FORM N: DETAILED SPECIFICATIONS 22028 (SECTION A)

WHEEL LOADER (4.25YD^3)

1.0 INSTRUCTIONS FOR COMPLETION OF SPECIFICATIONS

1.1 All items in these specifications should be answered indicating compliance or non-compliance.

1.2 **Bidders shall state "yes" for compliance or state "deviation"**, or give a reply where requested to do so. Deviations and/or equivalents shall be clearly stated and fully detailed. Deviations and/or equivalents will be considered subject to evaluation. In every instance where a brand name or design specifications is used, the City will also consider deviations and/or equivalents.

1.3 Lengthy explanations of deviations may be included in a separate document and must reference the appropriate Detailed Specification.

1.4 Each Bidder is required to fill in every blank. Failure to do so may be used as a basis for rejection of bid.

1.5 It will be the responsibility of the Bidder to inform the City of any errors or omissions in these Detailed Specifications, for under this Contract, the Contractor shall be held responsible to ensure that the manufacturer will be responsible for the design, performance, reliability and satisfactory operational function of the unit.

2.0 DESCRIPTION OF EQUIPMENT

2.1 These specifications describe **Wheel Loader** and other equipment and features as specified herein.

2.2 The **Wheel Loader** shall be a new 2022 model year or newer.

2.3 The **Wheel Loader** and all other items/components shall be the manufacturer's latest model. The equipment shall be furnished complete and ready for operation. Any parts or accessories not specifically mentioned, but which are required to complete and place the equipment and associated attachments in successful operation shall be furnished as though specifically mentioned in these specifications. The equipment and associated attachments, and all parts thereof, shall conform in strength and quality of material and workmanship, to the best standards and engineering practice of the industry.

2.4 The **Wheel Loader** shall be the manufacturer's latest model, as may be modified by these specifications. The **Wheel Loader** , including all auxiliary equipment, shall be furnished complete and ready for use. All parts not specifically mentioned but which are required for the complete unit shall conform in strength, quality of material and workmanship, to the best standards and engineering practice in the industry.

2.5 The ratings specified herein merely state the minimum values acceptable to the City, not implying that those values are sufficient for the design of the particular equipment being bid.

3.0 OTHER SPECIFICATIONS AND STANDARDS

3.1 All applicable SAE Standards form an integral part of the vehicle specifications and shall have precedence in any conflict concerning minimum acceptable standards.

3.2 The **Wheel Loader** shall comply with the applicable regulations:

Transport Canada, National Safety Mark, NSM: http://www.tc.gc.ca/eng/acts-regulations/acts-road.htm

Manitoba Safety and Health Regulation, Parts 12, 16, 22: https://web2.gov.mb.ca/laws/statutes/ccsm/w210e.php

Canadian Motor Vehicle Safety Standards C.M.V.S.S. http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._1038/section-sched3.html

Manitoba Highway Traffic Act regulations and requirements including, but not limited to, a Manitoba Government Inspection with Safety Sticker. http://web2.gov.mb.ca/laws/regs/index.php?act=h60

Canadian Standards Association, CSA: http://www.csagroup.org/

Under Writers of Canada, U/L: http://www.ulc.ca/

Society of Automotive Engineers, SAE: http://www.sae.org/

City of Winnipeg Lighting Visibility Standard: http://winnipeg.ca/matmgt/pdfs/PublicWorksEquipLightingVisibility.pdf

Manitoba Building Code: https://web2.gov.mb.ca/laws/regs/current/_pdf-regs.php?reg=31/2011

3.3 All welding and welding designs of the load supporting elements shall conform to the requirements of the Canadian Standards Association Standard (CSA) W47.1-03 and W59-03.

4.0 REFERENCES

4.1 Provide five (5) references where this equipment is used in a working environment where climatic conditions are similar to the City of Winnipeg.

_____
_____
_____
_____
_____

5.0 MAKE & MODEL

5.1 State year, make and model being bid: _____

6.0 **PERFORMANCE RELIABILITY**

6.1 The responsibility for the design of the **Wheel Loader**, its performance and reliability shall rest upon the Contractor.

6.2 The term “repeated failures” as used herein is defined to mean that the same component, subassembly, or assembly develops repeated defects, breakdowns and/or malfunctions rendering the vehicle inoperative, or requiring repeated shop correction, service and/or replacement during the warranty period applicable for said component, subassembly, of assembly. Minor items or ordinary service adjustments are not included, or considered under the scope of “repeated failures”, as well as other factors, such as operational damage due to accidents, misuse or lack of proper maintenance, service and lubrication attention by not following the manufacturer’s preventative maintenance schedule.

6.3 Where the **Wheel Loader** develops “repeated failures” in service, the Contractor shall make any necessary engineering changes, repairs, alterations or modifications in order to guarantee reliability of performance.

6.4 The equipment shall be capable of consistent top performance in City of Winnipeg Environment. Note: The City of Winnipeg has four seasons with ambient temperatures ranging from approximately 90°F (32°C) to -40°F (-40°C).

7.0 **FUEL**

7.1 Where applicable, all equipment must be fully fueled upon delivery (no exceptions).

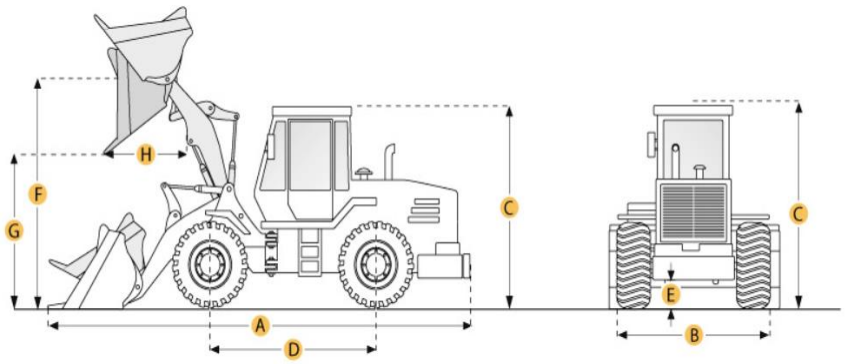
8.0 **QUALIFICATIONS OF MANUFACTURER & CONTRACTOR**

8.1 The manufacturer of the **Wheel Loader** shall have five (5) years continuous experience manufacturing the equipment.

8.2 The manufacturer shall have in effect a documented quality control program ensuring that the quality of materials and workmanship, including welding, conforms to the best standards and engineering practice of the industry.

8.3 The Contractor shall have five (5) years continuous experience servicing, repairing and maintaining **Wheel Loader** of the type being offered.

