

City/County Amendment for Contract for Annual Supply of Grader Blades, Bid No. 09-222 (Third Renewal)

RECEIVED C-12-6486 AUG 22 2012

LANCASTER COUNTY CLERK

This Amendment is hereby entered into on this ___ day of ___, 2012, by and between NMC, 930 West "O" Street, Lincoln, NE 68528 (hereinafter "Contractor") and Lancaster County and The City of Lincoln (hereinafter "Owners")...

WHEREAS, the original term of the Contract is September 1, 2009 thru August 31, 2010, with the option to renew for three (3) additional one (1) year periods upon written mutual consent of both parties; and

WHEREAS, the parties wish to renew the Contract for an additional one (1) year term beginning September 1, 2012 thru August 31, 2013 and

NOW, THEREFORE, IN CONSIDERATION of the mutual covenants contained in the Contract, under County Contract C-09-0575 and City E.O. 82663, and stated herein the parties agree as follows:

- 1) The Contract shall be renewed for the third additional one (1) year term beginning September 1, 2012 thru August 31, 2013
2) All other terms of the Contract, not in conflict with this Amendment, shall remain in full force and effect.

The Parties do hereby agree to all the terms and conditions of this Amendment. This Amendment shall be binding upon the parties, their heirs, administrators, executors, legal and personal representatives, successors, and assigns.

IN WITNESS WHEREOF, the Parties do hereby execute this Amendment.

Lancaster County Board of Commissioners Signatures

Executed this 28 day of August 2012

Handwritten signatures of Lancaster County Board of Commissioners members.

City of Lincoln, Nebraska

Executed this 21st day of Sept., 2012

Handwritten signature of Chris Beutler, Mayor.

Handwritten signature of Brittany Behrens, Lancaster County Attorney.

Supplier, please sign and date. Mail back to our office; a faxed copy is not acceptable.

Table with 2 columns: Label (e.g., Company Name, By, Title) and Handwritten Value (e.g., NMC Inc., Barry Stutzman, Parts Manager, 930 West O St. Lincoln, NE. 68528).

E84294
C-11-04105

**City/County Amendment to Contract for Annual Supply of Grader Blades (Price Increase)
Bid No. 09-222 (Second Renewal)**

This Amendment is hereby entered into on this 8th day of August, 2011, by and between N M C, 930 West "O" Street, Lincoln, NE 68528 (hereinafter "Contractor") and Lancaster County and The City of Lincoln (hereinafter "City"), for the purpose of amending a Contract Agreement (Contract C-09-0575) dated November 3, 2009, under E. O. No. 82663, dated October 22, 2009 (the "Contract"), for The Annual Supply of Grader Blades, Bid No. 09-222, which is made a part hereof by this reference.

WHEREAS, the original term of the Agreement is September 1, 2009 thru August 31, 2010, with the option to renew for three (3) additional one (1) year periods upon written mutual consent of both parties; and

WHEREAS, the parties wish to renew the second (2nd) of three (3) renewals to the agreement for an additional one (1) year term beginning September 1, 2011 thru August 31, 2012; and

WHEREAS, the parties wish to amend the agreement to reflect a price change for the new term of the agreement as per Attachment A for bid Line No. 11, Part No. 9W2315 High Carbon Edge; and

NOW, THEREFORE, IN CONSIDERATION of the mutual covenants contained in the Contract, under City Executive Order No. 82507, and stated herein the parties agree as follows:

- 1) The Agreement shall be renewed for an additional one (1) year term beginning September 1, 2011 thru August 31, 2012.
- 2) The parties agree that the Owners will pay the revised pricing for the items listed in Attachment A for bid Line No. 11, Part No. 9W2315 High Carbon Edge; which is attached hereto and made a part hereof by this reference.
- 3) All other terms of the Contract, not in conflict with this Amendment, shall remain in full force and effect.

The Parties do hereby agree to all the terms and conditions of this Amendment. This Amendment shall be binding upon the parties, their heirs, administrators, executors, legal and personal representatives, successors, and assigns.

IN WITNESS WHEREOF, the Parties do hereby execute this Amendment.

