

INVITATION TO BID
CITY OF NAPLES
PURCHASING DIVISION
CITY HALL, 735 8TH STREET SOUTH
NAPLES, FL 34102
PH: 239-213-7100 FX: 239-213-7105

NOTIFICATION DATE: 05/07/12	TITLE WWTP Motor and Pump Replacement	NUMBER: 045-12	OPENING DATE & TIME: 05/31/12 2:00 PM
PRE-BID DATE, TIME AND LOCATION: A non-mandatory pre-bid meeting will be held at 10:00 am, May 15, 2012 at 380 Riverside Circle, Naples, Florida 34102.			

NAME OF PARTNERSHIP, CORPORATION OR INDIVIDUAL:	
MAILING ADDRESS:	
CITY-STATE-ZIP:	
PH:	EMAIL:
FX:	WEB ADDRESS:

<p>I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a bid for the same materials, supplies, or equipment and is in all respects fair and without collusion or fraud. I agree to abide by all conditions of this bid and certify that I am authorized to sign this bid for the bidder. In submitting a bid to the City of Naples the bidder offers and agrees that if the bid is accepted, the bidder will convey, sell, assign or transfer to the City of Naples all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the Anti-trust laws of the United States and the State of FL for price fixing relating to the particular commodities or services purchased or acquired by the City of Naples. At the City's discretion, such assignment shall be made and become effective at the time the City tenders final payment to the bidder.</p>		
AUTHORIZED SIGNATURE	DATE	PRINTED NAME/TITLE
Please initial by all that apply I acknowledge receipt of the following addendum ____ Addendum #1 ____ Addendum #2 ____ Addendum #3 ____ Addendum #4		

PLEASE NOTE THE FOLLOWING:

- > **This page must be completed and returned with your bid.**
- > **Bids must be submitted in a sealed envelope, marked with bid number & closing date.**
- > **Bids received after the above closing date and time will not be accepted.**
- > **If you do not have an email address and you want a copy of the Bid Tab, please enclose a stamped, self-addressed envelope with your bid.**

GENERAL CONDITIONS

TO INSURE ACCEPTANCE OF THE BID, PLEASE FOLLOW THESE INSTRUCTIONS. ANY AND ALL SPECIAL CONDITIONS, ATTACHED HERETO, HAVE PRECEDENCE.

- 1. SEALED BID:** All bids must be submitted in a sealed envelope. The face of the envelope shall contain the bid name and bid number. Bids not submitted on attached bid form shall be rejected. All bids are subject to the conditions specified herein. Those which do not comply with these conditions are subject to rejection.
- 2. EXECUTION OF BID:** Bid must contain a manual signature of authorized representative in the proposal section. Bid must be typed or printed in ink. Use of erasable ink is not permitted. All corrections made by bidder to his bid must be initialed.
- 3. NO BID:** If not submitting a bid, respond by returning the Statement of No Bid and explain the reason in the spaces provided. Failure to respond 3 times in succession without justification shall be cause for removal of the supplier's name from the bid mailing list. NOTE: To qualify as a respondent, bidder must submit a "NO BID," and it must be received no later than the stated bid opening date and hour.
- 4. BID OPENING:** Shall be public, on the date and at the time specified on the bid form. It is the bidder's responsibility to assure that his bid is delivered at the proper time and place of the bid opening. Bids which for any reason are not so delivered will not be considered. Offers by telegram; telephone; or fax are not acceptable. Bid files may be examined during normal working hours.
- 5. WITHDRAWAL OF BIDS:** Withdrawal of a bid within sixty (60) days after the opening of bids is subject to suspension or debarment in accordance with Section 2-668 of the City Code for up to three years.
- 6. PRICES, TERMS and PAYMENT:** Firm Prices include all packing, handling, shipping charges and delivery to the destination shown herein. Bidder is encouraged to offer cash discount for prompt invoice payment. Terms of less than 20 days will not be considered.

 - A. TAXES:** The City of Naples does not pay Federal Excise and Sales taxes on direct purchases of tangible personal property. See exemption number on face of purchase order. This exemption does not apply to purchases of tangible personal property made by contractors who use the tangible personal property in the performance of contracts for the improvement of City-owned real property.
 - B. MISTAKES:** Bidders are expected to examine the specifications, delivery schedule, bid prices, extensions, and all instructions pertaining to supplies and services. Failure to do so will be at bidder's risk. In case of mistake in extension, the unit price will govern.
 - C. CONDITION AND PACKAGING:** It is understood and agreed that any item offered or shipped as a result of this bid shall be a new, current standard production model available at the time of this bid. All containers shall be suitable for storage or shipment, and all prices shall include standard commercial packaging.
 - D. SAFETY STANDARDS:** Unless otherwise stipulated in the bid, all manufactured items and fabricated assemblies shall comply with applicable requirements of Occupational Safety and Health Act and any standards there under.
 - E. UNDERWRITERS' LABORATORIES:** Unless otherwise stipulated in the bid, all manufactured items and fabricated assemblies shall carry U.L. approval and re-examination listing where such has been established.
 - F. PAYMENT:** Payment will be made by the buyer after the items awarded to a vendor have been received, inspected, and found to comply with award specifications, free of damage or defect and properly invoiced. All invoices shall bear the purchase order number. Payment for partial shipments shall not be made unless specified in the bid. Failure to follow these instructions may result in delay in processing invoices for payment. In addition, the purchase order number must appear on bills of lading, packages, cases, delivery lists and correspondence.

7. **DELIVERY:** Unless actual date of delivery is specified (or if specified delivery cannot be met), show number of days required to make delivery after receipt of purchase order in space provided. Delivery time may become a basis for making an award (see Special Conditions). Delivery shall be within the normal working hours of the user, Monday through Friday, unless otherwise specified.

8. **MANUFACTURERS' NAMES AND APPROVED EQUIVALENTS:** Any manufacturers' names, trade names, brand names, information and/or catalog numbers listed in a specification are for information and not intended to limit competition. The bidder may offer any brand for which he is an authorized representative, which meets or exceeds the specification for any item(s). If bids are based on equivalent products, indicate on the bid form the manufacturer's name and number. Bidder shall submit with his proposal, cuts, sketches, and descriptive literature, and/or complete specifications. Reference to literature submitted with a previous bid will not satisfy this provision. The bidder shall also explain in detail the reason(s) why the proposed equivalent will meet the specifications and not be considered an exception thereto. Bids which do not comply with these requirements are subject to rejection. Bids lacking any written indication of intent to quote an alternate brand will be received and considered in complete compliance with the specifications as listed on the bid form.

9. **INTERPRETATIONS:** Any questions concerning conditions and specifications shall be directed in writing to this office for receipt no later than ten (10) days prior to the bid opening. Inquiries must reference the date of bid opening and bid number. Failure to comply with this condition will result in bidder waiving his right to dispute the bid.

10. **CONFLICT OF INTEREST:** All bid awards are subject to Section 2-973 Conflict of Interest, City of Naples Code of Ordinances, which states: *"No public officer or employee shall have or hold any employment or contractual relationship with any business entity or any agency which is subject to the regulation of or is doing business with the city; nor shall an officer or employee have or hold any employment or contractual relationship that will create a continuing or frequently recurring conflict between his private interests and the performance of his public duties or that would impede the full and faithful discharge of his public duties. Any member of the city council or any city officer or employee who willfully violates this section shall be guilty of malfeasance in office or position and shall forfeit his office or position. Violation of this section with the knowledge, express or implied, of the person or corporation contracting with or making a sale to the city shall render the contract or sale voidable by the city manager or the city council."*

11. **AWARDS:** As the best interest of the City may require, the right is reserved to make award(s) by individual item, group of items, all or none, or a combination thereof; to reject any and all bids or waive any minor irregularity or technicality in bids received.

12. **ADDITIONAL QUANTITIES:** For a period not exceeding ninety (90) days from the date of acceptance of this offer by the buyer, the right is reserved to acquire additional quantities up to but not exceeding those shown on bid at the prices bid in this invitation. If additional quantities are not acceptable, the bid sheets must be noted "BID IS FOR SPECIFIED QUANTITY ONLY." (THIS PARAGRAPH DOES NOT APPLY FOR A TERM CONTRACT.)

13. **SERVICE AND WARRANTY:** Unless otherwise specified, the bidder shall define any warranty service and replacements that will be provided during and subsequent to this contract. Bidders must explain on an attached sheet to what extent warranty and service facilities are provided.

14. **SAMPLES:** Samples of items, when called for, must be furnished free of expense, on or before bid opening time and date, and if not destroyed may, upon request, be returned at the bidder's expense. Each individual sample must be labeled with bidder's name, manufacturer's brand name and number, bid number and item reference. Request for return of samples shall be accompanied by instructions which include shipping authorization and name of carrier and must be received with your bid. If instructions are not received within this time, the commodities shall be disposed of by the City of Naples.

15. **BID PROTEST:** The city has formal bid protest procedures that are available on request.

16. INSPECTION, ACCEPTANCE AND TITLE: Inspection and acceptance will be at destination unless otherwise provided. Title and risk of loss or damage to all items shall be the responsibility of the contract supplier until accepted by the ordering agency, unless loss or damage results from negligence by the ordering

17. DISPUTES: In case of any doubt or difference of opinion as to the items to be furnished hereunder, the decision of the buyer shall be final and binding on both parties.

18. GOVERNMENTAL RESTRICTIONS: In the event any governmental restrictions may be imposed which would necessitate alteration of the material, quality, workmanship or performance of the items offered on this proposal prior to their delivery, it shall be the responsibility of the successful bidder to notify the buyer at once, indicating in his letter the specific regulation which required an alteration. The City reserves the right to accept any such alteration, including any price adjustments occasioned thereby, or to cancel the contract at no expense to the City.

19. LEGAL REQUIREMENTS: Applicable provision of all Federal, State, county and local laws, and of all ordinances, rules, and regulations shall govern development submittal and evaluation of all bids received in response hereto and shall govern any and all claims and disputes which may arise between person(s) submitting a bid response hereto and the City of Naples by and through its officers, employees and authorized representatives, or any other person, natural or otherwise; and lack of knowledge by any bidder shall not constitute a cognizable defense against the legal effect thereof.

20. PATENTS AND ROYALTIES: The bidder, without exception, shall indemnify and save harmless the City of Naples and its employees from liability of any nature or kind, including cost and expenses for or on account of any copyrighted, patented, or unpatented invention, process, or article manufactured or used in the performance of the contract, including its use by the City of Naples. If the bidder uses any design, device, or materials covered by letters, patent or copyright, it is mutually agreed and understood without exception that the bid prices shall include all royalties or cost arising from the use of such design, device, or materials in any way involved in the work.

21. ADVERTISING: In submitting a bid, bidder agrees not to use the results there from as a part of any commercial advertising.

22. ASSIGNMENT: Any Purchase Order issued pursuant to this bid invitation and the monies which may become due hereunder are not assignable except with the prior written approval of the buyer.

23. LIABILITY: The supplier shall hold and save the City of Naples, its officers, agents, and employees harmless from liability of any kind in the performance of this contract.

24. PUBLIC ENTITY CRIMES: A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.

25. DISCRIMINATION: An entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid on a contract to provide goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not award or perform work as a contractor, supplier, subcontractor, or consultant under contract with any public entity, and may not transact business with any public entity.

26. COUNTY TAXES: No proposal shall be accepted from and no contract will be awarded to any person, firm or corporation that is in arrears to the government of Collier County, Florida.

27. OFFER EXTENDED TO OTHER GOVERNMENTAL ENTITIES: The City of Naples encourages and agrees to the successful bidder/proposer extending the pricing, terms and conditions of this solicitation or resultant contract to other governmental entities at the discretion of the successful bidder/proposer.

IF THIS BID IS FOR A TERM CONTRACT, THE FOLLOWING CONDITIONS SHALL ALSO APPLY

28. ELIGIBLE USERS: All departments of the City of Naples are eligible to use this term contract. Such purchases shall be exempt from the competitive bid requirements otherwise applying to their purchases.

29. PRICE ADJUSTMENTS: Any price decrease effectuated during the contract period by reason of market change shall be passed on to City of Naples. Price increases are not acceptable.

30. CANCELLATION: All contract obligations shall prevail for at least one hundred eighty (180) days after effective date of contract. After that period, for the protection of both parties, this contract may be cancelled in whole or in part by either party by giving thirty (30) days prior written notice to the other party.

31. RENEWAL: The City of Naples reserves the option to renew the period of this contract, or any portion thereof for up to two (2) additional periods. Renewal of the contract period shall be by mutual agreement in writing.

32. ABNORMAL QUANTITIES: While it is not anticipated, should any unusual or abnormal requirements arise, the City reserves the right to solicit separate bids thereon.

33. FISCAL NON-FUNDING CLAUSE: In the event sufficient funds are not budgeted for a new fiscal period, the City shall notify the contractor of such occurrence and the contract shall terminate on the last day of the current fiscal year without penalty or expense to the City.

IF THIS BID IS FOR PERFORMING A SERVICE, THE FOLLOWING CONDITIONS SHALL ALSO APPLY

34. ALTERNATIVE BIDS: Bidders offering service delivery methods other than those permitted by the scope of work may submit a separate envelope clearly marked "ALTERNATIVE BID". Alternative bids will be deemed non-responsive and will not be considered for award. All such responses will, however, be examined prior to award. Such examination may result in cancellation of all bids received to permit rewriting the scope of work to include the alternative method, or the alternative method may be considered for future requirements of the City of Naples.

35. ANTITRUST: By entering into a contract, the contractor conveys, sells, assigns and transfers to the City of Naples all rights, titles and interest it may now have or hereafter acquire under the antitrust laws of the United States and the State of Florida that relate to the particular goods or services purchased or acquired by the City of Naples under said contract.

36. BIDDER INVESTIGATIONS: Before submitting a bid, each bidder shall make all investigations and examinations necessary to ascertain all site conditions and requirements affecting the full performance of the contract and to verify any representations made by the City of Naples upon which the bidder will rely. If the bidder receives an award as a result of its bid submission, failure to have made such investigations and examinations will in no way relieve the bidder from its obligation to comply in every detail with all provisions and requirements of the contract documents, nor will a plea of ignorance of such conditions and requirements be accepted as a basis for any claim whatsoever by the contractor for additional compensation.

37. CERTIFICATES AND LICENSES: The Contractor, at time of proposal, shall possess the correct occupational licenses, all professional licenses or other authorizations necessary to carry out and perform the work required by the City of Naples and Collier County for this project pursuant to all applicable Federal, State and Local Laws, Statutes, Ordinances, and rules and regulations of any kind.

