



INVITATION FOR SEALED BID

Bid 01-505

Description: HIGH PRESSURE SEWER & CATCH BASIN CLEANER
Department: PUBLIC WORKS

NIGP Commodity Code(s): 070-51-00-00-000-0

Total pages including this page is 28

NOTE: FAXING OF BIDS IS NOT ACCEPTED

Important Instruction – Read Carefully:

**If you have obtained these bid specifications from either of:
City of Tulsa's Fax-on-Demand (918-596-1171) or
City of Tulsa's Web-site : www.cityoftulsapurchasing.org**

You must notify the buyer Darlene Donica of your intent to bid by e-mail ddonica@ci.tulsa.ok.us in order to receive addenda. The buyer will always acknowledge your e-mail for your records. All addenda will be posted on fax-on-demand and the web-site.

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Pay special attention to those pages with a reference to the following notes:

Note #1: Signature of authorized agent required

Note #2: Signature of an authorized agent and notarized required

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Your bid response should follow the same format listed above plus any additional format requested in the body of the bid invitation.

**INVITATION FOR SEALED BIDS
TO
City of Tulsa**

200 CIVIC CENTER, ROOM 109, TULSA, OKLAHOMA 74103

Bid number and date of bid opening must appear on the lower
left outside corner of bid envelopes and all related containers.

DATE OF OPENING: **AUGUST 30, 2001**

BID NUMBER: **01-505**

BID MUST BE IN THE CITY CLERK'S OFFICE AT THE ABOVE ADDRESS BY 5:00 P.M. THE DAY PRECEDING THE "DATE OF OPENING" SHOWN ABOVE.

BIDS WILL BE OPENED AT 8:30 A.M. IN THE CITY COUNCIL ROOM ON THE DAY SPECIFIED UNDER "DATE OF OPENING."

PUBLISHED IN THE TULSA DAILY COMMERCE AND LEGAL NEWS: **AUGUST 13, 14, 15, 16, 17, 2001**

Bid must be accompanied by bidder's bond, cashier's check or certified check in the amount of: **NONE**

PLEASE READ TERMS AND CONDITIONS ON THE NEXT PAGE BEFORE COMPLETING BID DOCUMENTS

THE FOLLOWING SECTION MUST BE COMPLETED BY BIDDER

Delivery will be made in not more than _____ days after receipt of order.

Payment terms _____% _____ days.

City of Tulsa may increase quantity of order at the unit price bid for _____ days. (Bidder to Specify Days) I have examined the terms and specifications and the instructions to bidders herein and agree, provided I am awarded a contract, to provide the above described items for the sum shown in accordance with the terms and specifications stated herein. All deviations are in writing and attached hereto.

Enclosed is a [] BID BOND ; [] CASHIER'S CHECK; [] Certified Check in the amount of \$ _____, which I agree the City of Tulsa may retain as liquidated damages in the event of my failure to comply with the terms of this bid.

MUST BE SIGNED BY AUTHORIZED AGENT TO BE VALID

FIRM NAME _____

by

(Signature)

STREET _____

TITLE

CITY STATE _____ ZIP CODE _____ PHONE NUMBER _____ DATE _____

GENERAL TERMS AND CONDITIONS OF BIDS

THESE ITEMS APPLY TO AND BECOME A PART OF THE BID.

NO EXCEPTIONS TO THESE TERMS & CONDITIONS WILL BE CONSIDERED.

1. **BIDS MUST BE SUBMITTED ON THIS FORM ONLY INCLUDING A SIGNATURE OF AN AUTHORIZED AGENT.** Each bid shall be placed in a separate envelope. Be sure envelope is completely and properly identified and sealed, showing the bid number and date in the lower left hand corner. Bids must be time stamped in the office of the City Clerk by 5:00 P.M. on the day before date of opening.
2. No bidder may withdraw his proposal for a period of thirty (30) days after the date and hour set for the opening of bids.
3. All prices shall be quoted F.O.B. Tulsa, Oklahoma, and delivery to City of Tulsa location shall be without additional charge.
4. The bidder shall attach the manufacturer's name of the equipment or material to be furnished, type, model numbers, manufacturer's descriptive bulletins and specifications. All guarantees and warranties should be clearly stated. This data shall be in sufficient detail to describe accurately the equipment or material to be furnished. Manufacturer's specifications, in respect to the successful bidder, shall be considered as part of his contract with the City of Tulsa.
5. The bidder shall show in the proposal both the unit prices and total amount, where required, of each item listed. In the event of error or discrepancy in the mathematics, the unit prices shall prevail.
6. Any exceptions or deviations from written specifications shall be shown in writing and attached to the bid form.
7. Each bidder agrees to comply with the terms of Title 5, Chapter 1, of Tulsa, Oklahoma Charter and revised ordinances relating to equal employment opportunity.
8. **THE ENCLOSED FORMS REGARDING NON-COLLUSION AND FINANCIAL INTEREST MUST BE SIGNED, NOTARIZED, AND RETURNED WITH THE BID.**
9. The City of Tulsa reserves the right to reject any and all bids, to waive any technicalities in the bidding, and to award each item to different bidders or all items to a single bidder.
10. All bids must be accompanied by bidders bond, cash, certified or cashier's check in the amount shown on the face of the bid form. This amount shall be retained by the City of Tulsa as liquidated damages in the event the successful bidder (or bidders) fails to execute a contract, if required. The bidder agrees that said amount is presumed to be the damages sustained by the City due to the impracticability and extreme difficulty in fixing the actual damages. The office of the City Clerk will return the bid deposits to the unsuccessful bidders, after a contract has been awarded or all bids have been rejected.
11. In the event cash discounts are offered by the bidder, the discount date shall begin with the date of invoice, the date of receipt of all material covered by the purchase order, or the date of receipt by the City of Tulsa of the original copy of the purchase order with properly executed Affidavit of Claimant, whichever is the later date.
12. Direct purchase of certain items of equipment or material by the City of Tulsa are exempt from Federal Excise Tax and Oklahoma Sales Tax. In such cases the bidder shall quote prices which do not include Federal Excise Tax and Oklahoma Sales Tax. The City of Tulsa will furnish executed exemption certificates upon presentation by the bidder at the time of purchase.
13. Bid must show number of days required for delivery under normal conditions. Failure to state delivery time obligates bidder to complete delivery in fourteen (14) calendar days. Unrealistically short or long delivery promises may cause bid to be disregarded. Contractor must keep Purchasing Department advised at all times of status of order. Default in promised delivery or failure to meet specifications authorizes the Purchasing Agent to purchase supplies elsewhere and charge full increase of cost and handling to defaulting contractor. Consistent failure to meet delivery promises without valid reason may cause removal from bid list.
14. Bidder agrees to defend and save City of Tulsa from and against all demands, claims, suits, costs, expenses, damages and judgments based upon infringement of any patent relating to goods specified in this order or the ordinary use or operation of such goods by City or use or operation of such goods in accordance with bidders direction.
15. If the bid requires a written contract, the successful bidder shall execute a written contract with the City of Tulsa and return the required bonds and insurance certificates within ten (10) days after submission of contracts to said bidder by the City.