The Board of County Commissioners of
Lancaster County, Nebraska

Executed this 16 day of August, 2011

Jane Lybrand
Bruce New
John Egan
Danny Hollins
Bob Meyer

City of Lincoln, Nebraska

Executed this 8th day of Aug, 2011

Chris Beutler
Chris Beutler, Mayor

Barry Johnson
Lancaster County Attorney

Supplier, please sign and date. Mail back to our office; a faxed copy is not acceptable.

Dated 7-18-11

Company Name: (PLEASE PRINT)	NMC Inc.
By: (PLEASE PRINT)	Barry Stutzman
By: (PLEASE SIGN)	<u>Barry Stutzman</u>
Title:	Parts Manager
Company Address: (PLEASE PRINT)	930 West Ost. Lincoln, NE - 68528
Company Phone & Fax: (PLEASE PRINT)	Phone - 402-474-5566, Fax 402-474-018
E-Mail Address: (PLEASE PRINT)	barry.stutzman@nmccat.com

7/11/11

City of Lincoln/Lancaster County
Attn: Sharon Mulder
440 S 8th St
Suite 200, Southwest Wing
Lincoln, NE. 68508

RE: Annual requirements of supply of grader blades, Bid No. 09-222

Dear Ms. Mulder

In regards to your request for an extension to this contract, please find below a change that we request to be made.

Bid Line #11	Part # 9W2315 High Carbon Edge	New Price \$55.81
--------------	--------------------------------	-------------------

Caterpillar had a price increase July 1st of this year. Please note this part number is the only one impacted on this bid. All other bid prices will remain the same during the terms of the contract.

If you have any questions, do not hesitate to call me at 402-473-1050. Thank you for the opportunity to serve.

Regards,


Barry Stutzman
Parts Manager

RECEIVED

C-10-0429
AUG 19 2010

City/County Amendment to Contract for
Annual Supply of Grader Blades Bid No. 09-222
(First Renewal)

LANCASTER COUNTY
CLERK

This Amendment is hereby entered into on this 16th day of August, 2010, by and between N M C, 930 West "O" Street, Lincoln, NE 68528 (hereinafter "Contractor") and Lancaster County and The City of Lincoln (hereinafter "Owners"), for the purpose of renewing the Contract C-09-0575, dated November 3, 2009, and E.O. 82663, dated October 22, 2009, (the "Contract"), for The Annual Supply of Grader Blades, Bid No. 09-222, which is made a part hereof by this reference.

WHEREAS, the original term of the Contract is September 1, 2009 thru August 31, 2010, with the option to renew for three (3) additional one (1) year periods; and

WHEREAS, the parties wish to renew the Contract for an additional one (1) year term beginning September 1, 2010 thru August 31, 2011 and

NOW, THEREFORE, IN CONSIDERATION of the mutual covenants contained in the Contract, under County Contract C-09-0575 and City E.O. 82663, and stated herein the parties agree as follows:

- 1) The Contract shall be renewed for the second additional one (1) year term beginning September 1 2010 thru August 31, 2011.
- 2) All other terms of the Contract, not in conflict with this Amendment, shall remain in full force and effect.

The Parties do hereby agree to all the terms and conditions of this Amendment. This Amendment shall be binding upon the parties, their heirs, administrators, executors, legal and personal representatives, successors, and assigns.

IN WITNESS WHEREOF, the Parties do hereby execute this Amendment.

The Board of County Commissioners of Lancaster County, Nebraska

City of Lincoln, Nebraska

Executed this 24 day of August, 2010

[Signature]
[Signature]
[Signature]
[Signature]
 Heier Absent

Executed this 16 day of Aug, 2010

[Signature]
 Chris Beutler, Mayor

[Signature]
 for Lancaster County Attorney

Supplier, please fill in the following information and mail back to our office; a faxed copy is not acceptable.

Company Name:	<u>NMC</u>
By: (Name & Title)	(Please Print) <u>Barry Stutzman/Parts Manager</u>
By: (Name & Title)	(Please Sign) <u>[Signature]</u>
Company Address:	<u>930 West O Lincoln, NE 68528</u>
Company Phone & Fax:	<u>402-474-5566 / 402-474-0118</u>
Date:	Dated this <u>19th</u> day of <u>July</u> , 2010

C-09-0574
11-03-09

 **COPY**

CONTRACT DOCUMENTS

**CITY OF LINCOLN / LANCASTER COUNTY
NEBRASKA**

FOR

**Annual Supply of Grader Blades
Bid No. 09-222**

N M C

**Mr. Barry Stutzman
930 West "O" Street
Lincoln, NE 68528
474.5566 x 1050**

Contract Period:

September 1, 2009 thru August 31, 2010

(First year with the option to renew for three additional one-year periods.)

