

City of Mt. Pleasant, Michigan

CONTRACT DOCUMENTS

**2017 RANNEY COLLECTOR WELL AND
PUMP REHABILITATION**



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DECEMBER 2016

City of Mt. Pleasant, Michigan
2017 RANNEY COLLECTOR WELL AND PUMP REHABILITATION

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THE CITY OF
MT. PLEASANT, MICHIGAN

CITY HALL
320 W. Broadway • 48858-2447
(989) 779-5300
(989) 773-4691 fax

PUBLIC SAFETY
804 E. High • 48858-3595
(989) 779-5100
(989) 773-4020 fax

PUBLIC WORKS
1303 N. Franklin • 48858-4682
(989) 779-5400
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NOTICE TO BIDDERS

2017 RANNEY COLLECTOR WELL AND PUMP REHABILITATION

The City of Mt. Pleasant, Michigan, is requesting sealed bids at the Office of the City Clerk, City Hall, 320 W. Broadway Street, Mt. Pleasant, Michigan 48858, until 1:30 p.m. (local time), on Tuesday, January 10, 2017, at which time and place the bids will be publicly opened and read. All bids shall be submitted in a sealed envelope, plainly marked "2017 Ranney Collector Well and Pump Rehabilitation – January 10, 2017."

Proposals are solicited on a lump sum basis, for the following work:

Ranney Collector Well and Pump Rehabilitation

All bid proposals must be accompanied by a bid bond, bank cashier's check, bank draft, or certified check for not less than five percent (5%) of the bid price, made payable to the City of Mt. Pleasant.

Complete specifications are available at the Public Works Building, 1303 North Franklin Street, Mt. Pleasant, Michigan 48858, 8:00 a.m. to 4:30 p.m., Monday through Friday, or can be viewed and downloaded at no charge at www.mt-pleasant.org and navigate to the Bids and Quotes page.

The City of Mt. Pleasant reserves the right to accept or reject any or all bids, to waive any irregularities in the bids, and to select the bid considered most advantageous to the city.

Malcolm Fox
Supervisor, Water Department
(989) 779-5426

Jeremy Howard
City Clerk

City of Mt. Pleasant, Michigan
INSTRUCTIONS TO BIDDERS

1. **Proposals**

Proposals must be made upon the forms provided therefore, with the Bid amount both written and shown in figures, and all other data required submitted.

The Proposal, bound together with all Proposal Documents, must be enclosed in a sealed envelope marked as specified in the Notice to Bidders for such Bid and clearly indicating the name and address of the Bidder and must be received by the City Clerk, City Hall, 401 N. Main Street, Mt. Pleasant, Michigan 48858, no later than the time and date specified in the Notice to Bidders. At such specified time, Proposals shall be publicly opened and read aloud.

2. **Basis of Proposals**

Proposals are solicited on the basis of unit price(s) and/or lump sum(s), as specified on the Proposal form.

The City of Mt. Pleasant (also referred to as "Owner"), reserves the right to accept any Bid, to reject any or all Bids, to waive any irregularities in the Bids, and to select the Bid considered most advantageous to the city.

3. **Comparison of Bids**

In comparing Bids, consideration shall be given to the time proposed for completion of the Contract, qualifications of Bidder, price differentials, alternate Proposals for the alternate items listed in the Proposal (if applicable), and any other pertinent factors. **The City of Mt. Pleasant grants a preference to businesses located within the Mt. Pleasant City Limits. The preference given is a differential above the low bid if the low bid is not from a City of Mt. Pleasant bidder. The differential allowed is 3% of the total for bids between \$5,000 and \$9,999 and 2% of the total for bids over \$10,000. The maximum credit allowed is \$1500.00.** The Owner reserves the right to make an award to the Bidder whose Proposal is deemed to be in the best interest of the Owner.

4. **Time**

Time is of the essence in the performance of the Contract, and each Bidder, by submitting a Proposal, certifies his/her acceptance of the time allowed by the Contract for the completion of the work specified.

5. **Indemnification**

The Contractor shall save and hold harmless the city and its employees from and against all claims, damages, losses, or expenses, including attorney's fees, arising out of or resulting from the performance of the work; provided that any such claim, damage, loss or

expense is caused in whole or in part by any negligent or willful act of omission of the contractor, subcontractor, employee, or anyone under their direction. The Contractor shall at his/her own expense, defend any and all such actions and shall pay all attorney's fees, costs, and expenses pertaining thereto.

6. **Bid Deposits**

Each Proposal shall be accompanied by a certified check, or a Bid Bond by a recognized Surety Company similar to a U. S. Government Standard Form Bid Bond, in the amount of five percent (5%) of the total amount of the Bid, made payable to the City of Mt. Pleasant, subject to forfeiture to the Owner in the event of failure on the part of the successful Bidder to enter into the attached form of agreement to do the work specified by said Proposal at the price and within the time stated therein. The Bid Deposit of all Bidders, except the three (3) lowest acceptable Bidders, shall be returned within two (2) weeks after opening of bids. The bid deposits of the three (3) lowest acceptable bidders shall be returned within 48 hours after the executed Contract(s) have been finally approved by the Owner.

7. **Liquidated Damages**

A liquidated damage clause, as given in the Contract form, provides that the Contractor shall pay the Owner as liquidated damages, and not as a penalty, the amount indicated in the Proposal for each and every calendar day that the Contractor may be in default of substantial completion of the work required under said Contract.

8. **Insurance and Bonds**

The successful Bidder will be required to execute (2) Bonds, in the form attached hereto, with Surety acceptable to the Owner and insurance, as follows:

- a. Bond in the amount of 100% of the Estimated Contract Price running to the City of Mt. Pleasant, Michigan, to insure the completion of the entire work, according to the statutes of the State of Michigan in effect at that time.
- b. Bond in the amount of 100% of the Estimated Contract Price running to the People of the State of Michigan for the protection of Subcontractors and Labor and Material Men, according to the statutes of the State of Michigan in effect at that time.
- c. Insurance in the amounts required by City Ordinance as specified in the Section 1 - General Construction Specifications, attached hereto.

The successful bidder shall be required to furnish for each set of executed Contract Documents, and conformed copies thereof, an original conformed Performance Bond, Labor and Materials Bond, Maintenance Bond, and Insurance Certificates.

9. **Permits and Local Codes**

The Owner shall procure the required permits for municipal sanitary sewer construction, municipal water system construction, and soil erosion control.

The Contractor shall obtain, at his/her expense, all other required local construction permits and shall comply with local building code and inspection requirements.

10. **Qualifications of Bidders**

It is the intent of the Owner to award the Contract to a Bidder fully capable, both financially and with regard to experience, to perform and complete all work in a satisfactory and timely manner. Evidence of such competency must be furnished on the forms included in the proposal, listing projects of similar difficulty, scope of work, and size, which the Bidder has satisfactorily undertaken and completed.