BIDDER AFFIDAVIT - TITLE 74 O.S. (1974 SUPP.) 85.22-85.25

STATE OF _____ COUNTY OF _____

_____, of lawful age, being first duly sworn on oath says
Authorized Agent

1. (s)he is the duly authorized agent of _____, the bidder submitting the competitive bid which is attached to this statement, for the purpose of certifying the facts pertaining to the existence of collusion among bidders and between bidders and municipal officials or employees, as well as facts pertaining to the giving or offering of things of value to government personnel in return for special consideration in the letting of any contract pursuant to the bid to which this statement is attached.
2. (s)he is fully aware of the facts and circumstances surrounding the making of the bid to which this statement is attached and has been personally and directly involved in the proceedings leading to the submission of such bid; and
3. neither the bidder nor anyone subject to the bidder's direction or control has been a party;
 - a. to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding,
 - b. to any collusion with any municipal official or employee as to quantity, quality or price in the prospective contract, or as to any other terms of such prospective contract, nor
 - c. in any discussions between bidders and any municipal official concerning exchange of money or other thing of value for special consideration in the letting of a contract.

SIGNATURE OF AUTHORIZED AGENT

Subscribed and sworn to before me this _____ day of _____, 19_____.

Signature of Notary Public

MY COMMISSION EXPIRES

The Bidder Affidavit must be completed, signed by an authorized agent, and notarized.

CONTRACTOR/BIDDER INFORMATION SHEET

**To be completed by all Bidders
For Contracts with the City of Tulsa
(Please print or type)**

Project No. or Description _____

Full Name of Bidder _____

Legal Identity
(Corporation, Partnership,
Individual, etc.) _____

Address _____

Telephone No. _____

FAX No. _____

Taxpayer Identification Number _____

Contact Person _____

Phone No. _____

Fax No. _____

E-mail address _____

Webpage Address _____

Price Sheet Summary

Vendor Name: _____ Signature: _____
Date: _____

You will be able to obtain a copy of the Bid Summary on the City of Tulsa's Purchase-Net Fax-on-Demand and Website shortly after bid opening.

BID 01-505

BIDDER AGREES TO FURNISH ONE (1) OR MORE HIGH PRESSURE SEWER/CATCH BASIN CLEANER TRUCK IN ACCORDANCE WITH THE MINIMUM BID SPECIFICATIONS AT THE UNIT PRICE SHOWN:

\$ _____ EACH

MAKE AND MODEL BIDDING: _____

OPTIONAL

1. ADDITIVE ALTERNATE #1: \$ _____ ADD

2. ADDITIVE ALTERNATE #2: \$ _____ ADD

3. ADDITIVE ALTERNATE #3: \$ _____ ADD

4. ADDITIVE ALTERNATE #4: \$ _____ ADD

5. ADDITIVE ALTERNATE #5: \$ _____ ADD

GRAND TOTAL OF BASE BID
AND ALL ADDITIVE ALTERNATES: \$ _____ TOTAL

For further information please contact: Eric Murdock @ 918-669-6103

BID 01-505

HIGH PRESSURE SEWER/CATCH BASIN CLEANER TRUCK NIGP CODE 070-53-00-000-0

FOR THE CITY OF TULSA

INTENT

THE INTENT OF THESE SPECIFICATIONS IS TO SET MINIMUM REQUIREMENTS, NOT TO OTHERWISE LIMIT BIDDING FOR THE SUPPLY OF **ONE (1) OR MORE HIGH PRESSURE SEWER/CATCH BASIN CLEANER TRUCK** AS PER BID SPECIFICATIONS FOR THE CITY OF TULSA.

INASMUCH AS SOME DESIGNS OF EQUIPMENT VARY AMONG DIFFERENT MANUFACTURERS, THE CITY MAY ACCEPT BIDS ON EQUIPMENT WITH MINOR DEVIATIONS TO THE WRITTEN SPECIFICATIONS. GENERALLY, A MINOR DEVIATION IS DEFINED AS A DEVIATION WHICH DOES NOT: (A) MATERIALLY AFFECT THE ABILITY OF THE PRODUCT TO ACHIEVE OR ACCOMPLISH A NECESSARY FUNCTION OR TASK IN THE MANNER REQUIRED BY THE SPECIFICATIONS; (B) COMPROMISE THE SAFETY OF THE USER THEREOF; AND, (C) PRODUCE HIGHER LATENT OR PATENT COSTS TO THE CITY IN ANY OF A MULTIPLICITY OF WAYS. THE CITY OF TULSA SPECIFICALLY RESERVES THE RIGHT TO MAKE THE FINAL JUDGMENT CONCERNING WHAT IS OR IS NOT A MINOR DEVIATION AND TO AWARD THE BIDDER(S) WHOSE BID(S) BEST SUIT THE CITY'S NEED FOR THE PRODUCT BEING PURCHASED.

WARRANTY

THE MANUFACTURER SHALL WARRANT EACH VEHICLE TO BE OF GOOD MATERIAL AND WORKMANSHIP AND AGREES TO PROMPTLY REPLACE ANY PART OR PARTS, WHEN THE VEHICLE IS RETURNED TO THE PLACE OF BUSINESS, WHICH BY REASON OF DEFECTIVE MATERIALS OR WORKMANSHIP SHALL FAIL UNDER NORMAL USE, FREE OF NEGLIGENCE OR ACCIDENT, FOR A MINIMUM PERIOD OF ONE (1) YEAR OR 12,000 MILES, WHICHEVER OCCURS FIRST FROM THE DATE OF DELIVERY. SUCH REPLACEMENT MUST BE FREE OF ANY CHARGE TO THE OWNER. IN ADDITION, IF SUCH FAILURES TAKES PLACE OUTSIDE THE DEALER'S SERVICE AREA, THE VENDOR SHALL BE RESPONSIBLE FOR REIMBURSING THE NEAREST AUTHORIZED DEALER FOR SERVICES RENDERED UNDER THIS WARRANTY.