9.0 **SPECIFICATIONS:**



DIMENSIONS

9.1	Loader type	Articulating.	_____
9.2	Overall transport length (A)	**State.**	_____
9.3	Width: over tires (B)	**State.**	_____
9.4	Overall height (top of cab) (C)	**State.**	_____
9.5	Wheelbase (D)	**State.**	_____
9.6	Ground clearance (E)	**State.**	_____
9.7	Hinge pin height (F)	**State.**	_____
9.8	Dump clearance at max raise at 45° (G)	**State.**	_____
9.9	Reach at max lift and dump 45°(H)	**State.**	_____
9.10	Operating weight (as bid)	Approx. 42,000 – 43,000 lbs., **state** weight.	_____

ENGINE

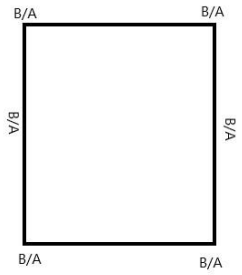
9.11	Engine make & model	**State.**	_____
9.12	Engine specification	Diesel, Emissions Tier IV Final, must meet current Emission Standards.	_____
9.13	Horse power	Approx. Net 200-235HP, **state.**	_____
9.14	Torque	Net torque, approx. 750 lb-ft, **state.**	_____
9.15	Engine aspiration	**State.**	_____
9.16	Fuel shut off	Electric solenoid type.	_____
9.17	Fuel Filter	With water separator.	_____
9.18	Oil filter	Full flow, spin-on type.	_____
9.19	Air cleaner	Dry two-stage cartridge type with restriction indicator and pre-cleaner.	_____
9.20	Throttle	Hand operated with foot override.	_____

9.21	Exhaust	Muffler with exhaust pipe, vertical discharge with bend and 40° cut-off (rain cap unacceptable).	_____
9.22	Coolant	Extended life, protected to -40° C.	_____
9.23	Engine block heater	Approx. 1000 Watts, 120VAC.	_____
9.24	Cold weather starting aid	Glow plugs or air intake warmer, **state** type.	_____
9.25	Automatic De-rating or equivalent for exceeding system parameters	Shall provide visual and audible warning of principal machine systems including engine oil pressure, low fuel pressure and coolant temperature. Shall provide the ability for the operator to move the machine to a safe location where the machine will not pose a threat to the operator or the public. OEM approved only.	_____
9.26	Programmable anti-idling system	For carbon emission, reduction/fuel consumption.	_____
9.27	Oil sampling valves	For engine, transmission and hydraulic system.	_____
9.28	Engine side covers	Hinged (if lockable, all locks must be keyed alike).	_____
9.29	Fuel tank	**State** capacity.	_____

ELECTRICAL/ LIGHTING/ SAFETY

9.30	Type	24-Volt, negative ground electrical system.	_____
9.31	Electric starter	With key starter switch.	_____
9.32	Starter switch	Key type or keyless type with security code, **state**.	_____
9.33	Batteries	Dual batteries, 2000 CCA combined capacity.	_____
9.34	Battery disconnect switch (lockable)	Protected from the elements. Switch to be lockable with pad lock.	_____
9.35	Alternator	Approx. 120 Amp, **state** capacity.	_____
9.36	Combined stop and tail lights	Two (2). LED.	_____
9.37	Signal lights with warning flashers	Two (2) front and two (2) rear, LED.	_____
9.38	Warning flashers	Operable with key removed.	_____
9.39	Headlights	Two (2).	_____

9.40	Working lights (heavy duty)	a) Front- two (2) front mounted, adjustable, mounted near to pivot of loader lift arm.	_____
		b) Rear-two (2) rear mounted, adjustable.	_____
9.41	Light switches	Independent on/off switch for each pair of work lights, dash mounted, wired through ignition, labeled with permanent type, engraved style labels.	_____
9.42	Cab interior light	Interior light with door switch(s) and master switch.	_____
9.43	Radio	AM/FM/CD or MP3.	_____
9.44	Radio installation provision	12 volt, 20Amp spate/independent circuit available at a spare circuit breaker, suitable for installation of a 2-way mobile radio.	_____
9.45	Horn	Operable from driving position.	_____
9.46	Safety lighting Full set of Manitoba Highways provincially approved highway lights (wigwag lights).	One Blue and 1amber located on all four corners and 1 blue and1amber on each side of the cab roof flush mounted (6 blue 6 amber lights total). Make model: Whelen TIR3, SAE Class 1, 360 degree visibility. Wired through ignition, lights shall be wired for separate amber and separate blue labelled independently “winter”, “off”, “summer”. The winter mode will turn on both blue and amber, the summer will only turn on the amber lights.	_____



9.47	Back-up alarm	97 dB, factory installed, mounted to be protected from damage.	_____

9.48	Wiring	a) All locally installed accessories shall be color coded, loomed and properly secured. Splicing in any factory harness is unacceptable. All electrical power for locally supplied electrical components to be supplied from an OEM power distribution box.	_____
		b) All joining of wires and electrical connectors shall be soldered and sealed with heat shrink tubing. All wiring for work lights and warning lights shall be supplied with no exposed wiring.	_____
9.49	LED lighting	All lighting LED, **state.**	_____
9.50	Slow moving sign	Grote 71152 or equivalent with bracket mounted to rear.	_____

TIRES, RIMS, FENDERS

9.51	Tires	Tire appropriate for use on gravel pad with thicker hard cut resistant rubber.	_____
9.52	Tread	Snow design style tread, front and rear.	_____
9.53	Tire size	Approx. 23.5R25 L3, **state** size.	_____
9.54	Make and model of tires	**State**._____	_____
9.55	Rims	3-piece design.	_____
9.56	Fenders	Front and rear, rubber or polymer, with anti-skid tape on step surfaces where applicable. **State**, material.	_____

AXLES, STEERING & BRAKES

9.57	Front axle	Electronic or hydraulic locking differential, **State** type.	_____
9.58	Rear axle	Electronic or hydraulic locking differential, **State** type.	_____
9.59	Rear axle	Semi-floating or oscillating rear axle	_____
9.60	Differential drain plugs	Magnetic.	_____
9.61	Brakes	4-wheel, hydraulic operated wet disk type.	_____
9.62	Parking brake	Spring applied and hydraulically released.	_____
9.63	Two control pedals	Accelerator pedal. Dual purpose pedal: transmission disconnect with braking.	_____