38. CHANGE IN SCOPE OF WORK: The City of Naples may order changes in the work consisting of additions, deletions or other revisions within the general scope of the contract. No claims may be made by the contractor that the scope of the project or of the contractor's services has been changed, requiring changes to the amount of compensation to the contractor or other adjustments to the contract unless such changes or adjustments have been made by written amendment to the contract signed by the City of Naples and the contractor. If the contractor believes that any particular work is not within the scope of the project, is a material change, or will otherwise require more compensation to the contractor, the contractor must immediately notify the City in writing of this belief. If the City believes that the particular work is within the scope of the contract as written, the contractor will be ordered to and shall continue with the work as changed and at the cost stated for the work within the scope.

39. CONTRACTOR PERSONNEL: The City of Naples shall, throughout the life of the contract, have the right of reasonable rejection and approval of staff or subcontractors assigned to the work by the contractor. If the City reasonably rejects staff or subcontractors, the contractor must provide replacement staff or subcontractors satisfactory to the City in a timely manner and at no additional cost to the City. The day-to-day supervision and control of the contractor's employees and sub-contractors is the responsibility solely of the contractor.

40. COST REIMBURSEMENT: The contractor agrees that all incidental costs, including allowances for profit and tools of the trade, must be included in the bid proposal rates. If an arrangement is made between the contractor and the City to reimburse the contractor for the cost of materials provided in the performance of the work, the contractor shall be reimbursed in the following manner: The City shall reimburse the contractor on completion and acceptance of each assigned job, only for those materials actually used in the performance of the work that is supported by invoices issued by the suppliers of the contractor describing the quantity and cost of the materials purchased. No surcharge shall be added to the supplier's invoices or included in the contractor's invoice submitted to the City that would increase the dollar amount indicated on the supplier's invoice for the materials purchased for the assigned job.

41. EXCEPTIONS: Bidders taking exception to any part or section of the solicitation shall indicate such exceptions on the bid form. Failure to indicate any exception will be interpreted as the bidder's intent to comply fully with the requirements as written. Conditional or qualified bids, unless specifically allowed, shall be subject to rejection in whole or in part.

42. FAILURE TO DELIVER: In the event of the contractor to fail to deliver services in accordance with the contract terms and conditions, the City, after due oral or written notice, may procure the services from other sources and hold the contractor responsible for any resulting purchase and administrative costs. This remedy shall be in addition to any other remedies that the City may have.

43. FAILURE TO ENFORCE: Failure by the City at any time to enforce the provisions of the contract shall not be construed as a waiver of any such provisions. Such failure to enforce shall not affect the validity of the contract or any part thereof or the right of the City to enforce any provision at any time in accordance with its terms.

44. FORCE MAJEURE: The contractor shall not be held responsible for failure to perform the duties and responsibilities imposed by the contract due to legal strikes, fires, riots, rebellions and acts of God beyond the control of the contractor, unless otherwise specified in the contract.

45. INDEPENDENT CONTRACTOR: The contractor shall be legally considered an independent contractor and neither the contractor nor its employees shall, under any circumstances, be considered servants or agents of the City of Naples and the City of Naples shall be at no time legally responsible for any negligence or any wrongdoing by the contractor, its servants or agents. The City of Naples shall not withhold

from the contract payments to the contractor any federal income taxes, Social Security tax, or any other amounts for benefits to the contractor. Further, the City shall not provide to the contractor any insurance coverage or other benefits, including Workers' Compensation normally provided by the City for its employees.

46. ORAL STATEMENTS: No oral statement of any person shall modify or otherwise affect the terms, conditions or specifications stated in this contract. All modifications to the contract must be made in writing by the City of Naples.

47. QUALIFICATIONS OF BIDDERS: The bidder may be required, before the award of any contract, to show to the complete satisfaction of the City of Naples that it has the necessary facilities, ability, and financial resources to provide the service specified therein in a satisfactory manner. The bidder may also be required to give a past history and references in order to satisfy the City in regard to the bidder's qualifications. The City may make reasonable investigations deemed necessary and proper to determine the ability of the bidder to perform the work, and the bidder shall furnish to the City all information for this purpose that may be requested. The City reserves the right to reject any bid if the evidence submitted by, or investigation of, the bidder fails to satisfy the City that the bidder is properly qualified to carry out the obligations of the contract and to complete the work described therein. Evaluation of the bidder's qualifications shall include:

- > The ability, capacity, skill and financial resources to perform the work or service.
- > The ability to perform the work service promptly or within the time specified, without delay.
- > The character, integrity, reputation, judgment, experience, and efficiency of the bidder.
- > The quality of performance of previous contracts or services.

48. QUALITY CONTROL: The contractor shall institute and maintain throughout the contract period a properly documented quality control program designed to ensure that the services are provided at all times and in all respects in accordance with the contract. The program shall include providing daily supervision and conducting frequent inspections of the contractor's staff and ensuring that accurate records are maintained describing the disposition of all complaints. The records so created shall be open to inspection by the City.

49. RECOVERY OF MONEY: Whenever, under the contract, any sum of money shall be recoverable from or payable by the contractor to the City, the same amount may be deducted from any sum due to the contractor under the contract or under any other contract between the contractor and the City. The rights of the City are in addition and without prejudice to any other right the City may have to claim the amount of any loss or damage suffered by the City on account of the acts or omissions of the contractor.

50. REQUIREMENTS CONTRACT: During the period of the contract, the contractor shall provide all the services described in the contract. The contractor understands and agrees that this is a requirements contract and that the City shall have no obligation to the contractor if no services are required. Any quantities that are included in the scope of work reflect the current expectations of the City for the period of the contract. The amount is only an estimate and the contractor understands and agrees that the City is under no obligation to the contractor to buy any amount of services as a result of having provided this estimate or of having any typical or measurable requirement in the past. The contractor further understands and agrees that the City may require services in excess of the estimated annual contract amount and that the quantity actually used whether in excess of, or less than, the estimated annual contract amount and that the quantity actually used shall not give rise to any claim for compensation other than the total of the unit prices in the contract for the quantity actually used.

51. TERMINATION FOR CONVENIENCE: The performance of work under the contract may be terminated by the City in whole or in part whenever the City determines that termination is in the City's best interest. Any such termination shall be effected by the delivery to the contractor of a written notice of termination of at least seven (7) days before the date of termination, specifying the extent to which performance of the work under the contract is terminated and the date upon which such termination becomes effective. After receipt of a notice of termination, except as otherwise directed, the contractor shall stop work on the date of the receipt of the notice or other date specified in the notice; place no further orders or

subcontracts for materials, services or facilities except as necessary for completion of such portion of the work not terminated; terminate all vendors and subcontracts; and settle all outstanding liabilities and claims.

52. TERMINATION FOR DEFAULT: The City of Naples reserves the right to terminate the contract if the City determines that the contractor has failed to perform satisfactorily the work required, as determined by the City. In the event the City decides to terminate the contract for failure to perform satisfactorily, the City shall give to the contractor at least seven (7) days written notice before the termination takes effect. The seven-day period will begin upon the mailing of notice by the City. If the contractor fails to cure the default within the seven (7) days specified in the notice and the contract is terminated for failure to perform satisfactorily, the contractor shall be entitled to receive compensation for all reasonable, allocable and allowable contract services satisfactorily performed by the contractor up to the date of termination that were accepted by the City prior to the termination. In the event the City terminates the contract because of the default of the contractor, the contractor shall be liable for all excess costs that the City is required to expend to complete the work under contract.

53. STATE AND FEDERAL EMPLOYMENT LAWS: Contractors providing service to the City are required to comply with all state and federal employment laws. This includes, but is not limited to, laws resulting from the Immigration and Reform and Control Act of 1986, wherein all employers are required to verify the identity and employment eligibility of all employees. The Department of Homeland Security, U.S. Citizenship and Immigration Services require employees and employers to complete Form I-9 and the employer must examine evidence of identity and employment eligibility within three business days of the date employment begins. Non compliant contractors will be subject to contract sanctions, up to and including contract termination.

54. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY, AND VOLUNTARY EXCLUSION: The contractor agrees to comply with Executive Order 12549 “Debarment and Suspension” and 2 CFR 180 “OMB Guidelines to Agencies on Government wide Debarment and Suspension.” These rules require all contractors using federal funds not be debarred or suspended from doing business with the Federal Government. This includes sub-recipients and lower tier participant for covered transactions. Signing and submitting this document certified the organization and its principals are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency, and further have not within the preceding three-year period been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction .

THE CITY OF NAPLES IS AN EQUAL OPPORTUNITY EMPLOYER

GENERAL INSURANCE REQUIREMENTS

The Contractor shall not commence work until he has obtained all the insurance required under this heading, and until such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work until all similar insurance required of the subcontractor has also been obtained and approved by the Owner.

Certificates of insurance must be issued by an authorized representative of the insurance company at the request and direction of the policyholder and must include sufficient information so as to identify the coverage and the contract for Owner's improvements for which they are issued. Certificates of insurance must be issued by a nationally recognized insurance company with a Best's Rating of no less than B+VII, satisfactory to the Owner, and duly licensed to do business in the state of said Contract.

The Contractor shall procure and maintain, during the life of this Contract, Worker's Compensation Insurance for all of his employees to be engaged in work under this Contract, and he shall require any subcontractor similarly to provide Worker's Compensation Insurance for all of the latter's employees to be engaged in such work, unless such employees are covered by the protection afforded by the Contractor's insurance. In case any employees are to be engaged in hazardous work under this Contract, and are not protected under this Worker's Compensation statute, the Contractor shall provide, and shall cause each subcontractor to provide, adequate coverage for the protection of such employees. It is acceptable to use a State-approved Worker's Compensation Self-Insurance fund.

The Contractor shall take out and maintain during the life of this Contract, Public Liability and Property Damage and shall include Contractual Liability, Personal Injury, Libel, Slander, False Arrest, Malicious Prosecution, Wrongful Entry or Eviction, Broad Form Property Damage, Products, Completed Operations and XCU Coverage to be included on an occurrence basis, and to the full extent of the Contract to protect him, the Owner, and any subcontractor performing work covered by this Contract from damages for personal injury, including accidental death, as well as from claims for property damage, which may arise from operations under this contract, whether such operations be by himself or by a subcontractor, or by anyone directly or indirectly employed by either of them. The Contractor shall also maintain automobile liability insurance including "non-owned and hired" coverage. The entire cost of this insurance shall be borne by the Contractor.

The amount of such insurance shall be no less than \$1,000,000 annual aggregate for bodily injury and property damage combined per occurrence.

The City of Naples must be named as Additional Insured on the insurance certificate and the following must also be stated on the certificate. "This coverage is primary to all other coverage the City possesses for this contract only." The City of Naples shall be named as the Certificate Holder. The Certificate Holder shall read as follows:

The City of Naples
735 Eighth Street South
Naples, Florida 34102

No City Division, Department, or individual name should appear on the Certificate.

No other format will be acceptable.

The Certificate must state the proposal number and title.

When using the "Accord" - 25 Certificate of Insurance only the most current version will be accepted.

The City of Naples requires a copy of a cancellation notice in the event the policy is cancelled. The City of Naples shall be expressly endorsed onto the policy as a cancellation notice recipient.

STATEMENT OF NO BID

If you will not be bidding on this product/service, please help us by completing and returning only this page to:

City of Naples, Purchasing Division
City Hall, 735 8th Street South
Naples, FL 34102
Fax 239-213-7105

Bid # _____ and Description: _____

We, the undersigned, decline to proposal on the above project for the following reason(s):

- ___ We are not able to respond to the Invitation to Bid or Request for Proposals by the specified deadline.
- ___ Our Company does not offer this product or service.
- ___ Our current work schedule will not permit us to perform the required services.
- ___ Specifications are incomplete or information is unclear (Please explain below).

___ Other (Please specify below)

Company Name _____ PH _____

Name and Title of individual completing this form:

(Printed Name) (Title)

(Signature) (Date)

REFERENCES

THIS SHEET MUST BE COMPLETED AND RETURNED WITH BID

PROVIDE AT LEAST THREE REFERENCES FOR WHOM YOUR COMPANY HAS PROVIDED SAME OR SIMILAR SERVICES WITHIN THE LAST 2 YEARS.

COMPANY NAME: _____

ADDRESS: _____

TELEPHONE: _____

CONTACT PERSON: _____

CONTACT E-MAIL ADDRESS: _____

COMPANY NAME: _____

ADDRESS: _____

TELEPHONE: _____

CONTACT PERSON: _____

CONTACT E-MAIL ADDRESS: _____

COMPANY NAME: _____

ADDRESS: _____

TELEPHONE: _____

CONTACT PERSON: _____

CONTACT E-MAIL ADDRESS: _____

SPECIAL CONDITIONS

A. TERMS OF CONTRACT

The resulting contract will commence on award and be in effect until completion of the project.

B. PROHIBITION OF CONTACT

Under no circumstances should any prospective organization or individual, or anyone acting for or on behalf of a prospective organization or individual, seek to influence or gain the support of any member of the City Council, public official or City staff favorable to the interest of any prospective organization or individual.

Likewise, contact with City Council, any public official or city staff against the interests of other prospective organization (s) and or individual(s) is prohibited. Any such activities will result in the exclusion of the prospective organization or individual from consideration by the City.

C. BID PERFORMANCE & PAYMENT BONDS

A Bid Security Bond shall be submitted with the final bid, if the total bid is greater than \$125,000.00, in an amount equal to at least five percent (5%) of the total amount of the final bid, or the equivalent in the form of a certified check or money order made payable to the City of Naples, Florida. Upon the award of the bid to the successful bidder, both bid performance bond and the payment bond will be required in the amount of one hundred percent (100%) of the price specified in the contract. **Also proof of insurance from the successful bidder is required at the time of award as well.**

D. QUESTIONS

Questions regarding this bidder packet must be received in writing in the Purchasing Division, **NO LATER THAN TEN CALENDAR DAYS PRIOR TO THE BID CLOSING DATE TO ENSURE AN ANSWER IS PROVIDED PRIOR TO CLOSING.**

Direct all questions to:

[John Dunnuck, Purchasing Manager](#)

City of Naples, Purchasing Division

735 8th Street South

Naples, Florida 34102

PH: (239) 213-7100 FX: (239) 213-7105

jdunnuck@naplesgov.com

BID FORM

THIS SHEET MUST BE COMPLETED AND RETURNED WITH BID

NAME OF BIDDER: _____

PROJECT IDENTIFICATION: City of Naples – WWTP Motor / Pump Replacement Project

Bidder submits the following prices to provide & install all equipment as required by the Specifications herein:

Item No.	Description	Quant.	Units	Unit Price	Extended Price
1:	600 HP Effluent Distribution Motor - As specified herein	1	ea	\$ _____	\$ _____
2:	350 HP Effluent Distribution Motor - As specified herein	1	ea	\$ _____	\$ _____
3:	600 HP Effluent Distribution Pump - As specified herein	1	ea	\$ _____	\$ _____
4:	350 HP Effluent Distribution Pump – As specified herein	1	ea	\$ _____	\$ _____
BID TOTAL (ITEMS 1 – 4)					\$ _____

All pricing shall include delivery to the City of Naples Wastewater Treatment Facility located at 1400 3rd Ave. N., Naples, Florida 34102.