TIRES AND DEALER ADD-ON ITEMS ARE EXEMPTED FROM THIS WARRANTY, BUT MUST BE COVERED BY THE MANUFACTURER'S STANDARD WARRANTY AND SERVICED BY THE LOCAL AUTHORIZED DEALER FOR SERVICES RENDERED UNDER THIS WARRANTY.

STANDARD WARRANTY INFORMATION IS TO BE SUPPLIED WITH YOUR BID.

THE CITY OF TULSA SHALL EXPECT THE MANUFACTURER TO HAVE AN ADEQUATE STOCK OF REPLACEMENT PARTS AVAILABLE TO SERVICE CITY VEHICLES AND TO MAKE DELIVERY WITHIN A REASONABLE TIME OF ALL NORMAL REPLACEMENT PARTS TO THEIR DEALERS WHO SERVICE THE CITY VEHICLES. THE CITY FURTHER EXPECTS THAT WARRANTY SERVICE AND REPAIRS AS WELL AS NON-WARRANTY SERVICE AND REPAIRS WILL BE HANDLED WITHOUT PREJUDICE BY LOCAL DEALERSHIPS THROUGHOUT THE UNITED STATES.

IN ADDITION TO THE STANDARD WARRANTY, THE SUCCESSFUL BIDDER SHALL WARRANT THE ENGINE, TRANSMISSION, AND POWERTRAIN, ALL PARTS AND LABOR FOR AN ADDITIONAL FOUR (4) YEAR PERIOD.

METHODS OF SAMPLING, INSPECTIONS & TESTS

1. AFTER BID RESULTS ARE TABULATED, THE CITY OF TULSA PURCHASING DIVISION RESERVES THE RIGHT TO REQUIRE SAMPLES OF SELECTED EQUIPMENT AND/OR PRODUCTS FOR INSPECTION AND EVALUATION.
2. UNLESS OTHERWISE SPECIFIED IN THE CONTRACT OR PURCHASE ORDER, THE SUPPLIER SHALL BE RESPONSIBLE FOR THE PERFORMANCE OF ALL INSPECTION AND TEST REQUIREMENTS NECESSARY TO

METHODS OF SAMPLING, INSPECTIONS & TESTS (CONTINUED)

INSURE COMPLIANCE WITH REQUIREMENT FOR THIS SPECIFICATION. THIS DOES NOT PRECLUDE SUBSEQUENT INSPECTION AND TESTIMONY BY THE CITY OF TULSA TO FURTHER DETERMINE CONFORMANCE WITH SPECIFICATION REQUIREMENTS OF QUALITY STANDARDS OF WORKMANSHIP, MATERIAL AND CONSTRUCTION TECHNIQUES.

PREPARATION FOR DELIVERY

PRE-DELIVERY SERVICING AND ADJUSTMENT: PRIOR TO ACCEPTANCE BY THE CITY, THE DEALER SHALL SERVICE AND ADJUST EACH VEHICLE FOR OPERATIONAL USE, TO INCLUDE, AS A MINIMUM, THE FOLLOWING:

1. FOCUSING OF LIGHTS
2. TUNING OF ENGINE
3. ADJUSTMENT OF ACCESSORIES
4. CHECKING OF ELECTRICAL, BRAKING AND SUSPENSION SYSTEMS
5. CHARGING OF BATTERY(S)
6. ALIGNMENT OF FRONT END
7. INFLATION OF TIRES
8. BALANCING OF ALL WHEELS, INCLUDING THE SPARE (IF REQUIRED)
9. COMPLETE LUBRICATION OF ENGINE, CHASSIS AND OPERATING MECHANISMS WITH RECOMMENDED GRADES OF LUBRICANTS FOR THE AMBIENT AIR TEMPERATURE AT THE POINT OF DELIVERY.
10. SERVICING OF COOLING SYSTEM WITH A PERMANENT TYPE ANTI-FREEZE AND SUMMER COOLANT FOR A MINUS 30 DEGREES FAHRENHEIT.
11. FULL TANK OF FUEL.

12. OKLAHOMA SAFETY INSPECTION STICKER.
13. WARRANTY PAPERS AND OPERATOR'S MANUAL.
14. FACTORY CERTIFIED DATA PLATES INSTALLED ON VEHICLE DOOR.

DELIVERY AND SPECIAL INSTRUCTIONS

THE SUCCESSFUL BIDDER(S) SHALL DELIVER ALL VEHICLES, AT THEIR EXPENSE, TO THE LOCATION(S) SPECIFIED BY THE CITY. THE MANUFACTURER'S CERTIFICATE OF ORIGIN (MSO) AND ONE (1) EXTRA SET OF KEYS ARE TO BE DELIVERED WITH EACH VEHICLE.

TRAINING

THE SUCCESSFUL BIDDER SHALL PROVIDE A MINIMUM OF EIGHT (8) HOURS TRAINING AND INSTRUCTIONS TO CITY OF TULSA PERSONNEL ON PROPER OPERATION AND ROUTINE MAINTENANCE OF THE EQUIPMENT. TRAINING SHALL BE PERFORMED AT A CITY OF TULSA FACILITY UPON DELIVERY OF EQUIPMENT.

ADDENDA AND INTERPRETATIONS

IF IT BECOMES NECESSARY TO REVISE ANY PART OF THIS BID, A WRITTEN ADDENDUM WILL BE PROVIDED TO ALL THE BIDDERS. THE CITY OF TULSA IS NOT BOUND BY ANY ORAL REPRESENTATION, CLARIFICATIONS OR CHANGES MADE IN THE WRITTEN SPECIFICATIONS BY CITY OF TULSA EMPLOYEES UNLESS SUCH CLARIFICATION OR CHANGE IS PROVIDED TO BIDDERS IN WRITTEN ADDENDUM FORM FROM THE PURCHASING DIVISION.

ALTERING BIDS

BIDS CANNOT BE ALTERED OR AMENDED AFTER SUBMISSION DEADLINE. ANY INTERLINEATION, ALTERATION, OR ERASURE MADE BEFORE OPENING TIME AND DATE MUST BE INITIALED BY THE SIGNER OF THE BID, GUARANTEEING AUTHENTICITY. BIDS MUST BE SUBMITTED IN INK OR TYPEWRITTEN, PENCILING WILL NOT BE ACCEPTED.

