



MONTGOMERY WATSON

September 29, 1997

CCN: 1613

File: 10.1

Mr. Gerald Preau, P.E.
Network Engineering
Sewerage & Water Board of New Orleans
8800 South Claiborne Avenue
New Orleans, Louisiana 70148

Subject: Wastewater Pump Station Testing and Evaluation - Final Report

Dear Mr. Preau:

Montgomery Watson is pleased to submit the subject report. This report is submitted in fulfillment of Task 3D of the first scope of services for the Sewer System Evaluation and Rehabilitation Program.

The presented recommendations provide a preliminary overview of the work required to optimize the performance of the existing pumping facilities. Future recommendations related to required capacity improvements will be made following the completion of computer modeling, in coordination with other system improvements.

The successful completion of this task has been greatly enhanced by the active participation of the Board staff. We sincerely appreciate their assistance and professionalism.

Sincerely,

Ernie Upton, P.E.
Program Manager

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**Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program**

Final Report

**Wastewater Collection System
Pump Station Testing and Evaluation**

August 1997

**Montgomery Watson
1340 Poydras Street
Suite 1420
New Orleans, Louisiana 70112**

Acknowledgments

The assistance of the Sewerage and Water Board is gratefully appreciated for providing existing pump station data and assisting with all site visits. Without the assistance of Mr. Bob Moeinian and his staff, the task could not have been completed on schedule.

The information presented within this report reflects the efforts of the Sewerage and Water Board of New Orleans and Montgomery Watson.

PUMP STATION TESTING AND EVALUATION

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PUMP STATION TESTING AND EVALUATION

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CHAPTER 1 - INTRODUCTION

1.1 Background

Montgomery Watson was authorized in October 1996 to provide Program Management Services for the Sewerage & Water Board's Sewer System Evaluation and Rehabilitation Program. The purpose of the Program is to:

- Identify and repair structural and mechanical defects
- Provide sufficient hydraulic capacity
- Study infiltration and inflow and determine the most cost effective way for its removal, transportation and/or treatment

Task 3 of the services authorized under the Program's first grant focused on developing an understanding of the collection system. Pump station testing and evaluation was identified as an important element of that scope to determine the dimensions, performance, condition and capacity of all wastewater pump stations. A complete list of the sewer pump stations evaluated in this project is provided in Chapter 3 of this report.

The New Orleans wastewater collection system is divided into two separate systems. The East Bank system collects, transmits and treats wastewater from the service area east of the Mississippi River while the West Bank system collects, transmits and treats wastewater from the service area west of the river. There is a total of eighty-three pump stations in the New Orleans wastewater collection system. Figure (1-1) presents the total number of pumping stations in each of the systems. (East and West Banks) Figure (1-2) shows the existing layout of the pump stations locations and the major force main network.

Many of the pumping stations in the New Orleans wastewater collection system are over 50 years old and were designed explicitly for service in this system. Many of the pumps are unique and parts, including the pump castings, are one-of-a-kind necessitating that the Sewerage and Water Board maintain the patterns. Due to the age and the unique, one-of-a-kind nature of many of the pump and motor units, hydraulic performance characteristics are not generally available. In addition, the amount of wear that each unit has been subject to and the effect this wear has on pumping performance is unknown. Therefore, field performance testing was required to develop the requisite pumping characteristics for input to the modeling phase of the Program.

SEWERAGE AND WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION LOCATIONS (EAST BANK vs. WEST BANK)

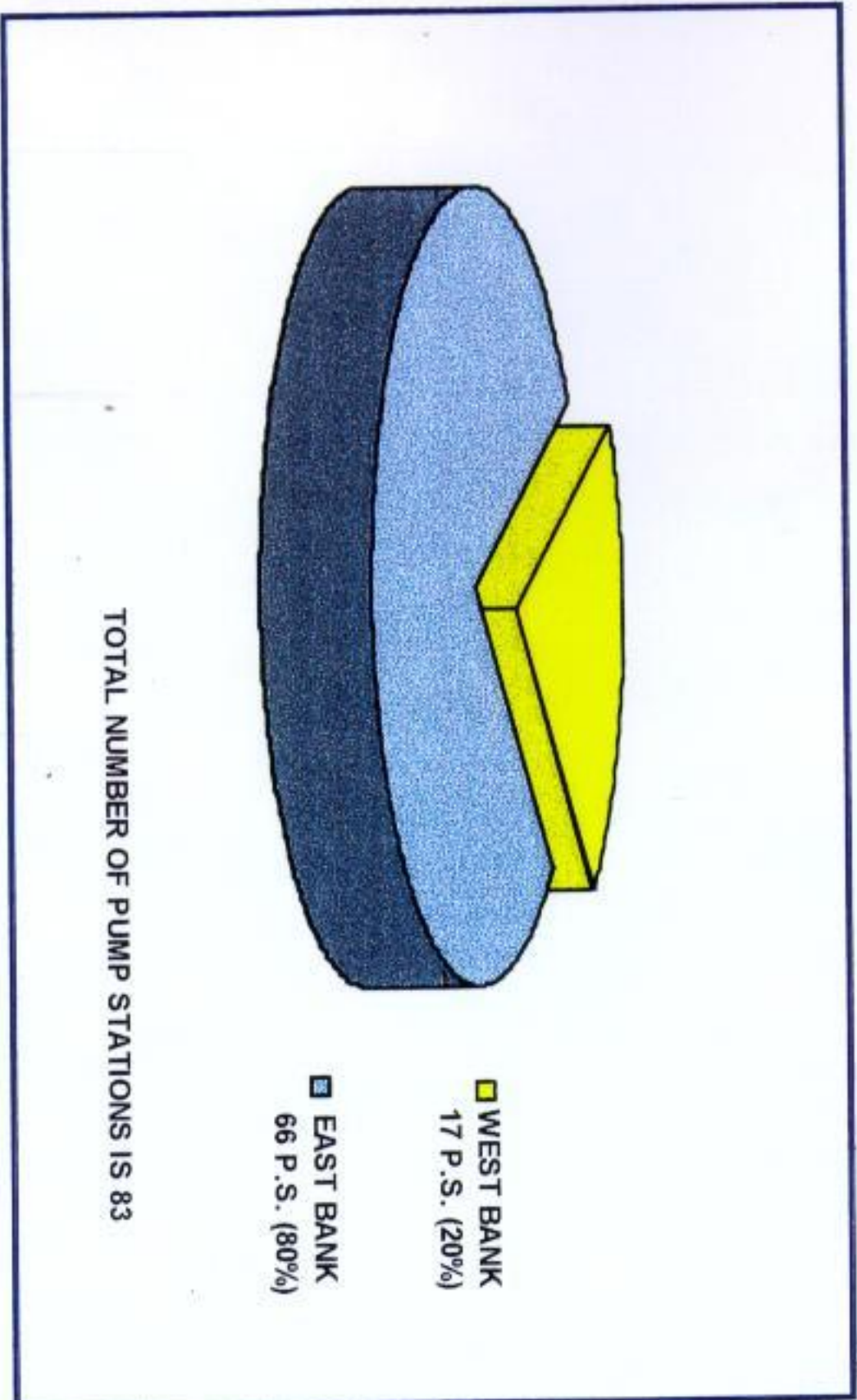
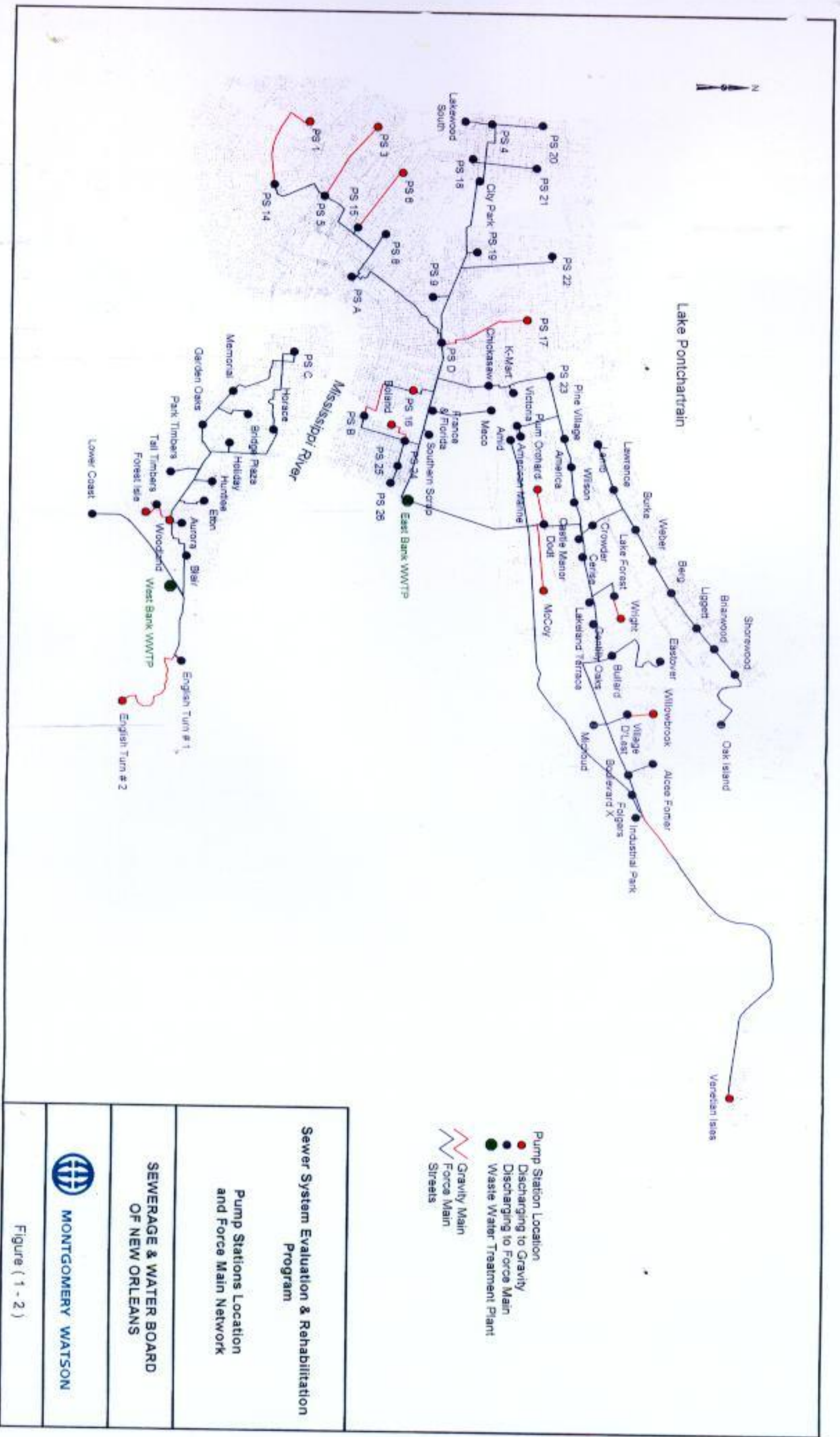


FIGURE (1-1)




Sewer System Evaluation & Rehabilitation Program	
Pump Stations Location and Force Main Network	
SEWERAGE & WATER BOARD OF NEW ORLEANS	
 MONTGOMERY WATSON	

Figure (1 - 2)

1.2 Study Purpose

The purpose of this study was to test and evaluate each pump station in the wastewater transmission system that is operated and maintained by the Sewerage and Water Board of New Orleans. The evaluations focused on determining pump performance curves and the respective system curves. The evaluations also included an inventory and an assessment of the condition of major pump station equipment and structures.

Data collected in this study will be utilized in the development of a computerized system hydraulic model. The model will be used to identify final improvements to pump stations and other components of the wastewater collection system to provide sufficient capacity for dry and wet weather related flows.

1.3 Report Organization

The report is divided into four chapters detailing various aspects of the work. The content of each chapter is briefly summarized below:

Chapter 1 - Introduction

This chapter presents a brief description of the project, including its background, objectives and major elements. The organization of the report and its outline is also addressed.

Chapter 2 - Description of Methodologies for Data Acquisition

This chapter details the methodology used to collect information and to evaluate the wastewater pumping stations. It also includes a description of the tests performed in obtaining the individual pump and system curves.

Chapter 3 - Findings of Data Acquisition

This chapter provides a listing of common findings and results that were observed during the pump station testing and evaluation. It also includes tables, charts and sketches that summarize the collected data.

Chapter 4 - Recommendations

This chapter presents recommendations, which if implemented, will enhance the performance, maintenance and operation of the wastewater pumping and transmission system. It also addresses the adequacy of the collected data for use in the hydraulic model.

Appendices

The two appendices contain individual reports for each pump station. A review of the physical and hydraulic condition of each station and specific recommendations for each pump station are included. These reports also include schematic sketches, pump curves, sub-system curves, field reports and photographs.

Chapter 2 - Description of Methodologies for Data Acquisition

2.1 General

The purpose of this study was to evaluate each wastewater pump station and identify the physical and hydraulic conditions under which the facilities operate. Several meetings were conducted between the key staff members of the Sewerage and Water Board (S&WB) and Montgomery Watson (MW) to coordinate the steps required to accomplish the goals of this study and to develop a better understanding of the collection system by exchanging information.

Montgomery Watson mobilized and assembled a team of engineers, technicians and support staff to carry out the pump station testing and evaluation task. Between January 5, 1997 and March 21, 1997, field visits were made to each of the 83 wastewater pump stations. The evaluation included a general inventory of major mechanical and electrical equipment, an assessment of the condition of the equipment and structures (dry well and wet well), measurements of wet and dry wells, and a survey of key elevations.

The following steps were performed in this study:

- Collection of Existing Plans and Other Data
- Equipment Inventory, Dimensions and Elevations
- Structural, Mechanical and Electrical Equipment Assessment
- Pump Testing and Capacity Determination
- Documentation

Each of these tasks are described in the subsequent sections.

2.2 Collection of Existing Drawings and Other Data

The following pump station information was obtained from the S&WB:

- **Station Locations.** The pump stations that fall under the jurisdiction of the S&WB were identified and addresses were obtained. Major sewer main and force main maps along with facilities were supplied by the S&WB's Network Engineering Division.
- **Pump and Motor Data.** A brief description of each pumping unit was supplied for each station.
- **Pump Head - Capacity Curves.** Twenty-three (23) different head-capacity, horsepower, efficiency and NPSH curves were given for the existing pump models.
- **Station Construction Drawings.** Construction drawings for fifty-four (54) stations were obtained.

2.3 Equipment Inventory, Dimensions and Elevations

The number of existing pumps and motors in each pump station along with the pump type, manufacturer name, model and serial number were recorded during the field visits. In addition, the depth and size of each pump station wet well were measured and recorded along with the dimensions of each station dry well (pump room and motor room).

Montgomery Watson reviewed the S&WB's records for the gravity collection system to determine the invert elevations of the sewers entering the pump station wet well. These elevations were compared with elevations obtained in the field for all pump stations not operating with surcharged influent sewers. To accomplish the above, the wet wells of several pump stations were pumped down to a level below the elevation of the lowest sewer line. Temporary benchmarks (TBM's) were set and marked (generally at the top of the wet well access cover) as a reference to all other elevations required for the calculation and development of pump head-capacity curves.

2.4 Structural, Mechanical and Electrical Equipment Assessment

A physical and operational assessment was conducted of all pump station main structures (wet well and dry well), mechanical equipment (pumps, valves and internal piping) and electrical equipment (motors, control panels, service and main protective devices). The condition of the wet well, the pump room and the motor room were checked for signs of deterioration or wear. Areas with visible signs of corrosion were identified and documented. The pumps and motors along with the electrical control panels, service protective devices and main protective devices were checked for their physical and operational conditions. In addition, the internal piping, valves (isolating and flow direction control valves) and fittings were inspected for signs of leakage while the valves were commissioned to assure their proper operation.

2.5 Pump Testing and Capacity Determination

In order to evaluate the fitness of the pump stations and to determine pump capacity, the following field tests were performed on each pump with the exception of those in three pump stations where operational and maintenance issues did not permit such tests to be performed. The pump curves for the stations for which pump tests were not conducted were constructed utilizing data from other facilities with similar pumps.

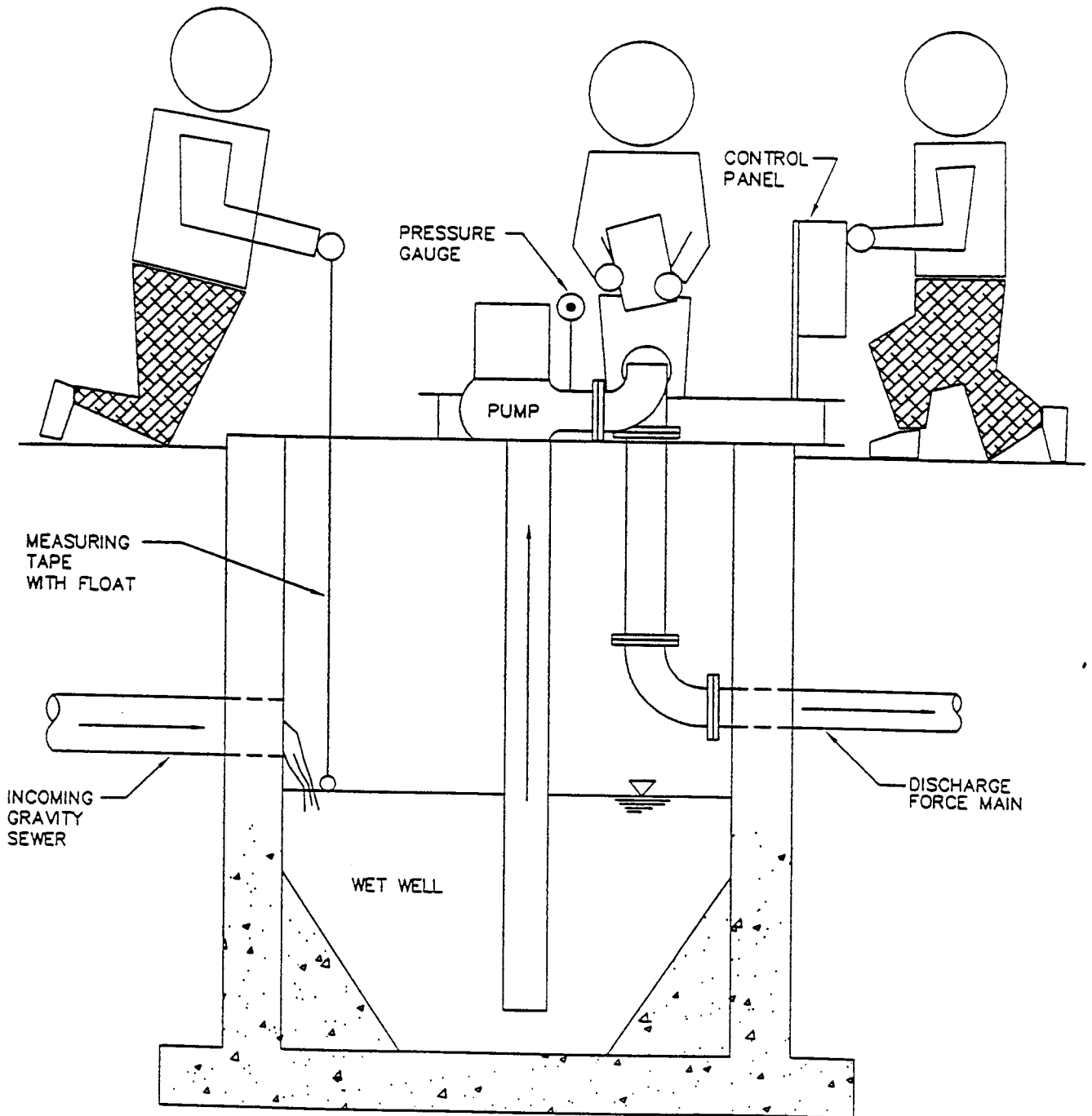
- **Draw-Down Test**

A "Draw-Down" test was used to determine the condition and capacity of pumps for thirty-eight (36) stations. This method was used for pump stations with wet wells which could be pumped down to a level below the bottom of the gravity sewer(s) entering the wet well. Depending on the inflow to the station, a draw-down test was performed in about two hours.

To conduct the test, one team member monitored the water levels in the wet well with measuring tape and a connected float. The measuring tape was lowered to the point at which the float was on the water surface and the tape was not sagging.

Another member of the testing team, along with a representative from the S&WB, turned the pump on and off when depths reached desired levels. A third team member recorded the time it took for the water in the wet well to rise or drop to a certain elevation (usually one foot). Figure (2-1) presents a depiction of the draw-down test set up.

DRAW-DOWN TEST SET UP



To avoid inaccuracies caused by changes in the influent flow rate, the test included two or three "on-off" cycles of each pump to determine the average inflow rate into the station.

- **Ultrasonic Flow Meter Test**

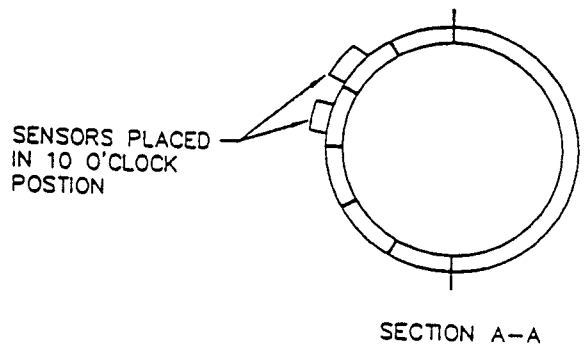
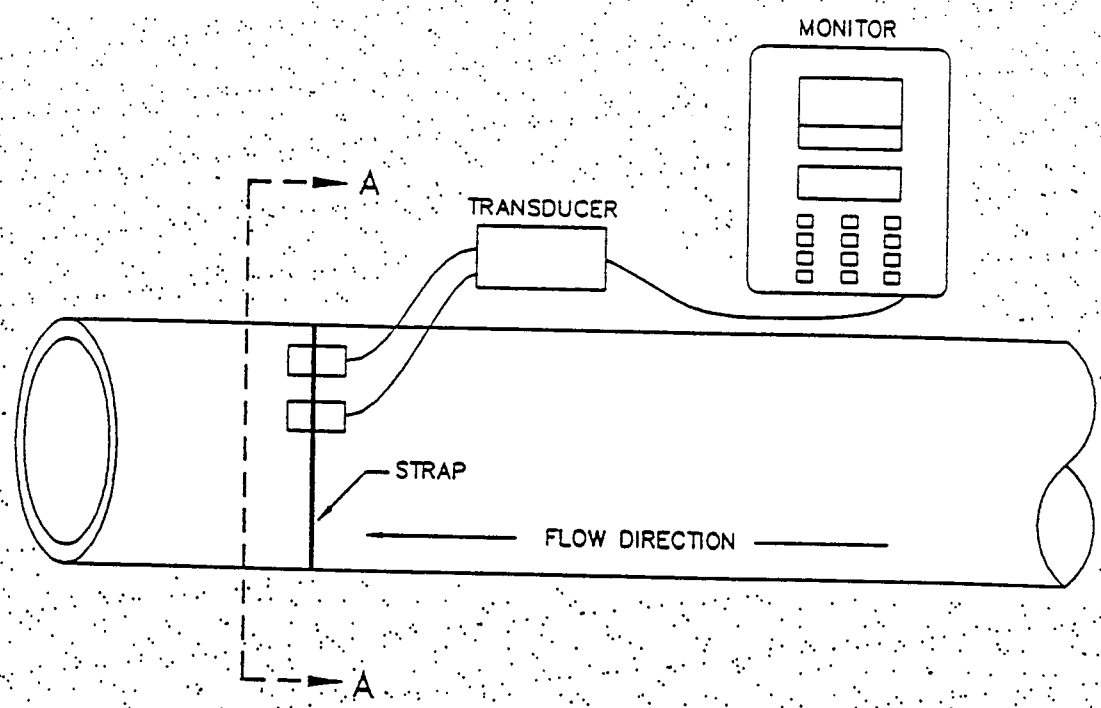
Some pump stations in the New Orleans collection system use the collection system as wet well storage. In these cases, the sewers are connected directly to the suction side of the pump station and are operated in a slightly surcharged mode. Because of this configuration, the influent rate and the pumping rate could not be calculated accurately by the common "Draw-Down Test" method described earlier. Instead, an ultrasonic flow measuring device was used to carry out the field test.

The ultrasonic doppler flow meter is an obstructionless flow meter which operates by sensing the frequency shifts of signals reflected from particles, bubbles, or density differences within a liquid and producing a linear signal proportional to the flow of the liquid within the pipe. It is not affected by changes in temperature, viscosity, specific gravity, or speed of sound within the liquid. The liquid does not have to be electronically conductive. Doppler flow meters measure flow velocity by sensing signals from reflective materials within a liquid and measuring the frequency shift due to the motion of these reflective materials.

After a brief survey of the different types of flow meters, the COMPU-FLOW ultrasonic Doppler flowmeter Model DFM-C4 was selected for its accuracy, portability and user-friendly characteristics. Figure (2-2) illustrates the Doppler flow meter set up along with the clamp-on transducer head placement. In all cases, the pipe was cleaned down to the bare pipe; all paint and scale were removed. The sensors were then positioned by temporary strapping.

To assure a well developed flow profile, measurement points on a long run of pipe, away from elbows, valves, pumps, flanges and other fittings were chosen whenever possible.

PORTABLE DOPPLER FLOW METER SET UP



FILE NO.: 2-4

FIGURE (2-2)

To develop and verify pump head-capacity characteristics curves, tests were performed over a complete range of discharge pressures. These pump station performance characteristics will be used in developing an accurate hydraulic model. The hydraulic model will then be used as a diagnostic tool to identify the recommendations for the collection system and/or treatment capacity improvements.

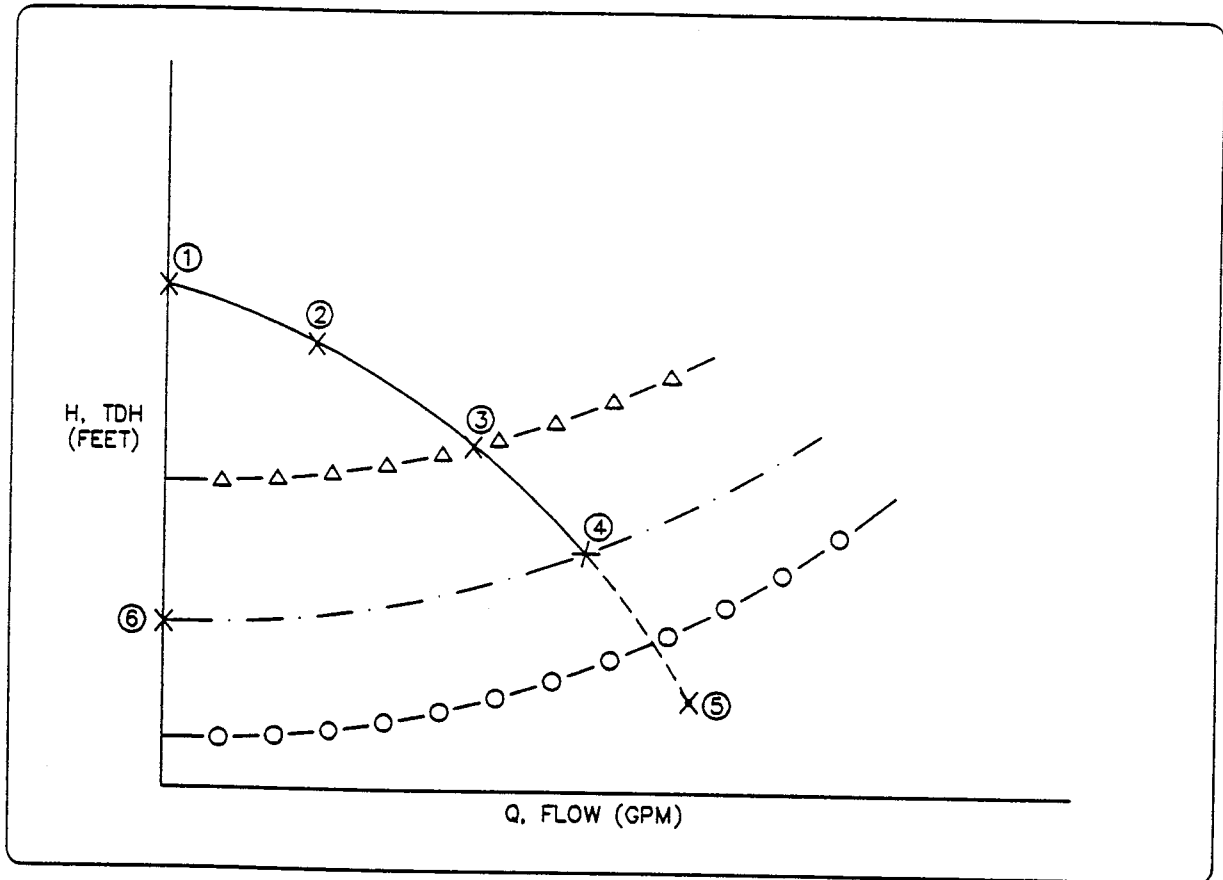
In both testing methods, the Draw-Down and the Doppler Flow Meter, four points on the pump curve were measured and recorded. A typical pump curve with various measured and estimated head-capacity points is shown in Figure (2-3).

2.6 Documentation

Several photographs were taken at each pump station location to document the external and internal condition of the structure. In addition, photographs were taken of the major mechanical and electrical equipment along with the internal piping and valves.

A standard form, similar to the one shown in Figure (2-14), was used in the documentation of the various types of data collected during the field visits.

TYPICAL HEAD-CAPACITY PUMP CURVE



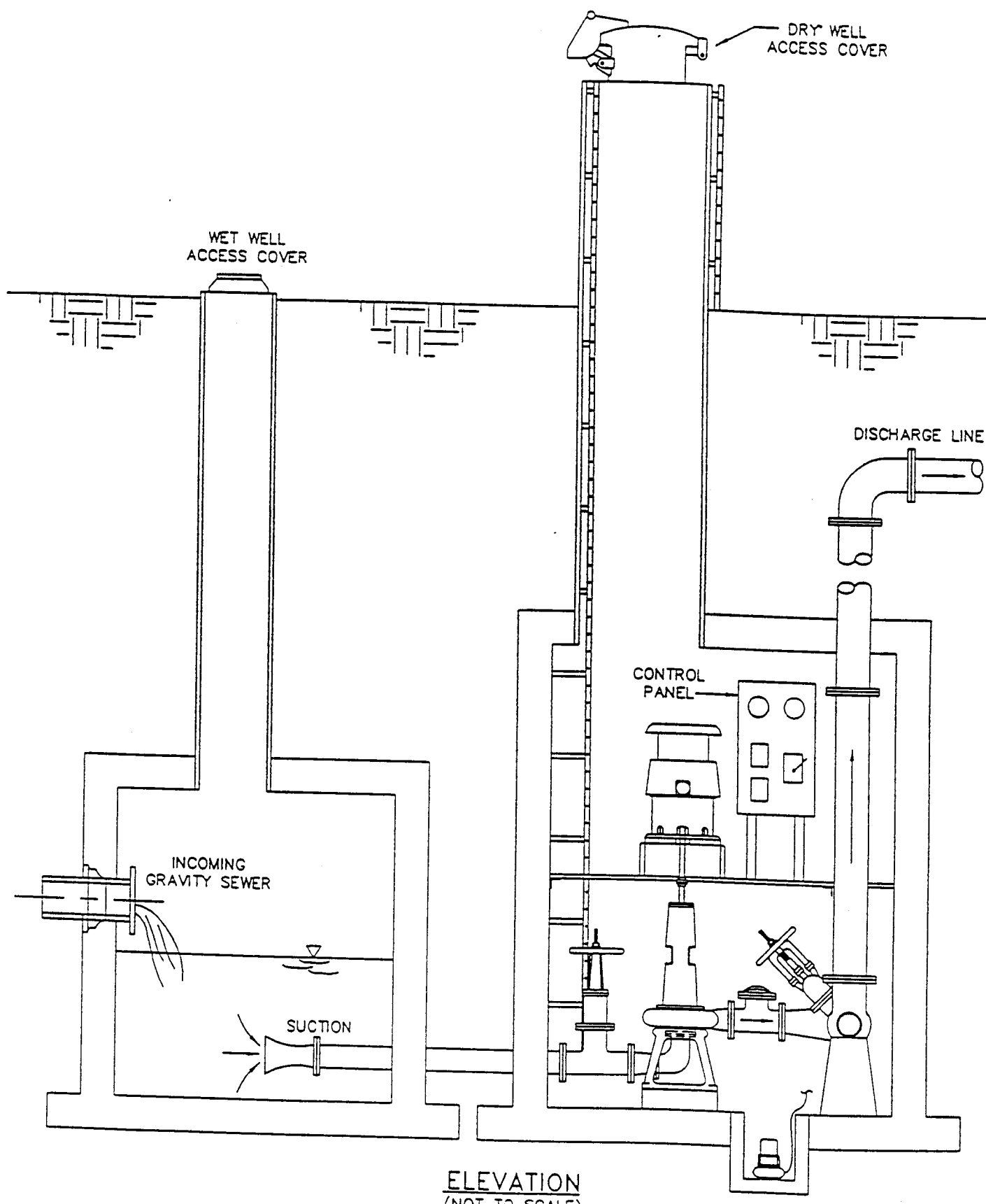
LEGEND

- x REMAINING PORTION OF THE PUMP CURVE
- SYSTEM CURVE AT THE TIME OF TESTING
- x—x—x MEASURED PUMP CURVE
- o-o-o- MINIMUM SYSTEM CURVE
- Δ-Δ-Δ- MAXIMUM SYSTEM CURVE

NOTES:

- ① DISCHARGE VALVE FULLY CLOSED
- ② TEST POINT NO. 2 (DISCHARGE VALVE MOSTLY CLOSED)
- ③ TEST POINT NO. 3 (DISCHARGE VALVE PARTIALLY CLOSED)
- ④ OPERATING POINT AT THE TIME OF TESTING (DISCHARGE VALVE FULLY OPEN)
- ⑤ REMAINING MAX. PUMP CAPACITY
- ⑥ STATIC LIFT

"CAN" TYPE FLOODED SUCTION

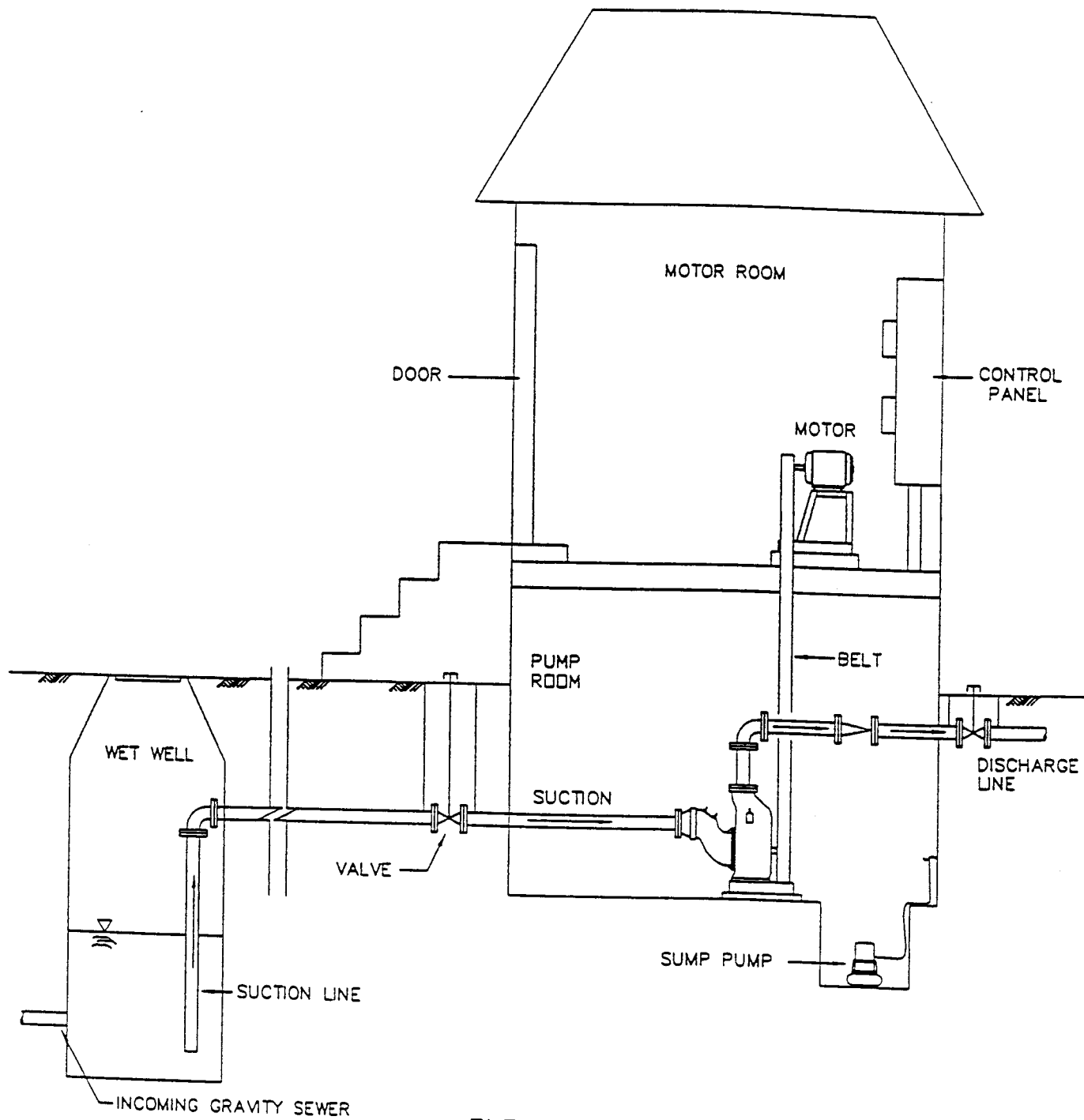


ELEVATION
(NOT TO SCALE)

FILE NO.: 2-

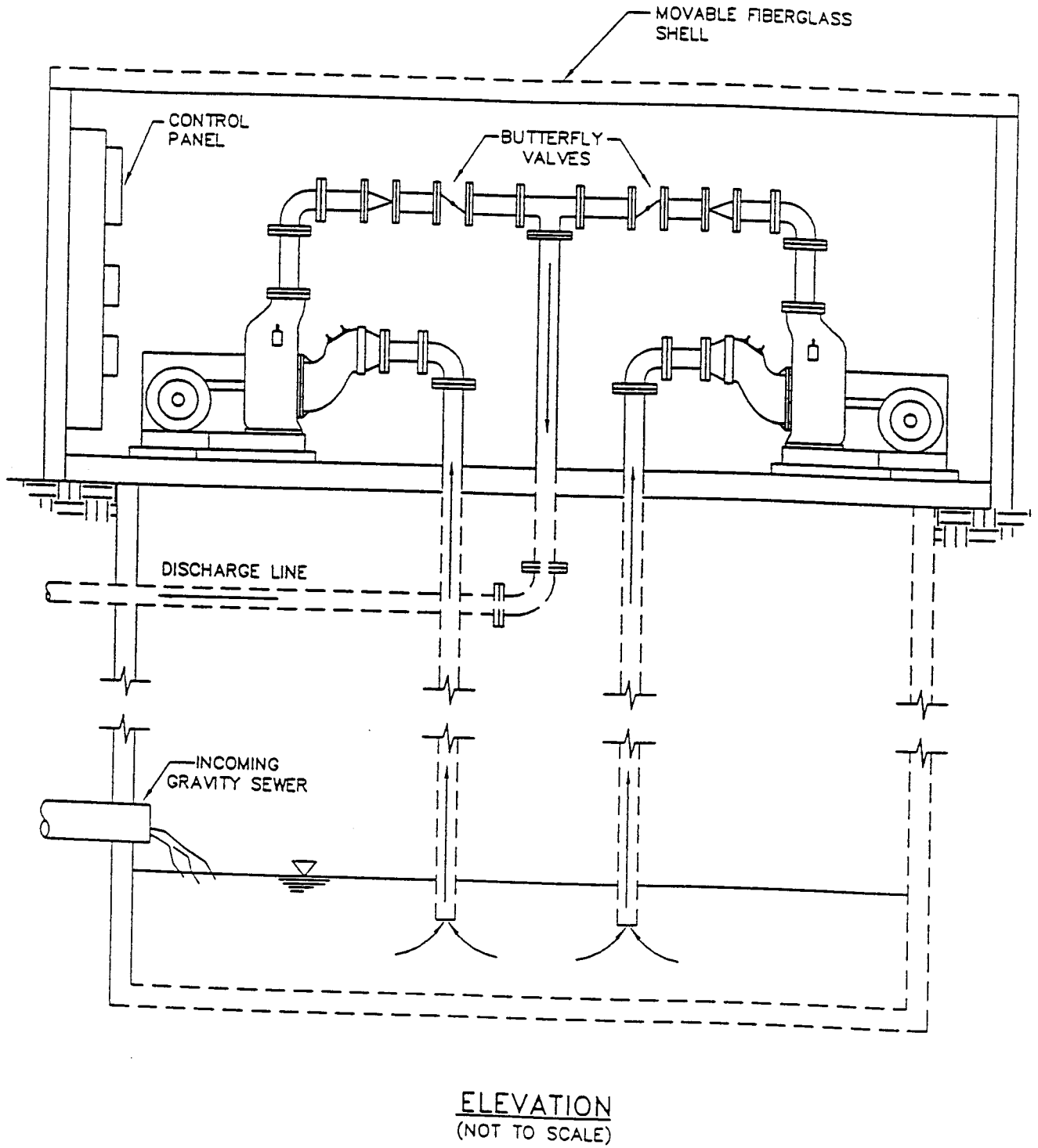
FIGURE (2-4)

BI-LEVEL SUCTION LIFT



ELEVATION
(NOT TO SCALE)

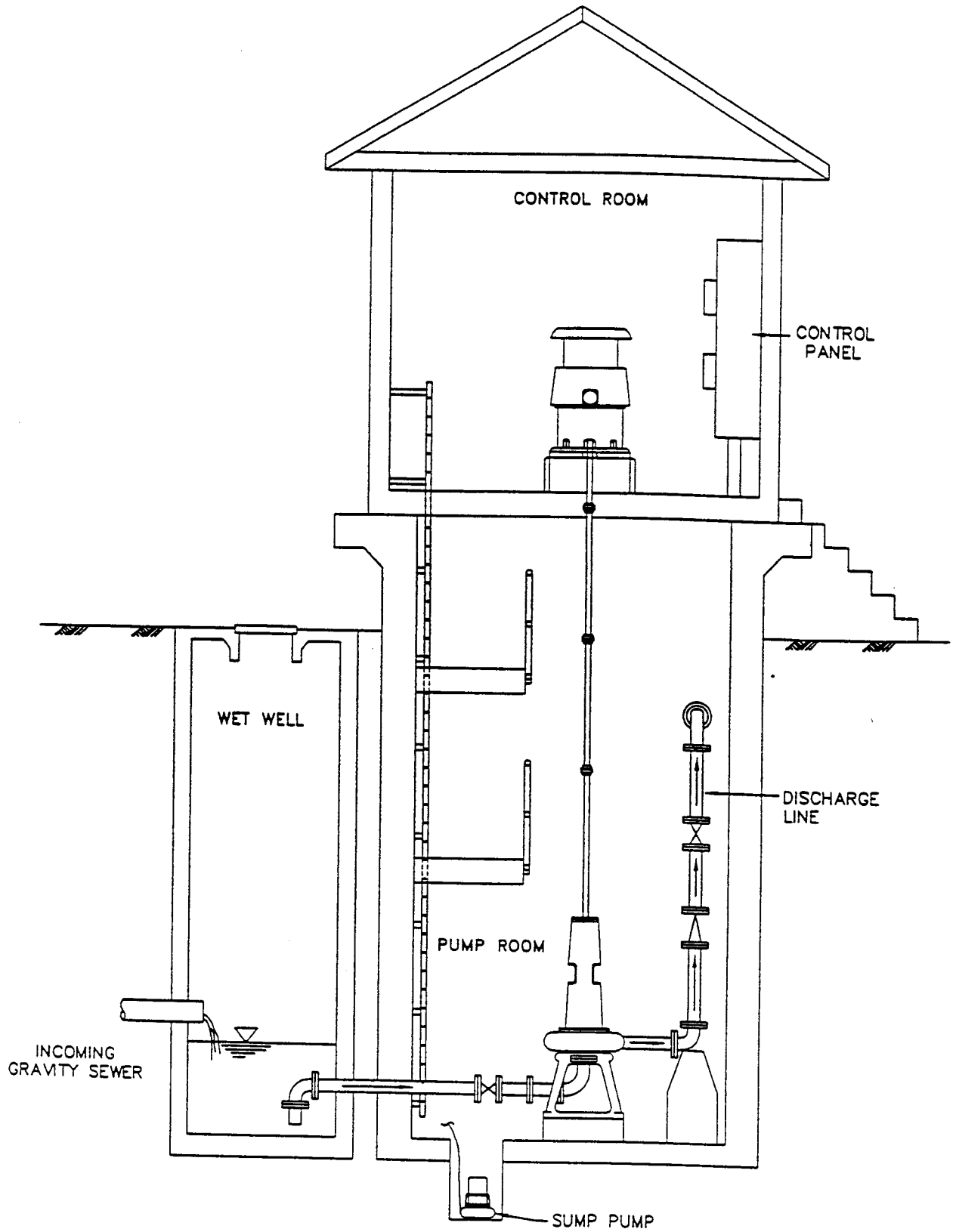
HUT-TYPE SUCTION LIFT



FILE NO.: 4

FIGURE (2-6)

MULTI-LEVEL FLOODED SUCTION (WITH WET WELL)

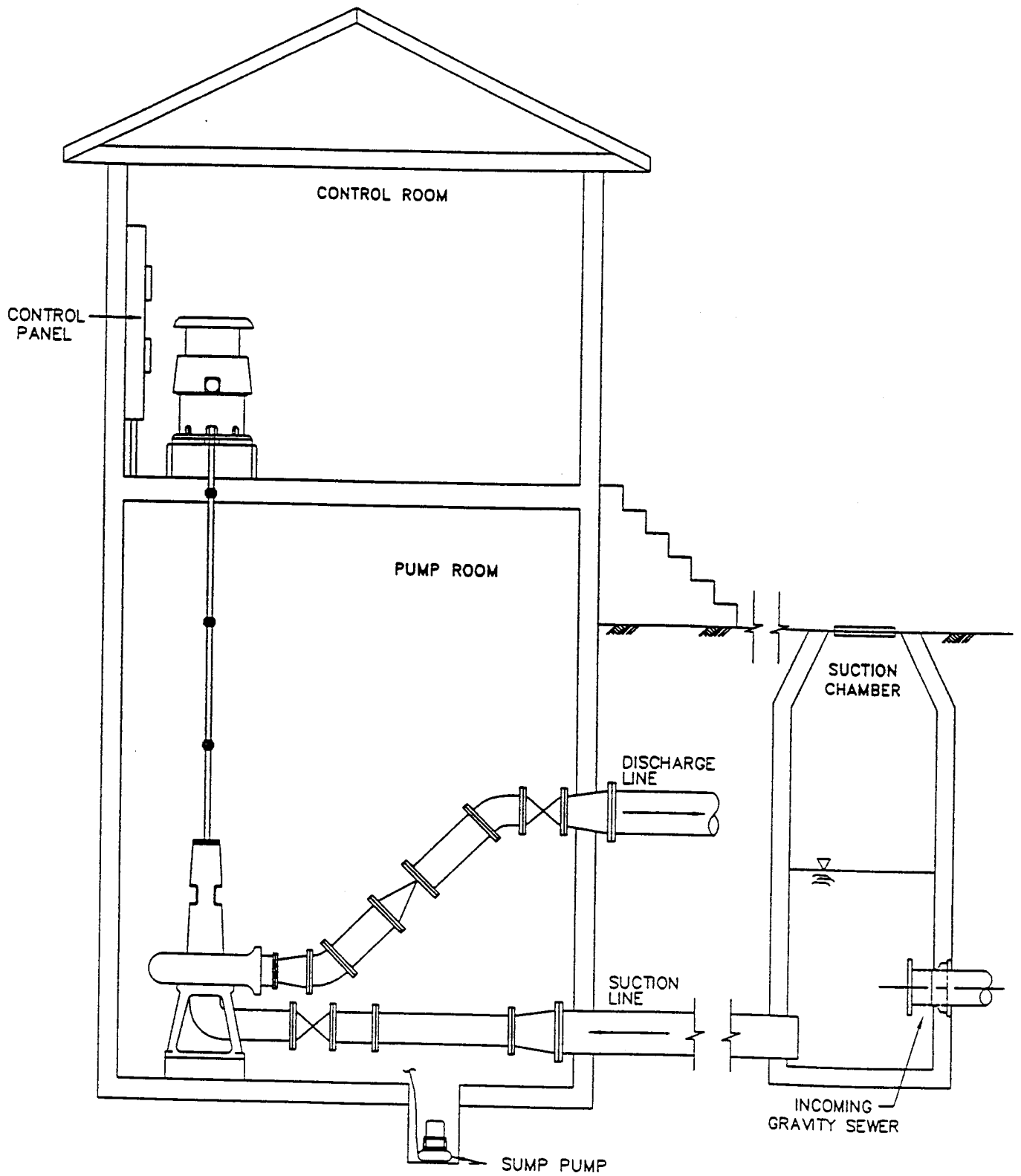


ELEVATION
(NOT TO SCALE)

FILE NO. 1
16

FIGURE (2-7)

MULTI-LEVEL FLOODED SUCTION (WITH SUCTION MANHOLE)

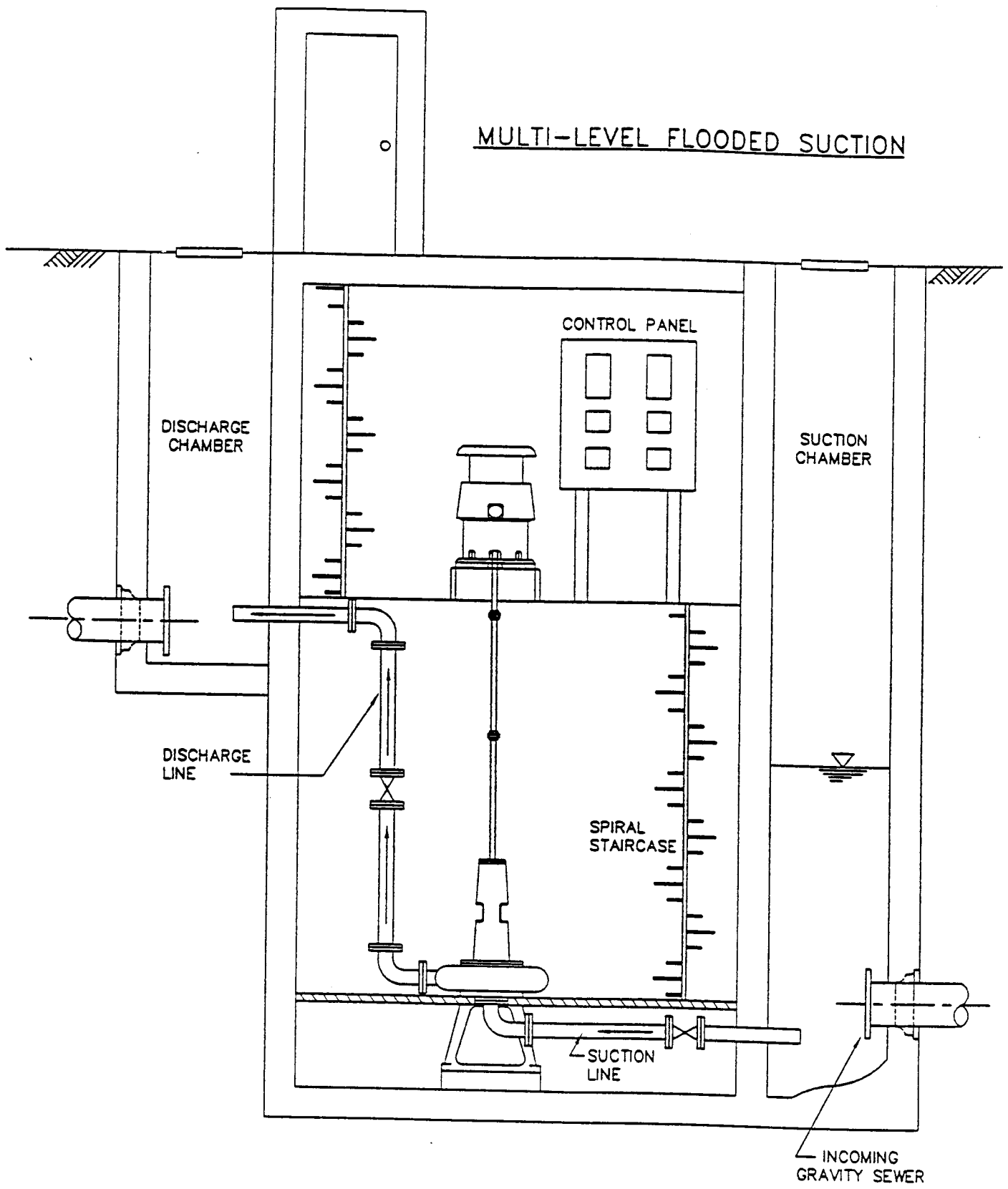


ELEVATION
(NOT TO SCALE)

FILE NO. 1-1

FIGURE (2-8)

MULTI-LEVEL FLOODED SUCTION



DISCHARGE CHAMBER

CONTROL PANEL

SUCTION CHAMBER

DISCHARGE LINE

SPIRAL STAIRCASE

SUCTION LINE

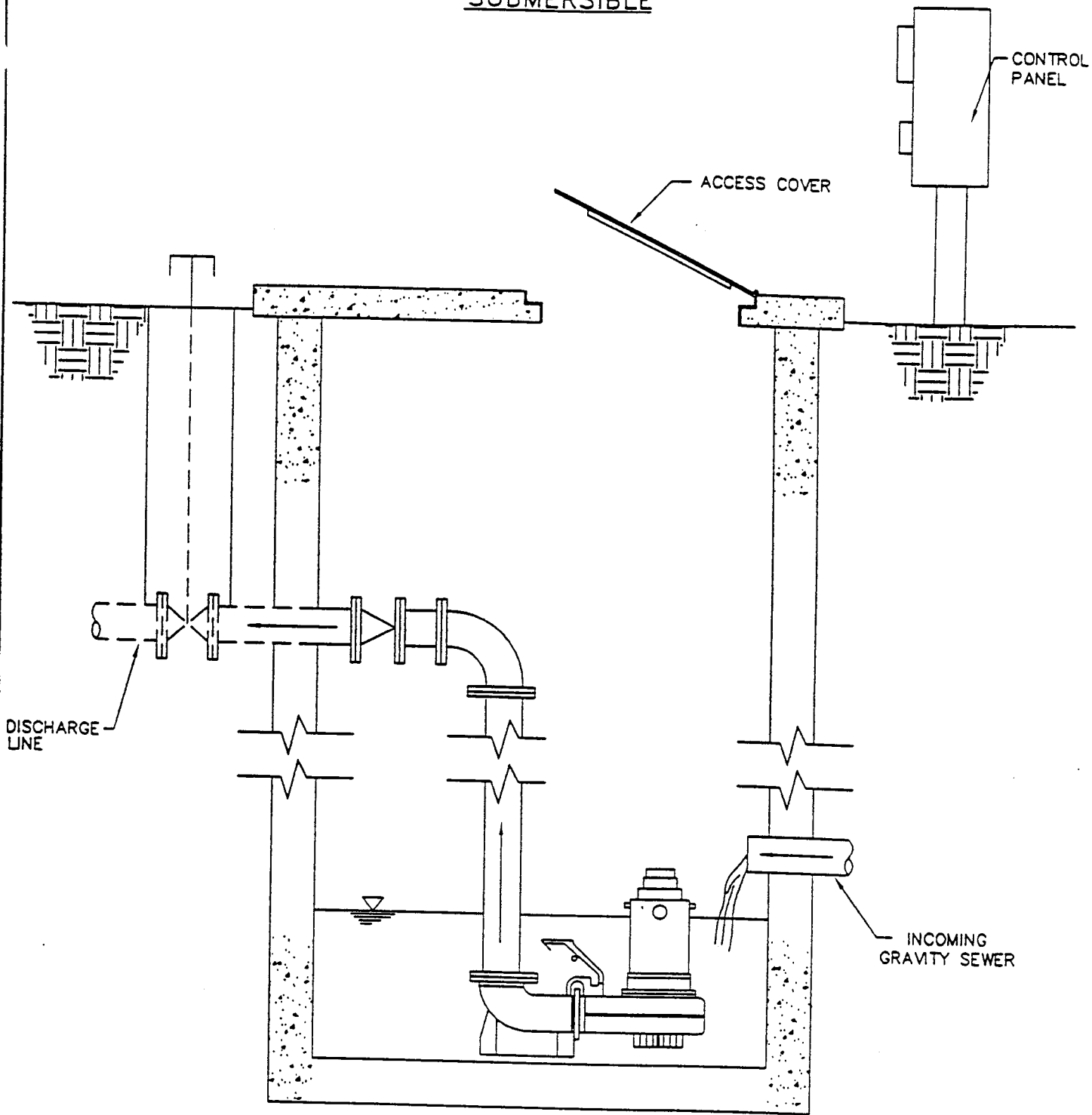
INCOMING GRAVITY SEWER

ELEVATION
(NOT TO SCALE)

FILE NO.: 1-4

FIGURE (2-9)

SUBMERSIBLE



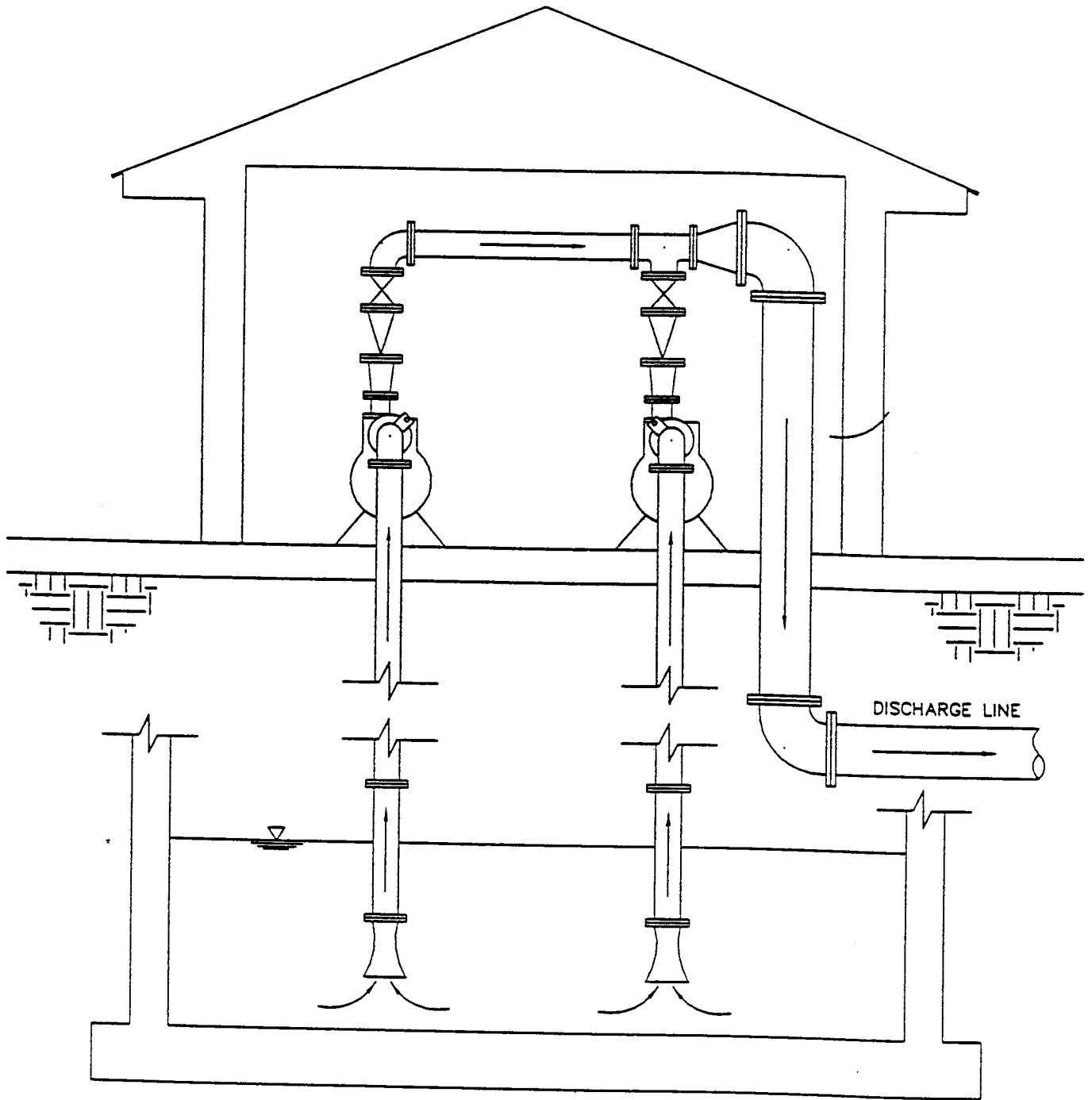
ELEVATION
(NOT TO SCALE)

FILE NO.:

AWG

FIGURE (2-10)

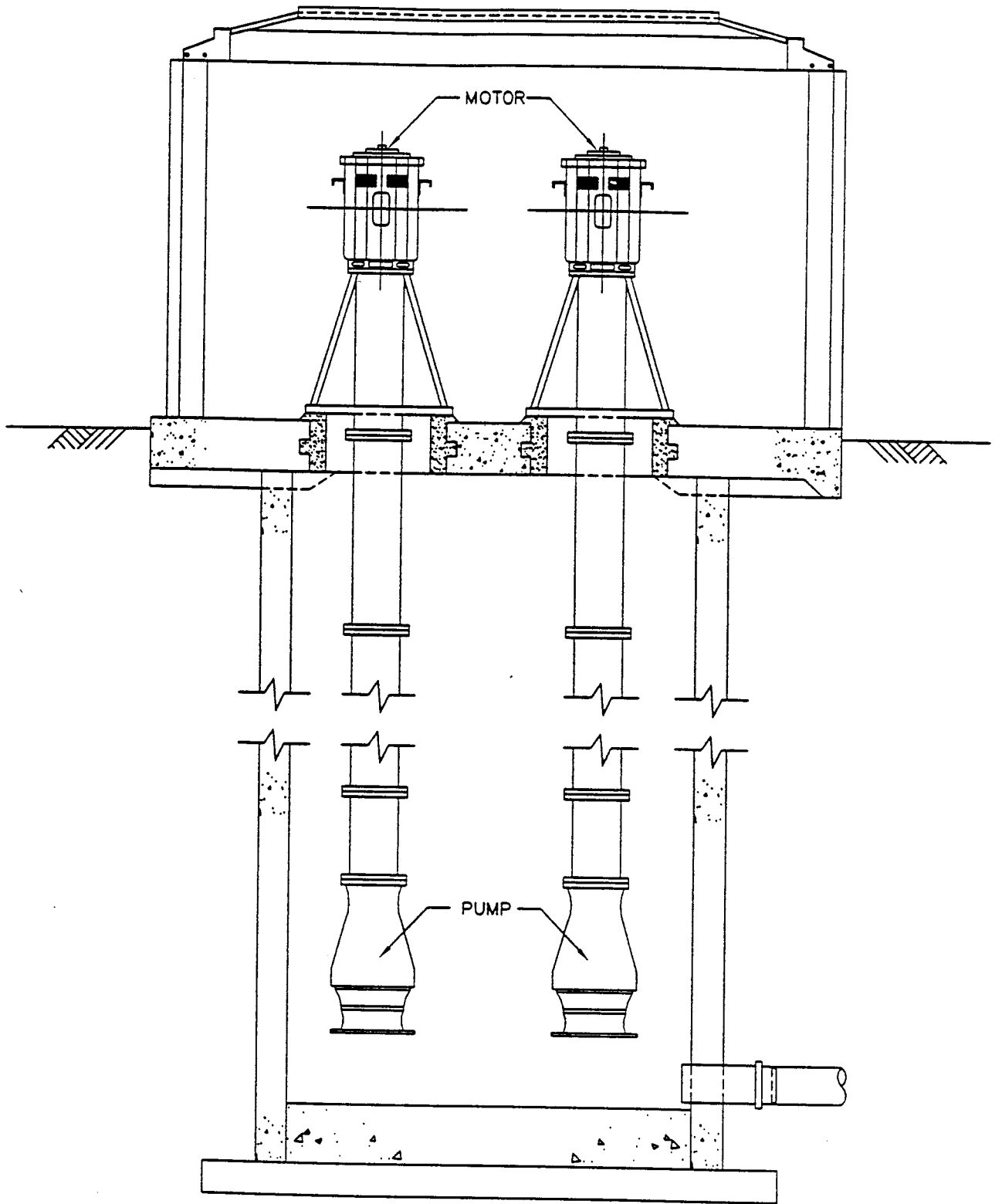
WALK-IN SUCTION LIFT



ELEVATION
(NOT TO SCALE)

FILE NO.: ... 2 mg

FIGURE (2-11)



ELEVATION
(NOT TO SCALE)

FILE NO.: 2-12

FIGURE (2-12)

PUMP STATIONS TYPES

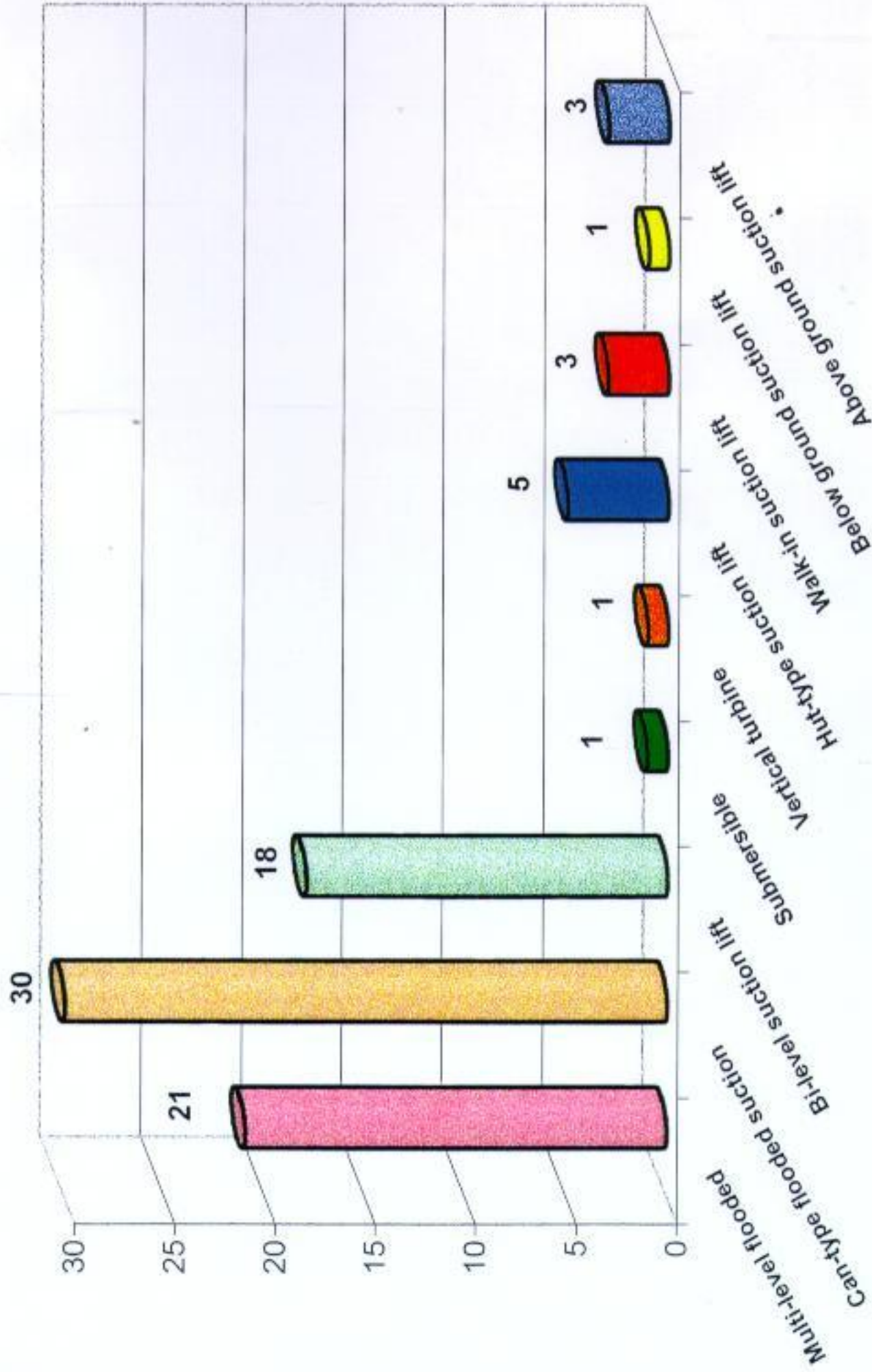


Figure (2-13)

Total pump stations = 83

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 101

General Information

PS No. 101 PS Facility 1 Address 7336 Cohn Street

- PS Type
- Regional Flooded Suction (can type) Flooded Suction (multi-level)
- Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
- Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer not available

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 14 inch Pump Discharge 14 inch FM Diameter 14 inch

Suction Valve Size 14 inch Discharge Valve Size 14 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size _____ inch

Dry Well Dimensions 16 ft. dia. Length 0 ft. Width: 0 ft. Depth 21 ft.

Pump centerline* 4 ft. Centerline of discharge pipe* 9.7 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? not applicable

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? # 1 and 2

(Figure 2-14)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 101

Pump Controls

Lead pump on 9.5 ft. Type of Controls bubbler
Lead pump off 3.5 ft.
Lag pump on 10.5 ft.
Lag pump off 4.5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior is fair except for isolated areas of peeling paint.

Interior The overall condition of the interior is fair except for isolated areas of leakage on the wall and areas of patchy chipped concrete.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Severe exposed aggregate was observed.

Diameter 6 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 20.5 ft.

Sewer Invert(s) Depth* 17.5 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 101

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device 200 amps, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 125 amps, fusible disconnect switch

Service wire size # 3/0 AWG Size of motor starter in NEMA 4

Motor wire size # 4 AWG Motor Horsepower 60

Number of motors 2 Motor Speed Single

Speed(s) in rpm 211

Frequency in Hertz 60

Type of starter Full voltage non-reversing

Model Number - Motor #1 not available Serial Number - Motor # 1 not available

Model Number - Motor #2 not available Serial Number - Motor # 2 not available

Model Number - Motor #3 - Serial Number - Motor # 3 -

Model Number - Motor #4 - Serial Number - Motor # 4 -

Comments The physical condition of the motors, motor controller, service disconnect switch and control panel are in fair condition. The pump station has fusible disconnect switch.

Chapter 3 - Findings of Data Acquisition

3.1 General

The exchange of information between the S&WB staff and MW, along with the various preliminary data, helped develop a better understanding of the dynamics of the wastewater pumping and transmitting system.

Snap shots of the system pressures were obtained for system trunk force mains by recording readings of pressure gauges installed downstream of the pumping units. The pressure gauges were mounted on the discharge side of each pump downstream of the check valve.

Sequencing of pump stations based on assumed flow direction was established to facilitate an understanding of the hydraulic conditions in the various sub-systems. Figures (3-1) and (3-2) show schematic diagrams of the wastewater pumping and forcemain system on the East Bank and Figure (3-3) shows a similar diagram for the West Bank system.

3.2 Available Drawings Numbers

The following is a listing of the pump station drawings collected from the S&WB offices:

<u>Drawing Number</u>	<u>Drawing Title</u>
<i>N-25-003-330A</i>	<i>English Turn Lift Station</i>
<i>631003 - 631007</i>	<i>Venetian Isles Oxidation Pond, Interceptors & Pumping Stations</i>
<i>11659-W-32</i>	<i>Modification & Paving to Morrison - Lawrence Pumping Station</i>
<i>9300-W-14</i>	<i>Higgins Height Pumping Station, Live Oak Park Pumping Station</i>
<i>10192-W-17</i>	<i>Proposed Pumping Station for Citrus Area</i>
<i>11676-W-32</i>	<i>Modifications & Paving to Morrison & Berg</i>
<i>11662-W-32</i>	<i>Modifications & Paving to Morrison & Burke Pumping Station</i>
<i>11712-W-32</i>	<i>Modifications & Paving to Gentilly Oaks Pumping Station</i>

<u>Drawing Number</u>	<u>Drawing Title</u>
11739-W-58	<i>Replacement of Pumping Station No. 26</i>
11738-W-32	<i>Modifications & Paving to America Street Pumping Station</i>
10720-W-17	<i>Index Sheet & Location Plan - Automatic Pumping Station for Suburban Area - Blair St. Station</i>
11445-W-38	<i>Renovations of the Blvd. "X" Pumping Station</i>
11644-W-48	<i>Modifications & Paving to Castle Manor Pumping Station</i>
11720-W-32	<i>Modifications & Paving to Cerise Pumping Station</i>
10734-H-17	<i>Index Sheet & Location Plan - Automatic Pumping Station for Suburban Area - Chickasaw/Louisa St. Station.</i>
10715-W-17	<i>Location Plan for Automatic Pumping Station for Suburban Area - Eton St. Station</i>
10784-W-17	<i>Location Plan for Automatic Pumping Station for Suburban Area - Holiday Park Station</i>
11701-W-32	<i>Modifications & Paving to Lakeland Acres Pumping Station</i>
11734-W-32	<i>Modifications & Paving to Morrison & Lamb Pumping Station</i>
10660-W-17	<i>Suction & Discharge Piping for Automatic Pumping Station - Lawrence St. Station</i>
10414-W-6	<i>Alterations to Building & Installation of Piping at SPS "A"</i>
976-A-10	<i>Plan of SPS "B" showing General Arrangement of Machinery & Piping, Contract "D"</i>
10954-W-20	<i>Sections of SPS "C"</i>
7070-W-8	<i>SPS "D" General Layout</i>
11528-H-17	<i>Modifications & Paving to Pumping Station Nos. 4, 20 & Central Yard</i>
10740-H-17	<i>Modifications & Paving Suburban Area Avenue "C" Pump Station- Pontchartrain Pioneers</i>
11007-W-6	<i>Modifications to Pumping Station No. 5</i>
11746-W-8	<i>Repair to Discharge Pit at Station No. 8</i>
11408-W-38	<i>Site Study of Pumping Station No. 5</i>
11194-W-29	<i>New Pumping Station No. 9</i>
11614-W-48	<i>Modifications & Paving Pumping Station No. 14</i>
11093-W-6	<i>Modifications of Pump Station Nos. 14 & 15</i>

<u>Drawing Number</u>	<u>Drawing Title</u>
11407-W-38	<i>Modification & Additions to Pumping Station No. 16</i>
11364-W-8	<i>Modification to Pumps at Station No. 18</i>
9723-W-15	<i>Cast Iron Pipe & Fittings for Pump Station No. 19</i>
6355-G-11	<i>Details - Sewerage Lift Station- Tall Timbers Section 12-A</i>
7510-SW	<i>English Turn Pumping Station</i>
6576-G14	<i>Forest Isles Section 16 Tall Timbers Subdivision</i>
7505-S	<i>Major Sewer Mains with Overflows & Bypasses (Metropolitan New Orleans, East Gentilly, New Orleans East & Algiers)</i>
10720-W-17	<i>Location Plan Automatic Pumping Station for Suburban Area Blair St. Station</i>
10715-W-17	<i>Location Plan Automatic Pumping Station for Suburban Area Eton St. Station</i>
10784-W-17	<i>Location Plan Automatic Pumping Station for Suburban Area Holiday Park Subdivision</i>
10660-W-17	<i>Location Plan Automatic Pumping Station for Suburban Area Lawrence Street Station</i>
6007-G-9	<i>Reinforced Concrete Sub-Surface Pumping Station</i>
6955-5	<i>New Wet Wells Pine Village & Gentilly Oaks Pumping Station</i>
7367-5	<i>City Park - Marconi Dr. Pumping Station</i>
5990-G-9	<i>Prefabricated Pumping Station for the Lakewood South Area</i>
7171-S	<i>Pumping Station & Sewer Force Mains Lake Forest & Dwyer Road</i>
6670-S2	<i>Lift Station Wright Road & Lake Forest Blvd.</i>
11406-W-15	<i>Modification & Additions to Pumping Station No. 21</i>
6440-G-11	<i>S&WB of N. O. Marseille Blvd. Lift Station No. 1</i>
7177-S	<i>Pumping Station N. O. East - Oak Island</i>
11416-W-38	<i>Alterations to Station No. 17 & 22</i>
6415-G-1	<i>6" Sewer Force Main, 8" Gravity Sewers & Pumping Station to be installed for Darby Subdivision #2</i>
6767-12	<i>(N-64-002-10) New Orleans Business Park Sewerage Lift Station</i>
6314-G-11	<i>Pumping Station & Force Main to Serve City Park Club House</i>
7423-S	<i>Eastover Pumping Station & Force Main</i>

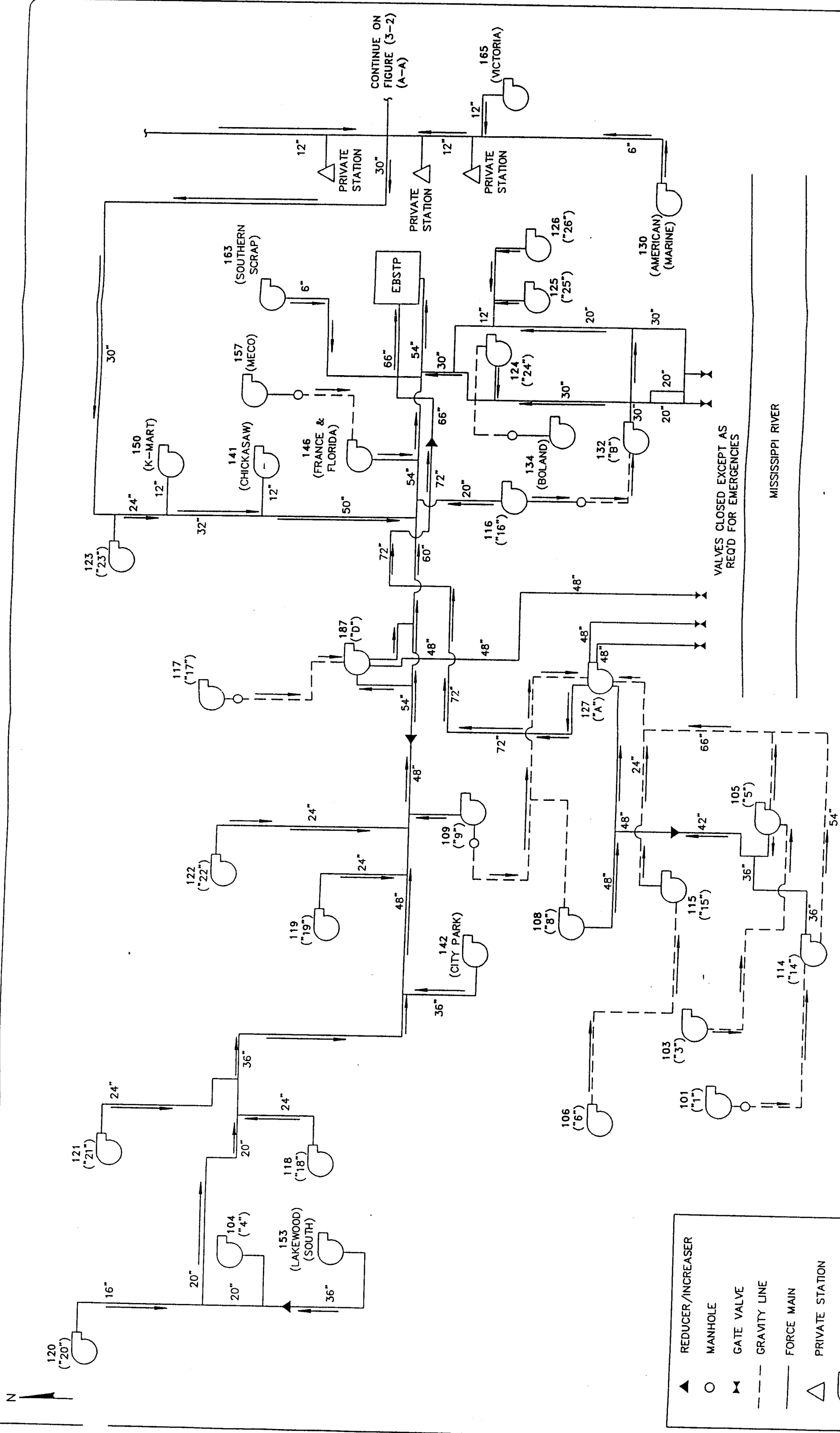
<u>Drawing Number</u>	<u>Drawing Title</u>
6593-G-14	<i>Lake Forest Pumping Station Ex 18" Force Main</i>
6251-G-11	<i>Proposed Sewerage Pumping Station Garden Oaks Subdivision</i>
6748-S2	<i>Willowbrook Drive Sewerage Lift Station</i>
6180-G-11	<i>Prefabricated Steel Pumping Station & Wet Well for Area IV East of N. O. East</i>
6595-G-14	<i>East Hampton Heights Subdivision Pumping Station</i>
5333-G-6	<i>12", 10" & 8" Vitrified Clay Pipe Sewers to be laid in Castle Manor Subdivision for Private Contractor for Account of Developer</i>
6377-G-11	<i>Proposed Crowder Road Pumping Station</i>
7115-S	<i>Pumping Station & Sewer Force Mains-N.O. East Industrial Area</i>
6642-G-14	<i>Proposed France Road Terminal Pumping Station and 12" Force Main</i>
6652-G-14	<i>Pumping Station & Force Main - Park Timber Subdivision</i>
6329-G-13	<i>Proposed Tall Timber Pumping Station</i>

3.3 Equipment Inventory, Dimensions and Elevations

The inventory of the major mechanical and electrical equipment for each pump station is summarized in the table shown in Figure (3-4). The table in Figure (3-5) lists the dimensions of the pumps station dry and wet wells. It also contains invert elevations of sewers entering the station wet wells.

3.4 Structural, Mechanical and Electrical Equipment Assessment

Specific recommendations regarding each of the 83 pump stations can be found in Appendices I and II. Figure (3-6) shows the category (mechanical, electrical or structural) of improvements recommended for each pump station.



CONTINUE ON
FIGURE (3-2)
(A-A)

VALVES CLOSED EXCEPT AS
REQD FOR EMERGENCIES

MISSISSIPPI RIVER

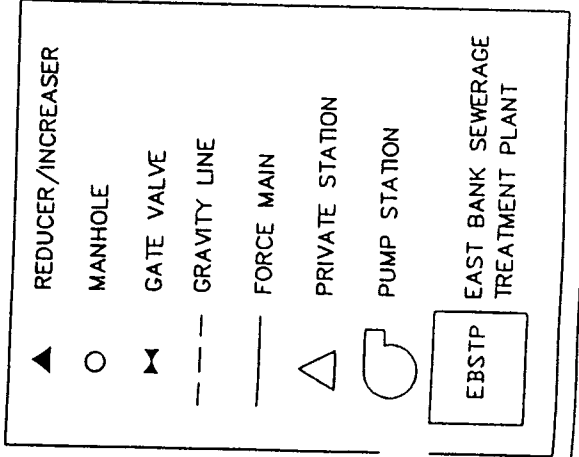


FIGURE: 3-1
DATE: 5/12/97

PUMP STATIONS AND FORCEMAINS SCHEMATIC
FOR NEW ORLEANS (EAST BANK "A")

SEWERAGE AND WATER BOARD
OF NEW ORLEANS

MONTGOMERY WATSON



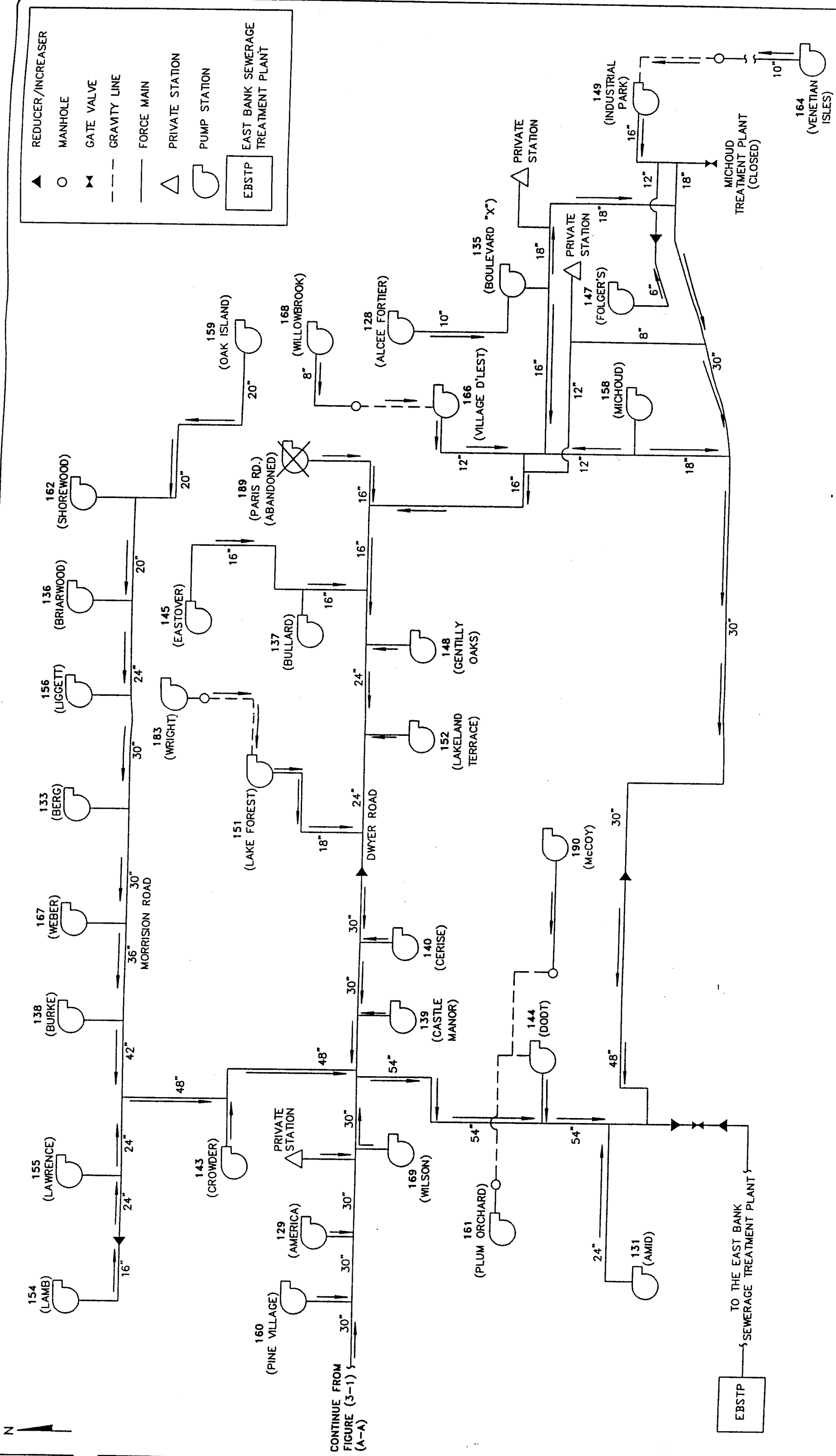




FIGURE: 3-2
DATE: 5/12/97

PUMP STATIONS AND FORCEMAINS SCHEMATIC
FOR NEW ORLEANS (EAST BANK "B")


SEWERAGE AND WATER BOARD
 OF NEW ORLEANS

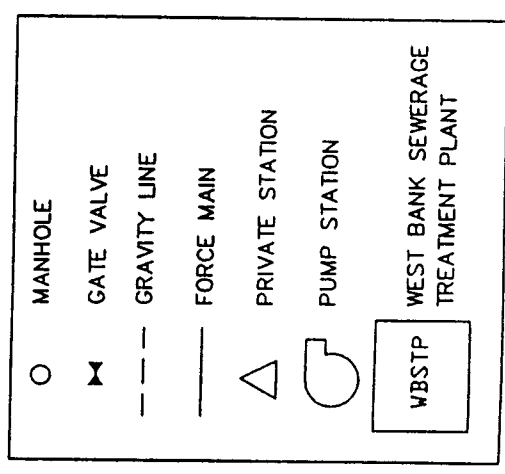
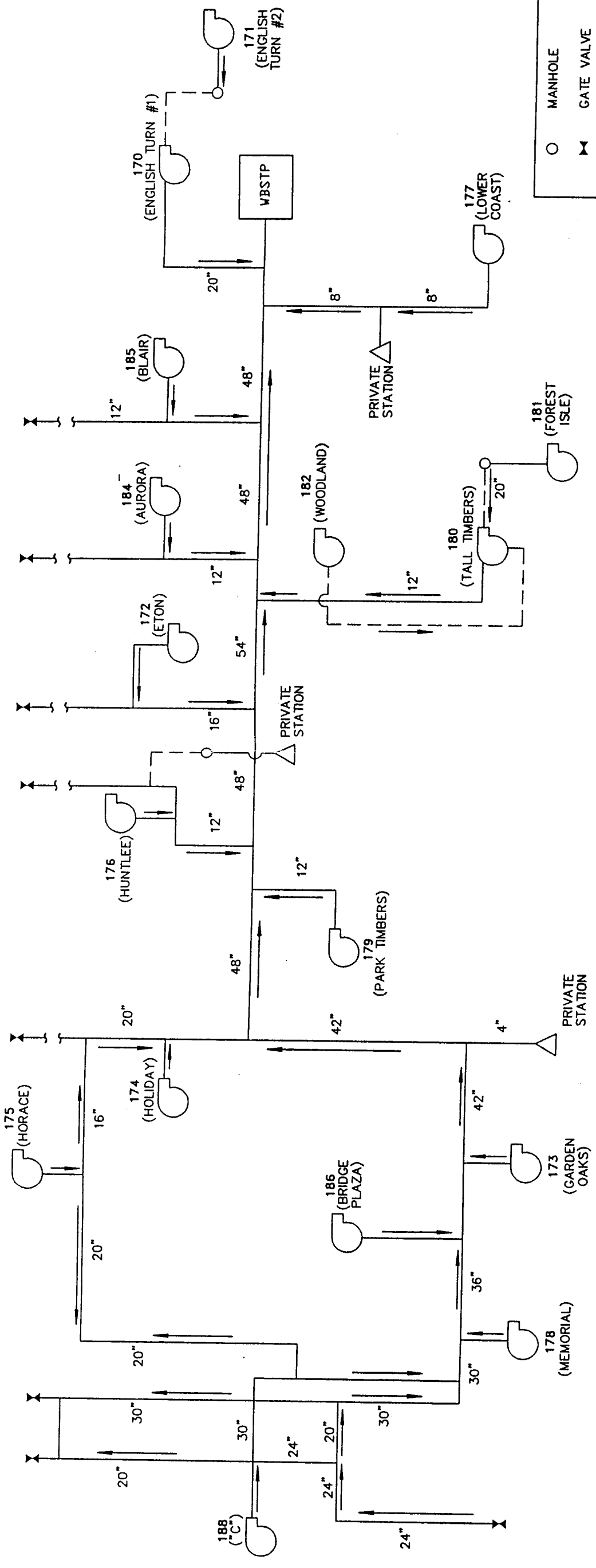

MONTGOMERY WATSON



MISSISSIPPI RIVER

MISSISSIPPI RIVER

VALVES CLOSED EXCEPT AS
REQ'D FOR EMERGENCIES



 SEWERAGE AND WATER BOARD OF NEW ORLEANS	 MONTGOMERY WATSON	FIGURE: 3-3
		DATE: 5/12/97

PUMP STATIONS AND FORCE MAINS SCHEMATIC
FOR NEW ORLEANS (WEST BANK)

Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation
Summary of Pumps & Motors

Pump Station No.	Pump Station Name	Pumps						Motors		
		No.	Type	Manufacturer	Size (in x in)	Measured Speed (rpm)	HP	Speed		
101	1	2	vertical	Not Available	14 x 14	209	60	single		
103	3	2	horizontal	Not Available	14 x 14	209	60	single		
104	4	2	horizontal	Fairbanks Morse	8 x 8	983	75	single		
105	5	2	vertical	Fairbanks Morse	20 x 20	465, 500, 690, 705	250	multi		
106	6	2	vertical	Not Available	14 x 14	209	60	single		
108	8	2	vertical	Not Available	14 x 14	209	60	single		
109	9	2	vertical	Not Available	20 x 14	260, 300, 330, 350	50	multi		
114	14	5	vertical	Not Available	14 x 14	208 sgl., 460, 550, 630, 705	3/60, 2/150	3/sgl., 2/mlt.		
115	15	4	vertical	Not Available	14 x 14	360, 550, 620, 705	100	multi		
116	16	2	vertical	Not Available	20 x 14	175, 210, 250, 275	100	multi		
117	17	2	vertical	Not Available	20 x 14	P #1-130, 145, 190, 205	100	multi		
118	18	2	vertical	Not Available	20 x 14	P #2-165, 210, 250, 280	150	multi		
119	19	2	vertical	Not Available	20 x 14	315, 340, 360, 390	100	multi		
120	20	2	horizontal	Not Available	8 x 8	345, 380, 422, 480	75	single		
121	21	2	vertical	Not Available	18 x 14	1000	100	multi		
122	22	2	vertical	Not Available	20 x 14	400, 430, 470, 497	100	multi		
123	23	2	vertical	Not Available	20 x 14	290, 350, 445, 497	100	multi		
124	24	2	horizontal	Fairbanks Morse	8 x 8	360, 415, 500, 585	200	multi		
125	25	2	horizontal	Fairbanks Morse	8 x 8	973	75	single		
126	26	2	horizontal	Gorman Rupp	8 x 8	975	75	single		
127	SPS A	6	4/horz., 2/vert.	Not Available	36 x 36	Not Available	75	single		
128	Alcee Fortier	2	horizontal	Not Available	215, 228, 240, 248, 255, 261, 268, 275, 282, 290	2/2300, 2/1250	30	single		
129	America	2	horizontal	Fairbanks Morse	8 x 8	Not Available	60	single		

Figure (3-5)

**Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation
Summary of Pumps & Motors**

Pump Station No.	Pump Station Name	Pumps						Motors	
		No.	Type	Manufacturer	Size (in x in)	Measured Speed (rpm)	HP	Speed	
130	American Marine	2	vertical	Fairbanks Morse	8 x 6	1189	40	single	
131	Amid	2	vertical	Fairbanks Morse	10 x 8	800, 1180	100	multi	
132	SPS B	2	vertical	Not Available	20 x 14	278, 290, 310, 345	275	multi	
133	Berg	2	vertical	Fairbanks Morse	8 x 8	Not Available	100	single	
134	Boland	2	vertical	Fairbanks Morse	8 x 6	710	10	single	
135	Boulevard "X"	2	vertical	Fairbanks Morse	16 x 16	1186	60	single	
136	Brianwood	2	vertical	Fairbanks Morse	10 x 8	1189	75	single	
137	Bullard	2	vertical	Fairbanks Morse	8 x 6	1188	75	single	
138	Burke	2	vertical	Fairbanks Morse	8 x 8	890	60	single	
139	Castle Manor	2	horizontal	Fairbanks Morse	6 x 6	1040	60	single	
140	Cerise	2	horizontal	Fairbanks Morse	6 x 6	1050	60	single	
141	Chickasaw	2	horizontal	Fairbanks Morse	6 x 6	1020	75	single	
142	City Park	2	horizontal	Gorman Rupp	6 x 6	1195	15	single	
143	Crowder	2	vertical	Fairbanks Morse	8 x 6	1188	40	single	
144	Dotd	2	vertical	Yeoman Bros.	8 x 8	885	50	single	
145	Eastover	2	vertical	Fairbanks Morse	10 x 8	1195	125	single	
146	France and Florida	2	vertical	Fairbanks Morse	8 x 6	885	25	single	
147	Folger's	2	vertical	Smith & Loveless	6 x 6	1177	20	single	
148	Gentilly Oaks	2	horizontal	Nash	6 x 6	1035	60	single	
149	Industrial Park	2	vertical	Fairbanks Morse	10 x 8	1188	60	single	
150	K-Mart	2	vertical	Fairbanks Morse	6 x 6	1195	100	single	
151	Lake Forest	2	vertical	Fairbanks Morse	8 x 8	Not Available	75	single	
152	Lakeland Terrace	2	horizontal	Not Available	6 x 6	1064	125	single	
153	Lakewood South	2	vertical	Yeoman Bros.	8 x 6	1188	40	single	
154	Lamb	3	vertical	Fairbanks Morse	10 x 8	Not Available	100	single	

Figure (3-5)

Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation
Summary of Pumps & Motors

Pump Station No.	Pump Station Name	Pumps						Motors	
		No.	Type	Manufacturer	Size (in x in)	Measured Speed (rpm)	HP	Speed	
155	Lawrence	2	vertical	Fairbanks Morse	8 x 8	1188	100	single	
156	Liggett	2	vertical	Fairbanks Morse	10 x 6	895, 1190	40	multi	
157	Meco	2	vertical	Fairbanks Morse	8 x 6	891	20	single	
158	Michoud	2	vertical	Not Available	8 x 8	891	60	single	
159	Oak Island	2	vertical	Fairbanks Morse	8 x 8	Not Available	125	single	
160	Pine Village	2	Not Available	Not Available	Not Available	Not Available	60	single	
161	Plum Orchard	2	vertical	Yeoman Bros.	8 x 5	595	5	single	
162	Shorewood	2	vertical	Fairbanks Morse	8 x 8	893	30	single	
163	Southern Scrap	2	vertical	Fairbanks Morse	8 x 6	1185	25	single	
164	Venetian Isles	2	vertical	Fairbanks Morse	4 x 4	1782	20	single	
165	Victoria	2	vertical	Fairbanks Morse	6 x 6	Not Available	40	single	
166	Village D'Leat	2	vertical	Not Available	8 x 8	1185	100	single	
167	Weber	2	vertical	Fairbanks Morse	8 x 8	1188	100	single	
168	Willowbrook	2	horizontal	Gorman Rupp	6 x 6	Not Available	20	single	
169	Wilson	2	horizontal	Fairbanks Morse	8 x 8	1035	60	single	
170	English Turn #1	2	vertical	Fairbanks Morse	10 x 8	892	40	single	
171	English Turn #2	2	horizontal	Gorman Rupp	4 x 4	1132	40	single	
172	Eton	2	horizontal	Fairbanks Morse	8 x 8	869	40	single	
173	Garden Oaks	2	vertical	Fairbanks Morse	6 x 6	1187	50	single	
174	Holiday	2	horizontal	Fairbanks Morse	8 x 8	968	50	single	
175	Horace	2	horizontal	Fairbanks Morse	8 x 8	1100	75	single	
176	Huntlee	2	horizontal	Fairbanks Morse	6 x 6	1100	60	single	
177	Lower Coast	2	horizontal	Gorman Rupp	6 x 6	Not Available	10	single	
178	Memorial	2	vertical	Yeoman Bros.	8 x 8	1190	100	single	
179	Park Timbers	2	vertical	Fairbanks Morse	8 x 6	892	25	single	

Figure (3-5)

Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation
Summary of Pumps & Motors

Pump Station No.	Pump Station Name	Pumps							Motors		
		No.	Type	Manufacturer	Size (in x in)	Measured Speed (rpm)	HP	Speed			
180	Tall Timbers	2	vertical	Yeoman Bros.	8 x 6	1181	40	single			
181	Forest Isles	2	horizontal	Gorman Rupp	6 x 6	Not Available	20	single			
182	Woodland	2	horizontal	Gorman Rupp	6 x 6	Not Available	10	single			
183	Wright	2	horizontal	Gorman Rupp	6 x 6	Not Available	15	single			
184	Aurora	2	horizontal	Fairbanks Morse	6 x 6	1093	60	single			
185	Blair	2	horizontal	Fairbanks Morse	8 x 8	980	60	single			
186	Bridge Plaza	2	vertical	Yeoman Bros.	8 x 8	1189	100	single			
187	SPS D	3	2/horz., 1/vert.	Not Available	36 x 36	160, 170, 180, 190, 210, 224, 237	2/2500, 1/275	1/sgl., 2/mit.			
188	SPS C	3	horizontal	Fairbanks Morse	10 x 10	650, 750, 900	125	multi			
190	McCoy	2	submersible	Not Available	Not Available	Not Available	5	single			

Figure (3-5)

Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation
Recommended Improvements

Pump Station No.	Pump Station Name	Recommended Improvements				Comments
		Mech.	Struct.	Elec.	Other	
101	1		X			Wet well rehabilitation.
103	3		X			Wet well rehabilitation.
104	4	X	X			Pump seal. Wet well rehabilitation.
105	5	X				Valve and piping.
106	6		X			Wet well rehabilitation.
108	8		X	X		Wet well rehabilitation. Motor controller and control panel.
109	9			X		Motor controller. Review pump control.
114	14	X	X		X	Replace pump #4 and #5. Repair check valve #5. Valves and piping. Wet well rehabilitation.
115	15	X				Investigate pump #3 and #4 for cavitation. Valves and piping.
116	16	X				Investigate pump #2 shaft alignment.
117	17	X				Investigate pump #2 impeller.
118	18				X	Analyze hydraulics for possible upgrade.
119	19	X	X		X	Repair pump #2 discharge gate valve and check valve. Wet well rehabilitation. Review pump controls.
120	20	X				Repair pump #1 check valve.
121	21	X	X		X	Repair pump #2 check valve. Investigate pump #1 shaft alignment. Wet well rehabilitation. Review pump control.
122	22					
123	23	X				Valves and piping.
124	24		X	X		Wet well rehabilitation. Motor controller.
125	25	X	X	X		Investigate pumps. Wet well rehabilitation. Exterior electrical conduit.
126	26		X			Wet well rehabilitation.
127	SPSA			X		Corroded electro-mechanical speed controller. Analyze hydraulics.
128	Alcee Fortier		X			Wet well rehabilitation.
129	America		X			Wet well rehabilitation.
130	American Marine	X	X	X	X	Valves and piping. Steel dry well structure. Service disconnect switch. Analyze hydraulics.
131	Amid			X		Electrical service wire undersized.
132	SPSB	X		X	X	Replace pumps. Valves and piping. Electrical components. Review pump control.
133	Berg	X				Repair pump #2 suction gate valve and check valve.
134	Boland			X		Service disconnect switch.
135	Boulevard "X"					
136	Brianwood	X		X		Repair pump #2 suction gate valve and check valve. Service disconnect switch.
137	Bullard		X	X		Wet well rehabilitation. Service disconnect switch. Motor protective device and wire undersized.
138	Burke					

Figure (3-6)

Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation
Recommended Improvements

Pump Station No.	Pump Station Name	Recommended Improvements				Comments
		Mech.	Struct.	Elec.	Other	
139	Castile Manor	x	x	x		Leaking pump seal. Wet well rehabilitation. Electrical components.
140	Cerise		x			Wet well rehabilitation.
141	Chickasaw	x	x			Repair pump #1 check valve. Wet well rehabilitation.
142	City Park	x				Investigate pump #2.
143	Crowder		x	x		Groundwater seepage. Wet well rehabilitation. Motor protective device undersized.
144	Dodi	x		x		Valves and piping. Service disconnect switch.
145	Eastover					
146	France and Florida	x	x			Valves and piping. Steel dry well structure. Infiltration into wet well.
147	Folger's	x	x	x		Valves and piping. Steel dry well structure. Wet well rehabilitation. Motor controller.
148	Gentilly Oaks	x	x			Investigate pump #1. Wet well rehabilitation.
149	Industrial Park			x		Service disconnect switch.
150	K-Marl			x		Electrical components.
151	Lake Forest			x		Electrical components. Motor wire undersized.
152	Lakeland Terrace		x			Wet well rehabilitation.
153	Lakewood South			x		Motor protective device undersized.
154	Lamb	x	x			Valves and piping. Corroded steel dry well structure. Wet well rehabilitation.
155	Lawrence	x		x		Repair pump #1 and #2 suction gate valves and check valves. Service disconnect switch.
156	Liggett		x	x		Wet well rehabilitation. Groundwater seepage. Electrical components. Motor protective device oversized.
157	Meco	x	x	x	x	Valves, piping & steel dry well. Wet well rehabilitation. Motor #1 & #2. Analyze hydraulics.
158	Michoud	x	x	x		Valves, piping & steel dry well. Infiltration into wet well. Electrical components.
159	Oak Island					
160	Pine Village					
161	Plum Orchard			x		Service disconnect switch.
162	Shorewood		x			Wet well rehabilitation. Groundwater seepage.
163	Southern Scrap	x	x	x	x	Replace all valves for pump #2. Valves, piping & steel dry well. Service disconnect switch. Extend water service.
164	Venellian Isles	x	x	x		Valves, piping & steel dry well. Infiltration into wet well. Electrical components.
165	Victoria			x		Service disconnect switch. Motor protective device undersized.
166	Village D'Leat	x	x	x		Valves, piping & steel dry well. Infiltration into wet well. Electrical components.
167	Weber	x	x	x		Repair pump #1 suction gate and check valves.
168	Willowbrook	x	x	x		Investigate pump #2. Wet well rehabilitation. Electrical components.
169	Wilson		x	x		Wet well rehabilitation. Electrical components.

Figure (3-6)

Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation
Recommended Improvements

Pump Station No.	Pump Station Name	Recommended Improvements				Comments
		Mech.	Struct.	Elec.	Other	
170	English Turn #1					
171	English Turn #2	x				Investigate pump #2.
172	Elon	x				Repair both discharge gate valves.
173	Garden Oaks	x		x		Valves and piping. Service disconnect switch.
174	Holiday		x			Wet well rehabilitation.
175	Horace		x			Wet well rehabilitation.
176	Huntlee	x	x			Repair pump #2 check valve. Wet well rehabilitation.
177	Lower Coast			x	x	Electrical components. Consider dismantling station.
178	Memorial	x		x		Pumps valves and piping. Electrical components.
179	Park Timbers					
180	Tall Timbers			x		Electrical components.
181	Forest Isles	x	x	x		Investigate pump #1. Wet well rehabilitation. Electrical components.
182	Woodland	x		x		Investigate pump #2. Electrical components.
183	Wright		x	x		Wet well rehabilitation. Electrical components.
184	Aurora		x			Groundwater seepage.
185	Blair	x		x		Leaking pump seal. Electrical components.
186	Bridge Plaza	x		x		Pumps, valves and piping. Service disconnect switch.
187	SPSD			x		Electro-mechanical speed controller.
188	SPSC			x		Electro-mechanical speed controller.
190	McCoy		x	x	x	Remount control panel. Electrical components. Analyze hydraulics.

Figure (3-6)

3.6 Pump Tests, Capacity Analysis and System Schematic

Two different pump tests were applied to all the pumps in each station. The draw-down fill test was used to measure the operating capacity of (36) pump stations. The configuration of (42) pump stations dictated the use of the ultrasonic doppler flow meter to conduct the pump test. The table in figure (3-7) indicates the testing method used in determining the current operating capacity of each pump station; it also lists the operating point (flow-head) obtained during the test. The table also shows whether the pump station discharges to a downstream gravity sewer system or to a manifolded force main system. Figure (3-8) presents the number of pump stations in each of the two “discharge type” categories.

Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation
Recommended Improvements

Pump Station No.	Pump Station Name	Recommended Improvements				Comments
		Mech.	Struct.	Elec.	Other	
101	1		X			Wet well rehabilitation.
103	3		X			Wet well rehabilitation.
104	4	X	X			Pump seal. Wet well rehabilitation.
105	5	X				Valve and piping.
106	6		X			Wet well rehabilitation.
108	8		X	X		Wet well rehabilitation. Motor controller and control panel.
109	9			X	X	Motor controller. Review pump control.
114	14	X	X			Replace pump #4 and #5. Repair check valve #5. Valves and piping. Wet well rehabilitation.
115	15	X				Investigate pump #3 and #4 for cavitation. Valves and piping.
116	16	X				Investigate pump #2 shaft alignment.
117	17	X				Investigate pump #2 impeller.
118	18				X	Analyze hydraulics for possible upgrade.
119	19	X	X			Repair pump #2 discharge gate valve and check valve. Wet well rehabilitation. Review pump controls.
120	20	X			X	Repair pump #1 check valve.
121	21	X	X		X	Repair pump #2 check valve. Investigate pump #1 shaft alignment. Wet well rehabilitation. Review pump control.
122	22					The station appears to be in fair condition.
123	23	X				Valves and piping.
124	24		X	X		Wet well rehabilitation. Motor controller.
125	25	X	X	X		Investigate pumps. Wet well rehabilitation. Exterior electrical conduit.
126	26		X			Wet well rehabilitation.
127	SPS A			X		Corroded electro-mechanical speed controller. Analyze hydraulics.
128	Alcee Fortier		X			Wet well rehabilitation.
129	America		X			Wet well rehabilitation.

Figure (3-6)

Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation
Recommended Improvements

Pump Station No.	Pump Station Name	Recommended Improvements				Comments
		Mech.	Struct.	Elec.	Other	
130	American Marine	x	x	x	x	Valves and piping. Steel dry well structure. Service disconnect switch. Analyze hydraulics.
131	Amid			x		Electrical service wire undersized.
132	SPS B	x		x	x	Replace pumps. Valves and piping. Electrical components. Review pump control.
133	Berg	x				Repair pump #2 suction gate valve and check valve.
134	Boland			x		Service disconnect switch.
135	Boulevard "X"					The station appears to be in fair condition.
136	Briarwood	x		x		Repair pump #2 suction gate valve and check valve. Service disconnect switch.
137	Bullard		x	x		Wet well rehabilitation. Service disconnect switch. Motor protective device and wire undersized.
138	Burke					The station appears to be in fair condition.
139	Castle Manor	x	x	x		Leaking pump seal. Wet well rehabilitation. Electrical components.
140	Cerise		x			Wet well rehabilitation.
141	Chickasaw	x	x			Repair pump #1 check valve. Wet well rehabilitation.
142	City Park	x				Investigate pump #2.
143	Crowder		x	x		Groundwater seepage. Wet well rehabilitation. Motor protective device undersized.
144	Dodt	x		x		Valves and piping. Service disconnect switch.
145	Eastover					The station appears to be in fair condition.
146	France and Florida	x	x			Valves and piping. Steel dry well structure. Infiltration into wet well.
147	Folger's	x	x	x		Valves and piping. Steel dry well structure. Wet well rehabilitation. Motor controller.
148	Gentilly Oaks	x	x			Investigate pump #1. Wet well rehabilitation.
149	Industrial Park			x		Service disconnect switch.
150	K-Mart			x		Electrical components.
151	Lake Forest			x		Electrical components. Motor wire undersized.
152	Lakeland Terrace		x			Wet well rehabilitation.
153	Lakewood South			x		Motor protective device undersized.

Figure (3-6)

Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation
Recommended Improvements

Pump Station No.	Pump Station Name	Recommended Improvements					Comments
		Mech.	Struct.	Elec.	Other		
154	Lamb	X	X				Valves and piping. Corroded steel dry well structure. Wet well rehabilitation.
155	Lawrence	X		X			Repair pump #1 and #2 suction gate valves and check valves. Service disconnect switch.
156	Liggett		X	X			Wet well rehabilitation. Groundwater seepage. Electrical components. Motor protective device oversized.
157	Meco	X	X	X	X		Valves, piping & steel dry well. Wet well rehabilitation. Motor #1 & #2. Analyze hydraulics.
158	Michoud	X	X	X			Valves, piping & steel dry well. Infiltration into wet well. Electrical components.
159	Oak Island						The station appears to be in fair condition.
160	Pine Village						The station is currently being replaced.
161	Plum Orchard				X		Service disconnect switch.
162	Shorewood		X				Wet well rehabilitation. Groundwater seepage.
163	Southern Scrap	X	X	X	X		Replace all valves for pump #2. Valves, piping & steel dry well. Service disconnect switch. Extend water service.
164	Venetian Isles	X	X	X			Valves, piping & steel dry well. Infiltration into wet well. Electrical components.
165	Victoria			X			Service disconnect switch. Motor protective device undersized.
166	Village D'Lest	X	X	X			Valves, piping & steel dry well. Infiltration into wet well. Electrical components.
167	Weber	X		X			Repair pump #1 suction gate and check valves.
168	Willowbrook	X	X	X			Investigate pump #2. Wet well rehabilitation. Electrical components.
169	Wilson		X	X			Wet well rehabilitation. Electrical components.
170	English Turn #1						The station appears to be in fair condition.
171	English Turn #2	X					Investigate pump #2.
172	Eton	X					Repair both discharge gate valves.
173	Garden Oaks	X		X			Valves and piping. Service disconnect switch.
174	Holiday		X				Wet well rehabilitation.
175	Horace		X				Wet well rehabilitation.

Figure (3-6)

Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation
Recommended Improvements

Pump Station No.	Pump Station Name	Recommended Improvements				Comments
		Mech.	Struct.	Elec.	Other	
176	Huntlee	x	x			Repair pump #2 check valve. Wet well rehabilitation.
177	Lower Coast			x	x	Electrical components. Consider dismantling station.
178	Memorial	x		x		Pumps valves and piping. Electrical components.
179	Park Timbers					The station appears to be in fair condition.
180	Tall Timbers			x		Electrical components.
181	Forest Isles	x	x	x		Investigate pump #1. Wet well rehabilitation. Electrical components.
182	Woodland	x		x		Investigate pump #2. Electrical components.
183	Wright		x	x		Wet well rehabilitation. Electrical components.
184	Aurora		x			Groundwater seepage.
185	Blair	x		x		Leaking pump seal. Electrical components.
186	Bridge Plaza	x		x		Pumps, valves and piping. Service disconnect switch.
187	SPS D			x		Electro-mechanical speed controller.
188	SPS C			x		Electro-mechanical speed controller.
190	McCoy		x	x	x	Remount control panel. Electrical components. Analyze hydraulics.

Figure (3-6)

Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation
Summary of Findings

Pump Station No.	Pump Station Name	Location	Discharge To	No. of Pumps	Test Method	Operating Point		Shut Off Head
						G.P.M.	Feet	
101	1	East Bank	force main	2	doppler flow meter	6800	3.5	22
103	3	East Bank	force main	2	doppler flow meter	6000	11	24
104	4	East Bank	force main	2	doppler flow meter	3000	50	70
105	5	East Bank	force main	2	doppler flow meter	**	**	**
106	6	East Bank	force main	2	doppler flow meter	5500	10	24
108	8	East Bank	force main	2	doppler flow meter	4500	7	23
109	9	East Bank	force main	2	doppler flow meter	**	**	**
114	14	East Bank	force main	5	doppler flow meter	**	**	**
115	15	East Bank	force main	4	doppler flow meter	**	**	**
116	16	East Bank	force main	2	doppler flow meter	**	**	**
117	17	East Bank	force main	2	doppler flow meter	**	**	**
118	18	East Bank	force main	2	doppler flow meter	**	**	**
119	19	East Bank	force main	2	doppler flow meter	**	**	**
120	20	East Bank	force main	2	doppler flow meter	1600	**	85
121	21	East Bank	force main	2	doppler flow meter	**	**	**
122	22	East Bank	force main	2	doppler flow meter	**	**	**
123	23	East Bank	force main	2	doppler flow meter	**	**	**
124	24	East Bank	force main	2	doppler flow meter	4100	35	80
125	25	East Bank	force main	2	doppler flow meter	2800	38	70
126	26	East Bank	force main	2	doppler flow meter	1700	60	105
127	SPSA	East Bank	force main	6	doppler flow meter	**	**	**
128	Alcee Fortier	East Bank	force main	2	doppler flow meter	**	**	**
129	America	East Bank	force main	2	doppler flow meter	3650	45	87
130	American Marine	East Bank	force main	2	draw down/fill	500	110	119
131	Amid	East Bank	force main	2	draw down/fill	2500	49	94
132	SPSB	East Bank	force main	2	doppler flow meter	**	**	**
133	Berg	East Bank	force main	2	draw down/fill	3000	38	102
134	Boland	East Bank	force main	2	draw down/fill	400	33	38
135	Boulevard "X"	East Bank	force main	2	doppler flow meter	3800	49	67
136	Brianwood	East Bank	force main	2	draw down/fill	2200	53	93

*This is a reflection of the operating rate at the time the test was performed.
 ** Refer to Appendices for multiple speed pump information.

Figure (3-7)

Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation
Summary of Findings

Pump Station No.	Pump Station Name	Location	Discharge To	No. of Pumps	Test Method	Operating Point		Shut Off Head
						G.P.M.	Feet	
137	Bullard	East Bank	force main	2	draw down/fill	2000	66	116
138	Burke	East Bank	force main	2	draw down/fill	2650	48	81
139	Castle Manor	East Bank	force main	2	doppler flow meter	2700	50	110
140	Cerise	East Bank	force main	2	doppler flow meter	2700	50	110
141	Chickasaw	East Bank	force main	2	doppler flow meter	2700	50	110
142	City Park	East Bank	force main	2	draw down/fill	1/375,2/40	1/56,2/55	1/69,2/55
143	Crowder	East Bank	force main	2	draw down/fill	1600	32	86
144	Dodt	East Bank	force main	2	doppler flow meter	3700	28	85
145	Eastover	East Bank	force main	2	draw down/fill	2500	68	114
146	France and Florida	East Bank	force main	2	draw down/fill	1700	24	64
147	Folger's	East Bank	force main	2	doppler flow meter	1000	32	70
148	Gentilly Oaks	East Bank	force main	2	draw down/fill	1700	62	101
149	Industrial Park	East Bank	force main	2	draw down/fill	2200	58	101
150	K-Mart	East Bank	force main	2	draw down/fill	2350	46	122
151	Lake Forest	East Bank	force main	2				
152	Lakeland Terrace	East Bank	force main	2	doppler flow meter	2700	52	110
153	Lakewood South	East Bank	force main	2	draw down/fill	1350	42	90
154	Lamb	East Bank	force main	3	draw down/fill	2750	40	104
155	Lawrence	East Bank	force main	2	draw down/fill	4100	76	153
156	Liggitt	East Bank	force main	2	draw down/fill	900, 1600	30, 34	58, 104
157	Meco	East Bank	force main	2	draw down/fill	260	66	69
158	Michoud	East Bank	force main	2	draw down/fill	1/2000,2/1000	1/55,2/46	1/93,2/62
159	Oak Island	East Bank	force main	2	draw down/fill	2300	68	120
160	Pine Village	East Bank	force main	2				
161	Plum Orchard	East Bank	force main	2	draw down/fill	300	9	15
162	Shorewood	East Bank	force main	2	draw down/fill	2100	44	82
163	Southern Scrap	East Bank	force main	2	draw down/fill	385	77	85
164	Venetian Isles	East Bank	force main	2	draw down/fill	750	51	90
165	Victoria	East Bank	force main	2				
166	Village D'Lest	East Bank	force main	2	draw down/fill	1650	102	142
167	Weber	East Bank	force main	2	draw down/fill	3500	54	102

*This is a reflection of the operating rate at the time the test was performed.
 ** Refer to Appendices for multiple speed pump information.

Figure (3-7)

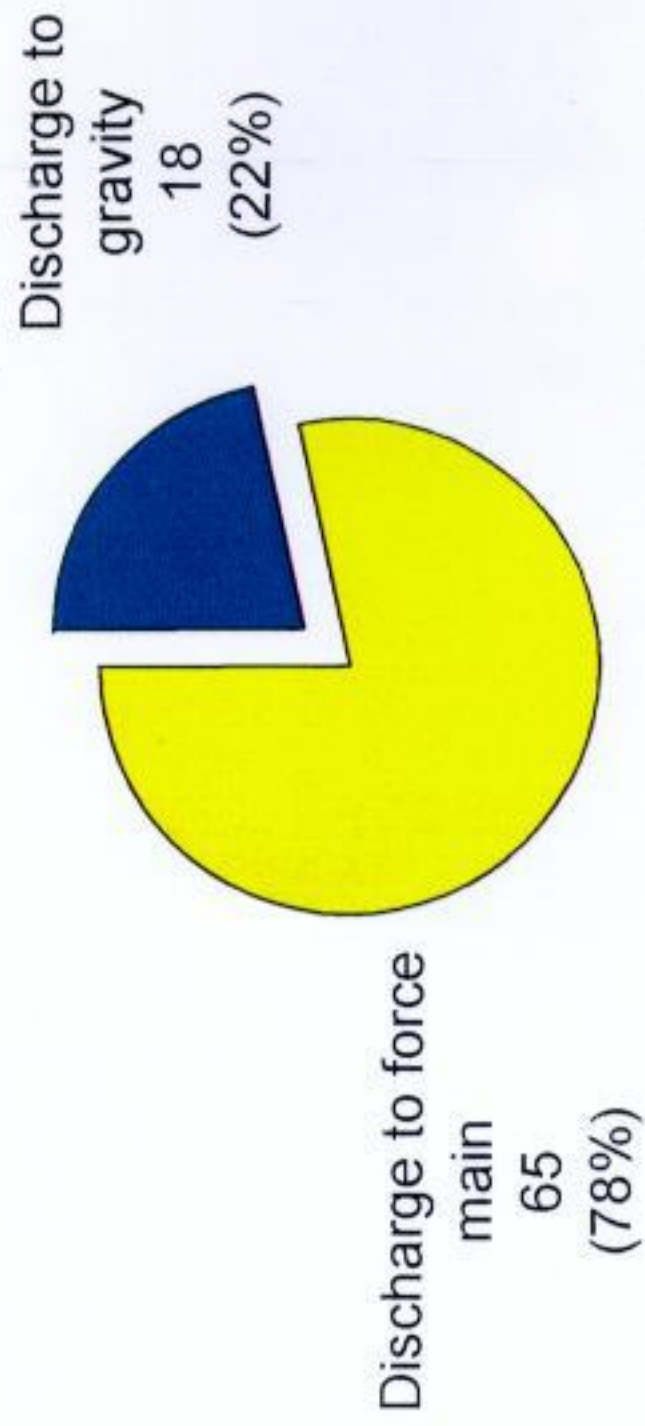
Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation
Summary of Findings

Pump Station No.	Pump Station Name	Location	Discharge To	No. of Pumps	Test Method	Operating Point		Shut Off Head
						G.P.M.	Feet	
168	Willowbrook	East Bank	force main	2	draw down/fill	1/625,2/525	1/43,2/19	1/68,2/34
169	Wilson	East Bank	force main	2	doppler flow meter	3400	35	95
170	English Turn #1	West Bank	force main	2	draw down/fill	1200	43	61
171	English Turn #2	West Bank	force main	2	draw down/fill	80	37	42
172	Eton	West Bank	force main	2	doppler flow meter	2000	39	46
173	Garden Oaks	West Bank	force main	2	draw down/fill	3000	45	95
174	Holiday	West Bank	force main	2	doppler flow meter	2600	25	60
175	Horace	West Bank	force main	2	doppler flow meter	3000	60	95
176	Huntlee	West Bank	force main	2	doppler flow meter	2700	50	110
177	Lower Coast	West Bank	force main	2				
178	Memorial	West Bank	force main	2	doppler flow meter	2660	77	145
179	Park Timbers	West Bank	force main	2	doppler flow meter	2700	50	110
180	Tall Timbers	West Bank	force main	2	doppler flow meter	2400	70	110
181	Forest Isles	West Bank	force main	2	draw down/fill	1/140,2/650	1/29,2/28	1/29,2/59
182	Woodland	West Bank	force main	2	doppler flow meter	700	24	50
183	Wright	East Bank	force main	2	draw down/fill	850	25	54
184	Aurora	West Bank	force main	2	doppler flow meter	1200	80	112
185	Blair	West Bank	force main	2	draw down/fill	3000	40	75
186	Bridge Plaza	West Bank	force main	2	draw down/fill	4200	70	125
187	SPSD	East Bank	force main	3	doppler flow meter	**	**	**
188	SPSC	West Bank	force main	3	doppler flow meter	**	**	**
190	McCoy	East Bank	force main	2	draw down/fill	200	49	59

*This is a reflection of the operating rate at the time the test was performed.
 ** Refer to Appendices for multiple speed pump information.

Figure (3-7)

Pump Stations Discharge To Gravity And Force mains



Total pump stations = 83

Figure (3-8)

Chapter 4 - Recommendations

4.1 General

The following are general recommendations which if implemented, will improve the operating conditions of the pump stations. Most of these recommendations can be applied to the majority of the stations regardless of location or type. Specific recommendations for each pump station are included in Appendices I and II.

- **Automatic Alternation:**

None of the pump stations have an automatic pump alternation system. Automatic alternation is important because it provides an equal distribution of the total run time (the time the pumps and motors are in operation) between the lead and lag pumps and motors. This equal distribution of total run time will maximize the cool down time between stops and starts, which increases the life of the equipment. Also, the automatic alternation enables the elapsed time data to focus on possible pump problems.
- **Pump Controls:**

The existing pump station control levels (lead pump on, lag pump on, lag pump off and all pumps off) do not include a pre-set level control that generates a signal to activate an alarm on either the high or low wet well level. The high alarm control will help prevent overflows from occurring in the collection system. The low alarm warns of possible shut-off problems that can damage pumps. To minimize the vertical drop of wastewater into the wet well, the level of the "lead pump on" in most cases should be set at or slightly below the invert of the inlet sewer at the immediate upstream manhole, but no higher than the springline of the lowest pipe entering the wet well. All "All Pumps On" levels should be set at the crown of the lowest pipe into the wet well. When designing a station, the operating depth between the "All Pumps Off" level and the "lead pump on" level should be determined by the following formula.

where V = wet well volume in gallons
 q = pump rate in gpm, and
 t = cycle time between pump starts in minutes

The wet well volume (working volume) will depend on the cross-sectional area of the wet well and the vertical wet well fluctuation. It is recommended that each pump station control system be reviewed and adjusted to optimize its intended function.

- **Cycling Time:**

The cycling time of a pump is defined as the time required to complete a full cycle. This time should be monitored and documented for each pump in the system to ensure compliance with industry standards. The recommended minimum cycling time for each pump depends on the size of its motor and varies from 6 minutes for pumps with motors smaller than 50 horsepower (HP) to 15 minutes for pumps driven by motors larger than 100 horsepower (HP).

- **Elapsed Time Meters:**

Most of the pump stations have no devices that will record the run (operating) time of the pumps. It is recommended that an elapsed time meter (clock) be installed for each pump. These meters will record the amount of operating time in "hours" when each pump is running. A separate elapsed time meter should also be installed to record the times when all pumps are operating.

- **Servicing of Valves:**

It was observed during the site visits to the stations that some isolating valves on both the suction and discharge lines are difficult to close and re-open due to rust and corrosion. Some "check valves" were not functioning properly, which allows wastewater to flow back into the wet well by forcing the pump impeller to rotate in the opposite direction of its normal rotation. A number of valves (gate, plug and check) were found to be leaking, which contributes to the corrosion problem. It is recommended that all valves be exercised, greased and serviced periodically through a preventive maintenance program. It is also recommended that the suction and discharge valves that are located below ground outside the station be housed in valve vaults with easy access covers.

- **Disconnect Switches:**

Most pump stations have fusible disconnect switches. This type of electrical protective device is highly susceptible to single phase electrical service if any of the fuses are blown out. This will damage the motor and associated circuits.

A circuit breaker is highly reliable and recommended in protecting the three-phase motors and other electrically powered equipment or devices against minimum or maximum fault condition.

- **Grounding System:**

All pump stations were found to have insufficient grounding systems. Per National Electrical Code (NEC) number 970-250, an additional ground rod is required for all pump stations. Equipment grounding and bonding should be implemented for safety purposes.

- **Phase Monitor:**

None of the pump stations were found to have phase monitor circuits or devices, surge protection or lightning arresters. Phase monitor, surge and lightning protection are essential to protect the motor, motor controller, instrumentation and other electrical powered equipment against single phase and any nuisance electrical disturbances (power surges, lightning, etc.).

- **Conduit Seal Fitting:**

None of the pump station bubbler tubing conduits have conduit seal fittings for hazardous location installations (the wet well is considered a hazardous location).

Per National Electrical Code Number 70-500, a conduit seal fitting or seal-off installation is mandatory for any electrical conduit penetration between the wet well and dry well.

- **Resistor Grid Bank:**

A number of pump stations have resistor grid banks for speed control. Resistor grid banks reduce only the motor speed; they do not reduce the electrical consumption. Theoretically, when the motor speed goes down, the electrical consumption should also decrease.

The modern electronic variable speed or frequency drive equipment should be considered and analyzed for economical consideration, optimal operation, monitoring and maintenance of speed control equipment. A replacement program should be developed to address this issue.

- **Emergency Power:**

Most pump stations do not have any generator receptacle or emergency power hook-up. A generator receptacle or emergency hook up is recommended for every pump station without an “on-site” generator or dual drive system. An evaluation should be conducted to determine which stations should have “on-site” emergency power generation.

- **Working Clearance:**

Quite a few pump stations were found to have inadequate working clearance around the pump station equipment. Per National Electric Code Number 70-110, the minimum distance between two pieces of electrical equipment is three (3) feet. The working clearance in every pump station should be measured and corrected, if possible. In most pump stations, the paint on the electrical equipment is faded and rust covers most of the superficial part of the equipment. Re-painting of electrical equipment is recommended.

- **Priming System:**

Several of the suction lift pump stations are primed by various separate priming systems which require continuing vigilance and maintenance. Some of these priming systems can not keep the pumping units primed throughout the cycling duration. Other priming systems (such as those found in the “Hut Type” suction lift stations) lose the prime while the pumps are in operation which causes severe cavitation to occur. It is highly recommended that the priming systems be checked, reviewed and adjusted in order to utilize the pumping units to their fullest capacities. It is also recommended to select self-priming pumping units for all “suction lift” type stations as the pumps are replaced.

- **Internal Piping:**

The internal piping (suction and discharge piping) should be evaluated for its size adequacy. It was observed that some of the suction and discharge lines are undersized, forcing the flow to have higher velocities than desired. The condition of some piping is poor due to age and corrosion. Excessive corrosion was clearly observed in the segments of the suction lines that are exposed inside the wet wells of the "suction lift" type pump stations. Voids or holes in these lines are partially the cause for deficiencies in the priming of the pumping units.
- **Wet Well Conditions:**

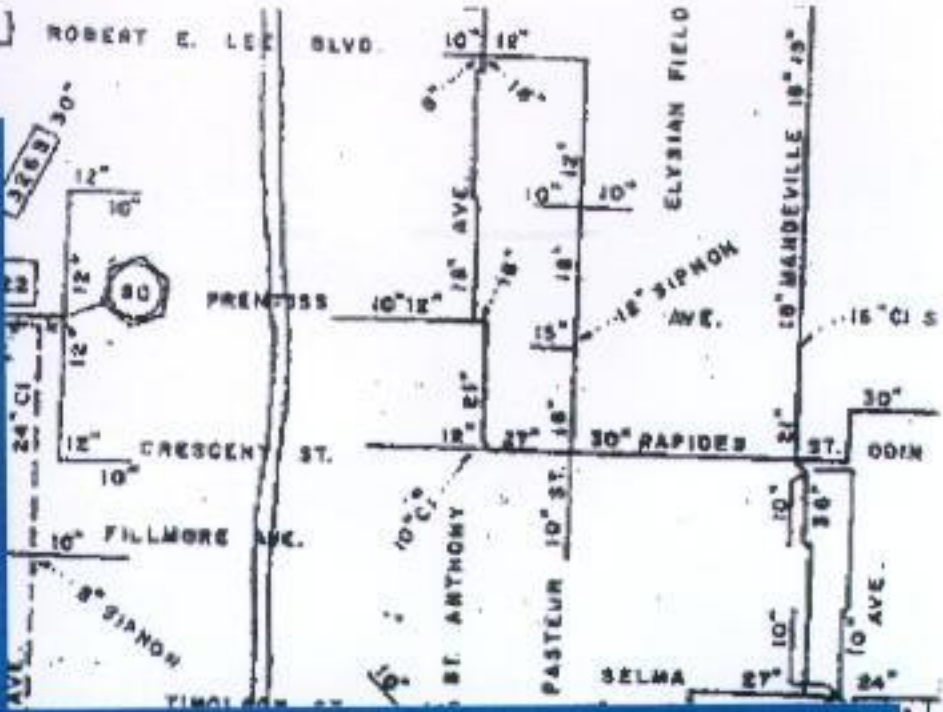
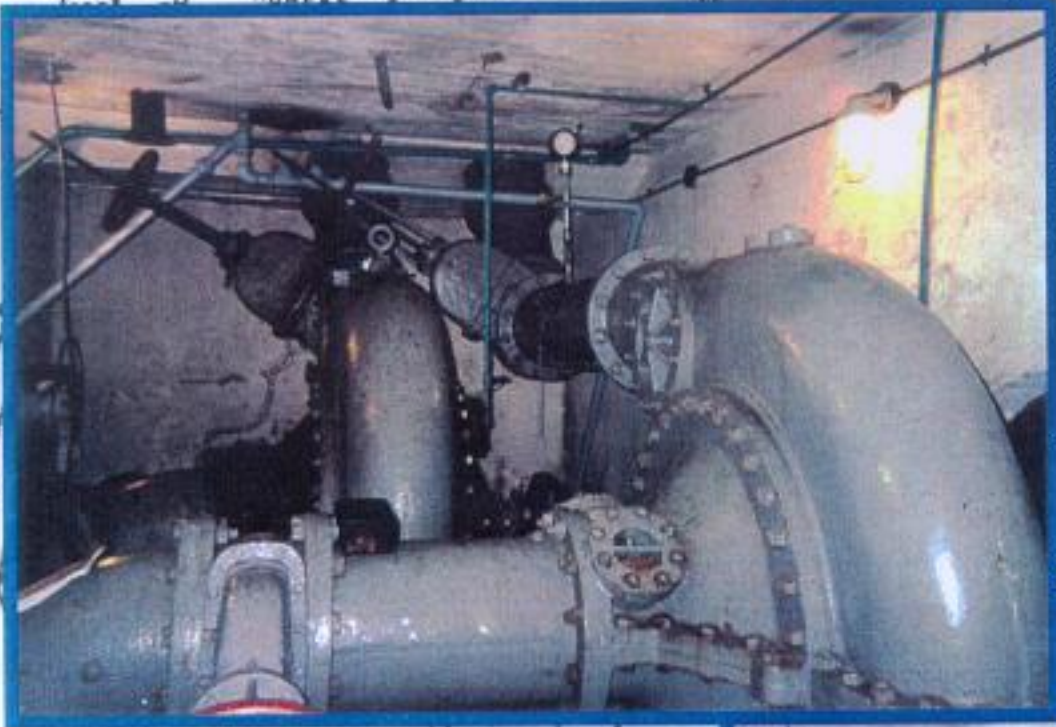
It was observed during the field visits that the majority of wet wells suffer from corrosion. Exposed aggregate and steel reinforcement were clearly visible in most cases. For "brick type" wetwells, cement mortar in joints is gone in many cases while others had structural cracks. Photos reflecting the conditions described above can be seen in Appendices I and II. It is recommended that all pump station wet wells be rehabilitated and protected from corrosion.
- **"Can Type" Pump Stations:**

The majority of these types of pump stations are located in eastern New Orleans on Morrison and Dwyer Roads. The dry well of this type of station is typically about 30 to 40 feet below ground level. The dry well depth makes it receptive to corrosion due to warm temperatures and high levels of humidity in the confined, closed environment. Corrosion of the dry well becomes more critical for the pump stations of similar type with a prefabricated steel structure. These pump stations already show excessive corrosion in their dry well floor and to the equipment housed inside. The deep stations should have priority in the S&WB's rehabilitation plans. Converting this type of pump station to a submersible type pump station is an efficient and economical solution that should be considered. Another possible alternative, in cases where the static lift allows, would be to construct new above ground, self-priming pump stations.

4.3 Additional Data Required for Hydraulic Model

The development of the hydraulic model for the wastewater collection system (gravity

sewers, force mains and pump stations) will incorporate the data collected during the field visits along with the information presented throughout this report. However, any system changes and upgrades that may have an impact on the pump stations and the force main capacities systems should be collected and analyzed before final improvements to the collection system are recommended. As part of the S&WB's continuous efforts toward improving and upgrading the wastewater collection system (pump stations, force mains, and gravity sewers), MW has learned that impeller replacement in pump stations 119, 121, 123, 109, 118, 116, 132 and 187 is scheduled. In addition, efforts to replace pump station 160 are well under way. These changes, along with other on-going maintenance activities, will result in changes to the hydraulic conditions of the collection system. It is recommended that all changes and maintenance activities be reported to MW to ensure that the hydraulic model accurately reflects the current condition of the collection system.



*Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program*

Pump Station Testing and Evaluation

Appendix Vol. I: Pump Stations (101-149) Reports

August 1997



MONTGOMERY WATSON



**Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Appendix Volume I**

Pump Station (101 - 149) Testing and Evaluation Report

<u>Station Number</u>	<u>Station Name</u>	<u>Station Address</u>
101	1	7336 Cohn Street
103	3	8720 Olive
104	4	5899 Fleur de Lis Avenue
105	5	1302 Erato Street
106	6	242 South Solomon Street
108	8	Broad at Toulouse Street
109	9	2530 Annette Street
114	14	4000 Clara Street
115	15	2431 Palmyra Street
116	16	3751 North Miro Street
117	17	4975 Spain Street
118	18	Vicksburg at Florida Avenue
119	19	3730 Jumonville Street
120	20	328 37th Street
121	21	6670 Memphis Street
122	22	5705 Perlita Street
123	23	4500 Mithra Street
124	24	5827 North Tonti Street
125	25	2245 Charbonnet Street
126	26	2244 Saint Maurice Street
127	SPS "A"	1321 Orleans Avenue
128	Alcee Fortier	Alcee Fortier at Levee
129	America	6789 Dwyer Road
130	American Marine	4045 Jourdan Road
131	Amid	7000 Almonaster Avenue
132	SPS "B"	4725 Saint Claude Avenue
133	Berg	11501 Morrison Road
134	Boland	1910 Surekote Road
135	Boulevard "X"	14434 Chef Highway
136	Briarwood	13701 Morrison Road
137	Bullard	5501 Bullard Road
138	Burke	9001 Morrison Road
139	Castle Manor	4950 Gawain Drive
140	Cerise	5001 Cerise Avenue
141	Chickasaw	3841 Metropolitan Street
142	City Park	5700 Marconi Boulevard
143	Crowder	5500 Crowder Road

**Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Appendix Volume I**

Pump Station (101 - 149) Testing and Evaluation Report

<u>Station Number</u>	<u>Station Name</u>	<u>Station Address</u>
144	Dodt	8118 Chef Highway
145	Eastover	6051 Eastover Drive
146	France and Florida	2701 France Road at Florida Canal
147	Folger's	14601 Old Gentilly Road
148	Gentilly Oaks	5000 Papania Drive
149	Industrial Park	4200 Industrial Parkway

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 101 (1)
7336 COHN STREET

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 101 (1)

Pump Station 101 is a flooded-suction, multi-level type station located on 7336 Cohn Street. It discharges to a gravity main that carries the flow to the wet well of Pump Station 114, which is located at 4000 Clara Street. Figure 1 shows the schematic of the subsystem surrounding Pump Station 101. Pump Station 101 does not repump flow from any other station.

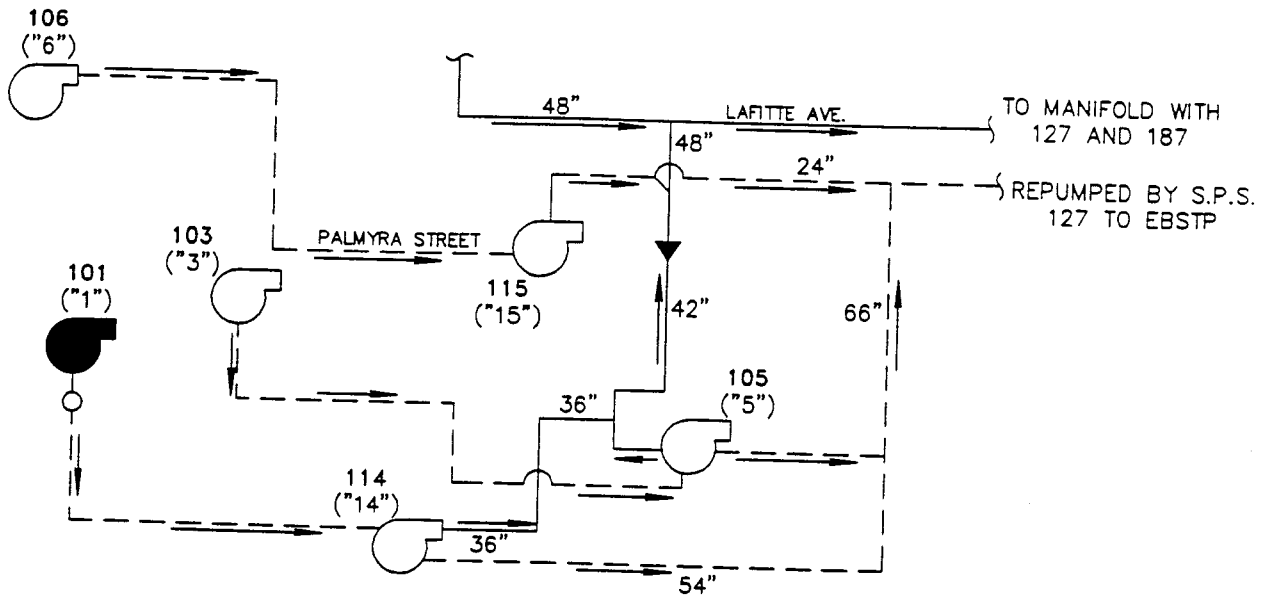
Pump Station 101 contains two (14-inch by 14-inch) vertically aligned pumps. Each pump is powered by a single speed Westinghouse motor that originally operated at 25 hertz (Hz). These motors were rewound by General Electric in 1977 to run at 60 Hz and 211 revolutions per minute (rpm). This equipment is housed in a 16-foot diameter concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 21.0-foot. Figures 2, 3, and 4 illustrate elevation and plan views of the station.









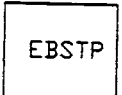
Pump Station 101 collects wastewater from the surrounding gravity sewer system into a 20.5-foot deep concrete suction chamber. Severe corrosion of the interior of this suction chamber has taken place. This corrosion is characterized by exposed aggregate and concrete loss is estimated to be in excess of 1-inch from the original surface.