The quantities listed above are estimated. The City reserves the right to purchase all, part, or none of the units described herein.

REQUIRED DOCUMENTATION CHECK LIST

Document Description	“INITIAL” Documents provided with Bid
INVITATION TO BID (Cover Page – completed & signed)	
REFERENCES	
BID FORM	
DATA SHEETS AND DIMENSION DRAWINGS FOR EACH ITEM SUBMITTER FOR BID	
INFORMATION ON BID EXCEPTIONS (If applicable)	

Failure of bidder to provide all documentation with their bid proposal as required herein, will result in a Non-Responsive Bid.

SUMMARY & SPECIFICATIONS OF PROJECT

1. **PURPOSE:**

The intent of these specifications is to outline the requirements for the specified equipment to be supplied, installed, and start-up; to the City of Naples Wastewater Treatment Plant.

2. **SCOPE OF WORK:**

Provide and install two replacement motors & pumps as specified.

3. **SPECIFIED MOTORS / PUMPS:**

A. The existing motors / pumps to be replaced as defined below and specified herein are US Motors and Ruhrpumpen Vertical Turbine Pumps.

EXISTING MOTOR DATA

Location	Eff. Wet Well MOTOR #2	Eff. Wet Well MOTOR #4
Rated HP	600 HP	350 HP
Model #	H05695	H05688
Type	HVI-4	HVE-4
PH	3	3
Volts	460	460
Frame	5809P	5006P
SF	1.15	1.15
Code	G	G
Amps	648	384
Hz	60	60
RPM	1780	1775
Enclosure	WPI	WPI
Up Bearing	7226BCB Qty-2	7226-BCB Qty-2
Lo Bearing	6222-J	6219-J
Insul Class	F	F
Cont. Rating	40 DEG C	40 DEG C

EXISTING PUMP DATA

Location	Eff. Wet Well PUMP #2	Eff. Wet Well PUMP #4
SIZE	17	18KXH
TYPE	HQ	VTP
STAGE	3	2
SN	96ER7226 800727	4004100
HEAD	278 FT	278 FT
CAP	8500 GPM	3900 GPM
RPM	1770	1770
Rise from BT @ Install	14"	0.017

- B. **Bidders are welcome to propose an alternate motor and/or pump manufacturer as “An Equal”**; the bidder must clearly note this on their bid proposal and provide all necessary data sheets and dimension drawings with their proposal for each size motor and/or pump, so that City staff can assure that the proposed motors / pumps are direct replacements, meet all specifications herein, and can be considered “An Equal”. Consideration of “An Equal” status is at the sole discretion of City staff.
- C. Failure of a bidder to provide complete motor and pump data, as well as dimension sheets, for each proposed size motor and pump with their bid proposal will be considered a **Non-Responsive Bid**.
- D. The motor base plate, mounting bolt hole pattern, shaft length and size for each proposed motor must be an exact match as the existing motors being replaced to assure that the new motors will be capable of direct exchange without any modifications or adaptors required.
- E. The pump discharge heads, shaft size/length, motor mounts, etc. shall be an exact match as the existing pumps being replaced to assure that the new pumps will be capable of direct exchange without any modifications or adaptors required.
- F. All working parts of the motors/pumps, such as bearings, wearing rings, shaft sleeves, motor windings, sleeves, flanges, seals, etc., shall be of standard dimensions such that parts will be interchangeable between like units, and such that the Owner may at any time in the future obtain replacement and repair parts for those furnished in the original machine. All parts shall be properly stamped for identification and location in the machines as shown on the assembly drawings in the instruction books furnished.

4. MOTOR - GENERAL
 - A. Motors for the existing pumps shall be of the vertical, squirrel cage induction type.
 - B. Motors must be designed to accept all thrust loads imposed by pump during starting, running, and stopping.
 - C. All motors shall be built in accordance with latest NEMA, IEEE, ANSI and AFBMA standards where applicable.
 - D. Motors for use with Solid State VFDs or Soft Start Motor Controllers shall be premium efficiency and inverter duty.
 - E. Motors shall be as manufactured by U.S. Motors, or approved equal.
5. MOTOR – PERFORMANCE REQUIREMENTS
 - A. Motors shall be rated 230/460 volts, 3 phase, 60 Hertz.
 - B. Each motor shall have a minimum 1.15 service factor.
 - C. Motors shall be free of objectionable noise and vibration. Vibration level measured on the bearing housing shall be in accordance with values shown in NEMA Standards.
 - D. Maximum temperature rise of the motor windings shall not exceed 80°C as measured by resistance, when motor is operated continuously at rated horsepower, rated voltage and frequency in ambient air temperature of 40°C.
6. MOTOR – TEST REQUIREMENTS
 - A. All motors shall be completely assembled at the factory and shall be given routine tests conducted in accordance with NEMA Standards MG1-20.46 and MG 1-20.47; by a Manufacturer’s Authorized Testing Agency or Authorized Service & Test Center, which includes the following tests:
 - 1) No load current.
 - 2) Winding resistance.
 - 3) High potential dielectric tests.
 - 4) Bearing inspection.
 - B. Copies of the test results for each motor shall be certified by a Manufacturer’s Authorized testing Agency or Authorized Service & Test Center. The test results shall be furnished to the City Utility Engineer/Project Manager for review before delivery of the motors.

7. MOTOR - CONSTRUCTION

- A. Motor frames and end shields shall be heavy fabricated steel or cast iron of such design and proportions as to hold all motor components rigidly in proper position and provide adequate protection for the type of enclosure employed. Openings for ventilation shall be uniformly spaced around the motor frame. Motor frames shall be designed to allow continuous operation in outside locations exposed to full weather conditions without potential to internal damages.
- B. Space heaters shall be provided to operate on 120 volt, single phase power. Leads shall be brought out to a terminal block enclosed in a NEMA 12 accessory box. Motors shall be provided with a metallic foil or plastic warning label with red background and white letters which has the following legend: "WARNING -ELECTRICAL SHOCK HAZARD, Motor Equipped with Strip Heaters. Strip Heater Circuit remains Energized when Main Disconnect for Pump is OFF". The space heater accessory box on all proposed replacement motors shall not be different in location from the existing motors by more than 6" in any direction. The motor lead main terminal box on all proposed replacement motors shall not be different in location from the existing motors by more than 6" in any direction.
- C. Each motor shall be furnished with a "Klixon" thermal protection device or an approved equal.
- D. The shaft shall be made of high-grade machine steel or steel forging of size and design adequate to withstand the load stresses normally encountered in motors of the particular rating.
- E. Stator cores shall be made of low loss, non-aging electrical sheet steel with insulated laminations.
- F. Stators shall be random wound and insulated with glass and mica applied directly to the coils. Motors shall have an Inverter Duty Class rise non-hygroscopic epoxy sealed or encapsulated insulation system limited to the temperature rise specified herein. All connections shall be silver soldered with no crimp connections used except for terminals. A coil bracing system for stator end turns shall be utilized to minimize coil movement during starting and running conditions.
- G. Rotors shall be made from high grade steel laminations adequately fastened together, and to the shaft. Rotor squirrel cage may be of cast-aluminum or copper alloy bar-type construction with brazed end rings.

- H. Bearings shall be grease/oil lubricated antifriction type with an AFBMA average bearing life of 20 years. Bearing design shall include over-grease/oil protection.
- I. The motor bearings shall have ample capacity to carry the weight of all the rotating parts plus the hydraulic thrust of the pump impellers, and have an ample safety factor. This factor shall be based on an average life expectancy of five (5) years operation at 24 hours per day.
- J. All motors shall have an interior coating of corrosion resistant and fungus protective coating on all interior surfaces. Exterior prime coating shall be compatible with the field applied finish coating.
- K. Nameplates shall be stainless steel. Lifting lugs or "O" type bolts shall be supplied on all motors capable of supporting the weight of the motor. Enclosures shall have stainless steel insect screens.
- L. All fittings, bolts, nuts and screws shall be plated or stainless steel to resist corrosion. Bolts and nuts shall have standard hex heads.
- M. The main terminal box shall be NEMA Rated for outside application and provide ample room for connections.

8. PUMPS

- A. EFFLUENT DISTRIBUTION PUMP #4 – RATED 350 HP: The proposed replacement pump shall conform exactly with all dimensions and materials as shown in the data and drawings sheets of the existing pump listed as **Attachments A-1 through A-8** herein. The proposed pump shall be a direct replacement of the existing pump requiring no alterations, adaptors, or modifications of any kind to assure uniformity of the plant equipment.
- B. EFFLUENT DISTRIBUTION PUMP #2 – RATED 600 HP: The proposed replacement pump shall conform exactly with all dimensions and materials as shown in the data and drawings sheets of the existing pump listed as **Attachments B-1 through B-10** herein. The proposed pump shall be a direct replacement of the existing pump requiring no alterations, adaptors, or modifications of any kind to assure uniformity of the plant equipment.
- C. Each pump unit provided shall have a stainless steel Name Plate mounted on the discharge head of the pump with the information stamped as shown in Section 3. A. herein.

9. EXISTING MOTOR/PUMP REMOVAL

- A. All scheduling for equipment shut down shall be coordinated with the Wastewater Treatment Plant Superintendent or his designee a minimum of 72 hours prior to commencement of any work.
- B. A crane of sufficient size and lifting capacity for all of the equipment shall be provided at the work site. Access for the crane is shown in a picture within these documents as well as a picture of where the pumps are located.
- C. A qualified electrician shall perform the proper de-energizing, lockout, and terminations of all conduit and wire connections necessary for the safe removal of the motor. The motor shall be unbolted, removed, and set on blocking/pallet/skid to protect the shaft on the access drive just east of the pumping structure; so that the Plant staff can transport the unit to its disposition location.
- D. Qualified mechanical technicians shall carefully remove all mounting and flange bolts so that the pump unit can be safely removed from its base without damaging the structure or any piping in the area. The pump shall be set on blocking/pallet/skid to protect the shaft on the access drive just east of the pumping structure; so that the Plant staff can transport the unit to its disposition location.
- E. The pump base structure, pump mounting hardware, and the discharge piping connection flange shall be thoroughly cleaned prior to setting the new replacement pump in place.

10. MOTOR/PUMP INSTALLATION

- A. The new pump shall be un-crated and thoroughly examined for any defects and/or damage that may have occurred during shipment/delivery/storage. Any damage and/or defects shall be corrected by the installer/manufacture prior to installation at no cost to the City. Proper documentation shall be provided to the City for any defects, damage, and/or repairs required, and all warranties shall be maintained in full effect. This task should be performed prior to any work scheduled.
- B. The new pump unit shall be lifted in accordance to all manufacturers' recommendations to prevent any undo stress or strain to the unit.
- C. The new pump shall be carefully set into the wet well and secured to the pump base structure. A new quality rubber gasket and stainless steel hardware shall be supplied for the pump discharge connection. The pump unit shall be

secured in place, level and true, and under no stress. Any shimming and/or re-grouting shall be the responsibility of the installer.

- D. The new motor shall be un-crated and thoroughly examined for any defects and/or damage that may have occurred during shipment/delivery/storage. Any damage and/or defects shall be corrected by the installer/manufacture prior to installation at no cost to the City. Proper documentation shall be provided to the City for any defects, damage, and/or repairs required, and all warranties shall be maintained in full effect. This task should be performed prior to any work scheduled.
- E. The new motor shall be carefully set in place on the pump unit and properly bolted in place. The pump and motor shall not be coupled at this time.
- F. The electrician shall connect all conduits, boxes, and wire connections as required; and shall test all wires/connections prior to energizing. Once all readings are in accordance with the motor manufacturers' recommendations, the motor can be energized to assure proper rotation. Once the rotation is properly set, the motor operation will be tested without load to manufacturers' recommendations.
- G. A qualified pump manufacturer representative shall make sure that the pump impeller(s) clearances are properly set and the pump/motor coupling is properly installed. Proper alignment and balancing of the pump and motor shall be performed and verified. All startup data is to be documented and provided with the warranty documents.
- H. The installer is responsible for full restoration of any damage that may have resulted during their operations.

11. QUALIFICATIONS

The motor/pump units covered by these Specifications are intended to be standard pumping equipment of proven ability as manufactured by a reputable manufacturer having long experience in the production of such motors/pumps. The motors/pumps furnished shall be designed and constructed in accordance with the best practice and methods, and shall operate satisfactorily when installed. All equipment furnished under this Specification shall be new and unused, and shall be the standard product of manufacturers having a successful record of manufacturing and servicing the equipment and systems specified herein for a minimum of 5 years.

12. PRODUCT DELIVERY, STORAGE AND HANDLING

- A. All parts shall be properly protected so that no damage or deterioration will occur during shipment and delivery to the City facility.

- B. Factory assembled parts and components shall not be dismantled for shipment unless permission is received in writing from the Owner.
- C. Finished surfaces of all exposed equipment shall be protected from damage with strong materials.
- D. Finished iron or steel surfaces not painted shall be properly protected to prevent rust and corrosion.
- E. Each box, crate, and/or package shall be properly marked to show its net weight in addition to its contents.
- F. Motors/pumps shall be delivered with the equipment fully lubricated insofar as possible. If any point cannot be so serviced, it shall be clearly marked to the effect that it is not lubricated and requires servicing prior to operation. An adequate supply of the proper lubricant, with instructions for its application, shall be supplied with the equipment for each point not lubricated prior to shipment.

13. MOTOR/PUMP DATA AND DIMENSION SUBMITTALS TO BE PROVIDED WITH BID DOCUMENTS

The following Data and Drawing sheets shall be submitted with the Bid Proposal for each size motor/pump proposed:

- A. Shop and erection drawings showing all important details of construction, outline dimensions, space required, clearances, operating features, type of shop and/or finish coat, and mounting bolt locations.
- B. Pump Performance Curves shall be supplied for both specified units.
- C. Descriptive literature, bulletins, and/or catalogs of the equipment, including motor/pump cross section with parts identification and materials of construction.
- D. Manufacturer's drawings of all accessory equipment such as couplings, guards, flanges, seals, etc.
- E. The total weight of the equipment.
- F. A complete total bill of materials of all equipment.
- G. A list of the manufacturer's recommended spare parts to be supplied with the manufacturer's current price for each item. Include gaskets, seals, impellers, etc., on the list. List bearings by the bearing manufacturer's numbers only.

