State of Illinois

Department of Transportation

Bureau of Business Services

**Specifications and Questionnaire for a Wheel Type Excavator**

Minimum 48,500 Lbs. Operating Weight

January 2020

The following specifications describe the **minimum** requirements for heavy-duty, multi-purpose, hydraulic powered, wheeled type excavators. The equipment bid shall be new, of current design and manufacture, and a regular production model. Any additions, deletions, or variations from the following specifications must be noted or the bid will be rejected. Any standard items appearing in the manufacturer’s regular published specifications furnished by the bidder shall be included in the bid unless otherwise noted. Twocopiesof published specifications shall be included with the bid.

Machine modification to meet the operational and capacity requirements shall be limited to the published standard or optional equipment as regularly installed and approved for use by the manufacturer and depicted in the furnished literature. All operating specifications are based on SAE standards. These standards shall be the basis for determining compliance with specified requirements.

Bidders quoting on other-than-specified equipment must submit with their bid written proof of the following:

* The manufacturer of the equipment proposed has been actively involved in the manufacture of the equipment called for in the Proposal for a period of not less than 5 years.
* Parts and service for the equipment proposed are readily available to the State of Illinois.

It is the responsibility of each bidder to complete and return this questionnaire with the bid.

**Unless otherwise specified, the proposed equipment shall be complete in all parts and ready for immediate use upon delivery.**

**Bidders are advised to carefully read these specifications as changes have been made since the last solicitation issue.**

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| --- | --- | --- | --- | --- | --- | --- |
| **Proposed with this Bid:** | | | | | | |
| Make: |  | | | | | |
| Model: | |  | | | | |
| Manufactured By: | | | | |  | |
| Bidder: | | |  | | | |
|  | | |  | | | |
|  | | |  | | | |
| Telephone: | | | |  | |
| Contact Name: | | | |  | |
| Email: | | | |  | |

The Illinois Department of Transportation reserves the right to waive minor informalities, deficiencies or technical variances which by their nature are restrictive to a given manufacturer, if in its’ judgement, it would be in the best interest of the State to do so and it would not prejudice the rights of other bidders.

Serviceability will be a factor in award. Successful bidder shall either be able to provide service after purchase or shall indicate other qualified service facilities able to service equipment, within a reasonable period of time at agency locations. Bidder shall provide documentation and enumerating service locations. A Review of the bidder's ability to provide prompt parts and service to the State of Illinois and in particular to the delivery location, will be considered in determining award.

Bids will only be accepted from established manufacturers or their authorized dealers. Any dealer submitting a bid hereby guarantees that it is an authorized dealer of the manufacturer and that the manufacturer has agreed to supply the dealer with all quantities of products required by the dealer in fulfillment of its obligations under any resultant contract with the State. Bidder must submit authorized dealer letter upon request.

**Warranty:**

Unless otherwise specified, Manufacturers’ standard warranty shall be provided. **Bidder shall attach copies of warranty with their bid****. Warranty shall commence at the Illinois Department of Transportation in-service date.** If any equipment fails to conform to the warranties during the applicable warranty period, the Vendor or Manufacturer will adjust, repair or replace the equipment at no charge to the Department as soon as possible upon notice from the Department. Equipment shall be repaired on-site and will be performed at no additional cost to the Department.

The Vendor may provide or perform warranty service at a dealer location within the Districts geographic region if on-site repair is not possible. Vendor shall facilitate pickup and delivery of equipment at Vendor's cost if warranty repair(s) are made off-site during the warranty period. The contract Vendor is responsible for any failure of their allied or sub-contractors’ fulfillment of said warranties. Failure to provide this service shall result in a “Complaint to Vendor” that could affect future bid awards.

**Delivery:**

It will be the responsibility of the successful vendor to guarantee delivery within the quoted time and to require allied manufacturers or suppliers to complete the installation of auxiliary equipment in accordance with the quoted delivery time.

Failure to comply with the quoted delivery time because of delays resulting from the inability of suppliers of allied equipment such as bodies, snowplows, spreaders, etc., may be reason to refuse to consider similar items from those suppliers on future bids.