CITY OF LINCOLN/LANCASTER COUNTY NEBRASKA
CONTRACT AGREEMENT, BID NO 09-222

THIS CONTRACT, made and entered into this _____ day of _____ 2009, by and between **NMC 930 West "O" Street, Lincoln, NE 68528**, hereinafter called "Contractor", and the City of Lincoln, Nebraska, a municipal corporation, and the County of Lancaster, Nebraska, a political subdivision, hereinafter called the "Owners".

WHEREAS, the Owners have 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:

Annual Supply of Grader Blades, Bid No. 09-222; and

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

WHEREAS, the Owners have opened, examined, and canvassed the Proposals/Responses submitted in response to such advertisement, and as a result of such canvass has determined and declared the Contractor to be the best choice for the said Work for the sum or sums named in the Contractor's Proposal/Supplier Response, 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 agreements herein contained, the Contractor and the Owners have agreed and hereby agree as follows:

1. The Contractor agrees to (a) furnish all tools, equipment, supplies, superintendence, transportation, and other construction 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 construct, and complete all Work included in and covered by the Owners' award of this Contract to the Contractor, such award being based on the acceptance by the Owner of the Contractor's Proposal, or part thereof, as follows:
2. The Owners agree to pay to the Contractor for the performance of the Work embraced in this Contract, the Contractor agrees to accept as full compensation therefor, 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 Owners:

Owners will pay for products and performance of the Work according to the pricing as listed in Contractors Proposal/Supplier Response, a copy thereof being attached to and made a part of this Contract. Owners shall order or request services on as an 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. The term of agreement shall be one (1) year from **September 1, 2009 thru August 31, 2010**; with option to renew for three (3) additional one (1) year terms.
5. Owner Inclusion. It is understood and agreed by all parties that "Owner/s" shall include the City of Lincoln and Lancaster County, Nebraska. Whenever in the Contract documents, including the instructions to proposers, specifications, insurance requirements, bonds, and terms and conditions of any other documents which are a part of the Contract, a singular entity is referenced (i.e., "the City" or "the County") it shall mean the "Owner's" encompassing both the City and the County.
6. The Contract Documents comprise the Contract, and consist of the following:
 1. The Contract Agreements
 2. The Contractor's Accepted Proposal and Supplier Response for Annual Supply of Grader Blades, Bid No. 09-222
 3. Specification
 4. The Instructions to Bidders
 5. Special Provisions for Commodity Term Contracts

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 Owners 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 Owners do hereby execute this contract.

EXECUTION BY THE CITY OF LINCOLN, NEBRASKA

ATTEST:

Jan E. Rosky

City Clerk



CITY OF LINCOLN, NEBRASKA

Chris Guss

Mayor

Approved by:

Executive Order No. 82663

Dated 10/22/09

EXECUTION BY LANCASTER COUNTY, NEBRASKA

CONTRACT APPROVED AS TO FORM:

Ken Jeff

for Lancaster County Attorney

THE BOARD OF COUNTY COMMISSIONERS OF LANCASTER, NEBRASKA:

Debb Schorr

Paula Hennings

Bernie Klein

Bob Melman

HUGGENBERGER

EXECUTION BY CONTRACTOR

IF A CORPORATION:

NMC

Name of Corporation

ATTEST:

930 West O Lincoln, NE. 68578

Address

Secretary

(SEAL)

By: Berny Stutzman
Duly Authorized Official

Parts Manager
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	Tom Kopplin Asst. Purchasing Agent	Address	Purchasing\City & County 440 S. 8th St. Lincoln, NE 68508	Address
Email		Contact	Tom Kopplin Asst. Purchasing Agent	Contact
Phone	1 (402) 441-7414			Department
Fax	1 (402) 441-6513			Building
Bid Number	09-222	Department		Floor/Room
Title	Annual Supply of Grader Blades	Building		Telephone
Bid Type	Bid			Fax
Issue Date	09/01/2009	Floor/Room		Email
Close Date	9/16/2009 12:00:00 PM CST	Telephone	1 (402) 441-7414	
Need by Date		Fax	1 (402) 441-6513	
		Email	tkopplin@lincoln.ne.gov	