9.64	Steering	Articulated with approx. 35° articulations left and right of center, **state.**	_____
9.65	Articulating center pin components	**State** type.	_____
9.66	Operational Steering and Articulating Requirements	a) Steering and Articulation of the machine must be smooth, controlled and continuous, fully raised and loaded at engine idle speed.	_____
		b) Steering wheel movement must be smooth, controlled and continuous fully raised and loaded engine speed. There shall be no erratic, pulsating or jerking movement of the steering wheel.	_____
		c) Steering equipped with neutralizer valves or equivalent to prevent frame to frame contact at full articulation.	_____
9.67	Steering frame lock	Required.	_____

TRANSMISSION

9.68	Type	Shall have the capability of allowing the operator to select either automatic or manual shifting.	_____
9.69	Shift control	Single lever.	_____
9.70	Speeds forward	**State** number of speeds.	_____
9.71	Speeds reverse	**State** number of speeds.	_____
9.72	Power-shift	Shall have the capability of full power shift with torque converter.	_____

FRONT END LOADER

9.73	Breakout Force w/ 4.25yd^3 general purpose bucket	Approx. 33,000 lbs. **State.**	_____
9.74	Tipping load straight w/ 4.25yd^3 general purpose bucket	Approx. 28,000 lbs. **State.**	_____
9.75	Tipping load 40º turn w/ 4.25yd^3 general purpose bucket	Approx. 25,000 lbs. **State.**	_____
9.76	Dumping clearance 45º w/ 4.25yd^3 general purpose bucket	Approx. full height approx. 11ft.	_____
9.77	Hinge pin height fully raise	Approx. 13ft.	_____
9.78	Loader Controls	One dual function lever that provides lift and curl of the bucket. Automatic return-to-carry.	_____

9.79	Self-levelling bucket	With level indicator.	_____
9.80	Boom height control (kick-out)	Automatic, adjustable.	_____
9.81	Ride control system	OEM system, ride control system shall be of the type that automatically engages or disengages, dependent on the machines ground speed.	_____
9.82	Safety prop bar (if available)	OEM approved.	_____
9.83	Hydraulic fluid level indicator	Required.	_____
9.84	Auxiliary hydraulics	For attachment growth, 3rd function valve.	_____
9.85	Hydraulic quick coupler:		_____

Welco Beales Quick Coupler (no substitutes) required for existing city attachment(s).

Example of coupler on current City owned wheel loaders (Assembly no. 130-412-0480).

ATTACHMENTS

Note: Attachments to be priced only as indicated on Form B: Prices Section A.

Attachments (Section A). Unit to have the following attachments

9.86	General purpose bucket	a) General Purpose (4.25 yd^3) WBM Quick Coupler hook on bucket with bolt on cutting edge. Bucket width to exceed machine width at tires.	_____
		b) Cutting edge - bolt-on, heat treated steel, 1, 2 or 3 piece reversible blade acceptable, full width of bucket x 12 inch deep, Bucyrus or equal.	_____
		c) Bottom wear plates - required to prevent bucket heel from rubbing on ground with bolt-on cutting edge in place.	_____
		d) Side wear plates - bolt-on, replaceable, Bucyrus or equal. **State:** • Make: _____ • Model: _____ • Part number: _____ • Overall width: _____	
9.87	Pallet Forks	Carriage and fork set with 48" tines **State:** • Make: _____ • Model: _____ • Part number: _____ • Overall width: _____	

GREASING SYSTEM

9.88 Greasing system

NLGI-2 heavy-duty automatic lubrication system -System layout shall perform under the operating principles of a Parallel injection system (Progressive systems not acceptable). System shall be connected to all grease points, outfitted with automatic low level shut-off, with an in cab monitor showing system status such as low level, low pressure and/ or fault code display. _____

9.89 Pump reservoir

a) 8kg or larger pump reservoir (appropriate for the size of the machine) and required parameters preprogrammed to accommodate 500 hour service intervals. Pump must have correct filler adapter fitting for City of Winnipeg maintenance staff to refill reservoir. _____

b) Adapter fitting-Parker part# h2-63. _____

c) For safety reasons, access to refill the pump reservoir shall be via remote fill line of min. 3/8in. hose to accommodate a refill procedure at ground level. _____

d) The greasing system pump shall be electrically driven. Pneumatic pumps and external mounted air compressors not acceptable. _____

9.90 Power input

System power connection 24-Volt to ignition source with an accessible fuse protection and for greasing system to shut down completely when the engine is turned off. _____

9.91 Grease lines

a) Main grease lines: Extreme Low temperature (example: Eaton Areo Quip Match Mate Global Ice SAE 100R16) steel braided rubber hose with compatibility to accommodate max working pressure of 6000psi. Each hose on all connected points outfitted with #4 JIC crimped or reusable ends. _____

b) Secondary grease lines: 1/8 in. ID braided hose with 6000psi working pressure or equivalent, with # 4 JIC crimped or reusable ends and must be installed and protected from extreme environments such as heat sources and components producing vibration. _____

c) In extreme environment areas such as the lower machine articulator pin, and front bucket pins, heavy wall pipe must be fitted. _____

9.92 Thread sealant

Applied to main and secondary grease lines of each fitting. _____

9.93 Greasing points

a) **State,** quantity of greasing points. _____

b) **State,** quantity of grease points that cannot be connected to the automatic lubrication system but will be connected with remote grease lines. Where remote lines are utilized, decals must be applied stating manual greasing is required with recommended grease application intervals. _____

9.94 Injector manifolds

All manifolds and injectors shall be brass construction and to be fitted with nylon lock nut hardware and securely mounted in an area away from debris impact. Special guards should be fitted for injector manifolds and hoses in areas of consistent debris impact, i.e., snow, ice, road spray, etc. _____

9.95 Environmental impact, over-greasing

The system layout and grease injector delivery shall not over-grease any component to the extent where OEM warranties are voided. In addition, environmental impact features shall be incorporated in the automatic lubrication system, i.e., no grease pumped while parked or leaving excessive grease on roadways. _____

OPERATOR CAB

9.96	Type-ROPS	Roll-over protective structure complete with pressurized cab, OSHA certified or equal	_____
9.97	Insulation and headliner	For sound suppression and severe weather/climate.	_____
9.98	Floor covering	Rubber matting, throughout.	_____
9.99	Seat	Cushioned, adjustable bucket type with arm rests, cloth upholstery air suspension with retractable seat belt.	_____
9.100	All Windows	Tinted safety glass with appropriate markings for all panes and opening type where applicable.	_____
9.101	Ignition keys	Three (3) sets required per machine.	_____
9.102	Left and right doors	Lockable with common key. Door/window shall latch in fully opened position Complete with a full length ladder to provide safe exit if required.	_____
9.103	Anti-theft system	OEM installed.	_____
9.104	Interior rear-view mirror	Adjustable.	_____
9.105	Exterior rear view mirrors	One (1) each side. Heated with remote electric adjusting.	_____
9.106	Windshield wipers	Intermittent preferred, requires front and rear.	_____
9.107	Windshield washers	Front and rear.	_____
9.108	Heater/defroster/pressurizer	Heavy duty, hot water type with multi-speed fan and filtered air intake capable of keeping all windows clear at -40° C.	_____
9.109	Steering wheel	Tilt type.	_____
9.110	Air conditioning	Factory installed with under hood compressor. (Note: roof mounted air conditioners are not acceptable).	_____
9.111	Steps	Open grate style.	_____
9.112	Toolbox	Lockable, **state** location.	_____