It is the intention of the City to award the contract to a Contractor whose ability and financial resources are fully equal to the task of performing the work in a satisfactory manner. With this in view, the Proposal calls for at least five (5) references, using specific names of persons to contact concerning the Contractor's ability to do this particular class of work. References from municipalities are preferred. The mere ability to furnish a Performance Bond shall not be accepted as sufficient evidence of responsibility on the part of the Bidder. The Bidder may also be required to furnish evidence of his current financial status.

11. **Interpretation of Documents**

If any Bidder is in doubt as to the true meaning of any part of the Plans, Specifications or any Contract Document, he/she may submit to the Owner a written request for an interpretation thereof. Any interpretation made in response to such a query shall be made only by Addendum, duly issued, and a copy of such Addendum shall be mailed or duly delivered to each prospective Bidder. The Owner shall not be responsible for any other explanation or interpretation of the Contract Documents. Alternative proposals that are suggested by bidders will be given consideration, if presented before the bid opening. If accepted, an addendum will be issued and sent out to all potential bidders, so that they may bid on the alternatives that have been identified.

12. **Execution of Bid Proposal**

A Bid Proposal, which is not signed by the individual making it, should have attached thereto a Power of Attorney evidencing authority to sign the Bid Proposal in the name of the person for whom it is signed.

A Bid Proposal, which is signed by a partnership, shall be signed by all of the partners or by an Attorney-in-Fact. If signed by an Attorney-in-Fact, there should be attached to the Bid a Power of Attorney evidencing authority to sign the Bid Proposal in the name of the partnership and such Power of Attorney shall be signed by all partners of the partnership.

A Bid Proposal, which is signed for a corporation, should have the correct corporate name thereof and the signature of the President, or other authorized officer(s) of the corporation, manually written below the corporate name and on the line indicating "By:_____." If such a Bid Proposal is manually signed by an officer other than the President of the corporation, a certified copy of a Resolution of the Board of Directors evidencing the authority of such officer(s) to sign the Bid Proposal should be attached thereto. Such a Bid Proposal should also bear the attested signature of the Secretary of the corporation and an impression of the corporate seal.

13. **Execution of Contract**

The successful Bidder to whom an award is made shall be required to enter into a written agreement, in the form attached hereto, within ten (10) days after receipt of a Notice of Award and copies of the documents to be executed. In the event the successful Bidder fails to comply with this provision, he/she may be considered by the Owner to have abandoned all his/her rights and interests in the award and his/her certified check or amount of the Bid Bond may be declared to be forfeited to the Owner, and the Contract may be awarded to another.

14. **Bidder Responsibility For Conditions of Work and Site**

The Bidder, or his/her representative, shall make personal investigation of the site of work and of existing structures and shall determine to his/her own satisfaction the conditions to be encountered, the nature of the ground, the difficulties involved in making connections to existing structures and pipes, and any and all other factors affecting the work proposed under the Contract.

The Bidder to whom the Contract is awarded shall not be entitled to any additional compensation by reason of conditions being different from those anticipated or by reason of his/her failure to fully acquaint himself/herself with the conditions at the site affecting the work of the Contract.

15. **Changes in Work**

If any change is required to be made in the work of the Contract, a payment adjustment therefore shall be determined as specified in the "TECHNICAL SPECIFICATIONS, Section 1 - General Construction Specifications" of the Contract.

Revised: February 2006

City of Mt. Pleasant, Michigan

ADMINISTRATIVE MEMO NO 8-78

Issued: October 10, 1978

Revised: June 21, 1989

Subject: **MINIMUM INSURANCE REQUIREMENTS FOR CONTRACTORS**

Summary Statement

The provision of adequate insurance by persons and businesses working for the city or on street right-of-way is essential to protect the public from the costs of injury or damage and to protect the city from unnecessary liability resulting from the acts of persons and businesses working for the city. Minimum insurance requirements are needed to provide this protection.

Memo

Persons or businesses which provide professional services to the city under the terms of a written contract or provide labor and/or material to accomplish work for the city or for others on or over street right-of-way or other city property shall carry insurance and bonds to protect the public and the City from exposure to unnecessary financial risks.

Prior to signing of contracts, issuance of purchase orders or permits, or other authorization to begin work, certificates of insurance evidencing the purchase of insurance in amounts not less than required by the Administrative memo or bid specifications, whichever is greater, shall be filed with City Clerk. Such certificates shall:

- a. Show that the insurance is currently in force and termination date of each policy.
- b. State the limits of liability of the policies covered by the certificate.
- c. Show that the City of Mt. Pleasant is to be specifically named in policy as an "additional insured" and should be issued to the City of Mt. Pleasant as the certificate holder.
- d. Provide that the City will receive not less than 10 days written notice of the cancellation of any listed policy.
- e. Be issued in the name of an insurance company authorized to conduct business in the State of Michigan.

Required bonds shall be filed with the City Clerk before the signing of contracts or other authorizations to proceed with work.

Insurance and bonds shall meet or exceed the following requirements. Exceptions to recognize more or less hazardous operations and financial risks should be considered and with approval of the City Manager may be made in specifications or contract requirements prior to awarding contracts or issuing purchase orders.

INSURANCE REQUIREMENTS

Type	Limit of Liability	Required of:	
		City Contractor	Contractor On R-O-W
Worker's Compensation and Employer's Liability	Statutory Coverage B \$100,000	X	X
Public Liability (including products and completed operations liability)			
Bodily Injury	\$250,000 each person	X	X
	\$500,000 each accident	X	X
Property Damage	\$250,000 each accident	X	X
	\$250,000 each aggregate	X	X
Automobile Liability (including hired cars and automobile non-ownership)			
Bodily Injury	\$250,000 each person	X	X
	\$500,000 each occurrence	X	X
Property Damage	\$250,000 each accident	X	X
	\$250,000 each aggregate	X	X
Additional Insured Clause	City of Mt. Pleasant to be specifically named in policy as an "additional insured"	X	X
Excess Liability (Required unless risk occurrence is nominal)	\$1,000,000 each	X	

Persons or businesses engaged to provide labor and material in an amount in excess of \$10,000, or who will receive partial payments as work progresses will provide labor, performance and material bonds equal to the value of the work being performed. Such bonds are not required where the work to be done is of a type in which the failure to perform will not adversely affect the city's ability to function or increase the city's cost of completing the work.

City of Mt. Pleasant, Michigan
2017 COLLECTOR WELL AND PUMP REHABILITATION
PROPOSAL

TO: City Clerk - City Hall
320 W. Broadway Street
Mt. Pleasant, MI 48858

BID DATE: January 10, 2017
TIME: 1:30 p.m.