Supplier Information

Company	N M C
Address	930 West "O" St. Lincoln, NE 68528
Contact	Barry Stutzman
Department	Parts Dept.
Building	
Floor/Room	
Telephone	1 (402) 474-5566 1050
Fax	1 (402) 474-0118
Email	barrystutzman@nebraska-machinery.com
Submitted	9/9/2009 1:02:02 PM CST
Total	\$76,597.53

Signature _____

Supplier Notes

Bid Notes

If you need assistance in preparing your bid, there are several options.

1) Click the the "Help" button in the upper right hand corner of any screen; 2) Contact our office for a training session in Purchasing or assistance over the phone; 3) View the PowerPoint presentation at <http://www.lincoln.ne.gov/city/finance/purch/spec/veninst.ppt>

Bid Messages

Please review the following and respond where necessary

#	Name	Note	Response
1	Specifications	I acknowledge reading and understanding the specifications.	Yes
2	Instructions to Bidders	I acknowledge reading and understanding the Instructions to Bidders.	Yes
3	Electronic Signature	Please check here for your electronic signature.	Yes
4	Delivery	State number of delivery days ARO. FOB to the City/County at the location specified with all transportation charges paid.	100 working days after order is placed.
5	Term Clause of Contract	(a) Bid prices firm for the full contract period. YES or NO (b) Bid prices subject to escalation/de-escalation YES or NO (c) If (b), state period for which prices will remain firm: through _____	A
6	Kindered Pricing	Kindred pricing for City, i.e., list percent off, catalog number, or other method approved by City. (XX% off of the (year) catalog)	60% DH2 edges, 30% High carbon edges discounted from 2010 Caterpillar list price.

Line Items

#	Qty	UOM	Description	Response
1	200	EA	5' X 8" X 1" Thru-Hardened Flat Plow Blade	\$85.18
Item Notes:				
Supplier Notes: 7T3497				
2	1	EA	4' X 8" X 1" Thru-Hardened Flat Plow Blade	\$69.33
Item Notes: This item is currently not used and is listed strictly to establish pricing and availability.				
Supplier Notes: 1359692				
3	1	EA	3' X 8" X 1" Thru-Hardened Flat Plow Blade	No Bid
Item Notes: This item is currently not used and is listed strictly to establish pricing and availability.				
Supplier Notes:				
4	1	EA	2' X 8" X 1" Thru-Hardened Flat Plow Blade	No Bid
Item Notes: This item is currently not used and is listed strictly to establish pricing and availability.				
Supplier Notes:				
5	1	EA	Carbide Insert, 5' X 6" X 3/4" Thru-Hardened Flat Plow Blade	No Bid
Item Notes: This item is currently not used and is listed strictly to establish pricing and availability.				
Supplier Notes:				
6	10	EA	Carbide Insert, 4' X 6" X 3/4" Thru-Hardened Flat Plow Blade	\$233.07
Item Notes:				
Supplier Notes: 2642215				
7	10	EA	Carbide Insert, 3' X 6" X 3/4" Thru-Hardened Flat Plow Blade	No Bid
Item Notes:				
Supplier Notes:				

8	1	EA	Carbide Insert, 2' X 6" X 3/4" Thru-Hardened Flat Plow Blade	No Bid
Item Notes: This item is currently not used and is listed strictly to establish pricing and availability.				
Supplier Notes:				
9	50	EA	7' X 8" X 3/4" Thru-Hardened DBC Grader Blade	\$89.60
Item Notes:				
Supplier Notes: 5D9559				
10	25	EA	6' X 8" X 3/4" Thru-Hardened DBC Grader Blade	\$77.66
Item Notes:				
Supplier Notes: 5D9558				
11	1,000	EA	7' X 8" X 1/2" High-Carbon DBC Grader Blade	\$50.74
Item Notes:				
Supplier Notes: 9W2315				
12	100	EA	Carbide Insert, 25" X 8" X 1" Right Curb Guard	No Bid
Item Notes:				
Supplier Notes:				
13	100	EA	Carbide Insert, 25" X 8" X 1" Left Curb Guard	No Bid
Item Notes:				
Supplier Notes:				
14	50	EA	Carbide Insert, 25" X 6" X 1" Right Curb Guard	No Bid
Item Notes:				
Supplier Notes:				
15	50	EA	Carbide Insert, 25" X 6" X 1" Left Curb Guard	No Bid
Item Notes:				
Supplier Notes:				
Response Total:				\$76,597.53