14. WARRANTY

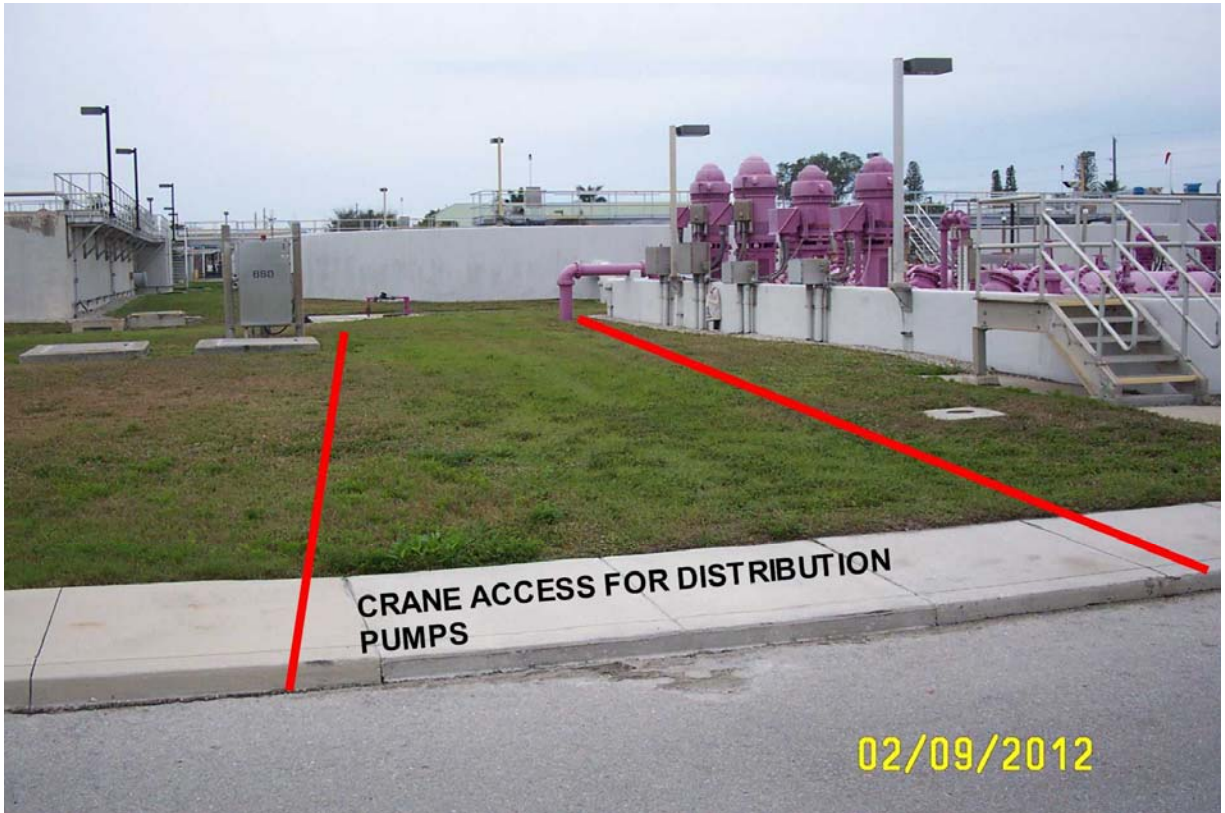
- A. All equipment supplied under this Section shall be warranted for a period of one (1) year by the equipment manufacturers. Warranty period shall commence on date of verified/documented Start-Up of that piece of equipment.

B. The equipment shall be warranted to be free from defects in workmanship, design and materials. If any part of the equipment should fail during the warranty period, it shall be replaced and restored to service at no expense to the Owner.

15. PRODUCTS - GENERAL

These specifications are intended to give a general description of what is required, but do not cover all details which will vary in accordance with the requirements of the equipment as offered. It is, however, intended to cover the furnishing, the shop testing, the delivery, installation, and start up of all materials, equipment and appurtenances for the motor and pump units as herein specified, whether specifically mentioned in these Specifications or not.

For all units there shall be furnished and installed all necessary and desirable accessory equipment and auxiliaries whether specifically mentioned in these Specifications or not, and as required for an installation incorporating the highest standards for the type of service including field testing of the specified equipment and instructing the regular operating personnel in the care, operation, and maintenance of the equipment.



BILL OF MATERIAL

RUHRPUMPEN PO / JOB : 600831 / 400460 18KXH/2 STG

**ATTACHMENT A-1
350 HP PUMP**

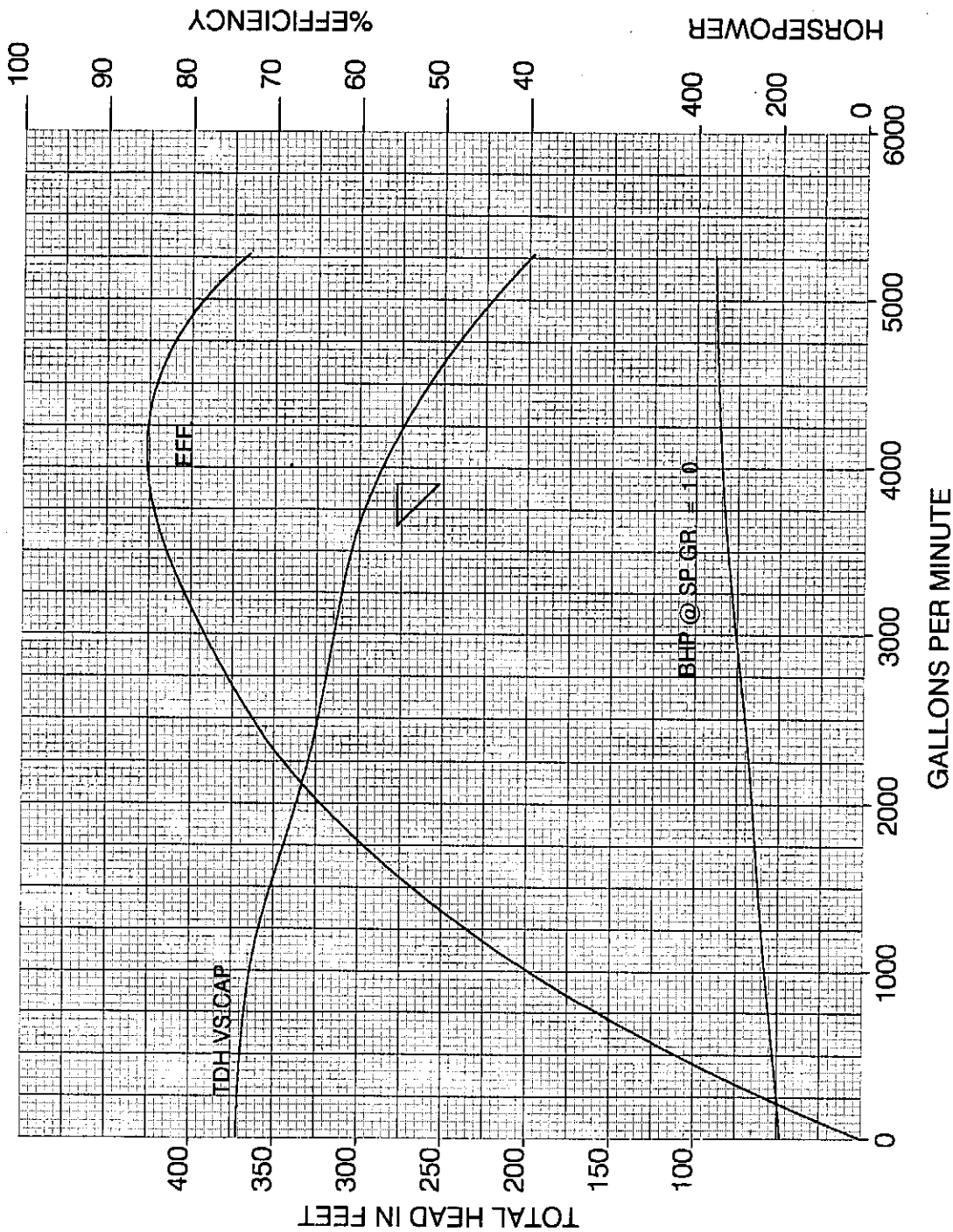
Level	Item	Part No.	Description	Material	Draw	Qty
1		230500A	BOWL ASSY			1
2	167	8006128	SHAFT,PUMP	SS-416	166088	1
2	803	8001186	STRAINER BASKET	SST 316	750274	1
2		2905659	HEX SCREW 3/8 X 2 1/4	SS-316		4
2		30W7102	LOCK WASHER 3/8"	SS-316		4
2		3001296	HEX NUT 3/8" 16NC SS-316	SS-316		4
2	079	267173JX	CASE BOTTOM	A48-CL30	267173	1
2	103	118034FJ	BEARING CASE BOTTOM	B584 C932	118034	1
2		1013669	OIL GREASE	GREASE		0.001
2		30R0006	PLUG 1 1/4" HEX	ACERO		1
2	244	8001464	SAND CAP	PLASTIC	755426	1
2		3001299	PRISIONERO ALLEN 1/4X1/4 20NC	SS-316		3
2		1001287	GASKET 17.750X14.812X0.005	FISHPAPER	991267	1
2		29W1378	STUD 3/4 X 3 1/4-10	SS-316		12
2		29W1888	HEX NUT (HEAVY) 3/4"	SS-316		12
2		30W1968	LOCK WASHER 3/4	SS-316		12
2	176	6025646	IMPELLER	BRZ 952	267081	2
2	272	750022CB	COLLET LOCK	SST-416	750022	2
2	078	297571JX	CASE SERIES	A48-CL30	297571	2
2	317	169978FJ	BEARING 2.188 X 5.062	B584 C932	169971	2
2		1001287	GASKET 17.750X14.812X0.005	FISHPAPER	991267	2
2		2911081	STUD 3/4X3 1/2 -10NC	SS-316		27
2		29W1888	HEX NUT (HEAVY) 3/4"	SS-316		24
2		30W1968	LOCK WASHER 3/4	SS-316		24
2	076	328061JX	CASE TOP	A48-CL30	328061	1
2	397	8000610	BEARING, CASE, TOP		118013	1
2		1001287	GASKET 17.750X14.812X0.005	FISHPAPER	991267	1
2		30W1968	LOCK WASHER 3/4	SS-316		12
2	401	170261CB	COUPLING,SFT,THDD 2.188	SST 416	170261	1
1		230500B	COLUMN FLGD ASSY			1
2	405	117356CC	SHAFT COL	SST-416	117356	1
2	418	8001534	COLUMN FLGD (REDUCER)	FAB STL	297226	1
2	317-1	8000627	BEARING 2.188X 5.000	RUBBER	169955	1
2	401	170261CB	COUPLING,SFT,THDD 2.188	SST 416	170261	1
2		29W1889	HEX SCREW 3/4 X 3 1/2	A193 GR B8M		16
2		30W1968	LOCK WASHER 3/4	SS-316		16
2		3072842	HEX NUT 3/4-10NC	SS-316		16
2		1003404	O-RING .139 X 15.955 X 16.233	BUNA	568282	1
1		230500C	COLUMN FLGD ASSY			1
2	405-1	6049375	SHAFT HEAD	SST-416	753670	1
2	418-1	6048806	COLUMN FLGD	FAB STL	267943	1
2	317-2	6051624	BEARING 2.188 X 5.063	B584 C932	U111792	1
2		1003404	O-RING .139 X 15.955 X 16.233	BUNA	568282	1
2		2951130	HEX SCREW 3/4" X 2"	SS-316		16
2		30W1968	LOCK WASHER 3/4	SS-316		16
1		230500D	NOZZLE HEAD ASSY			1
2	082	6048807	NOZZLE HEAD	FAB STL	U106754	1
2		6096254	NAMEPLATE VERTICAL	SST 18-8	U117724	1
2		3076846	SET SCREW #6 X3/8 32NC	SS-316		4
2		30W1161	LOCK WASHER 5/8	31	T1-3	4
2		29W1719	HEX SCREW 5/8X2 1/4-11 UNC	316SS		4
2		3074596	PIPE PLUG 3/4 14NPT	SS-316		1
2	801	8011503	COUPLING GUARD	ALUM	754621	2
2		2906310	HEX SCREW 1/4 X 3/4	SS 316		8
1		120	230500E	MECHANICAL SEAL MODULE		1
2		28W0976	MECHANICAL SEAL			1
2	650	99W5791	HOUSING BEARING		Y182304	1
2		2974419	HEX SCREW 1/2"-13NC X 1 3/4	SS-316		4
2		30W7090	LOCK WASHER 1/2	SS-316		4
2		24W1289	GASKET 8-5/8 X 4 1/2 X 1/32	JC 2160	Y182275	1
2		29W0020	STUD 3/8 X 3 1/2-16	SS-316	MT-5-1	4
2		3001296	HEX NUT 3/8"	SS-316		4
2		30W7102	LOCK WASHER 3/8"	SS-316		4
2	317-2	6051624	BEARING 2.188 X 5.063	B584 C932	U111792	1

ATTACHMENT A-2
350 HP PUMP

Level	Item	Part No.	Description	Material	Draw	Qty
2		530 267885IC	COUPLING PUMP	STL 1045	267885	1
2		532 268942IC	PLATE ADJUSTING	1045	268942	1
2		538 267886IC	COUPLING SPACER	1045	267886H	1
2		29W0114	STUD 3/4 X 4-10	SS-316	MT-5-2	4
2		30W1968	LOCK WASHER 3/4	SS-316		4
2		1002288	KEY PRL 1/2 X 1/2 X 3 3/4	SS-316	991102	2
2	256-2	754112LZ	RING SPLT 2.375	1045	754112	1
2	529	171031IC	COUPLING DRIVER	1045	171031	1
2		2951130	HEX SCREW 3/4" X 2"	SS-316		4
2		30W1968	LOCK WASHER 3/4	SS-316		4

R. C. BEACH

ATTACHMENT A-3
350 HP PUMP



Pump Size & Type 18KX	2 STG. H2	Speed 1770	Impeller Number 267081	Actual Diameter 12.125	Maximum Diameter	Stages 2H	Eye Area	
		Date 18 JUN 04	Certified By	Date	Curve No. PRELIMINARY	Revision 0		
Prepared By Customer SEG	Customer No. 400460	Item No.	Date					Tulsa Operations

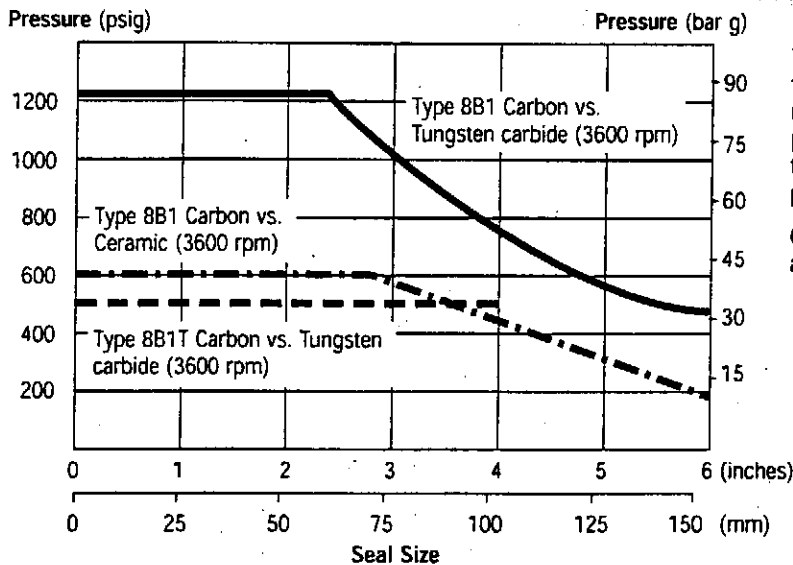


8B1/8B1T

ELASTOMER O-RING SEALS

ATTACHMENT A-4
350 HP PUMP

Chart 3. Pressure/Velocity (PV) Limits



To determine the maximum pressure for the size of Type 8B1 or 8B1T seal required, multiply the maximum pressure by the factors in Chart 4 to obtain the maximum operating pressure.