9.113	Instrumentation	Coolant temperature-gauge with audible alarm. Engine oil pressure- gauge or warning light with audible alarm. Engine hour meter-non resettable type. Tachometer. Fuel gauge.	_____
9.114	Sun shades	Front and rear fold down style.	_____
9.115	Rear view camera	OEM installed with guard protection to minimize damage risk.	_____
9.116	Steps and hand rails	To provide access to windshield.	_____
9.117	Self-cleaning steps	For safe entry and exit.	_____
9.118	Noise Level, interior	85 dB(A), measured in accordance with SAE J336, **state** noise level.	_____
9.119	Fire extinguisher	Ten (10) lbs. High volume ABC type, **State** location.	_____

MISCELLANEOUS

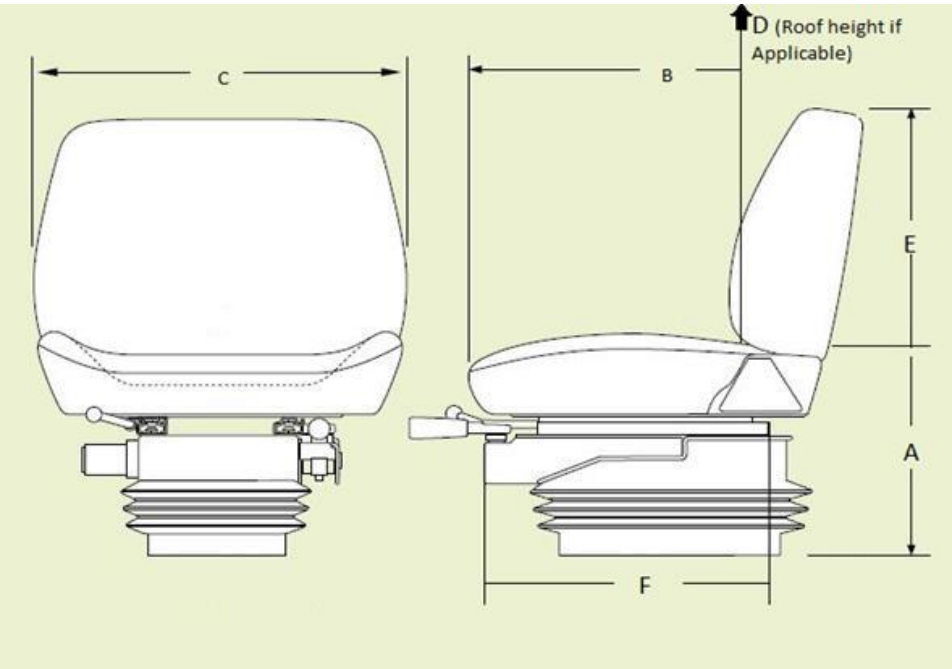
9.120	Rear bumper/counter with Drawbar hitch with pin		_____

10.0 OPERATOR STATION ERGONOMICS

Entry/ Exit

10.1	First step entry height	**State,** height of first step in inches.	_____
10.2	First handhold entry height	**State,** first handhold entry height in inches.	_____
10.3	Access to equipment	**State,** door opening height in inches.	_____
10.4	Access to equipment	**State,** door opening width in inches.	_____
10.5	Designed to prevent slipping	Anti-slip steps/handholds **(Y or N)?**	_____

Seat (use below diagram to answer questions)



10.6	Sitting height range from floor (where feet rest) (A)	**State,** seat height range in inches.	_____
10.7	Seat length/depth (B)	**State,** seat length/depth in inches.	_____
10.8	Seat width (C)	**State,** seat width in inches.	_____
10.9	Cab height from seat to roof (if applicable) (D)	**State,** cab height range in inches.	_____
10.10	Back rest height (E)	**State,** back rest height in inches.	_____
10.11	Seat travel range (F)	**State,** seat travel in inches.	_____
10.12	Lumbar support	Is lumbar support provided **(Y or N)?**	_____
10.13	Head rest	Is head rest provided **(Y or N)?**	_____
10.14	Seat is made of breathable material	**State,** type of seat material.	_____

Operation

10.15	Reaching distance to usual work	**State,** reaching distance in inches.	_____
10.16	Maximum reaching distance	**State,** maximum reach distance in inches.	_____
10.17	Adjustable pedals (accelerator/brake/clutch)	Are pedals adjustable **(Y or N)?**	_____
10.18	Adjustable steering wheel	Is steering wheel adjustable **(Y or N)?**	_____
10.19	Adjustable shoulder belt	Is belt adjustable and anchored **(Y or N)?**	_____

11.0 **WARRANTY**

11.1 All warranty information shall be detailed and include all exclusions. The Contractor shall provide all published warranty information upon delivery of the equipment. Bidder shall state all warranty information. _____

11.2	Basic coverage	**State:** _____	_____
11.3	Power train	**State:** _____	_____
11.4	Hydraulics warranty	**State:** _____	_____
11.5	Batteries warranty	**State:** _____	_____
11.6	Tires warranty	**State:** _____	_____
11.7	Electrical warranty	**State:** _____	_____
11.8	Cab structure/corrosion	**State:** _____	_____
11.9	Greasing System	**State:** _____	_____

12.0 DELIVERY

12.1 Delivery Point: The complete unit shall be serviced, ready for operation and delivered F.O.B. with the freight prepaid, including invoice and N.I.V.S. (if applicable) to the WFMA 185 Tecumseh Street, Winnipeg MB. The successful bidder shall be notified by the Contractor Administrator the delivery address prior to issuance of the purchase order. _____

12.2 Delivery Time: **Twelve (12) Calendar Weeks** from the date of award. If the delivery date specified is not achievable, **state** the earliest delivery time from date of award. Equipment shall be delivered between 8:00 am and 2:00 pm on Business Days. _____

12.3 Delivery Contact: The Contractor shall contact the Contract Administrator prior to delivery of the equipment. _____

12.4 P.D.I: A pre-delivery inspection shall be performed by the Contractor on the equipment. Proof upon inspection including completed check list. _____

