

# CITY OF SIERRA VISTA



EXTRAORDINARY SKIES.  
UNCOMMON GROUND.

IFB #20-PW232  
MECHANICAL BAR SCREEN REPLACEMENT PROJECT

PRE-SOLICITATION MEETING:  
FEBRUARY 4, 2020 AT 10:00 AM ARIZONA LOCAL TIME  
401 GIULIO CESARE AVENUE, SIERRA VISTA, AZ 85635

DUE DATE FOR QUESTIONS AND SUBMITTALS:  
FEBRUARY 18, 2020 AT 5:00 P.M. ARIZONA LOCAL TIME

FINAL ADDENDUM TO BE ISSUED NLT:  
MARCH 3, 2020 AT 5:00 PM ARIZONA LOCAL TIME

IFB DUE DATE AND TIME:  
MARCH 10, 2020 AT 2:00 P.M. ARIZONA LOCAL TIME

ALL INQUIRIES MUST BE DIRECTED TO:  
Helen Lee, Contracts Administrator  
VIA E-MAIL AT: [HELEN.LEE@SIERRAVISTAAZ.GOV](mailto:HELEN.LEE@SIERRAVISTAAZ.GOV)

LOCATION: CITY OF SIERRA VISTA – PROCUREMENT DIVISION  
OFFICE OF THE CHIEF PROCUREMENT OFFICER  
1011 NORTH CORONADO DRIVE  
SIERRA VISTA, ARIZONA 85635

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**NOTICE INVITING SEALED BIDS  
PW-232; FISCAL YEAR 2019/2020  
MECHANICAL BAR SCREEN REPLACEMENT**

The City of Sierra Vista is requesting bids from qualified licensed Contractors for the purchase and installation of a mechanical bar screen. The bar screen is to be installed at the headworks of the Environmental Operations Park (EOP). The project includes purchase of a bar screen by the Contractor; dewatering of the influent channel; removal and transport of the existing bar screen; and installation and start-up of a new bar screen.

A non-mandatory Pre-Solicitation Meeting and Field Visit has been scheduled for this project for February 4, 2020, at 10:00 a.m. in the Main Conference Room of the Pedro Castro Public Works Center located at 401 Giulio Cesare Avenue, Sierra Vista, AZ 85635. **Interested firms will be able to appear telephonically upon request.**

All bids must be based on pre-approved equipment. Submittals shall be due on February 18, 2020 by 5:00 p.m. Sealed bids shall be received until 2:00 p.m., Arizona Time, March 10, 2020, in the Office of the Chief Procurement Officer, 1011 North Coronado Drive, Sierra Vista, Arizona 85635, at which time the bids shall be opened and the name and pricing of each responding firm shall be publicly read.

The solicitation documents may be obtained by downloading them at the following URL: <https://tinyurl.com/SVProcure>. Should you have any issues accessing the documents, please email or call:

Helen Lee  
Contracts Administrator  
[Helen.Lee@SierraVistaAZ.gov](mailto:Helen.Lee@SierraVistaAZ.gov)



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Linda Jones  
Interim Chief Procurement Officer

Publish:	January 24, 26, 28, & 29, 2020
Pre-Solicitation Meeting:	February 4, 2020 at 10:00 a.m.
Submittals Due:	February 18, 2020 at 5:00 p.m.
IFB Open:	March 10, 2020 at 2:00 p.m.

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**INFORMATION FOR BIDDERS**  
**PW-232; FISCAL YEAR 2019/2020**  
**MECHANICAL BAR SCREEN REPLACEMENT**

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**All bids received after closing time will be returned unopened.**

The contract(s) shall be awarded to the lowest responsive/responsible bidder.

The City reserves the right to waive any informality in bids received, and to accept, increase, or reduce the quantities of any or all items of any bid proposal, unless the bidder qualifies such bid by specific limitation.

Bid packets and bidder's lists may be obtained at your convenience by downloading them using this URL: <https://tinyurl.com/SVProcure>.

To be added to the bidder's list, please send an email with the project number, PW-232 in the subject line, containing your agency name, point of contact name, phone number, and email address to: [Helen.Lee@SierraVistaaz.gov](mailto:Helen.Lee@SierraVistaaz.gov)

Each bidder shall state his Arizona State Contractor's License Number and Classification as evidence that he is qualified to contract the work as indicated in the specifications and plans for the work to be performed.

Bidders are hereby notified that the City of Sierra Vista does not discriminate on the basis of handicapped status in the admission or access to, or treatment or employment in, its programs or activities. Matt McLachlan, Community Development Director for the City of

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Sierra Vista, has been designated to coordinate compliance with the non-discrimination requirements contained in Section 51.55 of the Revenue Sharing Regulations.

Each bid shall be made out on the bid proposal form which is attached to the specifications and shall be accompanied by a bid bond acceptable to the City of Sierra Vista for a penal sum of not less than ten percent (10%) of the amount of the bid made payable to the order of the City of Sierra Vista.

Pursuant to the statutes of the State of Arizona, the wage rates paid all laborers, workmen, and mechanics employed in the execution of the contract shall not be less than the current wage rates applicable to the location at which the work is to be performed.

The Chief Procurement Officer may condition award of any successful bid upon payment of any and all required taxes, license fees, or other monies due to the city or another governmental agency.

Each bidder shall submit a non-collusion affidavit on the form which is included in specifications packet.

No bidder may withdraw his bid for a period of sixty (60) days after the date set for the opening thereof.

**PROTESTS.** Any protest shall be in writing and shall be filed with the Chief Procurement Officer. A protest of an Invitation for Bids shall be received at the Office of the Chief Procurement Officer before the Bid opening date. A protest of an award or of a proposed award shall be filed within fourteen (14) days after the protester knows or should have known the basis of the protest. A protest shall include:

- The name, address and telephone number of the protestor.
- The signature of the protestor or its representative.
- Identification of the Invitation for Bids or contract number.
- A detailed statement of the legal and factual grounds of protest including copies of relevant documents.
- The form of relief requested.

**COOPERATIVE USE OF CONTRACT.** In addition to the City of Sierra Vista, and with approval of the Contracted Vendor, this Contract may be extended for use by other municipalities, school districts, and governmental agencies of the state. Any such usage by other entities must be in accordance with the city code, charter, and/or procurement rules and regulations of the respective governmental entity.

Complete information regarding the bid requirements and the contract execution may be found within Sections 102 and 103, Uniform Standard Specifications for Public Works Construction, sponsored and distributed by the Maricopa Association of Governments (MAG) as modified herein. All questions should be sent in writing to the procurement office: Helen.Lee@SierraVistaAZ.gov.