The undersigned, as Bidder, hereby declares that his bid is made in good faith without fraud or collusion with any person or persons bidding of the same Contract; that he has carefully read and examined the Contract Documents, including the Notice to Bidders, Instructions, Bond Forms, Technical and Detailed Specifications, and Contract Drawings, for the designated work and understands all of the same; that he, or his representative, has made such a personal investigation at the site as is necessary to determine the character difficulties attending the execution of the proposed work; and he proposes and agrees that if this Proposal is accepted, he will contract with the Owner in the form of the Contract hereto annexed, to provide necessary machinery, tools, apparatus and other means of construction, including utility and transportation services, necessary to do all the work and furnish all the materials and equipment specified or referred to in the Contract Documents, including Addenda No. __, __, and __, in the manner and time therein prescribed, and according to the requirements of the Owner as therein set forth to furnish Contractor Bonds and Insurance required of the Contractor by the Contract Documents, and that he will take in full payment therefore the unit prices set forth in the following Proposal.

The Bidder understands that the Owner reserves the right to reject any or all bids and to waive any irregularities in the bid.

The Bidder agrees that his bid shall be good and may not be withdrawn for a period of sixty (60) calendar days after the scheduled closing time for receiving the bids.

Upon receipt of a written Notice of Award of the Bid, the Bidder shall execute the formal Contract Agreement attached hereto within ten (10) days and shall deliver to the Owner a Surety Bond or Bonds required. In the event the Contract and Bond are not executed within the time above set forth, the Bid Deposit attached in the sum of five percent (5%) of the Bid Proposal shall become the property of the Owner as liquidated damages for the delay and additional expense to the Owner caused thereby.

The Bidder hereby agrees to commence work under this Contract as specified in the written Notice to Proceed executed by the Owner and to fully complete the project as stipulated in the Specifications within a period of seventy-five (75) calendar days thereafter. The Bidder further agrees to pay as liquidated damages the sum of Three Hundred Dollars (\$300.00) for each consecutive calendar day thereafter, as provided.

The below unit prices shall include all labor, materials, overhead, profit, insurance, etc., to cover the finished work of the several kinds specified, and the Bidder agrees to perform all of the work described in the Specifications and/or shown on the Plans for the following unit prices:

Division 1: Ranney Well Pump Rehabilitation

ITEM NO	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL
1	Pump and Motor Rehabilitation	LSUM	1	\$ _____	\$ _____
2	Column	FT	50	\$ _____	\$ _____
3	Column Couplings	EA	5	\$ _____	\$ _____
4	Shafting	FT	50	\$ _____	\$ _____
5	Shaft Couplings	EA	5	\$ _____	\$ _____
6	Gate Valve	EA	5	\$ _____	\$ _____
7	1 3/16 Rod Replacement	EA	1	\$ _____	\$ _____
8	Two (2) man crew labor/hour	HR		\$ _____	

Division 2: Ranney Collector Well Rehabilitation

1	Rehabilitation	LSUM	1		\$ _____
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TOTAL BID – DIVISIONS 1 AND 2 \$ _____

_____ **00/100 DOLLARS**
 (Total Bid Written)

- A. Hourly rate for more or less of specified hours of testing \$ _____ Dollars per hour, which will be added or deducted from contract.
- B. Hourly rate for crew for any additional work not covered by contract \$ _____ Dollars per hour.

RESPECTFULLY SUBMITTED,

COMPANY NAME _____

ADDRESS _____

CITY _____ ST _____ ZIP _____

PHONE: _____ EMAIL: _____

SIGNATURE _____

PRINT OR TYPE NAME AND TITLE _____

DATE _____

EXPERIENCE QUESTIONNAIRE
TO BE FURNISHED BY BIDDER
CITY OF MOUNT PLEASANT, MICHIGAN

The signatory of this proposal guarantees the truth and accuracy of all statements and of all answers hereinafter made.

1. How many years have you been in business as a contractor under your present name?

2. How many years have you been a principal officer of a firm under a different name?

Name of Firm _____

3. What projects of a similar nature has your organization contracted for within the past five years? (NOTE: Fill out each blank completely.)

Name of Owner and Location	Name/Address/Phone # of Person in Charge as Reference	Type of Work	Value of Work	Date Work Completed
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1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

City of Mt. Pleasant, Michigan
2017 Ranney Collector Well Rehabilitation

TECHNICAL SPECIFICATIONS

1.0 SCOPE:

This work is to commence on January 30, 2017, and to be completed on or before May 7, 2017. The scope of work of this project includes rehabilitation of the collector well by mechanical cleaning and redevelopment of the laterals. The work includes furnishing all necessary equipment, materials, labor, special diving services, field supervision, technicians and professional personnel to clean the existing five laterals and redevelop the gravel pack adjacent to the screens, and to conduct performance tests before and after maintenance. The work also includes rehabilitation of the three pumps and pump motors

The Ranney Well was last rehabilitated in 2010 - 2011. At that time three new laterals were installed. In addition, two of the original laterals were retained and cleaned using a high-pressure water mechanical cleaning system to provide a production capacity of 2100 GPM. Since 2011, the well has been in production servicing the city water supply system. This rehabilitation project is part of the water department's ongoing maintenance program to test, clean, and repair each of the production wells in the system on a near five-year interval. A copy of the detailed rehabilitation report with pump test data is available for review upon request or at the Mt. Pleasant Division of Public Works office, located at 1303 North Franklin Avenue, Mt. Pleasant.

1.1 LOCATION:

The City of Mt. Pleasant Ranney Collector Well is located adjacent to the Chippewa River to the south and west of the city (see location map). Site visits may be arranged by contacting the Owner a minimum of five (5) days in advance of the Bid. Bidders must satisfy themselves as to the nature of the site conditions. Any claims for additional cost due to differing site conditions, after Bids have been submitted, will not be allowed.

1.2 RIGHT-OF-WAY:

The Owner will provide right-of-way to access the Collector. Work will be strictly confined to the designated area(s) including all material storage, vehicle parking, and equipment storage.

1.3 ACCESS:

The Contractor will be responsible for providing transportation of all necessary personnel, equipment and materials to and from the site and for providing all ingress and egress as required to complete the project.

1.4 INTENT:

The Owner requires that the laterals in the Ranney Collector Well shall be rehabilitated by mechanical cleaning, or by a combination BoreBlast and mechanical cleaning. Note the special conditions on this method listed below.

1.5 SUBMISSIONS:

Bidders shall submit all information as specified with their Bid. Failure on the part of the Bidder to submit such information will be sufficient cause to render their Bid invalid.

2.0 CONDITION OF COLLECTOR AND WORK BY CONTRACTOR:

- A. It will be assumed that the existing valves will be operable after being exercised by the Contractor. In the unlikely event that a valve is inoperable, it is to be replaced. Contractor will submit a line item bid for gate valve replacement. Valves shall be AWWA C509 cast iron, 200 psi working pressure, resilient seat gate valves with non-rising stems having a full pipe diameter opening and fitted with a 2-inch operating nut. A non-conducting gasket shall be placed between the cast iron valve flange and the type 304 stainless steel lateral assembly to minimize electrolytic corrosion caused by contact of dissimilar metals.
- B. The Contractor will be required to provide the following:
1. Labor, tools, and equipment necessary to remove existing piping, as required to perform the cleaning and rehabilitation and to reinstall removed piping after the work is completed.
 2. On property provided by the City, construct or provide a containment area for all sand, gravel, and debris removed from the Collector by the Contractor. The Owner will provide for the removal and disposal of material from the containment area.
 3. On property provided by the city within 200' of the Collector, construct or provide a means to collect any residue or sediment pumped from the collector during testing, dewatering, or cleaning of the Collector.
 4. Provide any permits required for the cleaning, rehabilitation and redevelopment of the Collector.
 5. The Contractor shall provide for any electrical connecting and/or disconnecting of his equipment or any equipment that requires removal during the cleaning, rehabilitation, and redevelopment.