13.0 MANUALS

13.1 Manuals supplied under this contract shall cover the complete equipment including all components thereof, CD or USB flash drive is preferred where available. _____

13.2 The following manuals shall be supplied with the units when delivered:

a) Operator's manual – Two (2) per unit (one operator manual shall be sent to the Equipment Operator Training Branch _____

b) Parts and service manuals – one (1) complete sets including preventative maintenance schedules. CDs or USB flash drive are preferred. _____

14.0 FIRST SERVICE PREVENTATIVE MAINTENANCE KIT

14.1 In order to assure minimum downtime of the equipment in future service, the Contractor shall provide one (1) complete replacement set of new OEM filters for each unit purchased. The set of required filters shall include (if applicable to the equipment type) air, fuel, oil, cab and hydraulic, or otherwise all known necessary common replacement filters required for the first preventative maintenance servicing. _____

14.2 The Contractor shall provide a list of factory recommended lubricants to be used with the equipment, as well as a complete cross reference guide for all warranty approved lubricants and filters that can be used during preventative maintenance servicing. _____

15.0 **PARTS/LABOUR PRICING**

15.1 Bidder to provide City of Winnipeg Parts Discount % Pricing from retail parts pricing. **State percentage discount-** _____

15.2 Bidder to provide City of Winnipeg Labor Discount % Pricing from Retail shop labor rate. **State percentage discount-** _____

FORM N: DETAILED SPECIFICATIONS 22029 (SECTION B)

WHEEL LOADER (2.5YD^3)

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Manitoba Safety and Health Regulation, Parts 12, 16, 22: https://web2.gov.mb.ca/laws/statutes/ccsm/w210e.php

Canadian Motor Vehicle Safety Standards C.M.V.S.S. http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._1038/section-sched3.html

Manitoba Highway Traffic Act regulations and requirements including, but not limited to, a Manitoba Government Inspection with Safety Sticker. http://web2.gov.mb.ca/laws/regs/index.php?act=h60

Canadian Standards Association, CSA: http://www.csagroup.org/

Under Writers of Canada, U/L: http://www.ulc.ca/

Society of Automotive Engineers, SAE: http://www.sae.org/

City of Winnipeg Lighting Visibility Standard: http://winnipeg.ca/matmgt/pdfs/PublicWorksEquipLightingVisibility.pdf

Manitoba Building Code: https://web2.gov.mb.ca/laws/regs/current/_pdf-regs.php?reg=31/2011

3.3 All welding and welding designs of the load supporting elements shall conform to the requirements of the Canadian Standards Association Standard (CSA) W47.1-03 and W59-03.

4.0 REFERENCES

4.1 Provide five (5) references where this equipment is used in a working environment where climatic conditions are similar to the City of Winnipeg.

_____
_____
_____
_____
_____

5.0 MAKE & MODEL

5.1 State year, make and model being bid: _____

6.0 **PERFORMANCE RELIABILITY**

6.1 The responsibility for the design of the **Wheel Loader**, its performance and reliability shall rest upon the Contractor.

6.2 The term “repeated failures” as used herein is defined to mean that the same component, subassembly, or assembly develops repeated defects, breakdowns and/or malfunctions rendering the vehicle inoperative, or requiring repeated shop correction, service and/or replacement during the warranty period applicable for said component, subassembly, of assembly. Minor items or ordinary service adjustments are not included, or considered under the scope of “repeated failures”, as well as other factors, such as operational damage due to accidents, misuse or lack of proper maintenance, service and lubrication attention by not following the manufacturer’s preventative maintenance schedule.

6.3 Where the **Wheel Loader** develops “repeated failures” in service, the Contractor shall make any necessary engineering changes, repairs, alterations or modifications in order to guarantee reliability of performance.

6.4 The equipment shall be capable of consistent top performance in City of Winnipeg Environment. Note: The City of Winnipeg has four seasons with ambient temperatures ranging from approximately 90°F (32°C) to -40°F (-40°C).

7.0 **FUEL**

7.1 Where applicable, all equipment must be fully fueled upon delivery (no exceptions).

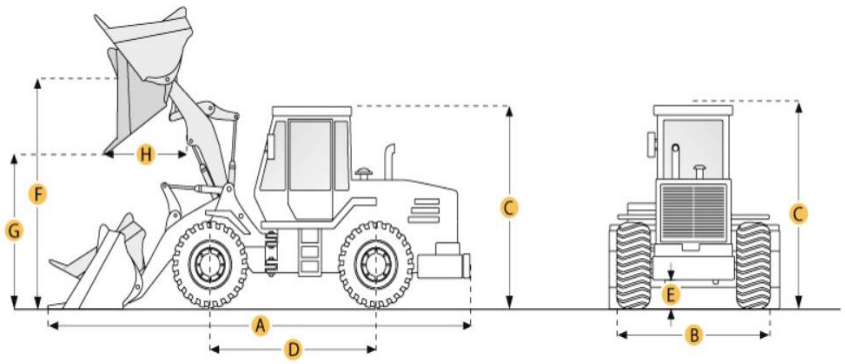
8.0 **QUALIFICATIONS OF MANUFACTURER & CONTRACTOR**

8.1 The manufacturer of the **Wheel Loader** shall have five (5) years continuous experience manufacturing the equipment.

8.2 The manufacturer shall have in effect a documented quality control program ensuring that the quality of materials and workmanship, including welding, conforms to the best standards and engineering practice of the industry.

8.3 The Contractor shall have five (5) years continuous experience servicing, repairing and maintaining **Wheel Loader** of the type being offered.

9.0 **SPECIFICATIONS:**



DIMENSIONS

9.1	Loader type	Articulating.	_____
9.2	Overall transport length (A)	**State.**	_____
9.3	Width: over tires (B)	**State.**	_____
9.4	Overall height (top of cab) (C)	**State.**	_____
9.5	Wheelbase (D)	**State.**	_____
9.6	Ground clearance (E)	**State.**	_____
9.7	Hinge pin height (F)	**State.**	_____
9.8	Dump clearance at max raise at 45° (G)	**State.**	_____
9.9	Reach at max lift and dump 45°(H)	**State.**	_____
9.10	Operating weight (as bid)	Approx. 25,000 – 27,000 lbs., **state** weight.	_____

ENGINE

9.11	Engine make & model	**State.**	_____
9.12	Engine specification	Diesel, Emissions Tier IV Final, must meet current Emission Standards.	_____
9.13	Horse power	Approx. Net 124-135HP, **state.**	_____
9.14	Torque	Net torque, approx. 390-425 lb-ft, **state.**	_____
9.15	Engine aspiration	**State.**	_____
9.16	Fuel shut off	Electric solenoid type.	_____
9.17	Fuel Filter	With water separator.	_____
9.18	Oil filter	Full flow, spin-on type.	_____
9.19	Air cleaner	Dry two-stage cartridge type with restriction indicator and pre-cleaner.	_____
9.20	Throttle	Hand operated with foot override.	_____

