**

- 2.1 The following documents, of the issue in effect on date of manufacture, form a part of this specification to the extent specified herein:
  - 2.1.1 SPECIFICATIONS
    - 2.1.1.1 NACM - TC SHEETS TC1-01 TO TC4-01 - NACM Tire Chain Specification Sheets
  - 2.1.2 STANDARDS
    - 2.1.2.1 ASTM - ASTM E18-74 - Standard Method for Rockwell Hardness Test
  - 2.1.3 MILITARY
    - 2.1.3.1 MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
  - 2.1.4 SAE
    - 2.1.4.1 SAE Recommended Practice J1232 - Traction Device Profile Determination & Classification.

3.

**DEFINITIONS**

- 3.1 For purposes of this specification the following definitions shall apply.
  - 3.1.1 Side Chain
    - 3.1.1.1 Straight link, welded chain of specified length to complete one full circumference along the tire side wall.
  - 3.1.2 Fastener
    - 3.1.2.1 Any suitable connecting device, secured to one end of a side chain, so constructed that it can be easily closed (engaged or fastened) and be readily opened (released) by hand.
  - 3.1.3 Reinforced Cross Chain
    - 3.1.3.1 Twist link, welded chain, carburized with one or more reinforcements per link consisting of a lug, or lugs, electrically welded to all links except the end links in such a manner as to provide increased traction and additional resistance to abrasive wear.
    - 3.1.3.2 Cross chains shall be of the specified length and shall provide ample drape over the tire tread.
  - 3.1.4 Regular Cross Chain
    - 3.1.4.1 Twist link, welded chain, carburized, without reinforcements
      - 3.1.4.1.1 Cross chains shall be of the specified length and shall provide ample drape over the tire tread.
  - 3.1.5 Cross Chain Hooks
    - 3.1.5.1 Any suitable hook used to attach each cross chain to the side chains.
      - 3.1.5.1.1 Hooks shall be constructed and assembled to prevent accidental detachment.
  - 3.1.6 Pitch
    - 3.1.6.1 The measured inside length of a chain component (bearing point to bearing point when in use).

4.

**REQUIREMENTS**

- 4.1 Components
  - 4.1.1 Tire chain assemblies shall consist of two side chains, or two outer- and one inner-side chain, with cross chains, cross chain hooks, and fasteners necessary to form a complete assembly in accordance with the NACM TC SHEETS specified herein (see 2.1).
- 4.2 Material
  - 4.2.1 All side and cross chains and cross chain hooks shall be made of open hearth, electric furnace, or basic oxygen process steel.
- 4.3 Spacing of Cross Chains
  - 4.3.1 The number of cross chains required per half pair of chains shall be in accordance with the applicable NACM TC SHEETS.
    - 4.3.1.1 The first cross chain shall be attached to that link of each side chain nearest the fastener that will permit the fastener to lie in the proper plane when the assembled tire chain is applied to the tire.
    - 4.3.1.2 On single tire chains the remainder of the cross chains shall be attached to the side chains at equal intervals of four links each.
    - 4.3.1.3 On dual-triple tire chains the remainder of the cross chains shall be attached to the outer side chains at equal intervals of four links each, and to the inner side chain with opposing cross chains staggered at equal intervals of two links each.

