

CITY OF NORTH LITTLE ROCK, ARKANSAS
COMMERCE DEPARTMENT
Mary Beth Bowman, Director
Amy Smith, Assistant Director for Procurement
Crystal Willis, Admin. Sect./Assistant Purchasing Agent



120 MAIN STREET, North Little Rock, AR 72114
P.O. BOX 5757, North Little Rock, AR 72119
501-975-8881 Phone
501-975-8885 Fax

INVITATION TO BID/PROPOSAL COVER SHEET

Bid Number : _____ 17-3426 _____ Date Issued: _____ January 6, 2017

Date & Time Bid Opening: _____ Wednesday, February 15, 2017 at 10:00 a.m.

Murray Hydroelectric Unit 1 Turbine Overhaul

Total Project Bid Price: \$ _____

Specifications attached.

A Pre-bid meeting is scheduled for Tuesday, January 24, 2017 at 9:00am at 4000 Cooks Landing Road, North Little Rock, Arkansas

- Technical questions should be directed to Jessica Stephens, North Little Rock Electric Department at 501-992-4089 or jstephens@nlr.ar.gov
- Bidding document questions should be directed to the Commerce Department at 501-975-8881.

The City of North Little Rock reserves the right to reject any or all bids or to waive any informality in the bidding.

If you are obtaining this bid from our website, please be reminded that addendums may occur. It is therefore advisable that you review our listings (www.nlr.ar.gov) for attachments including any changes to the bid.

The City of North Little Rock encourages participation of small, minority, and woman own business enterprises in the procurement of goods, services, professional services, and construction, either as a general contractor or sub-contractor. It is further requested that whenever possible, majority contractors who require sub-contractors, seek qualified small, minority, and woman businesses to partner with them.

EXECUTION OF BID

Upon signing this page, the organization certifies that they have read and agree to the requirements set forth in this bid including conditions set forth and pertinent information requests.

Name of Firm: _____ Phone No.: _____

Tax Identification No.: _____

Business Address: _____

Signature of Authorized Person: _____

Title: _____ Date: _____

UNSIGNED BID COVER SHEET WILL BE REJECTED.



City of North Little Rock, Arkansas

Request for Proposal and Specification

Murray Hydroelectric Project Unit 1 Turbine Overhaul

January 6, 2017

120 Main Street
P.O. BOX 936
North Little Rock, AR 72115

City of North Little Rock

Murray Hydroelectric Project – Unit 1 Turbine Overhaul

Request for Proposal and Specification

The City of North Little Rock Electric Department (CNLRED) is requesting Proposals for the Murray Hydroelectric Project Unit 1 Turbine Overhaul. The Contractor’s Proposal shall be based on this Request for Proposal and Specification, Original Equipment Manufacturer (OEM) drawings and other information. Prices and other information for each of the Work Items shall be provided on the forms included herein.

Task	Date
Pre Bid Meeting	01/24/2017 @ 9:00am
Bids Due	02/15/2017 @ 10:00am
Contractor Selected	02/22/2017
Work Begins	06/05/2017
Work Completed	03/09/2017

I. GENERAL

The Contractor must be an established company in the field of hydropower equipment repair and maintenance with at least 5 years of experience related to the repair and maintenance of Kaplan hydro turbines. The Contractor shall submit a list of relevant projects with the proposal.

The Contractor is responsible for inspection of the existing unit and documenting all as-found dimensions, measurements, clearances, condition, and damage, as the unit is being disassembled. The Contractor is further responsible for obtaining measurements and determining the appropriate specifications necessary (if not specifically noted herein) for the design, fabrication, and/or procurement of the necessary replacement and renewal parts.

The Contractor is responsible for the design and supply of all necessary scaffolding, work platforms, lifting slings, specialized lifting devices, special tools, or other similar items that are not available at the plant site. Any existing tools, lifting slings or other lifting devices, scaffolding, or work platforms that are available at the site, and are approved for use by CNLRED, shall be inspected by the Contractor prior to use.

The Contractor shall determine and prepare a list of the weight of each item or assembly to be lifted, and shall use adequate lifting devices for disassembly, moving, and reassembly. Any lifting devices used by the Contractor shall have a factor of safety of not less than five (5), based on the tensile strength of the materials.

The Contractor shall develop a critical-path schedule for the work, including estimated or planned durations for mobilization, disassembly, specific repairs/renewals, component design/fabrication/procurement, reassembly, placing the unit into service, and including recommended start-up tests and procedures. The schedule shall include the contractor's budgetary estimates with appropriate project and payment milestones stated. The contractor shall hold a regularly scheduled meeting with NLRED personnel each week to update their schedule and make plans for upcoming events.

Liquidated damages shall be assessed based on the price incurred by CNLRED for each day the project is delayed. The real time MISO market clearing price at Arkansas hub can be found at: <https://www.misoenergy.org/Library/MarketReports/Pages/MarketReports.aspx> Click "Browse All Available Reports", scroll down to "Historical LMP-Real Time Final Market LMPs (csv)" and choose the applicable date. Once you have opened the file, filter the Node column for Arkansas.Hub.

Each Contractor will be required to submit a bid bond with their response to the proposal. The selected Contractor will be required to purchase a performance bond for the price of the project.

As applicable, the Contractor shall study the OEM and/or as-built drawings and other information to become familiar with the construction of the machine. Any special instructions related to disassembly or reassembly on any of the drawings, manuals, or other information shall be noted. Any special tools listed on the drawings or in the manuals shall be located on-site or procured/fabricated as necessary.

Non-Destructive Testing (NDT) shall be performed by trained and qualified individuals, certified Level III Technicians, in accordance with the requirements of SNT-TC-1A, The American Society for Nondestructive Testing, Recommended Practice, Personnel Qualification and Certification in Nondestructive Testing. NDT methods for each specific application will be recommended by the Contractor, and may include ultrasonic examination, magnetic particle examination, liquid penetrant examination, and/or visual examination. Any welding to be done shall be performed by AWS certified welders.