2.1 PRELIMINARY CLEANING:

The Contractor shall remove the loose scale, slime, sand, and debris from the entire accessible length of the interior of each lateral utilizing an approved method. This is to be accomplished with the Collector in the dewatered condition, thereby utilizing the hydrostatic pressure created by the water level differential between the caisson and the aquifer.

3.0 TEMPORARY FACILITIES:

The Contractor shall provide all pumping equipment, piping, valves, and other equipment necessary to dewater the Collector well caisson during the lateral maintenance, development, and testing. In no case shall the Owner's pump(s) be utilized to pump sediment-laden water during collector rehabilitation.

4.0 PUMP AND MOTOR REHABILITATION

The three (3) well pumps and 60 hp motors shall be removed and rehabilitated as specified in the "2017 Ranney Well Pump – Specs".

5.0 COLLECTOR WELL REHABILITATION OF THE LATERALS BY ROTARY CLEANING HEAD WITH HIGH PRESSURE WATER BLASTING PROCESS:

Following preliminary cleaning, the high-pressure rotary head will be inserted into the full accessible length of each lateral to redevelop and remove scale and sediment. Provision will be made for continuous removal of scale and fine material from the lateral as redevelopment proceeds. The inside of each horizontal screen and the surrounding gravel pack, shall be cleaned and the fines removed by the use of a special device, herein called the "Redevelopment Unit" designed to concentrate the cleaning action in a restricted area of the screen and permit selective removal of material. This work will be accomplished with the Collector's central caisson in a dewatered condition to take advantage of all available hydrostatic pressure.

Compressed air, if necessary, shall be injected through the redevelopment unit into the area surrounding the screen to agitate and dislodge the sand and fine material, and by means of a scouring action of the sand, remove encrustation from the screen. Alternatively, the compressed air shall be shut off and the hydrostatic pressure within the aquifer utilized to back flush the dislodged material into the caisson.

Complete temporary pumping facilities shall be supplied by the Contractor capable of maintaining a dewatered condition in the caisson at all times during the cleaning and redevelopment operations.

The water removed from the Collector during maintenance procedures shall be pumped to an approved discharge area within 200 lineal feet of the Collector, and retained so the scale and sediment can settle. At no time shall scale and sediment be allowed to discharge to the river.

A rotary cleaning head, with high-pressure water blasting equipment shall be used with capability of developing at least 25 gpm with pressures up to 10,000 psi. It is

required that this work be conducted with the caisson in a fully dewatered condition.

Note: Cleaning using the BoreBlast II system combined with mechanical cleaning is acceptable on the new laterals (8, 9, and 10) only. Laterals 3 & 7 must be cleaned using only the rotating cleaning water jet method.

6.0 REPORTING REQUIREMENTS:

The length of lateral cleaned by the preliminary cleaning and by the mechanical redevelopment shall be reported for each lateral. The amount and description of material removed from each lateral shall be reported.

6.1 LATERAL ABANDONMENT:

Due to the age of the existing laterals, it is possible that some of the laterals will not respond favorably to redevelopment due to structural failures, corrosion, etc. In those cases, individual laterals may have to be abandoned. This status will be determined by the Owner with input from the Contractor. Lateral abandonment will be accomplished by removing the valve and plating the port assembly with a blind flange.

7.0 REMOVAL OF DEBRIS:

Upon completion of the cleaning and redevelopment of the laterals, all sand, silt, and debris shall be removed from the caisson and deposited in the approved disposal area adjacent to the caisson.

8.0 PERFORMANCE TESTING:

After all laterals are cleaned and redeveloped in the Collector, a constant-rate pumping test of each lateral installed will be conducted with lateral flow and temperature analysis and underwater photographs (video). In addition, thermal profiling will be conducted on all operational observation wells within 200 feet of the Collector, (see attached sheet Fig. I). The tests will be conducted by a geologist experienced in testing performance characteristics of wells.

The Contractor shall provide temporary pumping facilities sufficient to deliver a minimum of 2100 gpm when installed at the maximum setting in the well. The discharge pipe shall be equipped with a valve to control and maintain a constant pumping rate. A flow-measuring device capable of measuring the pumping rate in gallons per minute with an accuracy of $\pm 2\%$ shall be installed on the discharge side of the control valve. Acceptable flow measuring devices include a free discharge orifice equipped with a piezometer tube or calibrated flow meter, equipped with both a totalizer and instantaneous flow meter. During performance, tests will be run at rates of 700 gpm, 1400 gpm, and 2100 gpm.

Use a method for measuring sand content during the post maintenance performance test and include the results in the final report.

8.1 CONSTANT-RATE TEST:

A stilling well shall be installed in the river upstream of the Collector discharge. Automatic water level recorders shall be installed on the Collector, the river, and any usable observation wells or abandoned vertical wells within 300 feet of the Collector, to continuously monitor water level before each performance test and during pumping and recovery. An electric water level probe will be utilized at appropriate intervals to calibrate and check the water level recorders before, during, and after each test. Discharge rate, discharge temperature, and river temperature shall be measured and recorded at least once per hour during the pumping tests.

Before the start of each test, the Collector will be shut off and water levels allowed to recover to static level condition or for a period not to exceed 24 hours. Water level monitoring equipment will be in place prior to shut off.

The performance test will be conducted by maintaining a constant rate of at least 2100 gpm (or other rate determined by the Owner and Contractor) for a minimum of 12 hours to a maximum of 72 hours, as required to determine time to stabilization and maximum drawdown and yield from the collector.

Recovery water levels will be monitored until recovery is 90% complete or for a maximum of 24 hours.

8.2 LATERAL FLOW ANALYSIS:

Both pre-maintenance and post-maintenance pumping tests shall be performed. During these pumping tests, flow and temperature analysis will be conducted on all laterals under pumping conditions. The lateral flow and temperature analysis shall be conducted at least four (4) hours following the start of each pumping test. The following will be determined:

1. Flow rate (gpm) of each lateral,
2. Percent of total flow for each lateral,
3. Relative efficiency expressed as gpm/ft. of screen,
4. Temperature from each lateral.

8.3 PHOTOGRAPHS:

Videos will be obtained of the full length of the interior of each lateral, adjacent the caisson, to observe and record the condition of the laterals both before and after the maintenance work. Photographs shall also be obtained of the valves, caisson floor, and other appurtenances to see that all debris has been removed from caisson after work is completed.

