

## **BID SPECIFICATIONS**

BID DESCRIPTION: One (1) New and Unused <sup>2014</sup>~~2013~~ Caterpillar 416F 4 WD Extendable Stick Backhoe/Loader or Approved Equal (ECWA No. 603) with all standard equipment and warranties, including the following:

PROJECT No. 201300100

### **2013 CATERPILLAR 416F 4WD EXTENDABLE STICK BACKHOE/LOADER** **or approved equal**

#### **BASIC SPECIFICATIONS**

Height to the top of the cab to be a maximum 9' 3".

Overall transport height to be a maximum 11' 11".

Overall transport length shall be a maximum of 23' 5".

Maximum overall transport width to be 93".

Wheelbase to be a minimum of 84"

Ground clearance to be a minimum 12"

Counterweight to be minimum 450 lbs.

Backhoe to have a minimum digging depth of 17' 11" with extendable stick.

#### **ENGINE**

Engine must comply with U.S. EPA Tier 4 Interim / EU Stage IIIB off road emission requirements.

Turbocharged engine net peak flywheel horsepower to be a minimum 88 HP.

Engine to be a turbocharged, four cylinder, direct injection diesel engine, manufactured by the backhoe manufacturer.

Engine to have vertical spin-on fuel filters.

Engine to have a water separator with service indicator light.

The engine to have a provision for efficient cold weather starting to -20 degrees F.

Engine to be protected to a minimum -34 degrees F

Engine cooling fan to have a heavy-duty guard that fully prevents human contact while in operation.

Engine to be equipped with an alternator that has a charging capacity of minimum 120 amperes.

Engine to be equipped with two maintenance-free minimum 880 CCA batteries.

Engine to be equipped with a single, automatically tensioned, serpentine accessory belt.

Engine to have variable-speed, hand and foot throttle controls.

Engine to have a full flow spin-on type oil filter.

Engine to have a minimum net peak torque at 1400 rpm of 277 ft-lbs. with minimum 37% torque rise.

Fuel tank to have side and bottom guards.

#### **POWERTRAIN/TRANSMISSION**

Transmission to have an electric neutral lock switch to prevent driveline engagement.

Transmission, differentials, and hydraulics oils to have separate fluid reservoirs.

4WD to be engaged at any time by activating the switch on the console and be able to activate the switch while the machine is moving or stopped and with or without a load.

4WD guard to provide full coverage between the frame rails to protect the front drive shaft.
Unit to be able to change direction and travel speed on-the-go.
Units to be equipped with a transmission disconnect button on the gear shifter and loader control to allow full engine power to the loader.
Transmission to be made serviced and supported by the machine manufacturer.
Transmission to have spin-on type oil filter, mounted vertically.
Unit to be equipped with a torque converter temperature gauge.
Unit to have a minimum top road speed of 20 mph.
Unit to have 4 forward gears, 2 reverse gears minimum.
<b><u>BRAKES</u></b>
Parking brake to be mechanically applied through an adjustable hand lever.
Foot-operated brake pedals to be able to be interlocked for road driving.
Service brakes to be completely enclosed and sealed.
Brakes to be oil-immersed, self-adjusting, hydraulically-actuated.
<b><u>HYDRAULIC SYSTEM</u></b>
Hydraulic pump pressure to be at least 3,300 psi for backhoe operation.
Hydraulic system to have a replaceable vertically mounted, spin-on filter that is accessible from under the main frame.
Hydraulic pump to be rated at a minimum 28 gpm.
Machine to be able to reach maximum lift capacity at any engine speed.
Hose fittings to have O-ring face seal connections for maximum seal reliability.
All hydraulic hoses restrained by rubber grommets and steel band clamps to have full protective coverage by the rubber grommet, preventing cuts and chaffing by the band clamps.
All backhoe implement hydraulic lines will incorporate hoses with a high wear resistant coating.
<b><u>AXLES</u></b>
Automatic four-wheel braking required
Rear axle differential lock to be engaged with an electric switch mounted on the floor.
Front axle to be pendulum-mounted, permanently sealed and lubricated, requiring no daily maintenance.
The final drives to be heavy-duty outboard planetary type.
Heavy-duty rear axle to be semi-floating with self-adjusting brakes.
<b><u>TIRES</u></b>
Rear tires to be 19.5L-24 10 ply traction tread minimum.
<b><u>CAB</u></b>
Cab to have air conditioning.
Cab to have a heater/defroster with multiple speed blower with the control in reach from the front and rear of the machine.
The cab to be equipped with two entrance doors and a minimum of 5 opening windows.
Machine to have a horn, audible back up alarm and electric fuel system shut off.
Operator's compartment to have laminated safety glass on front windshield and tempered glass on all other windows.