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**IMPORTANT**

**BIDDER'S CHECK LIST  
PW-232; FISCAL YEAR 2019/2020  
MECHANICAL BAR SCREEN REPLACEMENT**

Check off each of the following as the necessary action is completed.

- Enclose Bid Bond (per sample provided) ..... Page 7**
- All required forms/documentation are included.**

**NOTE: The following pages MUST be submitted for a bid to be considered responsive):**

- Receipt of Addenda ..... Page 14**
- Non-Collusion Affidavit ..... Page 15**
- Authorized Signature Form ..... Page 16**
- Subcontractors and Material Suppliers List ..... Page 17**
- Bid Proposal Schedule ..... Page 18**

**NOTE: The Bidder may retain the remainder of the Bid Packet if desired.**

- The bid prices offered have been reviewed.
- The price extensions and totals have been checked.
- The bid has been signed.
- The mailing envelope has been addressed to:

**City of Sierra Vista  
Attention: Procurement Division  
1011 North Coronado Drive  
Sierra Vista, Arizona 85635**

- The mailing envelope has been sealed and marked on the outside with:

Bid of \_\_\_\_\_, Contractor  
IFB Number: PW-232  
Bid Title: **PW-232; FISCAL YEAR 2019/2020  
MECHANICAL BAR SCREEN REPLACEMENT**

Opening Date and Time: **March 10, 2020, at 2:00 p.m. Arizona Time**

**NOTE: The bid must delivered in time to be received no later than the designated opening date and time. (Otherwise the bid shall be returned unopened.)**



ARIZONA STATUTORY BID BOND FOR CONSTRUCTION
PURSUANT TO TITLES 28, 34, AND 41, ARIZONA REVISED STATUTES
(Penalty of this bond must not be less than 10% of the bid amount)

KNOW ALL MEN BY THESE PRESENTS:

That, \_\_\_\_\_ (hereinafter
"Principal") as Principal, and \_\_\_\_\_

(hereinafter "Surety"), a corporation organized and existing under the laws of the State of
\_\_\_\_\_, with its principal offices in the City of \_\_\_\_\_, holding a
certificate of authority to transact surety business in Arizona issued by the Director of the Department of
Insurance pursuant to Title 20, Chapter 2, Article 1, as Surety, are held and firmly bound unto the City of
Sierra Vista (hereinafter "Obligee") in the sum of Ten Percent (10%) of the amount of the bid of the
Principal, submitted by Principal to the Obligee for the work described below, for the payment of which
sum, the Principal and Surety bind themselves, and their heirs, administrators, executors, successors and
assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for: \_\_\_\_\_

NOW, THEREFORE, if the Obligee shall accept the proposal of the Principal and the Principal shall enter
into a contract with the Obligee in accordance with the terms of the proposal and give the bonds and
certificates of insurance as specified in the standard specifications of Contract documents with good and
sufficient surety for the faithful performance of the contract and for the prompt payment of labor and
materials furnished in the prosecution of the contract, or in the event of the failure of the Principal to enter
into the contract and give the bonds and certificates of insurance, if the Principal pays to the Obligee the
difference not to exceed the penalty of the bond between the amount specified in the proposal and such
larger amount for which Obligee may in good faith contract with another party to perform the work covered
by the proposal then this obligation is void. Otherwise, it remains in full force and effect provided, however,
that this bond is executed pursuant to the provisions of Section 34-201, Arizona Revised Statutes, and all
liabilities on this bond shall be determined in accordance with the provisions of that section to the extent as
if it were copied at length herein.

Witness our hands this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

PRINCIPAL SEAL

SURETY SEAL

By \_\_\_\_\_

By \_\_\_\_\_
(Attorney - in - Fact)

Title: \_\_\_\_\_

Agency of Record

Agency Address

Arizona Resident Agent Countersignature

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## INSURANCE REQUIREMENTS

Contractor shall:

a. Obtain insurance coverage of the types and amount required in this section and keep such insurance coverage in force throughout the life of this contract. All policies will contain an endorsement providing that written notice be given to the City at least ten (10) calendar days prior to termination, cancellation, or reduction in coverage on any policy.

b. The Comprehensive General Liability Insurance and Comprehensive Automobile Liability Insurance policies **shall include the City of Sierra Vista as an additional insured** with respect to liability arising out of the performance of this contract. The Contractor agrees that the insurance hereunder will be primary and that any insurance carried by the City will be excess and not contributing.

c. Provide and maintain minimum insurance limits as follows:

Coverage Afforded	Limits of Liability
Worker's Compensation Employer Liability	Statutory \$1,000,000
Commercial General Damage Liability Insurance Including: (1) Premises and Operations (2) Product and Completed Operations (3) Blanket Contractual (4) Broad Form Property Damage (5) Personal Injury	\$1,000,000 Bodily Injury and Property Combined Single Limit
Commercial Automobile Damage Liability Insurance Including: (1) Owned (2) Non-Owned (3) Leased (4) Hired Vehicles	\$1,000,000 Bodily Injury and Property Combined Single Limit
Professional Liability Insurance (Errors/Omissions) (Professional Services Only)	\$1,000,000 (minimum) (Combined Single Limit)

Contractor shall present to the City written evidence (Certification of Insurance) of compliance with Items a, b, and c above. Said evidence shall be to the City Purchasing Manager's satisfaction.

It shall be considered a material breach if the Contractor fails to maintain insurance coverage as detailed above, to include the City designated as Additional Insured, and shall, at the sole discretion of the City, be grounds for immediate termination of the Contract.



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## GENERAL CONDITIONS

Reference is made to the current **Uniform Standard Specifications and Details for Public Works Construction** sponsored and distributed by the Maricopa Association of Governments (MAG), by this reference hereby made part of these specifications. Copies of the MAG specifications are available for review in the Engineering and Procurement Departments.

MAG specifications shall govern EXCEPT as changed below. Changes are shown in ***bold italic*** text.

### SECTION 101 ABBREVIATIONS AND DEFINITIONS

#### 101.2 DEFINITIONS AND TERMS

**Award** is the formal action of the ***Chief Procurement Officer*** to accept a bid proposal on behalf of the ***City of Sierra Vista***.

**Board of Supervisors** shall mean the ***City Council of the City of Sierra Vista***, acting under the authority of the laws of the State of Arizona.

**Engineer** shall refer to the ***City of Sierra Vista Project Officer***.

**Notice of Award** is a letter from the ***Chief Procurement Officer*** advising the Contractor that he is the successful bidder and the ***Chief Procurement Officer*** has accepted his proposal.

**Notice to Proceed:** A directive issued by the ***Chief Procurement Officer*** authorizing the Contractor to start the work or improvements required in the Contract.

Any other reference in the MAG specification to **Maricopa County** shall be construed to mean the ***City of Sierra Vista***.