8.4 DISINFECTION OF WELL

- A. Upon completion of performance testing, the Collector caisson shall be thoroughly cleaned of all foreign substances, including tools, grease, oil, and debris of any kind.
- B. Following cleaning, the submerged portion of the caisson including the laterals shall be disinfected using a chlorine solution of such volume and strength and so applied that a concentration of at least 100 milligrams per liter shall be obtained in all submerged parts of the Collector caisson and throughout the length of each lateral. The chlorine solution shall be prepared and applied in such a manner as will meet AWWA Standards.
- C. Surfaces within the caisson above the waterline shall be washed with a 200 milligram per liter chlorine solution.
- D. After a minimum of 24 hours, the chlorine solution shall be pumped to waste until the chlorine residual is less than 5 PPM. The chlorine solution pumped to waste shall be dechlorinated as required.

8.5 WATER QUALITY SAMPLING AND ANALYSIS:

A water sample from the Collector discharge will also be collected before shut off for a standard chemical analysis to include turbidity and bacteria. Sampling and analyses for regulatory compliance shall be conducted by Bidder.

9.0 REPORT:

Following the maintenance work and performance tests, a report will be submitted to the Owner which details: procedures for maintenance and testing; reports of lengths of laterals cleaned and amount and description of material removed from each lateral; description of condition of each lateral; underwater photographs; results of lateral flow and temperature analyses; all field test data including water levels, flow rates and temperature measurements; results of water quality analyses; hydrographs of water levels in all wells and river before and during the pumping tests and recovery tests; thermal profiles; time-drawdown semi-log graphs; and computations of specific capacity, and differential and collector yield before and after maintenance. The report shall be in both printed and digital forms.

10.0 QUALIFICATION OF BIDDER:

The Bidder is required to list references for collector lateral maintenance and rehabilitation projects conducted in the United States (see Experience Questionnaire attached to the Bid Proposal). References will enable the Owner to judge the Bidder's experience and skill in conducting collector lateral maintenance and rehabilitation, and to judge the Bidder's responsibility and financial standing. Bids from Contractors determined by the Owner to be inexperienced in this particular type of work will not be considered.

Information required on the Experience Questionnaire is: name, address, and phone number of owner and location, name, address, and phone number of person in charge of project, type and value of work, and date project was completed.

After the bids have been received and reviewed, the Owner will conduct reference checks to determine the methods used in previous projects, whether maintenance was conducted with dewatered caisson, and whether Bidder sufficiently monitored the following items during the project: collector specific capacity before and after maintenance, differential water level between collector and observation well before and after maintenance, and collector yield before and after maintenance.

11.0 PATENTS:

The Contractor shall warrant that he/she does not infringe on the patents or the patented rights of any person or corporation whatsoever in the construction or rehabilitation of the Collector well under these Specifications, and agrees as a part consideration of the contract price, to hold the Owner harmless from any and all damages, costs, and expense by reason of claims, suits or damages or infringement resulting from the use and purchase of the equipment or processes specified or any part thereof.

12.0 COORDINATION OF WORK

All Ranney Well rehabilitation work shall be coordinated with the Motor Control Center (MCC) electrical work performed by the Electrical Contractor. It shall be the Ranney Collector Well Contractor's responsibility to meet the completion deadline as specified in the Proposal.

13.0 SITE SECURITY

It shall be the Ranney Well Contractor's responsibility to secure the Ranney Well, related equipment, and the Well Building against unauthorized after-hour access. Damage to the well and related equipment during unsupervised or after-hour access shall be the responsibility of the Contractor.

City of Mt. Pleasant, Michigan
2017 Ranney Collector Pump Rehabilitation

TECHNICAL SPECIFICATIONS
NOS. 45731, 45732, and 45733

SCOPE

The work to be performed under this contract includes pump removal and inspection, repair (as necessary following inspection) of the three (3) pumps, and reinstallation of the pumps at the Ranney collector site. Bids are to include all mobilization, equipment, labor, tools, materials, and the meeting of all OSHA requirements.