- 4.4 Tolerances
- 4.4.1 Cross Chain Length
- 4.4.1.1 The inside length of all cross chains, including hooks held in the same plane, shall be within a tolerance of minus six percent to plus three percent of the specified length on applicable TC sheets.
- 4.4.1.1.1 The length shall be measured by hanging the cross chain vertically on a horizontal pin and measuring the inside-to-inside length.
- 4.4.1.1.2 The number of links in a cross chain may vary from the specified number by plus or minus one link.
- 4.4.2 Side Chain Length
- 4.4.2.1 The inside length of all side chains including fasteners shall not be less than the minimum length as specified on the applicable TC SHEETS.
- 4.4.2.1.1 The length shall be measured by hanging the side chain vertically from a horizontal pin on its closed fastener and measuring from the pin contact surface to the inside surface of the last side chain link.
- 4.4.2.1.2 If the variance of the cross chain length is in the range of minus six percent to minus three percent the specified side chain length shall be increased by the amount of the variance x 3.14.
- 4.4.3 Wire and Rod Sizes
- 4.4.3.1 Wire and rod sizes shall be subject to the following tolerances:
- 4.4.3.1.1 Material up to and including .192" (4.88mm) diameter - plus or minus .003" (.08 mm).
- 4.4.3.1.2 Material over .192" (4.88mm) diameter - plus or minus .016" (.41mm).
- 4.5 Component Dimensions
- 4.5.1 The tire chain component dimensions, used for design purposes by the NACM, are shown in Table I.
- 4.5.1.1 The dimensions of manufactured components may vary but the assembled tire chains must meet the tolerances specified in paragraphs 4.4.1, 4.4.2, and 4.4.3.
- 4.6 Finish
- 4.6.1 Type RP, P and PL shall have a rust resistant finish for protection in transit and storage.
- 4.6.2 All other types shall be finished in accordance with individual manufacturer's practice.
- 4.7 Physical Properties
- 4.7.1 Hardness
- 4.7.1.1 The surface hardness of cross chain shall be determined in accordance with ASTM E18-74 Standard Test Methods for Rockwell Hardness and shall meet one of the following levels of measurement: RC 53 min., RA 77.5 min., R15N 87 min., R30N 71 min., R45N 58.5 min.
- 4.7.2 Case Depth
- 4.7.2.1 The case depth of cross chain shall be as specified in Table II.
- 4.7.3 Workmanship
- 4.7.3.1 Workmanship shall be such as to produce chain assemblies free from scale, injurious defects such as burrs or sharp edges, and faulty welding.

5. **QUALITY PROVISIONS**

- 5.1 **Responsibility for Inspection**
  - 5.1.1 Unless otherwise specified, the supplier is responsible for all inspection and testing specified herein.
- 5.2 **Quality Conformance-Inspection**
  - 5.2.1 **Lot Formation**
    - 5.2.1.1 A lot shall consist of all chains of one type, from an identifiable production period, submitted at one time for quality conformance inspection.
  - 5.2.2 **Sampling for Examination and Testing**
    - 5.2.2.1 Samples for quality conformance examination and testing shall be selected in accordance with inspection level S-3 of MIL-STD-105.
  - 5.2.3 **Acceptable Quality Level**
    - 5.2.3.1 Each sample selected in accordance with 5.2.2 shall be examined and tested for conformance to an acceptable quality level (AQL) of 6.5 based on percent defective.
  - 5.2.4 **Defects**
    - 5.2.4.1 For examination and testing purposes, defects shall be classified as any characteristic which does not meet the requirements specified herein.
- 5.3 **Test Procedures**
  - 5.3.1 **Hardness**
    - 5.3.1.1 To determine conformance to 4.7.1, cross chain shall be subject to the Rockwell hardness test as specified in the ASTM E18-74 Standard Test Methods for Rockwell Hardness.
  - 5.3.2 **Case Depth**
    - 5.3.2.1 To determine conformance to 4.7.2, a link of the cross chain shall be prepared by grinding on a suitable abrasive wheel one cross section perpendicular to the axis of the chain wire.
      - 5.3.2.1.1 The test specimen shall be etched in a solution of one part chemically pure nitric acid and one part water by volume (specific gravity 1.217).
      - 5.3.2.1.2 Specimen shall be etched for six seconds.
      - 5.3.2.1.3 Width of dark ring revealed shall be measured microscopically at suitable magnification and recorded as depth of case.

6. **NOTES**

- 6.1 **Intended Use**
  - 6.1.1 Tire chain assemblies covered by this specification are intended for use on passenger car tires, truck tires (single, dual and wide base), off-the-road service tires, and farm tractor tires.
  - 6.1.2 Replacement cross chains are intended for repairing tire chain assemblies.
- 6.2 **Ordering Data**
  - 6.2.1 Orders should specify the following:
    - 6.2.1.1 Title, number, and date of this specification.
    - 6.2.1.2 Type of chain assembly (see 1.2).
    - 6.2.1.3 Tire size for chain assemblies (see NACM TC SHEETS, Table I & II).
    - 6.2.1.4 Quantity of tire chain assemblies or cross chains required.
- 6.3 If low bid, the City has the right to request samples prior to award of contact.