9.21	Exhaust	Muffler with exhaust pipe, vertical discharge with bend and 40° cut-off (rain cap unacceptable).	_____
9.22	Coolant	Extended life, protected to -40° C.	_____
9.23	Engine block heater	Approx. 1000 Watts, 120VAC.	_____
9.24	Cold weather starting aid	Glow plugs or air intake warmer, **state** type.	_____
9.25	Automatic De-rating or equivalent for exceeding system parameters	Shall provide visual and audible warning of principal machine systems including engine oil pressure, low fuel pressure and coolant temperature. Shall provide the ability for the operator to move the machine to a safe location where the machine will not pose a threat to the operator or the public. OEM approved only.	_____
9.26	Programmable anti-idling system	For carbon emission, reduction/fuel consumption.	_____
9.27	Oil sampling valves	For engine, transmission and hydraulic system.	_____
9.28	Engine side covers	Hinged (if lockable, all locks must be keyed alike).	_____
9.29	Fuel tank	**State** capacity.	_____

ELECTRICAL/ LIGHTING/ SAFETY

9.30	Type	24-Volt, negative ground electrical system.	_____
9.31	Electric starter	With key starter switch.	_____
9.32	Starter switch	Key type or keyless type with security code, **state**.	_____
9.33	Batteries	Dual batteries, 2000 CCA combined capacity.	_____
9.34	Battery disconnect switch (lockable)	Protected from the elements. Switch to be lockable with pad lock.	_____
9.35	Alternator	Approx. 110 Amp, **state** capacity.	_____
9.36	Combined stop and tail lights	Two (2). LED.	_____
9.37	Signal lights with warning flashers	Two (2) front and two (2) rear, LED.	_____
9.38	Warning flashers	Operable with key removed.	_____
9.39	Headlights	Two (2).	_____

9.40	Working lights (heavy duty)	a) Front- two (2) front mounted, adjustable, mounted near to pivot of loader lift arm.	_____
		b) Rear-two (2) rear mounted, adjustable.	_____
9.41	Light switches	Independent on/off switch for each pair of work lights, dash mounted, wired through ignition, labeled with permanent type, engraved style labels.	_____
9.42	Cab interior light	Interior light with door switch(s) and master switch.	_____
9.43	Radio	AM/FM/CD or MP3.	_____
9.44	Radio installation provision	12 volt, 20Amp spade/independent circuit available at a spare circuit breaker, suitable for installation of a 2-way mobile radio.	_____
9.45	Horn	Operable from driving position.	_____
9.46	Safety lighting (beacon)	Make and Model: Whelen L31 Series Super-LED, SAE Class 1 Blue/Amber (individual control) beacon, 360 degree visibility. Wired through ignition, lights shall be wired for separate amber and separate blue labelled independently “winter”, “off”, “summer”. The winter mode will turn on both blue and the summer will only turn on the amber lights.	_____
9.47	Beacon guard	Ramped, heavy duty bolt-on metal guard, designed to permit servicing of beacon without being removed.	_____
9.48	Back-up alarm	97 dB, factory installed, mounted to be protected from damage.	_____
9.49	Wiring	a) All locally installed accessories shall be color coded, loomed and properly secured. Splicing in any factory harness is unacceptable. All electrical power for locally supplied electrical components to be supplied from an OEM power distribution box.	_____
		b) All joining of wires and electrical connectors shall be soldered and sealed with heat shrink tubing. All wiring for work lights and warning lights shall be supplied with no exposed wiring.	_____
9.50	LED lighting	All lighting LED, **state.**	_____

9.51	Slow moving sign	Grote 71152 or equivalent with bracket mounted to rear.	_____
	TIRES, RIMS, FENDERS		
9.52	Tires	Tire appropriate for use on streets with thicker hard cut resistant rubber.	_____
9.53	Tread	Snow design style tread, front and rear.	_____
9.54	Tire size	Approx. 20.5R25 L3, **state** size.	_____
9.55	Make and model of tires	**State.**_____	_____
9.56	Rims	3-piece design.	_____
9.57	Fenders	Front and rear, rubber or polymer, with anti-skid tape on step surfaces where applicable. **State**, material.	_____
	AXLES, STEERING & BRAKES		
9.58	Front axle	Electronic or hydraulic locking differential, **State** type.	_____
9.59	Rear axle	Electronic or hydraulic locking differential, **State** type.	_____
9.60	Rear axle	Semi-floating or oscillating rear axle	_____
9.61	Differential drain plugs	Magnetic.	_____
9.62	Brakes	4-wheel, hydraulic operated wet disk type.	_____
9.63	Parking brake	Spring applied and hydraulically released.	_____
9.64	Two control pedals	Accelerator pedal. Dual purpose pedal: transmission disconnect with braking.	_____
9.65	Steering	Articulated with approx. 35° articulations left and right of center, **state.**	_____
9.66	Articulating center pin components	**State** type.	_____

9.67	Operational Steering and Articulating Requirements	a) Steering and Articulation of the machine must be smooth, controlled and continuous, fully raised and loaded at engine idle speed.	_____
		b) Steering wheel movement must be smooth, controlled and continuous fully raised and loaded engine speed. There shall be no erratic, pulsating or jerking movement of the steering wheel.	_____
		c) Steering equipped with neutralizer valves or equivalent to prevent frame to frame contact at full articulation.	_____
9.68	Steering frame lock	Required.	_____

TRANSMISSION

9.69	Type	Shall have the capability of allowing the operator to select either automatic or manual shifting.	_____
9.70	Shift control	Single lever.	_____
9.71	Speeds forward	**State** number of speeds.	_____
9.72	Speeds reverse	**State** number of speeds.	_____
9.73	Power-shift	Shall have the capability of full power shift with torque converter.	_____

FRONT END LOADER

9.74	Breakout Force w/ 2.5yd^3 general purpose bucket	Approx. 16,000 lbs. **State.**	_____
9.75	Tipping load straight w/ 2.5yd^3 general purpose bucket	Approx. 17,000 lbs. **State.**	_____
9.76	Tipping load 40º turn w/ 2.5yd^3 general purpose bucket	Approx. 14,500 lbs. **State.**	_____
9.77	Dumping clearance 45º w/ 2.5yd^3 general purpose bucket	Approx. full height approx. 8-9ft.	_____
9.78	Hinge pin height fully raise w/ 2.5yd^3 general purpose bucket	Approx. 11.5ft.	_____
9.79	Loader Controls	One dual function lever that provides lift and curl of the bucket. Automatic return-to-carry.	_____
9.80	Self-levelling bucket	With level indicator.	_____
9.81	Boom height control (kick-out)	Automatic, adjustable.	_____

9.82	Ride control system	OEM system, ride control system shall be of the type that automatically engages or disengages, dependent on the machines ground speed.	_____
9.83	Safety prop bar (if available)	OEM approved.	_____
9.84	Hydraulic fluid level indicator	Required.	_____
9.85	Auxiliary hydraulics	For attachment growth, 3rd function valve.	_____
9.86	Hydraulic quick coupler:	For loader buckets and attachments. Engage/release for operator's seat.	_____

ATTACHMENTS

Note: Attachments to be priced only as indicated on Form B: Prices Section B.