WORK SCHEDULE

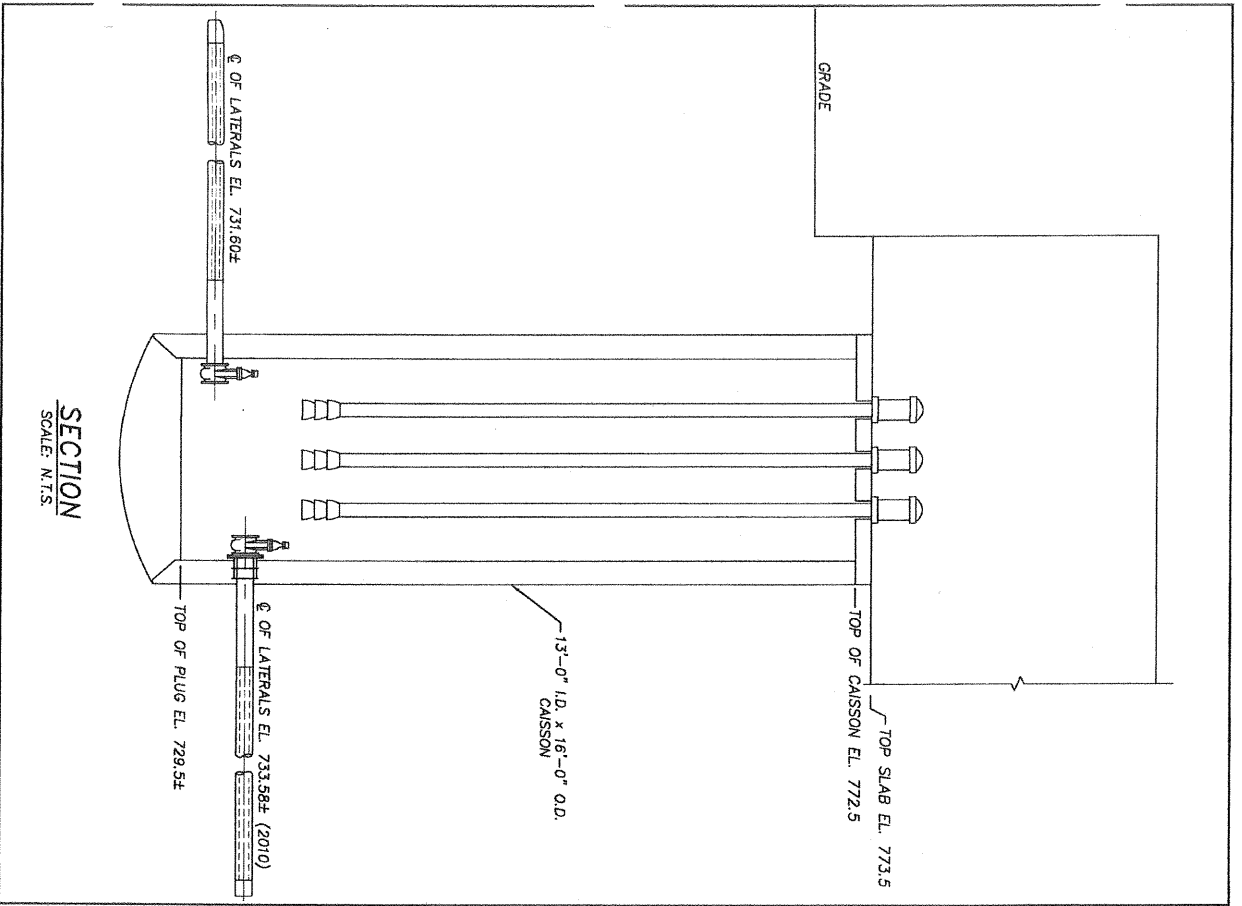
Layne Pump #'s 457731, 45732, and 45733

- 1) Remove pump motor, pump base, column, shafts, pump disassembly (inspect for repair as authorized by owner) and pump assembly, and install pumps and assemblies.
- 2) Columns, shafts, and pump assembly shall be cleaned by the contractor for inspection by Owner.
- 3) Because of the unknown condition of the existing pump assemblies, columns, couplings, and shafts, the contractor will furnish a price list of these items for replacement.
- 4) Work and replacement parts may include the following unless recommended otherwise by the Contractor;
 - A) Complete motor overhaul with new bearings.
 - B) Reconditioning of the head.
 - C) Stuffing box bearings.
 - D) A set of packings.
 - E) Water slinger.
 - F) Set of discharge nuts, bolts, and gaskets.
 - G) All new rubber line shaft bearings.
 - H) Realignment of all shafting.
 - I) Set of bronze bowl bearings.
 - J) Set of bronze wear bearings.
 - K) Metalize and machine impellers.
 - L) H.T.H. chlorine to sterilize well and pump.
 - M) Grease and paint.
 - N) Pump column
 - O) Pump combination coupling
 - P) Pump shaft with stainless steel sleeve and C.S. coupling.
 - Q) All labor to include: mobilization to job site, setup, complete pump removal, demobilization to Contractor's shop, clean entire pump for inspection,

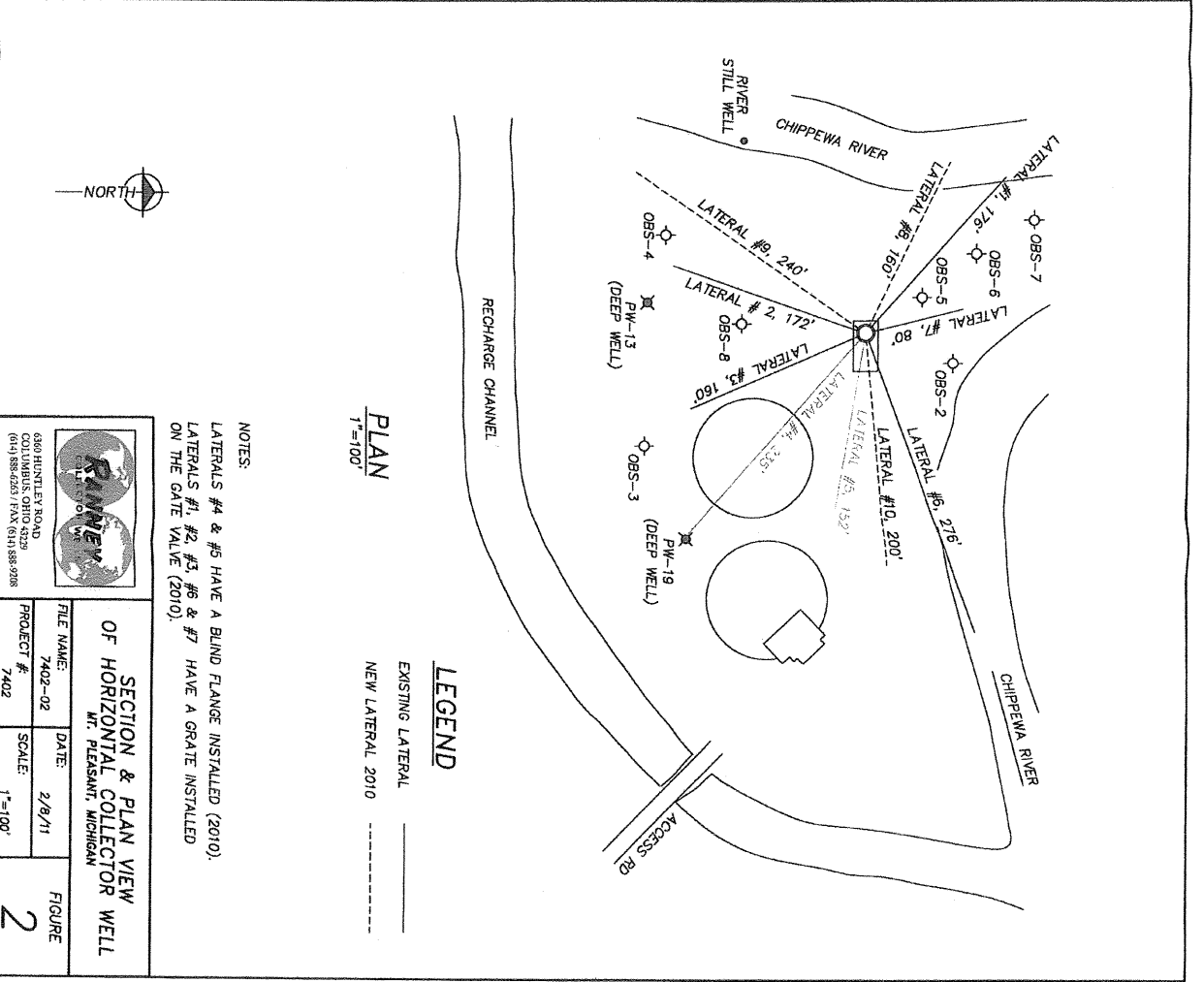
installation of parts in items 1-16, mobilization to job site, setup, set complete pump, chlorination, and final demobilization.

R) Pump motor oil sight glass shall be checked for transparency and cleaned or replaced as necessary.

5) See the following four (4) pages for the specifications of the existing three Layne pump #'s 457731, 45732, and 45733.



SECTION
SCALE: N.T.S.




PLAN
1"=100'

LEGEND

- EXISTING LATERAL _____
- NEW LATERAL 2010 - - - - -

NOTES:
LATERALS #4 & #5 HAVE A BLIND FLANGE INSTALLED (2010).
LATERALS #1, #2, #3, #6 & #7 HAVE A GRATE INSTALLED ON THE GATE VALVE (2010).