Consult John Crane Engineering for application outside these limits.

Chart 4. Multiplier Factors

	Selection Considerations	Multiplier
Speed	Up to 3600 rpm	x 1.00
	Above 3600 rpm*	**
Seal Fluid Lubricity	Gasoline, Kerosene or better	x 1.00
	Aqueous solutions	x .60
Sealed Fluid Temperature	Below 79°C/175°F	x 1.00
	Above 79°C to 121°C/175°F to 250°F	x .90
	Above 121°C to 177°C/250°F to 350°F	x .80
	Above 177°C/350°F	x .65

Example for Determining PV Limits:

Seal: 51 mm/2 inches diameter Type 8B1
Product: Water
Face Material: Carbon vs. Tungsten Carbide
Temperature: 16°C/60°F
Speed: 3600 rpm

Using Chart 3, the maximum pressure would be 83 bar g/1200 psig.

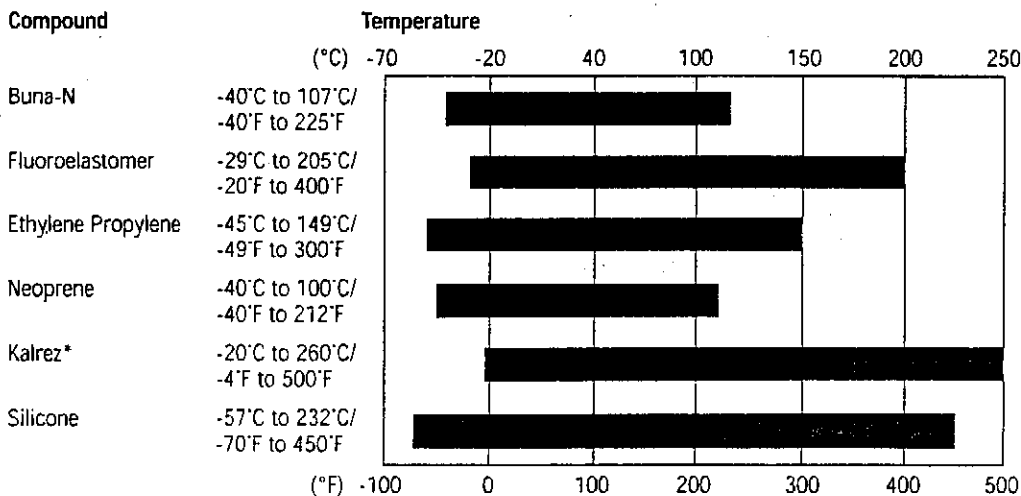
From Chart 4, apply the multipliers for the specific service requirements to determine the maximum operating pressure for the application.

$1200 \text{ psig} \times 1 \times .67 \times 1 = 804 \text{ psig}/55 \text{ bar g}$

At 3600 rpm with the service conditions noted, a 2 inch diameter Type 8B1 Seal has a maximum operating limit of 804 psig/55 bar g.

* Not to exceed 5000 fpm ** Multiplier = $3600/\text{new speed}$
Example: If new speed = 4000 rpm
Multiplier = $3600/4000 = .90$

Chart 5. Elastomer Temperature Limits



* Kalrez is a registered trademark of DuPont.



8B1/8B1T

ELASTOMER O-RING SEALS

ATTACHMENT A-5
350 HP PUMP

Chart 6. Materials of Construction

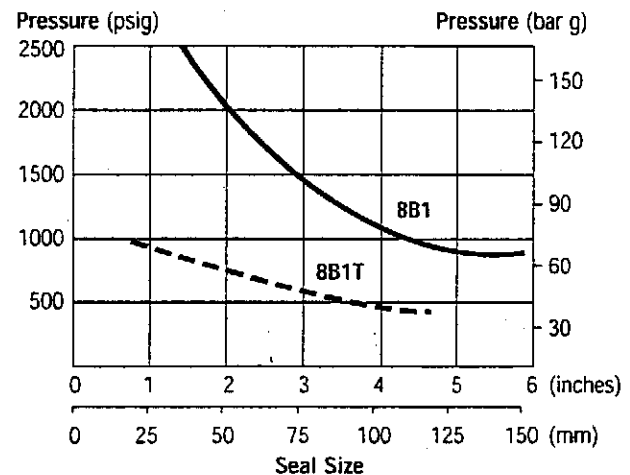
Seal Component Materials		Secondary Sealing Elements O-Rings/Mating Rings	Primary Ring	Hardware Retainer, Disc, Snap Ring, Set Screw	Mating Ring	Mechanical Loading Device Springs
Material	Standard	Buna-N	Carbon	316 Stainless Steel		316 Stainless Steel
		Fluoroelastomer				
		Ethylene Propylene				
		Neoprene				
		Kalrez				
		Silicone				
	Options	Nuclear Service (Radiation Resistant Ethylene Propylene)	Carbon Nuclear Service	Monel		Monel
		Aflas*	Carbon FDA Approved Food Service	20 CB-3 SS Alloy 20		Alloy C-276 (UNS N10276)
		Buna-N FDA Approved	Tungsten Carbide Nickel Binder			
		Fluoroelastomer FDA Approved	Silicon Carbide			
		Ethylene Propylene FDA Approved				
Neoprene FDA Approved						

* Aflas is a registered trademark of Asahi Glass Co., Ltd.

Chart 7. Criteria for Installation

Shaft/Sleeve	Limits
Surface Finish	16 to 32 Ra
Ovality/Out of Roundness (Shaft)	0.051 mm/0.002"
End Play/ Axial Float Allowance	± 0.13 mm/.005"

Chart 8. Hydrostatic Pressure Limits



John Crane Mechanical Seals
Engineered Sealing Systems

North America
Morton Grove, Illinois USA

Tel: 1-847-967-2400
Fax: 1-847-967-3915
1-800-SEALING

Latin America
Mexico City, Mexico

Tel: 52-5-567-4511
Fax: 52-5-587-2342

Europe, Middle East, Africa
Slough, UK

Tel: 44-1753-224000
Fax: 44-1753-224224

Asia Pacific
Singapore

Tel: 65-222-9161
Fax: 65-223-5035

If the products featured will be used in a potentially dangerous and/or hazardous process, your John Crane representative should be consulted prior to their selection and use. In the interest of continuous development, John Crane Companies reserve the right to alter designs and specifications without prior notice.

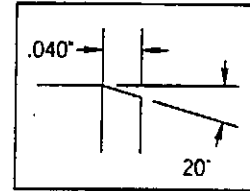
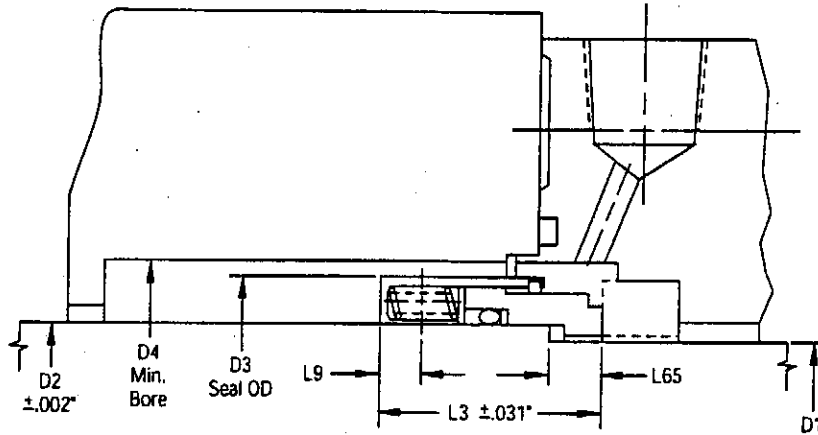


8B1/8B1T

ELASTOMER O-RING SEALS

ATTACHMENT A-6
350 HP PUMP

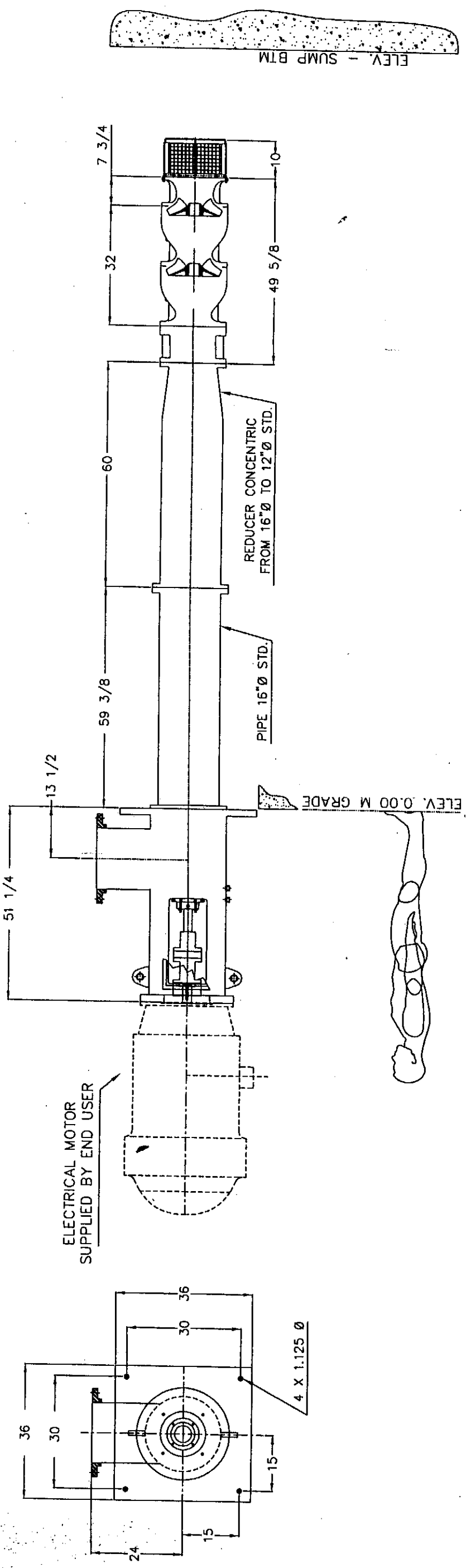
Type 8B1T Typical Arrangement/Dimensional Data



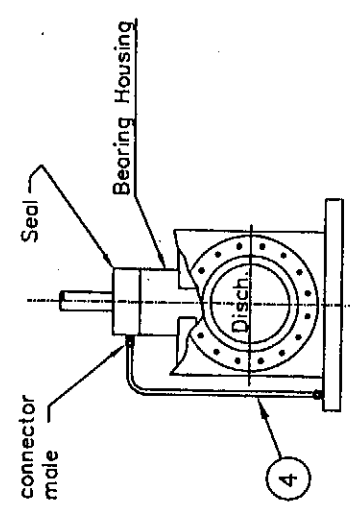
For ease of installation, the lead-in edge of the shaft or sleeve should be chamfered as shown.

Chart 2. Type 8B1T Dimensional Data (Inches)

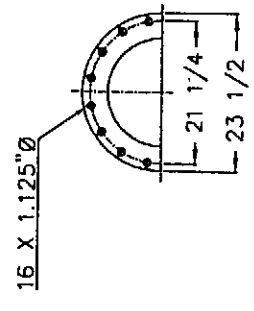
Seal Size (Inches)	D1	D2	D3	D4	L3	L9	L65
1.000	.875	1.000	1.437	1.625	1.312	.187	.343
1.125	1.000	1.125	1.562	1.750	1.375	.218	.343
1.250	1.125	1.250	1.687	1.875	1.375	.187	.343
1.375	1.125	1.375	1.937	2.125	1.687	.187	.343
1.500	1.250	1.500	1.937	2.125	1.437	.187	.343
1.625	1.375	1.625	2.250	2.437	1.593	.187	.437
1.750	1.500	1.750	2.312	2.500	1.750	.281	.437
1.875	1.625	1.875	2.500	2.687	1.750	.281	.437
2.000	1.750	2.000	2.625	2.812	1.750	.281	.437
2.125	1.875	2.125	2.812	3.000	2.062	.343	.500
2.250	2.000	2.250	2.843	3.031	1.750	.234	.500
2.375	2.125	2.375	3.000	3.187	2.062	.343	.500
2.500	2.250	2.500	3.125	3.312	1.750	.234	.500
2.625	2.375	2.625	3.250	3.437	2.062	.343	.500
2.750	2.500	2.750	3.375	3.562	2.062	.343	.500
2.875	2.625	2.875	3.500	3.687	2.062	.343	.500
3.000	2.750	3.000	3.625	3.812	2.062	.343	.500
3.125	2.875	3.125	3.750	3.937	2.062	.343	.562
3.250	3.000	3.250	3.875	4.062	2.062	.343	.562
3.375	3.125	3.375	4.000	4.187	2.062	.343	.562
3.500	3.250	3.500	4.125	4.312	2.062	.343	.562
3.625	3.375	3.625	4.250	4.437	2.062	.343	.562
3.750	3.500	3.750	4.375	4.562	2.062	.343	.562
3.875	3.625	3.875	4.500	4.687	2.062	.343	.562
4.000	3.750	4.000	4.625	4.812	2.062	.343	.562