**ANNUAL REQUIREMENTS FOR GRADER/SNOW PLOW BLADES
AND CURB GUARDS**

1. GENERAL INFORMATION

- 1.1 The term of this contract is one (1) year, September 1, 2009 through August 31, 2010, with options to renew for three (3) additional one (1) year terms.
- 1.2 The City/County reserves the right to award contracts on a lump sum bases or by Item # and to include single or multiple awards, as determined to be in the best interest of the City/County.

2. DELIVERY

- 2.1 Unit bid price will include all delivery costs, including shipping and handling to the following delivery points:
 - 2.1.1 City of Lincoln, Fleet Services Garage
901 North 6th Street
Lincoln, NE
 - 2.1.2 Lancaster County Shop, Bldg. B
444 Cherrycreek Road
Lincoln, NE.
 - 2.1.3 Solid Waste Operations
6001 Bluff Road
Lincoln NE.
- 2.2 Deliveries will be made between the hours of 9:00 a.m. and 3:00 p.m. on normal City/County work days.
 - 2.2.1 24 hour advanced notice with estimated time of arrival is requested.
- 2.3 Deliveries will be made utilizing a flatbed or open type delivery vehicle.
 - 2.3.1 Enclosed vehicle deliveries will not be accepted.
- 2.4 Maximum 30 day delivery "after receipt of order" is required for large seasonal orders.
 - 2.4.1 Please state your estimated delivery time, days ARO in the attribute in the bid.

3. PACKAGING

- 3.1 All blades and guards will be packaged in bundles of ten (10), securely banded together.
 - 3.1.1 Orders with less than ten (10) units will also be banded for ease of handling.

4. WARRANTY

- 4.1 Thru-hardened and high-carbon blades will be unconditionally guaranteed against cracks or breakage from any cause for the useful life of the blade.
- 4.2 Replacement blades and guards will be provided, to include hardware and freight, for any and all blades and guards which break or crack, at no cost to the City/County.
- 4.3 Manufacturers standard warranty for carbide insert blades and guards will apply.
- 4.4 Please include the manufacturers warranty information with your bid proposal.

5. **BLADES AND GUARDS DESIGN AND DIMENSION**

- 5.1 Blades and guards design and dimensions will be as indicated on the Bid Schedule.
- 5.2 Specific information will be provided in the technical specifications.
- 5.3 Exceptions to any part of these specifications will be clearly noted on bidders company letter head, by item number and description of product being offered.

SECTION I
THRU-HARDENED SNOW PLOW BLADES

6. **BLADES**

- 6.1 Blades will be (SAE 1074) steel, flat sections having standard AASHTO highway punching.
- 6.2 Punching will be 1 1/16" square holes countersink to receive a 5/8" #3 head plow bolt.
- 6.3 Unless otherwise stated blades will be top-punched 1.5" from top of blade to center line of bolt holes, with the first two holes on each end of blade being 3" apart; the remaining holes will be 12" apart. EXAMPLE (3-3-12-3-3)
 - 6.3.1 Blades with 6" spacings in lieu of 12" are acceptable.
- 6.4 Tolerance for spacings will be (+/-) 1/16", non-accumulative, from center to center, across the full length of the blade.
- 6.5 The blades will be considered straight based industry standards, with a maximum allowable deviation of .06" within any 12" section.
- 6.6 Bevel, angle or square surface contact edge design is acceptable.
- 6.7 Blades will accurately fit moldboards.
- 6.8 Blades will be coated with a quality paint to prevent corrosion while in outside storage.
- 6.9 Each blade will be legibly marked with an identifying part number.
- 6.10 The weight of the blades will be computed from the dimensions specified on the Bid Schedule.
 - 6.10.1 A unit weight of 489.6 pounds per cubic foot will be used in computing the weight with a maximum variation below the theoretical net weight for any single blade of five (5) %.