SECTION & PLAN VIEW OF HORIZONTAL COLLECTOR WELL
MT. PLEASANT, MICHIGAN

FILE NAME:	DATE:	FIGURE
7402-02	2/8/11	
PROJECT #:	SCALE:	2
7402	1"=100'	

680 HINTELEY ROAD
COLUMBUS, OHIO 43229
(614) 888-4263 / FAX (614) 888-9208



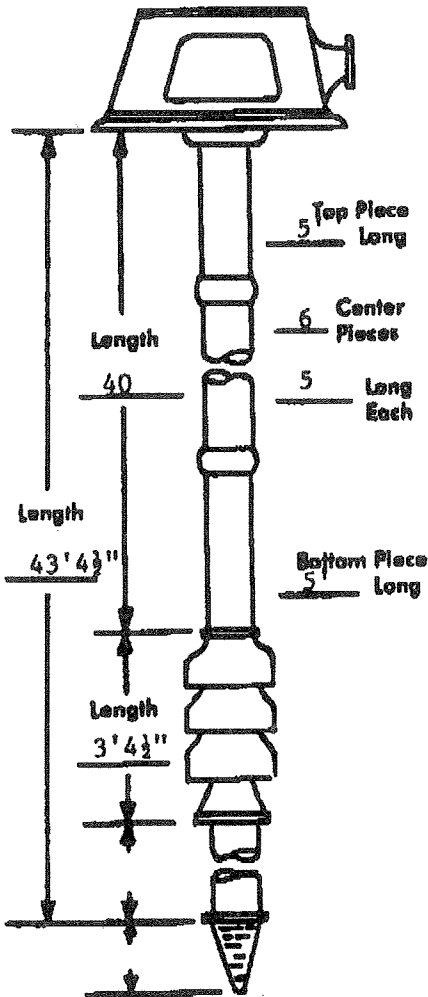
NORTHERN COMPANY

INDIANAPOLIS • MISHAWAKA • LANSING

PUMP INSTALLATION REPORT

File No. 45731 Date 10/12/94
 Sales Order No. _____
 Pump Mfg. Layne Serial No. 45731 Well No. (31)A
 Owner City of Mt. Pleasant City Mt. Pleasant State MI
 Location of Well Ranney Collector
 MOTOR: Make US Type RV Frame 364TP Ser. No. (477R11)
 HP 60 Volts 230/460 Line Voltage 460 Phase 3 RPM 1775
 Was Motor Taken to a repair shop at this time? New Motor Where? _____
 GEAR DRIVE: Make _____ Serial No. _____ Gear Ratio _____
 ENGINE: Make _____ Model _____ Serial No. _____

PUMP HEAD Type _____
 Discharge Pipe Size 12"
 Located Above above below ground
 Flanged Yes Threaded No
 Separate Base Plate? _____
 Head Shaft Length 5' 7"
 Dia. 1 3/16 Coupled above below Yes
 MOTOR SHAFT: Dia. _____ Length _____
 Thread Size In Head _____ Keyway _____
 PUMP BOWL Type THC
 Dia. 12 No. of Stages 2
 Bowls - Cast Iron or Bronze? _____
 Shaft - SS _____ CS _____ Length _____
 COLUMN Pipe Size 10
 Flanged No Coupled Yes
 Special Paint? No
 Oil Lube _____ Water Lube _____
 Shaft Size _____ SS _____ or CS _____
 Tubing Size _____ Sil _____ or Br _____
 SUCTION PIPE Size _____
 Length _____ Special Paint? _____
 Threads on Bottom? _____
 Strainer _____ Size _____
 Rubber Bumper? _____
 Well Seal? _____



NOTE - All measurements from top of pump foundation.
 WELL INFORMATION
 Inside Dia. _____ Depth _____ Static _____ Type: Gravel Wall _____ Tubular _____ Rock _____
 Air Line Length _____ Strapped to Column? _____
 Type Airline _____ Plastic _____ Copper Tubing _____ Steel Pipe _____
 PUMPING TEST - Pumped _____ GPM at _____ Ft. Pumping Level _____
 with _____ lbs. discharge pressure after _____ hours.
 Pump to Waste Outside _____ Inside _____ Size _____ THD.O. _____

PULLING INSTRUCTIONS

Length of Poles required _____ Chain Falls _____ Special equipment or pulling instructions _____

Power Lines: _____

REMARKS: No power at time of setting. To pull, 1 steel plate, 10" nipple

Installer R. Ackels/G. Hughes

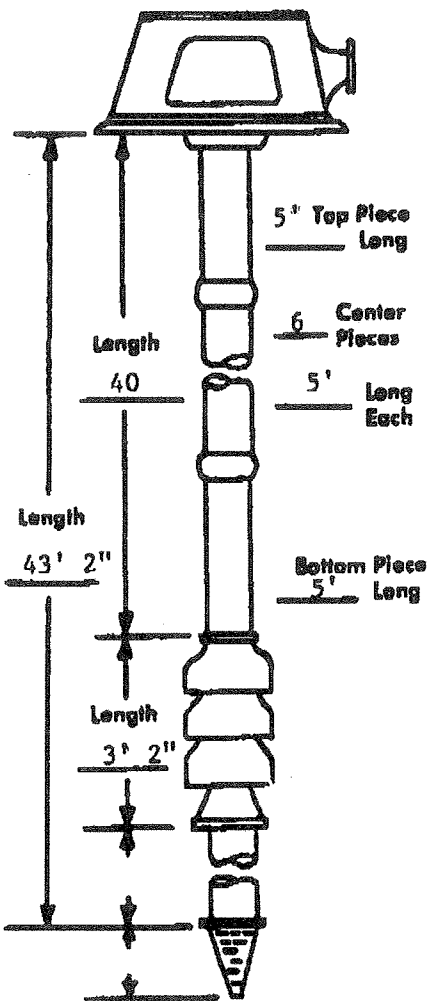


NORTHERN COMPANY

INDIANAPOLIS • MISHAWAKA • LANSING

PUMP INSTALLATION REPORT

File No. 45732
 Sales Order No. _____ Date 10-12-94
 Pump Mfg. Layne Serial No. 45732 Well No. (32)B
 Owner City of Mt. Pleasant City Mt. Pleasant State MI
 Location of Well Ranney Collector
 MOTOR: Make US Type RV Frame 364 TP Ser. No. (447R6)
 HP 60 Volts 230/460 Line Voltage 460 Phase 3 RPM 1775
 Was Motor Taken to a repair shop at this time? New Motor Where? _____
 GEAR DRIVE: Make _____ Serial No. _____ Gear Ratio _____
 ENGINE: Make _____ Model _____ Serial No. _____



PUMP HEAD Type _____
 Discharge Pipe Size 12"
 Located Above above ground
 Flanged Yes Threaded No
 Separate Base Plate? _____
 Head Shaft Length 5' 7"
 Dia. 1 3/16 Coupled above Yes below _____
MOTOR SHAFT: Dia. _____ Length _____
 Thread Size in Head _____ Keyway _____
PUMP BOWL Type THC
 Dia. 12 No. of Stages 2
 Bowls - Cast Iron or Bronze? CI
 Shaft - SS _____ CS _____ Length _____

COLUMN Pipe Size 10
 Flanged NO Coupled Yes
 Special Paint? NO
 Oil Lube _____ Water Lube _____
 Shaft Size 1 3/16 SS _____ or CS _____
 Tubing Size _____ Stl _____ or Br _____

SUCTION PIPE Size None
 Length _____ Special Paint? _____
 Threads on Bottom? _____
 Strainer _____ Size _____
 Rubber Bumper? _____
 Well Seal? _____

NOTE - All measurements from top of pump foundation.