**101.3** In order to avoid cumbersome and confusing repetition of expressions in these specifications. . . it shall be understood as if the expression were followed by the words ***by the Project Officer*** or ***to the Project Officer***.

### SECTION 102 BIDDING REQUIREMENTS AND CONDITIONS

#### 102.1 ELIGIBILITY AND PREFERENCE

***Any bidder interested in submitting a bid proposal shall obtain a bid packet from the Office of the Chief Procurement Officer, City of Sierra Vista.***

#### 102.8 PROPOSAL GUARANTEE

No bid proposal shall be read unless accompanied by a bid proposal guarantee in the form and amount stated in the bid packet. The guarantee shall be made payable and acceptable to the ***City of Sierra Vista*** as a guarantee that the bidder, if awarded the contract, will execute the contract documents and furnish the required bonds and certificates of insurance.

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## 102.9 SUBMISSION OF PROPOSAL

The bid proposal and bid proposal guarantee shall be submitted in a sealed envelope. The outside of the envelope shall be marked as follows:

Bid of \_\_\_\_\_, Contractor

IFB Number: **PW-232**

Bid Title: **PW-232; FISCAL YEAR 2019/2020  
MECHANICAL BAR SCREEN REPLACEMENT**

Opening Date and Time: **March 10, 2020, 2:00 p.m. Arizona Time**

## 102.10 WITHDRAWAL OR REVISION OF BID PROPOSAL

Any bidder may withdraw or revise a bid proposal after it has been received by the **City of Sierra Vista**, provided the request is received by the **City of Sierra Vista**, in writing, by email to **Helen.Lee@SierraVistaAZ.gov** or by **facsimile machine (FAX) (520) 452-7025**, before the time specified for opening bid proposals or as stipulated herein.

## 102.12 DISQUALIFICATION OF BIDDERS

The following reasons shall be considered as being sufficient for the disqualification of a bidder and the rejection of his bid proposal:

- A. Receipt of more than one bid proposal for the same work from an individual, partnership or corporation under the same or different names.
- B. Evidence of collusion among bidders or assistance from any Officer of the **City of Sierra Vista** or of any Department thereof.
- C. Failure to submit a proposal guarantee in the form and amount stated.
- D. Failure to register with and obtain bid packets from the Chief Procurement Officer.

## 102.13 SUCCESSFUL BIDDERS

Unless otherwise specified in the bid packet, the successful bidder may obtain up to **four** sets of plans and special provisions for the project from the **City of Sierra Vista** at no cost.

## SECTION 103 AWARD AND EXECUTION OF CONTRACT

### 103.1 CONSIDERATION OF BID PROPOSALS

In case all bid proposals are rejected, any subsequent changes, additions, addenda, or new sets of plans and special provisions will be provided to all purchasers of the first issue of the plans and special provisions at no additional charge.

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### 103.3 AWARD OF CONTRACT

No bid proposal shall be withdrawn for a period of **60** days after opening without consent of the **City of Sierra Vista** through the body or agent duly authorized to accept or reject the bid proposal except that in the case of Federally assisted projects or other projects award of which is conditioned on the approval of an agency not under the control of the **City of Sierra Vista**, withdrawal shall not be made within a period of **60** days after opening without such consent.

The successful bidder shall be furnished a Notice of Award on:

- A. Bond Issue or Budget Projects by letter to the address shown on the bid proposal.
- B. Improvement District Projects by publication in accordance with the requirements of A.R.S., Section **48-584D**.

### 103.6 CONTRACTOR'S INSURANCE

**103.6.1 General:** The Contractor shall agree to carry all insurance which may be required by Federal and State Laws, County and City Ordinances, Regulations and Codes. Neither the contractor nor any subcontractor shall commence work under a contract until the **City of Sierra Vista** has approved the insurance. The entire project covered by the contract will be at the contractor's risk until final acceptance by the **City of Sierra Vista**.

Concurrently with the execution of the contract, the Contractor shall furnish the **City of Sierra Vista** the following:

- A. Public Liability and Property Damage Insurance: The Contractor shall provide and maintain, during the life the contract, General Liability, Automobile Liability, and Worker's Compensation Insurance as specified on the **Certificate of Insurance Form (pp. 20-21)**.
- B. Additional Insured: The **City of Sierra Vista**, its officers, agents and employees shall be named as additional insured on policies listed in (A) and (C) and this shall also be indicated on the Certificates of Insurance issued to the **City of Sierra Vista**. The Contractor's coverage shall be primary for any and all losses arising out of the performance of this contract.

**103.6.2 Indemnification of the City of Sierra Vista Against Liability:** To the fullest extent permitted by law, the Contractor shall defend, indemnify, and hold harmless the City of Sierra Vista, its agents, officers, officials, and employees from and against all tortuous claims, damages, losses, and expenses, including but not limited to attorney fees, court costs, and the cost of appellate proceedings, relating to, arising out of, or alleged to have resulted from the acts, errors, mistakes, omissions, work, or services of the Contractor, its agents, employees, or any tier of Contractor's subcontractors in the performance of this Contract. Contractor's duty to defend, hold harmless, and indemnify the City of Sierra Vista, its agents, officers, officials, and employees shall arise in connection with any tortuous claim, damage, loss, or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of property including loss of use resulting therefrom, caused by any Contractor's acts, errors, mistakes, omissions, work, or services in the performance of this

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Contract including any employee of the Contractor, any tier of Contractor's subcontractor or any other person for whose acts, errors, mistakes, omissions, work, or services the Contractor may be legally liable. The amount and type of insurance coverage requirements set forth herein will in no way be construed as limiting the scope of the indemnity in this paragraph.

**SECTION 105  
CONTROL OF WORK**

**105.2 PLANS AND SHOP DRAWINGS**

The number of copies required by the City of Sierra Vista shall be specified in the special provisions. The cost of furnishing all shop drawings shall be considered as incidental to and included in the amount bid for one or more of the pay items.

**105.5 COOPERATION OF CONTRACTOR**

The Contractor shall be supplied with a minimum of **four** sets of approved plans and special provisions, one set of which the Contractor shall keep available on the work site at all times.

**SECTION 107  
LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC**

**107.1 LAWS TO BE OBSERVED**

ARS 40-360.22 Excavations: Determining location of underground facilities; providing information. This statute requires that no person shall begin excavating before the location and marking are complete or the excavator is notified that marking is unnecessary and requires that upon notification, the owner of the facility shall respond as promptly as practical, but in no event later than two working days. The "Blue Stake Center" (**1-800-362-4860**) was formed to provide a more efficient method of compliance with this statute."

**107.2 PERMITS AND LICENSES**

Permits, **licenses**, bonding and insurance requirements shall be as required by applicable Federal, State, County, and City statutes, codes, ordinances or regulations.