DESCRIPTIVE LITERATURE

EACH BIDDER IS REQUIRED TO FURNISH WITH THEIR BID, CATALOG CUTS AND/OR DESCRIPTIVE LITERATURE, PROPERLY LABELED WITH THE BID NUMBER AND BIDDER'S NAME, WITH FULL ILLUSTRATIONS AND DETAILED SPECIFICATIONS FOR EACH ITEM OFFERED AS EQUAL TO THE BRAND NAME SPECIFIED. IN ADDITION, **ALL DIFFERENCES IN SPECIFICATIONS FROM THE SPECIFICATIONS STATED HEREIN MUST BE SO MARKED.** DESCRIPTIVE LITERATURE IS REQUIRED TO ESTABLISH, FOR THE PURPOSE OF BID EVALUATION AND AWARD, DETAILS OF THE PRODUCT(S) THE BIDDER PROPOSES TO FURNISH AS TO DESIGN, MATERIALS, METHOD OF MANUFACTURE, CONSTRUCTION, ASSEMBLY OR OPERATION, AS APPROPRIATE. **FAILURE TO SUBMIT THE DESCRIPTIVE LITERATURE WILL BE CAUSE FOR REJECTION OF YOUR BID.**

AMERICANS WITH DISABILITIES ACT

THE CONTRACTOR SHALL TAKE THE NECESSARY ACTIONS TO ENSURE ITS FACILITIES AND EQUIPMENT ARE IN COMPLIANCE WITH THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT. IT IS UNDERSTOOD THAT THE PROGRAM OF THE CONTRACTOR IS NOT A PROGRAM OR ACTIVITY OF THE CITY OF TULSA. THE

CONTRACTOR AGREES THAT ITS PROGRAM OR ACTIVITY WILL COMPLY WITH THE REQUIREMENTS OF THE ADA. ANY COSTS OF SUCH COMPLIANCE WILL BE THE RESPONSIBILITY OF CONTRACTOR. UNDER NO CIRCUMSTANCES WILL CONTRACTOR CONDUCT ANY ACTIVITY WHICH IT DEEMS TO NOT BE IN COMPLIANCE WITH THE ADA.

BIDDER'S PROPOSAL COLUMN

BIDDER SHALL COMPLETE EVERY SPACE IN SECTION 2, BIDDER'S PROPOSAL COLUMN. THE BIDDER SHALL GIVE A COMPLETE DESCRIPTION OF THE ITEM BEING BID SUCH AS, SIZES, CAPACITIES, DIMENSIONS, ETC. MARKINGS SUCH AS CHECKS (X), AND BLANK SPACES WILL BE CONSIDERED AS NON-RESPONSIVE AND REASON FOR REJECTION. THE WORD **COMPLY** WILL BE INTERPRETED AS MEANING THE **SAME** AS SPECIFIED.

LOAD LIMIT COMPLIANCE

BIDDER SHALL BID A VEHICLE THAT COMPLIES WITH ALL CITY OF TULSA, STATE OF OKLAHOMA AND FEDERAL LAWS GOVERNING SAFETY AND HIGHWAY AND STREET LOAD CAPACITIES.

THIS REQUIREMENT SHALL SUPERSEDE ANY WRITTEN SPECIFICATION HEREIN.

IT WILL BE THE BIDDER'S RESPONSIBILITY TO NOTE SUCH CHANGES AND/OR DEVIATIONS IN THE BID PACKAGE.

BIDDER SHALL INCLUDE WITH YOUR BID PACKAGE A WEIGHT DISTRIBUTION CHART, CERTIFIED BY THE MANUFACTURING ENGINEER OR THEIR DESIGNATE, SHOWING THAT THE VEHICLE MEETS ALL LAW REQUIREMENTS SPECIFIED HEREIN WHEN FULL LOADED.

FAILURE TO COMPLY WILL RESULT IN REJECTION OF YOUR BID.

EMPLOYMENT DISCRIMINATION BY CONTRACTOR PROHIBITED

A. DURING THE PERFORMANCE OF THIS CONTRACT, THE CONTRACTOR AGREES AS FOLLOWS:

(1) THE CONTRACTOR WILL NOT DISCRIMINATE AGAINST ANY EMPLOYEE OR APPLICANT FOR EMPLOYMENT BECAUSE OF RACE, RELIGION, COLOR, SEX OR NATIONAL ORIGIN, EXCEPT WHERE RELIGION, SEX OR NATIONAL ORIGIN IS A BONA FIDE OCCUPATIONAL QUALIFICATION REASONABLY NECESSARY TO THE NORMAL OPERATION OF THE CONTRACTOR. THE CONTRACTOR AGREES TO POST IN CONSPICUOUS PLACES, AVAILABLE TO EMPLOYEES AND APPLICANTS FOR EMPLOYMENT, NOTICES SETTING FORTH THE PROVISION OF THIS NON-DISCRIMINATION CLAUSE.

(2) THE CONTRACTOR, IN ALL SOLICITATIONS OR ADVERTISEMENTS FOR EMPLOYMENT PLACED BY OR ON BEHALF OF THE CONTRACTOR, WILL STATE THAT SUCH CONTRACTOR IS AN EQUAL OPPORTUNITY EMPLOYER.

(3) NOTICES, ADVERTISEMENTS AND SOLICITATIONS PLACED IN ACCORDANCE WITH FEDERAL LAW, RULE OR REGULATION SHALL BE DEEMED SUFFICIENT FOR THE PURPOSE OF MEETING THE REQUIREMENTS OF THIS SECTION.

B. THE CONTRACTOR WILL INCLUDE THE PROVISION OF THE FOREGOING PARAGRAPHS OF THIS SECTION IN EVERY SUBCONTRACT OR PURCHASE ORDER OF OVER \$10,000, SO THAT THE PROVISIONS WILL BE BINDING UPON EACH SUBCONTRACTOR OR VENDOR.