All equipment provided by the Vendor and the sub-contractor(s) shall be fully operational when delivery is made. Any noted defects at the time of delivery shall be addressed by Vendor in the first 30 days of in-service.

Bidder/Vendor acknowledges the requirements above. Yes  No

|  |  |  |  |
| --- | --- | --- | --- |
| Bidder/Vendor Initials: |  | Date: |  |

**Note: If the equipment proposed exceeds the minimums called for in the specification please do not mark NO. Mark Yes and explain with a short comment on how it exceeds.**

**The excavator shall include the following standard or optional equipment and accessories:**

**Size:**

The excavator shall have a minimum SAE compliant operating weight of 48,500 lbs. when equipped per specifications.

Operating weight equipped per specifications:

|  |  |  |
| --- | --- | --- |
| Operating weight: |  | Lbs. |

***Note:*** If proposing a make and model other than specified, manufacturers printed confirmation depicting operating weight and lifting capacity will be required.

**Boom, Arm, Buckets, and Accessories:**

The excavator shall be furnished with a “one-piece” standard length boom with an approximate length of 16’.

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| --- | --- | --- | --- | --- |
| Boom length: |  | Feet |  | Inches |

The excavator shall be furnished with an arm (stick) length of no less than 9’-0”.

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| --- | --- | --- | --- | --- |
| Arm length: |  | Feet |  | Inches |

Complies:  Yes  No

Equipped per specifications, this excavator shall have an approximate digging depth of 19’-11” to dig to an 8’-0” level bottom excavation.

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| --- | --- | --- | --- | --- |
| Digging Depth for 8’ level bottom: |  | Feet |  | Inches |

Equipped per specifications; the excavator shall have an approximate digging depth of 20’-6”.

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| --- | --- | --- | --- | --- |
| Maximum Digging Depth: |  | Feet |  | Inches |

Reach at ground level shall be approximately 32’-0”.

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| --- | --- | --- | --- | --- |
| Reach @ ground level: |  | Feet |  | Inches |

Complies:  Yes  No

The boom shall be furnished with a boom holding or anti-drift valve for precise boom control while setting pipe, concrete barrier curb, or other similar functions.

Complies:  Yes  No

Equipped per specifications the excavator shall have a transport height no greater than 12’.

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| --- | --- | --- | --- | --- |
| Transport Height: |  | Feet |  | Inches |

Complies:  Yes  No

*This excavator will be used to move and place concrete barrier sections. These weigh 5,000± pounds each and must be set from tractor trailers and removed at the completion of the construction project. Many of these projects will be on bridge decks requiring the use of a rubber tired machine. The capacities specified are minimums we believe necessary to safely complete this task.*

Minimum SAE lifting capacity at ground level over the end and fully extended shall be no less than 7,000 lbs. equipped per specifications, including counterweight and deployed stabilizers.

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| --- | --- | --- |
| Extended over the front lifting capacity @ ground level: |  | Lbs. |

Complies:  Yes  No

The ISO lifting capacity over-the-side at 20’-0” reach with the specified 9’-0” arm with outriggers deployed, extended 20’ above ground shall be a minimum of 11,000 pounds.

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| --- | --- | --- |
| Extended 20’-0” over the side lifting capacity @ 20’ above ground level: |  | Lbs. |

Complies:  Yes  No

The ISO lifting capacity over-the-front at 20’-0” reach with the specified 9’-0” arm with outriggers deployed, at 5’ above ground line shall be at shall be a minimum of 15,300 pounds.

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| Extended 20’-0” over the front lifting capacity @ 5’ above ground level: |  | Lbs. |

Complies:  Yes  No

The excavator equipped with the 9’ 0” arm shall have an ISO rated bucket digging force of approximately 22,425 pounds.