**SECTION 108  
COMMENCEMENT, PROSECUTION AND PROGRESS**

**108.2 SUBLETTING OF CONTRACT**

Subcontracts shall be in accordance with, and the Contractor shall be bound by, the following provisions:

- A. All subcontracts shall be subject to the approval of the Project Officer and Chief Procurement Officer.

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## 108.9 FAILURE TO COMPLETE ON TIME

For each and every calendar day that work shall remain incomplete after the time specified for the completion of the work in the proposal or as adjusted by the Project Officer by Contract Change Order issued through the Chief Procurement Officer or designee, the sum per calendar day **of TWO HUNDRED DOLLARS (\$200.00) for projects up to \$100,000.00, and FIVE HUNDRED DOLLARS (\$500.00) for projects of \$100,000.00 and over**, unless otherwise specified in the bid proposal form, shall be deducted from monies due to or to become due to the Contractor, not as a forfeit or penalty but as liquidated damages. This sum is fixed and agreed upon between the parties because the actual loss to the City of Sierra Vista and to the public caused by delay in project completion will be impractical and extremely difficult to ascertain and quantify.

## SECTION 110 CERTIFICATION FOR FEDERAL AID CONTRACTS

The prospective participant certifies by signing and submitting this bid or proposal to the best of his or her knowledge and belief, that:

A. No Federal appropriated funds have been paid or will be paid by or on behalf of the undersigned to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

B. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a member of Congress, an officer or employee of Congress, or an employee of Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

C. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

D. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts which exceed \$100,000 and that all such sub-recipients shall certify and disclose accordingly.

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**RECEIPT OF ADDENDA**  
*(Must be submitted with the Bid)*  
**PW-232; FISCAL YEAR 2019/2020**  
**MECHANICAL BAR SCREEN REPLACEMENT**

In compliance with the Advertisement for Bids, by the Chief Procurement Officer, the undersigned Bidder:

- Having examined the contract documents, site of work, and being familiar with the conditions to be met, hereby submits the following Proposal for furnishing the material, equipment, labor and everything necessary for the completion of the work listed, and agrees to execute the contract documents and furnish the required bonds and certificates of insurance for the completion of said work at the locations and for the prices set forth on the inside pages of this form.
- Understands that construction of this project shall be in accordance with all applicable Uniform Standard Specifications and Standard Details except as otherwise required by the Project Plans and Special Provisions.
- Understands that his proposal shall be submitted with a proposal guarantee of cash, certified check, cashier's check or surety bond for an amount not less than ten percent (10%) of the amount bid.
- Agrees that upon receipt of Notice of Award from the City of Sierra Vista, he shall execute the contract documents.
- Agrees that all work on **PW-232; MECHANICAL BAR SCREEN REPLACEMENT**
- Shall begin after the receipt of Notice to Proceed and must be completed within one month from the time the Contractor takes delivery of the new bar screen and required accessories and invoiced by the end of the City's fiscal year, June 30, 2020. The time allowed for completion of the work includes lead time for obtaining the necessary material and/or equipment.

The Bidder hereby acknowledges receipt of and agrees his proposal is based on the following addenda:

Addendum No. \_\_\_\_\_, Dated \_\_\_\_\_

Addendum No. \_\_\_\_\_, Dated \_\_\_\_\_

Addendum No. \_\_\_\_\_, Dated \_\_\_\_\_

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)

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**NON-COLLUSION AFFIDAVIT**  
*(Must be submitted with the Bid)*  
**PW-232; FISCAL YEAR 2019/2020**  
**MECHANICAL BAR SCREEN REPLACEMENT**

I certify that this bid is genuine and is not in any way collusive or sham; that the bid is not made with the intent to restrict or prohibit competition, that this firm has not revealed the contents of the bid to, or in any way colluded with, any other firm which may compete for the contract; and that no other firm which may compete for the contract has revealed the contents of a bid to, or in any way colluded with, this firm.

Name of Firm Submitting Bid: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone Number: \_\_\_\_\_

Facsimile Number: \_\_\_\_\_

\_\_\_\_\_  
Authorized Signature

This affidavit is required pursuant to Arizona Revised Statutes 34-253 and 41-2549. Failure to submit this affidavit signed at the time of bid opening is grounds for disqualification of the bid.

State of \_\_\_\_\_ County of \_\_\_\_\_

Before me a Notary Public in and for said County and State personally appeared the above named who signed the foregoing affidavit and attested that the same was his free act and deed.

Dated this \_\_\_\_ day of \_\_\_\_\_ 20\_\_.

Notary Public \_\_\_\_\_

My Commission expires \_\_\_\_\_.





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**SUBCONTRACTORS & MATERIAL SUPPLIERS  
LIST**

*(Must be submitted with the Bid)*  
**PW-232; FISCAL YEAR 2019/2020  
MECHANICAL BAR SCREEN REPLACEMENT**

The Contractor shall list below all qualified subcontractors or material suppliers for this project. In the event that the Contractors wished to replace a listed subcontractor, a written request must be made to the Chief Procurement Officer.

<b>Specialty</b>	<b>Subcontractor/Material Supplier Name</b>	<b>License #</b>

BID PROPOSAL SCHEDULE  
 CITY OF SIERRA VISTA FISCAL YEAR 2019-2020  
 ANNUAL STREET MAINTENANCE PROJECT  
 PW-231

Name of Contractor: \_\_\_\_\_

ITEM NO.	DESCRIPTION OF ITEM	UNIT	ESTIMATED QUANTITY	UNIT BID PRICE DOLLARS & CENTS	AMOUNT BID DOLLARS & CENTS
1	<b>Mobilization</b>	LS	1	For \$ _____ per Lump Sum	\$ _____
2	<b>Traffic Control (includes temporary chip seal markers and door knocker notices to all residents on the streets in scope)</b>	LS	1	For \$ _____ Lump Sum	\$ _____
3	<b>Ashpalt Emulsion Binder</b>	TON	382	For \$ _____ per Ton	\$ _____
4	<b>Chip Seal Aggregate</b>	TON	2,745	For \$ _____ per Ton	\$ _____
5	<b>Fog Coat (CQS1H Diluted 50-50 with Water)</b>	TON	190	For \$ _____ per Ton	\$ _____
6	<b>Obliteration of Stripe (12 to 18 inch)</b>	LF	1,650	For \$ _____ per Lineal Foot	\$ _____
7	<b>Obliteration of Stripe (8 inch)</b>	LF	200	For \$ _____ per Lineal Foot	\$ _____
8	<b>Obliteration of Stripe (4 inch)</b>	LF	20,700	For \$ _____ per Lineal Foot	\$ _____