Unit to have a lighted instrument panel located on the right side of the cab so that it is visible from both loader and backhoe operating positions.
Unit to include four front and four rear halogen work lights actuated by separate switches.
Machine to have stop and turn signals with flashing hazard lamps visible from front and rear.
Cab to have a magnetic roof mounted rotating beacon.
A cloth air-suspension seat with a 2" retractable seat belt and adjustable flip-up adjustable armrests.
Hour meter
With doors and windows closed, unit to have a maximum operator sound exposure of 80 dB(A).
To have a tilt steering wheel.
Cab to have front and rear windshield wipers/washers.
AM /FM Radio
<b><u>BACKHOE</u></b>
Backhoe controls to be 2-lever manual
Backhoe to have a hydraulically extendable dipper stick.
Backhoe to have a curved boom for its ability to work in confined areas and to reach over obstacles.
Rated bucket digging force to be a minimum of 11,106 lbs.
Per SAE standards, stick digging force to be a minimum of 7,000 lbs
Backhoe reach, from the swing pivot, to be no less than 17'11" with the E stick retracted and 21' 5" with the E stick fully extended.
Backhoe to have a loading height of no less than 13'7".
Backhoe bucket to have a minimum of 190 degrees of bucket rotation in one pin position.
Backhoe to have a swing arc of 180 degrees.
Extendible stick to have serrated edges to help clamp objects securely with bucket.
Extendible stick to be self-lubricating, clearance adjustable.
Boom cylinder to be exterior mounted.
Stick cylinder to be exterior mounted.
Boom and stick to be weld repairable.
Backhoe to be equipped with a swing transport lock.
Backhoe to be equipped with a boom lock that can be controlled from the seated position.
Flip over stabilizer pads to be included
Backhoe to have stabilizer lock valves
<b><u>LOADER</u></b>
Loader hinge pin height to be a minimum 11' 1".
Loader dump clearance with MP bucket to be a minimum 8' 6".
Loader breakout force to be a minimum 8,175 lbs. with a 1.25 cu. yd. minimum multipurpose bucket.
Loader lift capacity to be a minimum 5,028 lbs. at full height with a 1.25 minimum cu yd. multipurpose bucket.
Bucket rollback at ground to be a minimum of 38 degrees.
Bucket dump angle to be a minimum of 44 degrees.
Loader to be equipped with a return-to-dig mechanism.
Loader to be equipped with a lift cylinder brace to mechanically hold the loader arms in the raised position.

**BUCKETS**

Loader bucket to be a pin on minimum 1.25 cu. yd. multipurpose bucket with reversible bolt on cutting edges. The bucket to be minimum 86" wide and maximum 90" wide.

The backhoe bucket to be a pin on 18" heavy duty bucket.

**SERVICEABILITY**

Engine oil, transmission oil, hydraulic oil, brake fluid, washer fluid, coolant, engine air filter, and engine air filter monitor to all be consolidated service points, accessible under the hood with loader arms down.

Water and sediment to be drained from the fuel / water filter without raising the hood or opening an access panel.

The swing frame to have replaceable bushings installed in the pin joints for the boom, swing cylinder rod ends and swing post.

The rear axle to have brake wear check ports, allowing access to inspect brake pad wear.

The machine will be equipped with an electronic diagnostic port, allowing service codes to be downloaded and electronic parameters to be adjusted.

The unit to be provided with a master electrical disconnect switch.

**SERVICE FILL CAPACITIES**

Cooling system to have a minimum capacity of 5.8 gallons.

Engine oil to have a minimum capacity of 2 gallons.

Fuel tank to have a minimum capacity of 41 gallons.

Hydraulic system to have a minimum capacity of 23.6 gallons.

**OWNING & OPERATING COSTS**

Front axles to have sealed king pin and center pendulum bearings.

Batteries to be maintenance free.

Driveshaft universal joints to be maintenance free.

Engine to have a 500 hour oil change interval.

**MANUALS**

Operators – Maintenance – Parts All to be delivered with the new backhoe.

**WARRANTY**

One year with unlimited hours. There will be no time or mileage charges to Erie County Water Authority for any warranty work regardless of where the work is performed while under the base warranty.

**DELIVERY**

150 days or less