Attachments (Section B). 2 Units to have the following attachments

9.87	General purpose bucket	a) General Purpose (Approx. 2.5 yd^3) Quick Coupler hook on bucket with bolt on cutting edge. Bucket width to exceed machine width at tires.	_____
		b) Cutting edge - bolt-on, heat treated steel, 1, 2 or 3 piece reversible blade acceptable, full width of bucket x 12 inch deep, Bucyrus or equal.	_____
		c) Bottom wear plates - required to prevent bucket heel from rubbing on ground with bolt-on cutting edge in place.	_____
		d) Side wear plates - bolt-on, replaceable, Bucyrus or equal.	
		State: • Make: _____ • Model: _____ • Part number: _____ • Overall width: _____	
9.88	Pallet Forks	Carriage and fork set with 48" tines **State:** • Make: _____ • Model: _____ • Part number: _____ • Overall width: _____	_____

GREASING SYSTEM

9.89 Greasing system

NLGI-2 heavy-duty automatic lubrication system -System layout shall perform under the operating principles of a Parallel injection system (Progressive systems not acceptable). System shall be connected to all grease points, outfitted with automatic low level shut-off, with an in cab monitor showing system status such as low level, low pressure and/ or fault code display. _____

9.90 Pump reservoir

a) 6kg or larger pump reservoir (appropriate for the size of the machine) and parameters preprogrammed required to accommodate 500 hour service intervals. Pump must have correct filler adapter fitting for City of Winnipeg maintenance staff to refill reservoir. _____

b) Adapter fitting-Parker part# h2-63. _____

c) For safety reasons, access to refill the pump reservoir shall be via remote fill line of min. 3/8in. hose to accommodate a refill procedure at ground level. _____

d) The greasing system pump shall be electrically driven. Pneumatic pumps and external mounted air compressors not acceptable. _____

9.91 Power input

System power connection 24-Volt to ignition source with an accessible fuse protection and for greasing system to shut down completely when the engine is turned off. _____

9.92 Grease lines

a) Main grease lines: Extreme Low temperature (example: Eaton Areo Quip Match Mate Global Ice SAE 100R16) steel braided rubber hose with compatibility to accommodate max working pressure of 6000psi. Each hose on all connected points outfitted with #4 JIC crimped or reusable ends. _____

b) Secondary grease lines: 1/8 in. ID braided hose with 6000psi working pressure or equivalent, with # 4 JIC crimped or reusable ends and must be installed and protected from extreme environments such as heat sources and components producing vibration. _____

c) In extreme environment areas such as the lower machine articulator pin, and front bucket pins, heavy wall pipe must be fitted. _____

9.93 Thread sealant

Applied to main and secondary grease lines of each fitting. _____

9.94 Greasing points

a) **State,** quantity of greasing points. _____

b) **State,** quantity of grease points that cannot be connected to the automatic lubrication system but will be connected with remote grease lines. Where remote lines are utilized, decals must be applied stating manual greasing is required with recommended grease application intervals. _____

9.95 Injector manifolds

All manifolds and injectors shall be brass construction and to be fitted with nylon lock nut hardware and securely mounted in an area away from debris impact. Special guards should be fitted for injector manifolds and hoses in areas of consistent debris impact, i.e., snow, ice, road spray, etc. _____

9.96 Environmental impact, over-greasing

The system layout and grease injector delivery shall not over-grease any component to the extent where OEM warranties are voided. In addition, environmental impact features shall be incorporated in the automatic lubrication system, i.e., no grease pumped while parked or leaving excessive grease on roadways. _____

OPERATOR CAB

9.97	Type-ROPS	Roll-over protective structure complete with pressurized cab, OSHA certified or equal	_____
9.98	Insulation and headliner	For sound suppression and severe weather/climate.	_____
9.99	Floor covering	Rubber matting, throughout.	_____
9.100	Seat	Cushioned, adjustable bucket type with arm rests, cloth upholstery air suspension with retractable seat belt.	_____
9.101	All Windows	Tinted safety glass with appropriate markings for all panes and opening type where applicable.	_____
9.102	Ignition keys	Three (3) sets required per machine.	_____
9.103	Left and right doors	Lockable with common key. Door/window shall latch in fully opened position Complete with a full length ladder to provide safe exit if required.	_____
9.104	Anti-theft system	OEM installed.	_____
9.105	Interior rear-view mirror	Adjustable.	_____
9.106	Exterior rear view mirrors	One (1) each side. Heated with remote electric adjusting.	_____
9.107	Windshield wipers	Intermittent preferred, requires front and rear.	_____
9.108	Windshield washers	Front and rear.	_____
9.109	Heater/defroster/pressurizer	Heavy duty, hot water type with multi-speed fan and filtered air intake capable of keeping all windows clear at -40° C.	_____
9.110	Steering wheel	Tilt type.	_____

9.111	Air conditioning	Factory installed with under hood compressor. (Note: roof mounted air conditioners are not acceptable).	_____
9.112	Steps	Open grate style.	_____
9.113	Toolbox	Lockable, **state** location.	_____
9.114	Instrumentation	Coolant temperature-gauge with audible alarm. Engine oil pressure- gauge or warning light with audible alarm. Engine hour meter-non resettable type. Tachometer. Fuel gauge.	_____
9.115	Sun shades	Front and rear fold down style.	_____
9.116	Rear view camera	OEM installed with guard protection to minimize damage risk.	_____
9.117	Steps and hand rails	To provide access to windshield.	_____
9.118	Self-cleaning steps	For safe entry and exit.	_____
9.119	Noise Level, interior	85 dB(A), measured in accordance with SAE J336, **state** noise level.	_____
9.120	Fire extinguisher	Ten (10) lbs. High volume ABC type, **State** location.	_____