The Doppler Flow Meter was utilized to determine flows at various discharge heads to develop the pump curve of Pump Station 101, shown in Figure 5. Each pump has an approximate capacity of 6,800 gallons per minute (gpm) at 3.5-feet of head. With both pumps in operation, the capacity of the pump station doubles because Pump Station 101 discharges to a gravity main with each pump having separate discharge piping.

Recommendations:

1. Corrosion of the interior of concrete suction chamber may be serious enough to compromise its structural integrity. It is recommended that this issue be addressed and resolved.



-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 10
JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
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MONTGOMERY WATSON

PUMP STATION 101 ("1")
PUMP STATIONS AND FORCEMANS SCHEMATIC

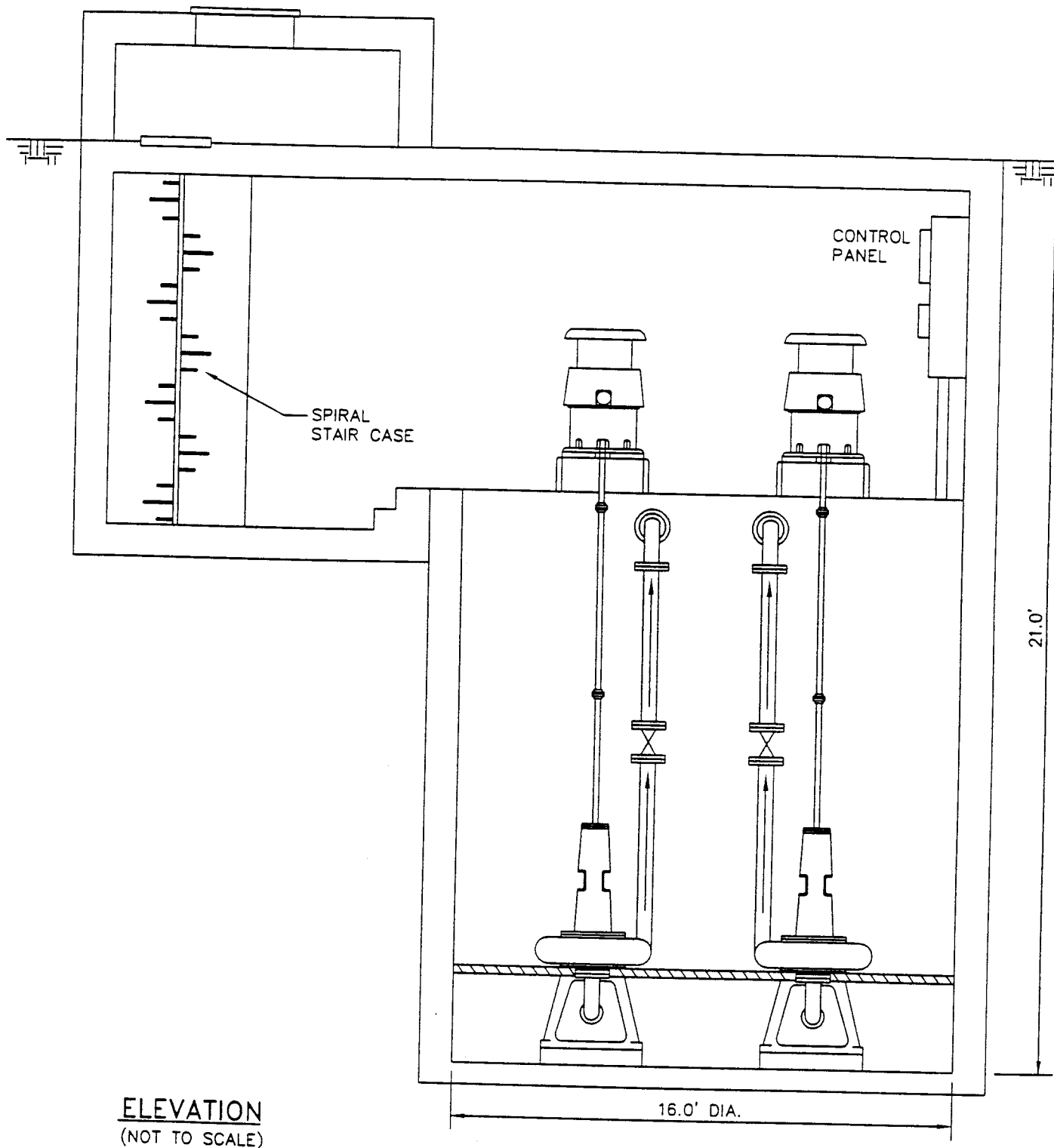
FIGURE:

1

DATE:

3/28/97

FILE NO.: 101 .JG JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



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MONTGOMERY WATSON

PUMP STATION 101 ("1")
MULTI-LEVEL FLOODED SUCTION

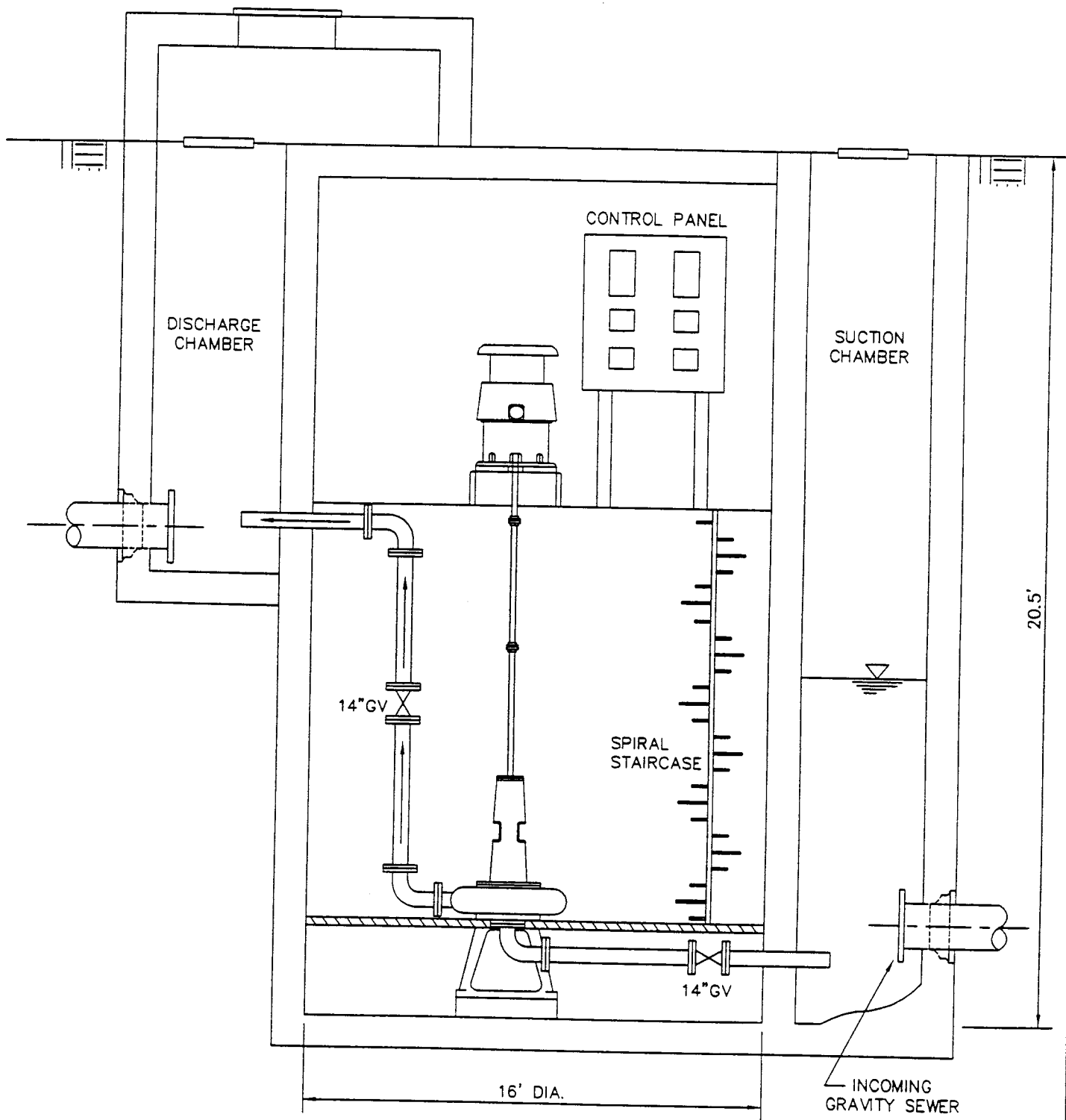
FIGURE:

2

DATE:

3/28/97

FILE NO.: 101-3 JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 101 ("1")
MULTI-LEVEL FLOODED SUCTION

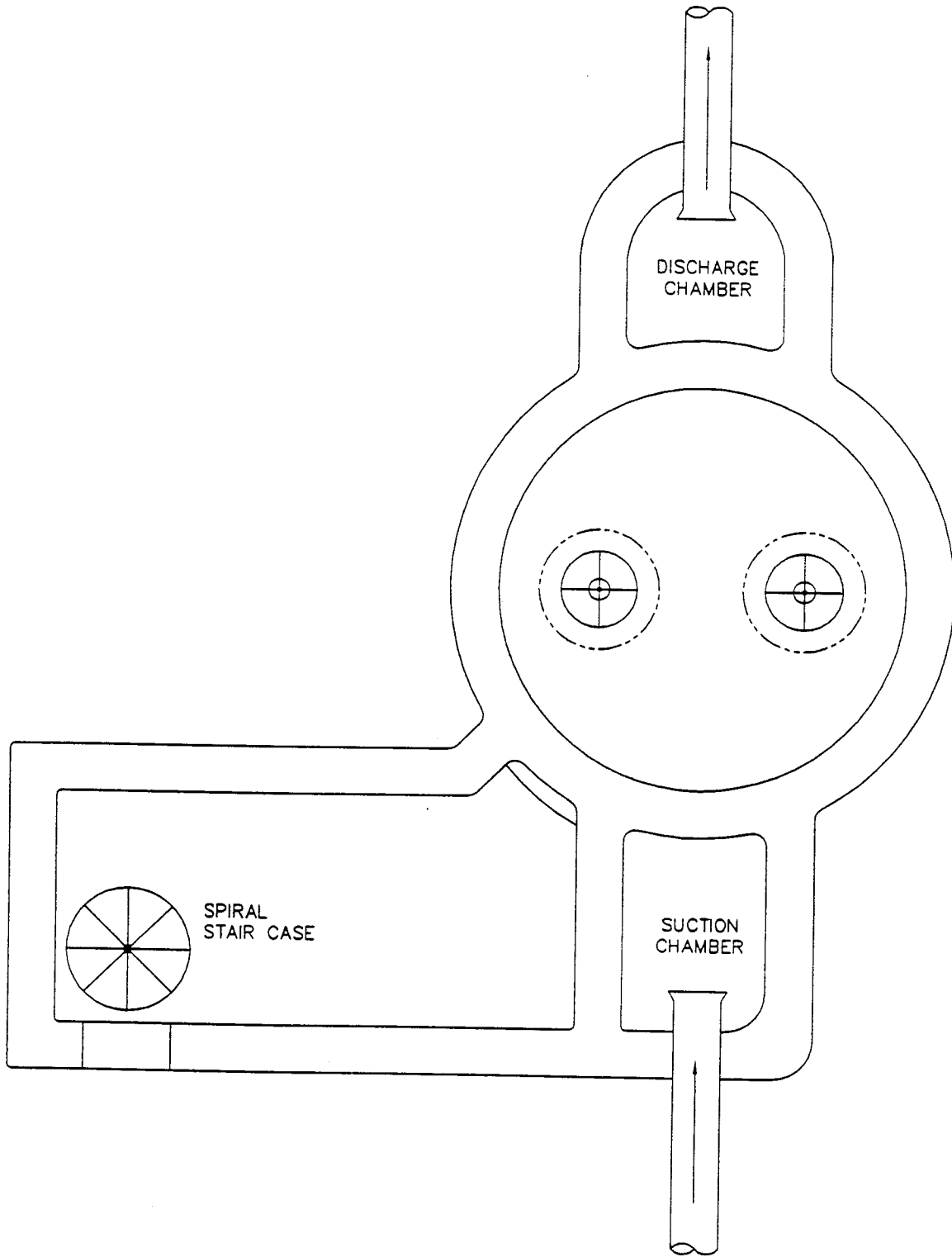
FIGURE:

3

DATE:

3/28/97

FILE NO.: 101-3 JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 101 ("1")
MULTI-LEVEL FLOODED SUCTION

FIGURE:

4

DATE:

3/28/97

Pump Station: 101 (1)

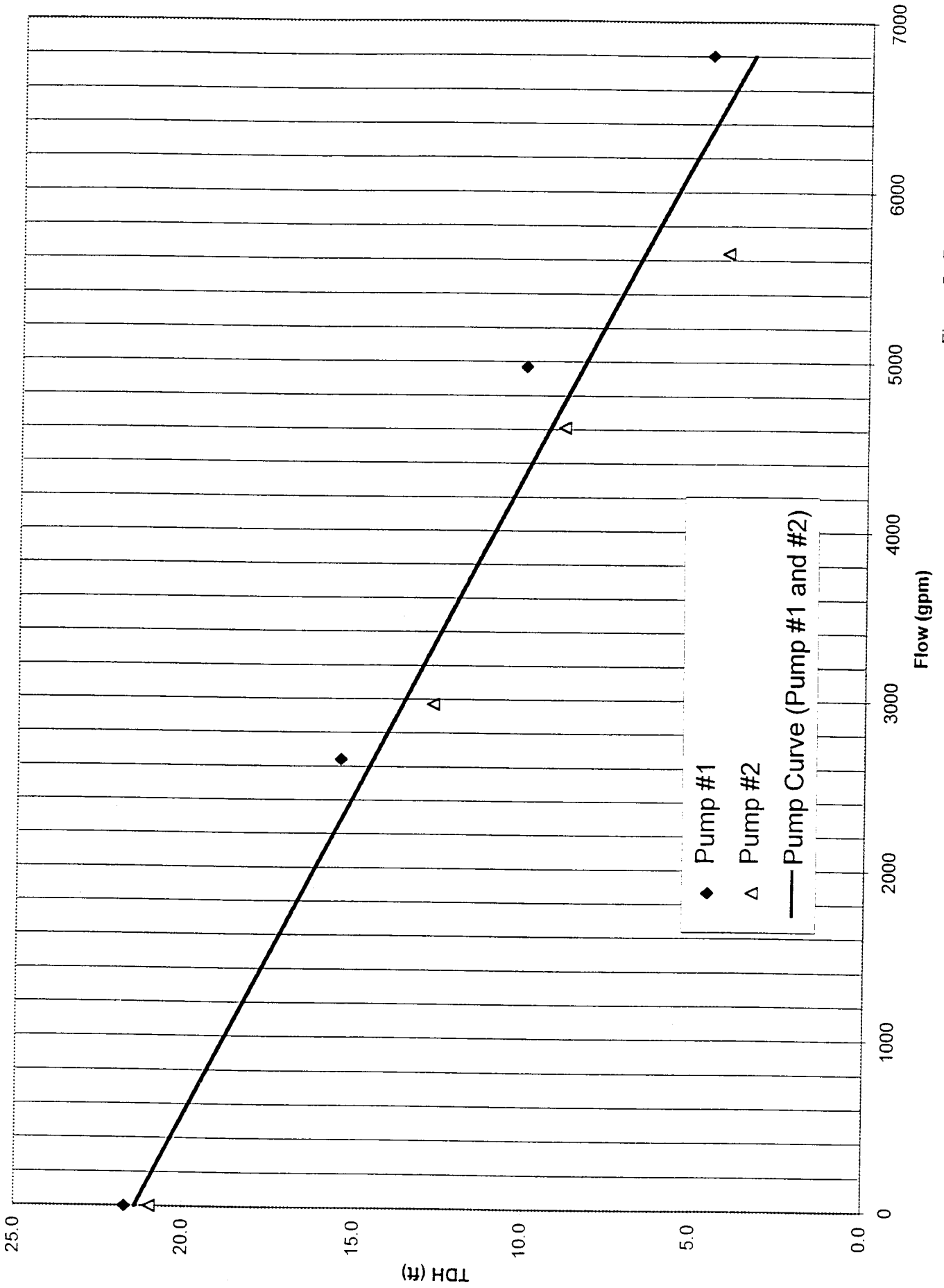


Figure 5: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 101

General Information

PS No. 101 PS Facility 1

Address 7336 Cohn Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer not available

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 14 inch Pump Discharge 14 inch FM Diameter 14 inch

Suction Valve Size 14 inch Discharge Valve Size 14 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size _____ inch

Dry Well Dimensions 16 ft. dia. Length 0 ft. Width: 0 ft. Depth 21 ft.

Pump centerline* 4 ft. Centerline of discharge pipe* 9.7 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? not applicable
Do discharge valves operate properly? Yes No Where? _____
Pump seals leaking? Yes No Which One? # 1 and 2

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 101

Pump Controls

Lead pump on 9.5 ft. Type of Controls bubbler
Lead pump off 3.5 ft.
Lag pump on 10.5 ft.
Lag pump off 4.5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior is fair except for isolated areas of peeling paint.

Interior The overall condition of the interior is fair except for isolated areas of leakage on the wall and areas of patchy chipped concrete.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Severe exposed aggregate was observed.

Diameter 6 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 20.5 ft.

Sewer Invert(s) Depth* 17.5 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 101

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device 200 amps, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 125 amps, fusible disconnect switch

Service wire size # 3/0 AWG Size of motor starter in NEMA 4

Motor wire size # 4 AWG Motor Horsepower 60

Number of motors 2 Motor Speed Single

Speed(s) in rpm 211

Frequency in Hertz 60

Type of starter Full voltage non-reversing

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, service disconnect switch and control panel are in fair condition. The pump station has fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses blow out. The electrical control has no phase monitor circuit or devise, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 101 (1)



Photo Number 1



Photo Number 2

Pump Station 101 (1)

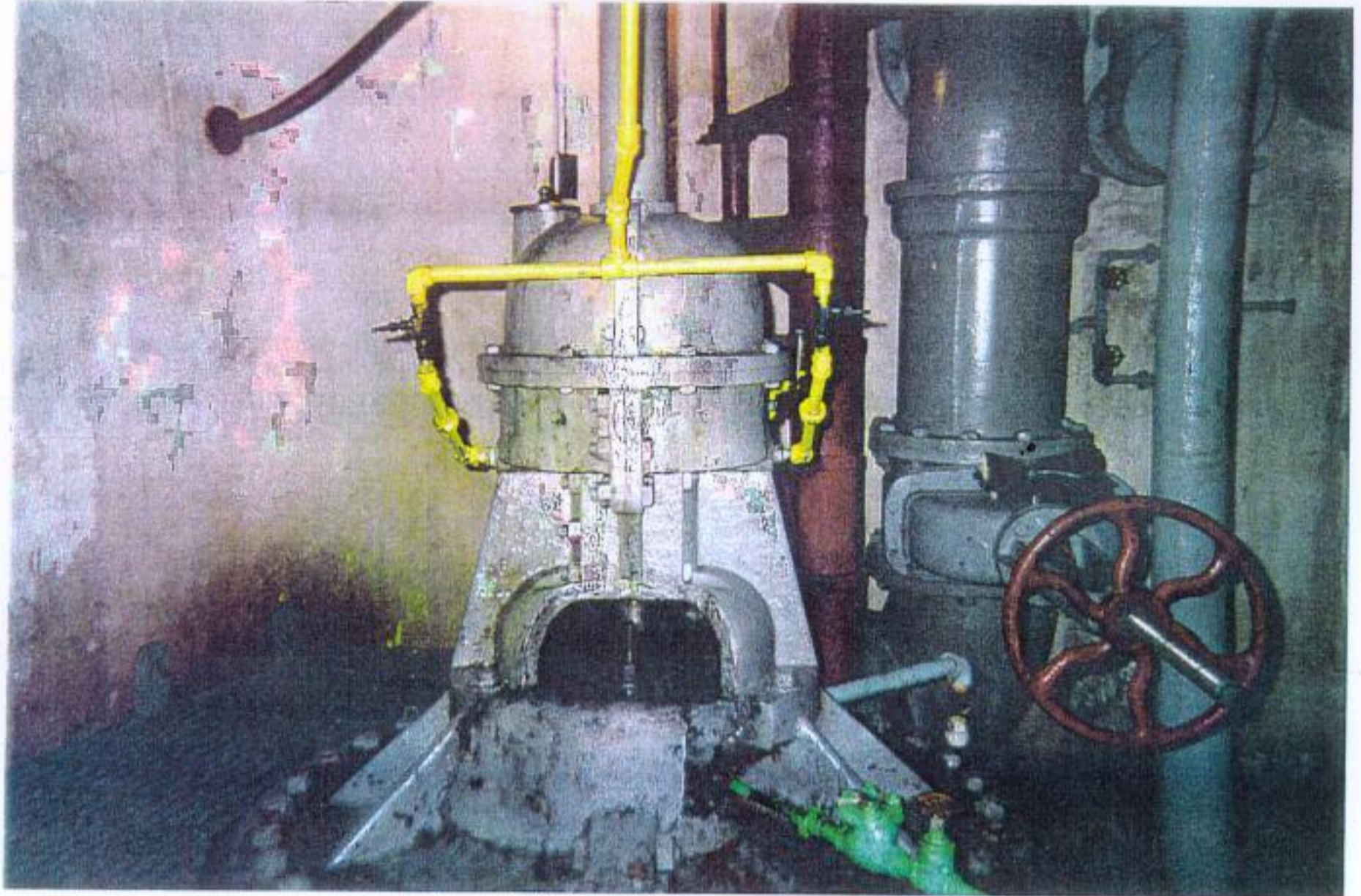


Photo Number 3



Photo Number 4

Pump Station 101 (1)

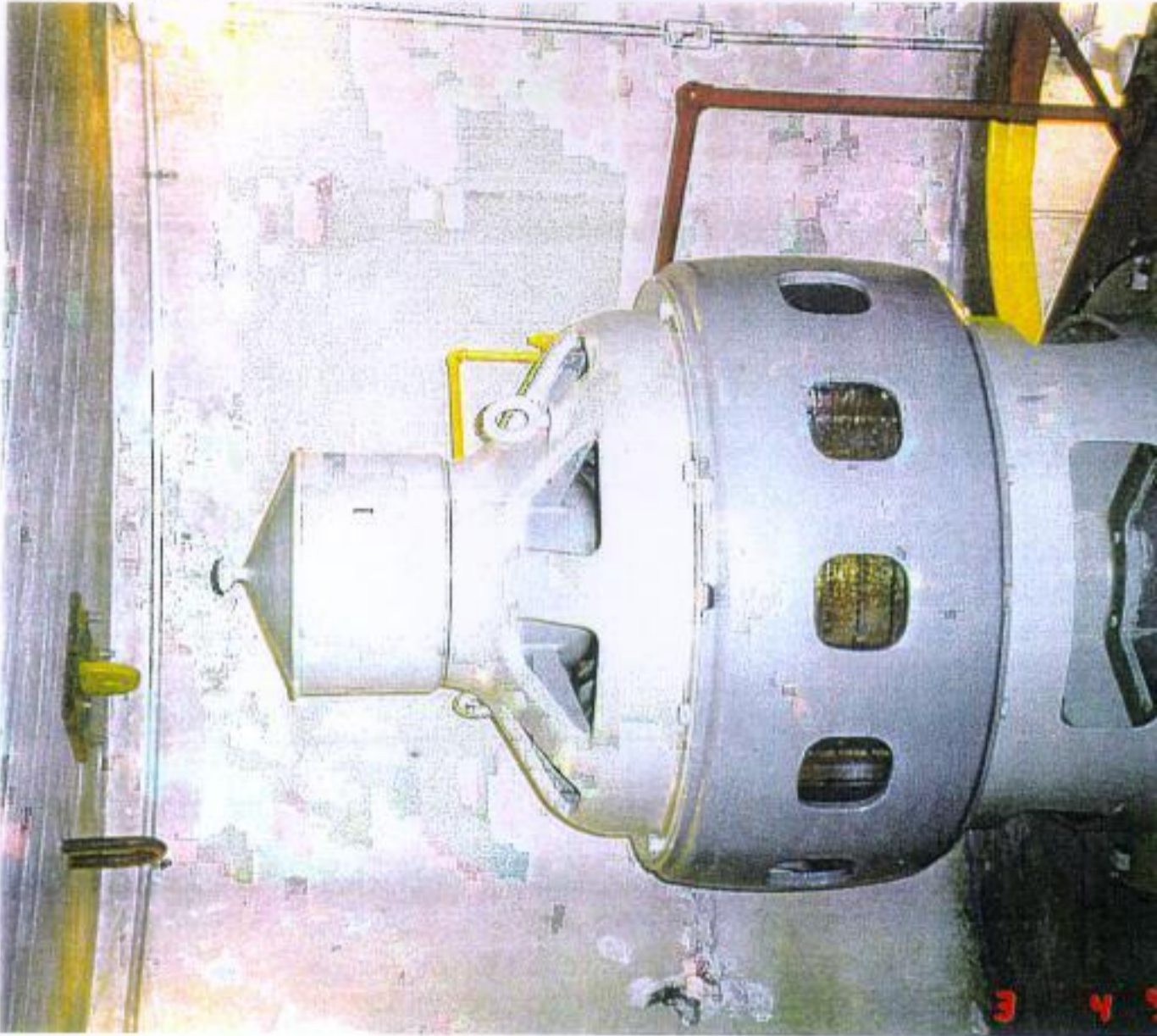


Photo Number 5



Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 103 (3)
8720 OLIVE

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 103 (3)

Pump Station 103 is a flooded-suction, multi-level type station located on 8720 Olive Street. It discharges to a gravity main that carries the flow to the wet well of Pump Station 105, which is located at 1302 Erato Street. Figure 1 shows the schematic of the subsystem surrounding Pump Station 103. Pump Station 103 does not repump flow from any other station.

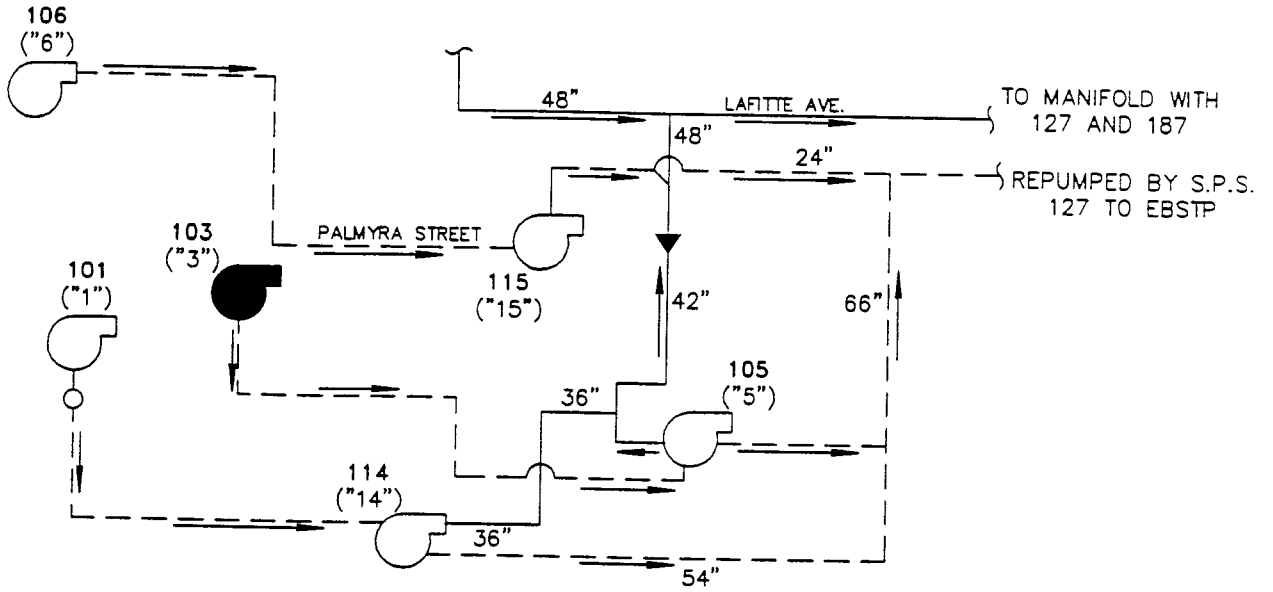
Pump Station 103 contains two (14-inch by 14-inch) horizontally aligned pumps. Each pump is powered by a single speed Westinghouse motor that originally operated at 60 hertz (Hz). This equipment is housed in a 26.2-foot diameter concrete dry well structure, which is primarily below grade. The total depth of the dry well from the access hatch to the bottom is 21.5 feet. Figures 2, 3, and 4 illustrate elevation and plan views of the station.

Pump Station 103 collects wastewater from the surrounding gravity sewer system into a concrete suction chamber. Severe corrosion of the interior of this suction chamber has taken place. This corrosion is characterized by exposed aggregate and concrete loss is estimated to be in excess of 1-inch from the original surface.

The Doppler Flow Meter was utilized to determine flows at various discharge heads to develop the pump curve of Pump Station 103, as shown in Figure 5. Each pump has an approximate capacity of 6,000 gallons per minute (gpm) at 11-feet of head. With both pumps in operation, the capacity of the pump station because Pump Station 103 discharges to a gravity main with each pump having separate discharge piping.

Recommendations:

1. Corrosion of the interior of concrete suction chamber may be serious enough to compromise its structural integrity. It is recommended that this issue be addressed and resolved.



	REDUCER/INCRASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 10. JOB NO.: 11130.30.01090120 DATE: 3/28/97

	SEWERAGE AND WATER BOARD OF NEW ORLEANS
	MONTGOMERY WATSON

PUMP STATION 103 ("3") PUMP STATIONS AND FORCEMAINS SCHEMATIC	FIGURE: 1
	DATE: 3/28/97

Pump Station: 103 (No. 3)

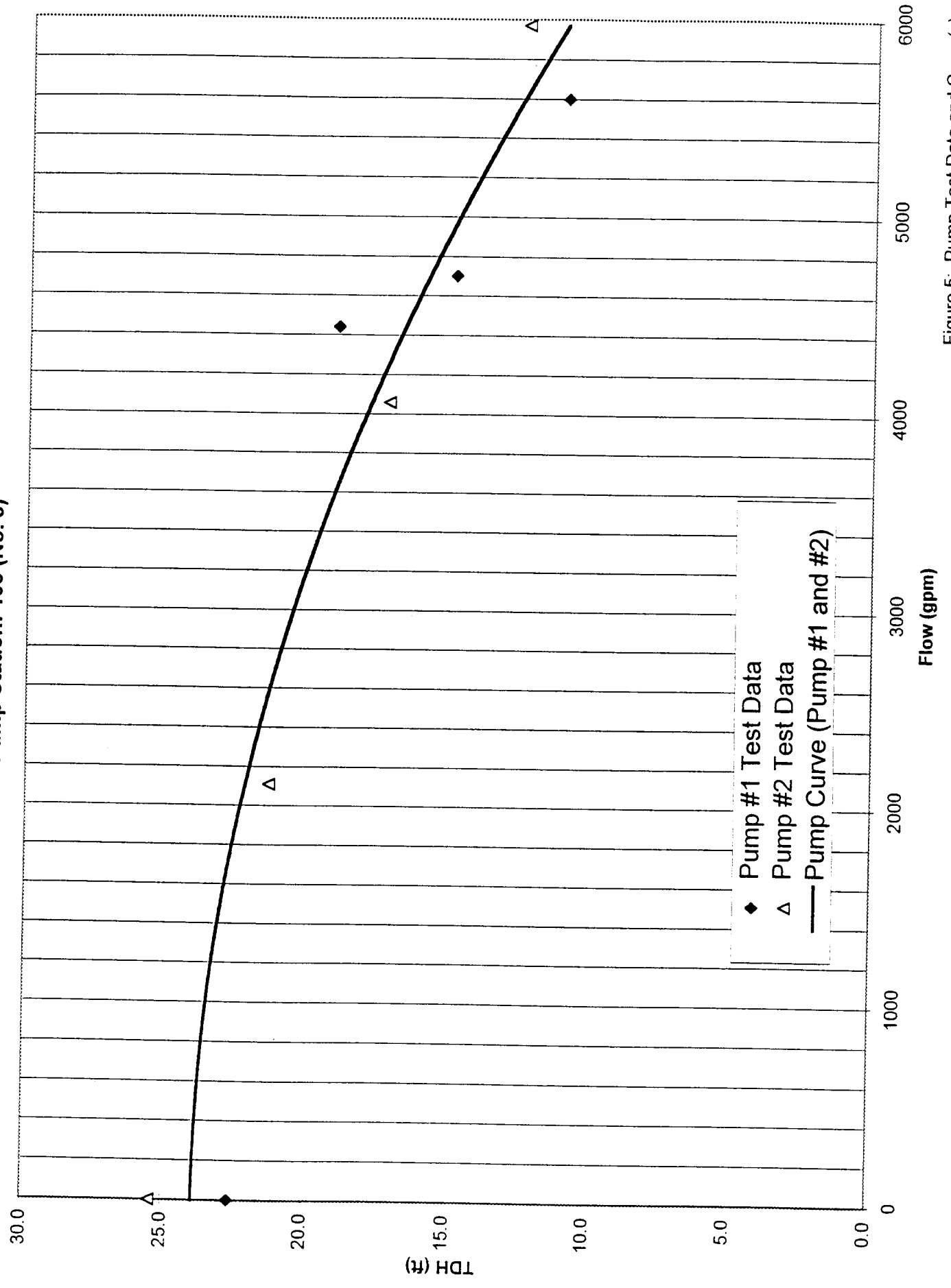


Figure 5: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 103

General Information

PS No. 103 PS Facility 3

Address 8720 Olive

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer not available

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 14 inch Pump Discharge 14 inch FM Diameter 14 inch

Suction Valve Size 14 inch Discharge Valve Size 14 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size _____ inch

Dry Well Dimensions 26.2 ft. dia. Length _____ ft. Width: _____ ft. Depth 21.5 ft.

Pump centerline* 3 ft. Centerline of discharge pipe* _____ ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? not applicable

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 103

Pump Controls

Lead pump on 7 ft. Type of Controls bubbler
Lead pump off 1.25 ft.
Lag pump on 8 ft.
Lag pump off 2.5 ft.

Notes: _____

Structural Observations

Exterior The overall exterior condition of the station is fair.

Interior The overall interior condition of the station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Severe exposure of aggregate was seen.

Diameter 6 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 19.7 ft.

Sewer Invert(s) Depth* _____ ft.
_____ ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 103

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device 200 amps, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 125 amps, fusible disconnect switch

Service wire size # 4/0 AWG Size of motor starter in NEMA 4

Motor wire size # 1 AWG Motor Horsepower 60

Number of motors 2 Motor Speed Single

Speed(s) in rpm 200

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller and control panel are in fair condition. The pump station has fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses blow out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 103 (3)



Photo Number 1

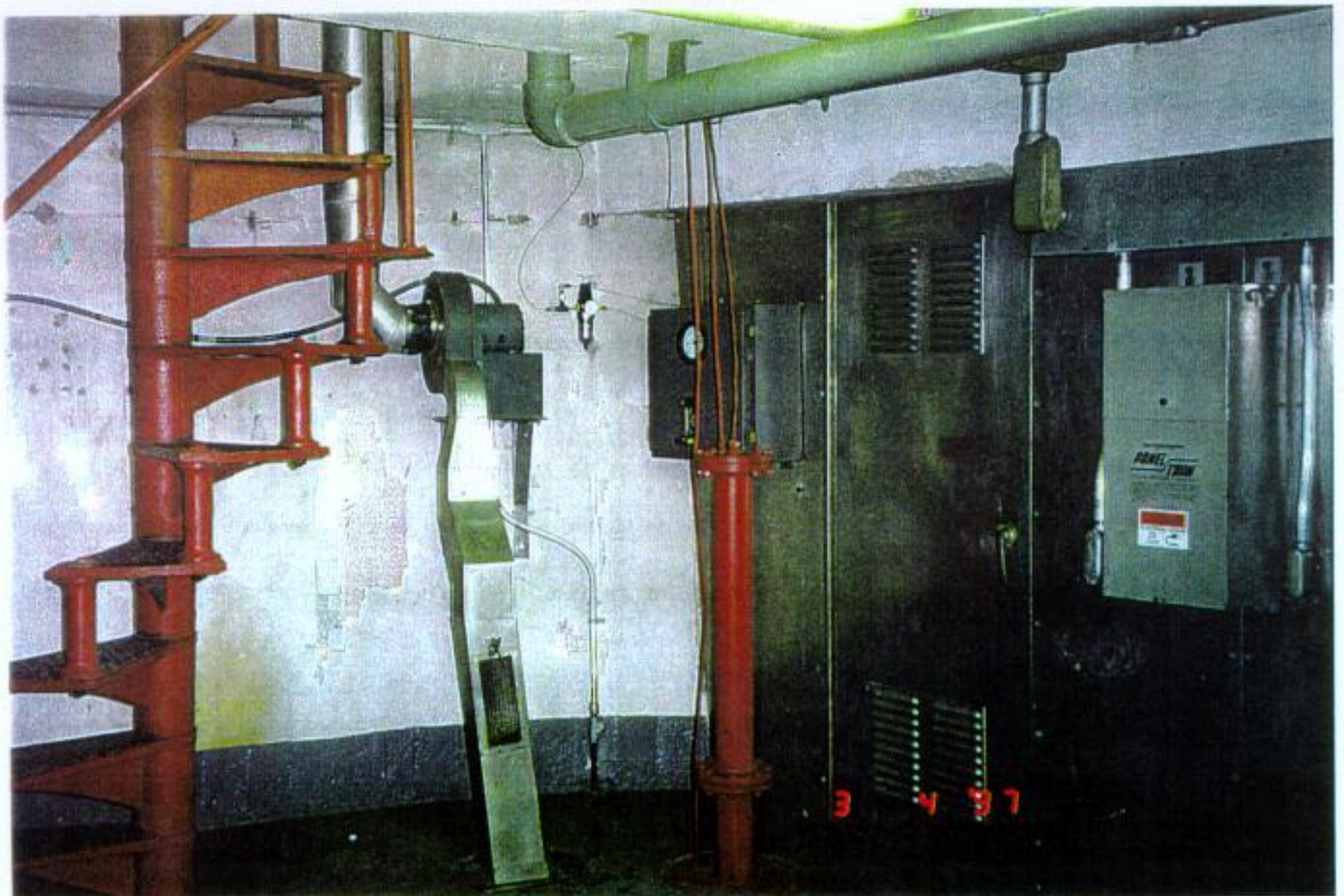


Photo Number 2

Pump Station 103 (3)

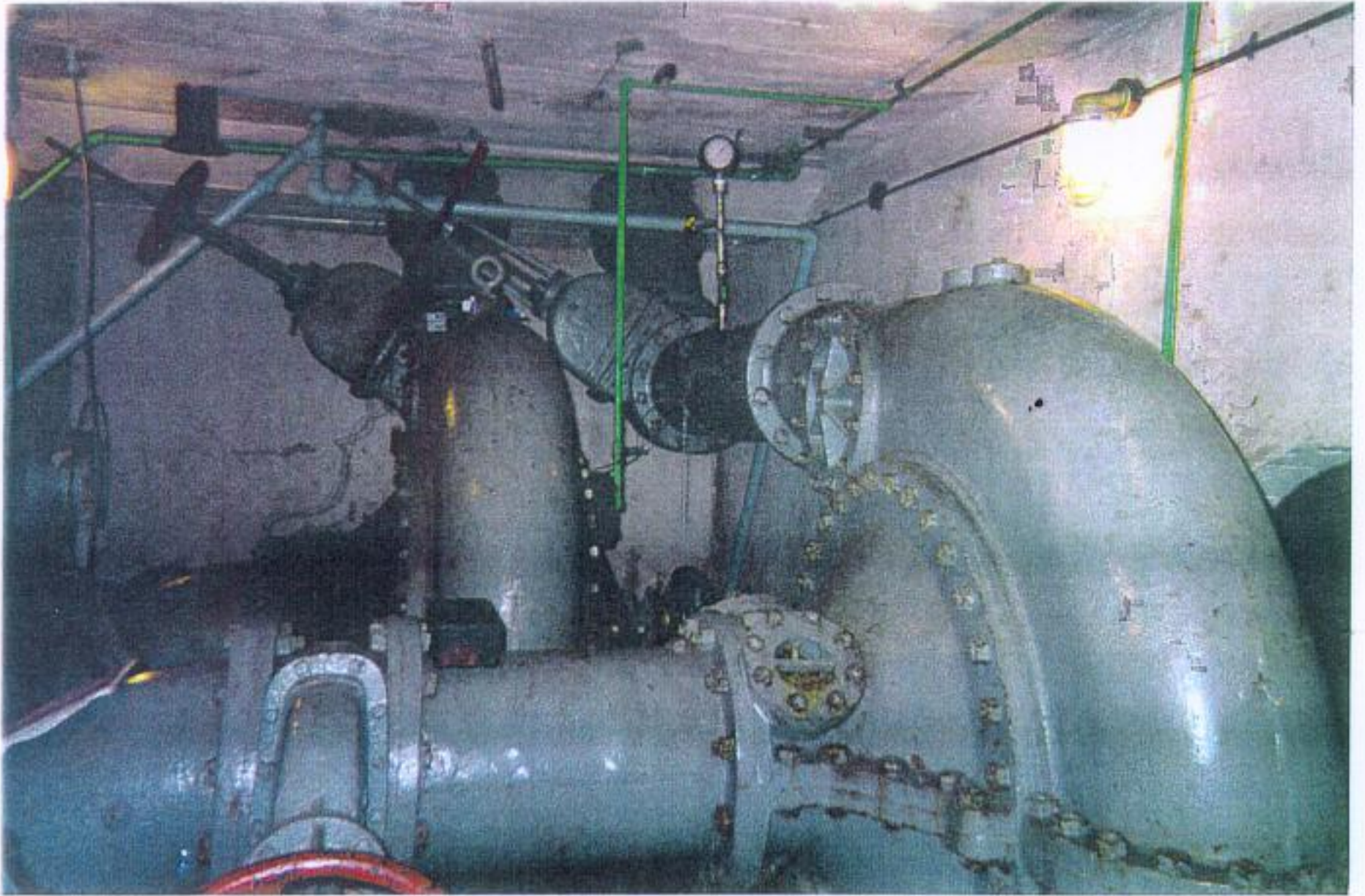


Photo Number 3

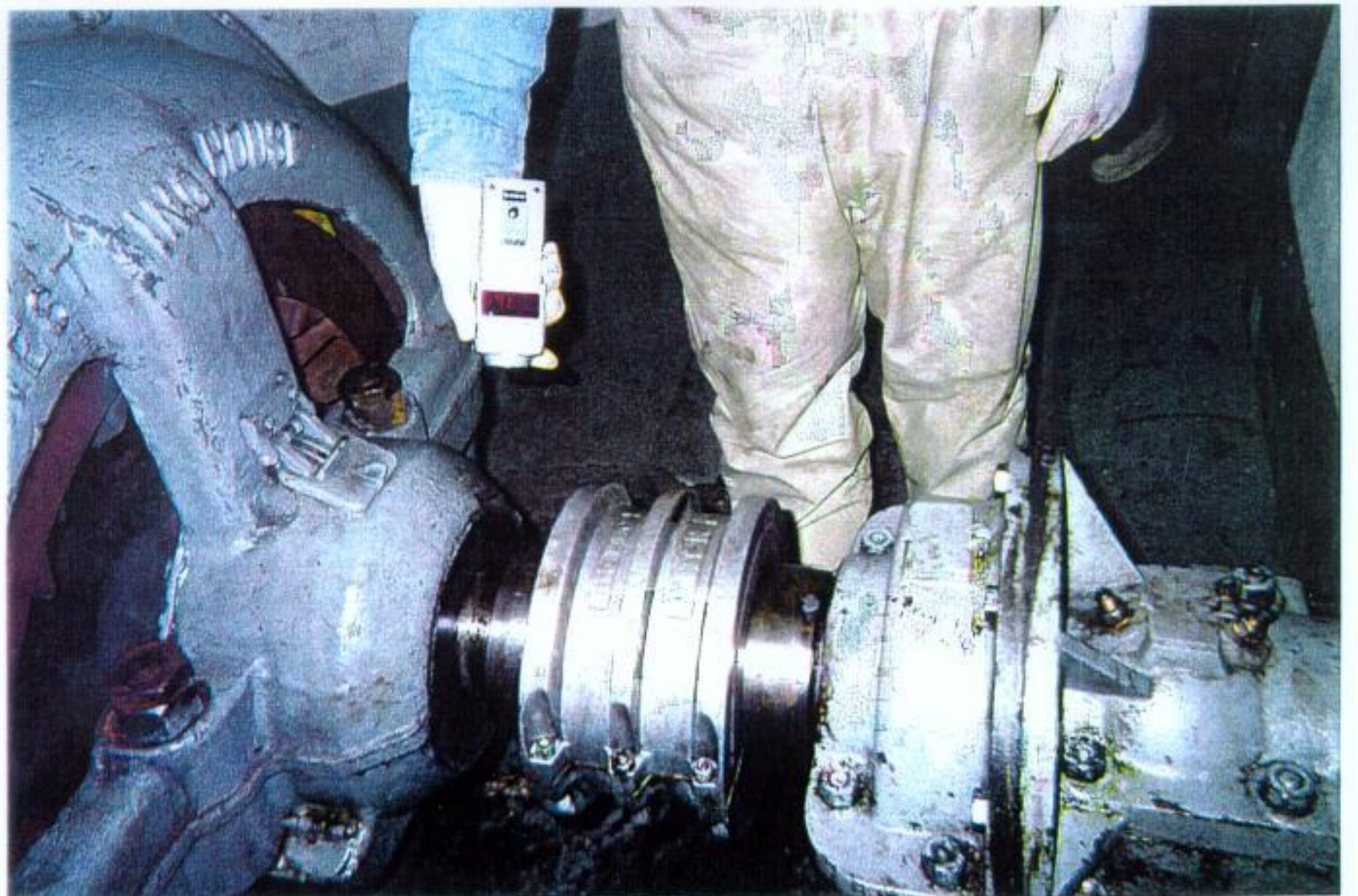


Photo Number 4

Pump Station 103 (3)

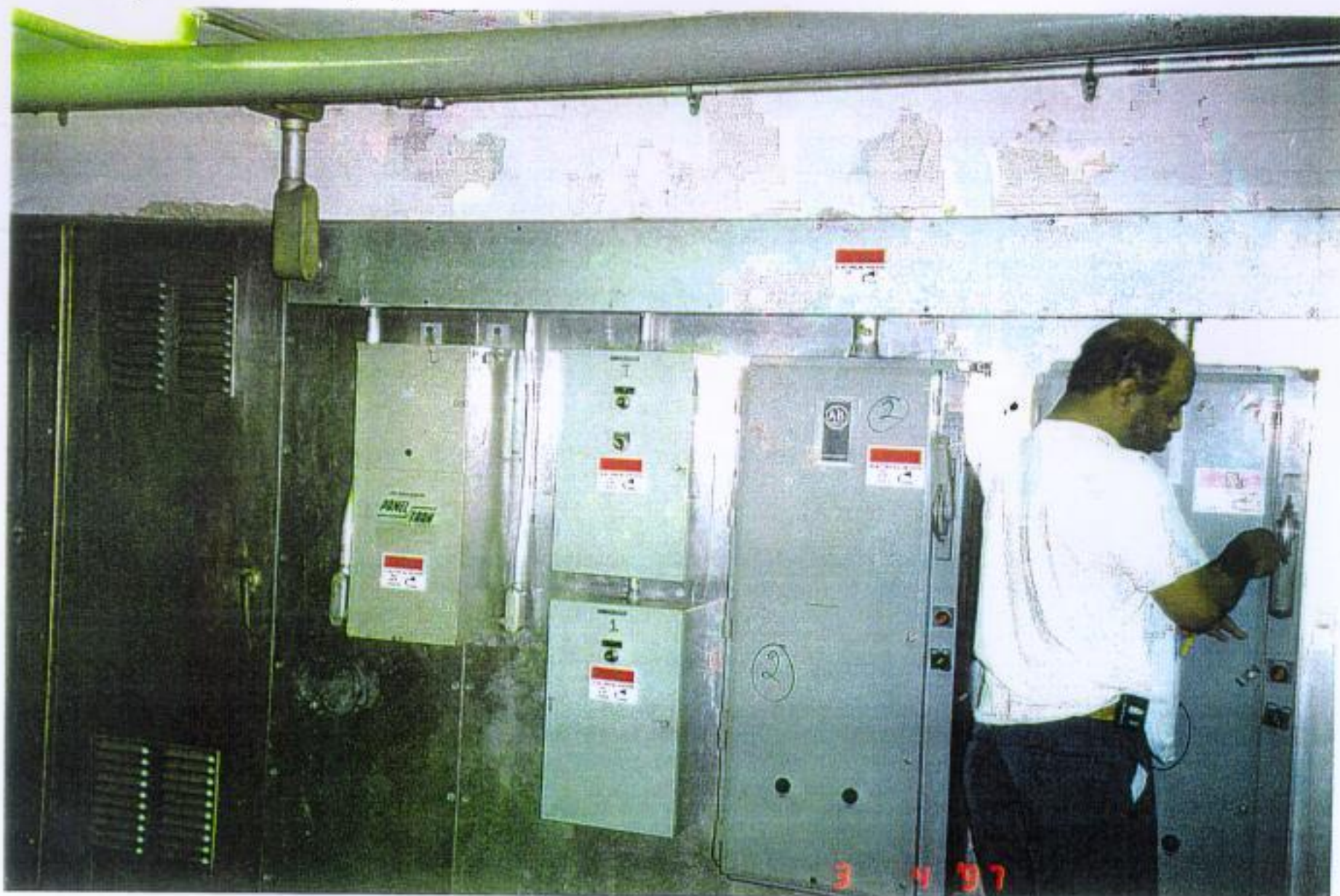


Photo Number 5

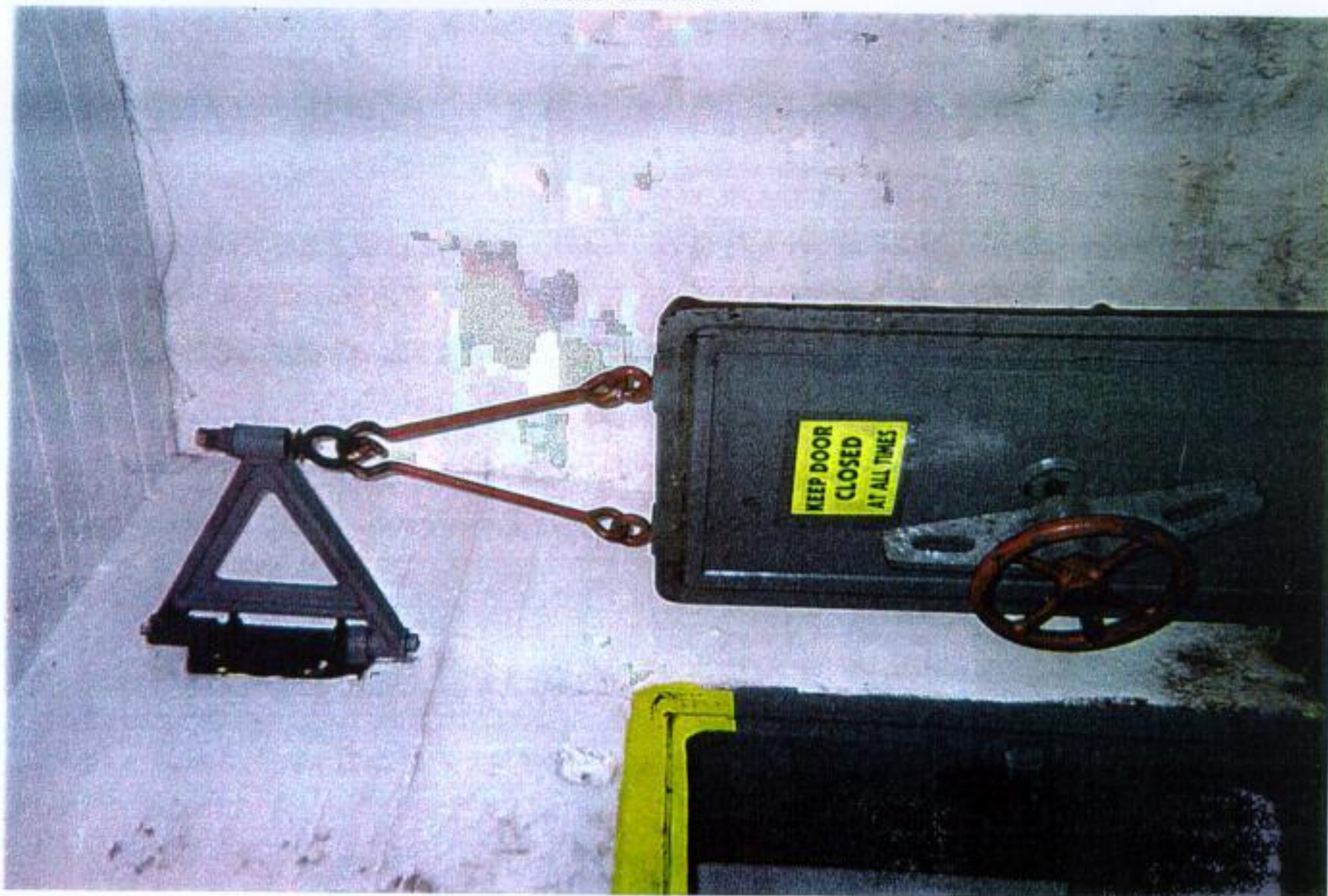


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 104 (4)
5899 FLEUR DE LIS AVENUE**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 104 (4)

Pump Station 104 is a bi-level suction lift station located on 5899 Fleur de Lis Avenue. It discharges to a 20-inch force main along Fleur de Lis Drive via a 12-inch diameter force main. Pump Station 104 does not repump flow from any other station and its flow gets repumped by Pump Station 187 ("D"). Figure 1 shows the schematic of the subsystem surrounding Pump Station 104.

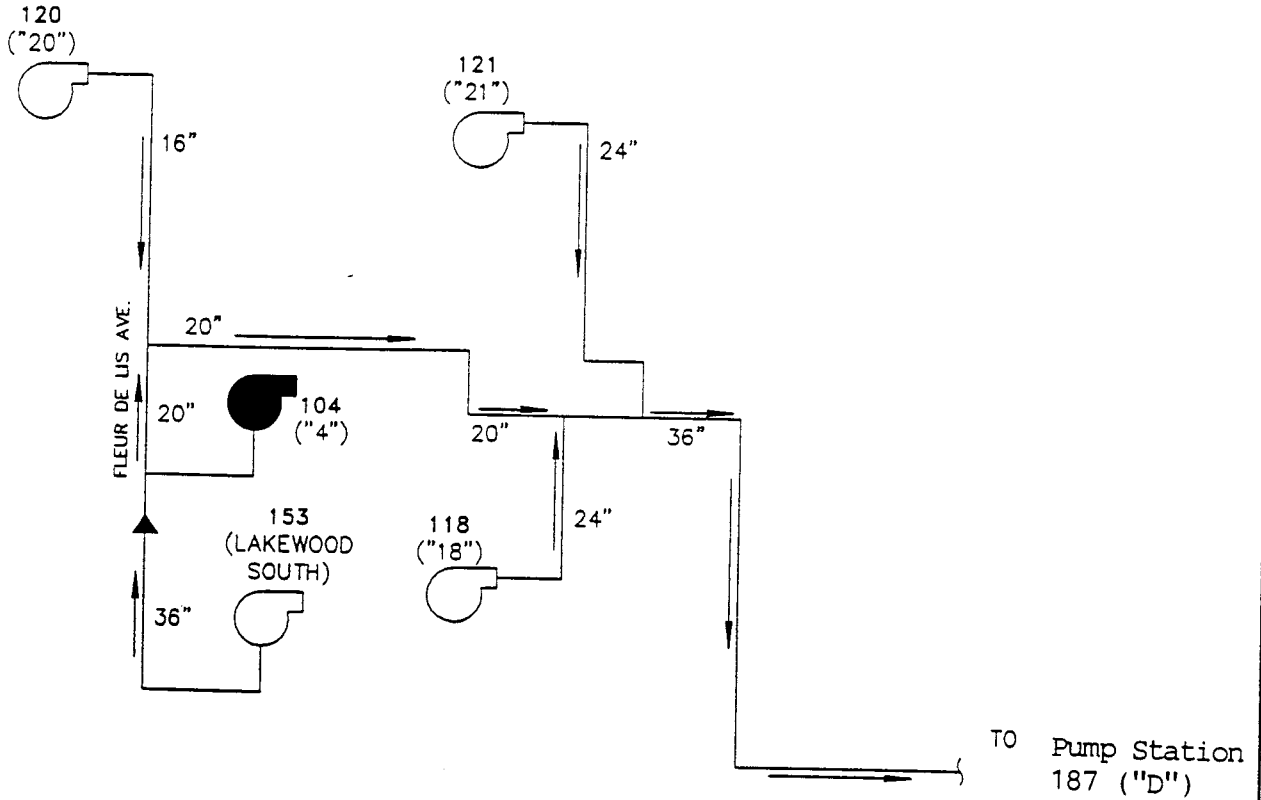
Pump Station 104 contains two (8-inch by 8-inch) Fairbanks Morse horizontally aligned pumps. Each pump is powered by a 75 horsepower (hp) motor operating at a constant speed of 1180 revolutions per minute (rpm). This equipment is housed in a 12-foot by 11-foot brick dry well structure, which is partially below grade. The depth of the pump room section of the dry well is 7.5 feet. Figures 2 and 3 provide elevation and front views of the station.

Pump Station 104 collects wastewater from the surrounding gravity sewer system into a 18.1-foot deep brick wet well. The wet well diameter was measured to be approximately 5 feet.

The Doppler Flow Meter was used to determine the capacity of Pump Station 104. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 3000 gallons per minute (gpm) at 50-feet of head. The shut-off head for both pumps was found to be approximately 70 feet.

Recommendations:

1. An initial observation of the wet well suggests that the brick upper portion may need regrouting. The extent of the corrosion should be further investigated and corrected.
2. Leakage was noted during the testing of pump number 2 which suggests the seals of the pump require maintenance.



FILE NO.: 104
 JOB NO.: 11130.30.01090120 DATE: 3/28/97

	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
 SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.



SEWERAGE AND WATER BOARD
 OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 104 ("4")
 PUMP STATIONS AND FORCEMAINS SCHEMATIC

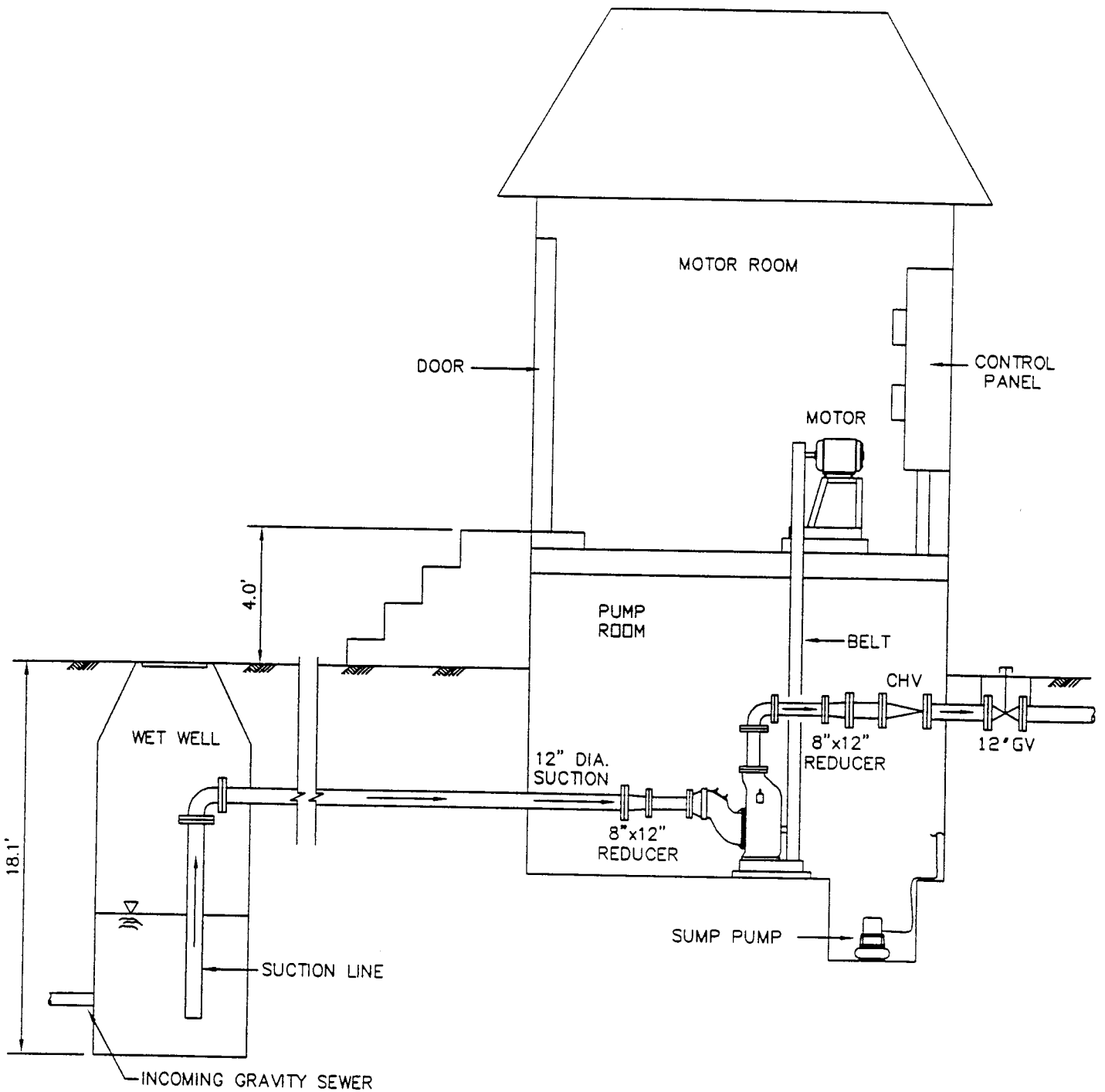
FIGURE:

1

DATE:

3/28/97

FILE NO.: 10A JOB NO.: 1113030.01090120 DATE: 3/21/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 104 ("4")
BI-LEVEL SUCTION LIFT

FIGURE:

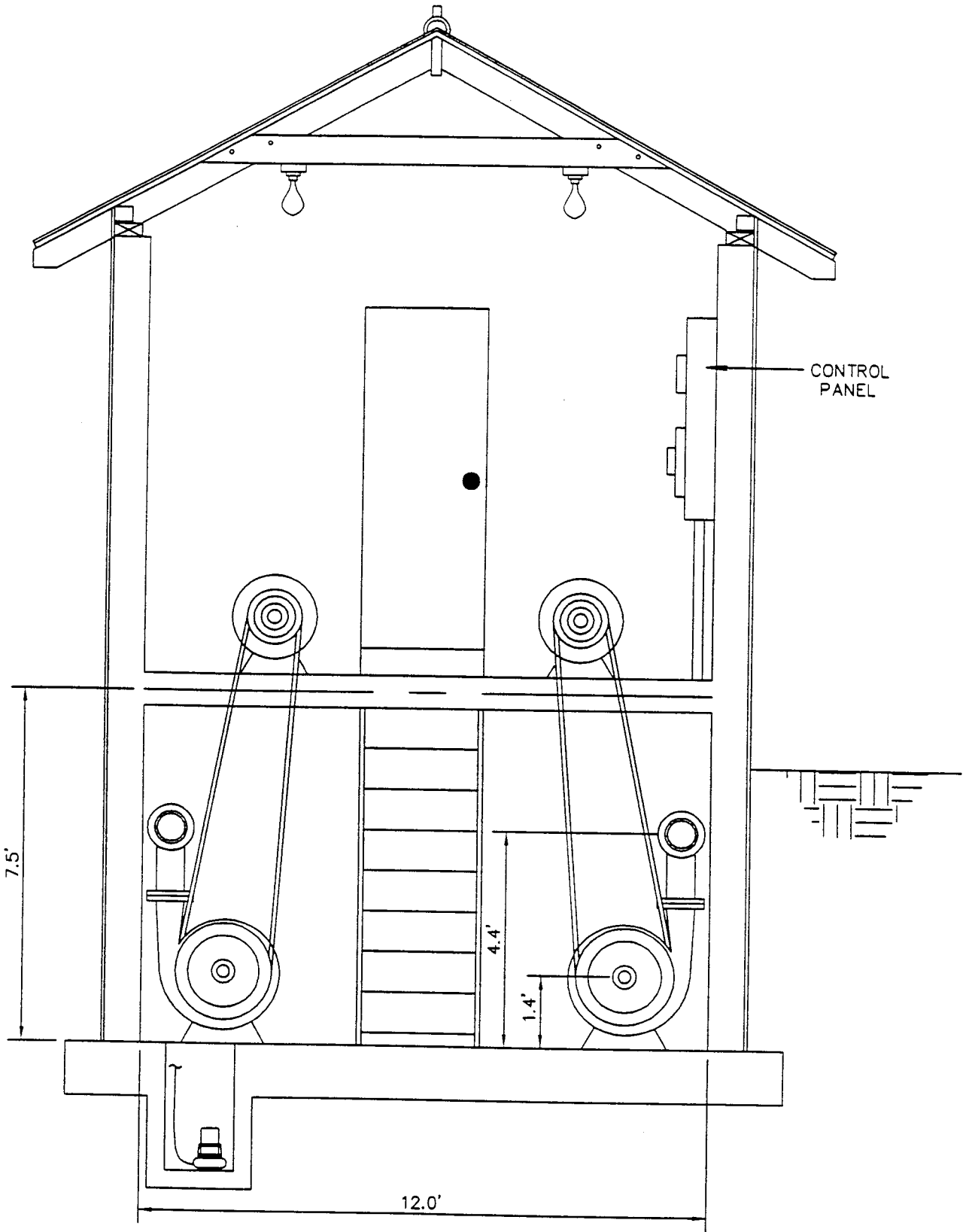
2

DATE:

3/21/97

G JOB NO.: 1113030.01090120 DATE: 3/21/97

FILE NO.: 104



FRONT VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 104 ("4")
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/21/97

Pump Station: 104 (No. 4)

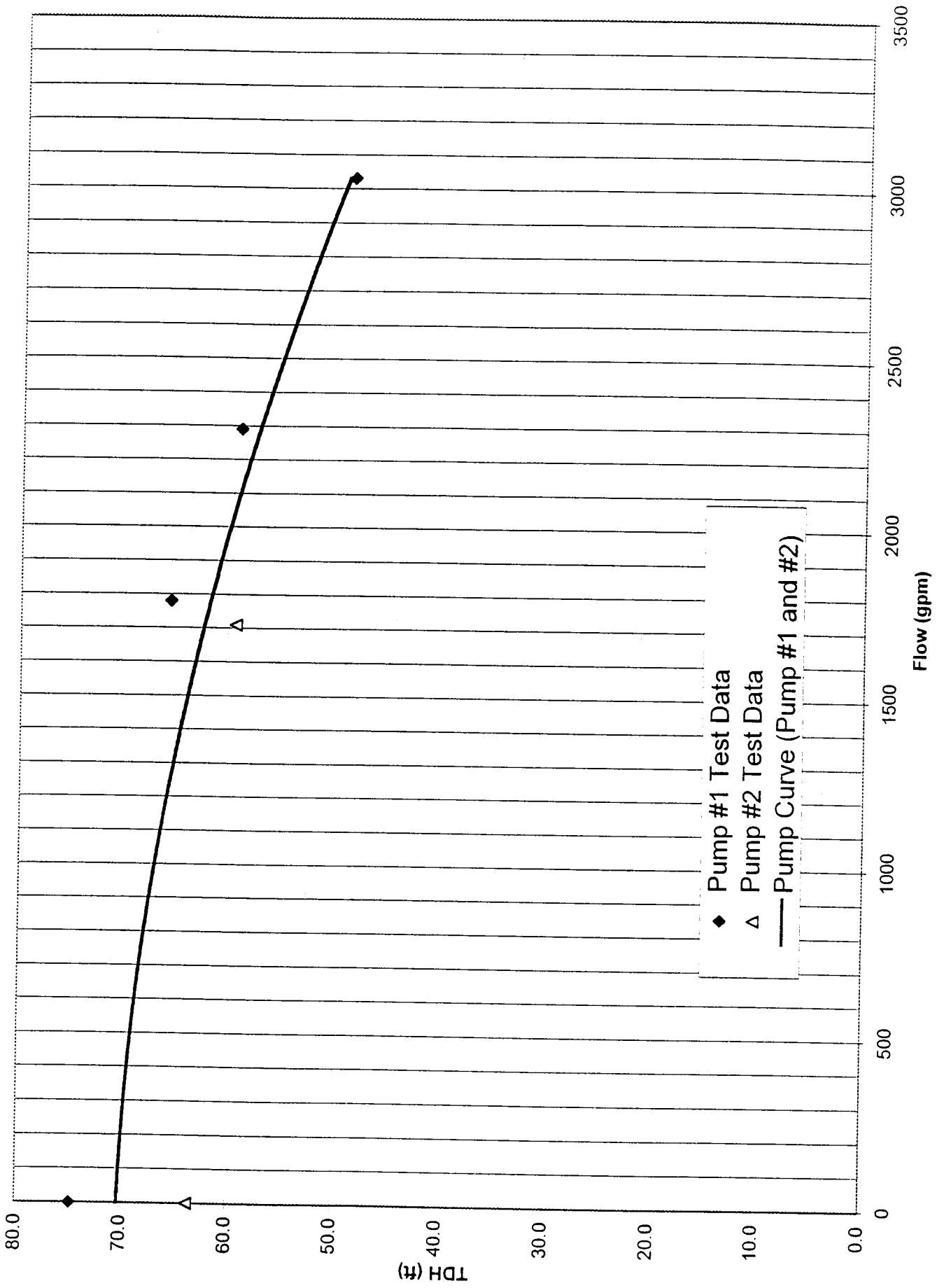


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 104

General Information

PS No. 104 PS Facility 4 Address 5899 Fleur de Lis Avenue

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes It's flow gets repumped by pump station ("D")

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size 0 inch Discharge Valve Size 12 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 12 inch

Dry Well Dimensions 0 ft. dia. Length 12 ft. Width: 11 ft. Depth 7.5 ft.

Pump centerline* 1.4 ft. Centerline of discharge pipe* 4.4 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? pump # 1

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 104

Pump Controls

Lead pump on 9 ft. Type of Controls bubbler
Lead pump off 3 ft.
Lag pump on 10 ft.
Lag pump off 4 ft.

Notes: _____

Structural Observations

Exterior The exterior of the pump station is in fair condition.

Interior The interior of the pump station is in fair condition except for dampness on the wall areas surrounding pipe penetrations.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition Mortar coating.

Comments Brick is exposed near the top of the well.

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 18.1 ft.

Sewer Invert(s) Depth* 0 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 104

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service _____

Size of service protective device _____

Size of main protective device 225

Size of motor protective device 125

Service wire size #4/O AWG Size of motor starter in NEMA 4

Motor wire size #2 AWG Motor Horsepower 75

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1180

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor #1 not available Serial Number - Motor # 1 not available

Model Number - Motor #2 not available Serial Number - Motor # 2 not available

Model Number - Motor #3 - Serial Number - Motor # 3 -

Model Number - Motor #4 - Serial Number - Motor # 4 -

Comments The physical condition of the motors, motor controller, main disconnect switch and control panel is fair. The pump station has fusible disconnect switch.

Pump Station 104 (4)

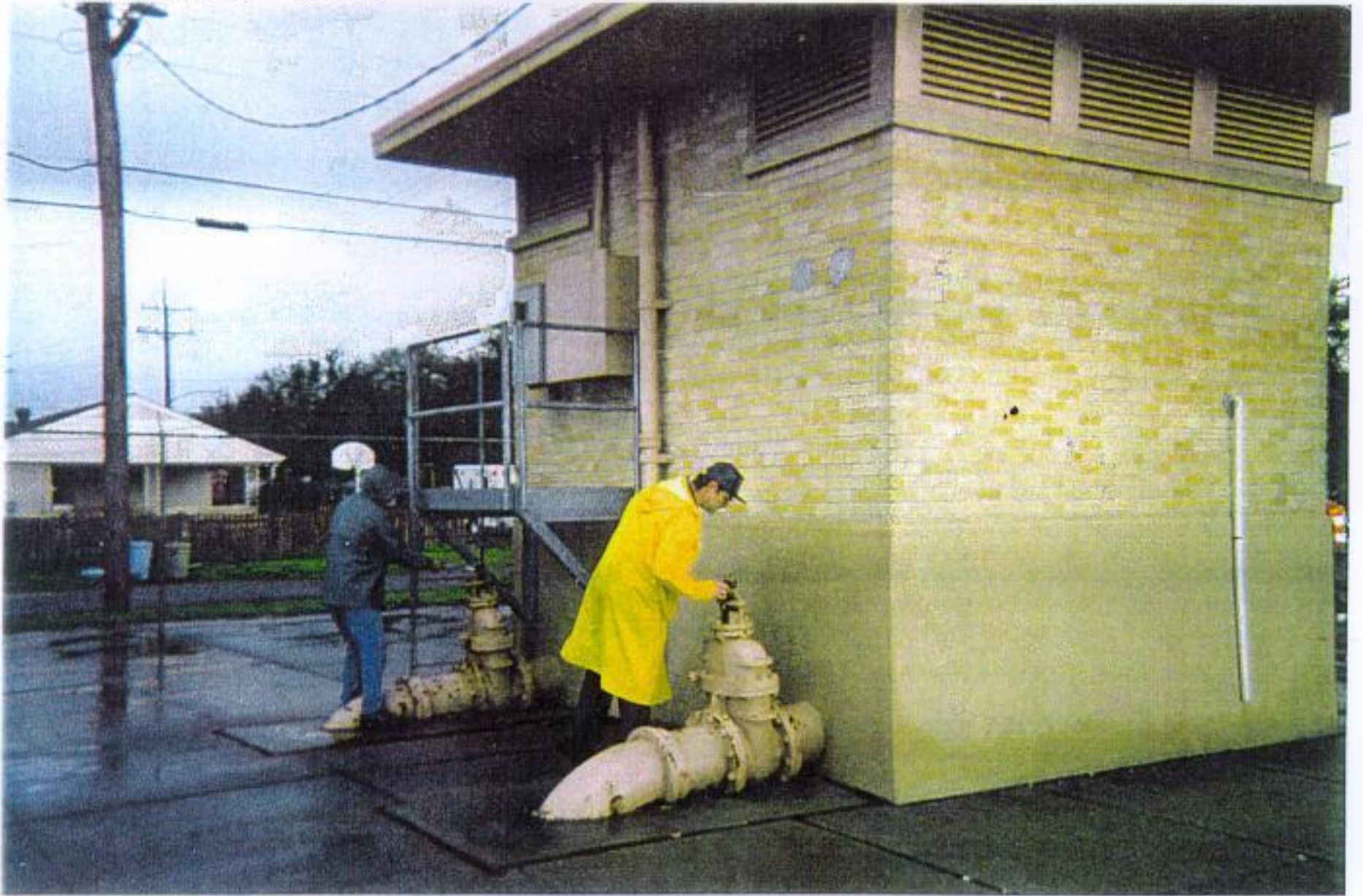


Photo Number 1



Photo Number 2

Pump Station 104 (4)

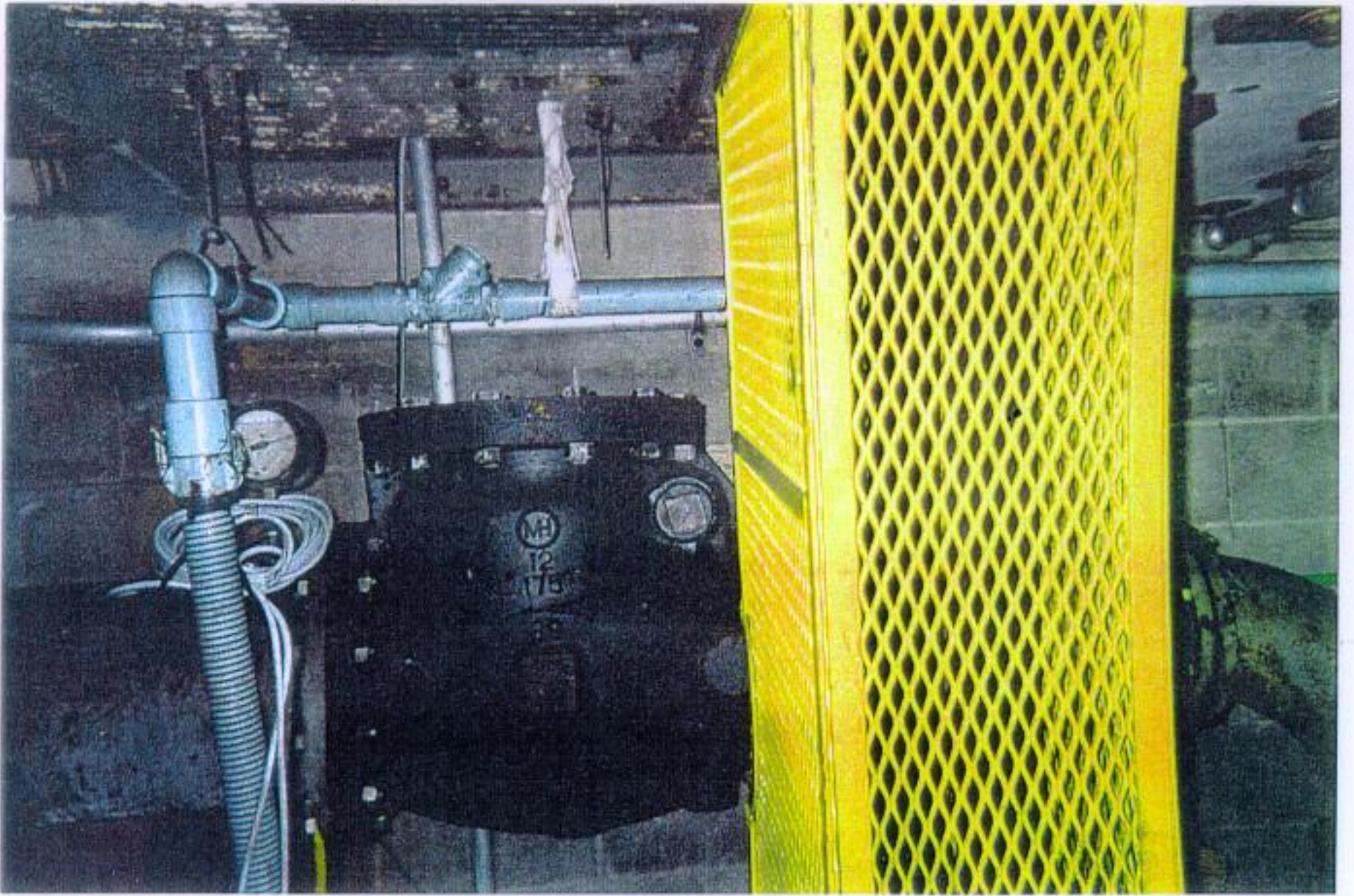


Photo Number 3



Photo Number 4

Pump Station 104 (4)

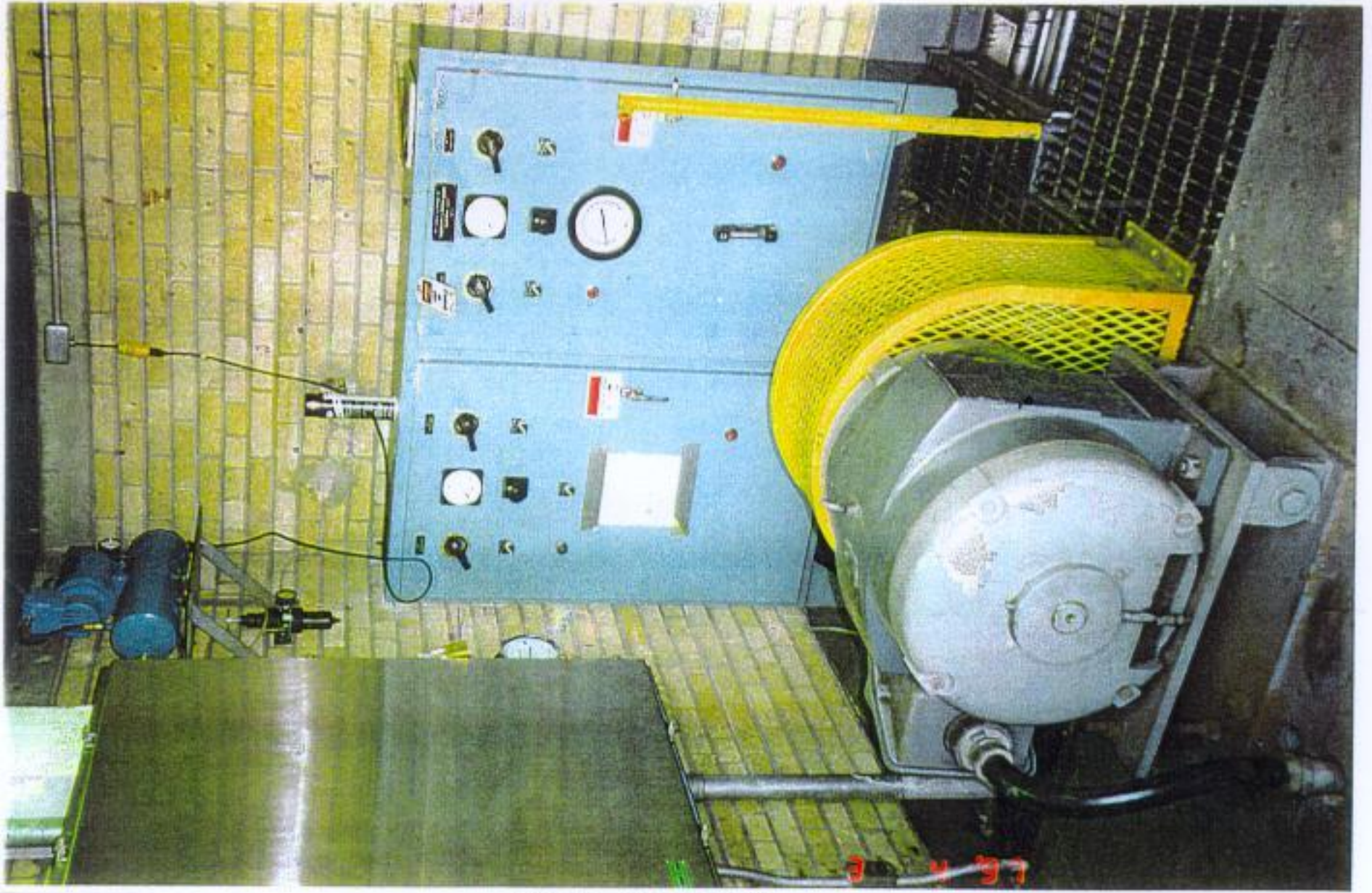


Photo Number 5

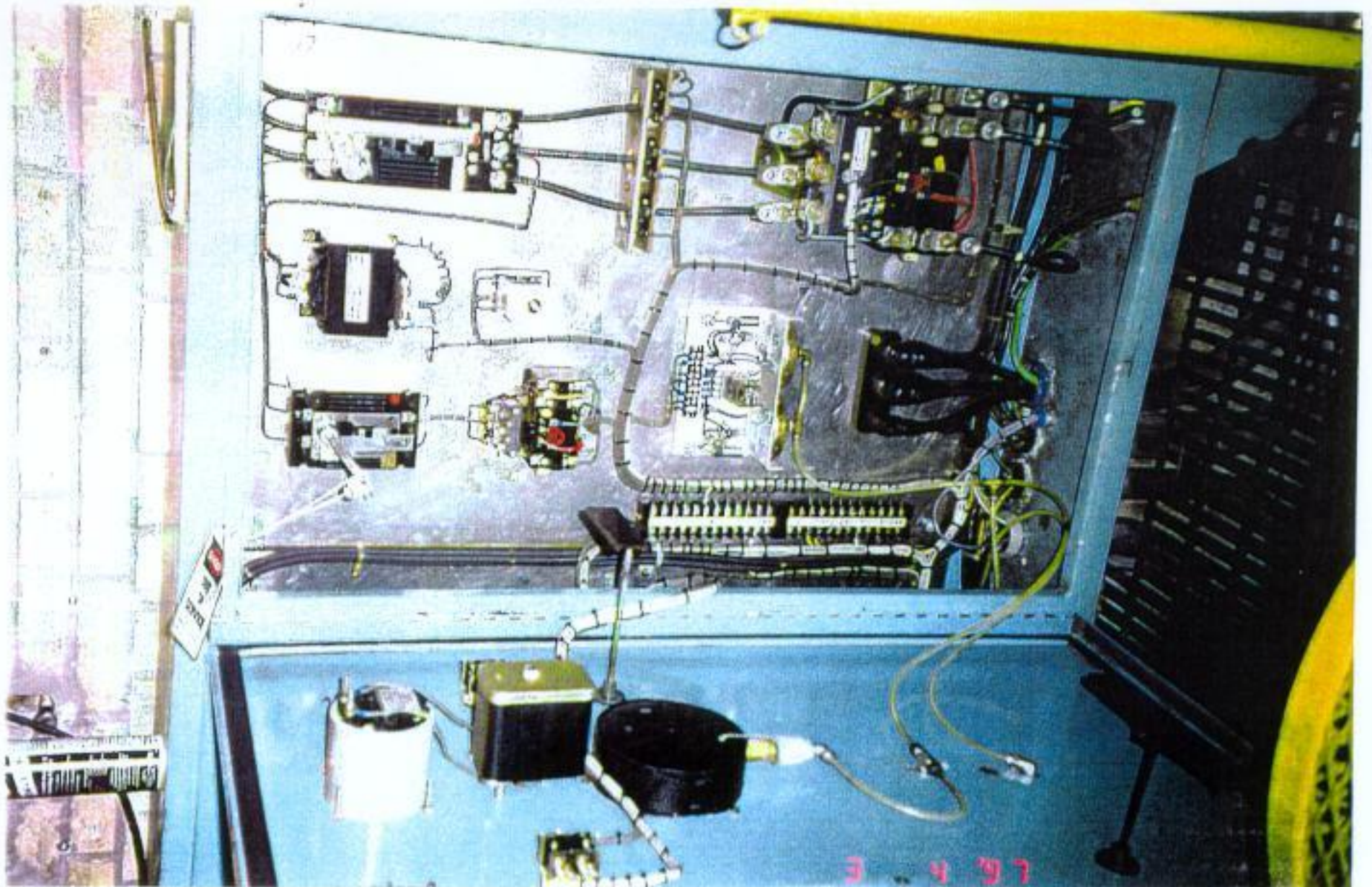


Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 105 (5)
1302 ERATO STREET

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 105 (“5”)

Pump Station 105 is a flooded-suction, multi-level type station located on 1302 Erato Street. It discharges to the wet well of Pump Station 127 (“A”) through a manifolded force main. Figure 1 shows the schematic subsystem surrounding Pump Station 105.

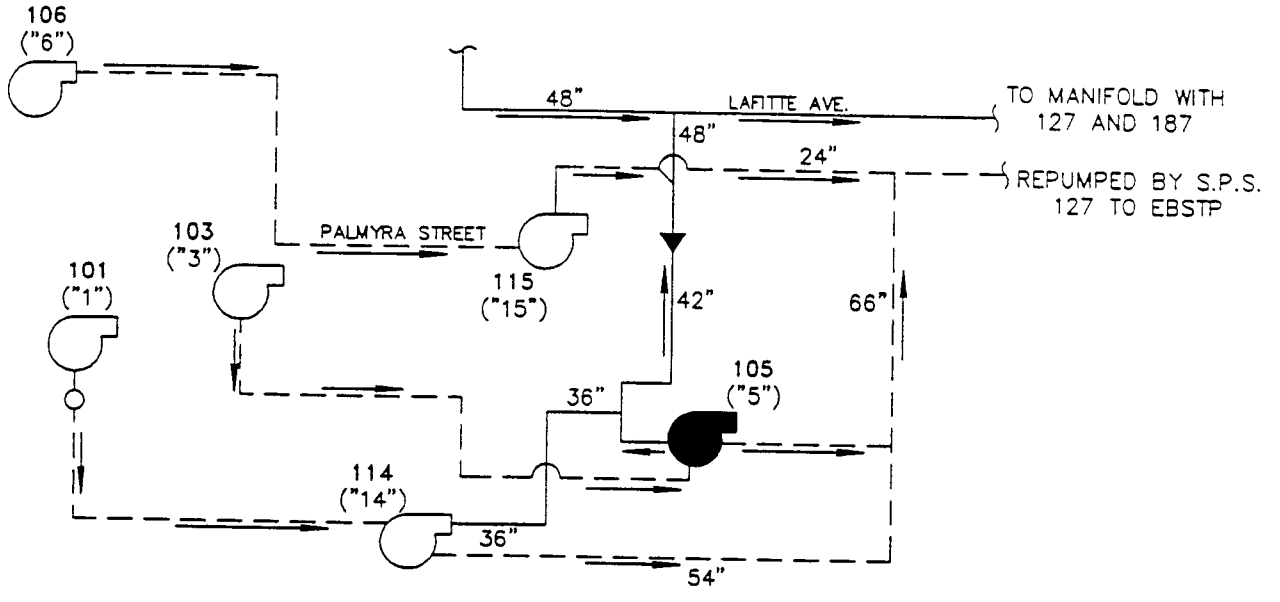
Pump Station 105 contains two (20-inch by 14-inch) vertically aligned pumps. Each pump is powered by a 4-speed Continental Motor Company motor, shown in photo numbers 2 and 3, which is rated at 250 horsepower (hp) at 705 rpm. This equipment is housed in a 32-foot diameter reinforced concrete dry well structure. The total depth from the floor of the motor control room to the dry well bottom is 36.4 feet. Figures 2 and 3 provide plan and elevation views of the station. This station can be characterized as being in fair condition, although minor corrosion of piping, valve, and pump surfaces was observed.

Pump Station 105 collects wastewater from the surrounding gravity sewer system into a semi-circular reinforced concrete wet well, having a radius of 16 feet and a depth of 26.6 feet. This wet well can be characterized as being in good condition.

The Doppler flow meter was utilized to determine flows at various discharge heads to develop the pump curve for each pump, as shown in Figures 4 and 5. Pump number 1 was tested as having the approximate capacities of 7,900 gallon per minute (gpm) at 18 feet of head, 8,400 gpm at 20 feet of head, 12,400 gpm at 27 feet of head, and 16,500 gpm at 30 feet of head on speeds 1, 2, 3, and 4 respectively. Pump number 2 was tested as having the approximate capacities of 7,600 gpm at 16 feet of head, 8,800 gpm at 18 feet of head, 12,800 gpm at 26 feet of head, and 16,400 gpm at 30 feet of head on speeds 1, 2, 3, and 4 respectively.

Recommendations:

1. The extent of the corrosion damage to valves and piping should be evaluated further and repaired or replaced as necessary.



	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

JOB NO.: 1113030.01090120 DATE: 3/28/97

FILE NO.: 105



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 105 ("5")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97

Pump Station: 105 ("5")

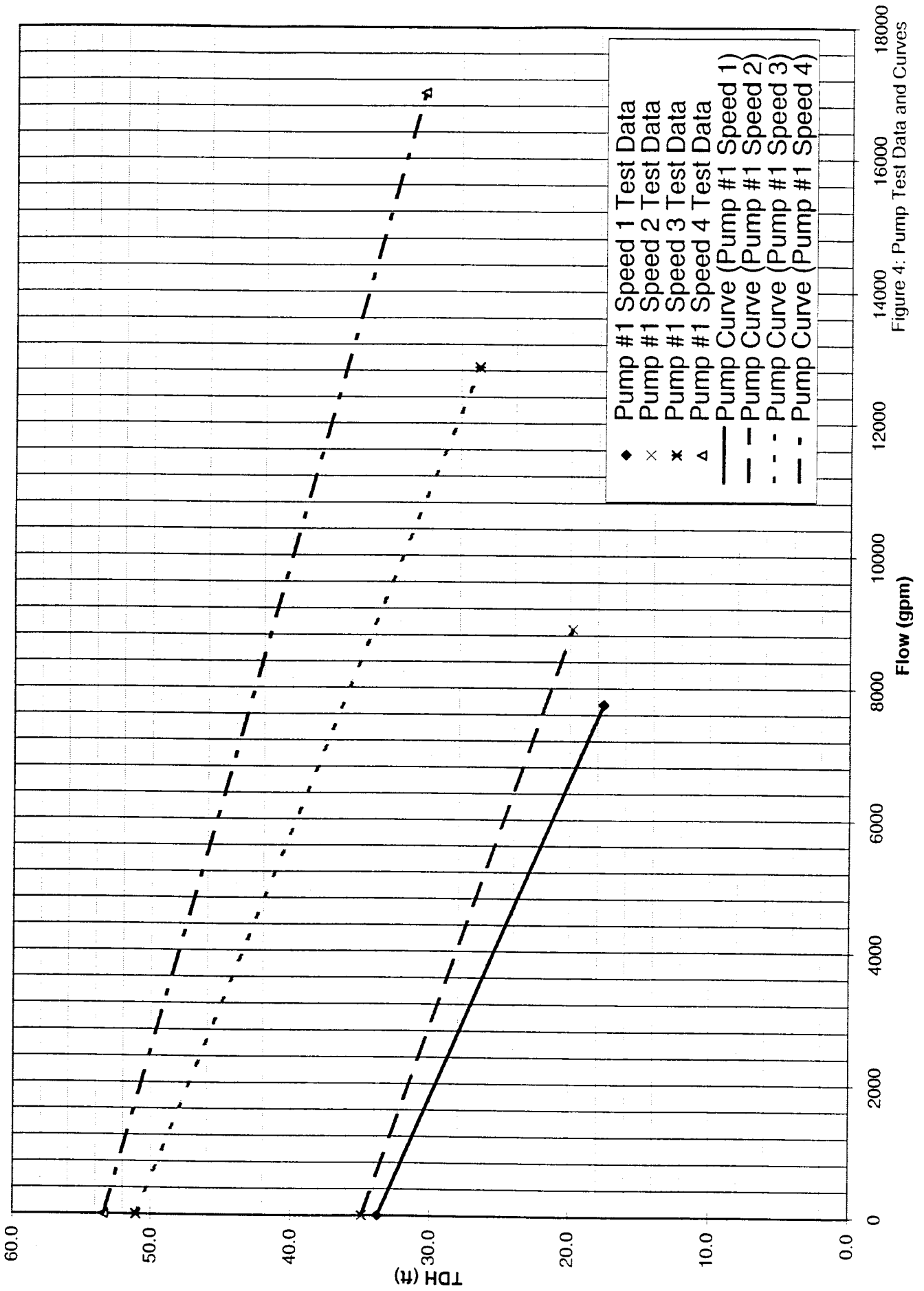


Figure 4: Pump Test Data and Curves

Pump Station: 105 ("5")

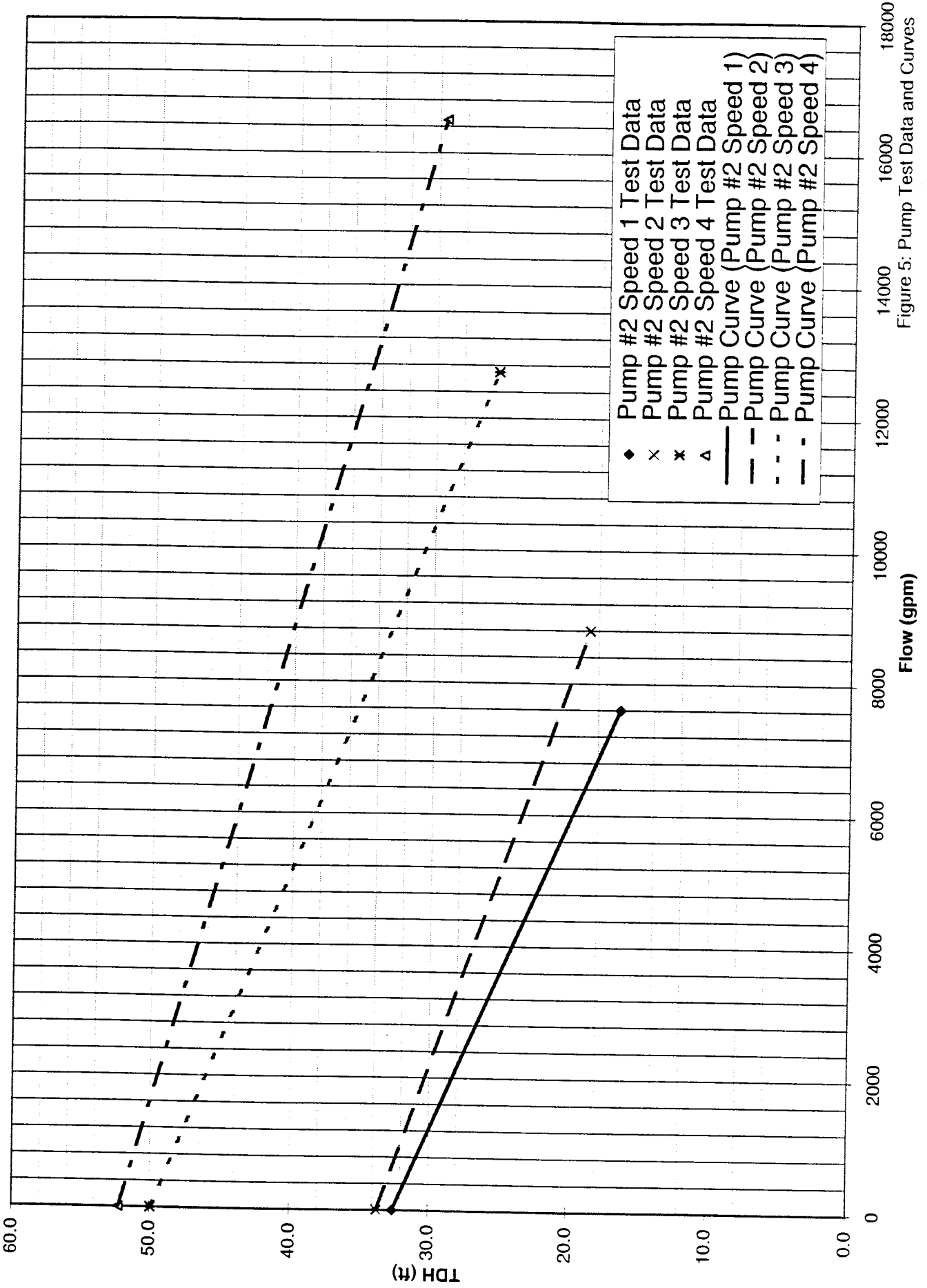


Figure 5: Pump Test Data and Curves

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 105

General Information

PS No. 105 PS Facility 5

Address 1302 Erato Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 K3R10610561

Model Number-Pump #2 not available Serial Number-Pump #2 K3R10610561

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 20 inch Pump Discharge 20 inch FM Diameter 0 inch

Suction Valve Size 24 inch Discharge Valve Size 24 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 24 inch

Dry Well Dimensions 32 ft. dia. Length 0 ft. Width: 0 ft. Depth 36.4 ft.

Pump centerline* 5.6 ft. Centerline of discharge pipe* 28.7 ft.

* measured from dry well bottom.

Notes: Dry well is 32 ft. diameter half circle

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 105

Pump Controls

Lead pump on 7 ft. Type of Controls bubbler
Lead pump off 1.5 ft.
Lag pump on 8.5 ft.
Lag pump off 2.5 ft.

Notes: speed(2) 8,3,5,9,5,4,5; speed(3)9,5,5,11,5,7,5; speed(4)11,7,5,12,5,8,5;

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments half circle dia 32-feet

Diameter 0 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 26.6 ft.

Sewer Invert(s) Depth* 0 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 105

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Double Ended, Normal & Alternate Source, no generator

Type of service Pad Mounted transformer, 480/277 V three phase

Size of service protective device 800 amps, dual element, fusible disconnect switch

Size of main protective device Not Available

Size of motor protective device 400 amps, dual element, fusible disconnect switch

Service wire size Parallel of two 50 Size of motor starter in NEMA 6

Motor wire size 500 kcmil Motor Horsepower 250

Number of motors 2 Motor Speed Multiple

Speed(s) in rpm 176.25, 352.5, 528.75, 705

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The motor protective device is a combination of circuit breaker and fuse. Three phase fuse arrangement is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control does not have a phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The motor is connected to a resistor arid bank for motor speed reduction. The resistor

Pump Station 105 (5)

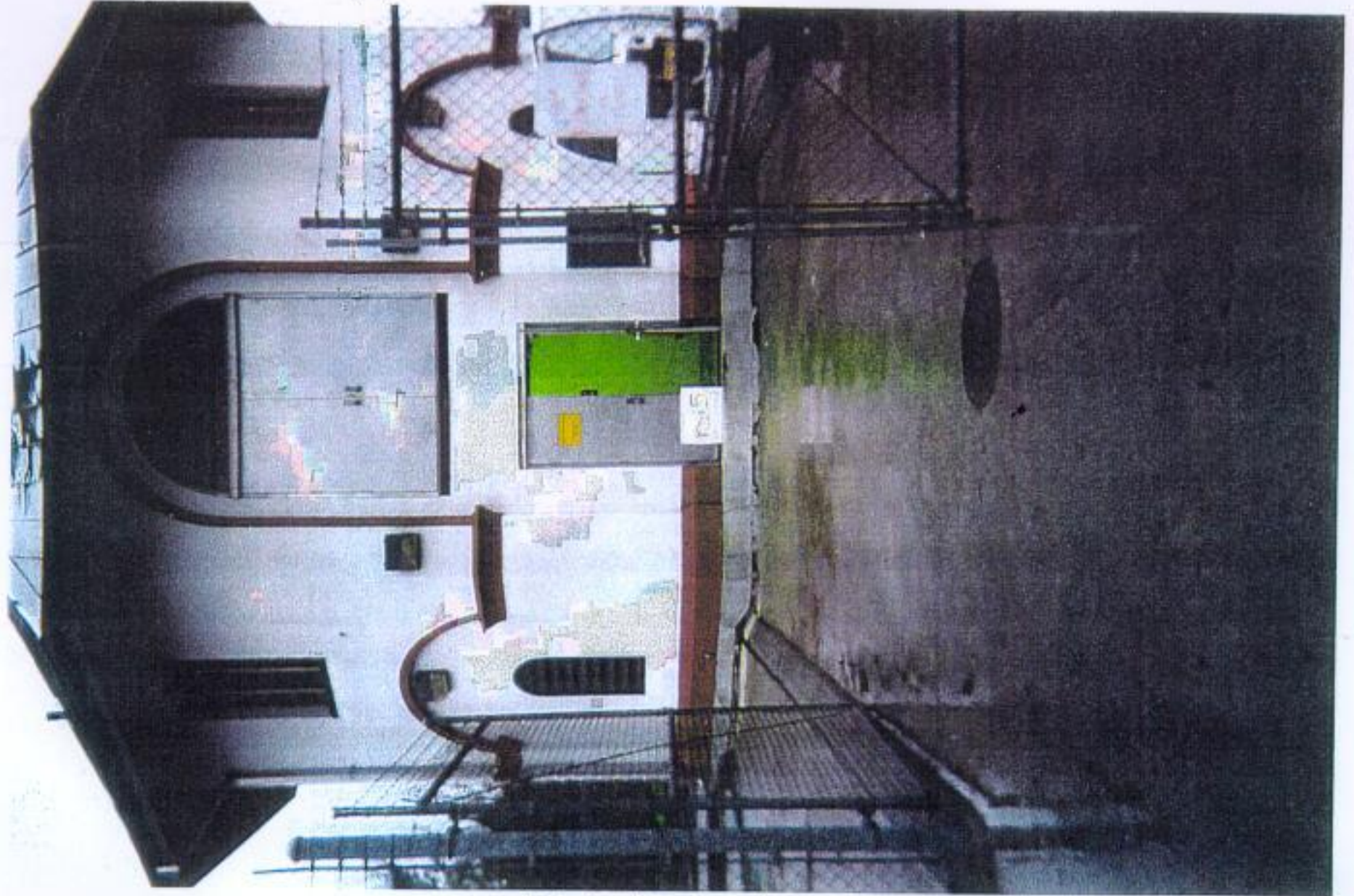


Photo Number 1



Photo Number 2

Pump Station 105 (5)



Photo Number 3

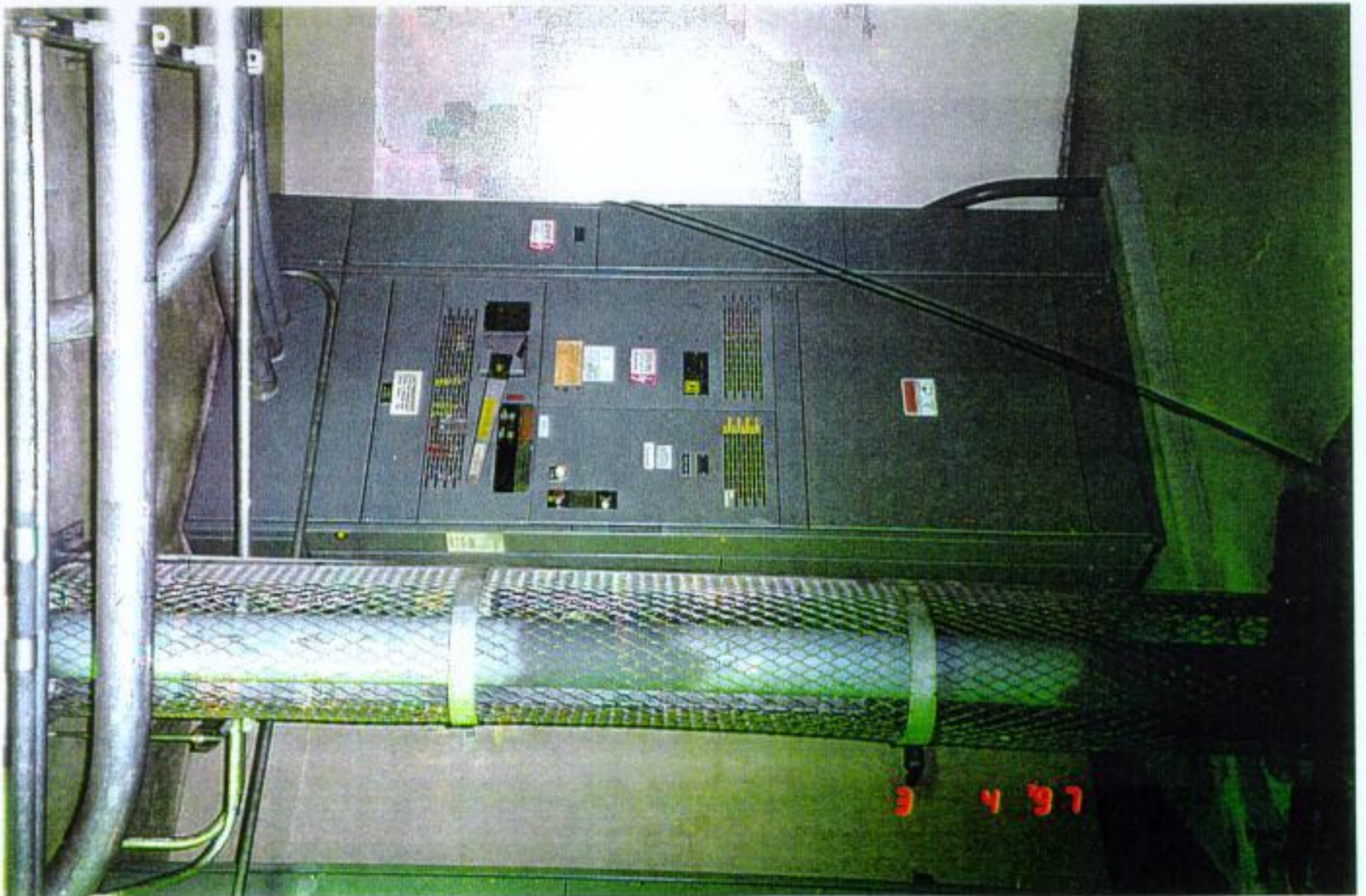


Photo Number 4

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 106 (6)
242 SOUTH SOLOMON STREET**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 106 (6)

Pump Station 106 is a flooded-suction, multi-level type station located on 242 South Solomon Street. It discharges to a gravity main that carries the flow to the wet well of Pump Station 115, which is located at 2431 Palmyra Street. Figure 1 shows the schematic of the subsystem surrounding Pump Station 106. Pump Station 106 does not repump flow from any other station.

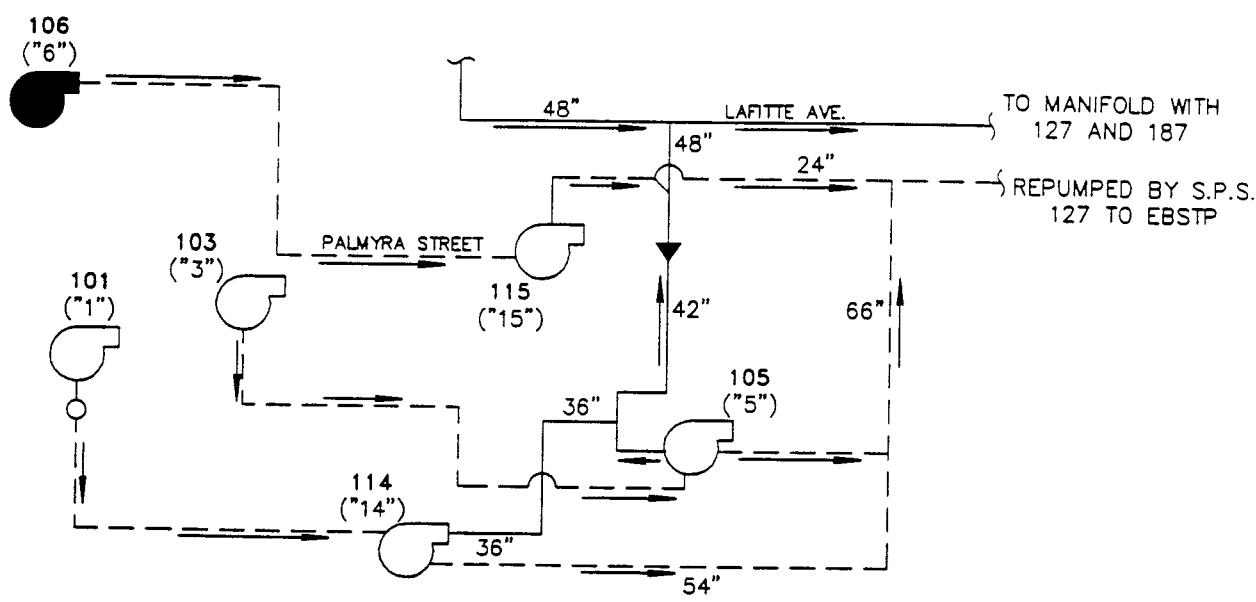
Pump Station 106 contains two (14-inch by 14-inch) vertically aligned pumps. Each pump is powered by a single speed Westinghouse motor that originally operated at 25 hertz (Hz). These motors were rewound by General Electric in 1977 to run at 60 Hz and 211 revolutions per minute (rpm). This equipment is housed in a 16-foot diameter concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 19.3 feet. Figures 2, 3, and 4 illustrate elevation and plan views of the station.

Pump Station 106 collects wastewater from the surrounding gravity sewer system into a 18.7-foot deep concrete suction chamber. Severe corrosion of the interior of this suction chamber has taken place. This corrosion is characterized by exposed aggregate and concrete loss is estimated to be in excess of 1-inch from the original surface.

Doppler flow meter was utilized to determine flows at various discharge heads to develop the pump curve of Pump Station 106, as shown in Figure 5. Each pump has an approximate capacity of 5,500 gallons per minute (gpm) at 10-feet of head. With both pumps in operation, the capacity of the pump station doubles because Pump Station 106 discharges to a gravity main with each pump having separate discharge piping.

Recommendations:



1. Corrosion of the interior of concrete suction chamber may be serious enough to compromise its structural integrity. It is recommended that this issue be addressed and resolved.



- ▲ REDUCER/INCREASER
- MANHOLE
- ✕ GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- ⊂ PUMP STATION
- REF. PUMP STATION
- EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

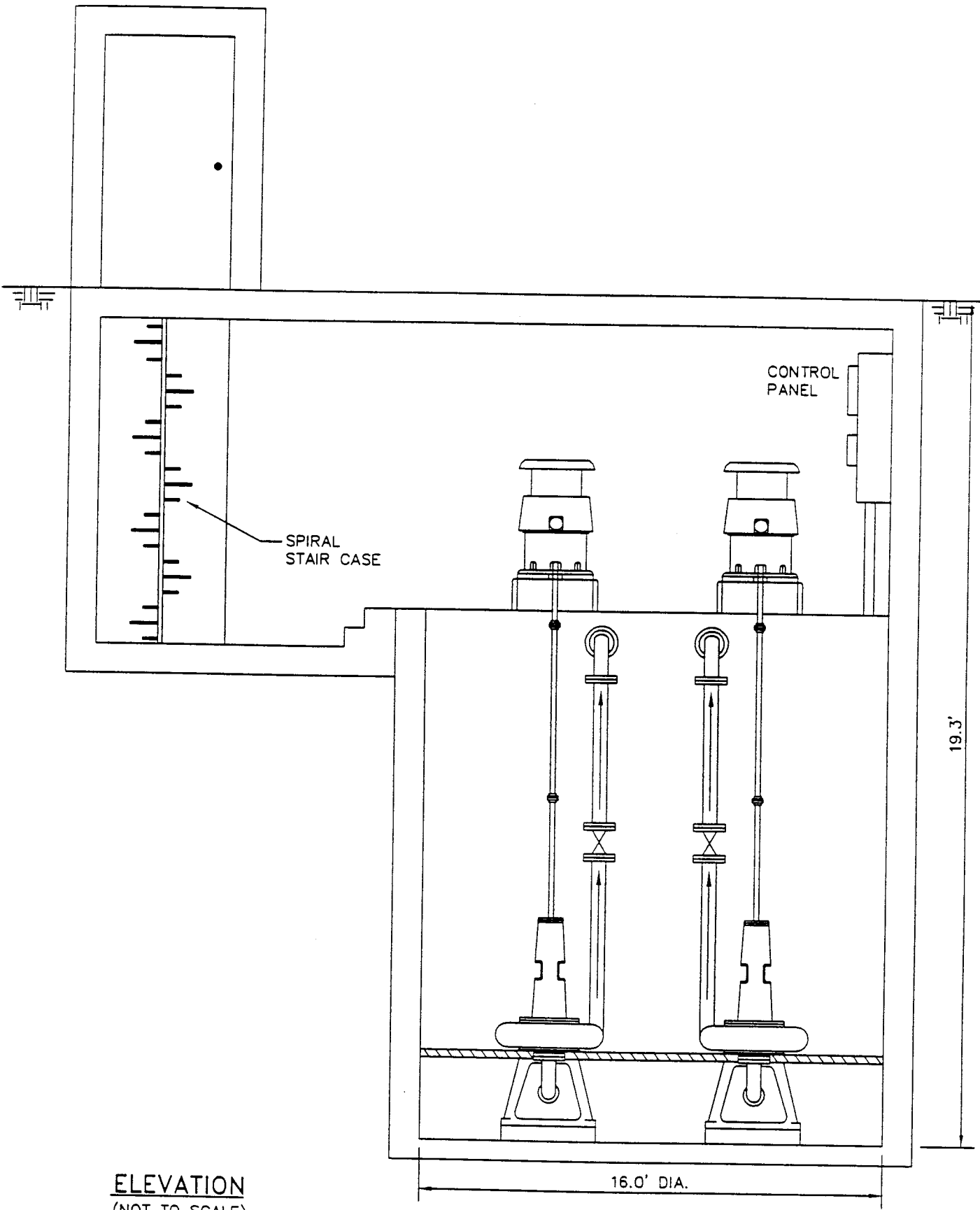
FILE NO.: 106. JOB NO.: 1113030.01090120 DATE: 3/28/97

 <p>SEWERAGE AND WATER BOARD OF NEW ORLEANS</p>	 <p>MONTGOMERY WATSON</p>
---	---

PUMP STATION 106 ("6")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97

FILE NO.: 106- S. JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 106 ("6")
MULTI-LEVEL FLOODED SUCTION

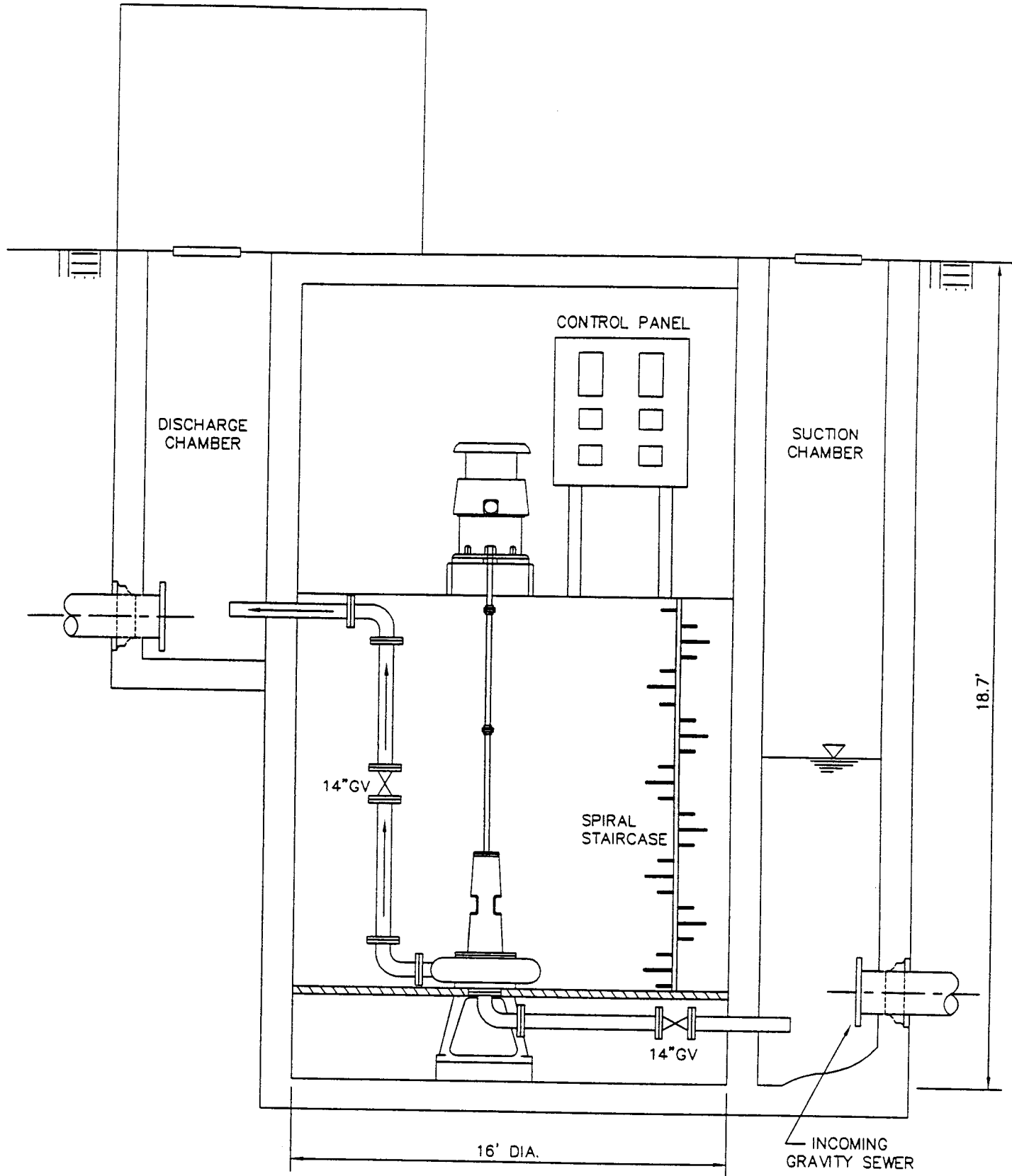
FIGURE:

2

DATE:

3/28/97

FILE NO.: 106- JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 106 ("6")
MULTI-LEVEL FLOODED SUCTION

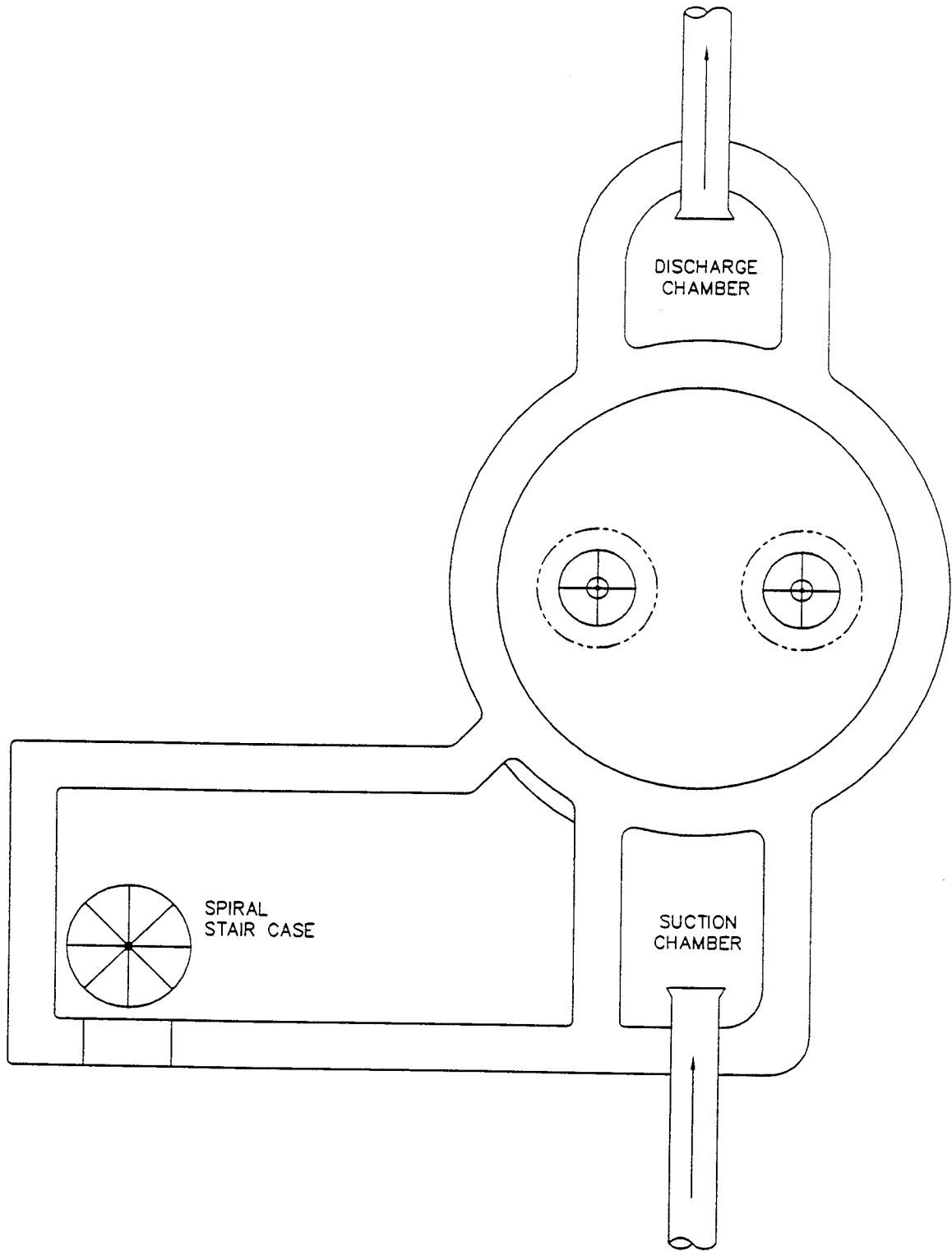
FIGURE:

3

DATE:

3/28/97

FILE NO.: 106 .G JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 106 ("6")
MULTI-LEVEL FLOODED SUCTION

FIGURE:

4

DATE:

3/28/97

Pump Station: 106 (No. 6)

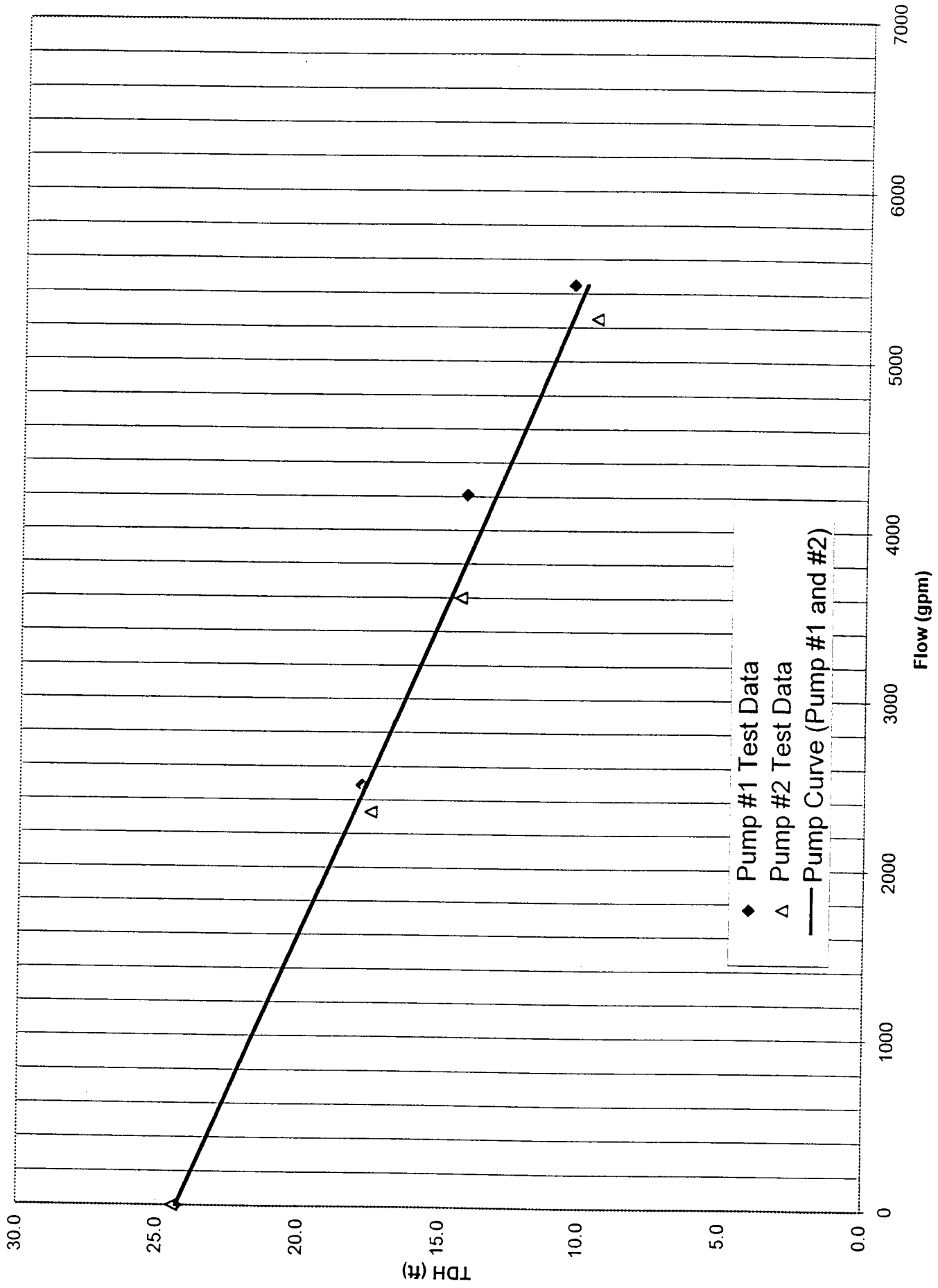


Figure 5: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 106

General Information

PS No. 106 PS Facility 6

Address 242 South Solomon Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer _____

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 14 inch Pump Discharge 14 inch FM Diameter 14 inch

Suction Valve Size 14 inch Discharge Valve Size 14 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size _____ inch

Dry Well Dimensions 16 ft. dia. Length 0 ft. Width: 0 ft. Depth 19.3 ft.

Pump centerline* 4 ft. Centerline of discharge pipe* _____ ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? not applicable

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? # 1 and 2

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 106

Pump Controls

Lead pump on 9.5 ft. Type of Controls bubbler
Lead pump off 6 ft.
Lag pump on 0 ft.
Lag pump off 0 ft.

Notes: _____

Structural Observations

Exterior The overall exterior condition of the station is fair.

Interior The overall interior condition of the station is fair except for areas of peeling paint and patches of dampness on the walls.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 6 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 18.7 ft.

Sewer Invert(s) Depth* 15 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 106

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device not available

Size of main protective device 200 amps, fusible disconnect switch

Size of motor protective device 125 amps, fusible disconnect switch

Service wire size # 4/0 AWG Size of motor starter in NEMA 4

Motor wire size # 1 AWG Motor Horsepower 60

Number of motors 0 Motor Speed Single

Speed(s) in rpm 200

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller and control panel are in fair condition. The pump station has fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses blow out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 106 (6)



Photo Number 1



Photo Number 2

Pump Station 106 (6)



Photo Number 3



Photo Number 4

Pump Station 106 (6)

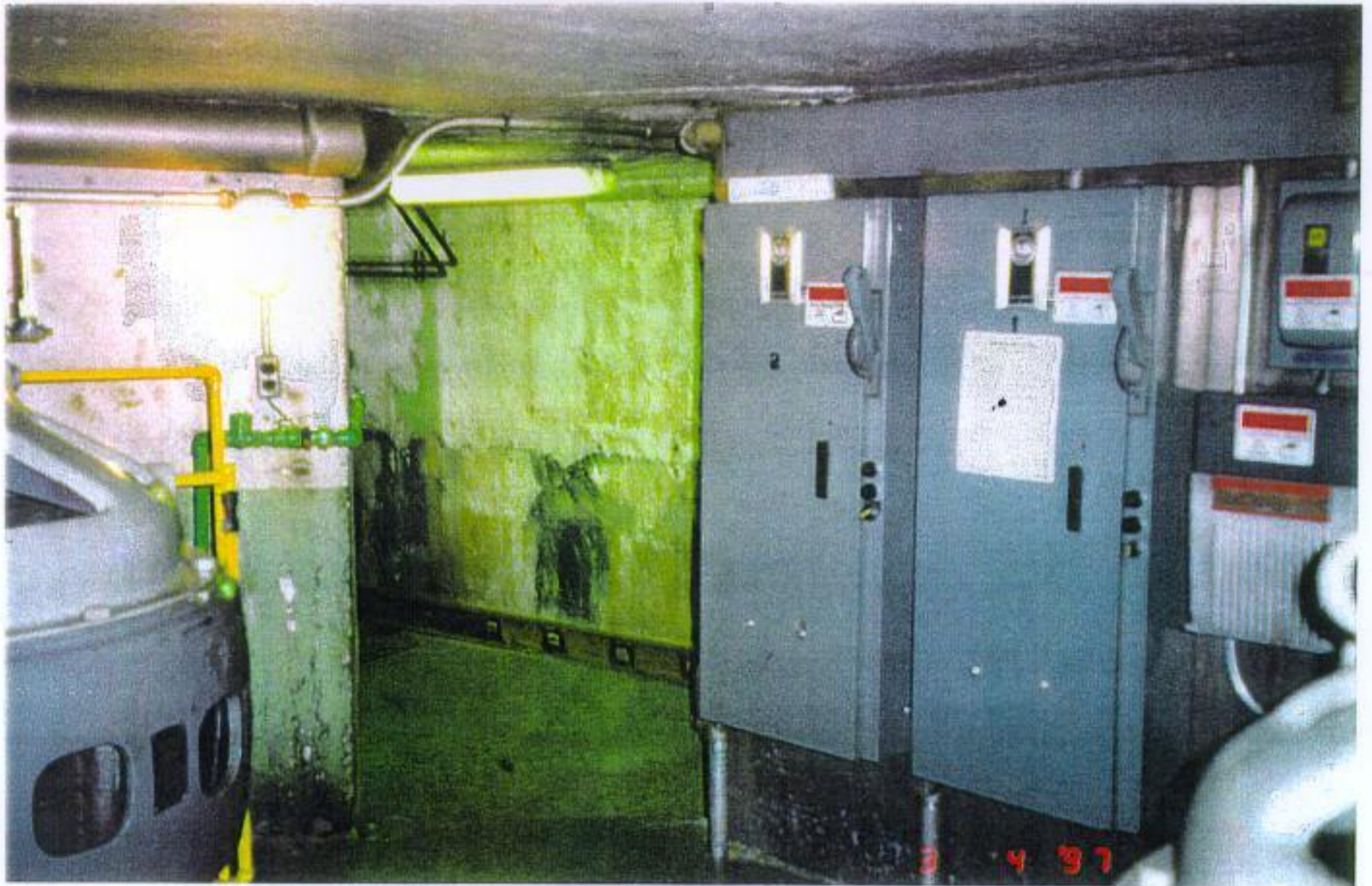


Photo Number 5

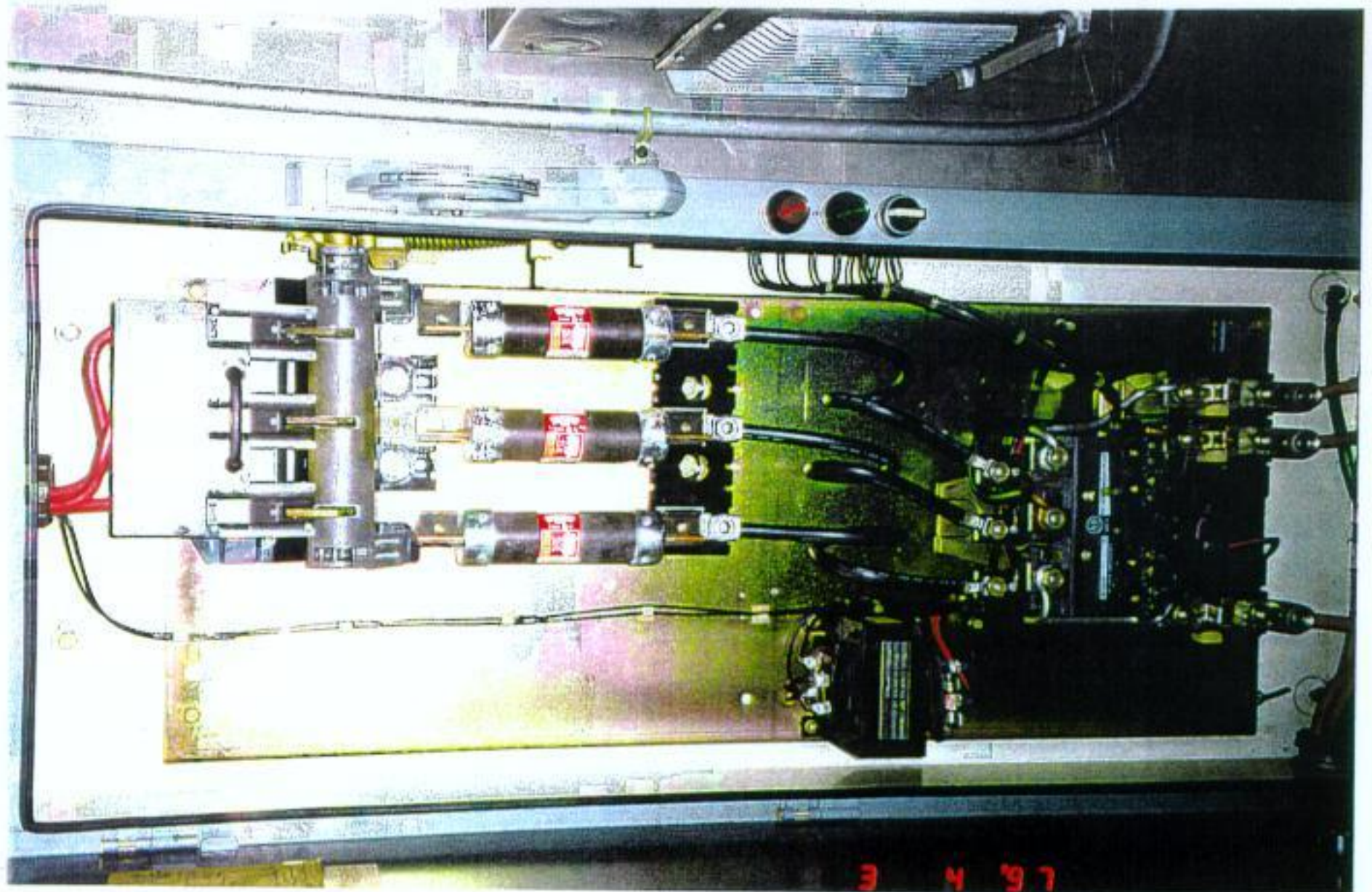


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 108 (8)
BROAD AT TOULOUSE STREET**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 108 (8)

Pump Station 108 is a flooded-suction, multi-level type station located on Broad at Toulouse Street. It discharges to a gravity main that carries the flow to the wet well of Pump Station 127, which is located at 1321 Orleans Avenue. Figure 1 shows the schematic of the subsystem surrounding Pump Station 108. Pump Station 108 does not repump flow from any other station.

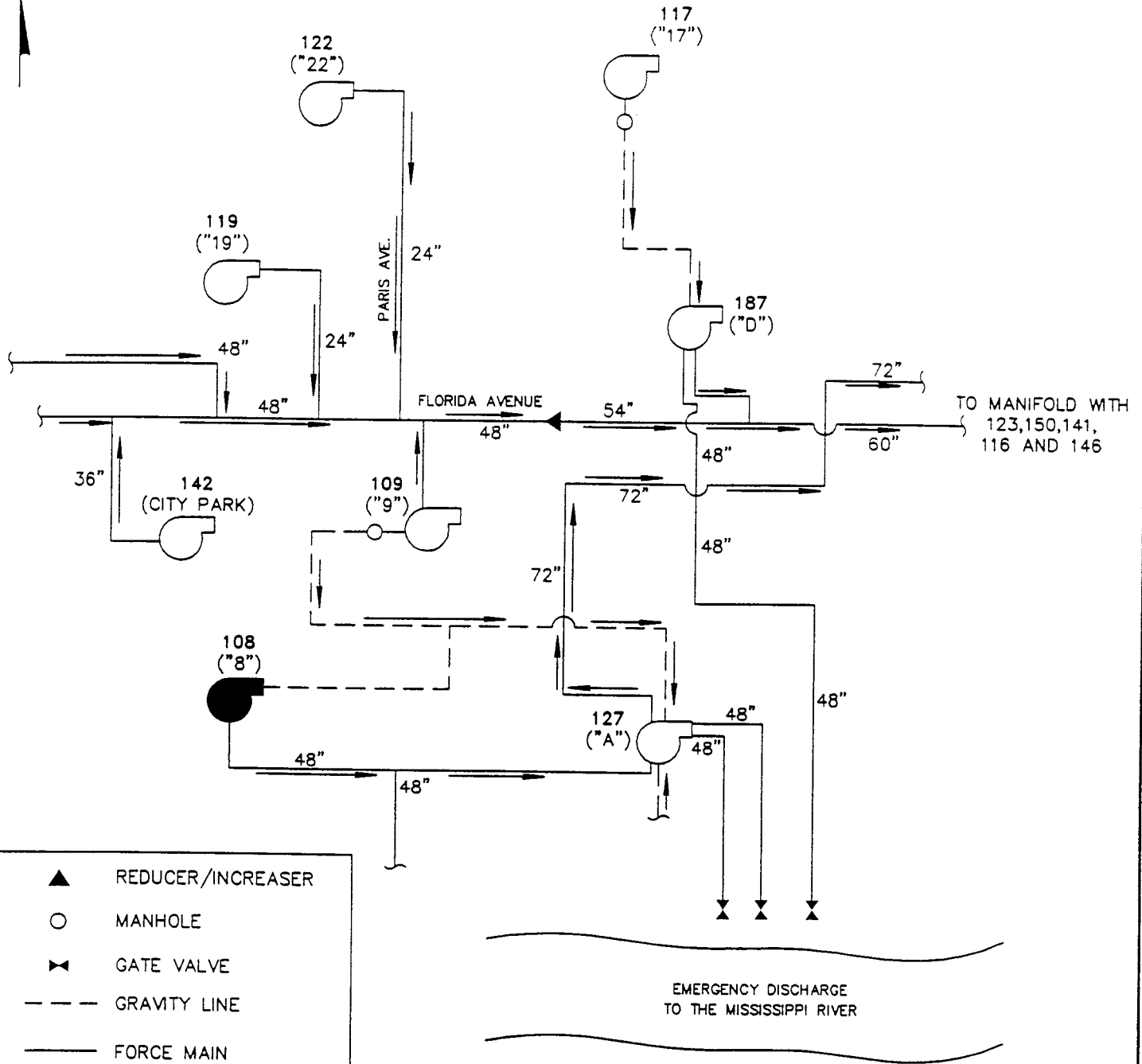
Pump Station 108 contains two (14-inch by 14-inch) vertically aligned pumps. Each pump is powered by a single speed Westinghouse motor that originally operated at 25 hertz (Hz). These motors were rewound by General Electric in 1977 to run at 60 Hz and 211 revolutions per minute (rpm). This equipment is housed in a 16-foot diameter concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 22.1-foot. Figures 2, 3, and 4 illustrate elevation and plan views of the station.

Pump Station 108 collects wastewater from the surrounding gravity sewer system into a 19.7-foot deep concrete suction chamber. Severe corrosion of the interior of this suction chamber has taken place. This corrosion is characterized by exposed aggregate and concrete loss is estimated to be in excess of 1-inch from the original surface.

The Doppler Flow Meter was utilized to determine flows at various discharge heads to develop the pump curve of Pump Station 108, as shown in Figure 5. Each pump has an approximate capacity of 4,500 gallons per minute (gpm) at 7-feet of head. With both pumps in operation, the capacity of the station doubles because Pump Station 108 discharges to a gravity main with each pump having separate discharge piping.

Recommendations:

1. Corrosion of the interior of concrete suction chamber may be serious enough to compromise its structural integrity. It is recommended that this issue be addressed and resolved.
2. It was observed that the motor controller and control panel are in poor condition due to corrosion. The extent of the corrosion should be further investigated and the equipment replaced as necessary.