AWARD OF BID

THE BID SHALL BE AWARDED TO THE FIRM WHOSE PROPOSAL IS RESPONSIVE TO THE BID AND IS MOST ADVANTAGEOUS TO THE CITY, CONSIDERING THE FACTORS IDENTIFIED IN THE BID AND SECTION 406E OF TITLE 6, THE PURCHASING ORDINANCE SET FORTH BELOW:

E. AWARD OF CONTRACT.

1. AUTHORITY OF MAYOR. THE MAYOR SHALL HAVE THE AUTHORITY TO AWARD CONTRACTS WITHIN THE PURVIEW OF THIS CHAPTER.

2. LOWEST SECURE BIDDER. CONTRACTS SHALL BE AWARDED TO THE LOWEST SECURE BIDDER MEETING SPECIFICATIONS. IN DETERMINING "LOWEST SECURE BIDDER", IN ADDITION TO PRICE, THE FOLLOWING FACTORS SHALL BE CONSIDERED:

A. THE ABILITY, CAPACITY AND SKILL OF THE BIDDER TO PERFORM THE CONTRACT OR PROVIDE THE SERVICE REQUIRED;

B. WHETHER THE BIDDER CAN PERFORM THE CONTRACT OR PROVIDE THE SERVICE PROMPTLY OR WITHIN THE TIME SPECIFIED, WITHOUT DELAY OR INTERFERENCE;

C. THE CHARACTER, INTEGRITY, REPUTATION, JUDGMENT, EXPERIENCE AND EFFICIENCY OF THE BIDDER;

D. THE QUALITY OF PERFORMANCE OF PREVIOUS CONTRACTS OR SERVICES;

E. THE PREVIOUS AND EXISTING COMPLIANCE BY THE BIDDER WITH LAWS AND ORDINANCES RELATING TO THE CONTRACT OR SERVICE;

F. THE SUFFICIENCY OF THE FINANCIAL RESOURCES AND ABILITY OF THE BIDDER TO PERFORM THE CONTRACT OR PROVIDE THE SERVICE;

G. THE QUALITY, AVAILABILITY AND ADAPTABILITY OF THE SUPPLIES OR CONTRACTUAL SERVICES TO THE PARTICULAR USE REQUIRED;

H. THE ABILITY OF THE BIDDER TO PROVIDE FUTURE MAINTENANCE AND SERVICE FOR THE USE OF THE SUBJECT OF THE CONTRACT, AND;

I. WHERE AN EARLIER DELIVERY DATE WOULD BE OF GREAT BENEFIT TO THE REQUISITIONING AGENCY, THE DATE AND TERMS OF DELIVERY MAY BE CONSIDERED IN THE BID AWARD, AND;

J. THE NUMBER AND SCOPE OF CONDITIONS ATTACHED TO THE BID.

K. IF A POINT SYSTEM HAS BEEN UTILIZED IN THE BID SPECIFICATIONS, THE NUMBER OF POINTS EARNED BY THE BIDDER.

MANUALS

THE SUCCESSFUL BIDDER SHALL SUPPLY TWO (2) PARTS MANUALS AND TWO (2) SERVICE MANUALS TO THE CITY OF TULSA AT NO ADDITIONAL COST. THESE MANUALS SHALL BE DELIVERED TO THE FOLLOWING ADDRESS WITHIN TEN (10) DAYS AFTER RECEIPT OF VEHICLES:

DELIVER TO: CITY OF TULSA
EQUIPMENT MANAGEMENT DEPARTMENT
GENERAL GARAGE
1720 NEWBLOCK PARK DRIVE
TULSA, OK 74103

BID DOCUMENTS

BIDDER SHALL RETURN ALL BID DOCUMENTS INTACT EXACTLY AS FURNISHED IN IT'S ORIGINAL FORM. ALL BID DOCUMENTS REQUIRING SIGNATURE MUST BE SIGNED BY AN AUTHORIZED AGENT OF THE COMPANY BIDDING.

PRINTING YOU NAME IN LIEU OF SIGNATURE WILL NOT BE ALLOWED.

FAILURE TO COMPLY WILL RESULT IN REJECTION OF YOUR BID.

CHECK LIST

	YES	NO
1. FRONT PAGE "INVITATION FOR SEALED BIDS" - COMPLETED AND SIGNED ?	_____	_____
2. BIDDER AFFIDAVIT - SIGNED AND NOTARIZED ?	_____	_____
3. INTEREST AFFIDAVIT - SIGNED AND NOTARIZED ?	_____	_____
4. WARRANTY INFORMATION INCLUDED ?	_____	_____
5. DESCRIPTIVE LITERATURE ON UNIT BIDDING INCLUDED ?	_____	_____
6. USER'S LIST INCLUDED ?	_____	_____
7. RECOMMENDED SPARE PARTS LIST INCLUDED ?	_____	_____
8. CERTIFIED WEIGHT DISTRIBUTION CHART INCLUDED ?	_____	_____
9. BID BOND (IF REQUIRED) INCLUDED ?	_____	_____

**BIDDER SHALL COMPLETE EVERY SPACE IN BIDDER'S PROPOSAL COLUMN.
THE BIDDER SHALL GIVE A COMPLETE DESCRIPTION OF THE ITEM BEING BID,
SUCH AS SIZES, CAPACITIES, DIMENSIONS, ETC.**

GENERAL

The combination sewer cleaner is to be designed to perform cleaning and removal of sand, stone, bottles, cans, grease, sludge and other materials from basins, pits, pump stations, tanks and sanitary or storm water drain lines. The machine must be a dual engine design. It is to provide a high-pressure jet rodding system and a vacuum system for the removal of debris. It is to be truck mounted on a chassis described in this specification.

<u>ITEM</u>	<u>SPECIFICATIONS (MINIMUM)</u>	<u>BIDDER'S PROPOSAL</u>
EQUIPMENT:	Current year model, 60,000 lb. GVW. Dual rear wheel chassis and cab.	_____ _____ _____
QUANTITY:	One (1) or more	_____ _____
GROSS VEHICLE WEIGHT:	60,000-lb.	_____ _____
CAB:	A. Cab style: 2-door conventional.	_____ _____
	B. Seat style: fleet cruiser air ride or equal driver seat with a standard companion seat, two seat belts with shoulder restraints.	_____ _____
	C. Seat covering: heavy-duty vinyl material color - coordinated with interior color.	_____ _____
	D. Sun visors: left and right hand sides	_____ _____
	E. Arm rests: left and right hand sides.	_____ _____
	F. Interior lighting: dome with door activated switches.	_____ _____
	G. Windshield wipers: electric, 2-speed intermittent with dual washers.	_____ _____
	H. Mirrors: exterior west coast style approximately 7" x 16" with 6" diameter bolt on type convex mirrors mounted on each side.	_____ _____
	I. Air conditioning: factory installed through-dash type.	_____ _____
	J. Full gauge package: included with audible alarms and lights; and kysor or equal shut-down switches on the following:	_____ _____
	1. Low oil pressure	_____
	2. Coolant temperature	_____
	3. Transmission high heat warning light.	_____
	4. Low air pressure.	_____