All sand blasting, welding, grinding or resurfacing is to be performed in a designated area and proper containment shall be provided by the contractor. The area shall include the appropriate exhaust and filter with fume extractor.

Contractor shall be responsible for cleanup of the Unit #1 area and any other area of the plant that is used in the project. This includes, grinding dust, metal shavings, welding dust, oil, grease and trash or other debris.

The Contractor shall be responsible for the mobile crane to remove parts from the powerhouse. A 6 Ton hoist is available, but has limited height. A mobile crane is necessary to remove the discharge ring segments, blade servomotor rod and any other parts over 6 feet long.

The following listed OEM drawings are attached, for information:

- TB 1112 Servomotor Arrangement
- TB 1080 Gate Servomotors
- TB 1026 Discharge Ring Machine
- TB 1078 Runner Assembly
- TB 1029 Runner Assembly Section
- TB 1109 Bearing, Shaft Seal, OD Box Assembly
- TB 1095 Gate Mech Assembly
- GV 1015 Arrangement GS Actuator
- GV 1016 Arrangement GS Actuator

Additional drawings and service manuals will be provided to the selected contractor.

Turbine Runner and Related Components Overhaul

II. *Turbine Runner*

The entire discharge ring shall be removed and the Kaplan runner shall be completely removed from the unit for the purposes of complete disassembly, cleaning, inspection, repair/renewal, and reassembly. An erection bay with the dimensions of 20 feet by 25 feet and a crane bay with dimensions 20 feet by 25 feet in the powerhouse, at floor elevation 212 will be provided for the performance of this work. The Contractor shall be responsible for safely supporting the Kaplan runner hub, runner blades, and other parts during the disassembly, repair/renewal, and reassembly work.

Unless otherwise specified herein, new or restored parts, materials, surfaces, and/or dimensions shall be as shown on the record drawings or other OEM information.

A new replacement discharge ring has been is on site, contractor shall include pricing to install the complete discharge ring.

At a minimum, the following wearing parts and corresponding or mating surfaces shall be replaced or renewed, as applicable. There may be other parts or surfaces, not specifically listed, that will also need to be replaced or renewed for a complete unit overhaul;

- Blade trunion bushings and wear surfaces
- Blade links, bearings, and housings
- Crosshead guide keys and slots
- Blade thrust keys
- Traversing rods and bushings

III. *Kaplan Blade Servomotor*

The Kaplan blade servomotor shall be disassembled, cleaned, and inspected. The cylinder bore shall be cleaned and inspected. Bore surface renewal shall return bore to original conditions.

The servomotor piston shall be cleaned and inspected. Piston ring grooves shall be inspected for wear and cracks. New cast iron piston rings meeting OEM specifications shall be procured and installed.

The servomotors bushings in both cylinder heads shall be replaced with alloy bronze bushing meeting OEM specifications.

The blade servomotor stationary rod shall be cleaned and inspected. The piston rod surface shall be restored to OEM specifications.

IV. Runner Hub

The runner hub shall be grit blasted inside and outside and visually inspected for cracks or other damage.

Following inspection and any repair, the runner hub shall be coated inside and outside with three (3) coats of an approved epoxy paint system with a minimum final dry film thickness of 15 mils.

All dimensions, both as found and as built, including bushing bores and other machined surfaces shall be documented and submitted to CNLRED for record files.

V. Runner Blades

The runner blades shall be thoroughly cleaned and visually inspected for cavitation, pitting, and cracks.

The Contactor shall perform NDT on the blade palms and radii. Cavitation damage, pitting, and cracks shall be documented and the Contractor shall review findings with the CNLRED to determine the areas needing repair. Contractor shall provide per-pound pricing for blade repairs.

There is a possibility of damage to the blade trunion bushing journal due to previous contamination of the oil. The Contractor shall inspect this area and provide recommendations for repair and/or renewal.

VI. Kaplan Oil Pipes

The Kaplan oil pipes shall be cleaned and inspected. All Kaplan oil pipe seals shall be replaced with Buna-N o-rings in accordance with OEM specifications.

VII. Turbine Shaft

The Contractor shall perform NDT of the entire surface of the shaft and fillet areas, including the turbine and oil delivery box (OD Box) bearing journals. Any damage shall be documented and the Contractor shall review findings with the CNLRED to determine if any shaft areas will need repair.

The Contractor shall provide option pricing to machine/grind the turbine guide bearing journal area of the shaft concentric. Maximum allowable run-out on the bearing area shall be 0.005 inch, and finish shall be 32 RMS or better.

The Contractor shall provide option pricing to machine/grind the OD Box journal area of the shaft concentric. Maximum allowable run-out on the bearing area shall be 0.005 inch, and finish shall be 32 RMS or better.

VIII. Turbine Guide Bearing

A spare guide bearing is available on-site. The Contractor shall provide pricing to install the spare turbine bearing.

The Contractor shall provide pricing as an option to refurbish the original bearing to OEM specifications and/or to fit the repaired bearing journal.

IX. Oil Delivery Box (OD Box)

The Contractor shall provide pricing as an option to refurbish the OD Box to OEM specifications

X. Wicket Gate Ring Servomotor

The wicket gate ring servomotor shall be disassembled, cleaned, and inspected, including the wicket gate lock cylinder. All seals and o-rings shall be replaced with materials meeting OEM specifications.

XI. Governor System

The Unit 2 Governor system shall be completely disassembled and cleaned to remove all contamination, including, but not necessarily limited to, sludge, rust, scale or any other contaminants in all pipes, pressure tanks, oil storage tanks or vessels, pumps, valve, filters, and any other part or component exposed to the governor oil system. The clean governor system shall be inspected, documented at to condition, reassembled, and placed into service.

All governor system seals, gaskets, o-rings, filters, or similar serviceable parts, shall be replaced with parts or materials meeting OEM specifications.