FILE NO.: 102
 JOB NO.: 1113030.01090120
 DATE: 3/28/97

- ▲ REDUCER/INCREASER
- MANHOLE
- ⋈ GATE VALVE
- - - GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- PUMP STATION
- REF. PUMP STATION
- ▭ EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 108 ("8")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

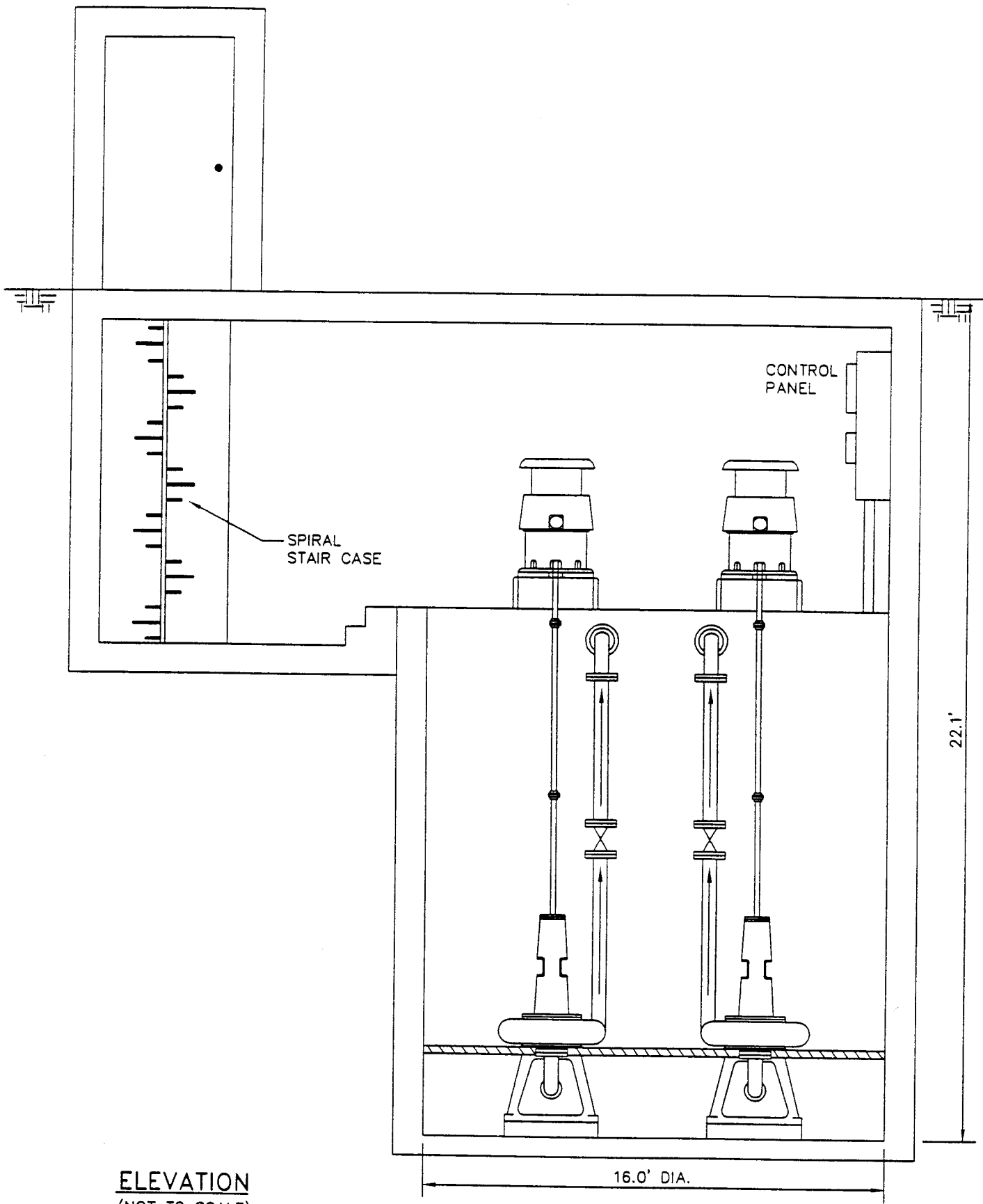
FIGURE:

1

DATE:

3/28/97

FILE NO.: 108 JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 108 ("8")
MULTI-LEVEL FLOODED SUCTION

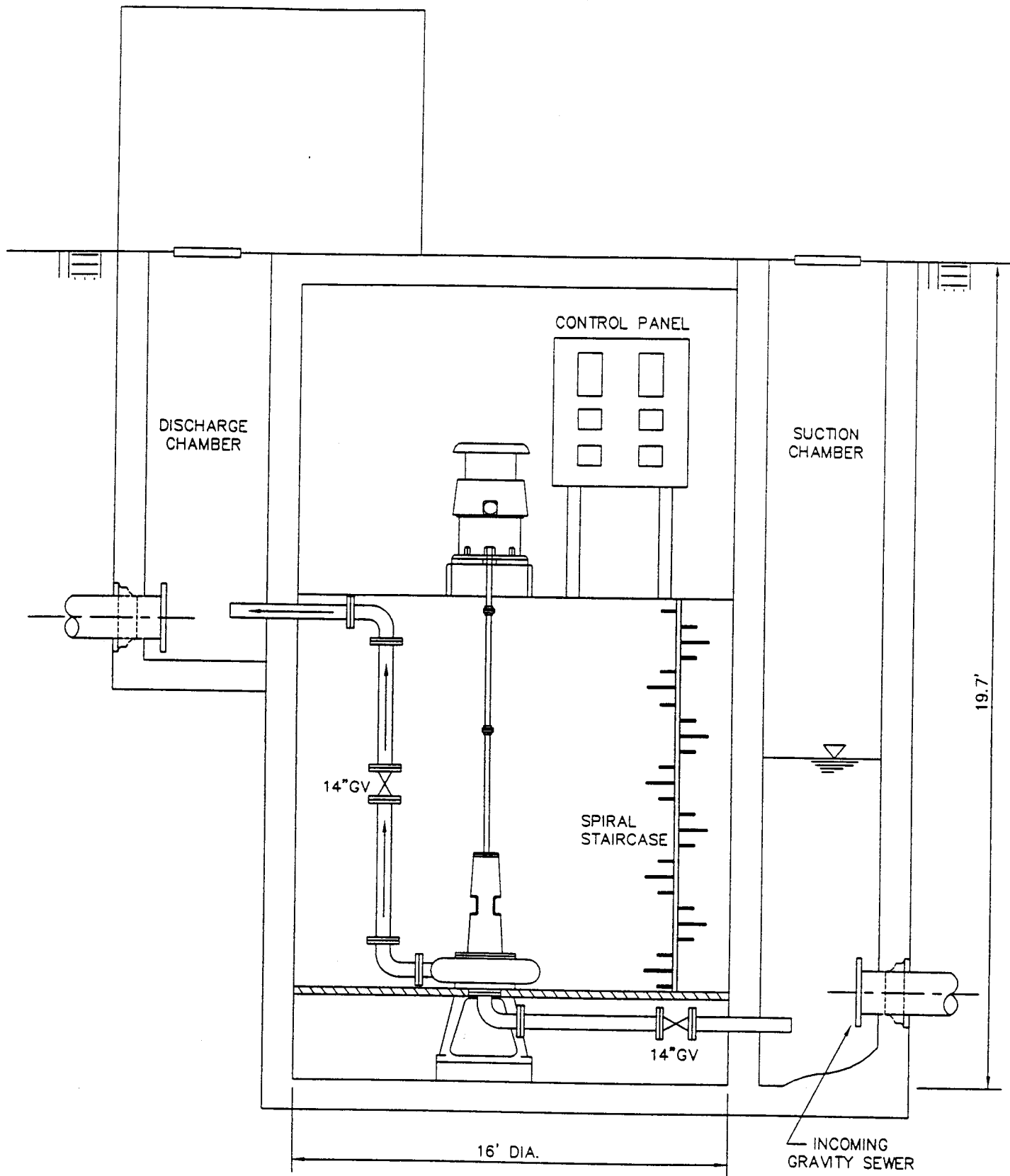
FIGURE:

2

DATE:

3/28/97

FILE NO.: 108- JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 108 ("8")
MULTI-LEVEL FLOODED SUCTION

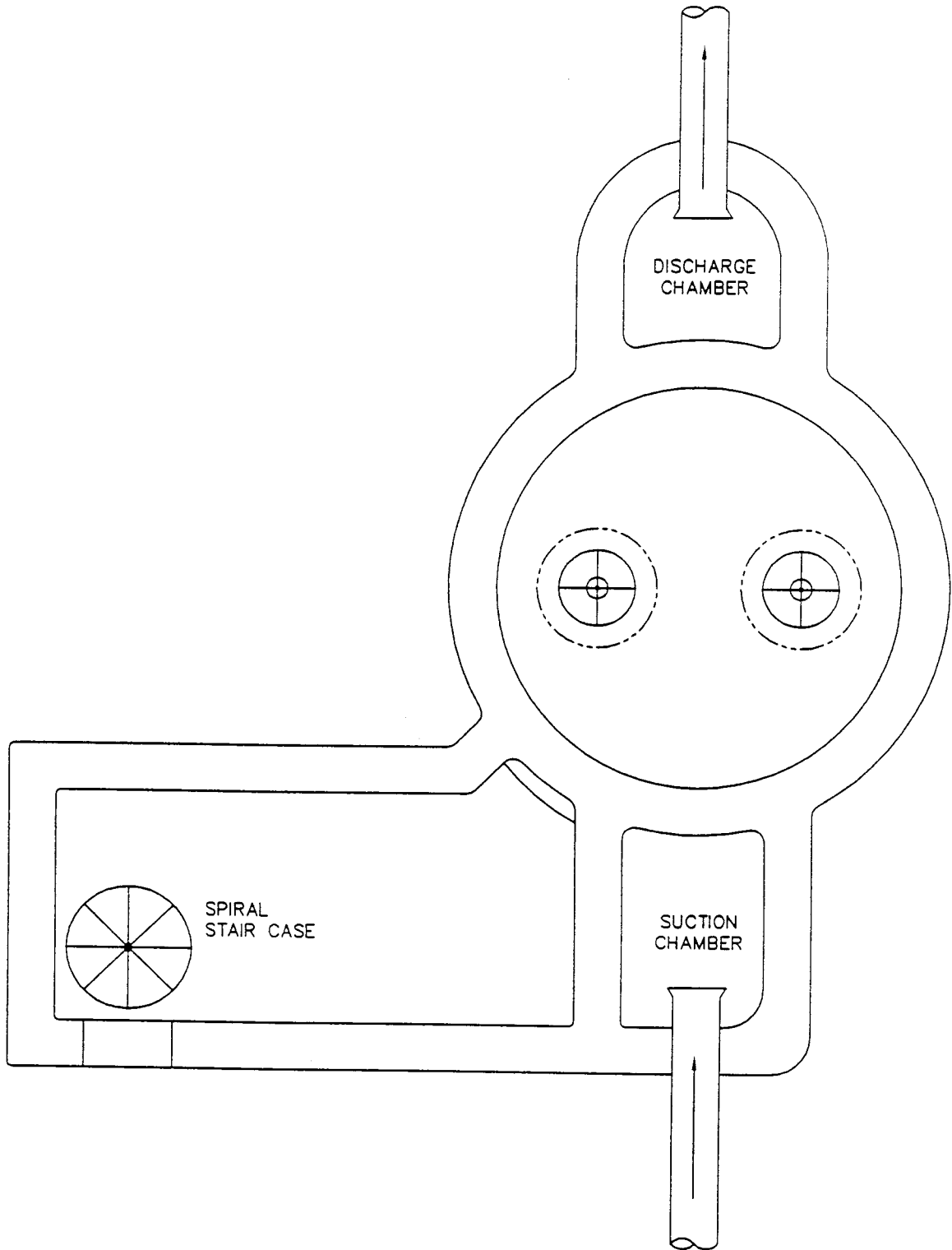
FIGURE:

3

DATE:

3/28/97

FILE NO.: 108-2 JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 108 ("8")
MULTI-LEVEL FLOODED SUCTION

FIGURE:

4

DATE:

3/28/97

Pump Station: 108 (No. 8)

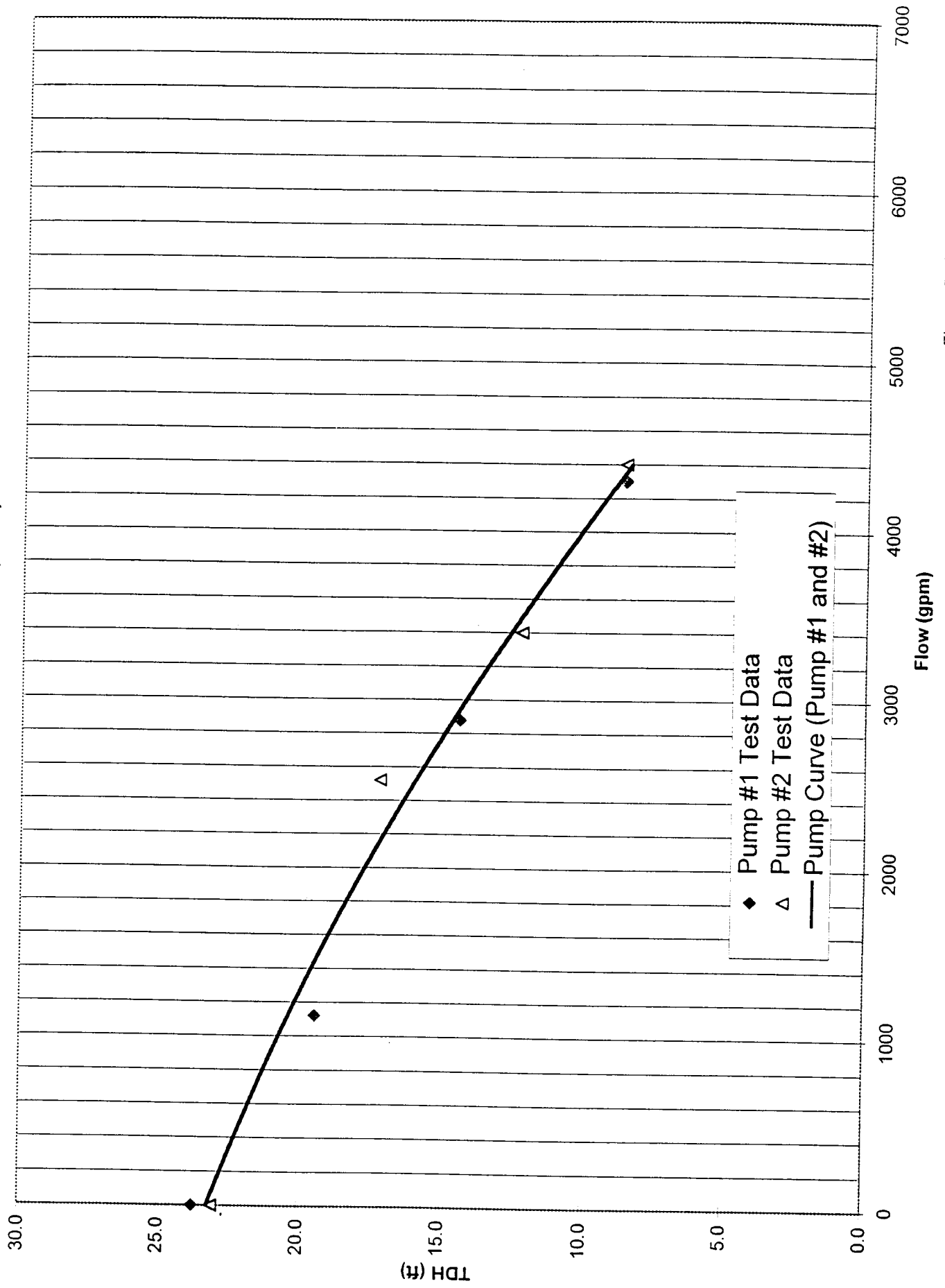


Figure 5: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 108

General Information

PS No. 108 PS Facility 8

Address Broad at Toulouse Street

- PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer not available

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 14 inch Pump Discharge 14 inch FM Diameter 14 inch

Suction Valve Size 14 inch Discharge Valve Size 14 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size _____ inch

Dry Well Dimensions 16 ft. dia. Length 0 ft. Width: 0 ft. Depth 22.1 ft.

Pump centerline* 4 ft. Centerline of discharge pipe* 11 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? not applicable

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 108

Pump Controls

Lead pump on 12.5 ft. Type of Controls bubbler
Lead pump off 6.5 ft.
Lag pump on 13.7 ft.
Lag pump off 7.5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior is fair except for isolated areas of peeling paint.
Interior The overall condition of the interior is fair except for isolated areas of peeling paint and some patches of dampness on the walls.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Severe exposed aggregate and significant corrosion were observed.

Diameter 6 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 19.7 ft.

Sewer Invert(s) Depth* 16.3 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 108

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device not available

Size of main protective device 200 amps, fusible disconnect switch

Size of motor protective device 125 amps, fusible disconnect switch

Service wire size # 4/0 AWG Size of motor starter in NEMA 4

Motor wire size # 1 AWG Motor Horsepower 60

Number of motors 2 Motor Speed Single

Speed(s) in rpm 211

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the two motors are in fair condition. The motor controller and control panel are in poor condition due to corrosion. The pump station has fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses blow out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-

Pump Station 108 (8)



Photo Number 1

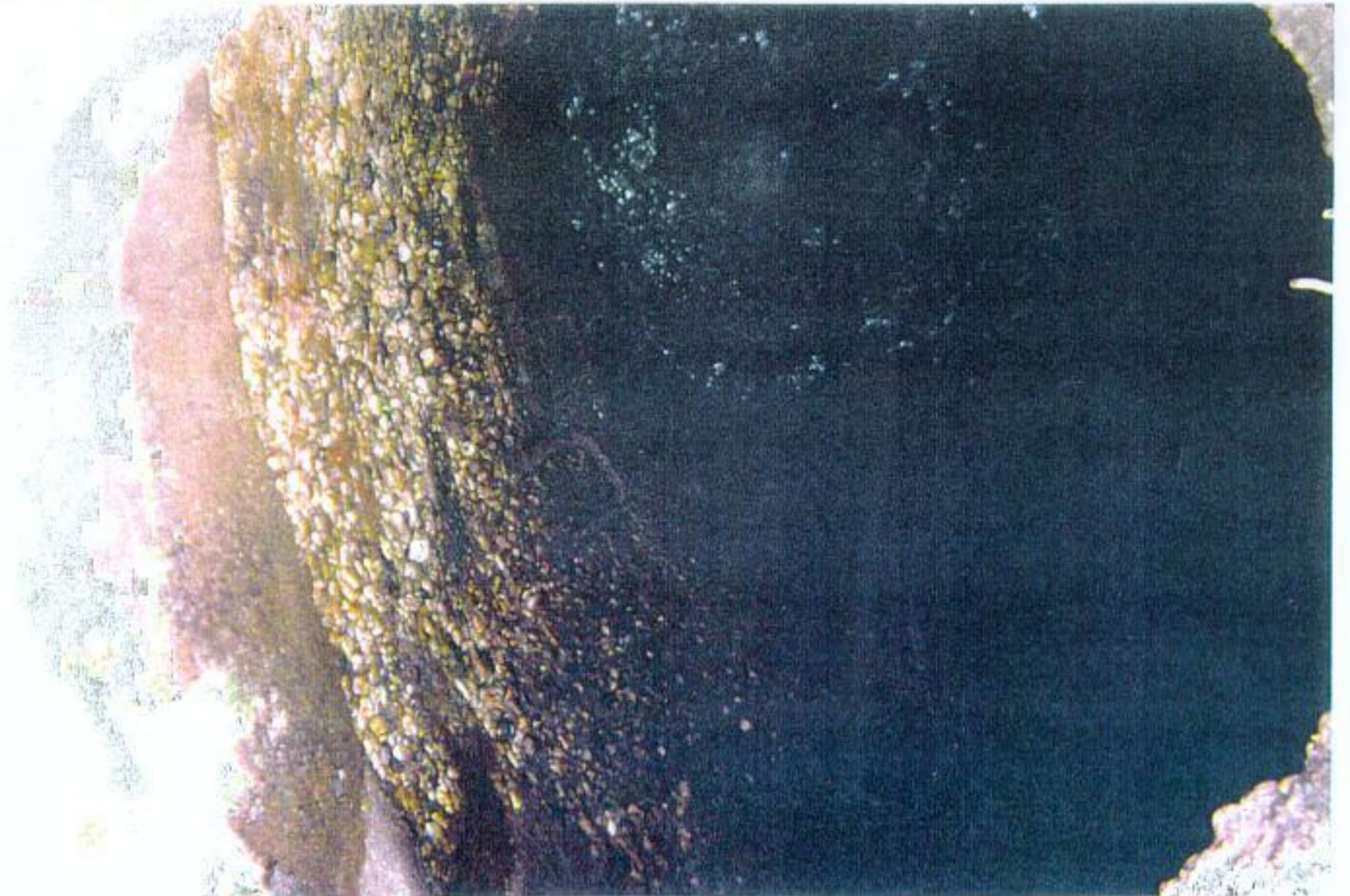


Photo Number 2

Pump Station 108 (8)

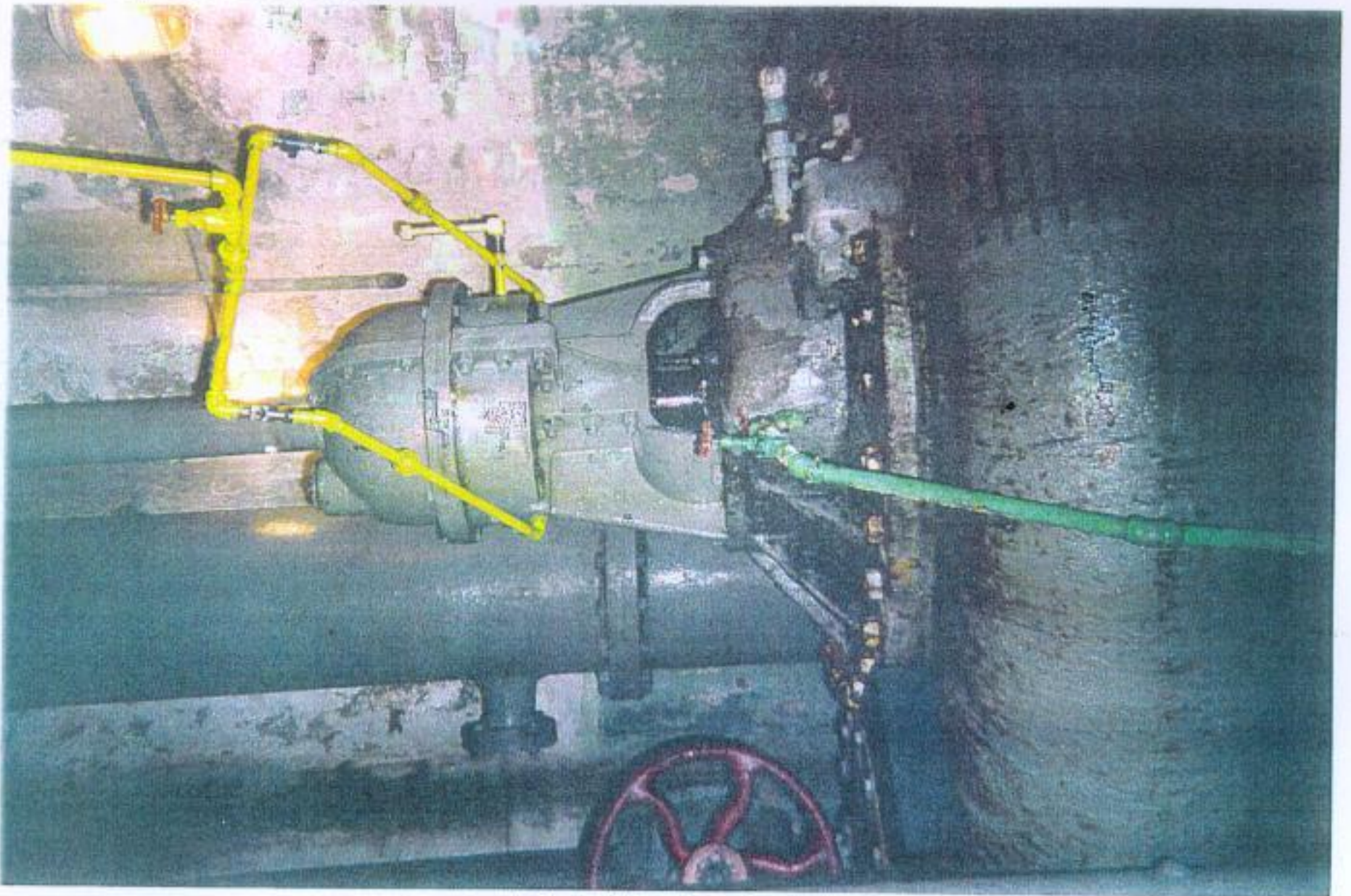


Photo Number 3

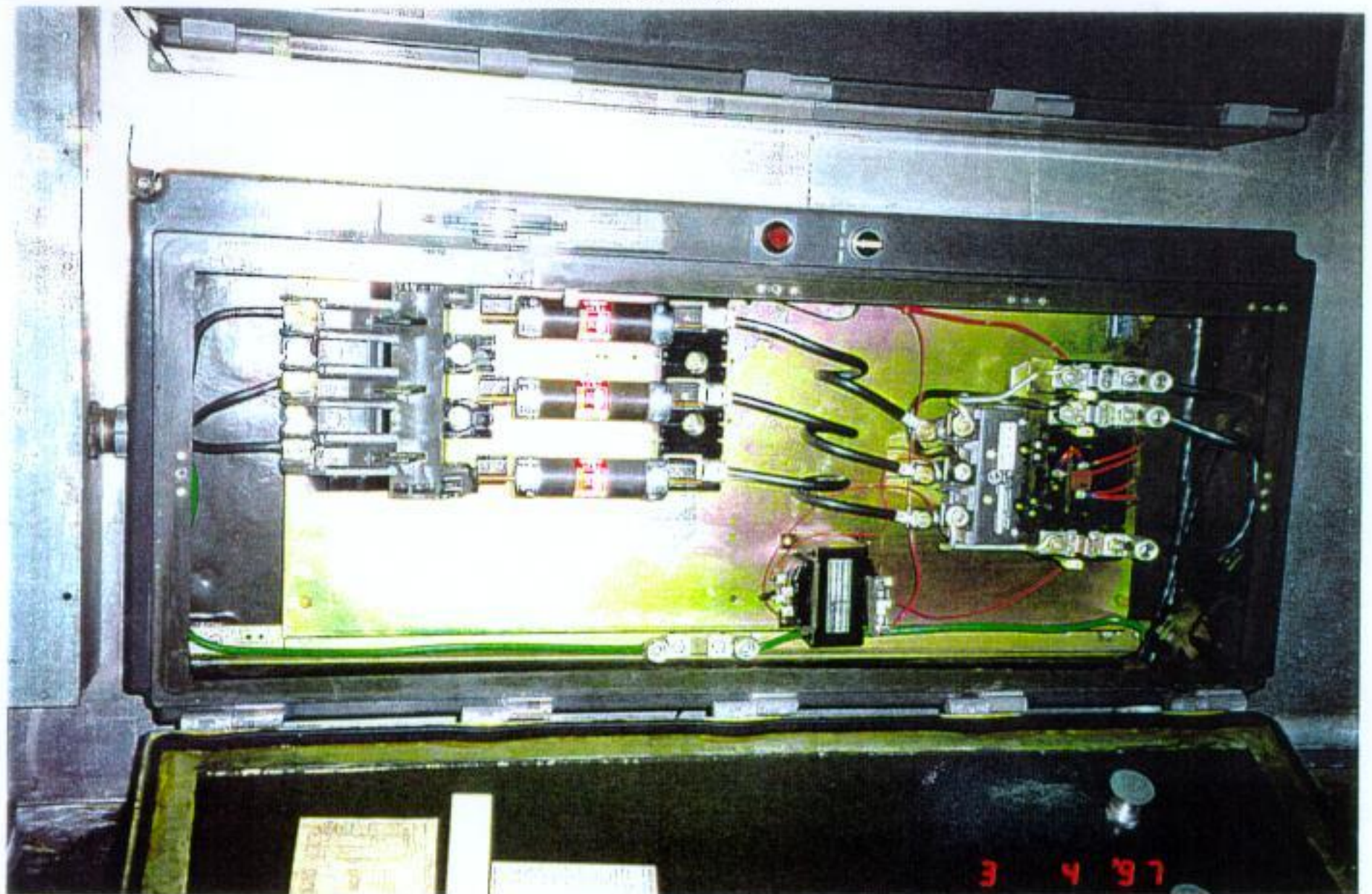


Photo Number 4

Pump Station 108 (8)

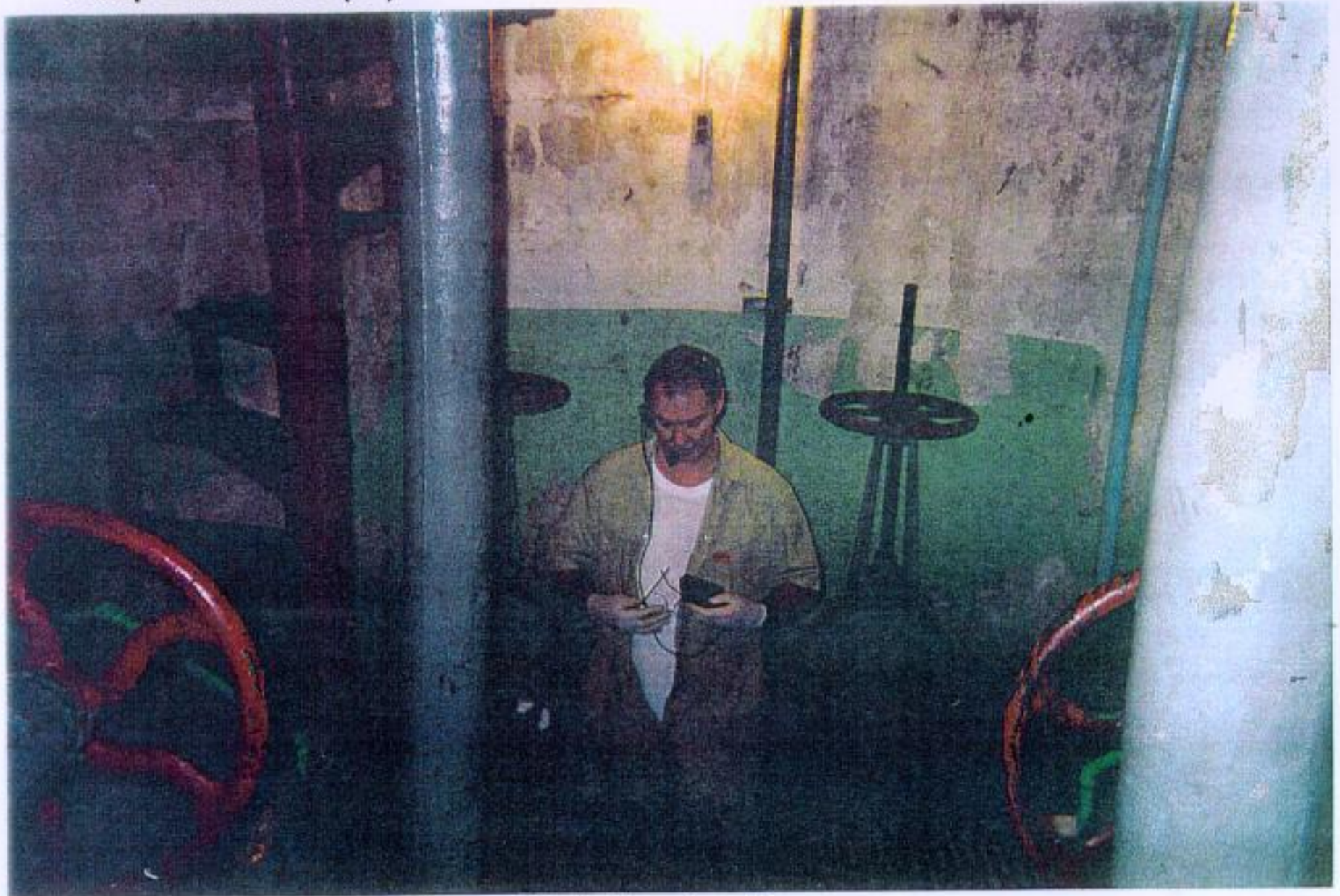


Photo Number 5



Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 109 (9)
2530 ANNETTE STREET**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 109 ("9")

Pump Station 109 is a flooded-suction, multi-level type station located on 2530 Annette Street. It discharges into a 30-inch diameter force main which manifolds with the 48-inch diameter portion of the Florida Avenue force main. Figure 1 shows the schematic subsystem surrounding Pump Station 109. Pump Station 109 does not repump flow from any other station but its flow gets repumped by Pump Station 187 ("D").

Pump Station 109 contains two (20-inch by 14-inch) vertically aligned pumps, as shown in photo numbers 3 and 4. Each pump is powered by a 4-speed Westinghouse motor, shown in photo number 4, rated at 50 horsepower (hp) at 349 revolutions per minute (rpm). This equipment is housed in a 30-foot diameter reinforced concrete dry well structure. The total depth from the floor of the motor control room to the dry well bottom is 26.8 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is good although there is isolated corrosion located around the pump as shown in photo number 2.

Pump Station 109 collects wastewater from the surrounding gravity sewer system into a concrete wet well 25 feet in depth. This wet well is in fair condition.

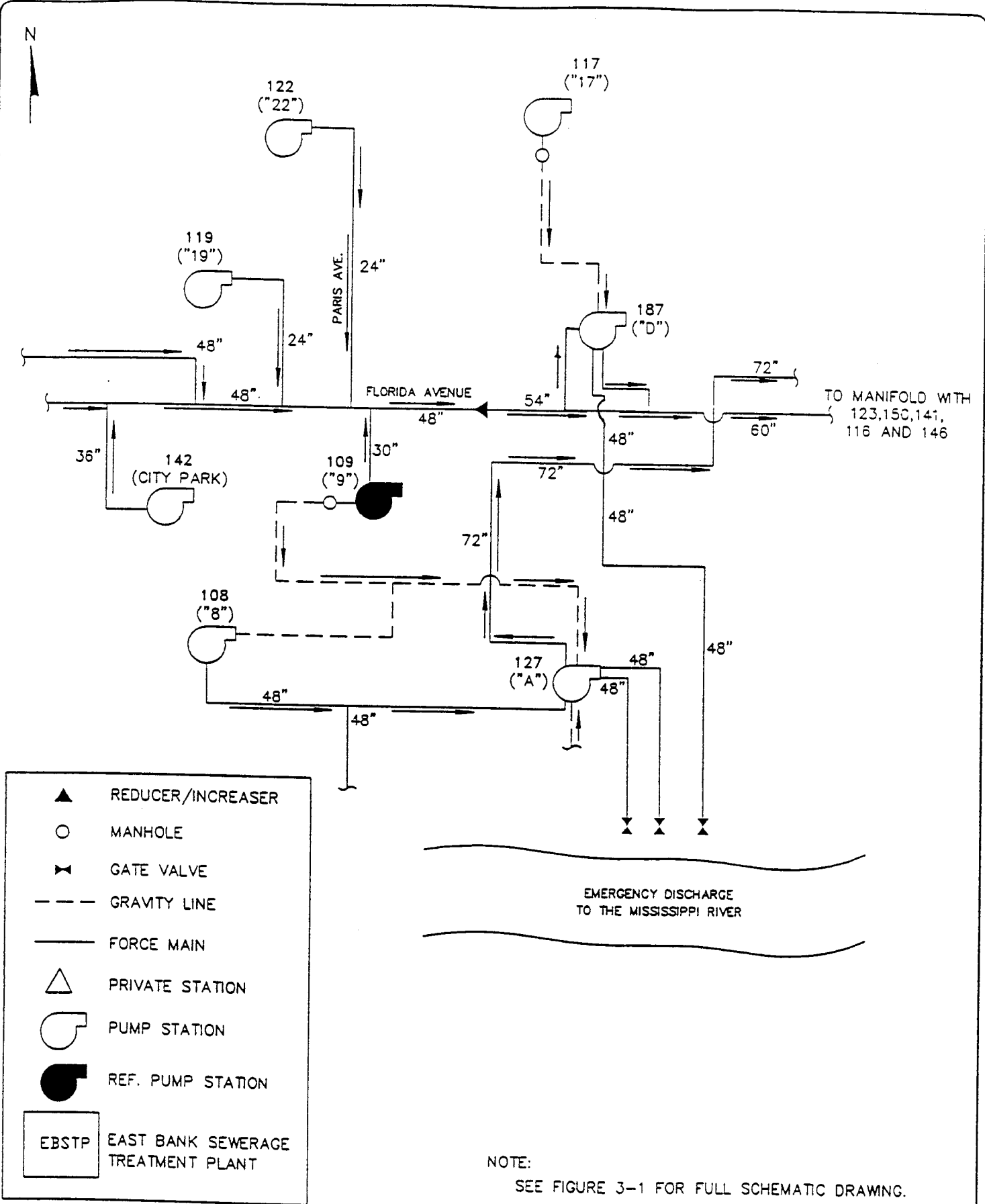
The Doppler flow meter was utilized to determine flows at various discharge heads to develop the pump curve for each pump, as shown in Figures 3 and 4. Pump number 1 tested as having approximate capacities on speeds 1, 2, 3, and 4 of 2,100 gallons per minute (gpm) at 16.5 feet of head, 3,100 gpm at 17.5 feet of head, 4,000 gpm at 18 feet of head, and 5,300 gpm at 19 feet of head, respectively. Pump number 2 tested as having approximate capacity on speeds 1, 2, 3, and 4 of 6,300 gpm at 16 feet of head, 8,600 gpm at 18 feet of head, 6,900 gpm at 20 feet of head, and 12,000 gpm at 21 feet of head, respectively.

Only one pump is run at a time. The other pump is set in the off position, which prevents its operation.


Recommendations:

1. No automatic back up capacity is provided under the current operational scenario. Pumps should be run in a lead and lag mode.
2. Motor controller is in poor condition due to corrosion. It is recommended that this electrical issue be addressed.


JOB NO.: 1113030.01090120 DATE: 3/28/97



FILE NO.: 10.



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 109 ("9")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1

DATE:
3/28/97

Pump Station: 109 ("9")

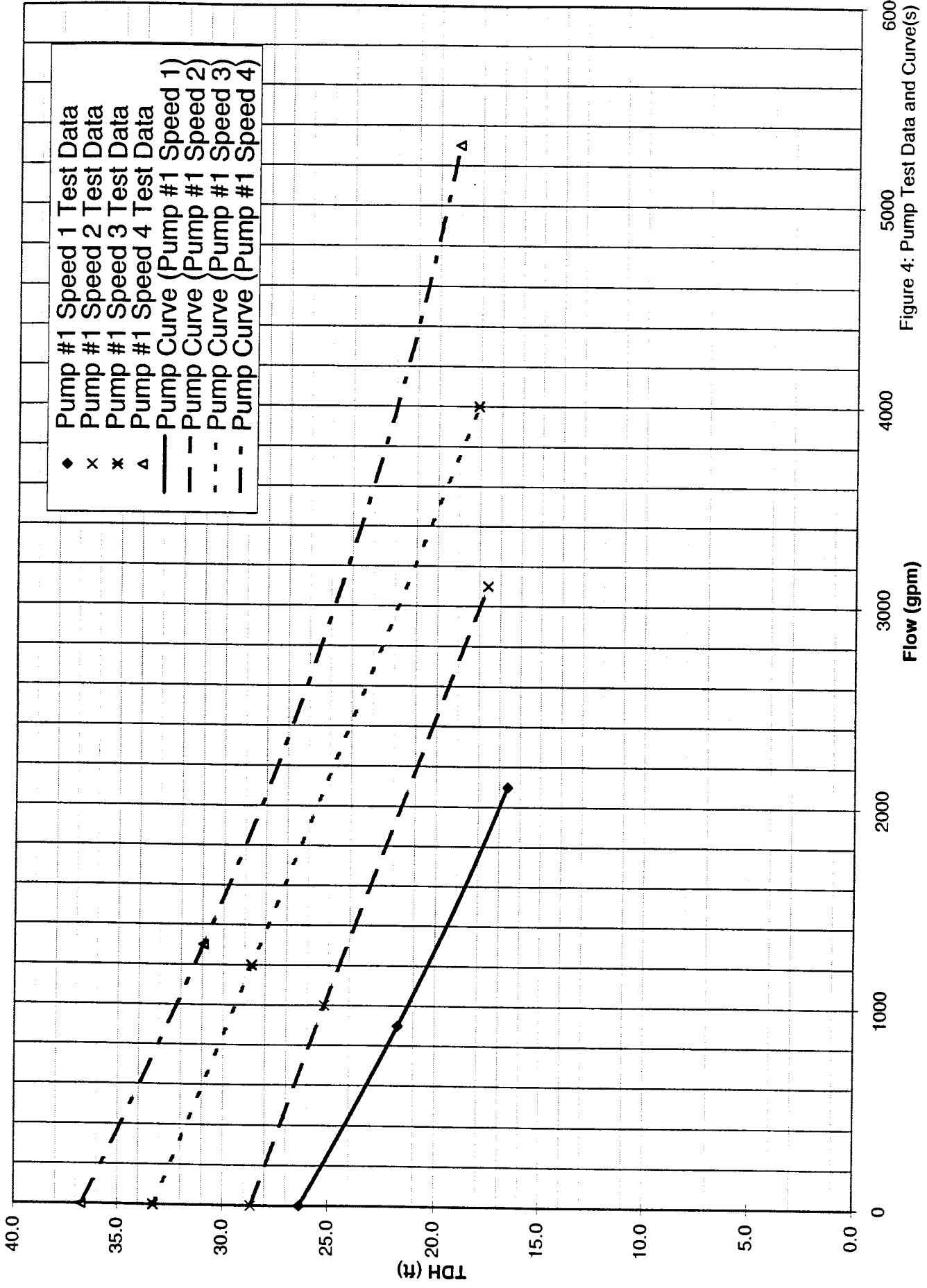


Figure 4: Pump Test Data and Curve(s)

Pump Station: 109 ("9")

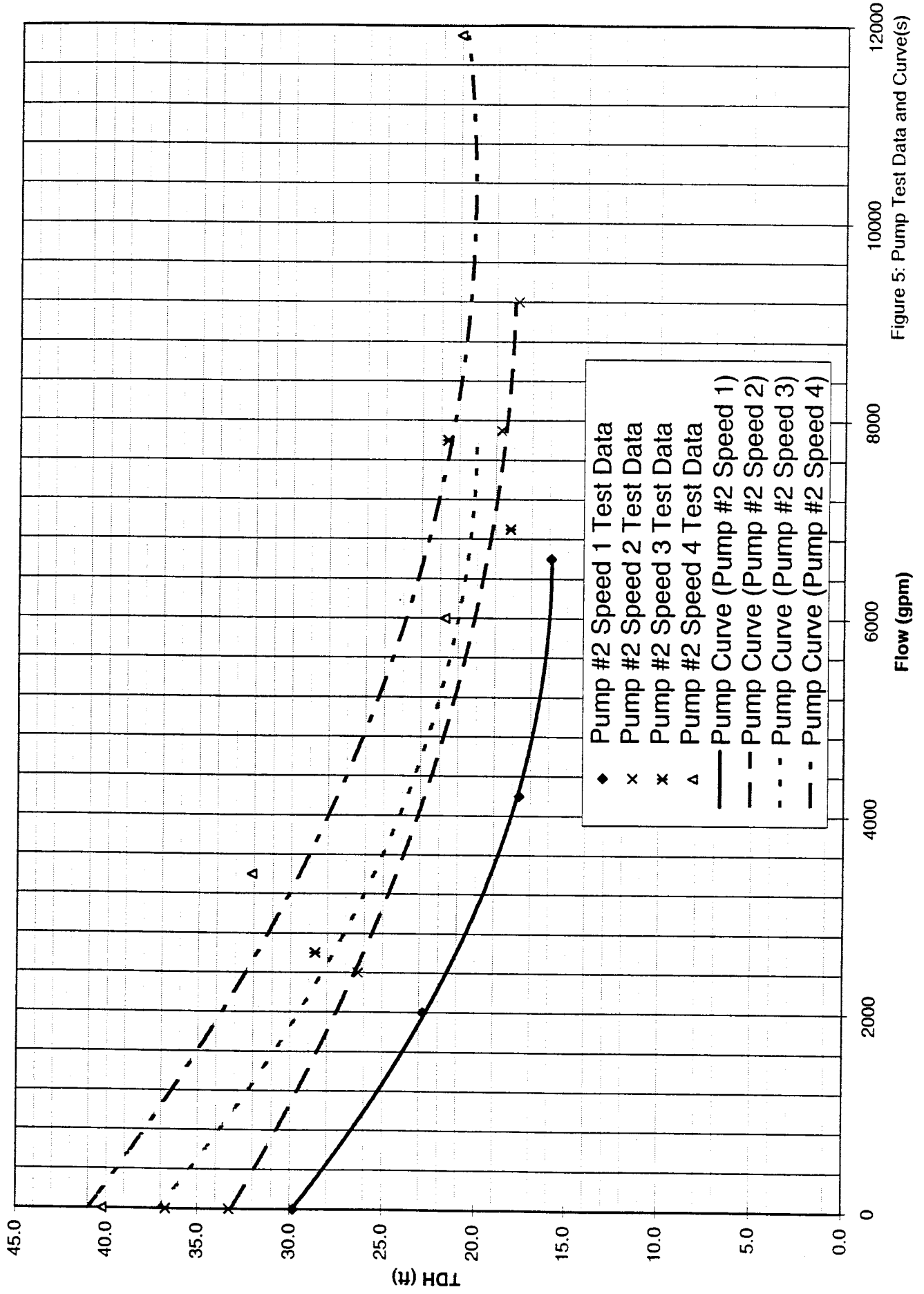


Figure 5: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 109

General Information

PS No. 109 PS Facility 9 Address 2530 Annette

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes It's flow gets repumped by pump station ("D")

Pump Information

Number of Pumps 2 Pump Manufacturer not available
Impeller Diameter 64 inch
Model Number-Pump #1 not available Serial Number-Pump #1 not available
Model Number-Pump #2 not available Serial Number-Pump #2 not available
Model Number-Pump #3 - Serial Number-Pump #3 -
Model Number-Pump #4 - Serial Number-Pump #4 -
Pump Configuration Vertical Horizontal
Nameplate Rating 0 gpm 0 ft. of head 0 rpm
Pump Suction 20 inch Pump Discharge 14 inch FM Diameter 30 inch
Suction Valve Size 30 inch Discharge Valve Size 20 inch
Suction Valve Type gate Discharge Valve Type gate
Check Valve Size 30 inch
Dry Well Dimensions 30 ft. dia. Length 0 ft. Width: 0 ft. Depth 26.8 ft.
Pump centerline* 2 ft. Centerline of discharge pipe* 19.8 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____
Do discharge valves operate properly? Yes No Where? _____
Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 109

Pump Controls

Lead pump on _____ ft. Type of Controls bubbler
Lead pump off 0 ft.
Lag pump on 0 ft.
Lag pump off 0 ft.

Notes: not displayed

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 0 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 25 ft.

Sewer Invert(s) Depth* 0 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 109

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Double Ended, Normal and Alternate Source, no gene

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device Not Available

Size of main protective device 225 amps, circuit breaker

Size of motor protective device Not Available

Service wire size Not Available Size of motor starter in NEMA 2

Motor wire size Not Available Motor Horsepower 50

Number of motors 2 Motor Speed Multiple

Speed(s) in rpm 349 @ full load

Frequency in Hertz 60

Type of starter Full voltage, non-reversing (FVNR)

Model Number - Motor #1 not available Serial Number - Motor # 1 not available

Model Number - Motor #2 not available Serial Number - Motor # 2 not available

Model Number - Motor #3 - Serial Number - Motor # 3 -

Model Number - Motor #4 - Serial Number - Motor # 4 -

Comments The motor controller is in poor condition due to corrosion. The pump station has a fusible disconnect switch. The motor is connected to a resistor grid bank for motor speed reduction. The resistor grid bank does not reduce electrical power consumption.

Pump Station 109 (9)



Photo Number 1

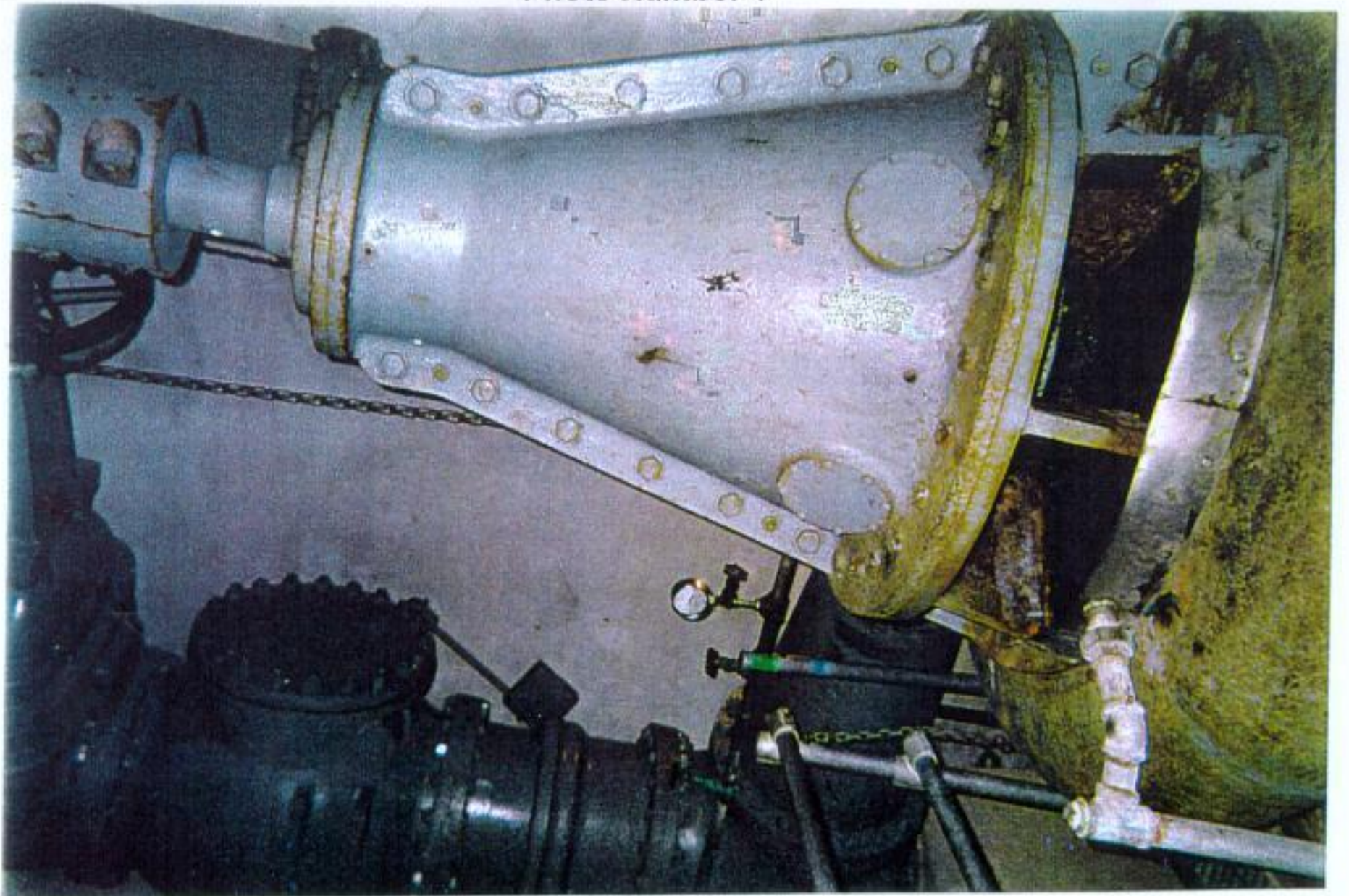


Photo Number 2

Pump Station 109 (9)

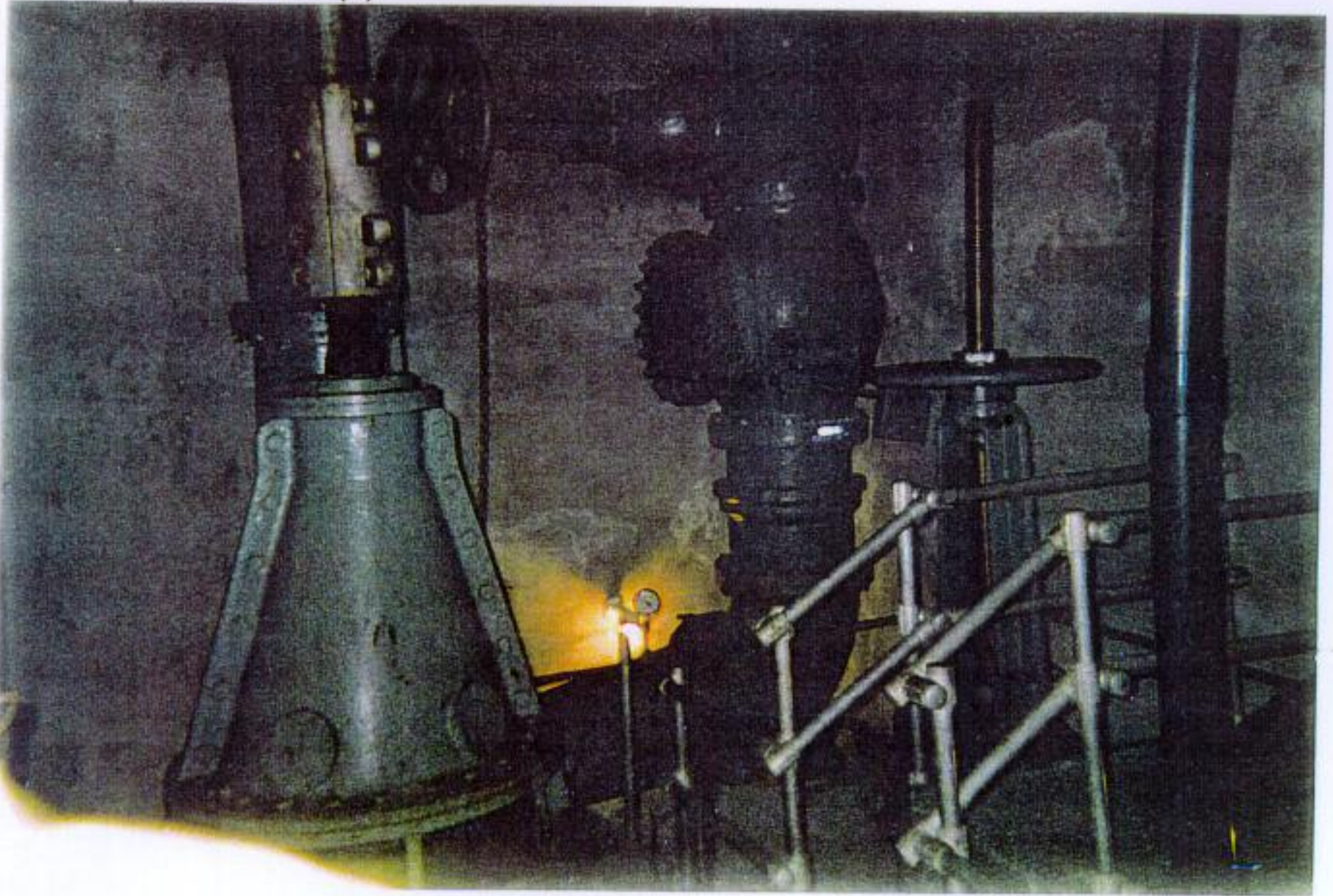


Photo Number 3



Photo Number 4

Pump Station 109 (9)



Photo Number 5



Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 114 (14)
4000 CLARA STREET

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 114 ("14")

Pump Station 114 is a flooded-suction, multi-level type station located on 4000 Clara Street. This pump station contains 5 pumps. Pump numbers 1, 2, and 3 discharge to gravity main, which discharges to the wet well of Pump Station 127 ("A"). Pump numbers 4 and 5 discharge into a force main which also discharges to the wet well of Pump Station 127 ("A"). Pump Station 114 repumps flow from Pump Station 101 ("1"). Figure 1 shows the schematic subsystem surrounding Pump Station 114.

The 5 pumps (14-inch by 14-inch) at Pump Station 114 are vertically aligned. Pump numbers 1, 2, and 3 are each powered by a single speed Westinghouse motor, shown in photo number 5, rated at 60 horsepower (hp) at 211 revolutions per minute (rpm). Pump numbers 4 and 5 are each powered by a 4-speed Continental Motor Company motor, shown in photo number 4, rated at 150 hp at 700 rpm. This equipment is housed in a 26.3-foot diameter reinforced concrete dry well structure. The total depth from the floor of the motor control room to the dry well bottom is 24.8 feet. Figures 2 and 3 provide plan and elevation views of the station. Several problems were observed at this station. Pump numbers 4 and 5 produced a sound, especially at speeds 3 and 4, that is characteristic of pump cavitation. The check valve on pump number 5 appeared to not be sealing properly (when pump number 5 was off and pump number 4 was turned on, reversing of pump number 5 was observed). The pump seals of pump numbers 4 and 5 leaked severely, and significant corrosion of the volutes has occurred, as shown in photo number 2. The peeling of interior wall surfaces was observed, also shown in photo number 2. Significant corrosion of piping and valve surfaces was also observed.

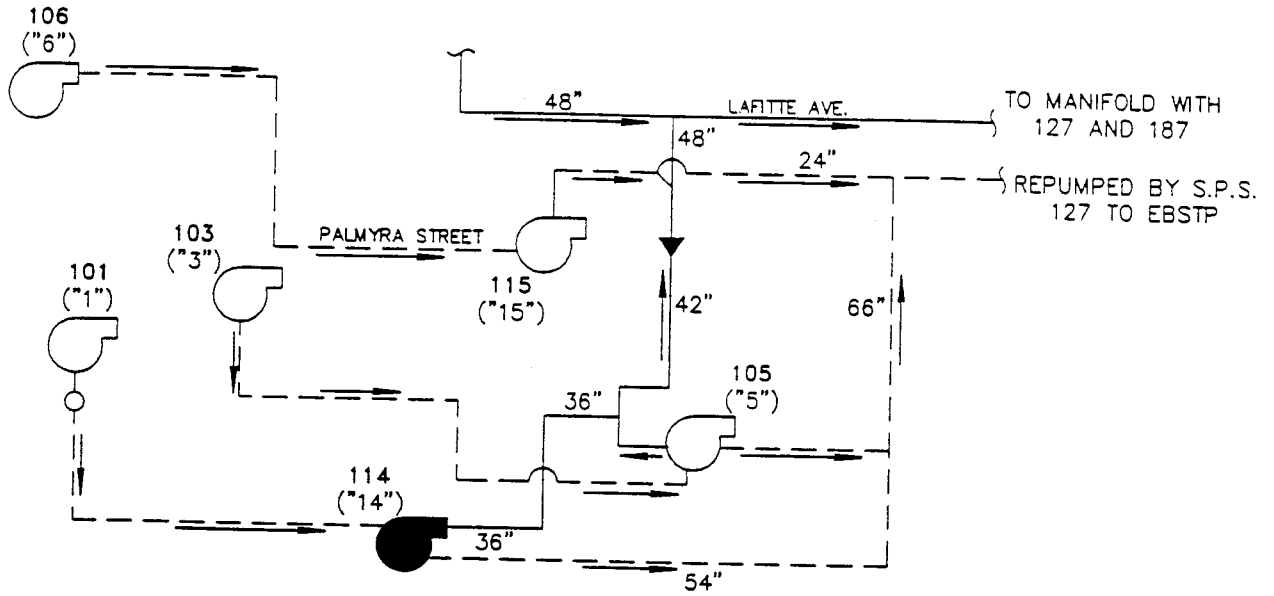
Pump Station 114 collects wastewater from the surrounding gravity sewer system into a concrete suction chamber 23 feet in depth. Severe corrosion of the interior of this suction chamber has taken place. This corrosion is characterized as having exposed aggregate. Concrete loss is estimated to be in excess of 1-inch in depth from the original surface.

The pumps in Pump Station 114 were not throttled to simulate increasing discharge pressure and its corresponding effect on pump capacity, due to the poor condition of the pumps. Therefore, no pump curves could be developed. The Doppler flow meter was utilized to determine the capacity of each pump at the force main pressure at the time of testing. These approximate capacities for pump numbers 1, 2, 3 are 1700 gallons per minute (gpm) at 6.4 feet of head, 5,900 gpm at 7.6 feet of head, and 1,200 gpm at 8.8 feet of head, respectively. The approximate capacities of pump number 4 for speeds 1, 2, 3, and 4 was determined to be 4,000 gallons per minute (gpm) at 14 feet of head, 5,600 gpm at 15 feet of head, 6,500 gpm at 16 feet of head, and 7,100 gpm at 16 feet of head, respectively. Pump number 5 tested as having approximate capacities on speeds 1, 2, 3, and 4 of 3,500 gpm at 14 feet of head, 5,500 gpm at 15 feet of head, 6,200 gpm at 16 feet of head, and 7,300 gpm at 16 feet of head, respectively.

Recommendations:

1. Pump numbers 4 and 5 are in very poor condition. It is recommended that they be replaced.
2. It is recommended that the pump number 5 check valve be repaired or replaced as necessary.
3. The extent of the corrosion of the piping and valves should be further investigated and corrected as necessary.
4. Severe corrosion of the interior of the suction chamber has taken place. The extent of the damage should be further investigated and corrected as necessary.

N



- ▲ REDUCER/INCREASER
- MANHOLE
- ⋈ GATE VALVE
- - - GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- ◐ PUMP STATION
- ◑ REF. PUMP STATION
- EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 114
JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 114 ("14")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

1

DATE:

3/28/97

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 114

General Information

PS No. 114 PS Facility 14

Address 4000 Clara Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 5 Pump Manufacturer not available

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 14 inch Pump Discharge 14 inch FM Diameter 20 inch

Suction Valve Size 14 inch Discharge Valve Size 20 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 20 inch

Dry Well Dimensions 26.3 ft. dia. Length ft. Width: 0 ft. Depth 24.8 ft.

Pump centerline* 4 ft. Centerline of discharge pipe* 17.9 ft.

* measured from dry well bottom.

Notes: Pump Centrelines vary for different pumps.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 114

Pump Controls

Lead pump on 8 ft. Type of Controls bubbler
Lead pump off 4 ft.
Lag pump on 9.5 ft.
Lag pump off 4.5 ft.

Notes: speed(2) 9,5,10,5,5,5; speed(3)10,6,12,8; speed(4)11,7,5,13,9;

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.
Interior The overall condition of the interior of the pump station is poor due to the paint peeling.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Severe corrosion of mortar between brick.

Diameter 0 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 23 ft.

Sewer Invert(s) Depth* 0 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 114

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Double Ended, Normal and Alternate Source, no generator receptac

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device 700 amps, dual element, fusible disconnect switch

Size of main protective device Not Available

Size of motor protective device 3-125 and 2-250 amps, dual element, fusible disconnect

Service wire size Parallell of two 2 Size of motor starter in NEMA 4 & 5

Motor wire size #2 & #3/0 AWG Motor Horsepower 3-60 & 2-150

Number of motors 5 Motor Speed 3 Single, 2-Multiple

Speed(s) in rpm 211 & 700

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The motor protective device is a combination of circuit breakers and fuses. Three phase fuse arrangement is susceptible to single phasing if 1 or 2 of the 3 fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter for motor running time and simultaneous operation. The pump station has insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The motor is connected to a resistor arid bank for motor speed reduction. A resistor arid bank doesn't reduce

Pump Station 114 (14)

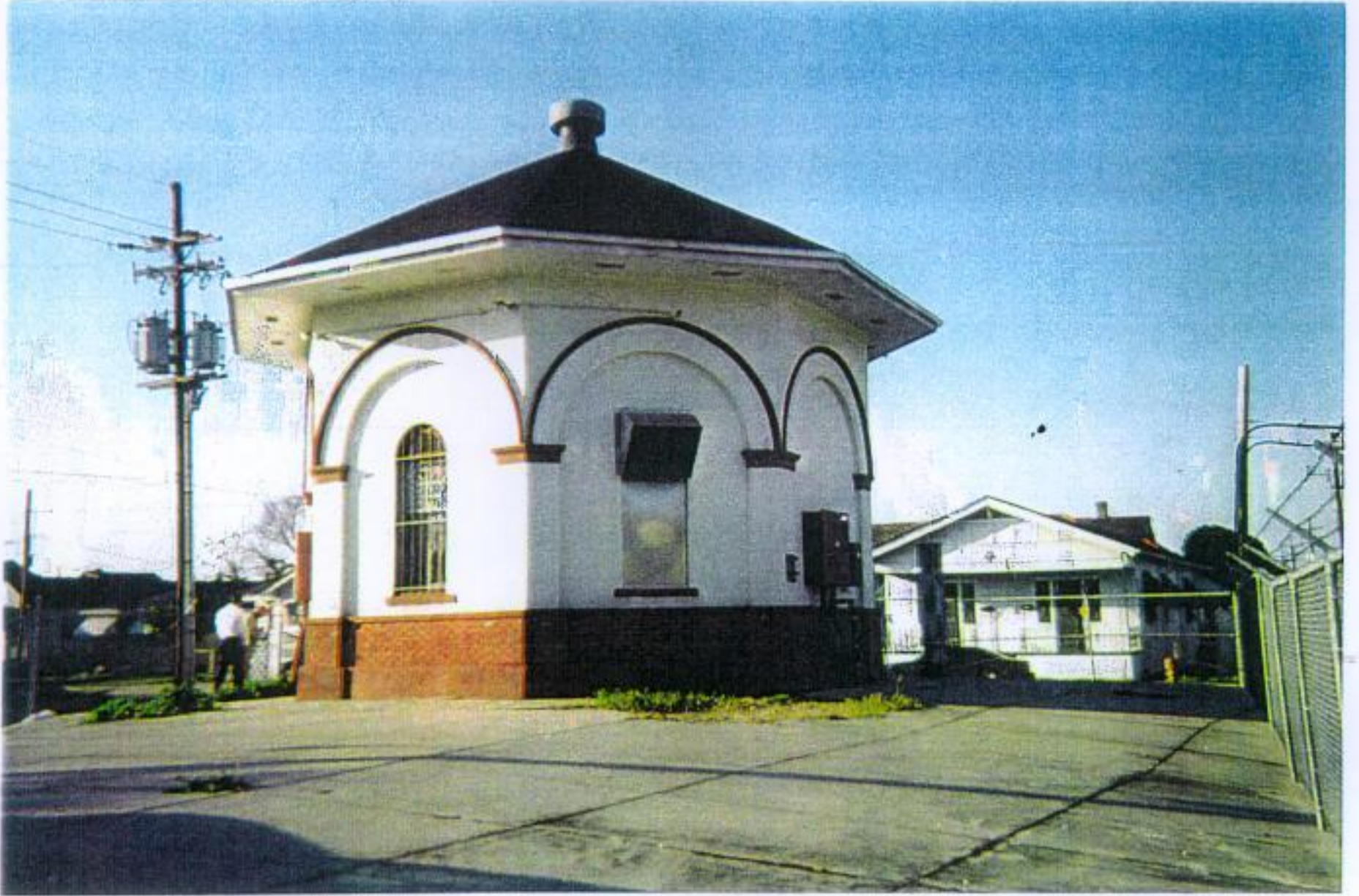


Photo Number 1



Photo Number 2

Pump Station 114 (14)

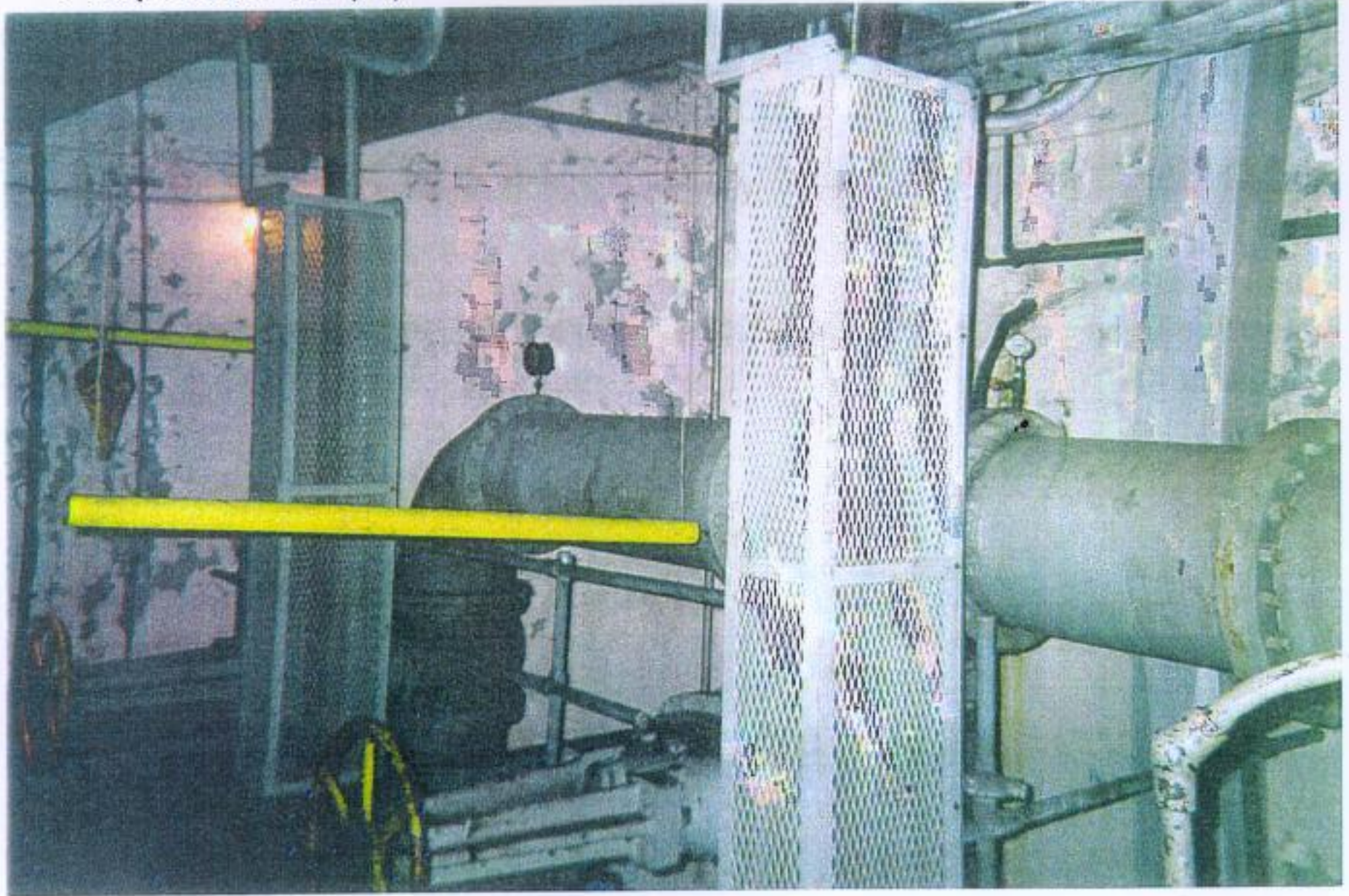


Photo Number 3

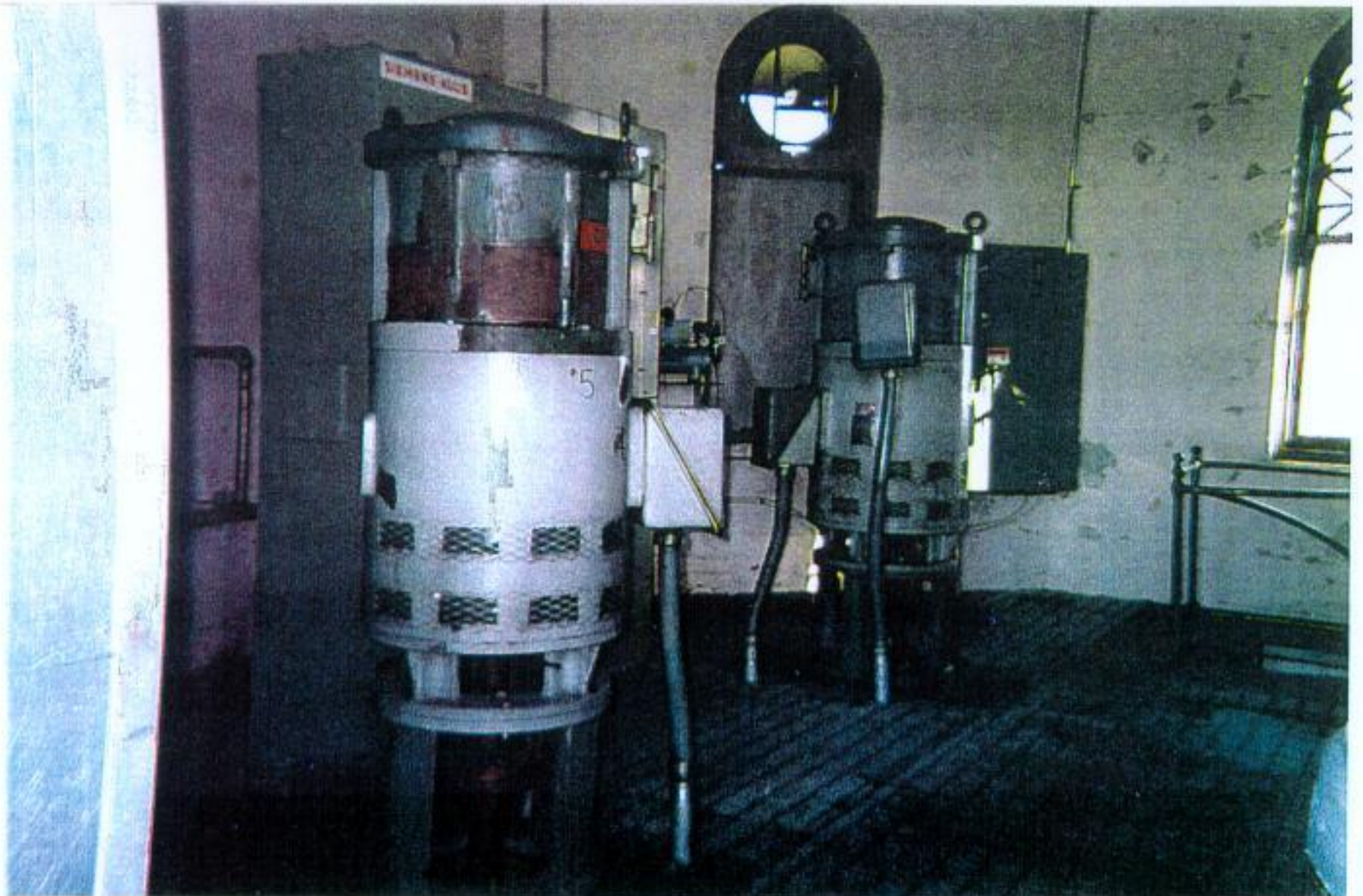


Photo Number 4

Pump Station 114 (14)



Photo Number 5



Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 115 (15)
2431 PALMYRA STREET

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 115 ("15")

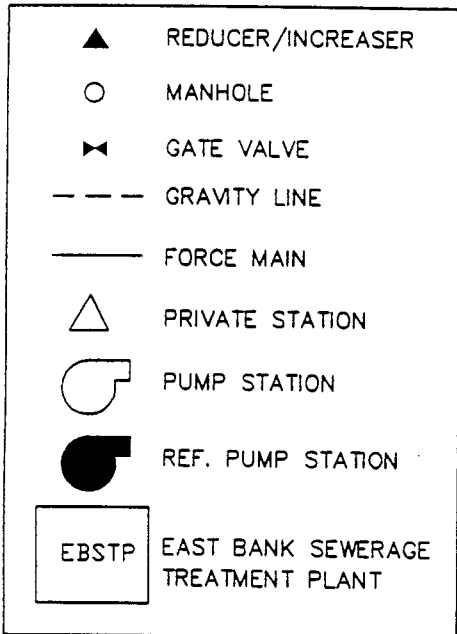
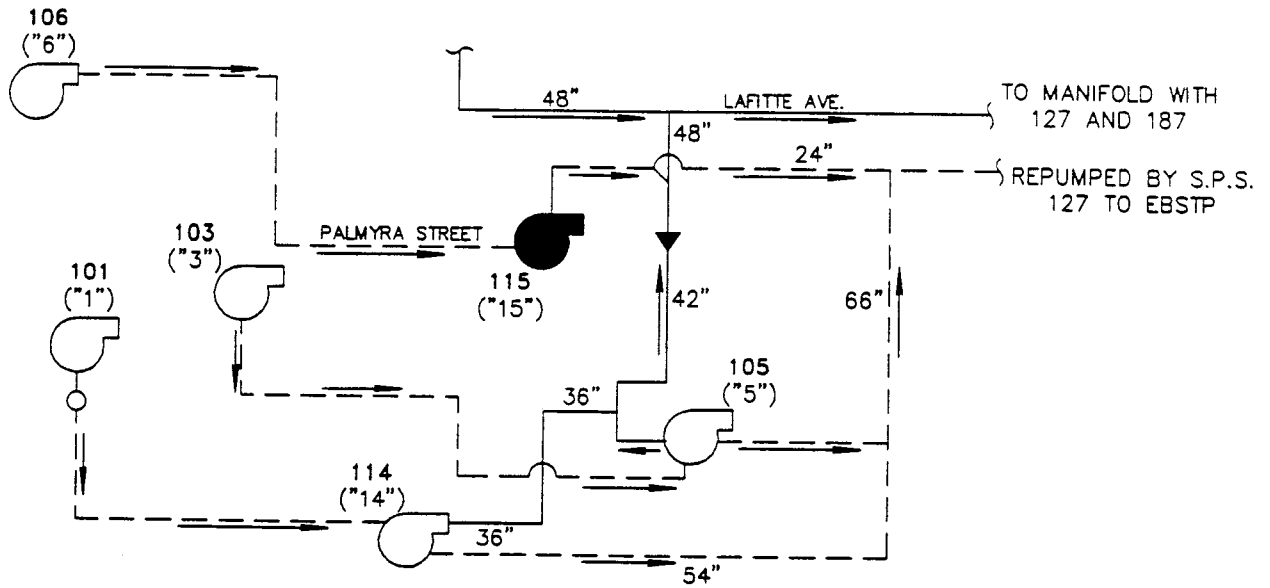
Pump Station 115 is a flooded-suction, multi-level type station located on 2431 Palmyra Street. This pump station contains 4 pumps. Pump numbers 3 and 4 are run under the normal operational scenario and pump numbers 1 and 2 are operated only as backup. Pump numbers 1 and 2 discharge to a 30-inch main to the intersection of Palmyra Street and Galvez Street. Pump numbers 3 and 4 discharge to the same 30-inch main. When pump numbers 1 and 2 are operated, valves at this intersection are adjusted to divert the flow to the 24-inch Palmyra Street gravity main. This flow travels via a series of gravity mains that eventually discharge to the wet well of Pump Station 127 ("A"). When pump numbers 3 and 4 are operated, the valves are adjusted such that the flow discharges to the 48-inch Galvez Street force main. This force main discharge to the wet well of Pump Station 127 ("A"). Figure 1 shows the schematic subsystem surrounding Pump Station 115. Pump Station 115 repumps flow from Pump Station 106 ("6").

The 4 pumps (14-inch by 14-inch) at Pump Station 115 are vertically aligned. Pump numbers 1 and 2 are each powered by a single speed Westinghouse motor that operates at 211 revolutions per minute (rpm). Pump numbers 3 and 4 are each powered by a 4-speed Continental Motor Company motor rated at 100 hp at 700 rpm. Photo number 6 shows one of the single speed motors in the foreground and a multi-speed motor in the background. This equipment is housed in an 18-foot diameter reinforced concrete dry well structure. The total depth from the floor of the motor control room to the dry well bottom is 23.8 feet. Figures 2 and 3 provide plan and elevation views of the station. Several problems were observed at this station. Pump numbers 3 and 4 produced a sound, especially at speeds 3 and 4, that is characteristic of pump cavitation. Severe leakage of the pump number 4 pump seals was observed. Significant corrosion of piping, valve, and pump surfaces has occurred, as shown in photo numbers 2 through 5. Also, severe peeling of interior wall surfaces was observed, as shown in photos 2 through 6.

Pump Station 115 collects wastewater from the surrounding gravity sewer system into a concrete suction chamber 23 feet in depth. Significant corrosion of the interior of this suction chamber has taken place. This corrosion is characterized as having exposed aggregate. Concrete loss is estimated to be in excess of 1/2-inch in depth from the original surface. The Doppler flow meter was utilized to determine flows at various discharge heads to develop the pump curve for each pump. The approximate capacity for each of the two single speed pumps, pump numbers 1 and 2, is 1775 gallons per minute (gpm) at 35 feet of head, as shown in Figure 4. The approximate capacities of pump number 3 for speeds 1, 2, 3, and 4, as shown in Figure 5, were determined to be 1,000 gallons per minute (gpm) at 8 feet of head, 1,300 gpm at 9 feet of head, 2,400 gpm at 11 feet of head, and 3,500 gpm at 13 feet of head, respectively. Pump number 4 tested as having approximate capacities on speeds 1, 2, 3, and 4, as shown in Figure 6, of 1,400 gpm at 11 feet of head, 2,700 gpm at 9 feet of head, 3,400 gpm at 9 feet of head, and 3,600 gpm at 11 feet of head, respectively.

Recommendations:

1. The sound produced by pump numbers 3 and 4 should be further investigated. If cavitation of the pumps is occurring, and damage to the pumps should be assessed and corrected as necessary.
2. The extent of the corrosion damage to the piping, valve, and pumping equipment should be further investigated and repaired as necessary.



NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 115- JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 115 ("15")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

1

DATE:

3/28/97

Pump Station: 115 ("15")

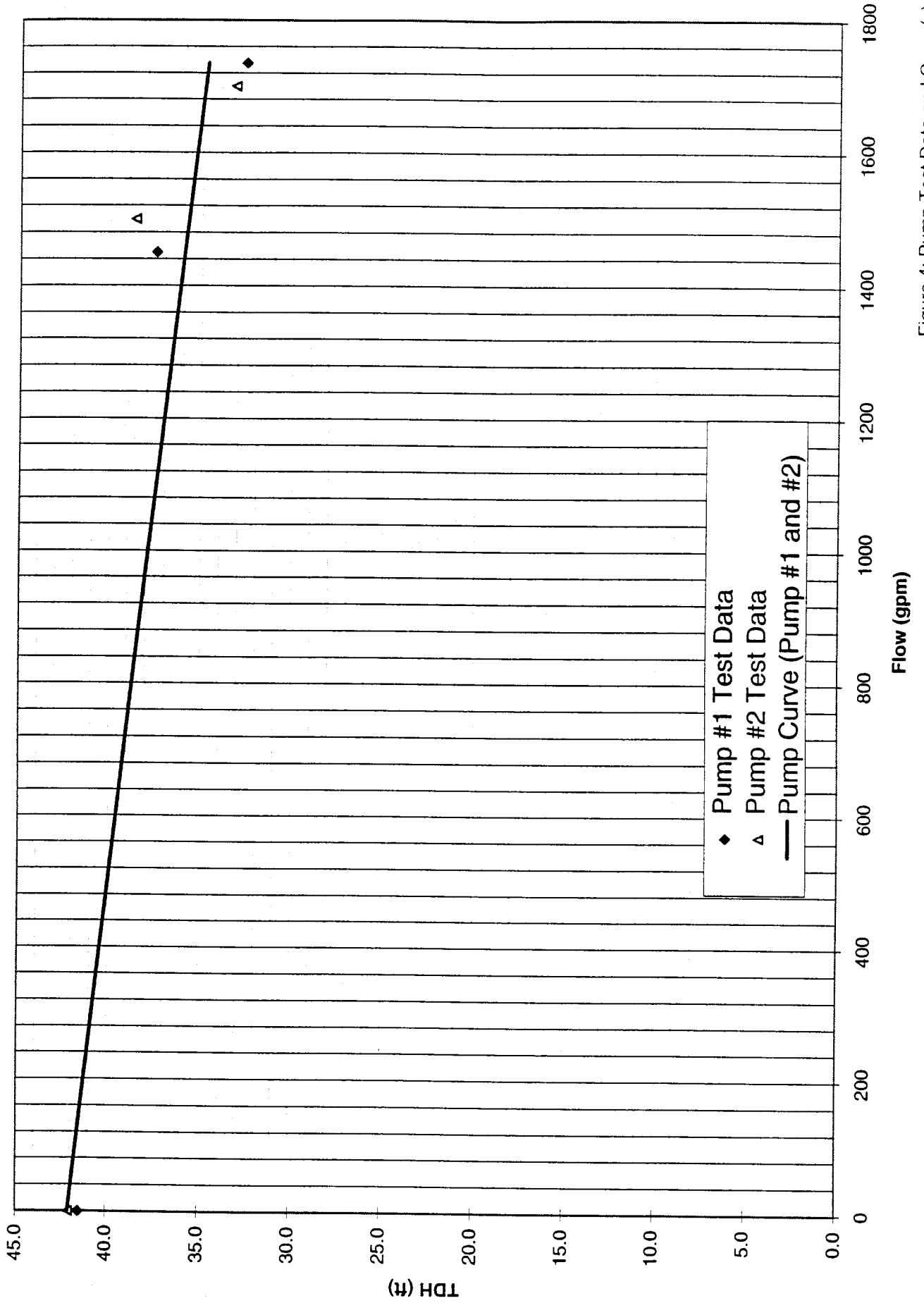


Figure 4: Pump Test Data and Curve(s)

Pump Station: 115 ("15")

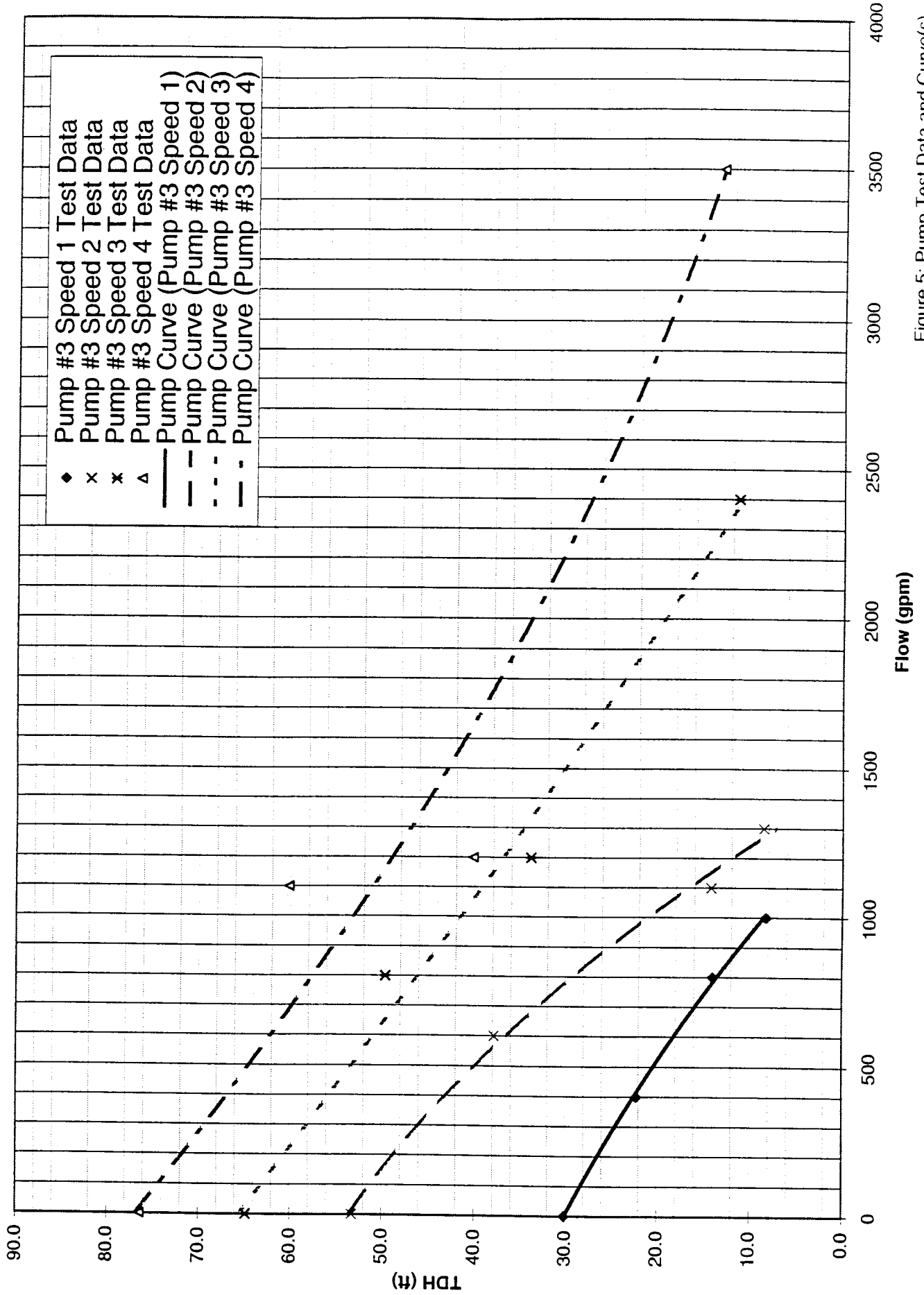


Figure 5: Pump Test Data and Curve(s)

Pump Station: 115 ("15")

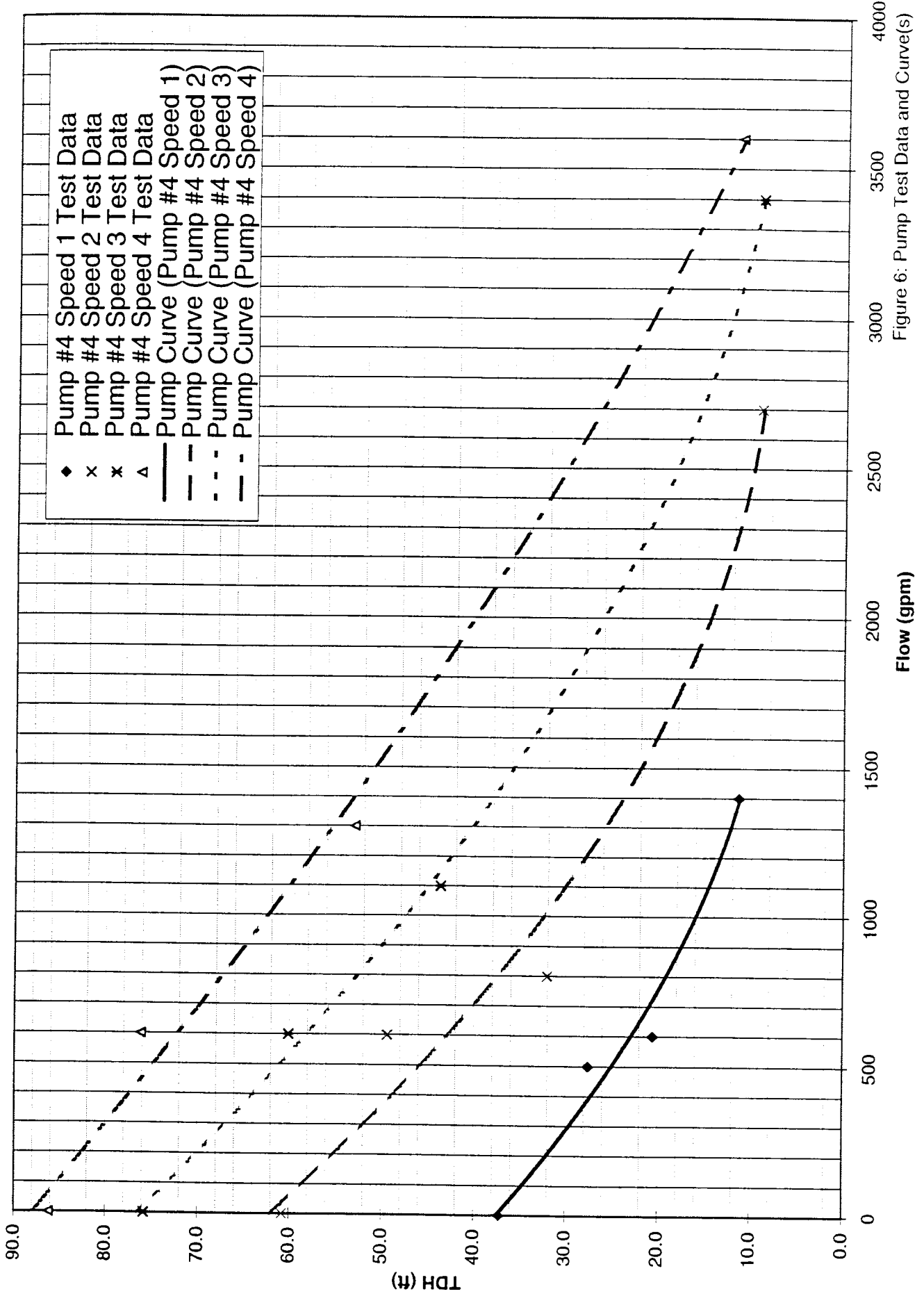


Figure 6: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 115

General Information

PS No. 115 PS Facility 15

Address 2431 Palmyra Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 4 Pump Manufacturer not available

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 14 inch Pump Discharge 14 inch FM Diameter 18 inch

Suction Valve Size 0 inch Discharge Valve Size 18 inch

Suction Valve Type _____ Discharge Valve Type gate

Check Valve Size 18 inch

Dry Well Dimensions 18 ft. dia. Length 0 ft. Width: 0 ft. Depth 23.8 ft.

Pump centerline* 4 ft. Centerline of discharge pipe* 15.4 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? # 3 & 4

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 115

Pump Controls

Lead pump on 7 ft. Type of Controls bubbler
Lead pump off 5 ft.
Lag pump on 8 ft.
Lag pump off 6 ft.

Notes: pump (3) 6,5;7,6;8,7;9,8: pump (4)6,5,5,5;7,5,6,5;8,5,7,5;9,5,8,5:

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior is poor due to the peeling paint.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 0 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 21.5 ft.

Sewer Invert(s) Depth* 0 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 115

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device 350 amps, dual element, fusible disconnect switch

Size of main protective device Not Available

Size of motor protective device 200 amps, dual element, fusible disconnect switch

Service wire size 500 kcmil Size of motor starter in NEMA 4

Motor wire size #2/0 AWG Motor Horsepower 100

Number of motors 4 Motor Speed Multiple

Speed(s) in rpm 211, 700

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, service disconnect and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 115 (15)



Photo Number 1



Photo Number 2

Pump Station 115 (15)

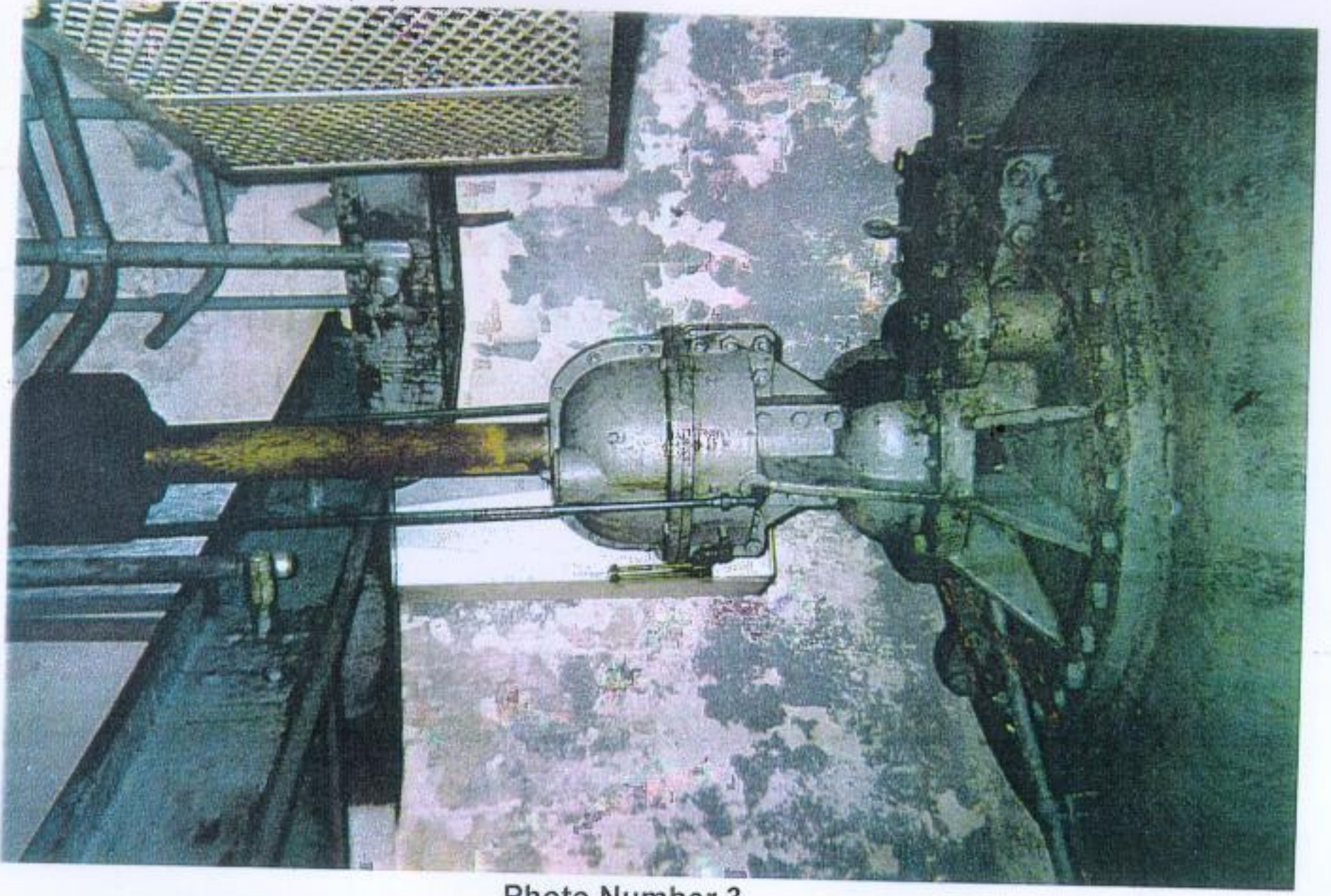


Photo Number 3

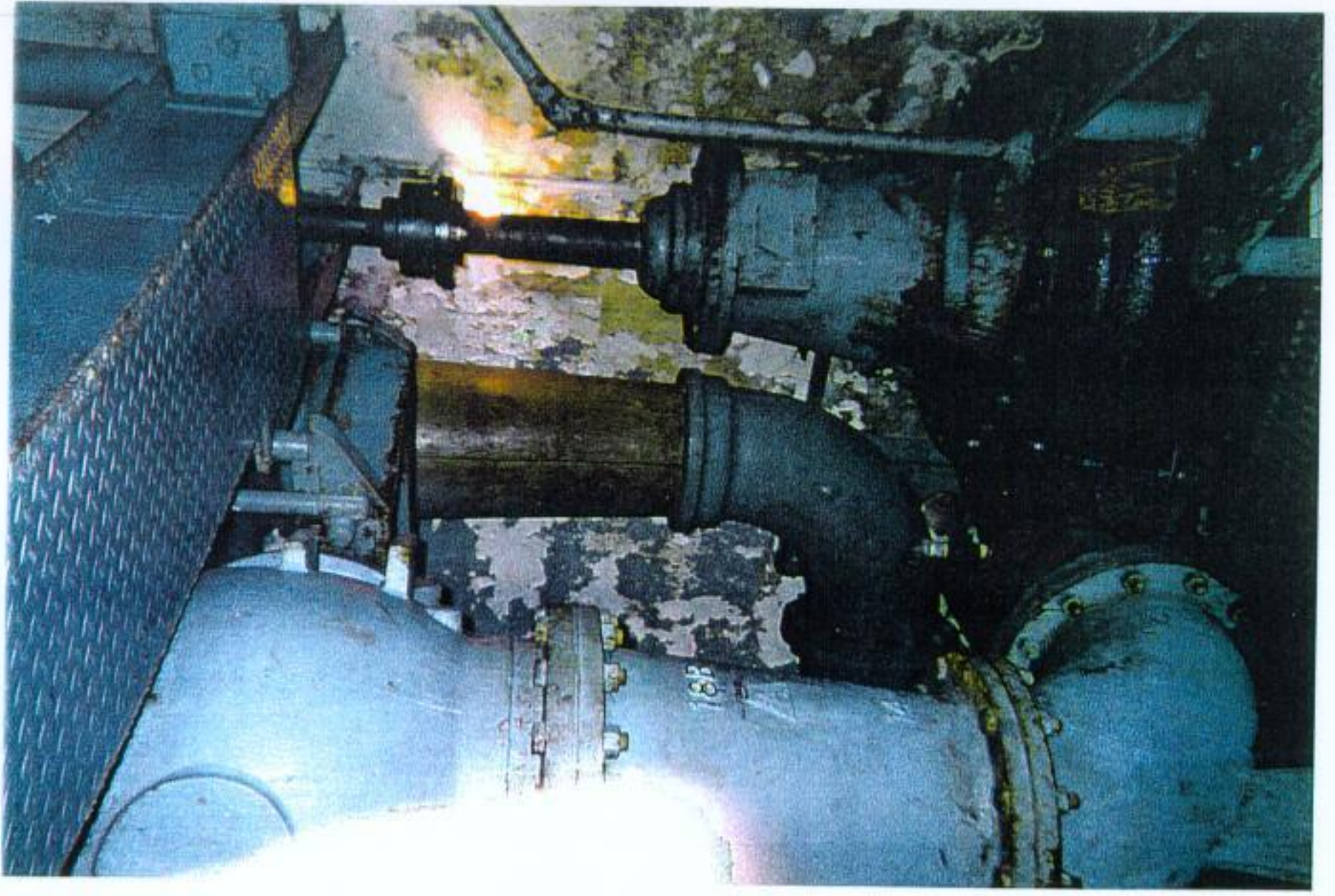


Photo Number 4

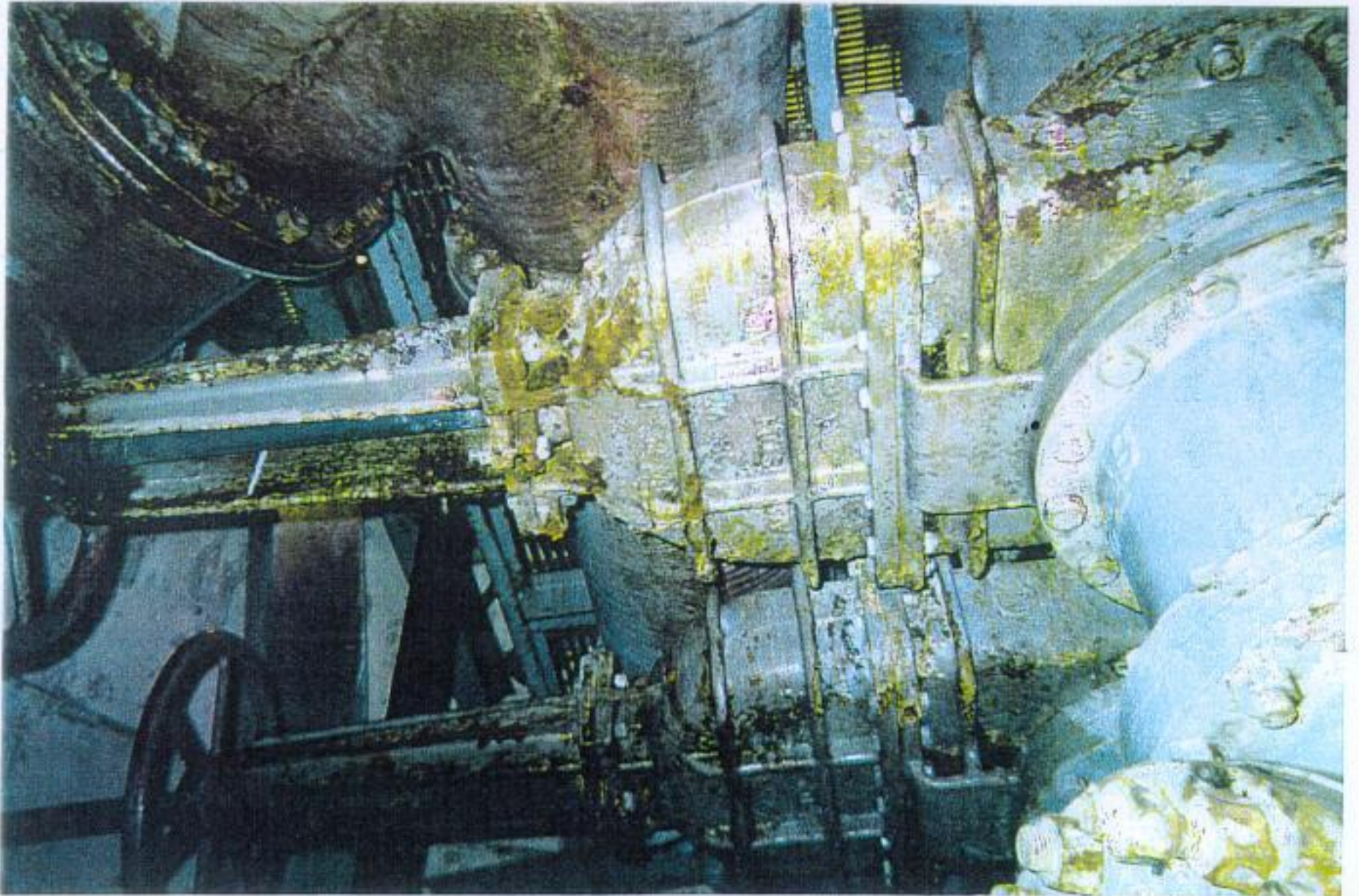


Photo Number 5

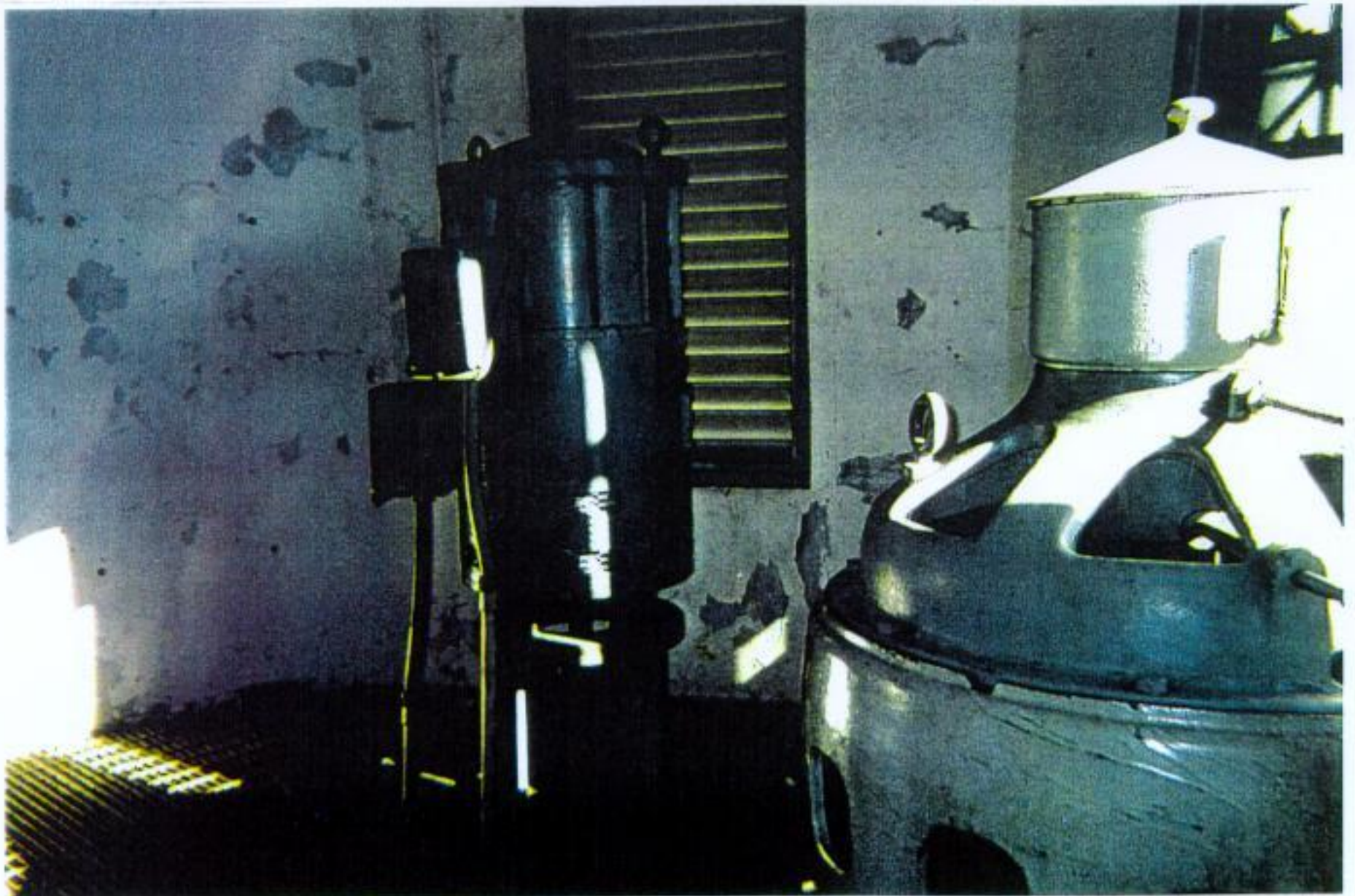


Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 116 (16)
3751 NORTH MIRO STREET

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 116 ("16")

Pump Station 116 is a flooded-suction, multi-level type station located on 3751 North Miro Street. It discharges north into the 20-inch diameter Congress Street force main which manifolds with the 54-inch diameter portion of the Florida Avenue force main. Pump Station 116 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 116.

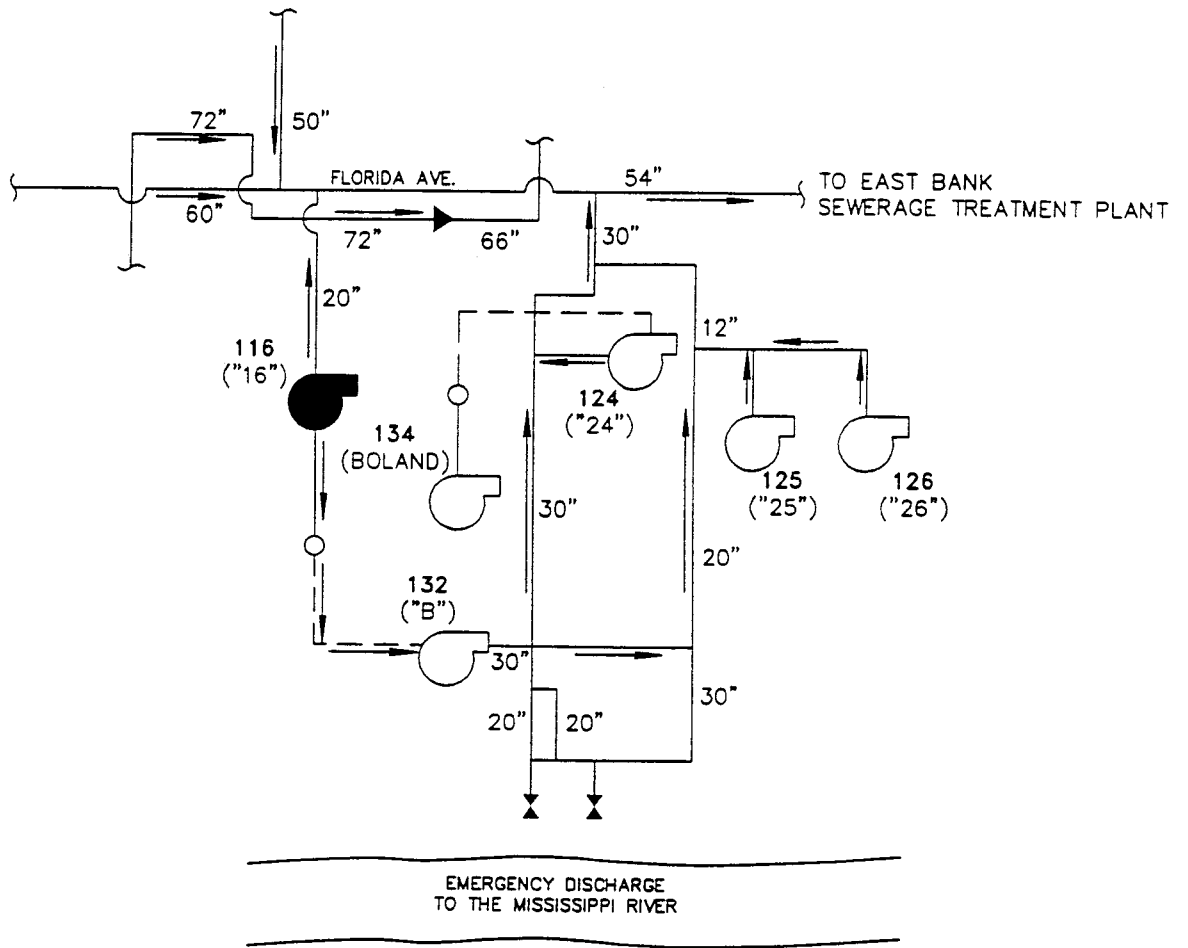
Pump Station 116 contains two (20-inch by 14-inch) vertically aligned pumps. Each pump is powered by a 4-speed Westinghouse motor, shown in photo number 4, which is rated at 100 hp at 360 rpm. This equipment is housed in an 18.5-foot by 18.5-foot reinforced concrete dry well structure. The total depth from the floor of the motor control room to the dry well bottom is 26 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station can be characterized as fair, although the pump number 2 pump shaft wobbles and produces a noise characteristic of a worn middle bearing.

Pump Station 116 collects wastewater from the surrounding gravity sewer system into a 4-foot diameter suction chamber having a depth of 19-feet. This suction chamber is in fair condition.









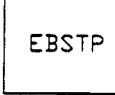
The Doppler flow meter was utilized to determine flows at various discharge heads to develop the pump curve for each pump, as shown in Figures 4 and 5. Pump number 1 was tested as having approximate capacities of 3,100 gallons per minute (gpm) at 7.5 feet of head, 4,100 gpm at 9.5 feet of head, 5,900 gpm at 12.5 feet of head, and 6,900 gpm at 14.5 feet of head on speeds 1, 2, 3, and 4 respectively. Pump number 2 was tested as having approximate capacities of 2,700 gpm at 6.5 feet of head, 3,500 gpm at 8.5 feet of head, 5,500 gpm at 10 feet of head, and 5,600 gpm at 10.5 feet of head on speeds 1, 2, 3, and 4 respectively.

Recommendations:

1. Further investigate the cause of the wobble and noise created by the pump number 2 pump shaft and correct as necessary.



FILE NO.: 1113030.01090120 DATE: 3/28/97

-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

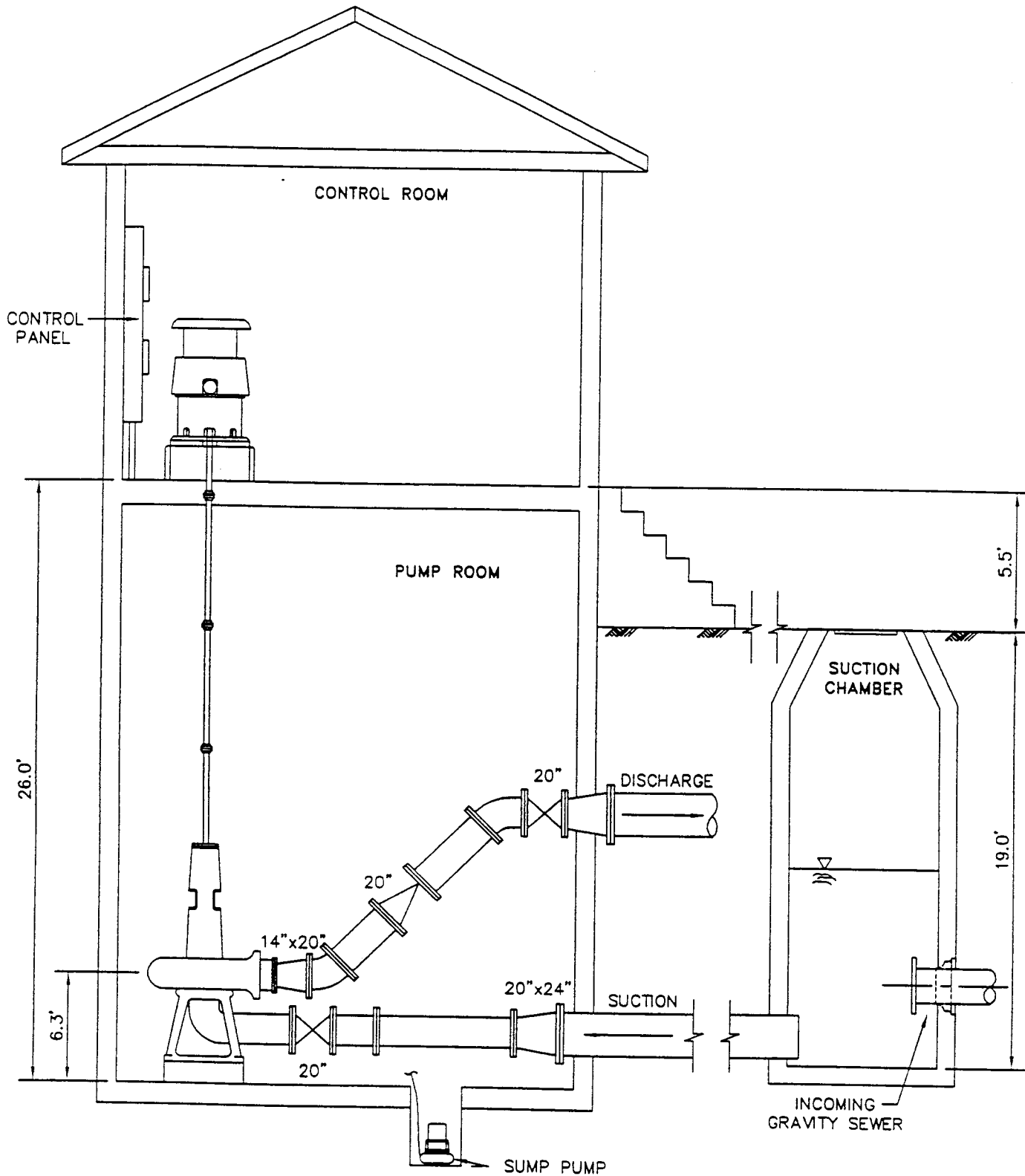
 SEWERAGE AND WATER BOARD
OF NEW ORLEANS

 MONTGOMERY WATSON

PUMP STATION 116 ("16")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1
DATE:
3/28/97

FILE NO.: 116
JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 116 ("16")
MULTI-LEVEL FLOODED SUCTION

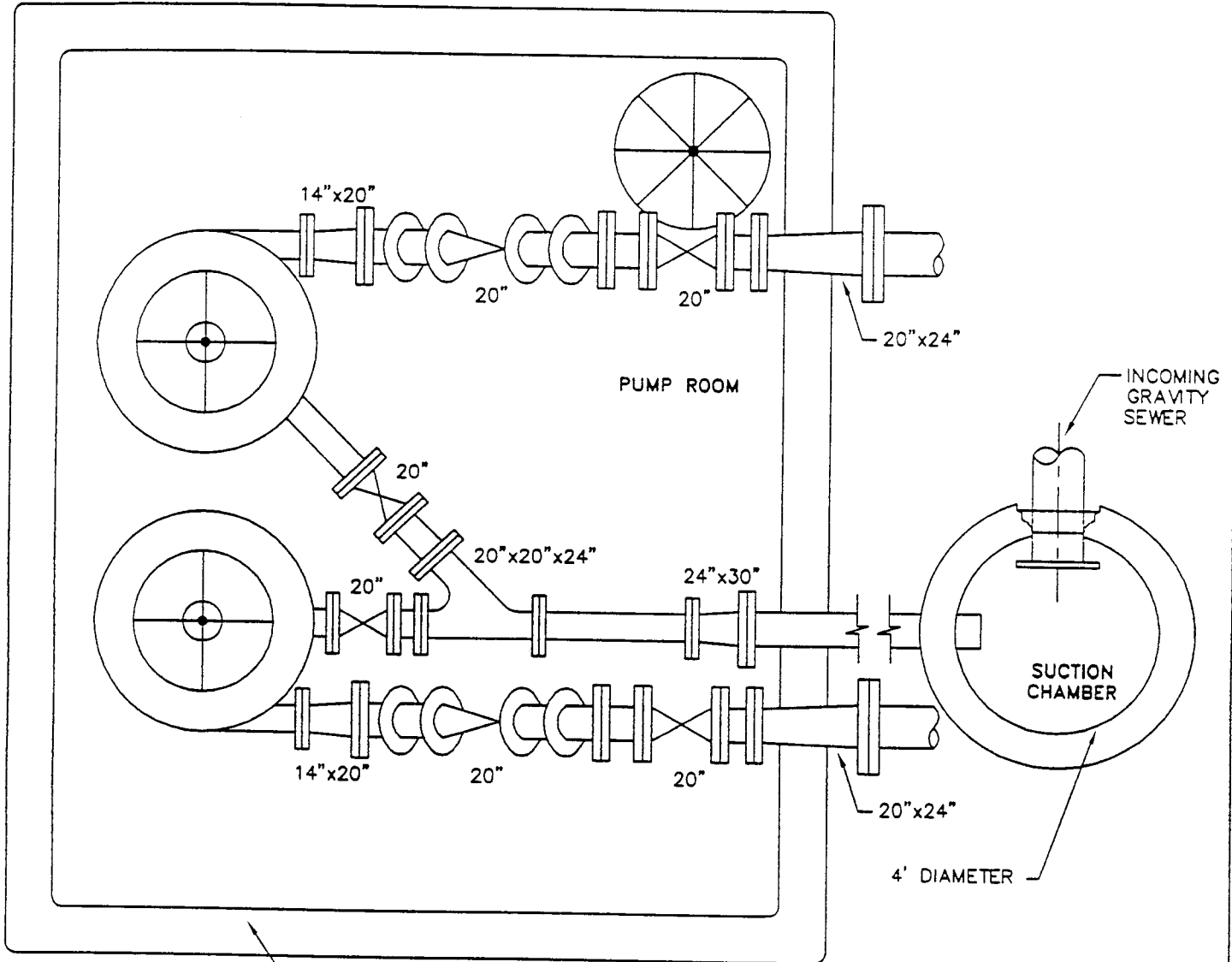
FIGURE:

2

DATE:

3/28/97

FILE NO.: 116
JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 116 ("16")
MULTI-LEVEL FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 116 ("16")

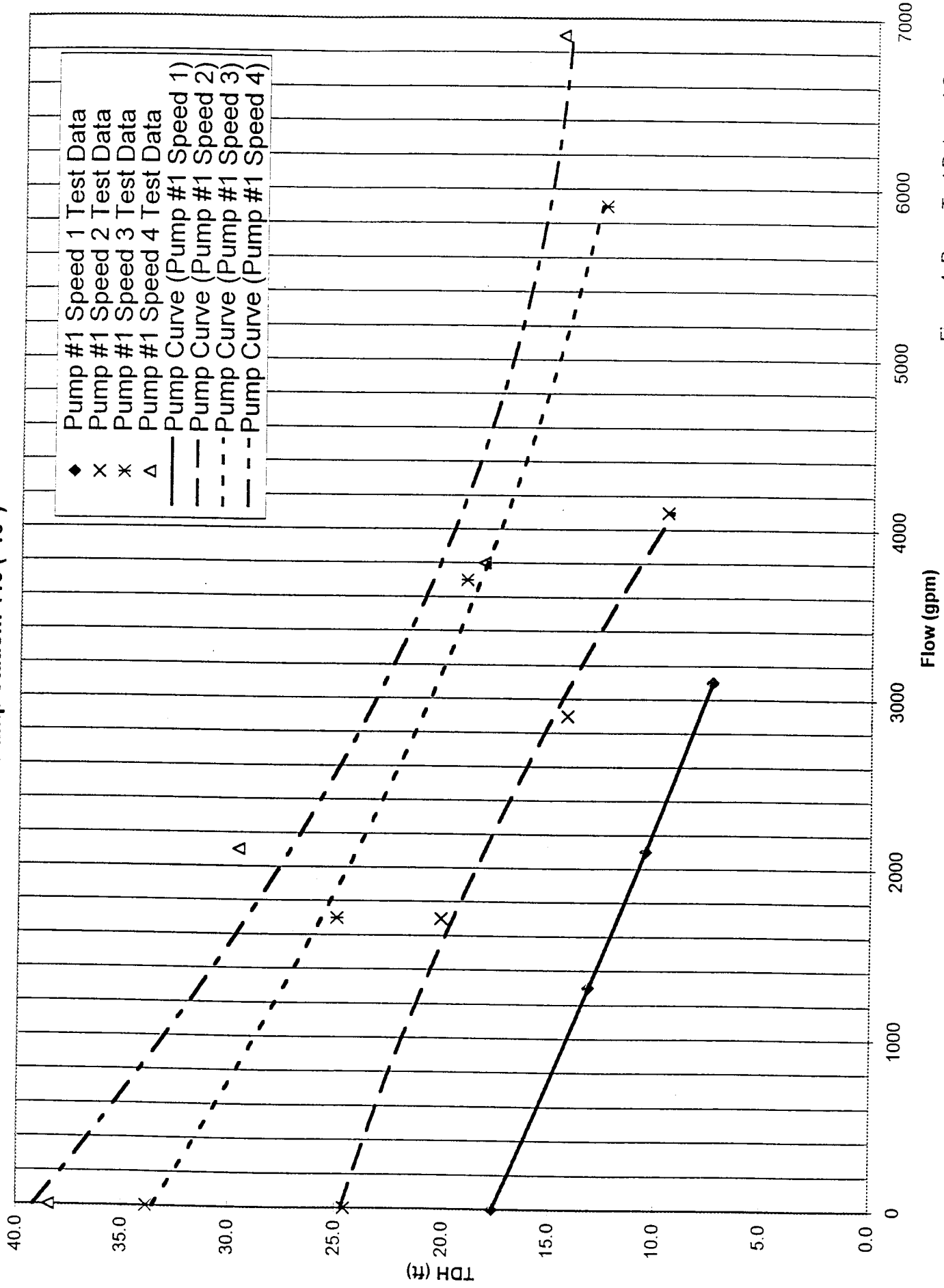


Figure 4: Pump Test Data and Curve(s)

Pump Station: 116 ("16")

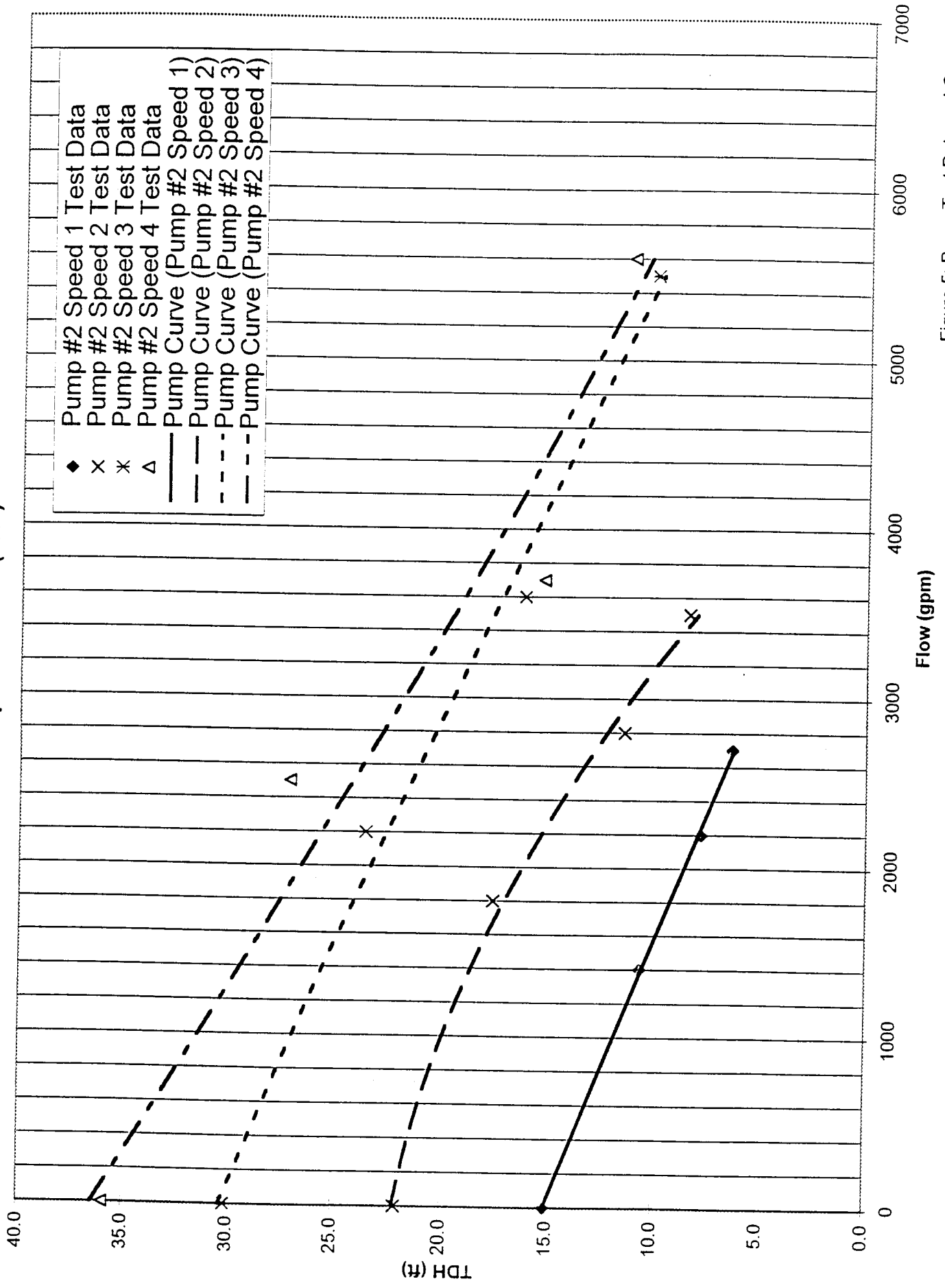


Figure 5: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 116

General Information

PS No. 116 PS Facility 16

Address 3751 North Miro Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer not available

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 20 inch Pump Discharge 14 inch FM Diameter 14 inch

Suction Valve Size 20 inch Discharge Valve Size 20 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 20 inch

Dry Well Dimensions 0 ft. dia. Length 18.5 ft. Width: 18.5 ft. Depth 26 ft.

Pump centerline* 6.3 ft. Centerline of discharge pipe* 9.7 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 116

Pump Controls

Lead pump on 9 ft. Type of Controls bubbler
Lead pump off 7 ft.
Lag pump on 10.5 ft.
Lag pump off 8.5 ft.

Notes: (speed(2)10,7.5,11.5,9.5;speed(3)11,8.5,12.5,10.5;speed(4)12,9.5,13.5,11.5;

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 4 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 19 ft.

Sewer Invert(s) Depth* _____ ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 116

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Double Ended, Normal & Alternate Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device Not Available

Size of main protective device 400 amps, circuit breaker and fuse

Size of motor protective device 175 amps, circuit breaker

Service wire size Parallell of two # Size of motor starter in NEMA 4

Motor wire size #3/0 AWG Motor Horsepower 100

Number of motors 2 Motor Speed Multiple

Speed(s) in rpm 90, 180, 270, 360

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The pump station main protective device is a combination of circuit breaker and fuse. Three phase fuse arrangement is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The motor is connected to a resistor grid bank for motor speed

Pump Station 116 (16)



Photo Number 1

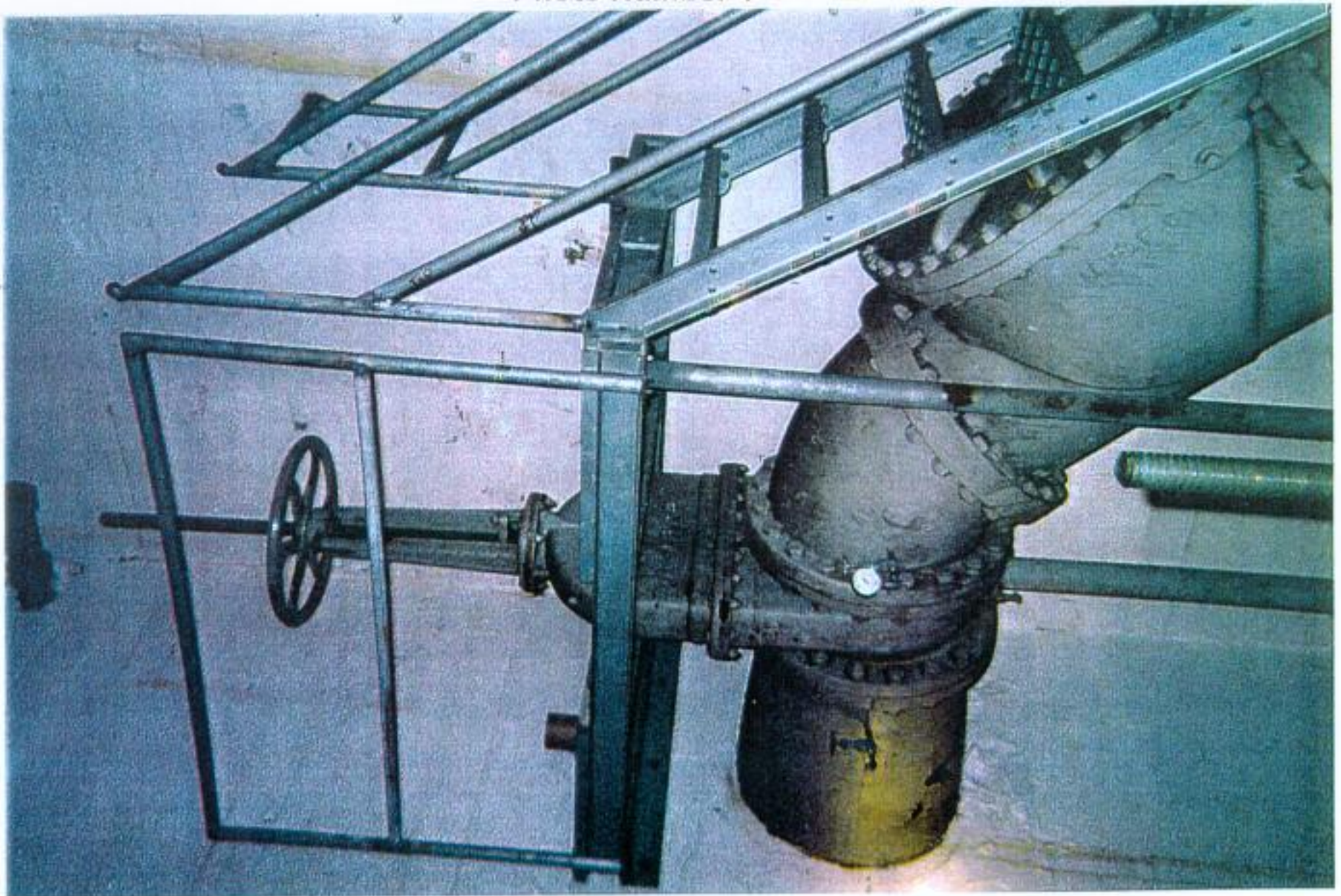


Photo Number 2

Pump Station 116 (16)



Photo Number 3

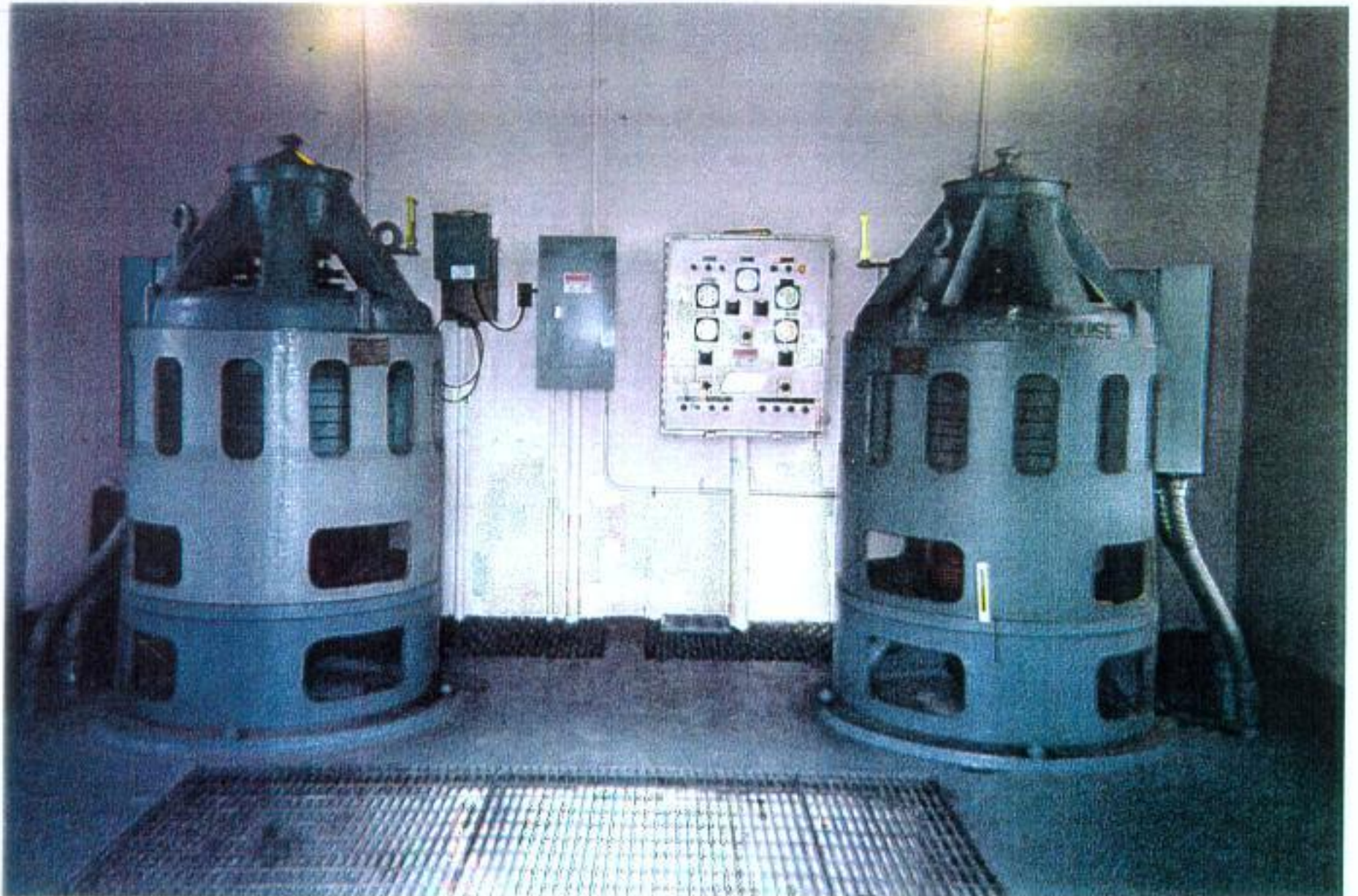


Photo Number 4



Photo Number 5

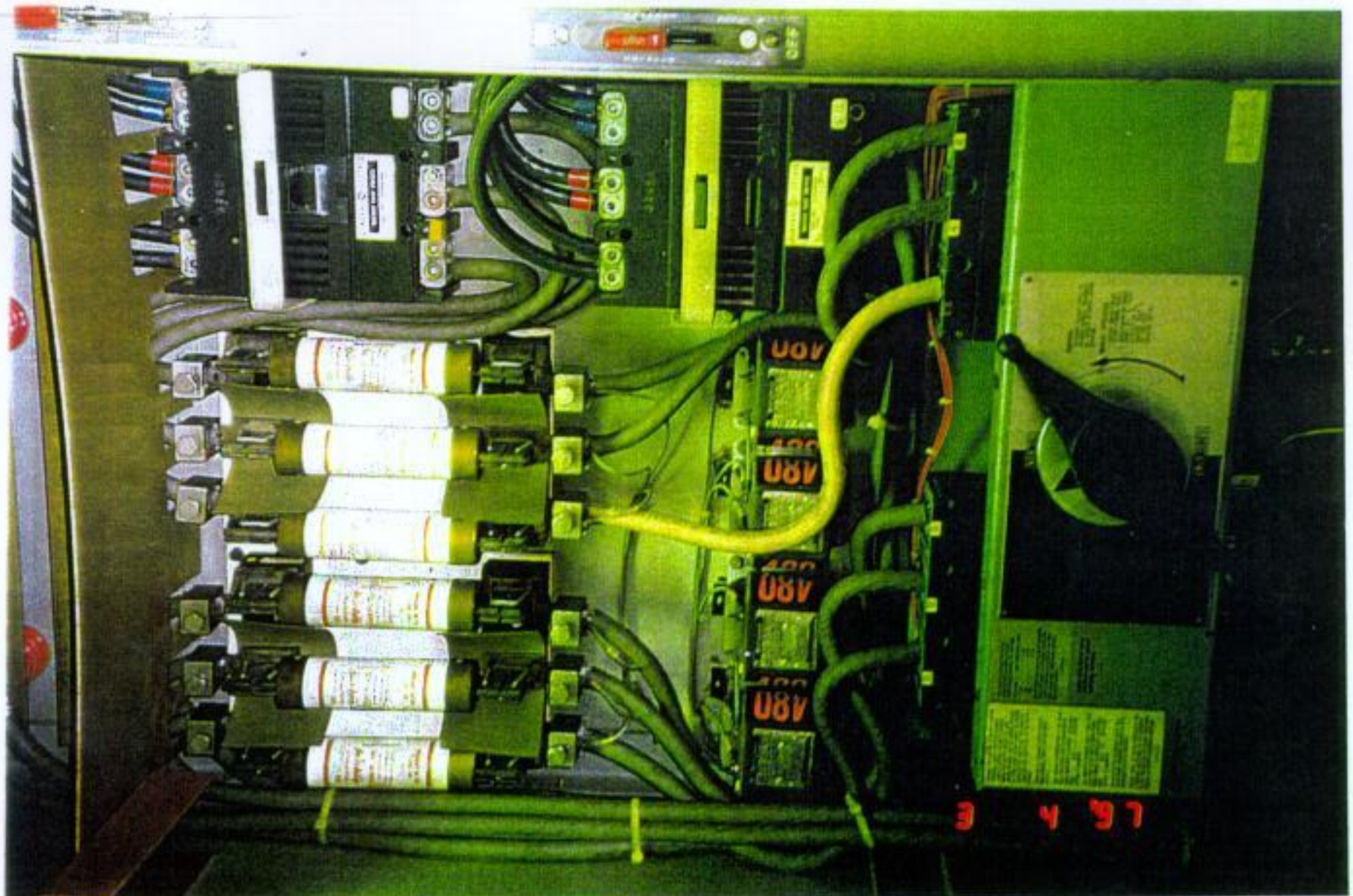


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 117 (17)
4975 SPAIN STREET**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 117 ("17")

Pump Station 117 is a flooded-suction, multi-level type station located on 4975 Spain Street. It discharges into a gravity main that flows to the wet well of Pump Station 187 ("D"). Pump Station 117 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 117.

