ADVERTISEMENT FOR BIDS

Sealed proposals for **Carbon Contactors** will be received by the City of Irondale, Alabama (Owner) in the Council Chambers at the City Hall in Irondale, Alabama at 101 20th Street South, Irondale, Alabama, until **4:00 p.m.,** the prevailing time on **September 23, 2024** or by mailing to 101 20th Street South, Irondale, Alabama 35210 at which time and place they will be publicly opened and read. The bid is comprised of the following principal items and approximate quantities:

1 – Modular Carbon Adsorption System (2 Carbon Contactors)

Specifications may be inspected and obtained at the Irondale Water Department. All Bidders must be responsible, meeting the criteria and requirements set forth in the specification documents. Prequalification of Bidders is not required.

This project is governed by competitive bid laws as contained in Title 41 of the Alabama Code. Bidders should be familiar with this code.

The Owner reserves the right to reject any or all proposals and to waive any informalities. No Bidder may withdraw his bid within sixty days from the date set for receiving of the same.

This project is governed by the applicable bid laws and practices of the state of Alabama.

By: Leigh Ann Allison

Title: City Clerk

STATE OF ALABAMA
COUNTY OF JEFFERSON

Invitation to Bid
Carbon Contactors

Sealed bids will be received by the City of Irondale, Alabama for the Irondale Water Department, City Hall, 101 20th Street South, Irondale, Alabama 35210 until 4:00 p.m. local time on September 23, 2024, at which time bids will be opened publicly and read in the City Council Chambers. The City reserves the right to reject any or all bids and to waive informalities in awarding this bid to the lowest responsive bidder. Bidders are to state that bids submitted are firm and that no claims for errors will be made after bids are opened and subsequent thereof. If you have questions concerning this bid, contact Jared Morris in writing at jmorris@cityofirondaleal.gov.

GENERAL INFORMATION

All bidders must use the form provided in the bid package for submitting their bids. All bids must be sealed and marked in the lower left corner "BID – Carbon Contactors". Late bids will not be opened.

Records showing successful bidder(s) and prices quoted will be placed on file and may be examined upon request.

Should there be a change in ownership or management, the contract may be canceled at the City's discretion unless a mutual agreement is reached with the new owner or manager to continue the contract with its present provisions and prices. The contract is not transferable by either party.

METHOD OF AWARD

The award will be made to the lowest bidder meeting specifications. It is not the policy of the City to purchase on the basis of low bid only. Quality, conformity with the specifications, terms of delivery and past service and experience are among the factors that may be considered in determining the responsive bidder.

CONTRACT PERIOD

This contract will discharge upon payment and delivery of materials if payment *Option 1* is selected. The period of this contract will be for THIRTY-SIX (36) MONTHS from date of contract if payment *Option 2* is selected. This contract may be extended or renewed from the initial reward date upon the agreement of

both parties.

LAWS and ORDINANCES

The supplier shall observe and comply with all federal, state, local and municipal laws, ordinances, rules and regulations that would apply to this contract.

Leigh Ann Allison
City Clerk

SPECIFICATIONS

General

The supplier shall furnish and deliver one Model 12-40 DWC Adsorption System (two carbon vessels) as manufactured by Calgon Corporation or owner approved equal. Vessels shall be furnished filled with 80,000 lbs total (40,000 lbs each) of Filtrasorb 400M Granular Activated Carbon (GAC) manufactured by Calgon Corporation or owner approved equal. Vessels and carbon shall conform to all specifications listed within.

The supplier shall coordinate delivery of equipment with the Owner. Delivery shall take place no later than 30 calendar days after awarding the contract. The supplier shall coordinate a date for delivery that is satisfactory to the owner.

Vessels

The carbon adsorber vessels shall be fabricated of carbon steel, conforming to ASTM A516 grade 70, 12'-0" diameter by 16'-0" straight side height with 2:1 elliptical top and bottom heads. Each vessel shall be sized to contain 40,000 pounds of GAC and to accommodate approximately 30% bed expansion within the straight side of the vessel using Filtrasorb 400 GAC. The vessels are designed, constructed and stamped in accordance with ASME Section VIII, Division 1 and registered with the National Board for a design pressure rating of 125 psig at 140F. Each vessel will be provided with one (1) 20" diameter round manway located on the lower straight side portion of the vessel and one 14" x 18" elliptical manway located on the bottom head. The vessels will be free standing utilizing four (4) structural steel support legs. The vessel will be provided with four (4) lift lugs located on the top head and one tailing lug on the bottom head. The structural aspects of the vessel will be sufficient to meet the requirements of the International Building Code, latest edition.

Each vessel shall be designed with an internal 30° cone bottom underdrain system that provides uniform distribution of the treated water using a minimum of one (1) septa for every nominal square foot of vessel cross section, facilitates GAC removal without the need to open the manway to manually hose out the remaining spent GAC, and allows replacement of the septa without the need to remove external piping. The septa shall be designed to contain the GAC within the adsorber and be constructed of polypropylene (ppl) or stainless steel.