Contractor shall supply tanks to drain and filter governor oil; approximately 3000 gallons.

City of North Little Rock

Murray Hydroelectric Project – Unit 1 Turbine Overhaul

Request for Proposal Work Item Pricing

The sheets below provide space to provide pricing details by section of the project. The categories shown reflect the details CNLRED believes is pertinent, but additional details, if provided, will be reviewed.

I. General

Work Activity

Price or Other Information

Mobilization

Daily Allowance for Miscellaneous Materials,
Tools, Consumables, Housekeeping

Mark-up on Parts/Materials Purchases, Percent

Overtime Multiplier, Percent

Daily Subsistence for Out-of-Town Craft Labor

Anticipated Number of Out-of-Town Labor

Project Supervisor Hourly Rate

Project Engineer Hourly Rate

Demobilization

II. Turbine Runner

<u>Work Activity</u>	<u>Price</u>
Disassembly	_____
Cleaning and Inspection	_____
Repair and/or Restoration	_____
Replacement Parts – Purchase	_____
Replacement Parts – Install	_____
Reassembly and Placing into Service	_____

Labor Total Hours	_____	Labor Total Price	_____
Labor Classification		Rate	Total Estimated Hours
_____		_____	_____
_____		_____	_____
_____		_____	_____
_____		_____	_____

Anticipated/Assumed Repairs and/or Restoration and Methodology

Anticipated/Assumed Replacement Parts

Other Observations/Assumptions/Exclusions

III. Kaplan Blade Servomotor

<u>Work Activity</u>	<u>Price</u>
Disassembly	_____
Cleaning and Inspection	_____
Repair and/or Restoration	_____
Replacement Parts – Purchase	_____
Replacement Parts – Install	_____
Reassembly and Placing into Service	_____

Labor Total Hours _____ Labor Total Price _____

Labor Classification	Rate	Total Estimated Hours
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Anticipated/Assumed Repairs and/or Restoration and Methodology

Anticipated/Assumed Replacement Parts

Other Observations/Assumptions/Exclusions

IV. Turbine Runner Hub

<u>Work Activity</u>	<u>Price</u>
Grit Blasting	_____
Cleaning and Inspection	_____
Repair and/or Restoration	_____
Replacement Parts – Purchase	_____
Outer Trunion Bushings	_____
Inner Trunion Bushings	_____
Replacement Parts – Install	_____
Recoat Interior and Exterior	_____

Labor Total Hours _____ Labor Total Price _____

Labor Classification Rate Total Estimated Hours

Anticipated/Assumed Repairs and/or Restoration and Methodology

Anticipated/Assumed Replacement Parts

Other Observations/Assumptions/Exclusions

V. Turbine Runner Blades

<u>Work Activity</u>	<u>Price</u>
Cleaning and Visual Inspection	_____
Non-Destructive Testing	_____
Repair and/or Restoration per Pound	_____
Replacement Parts – Purchase	_____
Replacement Parts – Install	_____
Reassembly and Placing into Service	_____

Labor Total Hours _____ Labor Total Price _____

Labor Classification	Rate	Total Estimated Hours
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Anticipated/Assumed Repairs and/or Restoration and Methodology

Anticipated/Assumed Replacement Parts

Other Observations/Assumptions/Exclusions

VI. Kaplan Oil Pipes

<u>Work Activity</u>	<u>Price</u>
Disassembly	_____
Cleaning and Inspection	_____
Repair and/or Restoration	_____
Replacement Parts – Purchase	_____
Replacement Parts – Install	_____
Reassembly and Placing into Service	_____

Labor Total Hours	_____	Labor Total Price	_____
Labor Classification		Rate	Total Estimated Hours
_____		_____	_____
_____		_____	_____
_____		_____	_____
_____		_____	_____

Anticipated/Assumed Repairs and/or Restoration and Methodology

Anticipated/Assumed Replacement Parts

Other Observations/Assumptions/Exclusions

VII. Turbine Shaft

<u>Work Activity</u>	<u>Price</u>
Disassembly	_____
Cleaning and Inspection	_____
Non-Destructive Testing	_____
Machine Guide Bearing Journal	_____
Machine Oil Delivery Bearing Journal	_____
Reassembly and Placing into Service	_____

Labor Total Hours _____ Labor Total Price _____

Labor Classification	Rate	Total Estimated Hours
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Anticipated/Assumed Repairs and/or Restoration and Methodology

Anticipated/Assumed Replacement Parts

Other Observations/Assumptions/Exclusions

VIII. Turbine Guide Bearing

<u>Work Activity</u>	<u>Price</u>
Disassembly	_____
Cleaning and Inspection	_____
Option - Refurbish Current Guide Bearing	_____
Option - Install Spare Guide Bearing	_____
Reassembly and Placing into Service	_____

Labor Total Hours _____ Labor Total Price _____

Labor Classification	Rate	Total Estimated Hours
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Anticipated/Assumed Repairs and/or Restoration and Methodology

Anticipated/Assumed Replacement Parts

Other Observations/Assumptions/Exclusions

IX. Turbine Oil Delivery (OD) Box

<u>Work Activity</u>	<u>Price</u>
Disassembly	_____
Cleaning and Inspection	_____
Repair and/or Restoration	_____
Replacement Parts – Purchase	_____
Replacement Parts – Install	_____
Reassembly and Placing into Service	_____

Labor Total Hours _____ Labor Total Price _____

Labor Classification	Rate	Total Estimated Hours
_____	_____	_____
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_____	_____	_____

Anticipated/Assumed Repairs and/or Restoration and Methodology

Anticipated/Assumed Replacement Parts

Other Observations/Assumptions/Exclusions

X. Wicket Gate Ring Servomotor

<u>Work Activity</u>	<u>Price</u>
Disassembly	_____
Cleaning and Inspection	_____
Repair and/or Restoration	_____
Replacement Parts – Purchase	_____
Replacement Parts – Install	_____
Reassembly and Placing into Service	_____