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| Bucket digging force: |  | Lbs. |

Counter weighting is extremely important in ensuring the stability of the machine while operating in uneven terrain. The machine will be operated in severe conditions and be used in response to natural and manmade disasters as well as routine ditch cleaning, setting barrier curb sections, and setting pipe and entrance culverts. Proper balance is important to promote operator and all worker’s safety. Please list below the counter weighting provided with this machine, keeping in mind the options specified with the base machine.

|  |  |  |
| --- | --- | --- |
| Counter weight: |  | Lbs. |

This machine is to be furnished with a JRB POWERLATCH multi pin-grabber coupler. This device is available to all manufacturers for mounting on their machines. The use of this device has eliminated the personal injuries we have experienced while manually removing, aligning, and reinstalling pins in both the end of the boom and at the bucket. The difficulty of performing this manually is made more difficult and dangerous when performed on the uneven terrain of a construction work site.

Complies:  Yes  No

Component:

|  |  |  |
| --- | --- | --- |
| Make: |  | |
| Model: | |  |

The following two (2) buckets shall be furnished with the wheeled excavator requested. All capacities listed shall be measured using SAE heaped standards:

* Standard 36” wide bucket ditch type, with five (5) replaceable type teeth and a .95 cu. yd. capacity.
* A 60” wide grading, ditch cleaning bucket with smooth cutting edge. The bucket shall have a .75 cubic yard capacity.

Complies:  Yes  No

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| --- | --- | --- |
| Standard bucket capacity: |  | Qu. Yd. |

Component:

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| --- | --- | --- | --- | --- | --- |
| Make: |  | | | | |
| Model: | |  | | | |
| Ditch cleaning bucket capacity: | | |  | Lbs. |

Component:

|  |  |  |
| --- | --- | --- |
| Make: |  | |
| Model: | |  |

**Hydraulic “Thumb” Attachment:**

The thumb type bucket attachment shall be rated for the capacity of the excavator, hydraulically operated and be fully controlled by the operator’s controls in the cab. All hydraulic hoses, connections, hardware, and brackets shall be included.

Complies: Yes  No

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| Describe: |  |
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The thumb shall fold and store on the dipper stick when not in use.

Complies: Yes  No

The hydraulic “thumb” shall be mounted after the specified coupler so they will function independently, without interfering with the operations of each other.

Complies: Yes  No

**Diesel Engine:**

The loader shall be powered by a current production, liquid cooled, turbo charged, 6-cylinder, diesel engine with an SAE J1349 net horsepower minimum of 165 and minimum displacement of 400 cu. in.

Component provided:

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Make: |  | | | | | | | | | | | | | |
| Model: | |  | | | | | | | | | | | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | Net H.P.: |  | @ |  | RPM | | | | | | | | | | | | | | |
| Number of cylinders: | | | | |  | | | |
| Displacement: | | |  | | | | | | | Cu. In. | |
| Rated H.P. (Gross) | | | |  | | | | | | | H.P. | |
| Turbo Charged: Yes | | | | |  | No |  |  | | | | | | | |

The engine shall be compliant with all present clean air regulations and include all Tier 4 emission standards.

Complies:  Yes  No

Additional equipment and accessories shall include:

1. Cold weather starting aid.
2. Dry type primary air cleaning element equipped with safety element and restriction indicator.
3. Muffler as required to meet emissions.
4. Engine side shields or hood with locks.
5. Engine fuel filter/water separator.

Complies: Yes  No

The machine shall require entry of an electronic “PIN” code to start the engine and run the features of the excavator.

Complies:  Yes  No

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| --- | --- |
| Describe: |  |
|  | |

**Cooling System:**

Pressurized liquid cooling system equipped with a thermostat. System shall be filled with manufacturer’s approved extended life antifreeze.

Complies: Yes  No

**Transmission:**

Hydrostatic drive to each wheel shall be provided by the transmission mounted directly on the rear axle for protection and increased ground clearance. Travel speeds shall be controlled by an auto-shift feature for high/low utilizing an auto or “intelligent” shift feature. These functions shall include both forward and reverse directions and from 0 to approximately 22.0 MPH.

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| --- | --- | --- | --- |
| Travel speed range: |  | | MPH |
| Describe travel feature: | |  | | |
|  | | | | |
|  | | | | |

The excavator shall include a cruise control switch that allows the operator to select the travel speed.

Complies:  Yes  No

The excavator shall include a “ride-control” feature to promote smoother rides on rough terrain or highways. This feature shall be operator controlled.