MISCELLANEOUS

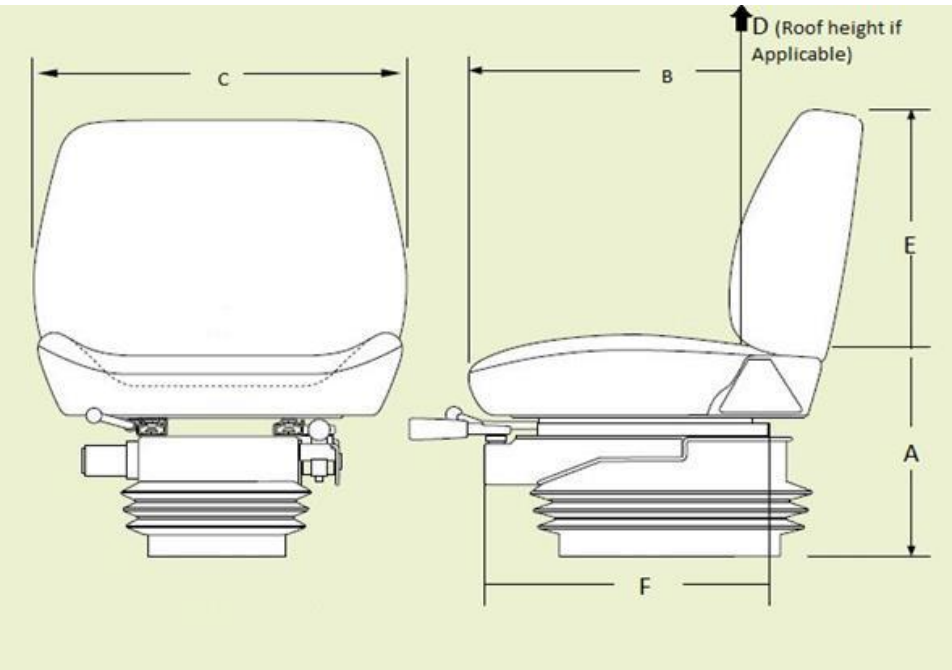
9.121	Rear bumper/counter with Drawbar hitch with pin	_____

10.0 OPERATOR STATION ERGONOMICS

Entry/ Exit

10.1	First step entry height	**State,** height of first step in inches.	_____
10.2	First handhold entry height	**State,** first handhold entry height in inches.	_____
10.3	Access to equipment	**State,** door opening height in inches.	_____
10.4	Access to equipment	**State,** door opening width in inches.	_____
10.5	Designed to prevent slipping	Anti-slip steps/handholds **(Y or N)?**	_____

Seat (use below diagram to answer questions)



10.6	Sitting height range from floor (where feet rest) (A)	**State,** seat height range in inches.	_____
10.7	Seat length/depth (B)	**State,** seat length/depth in inches.	_____
10.8	Seat width (C)	**State,** seat width in inches.	_____
10.9	Cab height from seat to roof (if applicable) (D)	**State,** cab height range in inches.	_____
10.10	Back rest height (E)	**State,** back rest height in inches.	_____
10.11	Seat travel range (F)	**State,** seat travel in inches.	_____
10.12	Lumbar support	Is lumbar support provided **(Y or N)?**	_____
10.13	Head rest	Is head rest provided **(Y or N)?**	_____
10.14	Seat is made of breathable material	**State,** type of seat material.	_____

Operation

10.15	Reaching distance to usual work	**State,** reaching distance in inches.	_____
10.16	Maximum reaching distance	**State,** maximum reach distance in inches.	_____
10.17	Adjustable pedals (accelerator/brake/clutch)	Are pedals adjustable **(Y or N)?**	_____
10.18	Adjustable steering wheel	Is steering wheel adjustable **(Y or N)?**	_____
10.19	Adjustable shoulder belt	Is belt adjustable and anchored **(Y or N)?**	_____

11.0 **WARRANTY**

11.1	All warranty information shall be detailed and include all exclusions. The Contractor shall provide all published warranty information upon delivery of the equipment. Bidder shall state all warranty information.		_____
11.2	Basic coverage	**State:** _____	_____
11.3	Power train	**State:** _____	_____
11.4	Hydraulics warranty	**State:** _____	_____
11.5	Batteries warranty	**State:** _____	_____
11.6	Tires warranty	**State:** _____	_____
11.7	Electrical warranty	**State:** _____	_____
11.8	Cab structure/corrosion	**State:** _____	_____
11.9	Greasing System	**State:** _____	_____

12.0 **DELIVERY**

12.1 Delivery Point: The complete unit shall be serviced, ready for operation and delivered F.O.B. with the freight prepaid, including invoice and N.I.V.S. (if applicable) to the WFMA 185 Tecumseh Street, Winnipeg MB. The successful bidder shall be notified by the Contractor Administrator the delivery address prior to issuance of the purchase order. _____

12.2 Delivery Time: **Twelve (12) Calendar Weeks** from the date of award. If the delivery date specified is not achievable, **state** the earliest delivery time from date of award. Equipment shall be delivered between 8:00 am and 2:00 pm on Business Days. _____

12.3 Delivery Contact: The Contractor shall contact the Contract Administrator prior to delivery of the equipment. _____

12.4 P.D.I: A pre-delivery inspection shall be performed by the Contractor on the equipment. Proof upon inspection including completed check list. _____

13.0 **MANUALS**

13.1 Manuals supplied under this contract shall cover the complete equipment including all components thereof, CD or USB flash drive is preferred where available. _____

13.2 The following manuals shall be supplied with the units when delivered:

a) Operator's manual – Two (2) per unit (one operator manual shall be sent to the Equipment Operator Training Branch _____

b) Parts and service manuals – one (1) complete sets including preventative maintenance schedules. CDs or USB flash drive are preferred. _____

14.0 **FIRST SERVICE PREVENTATIVE MAINTENANCE KIT**

14.1 In order to assure minimum downtime of the equipment in future service, the Contractor shall provide one (1) complete replacement set of new OEM filters for each unit purchased. The set of required filters shall include (if applicable to the equipment type) air, fuel, oil, cab and hydraulic, or otherwise all known necessary common replacement filters required for the first preventative maintenance servicing. _____

14.2 The Contractor shall provide a list of factory recommended lubricants to be used with the equipment, as well as a complete cross reference guide for all warranty approved lubricants and filters that can be used during preventative maintenance servicing. _____

15.0 **PARTS/LABOUR PRICING**

15.1 Bidder to provide City of Winnipeg Parts Discount % Pricing from retail parts pricing. **State percentage discount-** _____

15.2 Bidder to provide City of Winnipeg Labor Discount % Pricing from Retail shop labor rate. **State percentage discount-** _____