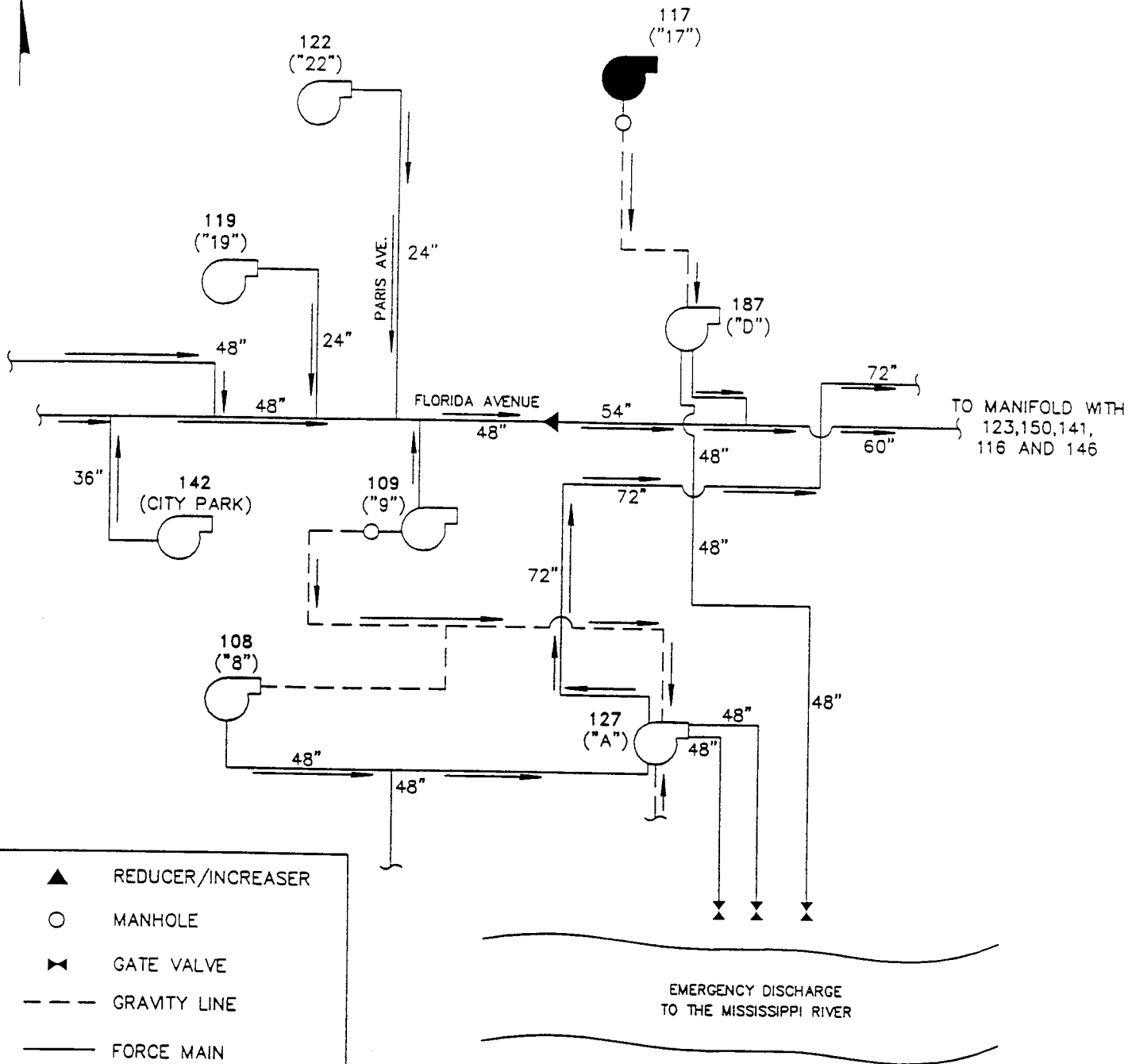
Pump Station 117 contains two (20-inch by 14-inch) vertically aligned pumps. Each pump is powered by a 4-speed Westinghouse motor, shown in photo number 3, which is rated at 100 hp at 360 rpm. This equipment is housed in an 18.5-foot by 18.5-foot reinforced concrete dry well structure. The total depth from the floor of the motor control room to the dry well bottom is 23.7 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station can be characterized as fair, although the pump number 2 impeller is somewhat damaged according to Sewer and Water Board personnel.










Pump Station 117 collects wastewater from the surrounding gravity sewer system into a 5-foot diameter suction chamber having a depth of 19-feet. This suction chamber is in fair condition.

The Doppler flow meter was utilized to determine flows at various discharge heads to develop the pump curve for each pump, as shown in Figures 4 and 5. Pump number 1 was tested as having the approximate capacities of 3,600 gallons per minute (gpm) at 7.5 feet of head, 4,600 gpm at 9 feet of head, 6,700 gpm at 13 feet of head, and 8,100 gpm at 14 feet of head on speeds 1, 2, 3, and 4 respectively. Pump number 2 was tested as having the approximate capacities of 1,100 gpm at 1 feet of head, 2,300 gpm at 1.5 feet of head, 2,800 gpm at 4 feet of head, and 3,300 gpm at 4.5 feet of head on speeds 1, 2, 3, and 4 respectively.

Recommendations:

1. Further investigate damage to the pump number 2 impeller and correct as necessary.



-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 117-4G JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

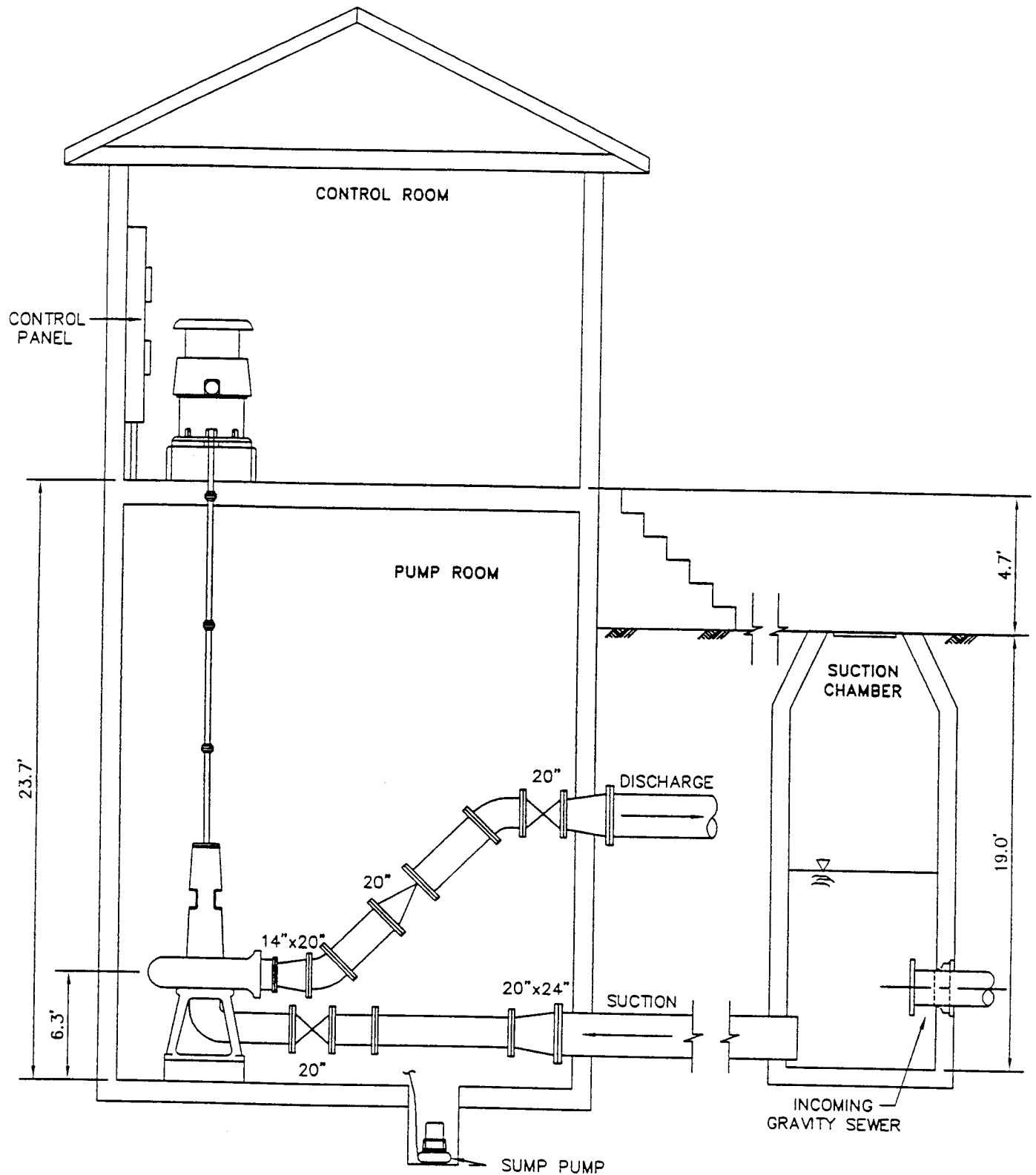
PUMP STATION 117 ("17")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

1

DATE:

3/28/97



ELEVATION
(NOT TO SCALE)

FILE NO.: 117-... DATE: 3/28/97
JOB NO.: 1113030.01090120



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 117 ("17")
MULTI-LEVEL FLOODED SUCTION

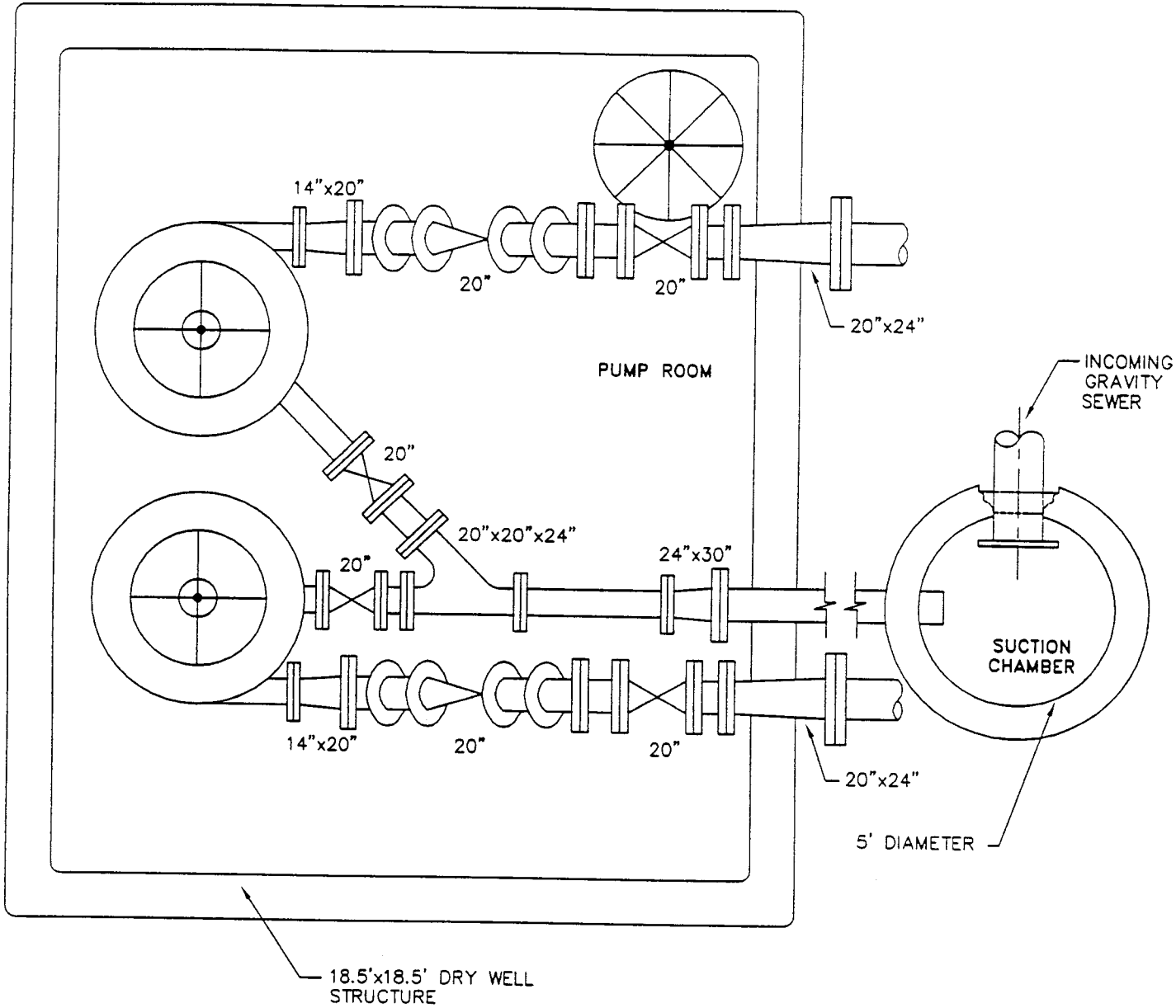
FIGURE:

2

DATE:

3/28/97

FILE NO.: 117-3.DWG JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 117 ("17")
MULTI-LEVEL FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 117 ("17")

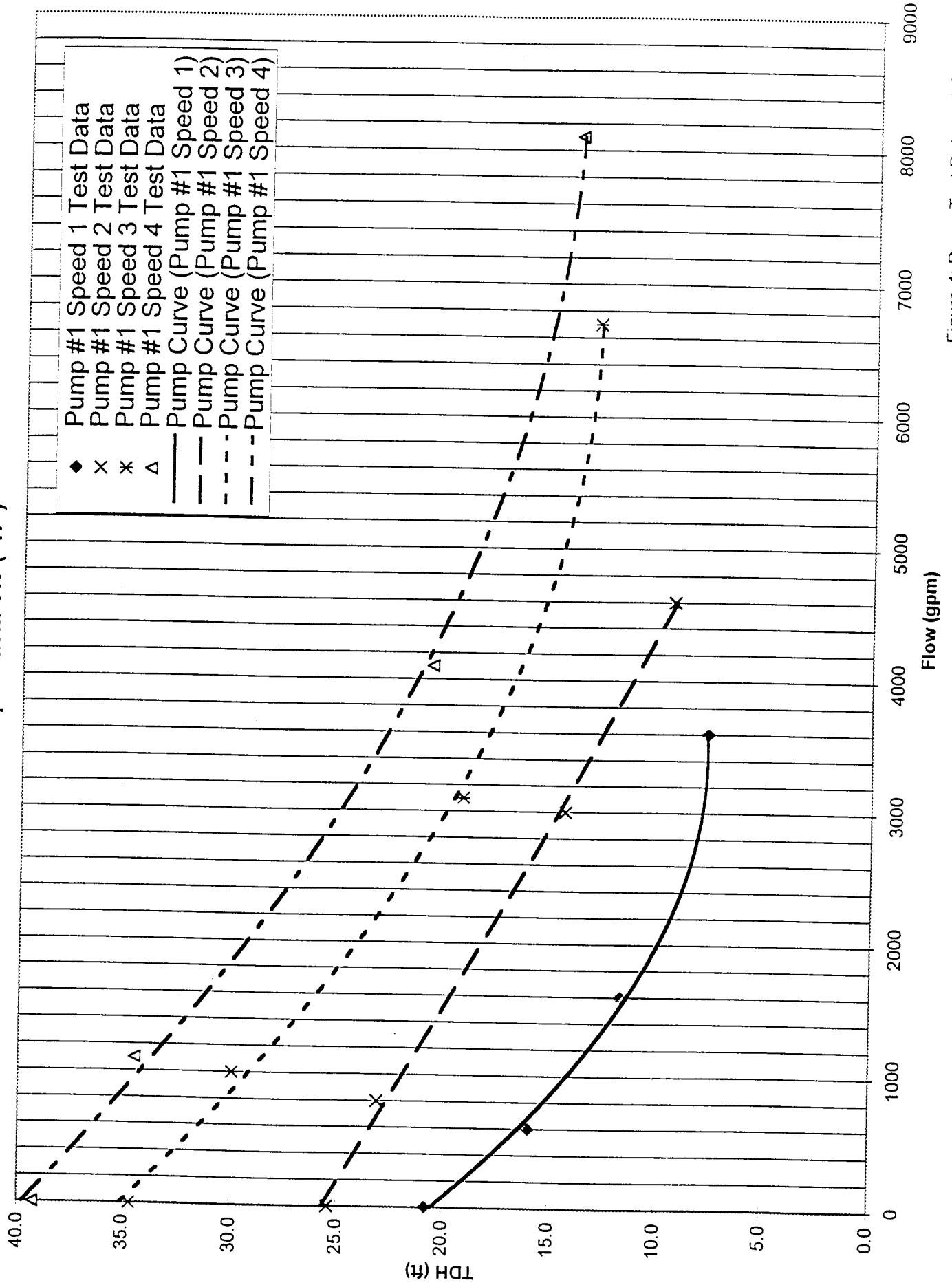


Figure 4: Pump Test Data and Curve(s)

Pump Station: 117 ("17")

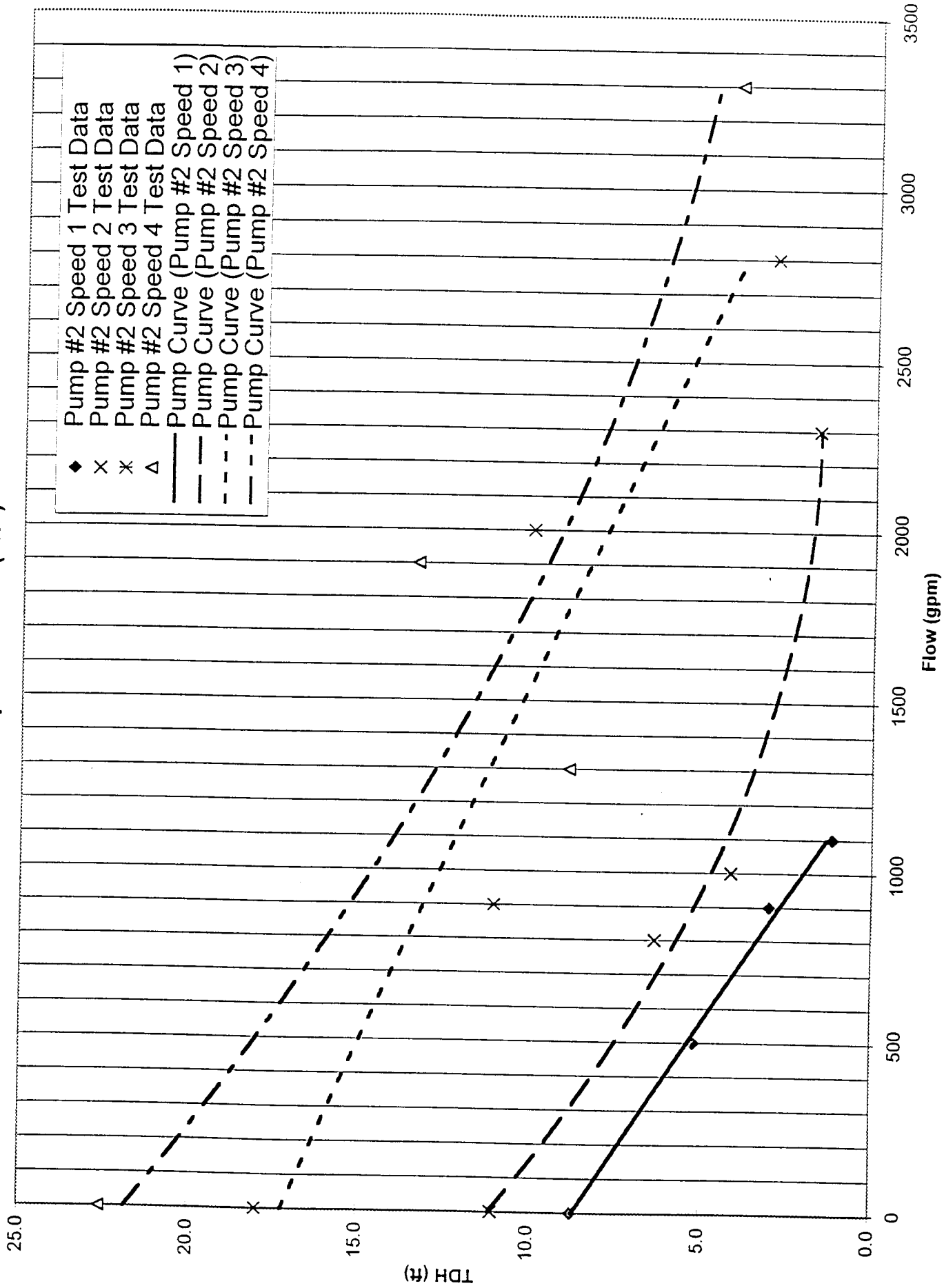


Figure 5: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 117

General Information

PS No. 117 PS Facility 17

Address 4975 Spain Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer not available

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 20 inch Pump Discharge 14 inch FM Diameter 20 inch

Suction Valve Size 20 inch Discharge Valve Size 20 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 20 inch

Dry Well Dimensions 0 ft. dia. Length 18.5 ft. Width: 18.5 ft. Depth 23.7 ft.

Pump centerline* 6.25 ft. Centerline of discharge pipe* 9.5 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 117

Pump Controls

Lead pump on 8.5 ft. Type of Controls bubbler
Lead pump off 7 ft.
Lag pump on 10 ft.
Lag pump off 8.5 ft.

Notes: speed(2)9.5, 8,11,9.5;speed(3)10.5, 9,12,10.5;speed(4)11.5,10,13,11.5

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair except for isolated areas of peeling paint.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 19 ft.

Sewer Invert(s) Depth* 9.75 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 117

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Double Ended, Normal & Alternate Source, no generator receptacle

Type of service 480/277V three phase four wire (three transformers)

Size of service protective device Not Available

Size of main protective device 400 amps, fusible disconnect switch

Size of motor protective device 200 amps, circuit breaker

Service wire size 500 kcmil Size of motor starter in NEMA 4

Motor wire size 250 kcmil Motor Horsepower 100

Number of motors 2 Motor Speed Multiple

Speed(s) in rpm 90, 180, 270, 360

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The motor is connected to a resistor grid bank for motor speed reduction. The resistor bank does not reduce electrical power

Pump Station 117 (17)



Photo Number 1

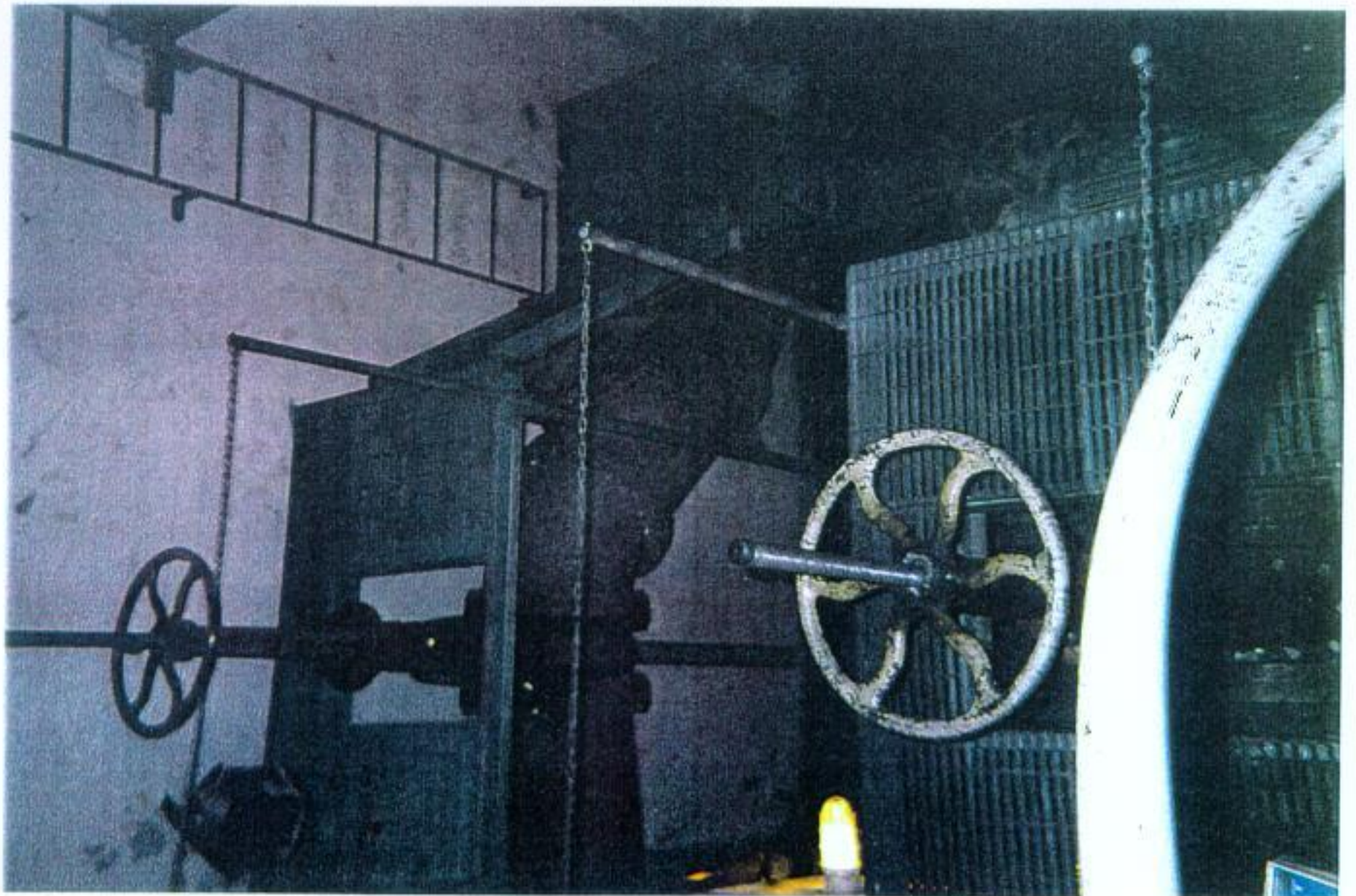


Photo Number 2

Pump Station 117 (17)



Photo Number 3



Photo Number 4

Pump Station 117 (17)

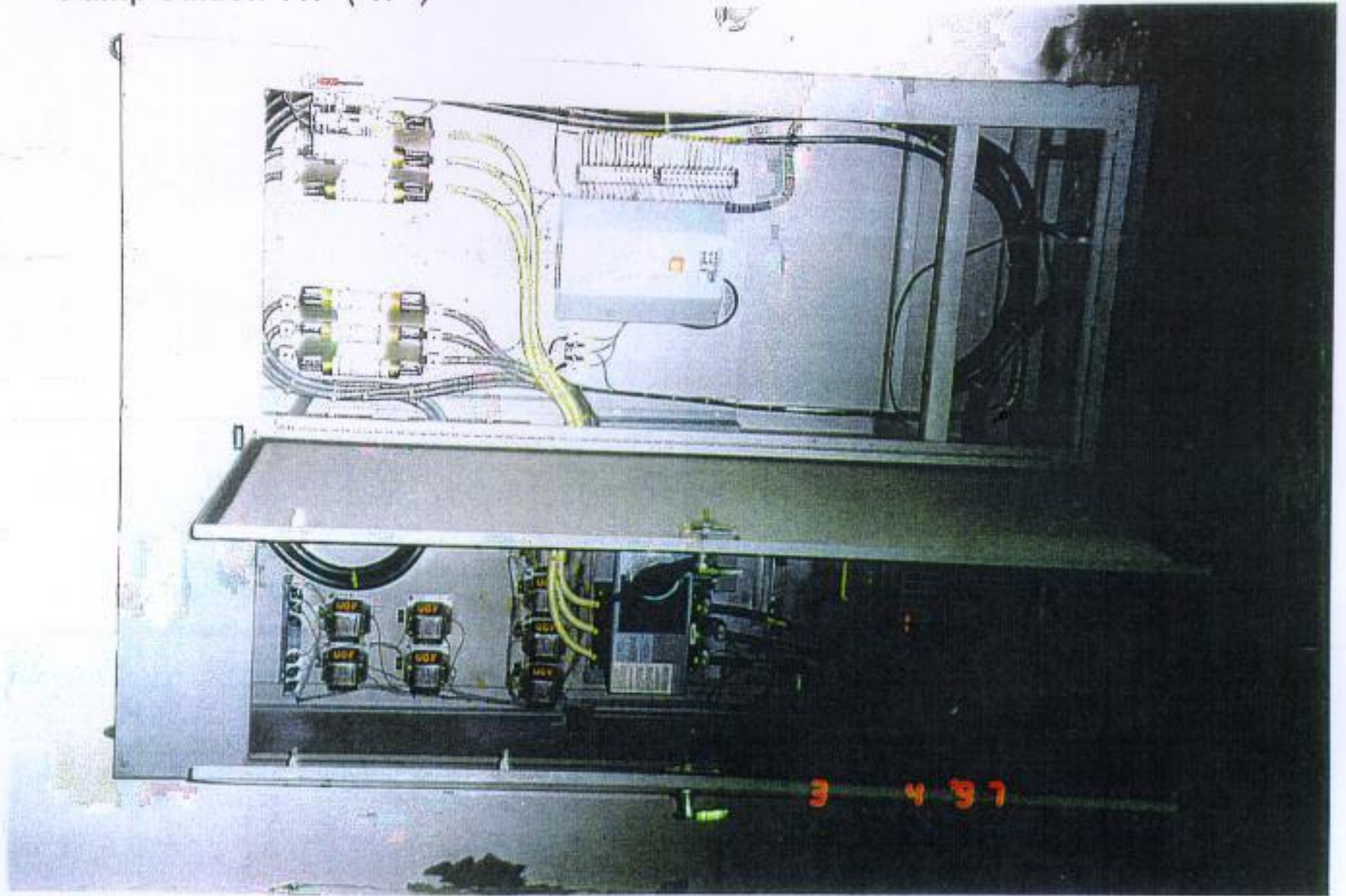


Photo Number 5



Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 118 (18)
VICKSBURG AT FLORIDA AVENUE**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 118 ("18")

Pump Station 118 is a flooded-suction, multi-level type station located on Vicksburg Street at Florida Avenue. It discharges into a force main which manifolds with the 42-inch diameter portion of the Florida Avenue force main. Pump Station 118 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 118.

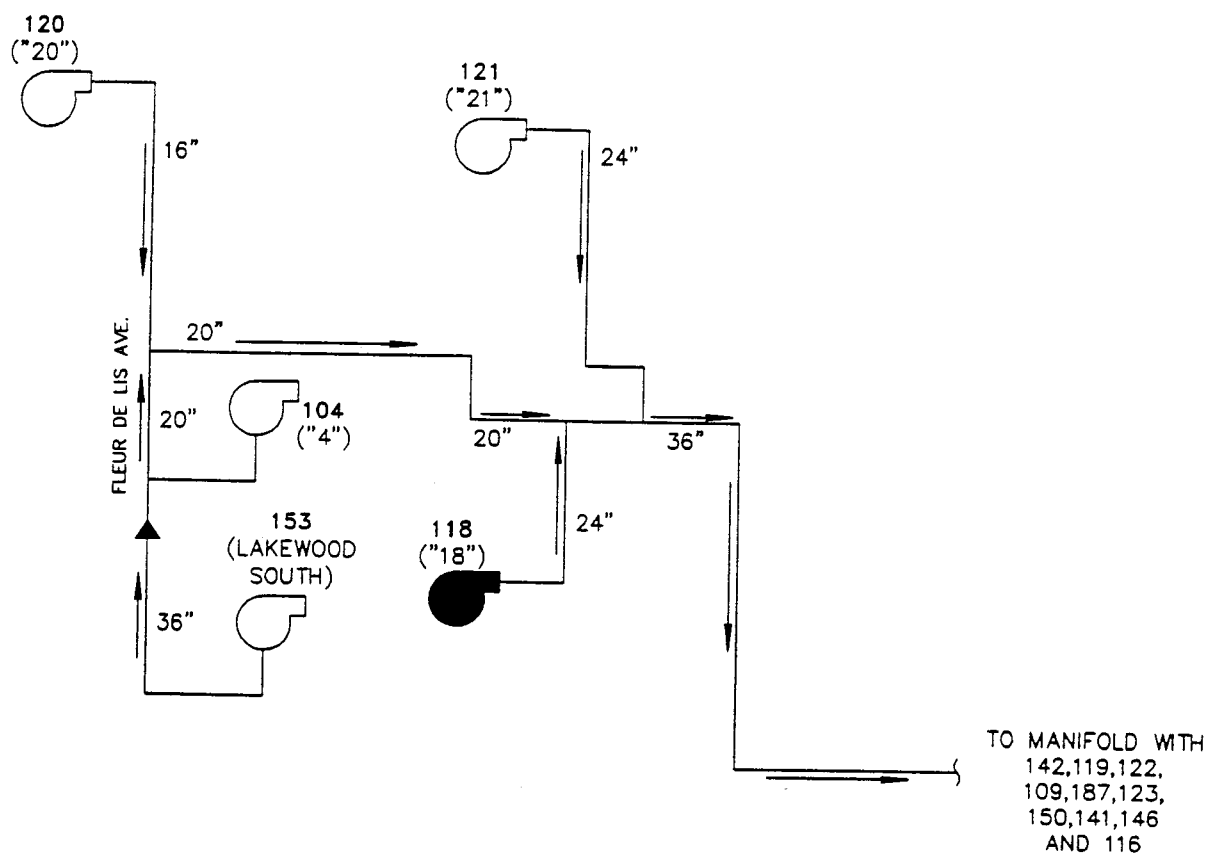
Pump Station 118 contains two (20-inch by 14-inch) vertically aligned pumps. Each pump is powered by a 4-speed Westinghouse motor, shown in photo number 2, which is rated at 150 hp at 395 rpm. This equipment is housed in an 18.5-foot by 18.5-foot reinforced concrete dry well structure. The total depth from the floor of the motor control room to the dry well bottom is 21 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station can be characterized as fair.










Pump Station 118 collects wastewater from the surrounding gravity sewer system into a 4-foot diameter suction chamber having a depth of 16.8 feet. This suction chamber is in fair condition.

The Doppler flow meter was utilized to determine flows at various discharge heads to develop the pump curve for each pump, as shown in Figures 4 and 5. Pump number 1 was tested as having the approximate capacities of 1,000 gallons per minute (gpm) at 34 feet of head, 1,200 gpm at 38 feet of head, 1,800 gpm at 39 feet of head, and 2,900 gpm at 44 feet of head on speeds 1, 2, 3, and 4 respectively. Pump number 2 was tested as having the approximate capacities of 800 gpm at 31 feet of head, 1,200 gpm at 35 feet of head, 1,550 gpm at 38 feet of head, and 2,600 gpm at 41 feet of head on speeds 1, 2, 3, and 4 respectively.

Recommendations:

1. Due to the "flatness" of the pump curves, as shown in Figures 4 and 5, a small increase in the system pressure can cause a significant decrease in pumping capacity. Such a condition can occur during a rainfall event. This condition could cause the capacity of the station to fall below the required capacity during such an event. Therefore, it is recommended that an upgrade in the capacity of the station be investigated further.



-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 114 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 118 ("18")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

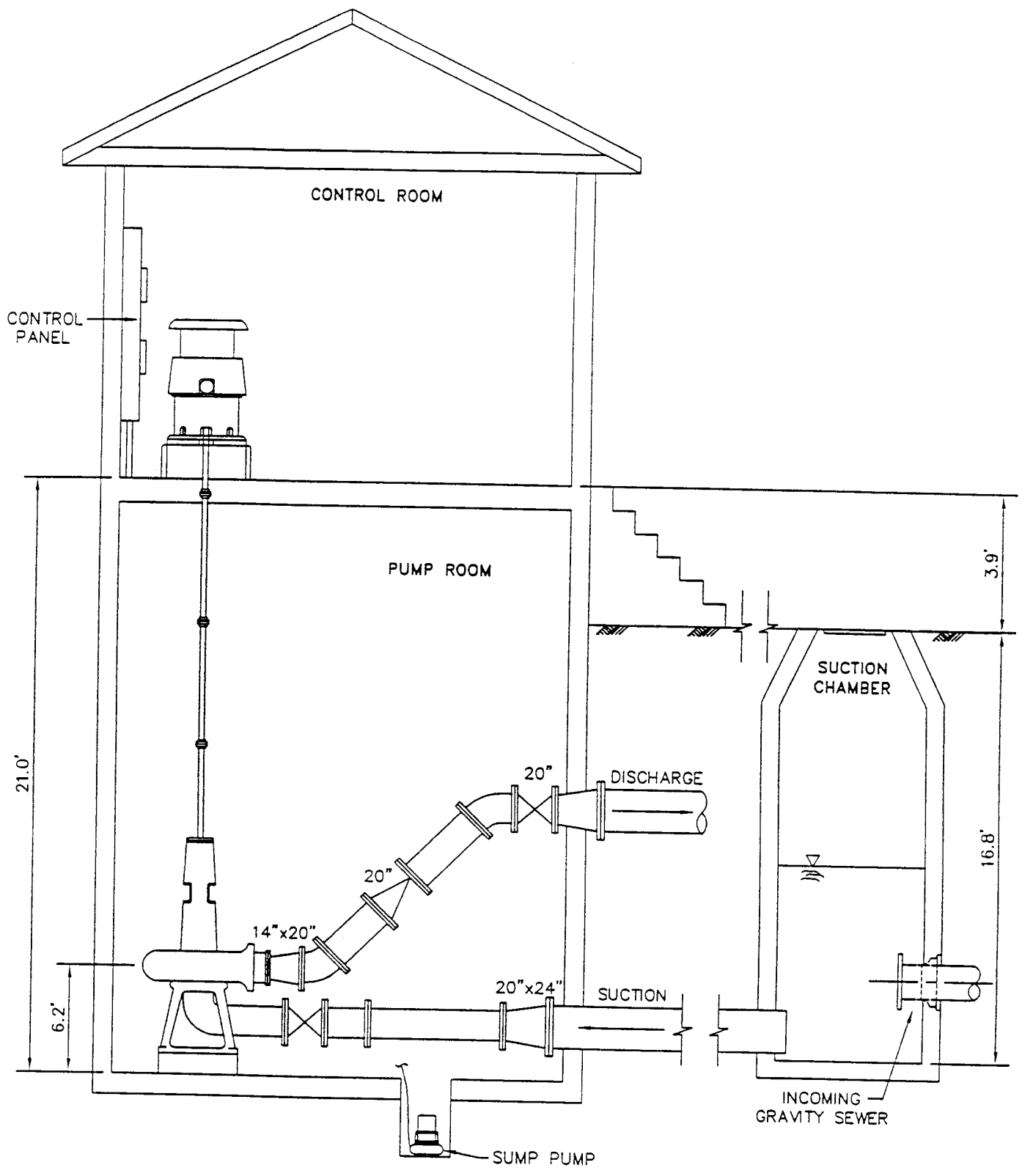
1

DATE:

3/28/97

JOB NO.: 1113030.01090120 DATE: 3/28/97

FILE NO.: 118-



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 118 ("18")
MULTI-LEVEL FLOODED SUCTION

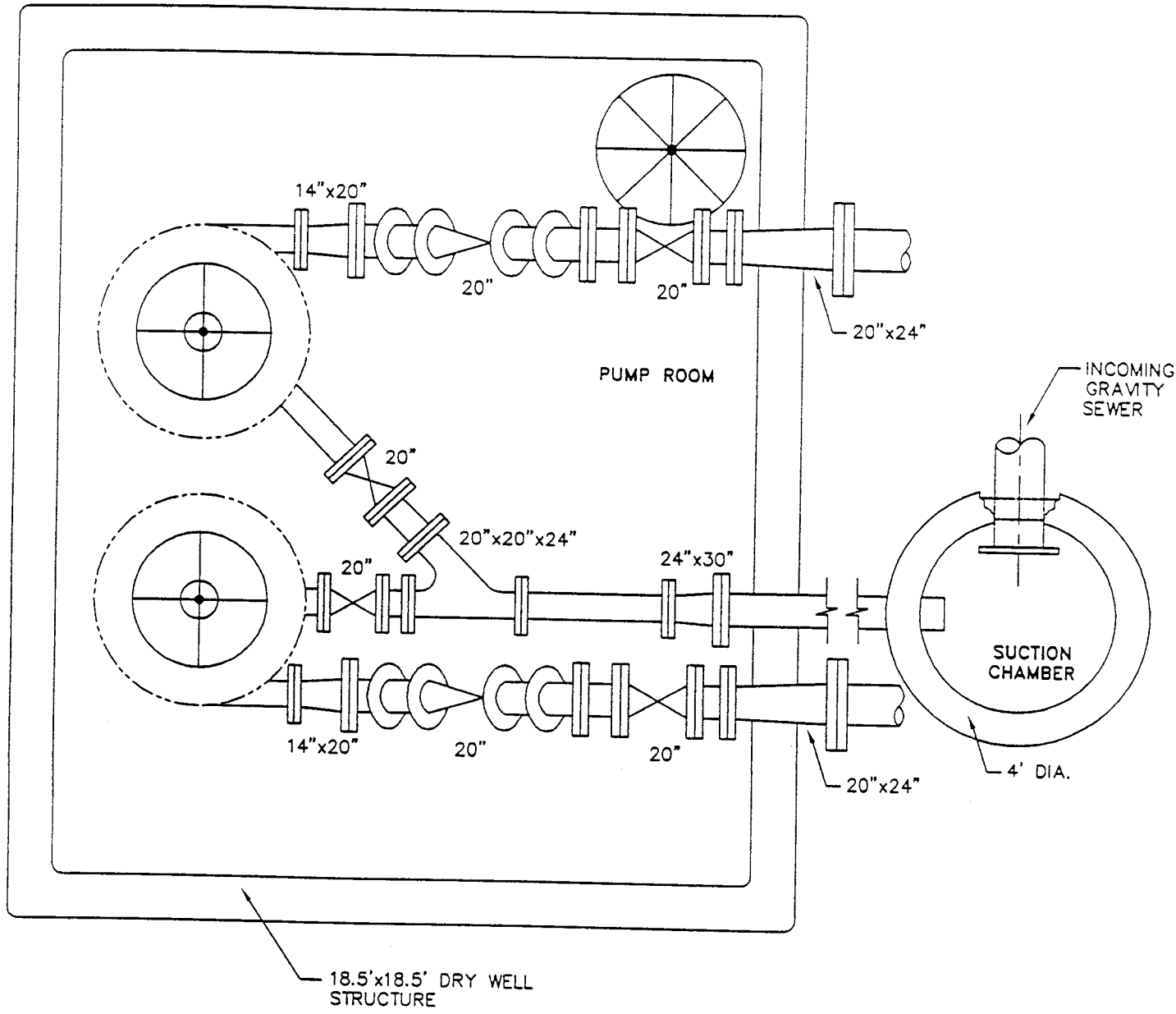
FIGURE:

2

DATE:

3/28/97

FILE NO.: 118-
JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 118-



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 118 ("18")
MULTI-LEVEL FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 118 ("18")

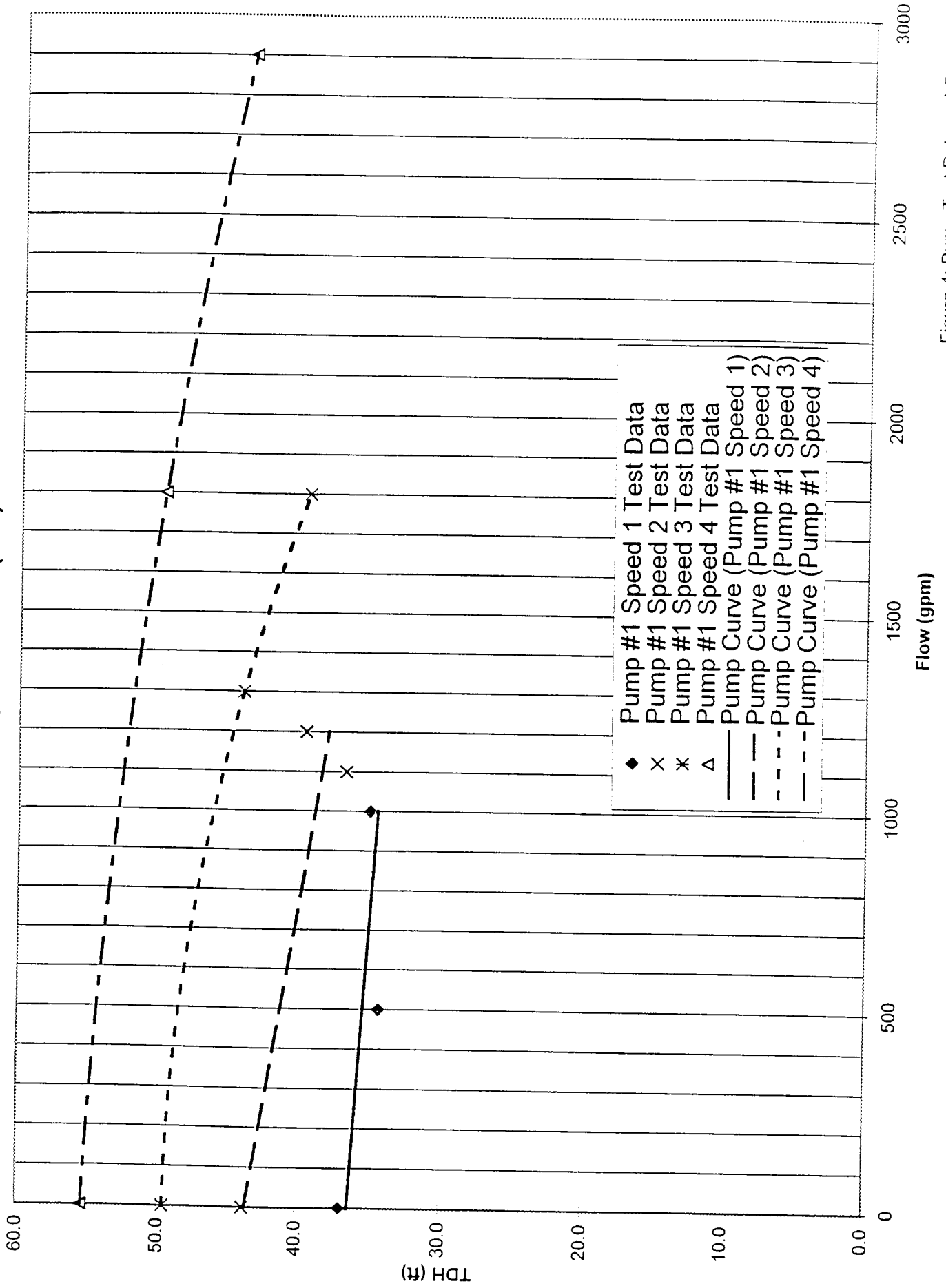


Figure 4: Pump Test Data and Curve(s)

Pump Station: 118 ("18")

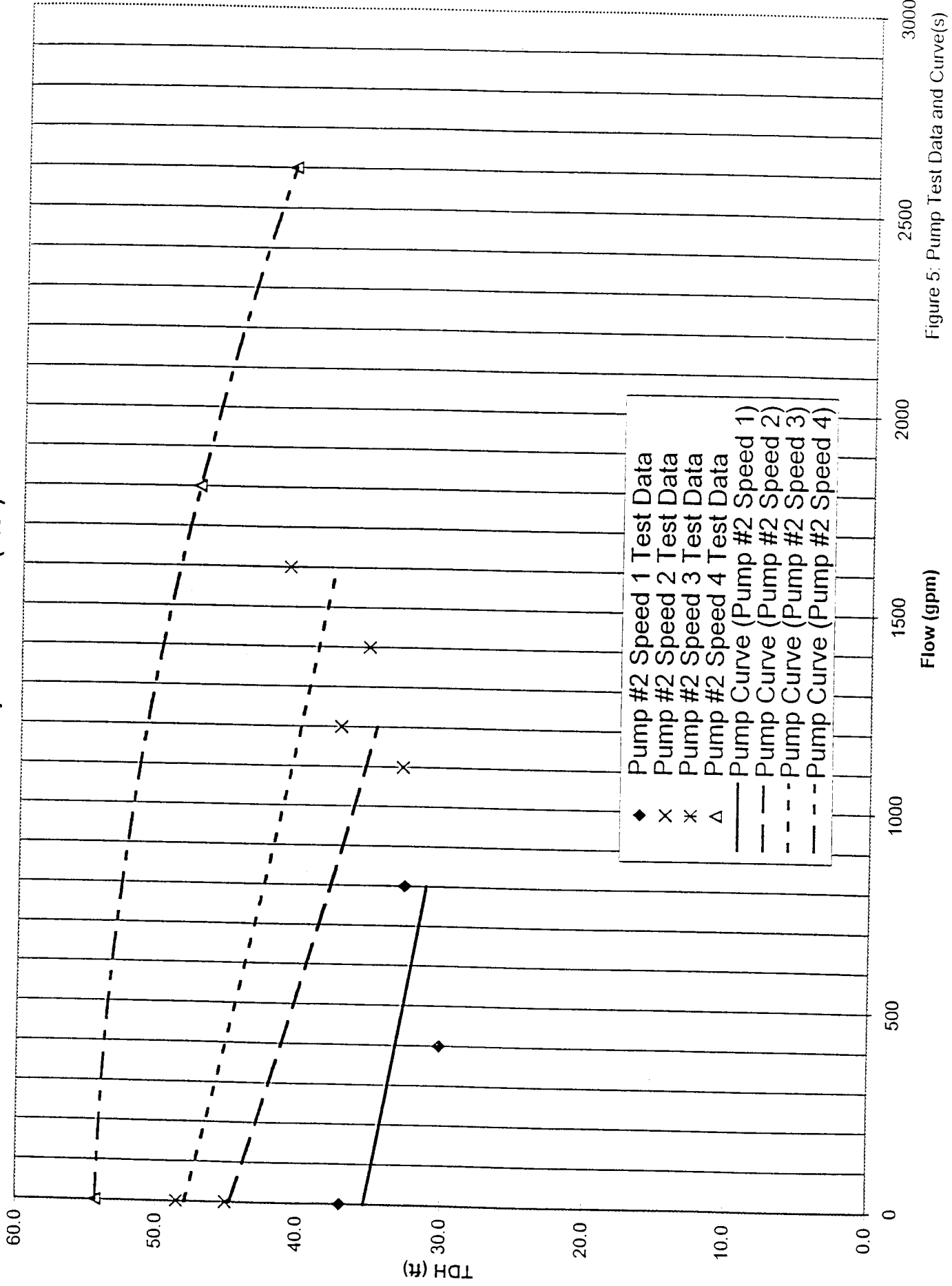


Figure 5: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 118

General Information

PS No. 118 PS Facility 18

Address Vicksburg at Florida Avenue

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer not available

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating _____ gpm _____ ft. of head 0 rpm

Pump Suction 20 inch Pump Discharge 14 inch FM Diameter 20 inch

Suction Valve Size 20 inch Discharge Valve Size 20 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 20 inch

Dry Well Dimensions 0 ft. dia. Length 18.5 ft. Width: 18.5 ft. Depth 21 ft.

Pump centerline* 6.3 ft. Centerline of discharge pipe* 9.6 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 118

Pump Controls

Lead pump on 7 ft. Type of Controls bubbler
Lead pump off 5.5 ft.
Lag pump on 8.5 ft.
Lag pump off 7 ft.

Notes: speed(2)8,6.5,9.5,8;speed(3)9,7.5,10.5,9;speed(4)10,8.5,11.5,10;

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 4 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 16.8 ft.

Sewer Invert(s) Depth* 0 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 118

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Double Ended, Normal & Alternate Source, no generator receptacle

Type of service 480/277V three pahse four wire (3 transformers bank)

Size of service protective device 450 amps, dual element, fusible disconnect switch

Size of main protective device Not Available

Size of motor protective device 250 amps, dual element, fusible disconnect switch

Service wire size 11 of 2 # 4/0 AWG Size of motor starter in NEMA 5

Motor wire size # 4/0 AWG Motor Horsepower 150

Number of motors 2 Motor Speed Multiple

Speed(s) in rpm 98.75, 197.5, 296.25, 395

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The motor is connected to resistor grid bank for motor speed reduction. Resistor grid bank does not reduce electrical power

Pump Station 118 (18)



Photo Number 1



Photo Number 2

Pump Station 118 (18)



Photo Number 3

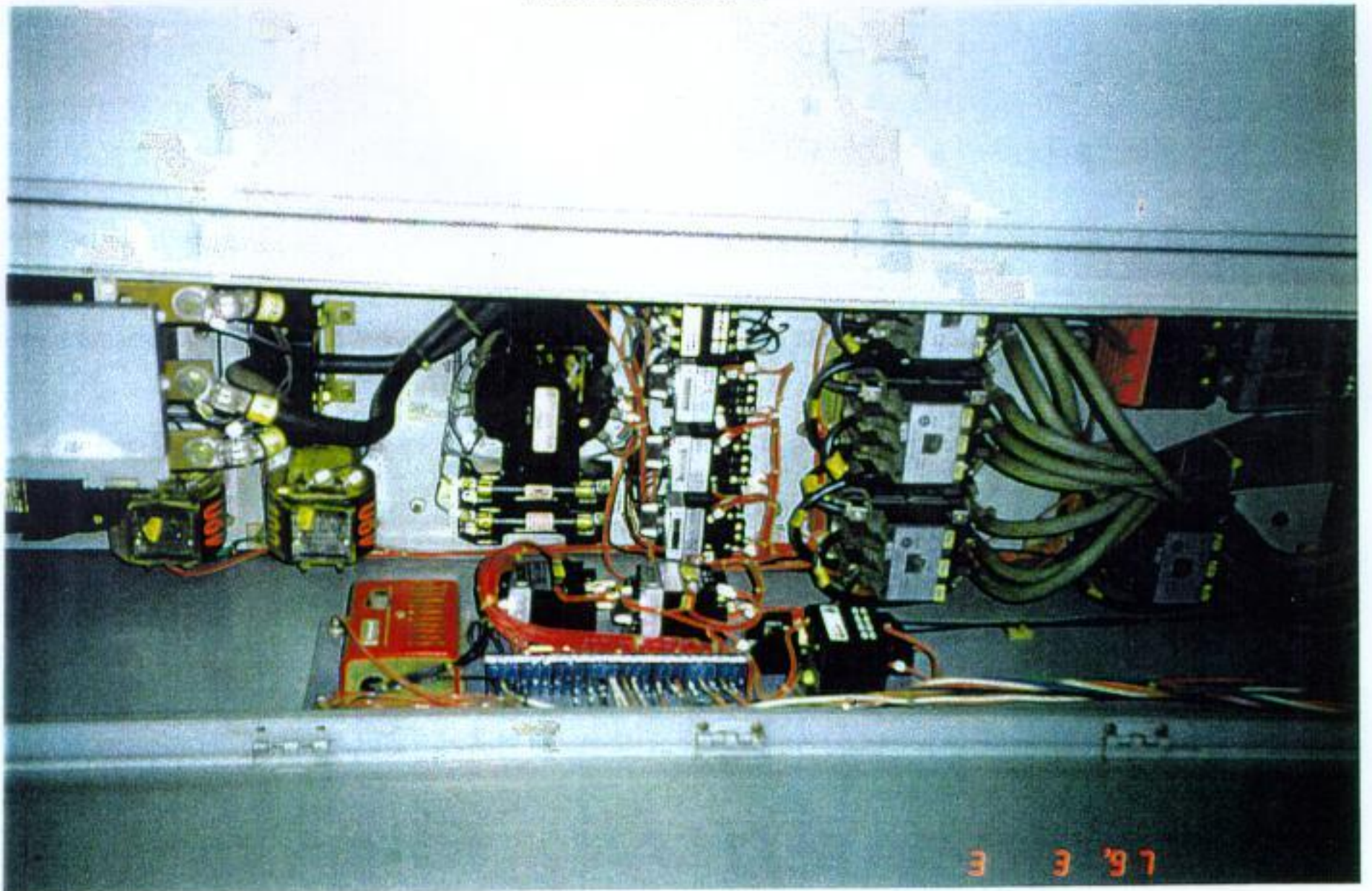


Photo Number 4

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 119 (19)
3730 JUMONVILLE STREET

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 119 ("19")

Pump Station 119 is a flooded-suction, multi-level type station located on 3730 Jumonville Street. It discharges into a force main which manifolds with the 48-inch diameter portion of the Florida Avenue force main. Pump Station 119 does not repump flow from any other station however, its flow gets repumped by Pump Station 187 ("D"). Figure 1 shows the schematic subsystem surrounding Pump Station 119.

Pump Station 119 contains two (20-inch by 14-inch) vertically aligned pumps. Each pump is powered by a 4-speed Westinghouse motor, shown in photo number 3, which is rated at 100 hp at 514 rpm. This equipment is housed in an 18.5-foot by 18.5-foot reinforced concrete dry well structure. The total depth from the floor of the motor control room to the dry well bottom is 26 feet. Figures 2 and 3 provide plan and elevation views of the station. The station is in fair condition although there is evidence that the discharge gate valve and the check valve of pump number 2 are leaking.

Pump Station 119 collects wastewater from the surrounding gravity sewer system into a 6-foot diameter brick suction chamber having a depth of 20-feet. This suction chamber, shown in photo number 2, has suffered from the effects of corrosion. The only portion of the cement liner remaining is at the uppermost portion of the suction chamber. The grouting between the bricks is also severely corroded and to the extent the structural integrity of the chamber may be compromised.

The Doppler flow meter was utilized to determine flows at various discharge heads to develop the pump curve for each pump, as shown in Figures 4 and 5. Pump number 1 was tested as having the approximate capacities of 1,100 gallons per minute (gpm) at 26 feet of head, 1,800 gpm at 27 feet of head, 3,200 gpm at 30 feet of head, and 5,200 gpm at 32 feet of head on speeds 1, 2, 3, and 4 respectively. Pump number 2 was tested as having the approximate capacities of 2,000 gpm at 30 feet of head, 5,600 gpm at 30 feet of head, 5,200 gpm at 32 feet of head, and 7,200 gpm at 40 feet of head on speeds 1, 2, 3, and 4 respectively.

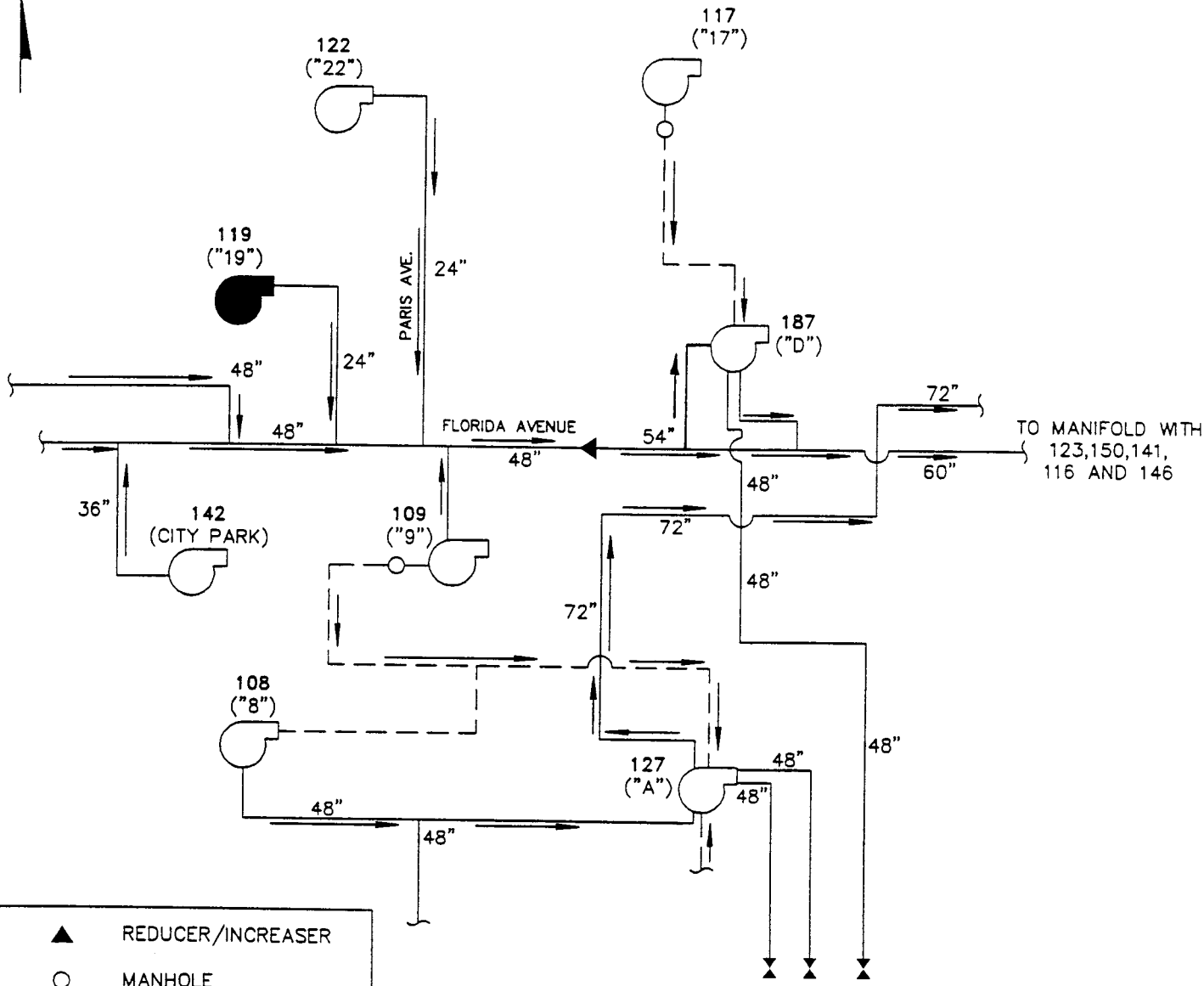
Only one pump is operated at a time, which is typically pump number 2. The other pump is set in the off position, preventing its operation. According to Sewer and Water Board personnel, pump number 1 is not run often due to noise complaints from neighbors. The motor of this pump produces a high pitched whining noise.

Recommendations:

1. No backup capacity is provided under the current operating scenario. The noise produced by the pump number 1 pump motor should be further investigated and corrected as necessary so pumps can be run in a lead and lag mode. If additional reasons that the pumps are not run in lead and lag mode exist, such as force main

condition, force main capacity, or plant capacity, then these issues need to be addressed.

2. It is recommended that the pump number 2 discharge gate valve and check valve be repaired or replaced. Recirculation of flow occurs at the station when pump number 2 is off. In this situation, the force main pressure causes backflow through the check valve into the suction chamber, decreasing the efficiency of the station.
3. It is recommended that the suction chamber be rehabilitated or repaired.



	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

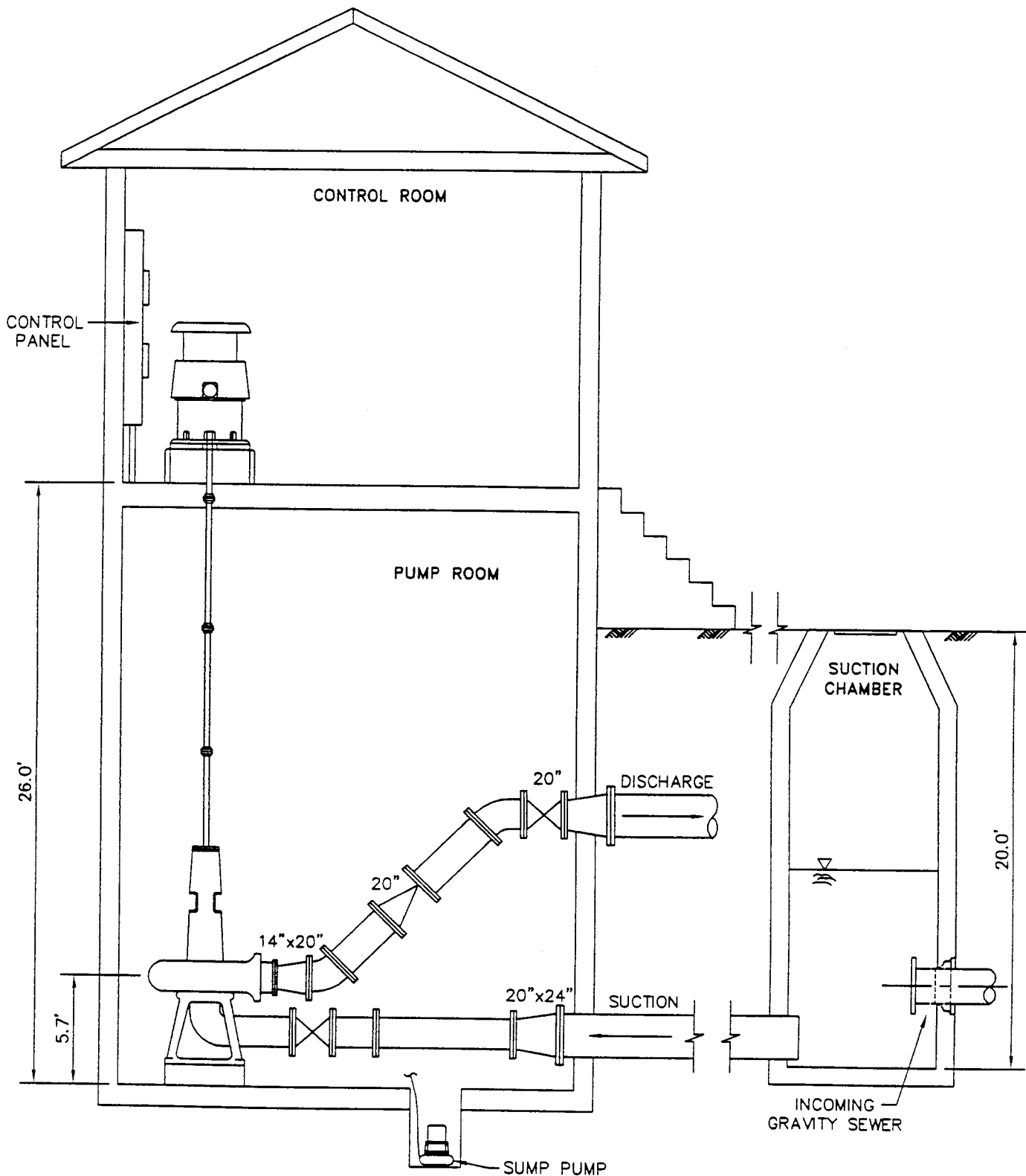
FILE NO.: 115 JOB NO.: 1113030.01090120 DATE: 3/28/97

SEWERAGE AND WATER BOARD OF NEW ORLEANS

MONTGOMERY WATSON

PUMP STATION 119 ('19')
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE: 1
DATE: 3/28/97



ELEVATION
(NOT TO SCALE)

FILE NO.: 115 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 119 ("19")
MULTI-LEVEL FLOODED SUCTION

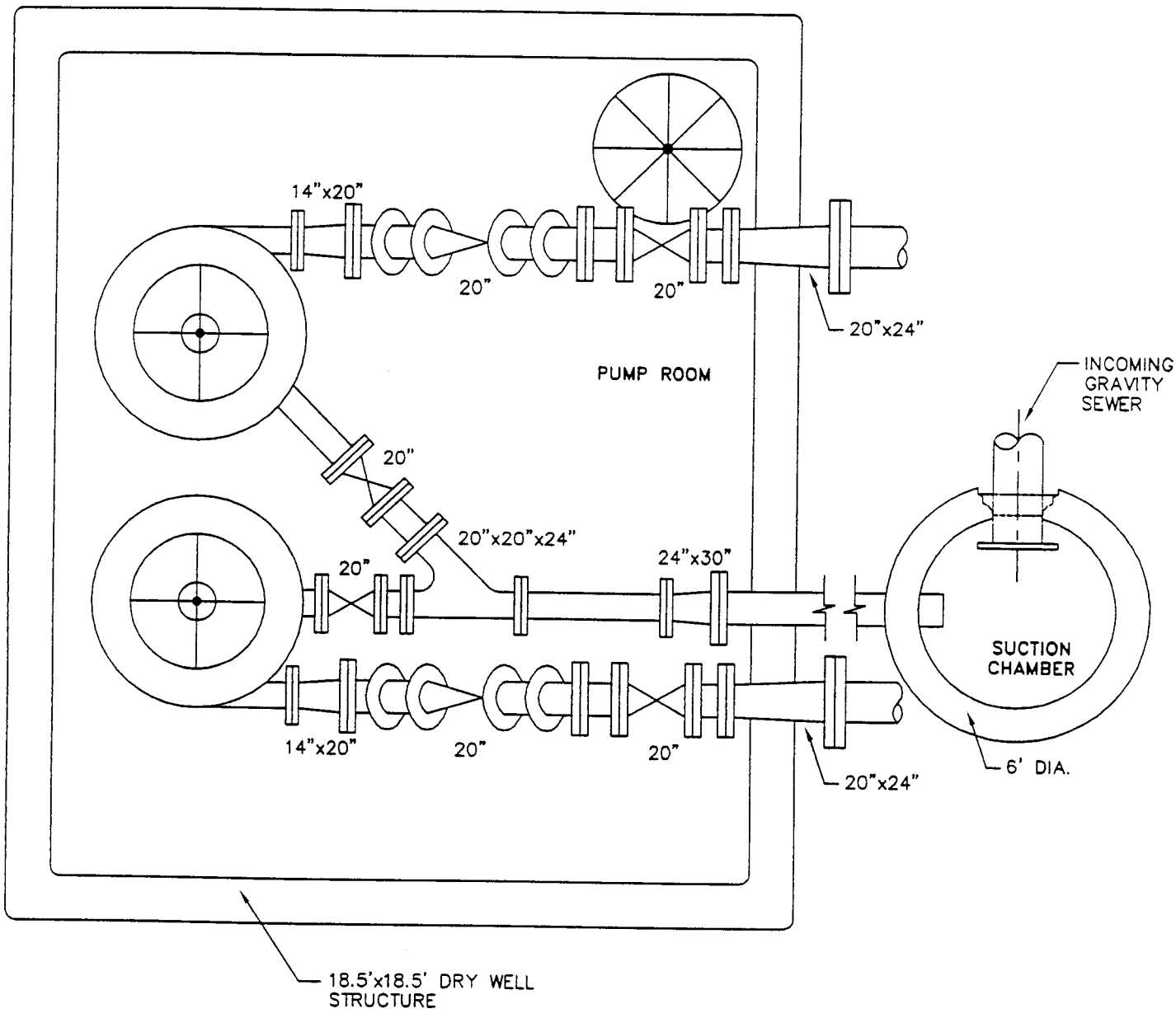
FIGURE:

2

DATE:

3/28/97

FILE NO.: 119- G JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 119 ("19")
MULTI-LEVEL FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 119 ("19")

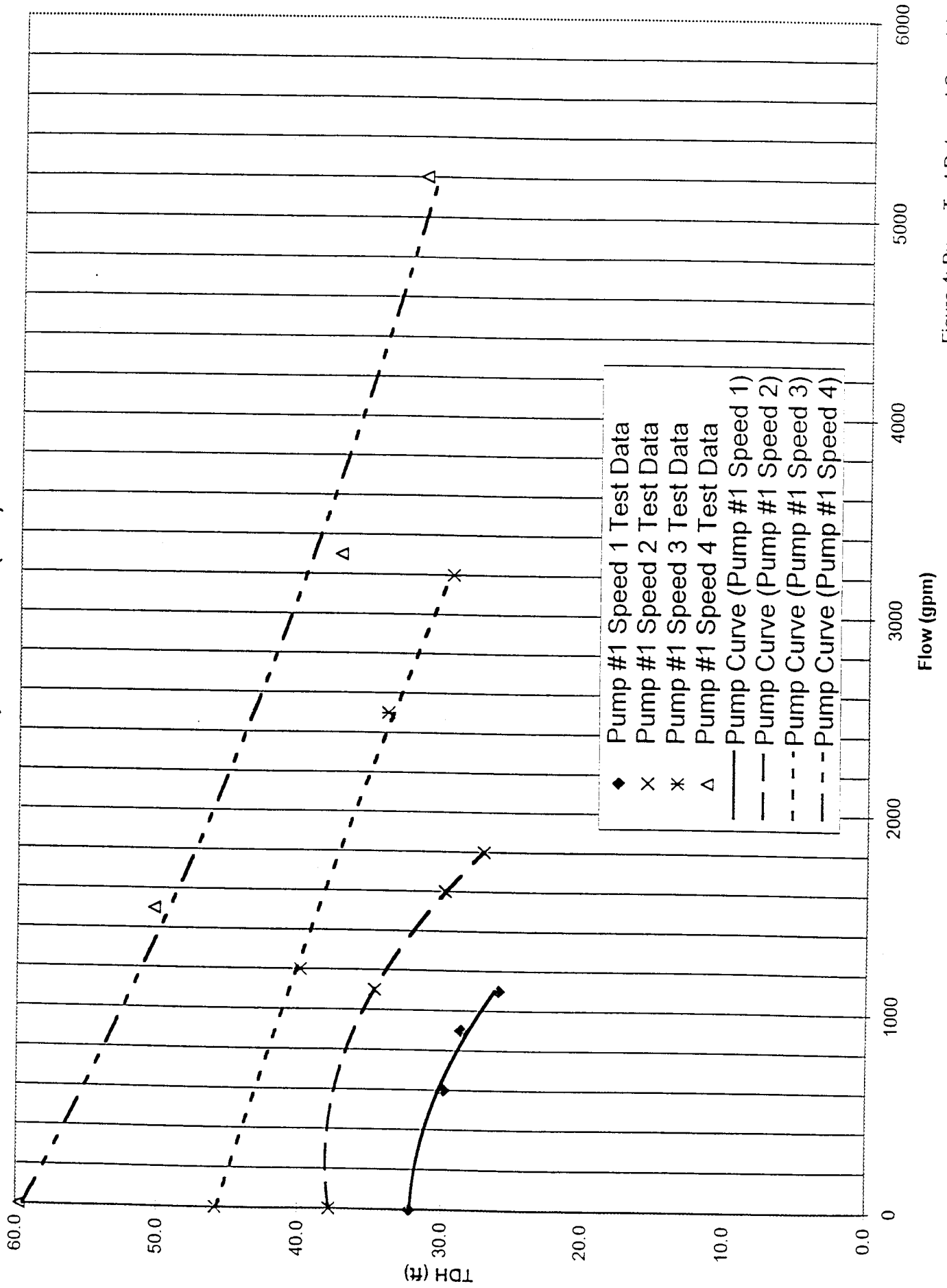
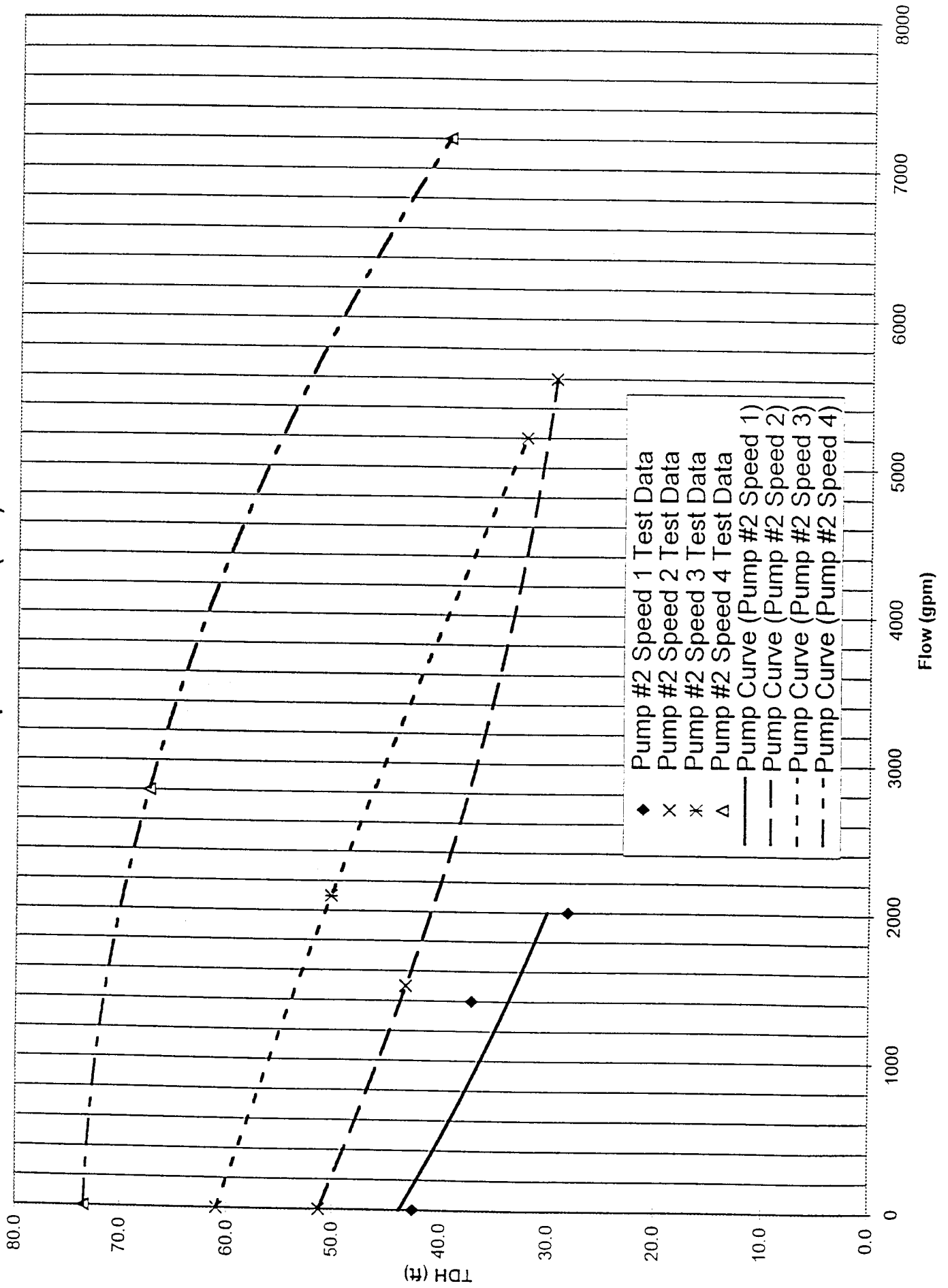


Figure 4: Pump Test Data and Curve(s)

Pump Station: 119 ("19")



Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 119

General Information

PS No. 119 PS Facility 19 Address 3730 Jumonville Street

PS Type [] Regional [] Flooded Suction (can type) [x] Flooded Suction (multi-level) [] Suction Lift (above ground) [] Suction Lift (bi-level) [] Suction Lift (hut) [] Submersible [] Discharge to gravity [x] Discharge to force main

Notes It's flow gets repumped by pump station ("D")

Pump Information

Number of Pumps 2 Pump Manufacturer not available Impeller Diameter 0 inch Model Number-Pump #1 not available Serial Number-Pump #1 not available Model Number-Pump #2 not available Serial Number-Pump #2 not available Model Number-Pump #3 - Serial Number-Pump #3 - Model Number-Pump #4 - Serial Number-Pump #4 - Pump Configuration [x] Vertical [] Horizontal Nameplate Rating 0 gpm 0 ft. of head 0 rpm Pump Suction 20 inch Pump Discharge 14 inch FM Diameter 24 inch Suction Valve Size 20 inch Discharge Valve Size 20 inch Suction Valve Type gate Discharge Valve Type gate Check Valve Size 20 inch Dry Well Dimensions 0 ft. dia. Length 18.5 ft. Width: 18.5 ft. Depth 26.1 ft. Pump centerline* 5.7 ft. Centerline of discharge pipe* 9.4 ft.

* measured from dry well bottom.

Notes:

Operational Observations

Do check valves operate properly? [x] Yes [] No Which One? Do discharge valves operate properly? [x] Yes [] No Where? Pump seals leaking? [x] Yes [] No Which One? both

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 119

Pump Controls

Lead pump on 7.5 ft. Type of Controls bubbler
Lead pump off 6 ft.
Lag pump on 9 ft.
Lag pump off 7.5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition Cement liner over brick.

Comments _____

Diameter 6 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 20 ft.

Sewer Invert(s) Depth* 15 ft.

0 ft:

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 119

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Double Ended, Normal and Alternate Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device Not Available

Size of main protective device 400 amps, circuit breaker

Size of motor protective device 200 amps, dual element, fusible disconnect switch

Service wire size Parallell of two #4/0 A Size of motor starter in NEMA 4

Motor wire size #2/0 AWG Motor Horsepower 100

Number of motors 2 Motor Speed Multiple

Speed(s) in rpm 514 @ full load

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor #1 no available Serial Number - Motor # 1 not available

Model Number - Motor #2 no available Serial Number - Motor # 2 not available

Model Number - Motor #3 - Serial Number - Motor # 3 -

Model Number - Motor #4 - Serial Number - Motor # 4 -

Comments The pump station main protective device is a combination circuit breaker and fuse.

Pump Station 119 (19)



Photo Number 1



Photo Number 2

Pump Station 119 (19)

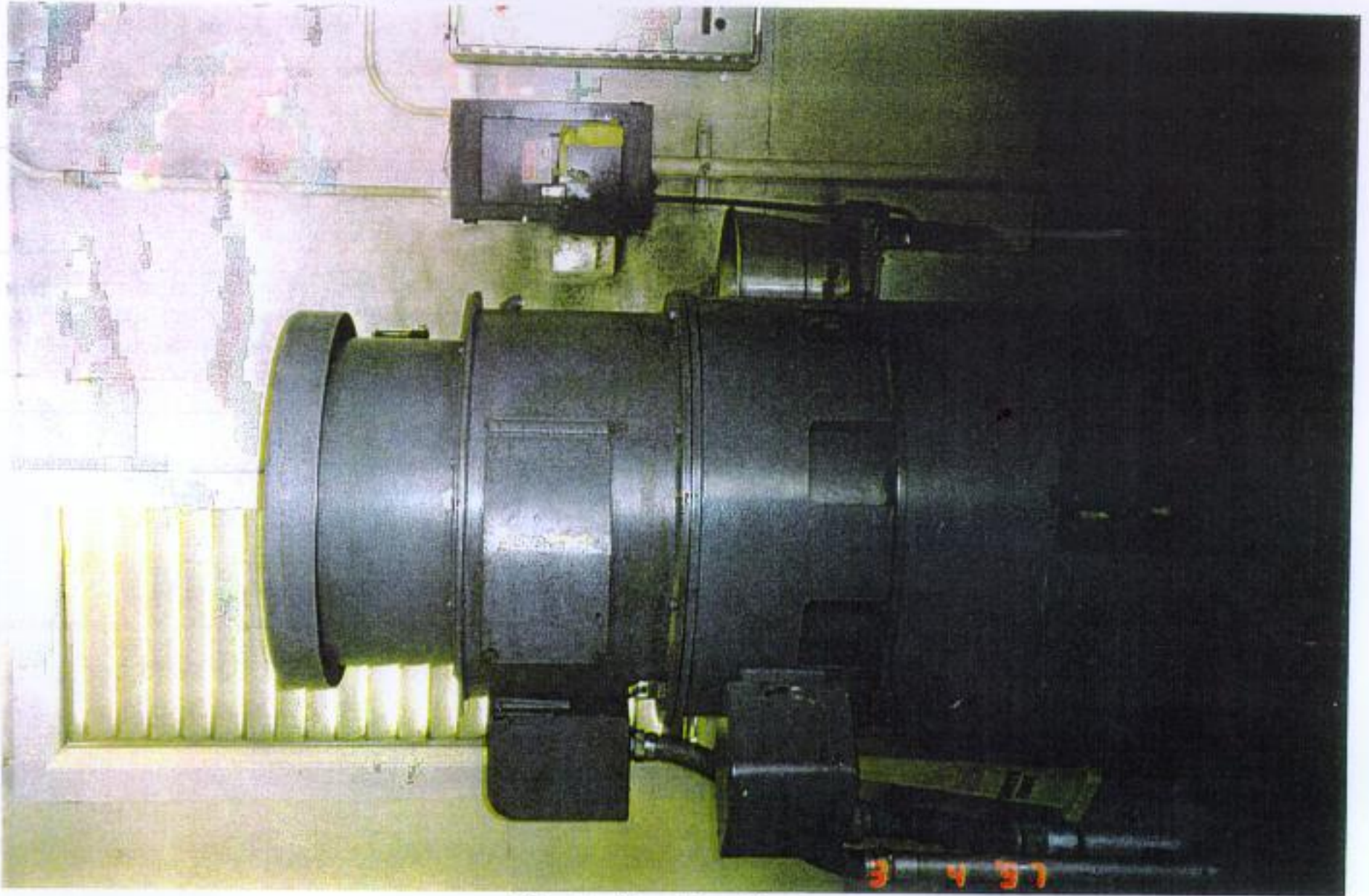


Photo Number 3

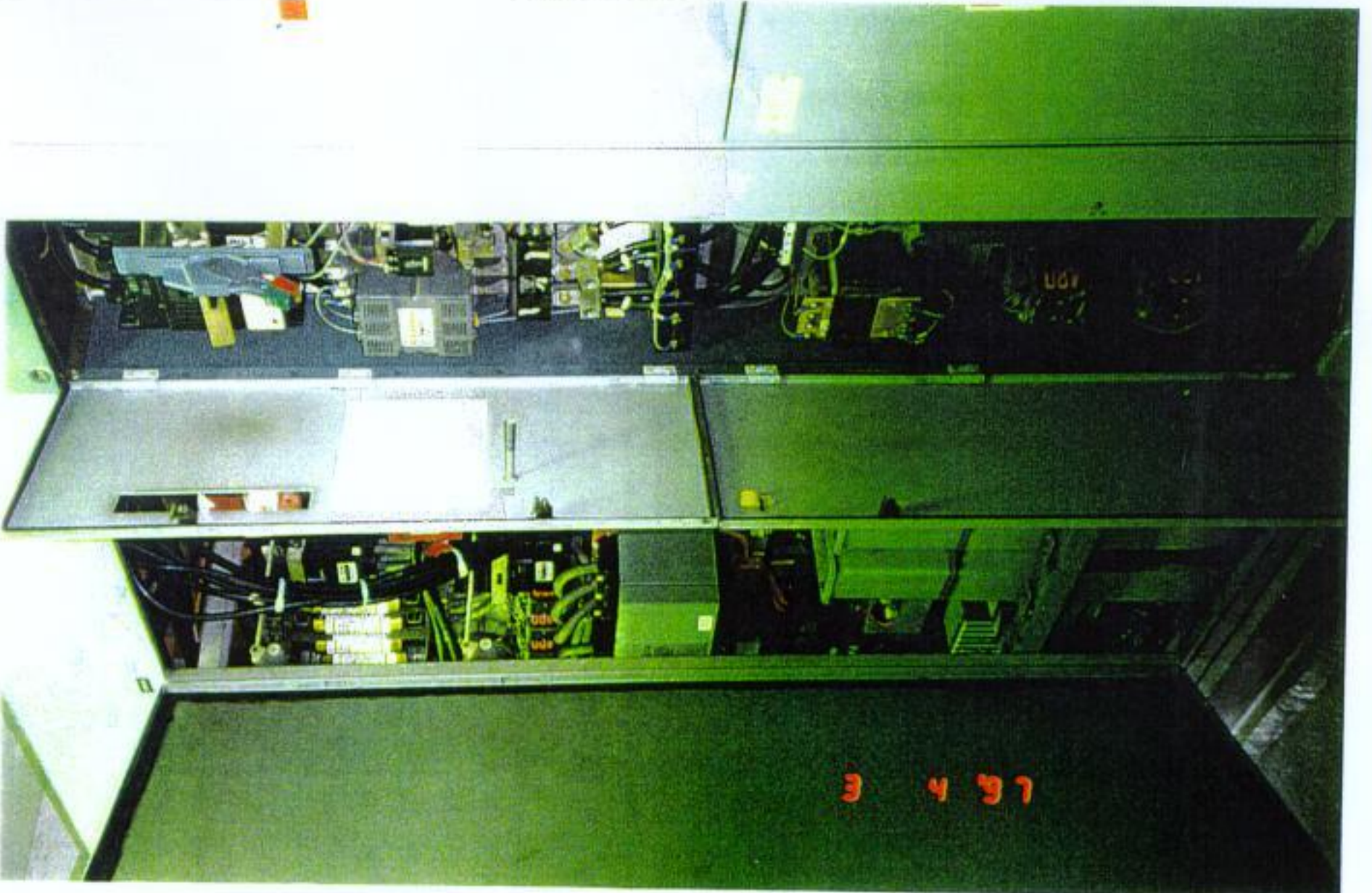


Photo Number 4

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 120 (20)
328 37TH STREET**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 120 (20)

Pump Station 120 is a bi-level suction lift station located on 328 37th Street. It discharges to a 16-inch force main along Fleur de Lis Drive via a 12-inch diameter force main. Pump Station 120 does not repump flow from any other station and its flow gets repumped by Pump Station 187 ("D"). Figure 1 shows the schematic of the subsystem surrounding Pump Station 104.

Pump Station 120 contains two (8-inch by 8-inch) Fairbanks Morse horizontally aligned pumps. Each pump is powered by a 75 horsepower (hp) Marathon Electric Motor operating at a constant speed of 1185 revolutions per minute (rpm). This equipment is housed in a 12.3 by 11-foot brick dry well structure, which is partially below grade. The depth of the pump room section of the dry well is 7.3 feet. Figures 2 and 3 provide elevation and front views of the station.

Pump Station 120 collects wastewater from the surrounding gravity sewer system into a 15.9-foot deep brick wet well. The diameter of the wet well was measured to be approximately 5 feet.

The Doppler Flow Meter was used to determine the capacity of Pump Station 120. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 1600 gallons per minute (gpm) at 55-feet of head. The shut-off head for both pumps was found to be approximately 85 feet.

Recommendations:

1. A leak was observed from the check valve during the testing of pump number 1. The extent of the leak should be further investigated and corrected.



120
("20")

121
("21")

16"

24"

FLEUR DE LIS AVE.

20"

20"

104
("4")

20"

36"

153
(LAKEWOOD)
(SOUTH)

118
("18")

24"

36"

To: Pump Station
187 ("D")



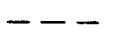
REDUCER/INCREASER



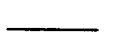
MANHOLE



GATE VALVE



GRAVITY LINE



FORCE MAIN



PRIVATE STATION



PUMP STATION



REF. PUMP STATION



EBSTP EAST BANK SEWERAGE
TREATMENT PLANT

NOTE:

SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 12
JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

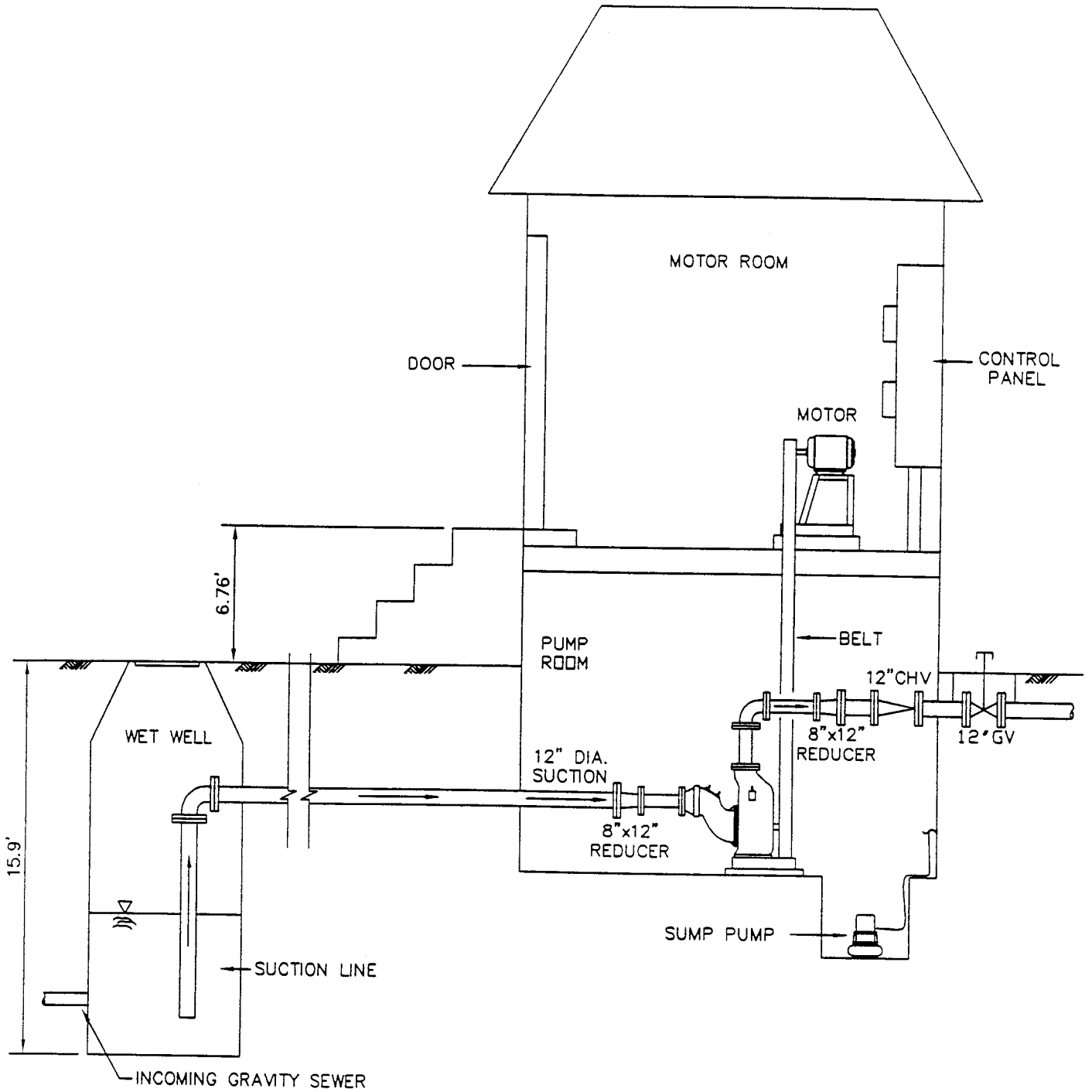
PUMP STATION 120 ("20")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

1

DATE:

3/28/97



ELEVATION
(NOT TO SCALE)

FILE NO.: 126
G JOB NO.: 1113030.01090120 DATE: 3/21/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 120 ("20")
BI-LEVEL SUCTION LIFT

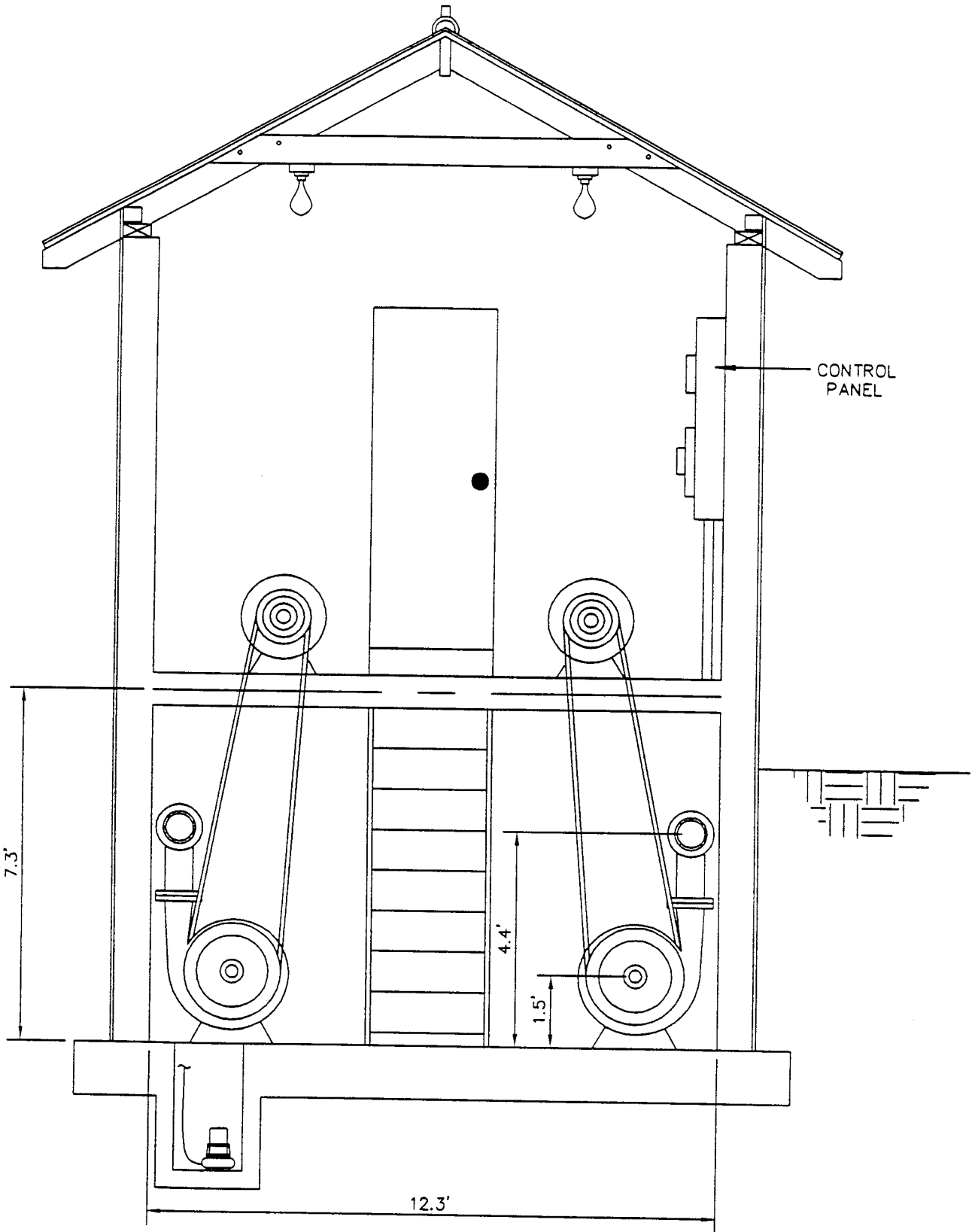
FIGURE:

2

DATE:

3/21/97

FILE NO.: 120 JOB NO.: 1113030.01090120 DATE: 3/21/97



FRONT VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 120 ("20")
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/21/97

Pump Station: 120 (No. 20)

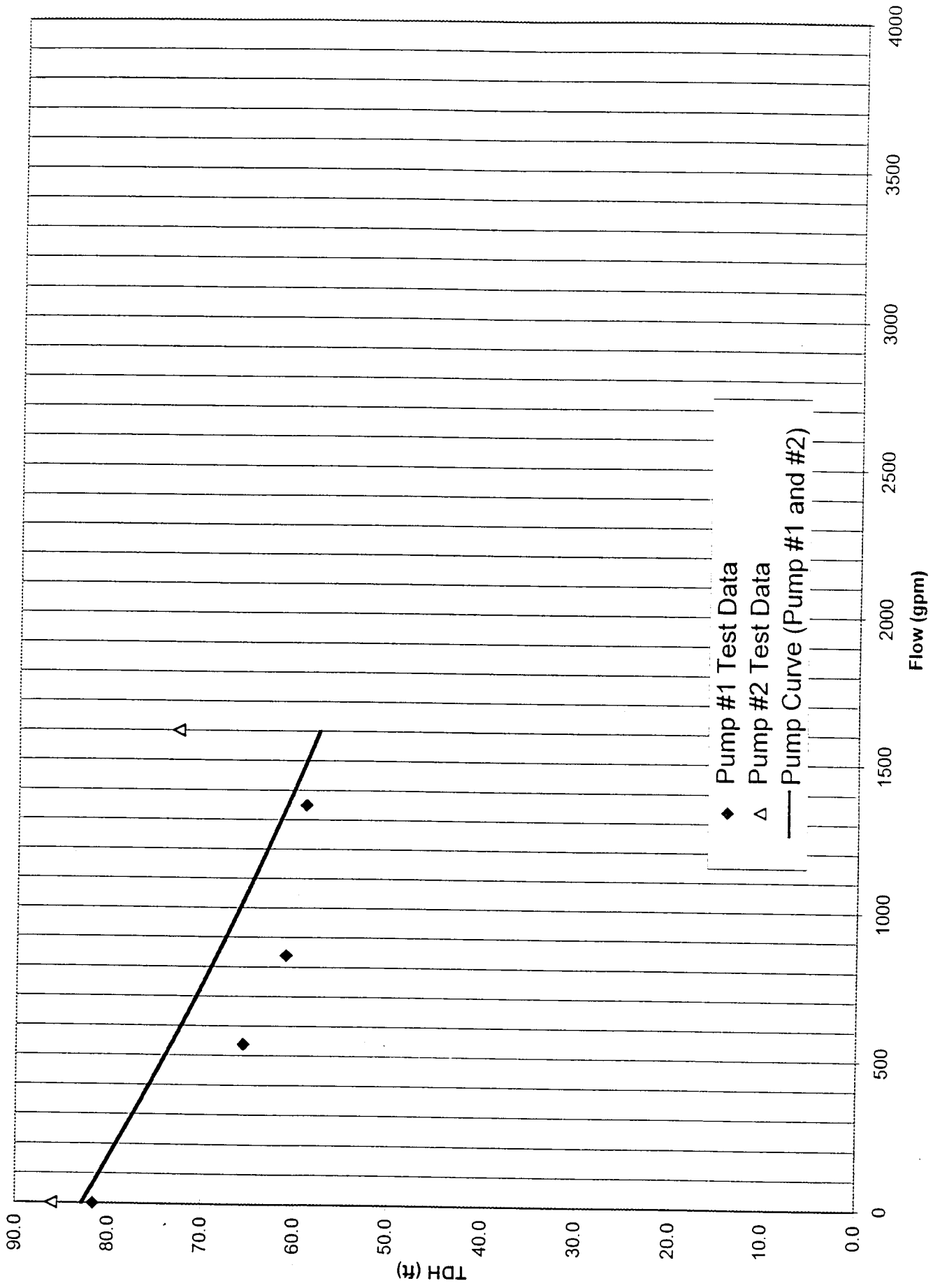


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 120

General Information

PS No. 120 PS Facility 20 Address 328 37th Street

PS Type [] Regional [] Flooded Suction (can type) [] Flooded Suction (multi-level)
[] Suction Lift (above ground) [x] Suction Lift (bi-level) [] Suction Lift (hut)
[] Submersible [] Discharge to gravity [x] Discharge to force main

Notes It's flow gets repumped by pump station ("D")

Pump Information

Number of Pumps 2 Pump Manufacturer

Impeller Diameter inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration [] Vertical [x] Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size 0 inch Discharge Valve Size 12 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 12 inch

Dry Well Dimensions 0 ft. dia. Length 12.3 ft. Width: 11 ft. Depth 7.3 ft.

Pump centerline* 1.5 ft. Centerline of discharge pipe* 4.4 ft.

* measured from dry well bottom.

Notes:

Operational Observations

Do check valves operate properly? [x] Yes [] No Which One? #1 seals leak

Do discharge valves operate properly? [x] Yes [] No Where?

Pump seals leaking? [] Yes [x] No Which One?

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 120

Pump Controls

Lead pump on 7 ft. Type of Controls bubbler
Lead pump off 4 ft.
Lag pump on 8 ft.
Lag pump off 5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the station is fair except for the patches of chipped blockwork.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments The wet well was not accessed.

Diameter 5 ft. Length _____ ft. Width _____ ft.

Bottom Depth* 15.9 ft.

Sewer Invert(s) Depth* _____ ft.

_____ ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 120

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device 250 amps, fusible disconnect switch

Size of main protective device 250 amps, fusible disconnect switch

Size of motor protective device 150 amps, fusible disconnect switch

Service wire size 350 Kcmil Size of motor starter in NEMA 4

Motor wire size #1 AWG Motor Horsepower 75

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1185

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor #1 4055TTDS7398BBWEP Serial Number - Motor # 1 not available

Model Number - Motor #2 4055TTDS7398BBWEP Serial Number - Motor # 2 not available

Model Number - Motor #3 - Serial Number - Motor # 3 -

Model Number - Motor #4 - Serial Number - Motor # 4 -

Comments The physical condition of the motors, motor controller, service and main disconnect switch and control panel is fair.

Pump Station 120 (20)

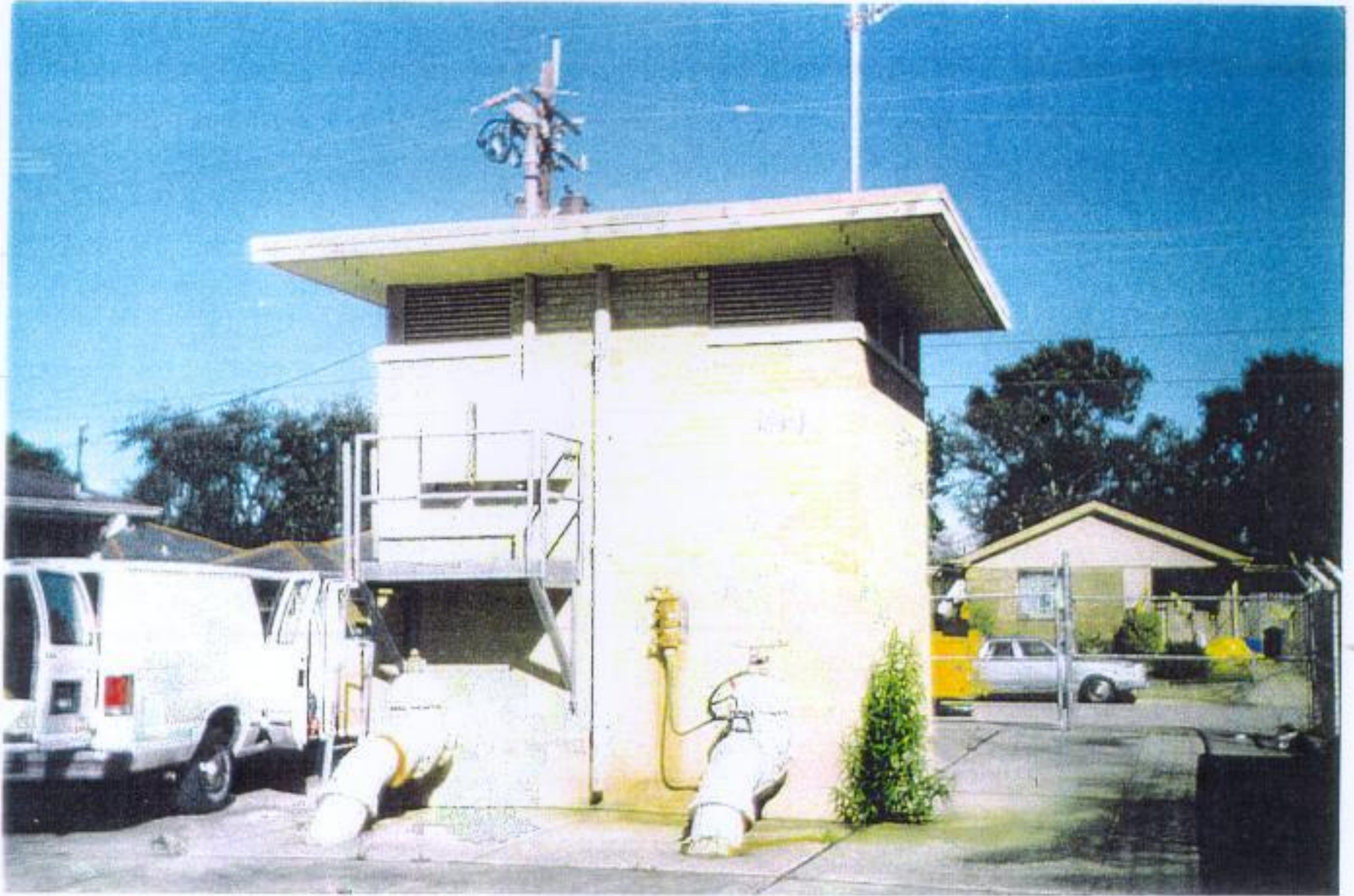


Photo Number 1



Photo Number 2

Pump Station 120 (20)



Photo Number 3

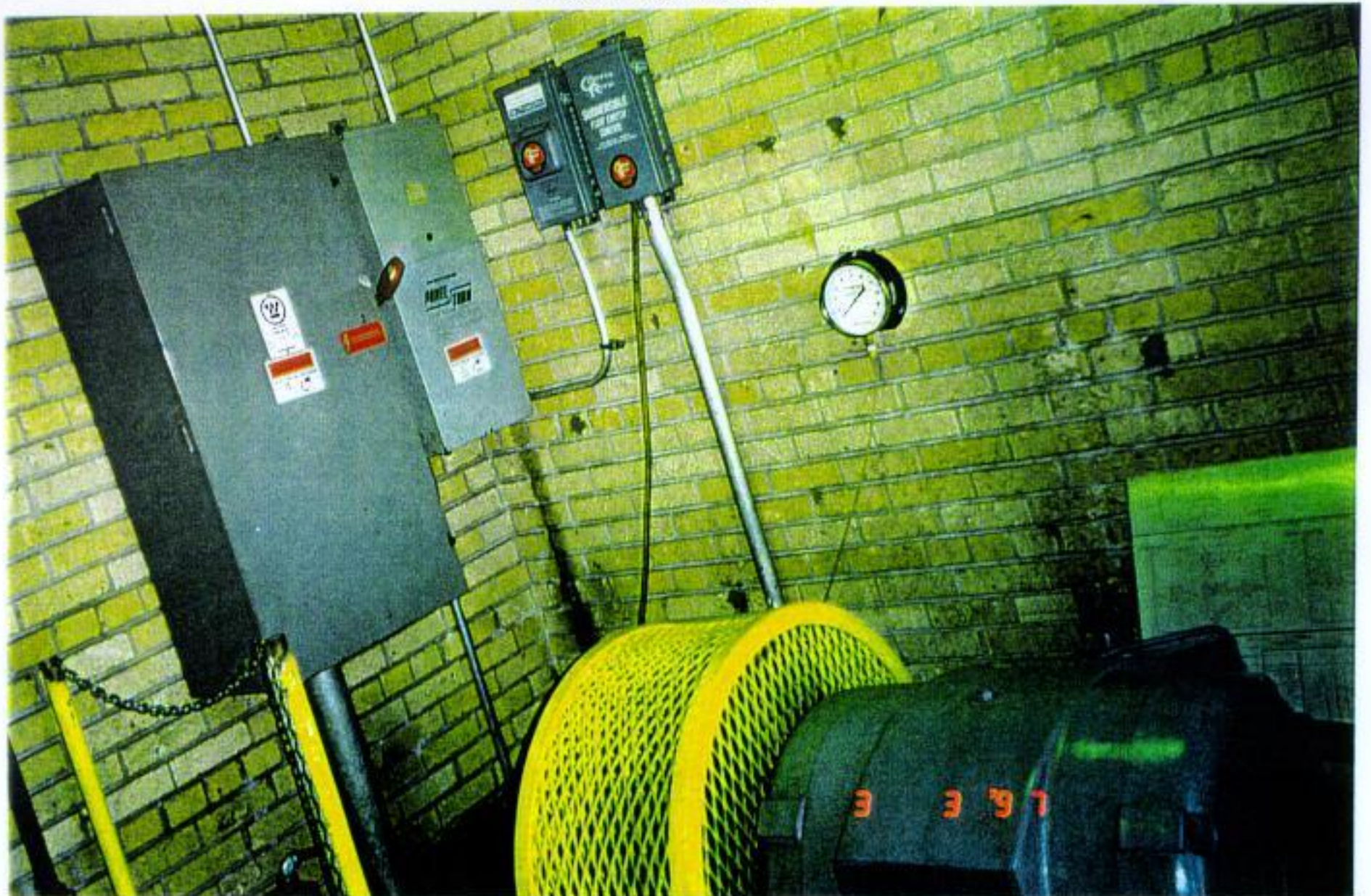


Photo Number 4

Pump Station 120 (20)



Photo Number 5



Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 121 (21)
6670 MEMPHIS STREET**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 121 ("21")

Pump Station 121 is a flooded-suction, multi-level type station located on 6670 Memphis Street. It discharges into a force main which manifolds with the 36-inch diameter portion of the Florida Avenue force main. Pump Station 121 does not repump flow from any other station however, its flow gets repumped by Pump Station 187 ("D"). Figure 1 shows the schematic subsystem surrounding Pump Station 121.

Pump Station 121 contains two (20-inch by 14-inch) vertically aligned pumps. Each pump is powered by a 4-speed Crocker Wheeler motor, shown in photo number 6, which is rated at 100 hp at 514 rpm. This equipment is housed in an 18.5-foot by 18.5-foot reinforced concrete dry well structure. The total depth from the floor of the motor control room to the dry well bottom is 22.4 feet. Figures 2 and 3 provide plan and elevation views of the station. There were several problems encountered at this station. Pump number 1 impeller sounds worn. The pump number 1 pump shaft wobbles, especially at higher speeds, and produces a noise characteristic of a worn middle bearing. There is evidence that the check valve of pump number 2 is leaking. Surface rusting of valves, piping, and pumps was observed, as shown in photo numbers 2 and 3.

Pump Station 121 collects wastewater from the surrounding gravity sewer system into a 4-foot diameter brick suction chamber having a depth of 15.6-feet. The interior of this suction chamber, shown in photo number 5, has suffered from the effects of corrosion. The only portion of the cement liner remaining is at the uppermost portion of the suction chamber. The grouting between the bricks is also severely corroded and to the extent the structural integrity of the chamber may be compromised.

The Doppler flow meter was utilized to determine flows at various discharge heads to develop the pump curve for each pump, as shown in Figures 4 and 5. Pump number 1 was tested as having the approximate capacities of 1,100 gallon per minute (gpm) at 34 feet of head, 1,300 gpm at 38 feet of head, 1,700 gpm at 42 feet of head, and 2,200 gpm at 44 feet of head on speeds 1, 2, 3, and 4 respectively. Pump number 2 was tested as having the approximate capacities of 2,200 gpm at 32 feet of head, 2,900 gpm at 34 feet of head, 3,100 gpm at 38 feet of head, and 3,800 gpm at 42 feet of head on speeds 1, 2, 3, and 4 respectively.

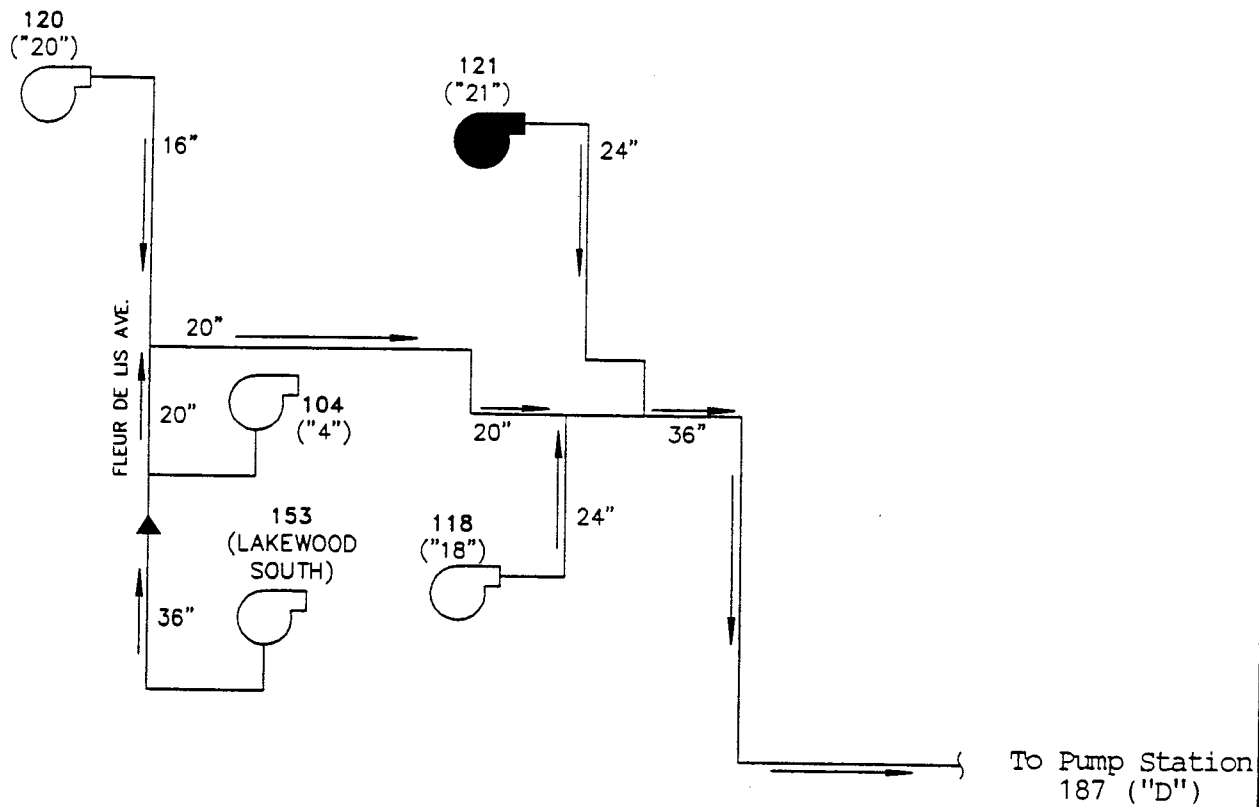
The controls are set to operate one pump at a time at a maximum of speed 3. The other pump is set in the off position, preventing its operation.









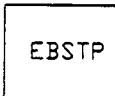
Recommendations:

1. No automatic backup capacity is provided under the current operational scenario. It is recommended that these pumps be run in a lead and lag mode to provide this backup capacity. If additional reasons that the pumps are not run in lead and lag

mode, such as force main condition, force main capacity, or plant capacity, then these issues need to be addressed.

2. It is recommended that the pump number 2 check valve be repaired or replaced. Recirculation of flow occurs at the station when pump number 2 is off. In this situation, the force main pressure causes backflow through the check valve into the suction chamber. This decreases the efficiency of the station.
3. Further investigate the cause of the wobble and noise created by the pump number 1 pump shaft and correct as necessary.
4. It is recommended that the suction chamber be rehabilitated or repaired.



-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

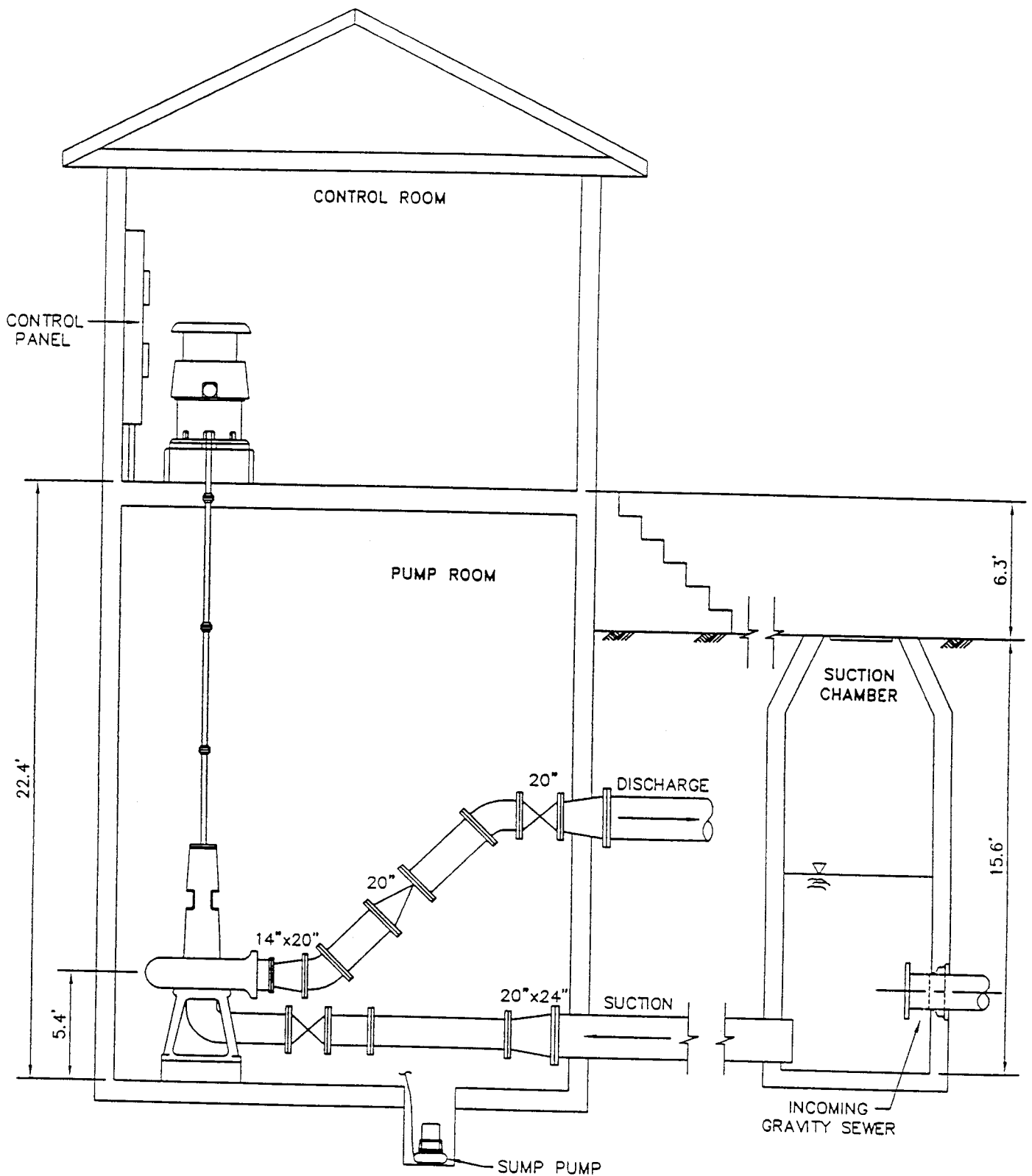
FILE NO.: 121 JOB NO.: 1113030.01090120 DATE: 3/28/97



**PUMP STATION 121 ("21")
PUMP STATIONS AND FORCEMAINS SCHEMATIC**

FIGURE:	1
DATE:	3/28/97

FILE NO.: 121-
JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 121 ("21")
MULTI-LEVEL FLOODED SUCTION

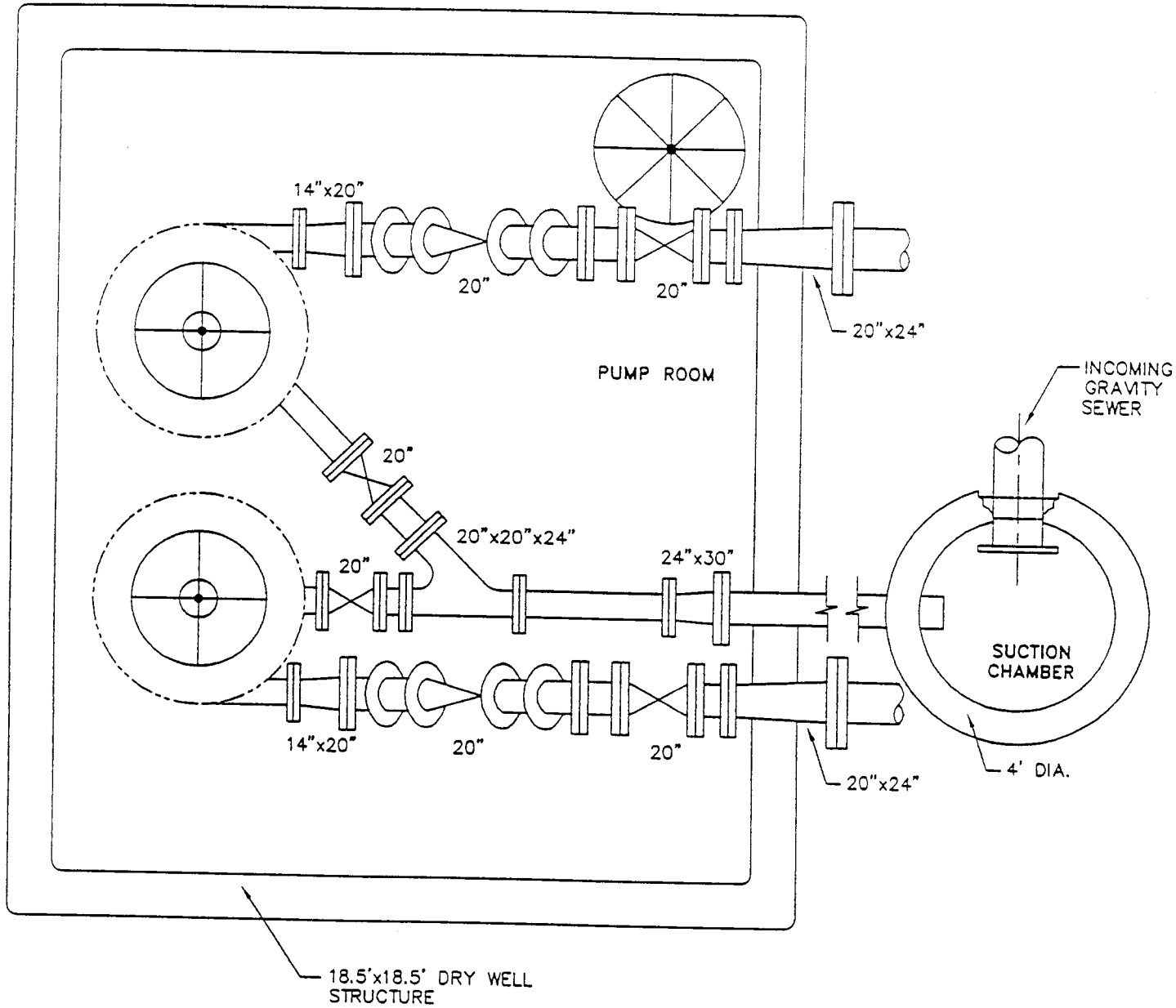
FIGURE:

2

DATE:

3/28/97

FILE NO.: 121
JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)

SEWERAGE AND WATER BOARD
OF NEW ORLEANS

MONTGOMERY WATSON

PUMP STATION 121 ("21")
MULTI-LEVEL FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 121 ("21")

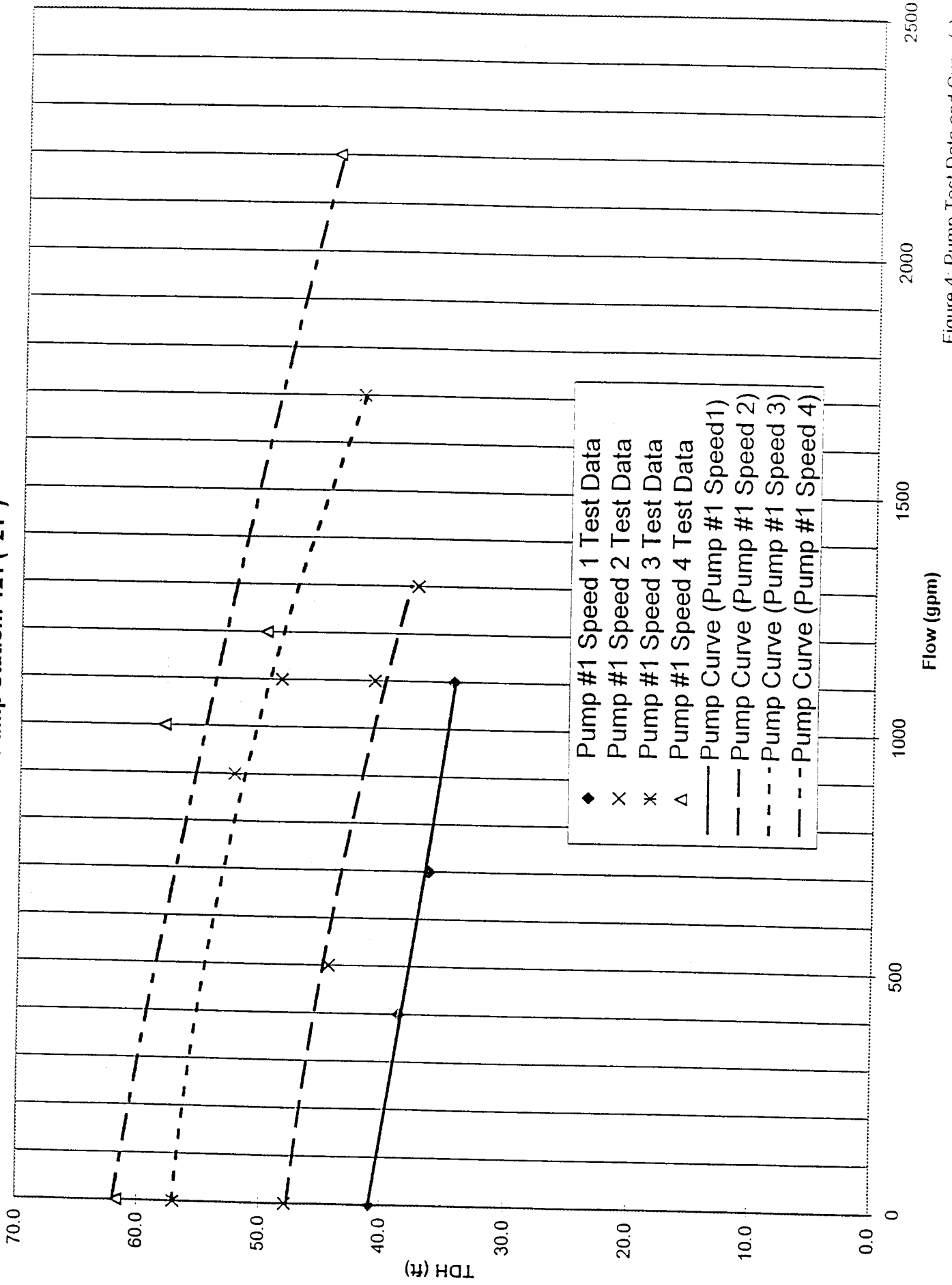


Figure 4: Pump Test Data and Curve(s)

Pump Station: 121 ("21")

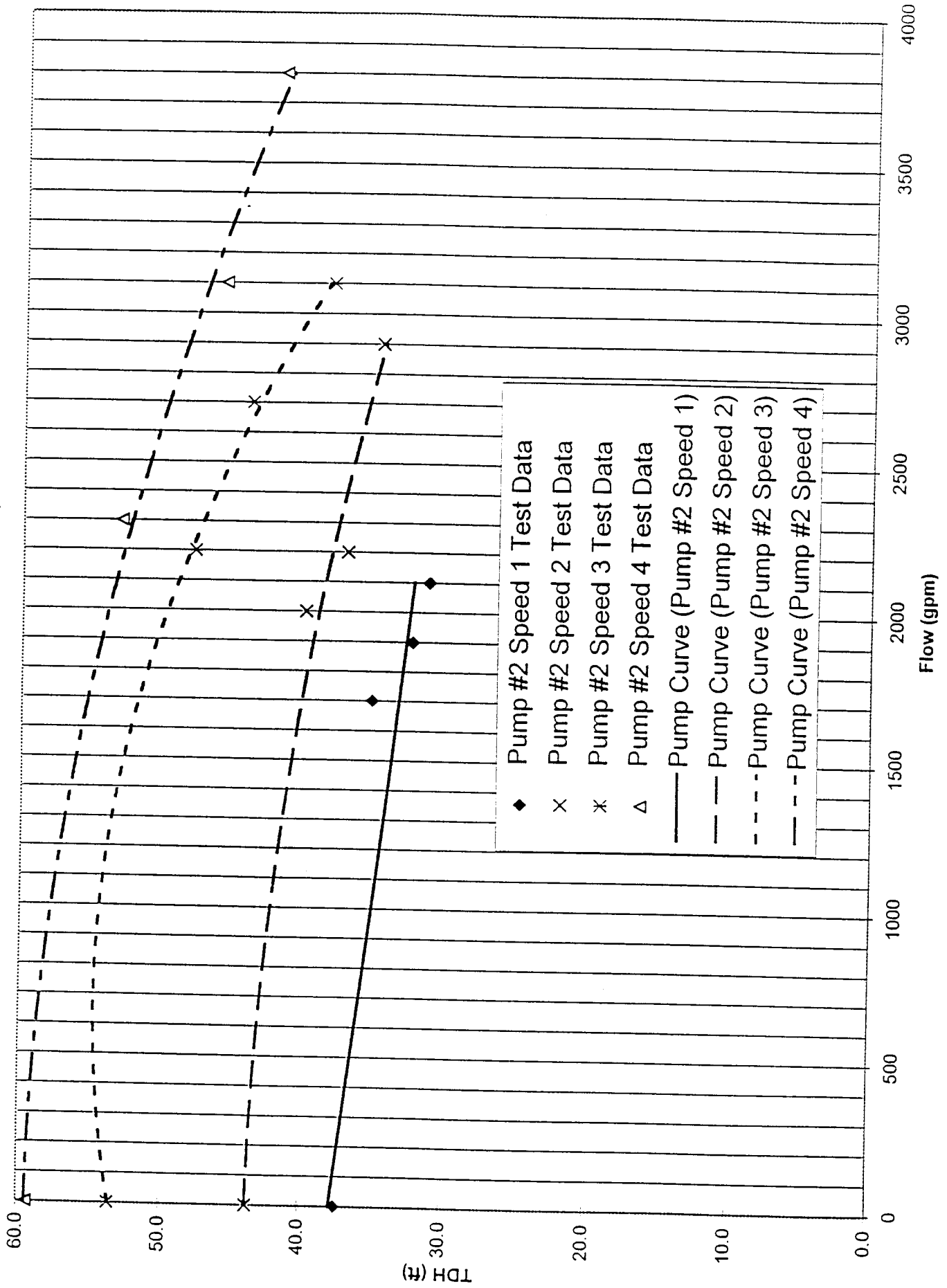


Figure 5: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 121

General Information

PS No. 121 PS Facility 21 Address 6670 Memphis Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes It's flow gets repumped by pump station ("D")

Pump Information

Number of Pumps 2 Pump Manufacturer not available

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 18 inch Pump Discharge 14 inch FM Diameter 24 inch

Suction Valve Size 20 inch Discharge Valve Size 20 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 20 inch

Dry Well Dimensions 0 ft. dia. Length 18.5 ft. Width: 18.5 ft. Depth 22.4 ft.

Pump centerline* 5.4 ft. Centerline of discharge pipe* 9 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____
Do discharge valves operate properly? Yes No Where? _____
Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 121

Pump Controls

Lead pump on 8 ft. Type of Controls bubbler
Lead pump off 6 ft.
Lag pump on 0 ft.
Lag pump off 0 ft.

Notes: speed (2) 9,7; speed (3) 10,8; speed (4) 11,9;

Structural Observations

Exterior The condition of the exterior of the pump station is fair.

Interior The condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition [] Good [x] Fair [] Poor

[] Exposed aggregate [] Exposed reinforcement

[] Liner Present Liner type/Condition

Comments Severe corrosion of mortar between bricks

Diameter 4 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 15.6 ft.

Sewer Invert(s) Depth* 7.8 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 121

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Double Ended, Normal & Alternate Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device 400 amps, fusible disconnect switch

Size of main protective device 400 amps, circuit breaker

Size of motor protective device 225 amps, circuit breaker

Service wire size 350 kcmil Size of motor starter in NEMA four of size 5

Motor wire size #4/0 AWG Motor Horsepower 100

Number of motors 2 Motor Speed Multiple

Speed(s) in rpm 514 @ full load

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor #1 not available Serial Number - Motor # 1 not available

Model Number - Motor #2 not available Serial Number - Motor # 2 not available

Model Number - Motor #3 - Serial Number - Motor # 3 -

Model Number - Motor #4 - Serial Number - Motor # 4 -

Comments The physical condition of the motors, motor controller, service & main protective device and control panel is fair.