7. **HARDNESS**

- 7.1 Blades will be heat treated, thru-hardened.
- 7.2 Blades will have a Brinell hardness number of 400 to 500, with a minimum core hardness of 400.
- 7.3 Rockwell hardness C-scale from 43 to 53.
- 7.4 The blade manufacturer will furnish (upon request by the City/County) a certificate or test report showing the actual Brinell hardness of the blades being provided.

8. **FINISHED PRODUCT**

- 8.1 Complete plow section will generally consist of a combination of two, three or four blade sections.
- 8.2 The finished blades will comply with standard blade manufacturing practices and tolerances.
- 8.3 Manufacturer's literature for products being offered will be included with the bid proposal.
- 8.4 Blades will be subject to inspection by the City/County for compliance with these specifications at the time of delivery.

SECTION II
CARBIDE INSERT SNOW PLOW BLADES

9. **BLADES**

- 9.1 Blades will be (SAE 1020) steel, flat sections having standard AASHTO highway punching.
- 9.2 Punching will be 1 1/16" square holes countersink to receive a 5/8" #3 head plow bolt.
- 9.3 Unless otherwise stated blades will be top-punched 1.5" from top of blade to center line of bolt holes, with the first two holes on each end of blade being 3" apart; the remaining holes will be 12" apart. EXAMPLE (3-3-12-3-3)
 - 9.3.1 Blades with 6" spacing in lieu of 12" are acceptable.
- 9.4 Tolerance for spacing will be (+/-) 1/16", non-accumulative, from center to center, across the full length of the blade.
- 9.5 The blades will be considered straight based on industry standards, with a maximum allowable deviation of .06" within any 12" section.
- 9.6 Blades will accurately fit moldboards.
- 9.7 Blades will be coated with a quality paint to prevent corrosion while in outside storage.
- 9.8 Each blade will be legibly marked with an identifying part number.
- 9.9 The groove for the carbide inserts will be milled in the center of the blade edge.

10. **CARBIDE INSERTS**

- 10.1 The tungsten carbide insert will be of trapezoidal design, with the following dimensions:
 - 10.1.1 Length: 1" nominal
 - 10.1.2 Width: .365" (+/-) .005"
 - 10.1.3 Height .635" (+/-) .005"
 - 10.1.4 Bottom Angle: 25 degrees (+/-) 1 degree with nose radius of 1/16" minimum.
- 10.2 The insert will be high shock WC grade of tungsten carbide with (11 to 12-1/2) percent cobalt content with properties as follows:
 - 10.2.1 Density: 14.1 minimum to 14.6 maximum
 - 10.2.2 Hardness: 87.5 minimum to 89.0 maximum
 - 10.2.3 Transverse Rupture Strength (P.S.I.): 350,000 minimum
 - 10.2.4 Porosity: A06 - B00 - C00 (Based on testing in accordance with ASTM designation B276-79)
- 10.3 The carbide insert manufacturer will furnish (upon request) certification, to the City/County, that the inserts meet the specifications as set forth in Item #10.2.

11. **BRAZING**

- 11.1 The carbide inserts will be brazed on all sides with sound brazing practice, having no evidence of voids, with a minimum shear strength of 30,000 PSI.
- 11.2 The carbide inserts will be placed in-line within the milled groove with spacing no more than .010" between inserts the entire length of the cutting edge.
- 11.3 Each blade will contain a 1" length of carbide insert for each 1" length of blade.

12. **FINISHED PRODUCT**

- 12.1 Complete plow section will generally consist of a combination of two, three or four blade sections.
- 12.2 The finished blades will comply with standard blade manufacturing practices and tolerances.
- 12.3 Manufacturer's literature for products being offered will be included with the bid proposal.
- 12.4 Blades will be subject to inspection by the City/County for compliance with these specifications at the time of delivery.