The vessel shall be provided with one 6" nozzle on the upper sidewall of the vessel for GAC fill, two (2) nozzles for GAC discharge, one (1) 6" GAC discharge nozzle is located on the vessel side wall and one (1) 4" centered on the bottom head, one (1) 8" influent nozzle located on the top head constructed of stainless steel and provided with an internal flange to support the inlet distributor, one (1) 8" effluent nozzle located on the bottom head, three (3) 2" sample nozzles located on the side wall, and one (1) 2" cone vent nozzle located on the lower side wall.

All surfaces shall be degreased prior to sandblasting. The adsorber internal surface shall be blasted to a white metal finish (SSPC-SP5) to provide a 3 to 4 mil anchor pattern. The exterior surfaces of the adsorber will be prepared by blasting per SSPC-SP6. The interior surfaces of the vessel shall be lined as follows: the surfaces above the internal cone with a nominal lining thickness of 35 to 45 mil dry film thickness (dft) and the surfaces under the internal cone bottom a nominal lining thickness of 20 to 25 mil dft. The lining material shall meet the requirements of ANSI 61 when applied and cured per the manufacturer's requirements. The lining material will be Carboline's Plasite 4110, vinyl ester lining or Blome International's TL-220S AR, vinyl ester lining or Carboline's Reactamine 760, aromatic polyurethane

hybrid. H. The exterior surface of the adsorbers shall be painted to a dry film thickness of 10 to 14 mil with a high solids epoxy (gray color) paint and finished with a polyurethane topcoat of 2 to 3 mil dft.

Piping and Valves

The process and utility piping on the adsorption system shall include influent water to the system, treated water (effluent), backwash water supply and discharge, adsorber vent lines and granular activated carbon fill and discharge piping. The influent and effluent pipe network shall allow series (lead/lag) and parallel only operating modes. Lead/lag operation shall allow either; a) flow from the influent flange to Adsorber A, to the pipe module, to Adsorber B, to the pipe module then to the effluent flange, or b) flow from the influent flange, to Adsorber B, to the pipe module, to Adsorber A, to the pipe module then to the effluent flange. The change in flow pattern is accomplished with a change of valve positions. Process piping (influent, effluent and backwash) will be 8" diameter, constructed of schedule 40 carbon steel, ASTM A53 Grade B materials with 125# ASTM A126 Class B cast iron flanged fittings. Vent piping will be 3" diameter, constructed of schedule 40 carbon steel, ASTM A53 Grade B materials. Carbon fill piping will be 4" diameter, constructed of schedule 40 carbon steel, ASTM A53 Grade B materials. The connection at the vessel side wall will be a 4"x 6" reducing elbow. The GAC fill connection will be supplied with an adjustable stainless-steel insert. There is a total of one (1) GAC fill line per vessel. Carbon discharge piping will be 4" diameter, constructed of schedule 40 polypropylene lined carbon steel, ASTM 53 Grade B materials with ppl lined flanged fittings. There are a total of two (2) GAC discharge lines per vessel. The connection at the vessel side wall will include a 4"x 6" reducing elbow. The GAC side wall discharge connection will be supplied with an adjustable stainless-steel insert. The vessel must be designed with an adjustable GAC removal system to allow for removal of the spent in 20,000 lbs. increments. Utility piping will be constructed of threaded schedule 80 carbon steel, ASTM 53 Grade B materials. All piping surfaces will be prepared by blasting per SSPC-SP7. The exterior surface of the piping will be painted to a dry film thickness of 10 to 14 mil with high solids epoxy paint prior to assembly to minimize oxidation at flanged connections, then finished with a polyurethane topcoat of 2 to 3 mil dft after assembly. The piping network will be provided with a structural steel support frame for support of the piping module.

The process and utility piping; excluding GAC fill and discharge piping will be equipped with butterfly valves to direct flow. A total of ten (10) 8" diameter butterfly valves will be supplied to accommodate the process and backwash functions. Two (2) valves are needed for backwash supply, two (2) valves are needed for influent isolation, two (2) valves for effluent isolation, two (2) valves for staging of the vessels and two (2) valves for the vent function. The influent, effluent, and backwash valves will be a cast iron wafer type body butterfly valve with aluminum-bronze disc, BUNA-N seats, and stainless-steel shaft to mate to 150-pound ANSI flanges. The valves are rated for 200 psig in closed position at 180F and meet or exceed section 5.0 of AWWA specification C-504-87. The carbon fill and discharge valves are 4" diameter full port ball valves, 316 stainless steel construction with TFE seats and seals. A total of four (4) valves are supplied, two (2) for carbon fill and two (2) for carbon discharge. Utility valves for the compressed air supply will be bronze or brass or barstock brass body regular port ball valves.