\*\*\*Legend - (LS = LUMP SUM), (LF = LINEAR FOOT), (EA = EACH)

PW-231; FISCAL YEAR 2019/2020 ANNUAL STREET MAINTENANCE PROJECT -CHIP SEALS

BID PROPOSAL SCHEDULE  
 CITY OF SIERRA VISTA FISCAL YEAR 2019-2020  
 ANNUAL STREET MAINTENANCE PROJECT  
 PW-231

Name of Contractor: \_\_\_\_\_

ITEM NO.	DESCRIPTION OF ITEM	UNIT	ESTIMATED QUANTITY	UNIT BID PRICE DOLLARS & CENTS	AMOUNT BID DOLLARS & CENTS
9	<b>Obliteration of Arrow Symbol</b>	EA	6	For \$ _____ per Each	\$ _____
10	<b>Obliteration of "ONLY" Symbol</b>	EA	2	For \$ _____ per Each	\$ _____
11	<b>Removal of raised Pavement Marker/reflector</b>	EA	280	For \$ _____ per Each	\$ _____
12	<b>Sweeping (complete - includes pre-sweeping and several rounds of cleanup after chip seal is placed per these special provisions)</b>	LS	1	For \$ _____ per Lump Sum	\$ _____
<b>TOTAL Base Bid (Lines 1 thru 12)</b>				<b>\$ _____</b>	

\_\_\_\_\_  
 Company Name

\_\_\_\_\_  
 Signature of Authorized Representative

\_\_\_\_\_  
 Name of Authorized Representative

\_\_\_\_\_  
 Signature of Authorized Representative

\*\*\*Legend - (LS = LUMP SUM), (LF = LINEAR FOOT), (EA = EACH)

**CITY OF SIERRA VISTA  
SPECIAL PROVISIONS**

**REPLACEMENT MECHANICAL  
BAR SCREEN PROJECT**

**Introduction:**

The City of Sierra Vista is requesting bids from qualified licensed Contractors for the purchase and installation of a mechanical bar screen. The bar screen is to be installed at the headworks of the Environmental Operations Park (EOP), the City's waste water treatment plant at 6801 E. Hwy 90 City of Sierra Vista, Arizona 85635.

The project includes purchase of a bar screen by the Contractor; dewatering of the influent channel; removal and transport of the existing bar screen; and installation and start-up of a new bar screen.

**Scope of Work:**

The Work shall include, but shall not be limited to the following:

- Purchase a new bar screen in accordance with the attached specifications. **All bids must be based on pre-approved equipment. See Section 2.1 of the Equipment Specifications**
- Dewater the existing effluent channel to prepare the area to remove and replace the existing bar screen.
- Removal of the existing mechanical bar screen.
- Installation of the new bar screen including:
  - Electrical connections
  - Installation of new controls (float and wiring)
  - Integration with the existing SCADA system
  - Installation of the control panel
  - Installation of the bar screen in the existing channel
  - Testing, set up and running of all new equipment
- Provide instruction and training for City personnel regarding operation and maintenance of the new equipment by qualified instructors.

**Existing Conditions**

The existing mechanical bar screen is currently in operation. Note that the original headworks was constructed in 2000 and then upgraded in 2013. See attached as-built plans. Note that some of the plan sheets are from 2000 and some are from 2013. There is a second parallel inflow channel that is currently outfitted with a manual bar screen. Sluice gates can be used to divert flow to the

parallel channel, around the mechanical bar screen and on downstream into the plant.

Flow in the plant averages approximately 2.5 MGD. Peaks flows are approximately 4.0 MGD. The parallel channel is capable of conveying approximately 2.5 MGD.

### **Work Required**

1. It will be necessary to block off the main channel containing the bar screen in order to pump it dry. There is an existing sluice gate at the upstream side of the main channel. It can be closed to block off the upstream flow. Another sluice gate was added in 2013 that allows the downstream end of the main channel to be blocked off. Once the gates are closed, the main channel can be pumped out. Note- the sluice gates leak somewhat and allow small amounts of water to seep back into the main channel. It will be necessary to use a small trash pump to keep the main channel dry during construction.
2. The parallel channel is capable of conveying approximately 1.5 MGD to the grit chamber downstream from the bar screens. It will be necessary to pump excess flow from the parallel channel to the equalization basin (approximately 70 feet away). The Contractor will provide a pump capable of pumping 3.5 MGD (2,500 gpm) from the parallel channel to the equalization basin. This will provide a margin of safety in the event an above average peak flow occurs. The equalization basin is lined. No erosion protection is required at the discharge end of the pump.

**The City will provide a back-up pump for the pump-around operation. The Contractor is only responsible for providing the primary pump.**

See attached site map for locations and distances of the plant components. The map is produced to the scale shown on the map. Print map on 8-1/2" x 11" paper to estimate distances using a scale.

3. The existing mechanical bar screen must be removed. This will involve removing the existing bolts anchoring the bar screen and disconnecting the electrical wiring and controls. The old bar screen is to be delivered to the Public Works yard at 401 Giulio Cesare Avenue. City employees will provide equipment to off-load the bar screen at the yard.
4. The new mechanical bar screen is to be installed in the main channel. The Contractor will install the bar screen in accordance with the manufacturer's instructions. Contractor to provide all materials, labor and equipment necessary to install the new bar screen. The existing bar

screen is mounted at a 15° angle to the vertical. The new bar screen shall also be mounted at 15°.

5. Contractor shall provide all necessary electrical connections to the new bar screen. The Contractor may use the existing wiring to the existing control panel. The Contractor shall provide new wiring between the new control panel and the new bar screen. Contractor shall provide a new control panel specific to the requirements of the new bar screen (preferably one supplied by the bar screen manufacturer).

All wiring and work shall be in accordance with the N.E.C. During installation, electrical work shall be subject to inspection by the City's Building Department.

6. The Contractor shall provide controls as described in the attached specifications. Normally, the bar screen will run on a timed schedule. The Contractor shall also provide and install a float and controls for the new bar screen. In the event the upstream water level rises to the float, the bar screen will begin running. See specifications for complete control requirements.
7. The existing bar screen sends a notification to the existing SCADA system if the bar screen fails to start. The controls for the new bar screen shall also send a fail-to-start notification to the SCADA system.
8. Contractor shall provide for start-up and testing which shall be performed in strict conformance with the manufacturer's instructions. Testing of the bar screen shall demonstrate that the equipment is fully operational by picking up and depositing materials into specified containment. The Contractor shall adjust the controls and be satisfied that the new bar screen is working properly. After this has been accomplished, a qualified instructor shall train City personnel in the operation and maintenance of the new bar screen. The instructor must be knowledgeable of the equipment installed and be able to conduct hands-on demonstrations of all aspects of the operation and maintenance of the equipment.
9. The control panel shall be protected from the elements as recommended by the manufacturer. Contractor shall provide a cover/awning/shelter for the control panel to prevent damage from sun, wind, rain or other deleterious weather conditions as recommended by the manufacturer. Covering the control panel with an opaque door is not acceptable. Operators must be able to determine current operating conditions without opening a door or cover.
10. The Contractor shall provide replacement parts as shown in the attached specifications.