ATTACHMENT A-7
350 HP PUMP



PLAN 13 DETAIL



FLANGE DETAIL

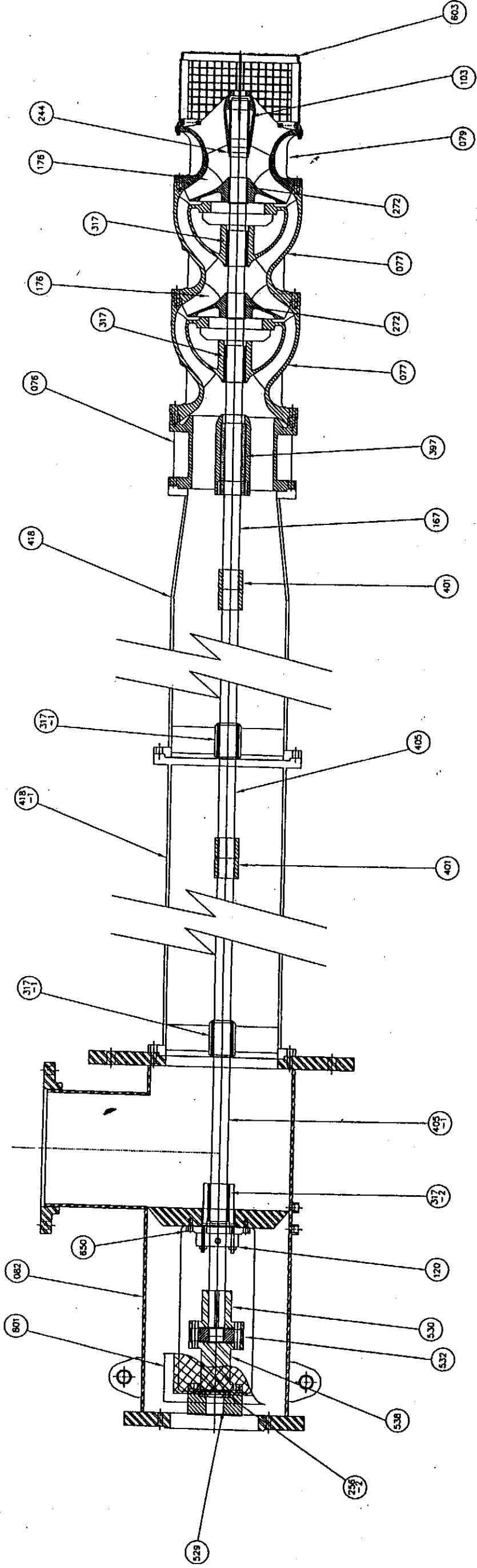
PUMP	HYDRO	MAMP	DRIVER
DISCH: 16" #150 FF SLIP-ON FLANGE			MFGR: USEM RPM: 1800
DESCRIPTION	CONNECTION		FRAME: 5006 ENCL: WP-1
1 NON SPARKING COUPLING GUARDS			RATING: 350 HP SUPPLY: 460/3/60
2 4 PC SPACER COUPLING			SF: TYPE: HVE 4
3 MECH. SEAL J. CRANE			SEE DRIVER PRINT FOR DIMENSIONS
4 PLAN 13 SEAL TUBING (SST) .50 00			MECHANICAL SEAL
5 BEARING HOUSING			MFGR: JOHN CRANE MODEL: BB-1
6 PRESS CONN .50 NPT			CODE MAT: SIZE: 2.1875"
7 COLUMN, PIPE 16" Ø NOM. STD.			APPROXIMATE WEIGHTS
8 ELEC. MOTOR, SUPPLIED BY CUSTOMER			PUMP: LATER
			SOLE PL: LATER
			DRIVER: LATER
			TOTAL:

DIMENSIONS ARE YES NO DIMENSIONS IN BRACKETS ARE IN MILLIMETERS YES NO
 SUCTION & DISCHARGE NOZZLE LOCATION DIMENSIONS ARE ± .125"
 ALL OTHER INSTALLATION DIMENSIONS ARE ± .50"

PROJECT NUMBER	TULSA, OK., USA	MTY., N.I., MEX.
400460	230500	
APPROVAL DRAWING NOTE		
1. PURCHASER'S COMMENTS AND/OR CORRECTIONS WITHIN THE SCOPE OF CONTRACT WILL BE MADE ON THE FIRST COMPLETED CERTIFIED DRAWING SUBMITTED BY RUHRPUMPEN, INC. AND RETURNED FOR CORRECTION.		
2. CORRECTIONS, ALTERATIONS, ADDITIONS AND/OR MODIFICATIONS OUTSIDE SCOPE OF CONTRACT OR MADE AFTER FIRST SUBMITTAL MAY REQUIRE AN ADDITIONAL ENGINEERING SERVICE CHARGE.		
3. ITEMS CONDITIONALLY APPROVED OR WITH DEFERRED APPROVAL BY PURCHASER, MUST BE SPECIFICALLY STATED OTHERWISE DELIVERY MAY BE AFFECTED.		
DRAWING STATUS		
<input checked="" type="checkbox"/> FOR PROPOSAL ONLY		
<input type="checkbox"/> FOR APPROVAL TO MEET DELIVERY PROMISE ONE APPROVED COPY MUST BE RETURNED BY:		
<input type="checkbox"/> RE-ISSUE FOR REVIEW OF CHANGES ONLY		
MANUFACTURING PROCESS HAS BEEN STARTED. ANY OTHERS REQUESTED CHANGE WILL AFFECT PRICE AND/OR DELIVERY PROMISE.		
<input type="checkbox"/> FINAL		
MANUFACTURING PROCESS HAS BEEN STARTED. ANY REQUESTED CHANGE WILL AFFECT PRICE AND/OR DELIVERY PROMISE.		
PROCESSOR	J.C. VAZQUEZ	DATE
		15-JUN-06
PRODUCT MANAGER	KAY WILBURN	DATE
		15-JUN-06
DATE	BY	CHK
15-JUN-06	JC	
DATE	BY	CHK
15-JUN-06		
REVISIONS		
LTR	DESCRIPTION	DATE
	ORIGINAL DRAWING	

PUMP No.	ITEM No's	MOTOR No.	RUHRPUMPEN SERIAL No.
			400460-1
CUSTOMER DATA			
CUSTOMER P.O.: 04101			
CUSTOMER: BEACH R.C. & ASSOCIATES			
END USER: BEACH R.C. & ASSOCIATES			
LOCATION: NAPLES, FLORIDA			
PROJECT:			
SERVICE: POTABLE WATER			
FLOW: 3,900 GPM			
TDH: 278 FT			
RUHRPUMPEN Tulsa, OK U.S.A.			
DRAWING TITLE			
18KXH VCT 2 STAGE OUTLINE			
DRAWING NO. 230500W3660			
REV. A			
DCN-055286			

ATTACHMENT A-8
350 HP PUMP



FAB NOTE:
PIPE: A106-B/A53-B/ROLLED A516-70
FLANGE: A516-70
FLANGE: A105
WETTED BOLTING: AISI 316 SST

Ref.No.	Part Description	Material	Ref.No.	Part Description	Material
076	CASE, TOP KX 18	A48 CL30	405	SHAFT, COLUMN	SST 416
078	CASE, SERIES KX 18	A48 CL30	418	COLUMN, FLANGED (REDUCER)	SEE FAB NOTE
082	NOZZLE HEAD	SEE FAB NOTE	418-1	COLUMN, FLANGED	SEE FAB NOTE
079	CASE BOTTOM KX 18	A48 CL30	529	COUPLING, DRIVER	AISI 1045
103	BEARING, CASE BOTTOM	B584 C932	530	COUPLING, PUMP	AISI 1045
120	SEAL, CRTG JOHN CRANE 88-1	ASSY	401	COUPLING, SFT, THDD	SST 416
167	SHAFT, PUMP	SST 416	532	PLATE, ADJUSTING	AISI 1045
176	IMPELLER	BZE 952	538	COUPLING, SPACER	AISI 1045
272	COLLET LOCK	SST 416	603	STRAINER, BASKET	AISI 1045
244	SAND CAP	PLASTIC	650	HOUSING BEARING	SST 316
256-2	RING, SPLIT, DRVR COUPLING	AISI 1045	397	BEARING CASE TOP	A48 CL 30
317	BEARING, CASE	B584 C932	405-1	SHAFT, HEAD	BZE/NITRILE
317-1	BEARING, COLUMN	RUBBER	801	COUPLING GUARD	SST 416
317-2	BEARING, HOUSING BEARING	B584 C932			ALUM

PUMP No.		ITEM No's	
MOTOR No.		MOTOR No.	
		RUHRPUMPEN SERIAL No.	400460-1
			400460-2
CUSTOMER DATA			
CUSTOMER P.O.: 04101			
CUSTOMER: BEACH R.C. & ASSOCIATES			
END USER: BEACH R.C. & ASSOCIATES			
LOCATION: NAPLES, FLORIDA			
PROJECT:			
SERVICE: POTABLE WATER			
FLOW: 3,900 GPM			
TDH: 278 FT			
RUHRPUMPEN Ruhrpumpen, Inc. Tulsa, OK U.S.A.			
DRAWING TITLE 18KXH VCT 2 STAGE SECTIONAL			
DRAWING NO. 230500W3660-1			
DCN - 055287			
REV A			

DRAWING STATUS			
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<input type="checkbox"/>	FOR APPROVAL	DRAWING STATUS	
TO MEET DELIVERY PROMISE			
DATE APPROVED COPY MUST BE			
RETURNED BY: -			
<input type="checkbox"/>	RE-ISSUE FOR REVIEW OF	DRAWING STATUS	
CHANGES ONLY			
MANUFACTURING PROCESS HAS BEEN STARTED			
ANY OTHERS REQUESTED CHANGE WILL AFFECT			
PRICE AND/OR DELIVERY PROMISE.			
<input type="checkbox"/>	FINAL	DRAWING STATUS	
MANUFACTURING PROCESS HAS BEEN STARTED			
ANY REQUESTED CHANGE WILL AFFECT			
PRICE AND/OR DELIVERY PROMISE.			

PROJECT NUMBER	
TULSA, OK., USA	MTY., N.L., MEX.
400460	230500
APPROVAL DRAWING NOTE	
PURCHASER'S COMMENTS AND/OR CORRECTIONS, WITHIN THE SCOPE OF CONTRACT WILL BE MADE ON THE FIRST COMPLETED CERTIFIED DRAWING SUBMITTED BY RUHRPUMPEN, INC. AND RETURNED FOR CORRECTION.	
CORRECTIONS, ALTERATIONS, ADDITIONS AND/OR CONFIRMATIONS OUTSIDE SCOPE OF CONTRACT OR MADE AFTER FIRST SUBMITTAL MAY REQUIRE AN ADDITIONAL ENGINEERING SERVICE CHARGE.	
ITEMS CONDITIONALLY APPROVED OR WITH DEFERRED APPROVAL BY PURCHASER, MUST BE SPECIFICALLY STATED OTHERWISE DELIVERY MAY BE AFFECTED.	

PROCESSOR	J.C. VAZQUEZ
DATE	15-JUN-06
PRODUCT MANAGER	KAY WILBURN
DATE	15-JUN-06
BY	
CHK.	
DATE	15-JUN-06

REVISIONS	
LTR	DESCRIPTION
Δ	ORIGINAL DRAWING

**Byron Jackson
Model 17HQ, 3-Stage VCP**

ATTACHMENT B-1
600 HP PUMP

Sectional Drawing - Self Lubricated

Reference No.	Part	Standard Metallurgy
39	Flow Adapter	Bronze/ASTM A-836
76	Bypass Port Body	Cast Iron/ASTM A48 Class 30
77	Series Case	Cast Iron/ASTM A48
79	Bottom Case	Cast Iron/ASTM A48
82	Nozzlehead, SB	Fabricated Steel/ASTM A-36
103	Bearing, Bottom Case	Bronze/ASTM A-932
167	Pump Shaft	Stainless Steel/ASTM-A276 Type 416
176	Impeller	Bronze/ASTM A-958
243	Bearing, Series Case	Bronze/ASTM A-932
244	Sand Cap	Plastic - Nylon
256-1	Ring, Split, Drive Coupling	ASTM A-276/Type 316 Stainless Steel
334	Retaining Ring	ASTM A-276/Type 416 Stainless Steel
380	Column Spider	Low Carbon Steel
397	Bearing - Top Case	Bronze/ASTM A-932
399	Bearing, Column	Neoprene
400	Column Shaft, Bottom	ASTM A-276 Type 416 Stainless Steel
401	Coupling, Column Shaft	ASTM A-276 Type 404 Stainless Steel
402	Line Shaft	ASTM A-276 Type 416 Stainless Steel
404	Head Shaft	ASTM A-276 Type 416 Stainless Steel
419	Outer Column, Top	ASTM A-53/Lower Carbon Steel
420	Outer Column, Upper	ASTM A-53/Lower Carbon Steel
422	Outer Column, Bottom	ASTM A-53/Lower Carbon Steel
427	Coupling	ASTM A-276/Type 416 Stainless Steel
428	Coupling, Lower	ASTM A-276/Type 416 Stainless Steel
529	Driver Half Coupling	Steel 1213
530	Pump Half Coupling	Steel 1213
532	Adjusting Plate	Steel 1213
538	Spacer Coupling	Steel 1213
603	Basket Strainer	ASTM A-276 Type 316L Stainless Steel
676	Impeller Key	SST-18-8/ASTM A-276
676-1	Key, Pump Half Coupling	SST-18-8/ASTM A-276
744	O-Ring Gasket, Cases	Nitrile
744-2	O-Ring Gasket - Top Case to Column	Nitrile
744-5	O-Ring Gasket, Top Series Case Bearing	Nitrile