7. **SUPPLEMENTAL INSTRUCTIONS**

- 7.1 The City of Lincoln is requesting bids to purchase tire chains in which the specifications covers ladder type chain assemblies designed for use on tires that have been manufactured in accordance with the standards of the Tire & Rim Association, Inc., 3200 West Market St., Akron, Ohio 44313.
- 7.2 Bidder shall submit bid documents and all supporting material via e-bid.
- 7.3 All inquiries regarding these specifications shall be directed via e-mail or faxed written request to Sharon Mulder, Asst. Purchasing Agent ([smulder@lincoln.ne.gov](mailto:smulder@lincoln.ne.gov)) or fax: (402) 441-6513.

- 7.3.1 These inquiries and/or responses shall be distributed to prospective bidders electronically as an addenda.
- 7.3.2 The Purchasing Office shall only reply to written inquiries received within five (5) calendar days of bid opening.
- 7.3.3 No direct contact is allowed between Vendor and other City staff throughout the bid process.
  - 7.3.3.1 Failure to comply with this directive may result in Vendor bid being rejected.

TABLE 1  
NACM TIRE CHAIN DESIGN COMPONENT DIMENSIONS

	<u>Type Component</u>	<u>Nominal Wire Dia.</u>		<u>Pitch</u>	
		<u>in.</u>	<u>mm</u>	<u>in.</u>	<u>mm</u>
31.75	SIDE CHAIN	.162	4.11	1.250	
31.75	SIDE CHAIN	.177	4.50	1.250	
32.92	SIDE CHAIN	.192	4.88	1.296	
34.11	SIDE CHAIN	.218S	5.54	1.343	
35.31	SIDE CHAIN	.218L	5.54	1.390	
44.04	SIDE CHAIN	.281S	7.14	1.734	
46.02	SIDE CHAIN	.281L	7.14	1.812	
46.81	SIDE CHAIN	.312S	7.92	1.843	
48.79	SIDE CHAIN	.312L	7.92	1.921	
55.17	SIDE CHAIN	.375	9.53	2.172	
57.15	SIDE CHAIN	.437	11.10	2.250	
29.97	CROSS CHAIN	.177	4.50	1.180	
23.37	CROSS CHAIN	.207	5.26	.920	
25.40	CROSS CHAIN	.234	5.94	1.000	
31.75	CROSS CHAIN	.281	7.14	1.250	
27.69	CROSS CHAIN	.312	7.92	1.090	
35.31	(Regular) CROSS CHAIN	.312	7.92	1.390	
31.24	(Reinforced) CROSS CHAIN	.344	8.74	1.230	
32.00	CROSS CHAIN	.375	9.53	1.260	
39.67	CROSS CHAIN	.437	11.10	1.562	
44.04	CROSS CHAIN	.531	13.49	1.734	
26.92	C. C. HOOK	.177	4.50	1.06	
47.50	C. C. HOOK	.207	5.26	1.87	
39.62	C. C. HOOK	.250	6.35	1.56	
	C. C. HOOK	.312	7.92	1.56	

39.62				
44.45	C. C. HOOK	.375	9.53	1.75
44.45	C. C. HOOK	.406	10.31	1.75
60.20	C. C. HOOK	.437	11.10	2.37

Table II  
Case Depth of Cross Chain Links

Nominal Wire Dia.		Total Case Depth			
		Minimum		Maximum	
<u>in.</u>	<u>mm</u>	<u>in.</u>	<u>mm</u>	<u>in.</u>	<u>mm</u>
.177	4.50	.010	.25	.042	1.07
.207	5.26	.012	.30	.045	1.14
.234	5.94	.016	.41	.046	1.17
.281	7.14	.020	.51	.050	1.27
.312	7.92	.022	.56	.052	1.32
.375	9.53	.027	.69	.060	1.52
.437	11.10	.027	.69	.065	1.65
.531	13.49	.027	.69	.065	1.65