Pump Station 121 (21)



Photo Number 1

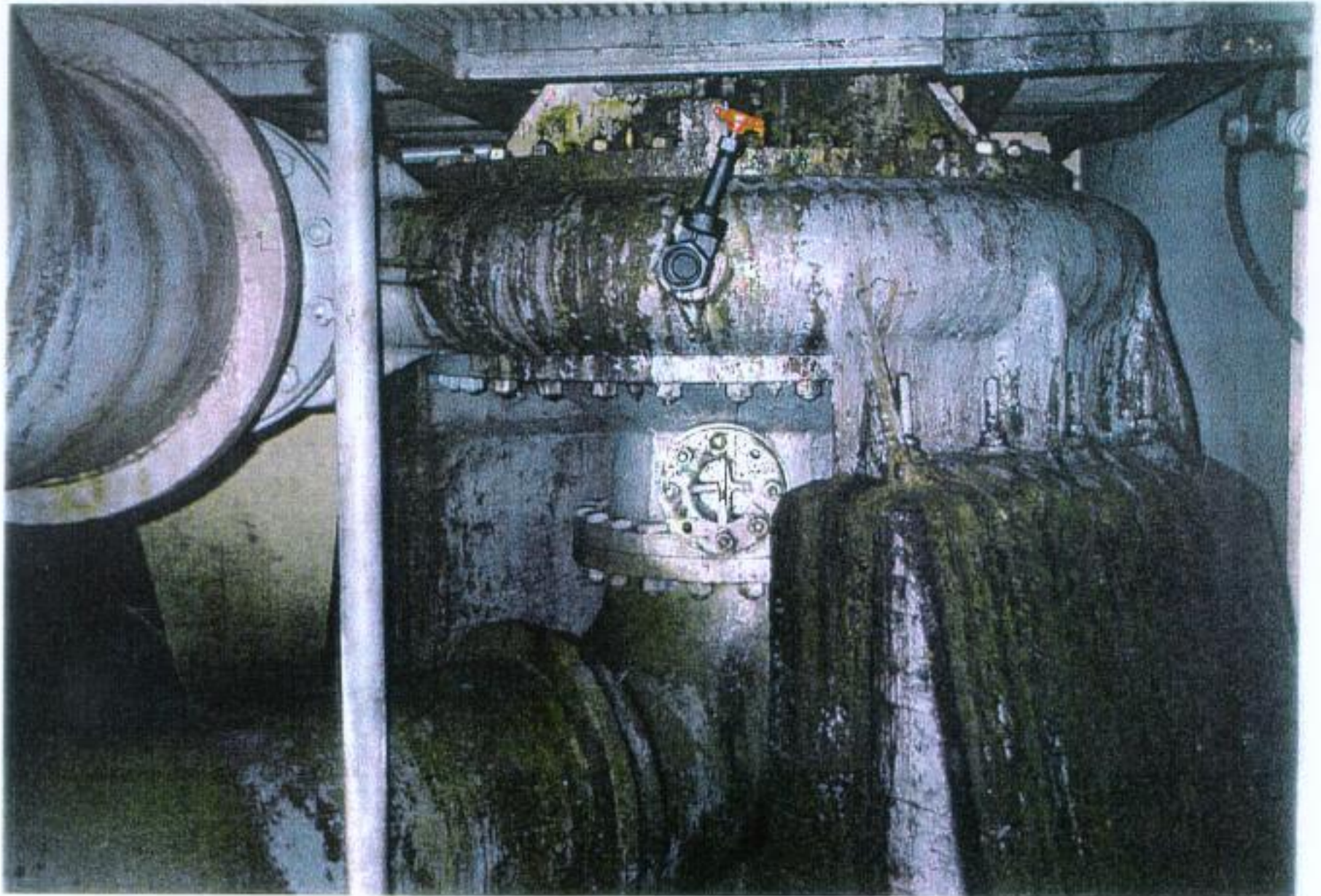


Photo Number 2

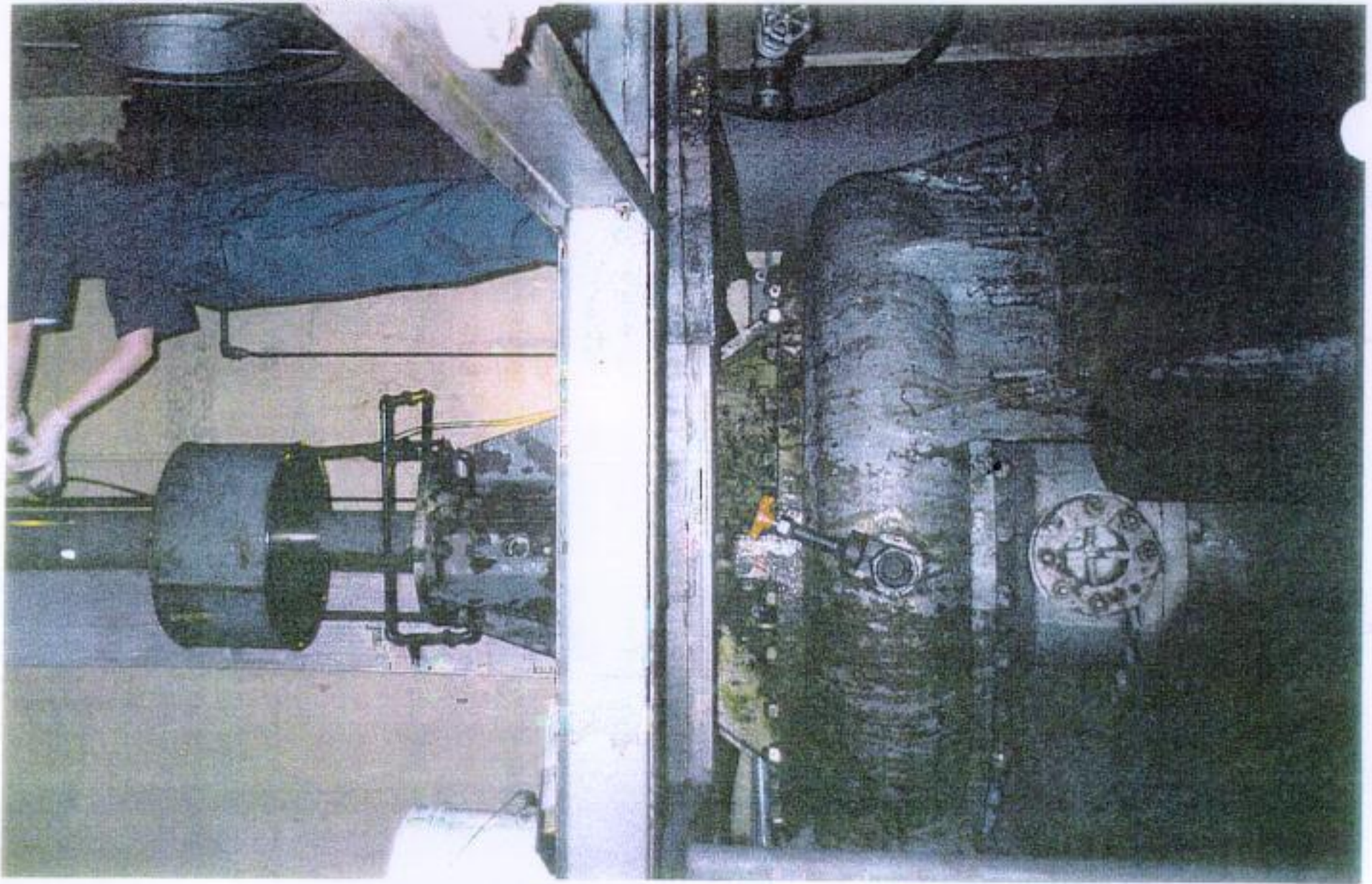


Photo Number 3

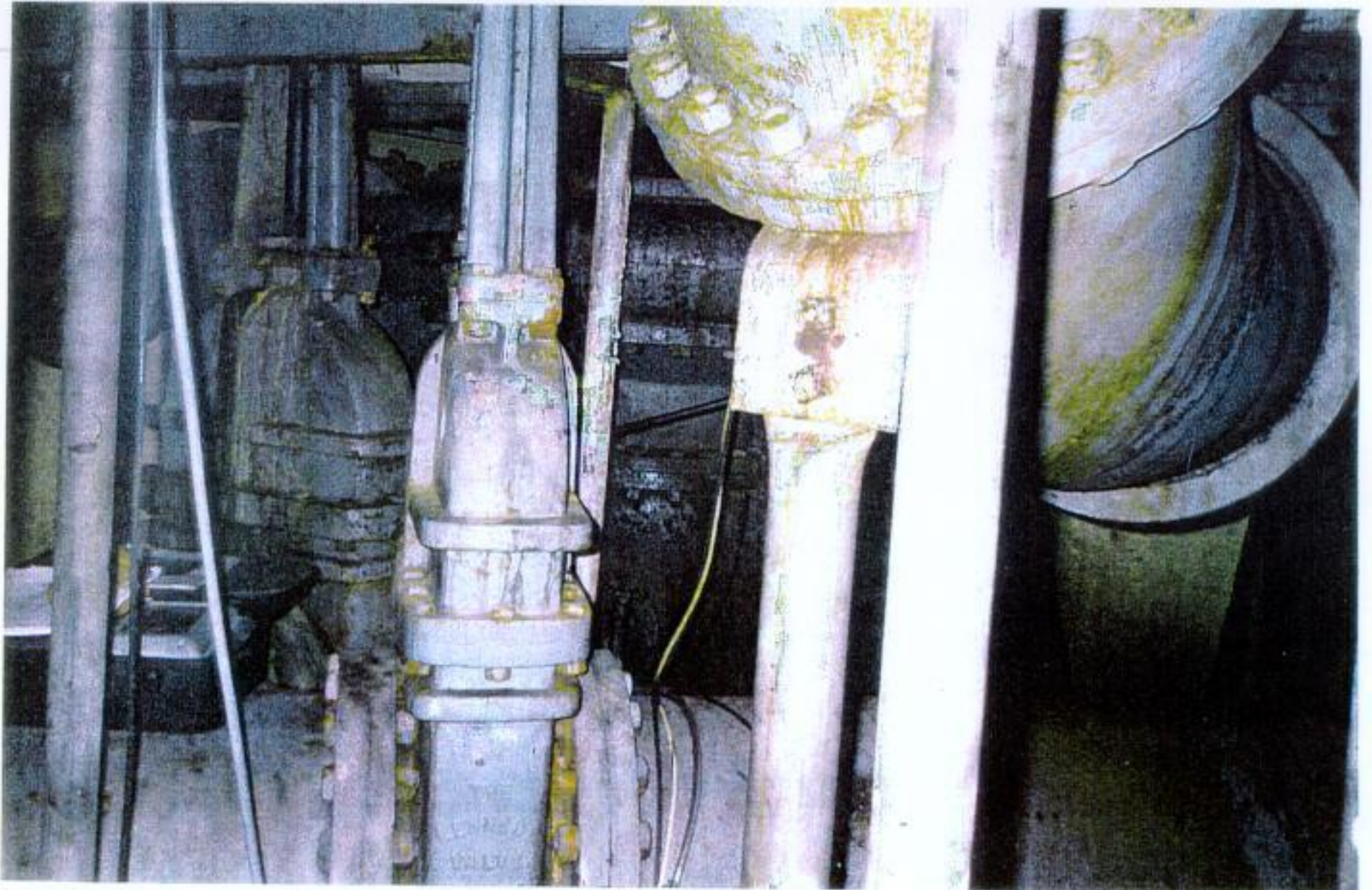


Photo Number 4

Pump Station 121 (21)

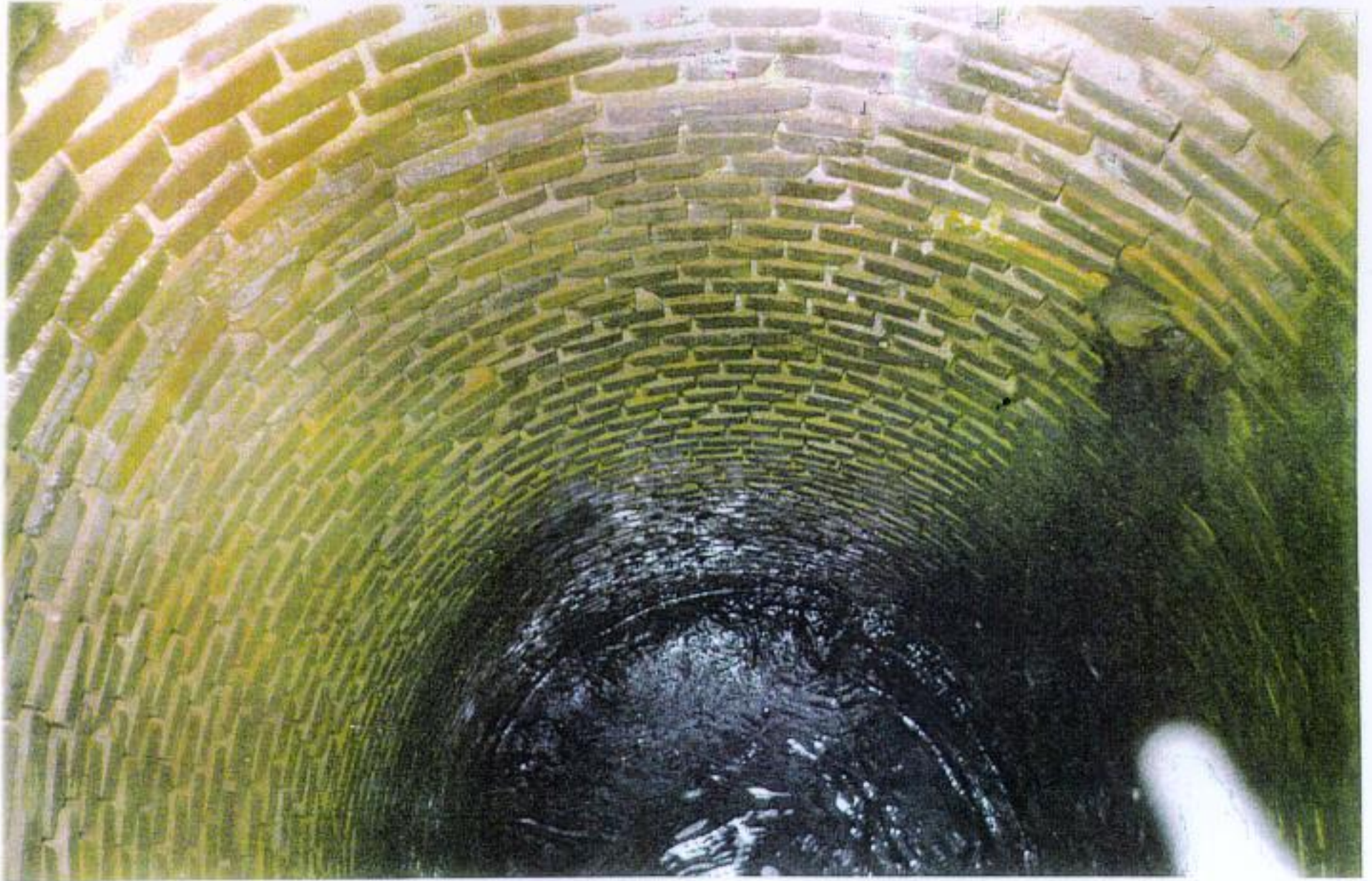


Photo Number 5

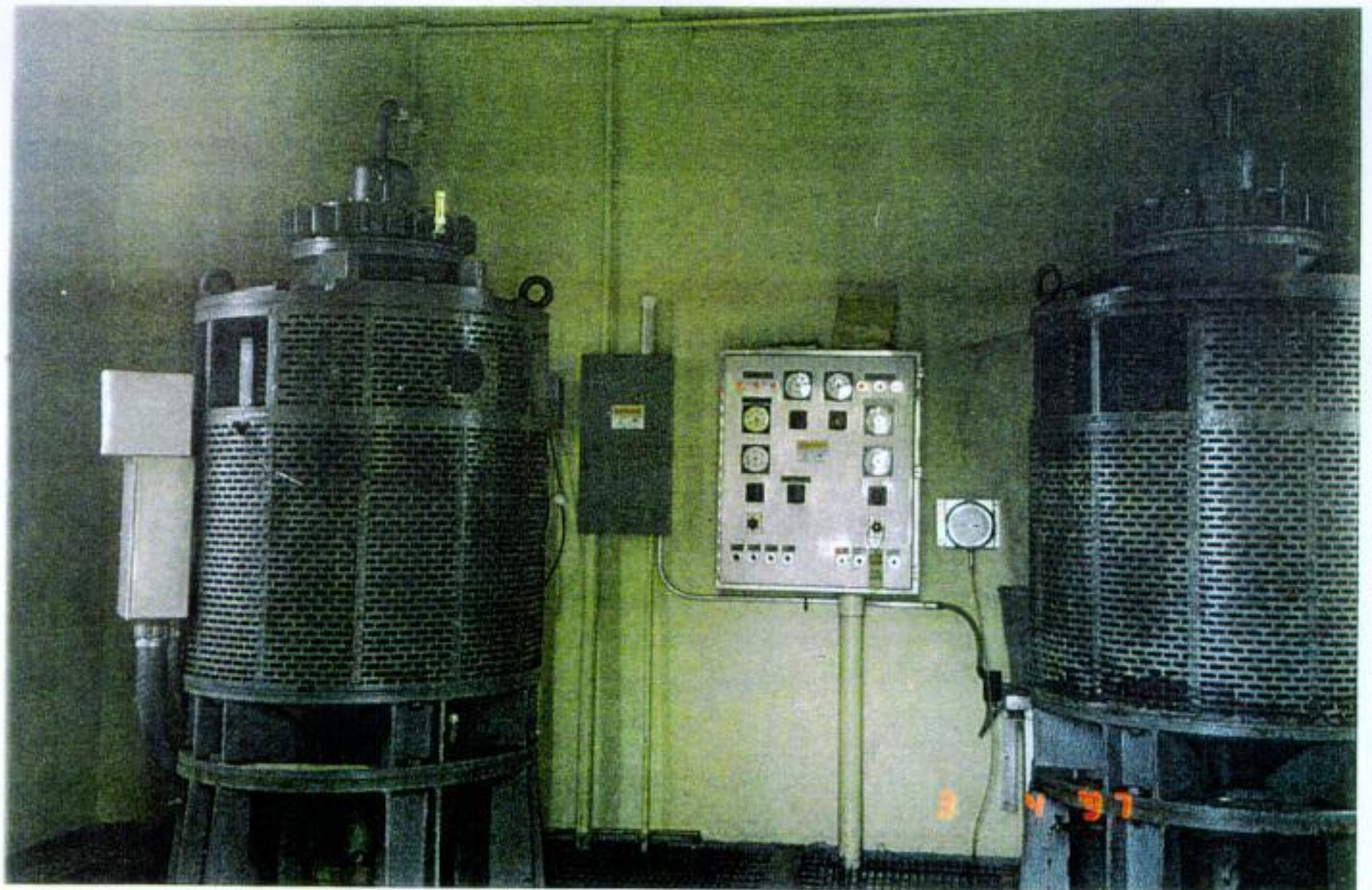


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 122 (22)
5705 PERLITA STREET**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 122 ("22")

Pump Station 122 is a flooded-suction, multi-level type station located on 5705 Perlita Street. It discharges into a force main which manifolds with the 48-inch diameter portion of the Florida Avenue force main. Pump Station 122 does not repump flow from any other station but its flow gets repumped by pump station 187 ("D"). Figure 1 shows the schematic subsystem surrounding Pump Station 122.

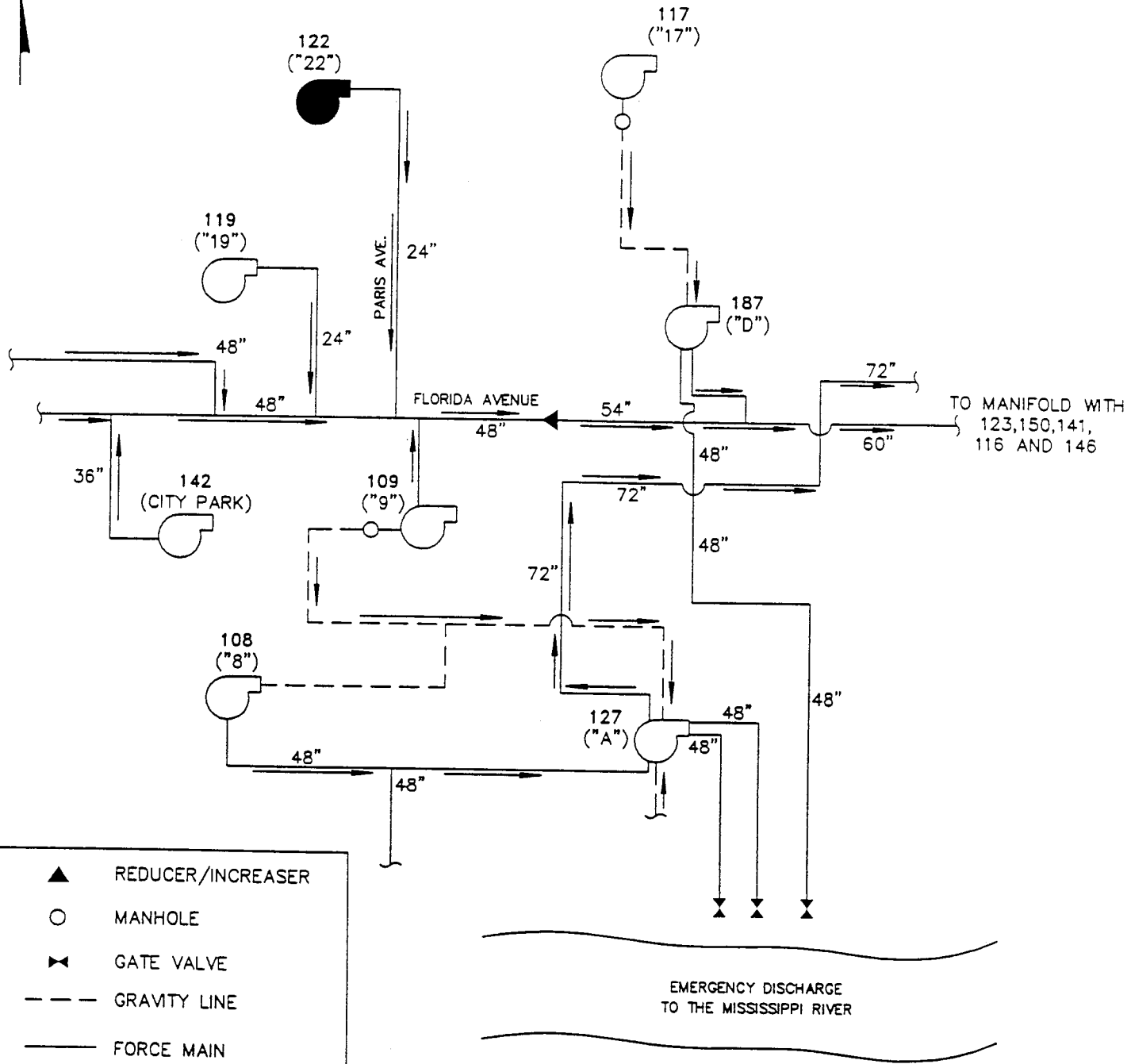
Pump Station 122 contains two (20-inch by 14-inch) vertically aligned pumps. Each pump is powered by a 4-speed Fairbanks Morse motor, shown in photo number 4, which is rated at 100 hp at 514 rpm. This equipment is housed in an 18.5-foot by 18.5-foot reinforced concrete dry well structure. The total depth from the floor of the motor control room to the dry well bottom is 25.9 feet. Figures 2 and 3 provide plan and elevation views of the station. This station can be characterized as being in good condition.

Pump Station 122 collects wastewater from the surrounding gravity sewer system into a 4-foot diameter cement lined brick suction chamber having a depth of 17.8-feet. This suction chamber, shown in photo number 3, is in fair condition, although minor corrosion of the cement liner was observed.

The Doppler flow meter was utilized to determine flows at various discharge heads to develop the pump curve for each pump, as shown in Figures 4 and 5. Pump number 1 was tested as having the approximate capacities of 1,000 gallon per minute (gpm) at 19 feet of head, 700 gpm at 28 feet of head, and 2,400 gpm at 33 feet of head, and 2,900 gpm at 38 feet of head on speeds 1, 2, 3, and 4 respectively. Pump number 2 was tested as having the approximate capacities of 1,000 gpm at 26 feet of head, 1,700 gpm at 28 feet of head, 3,300 gpm at 40 feet of head, and 4,100 gpm at 47 feet of head on speeds 1, 2, 3, and 4 respectively.

Recommendations:

1. After an initial evaluation of Pump Station 122, no site specific recommendation can be made.



NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 122- JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

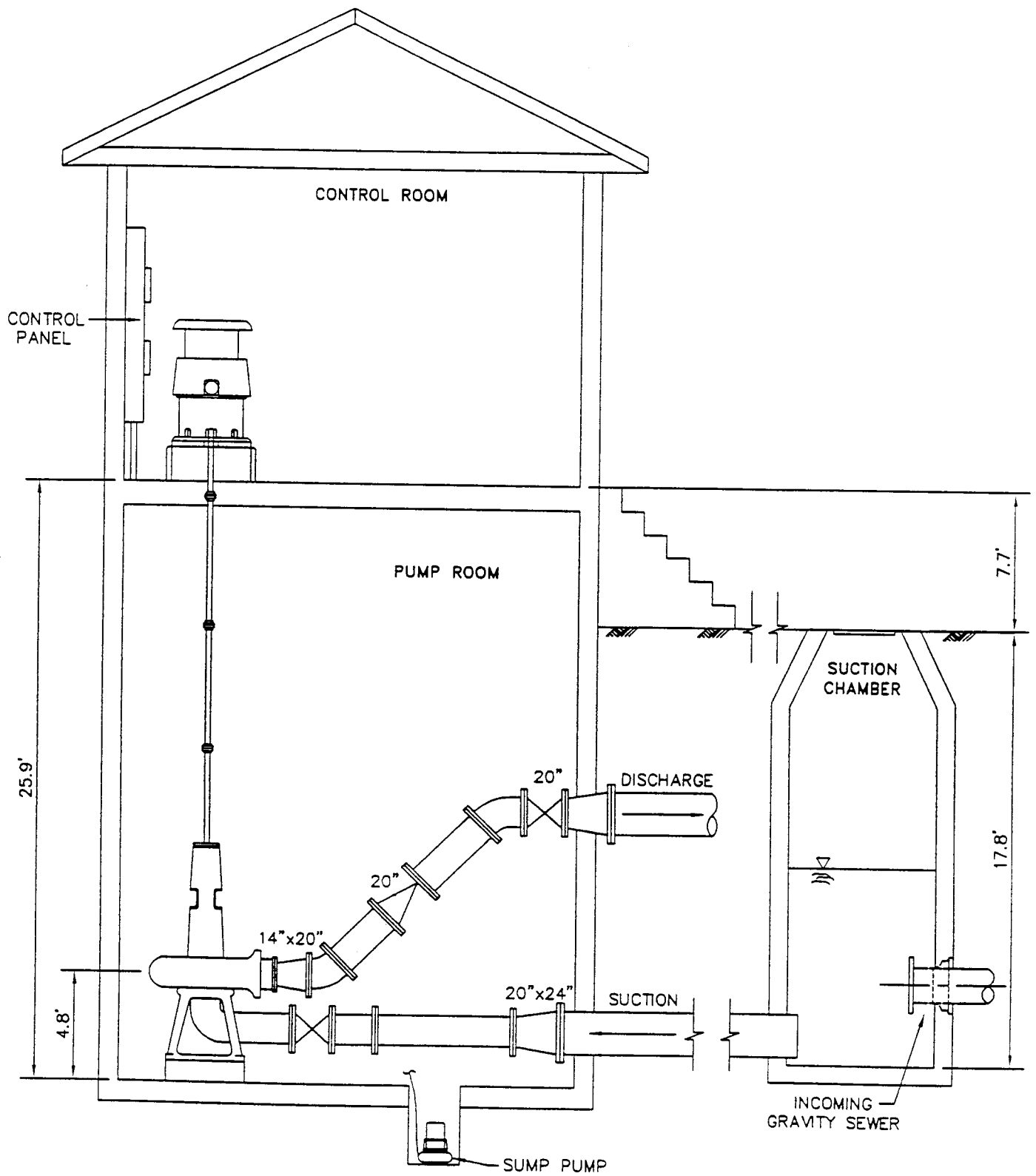
PUMP STATION 122 ("22")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

1

DATE:

3/28/97



ELEVATION
(NOT TO SCALE)

FILE NO.: 122- JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 122 ("22")
MULTI-LEVEL FLOODED SUCTION

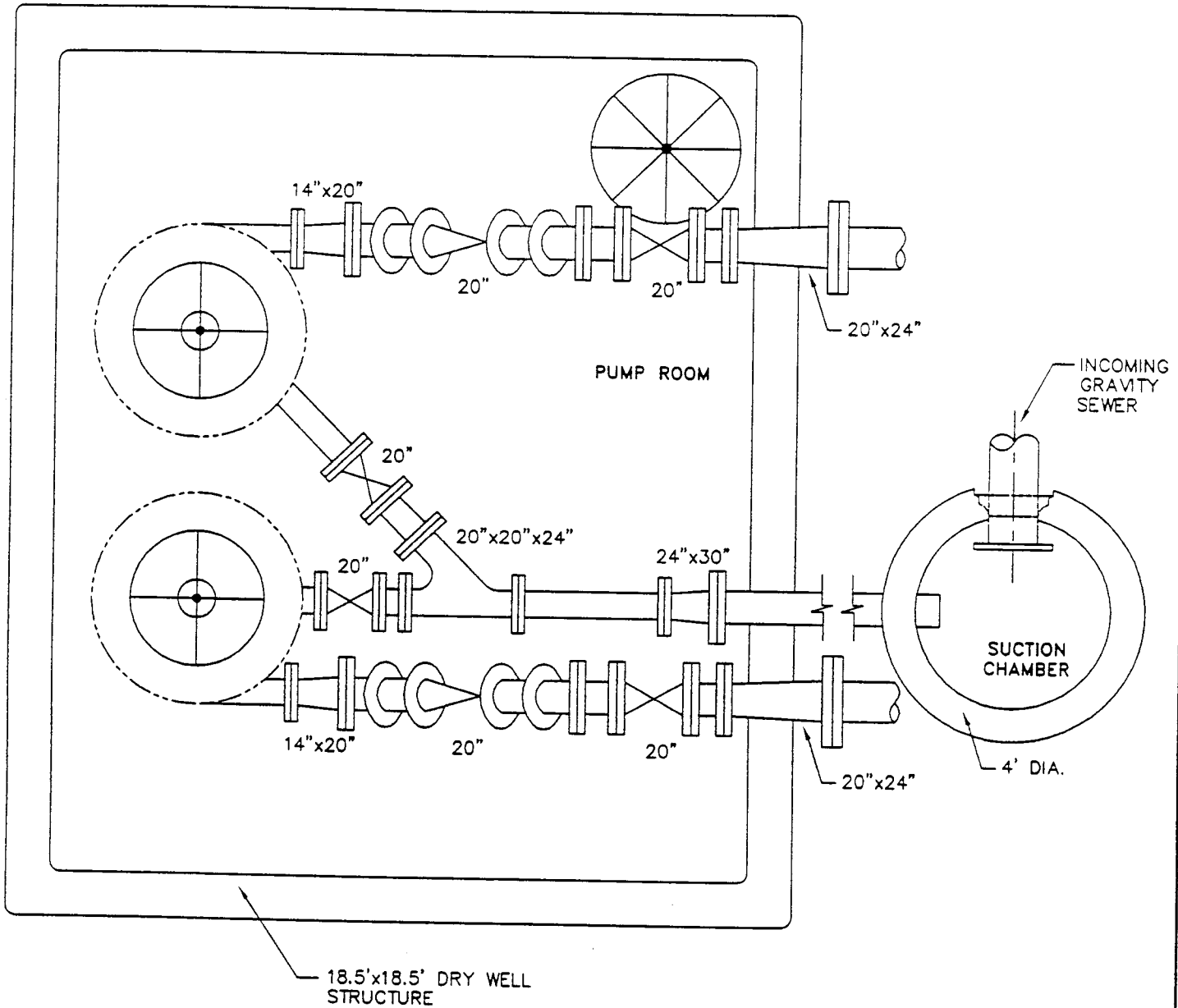
FIGURE:

2

DATE:

3/28/97

FILE NO.: 122- JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 122 ("22")
MULTI-LEVEL FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 122 ("22")

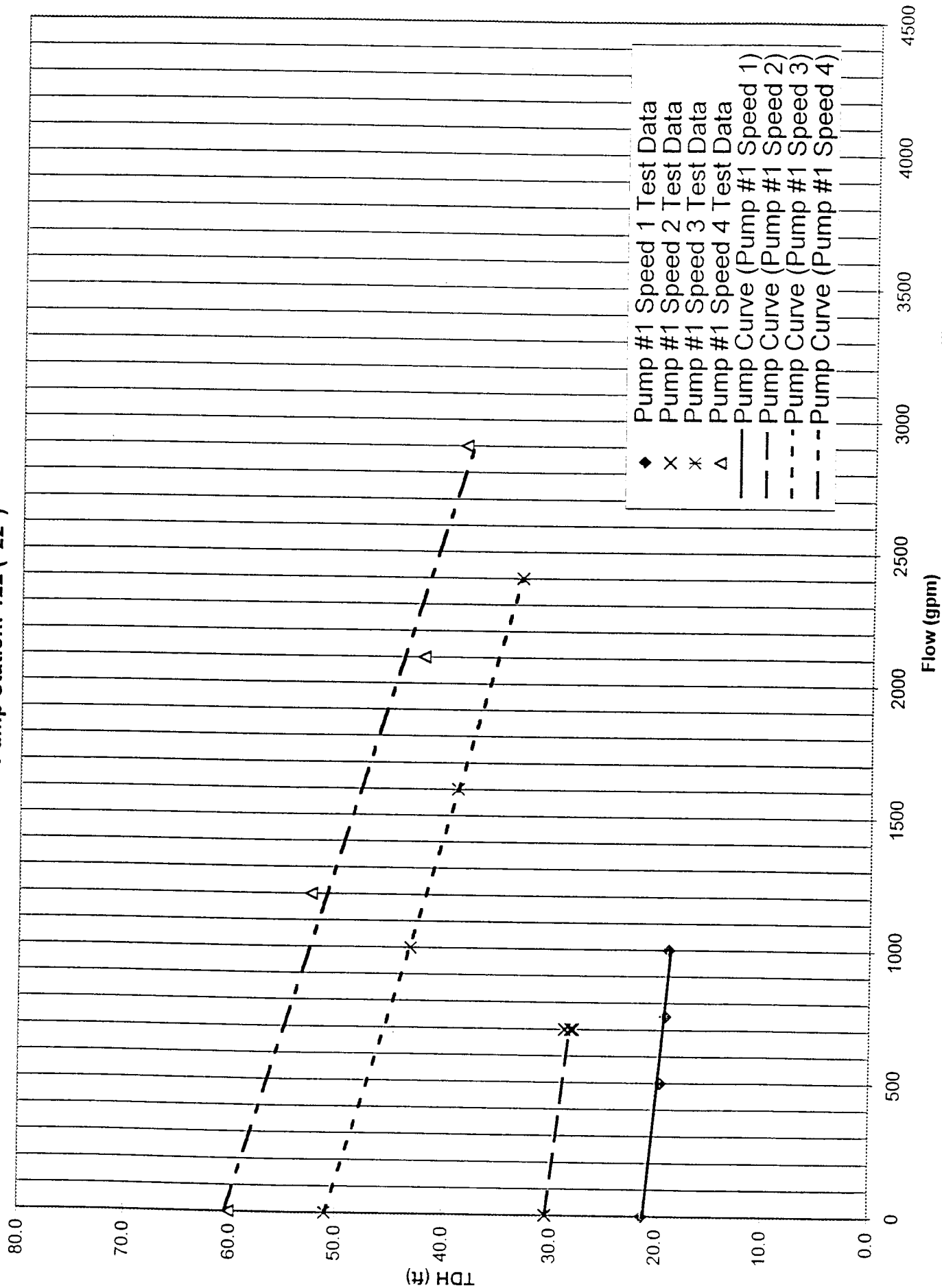


Figure 4: Pump Test Data and Curve(s)

Pump Station: 122 ("22")

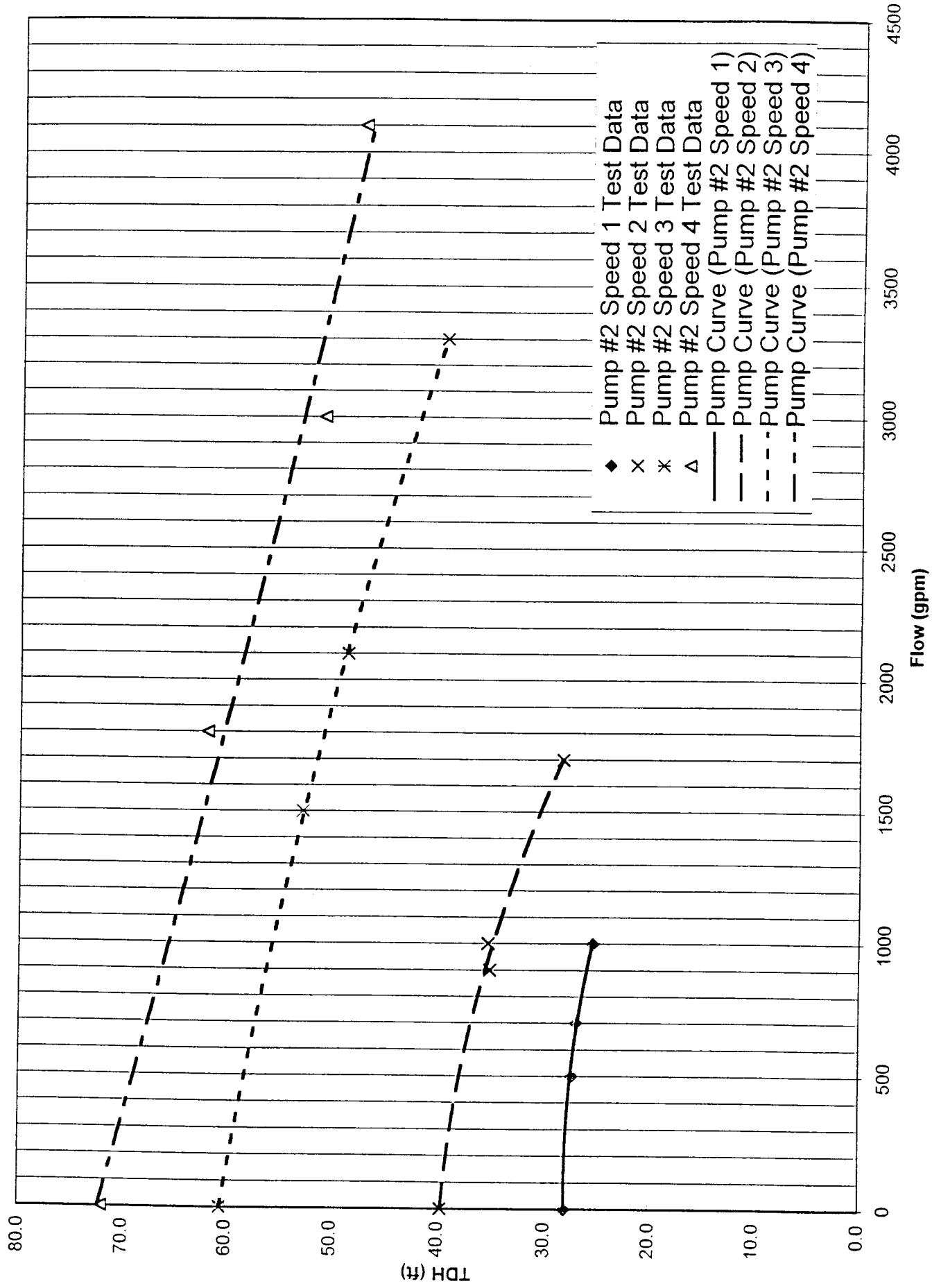


Figure 5: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 122

General Information

PS No. 122 PS Facility 22 Address 5705 Perlita Street

- PS Type: [] Regional, [] Flooded Suction (can type), [x] Flooded Suction (multi-level), [] Suction Lift (above ground), [] Suction Lift (bi-level), [] Suction Lift (hut), [] Submersible, [] Discharge to gravity, [x] Discharge to force main

Notes: It's flow gets repumped by pump station ("D")

Pump Information

Number of Pumps 2 Pump Manufacturer not available

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration [x] Vertical [] Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 20 inch Pump Discharge 14 inch FM Diameter 20 inch

Suction Valve Size 20 inch Discharge Valve Size 20 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 20 inch

Dry Well Dimensions 0 ft. dia. Length 18.5 ft. Width: 18.5 ft. Depth 25.9 ft.

Pump centerline* 1.5 ft. Centerline of discharge pipe* 8.7 ft.

* measured from dry well bottom.

Notes:

Operational Observations

- Do check valves operate properly? [x] Yes [] No Which One?
Do discharge valves operate properly? [x] Yes [] No Where?
Pump seals leaking? [] Yes [x] No Which One?

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 122

Pump Controls

Lead pump on 5.3 ft. Type of Controls bubbler
Lead pump off 3.3 ft.
Lag pump on 6.8 ft.
Lag pump off 4.8 ft.

Notes: speed(2)6.3,4.3,7.8,5.8;speed(3)7.3,5.3,8.8,6.8;speed(4)8.3,6.3,9.8,7.8;

Structural Observations

Exterior The condition of the exterior of the pump station is fair.

Interior The condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments The wet well is cement finish over brick which is corroded in places.

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 17.8 ft.

Sewer Invert(s) Depth* 0 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 122

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Double Ended, Normal & Alternate Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device Not Available

Size of main protective device 400 amps, dual element, fusible disconnect switch

Size of motor protective device 200 amps, dual element, fusible disconnect switch

Service wire size 600 kcmil Size of motor starter in NEMA 2,3,4

Motor wire size #3/0 AWG Motor Horsepower 100

Number of motors 2 Motor Speed Multiple

Speed(s) in rpm 514 @ full load

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor #1 not available Serial Number - Motor # 1 not available

Model Number - Motor #2 not available Serial Number - Motor # 2 not available

Model Number - Motor #3 - Serial Number - Motor # 3 -

Model Number - Motor #4 - Serial Number - Motor # 4 -

Comments The pump station has a fusible disconnect switch.

Pump Station 122 (22)



Photo Number 1

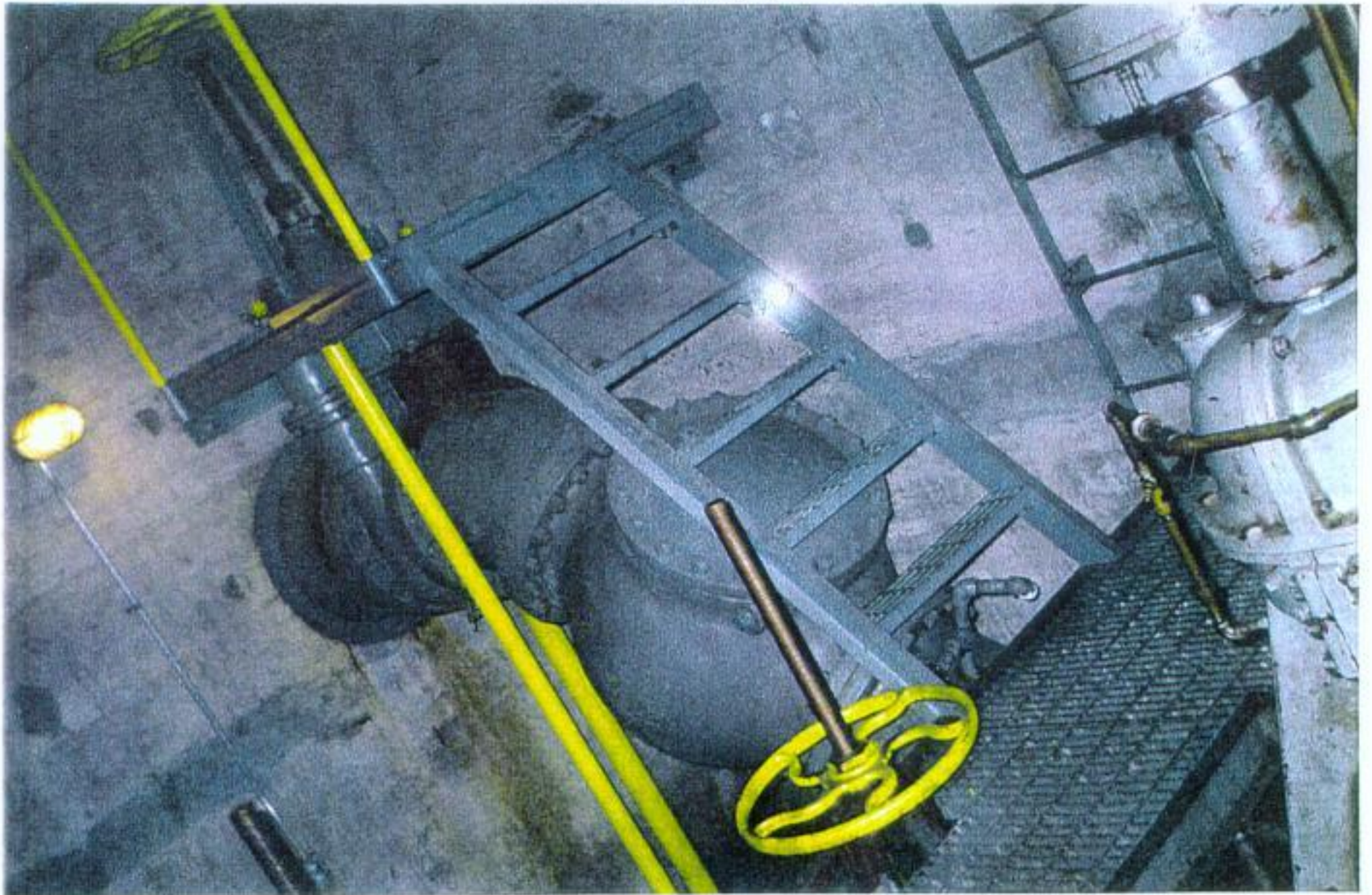


Photo Number 2

Pump Station 122 (22)



Photo Number 3

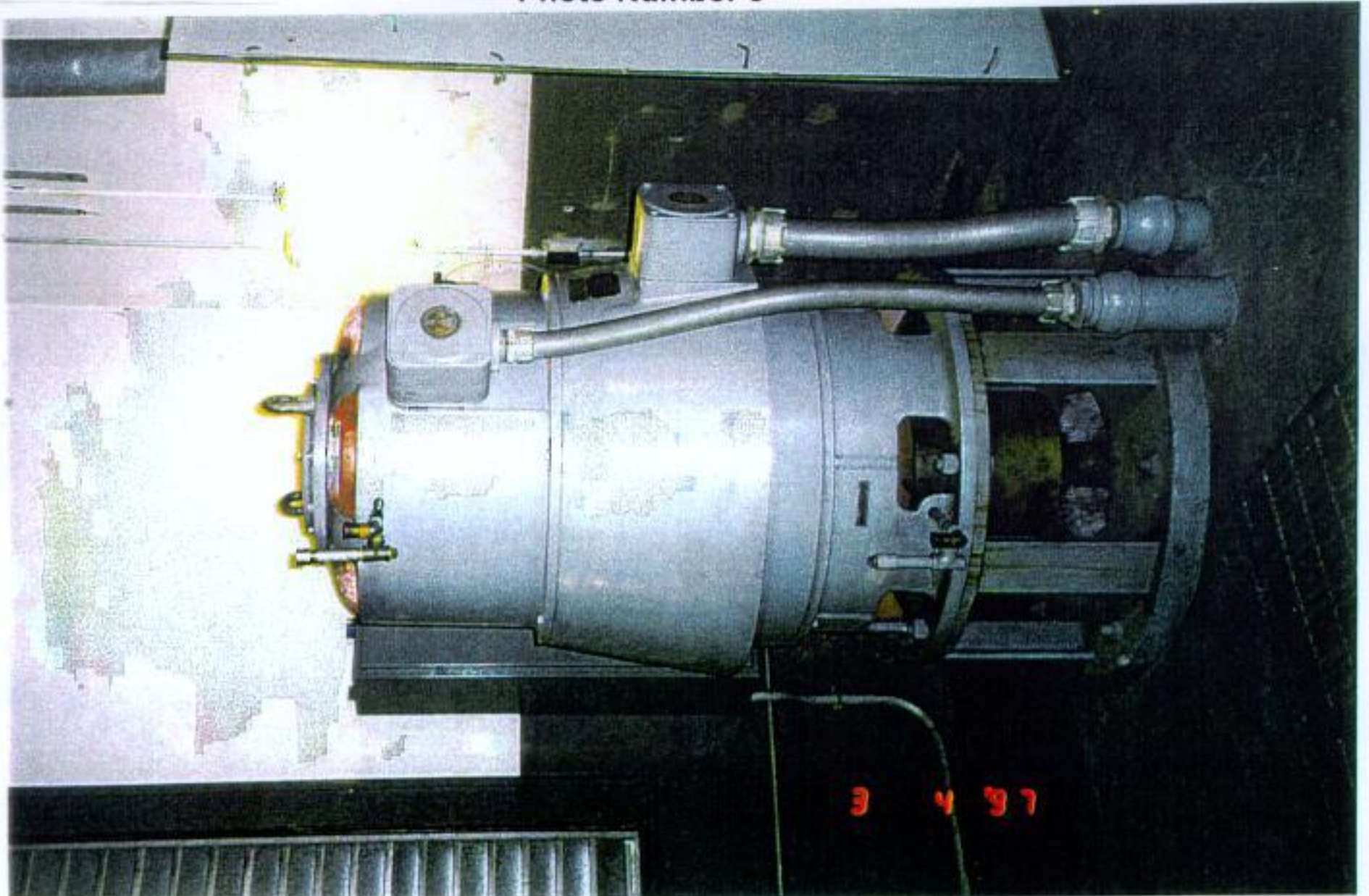


Photo Number 4

Pump Station 122 (22)

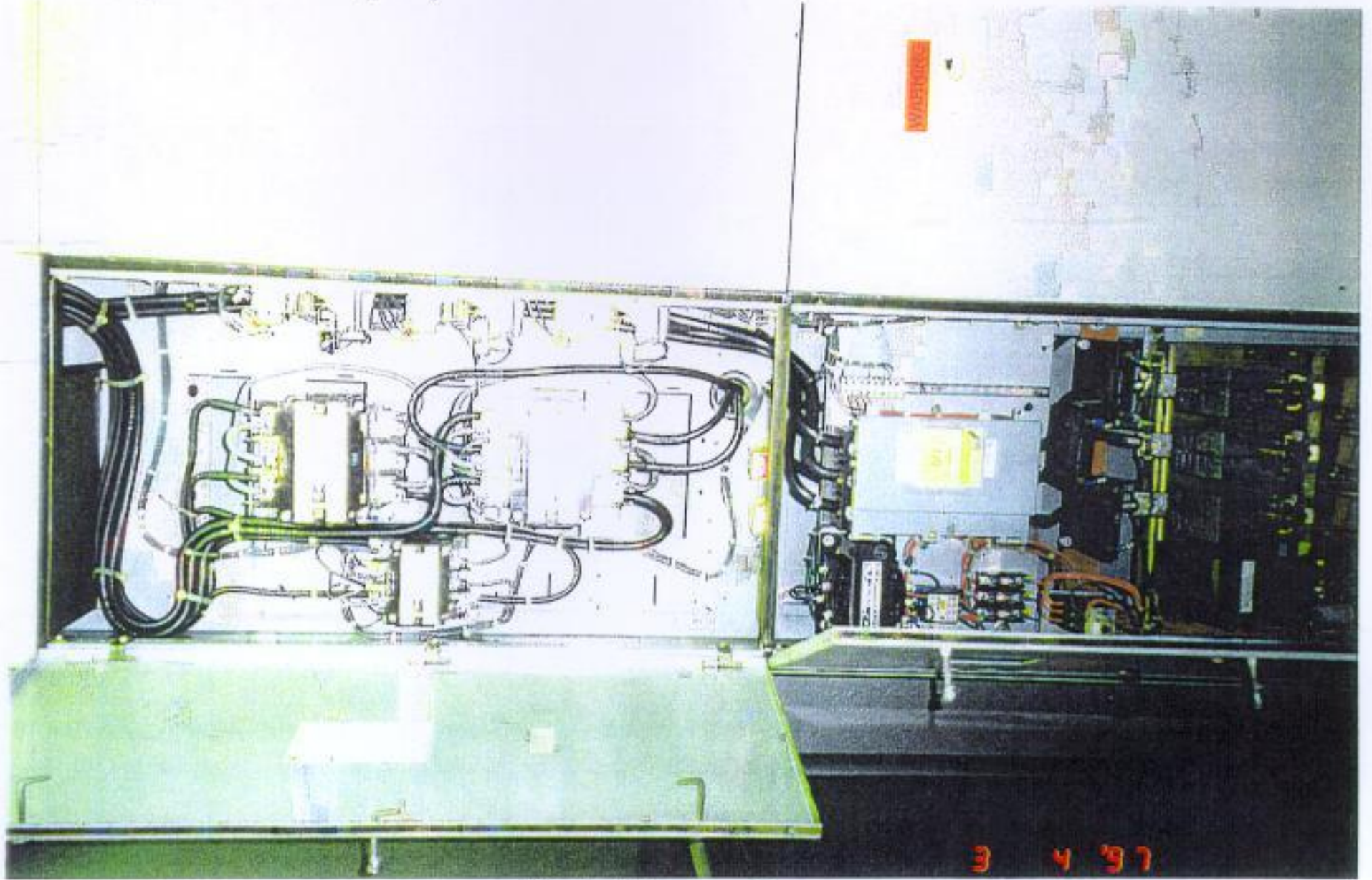


Photo Number 5



Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 123 (23)
4500 MITHRA STREET**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 123 ("23")

Pump Station 123 is a flooded-suction, multi-level type station located on 4500 Mithra Street. It discharges south through the Louisa Street force main to the Metropolitan Street force main to Florida Avenue, at which point it manifolds with the 54-inch diameter portion of the Florida Avenue force main. Pump Station 123 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 123.

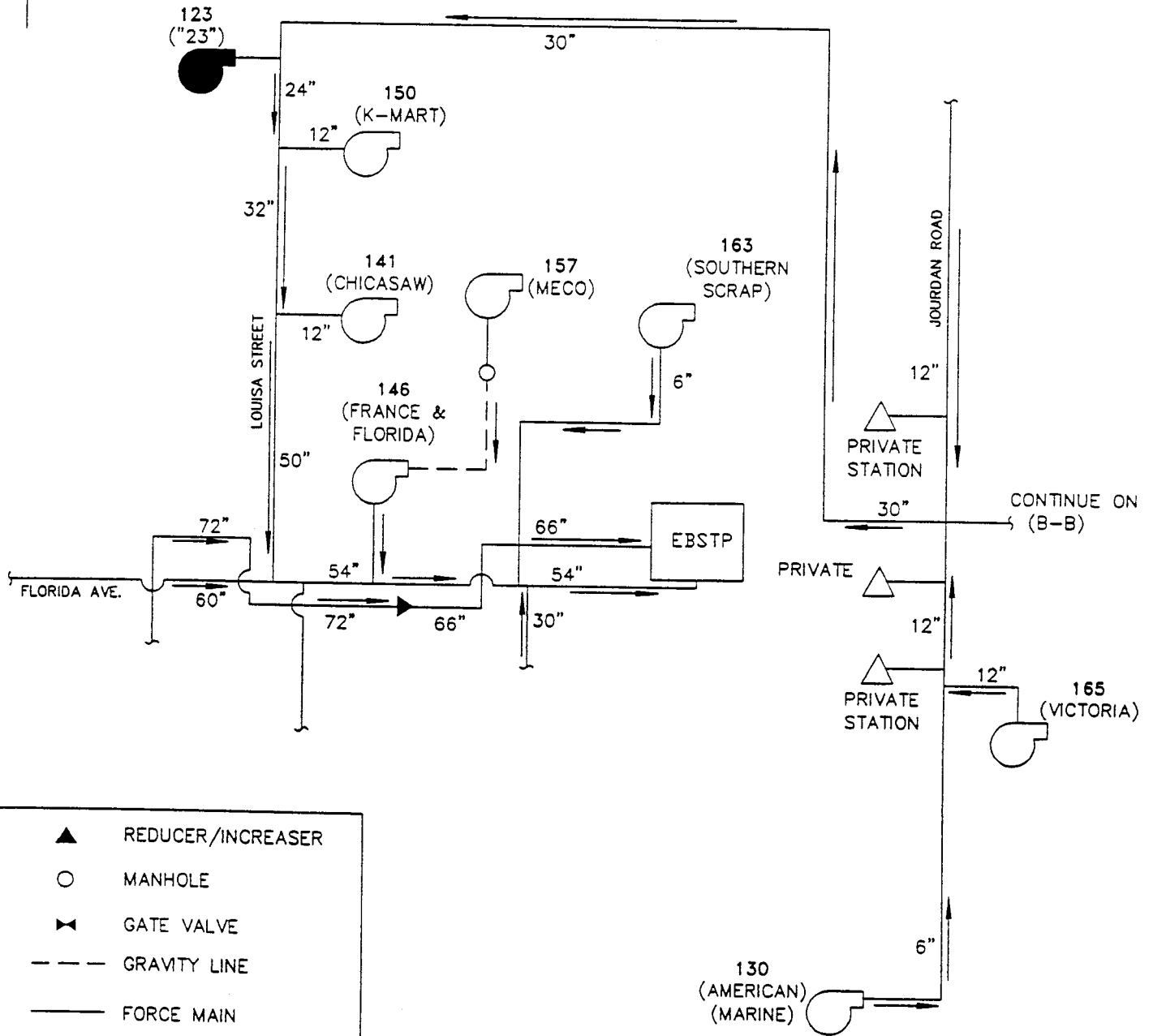
Pump Station 123 contains two (20-inch by 14-inch) vertically aligned pumps. Each pump is powered by a 4-speed Fairbanks Morse motor, shown in photo number 6, which is rated at 200 hp at 600 rpm. This equipment is housed in an 18.5-foot by 18.5-foot reinforced concrete dry well structure. The total depth from the floor of the motor control room to the dry well bottom is 28 feet. Figures 2 and 3 provide plan and elevation views of the station. This station can be characterized as being in fair condition, although significant corrosion of piping and valve surfaces (see photo numbers 3 and 4) was observed.

Pump Station 123 collects wastewater from the surrounding gravity sewer system into a 4-foot diameter cement lined brick suction chamber having a depth of 21-feet. The brick is exposed in the lower portion of the suction chamber, shown in photo number 3. It appears that the mortar between the bricks has experienced minor corrosion.

The Doppler flow meter was utilized to determine flows at various discharge heads to develop the pump curve for each pump, as shown in Figures 4 and 5. Pump number 1 was tested as having the approximate capacities of 1,600 gallon per minute (gpm) at 28 feet of head, 3,100 gpm at 38 feet of head, and 5,800 gpm at 46 feet of head, and 8,000 gpm at 54 feet of head on speeds 1, 2, 3, and 4 respectively. Pump number 2 was tested as having the approximate capacities of 2,700 gpm at 34 feet of head, 4,600 gpm at 40 feet of head, 7,000 gpm at 44 feet of head, and 9,000 gpm at 50 feet of head on speeds 1, 2, 3, and 4 respectively.

Recommendations:

1. The extent of the corrosion damage to valves and piping should be evaluated further and repaired or replaced as necessary.



- REDUCER/INCREASER
- MANHOLE
- GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- PRIVATE STATION
- PUMP STATION
- REF. PUMP STATION
- EBSTP EAST BANK SEWERAGE TREATMENT PLANT

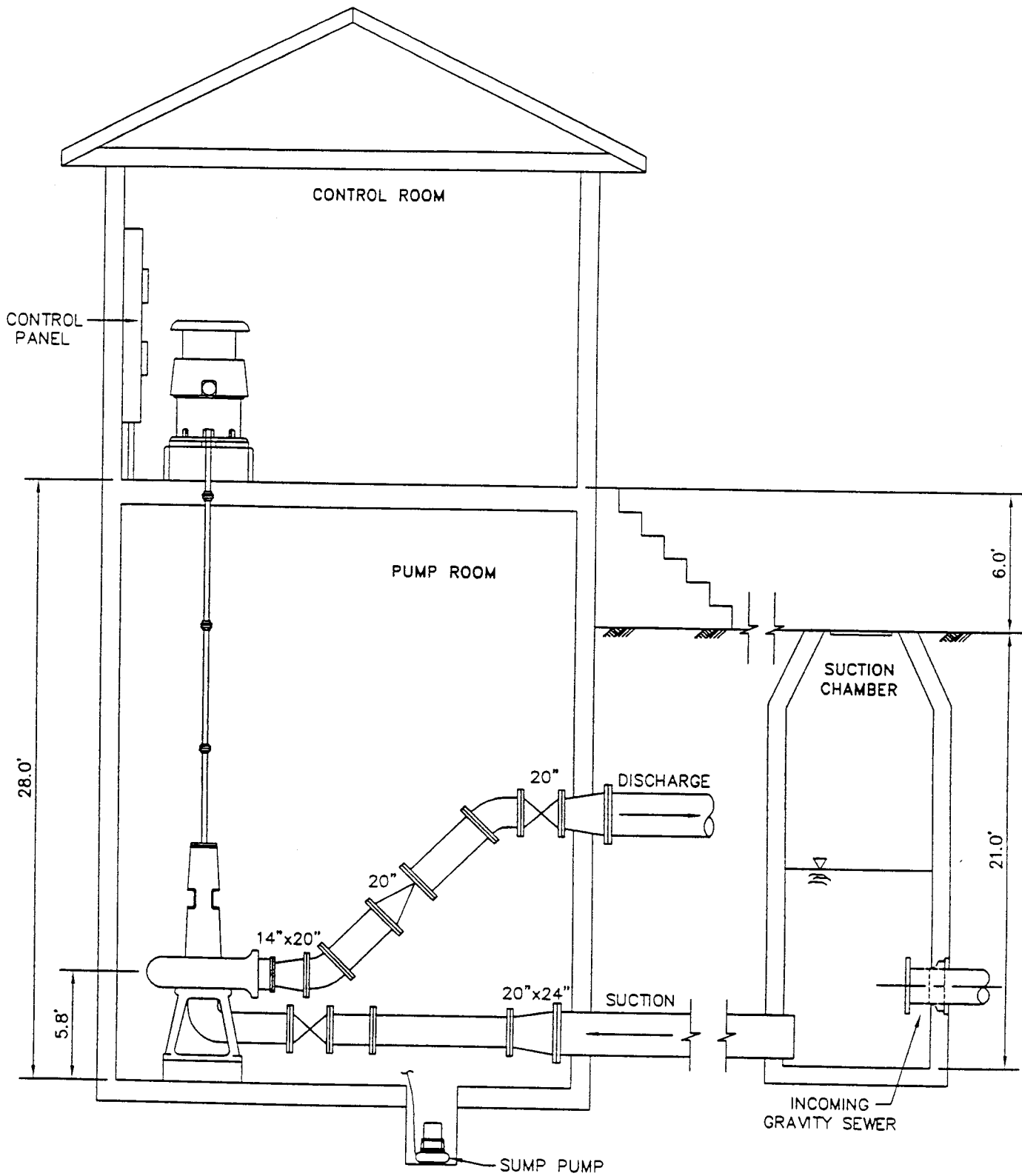
NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 123- JOB NO.: 1113030.01090120 DATE: 3/28/97



PUMP STATION 123 (\"23\")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1
DATE:
3/28/97



ELEVATION
(NOT TO SCALE)

JOB NO.: 1113030.01090120 DATE: 3/28/97

FILE NO.: 123-



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 123 ("23")
MULTI-LEVEL FLOODED SUCTION

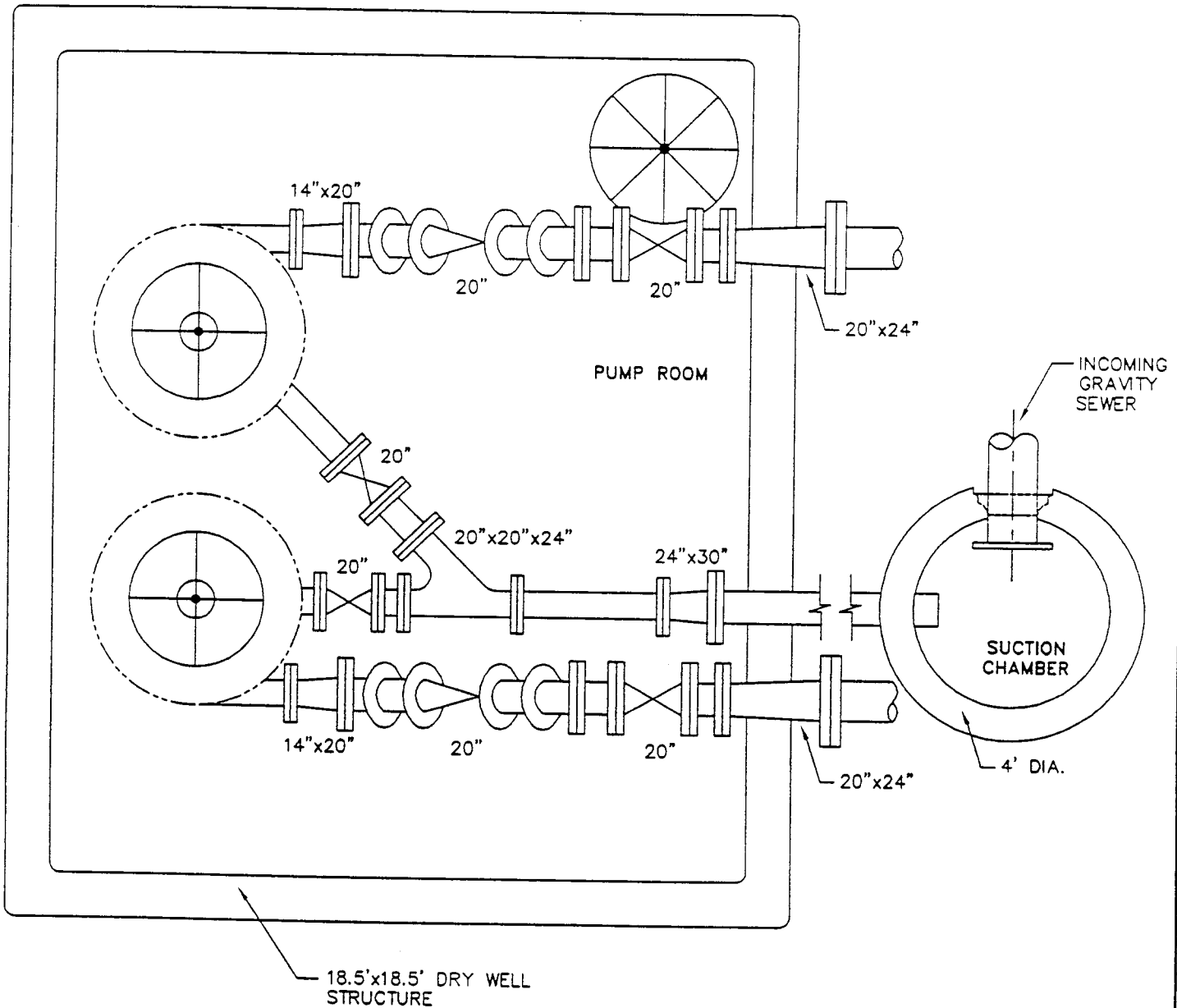
FIGURE:

2

DATE:

3/28/97

FILE NO.: 123- JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 123 (23")
MULTI-LEVEL FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 123 ("23")

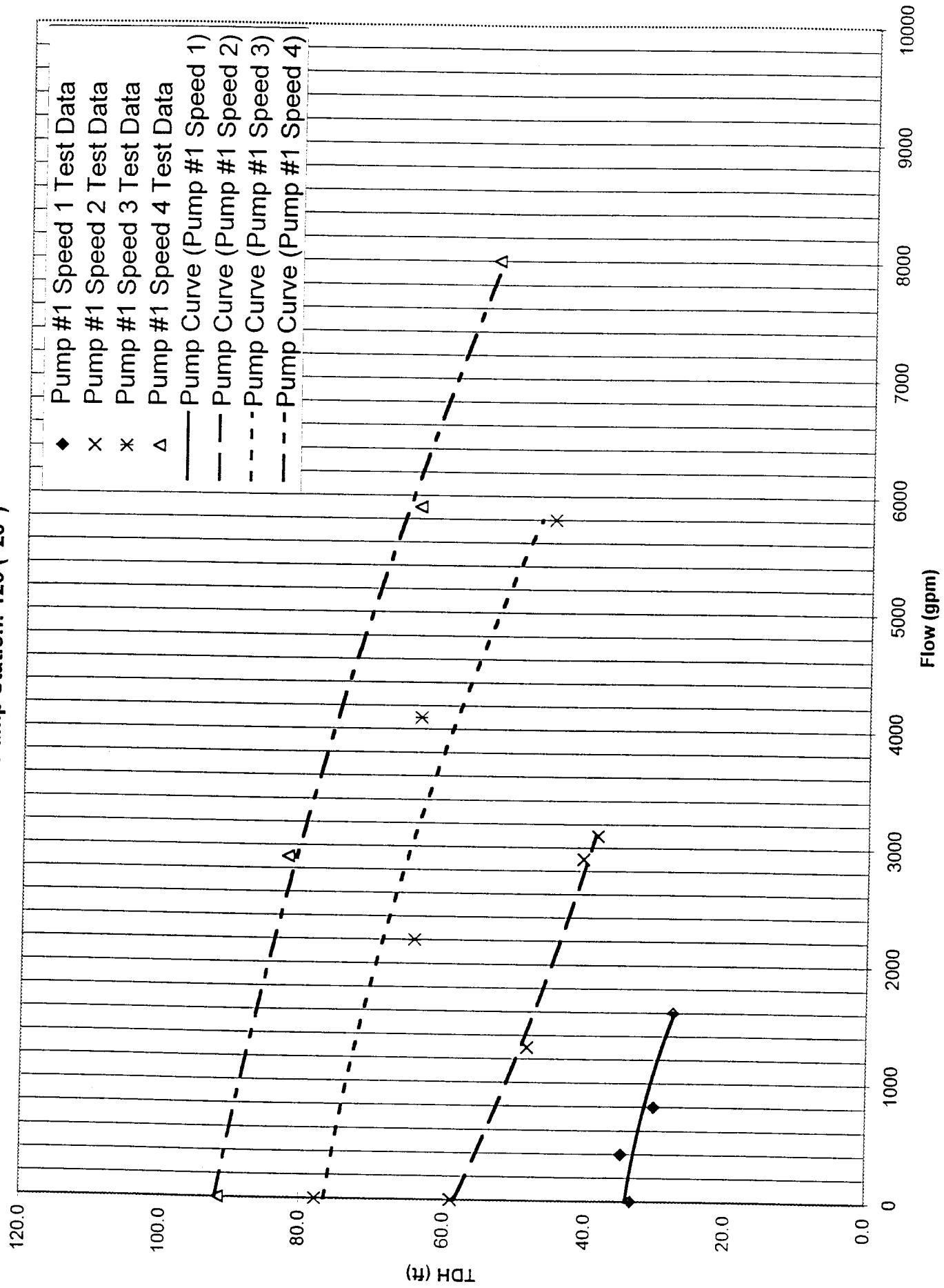


Figure 4: Pump Test Data and Curve(s)

Pump Station: 123 ("23")

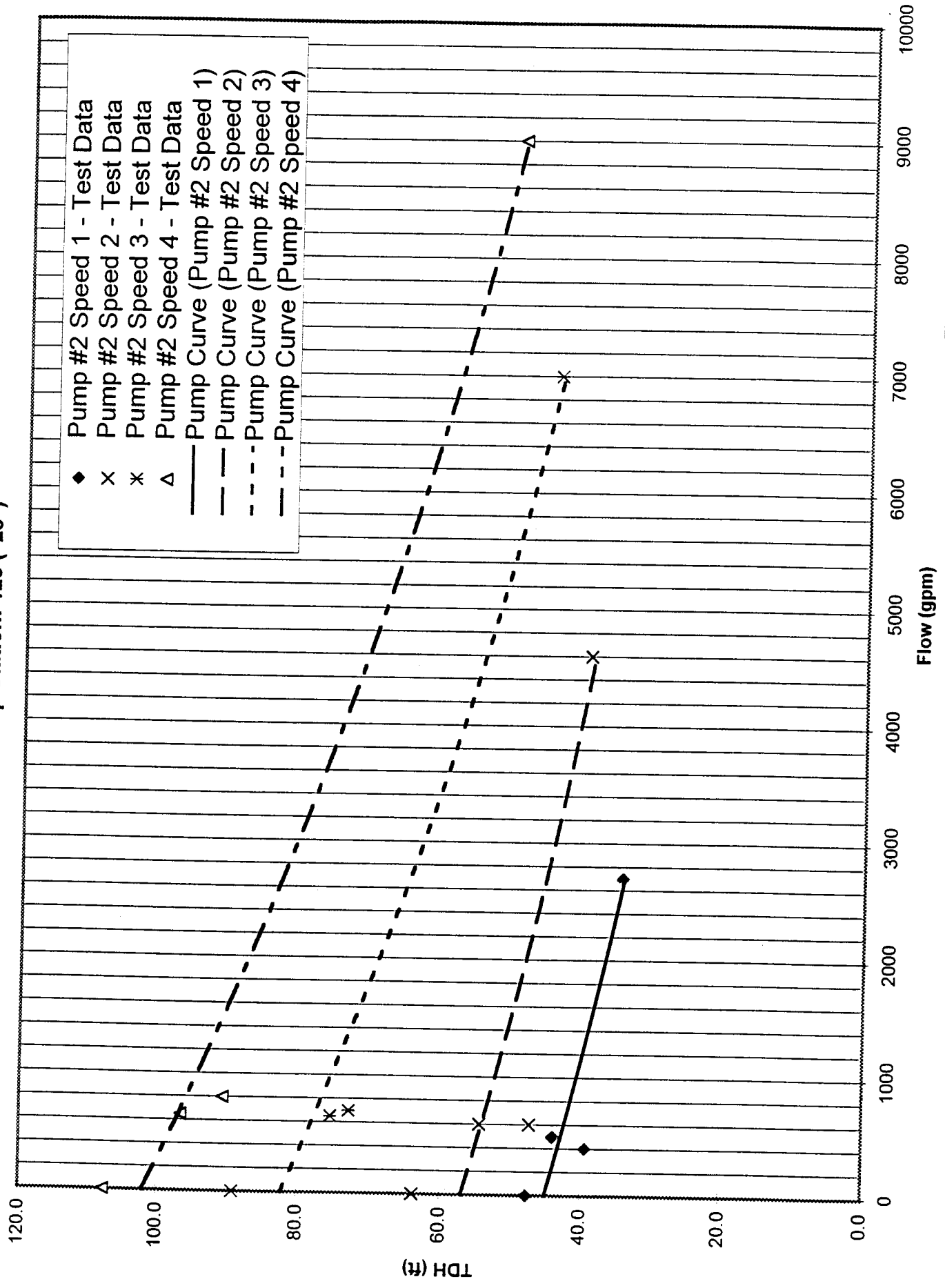


Figure 5: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 123

General Information

PS No. 123 PS Facility 23

Address 4500 Mithra Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer not available

Impeller Diameter 67 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 20 inch Pump Discharge 14 inch FM Diameter 20 inch

Suction Valve Size 20 inch Discharge Valve Size 20 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 20 inch

Dry Well Dimensions 0 ft. dia. Length 18.5 ft. Width: 18.5 ft. Depth 28 ft.

Pump centerline* 5.8 ft. Centerline of discharge pipe* 10 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 123

Pump Controls

Lead pump on 8.5 ft. Type of Controls bubbler
Lead pump off 6 ft.
Lag pump on 10 ft.
Lag pump off 7.5 ft.

Notes: speed(2)9.5,7;11,8.5;speed(3)10.5,8;12,9.5;speed(4)11.5,9;13,10.5

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Severe Corrosion of the brick mortar was observed.

Diameter 4 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 21 ft.

Sewer Invert(s) Depth* 16.5 ft.

7.5 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 123

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Double Ended, Normal & Alternate Source, no generator receptacle

Type of service 480/277 V three phase four wire (3 transformers bank)

Size of service protective device Not Available

Size of main protective device 600 amps, dual element, fusible disconnect switch

Size of motor protective device 400 amps, dual element, fusible disconnect switch

Service wire size Parallel of two 50 Size of motor starter in NEMA 3

Motor wire size #3/0 AWG Motor Horsepower 200

Number of motors 2 Motor Speed Multiple

Speed(s) in rpm 150, 300, 450, 600

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control does not have a phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The motor is connected to a resistor grid bank for motor speed reduction. The resistor grid bank does not reduce

Pump Station 123 (23)



Photo Number 1



Photo Number 2

Pump Station 123 (23)

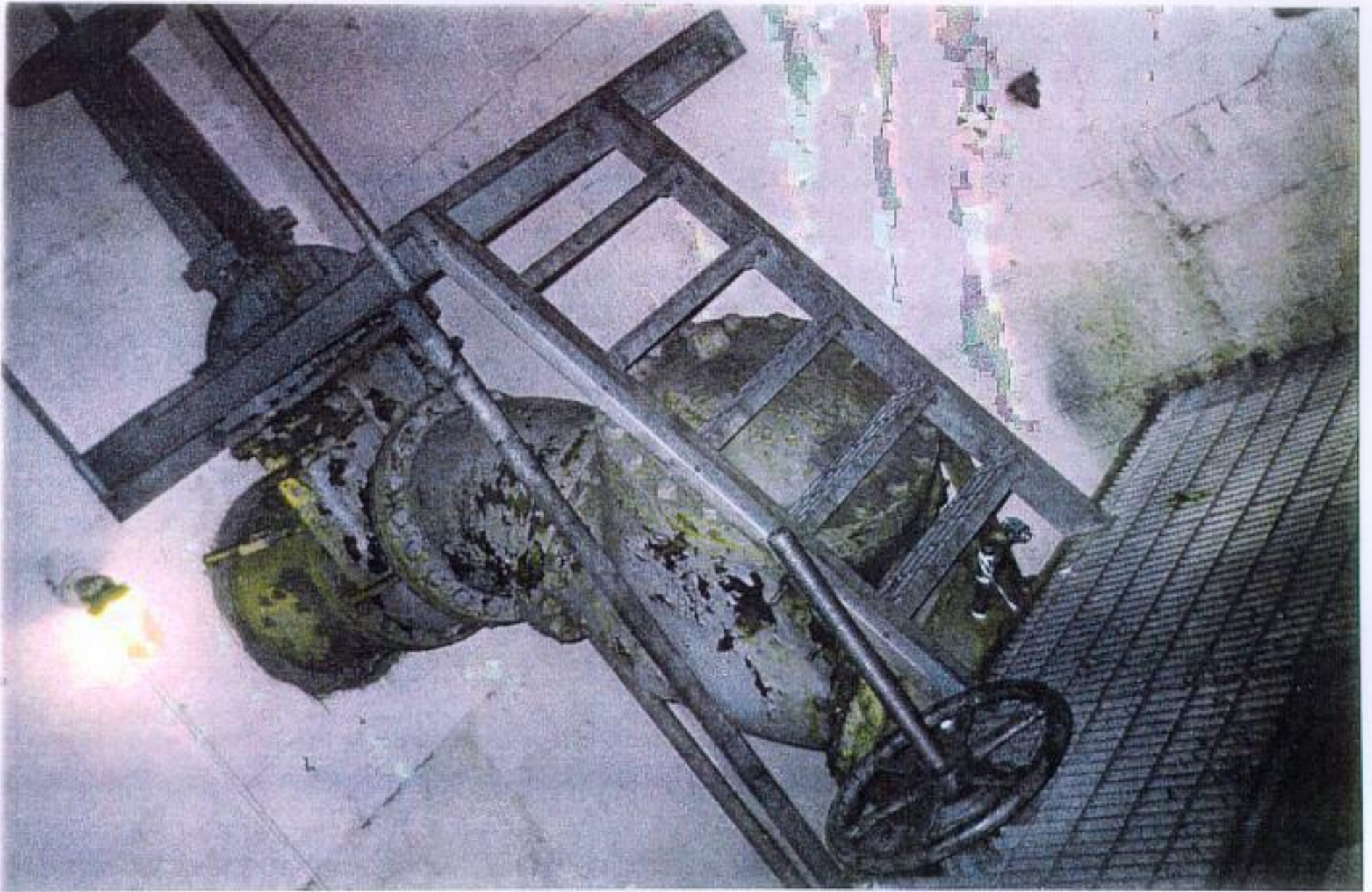


Photo Number 3

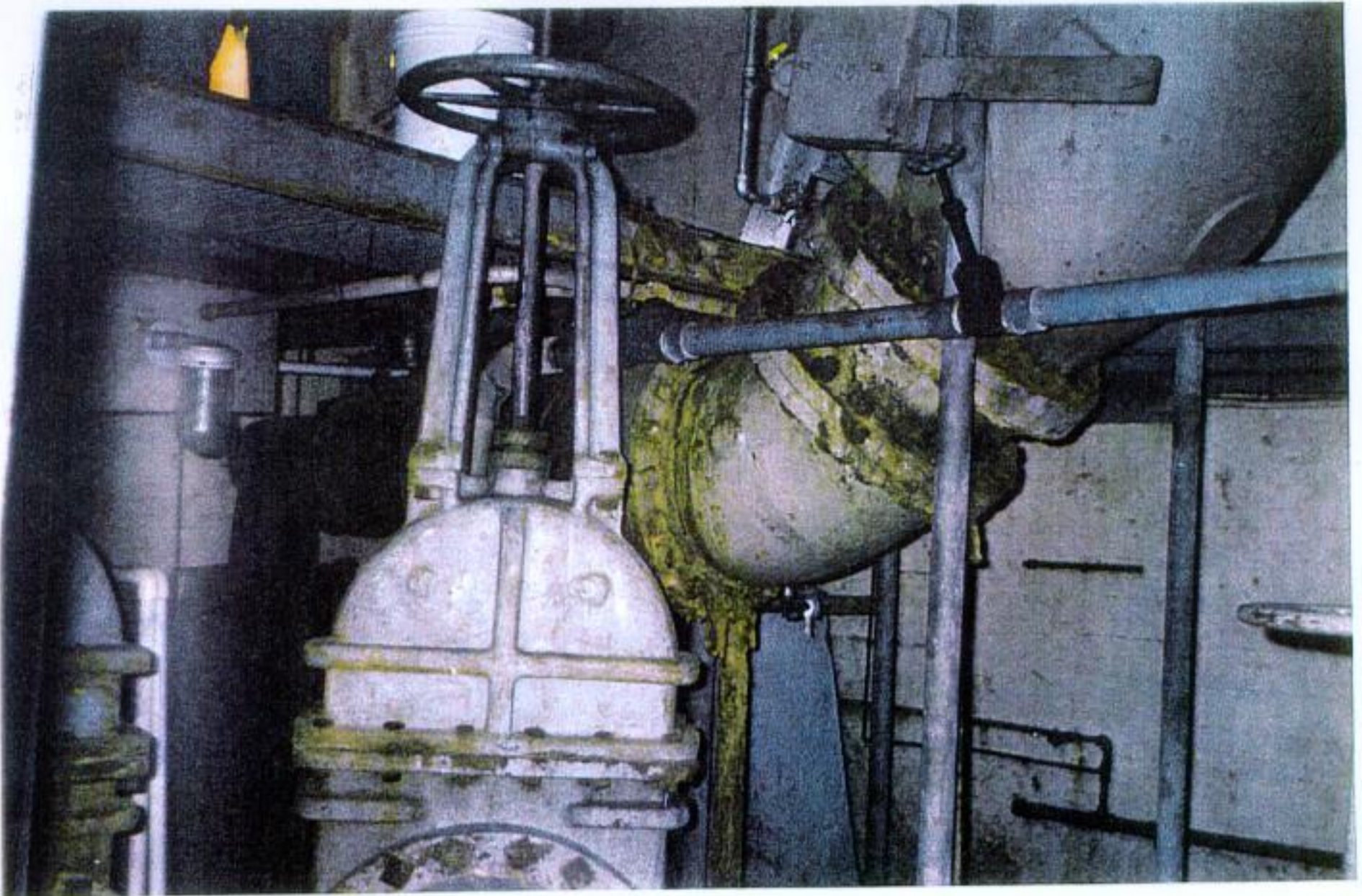


Photo Number 4

Pump Station 123 (23)



Photo Number 5

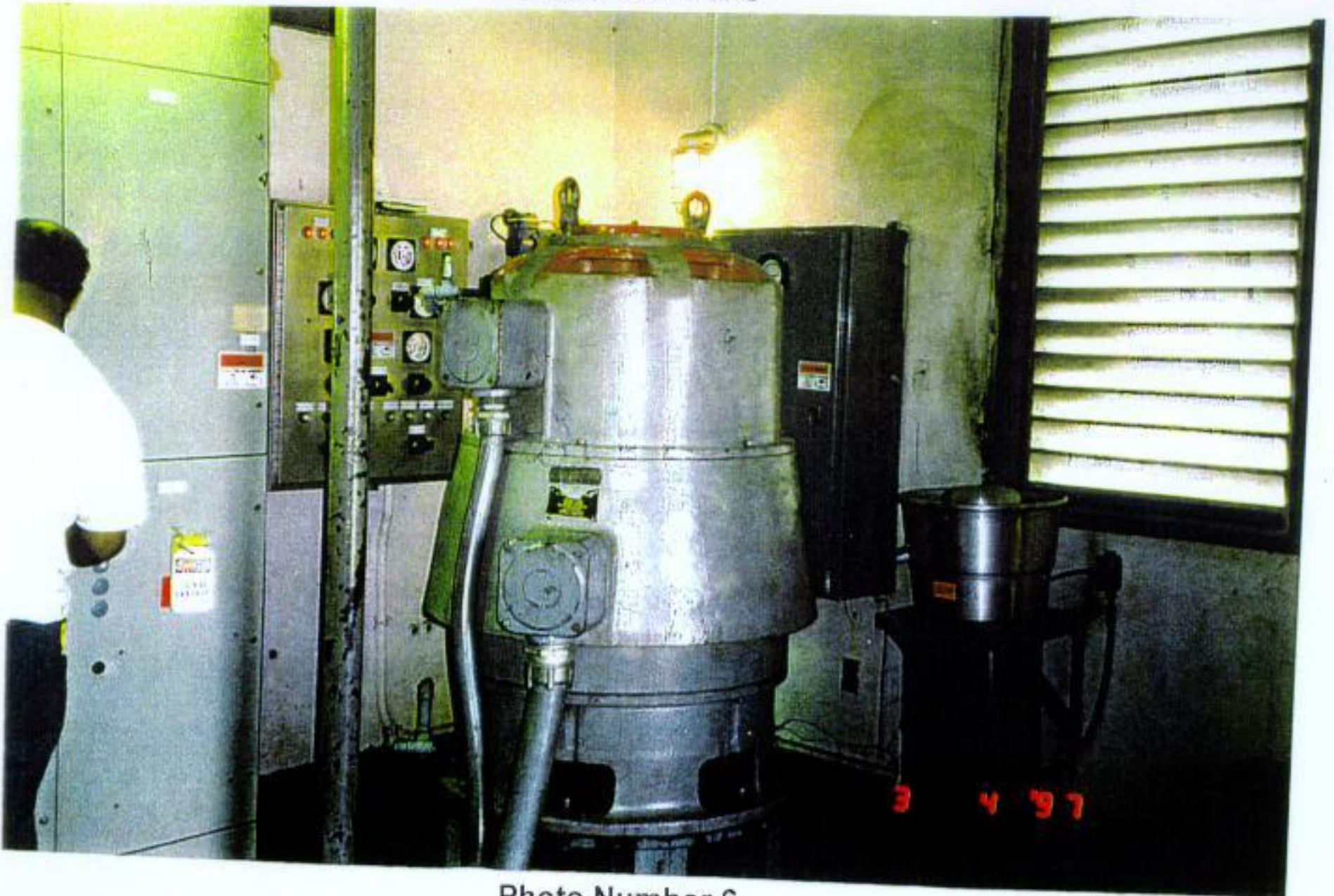


Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 124 (24)
5827 NORTH TONTI STREET

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 124 (24)

Pump Station 124 is a bi-level suction lift station located on 5827 North Tonti Street. It discharges to a 30-inch force main along Forstall Street via a 12-inch diameter force main. Pump Station 124 does not repump flow from any other station and its flow is not repumped by any other station. Figure 1 shows the schematic of the subsystem surrounding Pump Station 124.

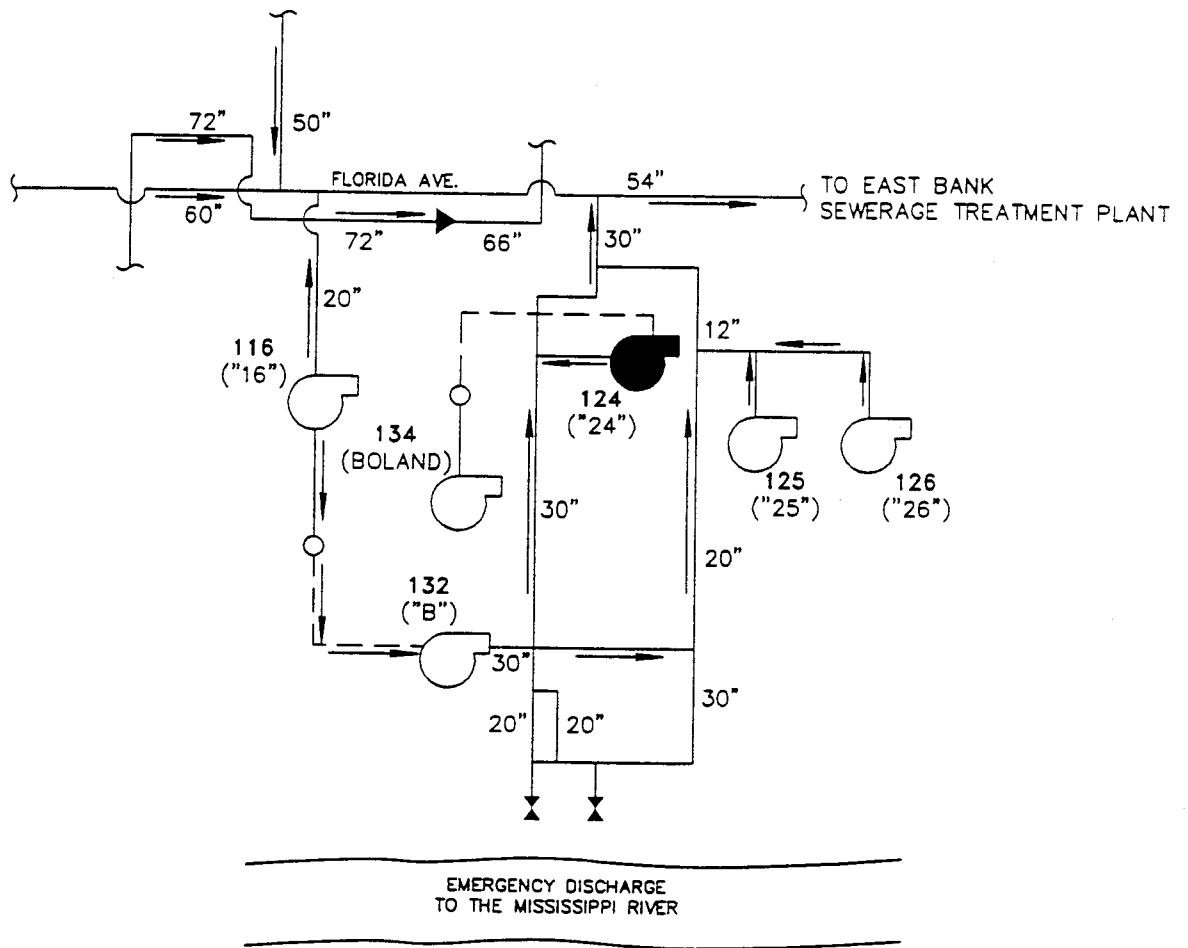
Pump Station 124 contains two (8-inch by 8-inch) Fairbanks Morse horizontally aligned pumps. Each pump is powered by a 75 horsepower (hp) Marathon Electric Motor operating at a constant speed of 1185 revolutions per minute (rpm). This equipment is housed in a 12.3 by 11-foot brick dry well structure, which is partially below grade. The depth below grade of the pump room section of the dry well is 7.3 feet. Figures 2 and 3 provide elevation and front views of the station.

Pump Station 124 collects wastewater from the surrounding gravity sewer system into a 16.3-foot deep brick wet well. The diameter of the wet well was measured to be approximately 5 feet.

The Doppler Flow Meter was used to determine the capacity of Pump Station 124. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 4,100 gallons per minute (gpm) at 35 feet of head. The shut-off head for both pumps was found to be approximately 80 feet.

Recommendations:

1. An initial observation of the wet well suggests that the brick upper portion may need regrouting. The extent of the corrosion of the wet well should be further investigated and corrected in some locations.
2. It was also observed that the motor controller is in poor condition due to corrosion. The extent of the corrosion of the motor controller should be further investigated and the controller replaced if necessary.



	REDUCER/INCRASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 124 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 124 ("24")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

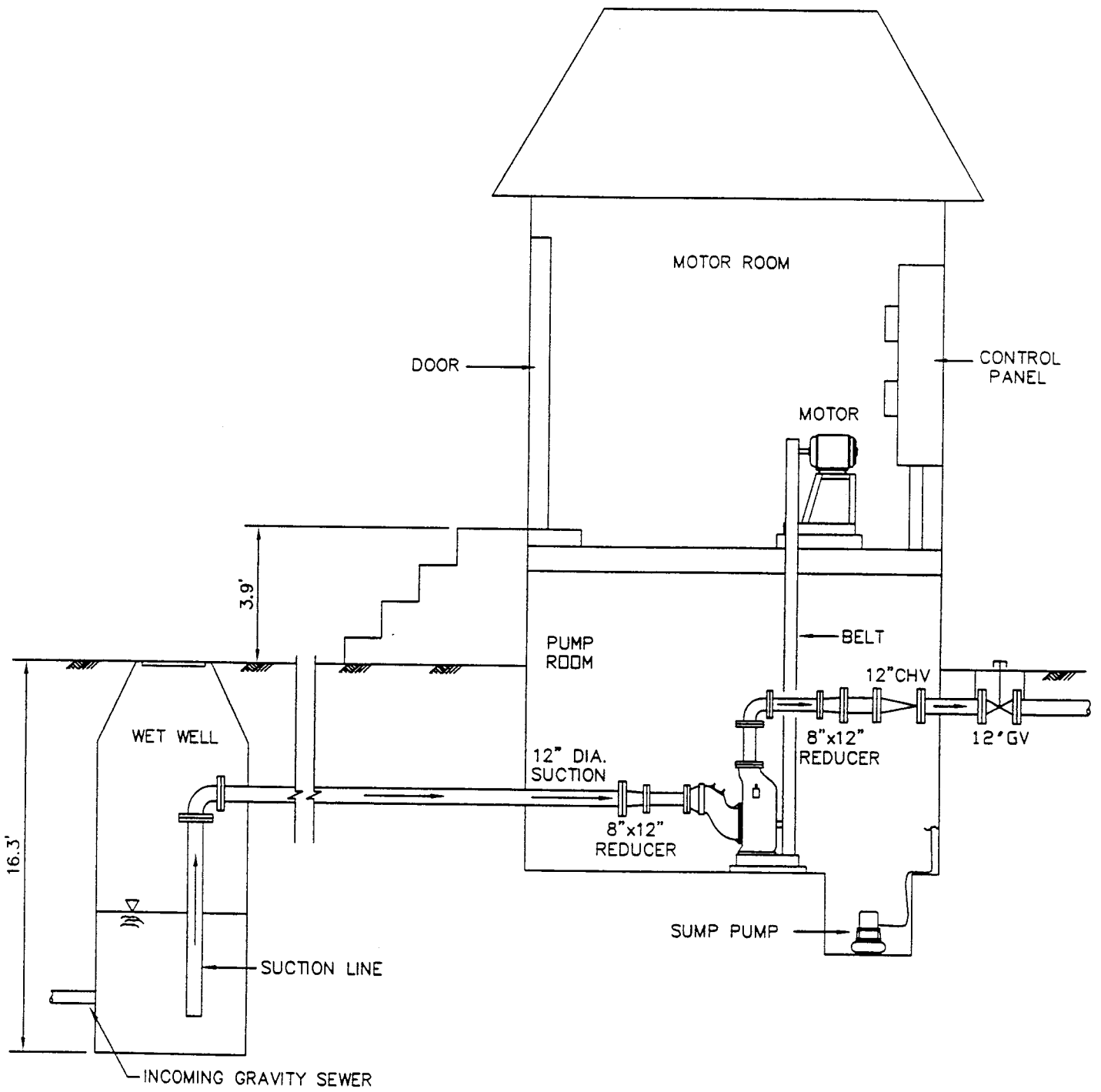
FIGURE:

1

DATE:

3/28/97

FILE NO.: 124-... .G JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 124 ("24")
BI-LEVEL SUCTION LIFT

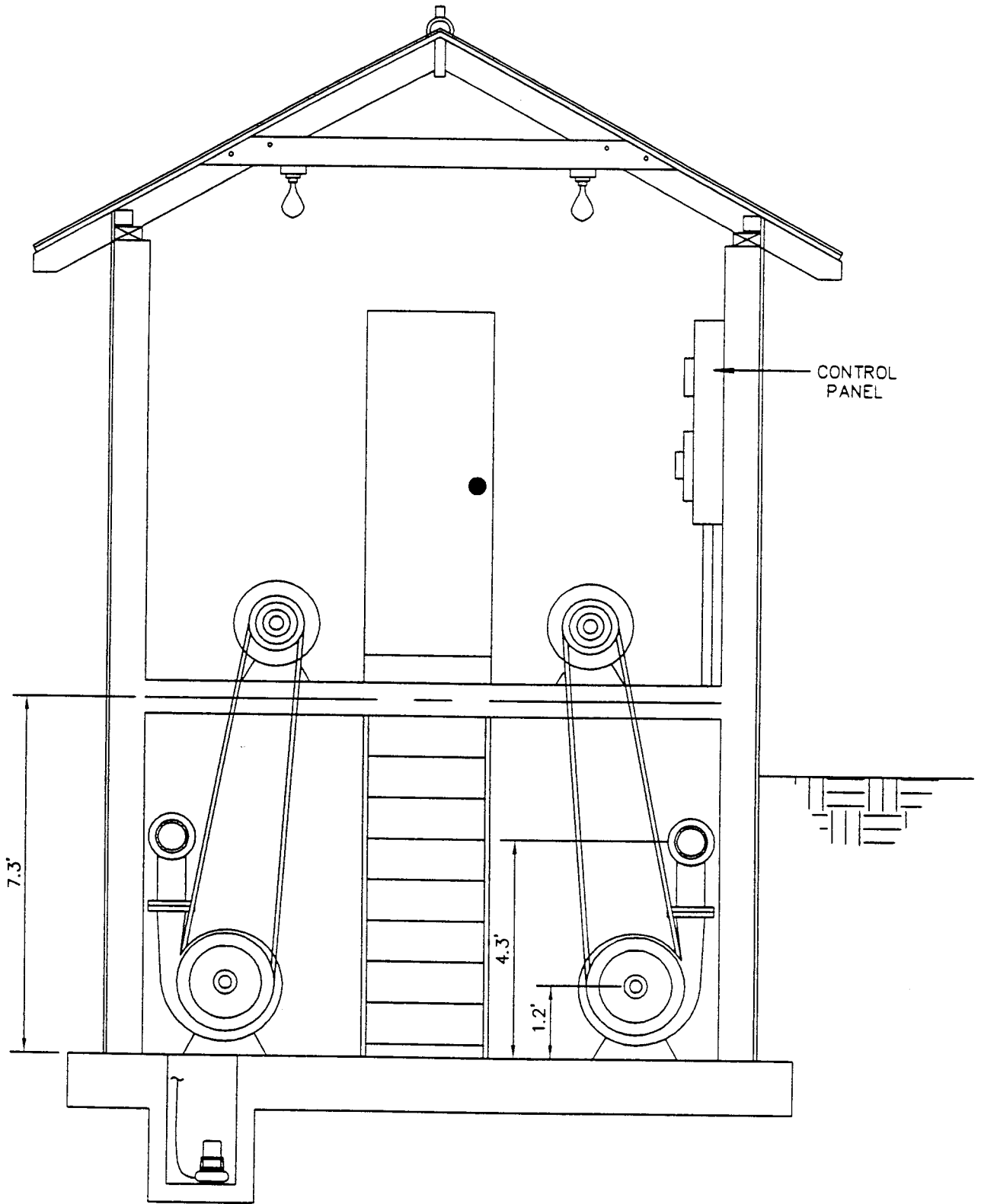
FIGURE:

2

DATE:

3/28/97

FILE NO.: 124 JOB NO.: 1113030.01090120 DATE: 3/21/97



FRONT VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 124 ("24")
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/21/97

Pump Station: 124 (No. 24)

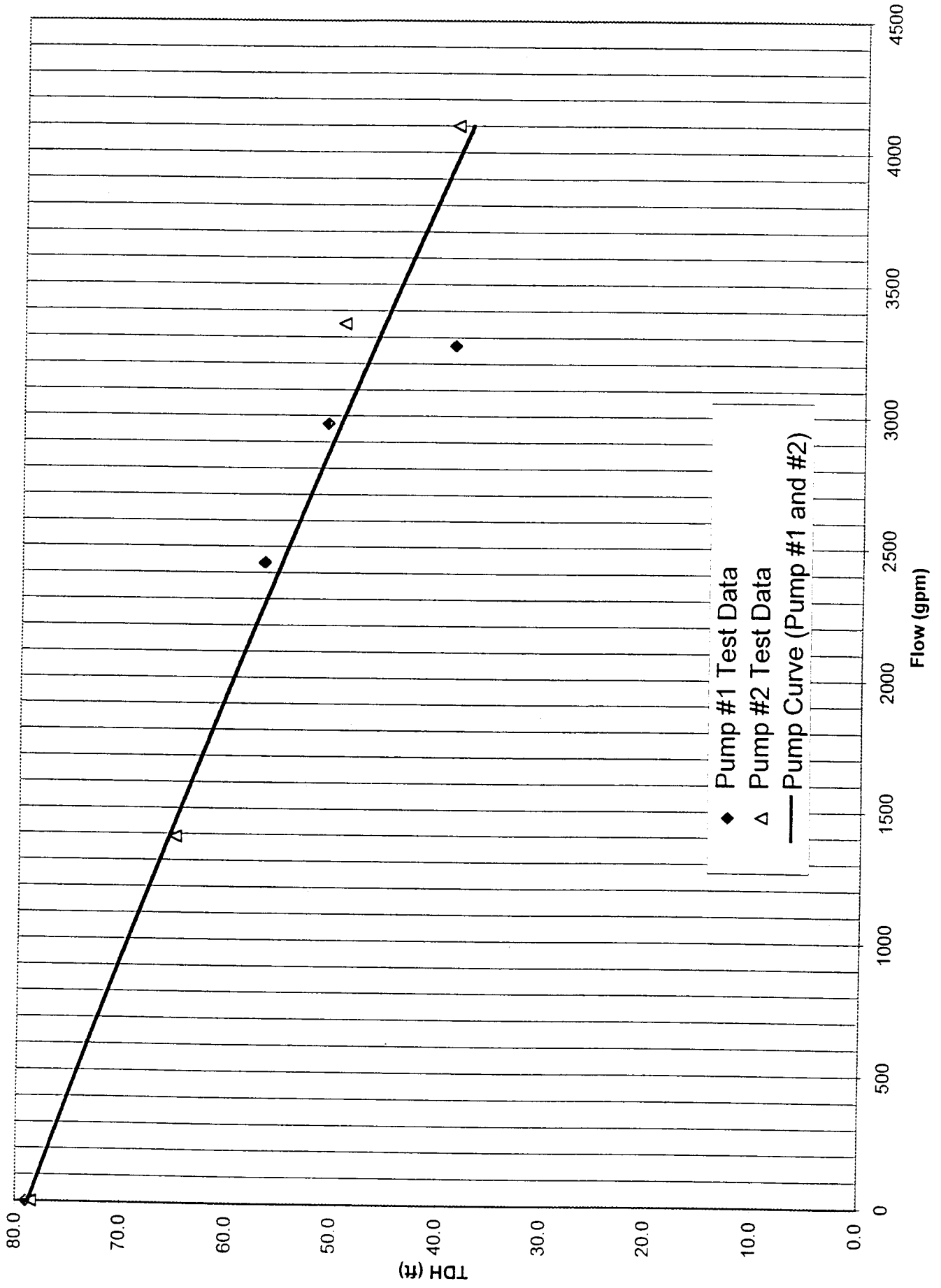


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 124

General Information

PS No. 124 PS Facility 24

Address 5827 North Tonti Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size 0 inch Discharge Valve Size 12 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 12 inch

Dry Well Dimensions 0 ft. dia. Length 12.3 ft. Width: 11 ft. Depth 7.3 ft.

Pump centerline* 1.2 ft. Centerline of discharge pipe* 4.3 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 124

Pump Controls

Lead pump on 9 ft. Type of Controls bubbler
Lead pump off 3 ft.
Lag pump on 10 ft.
Lag pump off 4 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 16.25 ft.

Sewer Invert(s) Depth* _____ ft.

_____ ft.

**measured from top of wet well cover.*

Pump Station 124 (24)

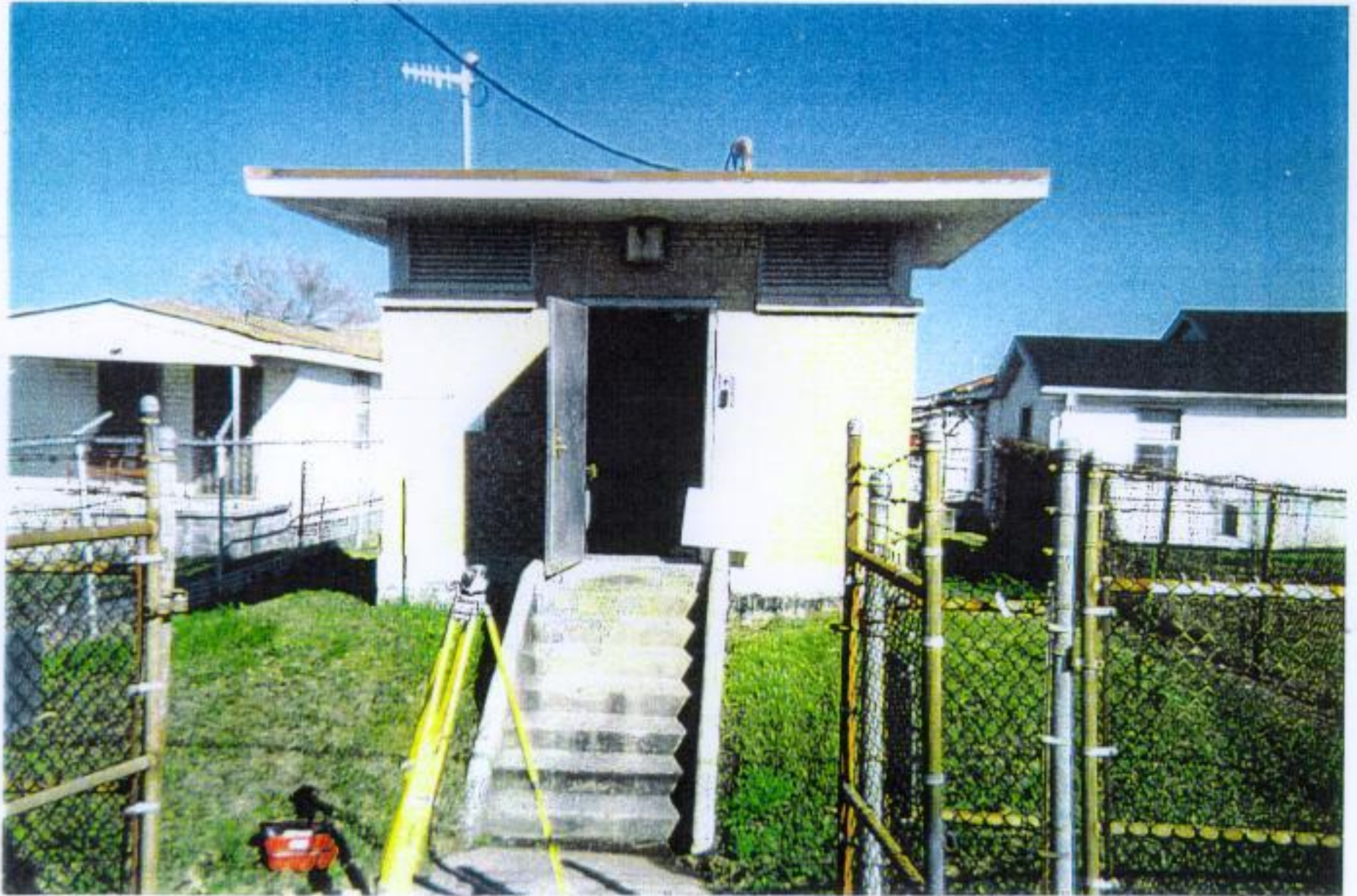


Photo Number 1



Photo Number 2

Pump Station 124 (24)

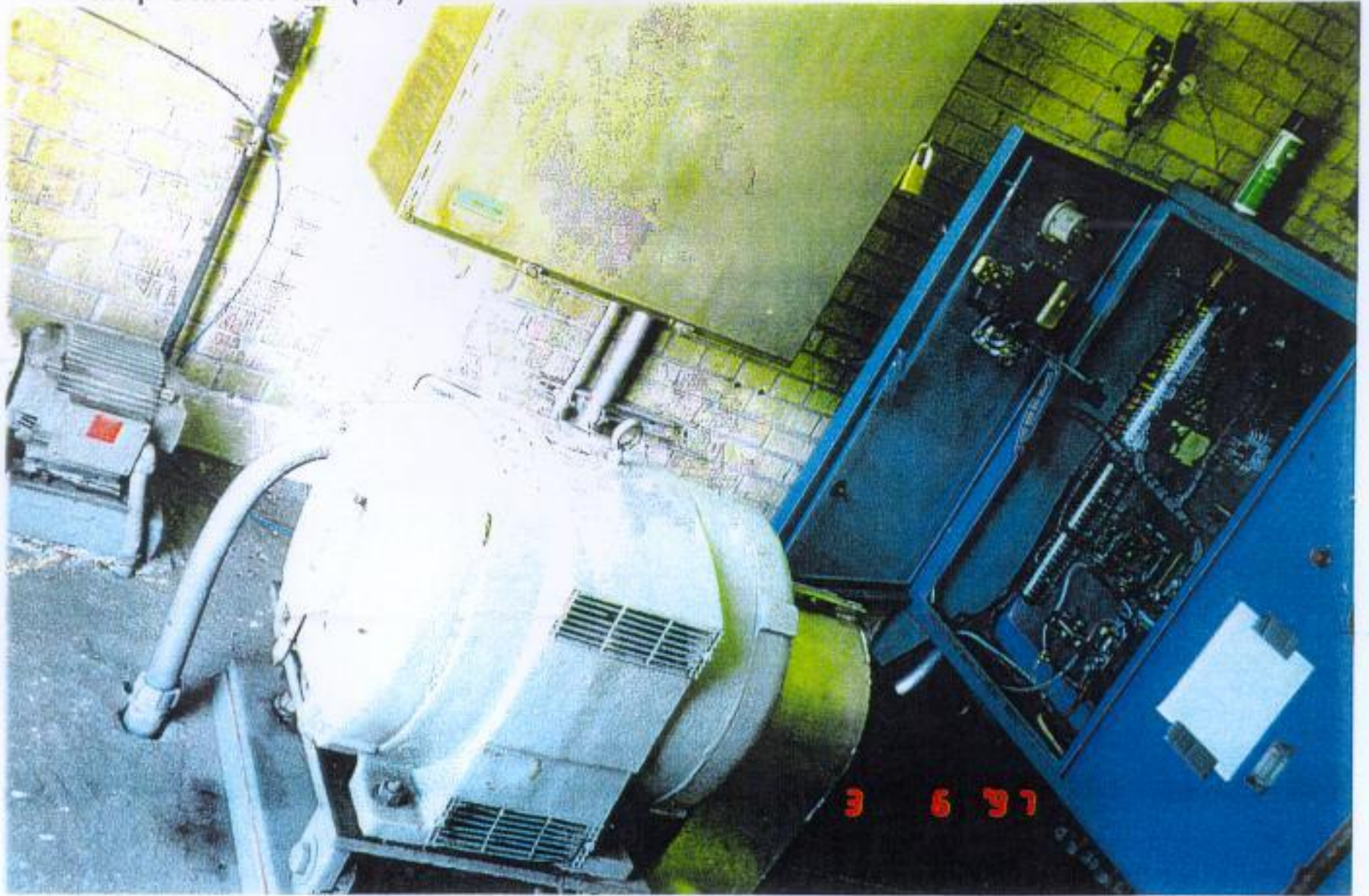


Photo Number 3

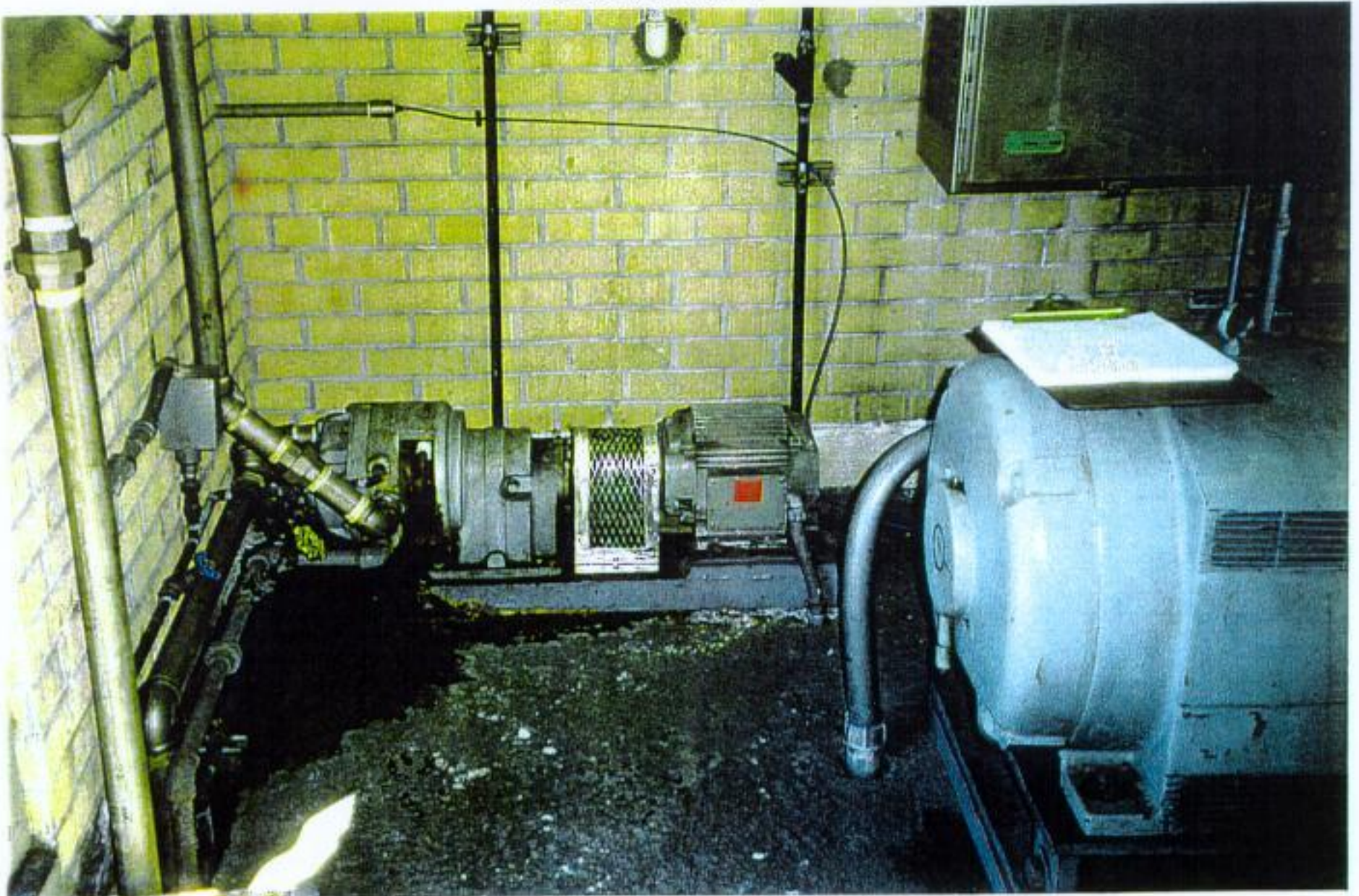


Photo Number 4

Pump Station 124 (24)

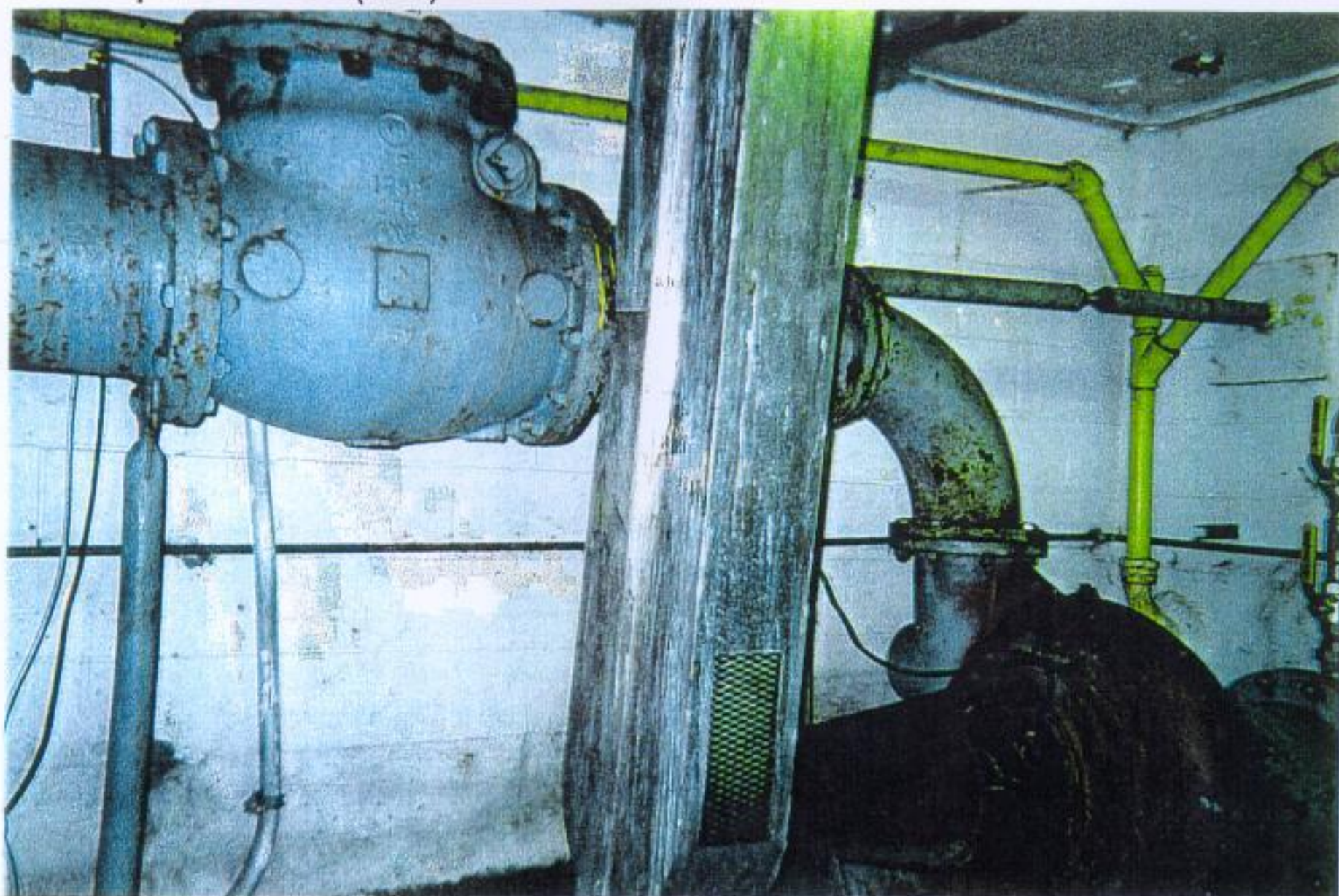


Photo Number 5



Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 125 (25)
2245 CHARBONNET STREET**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 125 (25)

Pump Station 125 is a bi-level suction lift station located on 2245 Charbonnet Street. It discharges to a 12-inch force main along Tonti Street via a 12-inch diameter force main. Pump Station 125 does not repump flow from any other station and its flow is not repumped by any other station. Figure 1 shows the schematic of the subsystem surrounding Pump Station 125.

Pump Station 125 contains two (8-inch by 8-inch) Fairbanks Morse horizontally aligned pumps. Each pump is powered by a 75 horsepower (hp) Marathon Electric Motor operating at a constant speed of 1185 revolutions per minute (rpm). This equipment is housed in a 12.5 by 11-foot brick dry well structure, which is partially below grade. The depth below grade of the pump room section of the dry well is 7.4 feet. Figures 2 and 3 provide elevation and front views of the station.

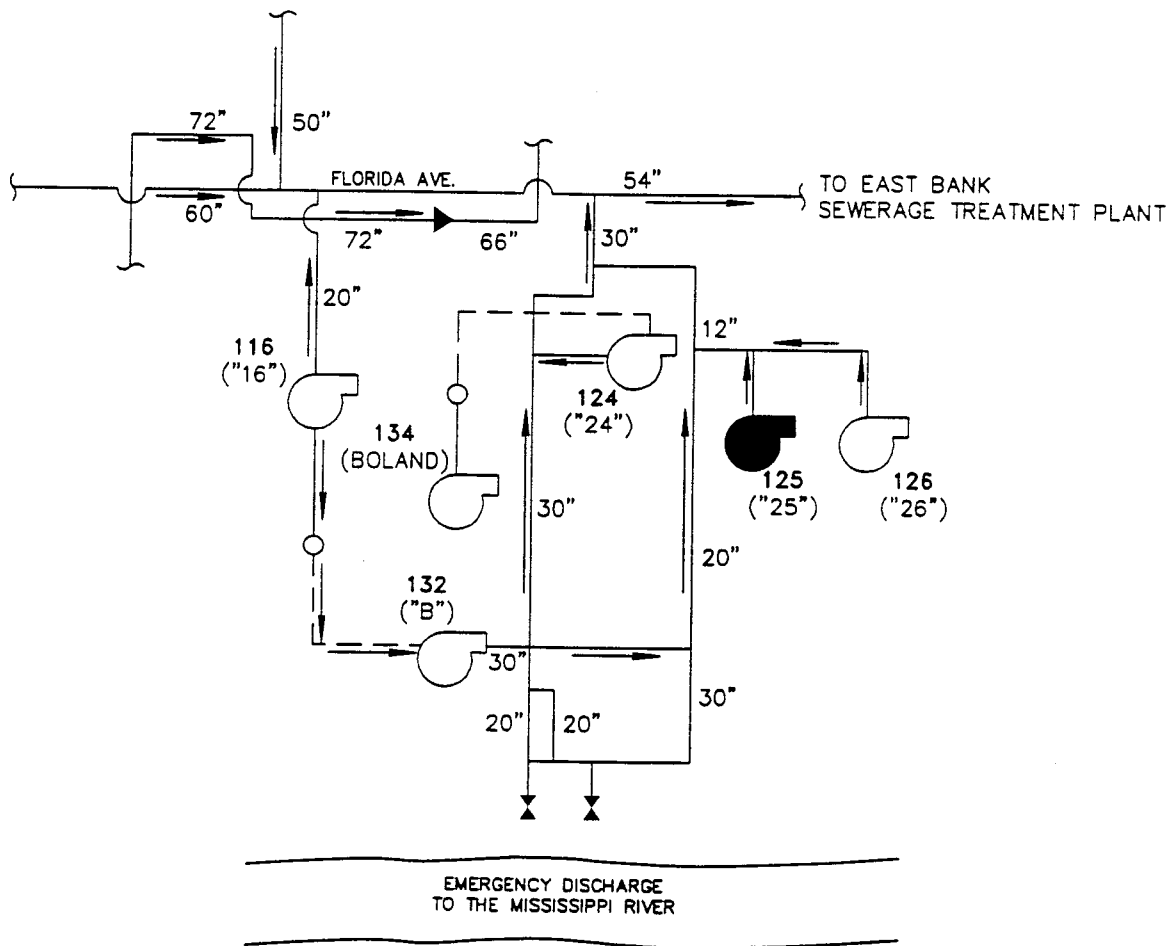
Pump Station 125 collects wastewater from the surrounding gravity sewer system into a 16-foot deep brick wet well. The diameter of the wet well was measured as approximately 5 feet.

The Doppler Flow Meter was used to determine the capacity of Pump Station 125. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 2800 gallons per minute (gpm) at 38 feet of head. The shut-off head for both pumps was found to be about 70 feet.

Recommendations:

1. When comparing the pump curve shown in figure 4 with the attached manufacturer's pump curve in figure 5, it becomes clear that the existing pumping capacities of the existing pumps are far less than those indicated by the manufacturer. This can be the result of several factors such as wear in the impellers or blockage of the pumps. It is therefore suggested that the pumps be further investigated to identify methods to obtain higher pumping rates.
2. An initial observation of the wet well suggests that the brick upper portion may need regrouting. The extent of the corrosion of the wet well should be further investigated and corrected in some locations.

3. It was also observed that the exterior conduit is in poor condition due to corrosion. The extent of the corrosion should be further investigated and the conduit replaced as necessary.



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER

- ▲ REDUCER/INCREASER
- MANHOLE
- ⋈ GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- ◐ PUMP STATION
- ◑ REF. PUMP STATION
- EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 12; JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 125 (25")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

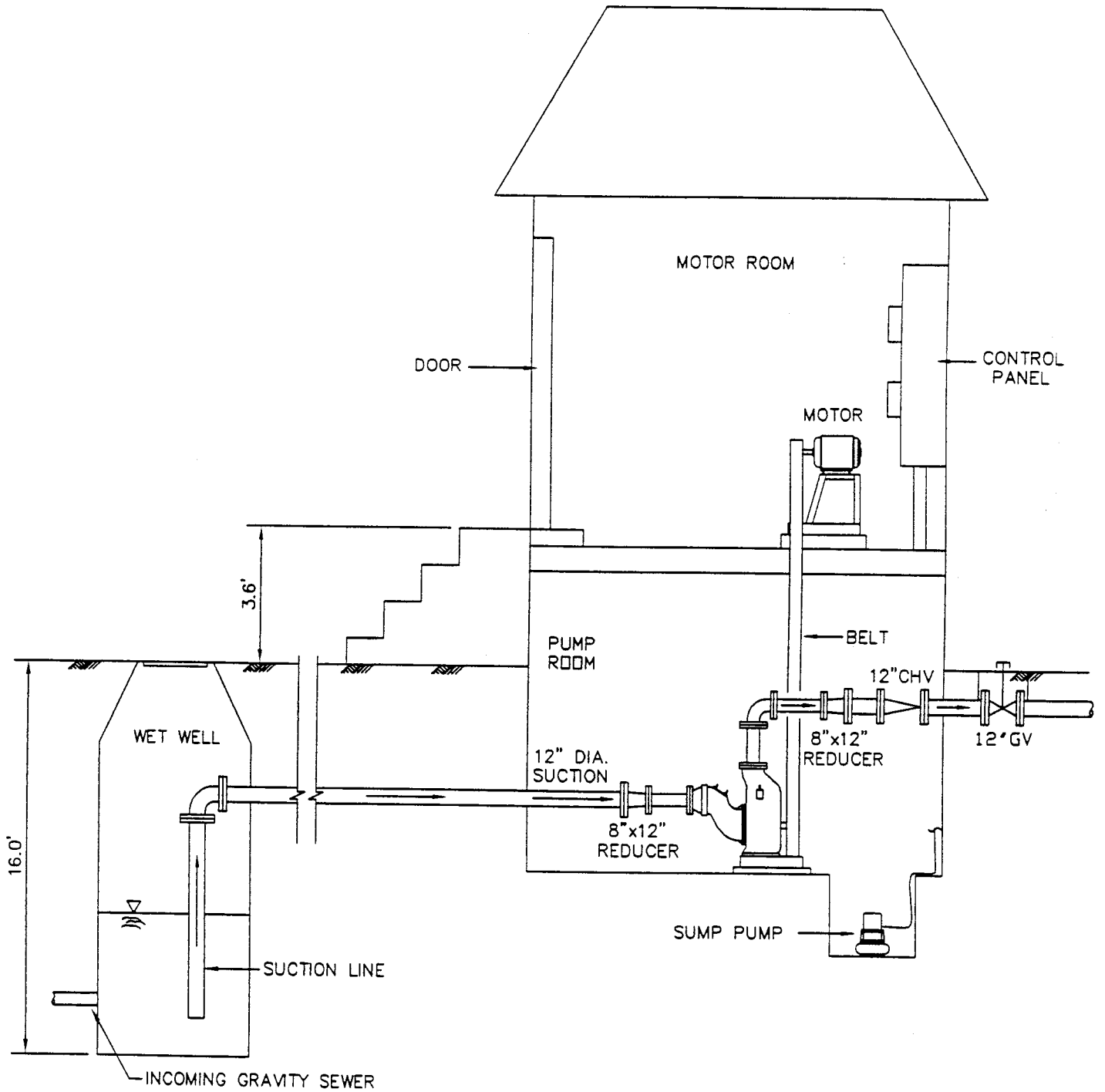
FIGURE:

1

DATE:

3/28/97

FILE NO.: 125 JOB NO.: 1113030.01090120 DATE: 3/21/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 125 ("25")
BI-LEVEL SUCTION LIFT

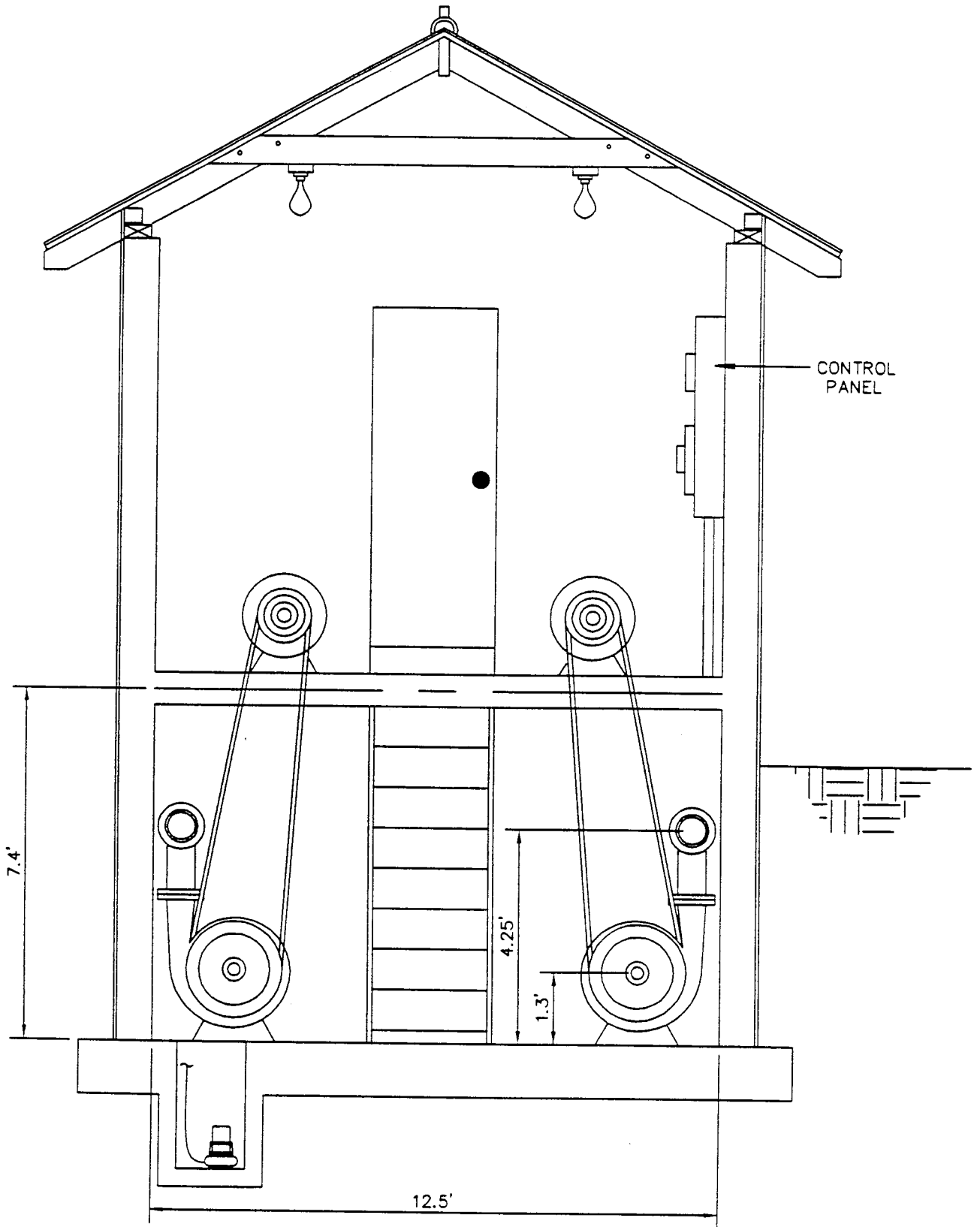
FIGURE:

2

DATE:

3/21/97

FILE NO.: 125 JOB NO.: 1113030.01090120 DATE: 3/21/97



FRONT VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 125 ("25")
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/21/97

Pump Station: 125 (No. 25)

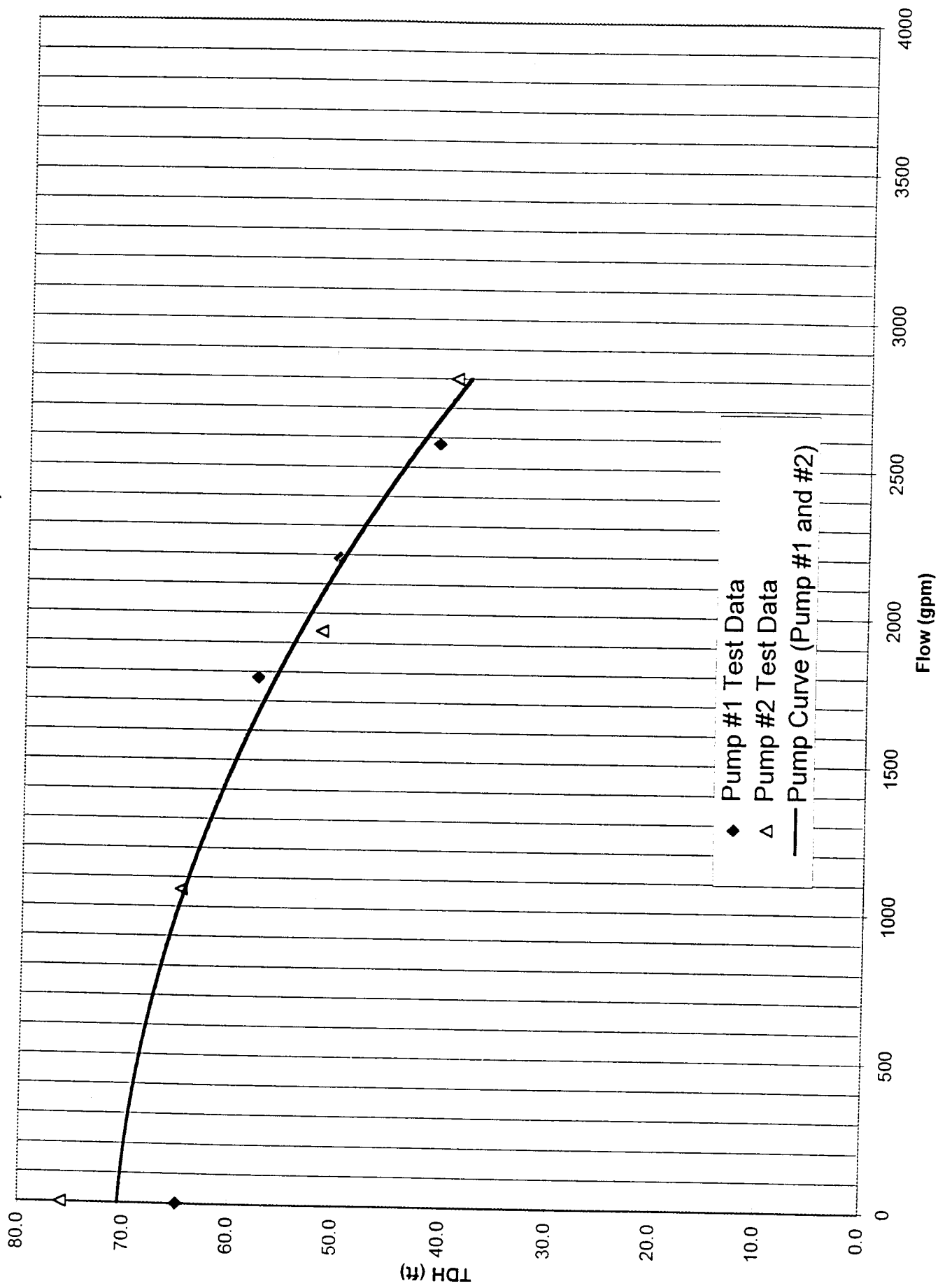
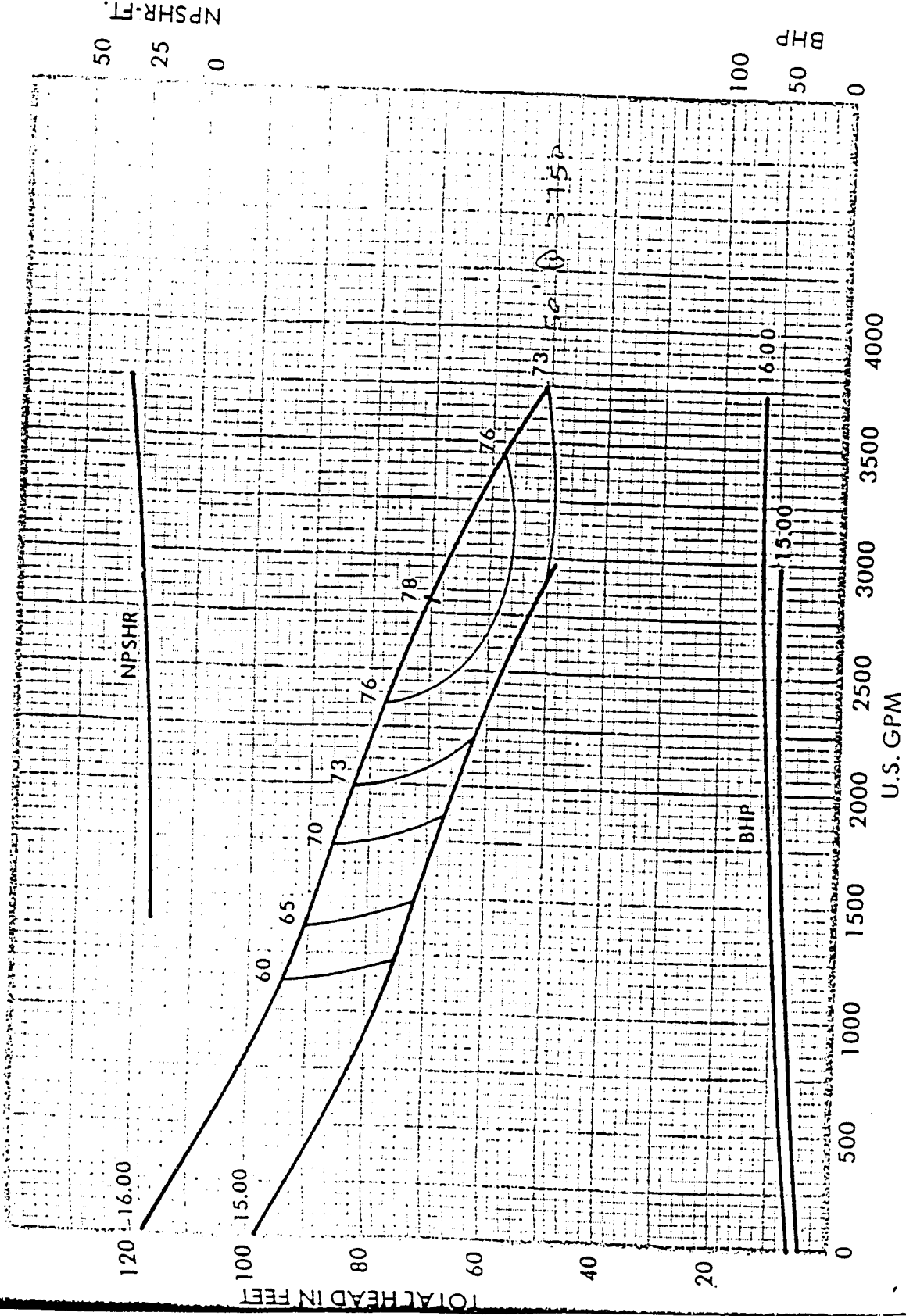


Figure 4: Pump Test Data and Curve(s)

5400 NON-CLOG SEWAGE PUMPS PERFORMANCE



8"

5414

5424

5434

5444

1160

RPM

MAX. SPHERE
5"

SUCTION SIZE
5424: 8",
OTHER: 10"

IMPELLER
TAKC5W

EYE AREA
50.30 SQ. IN.

NO. OF VANES
2

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 125

General Information

PS No. 125 PS Facility 25

Address 2245 Charbonnet Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter _____ inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size 0 inch Discharge Valve Size 12 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 12 inch

Dry Well Dimensions 0 ft. dia. Length 12.5 ft. Width: 11 ft. Depth 7.4 ft.

Pump centerline* 1.3 ft. Centerline of discharge pipe* 4.3 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? Minor

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 125

Pump Controls

Lead pump on 7.5 ft. Type of Controls bubbler
Lead pump off 3.5 ft.
Lag pump on 8.5 ft.
Lag pump off 4.5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair except for areas of corrosion on the motor room floor.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 16 ft.

Sewer Invert(s) Depth* 0 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 125

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wiper (3 transformers bank)

Size of service protective device 250 amps, non-fusible disconnect switch

Size of main protective device 250 amps, fusible disconnect switch

Size of motor protective device 125 amps, circuit breaker

Service wire size 350 kcmil Size of motor starter in NEMA 4

Motor wire size #1 Motor Horsepower 75

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1185

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the exterior conduit is poor due to corrosion. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase motor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The motor protective device is undersize.

Pump Station 125 (25)



Photo Number 1



Photo Number 2

Pump Station 125 (25)



Photo Number 3



Photo Number 4

Pump Station 125 (25)

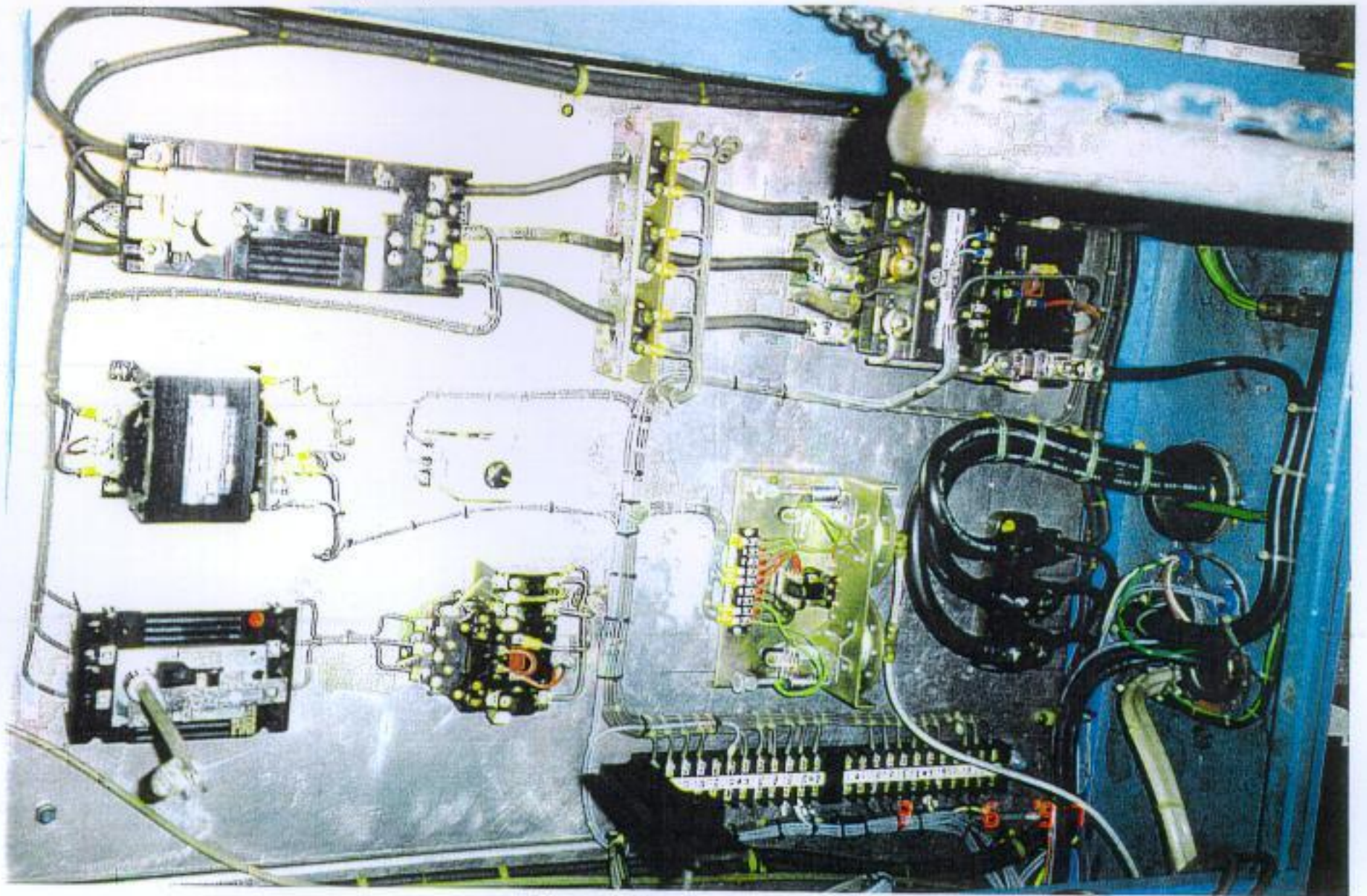


Photo Number 5



Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 126 (26)
2244 SAINT MAURICE STREET

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 126 (26)

Pump Station 126 is a walk-in suction lift station located on 2244 St. Maurice Street. It discharges to a 20-inch force main along Tonti Street via a 12-inch diameter force main. Pump Station 126 does not repump flow from any other station and its flow is not repumped by any other station. Figure 1 shows the schematic of the subsystem surrounding Pump Station 126.