Complies:  Yes  No

**Steering:**

The operator will have a steering wheel for the placement of the wheeled excavator. All boom functions shall be controlled by joy stick controls. Repositioning the machine while digging or operating is accomplished using a “slider switch” on one of the joy sticks.

Complies:  Yes  No

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| Describe: |  |
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**Brakes:**

The excavator shall be equipped with a disc brake system acting directly on the hub to prevent planetary gear backlash.

Complies:  Yes  No

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| If No describe: |  |
|  | |

**Undercarriage:**

The undercarriage shall be constructed of welded structural steel. The four (4) outriggers shall be an integral part of the undercarriage and be located at each corner.

Complies:  Yes  No

Wheelbase length shall be approximately 8’-6”.

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| --- | --- | --- | --- | --- |
| Track length: |  | Feet |  | Inches |

Complies:  Yes  No

The excavator shall be equipped with tandem (2) tires and wheels at each corner. They shall be 11.00-20 duals PR16 ply with tapered lugs to promote self-cleaning and to enhance traction in heavy dirt and mud. ***Note:*** Spacer rings must be included. Please describe Tire sizes other than specified.

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| --- | --- | --- | --- | --- |
| Tire size: | |  | |  |
| Describe: | |  | | |
|  | | | | |

Fenders shall be provided to keep mud, rocks, etc. from being thrown on to the machine.

Complies: Yes  No

**Electrical:**

The excavator may be equipped with a 12-volt or 24-volt electrical system and require two (2) maintenance free batteries. The batteries shall have a main shut-off switch.

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| --- | --- | --- |
| Batteries: |  | CCA |

Complies: Yes  No

The electrical system shall include a connection/circuit to provide 12-volt service for the Department of Transportation to connect radio equipment and other devices. The circuit shall be fused at a minimum of 5 amps.

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| --- | --- |
| Describe location: |  |
|  | |

A minimum 115-amp alternator and transistorized voltage regulator.

Complies: Yes  No

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| --- | --- | --- |
| Alternator rating: |  | Amps |

The excavator shall be provided with the following lighting for day and night operations:

* Boom mounted work light(s).
* Turntable mounted work lights.
* Cab exterior and cab interior lighting
* Instrument and gauge lighting
* LED Warning strobes

Complies: Yes  No

|  |  |  |
| --- | --- | --- |
| If No Describe: |  | |
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|  | |

**Hydraulic System:**

The hydraulic system shall be a load sensing type hydraulic system with separate swing pump and heavy lift mode.

The excavator shall feature two (2) joystick hydraulic control with functions in the SAE approved pattern for swing, boom, dipper, and bucket control functions. These excavators shall include adjustable control patterns as controlled by the operator.

Complies: Yes  No

|  |  |
| --- | --- |
| Describe pattern alteration and control: |  |
|  | |

All excavator operations shall be powered by hydraulic pump(s) with an approximate total capacity of 63 gpm each. The system shall be variable flow design monitored and controlled by the operator.

Complies: Yes  No

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pump #1 flow rating: |  | GPM | | |
| Pump #2 flow rating: |  | GPM | | |
| Hydraulic system operating pressure: | | |  | PSI |

The hydraulic system shall capable of operating all attachments specified and delivered with this machine from the operator’s position. If additional auxiliary hydraulics are required, they shall be included.

Complies: Yes  No

The hydraulic system shall include plumbing and control for the future addition of a demolition hammer. This must include the operator control in the cab.

Complies: Yes  No

**Operator’s Cab:**

The cab shall be manufacturer’s deluxe fully enclosed cab with sound suppression and lockable door(s). Cab shall be constructed to incorporate an OSHA approved and SAE rated ROPS support structure.

Complies: Yes  No

The cab shall be fully enclosed with lockable doors with 70/30 split, laminated, operating, glass windshield.

Complies: Yes  No

The side windows shall open and an opening “sky light” with sun shade in the top of the cab shall be included, all featuring laminated glass.

Complies: Yes  No

An operator-controlled wiper/washer system shall be provided for the front window.