REUSE DISTRIBUTION PUMP NO.'S 1 & 2

**Byron Jackson
Model 17HQ, 3-Stage VCP**

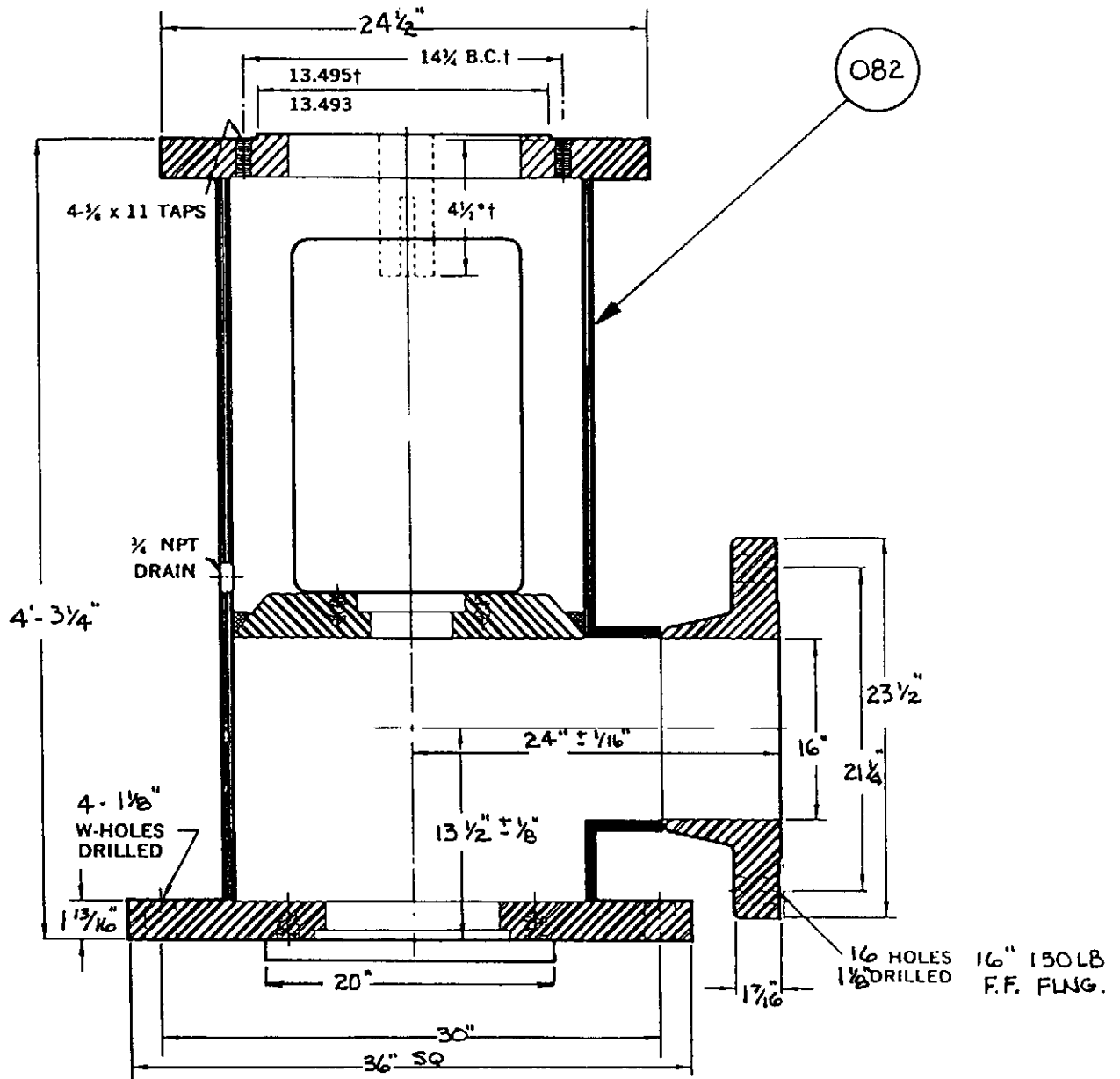
ATTACHMENT B-2
600 HP PUMP

Mechanical Seal		
Reference No.	Part	Standard Metallurgy
S-13	O-Ring Gasket, Seat	Viton
S-14	Stationary Face	Tungsten Carbid
S-15	Rotating Face	Carbon
S-16	Spring	316 Stainless Steel
S-17	Spring Holder	316 Stainless Steel
S-24	Flange Bushing	Micarta
S-54	Retainng Ring	316 Stianless Steel
S-57	Set Screw, Spring Holder	316 Stainless Steel
S-76	O-Ring Gasket, Rotating Face	Viton
221	Sleeve, Shaft	316 Stainless Steel
260	Collar, Drive	316 Stainless Steel
486	Ring, Sealing-V	Nitrile
601	Seal Flange	Steel 1140 with electrolysis nickel plating
747	O-Ring Gasket, Sleeve	Viton
747-1	O-Ring Gasket, Flange	Viton
795	Set Screw, Collar	316 Stainless Steel



ATTACHMENT B-3
600 HP PUMP

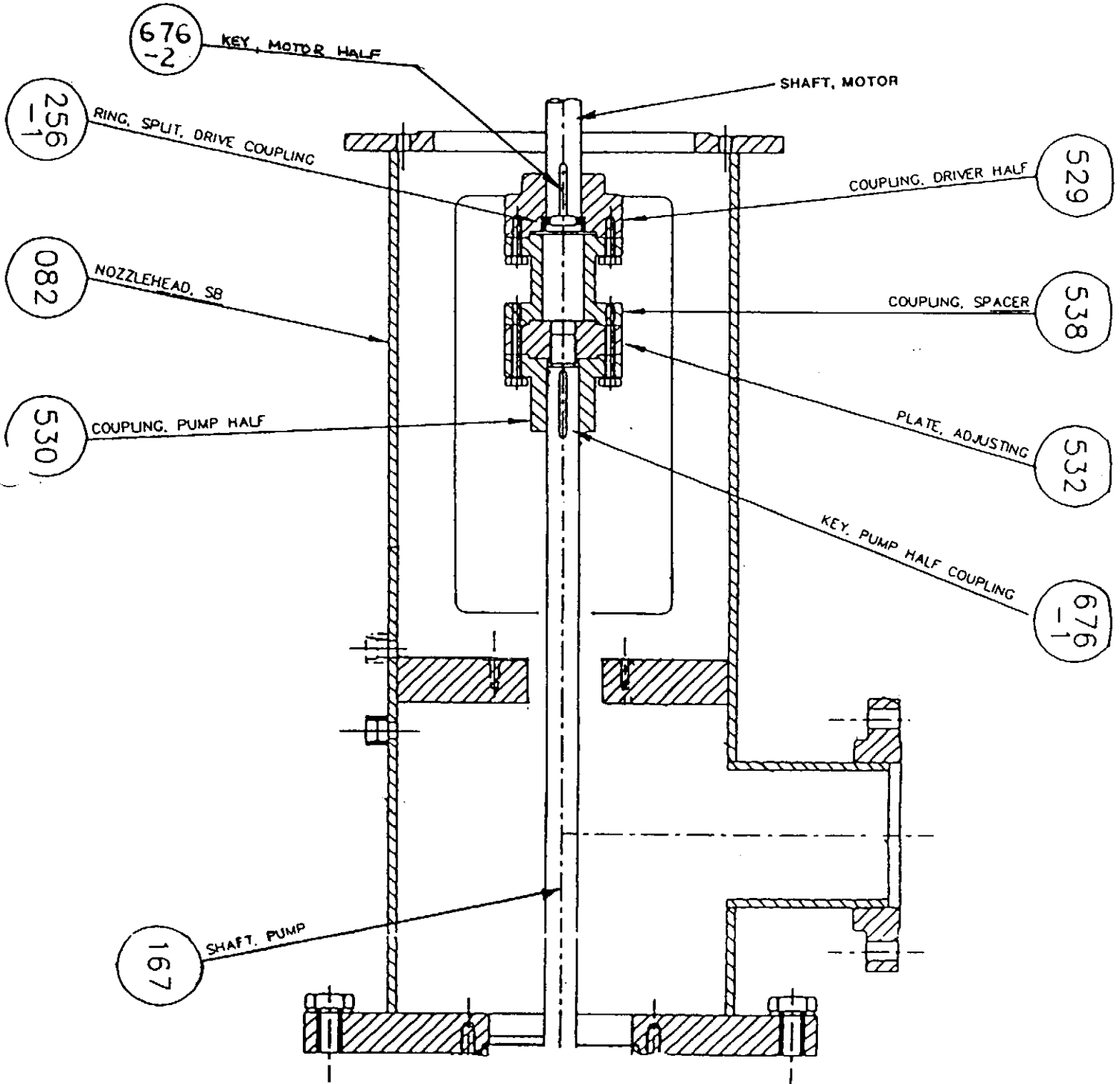
VERTICAL TURBINE PUMPS
Type FH Fabricated Discharge Heads



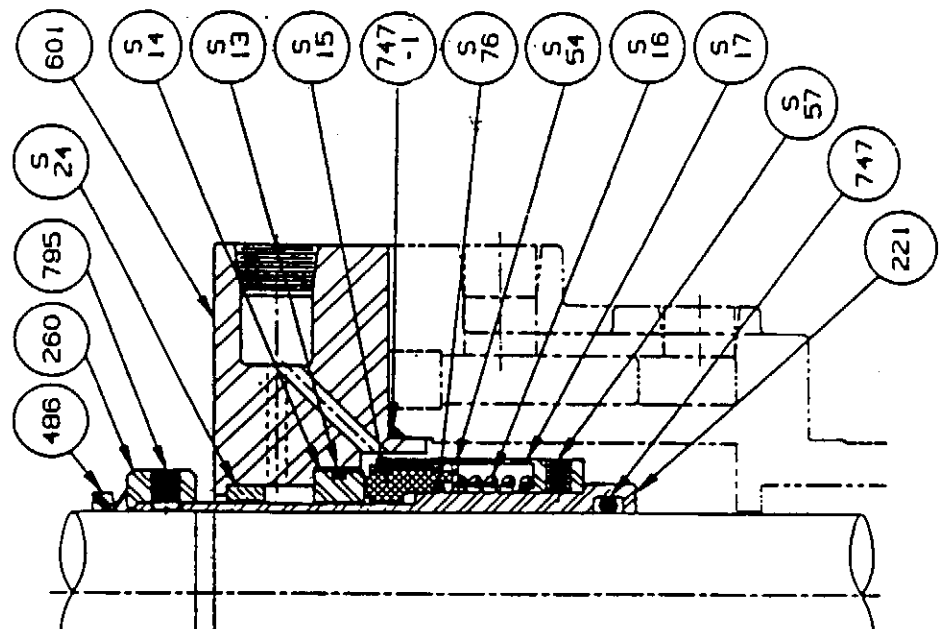


ATTACHMENT B-4
600 HP PUMP

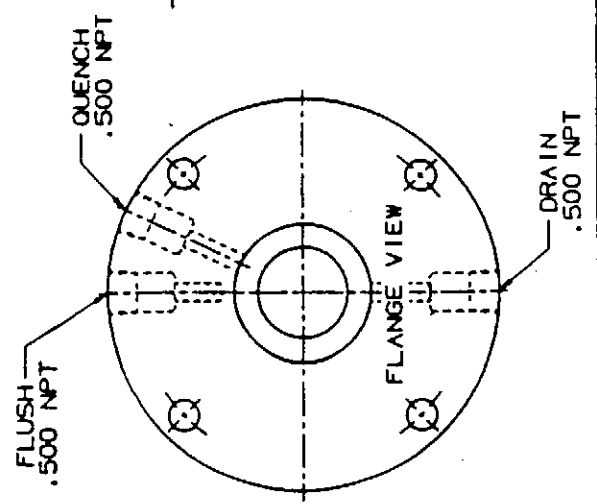
DISCHARGE HEAD 4- PIECE SPACER COUPLING



REV.	REV. BY	DESCRIPTION	DATE



SEAL SETTING
±.030



QTY	REF. NO.	DESCRIPTION
1	S-13	O-RING GASKET, SEAT
1	S-14	STATIONARY FACE
1	S-15	ROTATING FACE
1	S-16	SPRING
1	S-17	SPRING HOLDER
1	S-24	BUSHING, FLANGE
1	S-54	RING, RETAINING
3	S-57	SET SCREW, SPRING HOLDER
1	S-76	O-RING GASKET, ROTATING FACE
1	221	SLEEVE, SHAFT
1	260	COLLAR, DRIVE
1	486	RING, SEALING-V
1	601	FLANGE, SEAL
1	747	O-RING GASKET, SLEEVE
1	747-1	O-RING GASKET, FLANGE
6	795	SET SCREW, COLLAR

ATTACHMENT B-5
600 HP PUMP

SEAL MODEL	SHAFT SIZE	SEAL SETTING ±.030
1250	0.812	0.125
1625	1.000, 1.188	0.125
2125	1.438, 1.688	0.188
2500	1.938	0.188
3125	2.188, 2.438, 2.688	0.188

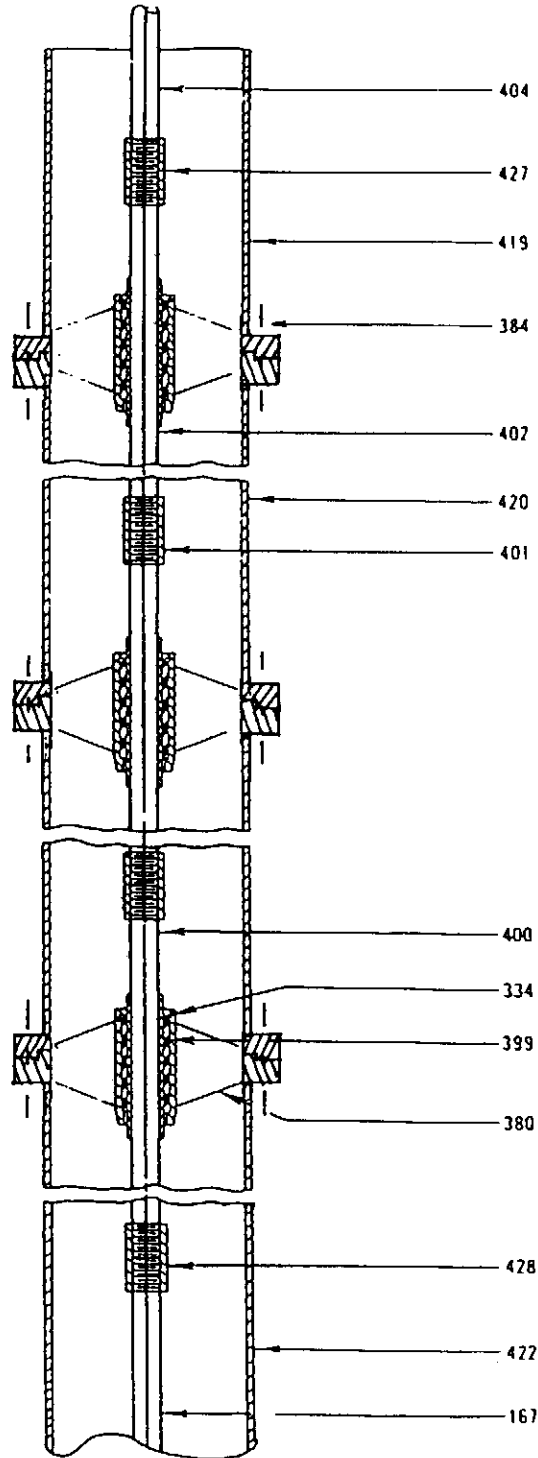
BWIP **BYRON JACKSON**
 BW/IP International, Inc. TULSA OPERATIONS
 DRAWING TITLE
**MECHANICAL SEAL SECTIONAL
 BW/IP TYPE "OBS"**

REV. NO. **297733**

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
 CAD DRAWING DO NOT CHANGE ORIGINAL CAD FILE NAME
 120LZZZZU2977330

ATTACHMENT B-6
600 HP PUMP

VERTICAL TURBINE PUMPS
Self Lubricated Discharge Column



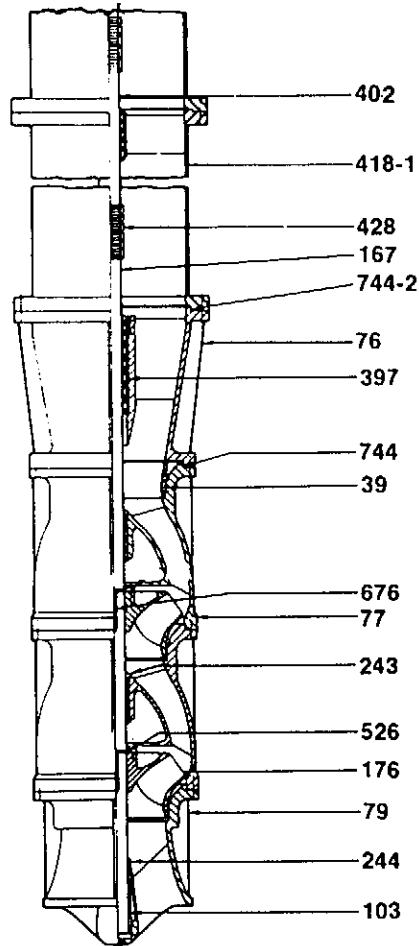
COLUMN SIZE	O.D. OF STANDARD FLANGE
16"	20"