Labor Total Hours _____ Labor Total Price _____

Labor Classification	Rate	Total Estimated Hours
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Anticipated/Assumed Repairs and/or Restoration and Methodology

Anticipated/Assumed Replacement Parts

Other Observations/Assumptions/Exclusions

XI. Governor System

<u>Work Activity</u>	<u>Price</u>
Disassembly	_____
Cleaning and Inspection	_____
Repair and/or Restoration	_____
Replacement Parts – Purchase	_____
Replacement Parts – Install	_____
Reassembly and Placing into Service	_____

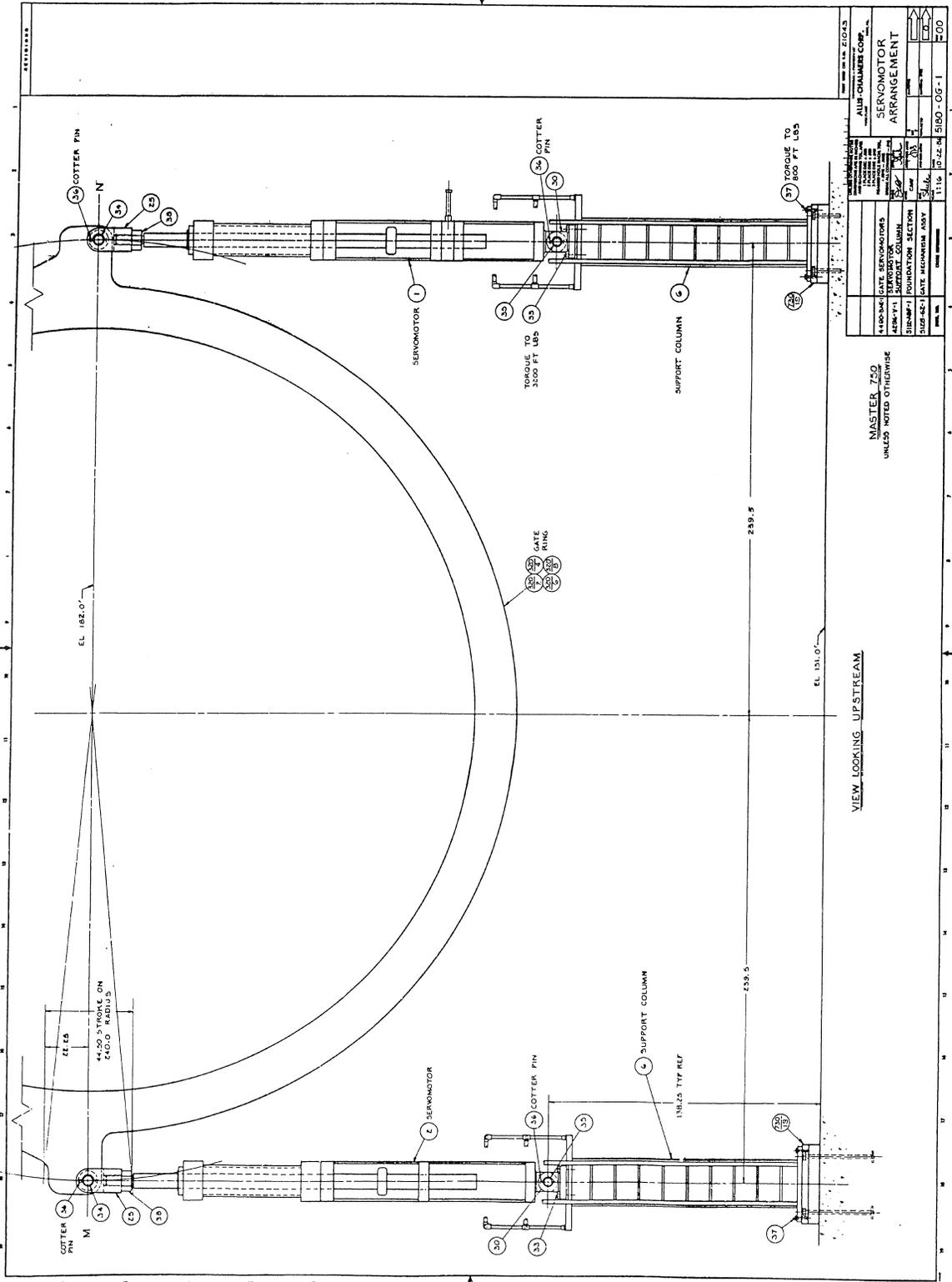
Labor Total Hours	_____	Labor Total Price	_____
Labor Classification		Rate	Total Estimated Hours
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Anticipated/Assumed Repairs and/or Restoration and Methodology