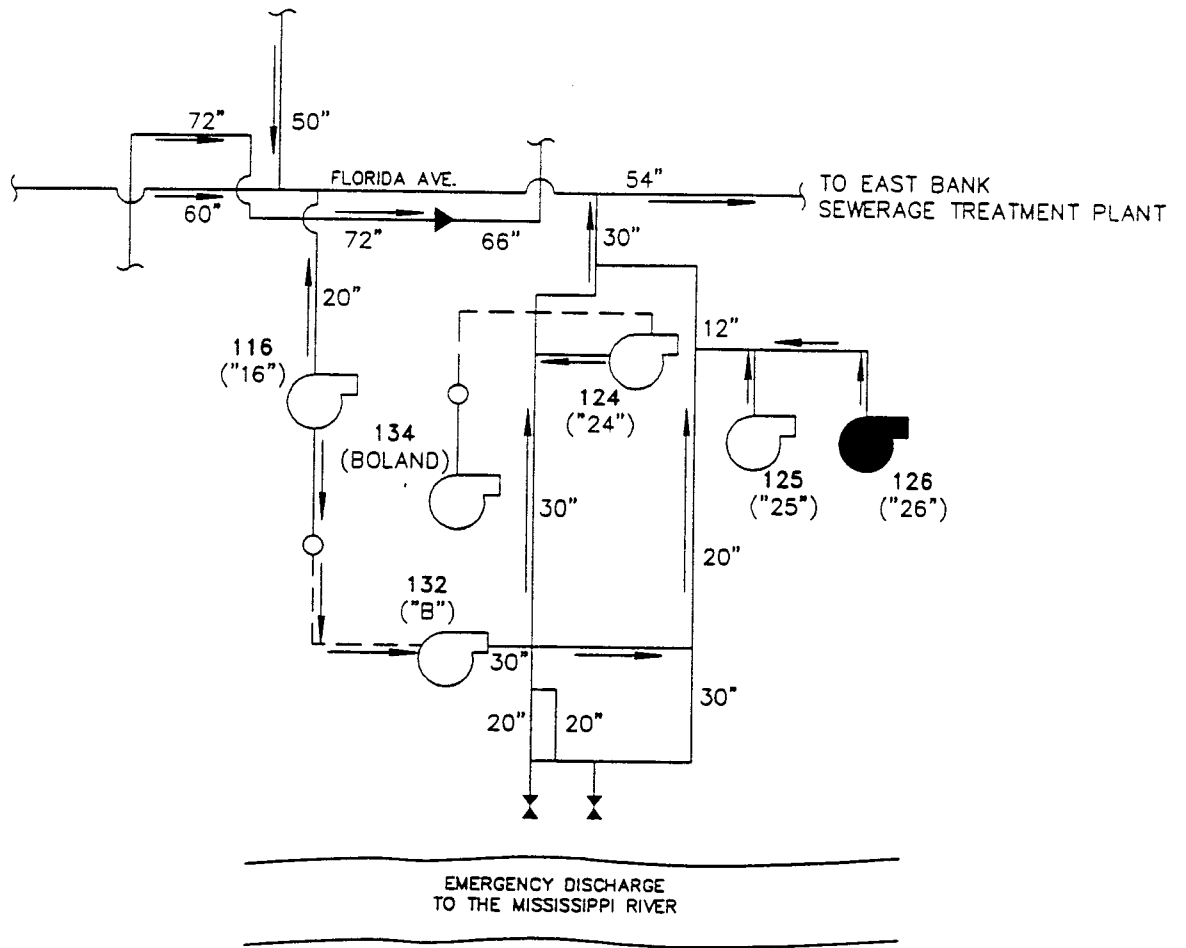
Pump Station 126 contains two (8-inch by 8-inch) Gorman-Rupp horizontally aligned pumps. Each pump is powered by a 75 horsepower (hp) Marathon Electric Motor operating at a constant speed of 1185 revolutions per minute (rpm). This equipment is housed in an 18.7 by 17.5-foot brick dry well structure. Figures 2 and 3 provide elevation and front views of the station.

Pump Station 126 collects wastewater from the surrounding gravity sewer system into a 19.8-foot deep brick wet well. The diameter of the wet well was measured as approximately 5 feet.

The Doppler Flow Meter was used to determine the capacity of Pump Station 126. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 1,700 gallons per minute (gpm) at 60 feet of head. The shut-off head for both pumps was found to be approximately 105 feet.

Recommendations:

1. An initial observation of the wet well suggests that the brick upper portion may need regrouting. The extent of the corrosion of the wet well should be further investigated and corrected in some locations.



	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 126
 JOB NO.: 1113030.01090120 DATE: 3/28/97

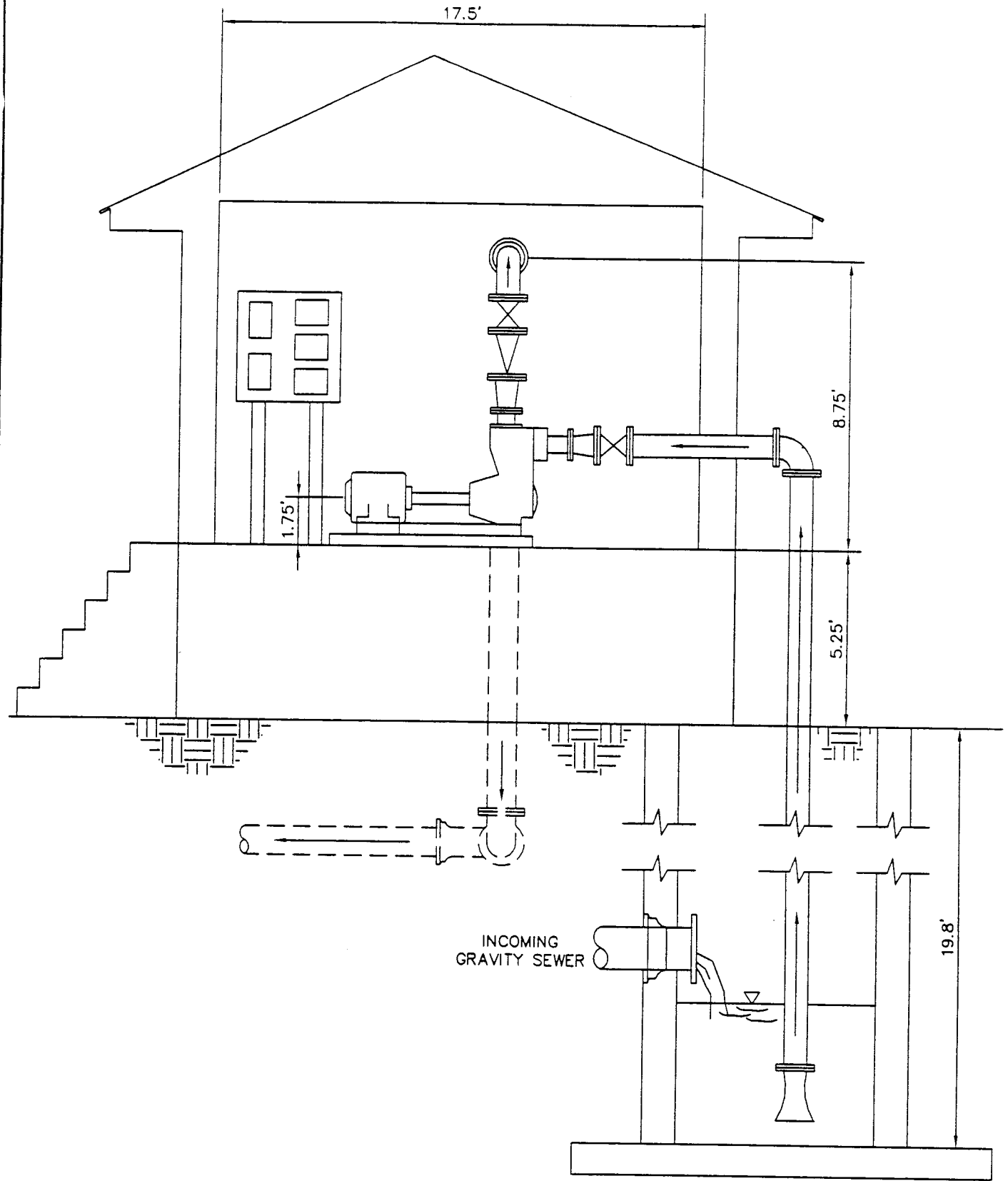


SEWERAGE AND WATER BOARD
 OF NEW ORLEANS

PUMP STATION 126 ("26")
 PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97

FILE NO.: 126 G JOB NO.: 1113030.01090120 DATE: 3/21/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

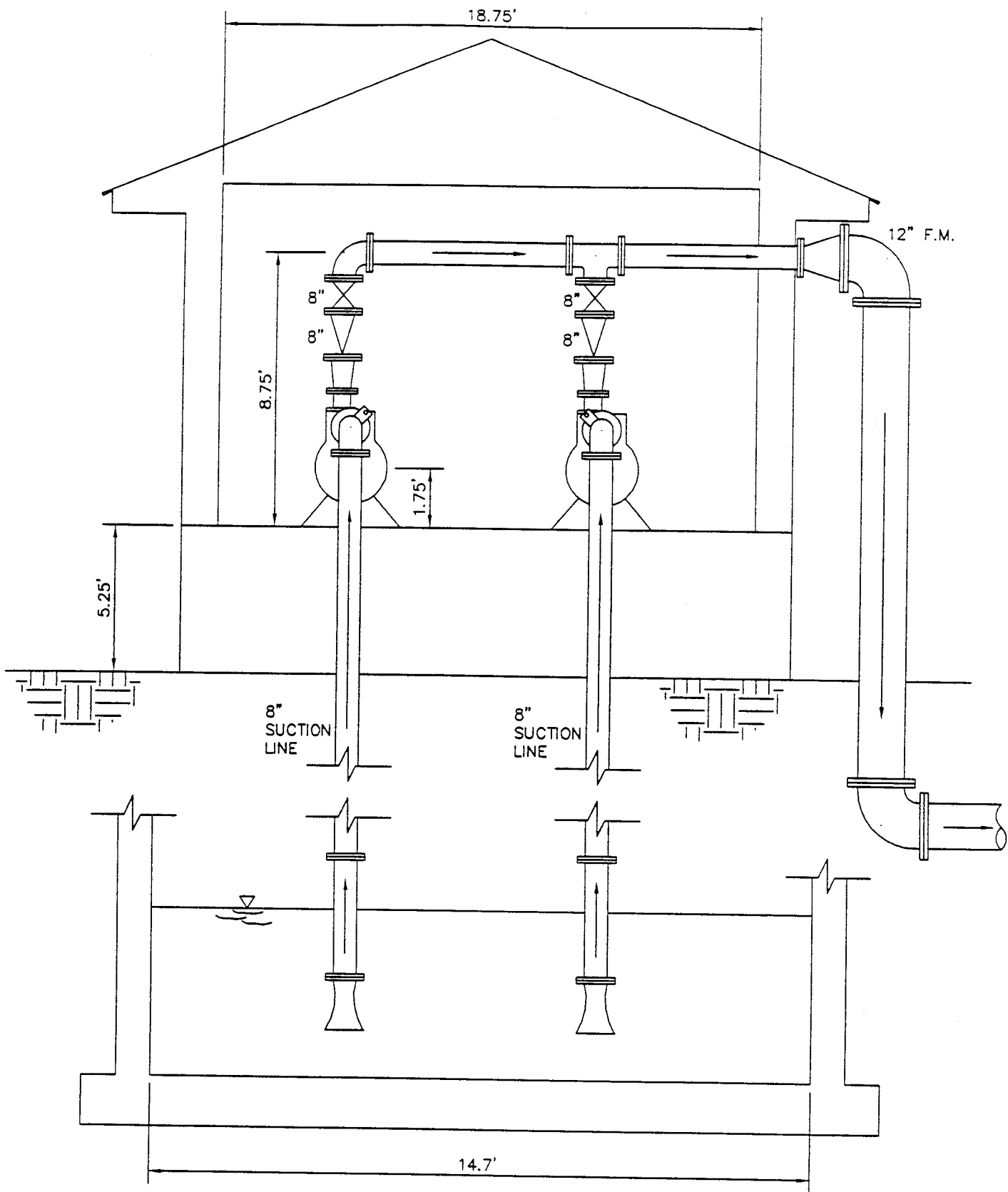
PUMP STATION 126 ("26")
WALK-IN SUCTION LIFT

FIGURE:

2

DATE:

3/21/97



FRONT VIEW
(NOT TO SCALE)

FILE NO.: 124 JOB NO.: 1113030.01090120 DATE: 3/21/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 126 ("26")
WALK-IN SUCTION LIFT

FIGURE:

3

DATE:

3/21/97

Pump Station: 126 (No. 26)

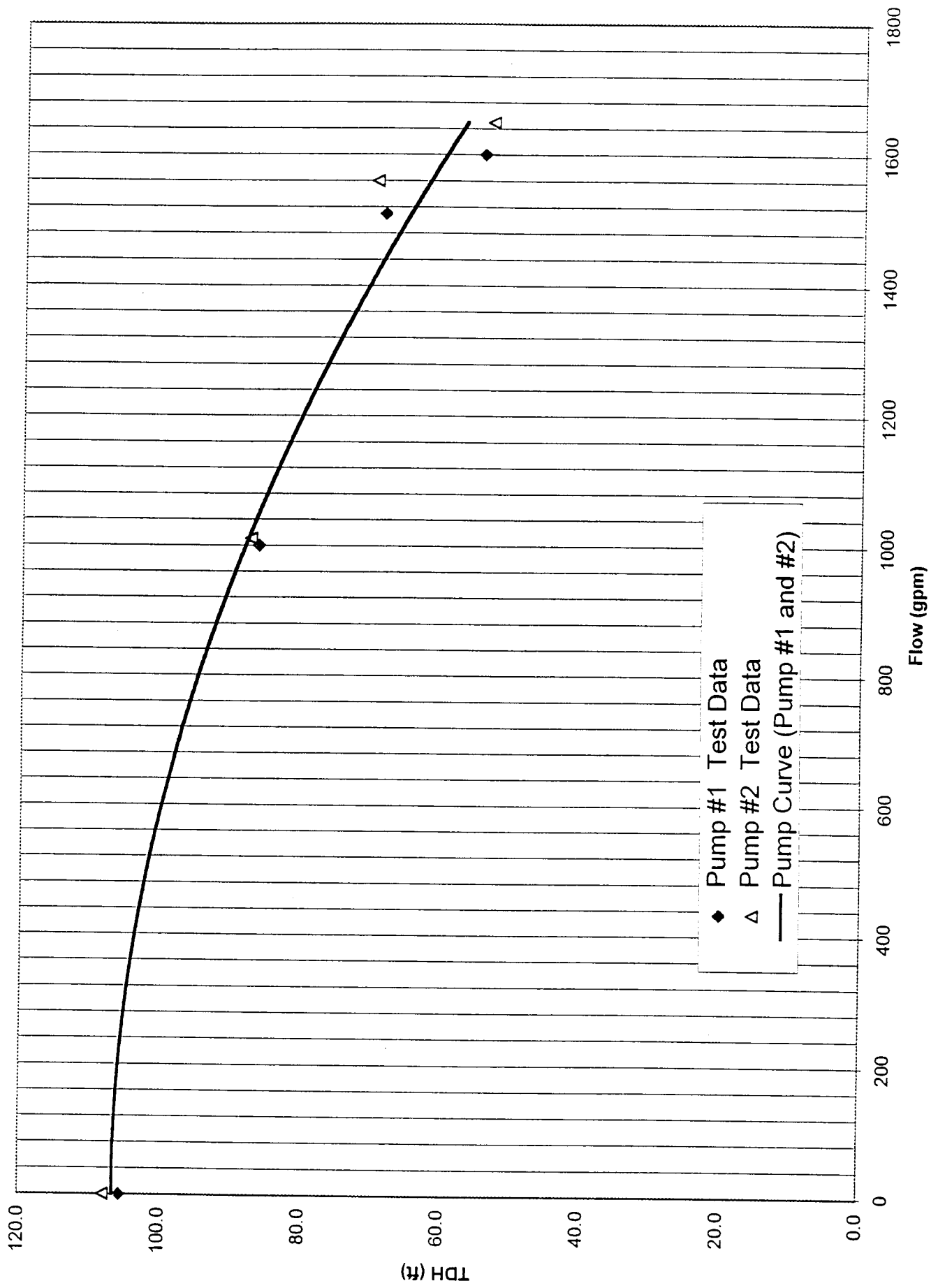


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 126

General Information

PS No. 126 PS Facility 26

Address 2244 Saint Maurice Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer G.R.

Impeller Diameter _____ inch

Model Number-Pump #1 T8A3-B Serial Number-Pump #1 1046485

Model Number-Pump #2 T8A3-B Serial Number-Pump #2 1046488

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size 0 inch Discharge Valve Size 8 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 8 inch

Dry Well Dimensions 0 ft. dia. Length 18.7 ft. Width: 17.5 ft. Depth 0 ft.

Pump centerline* 1.75 ft. Centerline of discharge pipe* 0 ft.

* measured from dry well bottom.

Notes: Could not determine the height of the centreline of the discharge pipe.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 126

Pump Controls

Lead pump on 12.5 ft. Type of Controls bubbler
Lead pump off 6.5 ft.
Lag pump on 13.5 ft.
Lag pump off 7.5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 19.8 ft.

Sewer Invert(s) Depth* 14.3 ft.

0 ft.

**measured from top of wet well cover.*

Pump Station 126 (26)

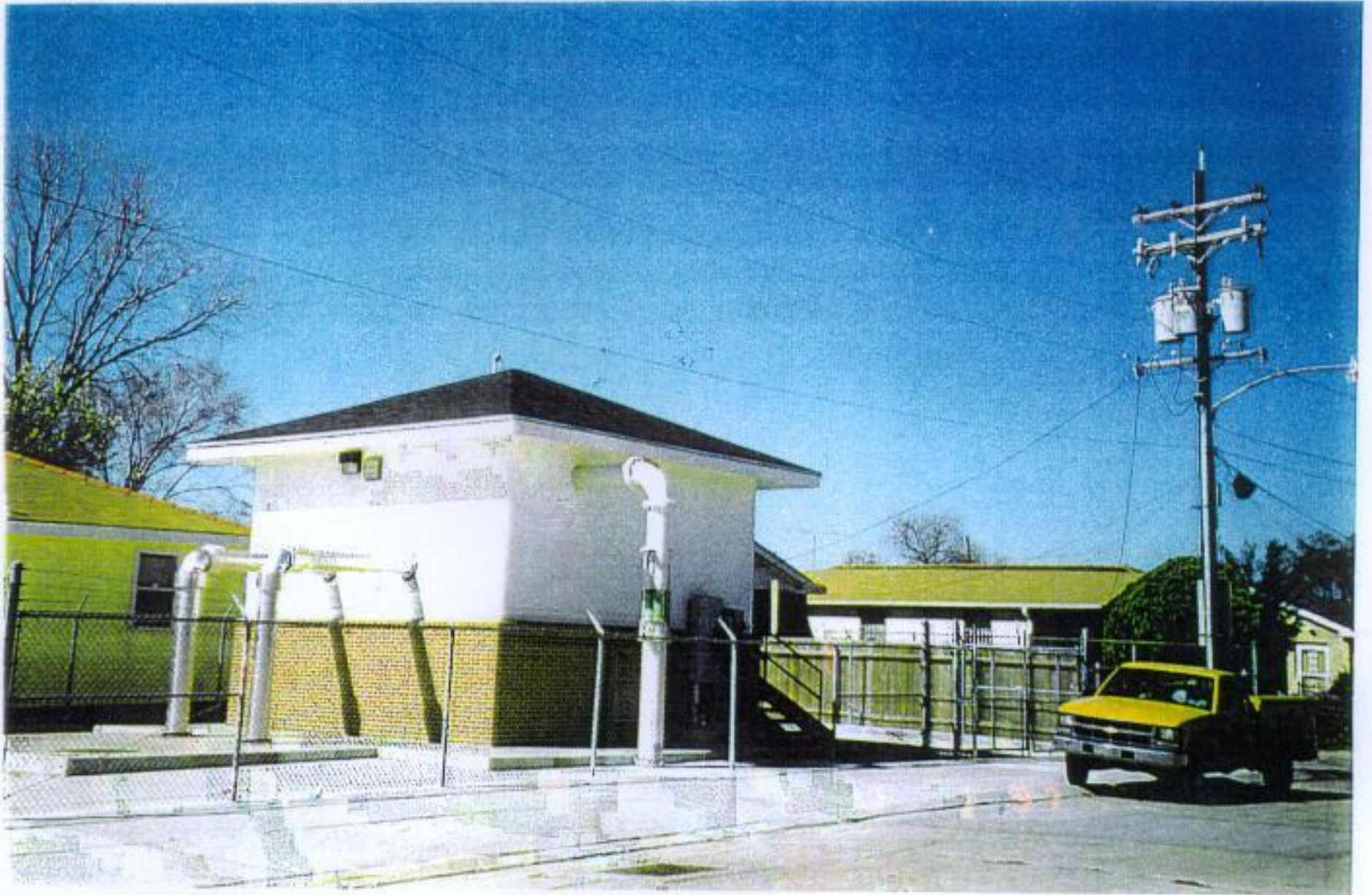


Photo Number 1

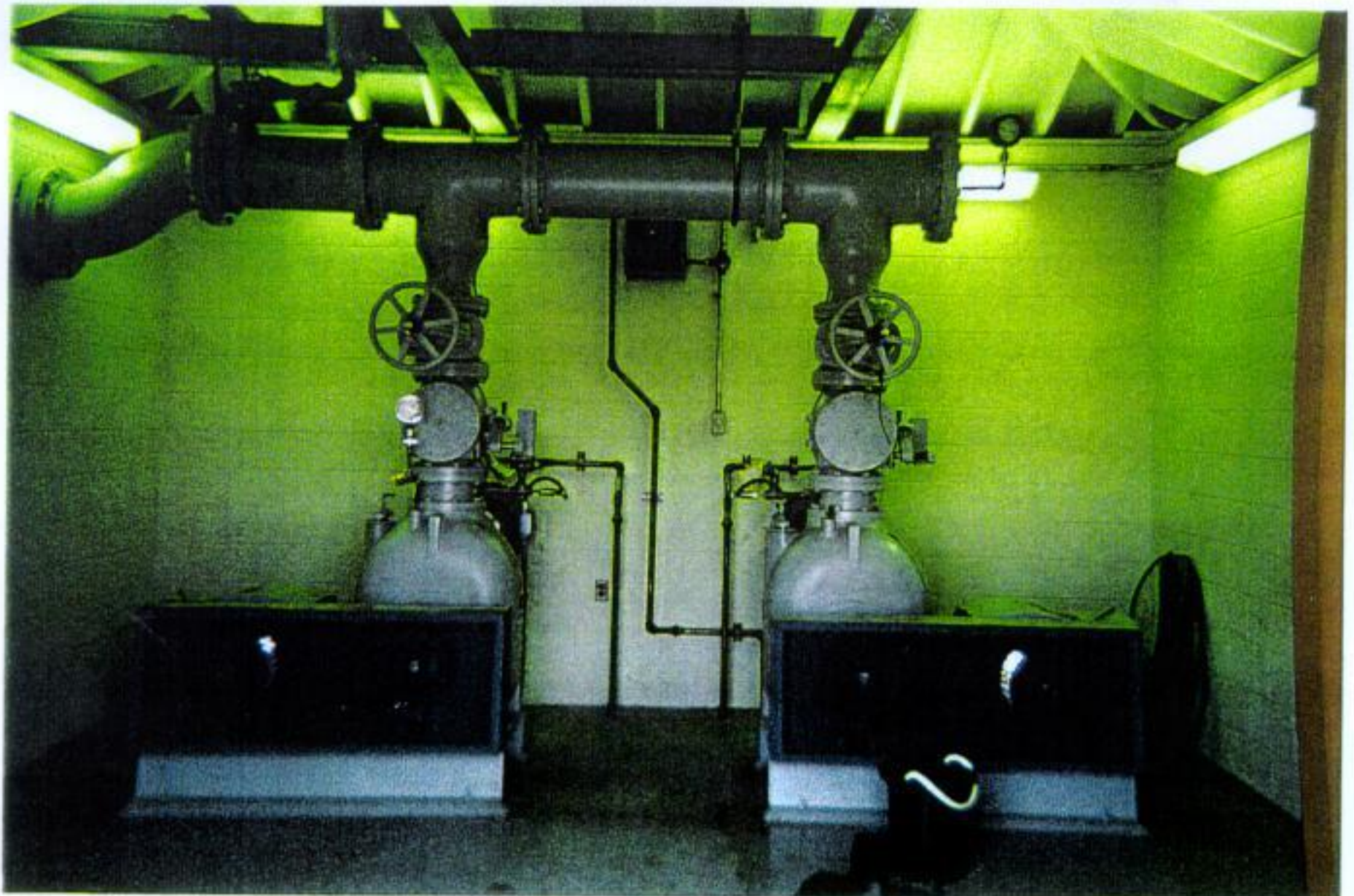


Photo Number 2

Pump Station 126 (26)



Photo Number 3



Photo Number 4

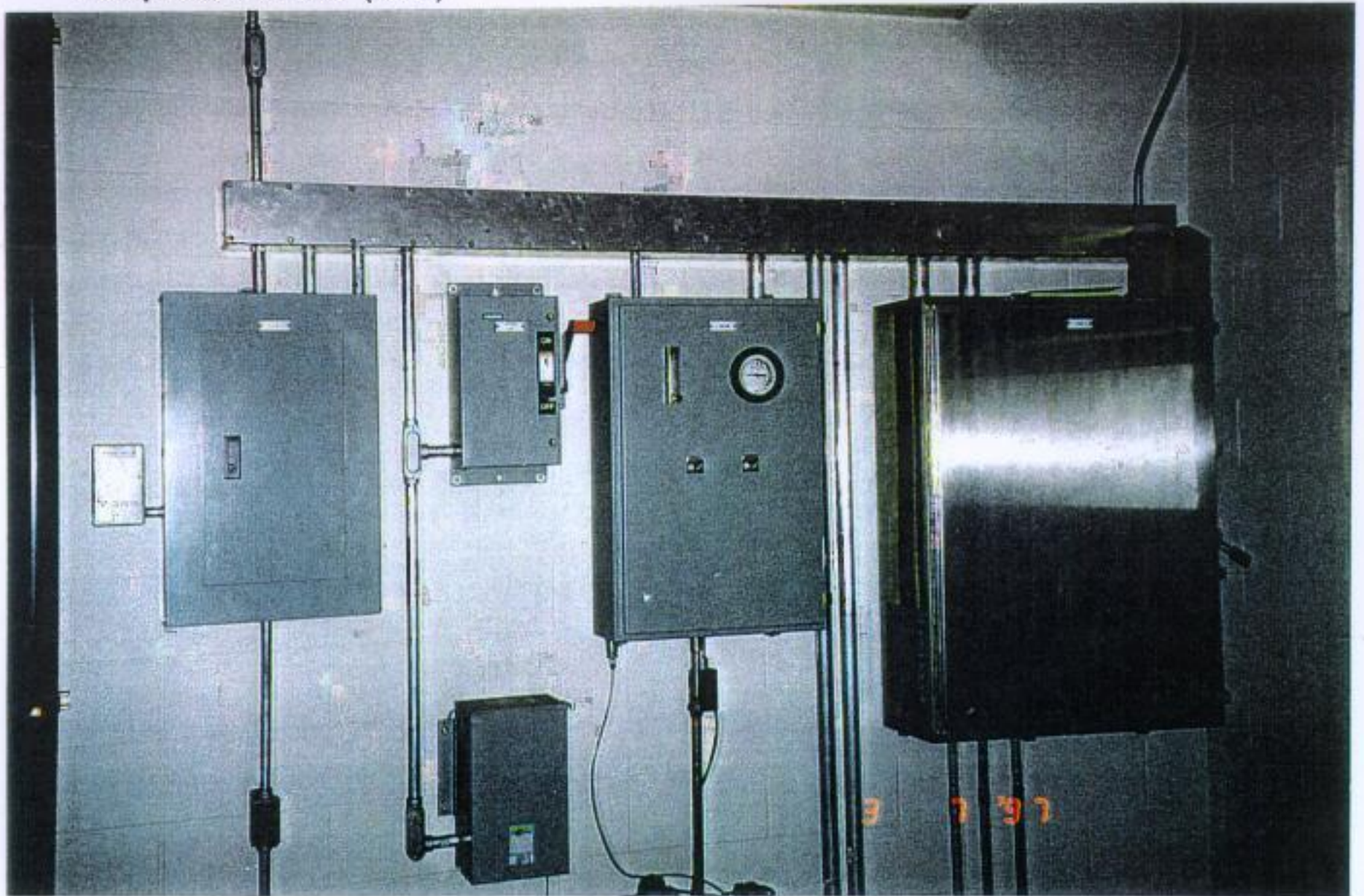


Photo Number 5

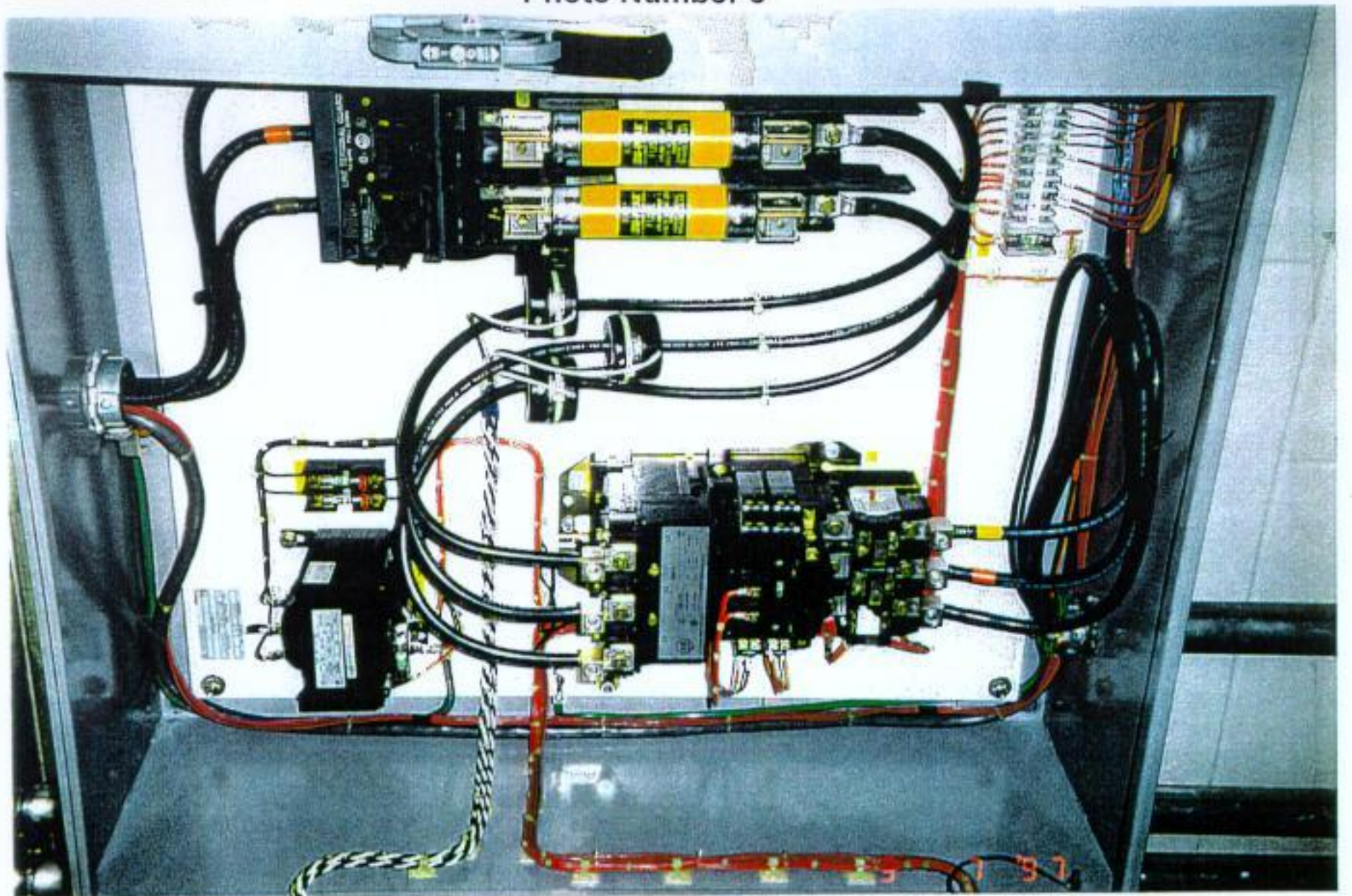


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 127 (SPS "A")
1321 ORLEANS AVENUE**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 127 (“A”)

Pump Station 127 is a regional above ground suction lift station located on 1321 Orleans Avenue. It discharges into the 72-inch force main that flows directly to the East Bank Wastewater Treatment Plant. In addition to pumping the wastewater collected from its large service area (Central Business District), pump Station 127 repumps flow from Pump Stations 101, 103, 105, 106, 108, 109, 114, and 115. Figure 1 shows the schematic subsystem surrounding Pump Station 127.

Pump Station 127 contains two vertically aligned pumps, shown in the background of photo numbers 1 and 2, and four (36-inch by 36-inch) horizontally aligned pumps. Each of the vertically aligned pumps are powered by a single speed 25 hertz motor rated at 1,250 horsepower (hp) at 300 revolutions per minute (rpm). There are two 60 hertz 13-speed motors rated at 2,300 hp at 295 rpm, each of which power two horizontally aligned pumps. This equipment is housed in a (174-foot by 54-foot) above ground structure. This station can be characterized as being in good condition.

Pump Station 127 collects wastewater from the surrounding gravity sewer system into a 28-foot diameter wet well having a depth of 26 feet.

The Doppler flow meter was utilized to determine flows at various discharge heads to develop the pump curves for the four horizontally aligned pumps, pump numbers 4 and 5 and pump numbers 6, and 7, as shown in Figures 2 and 3 respectively. Test data was only collected for the first 10 of the 13 speeds, which are the only speeds the motors are operated. Test data was not collected for the two vertically aligned pumps because they are operated only under emergency conditions such as power failures or during extremely severe storm events such as hurricanes. The approximate capacities of the combination of pump numbers 4 and 5 and the combination of pump numbers 6 and 7 are as follows:

Pump Numbers 4 and 5 - Combination

Speed	Flow	Head
1	35,000	46
2	38,000	54
3	42,000	58
4	45,000	62
5	48,000	66
6	52,000	72
7	55,000	76
8	60,000	82
9	61,000	88
10	64,000	98

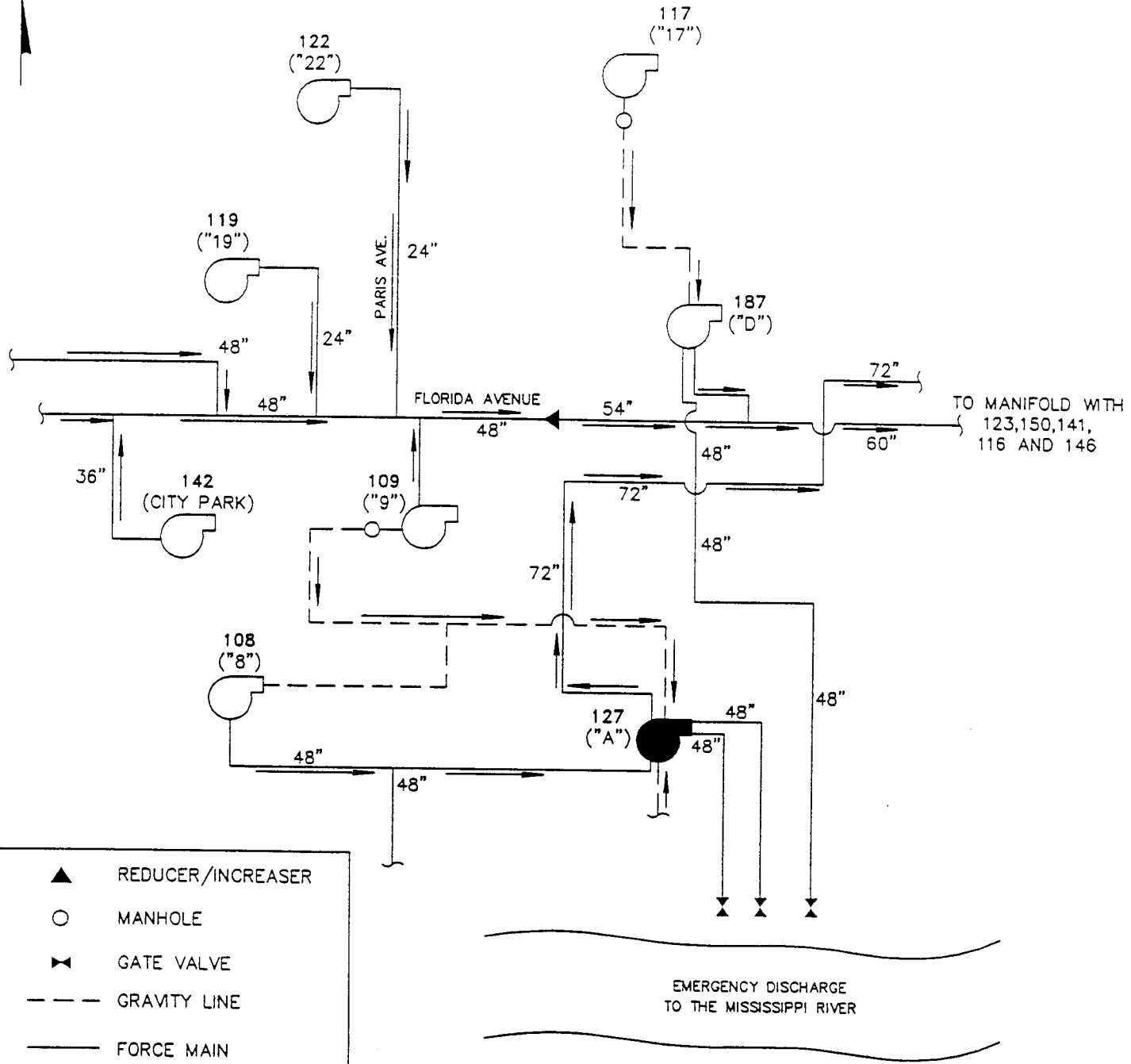
Pump Numbers 6 and 7 - Combination

Speed	Flow	Head
1	22,000	36
2	28,000	40
3	32,000	44
4	38,000	48
5	41,000	50
6	43,000	52
7	46,000	60
8	48,000	62
9	52,000	68
10	53,000	76

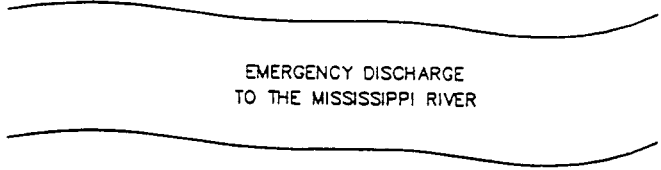
Either pumps 4 and 5 or pumps 6 and 7 are operated at one time.

Recommendations:

1. According to the Sewer and Water Board, during heavy rainfall events, the pump discharge check valves close. Pump Station 127 pumps directly to the East Bank Wastewater Treatment Plant through a 72-inch diameter force main, which manifolds with no other pump station. The plant may be partially closing the valve near the discharge of this force main to decrease flow to the plant, due to limited plant capacity, which would increase pressure in the force main. If this pressure reaches the shut off pressure of the pumps, pumping of wastewater would cease and closure of the discharge check valves would occur. Station 127 is a major regional pump station which pumps the wastewater flow collected from a large area (the Central Business District). In addition, it repumps the flow from seven pump stations. Due to Pump Station 127 being such a large and vital pump station, a detailed capacity analysis should to performed to determine the adequacy of its capacity, and the cause of the increased discharge force main pressure should be further investigated and corrected as necessary.
2. The condition of the electro-mechanical speed controller is poor due to corrosion and sparking. The extent of the corrosion and cause of sparking of the controller should be further investigated and corrected.



	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EBSTP EAST BANK SEWERAGE TREATMENT PLANT



NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 127 JOB NO.: 1113030.01090120 DATE: 3/28/97



**SEWERAGE AND WATER BOARD
OF NEW ORLEANS**

PUMP STATION 127 (SPS 'A')
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1

DATE:
3/28/97

Pump Station: 127 ("A")

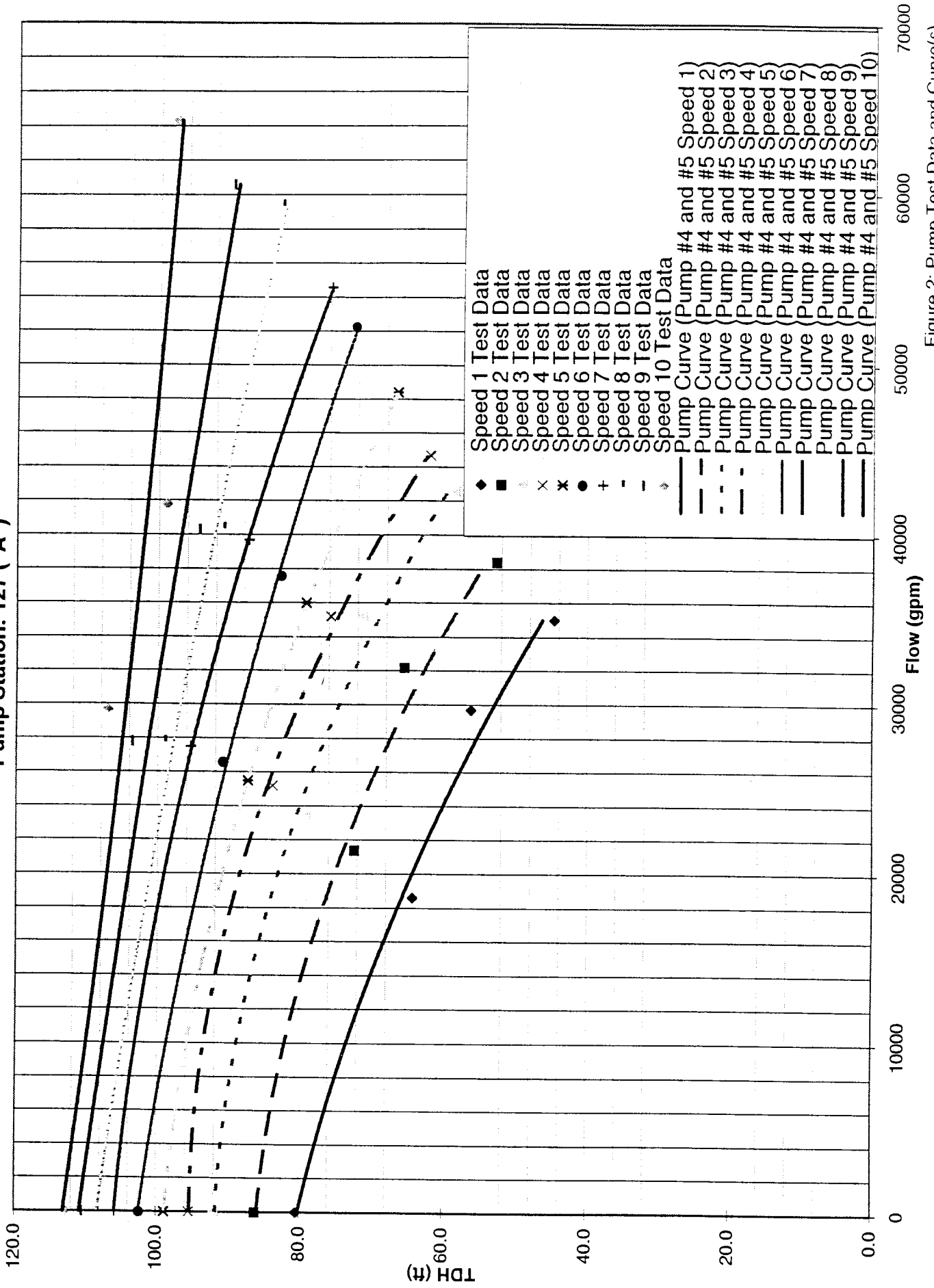


Figure 2: Pump Test Data and Curve(s)

Pump Station Name: 127 ("A")

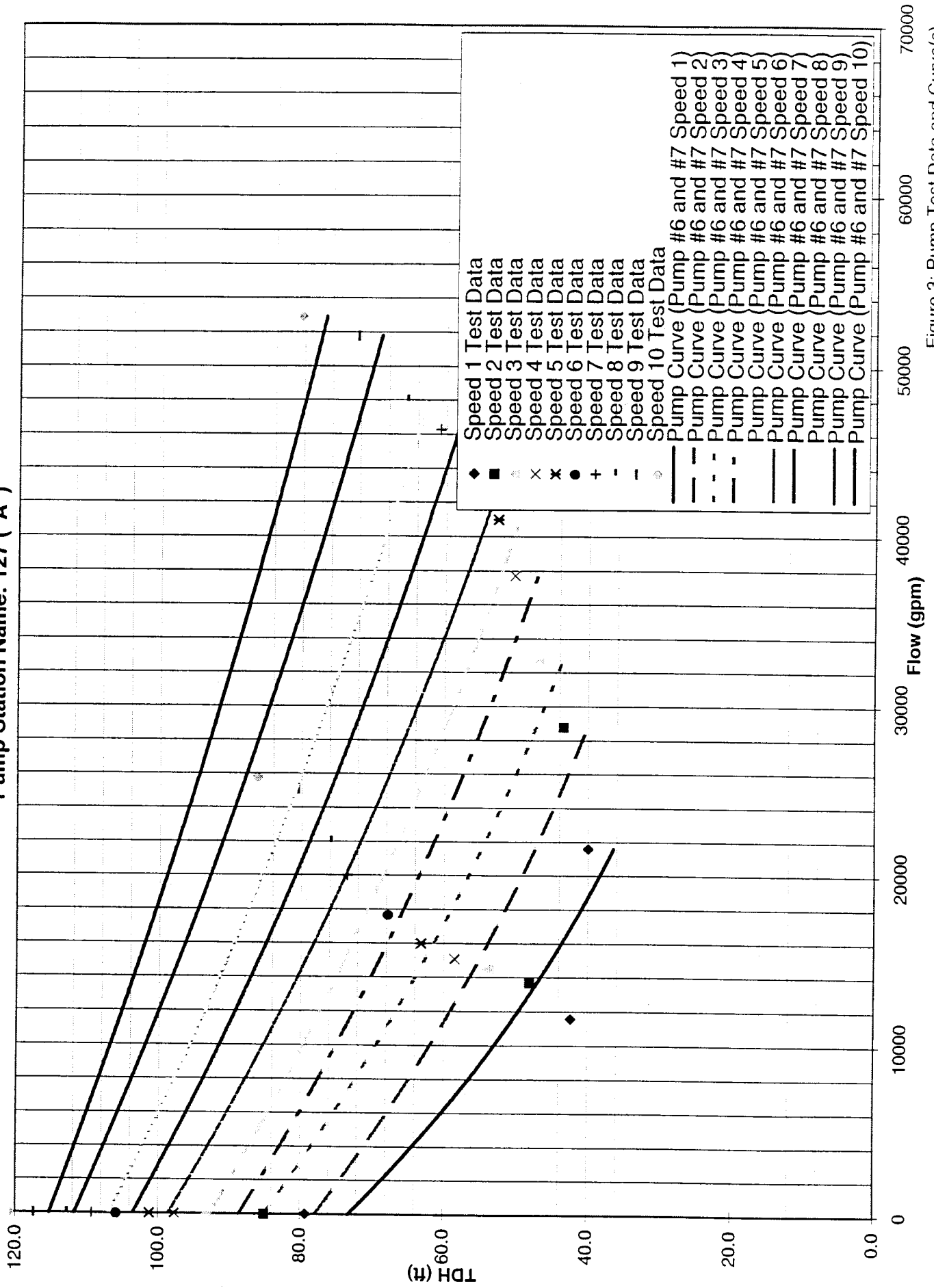


Figure 3: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 127

General Information

PS No. 127 PS Facility SPS "A"

Address 1321 Orleans Avenue

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 6 Pump Manufacturer not available

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 36 inch Pump Discharge 36 inch FM Diameter 48 inch

Suction Valve Size 0 inch Discharge Valve Size 36 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 36 inch

Dry Well Dimensions 0 ft. dia. Length 54 ft. Width: 174 ft. Depth 0 ft.

Pump centerline* 4 ft. Centerline of discharge pipe* 8 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? both

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 127

Pump Controls

Lead pump on 0 ft. Type of Controls _____

Lead pump off 0 ft.

Lag pump on 0 ft.

Lag pump off 0 ft.

Notes: Manual controls 13 speeds but only run to speed 10 (max).

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Could not access.

Diameter 28 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 26 ft.

Sewer Invert(s) Depth* 0 ft.

 0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 127

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Double Ended, Normal & Alternate Source

Type of service 4160V three phase, medium voltage

Size of service protective device Not Available

Size of main protective device Circuit Breaker

Size of motor protective device Circuit Breaker

Service wire size Not Available Size of motor starter in NEMA Not Available

Motor wire size Parallel of 2-250 Motor Horsepower 2-2300 & 2-1250

Number of motors 4 Motor Speed 2300-Multiple & 1250-

Speed(s) in rpm 13 of 295rpm for 2300Hp & 1 of 300rpm for 1250HP

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Comments The physical condition of the motors, motor controller, protective device and control panel is fair. The physical condition of the electro-mechanical speed controller contactor is poor due to corrosion and spark marks in the contactor. The electrical control does not have a phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The motor is connected to

Pump Station 127 (SPS "A")

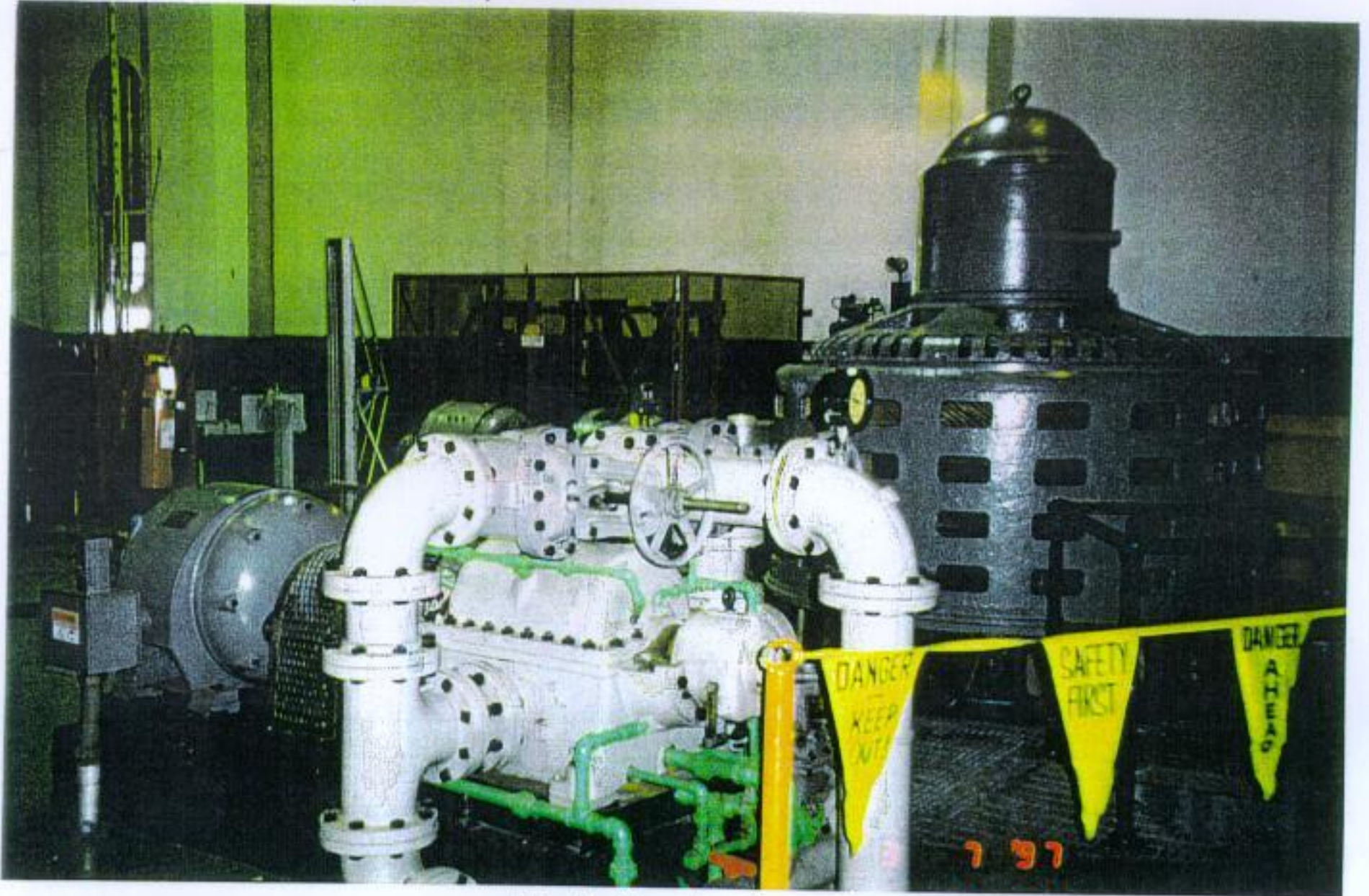


Photo Number 1

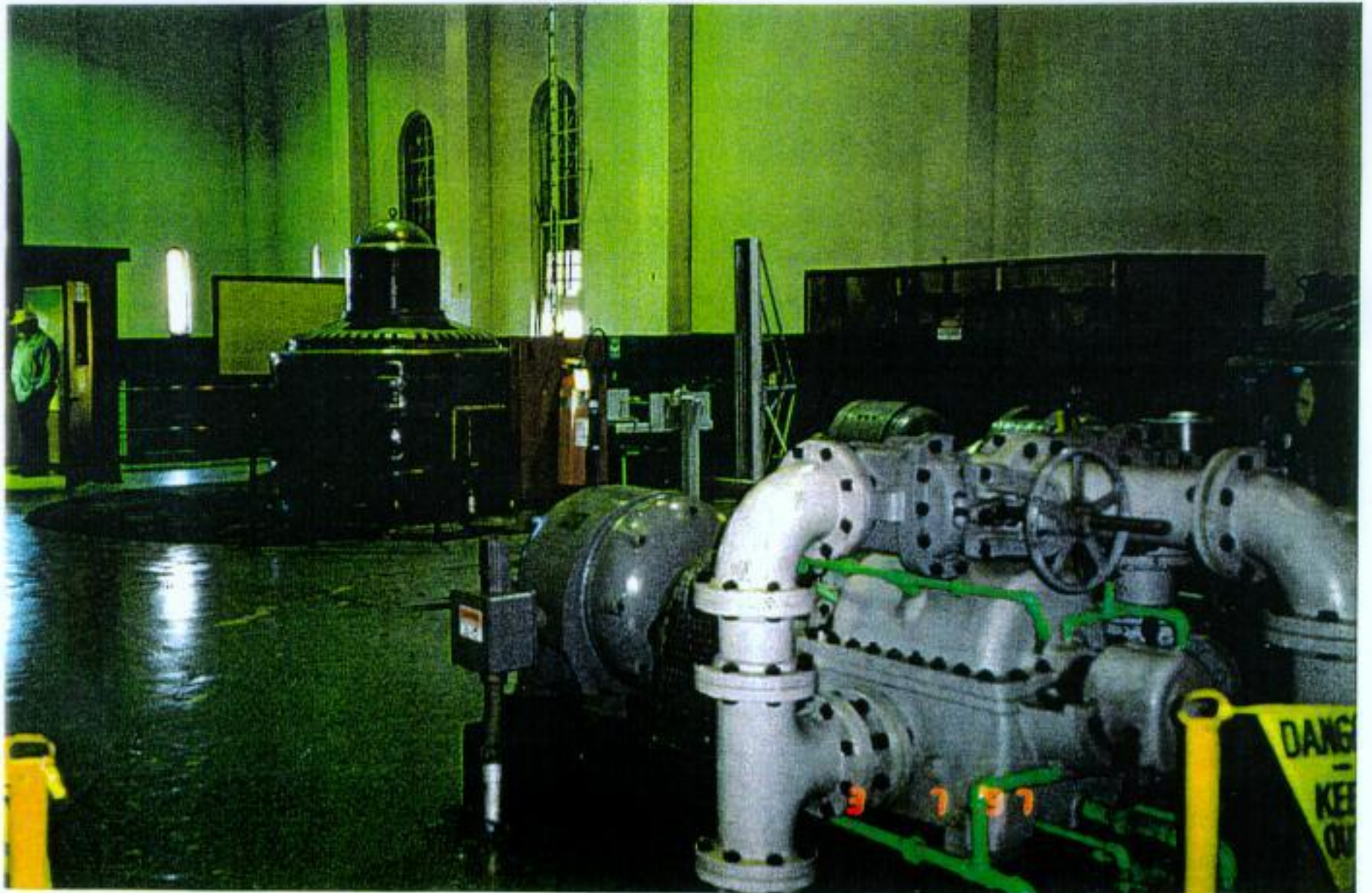


Photo Number 2

Pump Station 127 (SPS "A")



Photo Number 3

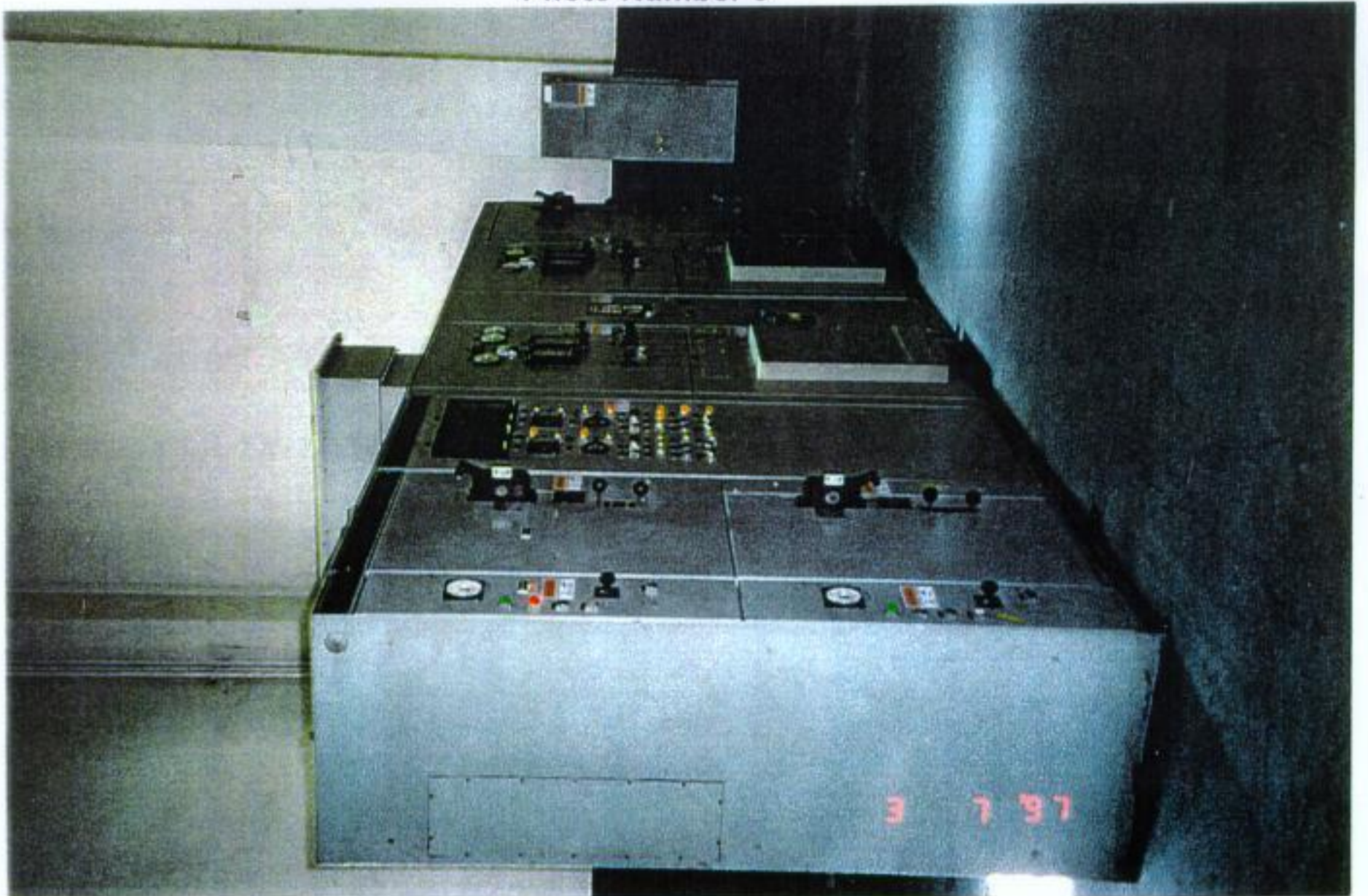


Photo Number 4

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 128 (ALCEE FORTIER)
ALCEE FORTIER AT LEVEE**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 128 (Alcee Fortier)

Pump Station 128 is an underground suction-lift station located on Alcee Fortier Boulevard near the levee. Wastewater discharges the station via a 10-inch diameter force main for approximately 2000 feet where it begins gravity flow and is repumped by Pump Station 135 (Boulevard "X"). Pump Station 128 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 128.

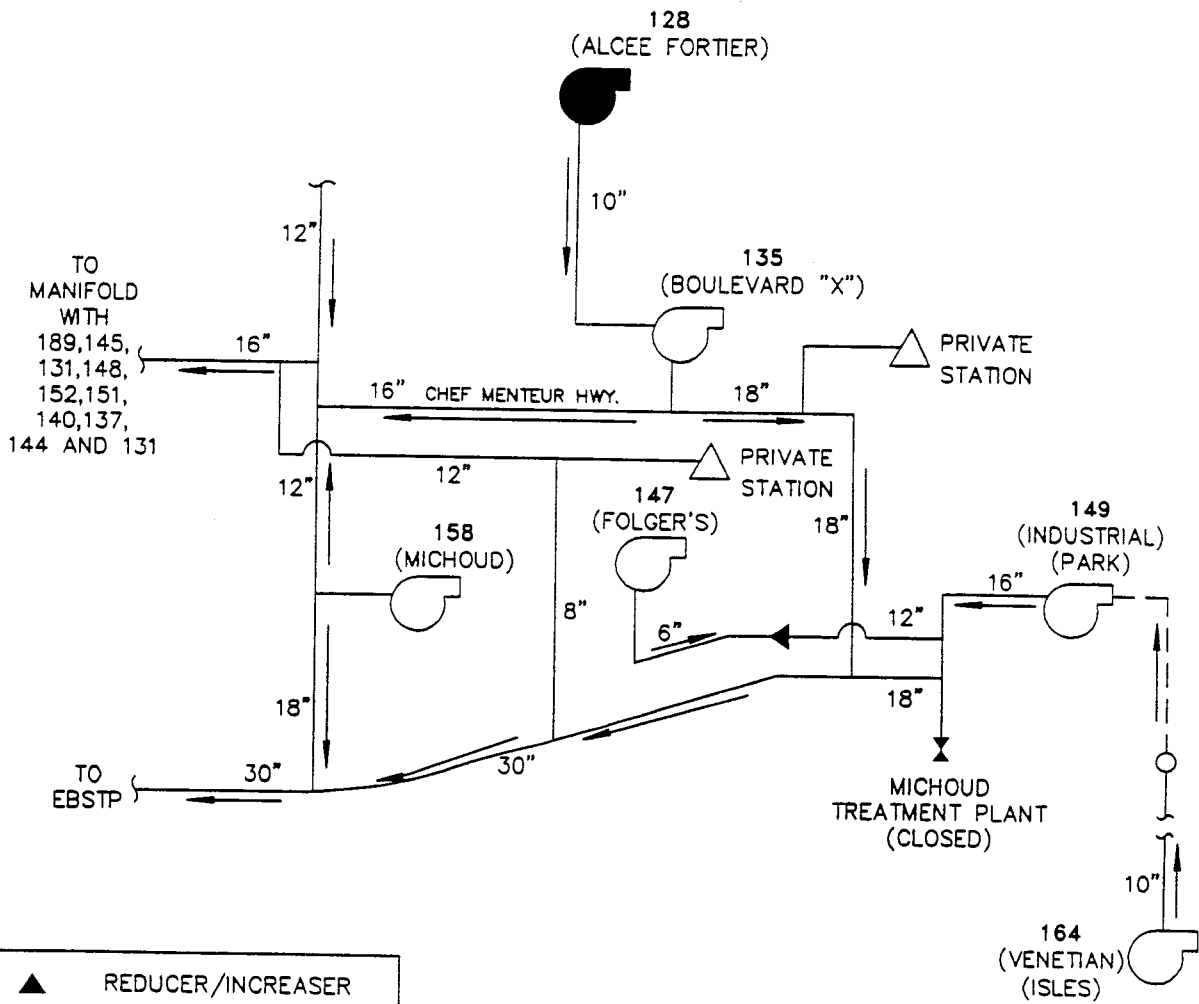
Pump Station 128 contains two (8-inch by 8-inch) Gorman Rupp horizontally aligned pumps. Each pump is powered by a 30 horsepower (hp) Marathon Electric motor operating at a speed of 1170 revolutions per minute (rpm). This equipment is housed in a 9.2-foot by 18.3-foot reinforced concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 11.8 feet. Figures 2 and 3 provide front and elevation views of the station. The overall condition of the station is fair although there is isolated corrosion located around the pumps as seen in the attached photos.

Pump Station 128 collects wastewater from the surrounding gravity sewer system into a 23.5-foot deep concrete wet well. The cross sectional area of the wet well is circular with estimated 6-foot diameter. The concrete aggregate and steel reinforcing is exposed throughout the interior surface of the wet well suggesting a corrosion problem.

The capacity of the pumps at this station should be similar to other operable Gorman Rupp suction-lift pumps. Figure 4 shows a reproduction of the manufacturer's pump curve, which is the assumed pump curve for Pump Station 128.

Recommendations:

1. An initial observation of the wet well suggests that corrosion is occurring. The extent of the damage should be further investigated and corrected as necessary.



	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EBSTP EAST BANK SEWERAGE TREATMENT PLANT

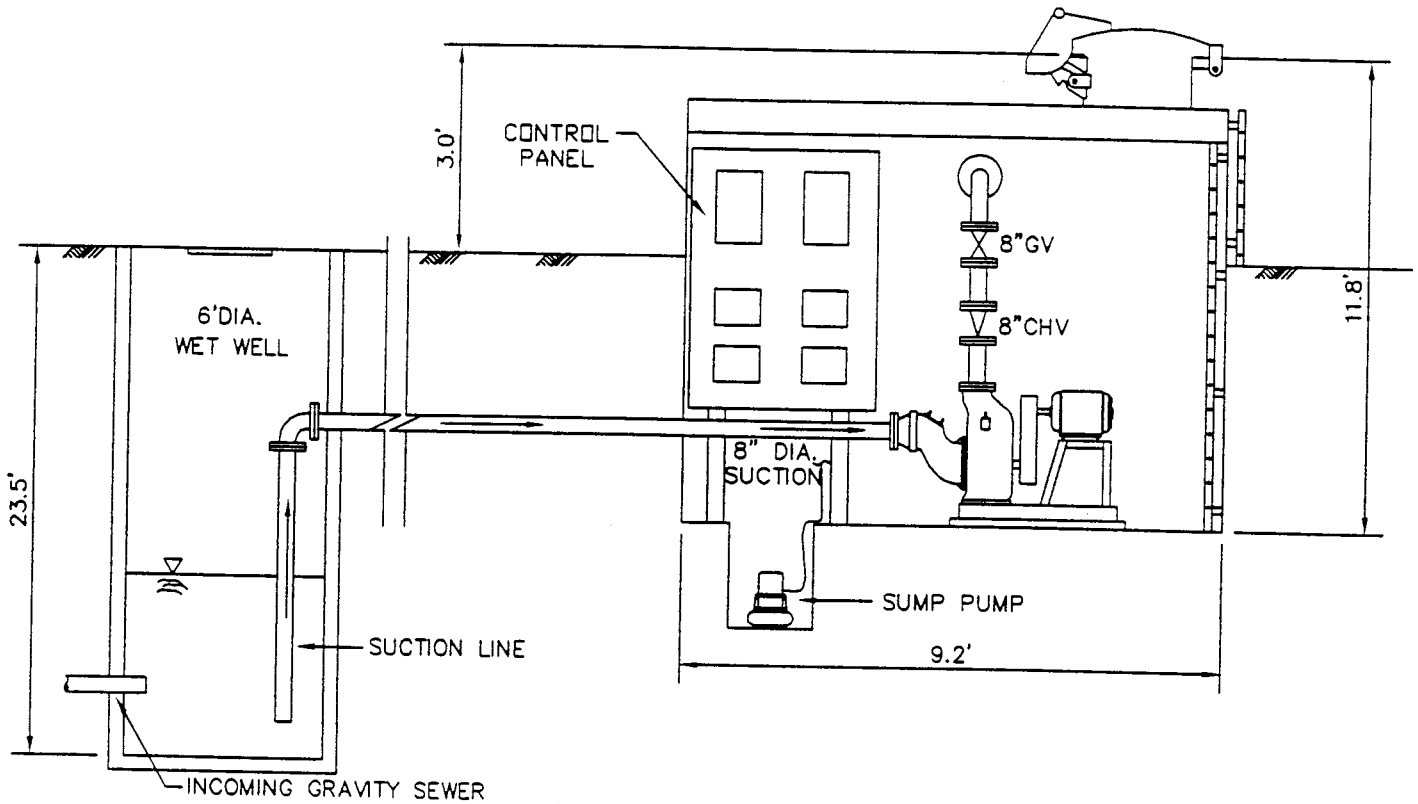
NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 12 JOB NO.: 1113030.01090120 DATE: 3/28/97

	SEWERAGE AND WATER BOARD OF NEW ORLEANS
	MONTGOMERY WATSON

PUMP STATION 128 (ALCEE FORTIER)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97



ELEVATION
(NOT TO SCALE)

FILE NO.: 12L AC JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 128 (ALCEE FORTIER)
SUCTION LIFT

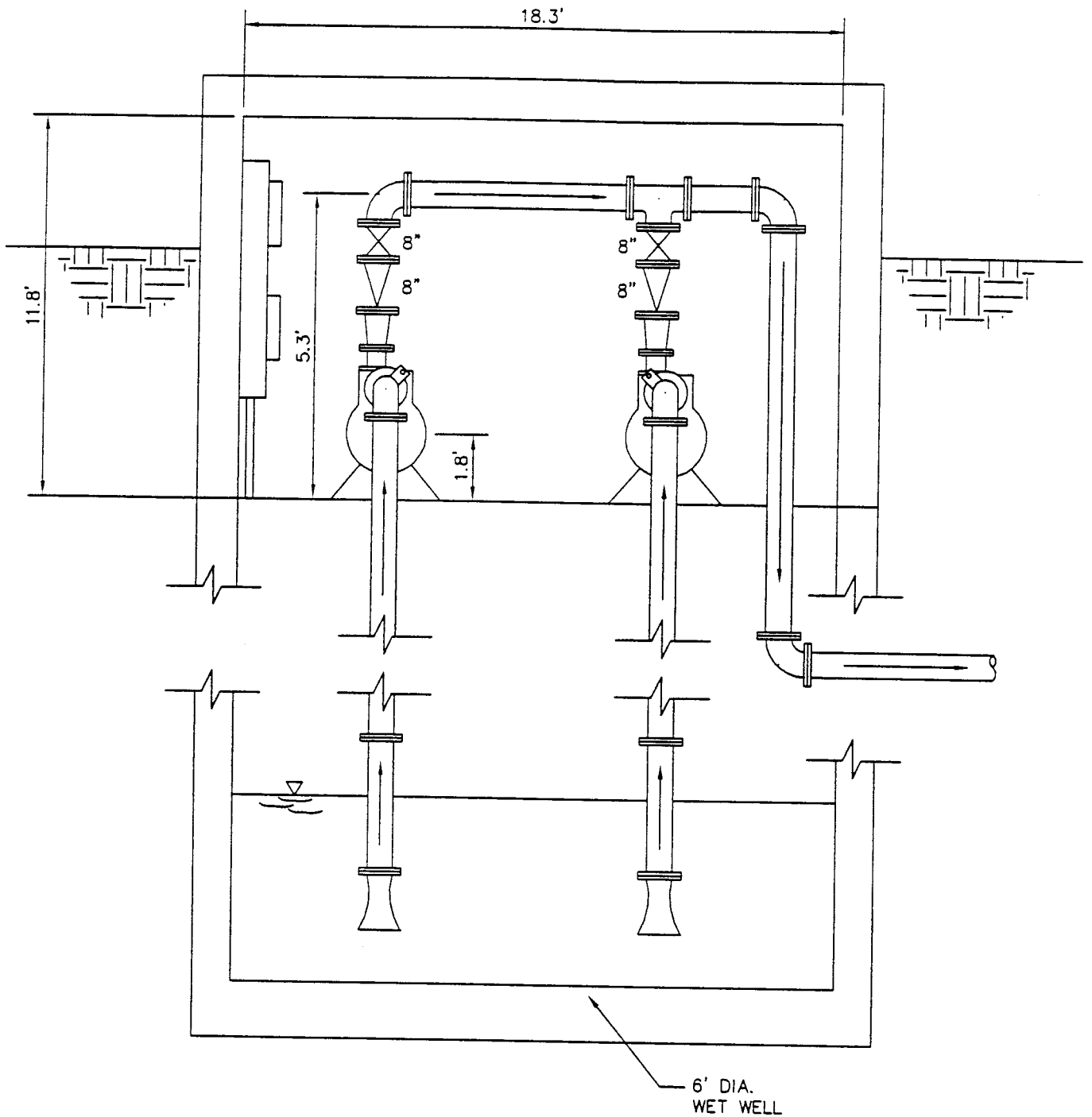
FIGURE:

2

DATE:

3/28/97

FILE NO.: 126 JOB NO.: 1113030.01090120 DATE: 3/28/97



FRONT VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 128 (ALCEE FORTIER)
SUCTION LIFT

FIGURE:

3

DATE:

3/28/97

Pump Station: 128 (Alcee Fortier)

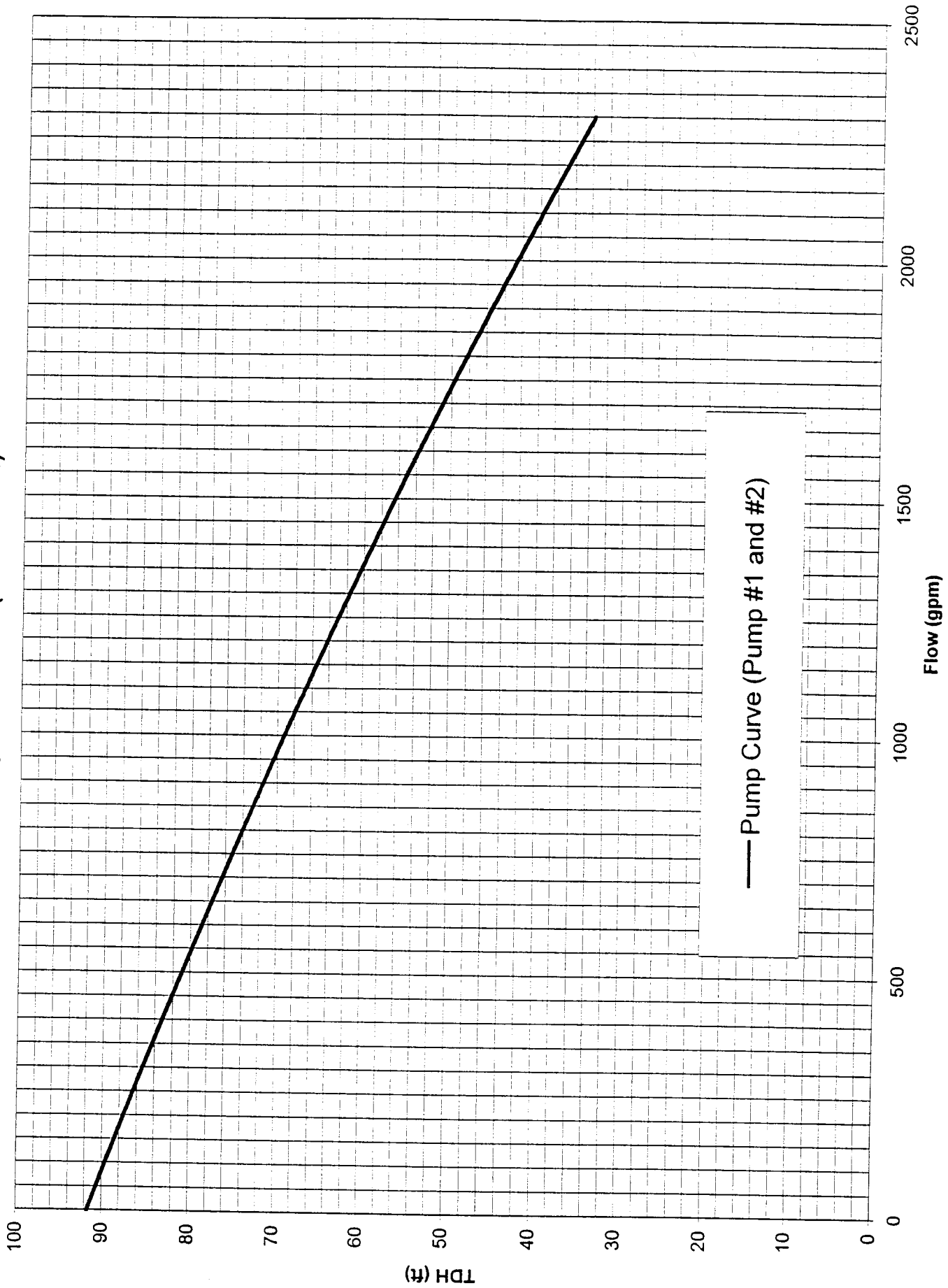


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 128

General Information

PS No. 128 PS Facility Alcee Fortier Address Alcee Fortier at Levee

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes Suction Lift (below ground)

Pump Information

Number of Pumps 2 Pump Manufacturer Gorman-Rupp

Impeller Diameter _____ inch

Model Number-Pump #1 T8A3-B Serial Number-Pump #1 427710

Model Number-Pump #2 T8A3-B Serial Number-Pump #2 427711

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating _____ gpm _____ ft. of head _____ rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 10 inch

Suction Valve Size _____ inch Discharge Valve Size 8 inch

Suction Valve Type _____ Discharge Valve Type gate

Check Valve Size 8 inch

Dry Well Dimensions 0 ft. dia. Length 9.2 ft. Width: 18.3 ft. Depth 11.8 ft.

Pump centerline* 1.8 ft. Centerline of discharge pipe* 5.3 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 128

Pump Controls

Lead pump on 8 ft. Type of Controls bubbler
Lead pump off 3.5 ft.
Lag pump on 9 ft.
Lag pump off 3.5 ft.

Notes: Subtract 1.5' from gage reading to obtain correct elevation.

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair except for isolated corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 6 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 23.5 ft.

Sewer Invert(s) Depth* 19 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 128

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source not available

Type of service not available

Size of service protective device not available

Size of main protective device 225 amps, dual element, fusible disconnect switch

Size of motor protective device 100 amps, dual element, fusible disconnect switch

Service wire size # 4/0 AWG Size of motor starter in NEMA 4

Motor wire size # 1 AWG Motor Horsepower 30

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1170

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # 6E326TTDR7076BC Serial Number - Motor # 558417

Model Number - Motor # 6E326TTDR&076BC Serial Number - Motor # 558418

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, main disconnect switch and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alteration, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The pump station has

Pump Station 128 (Alcee Fortier)



Photo Number 1



Photo Number 2

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 129 (AMERICA)
6789 DWYER ROAD

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 129 (America)

Pump Station 129 is a bi-level suction lift station located on 6789 Dwyer Road. The pump station discharges to a 30-inch force main along Dwyer Road via 12-inch and 16-inch force mains. Pump Station 129 does not repump flow from any other station and its flow is not repumped by any other station. Figure 1 shows the schematic of the subsystem surrounding Pump Station 129.

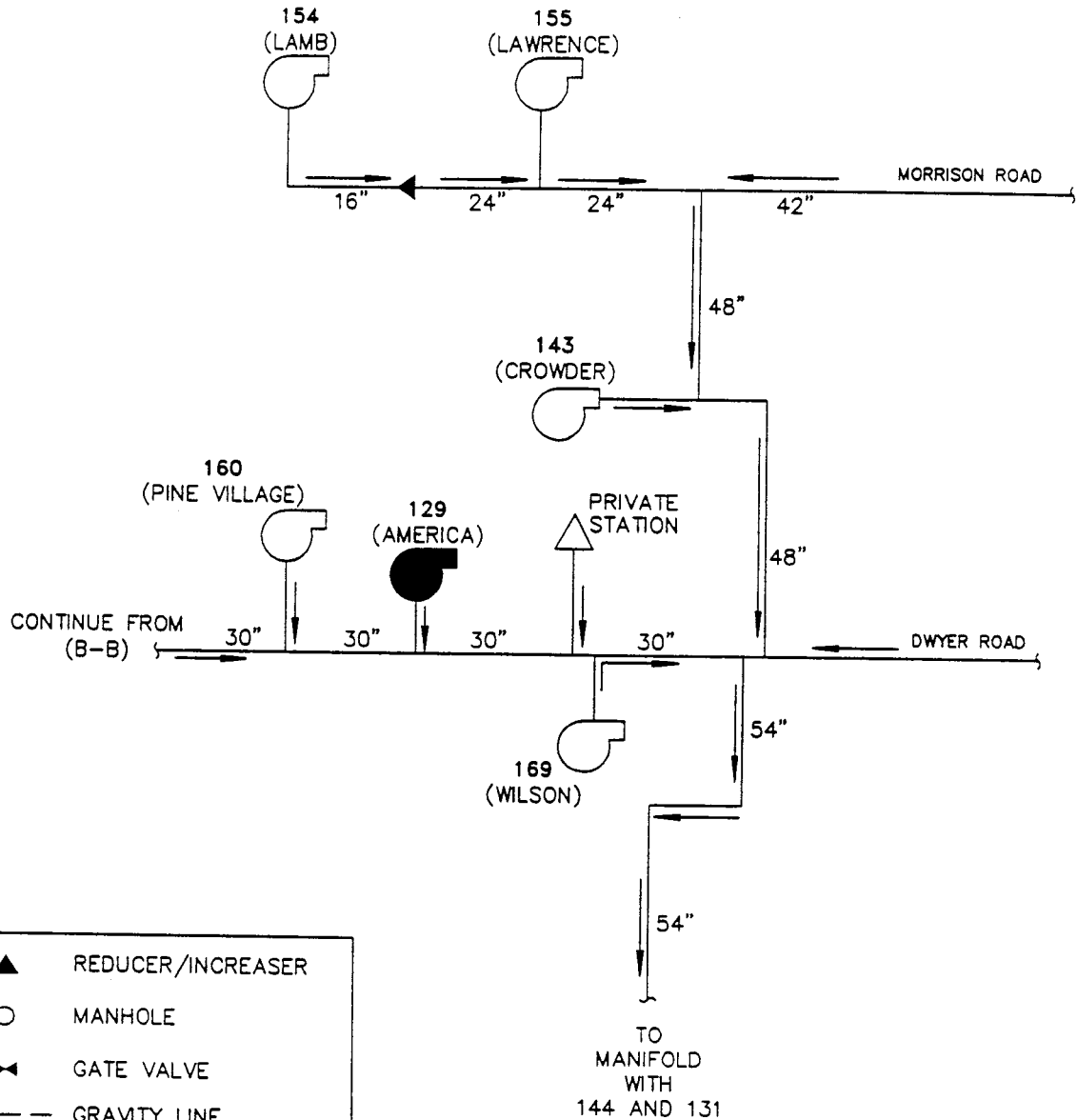
Pump Station 129 contains two (8-inch by 8-inch) Fairbanks Morse horizontally aligned pumps. Each pump is powered by a 60 horsepower (hp) General Electric motor operating at a constant speed of 1,770 revolutions per minute (rpm). This equipment is housed in a 12.3 by 11-foot brick dry well structure, which is partially below grade. The depth below grade of the pump room section of the dry well is 7.4 feet. Figures 2 and 3 provide elevation and front views of the station.

Pump Station 129 collects wastewater from the surrounding gravity sewer system into a 13.5-foot deep brick wet well. The diameter of the wet well was measured to be approximately 5 feet.

The Doppler Flow Meter was used to determine the capacity of Pump Station 129. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 3,650 gallons per minute (gpm) at 45 feet of head. The shut-off head for both pumps was found to be approximately 87 feet.

Recommendations:

1. An initial observation of the wet well suggests that the brick upper portion may need regrouting. The extent of the damage of the wet well should be further investigated and corrected as required.



- ▲ REDUCER/INCREASER
- MANHOLE
- ⋈ GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- ◐ PUMP STATION
- ◑ REF. PUMP STATION
- EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 125 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 129 (AMERICA)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

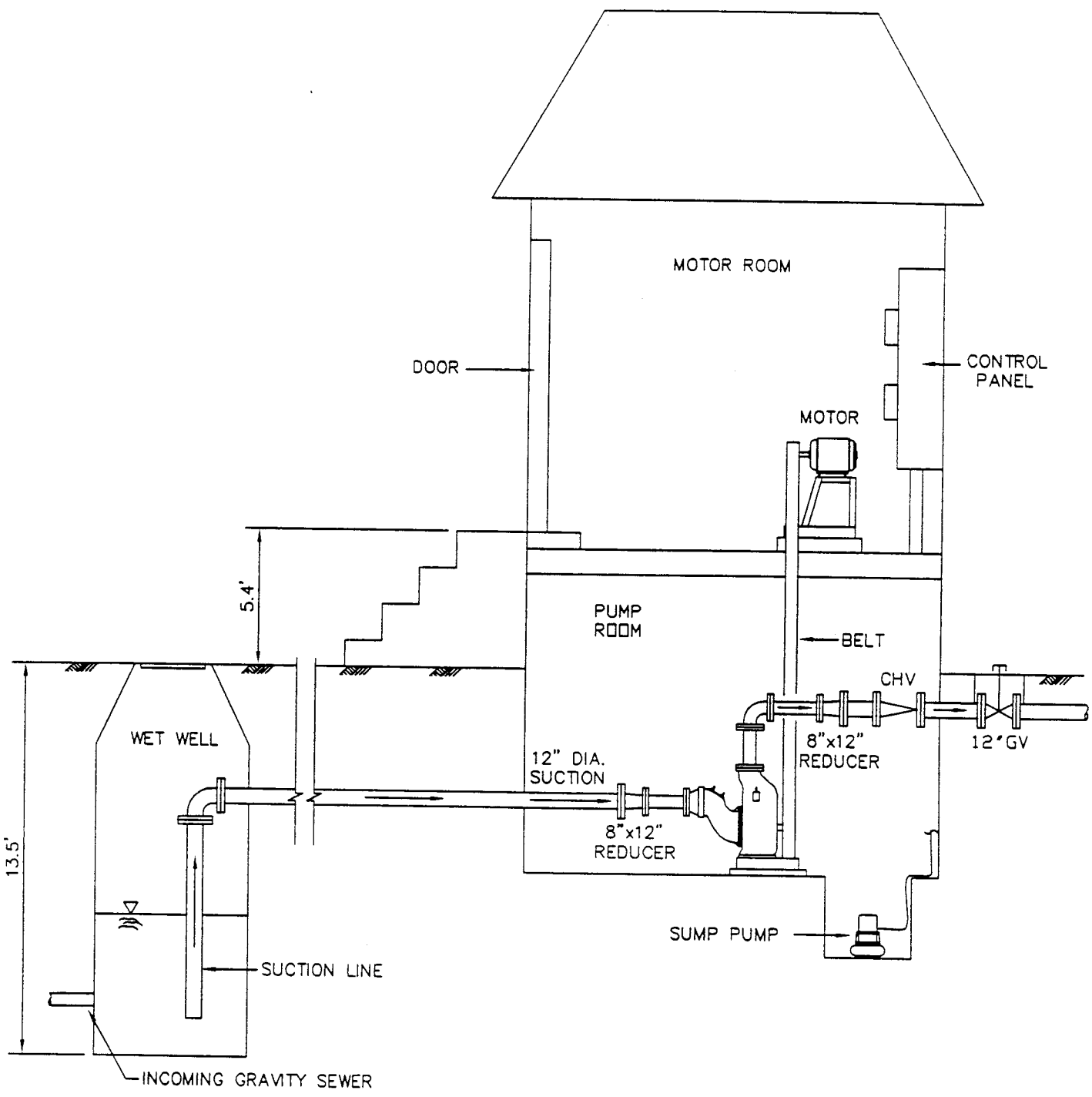
FIGURE:

1

DATE:

3/28/97

FILE NO.: 129 JOB NO.: 1113030.01090120 DATE: 3/21/97



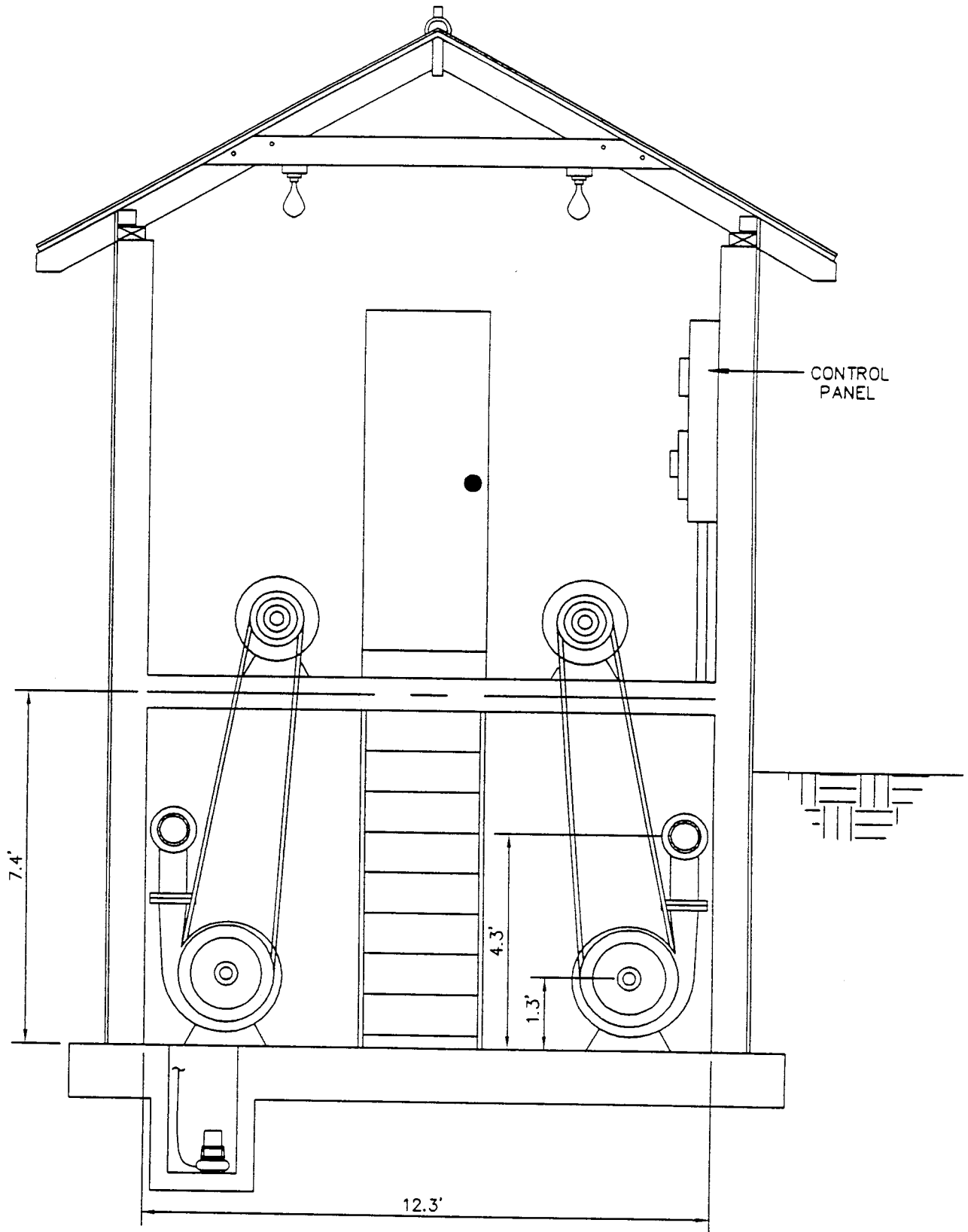
ELEVATION
(NOT TO SCALE)



PUMP STATION 129 (AMERICA)
BI-LEVEL SUCTION LIFT

FIGURE:	2
DATE:	3/21/97

FILE NO.: 129 G JOB NO.: 1113030.01090120 DATE: 3/21/97



FRONT VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 129 (AMERICA)
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/21/97

Pump Station: 129 (America)

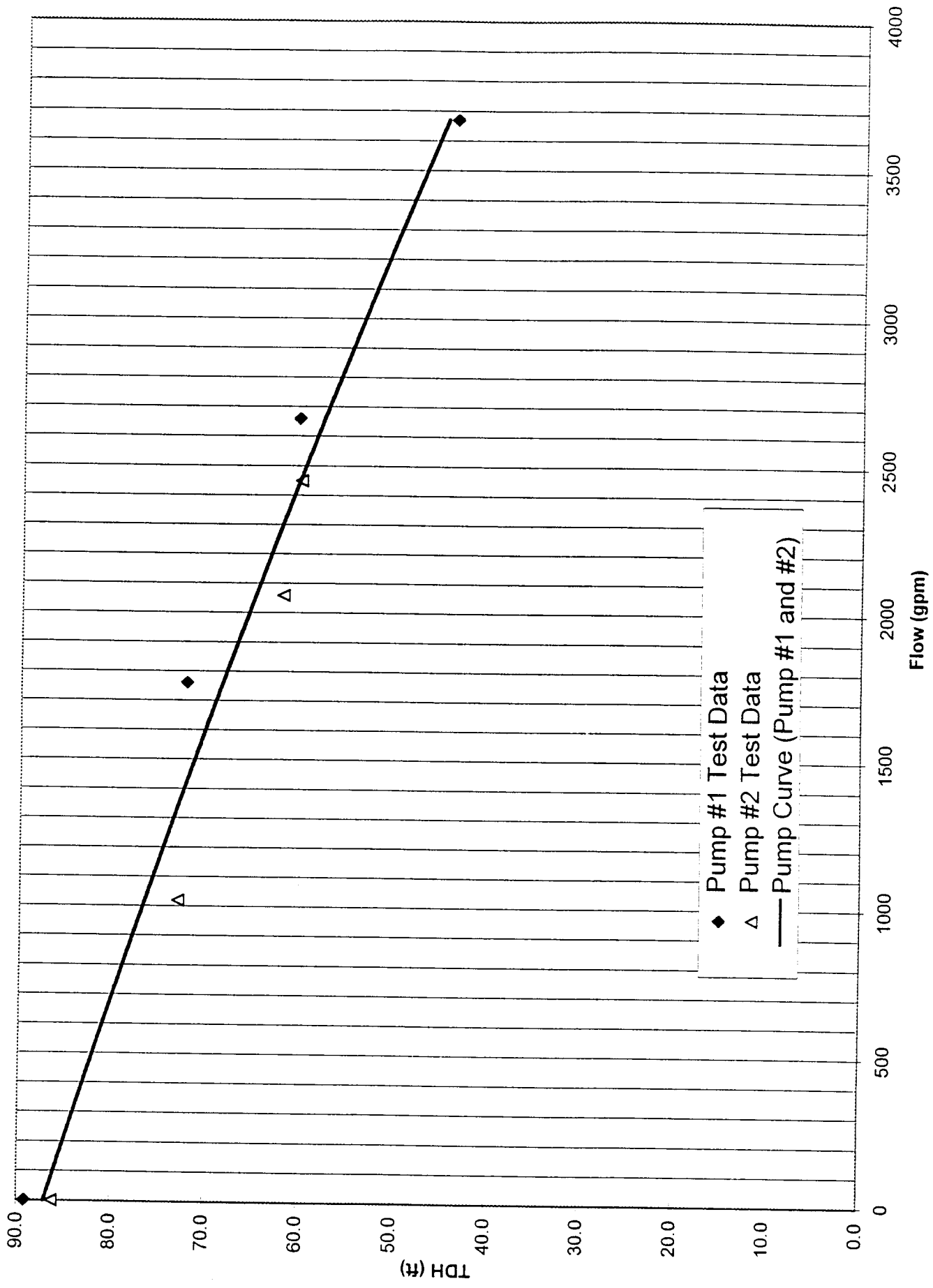


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 129

General Information

PS No. 129 PS Facility America

Address 6789 Dwyer Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter _____ inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating _____ gpm _____ ft. of head _____ rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size 0 inch Discharge Valve Size 12 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 12 inch

Dry Well Dimensions 0 ft. dia. Length 12.3 ft. Width: 11 ft. Depth 7.4 ft.

Pump centerline* 1.3 ft. Centerline of discharge pipe* 4.3 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? pumps # 1 & 2

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 129

Pump Controls

Lead pump on 6 ft. Type of Controls bubbler
Lead pump off 1 ft.
Lag pump on 7 ft.
Lag pump off 1 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair except for areas of patchy paint and dampness occurring around the pipe

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Lower brick cement coating. Upper brick needs regrouting.

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 13.5 ft.

Sewer Invert(s) Depth* 12.5 ft.
0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 129

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service _____

Size of service protective device _____

Size of main protective device 250

Size of motor protective device 100

Service wire size 250 kcmil Size of motor starter in NEMA 4

Motor wire size #4 AWG Motor Horsepower 60

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1170

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # 5K4404A22 Serial Number - Motor # ZV513023

Model Number - Motor # 5K4404A22 Serial Number - Motor # XV433044

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, main disconnect switch and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alteration, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 129 (America)



Photo Number 1

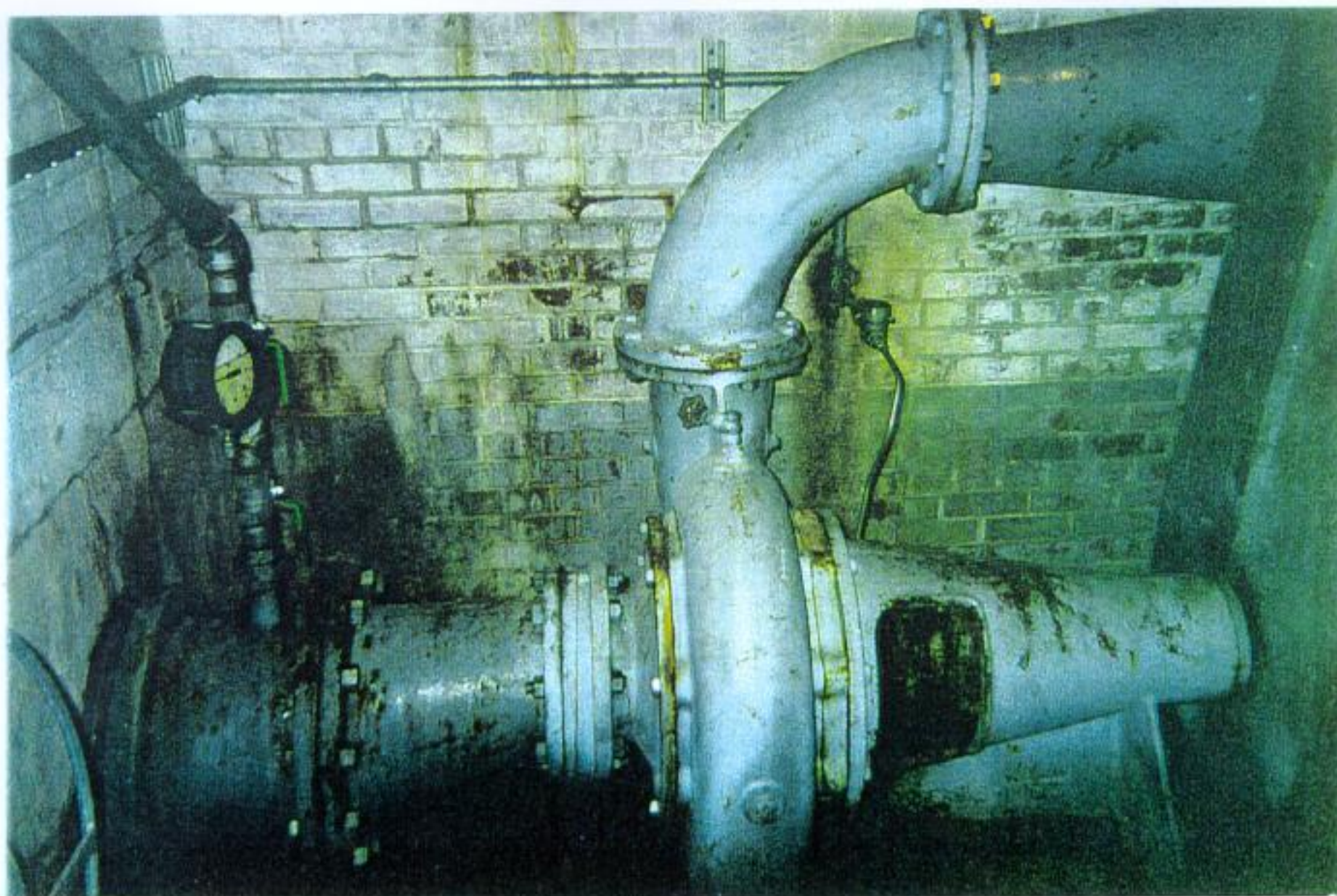


Photo Number 2

Pump Station 129 (America)



Photo Number 3



Photo Number 4

Pump Station 129 (America)

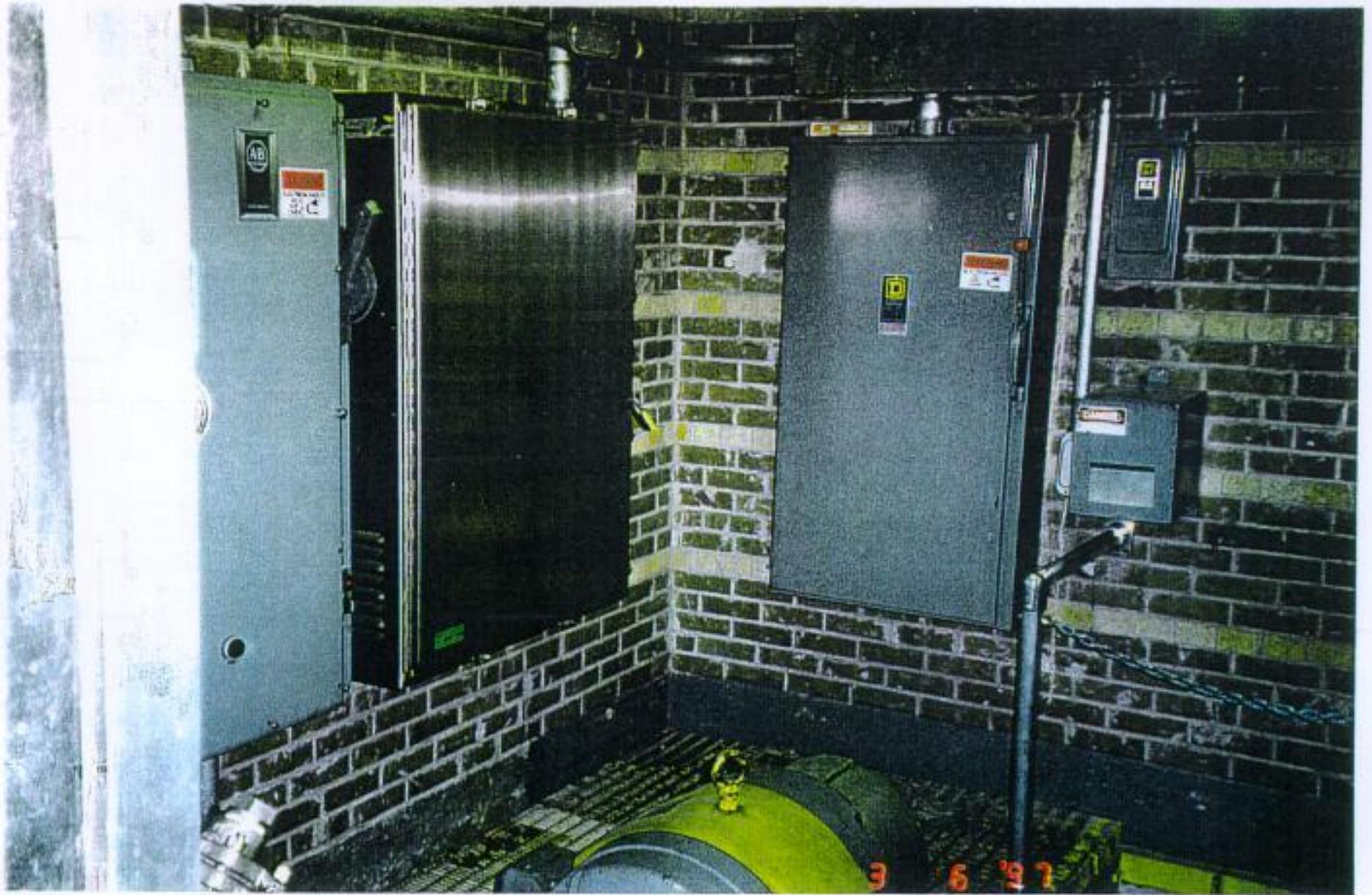


Photo Number 5

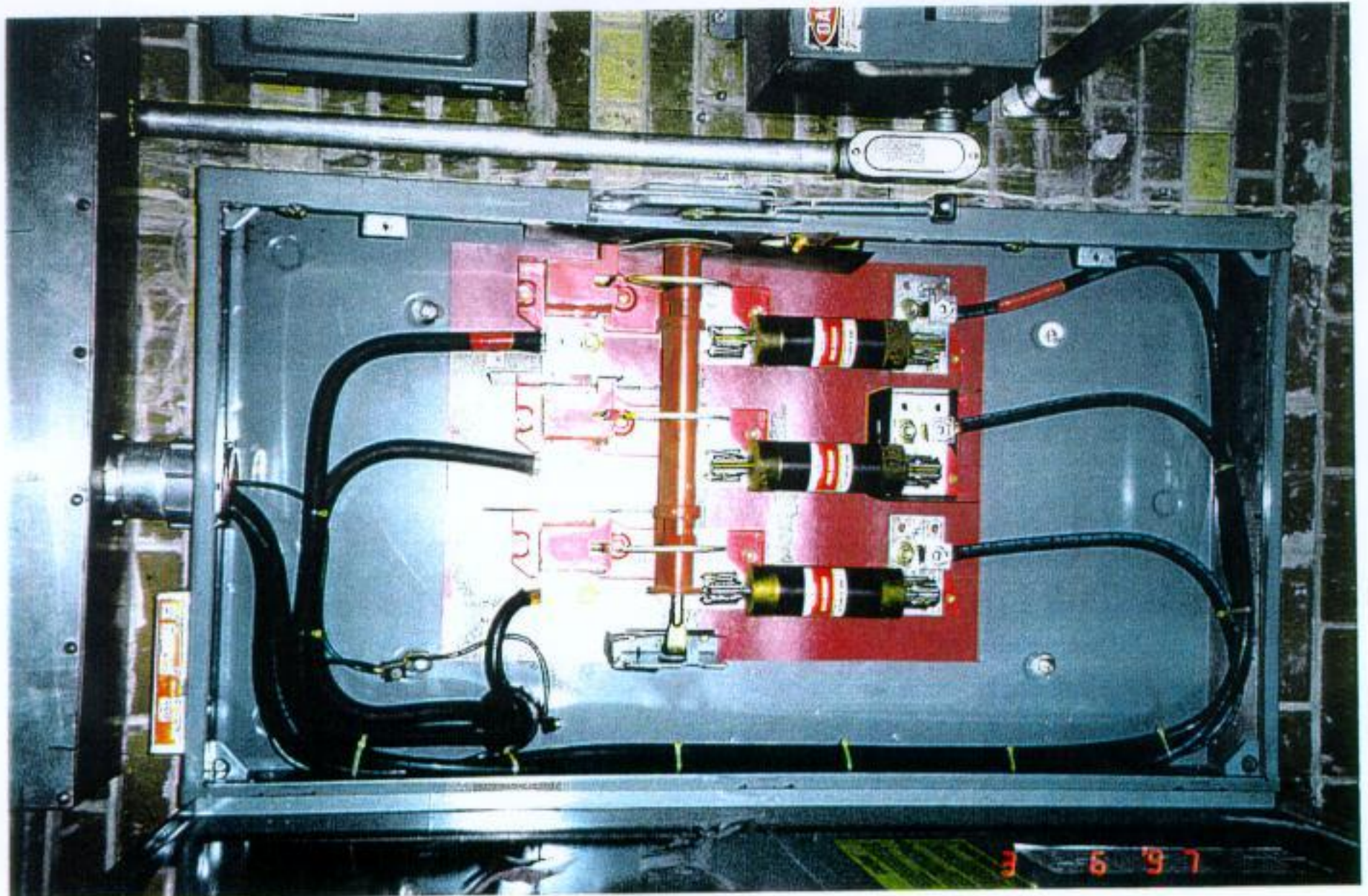


Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 130 (AMERICAN MARINE)
4045 JOURDAN ROAD

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 130 (American Marine)

Pump Station 130 is a flooded-suction, can-type station located on 4045 Jourdan Road. This station discharges wastewater to a 6-inch force main for approximately 2000 feet which increases to a 12-inch force main before manifolding with Pump Station 165 (Victoria) located at 3620 Victoria Street. Figure 1 shows the schematic subsystem surrounding Pump Station 130. Pump Station 130 does not repump flow from any other station.

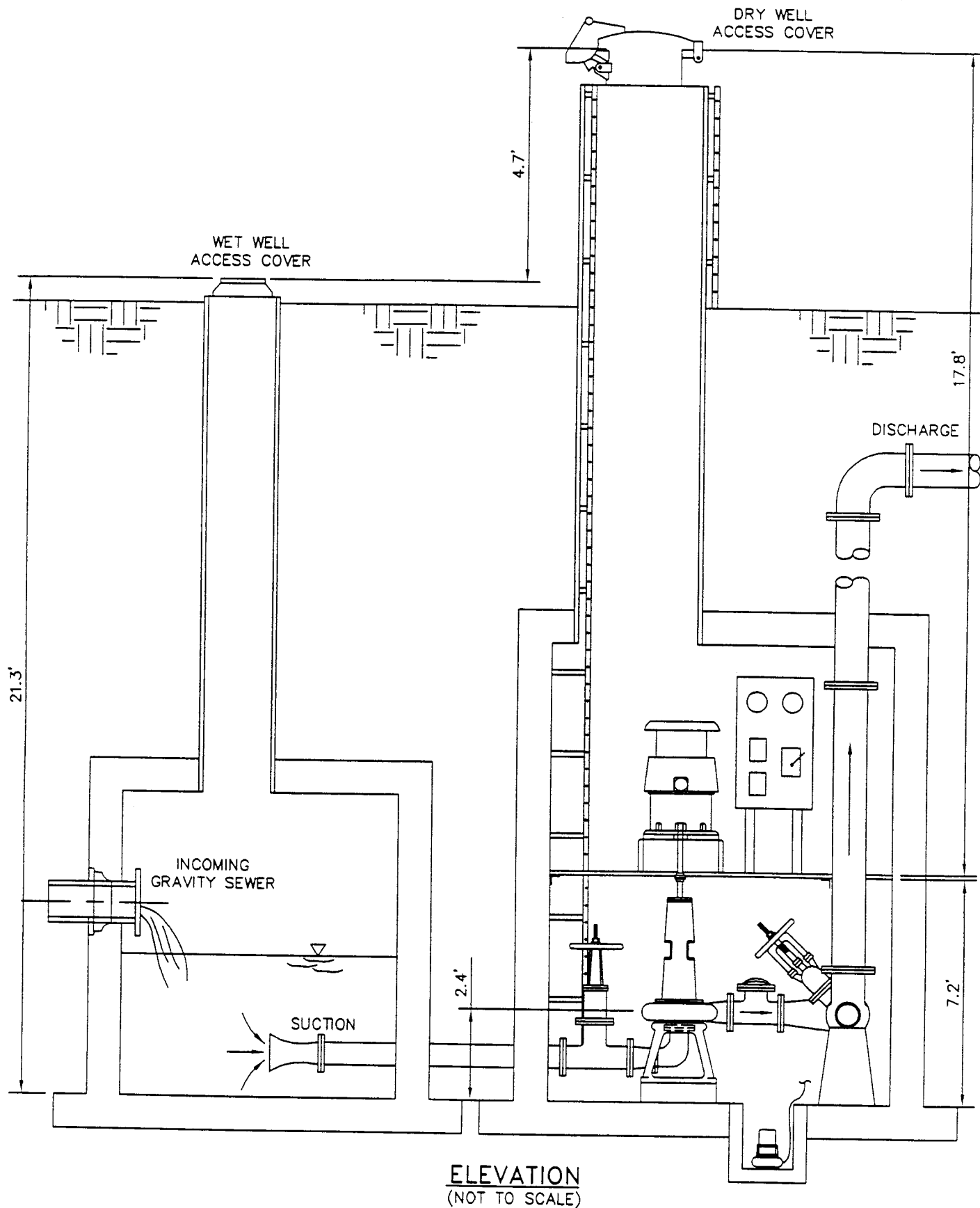
Pump Station 130 contains two (8-inch by 6-inch) Fairbanks Morse vertically aligned pumps with 16-inch diameter impellers. Each pump is powered by a 40 horsepower (hp) Marathon Electric motor operating at a speed of 1180 revolutions per minute (rpm). This equipment is housed in a 10.3-foot diameter steel dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the floor is 25 feet. Figures 2 and 3 illustrate elevation and plan views of the station. There is extreme corrosion in the lower room of the dry well, specifically on the steel floor of the dry well. This corrosion can be seen in attached photos 2 and 3.

Pump Station 130 collects wastewater from the surrounding gravity sewer system into a 21-foot deep concrete wet well. The cross sectional area of the wet well is an arched pipe shape with estimated dimensions of 77 inches by 122 inches. The overall condition of the wet well is fair.

A draw down/fill test was conducted to determine the capacity of Pump Station 130. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 500 gallons per minute (gpm) at 110 feet of head. The shut-off head of both pumps was found to be 119 feet. The pumps normal operating head is close to the shut-off head which suggests that the pumps or the downstream piping may require a capacity increase. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 520 gpm at 116 feet of head. This further illustrates that a downstream piping or pump capacity increase could be necessary due to the fact that operating two pumps essentially does not increase the station's capacity.



Recommendations:

1. Corrosion in the pump room is significant. Measures should be taken to protect or replace severely corroded piping, components and the dry well structure itself. The steel floor should be analyzed for structural integrity and corrected as required.
2. The pumps are operating in the "flat" portion of the curve close to shut-off head. The capacity of the pumps is significantly reduced due to the friction head required through the downstream 6-inch piping. A hydraulic analysis should be conducted to determine the total flows through Pump Station 130 and its effect on the downstream forcemain network.
3. The physical condition of the electrical service disconnect switch is poor due to corrosion as seen in photo number 4. It is recommended that this situation be addressed.



ELEVATION
(NOT TO SCALE)

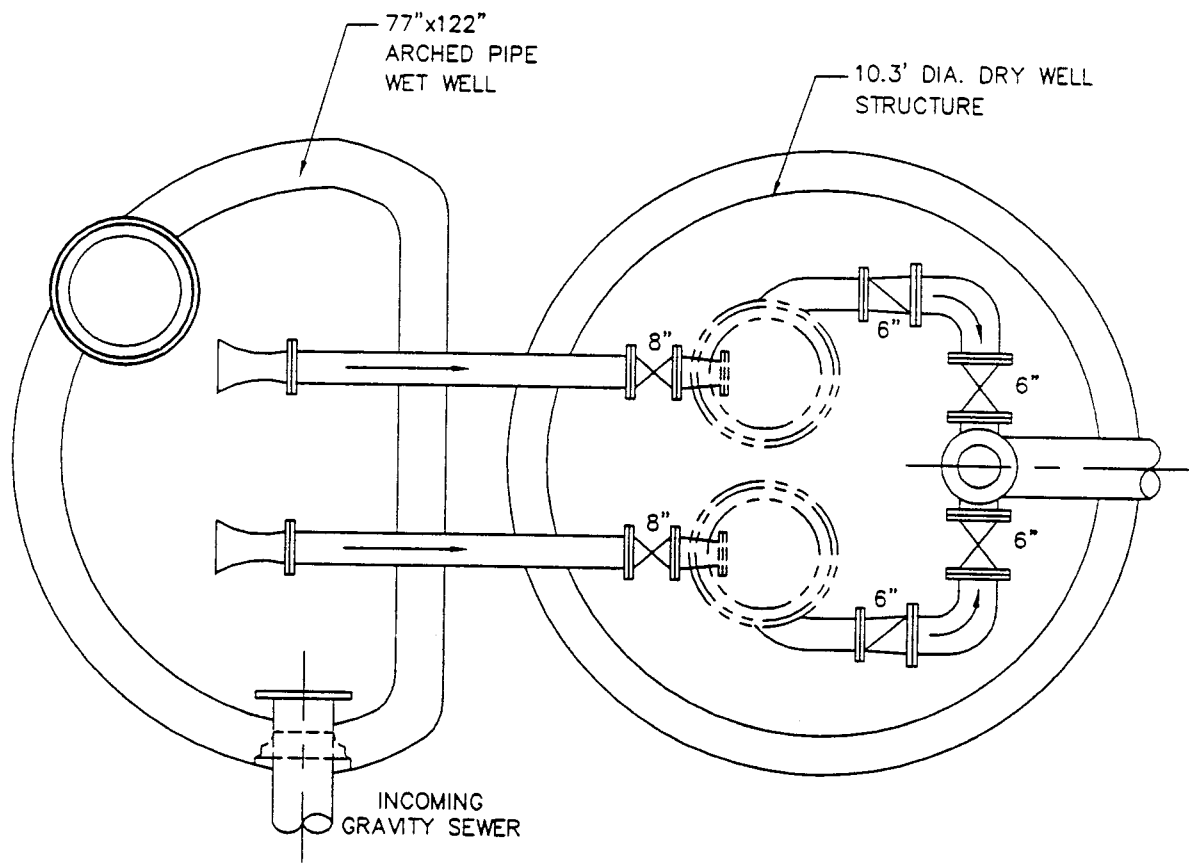
FILE NO.: 130 JOB NO.: 1113030.01090120 DATE: 3/28/97

 <p>SEWERAGE AND WATER BOARD OF NEW ORLEANS</p>
 <p>MONTGOMERY WATSON</p>

PUMP STATION 130 (AMERICAN MARINE)
CAN TYPE FLOODED SUCTION

FIGURE:
2
DATE:
3/28/97

FILE NO.: 13L JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 130 (AMERICAN MARINE)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 130 (American Marine)

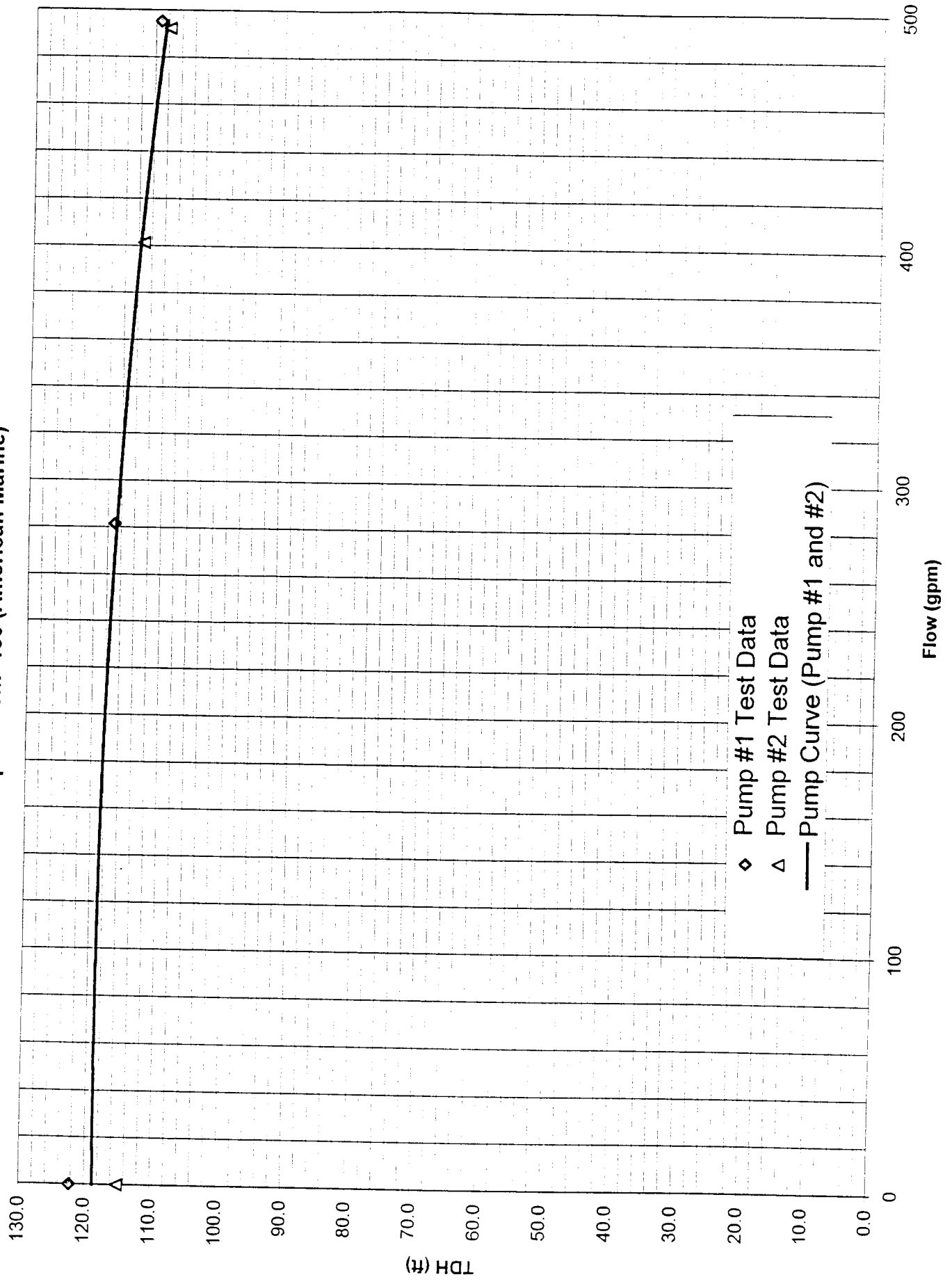


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 130

General Information

PS No. 130 PS Facility American Marine Address 4045 Jourdan Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 16 inch

Model Number-Pump #1 not available Serial Number-Pump #1 KZX1080232

Model Number-Pump #2 not available Serial Number-Pump #2 KZX1080232-1

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 300 gpm 117 ft. of head 1150 rpm

Pump Suction 8 inch Pump Discharge 6 inch FM Diameter 6 inch

Suction Valve Size 8 inch Discharge Valve Size 6 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 6 inch

Dry Well Dimensions 10.3 ft. dia. Length 0 ft. Width: 0 ft. Depth 25 ft.

Pump centerline* 2.4 ft. Centerline of discharge pipe* 12.5 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 130

Pump Controls

Lead pump on 8.5 ft. Type of Controls Bubbler
Lead pump off 5.5 ft.
Lag pump on 12 ft.
Lag pump off 8 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior is poor due to the severe corrosion in the pump room, specifically the steel dry well structure.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments 77-inch x 122-inch concrete arched pipe

Diameter _____ ft. Length _____ ft. Width _____ ft.

Bottom Depth* 21 ft.

Sewer Invert(s) Depth* 16.2 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 130

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device 150 amps, dual element, fusible disconnect switch

Size of main protective device _____

Size of motor protective device 90 amps, dual element, fusible disconnect switch

Service wire size #1/0 AWG Size of motor starter in NEMA 4

Motor wire size #6 AWG Motor Horsepower 40

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1180

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # EE-92415-4/30-2

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the service disconnect switch is poor due to corrosion. The physical condition of the motors, motor controller and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location

Pump Station 130 (American Marine)



Photo Number 1



Photo Number 2

Pump Station 130 (American Marine)

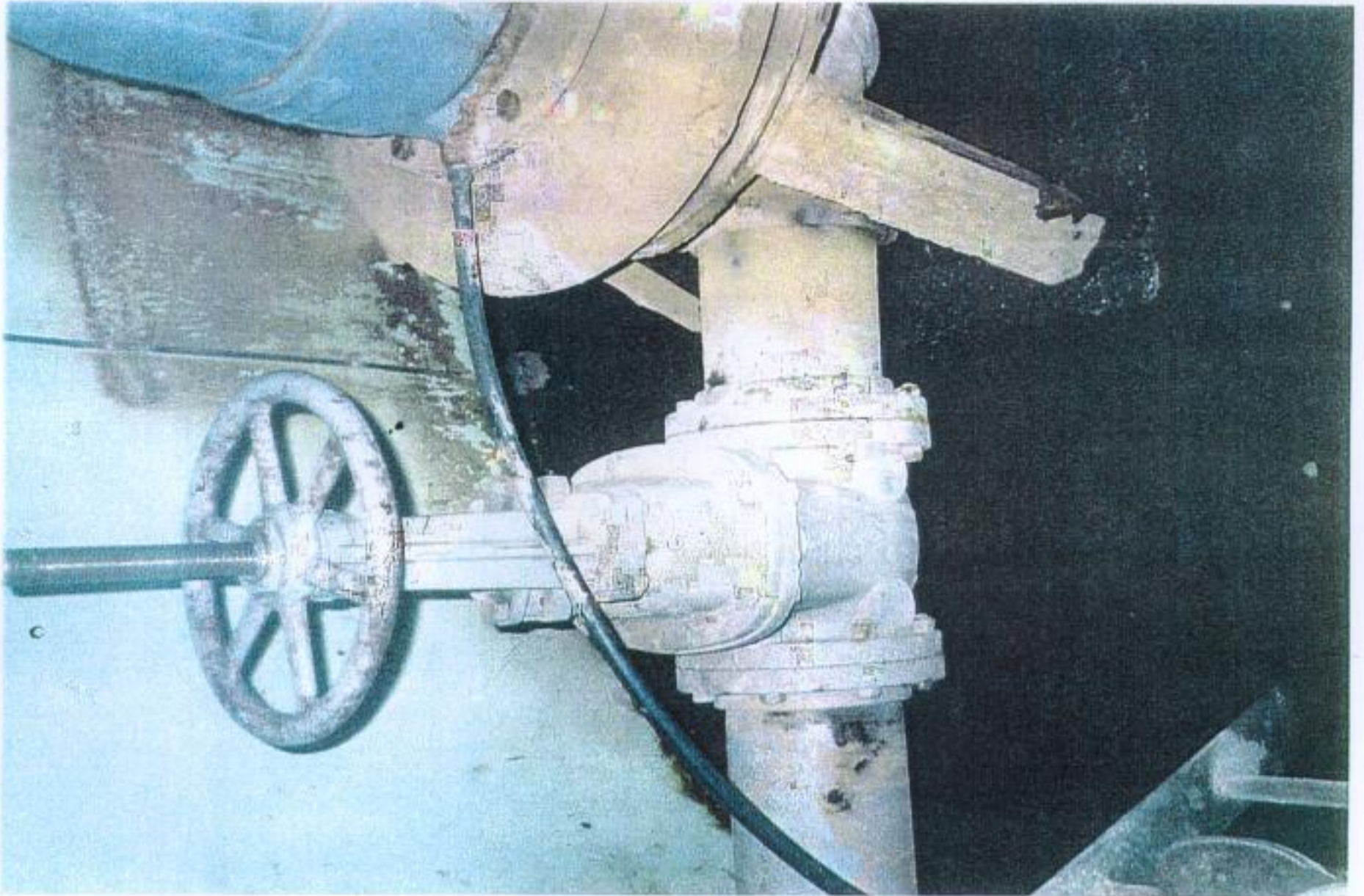


Photo Number 3

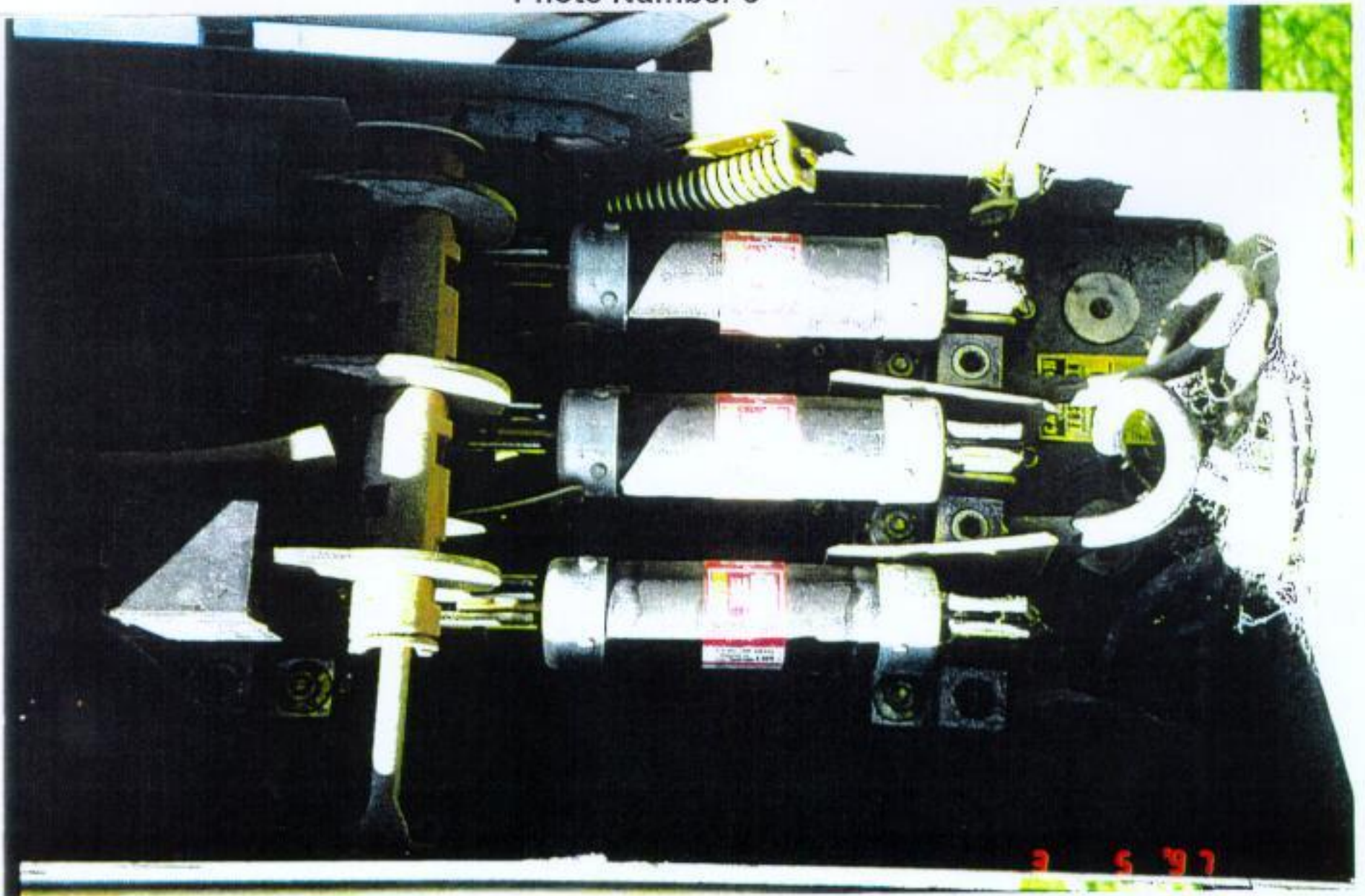


Photo Number 4

Pump Station 130 (American Marine)

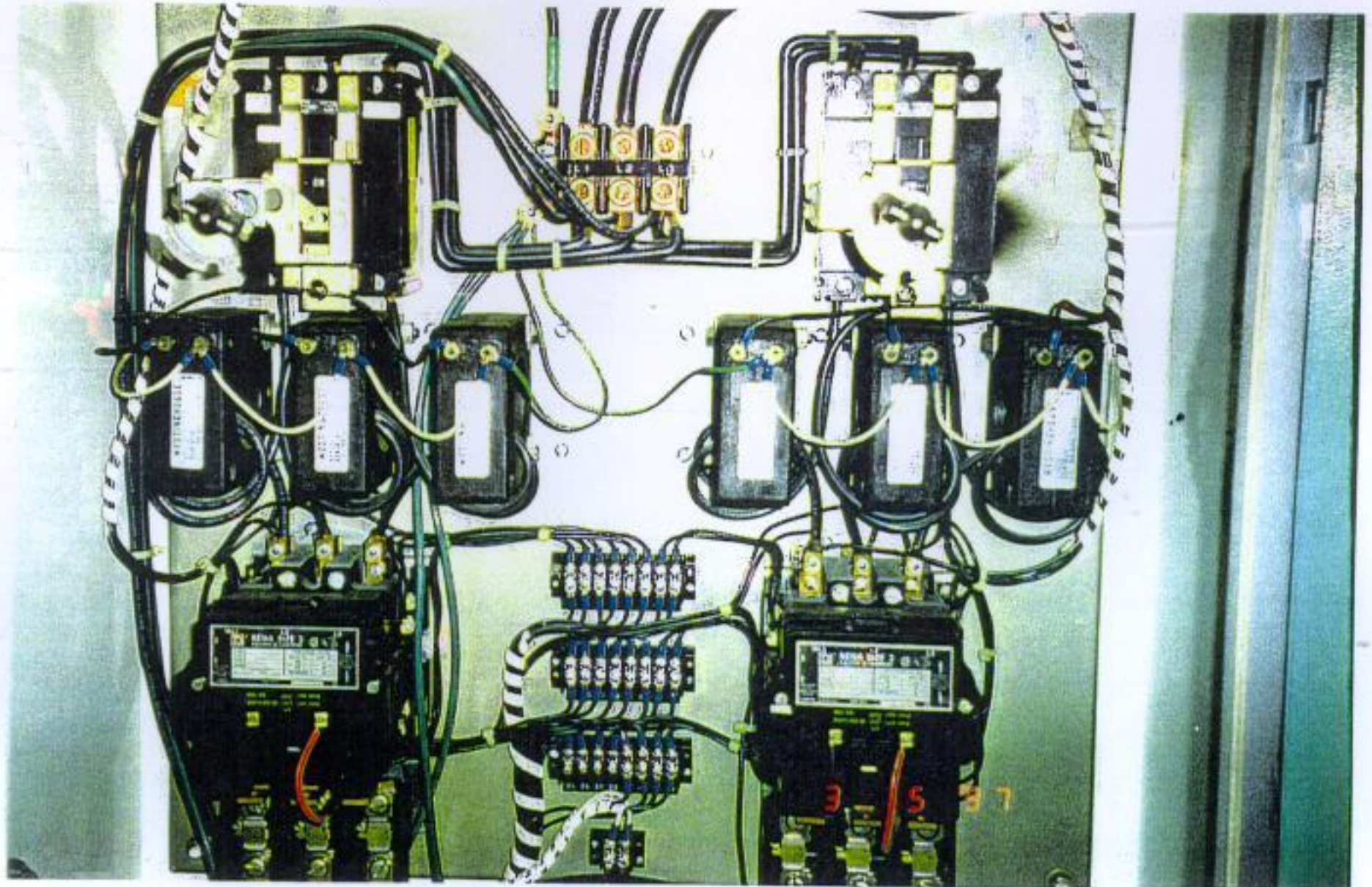


Photo Number 5

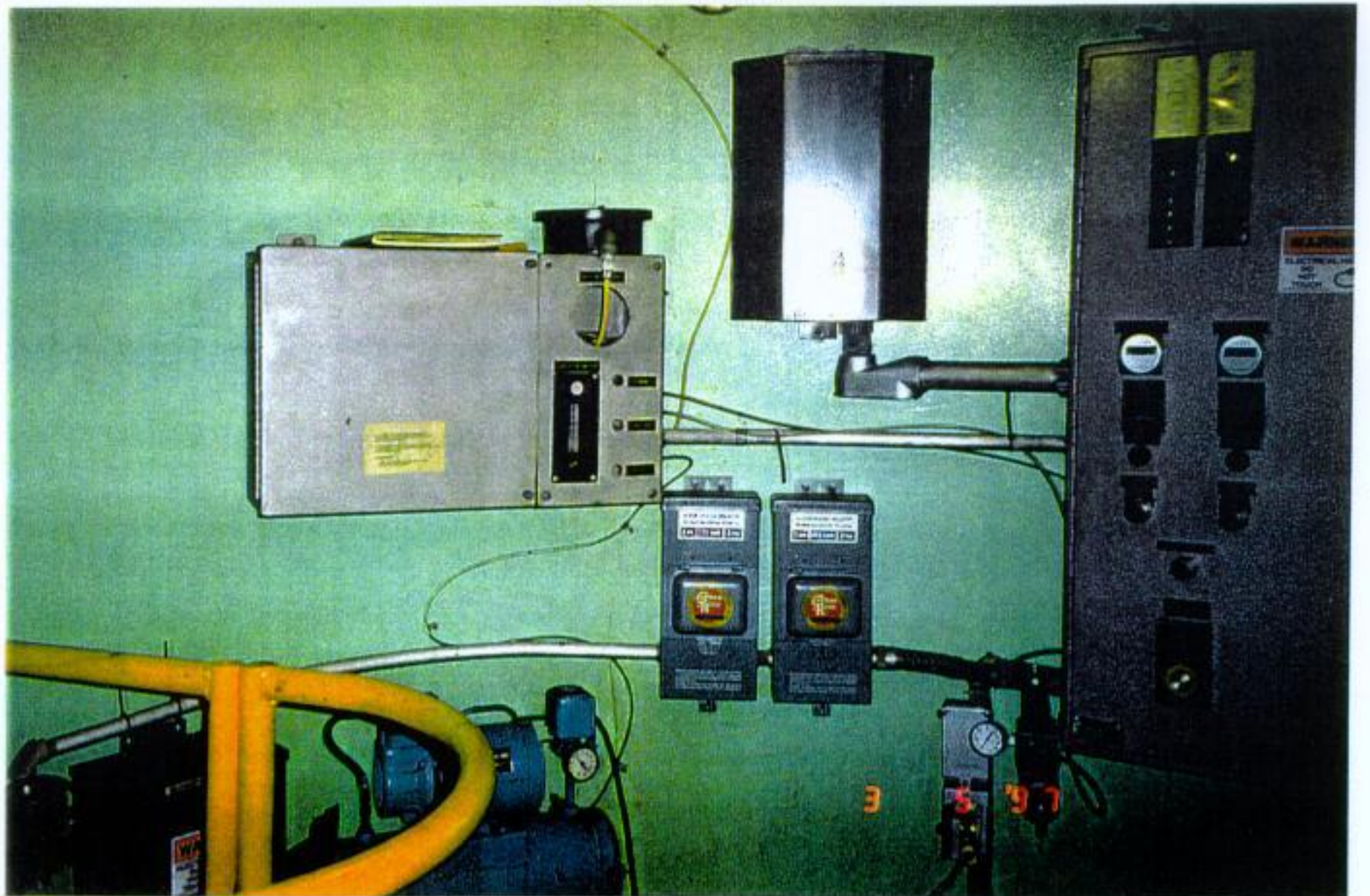


Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 131 (AMID)
7000 ALMONASTER AVENUE

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 131 (AMID)

Pump Station 131 is a multi-leveled, flooded-suction station located on 7000 Almonaster Avenue. Flow discharges the station via a 18-inch diameter force main and connects to the 18-inch portion of the Almonaster Avenue force main. Pump Station 131 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 131.

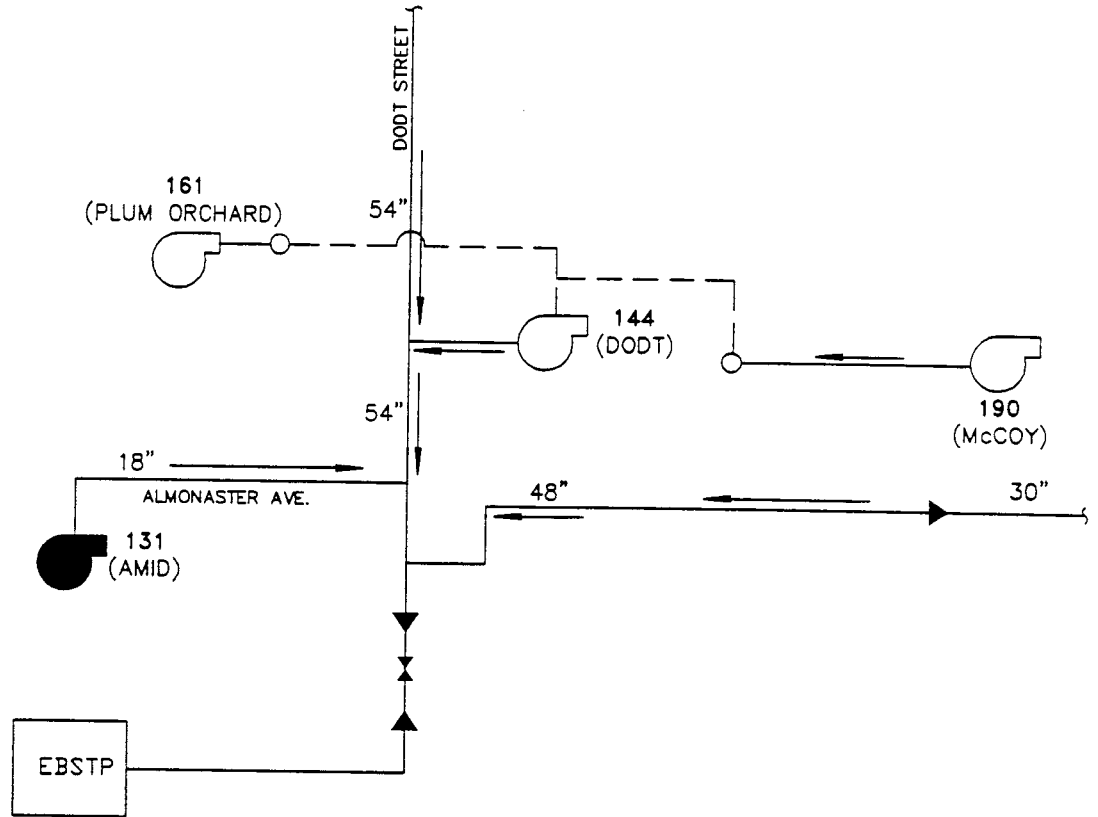
Pump Station 131 contains two (10-inch by 8-inch) Fairbanks Morse vertically aligned pumps with 14.6-inch diameter impellers. Each pump is powered by a 60 horsepower (hp) US Electric motor operating at a speed of 1190 revolutions per minute (rpm). This equipment is housed in a 12-foot by 20-foot reinforced concrete and brick/block dry well structure. The total depth of the dry well from the floor of the motor control room to the bottom is 25.0 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is good although there is isolated corrosion located around the pump as seen in photo number 3.