Complies: Yes  No

The operator’s seat shall be fully adjustable air suspension type, and provide adjustment for leg room, height, reach, weight, and lumbar support. Seatbelt with warning indicator shall be included.

Complies: Yes  No

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| --- | --- | --- |
| Suspension type: |  |  |

The cab shall include manufacturer’s standard circulated Air conditioning/heater/defroster and controls.

Complies: Yes  No

The operator’s cab shall include vibration dampeners and Manufacturer’s standard sound suppression treatment.

Complies: Yes  No

The excavator shall be provided with a rear-view camera and display for the operator to see what is to the rear of the machine and mirrors to assist the operators vision to the right rear of the machine.

Complies:  Yes  No

A multi-function LCD or LED screen shall feature the ability to monitor the following machine information:

* Engine coolant temperature
* Fuel level
* DEF fluid level if equipped
* Digital electric hour meter
* Oil pressure warning
* Hydraulic oil temperature

Complies: Yes  No

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| If No Describe: |  |
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Additional cab equipment and accessories shall include:

* Horn
* Mounting steps with handholds
* Exterior and interior mirrors
* AM/FM radio with weather band and Bluetooth connectivity if available.
* 12-volt power point (socket or USB)
* Cab rock guards (vertical and horizontal bars to protect cab from debris)

Complies: Yes  No

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| If No Describe: |  |
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**Finish:**

All exterior surfaces normally painted or powder coated shall be manufacturer’s standard color.

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| --- | --- |
| Describe finish: |  |

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**Warranty:**

Full coverage warranty for a minimum 12 months shall be provided. The warranty shall be the standard maximum coverage warranty offered with no additional charges. The bidder shall attach a copy of warranty with the bid.

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| Describe warranty: |  |
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**Preparation:**

This machine is to be delivered in first-class operating condition with acceptance subject to Department of Transportation approval.

Complies: Yes  No

The unit shall be delivered oiled, greased, serviced and ready for operation.

Complies: Yes  No

**General:**

Three copies of all operator’s manuals, parts lists, and warranty information shall be provided at time of delivery to each district receiving one or more units.

Complies: Yes  No

One set of service manuals shall be provided to each delivery location.

Complies: Yes  No

***Note:*** The manuals, parts lists, and service or shop manuals listed above may be furnished on CD/DVD or flash drive in lieu of paper.

**Training:**

Instruction shall be performed by **qualified** factory or dealer personnel covering the operation, routine service and maintenance of the machine shall be provided upon delivery. The training shall be for all personnel in the assigned headquarters location of the machine. More than a single day may be required to satisfy this requirement.

Complies: Yes  No

|  |  |
| --- | --- |
| Describe: |  |
|  | |
|  | |

***Note:*** This is not a sales call. Training not meeting IDOT expectations will generate a “Complaint-to-Vendor” that would affect award recommendations for future quotations.

**Requirements Covering Items Detailed Above:**

All equipment cataloged as standard or safety related shall be furnished and in place and shall be included in the purchase price of the unit. Any parts, tools, and/or accessories not specifically called for but required for proper operation shall be provided.

Complies:  Yes  No

The component parts of the unit shall be of proper size and design to safely withstand maximum stresses imposed by a capacity load, and the manufacturer's rated loads for all component parts shall **not** be exceeded when the unit is so loaded.

Complies:  Yes  No

**Repair Parts and Service:**

Since continuous operation of this excavator is of the utmost importance and sometimes of an emergency nature, it is necessary that the successful bidder be in a position to render prompt parts and service within the State of Illinois.

|  |  |
| --- | --- |
| List locations where service is readily available: |  |
|  | |
|  | |
|  | |

The vendor or manufacturer of the unit which is considered for award shall, at the request of the State of Illinois, demonstrate this equipment within the receiving District in the State of Illinois in the presence of authorized State personnel to prove out any features which may be in question.

Complies: Yes  No

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| --- | --- |
| If NO to any portion, please explain: |  |
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**Bid Package:**

If not quoting in BidBuy, bidders will need to send two copies of each of the following with their bid response.

a) Specification Questionnaire

b) Descriptive Literature

Picture is for visual reference only. Bid per specification.