Anticipated/Assumed Replacement Parts

Other Observations/Assumptions/Exclusions

1P 111A



NO.	DATE	BY	CHKD	DESCRIPTION
1				ISSUED FOR GATE ASSEMBLY
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3				REVISION
4				REVISION
5				REVISION
6				REVISION
7				REVISION
8				REVISION
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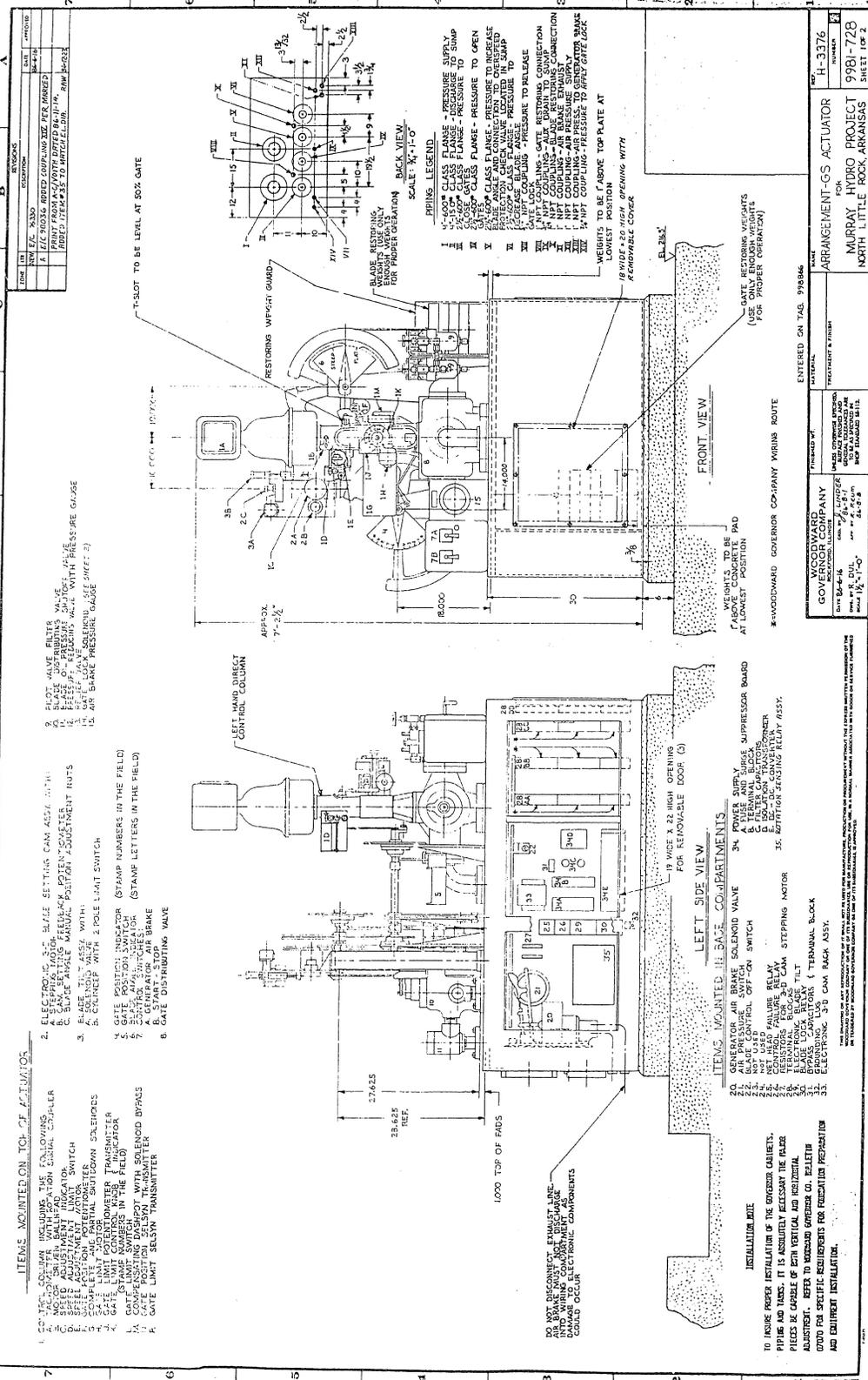
VIEW LOOKING UPSTREAM