Instrumentation

Instrumentation will be accessible from grade. Pressure relief will be provided by a 3" rupture disk constructed of impervious graphite and designed to relieve pressure at the design pressure of the vessel and at the maximum flow to the system. The rupture disks will be mounted off the vessel vent line and vent to atmosphere. A total of two (2) will be provided for the system. Each vessel will be provided with an indicating differential pressure switch, 4" diameter dial, scaled for 20-0-20psi. The switch is rated at 1.0 amp @ 115 volts AC for remote indication. A total of two (2) will be provided for the system. The process piping will be equipped with pressure gauges to indicate the pressure entering and exiting each

adsorber and to provide information on pressure drop across each adsorber and the system. The pressure gauges will have 4 ½" face diameter with a stainless-steel bourdon tube in a phenolic case housing (1 to 160 psig range). A total of three (3) will be provided for the system. The process piping will be equipped with sample taps to enable sampling of the water entering and exiting each adsorber. A total of three (3) will be provided for the system.

Miscellaneous

The carbon fill and discharge will be fitted with female hose connections, such that carbon transfer to and from the adsorbers can be facilitated using carbon transfer hoses. These connectors will be 4" Quick Disconnect Adaptors constructed of aluminum as manufactured by Dover Corp. as Kamlock connectors or equal.

Two (2) flush connections will be provided on each GAC fill line, one upstream and one downstream of the valve. One (1) flush connection will be provided on each GAC discharge line, downstream of the valve. The connections will be welded into the steel or stainless-steel pipe or screwed into solid propylene "spacers" for the lined pipe. Flush connections will consist of a short section of ¾" pipe, a ¾" full port ball valve and a ¾" quick disconnect adaptor to match with water hose fittings. Each vessel will be provided with one (1) 8" stainless steel effluent strainer basket mounted in the effluent line from the vessel. The basket strainer shall be constructed of 316 stainless 14 gage plate with 1/8" diameter holes drilled on 3/16" centers, covered with 40 mesh 316 stainless steel screen and topped by a 4 mesh 316 stainless steel support screen (0.063" wire diameter). A total of two (2) will be provided for the system. The influent and effluent pipe for each vessel will be provided with a molded neoprene reinforced rubber expansion joint which allows 4-way movement and 19° angular misalignment. A total of four (4) will be provided for the system.

Each vessel will be provided with an inlet distributor constructed of 316 stainless steel. The distributor will connect to the inlet nozzle and be fitted with multiple arms. Each arm is drilled along its length to facilitate even distribution of water during normal operation and collection of backwash water. A total of two (2) distributors will be provided for the system.

Each adsorber will be provided with three (3) 2" side sample nozzles for use with in-bed water sample probes. Sample probes consist of a 12" stainless steel pipe with a stainless-steel slotted septum to collect a water sample from within the carbon bed. The sample probe will be inserted through a 2" flanged nozzle and will be provided with stainless steel tubing drop line and stainless-steel shutoff valve external to the adsorber. A total of six (6) in-bed sample taps will be provided for the system.

Each adsorber shall be provided with one (1) 1" combination air/vacuum release valve mounted at the top of the influent pipe. Two (2) 1" ball valves will be provided to isolate the air release valve, one ball valve positioned between the influent pipe and the air release valve and the second mounted at the bottom of the air release piping (at ground level). A total of two (2) will be provided for the system.

Execution

Supplier shall assign a Project Manager (PM) to facilitate the execution of the project. The PM will interface with the Owner for both the technical and commercial aspects of the project. Supplier shall provide an Engineering Submittal Package. Supplier shall supply Operation and Maintenance Instructions upon completion of the project/shipment of the system. A supplier's trained specialist, experienced in the installation of the Adsorption Systems, and with at least five (5) years of field experience will be present

at the job site and/or classroom designated by the Owner to inspect the installed equipment, load carbon media, provide start-up assistance, provide troubleshooting, and operator training.

BID QUOTATION SHEET
City of Irondale, Alabama

Payment Schedule Option #1: Lump Sum

Item #	Quantity	Description	Total
1	1	Carbon Contactors	$_____

Payment Schedule Option #2: 36 Months

Item #	Quantity	Description	Upfront Cost	Monthly Cost (36-month duration)	Total (Upfront + Monthly x 36)
1	1	Carbon Contactors	$_____	$_____	$_____

IF BIDDER IS THE SUCCESSFUL BIDDER, THE OWNER SHALL NOTIFY THE SUPPLIER IN WRITING WITHIN 14 DAYS OF BID OPENING WHICH PAYMENT OPTION, IF EITHER, IT WILL EXERCISE. THE TOTAL PAYMENT FOR *OPTION #1* SHALL BE DUE NET 30 AFTER DELIVERY OF MATERIALS. THE "UPFRONT COST" OF *OPTION #2* SHALL BE DUE NET 30 AFTER DELIVERY OF MATERIALS AND MONTHLY PAYMENTS SHALL BEGIN ON THE MONTH THEREAFTER AND CONTINUE FOR 36 CONTINUOUS MONTHS.

THE UNDERSIGNED OFFERS THESE PRICES, TERMS, AND DELIVERY AS PER BID GENERAL CONDITIONS AND SPECIFICATIONS. BIDS SUBMITTED ARE FIRM AND NO CLAIMS FOR ERRORS WILL BE MADE AFTER BIDS ARE OPENED.

NAME OF COMPANY: _____

BY: _____
(Please Print)

SIGNATURE (Authorized Representative):_____

COMPANY ADDRESS: _____

_____

PHONE: _____

E-MAIL: _____