~ ALL FASTENERS TYPE 316SS. ~

ATTACHMENT B-7
 600 HP PUMP

HQ VERTICAL CIRCULATOR PUMPS

Sectional Drawing – Self Lubricated



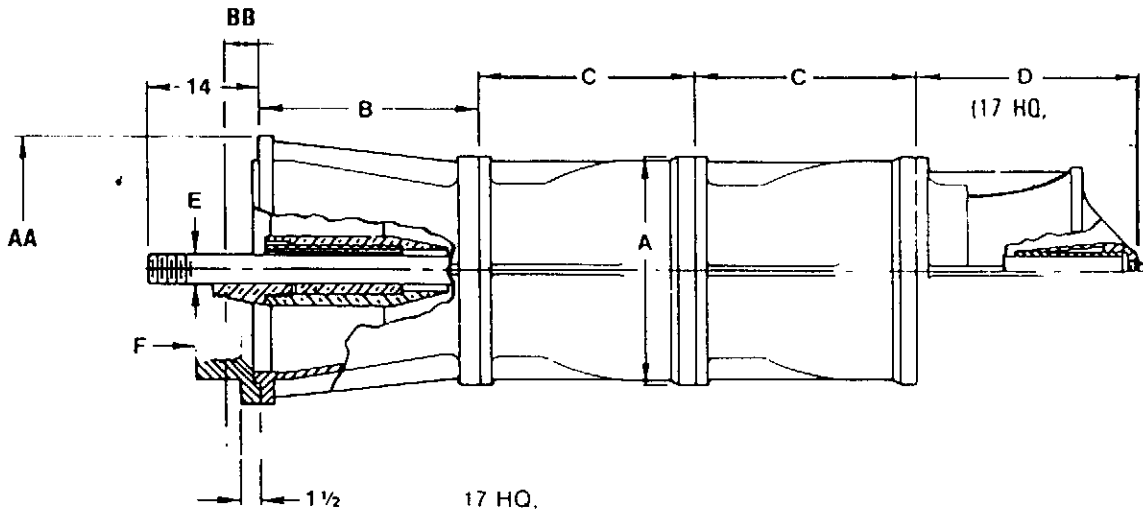
ITEM NO.	NAME OF PART
39	FLOW ADAPTER
76	BYPASS PORT BODY
77	SERIES CASE
79	BOTTOM CASE
103	BEARING-BOTTOM CASE
167	PUMP SHAFT
176	IMPELLER
243	BEARING-SERIES CASE
244	SAND CAP
260	SPLIT RING
334	SNAP RING
397	BEARING-TOP CASE
402	COLUMN SHAFT
404	
428	COUPLING
526	RETAINING RING-IMPELLER
530	
531	COUPLING SLEEVE
676	KEY-IMPELLER
676-2	KEY COLUMN SHAFT
744	O-RING GASKET-CASE
744-2	O-RING GASKET-TOP CASE TO COLUMN



ATTACHMENT B-8
 600 HP PUMP

HQ VERTICAL CIRCULATOR PUMPS

Bowl Assemblies – Technical Data



PUMP SIZE	
DIMENSIONS OF PUMP ASSEMBLY	O.D. A*
	Maximum O.D. AA
	Length Top Case B
	BB
	Length Series Case C
	Length Bottom Case D
	Length One Stage Assembly
	Length Ea. Add. Stage C
PUMP SHAFT	Standard Diameter E
	Weight Per Foot
Std. Outer Column Size F	
Suct. Pipe Size Only G	
WEIGHT*	First Stage
	Each Add. Stage
	Weight of Impeller
End Float	

17" – HQ
16 ⁷ / ₈
16 ⁷ / ₈ † 20 ††
9 ⁷ / ₈ † 16 ††
3 † 1 ¹ / ₂ ††
16 ¹ / ₄
15 ¹³ / ₁₆
42 ¹ / ₁₆ † 48 ³ / ₁₆ ††
16 ¹ / ₄
2 ³ / ₁₆
12.8
16 ††
N.A.
700
295
42
L – 1 ²¹ / ₃₂ H – 3 ⁹ / ₃₂

SUCTION BELL

* Check column coupling O.D. for well clearance
 • All weights are approximate

† Max O.D. when 12" col used
 †† Max O.D. when 16" col used
 Drawing No. 752001



BW/IP International, Inc.
Pump Division

Byron Jackson Pumps

Unif Centrifugal Pumps

Wilson Snyder Pumps

R. C. BEACH REPRESENTING BW/IP INTERNATIONAL

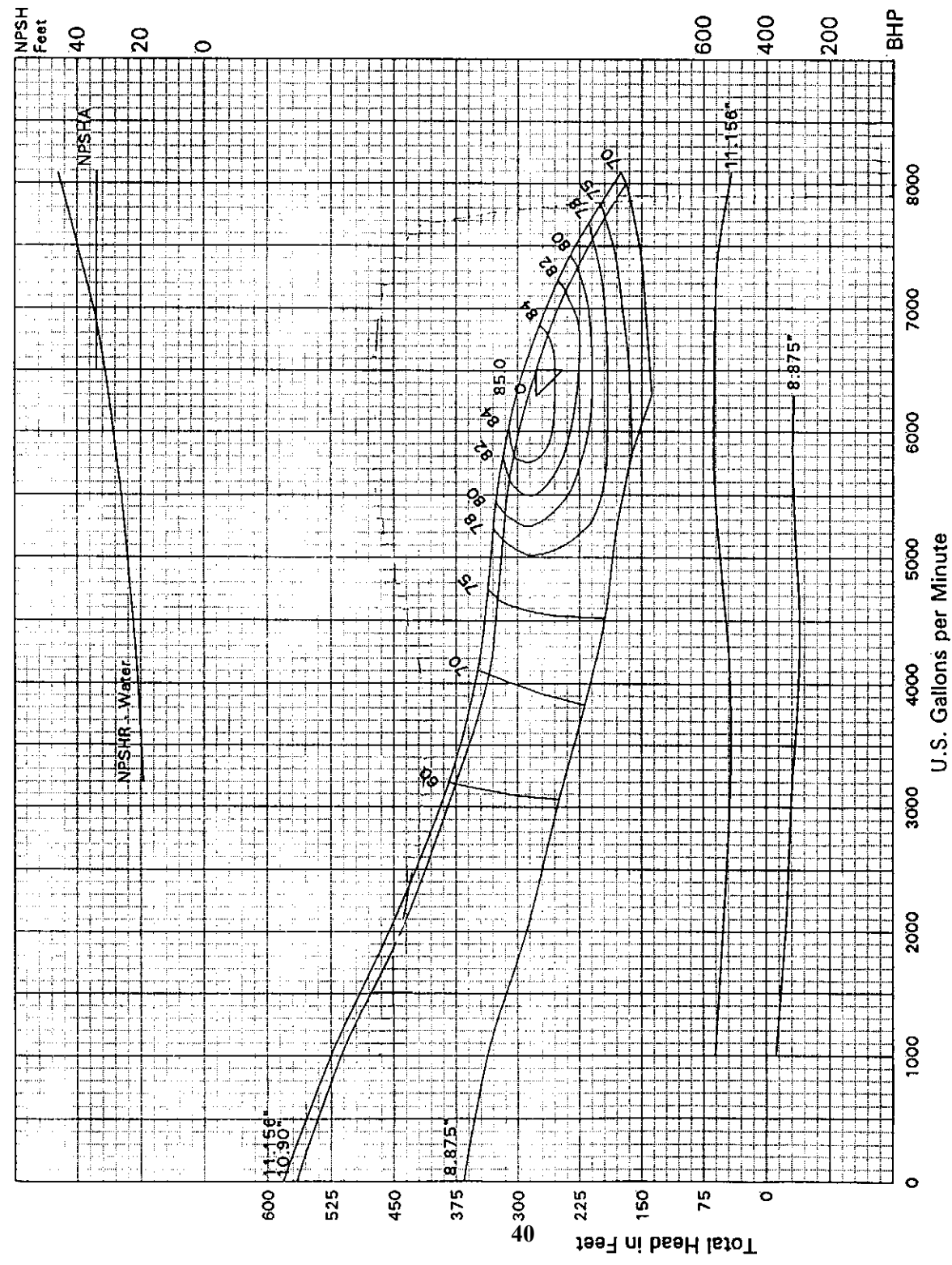
STANDARD -0

Revision date: 8/29/94
Minimum Submergence: 36"
Vaness: 6
Ns = Pump Specific Speed: 4563
Eye Area: 71.4 in.²
U : 75.6 ft/sec
Rating number: 3446
Original RPM: 1770

DESIGN CALC (APPROXIMATE)
Stages - design: 3
Trim Diameter - design: 10.90"
Efficiency: - design: 84.9%
Head reserve available: 5.5%
Head rise to shutoff: 103.6%
Power - design: 537.6 BHP
NPSH required: 31.4 Feet

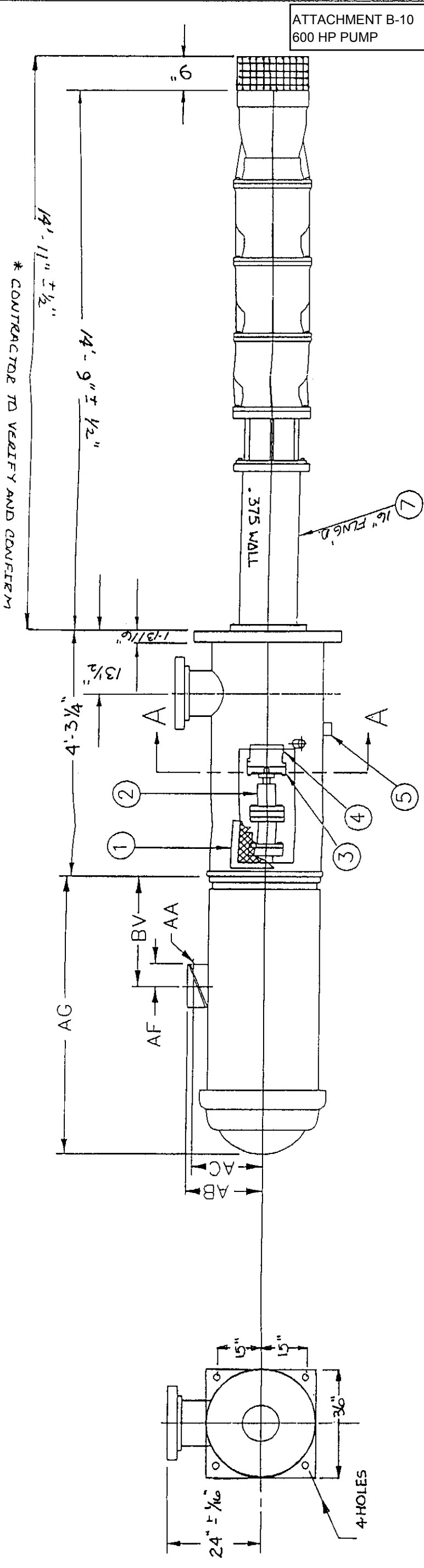
DESIGN PARAMETERS
RPM: 1770
Flow: 6500 GPM
Head: 278 ft
NPSHA: 34.0 ft +
SpGr: 1.00
Visc: 1

ATTACHMENT B-9
600 HP PUMP



Purchaser: WHARTON SMITH INC.	Proposition: 96-ER-7226 AND 96-ER-7234	PRIMER v2.10
End User: CITY OF NAPLES FLORIDA	Curve No.: ENGINEER: HOLE MONTES AND ASSOCIATES	Q0000024
Project: NAPLES WWTP EXPANSION	SalesPerson: WRB	Pump Size & Type
Item/Spec: REHAB. REUSE PUMPS NO 1 & 2 SPEC 11214	Date: 12 JULY 96	

17" HQ "H"



Date of Submission: 7-19-96
 Project Title: NAPLES WWTP EXPANSION
 Project Number: ~~DBAND. 549.61~~ - 179 - 701 - 2
 Contractor: WILMINGTON SMITH, INC.
 Supplier: R. C. Beach & Associates, Inc.
 Manufacturer: BWFP International, Inc. Byron Jackson Pump Division
 Identification of the Product: Vertical Turbine Pumps
 Specification Section Number: 11214
 Specification Page: 11214 - 2
 Specification Paragraph: 1-D4 - A.

FOR CONTRACTOR AND ENGINEER STAMPS

CUSTOMER DATA

NAME: WILMINGTON SMITH, INC.
 CUST. ORDER NO. 291021
 ITEM: PUMP WATER NO'S 1 & 2
 SERVICE: WATER - NON POTABLE
 DUTY GPM: 6500 TDH: 270 RPM: 1770

SUCTION & DISCHARGE NOZZLE LOCATION
 DIMENSIONS ARE ± .125"
 ALL OTHER INSTALLATION DIMENSIONS
 ARE ± .50".

PART NO.	DESCRIPTION
1	NON-SPARK COUPLING GUARDS
2	4PC SPACER COUPLING
3	QBS - MECHANICAL SEAL
4	SEAL FLANGE 316 S.S.
5	3/4 FEMALE DRAIN
6	BITUMASTIC COATING NON-POT.
7	5FT SECTIONS FLANGED COL.
8	ALL 316SS FASTENERS

MOTOR	
MAKE: USEM	ENCLOSURE: WP-1
FRAME: 5809	HP: 600 RPM: 1800
TYPE: HVE4	PHASE: 3 CYCLES: 60
VOLTS: 480	AB=26 13/16" AC=21 5/16"
AA=3 1/2"	AG=71 7/16" BV=24 3/4"
AF=8 7/16"	WEIGHTS
PUMP: 4500 # APPROX.	
DRIVER: 6900 # APPROX.	
TOTAL WEIGHT: 11,400 # APPROX.	

BYRON JACKSON® INTERNATIONAL, INC.	
DIMENSIONS ARE IN INCHES	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
DIMENSIONS ARE IN MILLIMETERS	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
DRAWN BY	DATE
WEBB	7-96
CHECKED BY	DATE
CHK'D.	DATE
BY	DATE
DESCRIPTION	DATE
REVISIONS	
LTR	REV.

Byron Jackson®
TULSA OPERATIONS

DRAWING TITLE
17HQ - 3 STAGE VCP
CITY TWO(2) EACH

DRAWING NO./SERIAL NO.
96ER-7226 & 7234