VIEW LOOKING DOWNSTREAM

ALUM-COLUMBIA CORP.
SERVOMOTOR ARRANGEMENT
1116 10-22-54 5100-06-1
WOOD

TB 10 28

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120	11-10-70	WJ	WJ	REVISED
121	12-10-70	WJ	WJ	REVISED
122	01-10-71	WJ	WJ	REVISED
123	02-10-71	WJ	WJ	REVISED
124	03-10-71	WJ	WJ	REVISED
125	04-10-71	WJ	WJ	REVISED
126	05-10-71	WJ	WJ	REVISED
127	06-10-71	WJ	WJ	REVISED
128	07-10-71	WJ	WJ	REVISED
129	08-10-71	WJ	WJ	REVISED
130	09-10-71	WJ	WJ	REVISED
131	10-10-71	WJ	WJ	REVISED
132	11-10-71	WJ	WJ	REVISED
133	12-10-71	WJ	WJ	REVISED
134	01-10-72	WJ	WJ	REVISED
135	02-10-72	WJ	WJ	REVISED
136	03-10-72	WJ	WJ	REVISED
137	04-10-72	WJ	WJ	REVISED
138	05-10-72	WJ	WJ	REVISED
139	06-10-72	WJ	WJ	REVISED
140	07-10-72	WJ	WJ	REVISED
141	08-10-72	WJ	WJ	REVISED
142	09-10-72	WJ	WJ	REVISED
143	10-10-72	WJ	WJ	REVISED
144	11-10-72	WJ	WJ	REVISED
145	12-10-72	WJ	WJ	REVISED
146	01-10-73	WJ	WJ	REVISED
147	02-10-73	WJ	WJ	REVISED
148	03-10-73	WJ	WJ	REVISED
149	04-10-73	WJ	WJ	REVISED
150	05-10-73	WJ	WJ	REVISED
151	06-10-73	WJ	WJ	REVISED
152	07-10-73	WJ	WJ	REVISED
153	08-10-73	WJ	WJ	REVISED
154	09-10-73	WJ	WJ	REVISED
155	10-10-73	WJ	WJ	REVISED
156	11-10-73	WJ	WJ	REVISED
157	12-10-73	WJ	WJ	REVISED
158	01-10-74	WJ	WJ	REVISED
159	02-10-74	WJ	WJ	REVISED
160	03-10-74	WJ	WJ	REVISED
161	04-10-74	WJ	WJ	REVISED
162	05-10-74	WJ	WJ	REVISED
163	06-10-74	WJ	WJ	REVISED
164	07-10-74	WJ	WJ	REVISED
165	08-10-74	WJ	WJ	REVISED
166	09-10-74	WJ	WJ	REVISED
167	10-10-74	WJ	WJ	REVISED
168	11-10-74	WJ	WJ	REVISED
169	12-10-74	WJ	WJ	REVISED
170	01-10-75	WJ	WJ	REVISED
171	02-10-75	WJ	WJ	REVISED
172	03-10-75	WJ	WJ	REVISED
173	04-10-75	WJ	WJ	REVISED
174	05-10-75	WJ	WJ	REVISED
175	06-10-75	WJ	WJ	REVISED
176	07-10-75	WJ	WJ	REVISED
177	08-10-75	WJ	WJ	REVISED
178	09-10-75	WJ	WJ	REVISED
179	10-10-75	WJ	WJ	REVISED
180	11-10-75	WJ	WJ	REVISED
181	12-10-75	WJ	WJ	REVISED
182	01-10-76	WJ	WJ	REVISED
183	02-10-76	WJ	WJ	REVISED
184	03-10-76	WJ	WJ	REVISED
185	04-10-76	WJ	WJ	REVISED
186	05-10-76	WJ	WJ	REVISED
187	06-10-76	WJ	WJ	REVISED
188	07-10-76	WJ	WJ	REVISED
189	08-10-76	WJ	WJ	REVISED
190	09-10-76	WJ	WJ	REVISED
191	10-10-76	WJ	WJ	REVISED
192	11-10-76	WJ	WJ	REVISED
193	12-10-76	WJ	WJ	REVISED
194	01-10-77	WJ	WJ	REVISED
195	02-10-77	WJ	WJ	REVISED
196	03-10-77	WJ	WJ	REVISED
197	04-10-77	WJ	WJ	REVISED
198	05-10-77	WJ	WJ	REVISED
199	06-10-77	WJ	WJ	REVISED
200	07-10-77	WJ	WJ	REVISED
201	08-10-77	WJ	WJ	REVISED
202	09-10-77	WJ	WJ	REVISED
203	10-10-77	WJ	WJ	REVISED
204	11-10-77	WJ	WJ	REVISED
205	12-10-77	WJ	WJ	REVISED
206	01-10-78	WJ	WJ	REVISED
207	02-10-78	WJ	WJ	REVISED
208	03-10-78	WJ	WJ	REVISED
209	04-10-78	WJ	WJ	REVISED
210	05-10-78	WJ	WJ	REVISED
211	06-10-78	WJ	WJ	REVISED
212	07-10-78	WJ	WJ	REVISED
213	08-10-78	WJ	WJ	REVISED
214	09-10-78	WJ	WJ	REVISED
215	10-10-78	WJ	WJ	REVISED
216	11-10-78	WJ	WJ	REVISED
217	12-10-78	WJ	WJ	REVISED
218	01-10-79	WJ	WJ	REVISED
219	02-10-79	WJ	WJ	REVISED
220	03-10-79	WJ	WJ	REVISED
221	04-10-79	WJ	WJ	REVISED
222	05-10-79	WJ	WJ	REVISED
223	06-10-79	WJ	WJ	REVISED
224	07-10-79	WJ	WJ	REVISED
225	08-10-79	WJ	WJ	REVISED
226	09-10-79	WJ	WJ	REVISED
227	10-10-79	WJ	WJ	REVISED
228	11-10-79	WJ	WJ	REVISED
229	12-10-79	WJ	WJ	REVISED



LINE	NO.	DESCRIPTION	DATE	APPROVED
1	1	WOOD CLASS FLANGE - PRESSURE TO SHUT		
2	2	WOOD CLASS FLANGE - PRESSURE TO SHUT		
3	3	WOOD CLASS FLANGE - PRESSURE TO SHUT		
4	4	WOOD CLASS FLANGE - PRESSURE TO SHUT		
5	5	WOOD CLASS FLANGE - PRESSURE TO SHUT		
6	6	WOOD CLASS FLANGE - PRESSURE TO SHUT		
7	7	WOOD CLASS FLANGE - PRESSURE TO SHUT		

WOODWARD GOVERNOR COMPANY
 1000 W. 10th St.
 Des Moines, Iowa 50319
 U.S.A.

ENTERED ON TAG 978546
 WOODWARD GOVERNOR COMPANY
 1000 W. 10th St.
 Des Moines, Iowa 50319
 U.S.A.

ARRANGEMENT-GS ACTUATOR
 FOR
 MURRAY HYDRO PROJECT
 NORTH LITTLE ROCK, ARKANSAS

DATE 8-2-54
 DRAWN BY J. H. HARRIS
 CHECKED BY J. H. HARRIS
 APPROVED BY J. H. HARRIS

WEIGHTS TO BE AT LOWEST POSITION
 *WOODWARD GOVERNOR COMPANY WIRING ROUTE

ITEMS MOUNTED IN BASE COMPARTMENTS
 20. GENERATOR AIR BRAKE SOLENOID VALVE
 21. AIR PRESSURE SWITCH
 22. AIR PRESSURE SWITCH
 23. AIR PRESSURE SWITCH
 24. AIR PRESSURE SWITCH
 25. AIR PRESSURE SWITCH
 26. AIR PRESSURE SWITCH
 27. AIR PRESSURE SWITCH
 28. AIR PRESSURE SWITCH
 29. AIR PRESSURE SWITCH
 30. AIR PRESSURE SWITCH
 31. AIR PRESSURE SWITCH
 32. AIR PRESSURE SWITCH
 33. AIR PRESSURE SWITCH

ITEMS MOUNTED ON TOP OF LIMITS
 1. COIL COLUMN INCLUDING THE FOLLOWING:
 a. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 b. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 c. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 d. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 e. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 f. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 g. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 h. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 i. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 j. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 k. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 l. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 m. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 n. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 o. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 p. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 q. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 r. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 s. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 t. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 u. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 v. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 w. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 x. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 y. COIL WITH OPERATIONAL SIGNAL COIL-ALER
 z. COIL WITH OPERATIONAL SIGNAL COIL-ALER

INSTALLATION NOTE
 TO INSURE PROPER INSTALLATION OF THE GOVERNOR CABINETS,
 PIPING AND TUBING, IT IS ESSENTIALLY NECESSARY THE PIPING
 BE CHASSE IN EACH VERTICAL AND HORIZONTAL
 POSITION. REFER TO WOODWARD GOVERNOR CO. BULLETIN
 NO. 100 FOR SPECIFIC REQUIREMENTS FOR FOUNDATION PREPARATION
 AND EQUIPMENT INSTALLATION.