<u>ITEM</u>	<u>SPECIFICATIONS (MINIMUM)</u>	<u>BIDDER'S PROPOSAL</u>
K. Additional items to be included shall be:	1. Cigar lighter _____ 2. Tilting hood 3. AM/FM radio (factory installed) 4. Tinted glass throughout 5. Grab handles both sides of cab 6. Mud & snow spare tire	_____ _____ _____ _____ _____
L. Floor mat: full floor coverage as per manufacturers standard.		_____ _____
ENGINE:	A. Fuel type: diesel. _____ B. Not less than 7.2 liter. _____ C. The horse power shall be 275 H.P. @ approximately 2400 R.P.M. D. The displacement shall be 442 cubic inch. E. The water separator shall be in-line, Racor 30 micron or equal with heater and warning light. F. 110 Volt, 1250 watt block heater to be included. _____ G. The engine hour meter shall be mounted inside the cab. _____ H. The exhaust system shall be vertical with a 90° elbow at the top of exhaust pipe.	_____ _____ _____ _____ _____ _____ _____ _____
TRANSMISSION:	A. The transmission type shall be automatic. B. It shall be electronic five- (5) speed, with overdrive. _____ C. The manufacturer shall be Allison. D. The model number shall be MD3550 WRP. E. Fluid cooler shall be required. F. Electronic programming shall be set up to accommodate the truck body requirements.	_____ _____ _____ _____ _____
COOLING SYSTEM:	A. Radiator shall be the largest capacity available from the manufacturer. B. A coolant recovery system shall be included. C. Air fan shall be included.	_____ _____ _____
ELECTRICAL SYSTEM:	A. Electrical system: 12 volt system. B. The number of batteries required for application with the C.C.A. being at least 900	_____ _____
	each	_____

- B. The front type shall be 10-hole budd.
- C. The rear size shall be 22.5.
- D. The rear type shall be 10 hole budd.

TIRES:

- A. Front size shall be 425/65R 22.5 18 ply.
- B. The front tread shall be highway tread
- C. The rear size shall be 425/65R 22.5 18 ply.
- D. The rear tread design shall be mud and snow.
- E. Mud flaps without advertisement

ITEM

SPECIFICATIONS (MINIMUM)

BIDDER'S PROPOSAL

FUEL TANKS:

- A. There shall be 2 fuel tanks
- B. The capacity shall be 80 gallons total, minimum.
- C. The type and construction shall be steel.
- D. Bidder must specify if any fuel tank exhaust, air dryers, etc. are mounted in such a way as to protrude behind the cab or rearward of cab on the frame.

UNDERCOATING:

Undercoating: per city of Tulsa standard specification number 000001.

PAINT:

Paint shall be manufacturer's standard white.

BUMPERS:

- A. Front bumper shall be 3/16" formed steel
- B. Two (2) tow hooks shall be attached to the front frame.
- C. Frame mounted tow loop in rear.

VEHICLE HEIGHT:

State the overall height of the vehicle

ADDITIONAL:

- A. Dual air horns.
- B. Fire extinguisher, 2 ½ lb., size 1, type ABC, mounted inside of cab.
- C. Electric backup alarm warn model 210303.
- D. Include hide away strobes per City

standard 000066.

- E. Three (3) parts manuals.
- F. Three (3) service manuals.

DEBRIS TANK:

The debris tank shall have a minimum of 5 cubic yards. Debris tank is made of abrasion and corrosion resistant steel with a 3/16" thickness.

- A. The debris body is to be round for maximum strength and ease of dumping and is to have a minimum usable capacity of 5 cubic yards
- B. The body is to have a full-sized rear door that is hinged at the top and that is equipped with a replaceable neoprene type seal to prevent leakage. A fully enclosed hydraulic door lock system is to be mounted on a domed, double walled rear door of the debris body.

C. The system will be driven by two hydraulic cylinders. The first cylinder will drive a steel rear door grabber to close and hold the door in place during the locking cycle. The second hydraulic cylinder will drive four dead bold locking pins, no greater than 2" in diameter, into adjustable lock receivers welded to the debris body.

ITEM

SPECIFICATIONS (MINIMUM)

BIDDER'S PROPOSAL

D. The system must dead end in a closed or open position to avoid a potential accidental discharge of materials; the locking pins will remain dead bolted in the closed position in spite of any system failure or will remain in the open position, presumably after the dumping cycle at a dump site in spite of any system failure

E. The body is to be equipped with a load level indicator to show when the body is loaded to capacity. The rear door is to be equipped with a 5" body drain valve and drain hose that will allow the operator to drain off excess liquids while retaining solids. Include 10' of layflat hose with appropriate connectors.

F. Unit to be equipped with a spring-loaded, fold down storage rack design must be provided on both the street and curbsides of the debris body. Each rack must be constructed of tubular steel and afford a capacity for three 7' lengths of debris pipe which is to be provided. Each pipe storage position must provide protection to reduce potential damage and/or denting to the pipe.

G. To achieve material separation and to reduce the possibility of discharging material into the atmosphere it is deemed that the vacuum system requires dual porting in the debris body. Outlets

must be a minimum 10" in diameter. The outlets are to port out to a curved shroud that feeds into steel curved elbow with a minimum 10" inner diameter. The transition from the debris body to the fan assembly is to route air directly into the center of the fan housing.

H. All dump controls, accessory controls, and

any auxiliary engine gauges should be accessible close to the cab on the curbside of the vehicle.

I. The debris body shall be equipped with a body flush-out system, used to clean out the debris body after dumping the debris out. This system will be controlled from the curbside operator's station, and shall draw water from the water tanks. A debris body splash shield will be mounted on the rear of the body to contain material when dumping.

WATER
TANKS:

Water tanks must have a minimum certified capacity of at least 1300 gallons of useable water. The water supply is to be contained in no more than 4 baffled tanks. The tanks must carry a ten (10) year warranty against defects in workmanship and potential corrosion caused by water, sunlight, and variable weather conditions. Further, the water supply is to be located at or below the frame rail of the truck chassis and located from behind the cab to

ITEM

SPECIFICATIONS (MINIMUM)

BIDDER'S PROPOSAL

the end of the frame rail in such fashion to assure optimum center of gravity and weight distribution from front to rear of the truck. Under no circumstances is the height of the water tanks to extend above the midline height of the debris body, nor may the tanks extend beyond the width or length of the truck. The tanks are to be mounted on the welded J-straps of the subframe assembly. The tanks are to be interconnected with minimum 4" lines for rapid filling and are to be filled from a single curbside point equipped with an anti-siphon device Y-pattern stainless steel strainer and 25' of fill hose with hydrant connectors, fittings, and a hydrant wrench.