WELL INFORMATION
 Inside Dia. _____ Depth _____ Static _____ Type: _____
 Air Line Length _____ Strapped to Column? _____
 Type Airline _____ Plastic _____ Copper Tubing _____ Steel Pipe _____

PUMPING TEST - Pumped _____ GPM at _____ Ft. Pumping Level _____
 with _____ lbs. discharge pressure after _____ hours.
 Pump to Waste Outside _____ Inside _____ Size _____ THD.O. _____

PULLING INSTRUCTIONS

Length of Poles required Chain Falls _____ Special equipment or pulling instructions _____
 Power Lines: _____

REMARKS: No Power To pull pumps, 1" steel plate, 10" nipple.

Installer R. Ackela/G. Hughes



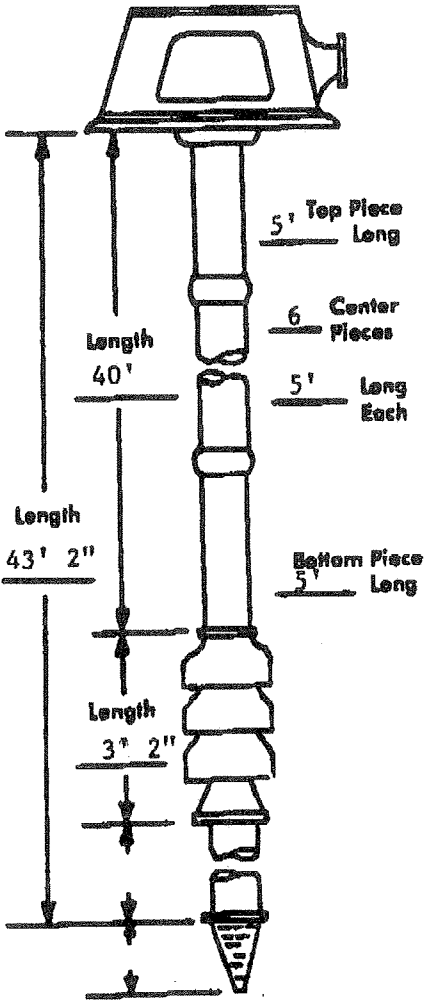
NORTHERN COMPANY

INDIANAPOLIS • MISHAWAKA • LANSING

PUMP INSTALLATION REPORT

File No. 45733 Date 10/12/94
 Sales Order No. _____
 Pump Mfg. Layne Serial No. 45733 Well No. (33)C
 Owner City of Mt. Pleasant City Mt. Pleasant State MI
 Location of Well _____
 MOTOR: Make US Type RV Frame 364TP Ser. No. (044R3)
HP 60 Volts 230/460 Line Voltage 460 Phase 3 RPM 1775
 Was Motor Taken to a repair shop at this time? New Motor Where? _____
 GEAR DRIVE: Make _____ Serial No. _____ Gear Ratio _____
 ENGINE: Make _____ Model _____ Serial No. _____

PUMP HEAD Type SDH 12 COLUMN Pipe Size 10"
 Discharge Pipe Size 8" 12 Flanged No Coupled Yes
 Located 1 1/2' above above ground Special Paint? No
 Flanged Yes Threaded _____ Oil Lube _____ Water Lube _____
 Separate Base Plate? _____ Shaft Size 1 3/16 SS _____ or CS X
 Head Shaft Length 5' 7" Tubing Size _____ Stl _____ or Br _____
 Dia. 1 3/16 Coupled above above below
 MOTOR SHAFT: Dia. 3/16 Length 36 1/2" SUCTION PIPE Size None
 Thread Size In Head _____ Keyway _____ Length _____ Special Paint? _____
 PUMP BOWL Type THC Threads on Bottom? _____
 Dia. 12 No. of Stages 2 Strainer _____ Size _____
 Bowls - Cast Iron or Bronze? CI Rubber Bumper? _____
 Shaft - SS _____ CS _____ Length _____ Well Seal? _____



NOTE - All measurements from top of pump foundation. WELL INFORMATION
 Inside Dia. _____ Depth _____ Static _____ Type: Gravel Well Tubular Reck _____
 Air Line Length _____ Strapped to Column? _____
 Type Airline _____ Plastic _____ Copper Tubing _____ Steel Pipe _____
 PUMPING TEST - Pumped _____ GPM at _____ Ft. Pumping Level _____
 with _____ lbs. discharge pressure after _____ hours.
 Pump to Waste Outside _____ Inside _____ Size _____ THD.O. _____

PULLING INSTRUCTIONS

Length of Poles' required _____ Chain Falls _____ Special equipment or pulling instructions _____
 Power Lines: _____

REMARKS: No Power To pull, 1" steel plate 10" nipple

Installer R. Ackels/ G. Hughes

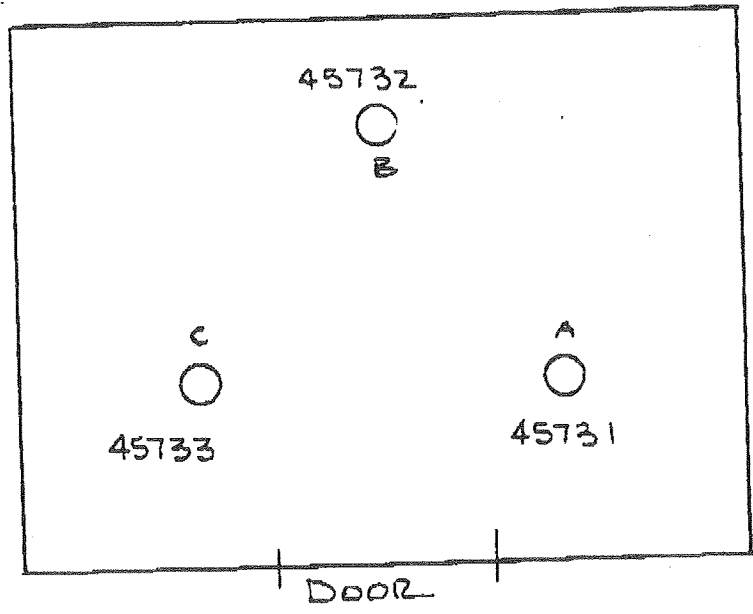


Layne, Inc.

+ LINT AREA
3 wells

Subject MT PLEASANT - Low SERVICE

Date 1997



- PUMP N° LOCATION -