## **Submittals**

1. Contractor shall submit cut sheets and/or shop drawings of all equipment that is to be installed. Electronic submittals are preferred. If paper submittals are made, submit at 4 copies for City use, plus all required copies for the Contractor's use.
2. Contractor shall submit 3 bound copies plus electronic copies of the complete Operation and Maintenance Manuals for all equipment installed.
3. All new equipment, installations, and workmanship shall be warranted by the Contractor for a minimum of two years. This shall include the manufacturer's warranty. If at any time during the warranty period the unit(s) fail, the Contractor shall, at their expense, provide sufficient replacement materials and or labor to repair all deficiencies. The Contractor and manufacturer warranty shall be provided in writing to the City's Procurement Department.

## **Completion Date**

This project must be completed within one month from the time the Contractor takes delivery of the new bar screen and required accessories.

## **Equipment Specifications**

The following specifications describe the mechanical equipment to be provided for this project.

### **PART 1 – GENERAL**

#### **1.1 SUMMARY**

- A. This section includes the furnishing of a front-cleaning, front-return link driven mechanically cleaned bar screen assembly and any auxiliary equipment or accessories to be installed in the location as indicated on the drawings and as specified herein.
  1. Number of units: 1
  2. Equipment location: City of Sierra Vista  
Environmental Operations Park, 6801 E. Hwy 90 City of Sierra Vista, Arizona 85635
- B. All equipment supplied under this section shall be furnished by or through a single Supplier who shall coordinate with the Contractor, the design, fabrication, delivery, installation and testing of the screening components. The Screening System

Supplier shall have the sole responsibility for the coordination and performance of all components of the screenings system with the performance and design criteria specified herein.

- C. The Contractor shall be responsible to coordinate all details of the screening equipment with other related parts of the Work, including verification that all structures, piping, wiring, and equipment components are compatible.

## **1.2 REFERENCE STANDARDS**

- A. American National Standards Institute (ANSI)
- B. American Society for Testing and Materials (ASTM)
- C. American Welding Society (AWS)
- D. American Institute of Steel Construction (AISC)
- E. American Bearing Manufacturers Association (ABMA)
- F. American Gear Manufacturers Association (AGMA)
- G. National Electrical Manufacturers Association (NEMA)
- H. Underwriters Laboratory (UL)

## **1.3 SUBMITTALS**

- A. The equipment manufacturer shall submit the following items:
  - 1. Six sets of General Arrangement drawings that illustrate the layout of the equipment, equipment weight, principal dimensions with related verifications required for installation including anchorage locations. Other related data including descriptive literature, Electrical Control Drawings, Catalog Cut Sheets for individual components and Drive Motor Data.
  - 2. A list of recommended Spare Parts including any Special Tools required for routine maintenance of the equipment is provided in Section 2.5.
  - 3. Three sets of O & M Manuals including As-Built Drawings of the Mechanically Cleaned Bar Screen Arrangement, Controls and Accessories shall be provided in digital format after equipment ship for inclusion in the Close-Out Submittal process.

## **1.4 QUALITY ASSURANCE**

- A. The Mechanically Cleaned Bar Screens shall be fully assembled and shop tested at the manufacturing facility prior to shipment. Shop testing shall include a minimum of 4 hours of run time. The contractor, the engineer, the owner or the owner's designated representative reserves the right to witness the shop test. A



minimum three-week notice shall be provided prior to the test to allow for travel coordination.

- B. To assure quality and performance: All equipment furnished under this Section and related sections shall be of a single manufacturer who has been regularly engaged in the design and manufacture of the equipment and demonstrates, to the satisfaction of the Engineer, that the quality is equal to equipment made by those manufacturers specifically named herein. And the screen manufacturer shall have at least 10 installations of the specified model of mechanically cleaned bar screen equipment that has been in successful operation, at similar installations, for at least five years. Upon request, the manufacturer shall provide a reference of such installation sites along with the relevant contact information.
- C. Possible consideration may be given to manufacturers with less installation experience if they provide five references from within the United States.
- D. The equipment furnished shall be fabricated, assembled, installed and placed in proper operation condition in full conformity with approved drawings, specifications, engineering data, and/or recommendations furnished by the equipment manufacturer.

## 1.5 WARRANTY

- A. Manufacturer shall provide a written **two** year standard warranty from the date of use of the mechanically cleaned bar screen equipment to guarantee that there shall be no defects in material or workmanship in any item supplied.

## PART 2 – PRODUCTS

### 2.1 MANUFACTURERS

- A. Screen shall be as manufactured by Duperon Corporation, 1200 Leon Scott Court, Saginaw, Michigan, TF 800.383.8479. The screens shall be the FlexRake® Model, Full Penetration Bar Screens or approved equal.
- B. **Screen manufacturer seeking pre-approval must submit application a minimum of two weeks prior to bid day. Charges for additional engineering to alter site drawings to meet the intention of the specification shall be at the cost of the manufacturer requesting such change. The necessary submission to be considered a pre-approved equal shall include the following information:**

- a. Product data sheet
- b. Installation drawings and instructions
- c. O & M Manual

**2.2 BASIS OF DESIGN**

- A. The mechanically cleaned bar screen shall have a head sprocket only, with no sprockets, bearings, idlers, or similar drive components under water to trap the chain. Equipment featuring reciprocating rake arms or lower bearings/sprockets/tracks below the water is not acceptable.
- B. The mechanically cleaned bar screen shall be designed to run continuously (24/7), without operator.
- C. The equipment shall have multiple scrapers on the bar screen at one time cleaning continuously from bottom to top, the entire width of the bar screen. The drive output shaft rotation shall be constant and in one direction in order to reduce maintenance and increase product life. Units which have single raking arms or that require cycle times shall not be allowed.
- D. The link system shall have jam evasion capability by flexing around and collecting large objects such as grease balls and surges of solids at peak loading times without overloading and shutting down the unit. The link system shall be such that it bends in one direction only which allows it to become its own lower sprocket and frame and shall have a 1,000 pound lifting capacity.
- E. Equipment utilizing a greater than ½ HP motor or two or more motors to complete a screen cleaning cycle is not acceptable.
- F. The design shall be such to ensure that all maintenance can be accomplished at the operating floor level or above. No part of the drive system shall be located below the water surface at maximum design flow.
- G. Design Conditions:

Site Installation Information:	
Channel Width:	3.5'
Channel Height:	4.75'
Bar Opening Size:	1-3/4"
Angle of Installation:	
Average Flow:	3.0 MGD

Average Water Level:	
Maximum Flow:	4.7 MGD
Maximum Water Level:	
Maximum Head Differential:	1.5 ft
Equipment Location:	Outdoors
Collection and Conveyance	
Containment Height:	48"
Debris Bin:	Dumpster-

## 2.3 COMPONENTS

- A. Bar screen assembly: Bar screen assembly shall be of stainless steel and designed to withstand 1 foot head differential unless noted otherwise in Section 2.2 J Design Conditions. Unless noted otherwise materials of construction shall be 304 Stainless Steel. The Bar screen assembly shall be shipped in one piece.
1. Screen Bars: Bars shall be 304 stainless steel and be rectangular shaped, true bar with the minimum dimensions of 0.25 inch x 1.00 inch. Bars shall be individually replaceable without welding.
  2. Side Fabrication: The screen framework shall be 304 stainless steel. Horizontal members shall be of stainless steel bent plate or stainless steel pipe. Support members and frame shall adequately support the bar screen based on site specific requirements.
  3. Dead Plate: Dead plate shall be 0.25 inch thick 304 stainless steel. The dead plate shall be flat and true; span the entire width of the unit; and transition from bar screen to discharge point.
  4. Discharge Chute: The discharge chute shall be 11ga. (0.12 inch) 304 stainless steel. The discharge chute shall be bolted to the dead plate and shall be designed to allow debris to be transferred from discharge point into the debris containment.
  5. Link Slides: Link slide assembly shall be provided per manufacturer standard design and shall be constructed of UV Stable UHMW PE rollers and 304 stainless steel supports and components.
- B. Return Guide/Closeouts: Return guide/Closeouts shall be 304 stainless steel and shall assure proper alignment of scrapers as they enter the bar screen and assure that there is no space wider

than the clear opening between bars to prevent passage of larger solids than allowed through the screen.

- C. Debris Blade: A 304 stainless steel and UV Stable UHMW-PE debris blade assembly, which does not require a separate drive, shall be installed to assist in removing debris from the scraper on the mechanically cleaned bar screen unit as recommended by the manufacturer.
- D. Screen Enclosure: A 14ga. #4 brushed satin finish 304 SSSL Enclosure shall be installed to cover the screen above the operating deck level. Front Enclosure shall continuously hinged SSSL doors. Doors shall be 16ga. 304 SSSL and shall be provided with knurled knobs for "no tool required" access. Rear Enclosure shall have hinged removable doors and shall be secured with a lift-slide-latch handle. Rear removable door shall include an integral viewing door that shall be secured
- E. Link System: The link system shall be passivated stainless steel castings and have a minimum ultimate strength of 60,000 lbs with a minimum cross section of 1.5 inches and weighing a minimum of 4.5 lbs each. Parts must meet ASTM A380 specification for surface finish.

Use 316 stainless steel link system including 316 stainless steel retaining rings and 316 stainless steel pins.

- F. Scrapers: Scrapers shall be spaced 21 inches apart. To provide long product life the scraper shall move at no greater than 28 inches per minute at standard operating speed of ½ rpm allowing for approximately 1 debris discharge per minute. Scrapers shall be 1.00 inch thick, UV Stable UHMW-PE and shall fully penetrate the bar screen, cleaning all three sides of the bars as well as through to the cross members in openings of 0.625 through 4 inches. .
- G. Drive Head: The Drive Head shall be located at the top of the mechanically cleaned bar screen.
  - 1. Drive Unit: Each mechanically cleaned bar screen unit shall operate independently and shall have its own drive unit and driven components.
    - a. Drive Sprockets and end castings shall be cast 304 stainless steel.
    - b. Drive Shaft shall be 304 stainless steel.
    - c. Gearbox shall be shaft-mounted, right angle type and include spiral bevel gearing. The output

shaft speed shall be controlled by a vector type inverter or per rake manufacturer's recommendation. It shall have at least a 1.52 or greater service factor based on machine torque requirements. The gearbox shall not be vented to the outside atmosphere. The gearbox shall be grease filled.

d. The motor shall be AC induction type, inverter duty, 3 phase 208 volt and mounted to the gear reducer. The motor shall be ½ hp, designed for 1800 RPMs base speed and rated for Class I, Groups C & D, Class II Groups F & G environments. The motor shall have an EPNV enclosure, NEMA design B with a 56C frame size. Service factor shall be 1.0 or greater, Class F insulation and be optimized for IGBT type inverters. The motor must be UL listed and designed for continuous operation.

e. Motor shall have built in, normally closed, thermostat to protect from overheating that is to be field wired to corresponding terminal in control panel for redundant (ambient) overload protection.

2. Bearing: Bearing shall be greased Timken tapered roller bearings, non self-aligning, dual lip sealed, lubricated, and shall have a 24/7/365 L10 life of 20 years when in compliance with stated O&M recommendations.
3. Speed Reducer: Speed reducer shall be a double-reduction, cycloidal style and shall comply with all applicable AGMA standards. The speed reducer shall be capable of a 4/1 speed range with variable output speeds between 0.50 to 2.2 output RPMs (in high flow conditions). The speed reducer shall produce an output torque of 11,417 in.lb. and have a gear ratio of 809:1.

H. Standard Coating: All non-stainless bar screen components shall be coated in strict accordance with the paint manufacturer's specification. Surface Preparation shall be done in accordance with SSPC-SP-10 Near White. The three-part coating system shall be manufactured by Tnemec as follows: Prime Coat Series 90-97 Tnemec Zinc at 2.5-3.5 mils DFT, Intermediate Coat Series 27 F.C. Typoxy at 3.0-5.0 mils DFT, and Top Coat Series 1075U Endura-Shield II at 2.0-3.0 mils DFT. Standard color is 11SF Safety Blue. Material shall meet all state and federal VOC and other regulatory requirements.