HIGH
PRESSURE
WATER PUMP:

The water pump supplied shall be capable of continuously delivering 60gpm at 2000-psi. The pump must not require priming. Unit must be hydraulically driven. The manufacturer shall provide results from documented flow and pressure tested at the pump and at the nozzle of the hose reel to demonstrate the ability of the water pump to reach

HOSE REEL: A heavy-duty hose reel having a minimum capacity of 800' of 1" I.D. high pressure hose shall be mounted to the truck frame in the front of the truck cab. The hose reel assembly will tilt to provide clearance for tilting of the truck hood/fender assembly. Hose reel must positively lock into any position within its range of movement. Hose reel shall have the ability to extend and rotate 180 degrees front of the truck. A level wind guide shall be provided to guide hose onto hose reel and shall be equipped with rollers to prevent scuffing of the hose. Footage counter(s) shall be installed on the reel, readable from both sides of the reel. The unit shall be furnished with 800' of 1" I. D. high-pressure hose (2,500 psi working pressure). The manufacturer must be Aeroquip, Inc.

Hose reel will be driven hydraulically with forward, reverse and adjustable speed controls located on the reel so that the hose reel may be operated from either side of the truck. The following joysticks/knobs/gauges/are located on the operator's station at the hose reel:
 Boom Extend/Retract

Water Pump (Rodder) On/Off
 Auxiliary Engine Start/Stop & Throttle
 Hose Reel-Out/Reel-In lever control
 Hose Reel-Telescope-in/Telescope out
 Auxiliary Engine RPM

Boom Direction (Left, Right, Up, Down)
 Multiflow variable GPM
 Hose Reel Rotation Lock/Unlock
 Vacuum Relief

Hose Footage Counter

<u>ITEM</u>	<u>SPECIFICATIONS (MINIMUM)</u>	<u>BIDDER'S PROPOSAL</u>
VACUUM SYSTEM:	<p>A. The vacuum system provided must be a centrifugal compressor. The fan construction is to be of ¼" aluminum with hard chrome plated cast aluminum radial blades riveted in place.</p>	<p>_____</p> <p>_____</p> <p>_____</p>
	<p>B. Tests must be performed at the manufacturer's maximum recommended speeds for continuous operation with no evidence of fan cavitation by sound or through overheating of the fan housing. Water column measurements are to be recorded at the site of the manufacturer and notarized copies of these measurements are to accompany the bid submittal. The vacuum compressor shall be capable of up to 120" of negative water pressure at 8000 cfm</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>

of air movement. The unit is to be measured at the delivery site using a digital manometer and a plate that will close the

opening from 8 inches to 4 inches to simulate workload. Detail specification on centrifugal compressor must accompany bid.

C. The outer housing is to be manufactured of a single sheet of ¼" spun steel and carry a minimum 5 year warranty. The housing must be isolated on rubber mounting supports. It will require only a single drain or clean out port no more than 2" in diameter that is plumbed beneath the water tank.

D. The compressor is to driven by a helical-gear, step-up transmission with a drive ratio of 1.6 to 1. The drive shaft is to be supported with tapered roller bearings and gears that are splash lubricated, requiring no manual greasing. The compressor is to be engaged and disengaged via a fluid coupler system, with start-stop control and auxiliary engine RPM control on the front operator's station. The vacuum relief system is to be located at the operator's station on the hose reel.

AUXILARY ENGINE:

A. The drive engine is to mounted on a frame using steel back rubber insulating mounting and then mounted to a subframe mounting base. Sound level of no more than 85 db at the operator station. The engine is to be a liquid cooled, diesel powered, turbo charged, 4-cylinder, heavy duty industrial, 4 cycle engine with a minimum of 120 HP. It is to have a minimum displacement of 240 cubic inches and come equipped with high temperature, low oil pressure shutdown

system and an exhaust silencer. Meters are to be mounted curbside and include the following instrumentation: tachometer, engine ignition, water temperature gauge, oil pressure gauge, voltmeter and hour meter.

ITEM

SPECIFICATIONS (MINIMUM)

BIDDER'S PROPOSAL

B. Bid must accompany the following information:
Rated CFM & Pressure

- Operating CFM & Pressure
- Estimated Horsepower Reserve
- Warranty Period & Terms
- HP Required to Drive Fan

- RPM of Fans @ Operating Level
- Engine RPM @ Operating Level
- Specification on Drive Engine/Controls/

Instrumentation

BOOM AND
VACUUM
HOSE:

A. The boom and hose reel must be front mounted.
The boom must not raise with debris body during
dumping.

B. It must be constructed using and anchored steel tube
for the outer sleeve and an inner 8" inner diameter
suction tube constructed of the same material. It must
have a smooth steel elbow . The boom is to provide
a minimum of 180 degrees of rotation it must telescope
a minimum of 8'. All actions are to be hydraulically
controlled (via hydraulic cylinder).

The boom to have an electric over
_____ hydraulic solenoid system with a means of adjusting

speeds of the boom actions; there must be an override
on the hydraulic circuit to relieve the boom should
it fail at any telescoped or rotated positions. It is to
be hydraulically driven up, down, left, right, extends,
and retracts and controlled with a remote push
button control station with a cable connected to the
lower frame of the hose reel.

C. A front mounted control for the boom is to be
supplied, allowing the operator to remotely control
the direction of the boom (In/Out, Up/Down, Left/Right)
the control will plug into the base of the Hose Reel. A
joystick control is also to be provided at the operator's
station.

D. Additionally, all inlet hose and tubing must have a
minimum 8" inner diameter. Sufficient pipe and
connectors to vacuum to depths or lengths of 22 feet
is to be supplied and is to include a specially tipped
vacuum nozzle

E. All connections between the debris body and vacuum
system must be self-adjusting, pressure fitting couplings

F. Two halogen boom lights are mounted on above the
vacuum hose at the steel elbow. A hand held halogen
lamp is to be provided, with terminal connection
at the base of the hose reel.

A cab protection device which is to be independent
of the cab shall be provided. Cab protection shall be
furnished with lock or tie-down attachment to keep
boom centered during transit.

ITEM

SPECIFICATIONS (MINIMUM)

BIDDER'S PROPOSAL

PAINT

The truck cab, water and debris storage tanks, hose
reel and other components located above the truck
frame height shall be painted white. Components
mounted below top of frame level will be painted

black. Aluminum components will not require paint.