DO NOT DISCONNECT EXHAUST LINE
 INTO WIRING COMPARTMENT AS
 THIS COULD OCCUR.

18 WIDE 20 HIGH OPENING WITH
 REMOVABLE COVER

WEIGHTS TO BE AT LOWEST POSITION

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ENTERED ON TAG 978546

WOODWARD GOVERNOR COMPANY

1000 W. 10th St.

Des Moines, Iowa 50319

U.S.A.

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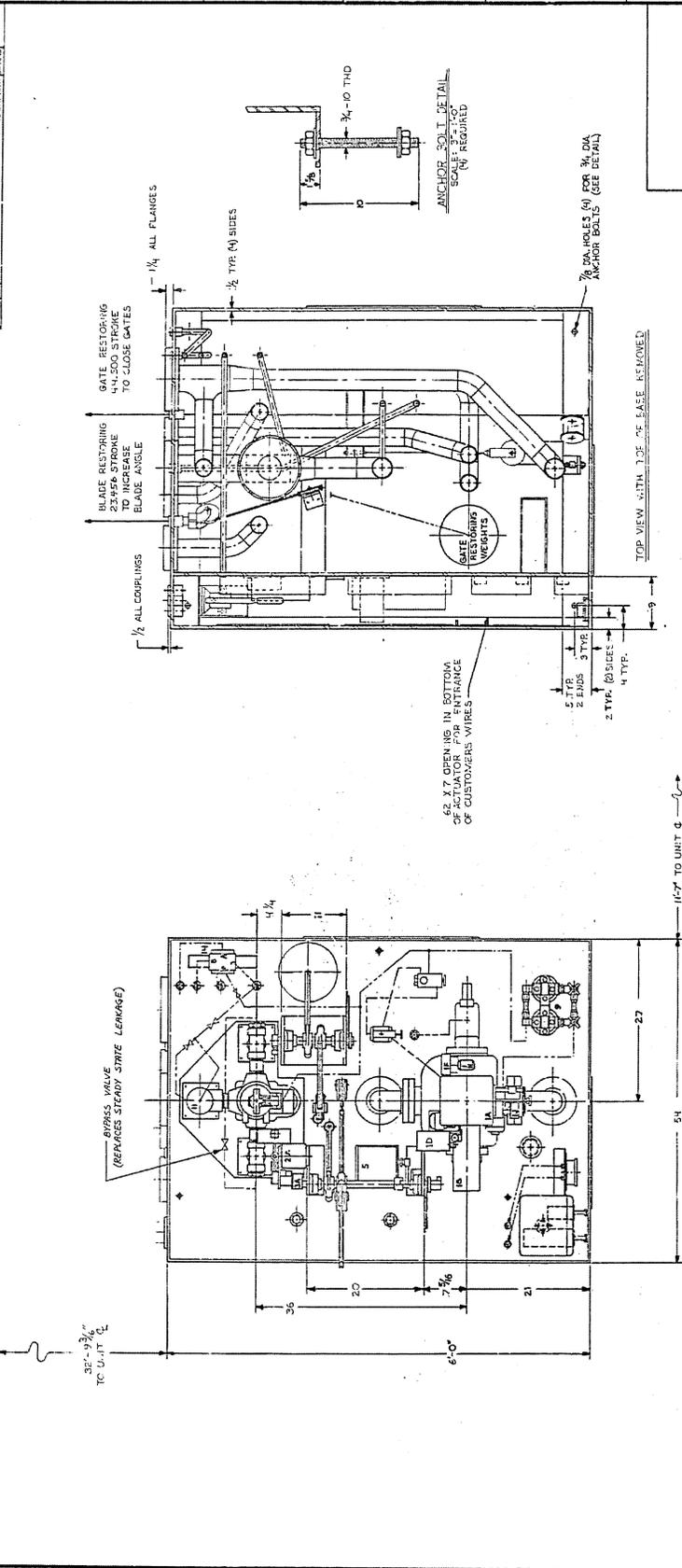
DATE 8-2-54

DRAWN BY J. H. HARRIS

CHECKED BY J. H. HARRIS

APPROVED BY J. H. HARRIS

REV.	DATE	BY	CHKD.	DESCRIPTION
1	11/15/50	WJ	WJ	REVISED GATE LOCK TO MATCH UNIFORMS, P.W. MAR 50
2	11/15/50	WJ	WJ	REVISED GATE LOCK TO MATCH UNIFORMS, P.W. MAR 50
3	11/15/50	WJ	WJ	REVISED GATE LOCK TO MATCH UNIFORMS, P.W. MAR 50
4	11/15/50	WJ	WJ	REVISED GATE LOCK TO MATCH UNIFORMS, P.W. MAR 50
5	11/15/50	WJ	WJ	REVISED GATE LOCK TO MATCH UNIFORMS, P.W. MAR 50
6	11/15/50	WJ	WJ	REVISED GATE LOCK TO MATCH UNIFORMS, P.W. MAR 50
7	11/15/50	WJ	WJ	REVISED GATE LOCK TO MATCH UNIFORMS, P.W. MAR 50



WOODWARD GOVERNOR COMPANY
 1000 W. 11th St., Des Moines, Iowa
 DIVISION OF THE WESTINGHOUSE ELECTRIC CORPORATION
 DES MOINES, IOWA
 MADE IN U.S.A.
 MODEL NO. 65-6-16
 SERIAL NO. 173-1-10-1

ARRANGEMENT-GS ACTUATOR
 FOR
MURRAY HYDRO PROJECT
 NORTH LITTLE ROCK, ARKANSAS
 DRAWING NO. H-3376
 SHEET 2 OF 2

MATERIAL: TRUSS TUBE & PINN
 FINISHED WT.
 WEIGHT
 28 WIRE X 50 WASH. OPENINGS WITH COVER

THE DRAWING IS NOT A CONTRACT DOCUMENT. IT IS THE PROPERTY OF THE COMPANY AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF THE COMPANY. THE COMPANY ASSUMES NO LIABILITY FOR THE ACCURACY OF THE INFORMATION CONTAINED HEREIN.