## 2.4 ELECTRICAL, CONTROLS, INSTRUMENTATION

- A. General: Controls for each rake shall be in enclosures provided by the bar screen manufacturer. The bar screen manufacturer shall be responsible for proper sizing and function of the controls at 480V, unless specified otherwise.
1. Main control panels require shading from the sun and shall be operated within a temperature range between 35°F and 104°F. Sunshields, visors or other structures needed to provide shade are by **the Contractor**.
  2. Controls shall be designed to accept incoming power supply per plans/specs and shall include a step-down transformer as needed to achieve 120V.
  3. Control Panel(s) shall be constructed to meet the appropriate NEMA classification requirements and will include a main, lockable disconnect. The panel will be constructed by a UL certified control panel build facility and will be supported by the appropriate UL labeling.
  4. Controls shall be tested prior to shipment to owner. The rake manufacturer shall verify all overload settings in the rake controller to insure proper overload and speed settings required for the application are properly programmed.
  5. Control panel(s) shall be wired complete with a minimum of #16 MTW wire in the appropriate colors for the circuits being supplied. 120VAC control shall be red, grounded AC neutral shall be white, DC control shall be blue, DC neutral shall be blue with a white tracer, equipment ground shall be green and all incoming and outgoing external power source wires shall be a yellow configuration. All AC power wiring shall be a minimum of #12 Black. All wires shall be labeled at both ends with heat-shrink wire markers. Internal panel wiring shall be contained in non-flammable, covered wire way.
  6. All panel(s) and panel mounted devices shall be labeled with engraved I.D. markers that reference back to the system schematics. Tags shall be white with black core, engraved as required.
  7. All field wiring and power cables between the bar screen Main Control Panel and the Local Push Button Station shall be provided by others under the Electrical Section. VFD rated motor cable (Belden #29502 or equal) is

recommended for all motors. Motor cables shall be less than 80 ft unless otherwise specified.

## 1. Electrical Components:

### A. Main Control Panel

- a. Enclosure(s) shall be NEMA 4X 304 SSSL for outdoor installations.
- b. Enclosure shall not be located in an explosive environment.
- c. Main Control Panel shall be designed with a SCCR rating of 18KA at 480VAC minimum and labeled as such, unless otherwise specified.
- d. All terminals utilized in the main panel shall be 600V rated terminals and 20% spare terminal space shall be provided for any potential future revisions.
- e. The Main Control Panel shall include at a minimum the following:
  - Main fusible disconnect with lockable operator, unless otherwise specified.
  - Physical or virtual Hand/Off/Auto (HOA) Selector and Push/pull E-Stop button.
  - Elapsed run-time meter
  - Indication for "Power On", "Forward" and necessary faults.
- f. Relay Based Controls shall include the following:
  - Variable Frequency Drive (VFD)
  - Electronic torque control
    - Hard contact SCADA Interlock(s)
    - Adjustable on/off cycle timers

### B. Local Control Push Button Station

- Enclosure shall be NEMA 4X rated for unclassified installation. Local push button station must be local to the equipment to maintain requirements of local safety codes as determined by the Engineer.
- Local station shall be mounted within 10 feet or as close to the equipment as safely possible and be field wired by the **Contractor** to the corresponding terminal inputs in the main control panel.

- The remote pushbutton station shall include Forward, Jog Reverse and E-Stop buttons.

**C. Instrumentation**

- Each raking assembly shall have a separate level system that shall be installed and field wired by **Contractor** per the manufacturer’s instructions.
  - Single Level/Speed Control: When the level switch trips, the rake runs. When the level switch returns to the normal position, an off-delay timer is initiated to prevent intermittent equipment starting/stopping. Cycle timing logic shall also be included that shall function in parallel with the level control for optimal rake run time.
  - (1) Mechanical Float Switch including 50 foot long cabling.

**D. Controls Design Conditions:**

Incoming Power: (Voltage/Phase)	<i>208, 3 phase</i>
Enclosures:	None
Installation location:	Outdoors
Approx. distance between main panel and equipment motor	10'
Climate controlled location:	no
Control panel to have weather resistant cover to prevent damage from sun, wind, and moisture.	After-market
Transducer/Float cable length (50 ft standard):	To be Provided

**2.5 SPECIALTY TOOLS, SPARE PARTS AND LUBRICATION**

A. Manufacturer shall provide any specialty tools and recommend spare parts required for maintaining the equipment as follows:

1. Drive Clevis Pin (1)
2. Snap/Retaining Rings(10)
3. Link Clevis Pins (4)
4. Scraper Bolts (4)
5. Scraper Nuts (4)
6. Snap Ring Tool (1)
7. Never Seez, 1 oz. tube (1)

B. Manufacturer shall provide one tube of Multi-Purpose grease which



is a 5-year supply of lubrication, required for maintaining all bar screen components.

### 3.1 SHIPMENT

Shipment of all equipment shall be coordinated to allow the screen shipment as one complete integrated assembly unless otherwise specified by the customer, contractor, or engineer.

### 3.2 INSTALLATION

- A. Equipment shall be installed in strict conformance with the manufacturer's installation instructions, as submitted with Shop Drawings, Operation and Maintenance Manuals and/or any pre-installation checklists. Installation shall utilize standard torque values and be installed secure in position and neat in appearance. Installation shall include any site preparation tasks as required by the engineer or manufacturer; such as unloading, touch-up painting, etc. and any other installation tasks and materials such as wiring, conduit, controls stands as determined by the customer and/or specified by the manufacturer.
- B. Anchor bolts and nuts shall be 316 stainless steel and furnished for each item of equipment by the **Contractor**.
  - 1. Anchor bolt template drawings shall be included in the submittal to permit verification of the location structural elements, new or existing in the concrete.
  - 2. Anchor bolt sizes, quantity and requirements will be indicated on the submittal drawings. Quantity is site specific but typically each Bar screen assembly requires (8) to (12) 1/2" dia. x 4 1/2" Lg. embed HILTI HAS RODS w/ HIT-RE 500 V3 adhesive system anchor bolts (or approved equal) for Mechanical Screen anchorage and typically (8) to (12) 3/8" dia. x 3 3/8" Lg. embed HILTI HAS RODS w/ HIT-RE 500 V3 adhesive system anchor bolts (or approved equal) for the Return Guide/Closeouts anchorage.

### 3.3 TESTING

- A. After completion of installation, **Contractor** shall provide for testing and shall be performed in strict conformance with the manufacturer's start up instructions. Testing of the bar screen shall demonstrate that the equipment is fully operational by picking up and depositing materials into specified containment.
- B. Field certification shall include inspection of the following:
  - 1. Verify equipment is properly aligned and anchored per the installation instruction and drawings. Assure the bar screen unit is square, flat and unobstructed with required clearances maintained.
  - 2. Assure controls and instrumentation work in all modes.
  - 3. Check equipment for proper operation of debris blade, scrapers, etc as well as completion of the Start-Up requirements in the installation guide.

### 3.4 ONSITE TECHNICAL ASSISTANCE

- A. Manufacturer shall provide services to include Installation Certification, and shall include (1) day for Start-Up and (1) day for Training. Manufacturer shall be given minimum 14 days notification prior to the need for such services. To assure the best outcome for the Owner and Contractor, the Contractor shall provide certification for the Contractor shall provide certification for completion of the PRE-COMMISSIONING CHECKLIST.