SAFETY

The unit shall be equipped with all necessary lights, reflectors and any other safety equipment necessary for 24 hour operation as required by Federal and State of Oklahoma laws governing such and include:
G. V. W. R. overload warning device
Back-up alarm

MISCELLANEOUS:

A. The electrical system provided is to meet NEMA 4 standards throughout the complete wiring arrangement. partial systems are unacceptable. A complete wiring diagram is to be provided with the unit. All body lights are to be shock mounted and vapor sealed. The unit is to be equipped with circuit breakers enclosed in a sealed panel.

B. Two-directional arrow board mounted at the rear of the unit and consisting of 10-4 inch diameter lenses in a metal frame. Power supplied through a 12 V DC service with a 20 amp fuse and a control box mounted in the cab and labeled.

Two (2) strobes per City of Tulsa standard mounted at the top front and top rear, separately fused with control switch mounted in cab and labeled. Strobes shall be 6" diameter and 1,000,000 candle power.

"Y" strainer at water pump.

One (1) hand-held spotlight with 20' long cord (power receptacles located at operator station and at rear of vehicle)

C. Adequate hydraulic reserves are to be provided to operate all hydraulic functions at operating pressures and temperatures, and there must be a provision in the design of the unit to assist maintenance or operations personnel in the field to overcome hydraulic failure via a relief mechanism. All hydraulic hose and couplings are to be of industrial grade and meet all pressure and temperature requirements to provide complete safety to operating and maintenance personnel. Unit shall include hydraulic shut-off valves on suction returns and filter lines,

Paint is to be white matching color of chassis.

D. Tow hooks are to mounted at the front and rear of the chassis.

E. A lube manifold kit is to provide lubrication lines to rear door locks, debris box door hinges, debris body hinge, load level indicator, boom hinge pin and cylinder

ITEM

SPECIFICATIONS (MINIMUM)

BIDDER'S PROPOSAL

debris body hoist cylinder, and boom sleeve. _____
F. Install 1-18"x36"x 82" sealed and locking storage _____
box behind cab with adjustable shelf. Boxes to be _____
paddle type lock, keyed alike with 2 keys _____
G. Install 36"x18"x18" (or equivalent area) sealed and _____
locking tool and accessory box. One on each side of _____
unit with dry decking. Storage boxes to be paddle type _____
lock, keyed alike with 2 keys.

OPERATOR Training is to be conducted by a factory trained _____
TRAINING: representative for a minimum of 1 day (8 hours) _____
at delivery site.

ADDITIVE Standard transmission, Fuller RT-8608L, 9-speed _____
ALTERNATE: direct, with a Spicer 14", 2-Plate Ceramic Clutch _____
#1 Starter interlock shall be clutch pedal activated. _____
 (equivalent will be considered). Bidder _____
 shall indicate price differential. City of Tulsa shall _____
 have option to select transmission based on delivery _____
 time of unit.

ADDITIVE Pump off system by which excess water can be _____
ALTERNATE: pumped back to the manhole. The system shall _____
#2 consist of a hydraulically driven trash pump mounted _____
 in the debris body and plumbing to an exterior gate valve _____
 The pump must be able to pass 3" solids and rated at a _____
 minimum of 450gpm. The pump is to be located at the _____
 front curbside of the debris body and contained in an _____
 expanded steel mesh housing. 25' of discharge hose _____
 is to be supplied.

ADDITIVE Rodder Nozzle assemblies and hose guides as follows _____
ALTERNATE. 1. 30 degree, 6 rearward jets.

#3 2. 15 degree, 6 rearward and 2 forward jets. _____
NOZZLES AND 3. 15 degree, 6 rearward and 1 forward jet _____
GUIDES: 4. 1" Rotating nozzle - 4 jets (3 rearward thrust and _____
 one 45° forward. _____

 5. 6" diameter, weighted nozzle guide assembly with _____
 greasable swivel connection and leader hose. _____
 6. 10' x 1" leader hose - double steel braid _____
 7. 60 lb., 8 rearward bottom jets with swivel and fins _____
 to keep assembly in bottom of pipe for cleaning _____
 24" to 60" pipes. _____

 8. Two flexible hose guides with clamps and _____
 restraining ropes for protection of the rodder hose. _____

ADDITIVE A manually operated hose swedging tool for _____

ALTERNATE. #4 HOSE REPAIR: TOOL	installation of hose ends, equipped with a quick-mount on front bumper. Twenty (20) swedge type hose end fittings and ten (10) swivel connectors, compatible with rodder hose shall be supplied.	_____ _____ _____ _____
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<u>ITEM</u>	<u>SPECIFICATIONS (MINIMUM)</u>	<u>BIDDER'S PROPOSAL</u>
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ADDITIVE ALTERNATE	Two (2) hydraulic root saw and skid assembly's as follows:	_____ _____
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#5. HYDRAULIC ROOT SAWS:	A. <ol style="list-style-type: none"> 1. Internally ported hydraulic motor w/1 inch shaft, woodruff key and 5/16 inch bolt hole for the hub retaining bolt. 2. Stainless steel thruster jet nozzle, 1 inch, FPT thread with 5/16 inch retaining bolts. 3. Hub with 5/16 inch retaining bolt for attaching the optional saw blades of 6", 8", 10", 12", 15", and 18". 	_____ _____ _____ _____ _____
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	4. Adapter for purging and lubricating the saw motor using a conventional grease gun. This grease adapter will also serve to plug the inlet opening to the saw, preventing entrance of dirt trash when stored.	_____ _____ _____ _____
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	B. The hydraulic root saw motor will be of the gerotor design, capable of being driven from any standard Jet Cleaner producing 50 to 80 gpm at 1600 to 2500 psi and will develop approximately 1475 inch lb. of torque and 370 rpm. All	_____ _____ _____ _____
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	internal water porting will be minimum of 7/16" diameter to provide maximum flow to the motor. C. Since lubrication and purging of water from all internal portions of the motor is critical, it must be thorough and easily accomplished by the operation personnel under field conditions by use of a conventional grease gun and a non-water soluble grease. A grease adapter will be included that is installed in the motor input (1 inch FPT), without the use of hand tools, will purge all water from the rotating mechanism of the root saw motor, will rotate the motor in the direction of use and will lubricate all rotating motor components, especially the gerotor and the thrust bearing.	_____ _____ _____ _____ _____ _____ _____ _____ _____
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	D. The jet thruster will be of stainless steel; the orifices will be sized to be compatible with the flow and pressure of the Jet Cleaner pump and it will be ported to accept the grease adapter. The jet thruster will bolt to the rear of the motor assembly in such a way as to be a separate item (re-useable with a replacement motor). It will not	_____ _____ _____ _____ _____ _____ _____ _____
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