**TERMS AND STANDARD CONDITIONS
CITY OF NORTH LITTLE ROCK, ARKANSAS**

PLEASE READ CAREFULLY

1. When submitting an "Invitation to Bid," the bidder warrants that the commodities covered by the bid shall be free from defects in material and workmanship under normal use and service. In addition, bidder must deliver new commodities of the latest design and model, unless otherwise specified in the "Invitation to Bid."
2. Prices quoted are to be net process, and when an error is made in extending total prices, the City may accept the bid for the lesser amount whether reflected by extension or by the correct multiple of the unit price.
3. Discounts offered will be taken when the City qualifies for such. The beginning date for computing discounts will be the date of invoice or the date of delivery and acceptance, whichever is later.
4. When bidding other than the brand and/or model specified in the "Invitation to Bid," the brand and/or model number must be stated by that item in the "Invitation to Bid," and descriptive literature be submitted with the bid.
5. The City reserves the right to reject any and all bids.
6. The Purchasing office reserves the right to award items, all or none, or by line item(s).
7. Quality, time and probability of performance may be factors in making an award.
8. Bid quotes submitted will remain firm for 30 calendar days from bid opening date; however, the prices may remain firm for a longer period of time if mutually agreeable between bidder and the Commerce Department.
9. Bidder must submit a completed signed copy of the front page of the "Invitation to Bid" and must submit any other information required in the "Invitation to Bid."
10. In the event a contract is entered into pursuant to the "Invitation to Bid," the bidder shall not discriminate against any qualified employee or qualified applicant for employment because of race, sex, color, creed, national origin or ancestry. The bidder must include in any and all subcontracts a provision similar to the above.
11. Sales or use tax is not to be included in the bid price, but is to be added by the vendor to the invoice billing to the City. Although use tax is not to be included in this bid, vendors are to register and pay tax direct to the Arkansas State Revenue Department.
12. Prices quoted shall be "Free on Board" (F.O.B.) to destination at designated facility in North Little Rock. Charges may not be added after the bid is opened.
13. In the event of two or more identical low bids, the contract may be awarded arbitrarily or for any reason to any of such bidders or split in any proportion between them at the discretion of the Commerce Department.
14. Specifications furnished with this Invitation are intended to establish a desired quality or performance level, or other minimum dimensions and capacities, which will provide the best product available at the lowest possible price. Other than designated brands and/or models approved as equal to designated products shall receive an equal consideration.
15. Samples of items when required, must be furnished free, and, if not called for within 30 days from date of bid opening, will become property of the City.
16. Bids will not be considered if they are: 1. Submitted after the bid's opening time. 2. Submitted electronically or faxed (unless authorized by Purchasing Agent).
17. Guarantees and warranties should be submitted with the bid, as they may be a consideration in making an award.
18. **CONSTRUCTION**
 - A. Contractor is to supply the City with evidence of having and maintaining proper and complete insurance, specifically Workman's Compensation Insurance in accordance with the laws of the State of Arkansas, Public Liability and Property Damage. All premiums and cost shall be paid by the Contractor. In no way will the City be responsible in case of accident.
 - B. When noted, a Certified check or bid bond in the amount of 5% of total bid shall accompany bid.
 - C. A Performance Bond equaling the total amount of any bid exceeding \$10,000.00 must be provided for any contract for the repair, alteration or erection of any public building, public structure or public improvement (pursuant to Act 351 or 1953 as amended by Act 539 of 1979).
19. **LIQUIDATED DAMAGES** - Liquidated damages shall be assessed beginning on the first day following the maximum delivery or completion time entered on this bid form and/or provided for by the plans and specifications.
20. **AMBIGUITY IN BID** - Any ambiguity in any bid as the result of omission, error, lack of clarity or non-compliance by the bidder with specifications, instructions, and all conditions of bidding shall be construed in the light most favorable to the City.
21. The bid number should be stated on the face of the sealed bid envelope. If it is not, the envelope will have to be opened to identify.
22. Whenever a bid is sought seeking a source of supply for a specified period of time for materials and services, the quantities of usage shown are estimated ONLY. No guarantee or warranty is given or implied by the participants as to the total amount that may or may not be purchased from any resulting contracts. These quantities are for the bidders information ONLY and will be used for tabulation and presentation of bid and the participant reserves the right to increase or decrease quantities as required.
23. The City of North Little Rock reserves the right to reject any and all bids, to accept in whole or in part, to waive any informalities in bids received, to accept bids on materials or equipment with variations from specifications in those cases where efficiency of operation will not be impaired, and unless otherwise specified by the bidder, to accept any item in the bid. If unit prices and extensions thereof do not coincide, the City of North Little Rock may accept the bid for the lesser amount whether reflected by the extension or by the correct multiple of the unit price.
24. Additional information or bid forms may be obtained from:
COMMERCE DEPARTMENT, 120 Main Street, P.O. Box 5757, North Little Rock, Arkansas 72119 (501) 975-8881 www.nlr.ar.gov

Bidding documents must be submitted on or before the bid's opening date and time. Unless noted, sealed bids must be submitted to the Commerce Department at 120 Main Street, North Little Rock, AR 72114 or PO Box 5757, North Little Rock, AR 72119