SECTION III
THRU-HARDENED GRADER BLADES

13. BLADES

- 13.1 Blades will be (SAE 1074) steel, curved, double bevel sections having standard AASHTO highway punching.
- 13.2 Punching will be 11/16" square holes countersink to receive a 5/8" #3 head plow bolt.
- 13.3 Unless otherwise stated blades will be top-punched, with first two holes on each end of blade being 3" apart; the remaining holes will be 6" apart.
EXAMPLE (3-3-6-6-6-6-3-3)
- 13.4 Tolerance for spacings will be (+/-) 1/16", non-accumulative, from center to center, across the full length of the blade.
- 13.5 The blades will be considered straight based on industry standards, with a maximum allowable deviation of .06" within any 12" section.
- 13.6 Curved, double bevel blade design.
- 13.7 Blades will accurately fit moldboards.
- 13.8 Blades will be coated with a quality paint to prevent corrosion while in outside storage.
- 13.9 Each blade will be legibly marked with identifying part number.
- 13.10 The weight of the blades will be computed from the dimensions specified on the Bid Schedule.
 - 13.10.1 A unit weight of 489.6 pounds per cubic foot will be used in computing the weight with a maximum variation below the theoretical net weight for any single blade of five (5) %.

14. HARDNESS

- 14.1 Blades will be heat treated, thru-hardened.
- 14.2 Blades will have a Brinell hardness number of 400 to 500, with a minimum core hardness of 400.
- 14.3 Rockwell hardness C-scale from 43 to 53.
- 14.4 The blade manufacturer will furnish (upon request by the City/County) a certificate or test report showing the actual Brinell hardness of the blades being provided.

15. FINISHED PRODUCT

- 15.1 Complete moldboard section will generally consist of a two blade sections.
- 15.2 The finished blades will comply with standard blade manufacturing practices and tolerances.
- 15.3 Blades will be subject to inspection by the City/County for compliance with these specifications at the time of delivery.

SECTION IV
HIGH-CARBON STEEL GRADER BLADES

16. BLADES

- 16.1 Blades will be (SAE 1084) steel, curved, double bevel sections having standard AASHTO highway punching.
- 16.2 Punching will be 1 1/16" square holes countersink to receive a 5/8" #3 head plow bolt.
- 16.3 Unless otherwise stated blades will be top-punched, with first two holes on each end of blade being 3" apart; the remaining holes will be 6" apart.
EXAMPLE (3-3-6-6-6-6-3-3)
- 16.4 Tolerance for spacings will be (+/-) 1/16", non-accumulative, from center to center, across the full length of the blade.
- 16.5 The blade will be considered straight based on industry standards, with a maximum allowable deviation of .06" within any 12" section.
- 16.6 Curved, double bevel blade design.
- 16.7 Blades will accurately fit moldboard.
- 16.8 Blades will be coated with a quality paint to prevent corrosion while in outside storage.
- 16.9 Each blade will be legibly marked with identifying part number.
- 16.10 The weight of the blades will be computed from the dimensions specified on the Bid Schedule.
 - 16.10.1 A unit weight of 489.6 pounds per cubic foot will be used in computing the weight with a maximum variation below the theoretical net weight for any single blade of five (5) %.

17. HARDNESS

- 17.1 Blades will be high-carbon.
- 17.2 Blades will have a Brinell hardness of 255 to 325.
- 17.3 Rockwell hardness C-scale 25.4 to 34.7.
- 17.4 The blade manufacturer will furnish (upon request by the City/County) a certificate or test report showing the actual Brinell hardness of the blades being provided.

18. FINISHED PRODUCT

- 18.1 Complete moldboard section will generally consist of two blade sections.
- 18.2 The finished blades will comply with standard blade manufacturing practices and tolerances.
- 18.3 Blades will be subject to inspection by the City/County for compliance with these specifications at the time of delivery.

SECTION V
CARBIDE INSERT CURB GUARDS

19. CURB GUARDS

- 19.1 Curb guards will be (A36) steel, curved on the outside end to a radius of 105" and having standard AASHTO highway punching.
- 19.2 Punching will be 11/16" square hole countersink to receive 5/8" #3 head plow bolt.
- 19.3 Unless otherwise stated the guards will be top-punched, with the first two holes on the end of guard being 3" apart and the third 12" on center.
- 19.4 Carbide tile inserts (1/4" x 3/4" x 3/4") nickel silver brazed into a 3/4" x 1" x 18" milled runner, welded to the flat thickness of the curb guard while retaining the desired width.
- 19.5 14 square inches of crushed carbide (16-20 grade) embedded into outside radius of curved end.
- 19.6 Curb guards will be coated with a quality paint to prevent corrosion while in outside storage.