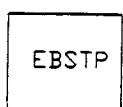
Pump Station 131 collects wastewater from the surrounding gravity sewer system into a 23.0-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated 12-foot by 20-foot dimensions. The overall condition of the wet well appears to be good.

A draw down/fill test was conducted to determine the capacity of Pump Station 131. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 2500 gallons per minute (gpm) at 49 feet of head. The shut-off head of both pumps was found to be 94 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 3350 gpm at 60 feet of head.

Recommendations:

1. It is noted that the electrical service wire is undersized. It is recommended that the undersized electrical service wire be addressed.



-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

G JOB NO.: 1113030.01090120 DATE: 3/28/97

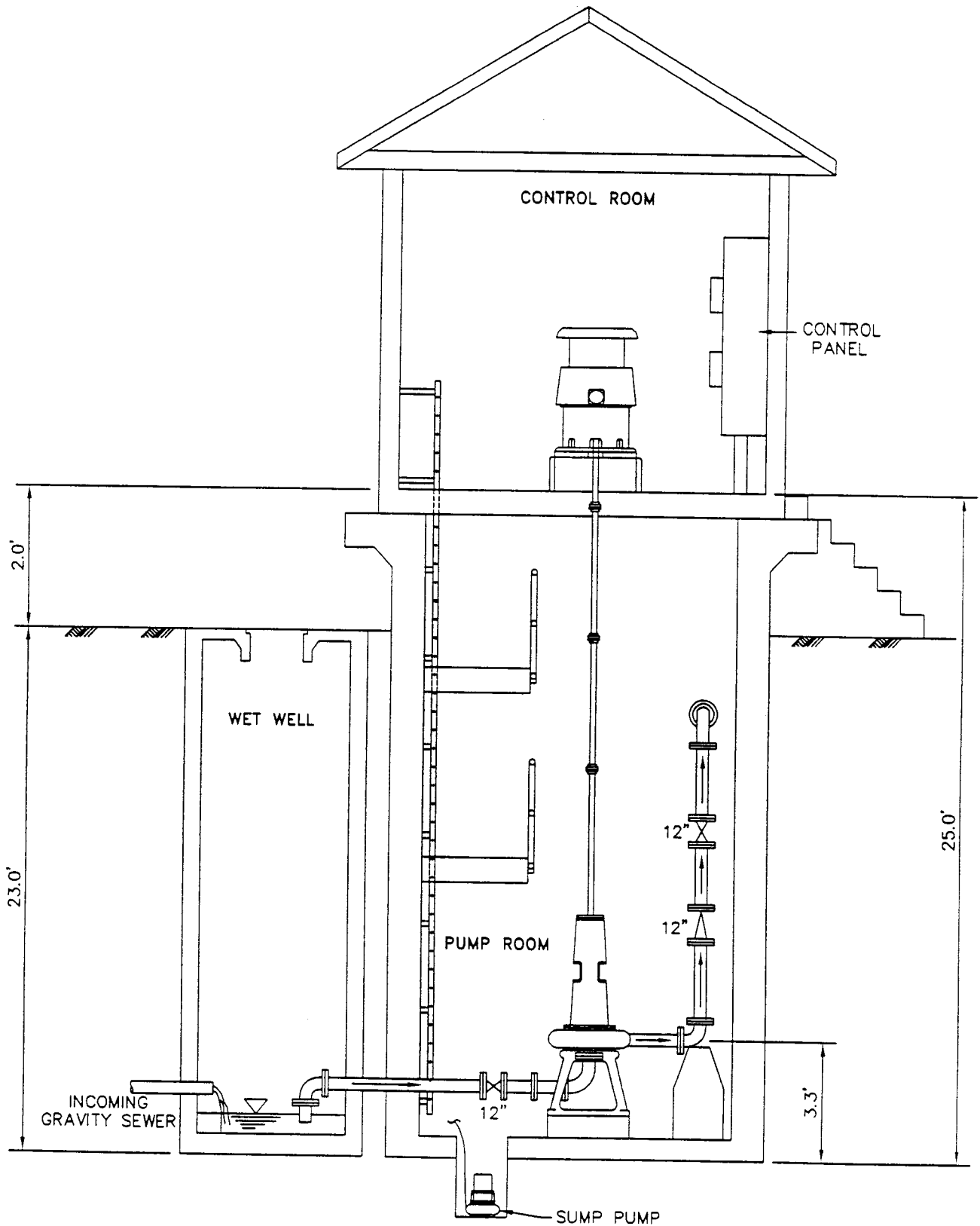
FILE NO.: 13



PUMP STATION 131 (AMID)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1
DATE:
3/28/97

FILE NO.: 131 JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 131 (AMID)
MULTI-LEVEL FLOODED SUCTION

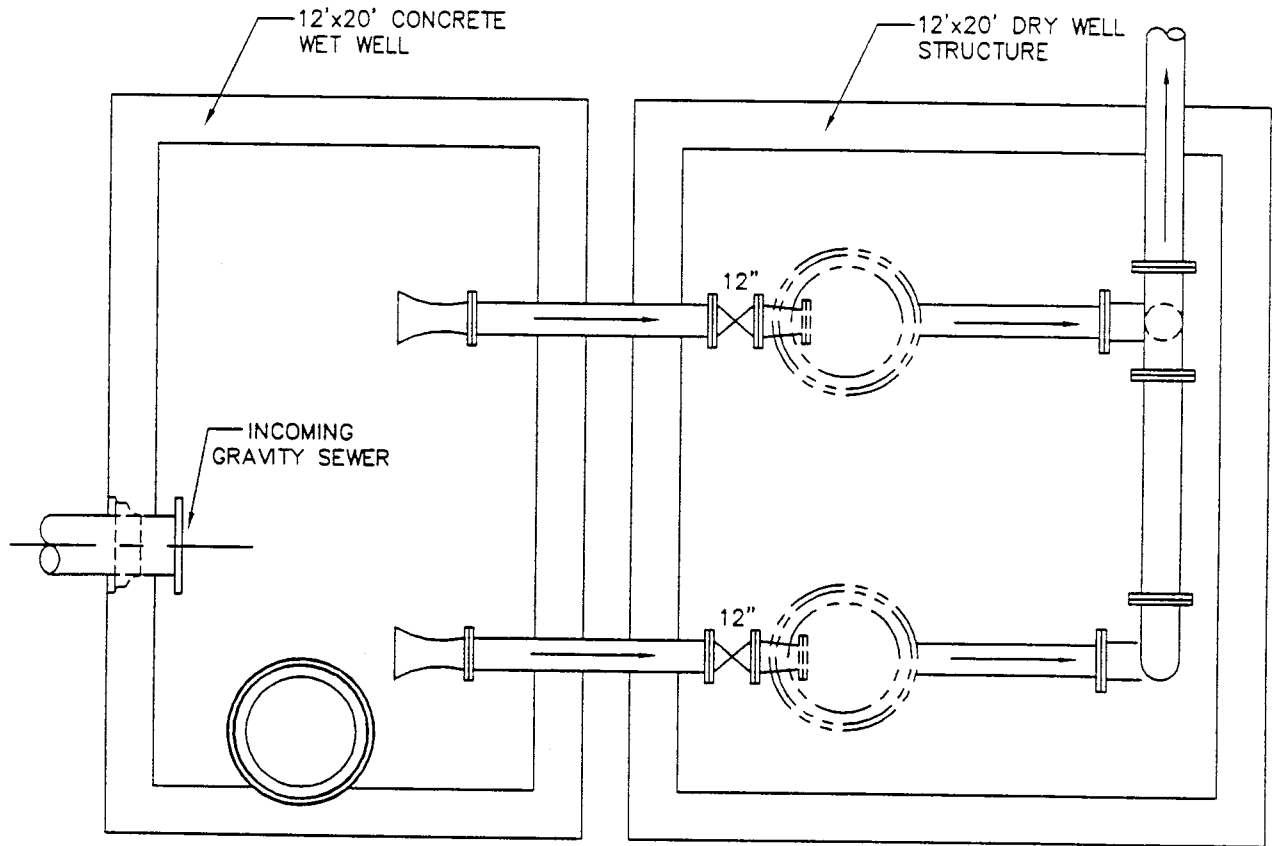
FIGURE:

2

DATE:

3/28/97

FILE NO.: 131 3 JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 131 (AMID)
MULTI-LEVEL FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 131 (AMID)

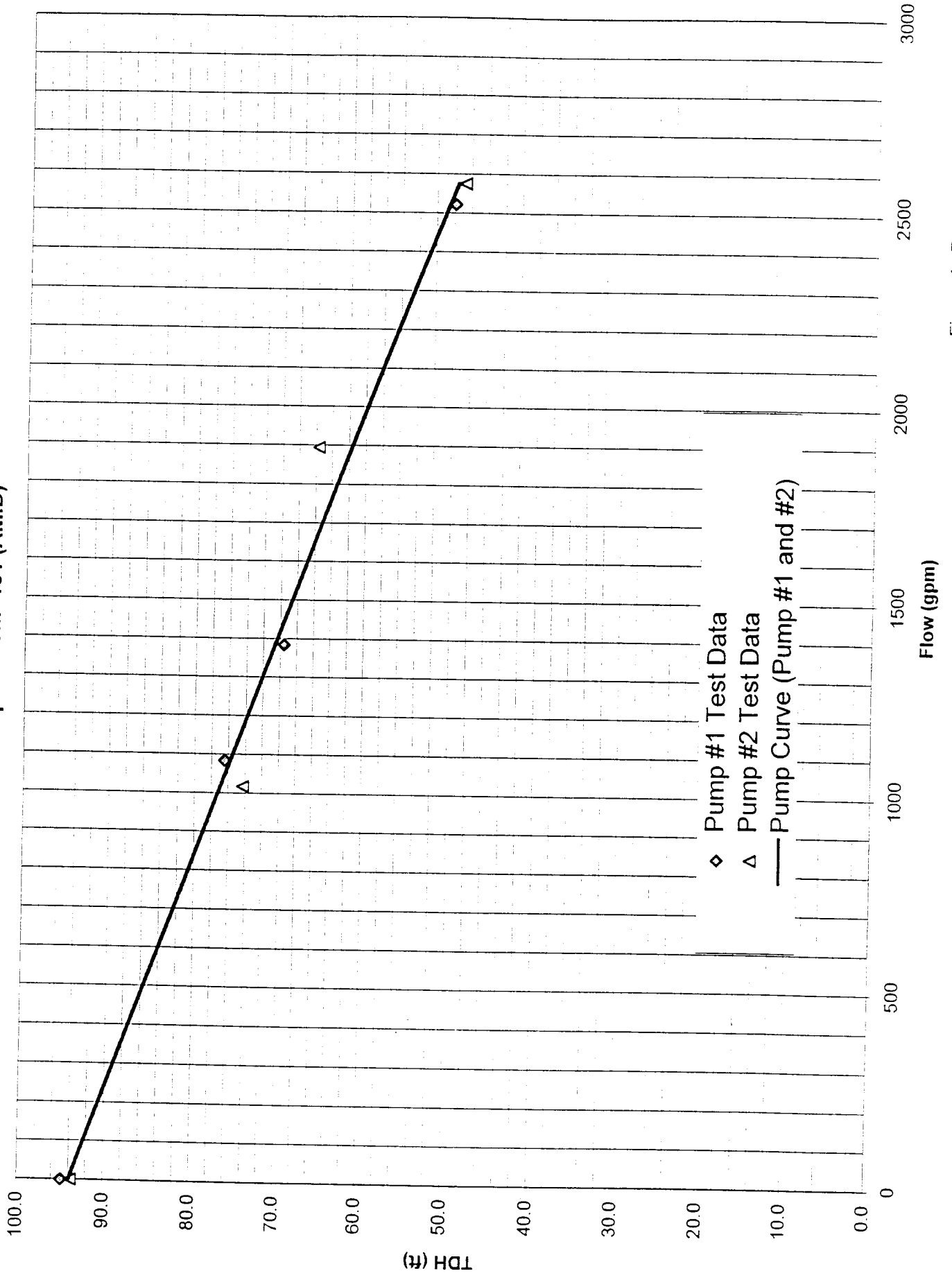


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 131

General Information

PS No. 131 PS Facility Amid Address 7000 Almonaster Avenue

- PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 14.6 inch

Model Number-Pump #1 B5414 Serial Number-Pump #1 K3P1060791

Model Number-Pump #2 B5414 Serial Number-Pump #2 K3P1060791

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 2200 gpm 62 ft. of head 1180 rpm

Pump Suction 10 inch Pump Discharge 8 inch FM Diameter 18 inch

Suction Valve Size 12 inch Discharge Valve Size 12 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 12 inch

Dry Well Dimensions _____ ft. dia. Length 20 ft. Width: 12 ft. Depth 25 ft.

Pump centerline* 3.3 ft. Centerline of discharge pipe* 14 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

- Do check valves operate properly? Yes No Which One? _____
 Do discharge valves operate properly? Yes No Where? _____
 Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 131

Pump Controls

Lead pump on 7 ft. Type of Controls bubbler
Lead pump off 4.5 ft.
Lag pump on 8 ft.
Lag pump off 5.5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 0 ft. Length 20 ft. Width 12 ft.

Bottom Depth* 23 ft.

Sewer Invert(s) Depth* 18.3 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 131

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device 350 amps, dual element, fusible disconnect switch

Size of main protective device _____

Size of motor protective device 175 amps, dual element, fusible disconnect switch

Service wire size 350 kcmil Size of motor starter in NEMA 3

Motor wire size #2 AWG Motor Horsepower 100

Number of motors 2 Motor Speed Multiple

Speed(s) in rpm 590, 1180

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # - _____ Serial Number - Motor # - _____

Model Number - Motor # - _____ Serial Number - Motor # - _____

Comments The physical condition of the motors, motor controller, and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The service wire is undersize.

Pump Station 131 (Amid)



Photo Number 1



Photo Number 2

Pump Station 131 (Amid)



Photo Number 3



Photo Number 4

Pump Station 131 (Amid)

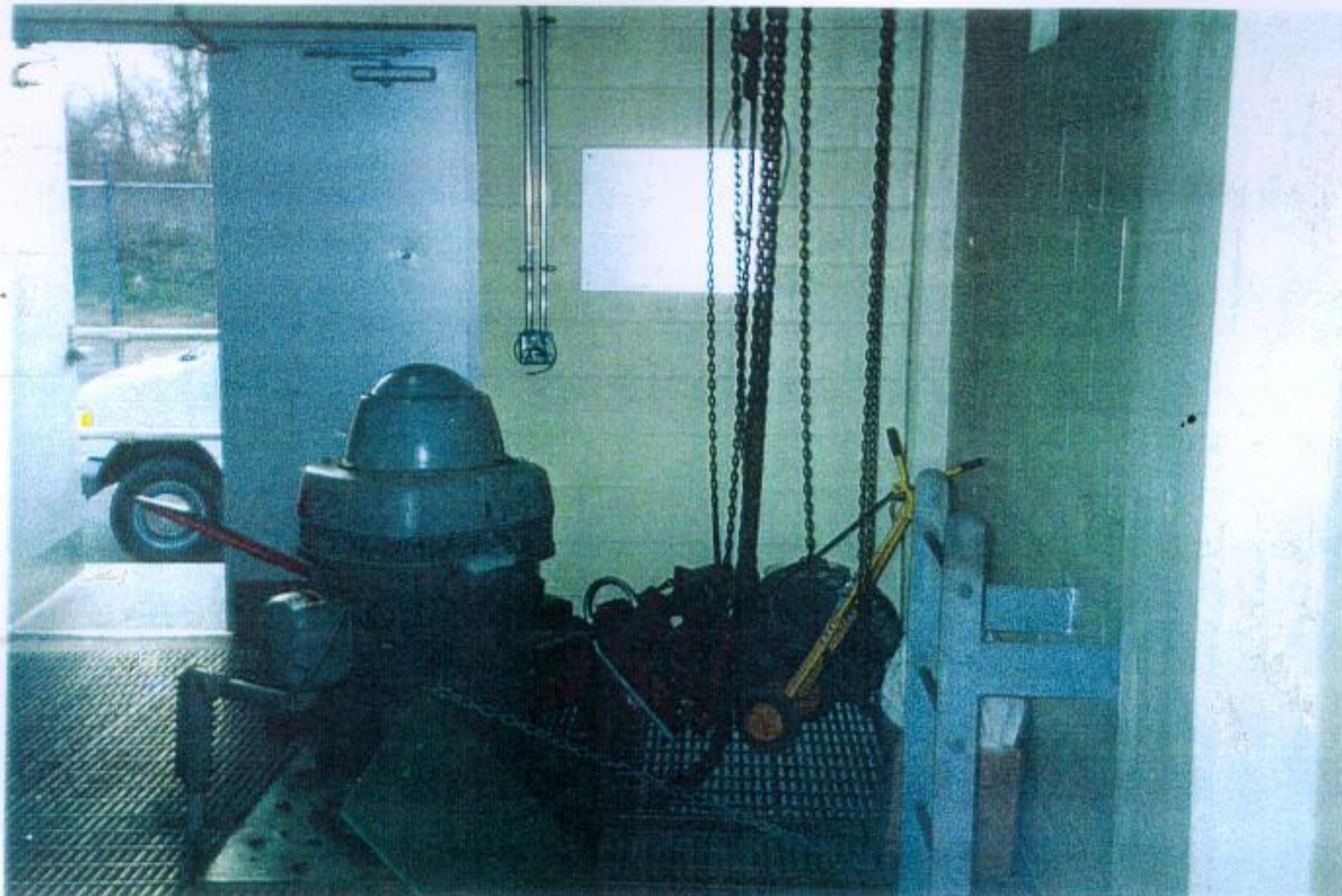


Photo Number 5



Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 132 (SPS "B")
4725 SAINT CLAUDE AVENUE

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 132 ("B")

Pump Station 132 is a flooded-suction, multi-level type station located on 4725 Claude Avenue. It discharges into a 30-inch diameter force main which manifolds with the 54-inch diameter portion of the Florida Avenue force main. Figure 1 shows the schematic subsystem surrounding Pump Station 132. Pump Station 132 does not repump the flow from any other station.

Pump Station 132 contains two (20-inch by 14-inch) vertically aligned pumps, shown in photo number 2. Each pump is powered by a 4-speed Westinghouse motor rated at 275 horsepower (hp), shown in photo number 5. This equipment is housed in a (26-foot diameter) reinforced concrete dry well structure. The total depth from the floor of the motor control room to the dry well bottom is 24.4 feet. There were several problems observed in this station. Significant corrosion of piping, valve, and pump surfaces was observed, shown in photo numbers 2 and 3. In addition, peeling of the interior wall surfaces is evident as shown in photo numbers 2, 3, 4, 5, and 6.

Pump Station 132 collects wastewater from the surrounding gravity sewer system into a 24-foot deep concrete suction chamber. Moderate corrosion of this suction chamber has taken place. The condition of the concrete walls is characterized as having exposed aggregate.

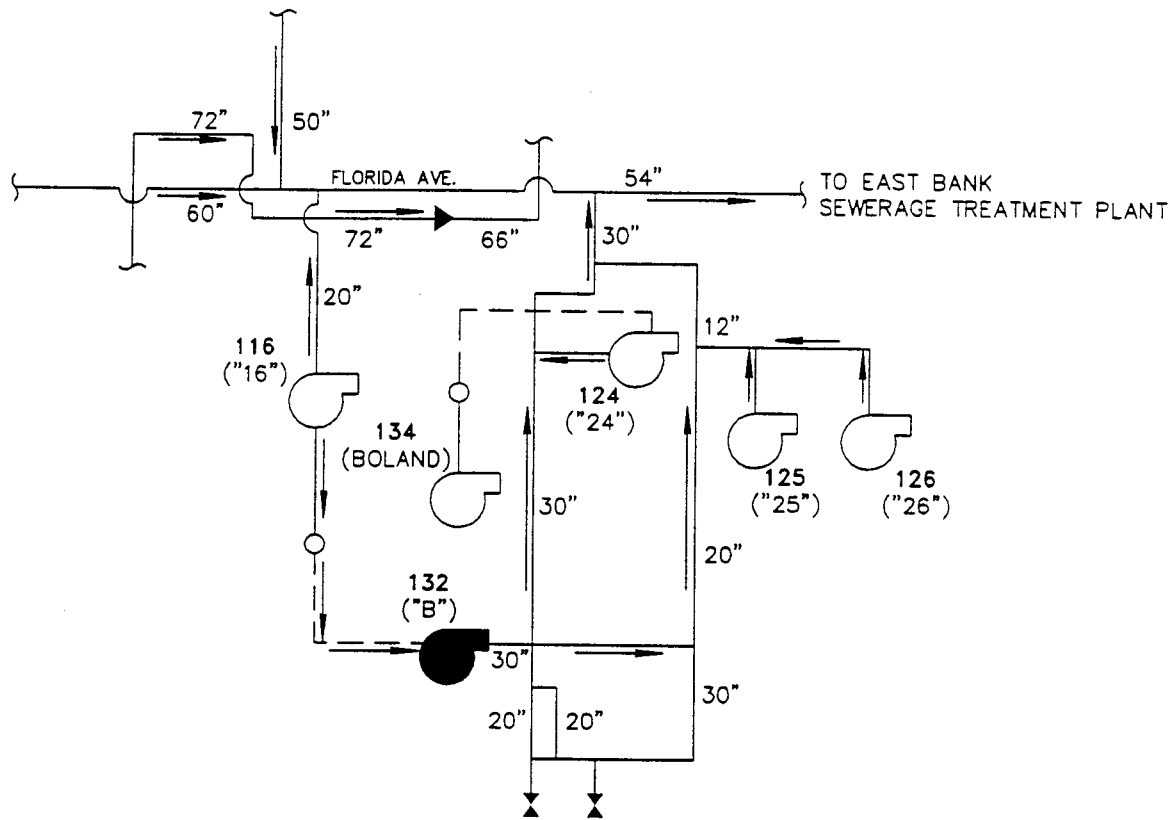
The pumps in Pump Station 132 were not throttled to simulate increasing discharge pressure and its corresponding effect on pump capacity, due to the poor physical condition of the pumps. Therefore, no pump curves were developed. The Doppler flow meter was utilized to determine the capacity of each pump at the force main pressure at the time of testing. The approximate capacities for pump number 1 are 3,300 gallons per minute (gpm) at 33 feet of head, 3,400 gpm at 36 feet of head, 3,800 gpm at 38 feet of head, and 7,100 gpm at 16 feet of head for speeds 1, 2, 3, and 4 respectively. The approximate capacities for pump number 2 are 4,000 gallons per minute (gpm) at 38 feet of head, 5,600 gpm at 30 feet of head, 7,700 gpm at 32 feet of head, and 9,000 gpm at 40 feet of head for speeds 1, 2, 3, and 4 respectively.

Only one pump is operated at a time. The other pump is set in the off position, preventing its operation.

Recommendations:

1. No automatic backup capacity is provided under the current operational scenario. The pumps should be run in a lead and lag mode. If reasons that the pumps are not run in lead and lag mode exist, such as force main condition, force main capacity, or plant capacity, then these issues need to be addressed.

2. The pumps are in very poor physical condition. It is recommended that they be rebuilt or replaced.
3. The extent of the piping and valve corrosion should be further investigated and corrected as necessary.
4. The resistor grid bank, its circuit breaker and wiring is in poor condition due to corrosion. It is recommended that the condition of these components be further investigated and corrected as necessary.



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER

- ▲ REDUCER/INCREASER
- MANHOLE
- ⋈ GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- ◐ PUMP STATION
- REF. PUMP STATION
- EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

3 JOB NO.: 1113030.01090120 DATE: 3/28/97

FILE NO.: 134



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 132 ("B")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

1

DATE:

3/28/97

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 132

General Information

PS No. 132 PS Facility SPS "B"

Address 4725 Saint Claude Avenue

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer not available

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 20 inch Pump Discharge 14 inch FM Diameter 36 inch

Suction Valve Size _____ inch Discharge Valve Size 24 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 24 inch

Dry Well Dimensions 26 ft. dia. Length _____ ft. Width: _____ ft. Depth 24.4 ft.

Pump centerline* 5.5 ft. Centerline of discharge pipe* 19.8 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 132

Pump Controls

Lead pump on 6.5 ft. Type of Controls bubbler
Lead pump off 3.5 ft.
Lag pump on 7.5 ft.
Lag pump off 5.5 ft.

Notes: speed(3)8,7;speed(4)9,8;

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.
Interior The overall condition of the interior of the pump station is poor due to severe peeling of paint on wall surfaces.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Severe corrosion of mortar between the aggregate.

Diameter 26 ft. Length _____ ft. Width _____ ft.

Bottom Depth* 24 ft.

Sewer Invert(s) Depth* 0 ft.

0 ft.

*measured from top of wet well cover.

Pump Station 132 (SPS "B")

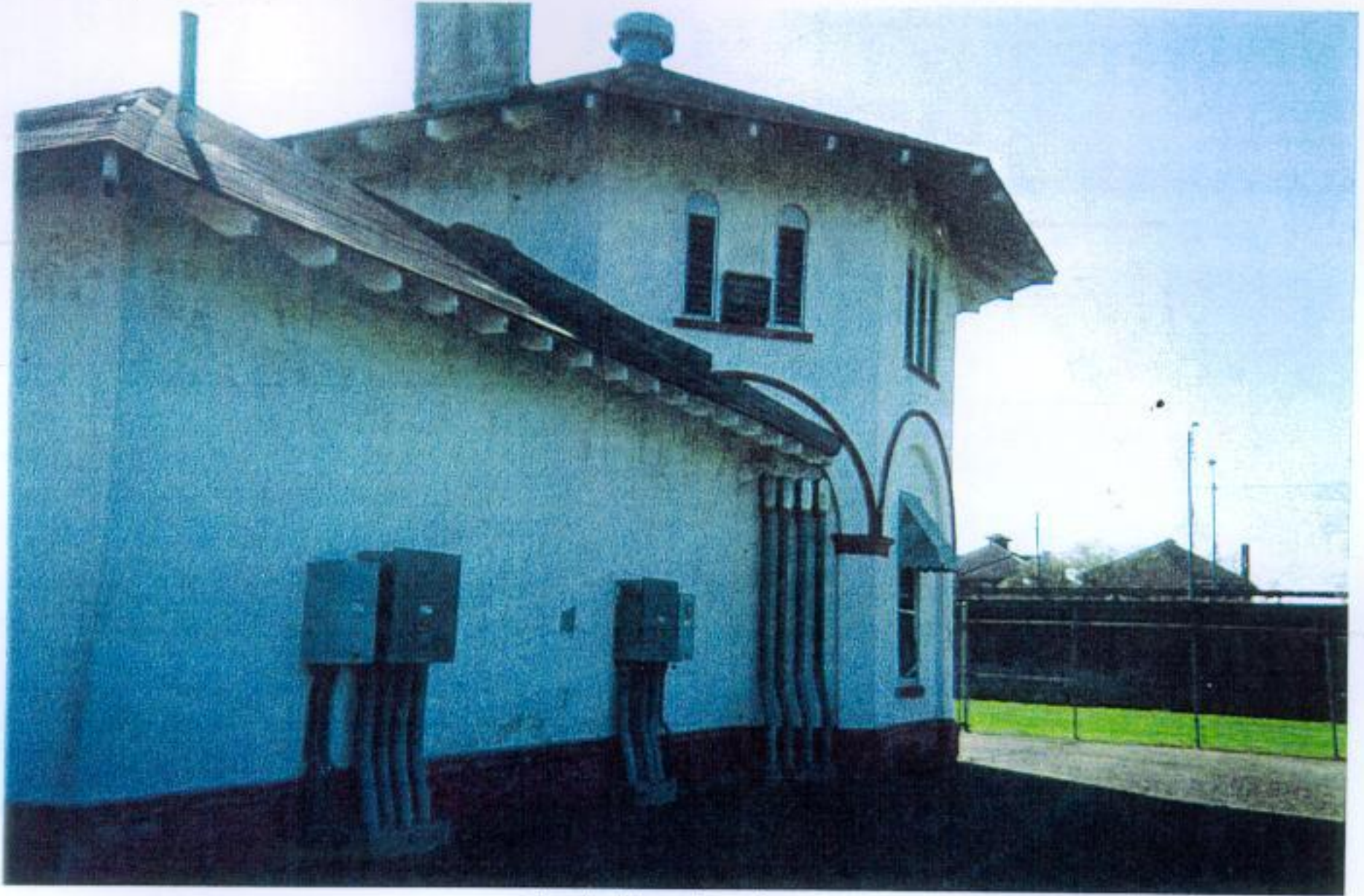


Photo Number 1

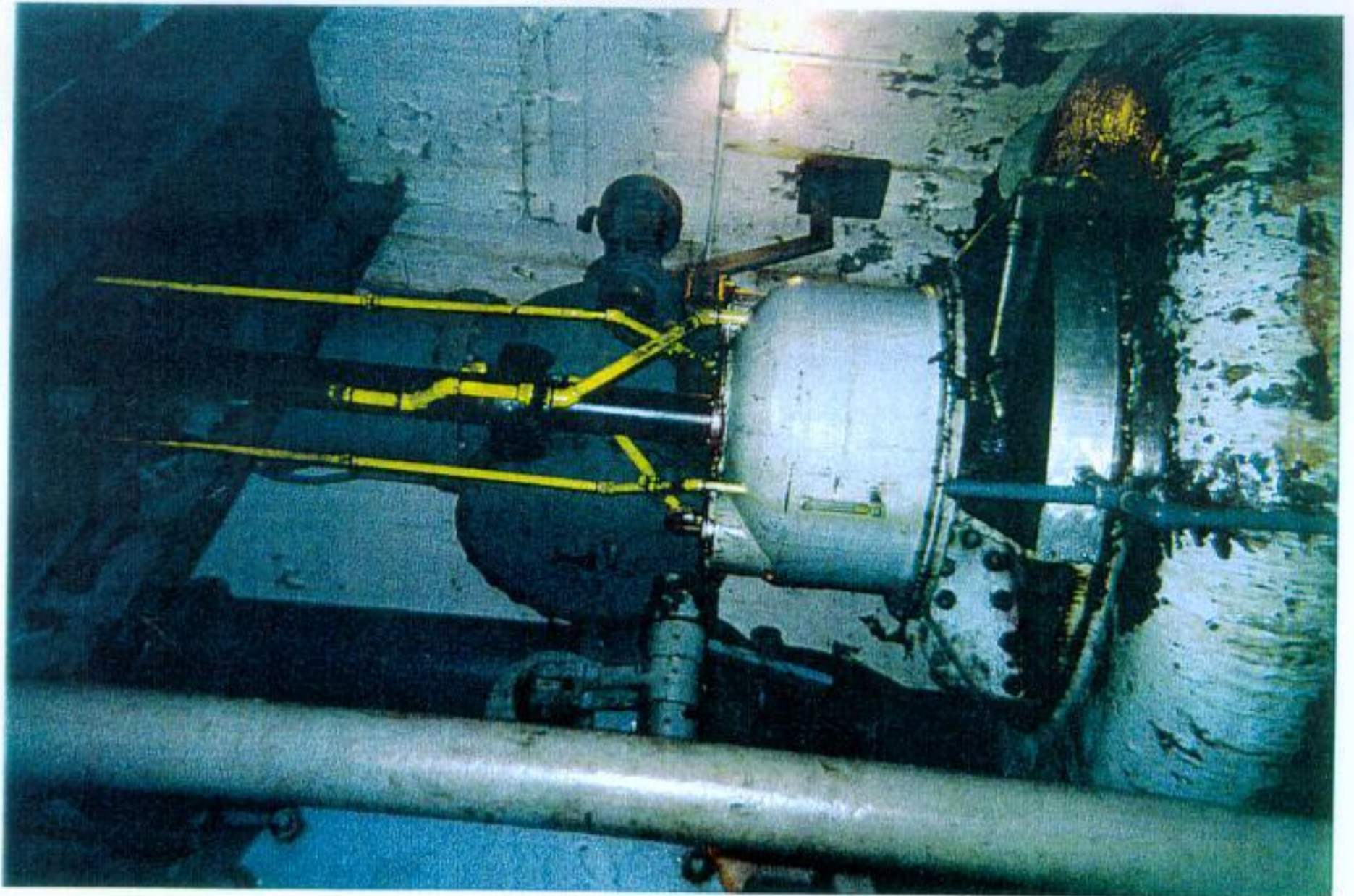


Photo Number 2

Pump Station 132 (SPS "B")

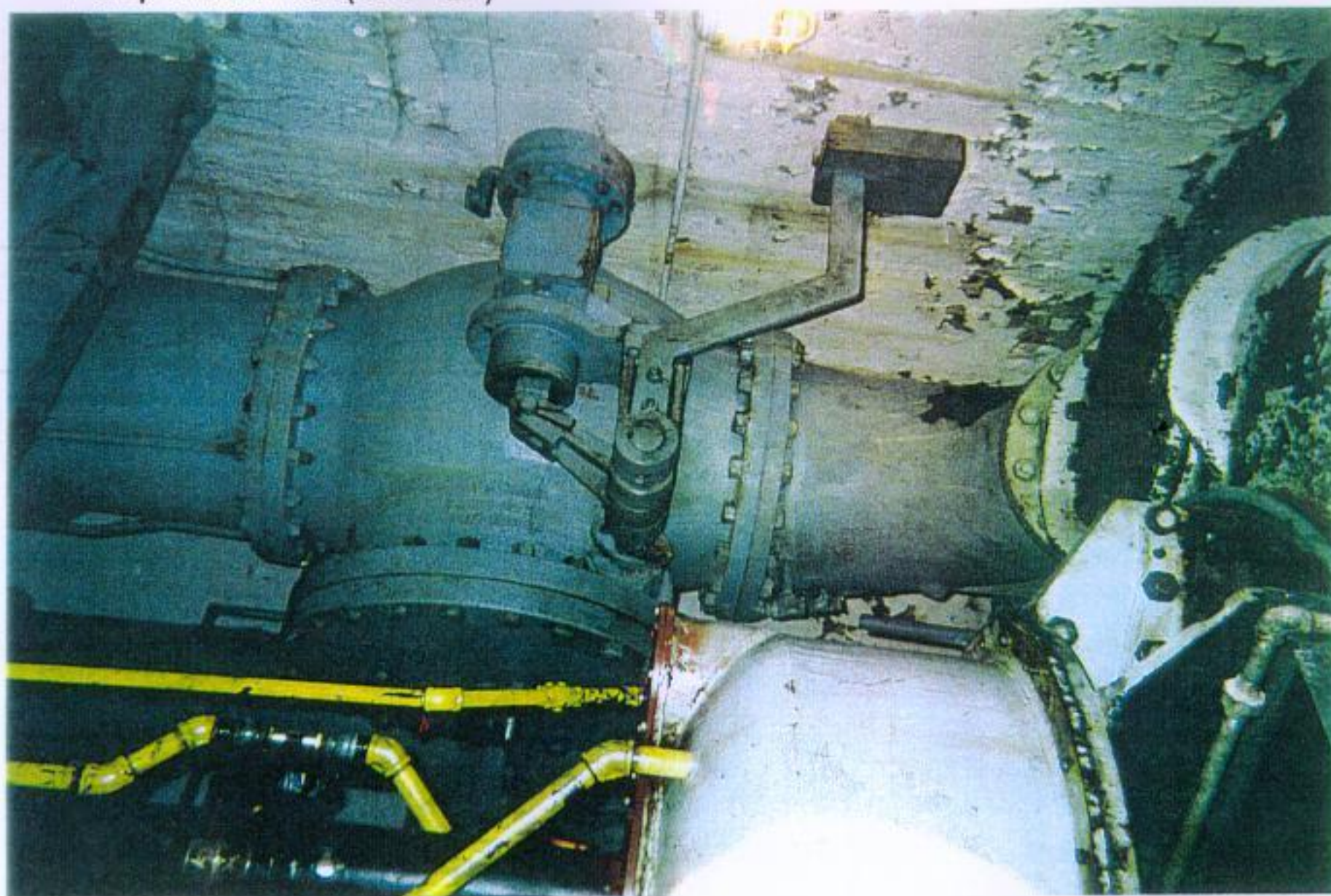


Photo Number 3

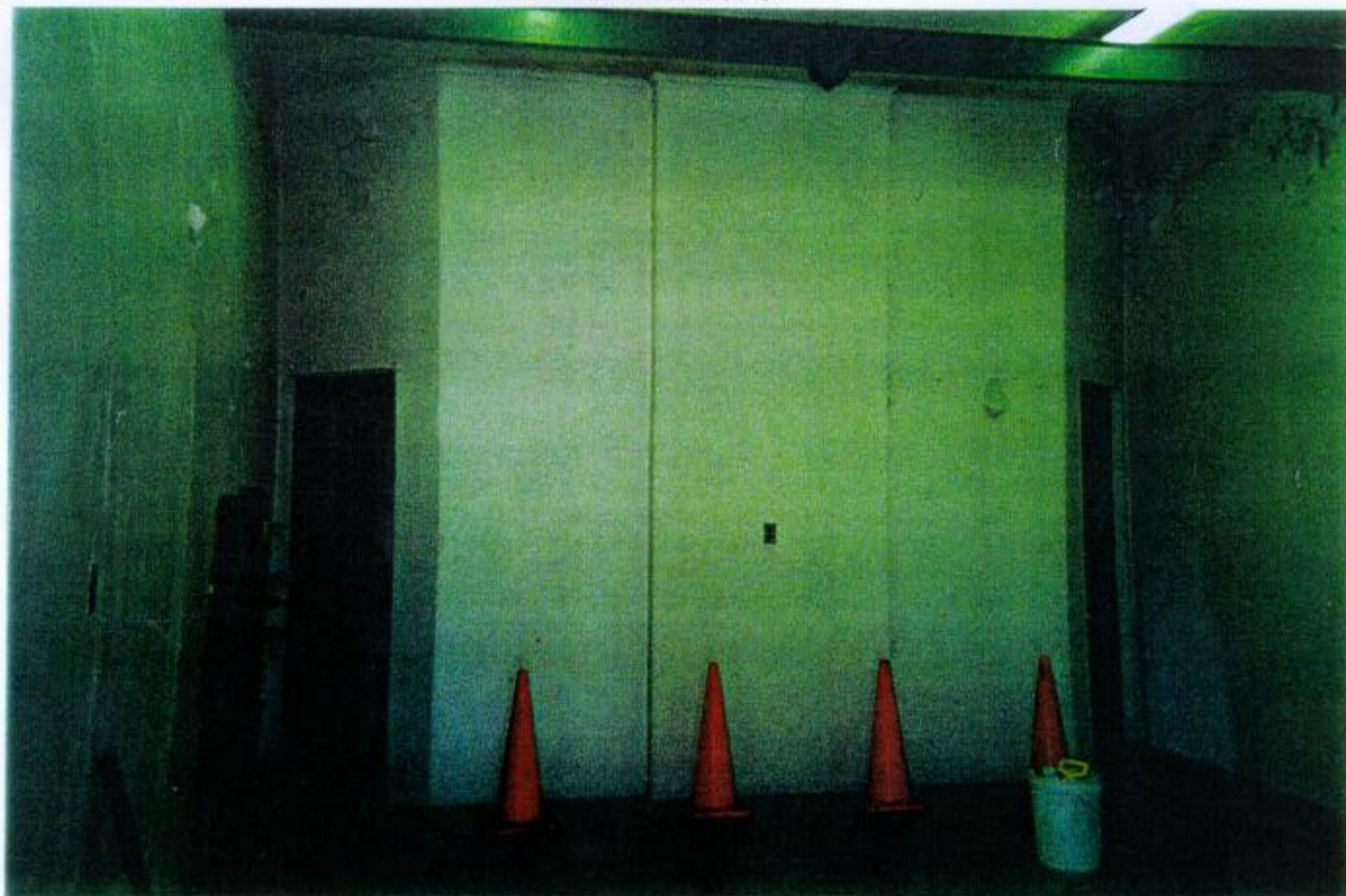


Photo Number 4

Pump Station 132 (SPS "B")

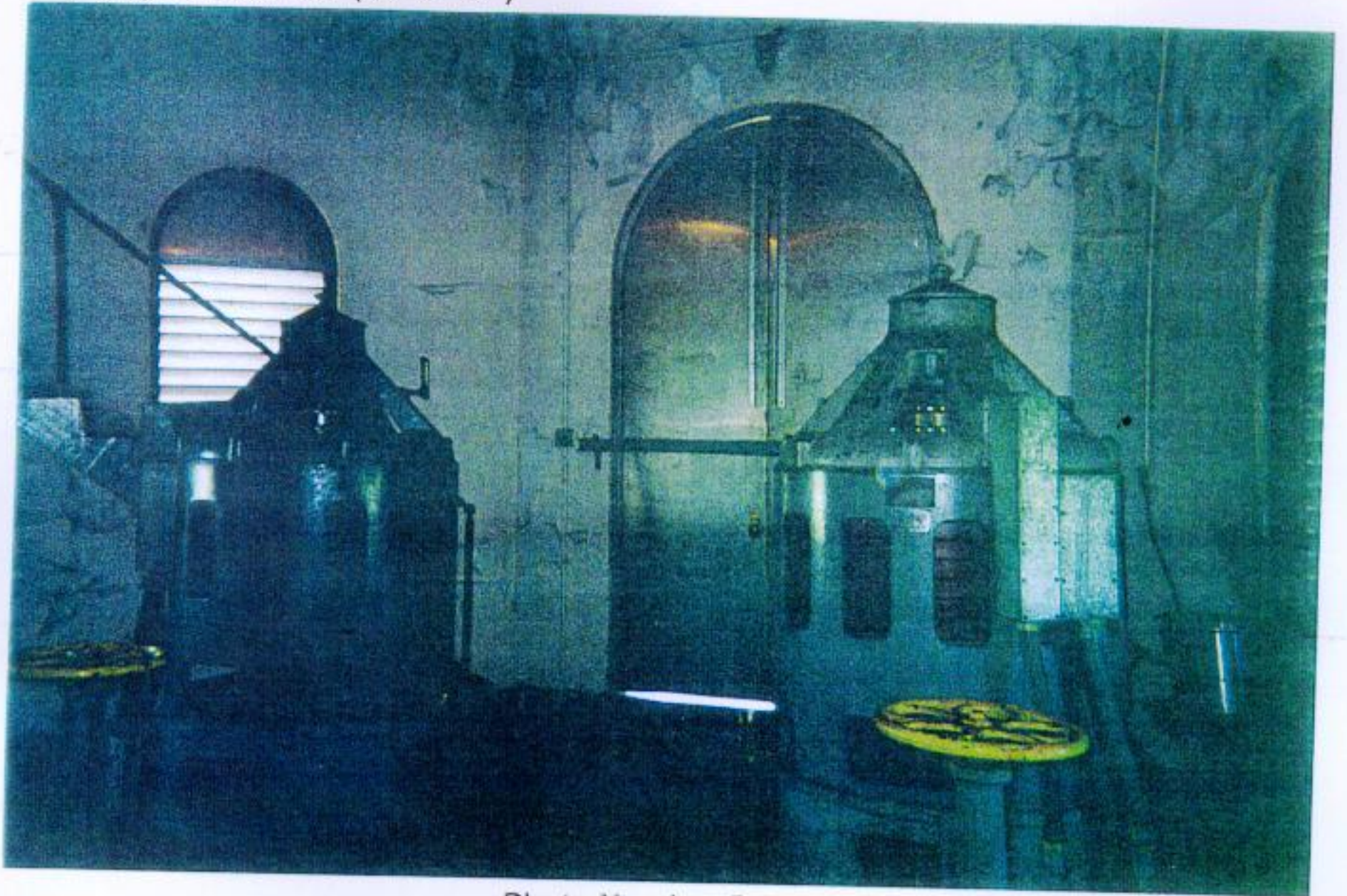


Photo Number 5

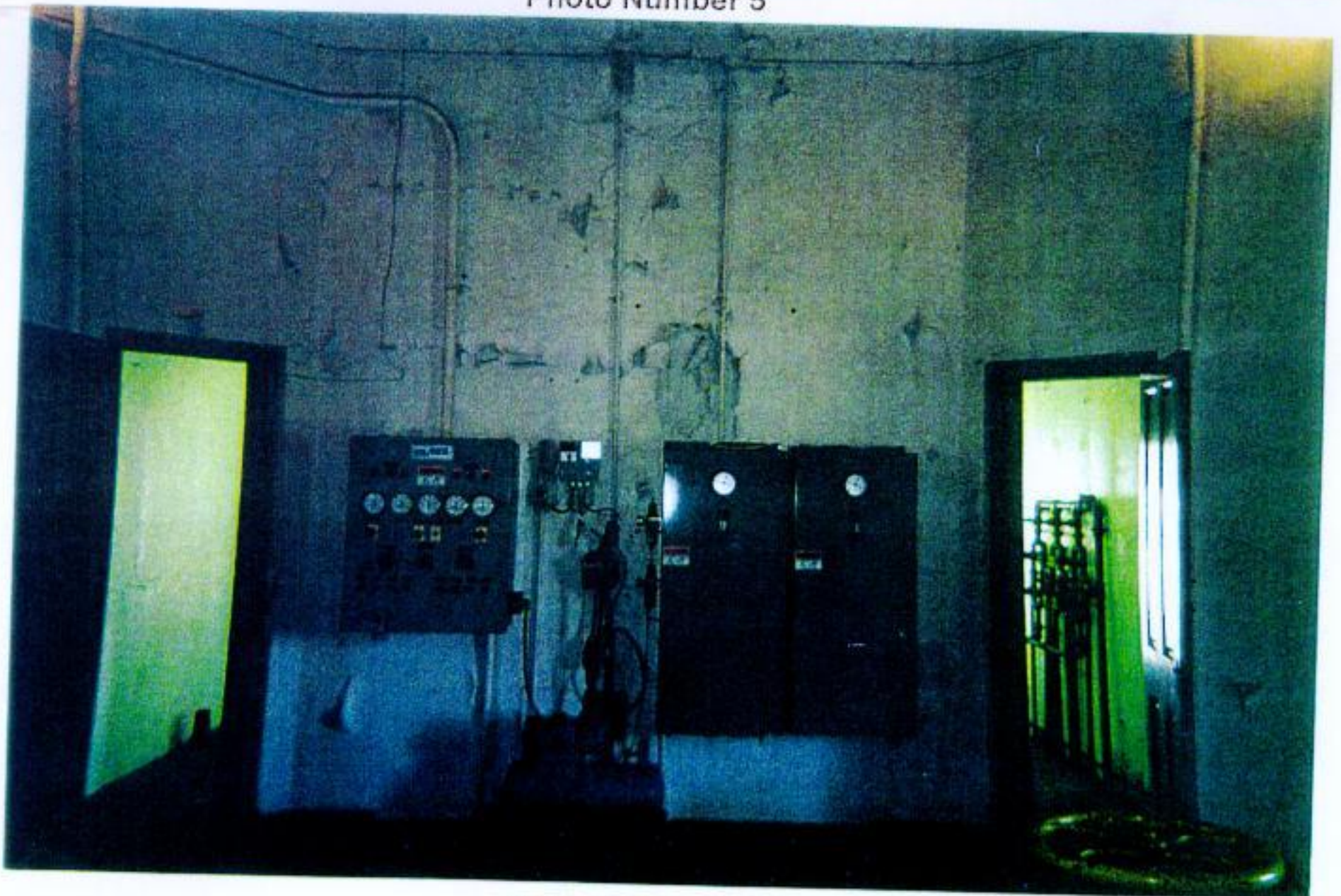


Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 133 (BERG)
11501 MORRISON ROAD

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 133 (Berg)

Pump Station 133 is a flooded-suction, can-type station located on 11501 Morrison Road. Wastewater discharges the station via a 16-inch diameter force main and connects to the 30-inch portion of the Morrison Road force main. Pump Station 133 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 133.

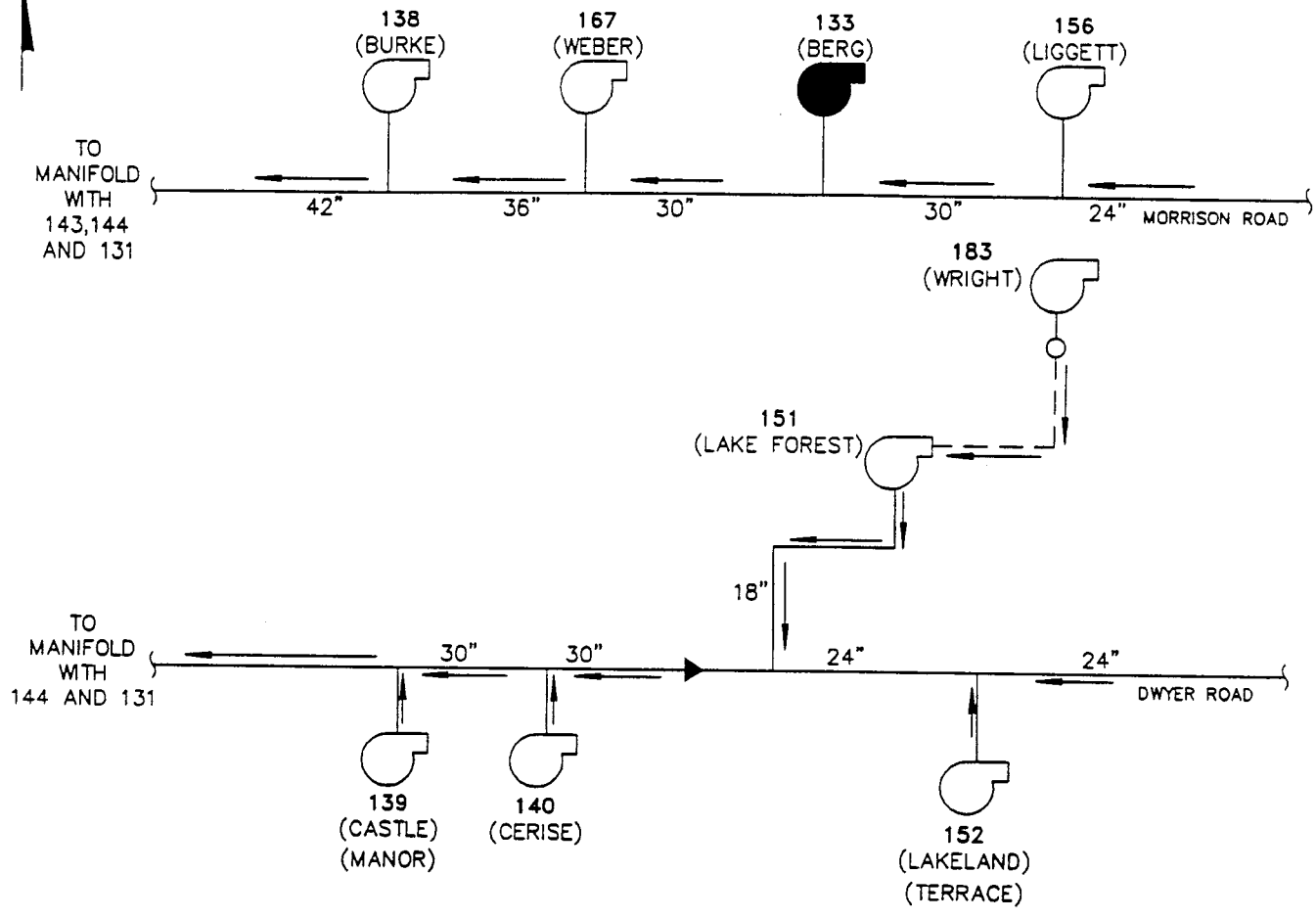
Pump Station 133 contains two (8-inch by 8-inch) Fairbanks Morse vertically aligned pumps. Each pump is powered by a 100 horsepower (hp) Fairbanks Morse electric motor operating at a speed of 1175 revolutions per minute (rpm). This equipment is housed in an 11-foot by 11-foot reinforced concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 28.6 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair although there is corrosion around the pump as seen in photo number 2 and 3. While inspecting the station's valves and piping, it was found that the suction gate and check valves for pump number 2 do not seat properly and therefore allow backflow from the force main into the wet well.

Pump Station 133 collects wastewater from the surrounding gravity sewer system into a 23.2-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated dimensions of 11 feet by 11 feet. The overall condition of the wet well appears to be fair.

A draw down/fill test was conducted to determine the capacity of Pump Station 133. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 3000 gallons per minute (gpm) at 38 feet of head. The shut-off head of both pumps was found to be 102 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 5600 gpm at 52 feet of head.

Recommendations:

1. It is recommended that the suction gate valve and the check valve for pump number 2 be adjusted to insure proper seating such that backflow will not occur.



	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

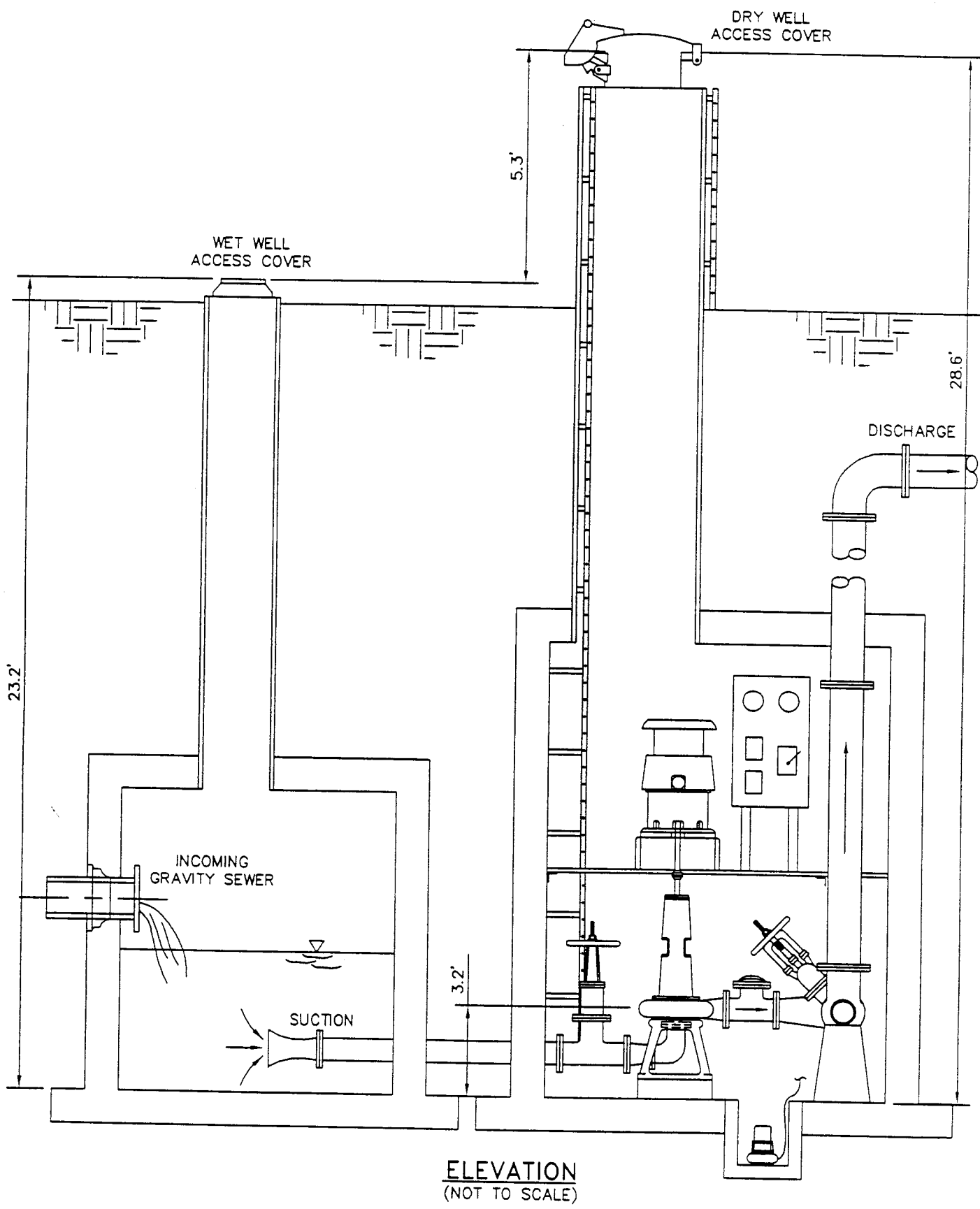
FILE NO.: 133
JOB NO.: 1113030.01090120 DATE: 3/28/97



PUMP STATION 133 (BERG)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97

FILE NO.: 133 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 133 (BERG)
CAN TYPE FLOODED SUCTION

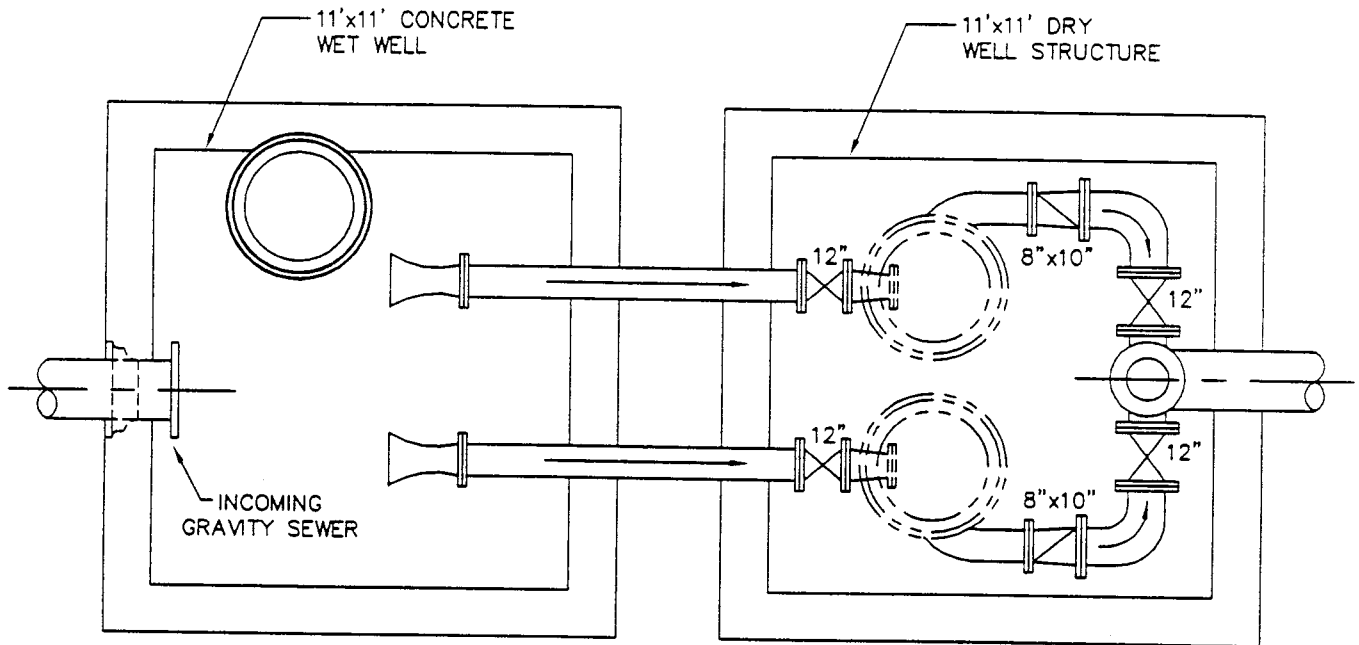
FIGURE:

2

DATE:

3/28/97

FILE NO.: 133- S JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 133 (BERG)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 133 (Berg)

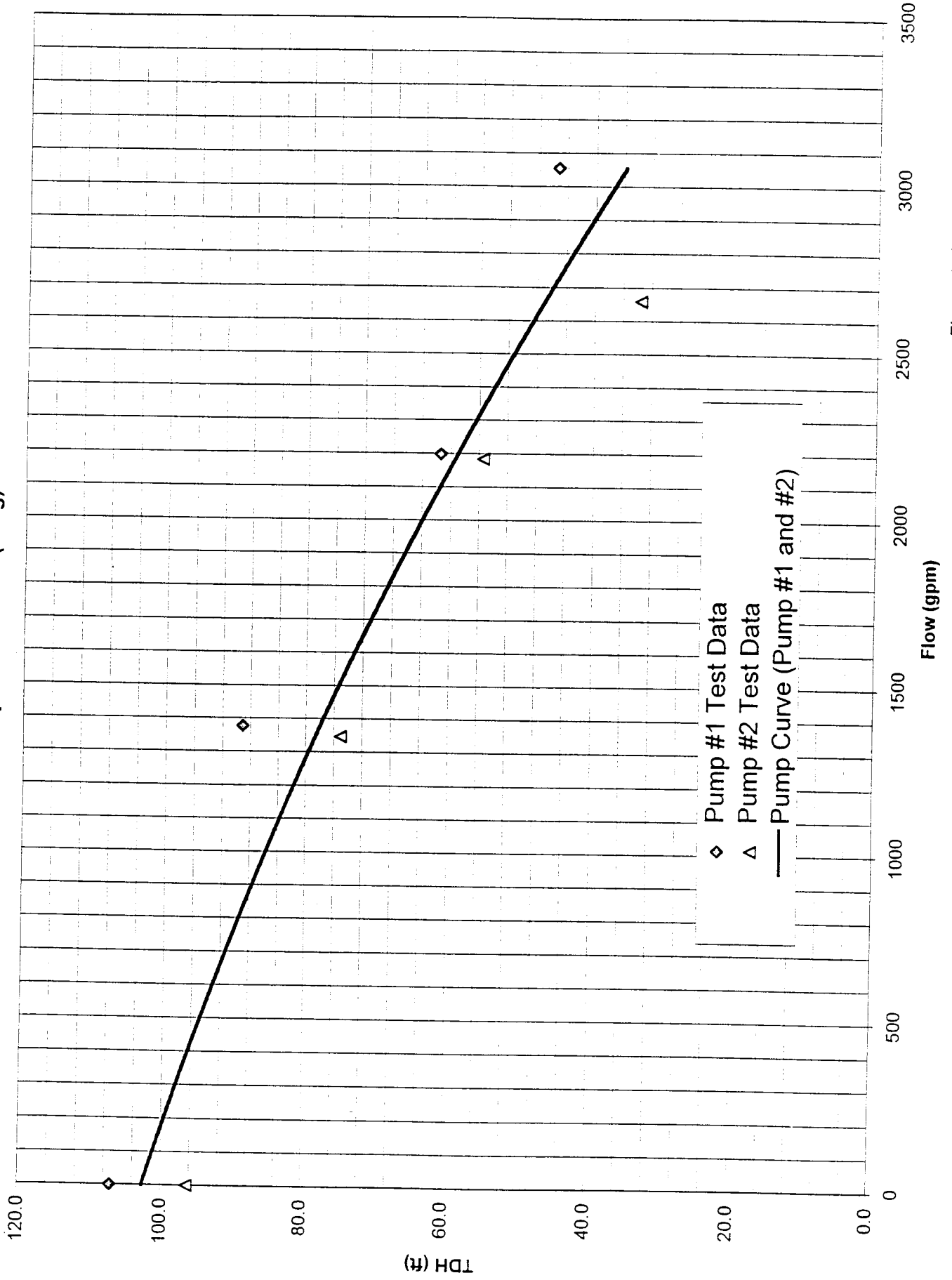


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 133

General Information

PS No. 133 PS Facility Berg

Address 11501 Morrison Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter not available inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 300 gpm 36 ft. of head 690 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 16 inch

Suction Valve Size 0 inch Discharge Valve Size 12 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 8 inch

Dry Well Dimensions 0 ft. dia. Length 11 ft. Width: 11 ft. Depth 28.6 ft.

Pump centerline* 3.2 ft. Centerline of discharge pipe* _____ ft.

* measured from dry well bottom.

Notes: Centreline of discharge pipe is vertical.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? Pump #2

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 133

Pump Controls

Lead pump on 9.5 ft. Type of Controls Bubbler
Lead pump off 4 ft.
Lag pump on 10.5 ft.
Lag pump off 5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition Coal tar epoxy - Small patches present on shaf

Comments Could not see lower rectangular portion of wet well.

Diameter 0 ft. Length 11 ft. Width 11 ft.

Bottom Depth* 23.2 ft.

Sewer Invert(s) Depth* 19 ft.

0 ft.

*measured from top of wet well cover.



Photo Number 1

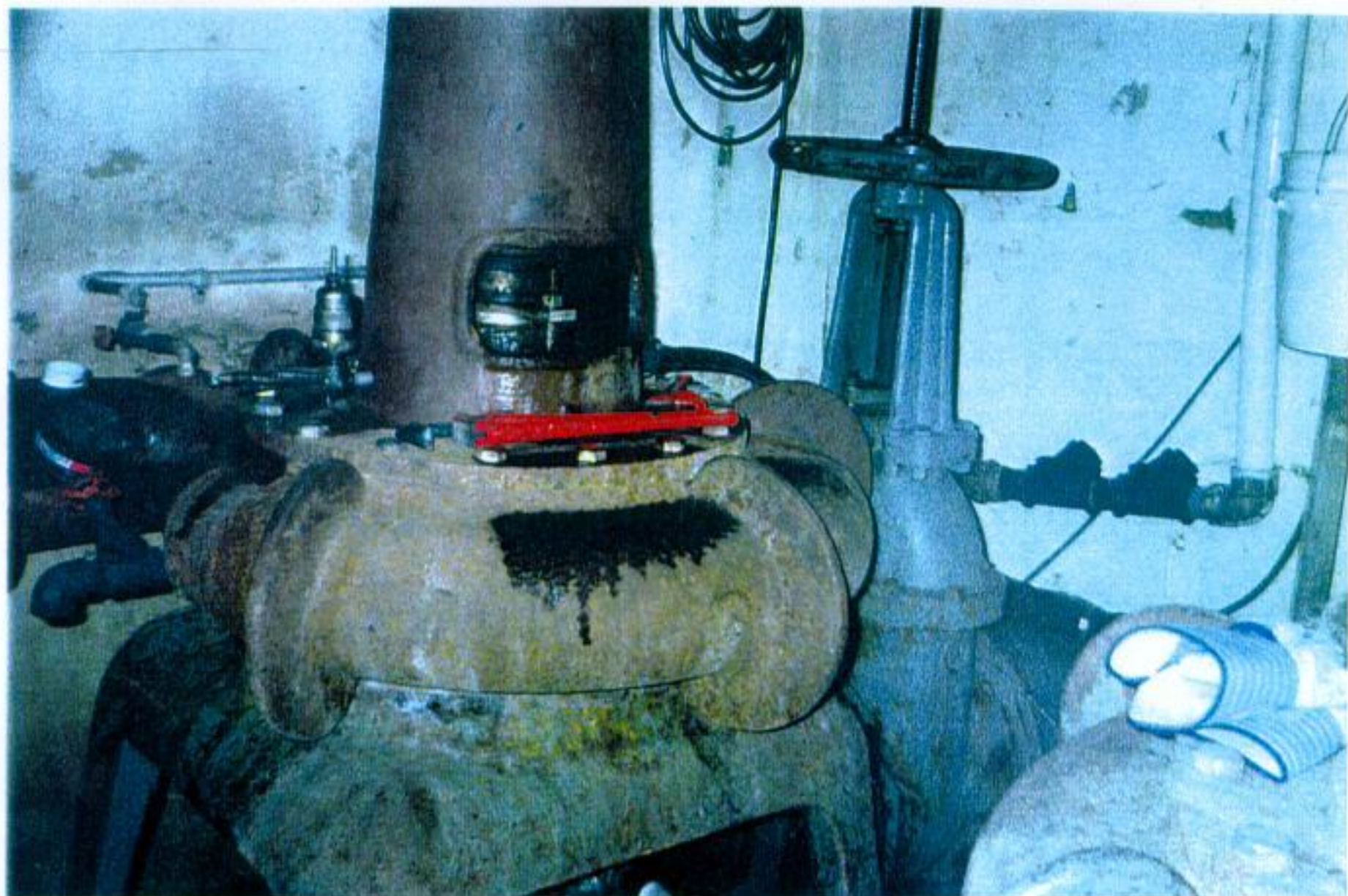


Photo Number 2



Photo Number 3



Photo Number 4

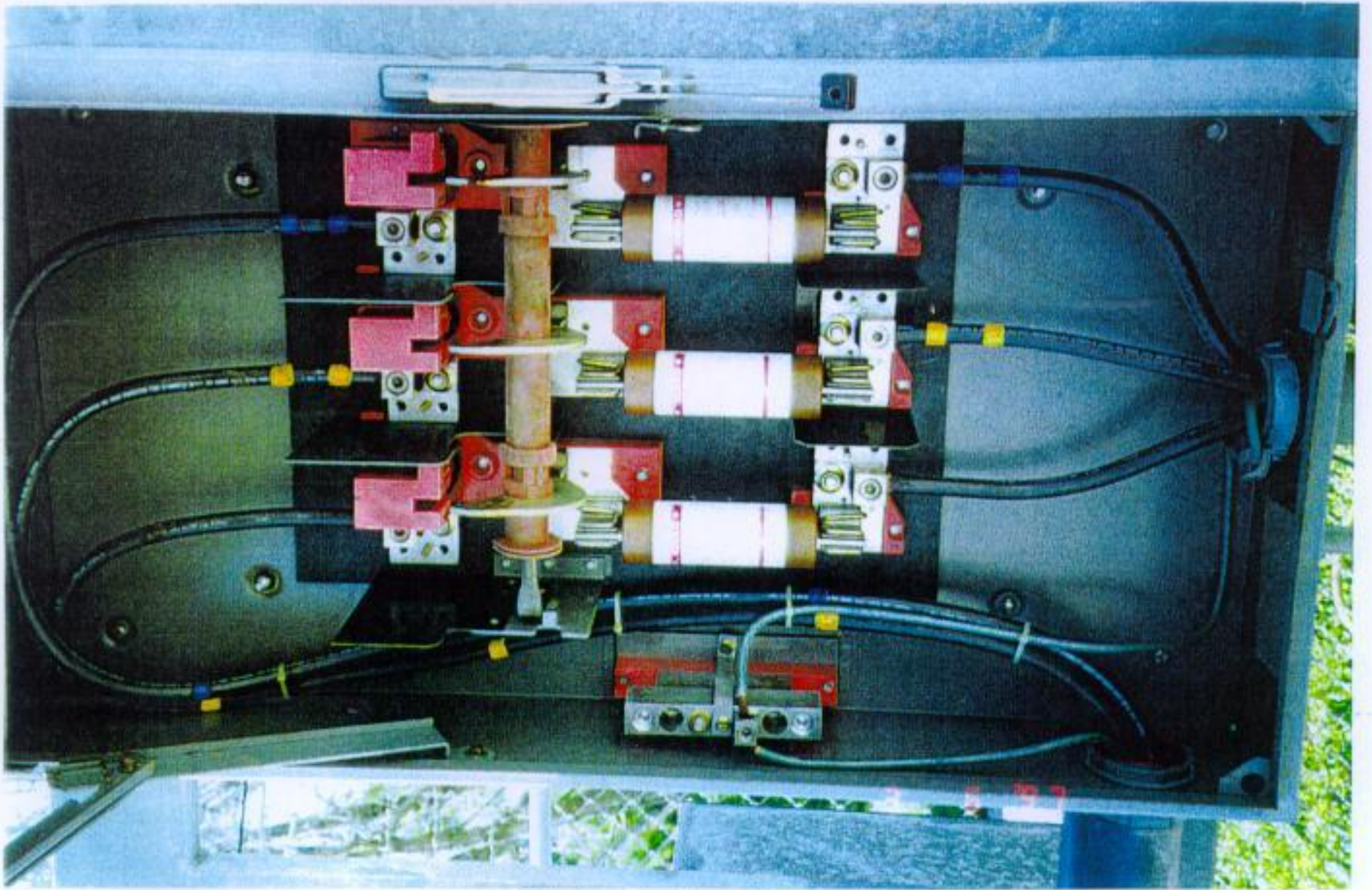


Photo Number 5



Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 134 (BOLAND)
1910 SUREKOTE ROAD**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 134 (Boland)

Pump Station 134 is a flooded-suction, can-type station located on 1910 Surekote Road. Wastewater from this station discharges to a gravity sewer line via approximately 30 feet of 6-inch diameter force main. Pump Station 134 does not repump flow from any other station. However, its flow is repumped by Pump Station 124 (24) located at 5827 North Tonti Street. Figure 1 shows the schematic subsystem surrounding Pump Station 134.

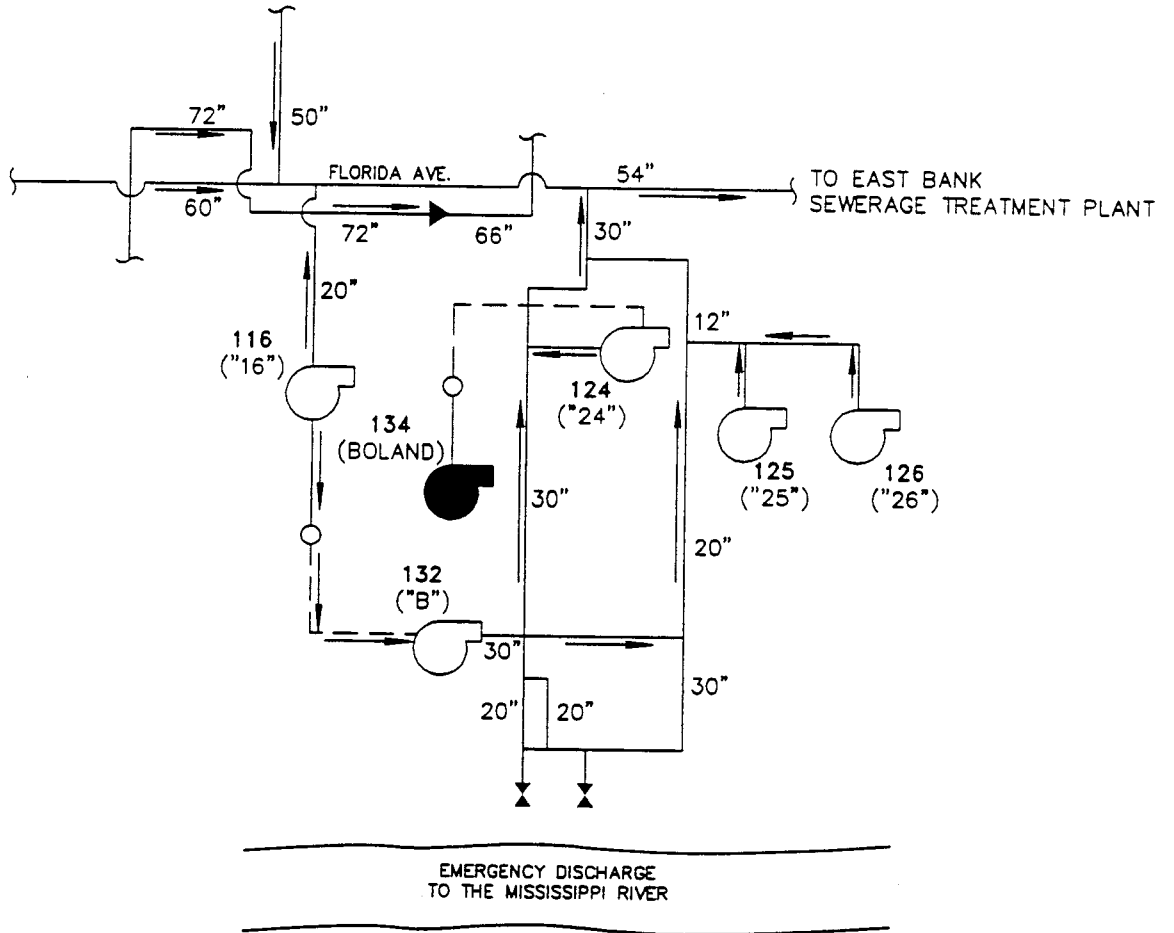
Pump Station 134 contains two (8-inch by 6-inch) Fairbanks Morse vertically aligned pumps with 15.28-inch diameter impellers. Each pump is powered by a 10 horsepower (hp) Marathon Electric motor operating at a speed of 700 revolutions per minute (rpm). This equipment is housed in a 10.3-foot diameter steel dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 28.3 feet. Figures 2 and 3 provide elevation and plan views of the station. The overall condition of the station is fair. There is moderate corrosion in isolated areas of the pump room as seen in the attached photos.

Pump Station 134 collects wastewater from the surrounding gravity sewer system into a 22.3-foot deep concrete wet well. The cross sectional area of the wet well is an arched pipe shape with estimated dimensions of 77 inches by 122 inches. The overall condition of the wet well is good.

A drawdown/fill test was conducted to determine the capacity of Pump Station 134. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 400 gallons per minute (gpm) at 33 feet of head. The shut-off head of both pumps was found to be 38 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 600 gpm at 35 feet of head.

Recommendations:

1. The physical condition of the electrical service disconnect switch is in poor condition due to corrosion as seen in photo number 4. Also, it is noted that the motor circuit breaker is undersized. It is recommended that these electrical situations be addressed.



	REDUCER/INCRASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 13. JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS

FIGURE:

1

DATE:

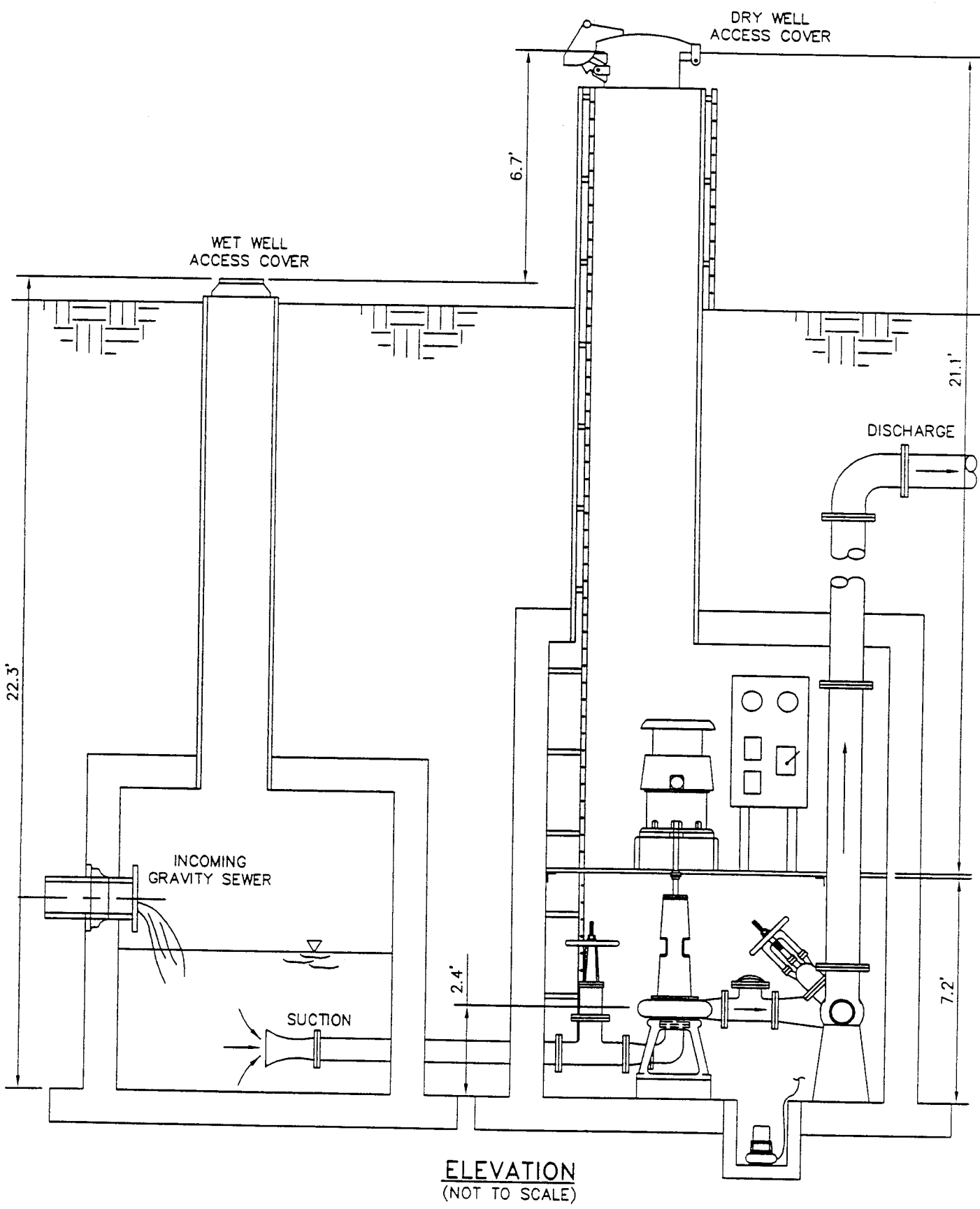
3/28/97



MONTGOMERY WATSON

PUMP STATION 134 (BOLAND)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FILE NO.: 134 JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 134 (BOLAND)
CAN TYPE FLOODED SUCTION

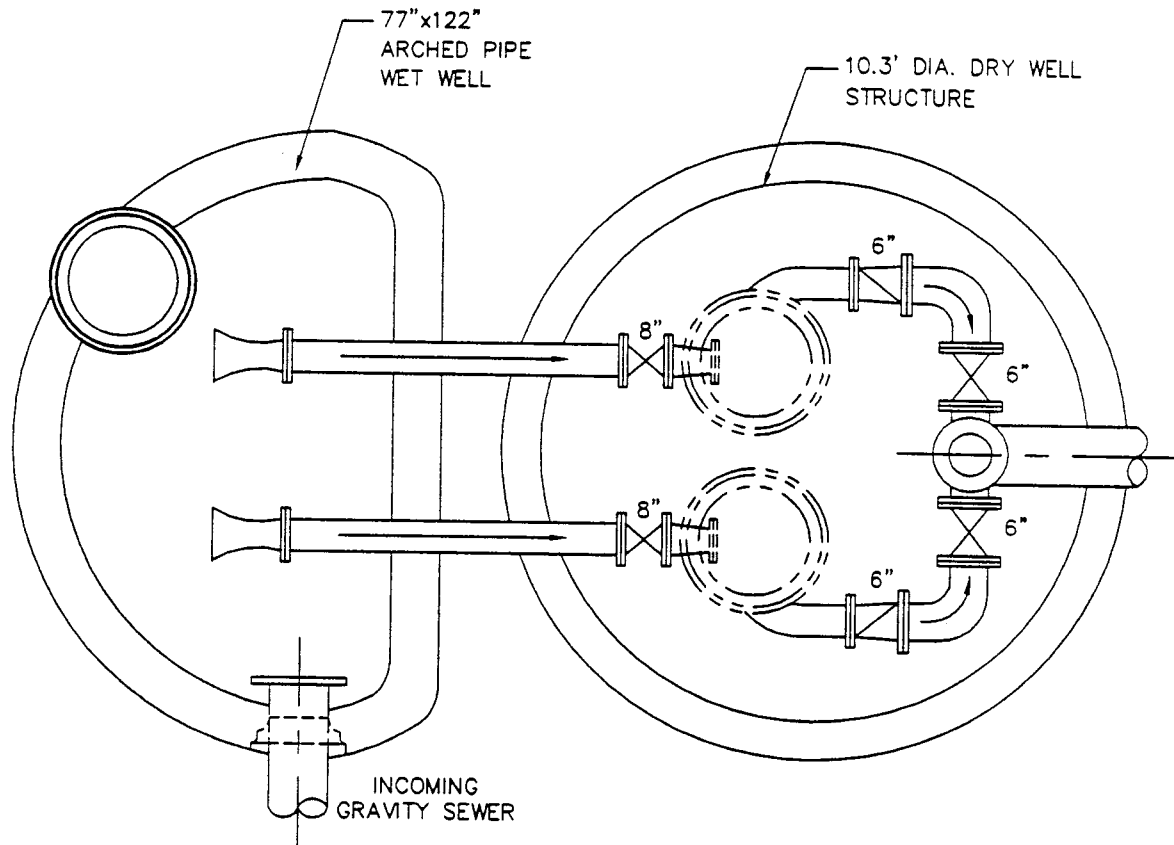
FIGURE:

2



DATE:

3/28/97

FILE NO.: 134 AC JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)

 SEWERAGE AND WATER BOARD OF NEW ORLEANS
 MONTGOMERY WATSON

PUMP STATION 134 (BOLAND)
CAN TYPE FLOODED SUCTION

FIGURE:	3
DATE:	3/28/97

Pump Station: 134 (Boland)

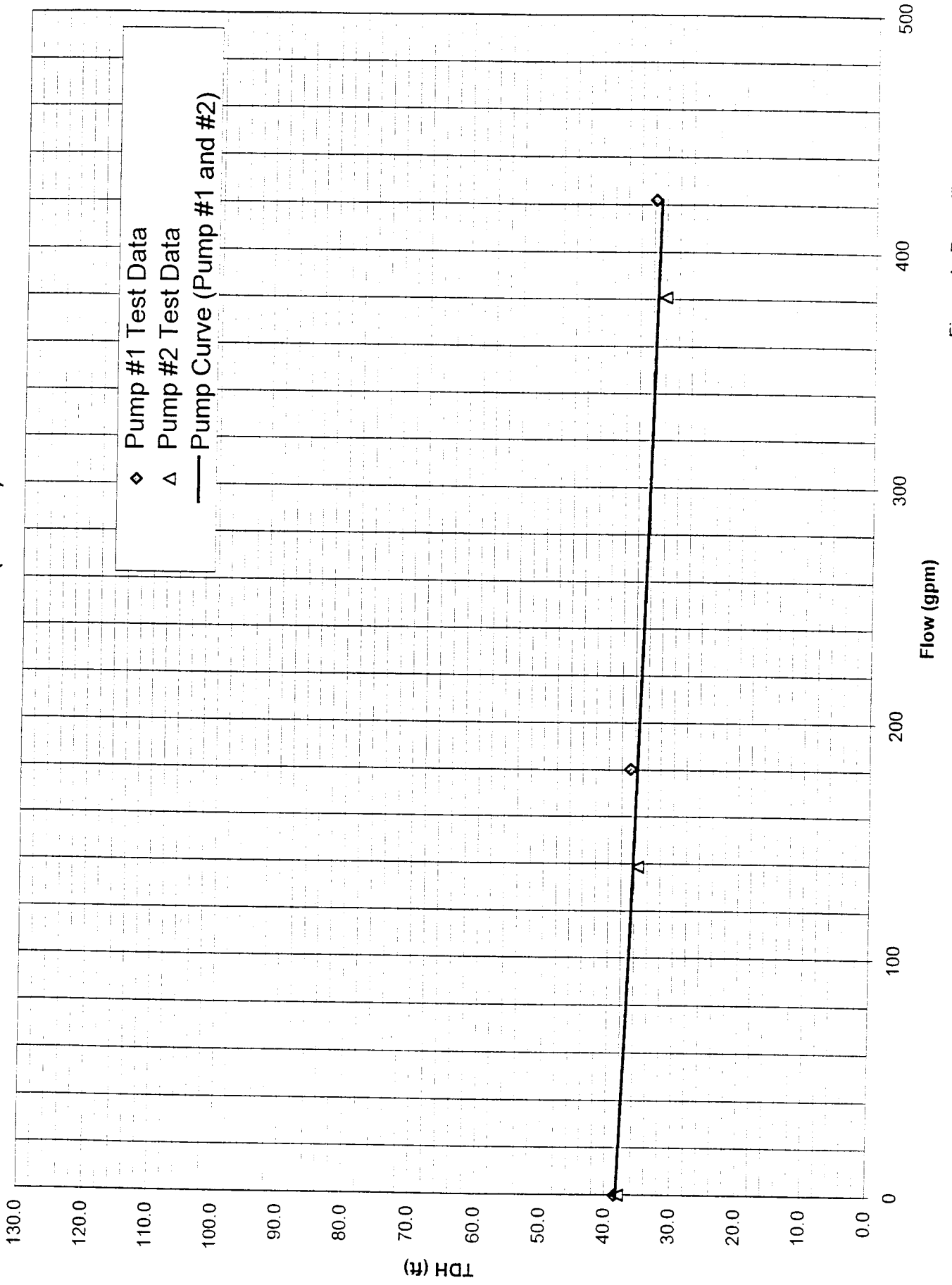


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 134

General Information

PS No. 134 PS Facility Boland

Address 1910 Surekote Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 15.28 inch

Model Number-Pump #1 - _____ Serial Number-Pump #1 KZX1080233

Model Number-Pump #2 - _____ Serial Number-Pump #2 KZX1080233-1

Model Number-Pump #3 - _____ Serial Number-Pump #3 - _____

Model Number-Pump #4 - _____ Serial Number-Pump #4 - _____

Pump Configuration Vertical Horizontal

Nameplate Rating 300 gpm 36 ft. of head 690 rpm

Pump Suction 8 inch Pump Discharge 6 inch FM Diameter 6 inch

Suction Valve Size 8 inch Discharge Valve Size 6 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 6 inch

Dry Well Dimensions 10.3 ft. dia. Length 0 ft. Width: 0 ft. Depth 28.3 ft.

Pump centerline* 2.4 ft. Centerline of discharge pipe* 12.6 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 134

Pump Controls

Lead pump on 7 ft. Type of Controls Bubbler
Lead pump off 4 ft.
Lag pump on 8 ft.
Lag pump off 4 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments 77-inch x 122-inch concrete arched pipe

Diameter _____ ft. Length _____ ft. Width _____ ft.

Bottom Depth* 22.3 ft.

Sewer Invert(s) Depth* 17.3 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 134

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 240 V three phase open delta (2 transformers bank)

Size of service protective device 100 amps, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 60 amps, circuit breaker

Service wire size #2 AWG Size of motor starter in NEMA 1

Motor wire size #10 AWG Motor Horsepower 10

Number of motors 2 Motor Speed Single

Speed(s) in rpm 700

Frequency in Hertz 60

Type of starter Full voltage non-reversing

Model Number - Motor # TDRBPHV Serial Number - Motor # 1065107

Model Number - Motor # TDRBPHV Serial Number - Motor # 1065108

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the service disconnect switch is poor due to corrosion. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The motor circuit breaker is undersize. The

Pump Station 134 (Boland)



Photo Number 1



Photo Number 2

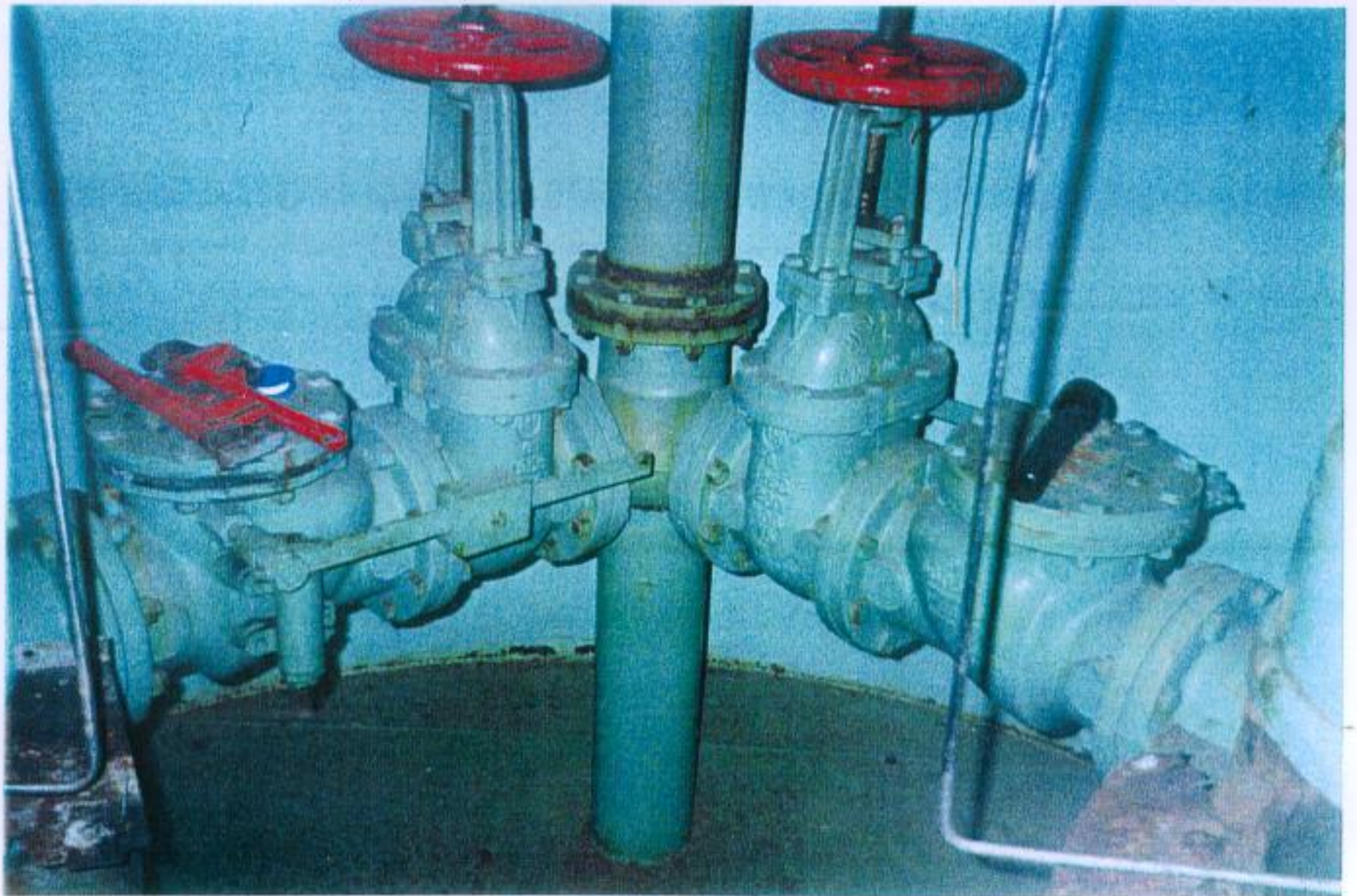


Photo Number 3

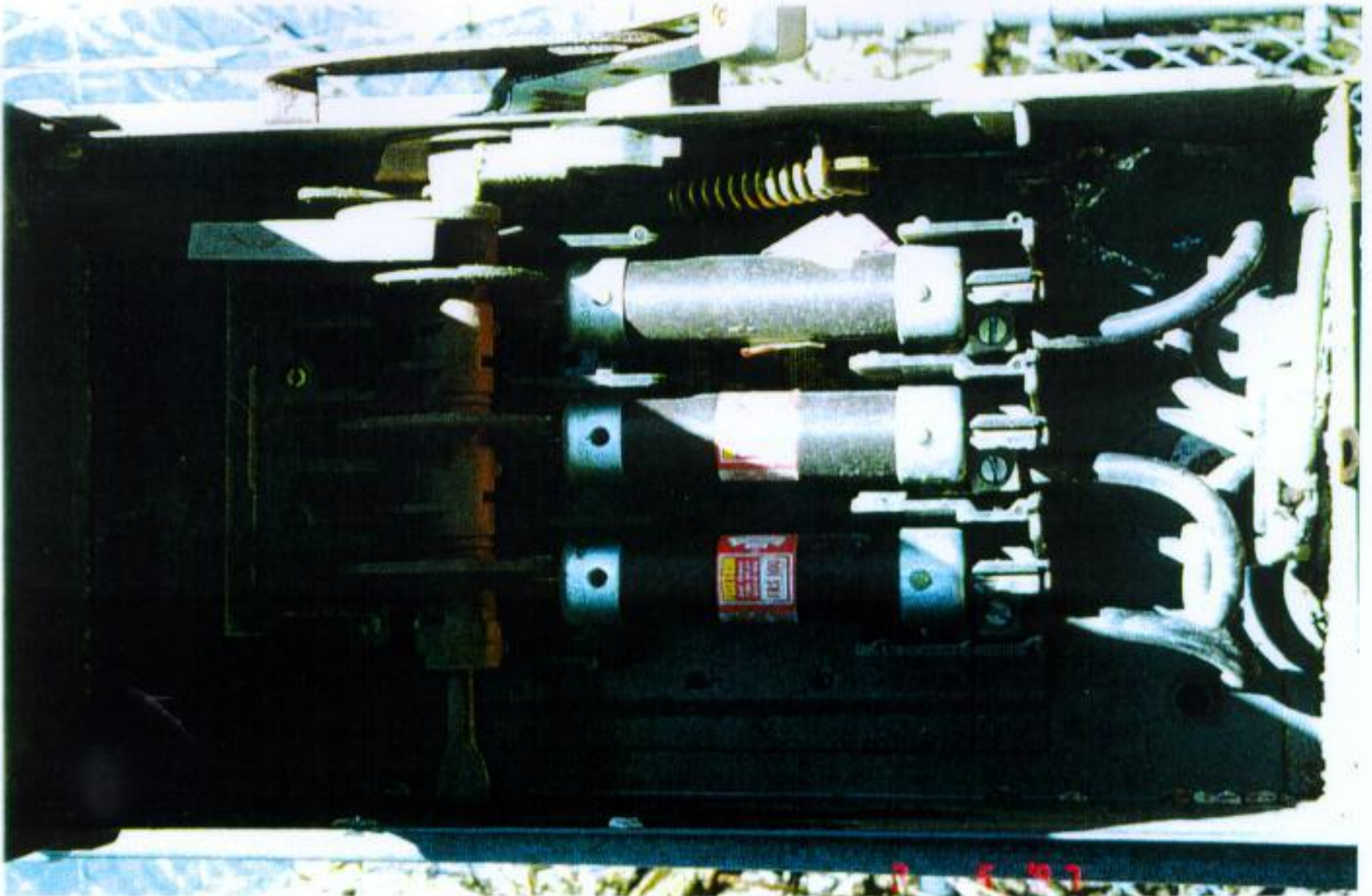


Photo Number 4

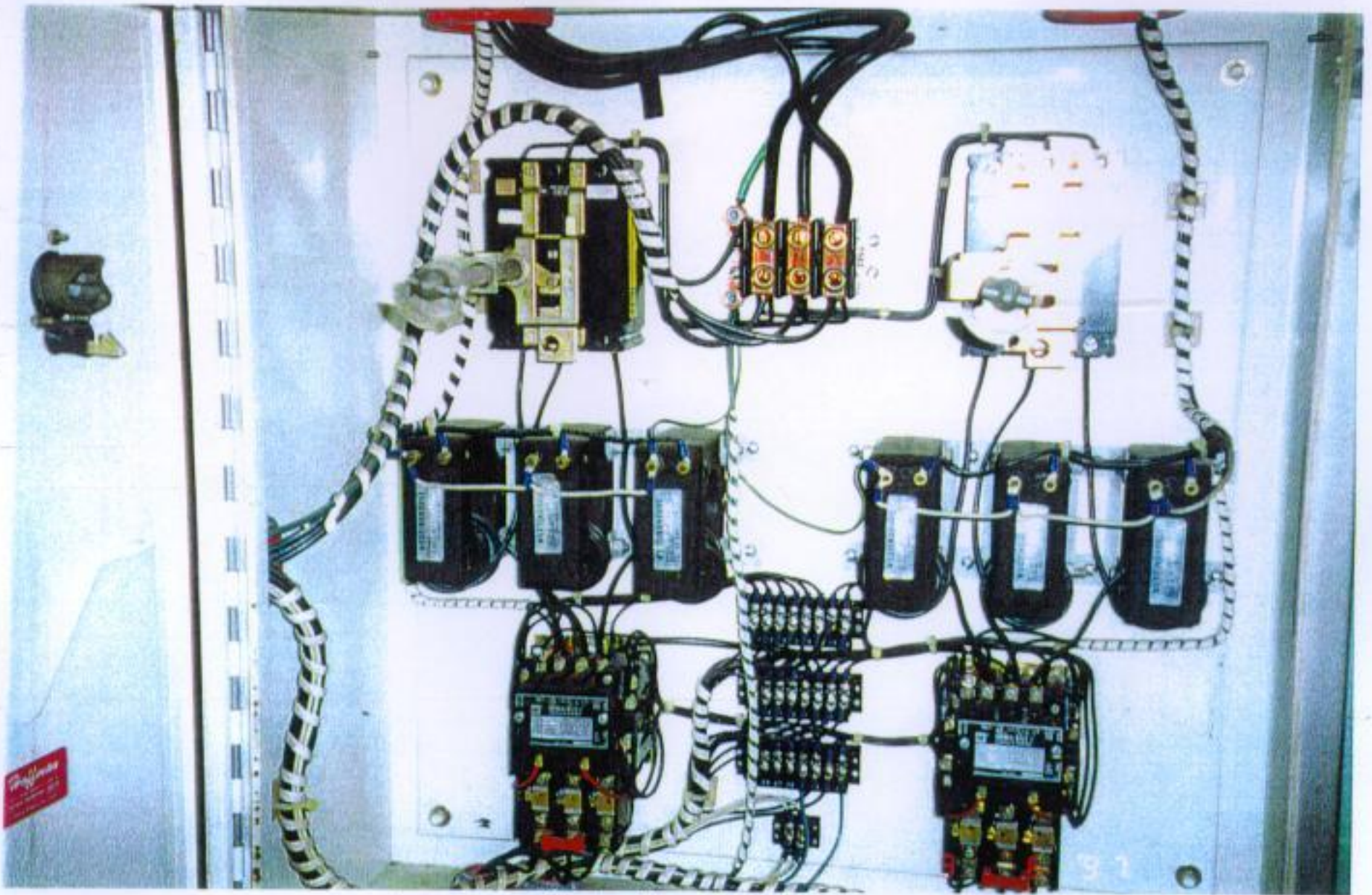


Photo Number 5

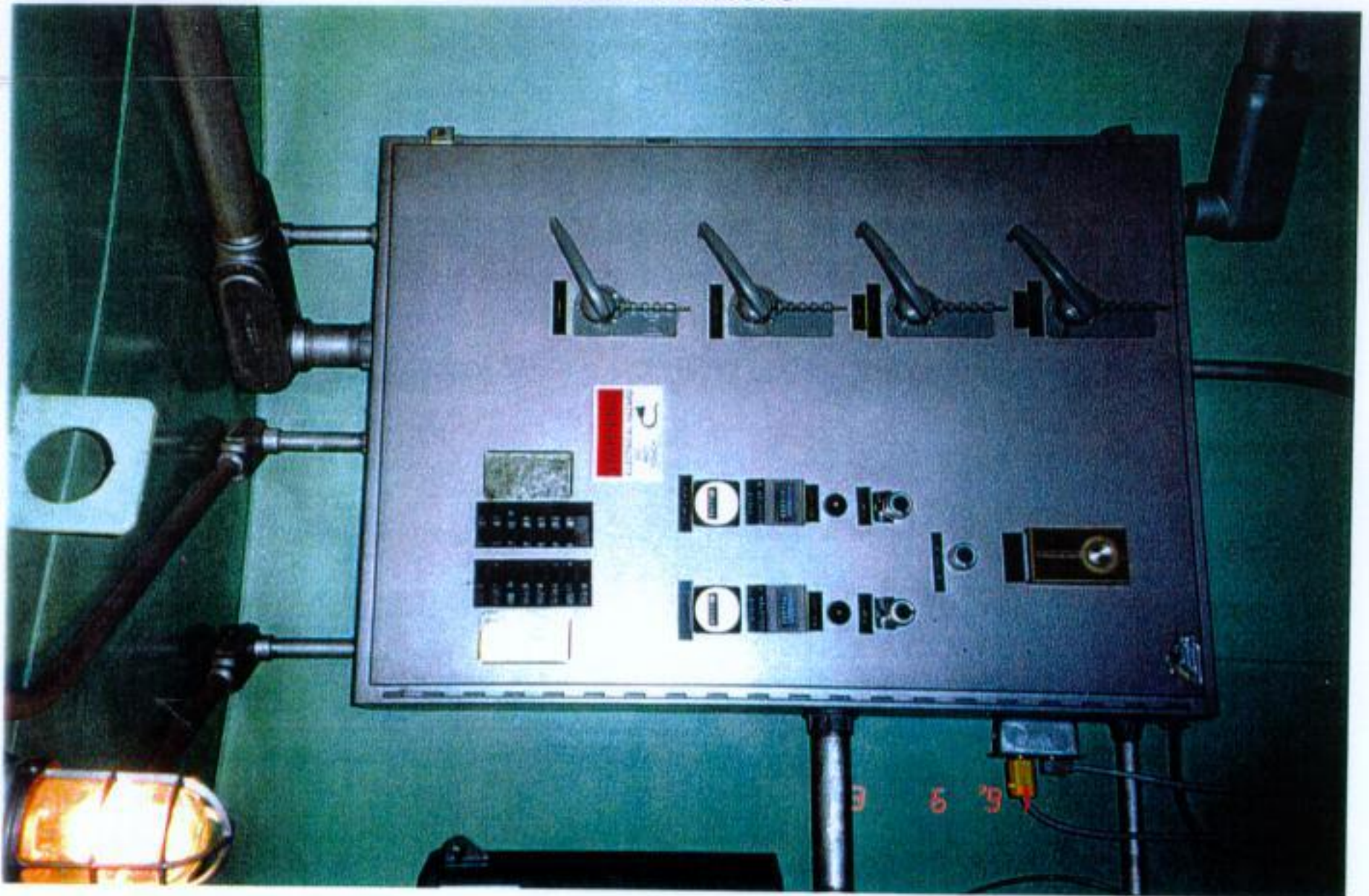


Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 135 (BOULEVARD "X")
14434 CHEF HIGHWAY

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 135 (Boulevard "X")

Pump Station 135 is vertical turbine station located at 14434 Chef Menteur Highway. Flow discharges the station via a 16-inch diameter force main and connects to the 16-inch portion of the Chef Menteur force main and also connects to the 30-inch portion of the Old Gentilly Road force main via an 18-inch force main. Pump Station 135 repumps all flow from Pump Station 128 (Alcee Fortier). Figure 1 shows the schematic subsystem surrounding Pump Station 135.

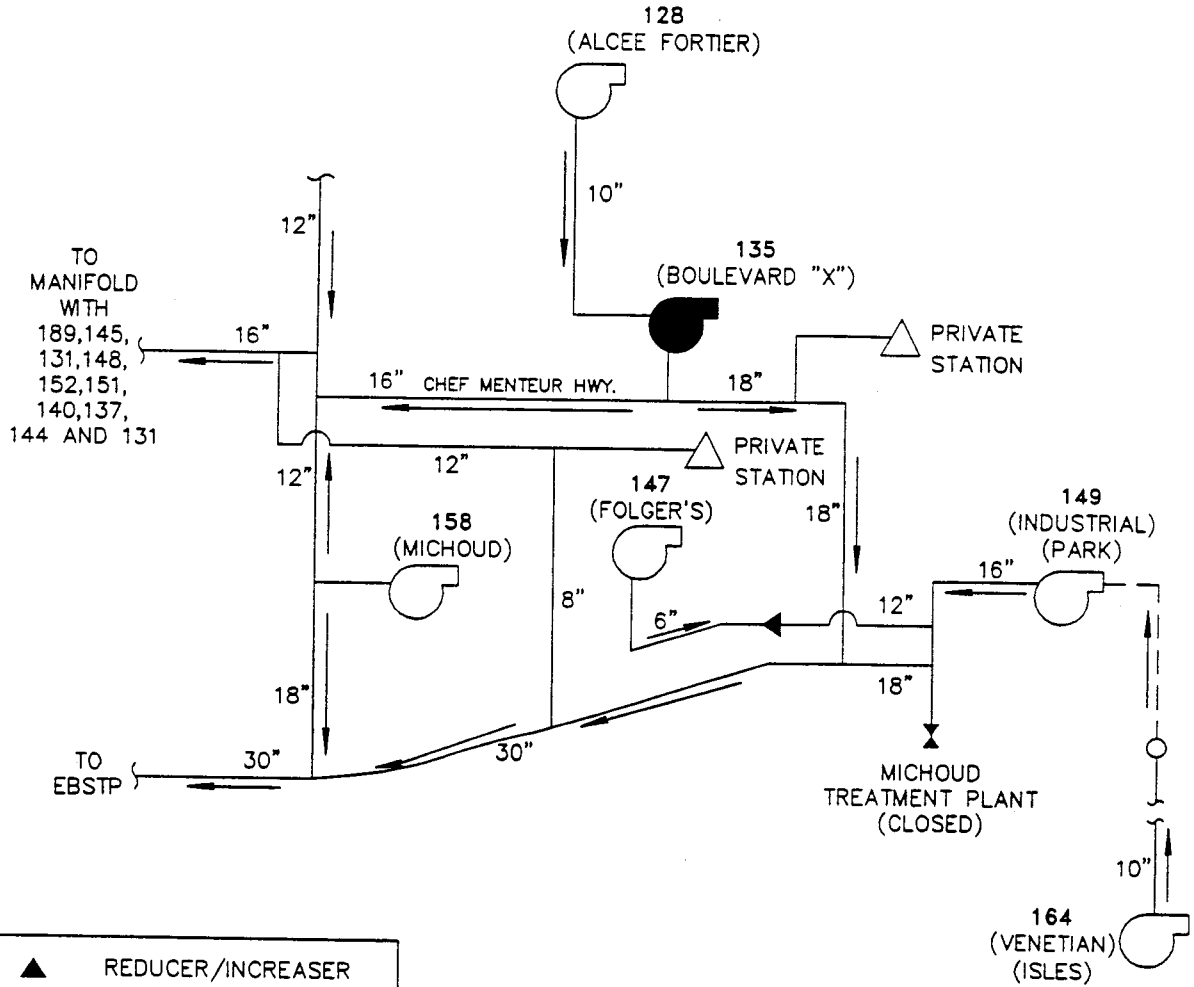
Pump Station 135 contains two Fairbanks Morse single stage vertical turbine pumps with 13.38-inch diameter impellers. Each pump is powered by a 60 horsepower (hp) General Electric motor operating at a speed of 1175 revolutions per minute (rpm). This equipment is housed in a 12-foot by 13.5-foot brick/block dry well structure, completely above ground. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is good although there is dramatic ground subsidence located on the north side of the station.

Pump Station 135 collects wastewater from the surrounding gravity sewer system into a 24.6-foot deep concrete wet well. The cross sectional area of the wet well is circular with an estimated 9-foot diameter. The overall condition of the wet well appears to be good.

The Doppler meter was used to determine the capacity of Pump Station 135. Figure 4 shows pump curve constructed from obtained test data. Each pump has an approximate capacity of 3800 gallons per minute (gpm) at 49 feet of head. The shut-off head of both pumps was found to be 67 feet.


Recommendations:

After an initial evaluation of Pump Station 135 no site specific recommendations can be made.



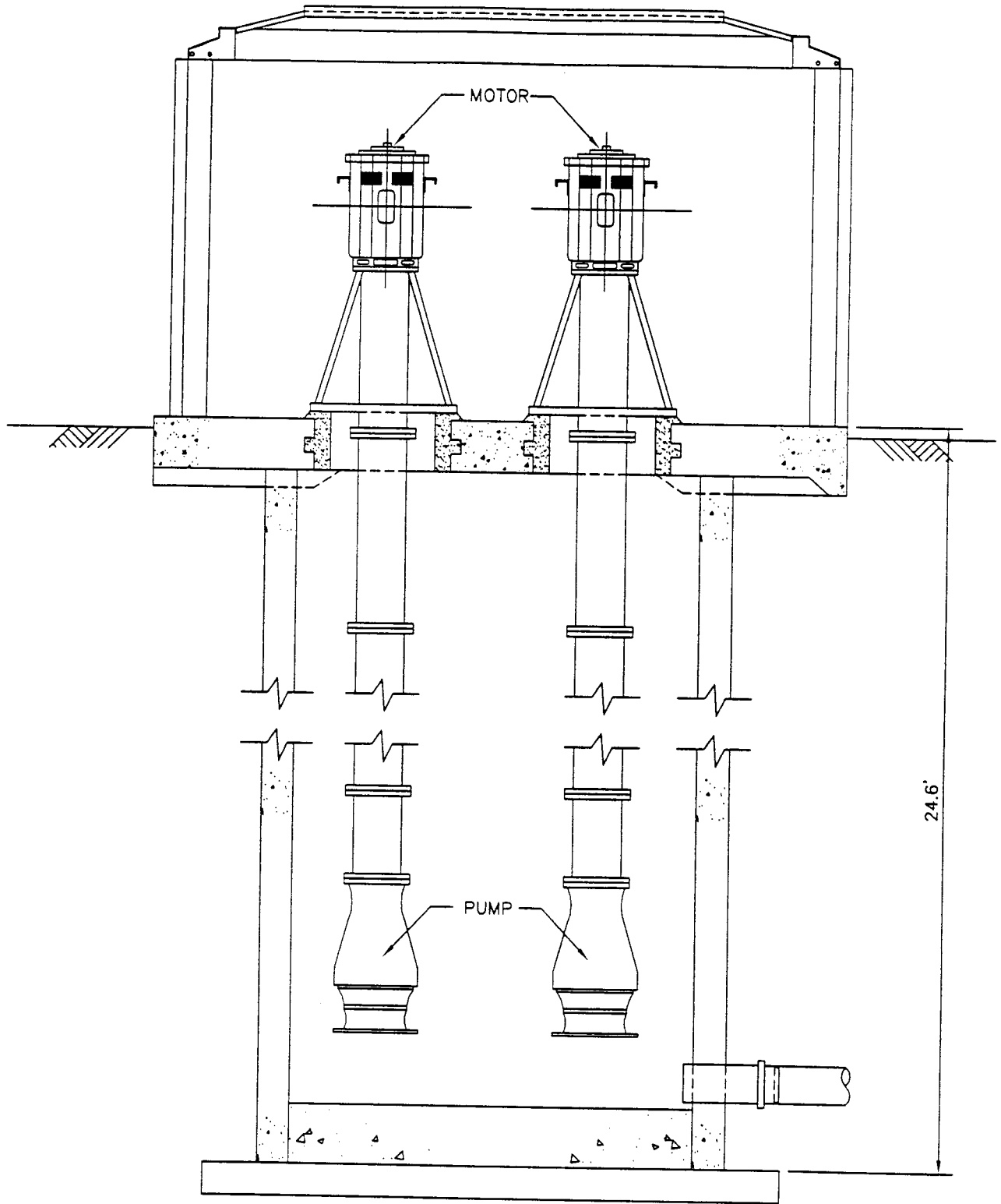
NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 131
JOB NO.: 1113030.01090120 DATE: 3/28/97

 SEWERAGE AND WATER BOARD OF NEW ORLEANS	MONTGOMERY WATSON
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PUMP STATION 135 (BOULEVARD "X")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1
DATE:
3/28/97



ELEVATION
(NOT TO SCALE)

FILE NO.: 132 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 135 (BOULEVARD "X")
VERTICAL TURBINE

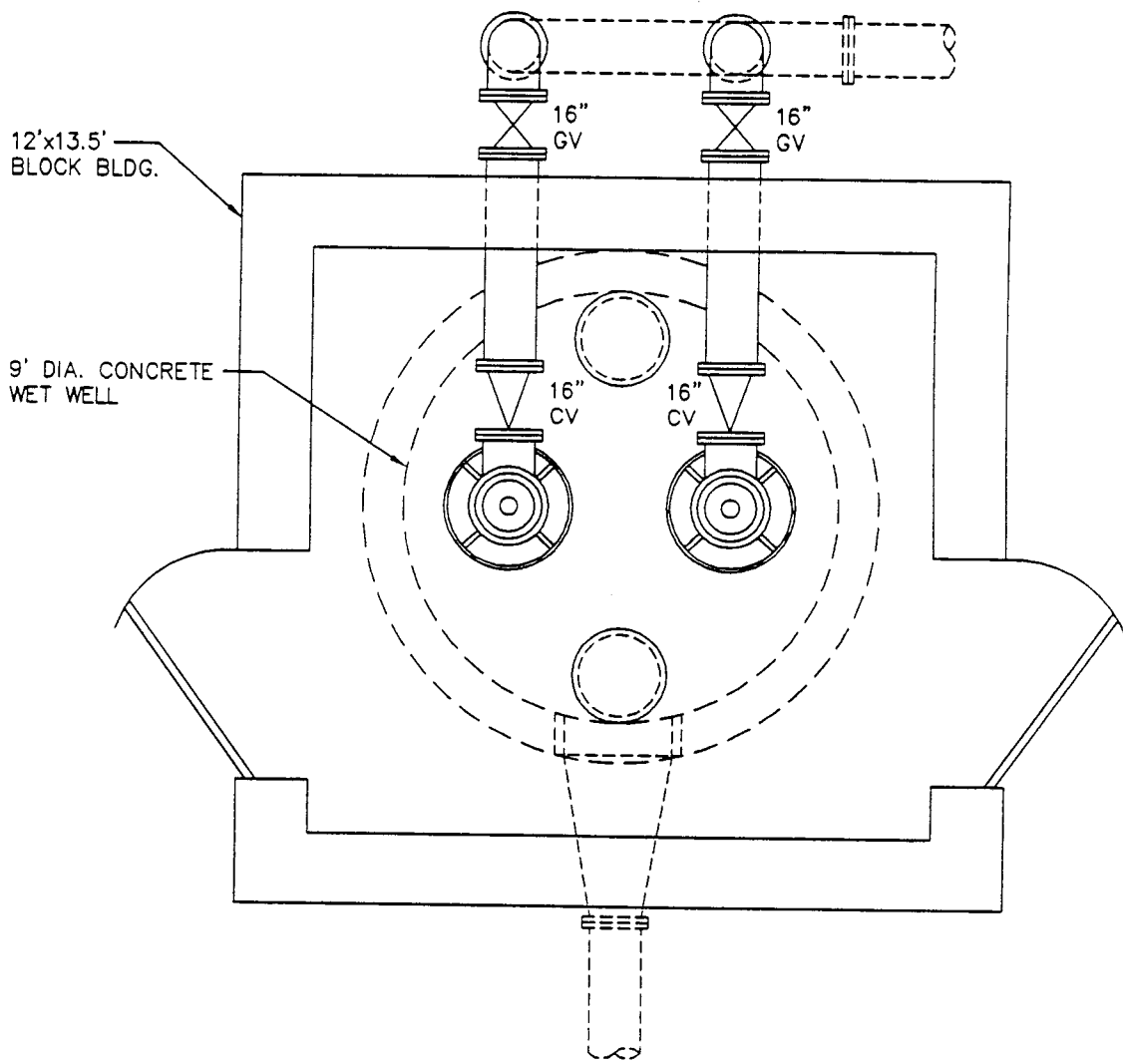
FIGURE:

2



DATE:

3/28/97

FILE NO.: 135 JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)

 <p>SEWERAGE AND WATER BOARD OF NEW ORLEANS</p>
 <p>MONTGOMERY WATSON</p>

PUMP STATION 135 (BOULEVARD "X")
VERTICAL TURBINE

FIGURE:	3
DATE:	3/28/97

Pump Station: 135 (Boulevard "X")

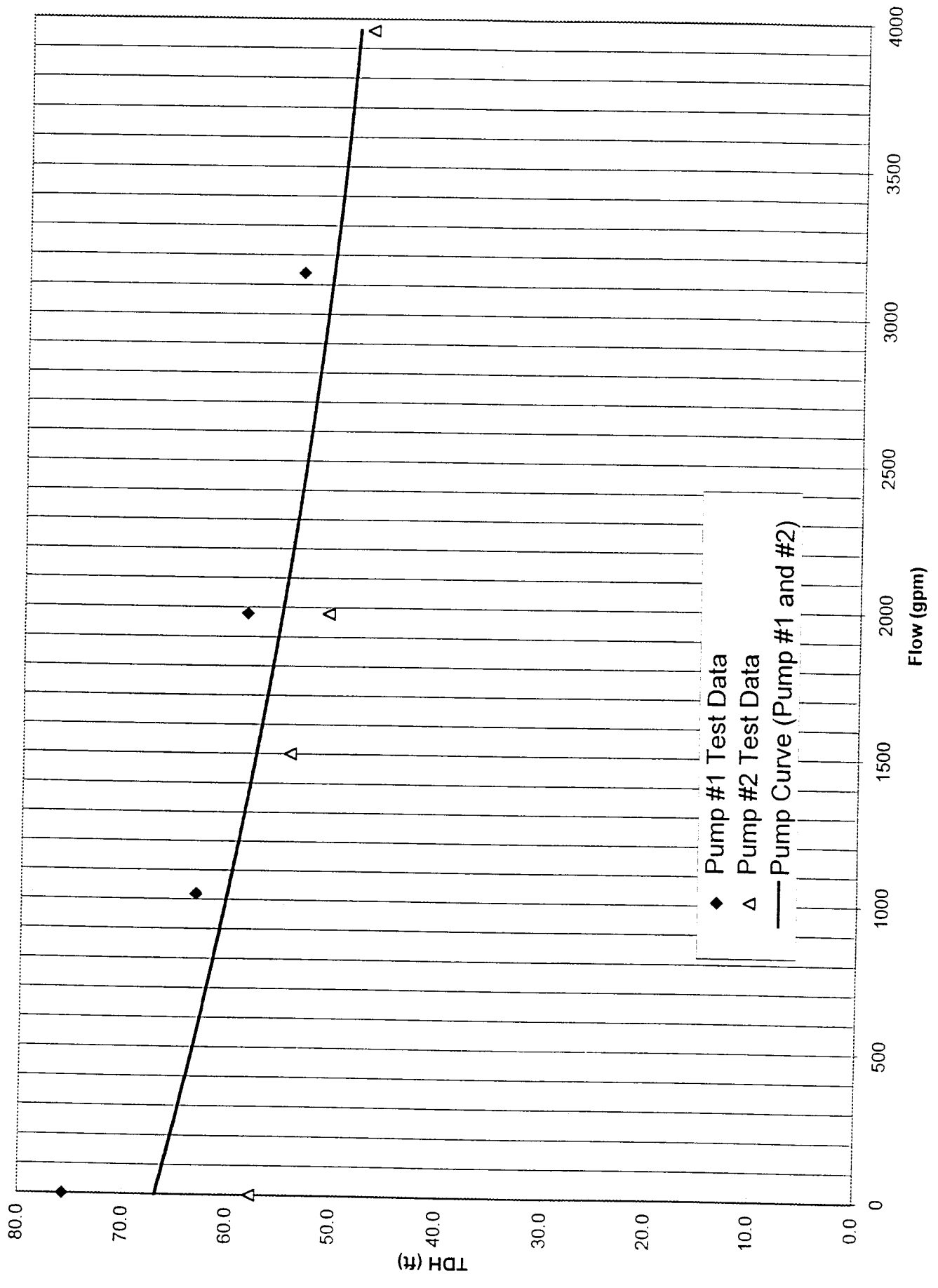


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 135

General Information

PS No. 135 PS Facility Boulevard "X" Address 14434 Chef Highway

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes Vertical Turbine

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 13.38 inch

Model Number-Pump #1 VTSH, 1 stage Serial Number-Pump #1 K3E2050839

Model Number-Pump #2 VTSH, 1 stage Serial Number-Pump #2 K3E2050839-1

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 3800 gpm 50 ft. of head 0 rpm

Pump Suction 16 inch Pump Discharge 16 inch FM Diameter 16 inch

Suction Valve Size 0 inch Discharge Valve Size 16 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 16 inch

Dry Well Dimensions 0 ft. dia. Length 13.5 ft. Width: 12 ft. Depth 0 ft.

Pump centerline* 2.4 ft. Centerline of discharge pipe* ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 135

Pump Controls

Lead pump on 12.5 ft. Type of Controls bubbler
Lead pump off 13.5 ft.
Lag pump on 4 ft.
Lag pump off 5 ft.

Notes: Drag Level 8.5' ; 3.5'

Structural Observations

Exterior The overall condition of the exterior is fair except that the asphalt and dirt area behind the station are suffering from subsidence.

Interior The overall condition of the interior is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate

Exposed reinforcement

Liner Present Liner type/Condition _____

Comments The manhole junction is in poor condition; groundwater is seeping through brick.

Diameter 9 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 24.6 ft.

Sewer Invert(s) Depth* 18.7 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 135

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device Not Available

Size of main protective device 200 amps, dual element, fusible disconnect switch

Size of motor protective device 110 amps, dual element, fusible disconnect switch

Service wire size #3/0 AWG Size of motor starter in NEMA 4

Motor wire size #2 AWG Motor Horsepower 60

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1175

Frequency in Hertz 0

Type of starter Full voltage non reversing (FVNR)

Model Number - Motor # 5K6277XH906A Serial Number - Motor # ESJ521131

Model Number - Motor # 5K6277XH906A Serial Number - Motor # ESJ521130

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of motors, motor controller, main disconnect switch and control panel is in fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 135 (Boulevard "X")



Photo Number 1

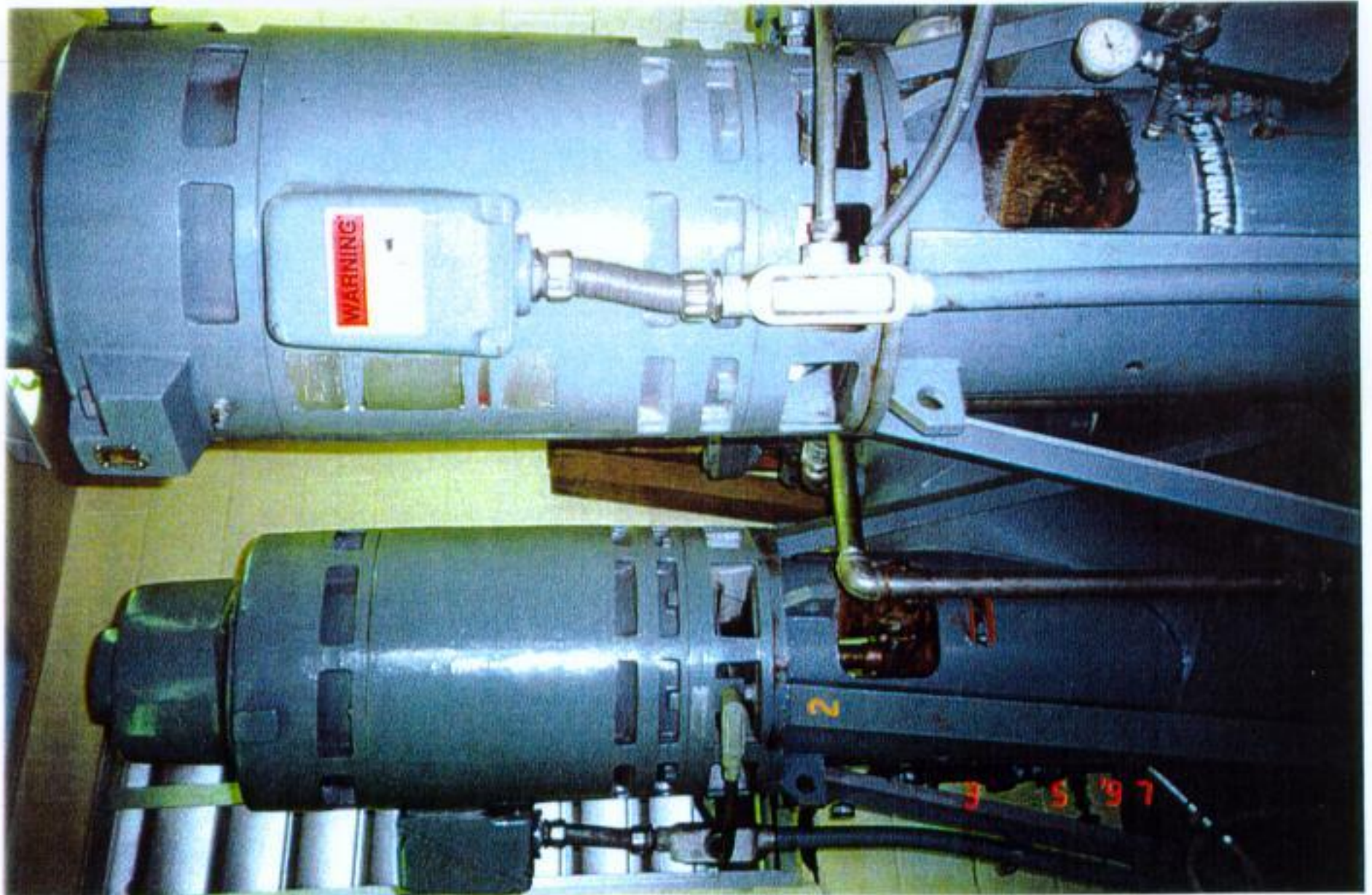


Photo Number 2

Pump Station 135 (Boulevard "X")

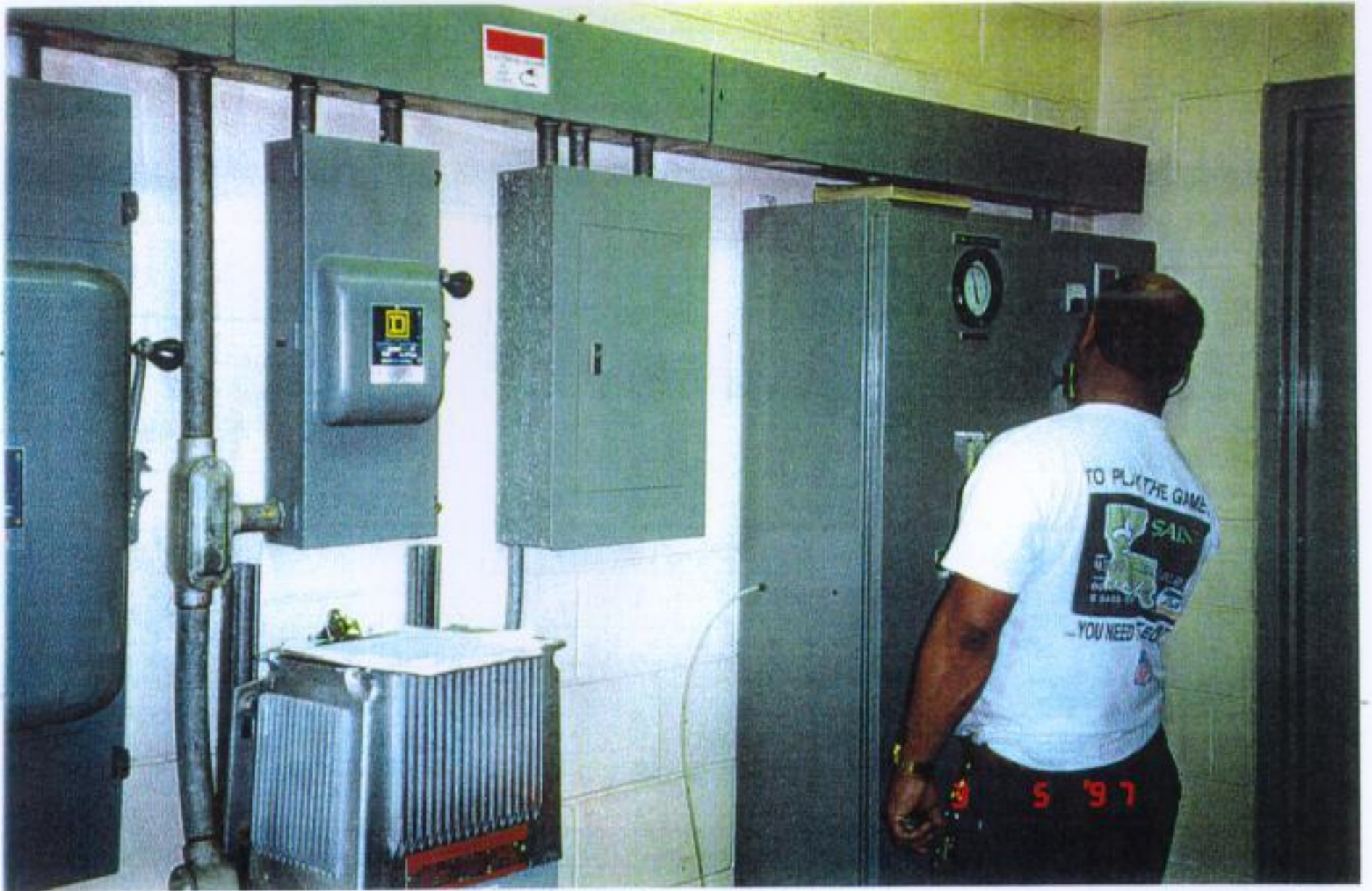


Photo Number 3



Photo Number 4

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 136 (BRIARWOOD)
13701 MORRISON ROAD

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 136 (Briarwood)

Pump Station 136 is a flooded-suction, can-type station located on 13701 Morrison Road. This station discharges wastewater via a 12-inch diameter force main and connects to the 24-inch portion of the Morrison Road force main. Pump Station 136 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 136.

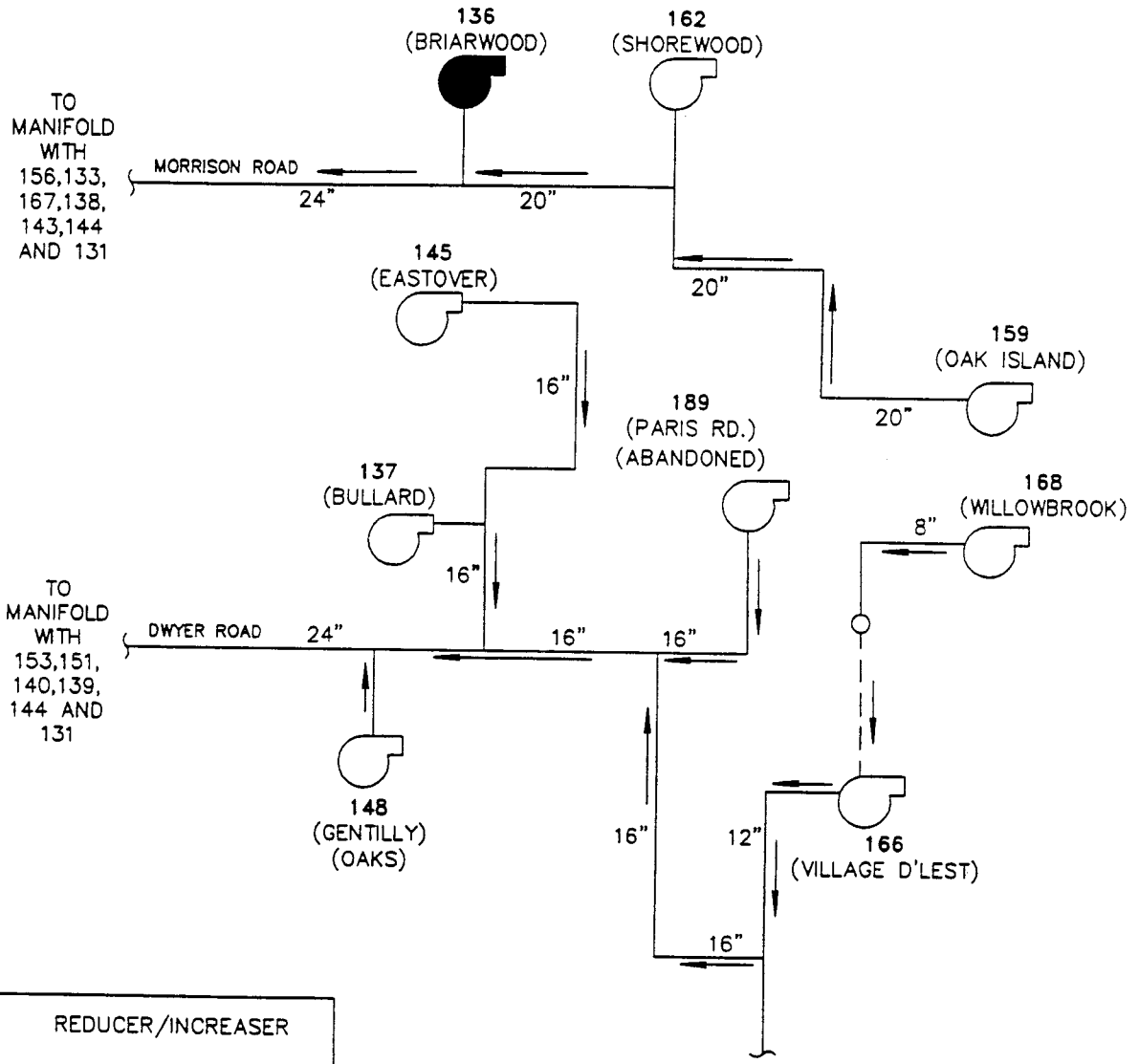
Pump Station 136 contains two (10-inch by 8-inch) Fairbanks Morse vertically aligned pumps with 14.4-inch diameter impellers. Each pump is powered by a 75 horsepower (hp) Fairbanks Morse electric motor operating at a speed of 1170 revolutions per minute (rpm). This equipment is housed in an 11-foot by 11-foot reinforced concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 28.6 feet. Figures 2 and 3 provide elevation and plan views of the station. The overall condition of the station is fair although there is isolated corrosion in the pump room as shown in photo number 2 and 3. While inspecting the station's valves and piping, it was found that the suction gate and check valves for pump number 2 do not seat properly and therefore allow backflow from the force main into the wet well.

Pump Station 136 collects wastewater from the surrounding gravity sewer system into a 21.9-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated dimensions of 11 feet by 11 feet. The overall condition of the wet well appears to be good.

A draw down/fill test was conducted to determine the capacity of Pump Station 136. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 2200 gallons per minute (gpm) at 53 feet of head. The shut-off head of both pumps was found to be 93 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 3300 gpm at 62 feet of head.

Recommendations:

1. It is recommended that the suction gate valve and the check valve for pump number 2 be adjusted to insure proper seating such that backflow will not occur.
2. The physical condition of the electrical service disconnect switch is poor due to corrosion as seen in photo 4. It is recommended that this situation be addressed.



TO
MANIFOLD
WITH
156,133,
167,138,
143,144
AND 131

TO
MANIFOLD
WITH
153,151,
140,139,
144 AND
131

- ▲ REDUCER/INCREASER
- MANHOLE
- ⋈ GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- ◐ PUMP STATION
- ◑ REF. PUMP STATION
- EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 13c JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 136 (BRIARWOOD)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

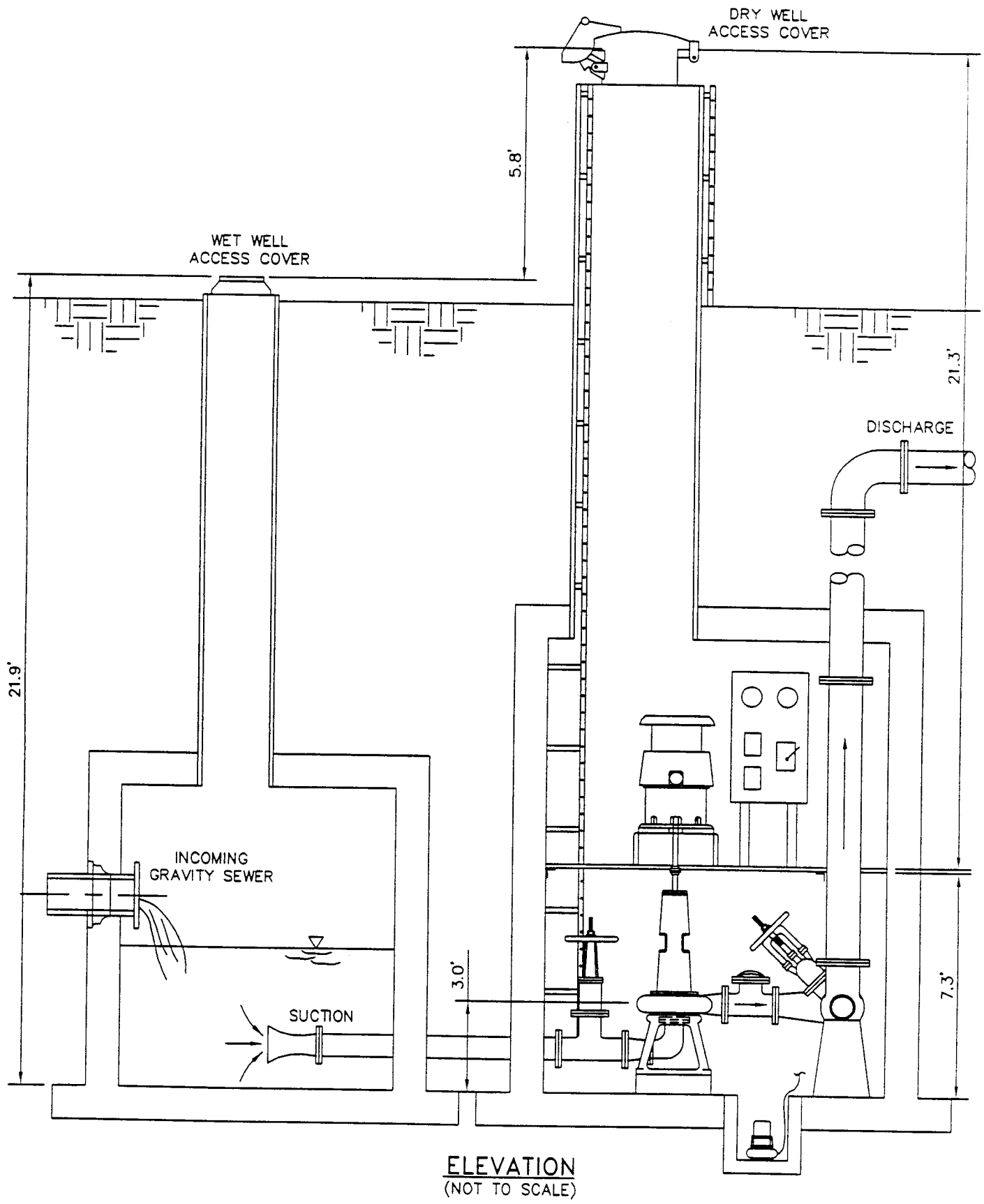
FIGURE:

1

DATE:

3/28/97

FILE NO.: 136 AG JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 136 (BRIARWOOD)
CAN TYPE FLOODED SUCTION

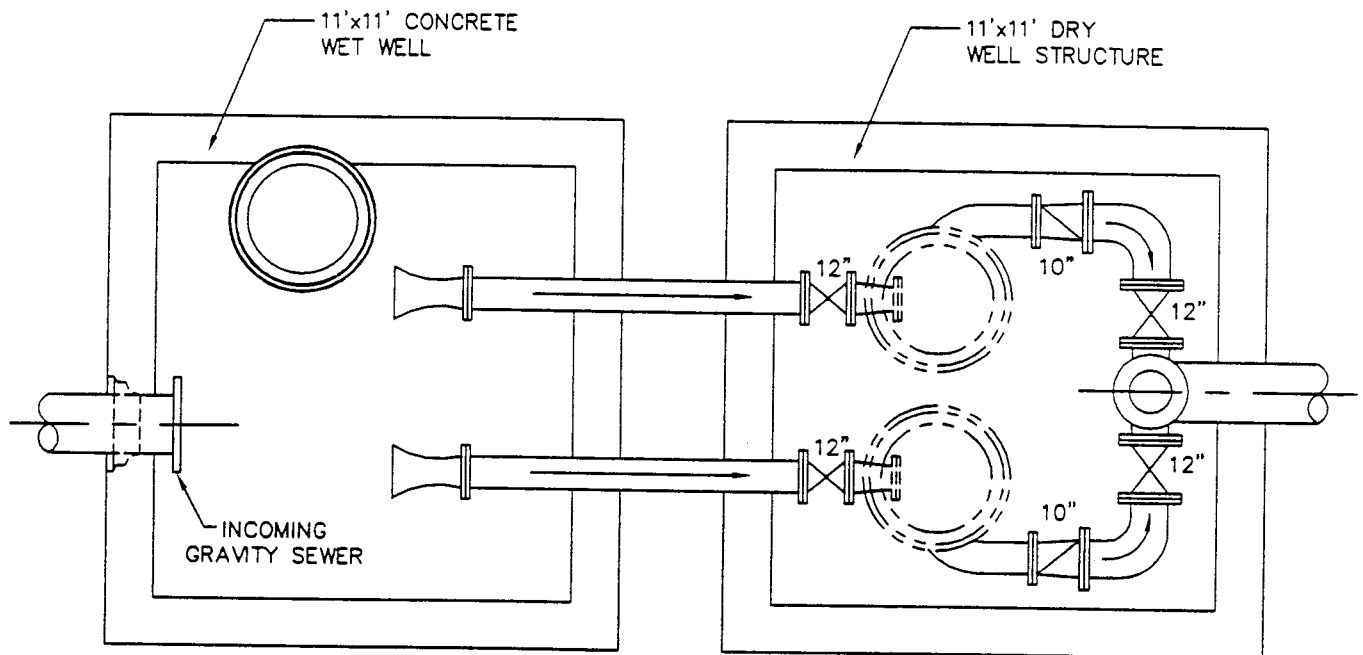
FIGURE:

2



DATE:

3/28/97

FILE NO.: 136 JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)

 SEWERAGE AND WATER BOARD OF NEW ORLEANS
 MONTGOMERY WATSON

PUMP STATION 136 (BRIARWOOD)
CAN TYPE FLOODED SUCTION

FIGURE:
3
DATE:
3/28/97

Pump Station: 136 (Briarwood)

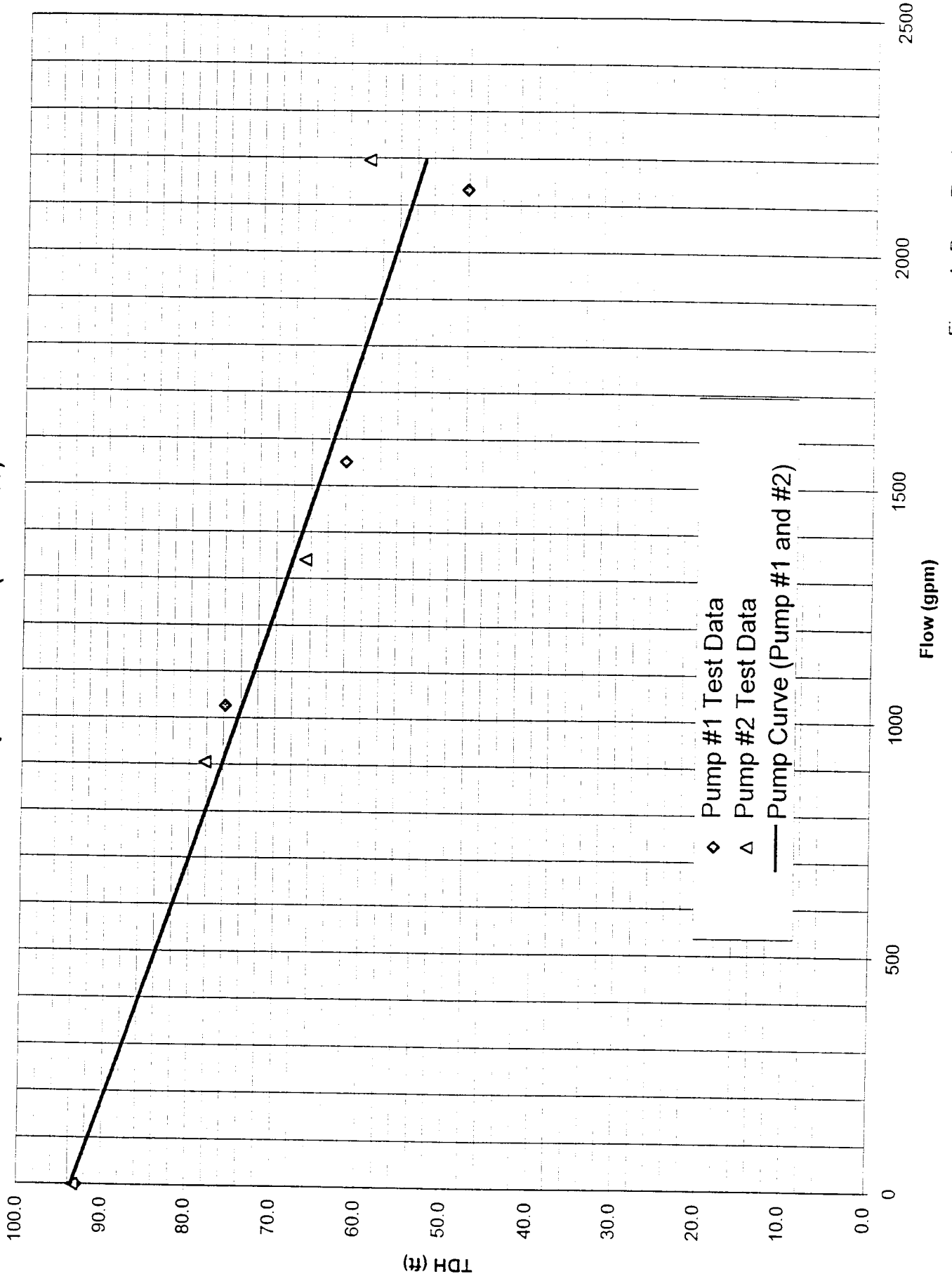


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 136

General Information

PS No. 136 PS Facility Briarwood Address 13701 Morrison Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 14.4 inch

Model Number-Pump #1 not available Serial Number-Pump #1 K3B1083755

Model Number-Pump #2 not available Serial Number-Pump #2 K3B1083755-1

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 2250 gpm 60 ft. of head 1180 rpm

Pump Suction 10 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size 10 inch Discharge Valve Size 12 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 10 inch

Dry Well Dimensions 0 ft. dia. Length 11 ft. Width: 11 ft. Depth 28.6 ft.

Pump centerline* 3 ft. Centerline of discharge pipe* 12.6 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? # 1 & 2 packing lea

Pump seals leaking? Yes No Which One? # 1 & 2

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 136

Pump Controls

Lead pump on 9 ft. Type of Controls Bubbler
Lead pump off 5.5 ft.
Lag pump on 0 ft.
Lag pump off 0 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 0 ft. Length 11 ft. Width 11 ft.

Bottom Depth* 21.9 ft.

Sewer Invert(s) Depth* 16.2 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 136

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service Pad Mounted Transformer, 480/277V three phase

Size of service protective device 250 amps, dual element, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 150 amps, dual element, fusible disconnect switch

Service wire size 250 kcmil Size of motor starter in NEMA 4

Motor wire size #2 AWG Motor Horsepower 75

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1165

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # 9708335-295

Model Number - Motor # not available Serial Number - Motor # 9708335-295

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the service disconnect switch is poor due to corrosion. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The motor wire size is undersize. The pump

Pump Station 136 (Briarwood)



Photo Number 1

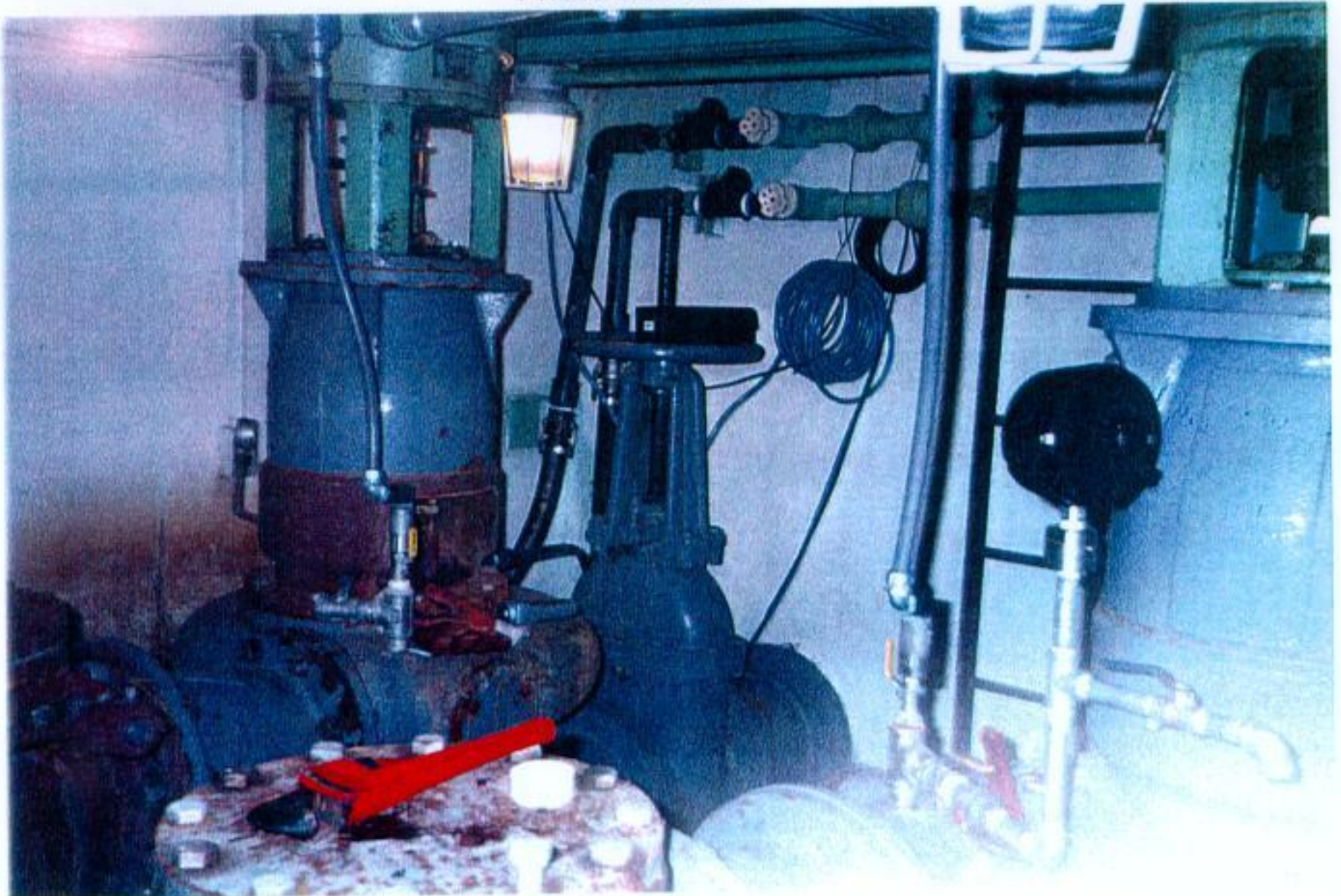


Photo Number 2



Photo Number 3

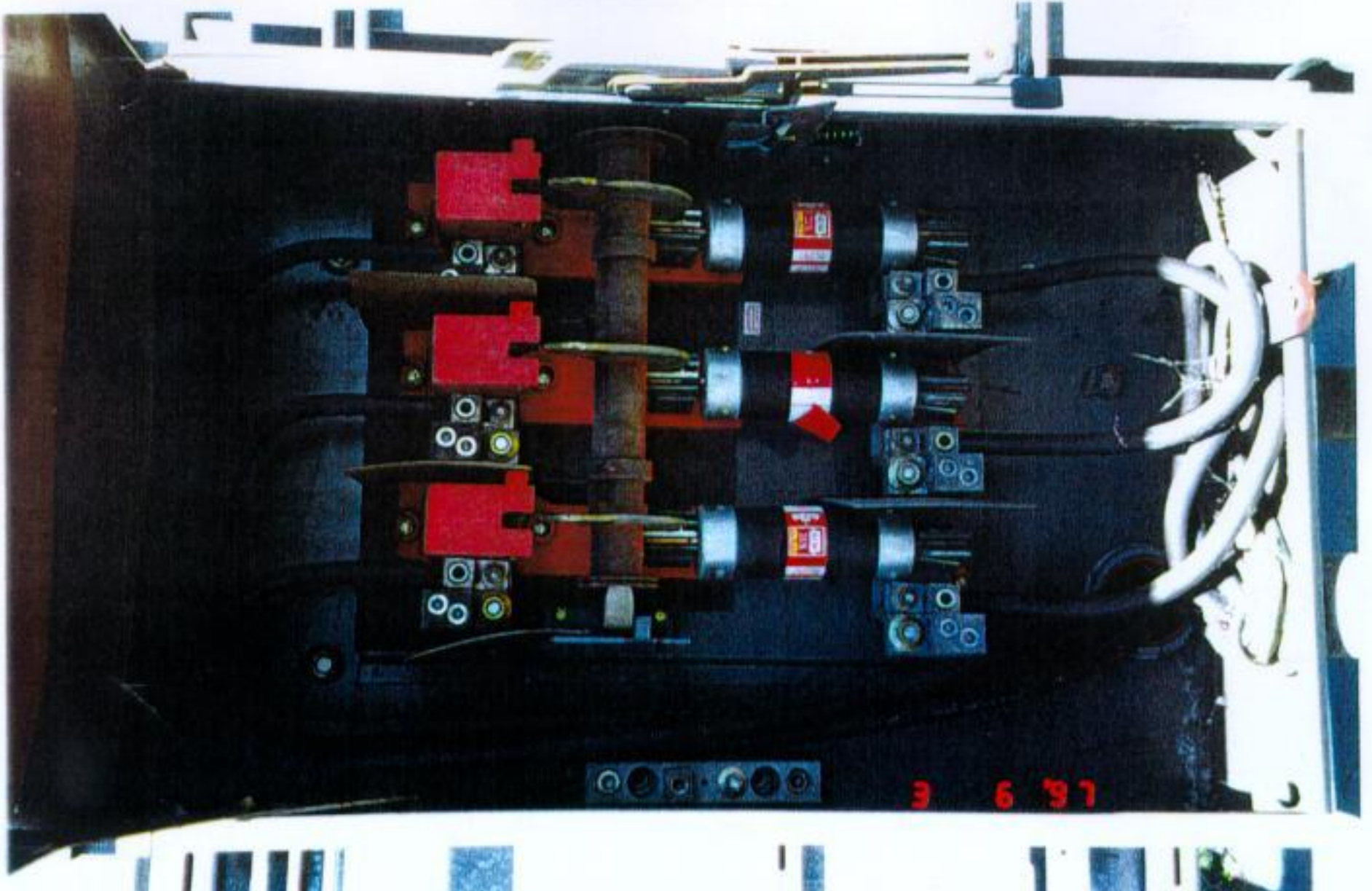


Photo Number 4

Pump Station 136 (Briarwood)



Photo Number 5



Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 137 (BULLARD)
5501 BULLARD ROAD

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 137 (Bullard)

Pump Station 137 is a flooded-suction, can-type station located on 5501 Bullard Road. Flow discharges the station via a 16-inch diameter force main and connects to the 16-inch portion of the Bullard Road force main. Pump Station 137 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 137.

Pump Station 137 contains two (8-inch by 6-inch) Fairbanks Morse vertically aligned pumps with 15.62-inch diameter impellers. Each pump is powered by a 75 horsepower (hp) US Electric motor operating at a speed of 1175 revolutions per minute (rpm). This equipment is housed in an 11-foot by 12-foot reinforced concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 26.9 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair although there is isolated corrosion located around the pumps as seen in photo number 2 and 3.

Pump Station 137 collects wastewater from the surrounding gravity sewer system into a 22.2-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated 11-foot by 11-foot dimensions. The concrete aggregate is exposed throughout the interior surface of the wet well suggesting a corrosion problem.

A draw down/fill test was conducted to determine the capacity of Pump Station 137. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 2000 gallons per minute (gpm) at 66 feet of head. The shut-off head of both pumps was found to be 116 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 2700 gpm at 82 feet of head.

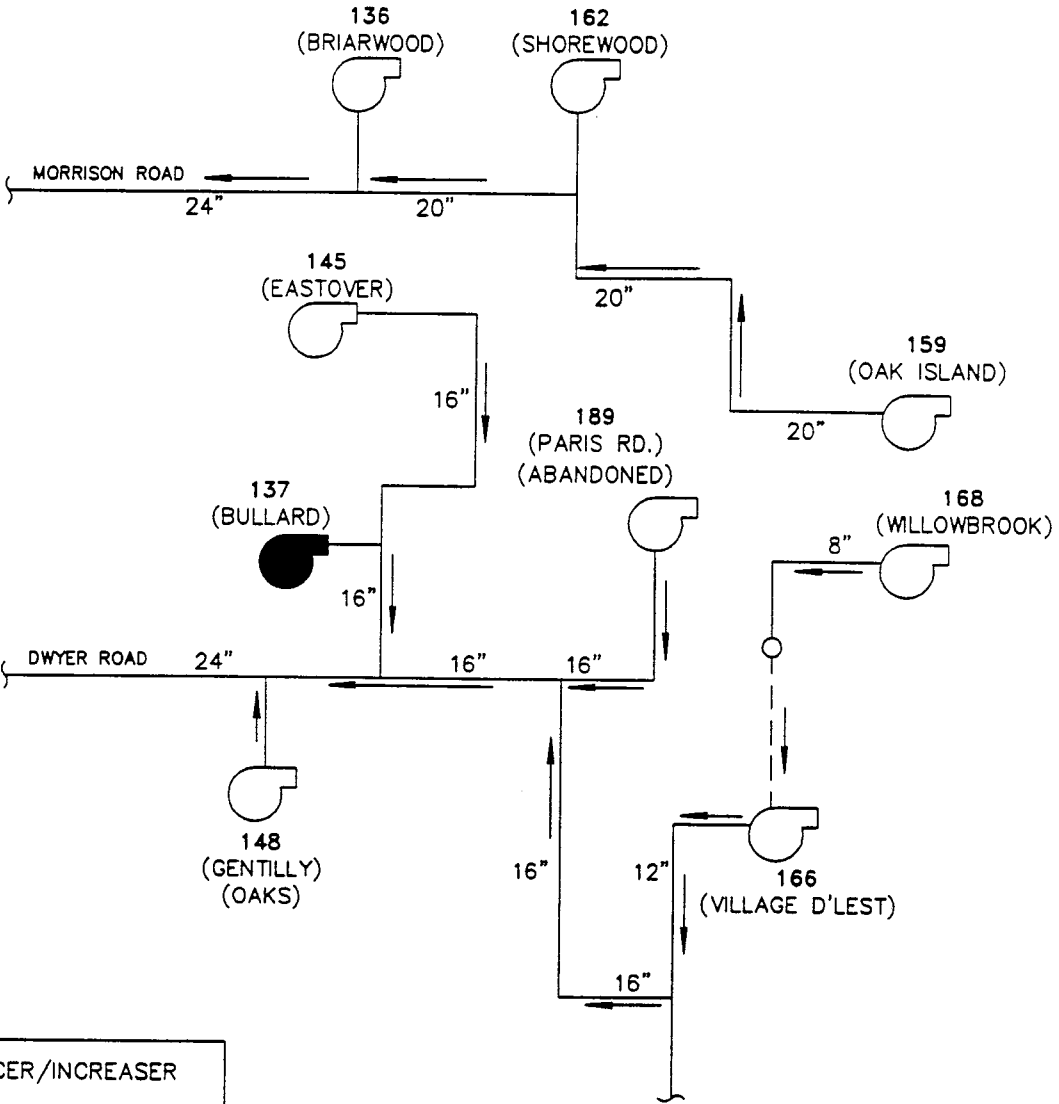
Recommendations:

1. An initial observation of the wet well suggests that corrosion is occurring. The extent of the damage should be further investigated and corrected as necessary.
2. The physical condition of the electrical service disconnect switch is in poor condition due to corrosion. Also, it is noted that the motor protective device and wire size are each undersized. It is recommended that these electrical issues be addressed.



TO
MANIFOLD
WITH
156,133,
167,138,
143,144
AND 131

TO
MANIFOLD
WITH
153,151,
140,139,
144 AND
131



	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

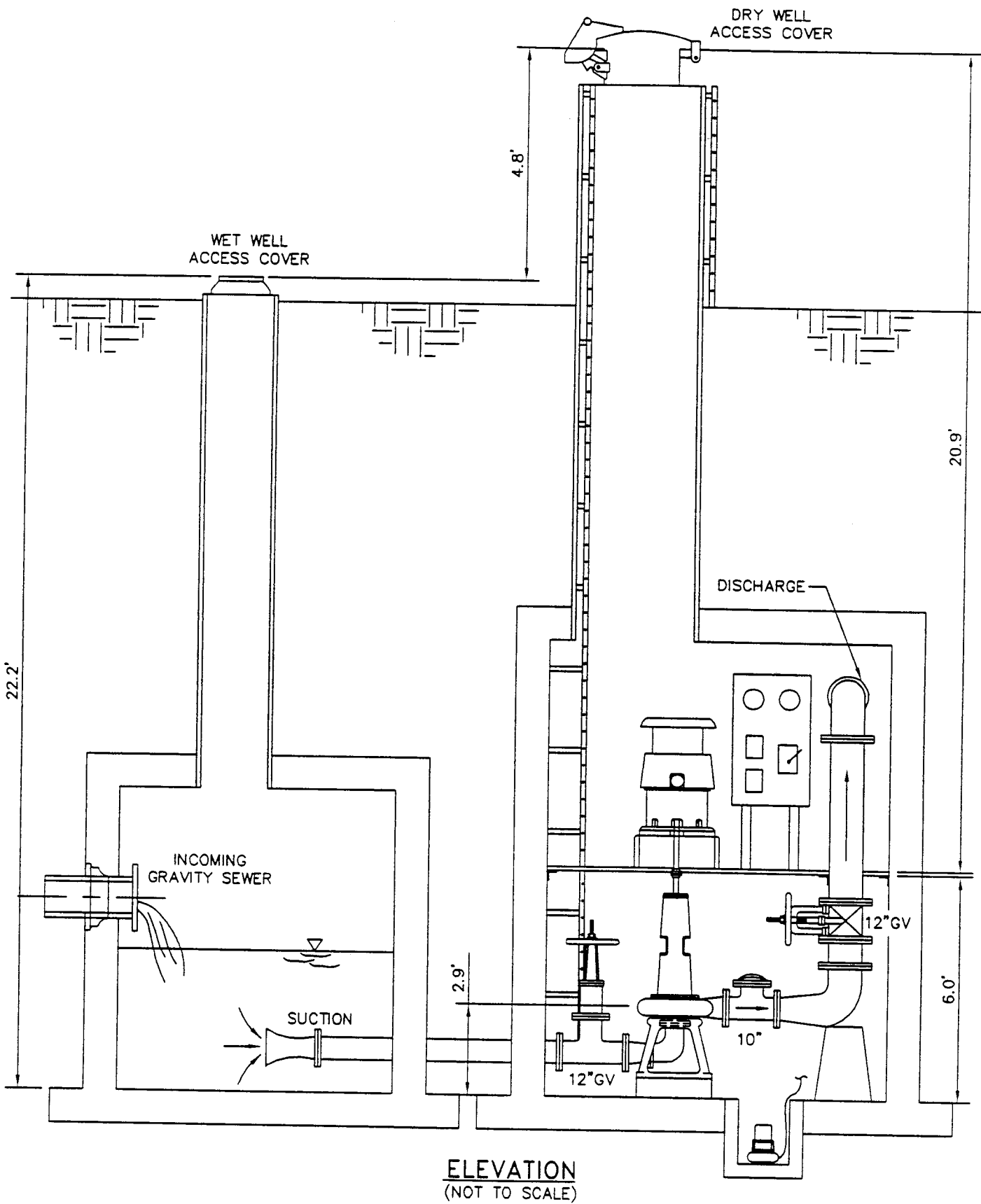
FILE NO.: 137
JOB NO.: 1113030.01090120 DATE: 3/28/97


	SEWERAGE AND WATER BOARD OF NEW ORLEANS
	MONTGOMERY WATSON


PUMP STATION 137 (BULLARD)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97

FILE NO.: 137 JOB NO.: 1113030.01090120 DATE: 3/28/97



 **SEWERAGE AND WATER BOARD**
OF NEW ORLEANS

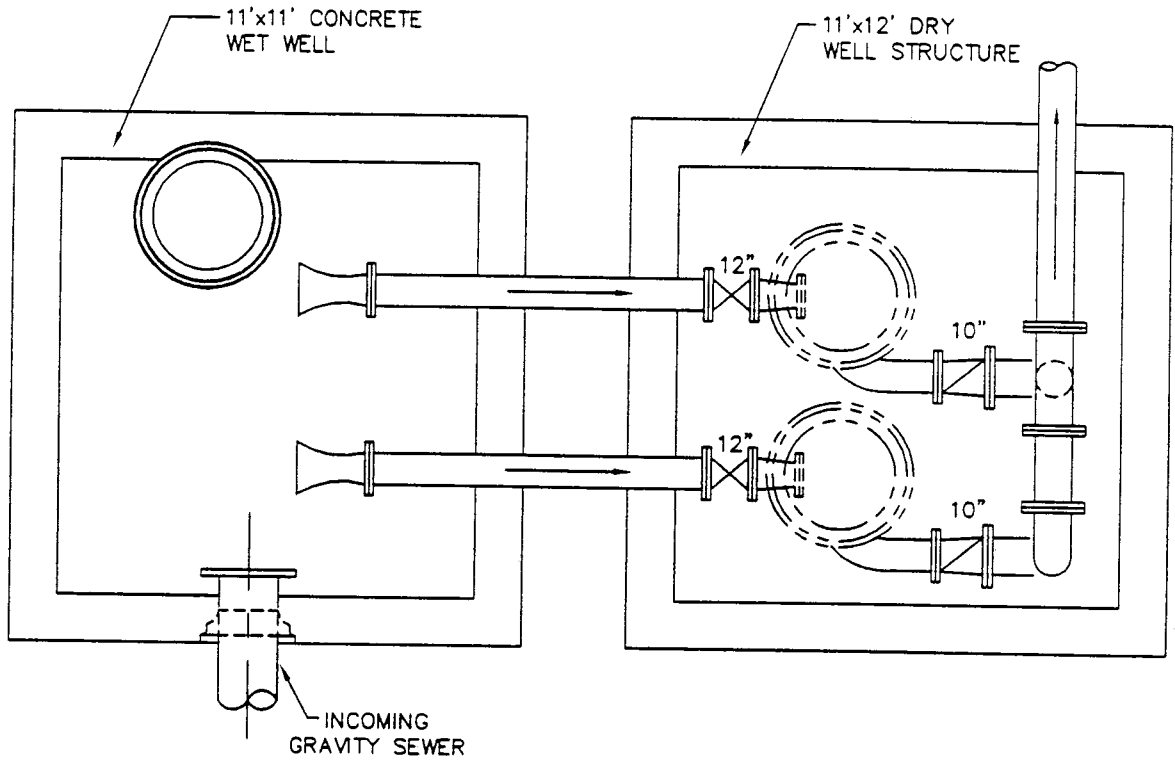
 **MONTGOMERY WATSON**

PUMP STATION 137 (BULLARD)
CAN TYPE FLOODED SUCTION

FIGURE:
2

DATE:
3/28/97

FILE NO.: 13. **AWG** JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 137 (BULLARD)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 137 (Bullard)

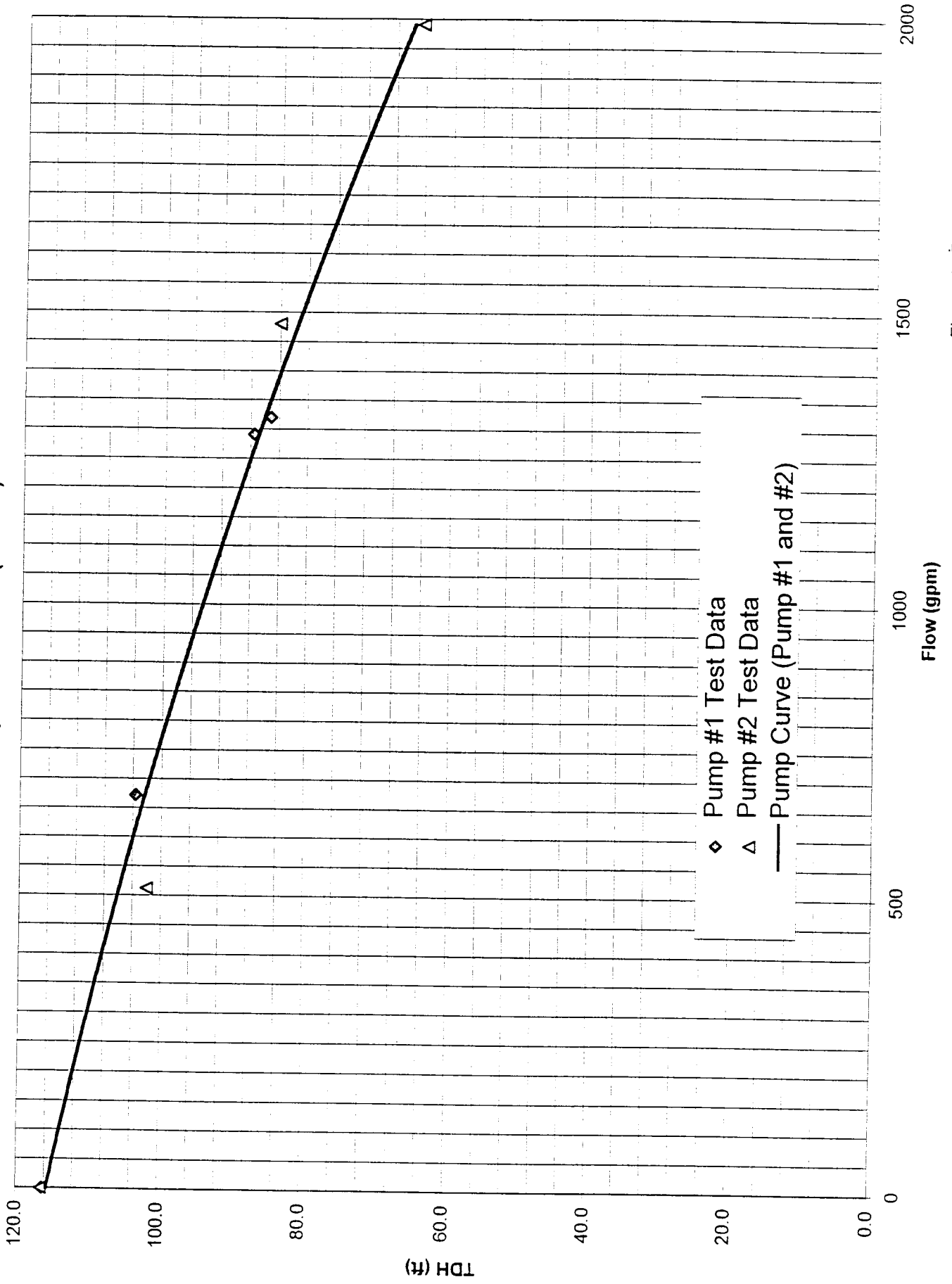


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 137

General Information

PS No. 137 PS Facility Bullard

Address 5501 Bullard Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 15.6 inch

Model Number-Pump #1 not available Serial Number-Pump #1 KZW1078245-1

Model Number-Pump #2 not available Serial Number-Pump #2 KZW1078245-2

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 1000 gpm 105 ft. of head 1180 rpm

Pump Suction 8 inch Pump Discharge 6 inch FM Diameter 16 inch

Suction Valve Size 12 inch Discharge Valve Size 12 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 10 inch

Dry Well Dimensions 0 ft. dia. Length 12 ft. Width: 11 ft. Depth 26.9 ft.

Pump centerline* 2.9 ft. Centerline of discharge pipe* 12.6 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 137

Pump Controls

Lead pump on 7 ft. Type of Controls bubbler
Lead pump off 3 ft.
Lag pump on 8 ft.
Lag pump off 4 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the interior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 0 ft. Length 11 ft. Width 11 ft.

Bottom Depth* 22.2 ft.

Sewer Invert(s) Depth* 16.9 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 137

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle
Type of service Pad Mounted Transformer, 480/277V three phase
Size of service protective device 225 amps, dual element, fusible disconnect switch
Size of main protective device _____
Size of motor protective device 125 amps, dual element, fusible disconnect switch
Service wire size 250 kcmil Size of motor starter in NEMA 4
Motor wire size #2 AWG Motor Horsepower 75
Number of motors 2 Motor Speed Single
Speed(s) in rpm 1170
Frequency in Hertz 60
Type of starter Full voltage non-reversing (FVNR)
Model Number - Motor # C605442-764 Serial Number - Motor # 85-19700
Model Number - Motor # C605442-764 Serial Number - Motor # 85-19700
Model Number - Motor # - _____ Serial Number - Motor # - _____
Model Number - Motor # - _____ Serial Number - Motor # - _____

Comments The physical condition of the service disconnect switch is poor due to corrosion. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The motor protective device and wire size are

Pump Station 137 (Bullard)



Photo Number 1

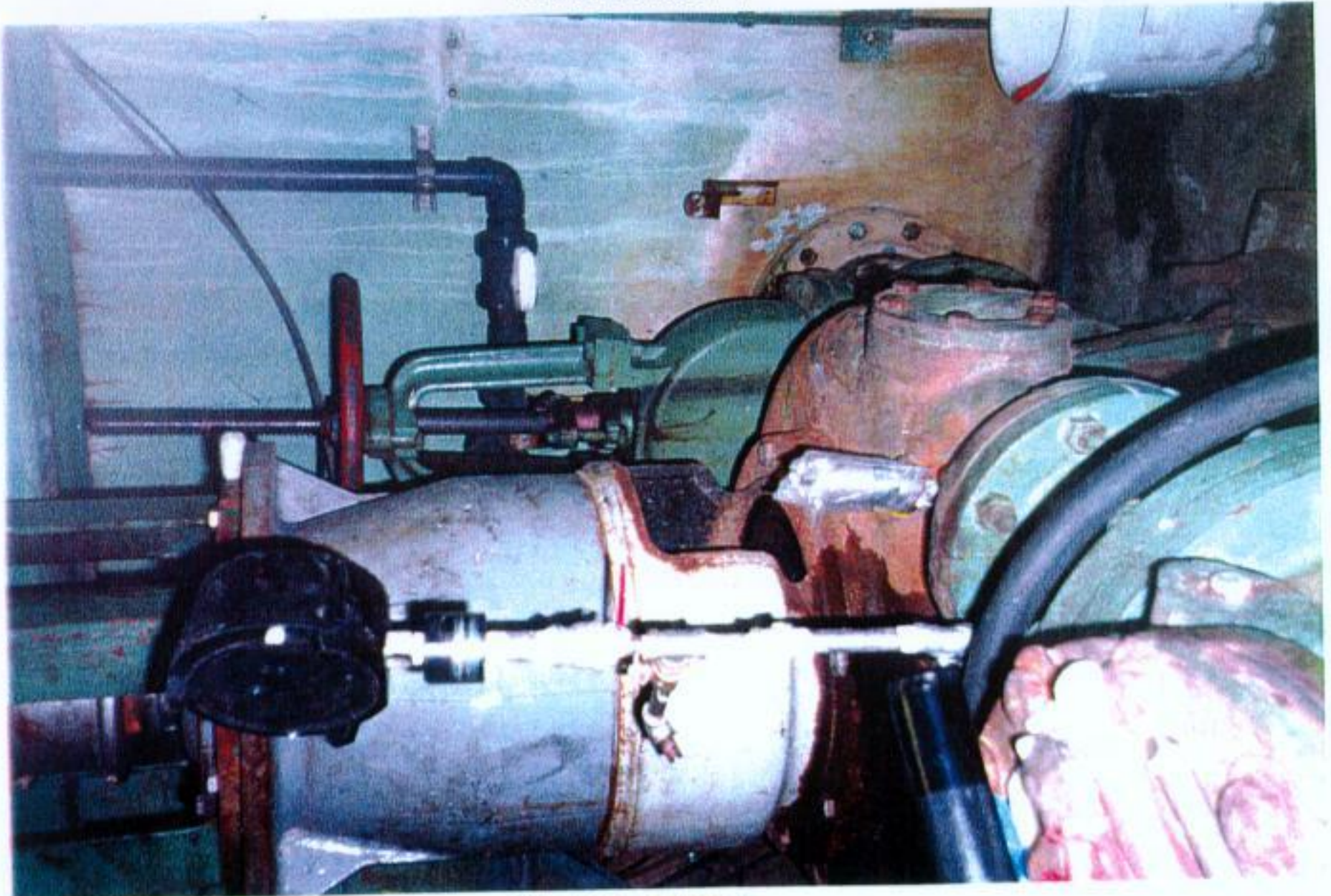


Photo Number 2

Pump Station 137 (Bullard)

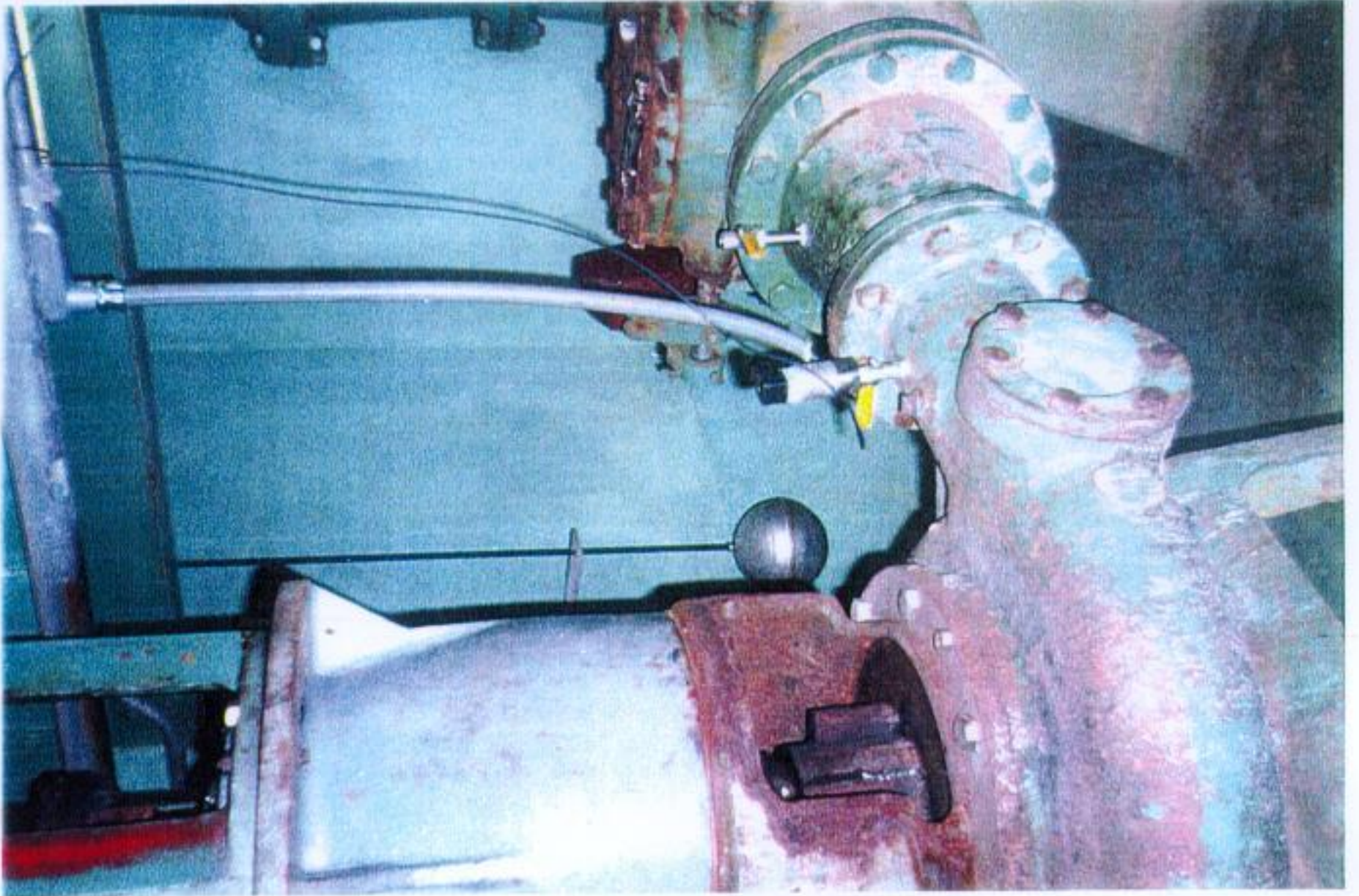


Photo Number 3



Photo Number 4

Pump Station 137 (Bullard)



Photo Number 5



Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 138 (BURKE)
9001 MORRISON ROAD

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 138 (Burke)

Pump Station 138 is a flooded-suction, can-type station located on 9001 Morrison Road. Flow discharges the station via a 16-inch diameter force main and connects to the 42-inch portion of the Morrison Road force main. Pump Station 138 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 138.

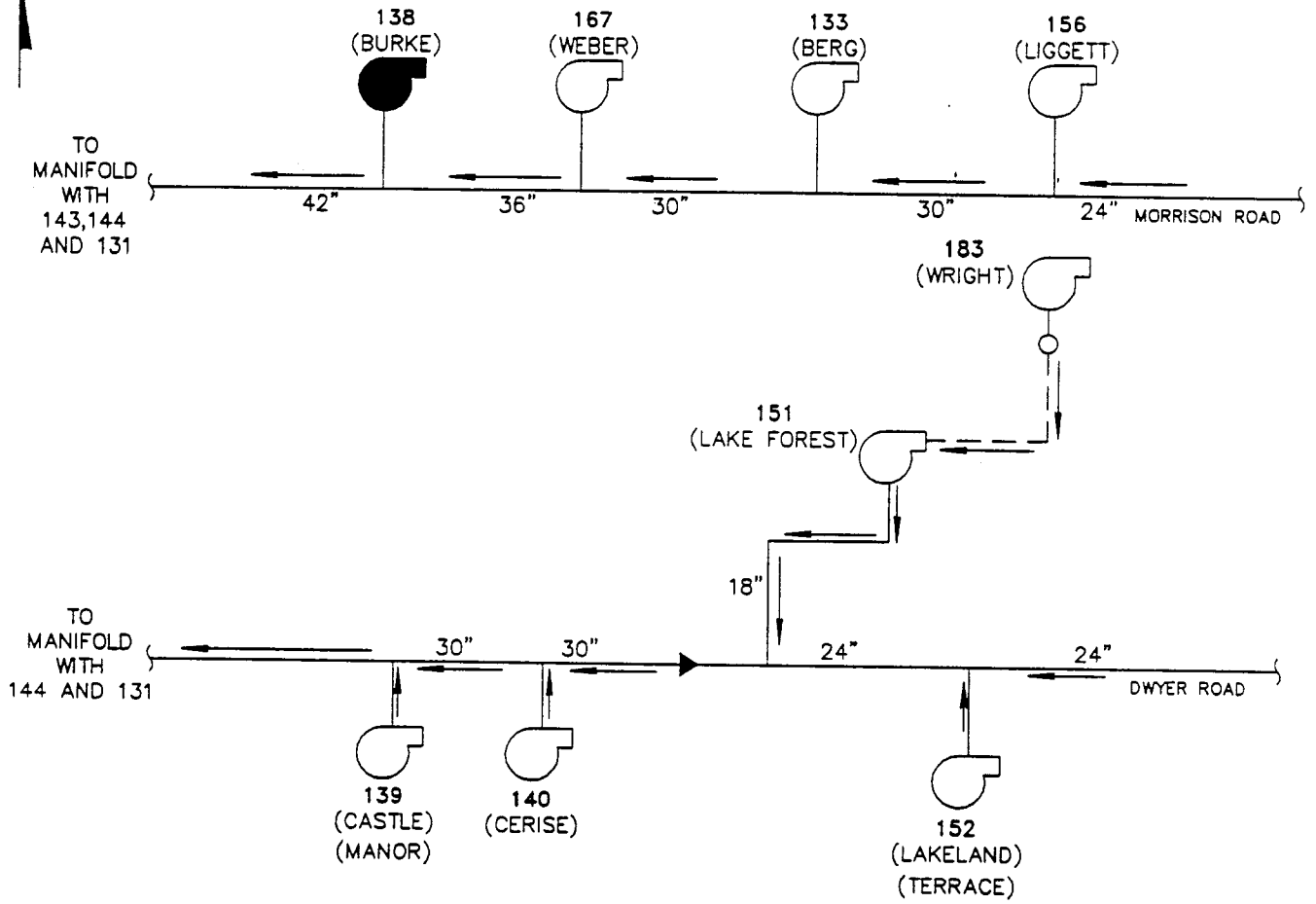
Pump Station 138 contains two (8-inch by 8-inch) Fairbanks Morse vertically aligned pumps. Each pump is powered by a 60 horsepower (hp) Fairbanks Morse electric motor operating at a speed of 880 revolutions per minute (rpm). This equipment is housed in an 11-foot by 11-foot reinforced concrete dry well structure, mostly underground. The total depth of the dry well from the access hatch to the bottom is 31.3 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair although there is isolated corrosion located around the pumps as seen in the attached photos number 2 and 3.









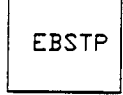
Pump Station 138 collects wastewater from the surrounding gravity sewer system into a 24.8-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated 11-foot by 11-foot dimensions. The overall condition of the wet well appears to be fair.

A draw down/fill test was conducted to determine the capacity of Pump Station 138. Figure 4 shows pump curve constructed from obtained test data. Each pump has an approximate capacity of 2650 gallons per minute (gpm) at 48 feet of head. The shut-off head of both pumps was found to be 81 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 3300 gpm at 58 feet of head.

Recommendations:


After an initial evaluation of Pump Station 138 no site specific recommendations can be made.




-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 136 JOB NO.: 1113030.01090120 DATE: 3/28/97

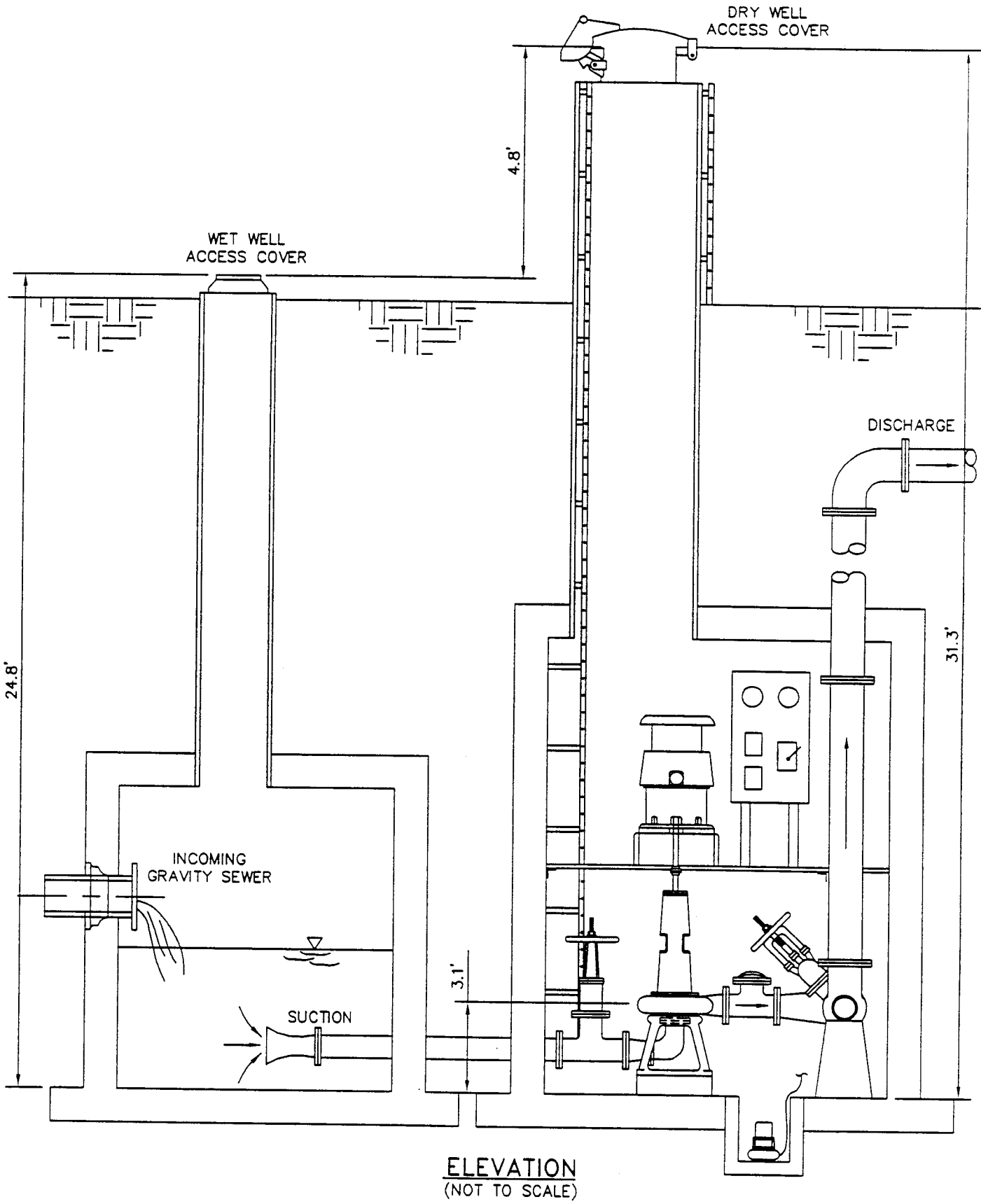
 **SEWERAGE AND WATER BOARD**
OF NEW ORLEANS

 **MONTGOMERY WATSON**

PUMP STATION 138 (BURKE)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97

FILE NO.: 136 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 138 (BURKE)
CAN TYPE FLOODED SUCTION

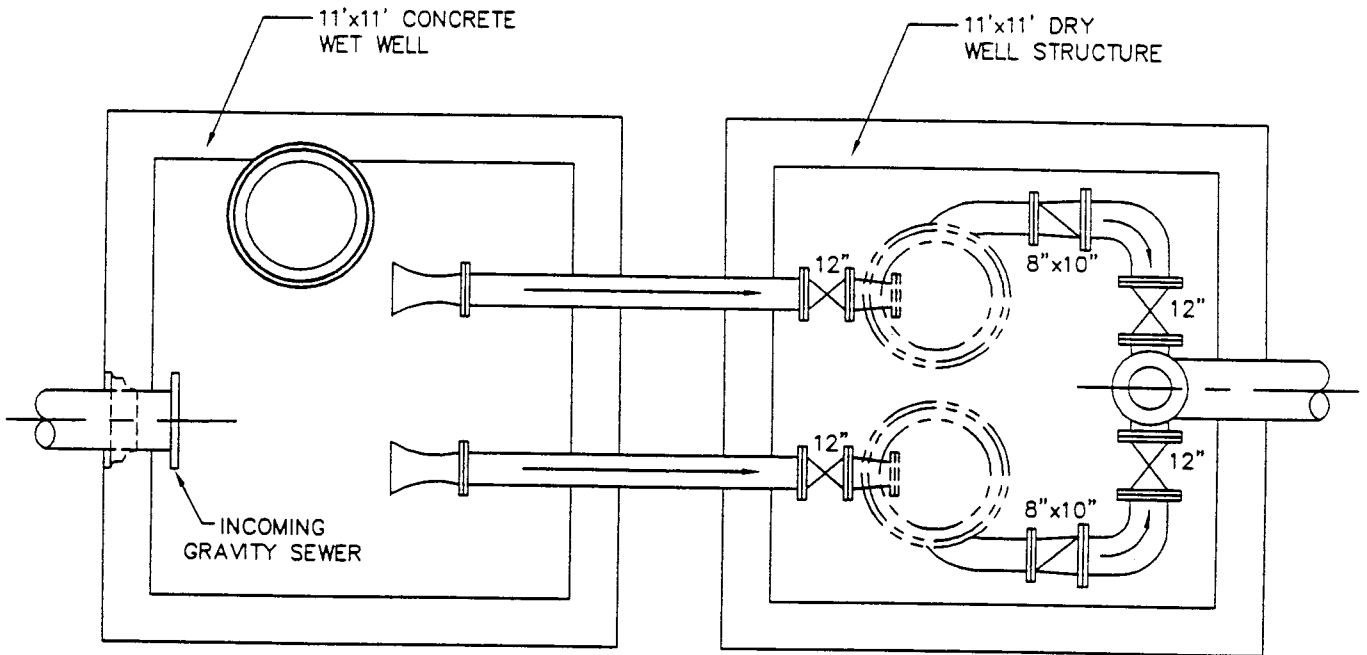
FIGURE:

2

DATE:

3/28/97

FILE NO.: 136 JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 138 (BURKE)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 138 (Burke)

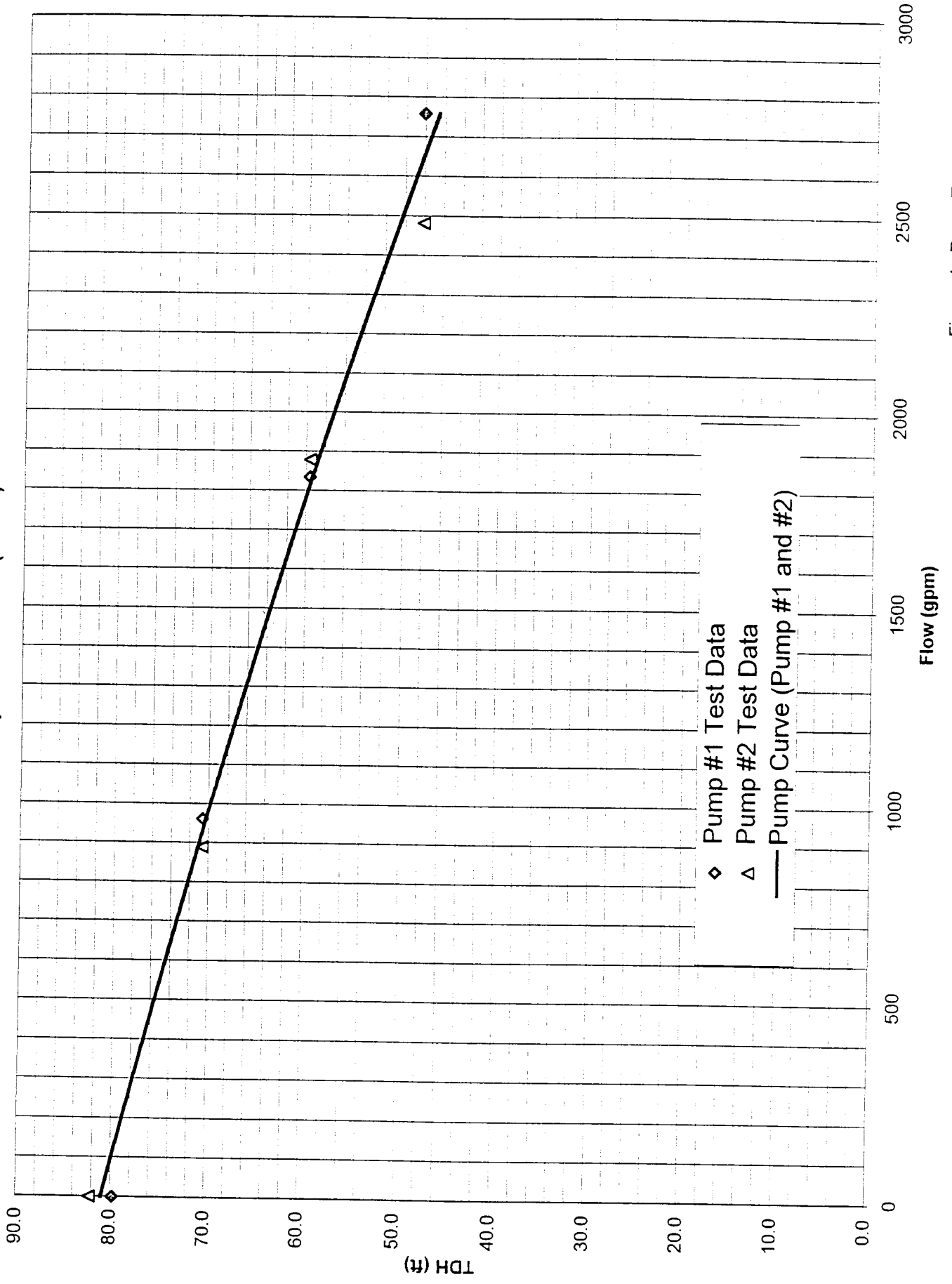


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 138

General Information

PS No. 138 PS Facility Burke Address 9001 Morrison Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 16 inch

Suction Valve Size 12 inch Discharge Valve Size 12 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 8 x 10 inch

Dry Well Dimensions 0 ft. dia. Length 11 ft. Width: 11 ft. Depth 31.3 ft.

Pump centerline* 3.1 ft. Centerline of discharge pipe* _____ ft.

* measured from dry well bottom.

Notes: The centreline of the discharge pipe is vertical.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 138

Pump Controls

Lead pump on 10.5 ft. Type of Controls bubbler
Lead pump off 5.5 ft.
Lag pump on 11.5 ft.
Lag pump off 6.5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 0 ft. Length 11 ft. Width 11 ft.

Bottom Depth* 24.8 ft.

Sewer Invert(s) Depth* 21.3 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 138

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device 300 amps, dual element, fusible disconnect switch

Size of main protective device _____

Size of motor protective device 125 amps, dual element, fusible disconnect switch

Service wire size 350 kcmil Size of motor starter in NEMA 4

Motor wire size #2 AWG Motor Horsepower 60

Number of motors 2 Motor Speed Single

Speed(s) in rpm 880

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # - _____ Serial Number - Motor # - _____

Model Number - Motor # - _____ Serial Number - Motor # - _____

Comments The physical condition of the motors, motor controller, service disconnect switch and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 138 (Burke)



Photo Number 1

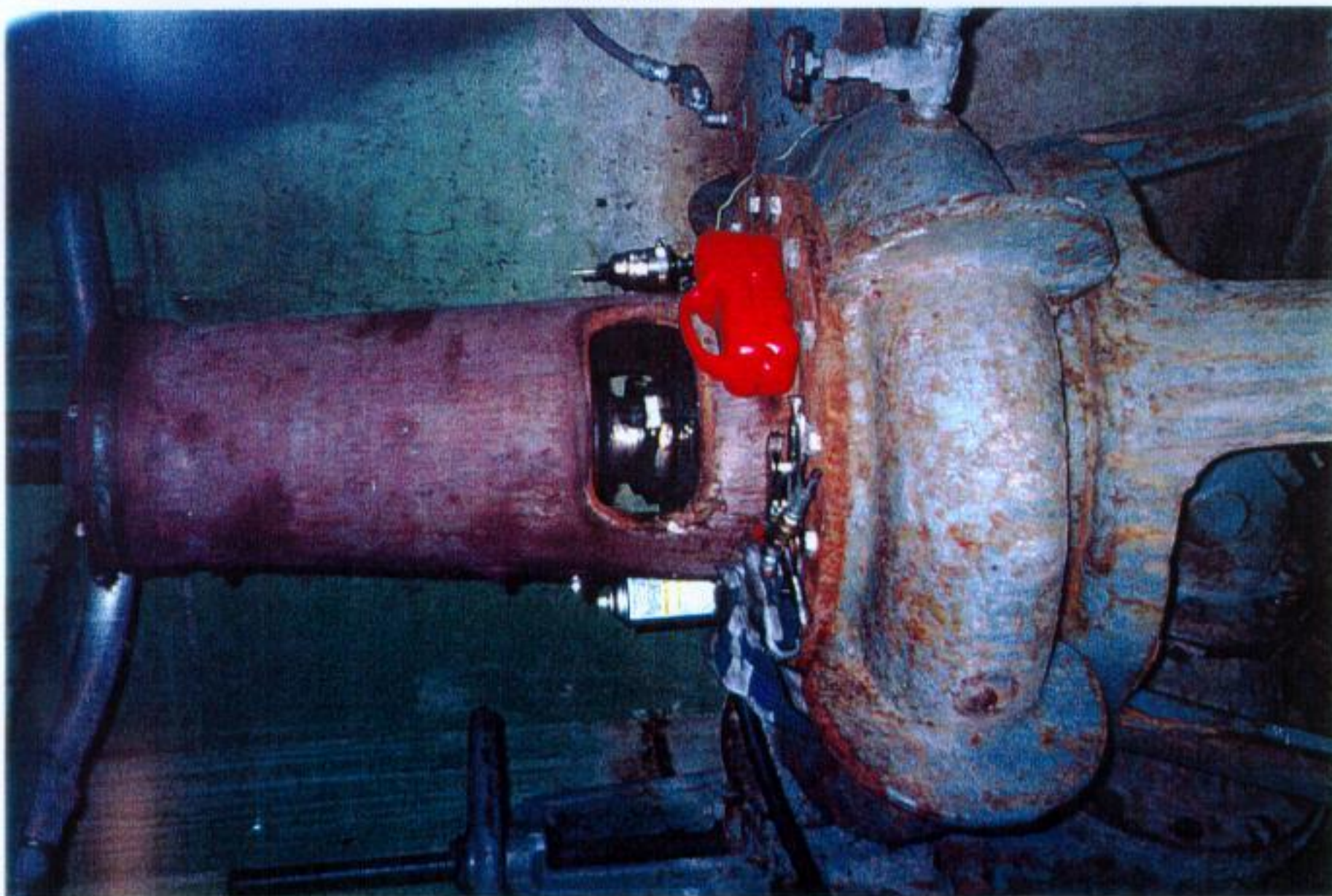


Photo Number 2

Pump Station 138 (Burke)



Photo Number 3

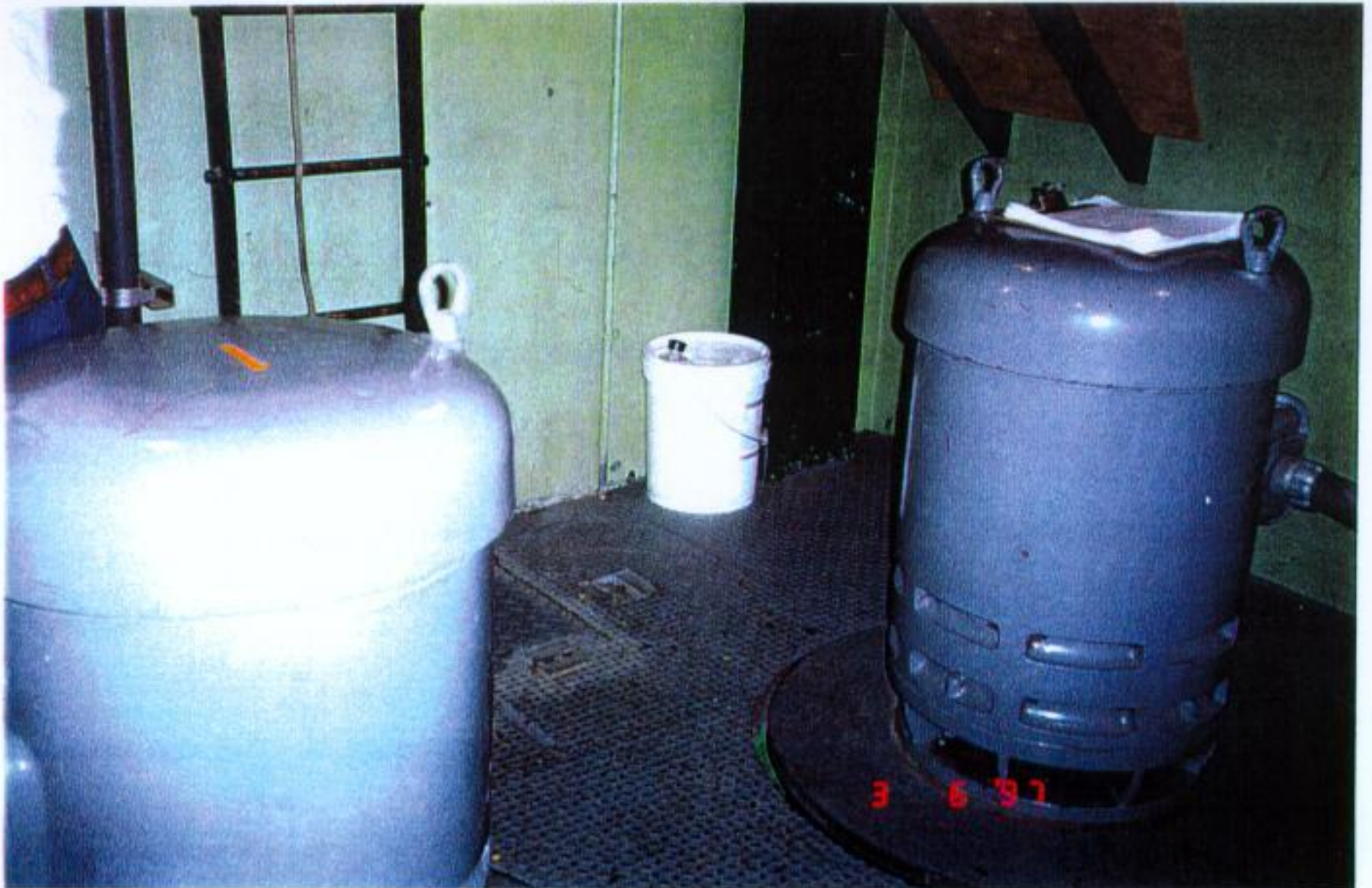


Photo Number 4

Pump Station 138 (Burke)

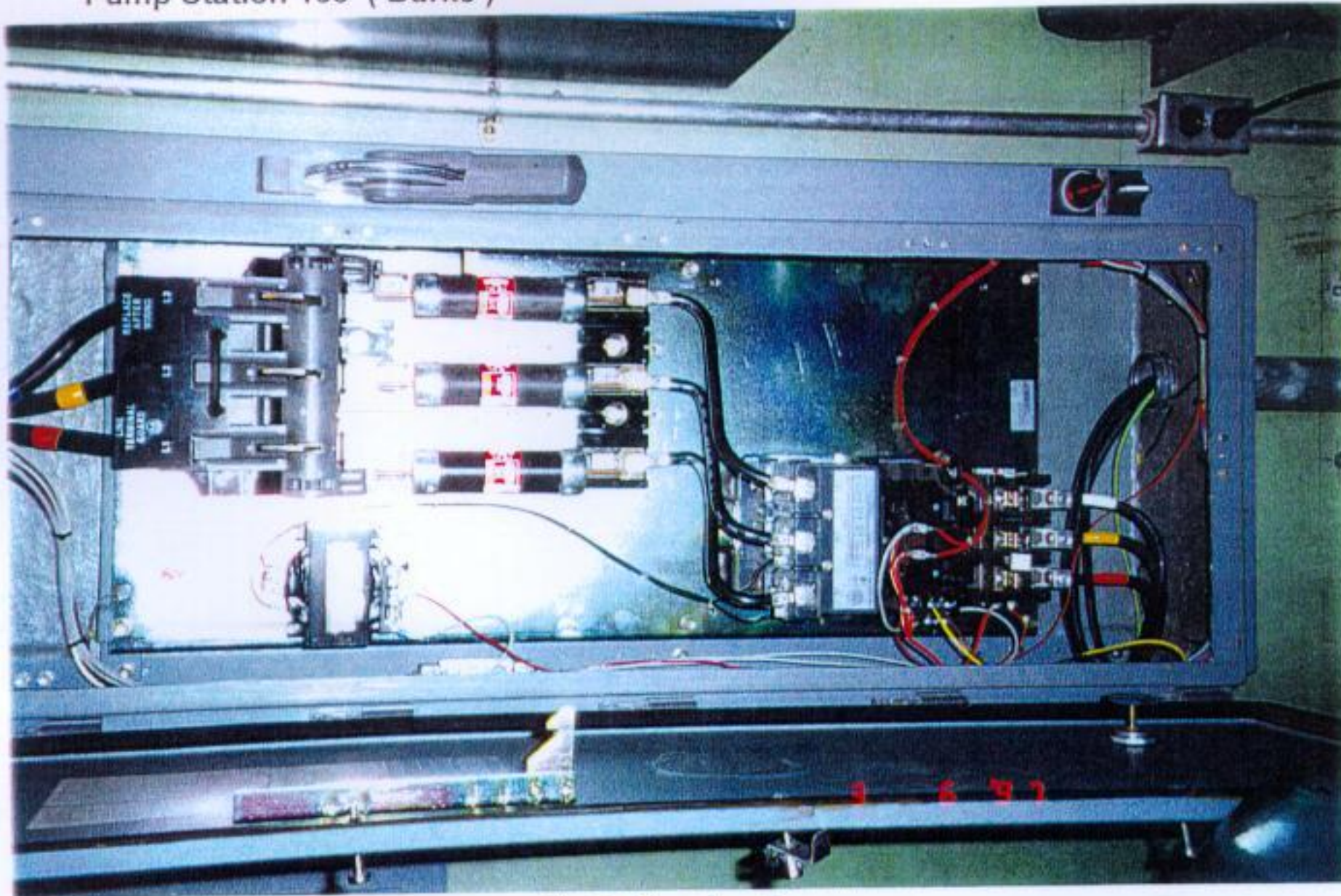


Photo Number 5



Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 139 (CASTLE MANOR)
4950 GAWAIN DRIVE

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 139 (Castle Manor)

Pump Station 139 is a bi-level suction lift station located on 4950 Gawain Drive. It discharges to a 30-inch force main along Dwyer Road via a 8-inch diameter force main. Pump Station 139 does not repump flow from any other station and its flow is not repumped by any other station. Figure 1 shows the schematic of the subsystem surrounding Pump Station 139.

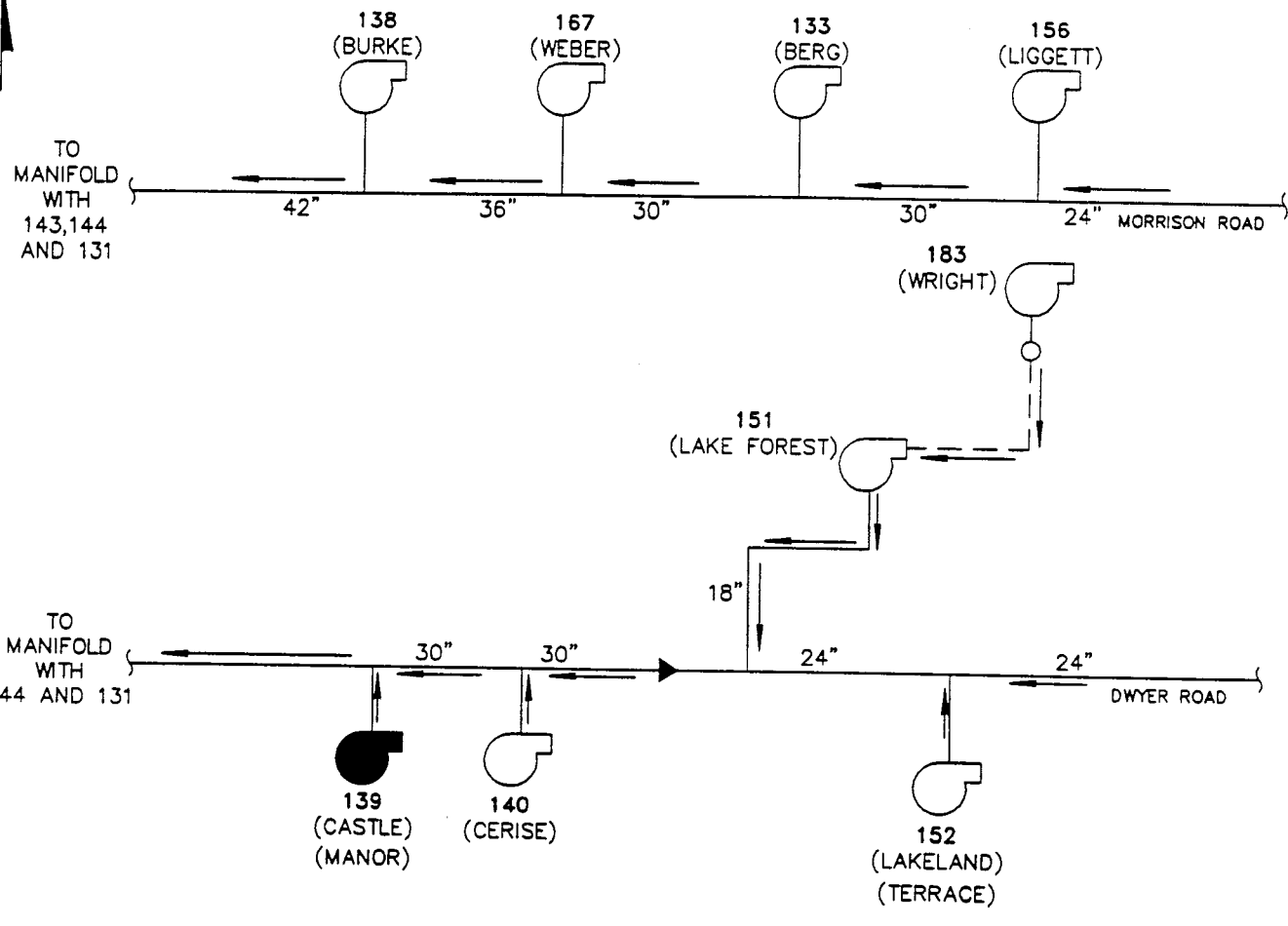
Pump Station 139 contains two (6-inch by 6-inch) Fairbanks Morse horizontally aligned pumps. Each pump is powered by a 60 horsepower (hp) General Electric Motor operating at a constant speed of 1770 revolutions per minute (rpm). This equipment is housed in a 10.0 by 10.3-foot brick dry well structure, which is partially below grade. The depth below grade of the pump room section of the dry well is 6.8 feet. Figures 2 and 3 provide elevation and front views of the station.

Pump Station 139 collects wastewater from the surrounding gravity sewer system into a 12.5-foot deep brick wet well. The wet well diameter was measured as approximately 5 feet.

The Doppler Flow Meter was used to determine the capacity of Pump Station 139. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 2,700 gallons per minute (gpm) at 50 feet of head. The shut-off head for both pumps was found to be approximately 110 feet.

Recommendations:

1. An initial observation of the wet well suggests that the brick upper portion needs regrouting. The extent of the corrosion of the wet well should be further investigated and corrected in some locations.
2. Leakage was also observed during the testing of pump number 1. The extent of the leakage of pump number 1 should be further investigated and corrected as required.
3. It was also observed that the motors, motor controller and control panel are in poor condition due to corrosion. The extent of the corrosion of the motors, controller and control panel should be further investigated and the equipment replaced as necessary.



TO
MANIFOLD
WITH
144 AND 131

TO
MANIFOLD
WITH
143,144
AND 131

Dwyer Road

	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 135 JOB NO.: 1113030.01090120 DATE: 3/28/97

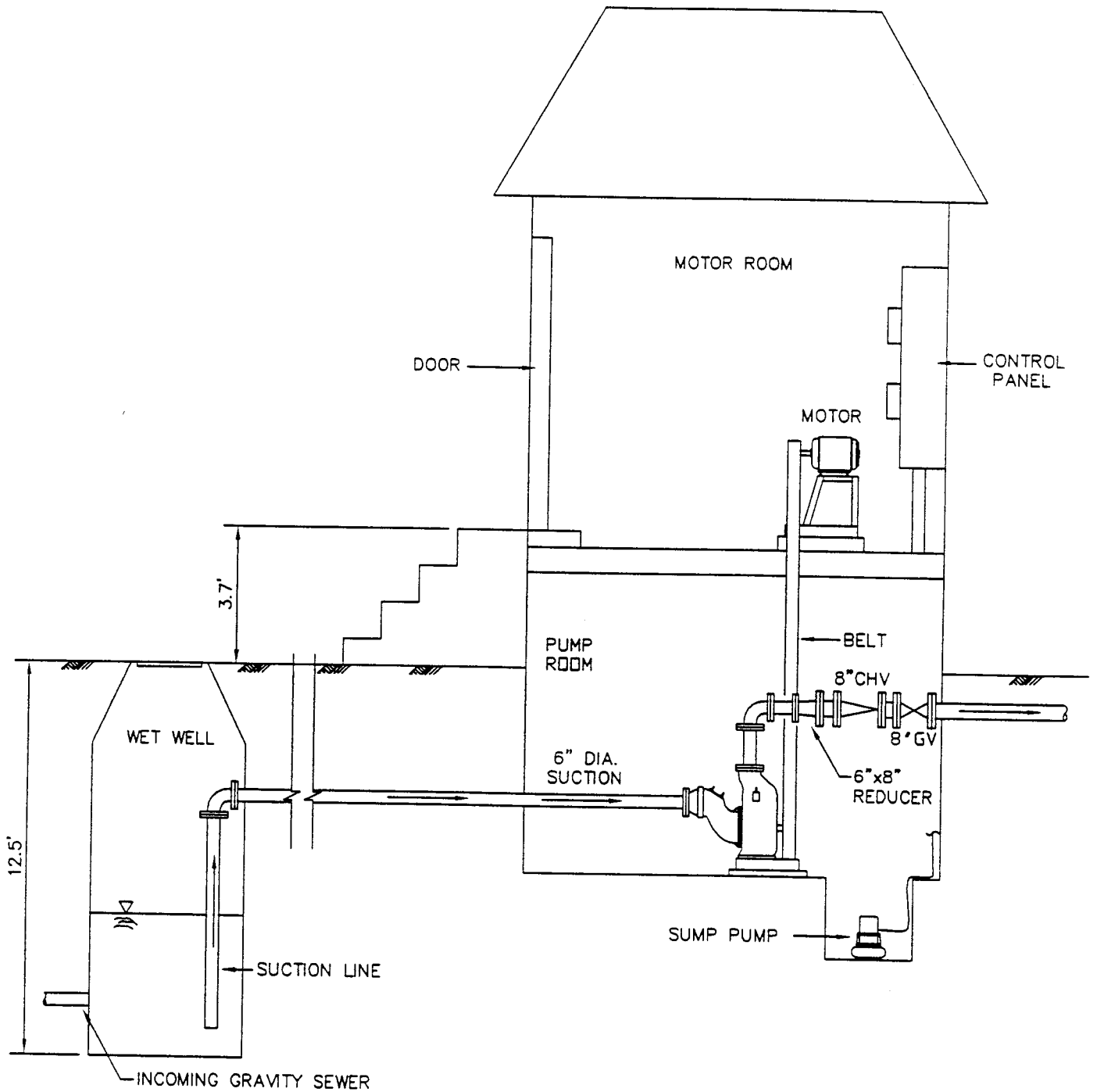
SEWERAGE AND WATER BOARD
OF NEW ORLEANS

MONTGOMERY WATSON

PUMP STATION 139 (CASTLE MANOR)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97

FILE NO.: 139 JOB NO.: 1113030.01090120 DATE: 3/21/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 139 (CASTLE MANOR)
BI-LEVEL SUCTION LIFT

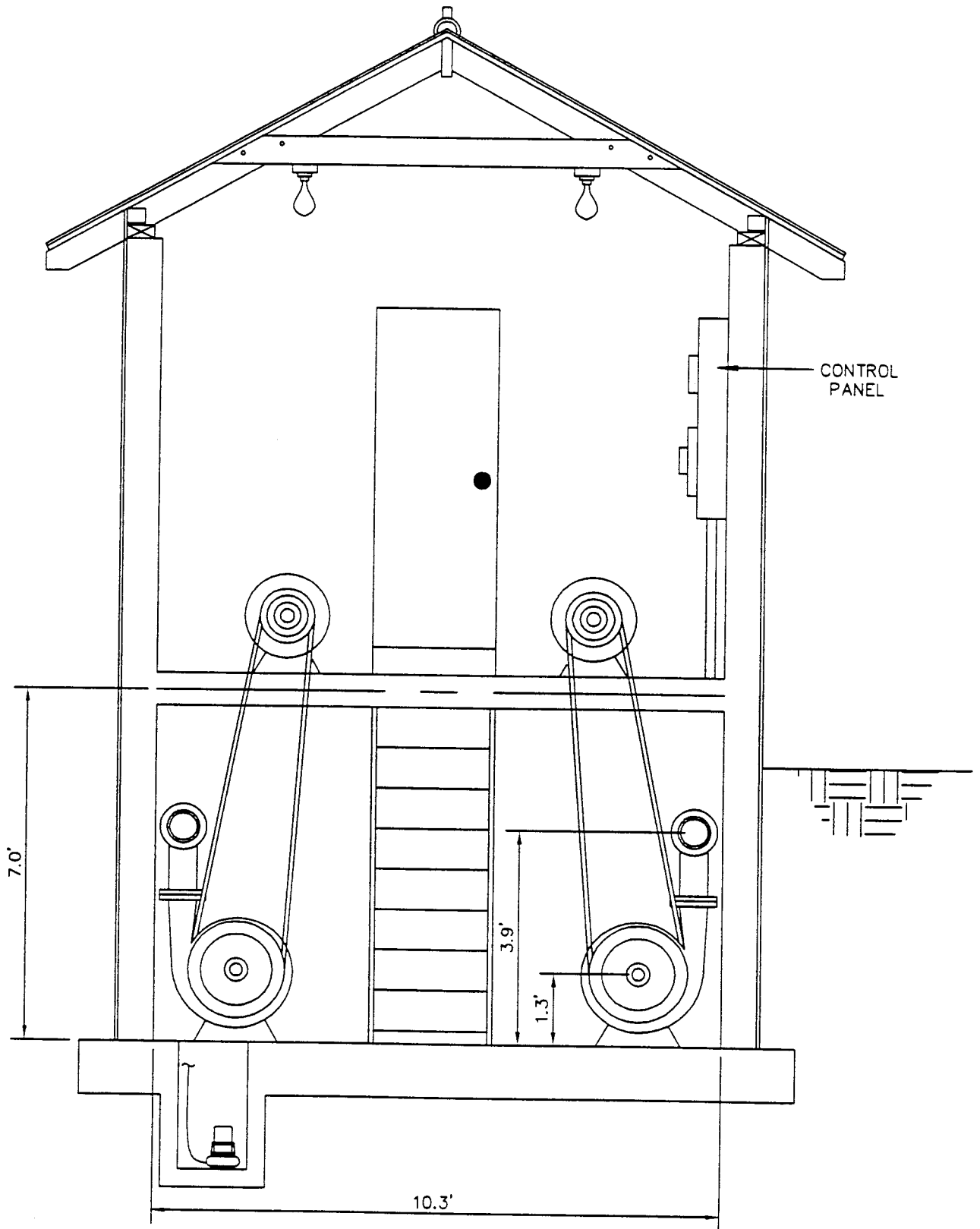
FIGURE:

2

DATE:

3/21/97

FILE NO.: 139 JOB NO.: 1113030.01090120 DATE: 3/21/97



FRONT VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 139 (CASTLE MANOR)
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/21/97

Pump Station: 139 (Castle Manor)

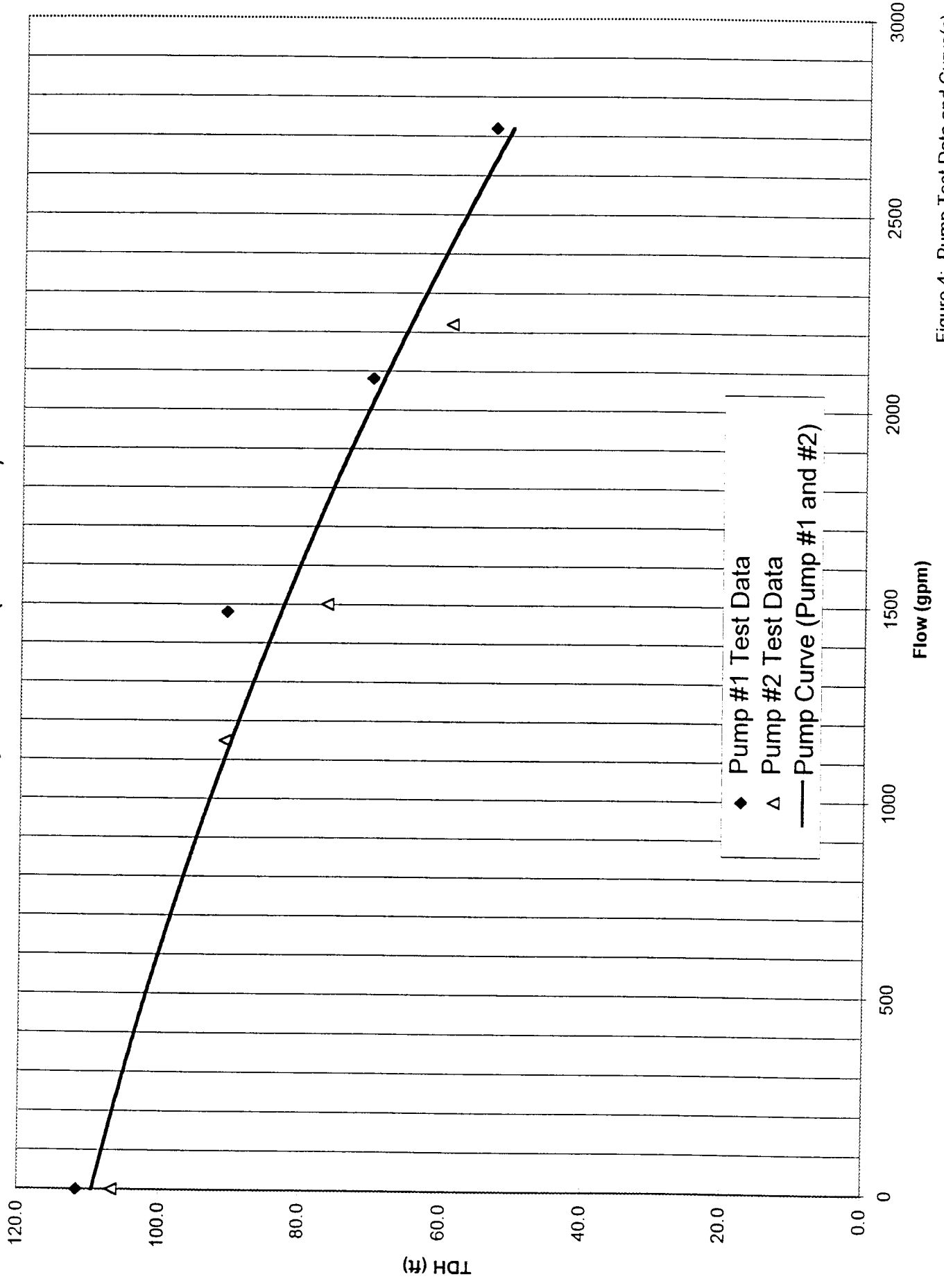


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 139

General Information

PS No. 139 PS Facility Castle Manor Address 4950 Gawain Drive

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 6 inch Pump Discharge 6 inch FM Diameter 8 inch

Suction Valve Size 0 inch Discharge Valve Size 8 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 8 inch

Dry Well Dimensions 0 ft. dia. Length 10 ft. Width: 10.3 ft. Depth 6.8 ft.

Pump centerline* 1.3 ft. Centerline of discharge pipe* 3.9 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? # 1

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 139

Pump Controls

Lead pump on 6 ft. Type of Controls bubbler
Lead pump off 2 ft.
Lag pump on 7 ft.
Lag pump off 2 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Severe corrosion of the mortar between the bricks was observed.

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 12.5 ft.

Sewer Invert(s) Depth* _____ ft.

_____ ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 139

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device _____

Size of main protective device 200 amps, dual element, fusible disconnect switch

Size of motor protective device 100 amps, dual element, fusible disconnect switch

Service wire size #4/0 AWG Size of motor starter in NEMA 4

Motor wire size #2 AWG Motor Horsepower 60

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1770

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # _____ Serial Number - Motor # _____

Model Number - Motor # _____ Serial Number - Motor # _____

Model Number - Motor # _____ Serial Number - Motor # _____

Model Number - Motor # _____ Serial Number - Motor # _____

Comments The physical condition of motors, motor controller and the control panel is poor due to corrosion. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The pump station has

Pump Station 139 (Castle Manor)



Photo Number 1



Photo Number 2

Pump Station 139 (Castle Manor)

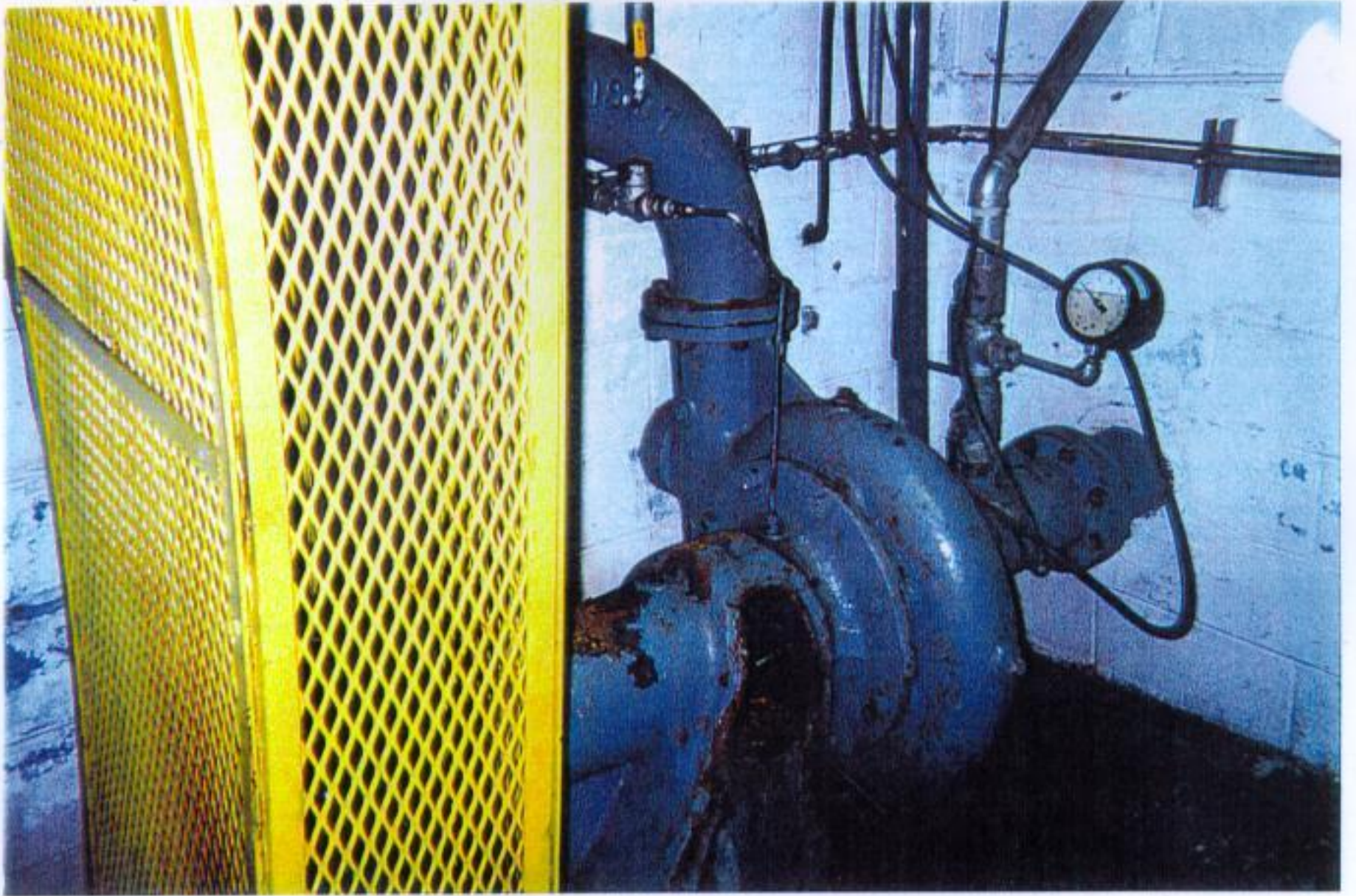


Photo Number 3



Photo Number 4

Pump Station 139 (Castle Manor)

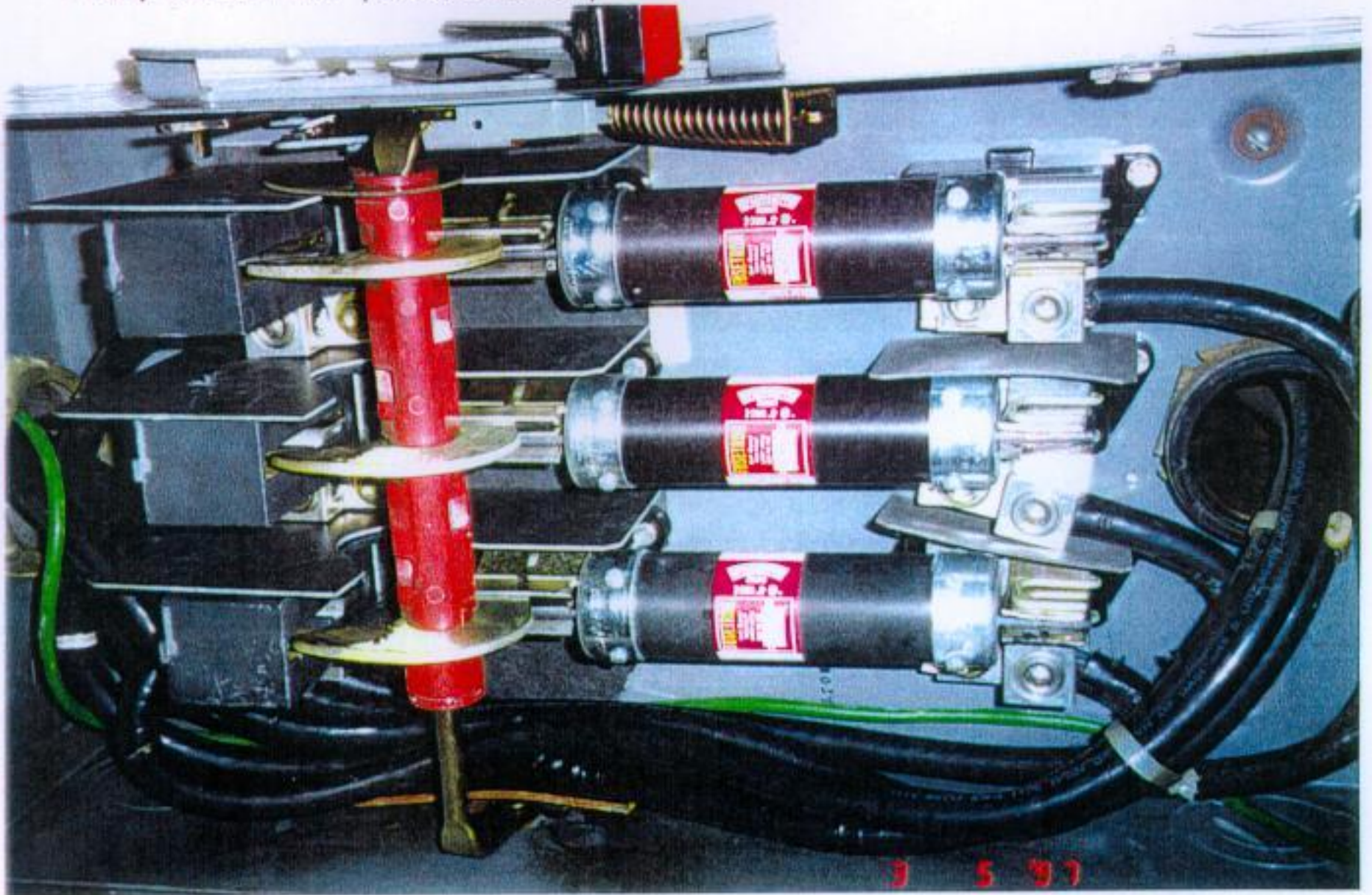


Photo Number 5

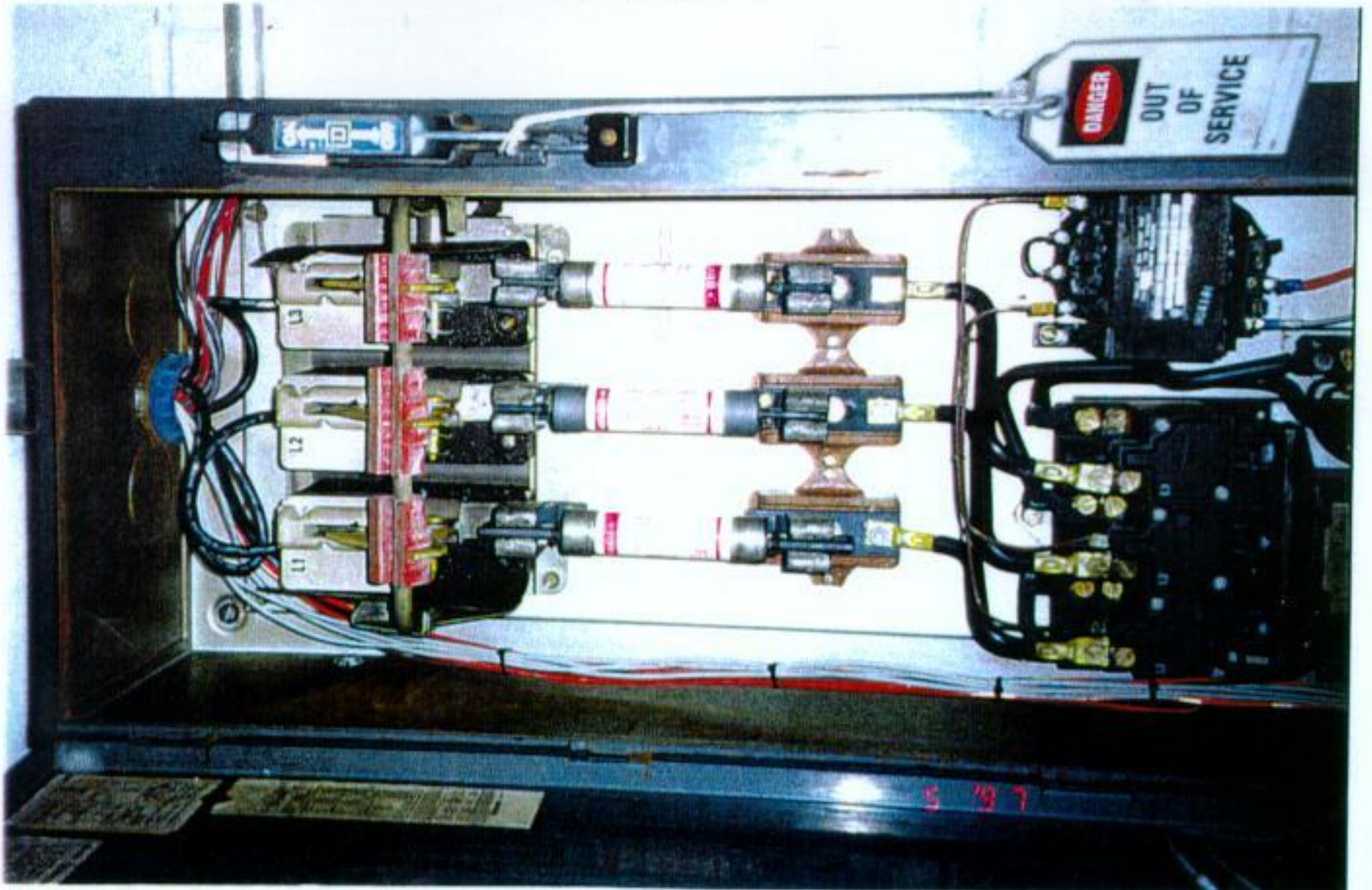


Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 140 (CERISE)
5001 CERISE AVENUE

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 140 (Cerise)

Pump Station 140 is a bi-level suction lift station located on 5001 Cerise Ave. It discharges to a 30-inch force main on Dwyer Road via approximately 30 feet of 6-inch diameter force main. Pump Station 140 does not repump flow from any other station and its flow is not repumped by any other station. Figure 1 shows the schematic of the subsystem surrounding Pump Station 140.

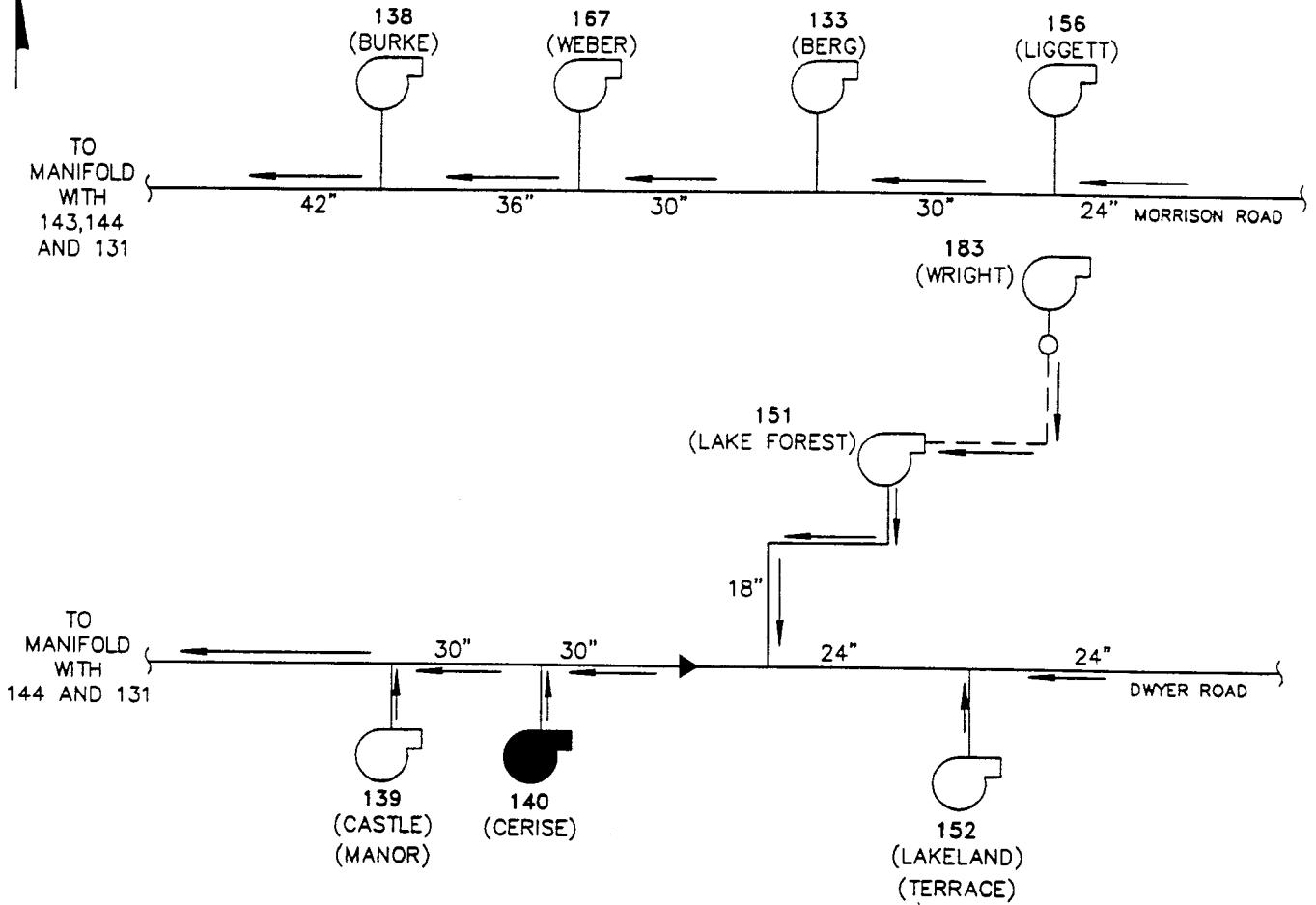
Pump Station 140 contains two (6-inch by 6-inch) Fairbanks Morse horizontally aligned pumps. Each pump is powered by a 60 horsepower (hp) General Electric motor operating at a constant speed of 1,770 revolutions per minute (rpm). This equipment is housed in a 10.3-foot by 10-foot brick dry well structure, which is partially below grade. The depth below grade of the pump room section of the dry well is 7.1 feet. Figures 2 and 3 provide elevation and front views of the station.

Pump Station 140 collects wastewater from the surrounding gravity sewer system into a 14.5-foot deep brick wet well. The diameter of the wet well was measured to be approximately 5 feet.

The Doppler Flow Meter was used to determine the capacity of Pump Station 140. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 2,700 gallons per minute (gpm) at 50 feet of head. The shut-off head for both pumps was found to be approximately 110 feet.

Recommendations:

1. An initial observation of the wet well suggests that the brick upper portion may need regrouting. The extent of the corrosion of the wet well should be further investigated and corrected in some locations.












TO
MANIFOLD
WITH
143,144
AND 131

TO
MANIFOLD
WITH
144 AND 131

MORRISON ROAD

DWYER ROAD

-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 146 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 140 (CERISE)
PUMP STATIONS AND FORCEMANS SCHEMATIC

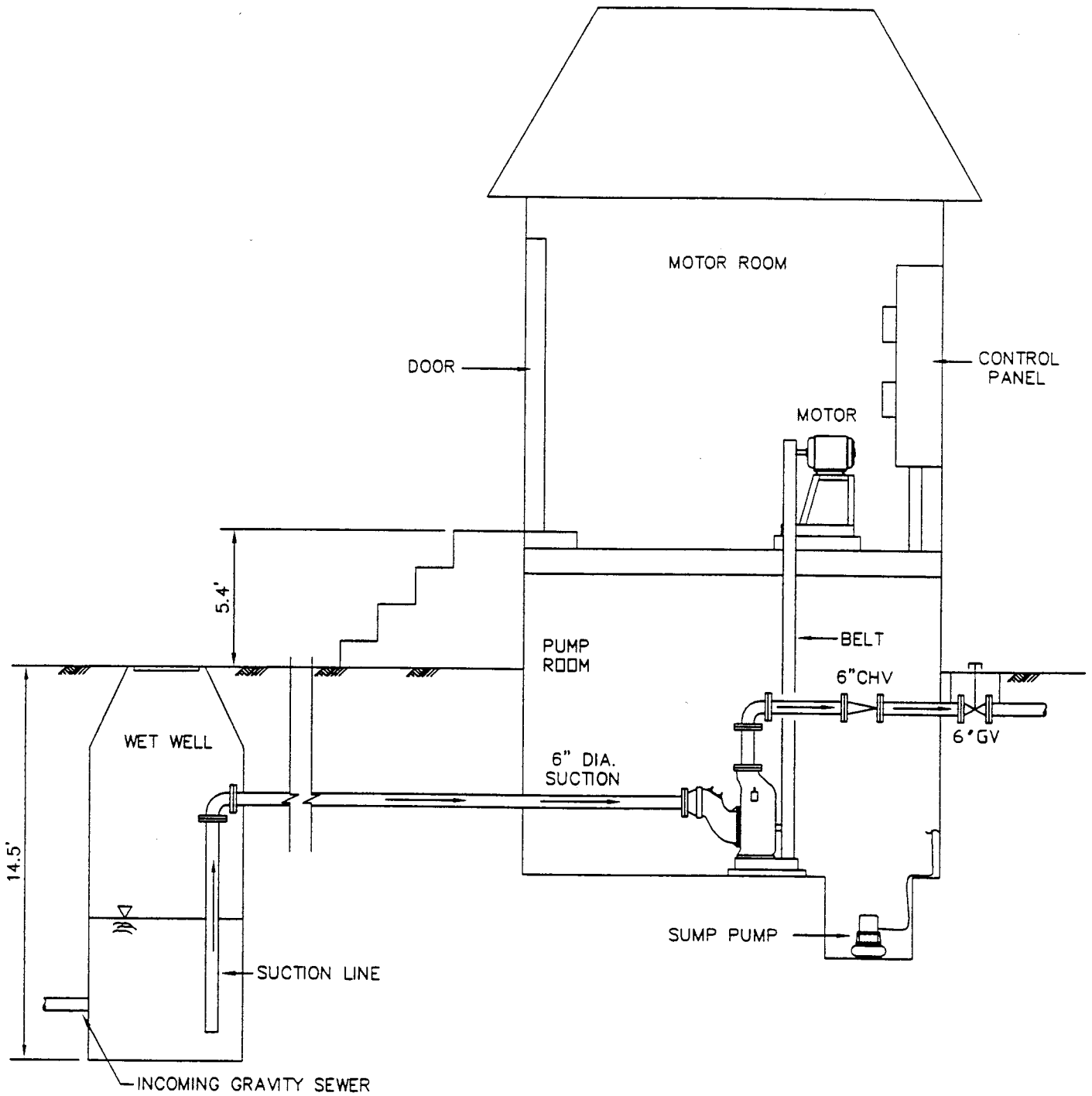
FIGURE:

1

DATE:

3/28/97

FILE NO.: 14C JOB NO.: 1113030.01090120 DATE: 3/21/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

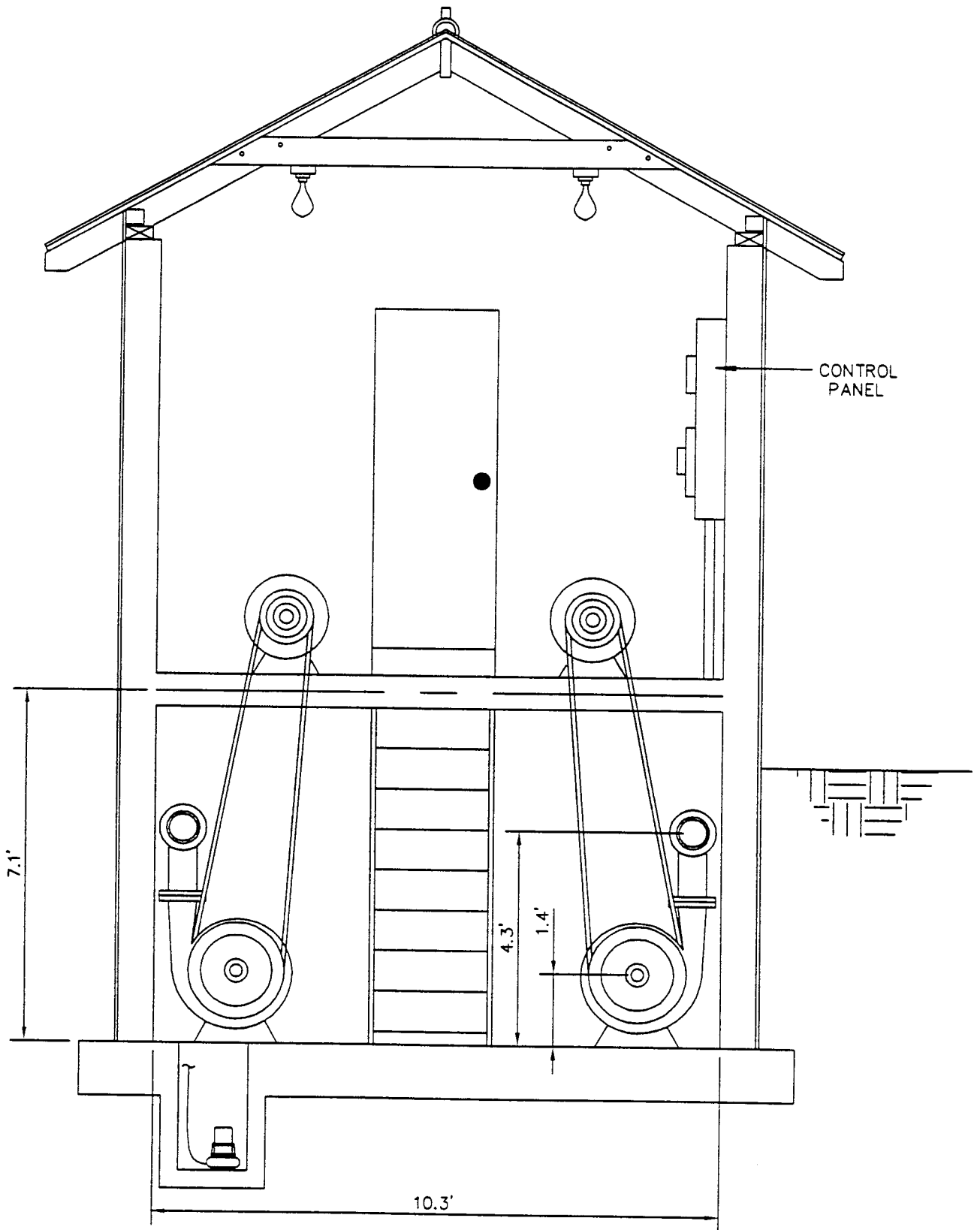
PUMP STATION 140 (CERISE)
BI-LEVEL SUCTION LIFT

FIGURE:

2

DATE:

3/21/97



FRONT VIEW
(NOT TO SCALE)

FILE NO.: 14L MG JOB NO.: 1113030.01090120 DATE: 3/21/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 140 (CERISE)
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/21/97

Pump Station: 140 (Cerise)

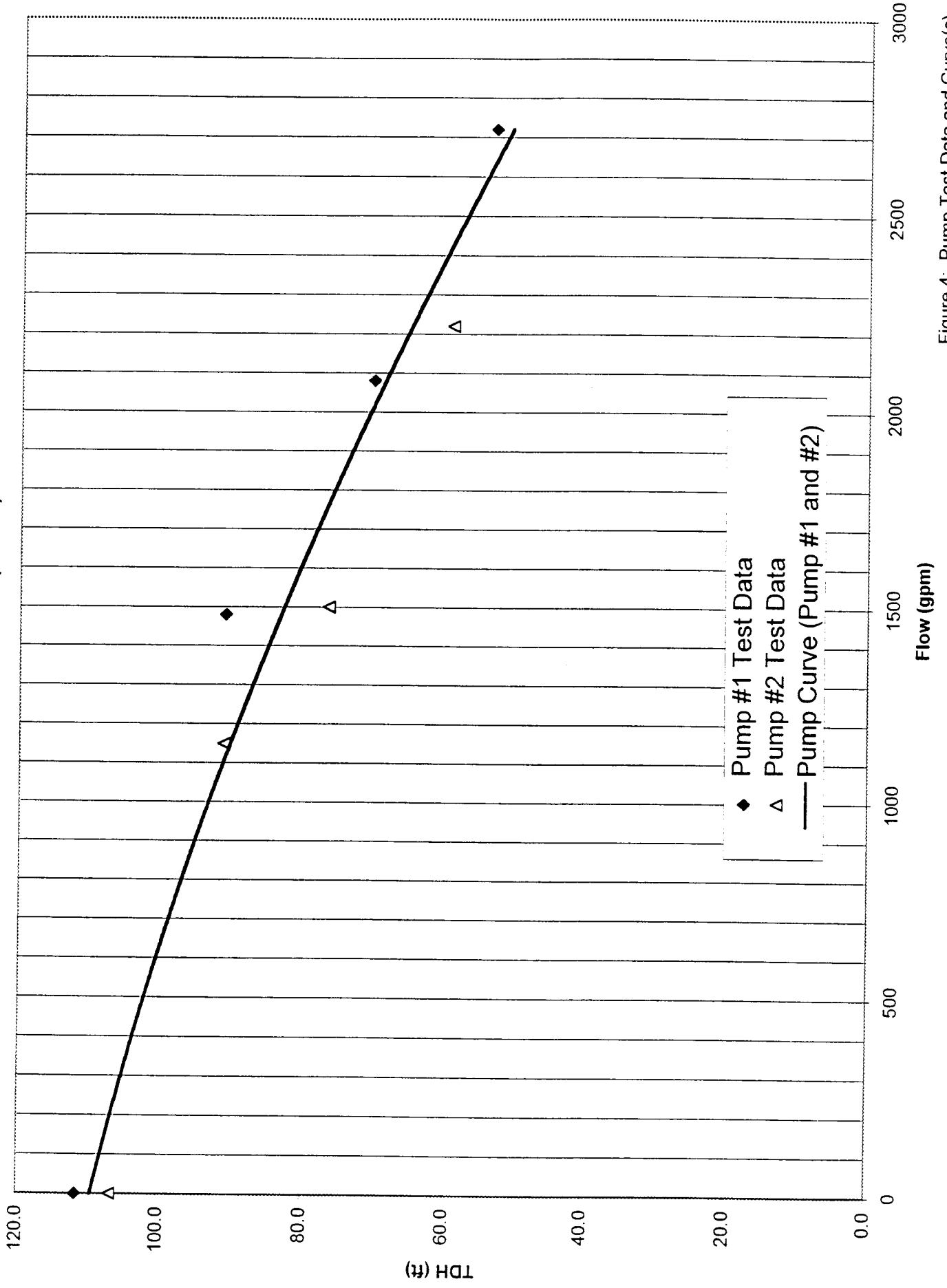


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 140

General Information

PS No. 140 PS Facility Cerise

Address 5001 Cerise Avenue

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter _____ inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 6 inch Pump Discharge 6 inch FM Diameter 6 inch

Suction Valve Size 0 inch Discharge Valve Size 6 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 6 inch

Dry Well Dimensions _____ ft. dia. Length 10.3 ft. Width: 10 ft. Depth 7.1 ft.

Pump centerline* 1.4 ft. Centerline of discharge pipe* 4.3 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? minor on # 1 &

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 140

Pump Controls

Lead pump on 6 ft. Type of Controls bubbler
Lead pump off 2 ft.
Lag pump on 7 ft.
Lag pump off 2 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Grout between brick is corroded.

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 14.5 ft.

Sewer Invert(s) Depth* 10 ft.

 0 ft.

**measured from top of wet well cover.*

Pump Station 140 (Cerise)



Photo Number 1



Photo Number 2

Pump Station 140 (Cerise)



Photo Number 3

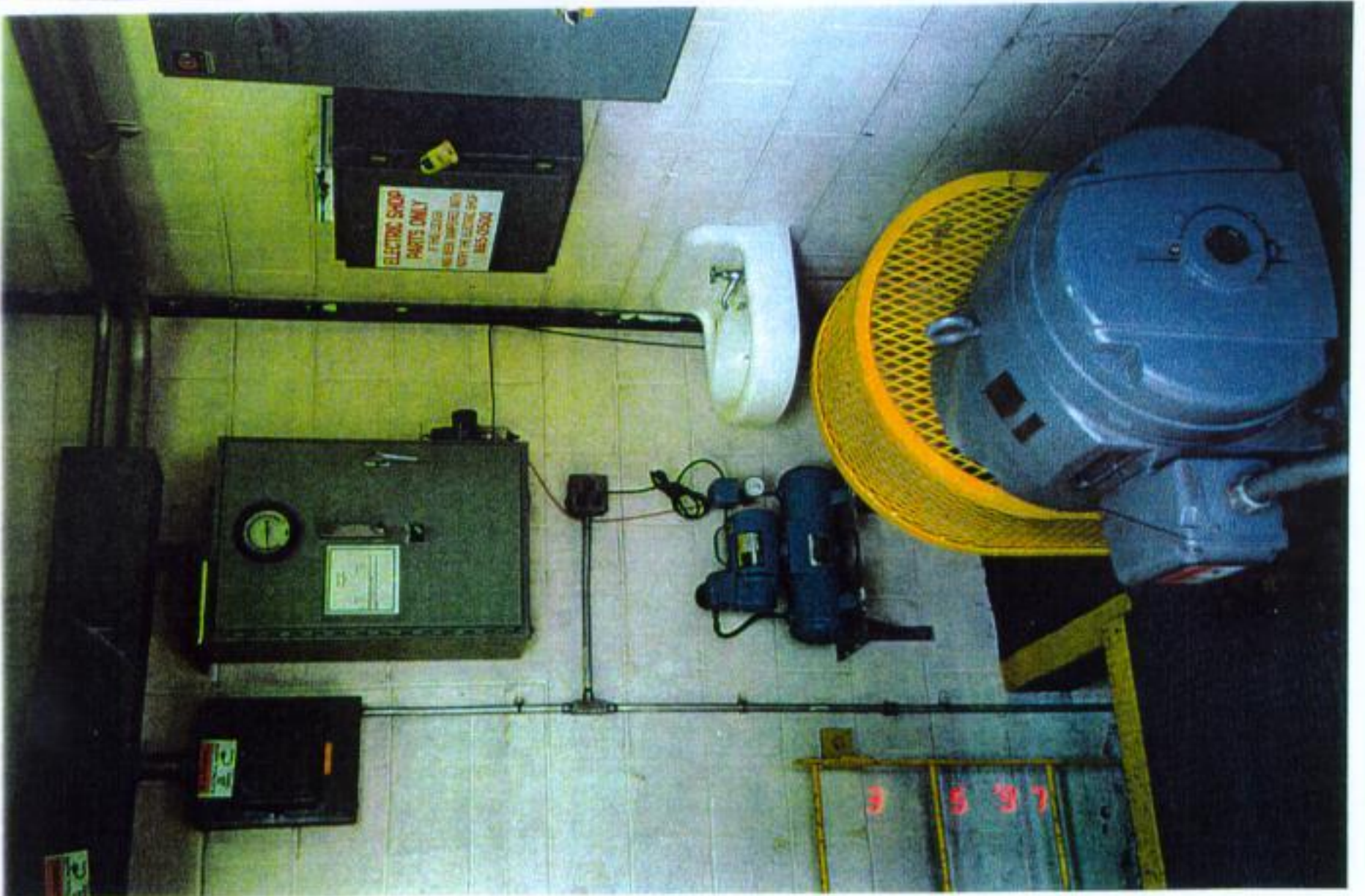


Photo Number 4

Pump Station 140 (Cerise)

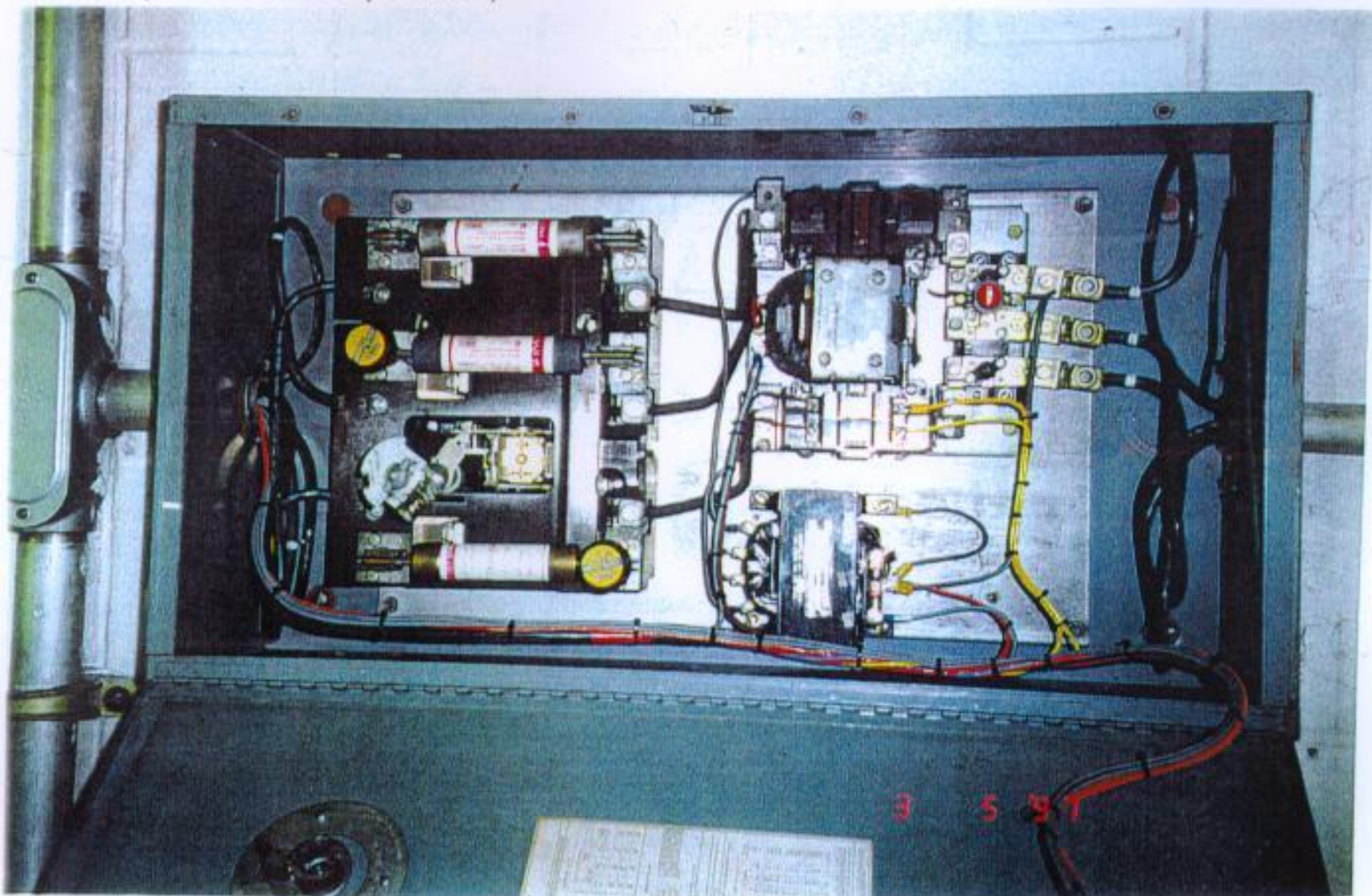


Photo Number 5

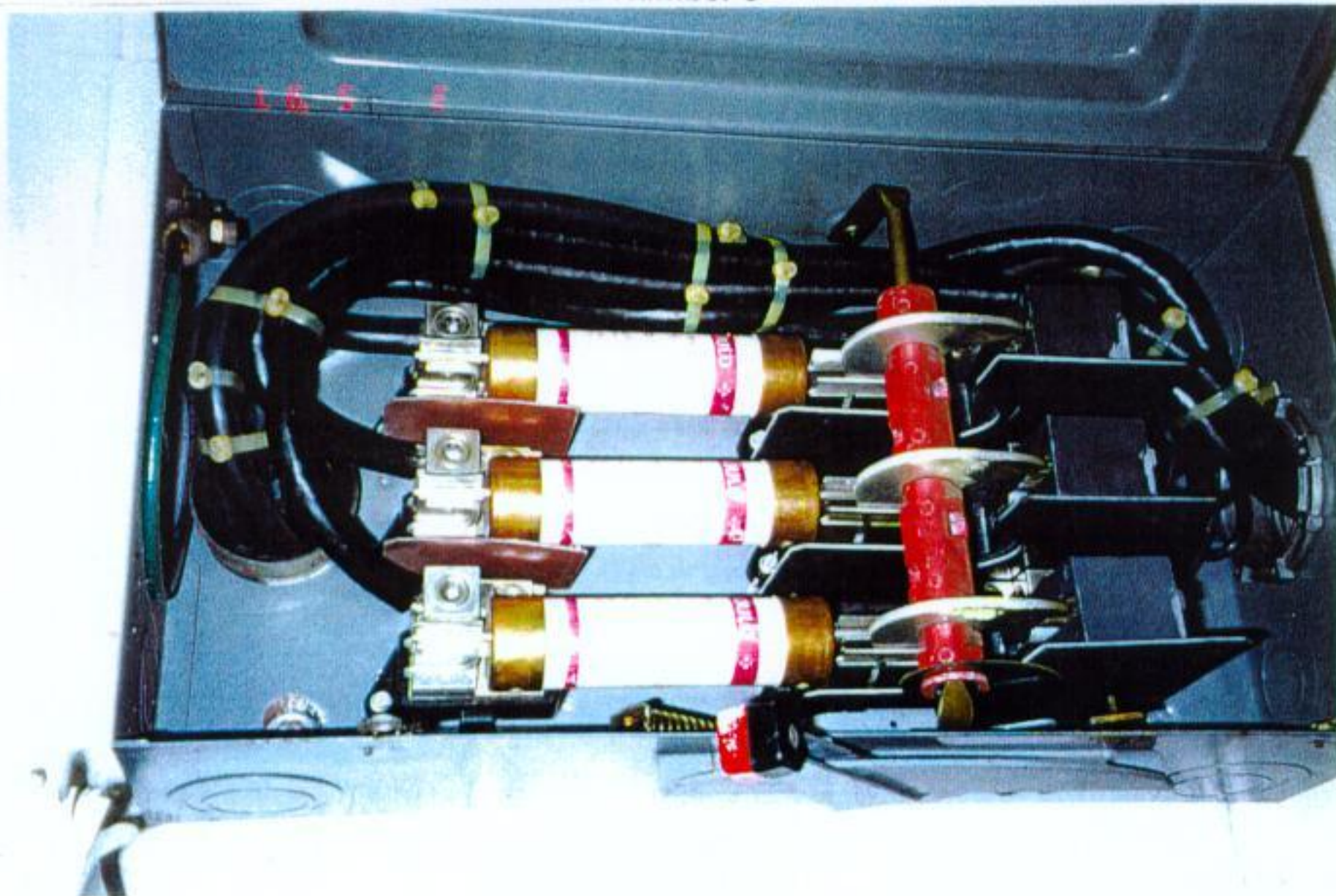


Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 141 (CHICKASAW)
3841 METROPOLITAN

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 141 (Chickasaw)

Pump Station 141 is a bi-level suction lift station located on 3841 Metropolitan Street. It discharges to a 50-inch force main along Louisa Street via a 8-inch diameter force main. Pump Station 141 does not repump flow from any other station and its flow is not repumped by any other station. Figure 1 shows the schematic of the subsystem surrounding Pump Station 141.

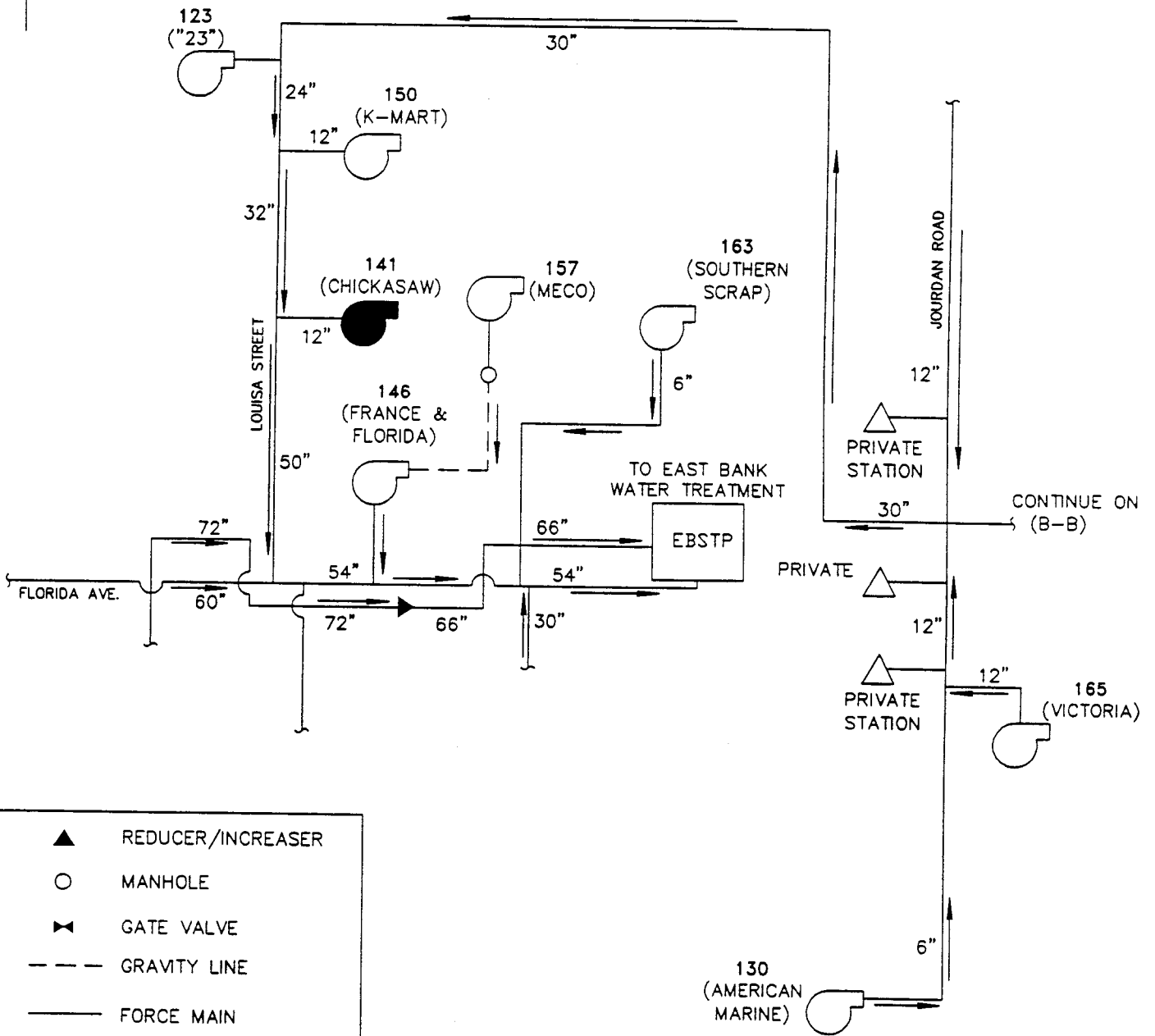
Pump Station 141 contains two (6-inch by 6-inch) Fairbanks Morse horizontally aligned pumps. Each pump is powered by a 65 horsepower (hp) Marathon Electric Motor operating at a constant speed of 1185 revolutions per minute (rpm). This equipment is housed in a 12.3 by 11-foot brick dry well structure, which is partially below grade. The depth below grade of the pump room section of the dry well is 7.0 feet. Figures 2 and 3 provide elevation and front views of the station.

Pump Station 141 collects wastewater from the surrounding gravity sewer system into a 16.2-foot deep brick wet well. The wet well diameter was measured approximately 5 feet.

The Doppler Flow Meter was used to determine the capacity of Pump Station 141. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 2,700 gallons per minute (gpm) at 50 feet of head. The shut-off head for both pumps was found to be approximately 110 feet.

Recommendations:

1. An initial observation of the wet well suggests that the brick upper portion need regrouting. The extent of the corrosion of the wet well should be further investigated and corrected in some locations.
2. Leakage from the check valve was also observed during the testing pump number 1. The extent of the leakage from the check valve should be further investigated and corrected as required.



	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 141
JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 141 (CHICKASAW)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

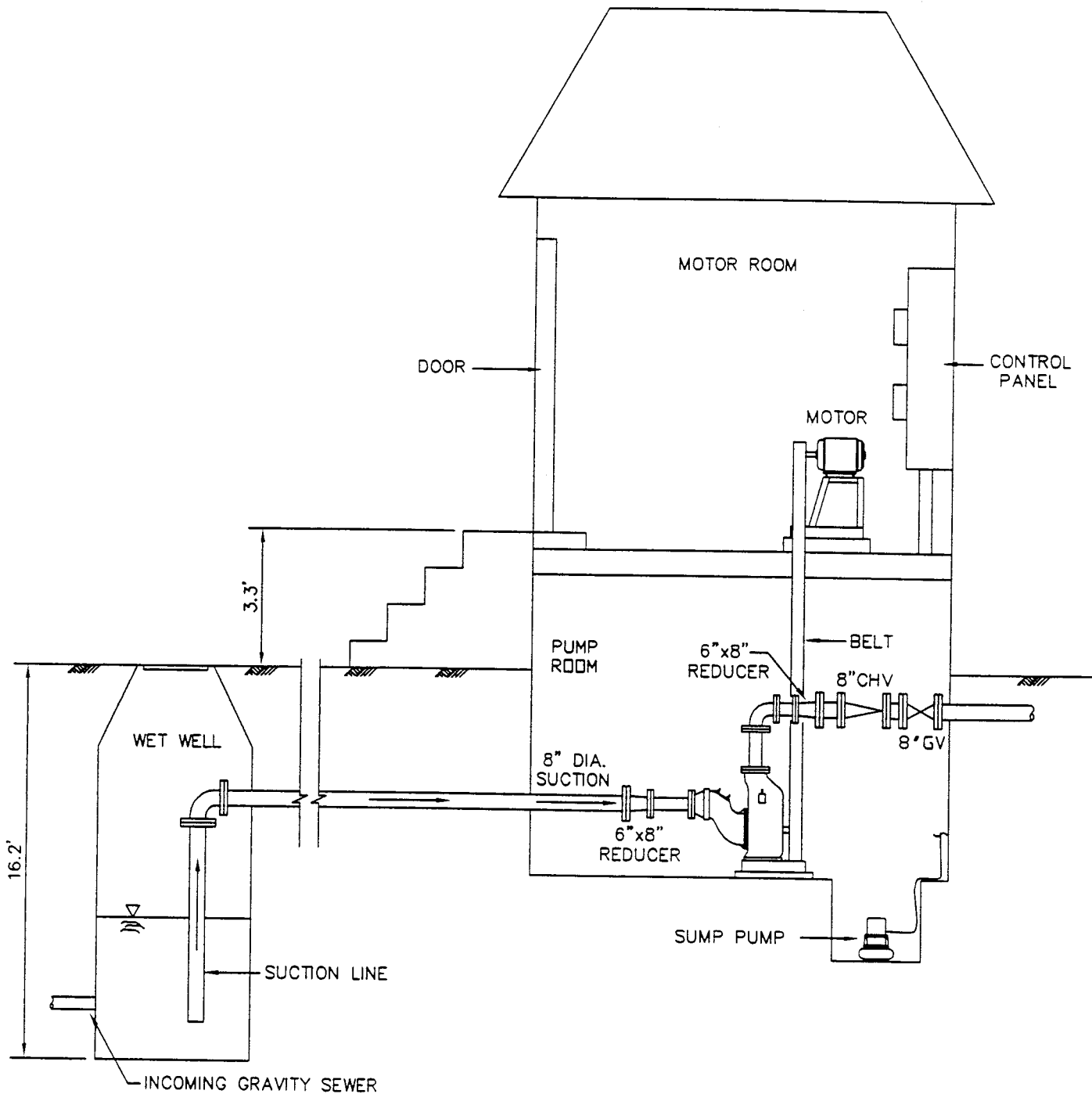
FIGURE:

1

DATE:

3/28/97

FILE NO.: 141-...G JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

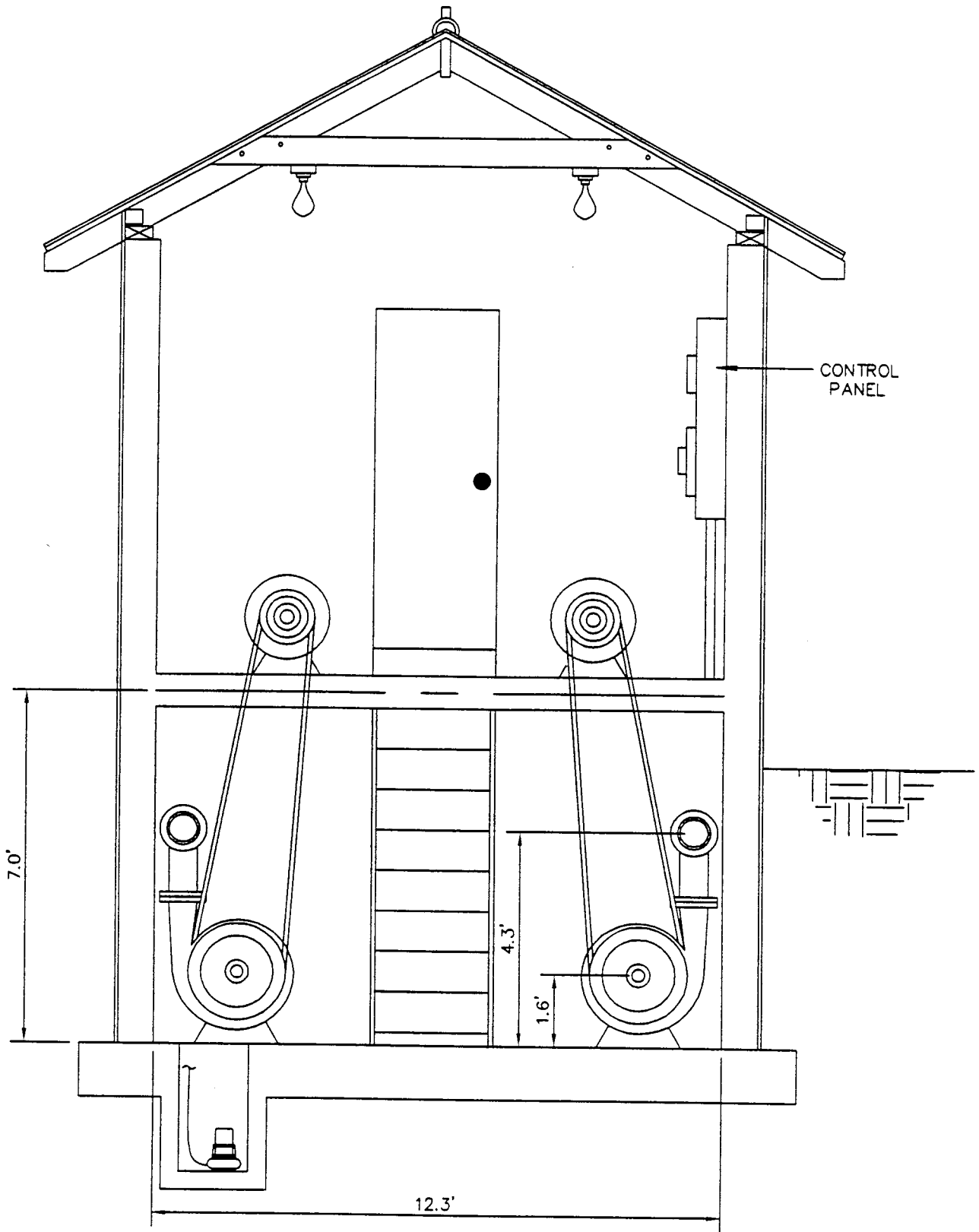
PUMP STATION 141 (CHICKASAW)
BI-LEVEL SUCTION LIFT

FIGURE:

2

DATE:

3/28/97



CONTROL
PANEL

7.0'

12.3'

4.3'

1.6'

FRONT VIEW
(NOT TO SCALE)

FILE NO.: 141-G JOB NO.: 1113030.01090120 DATE: 3/28/97



PUMP STATION 141 (CHICKASAW)
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/28/97

Pump Station: 141 (Chickasaw)

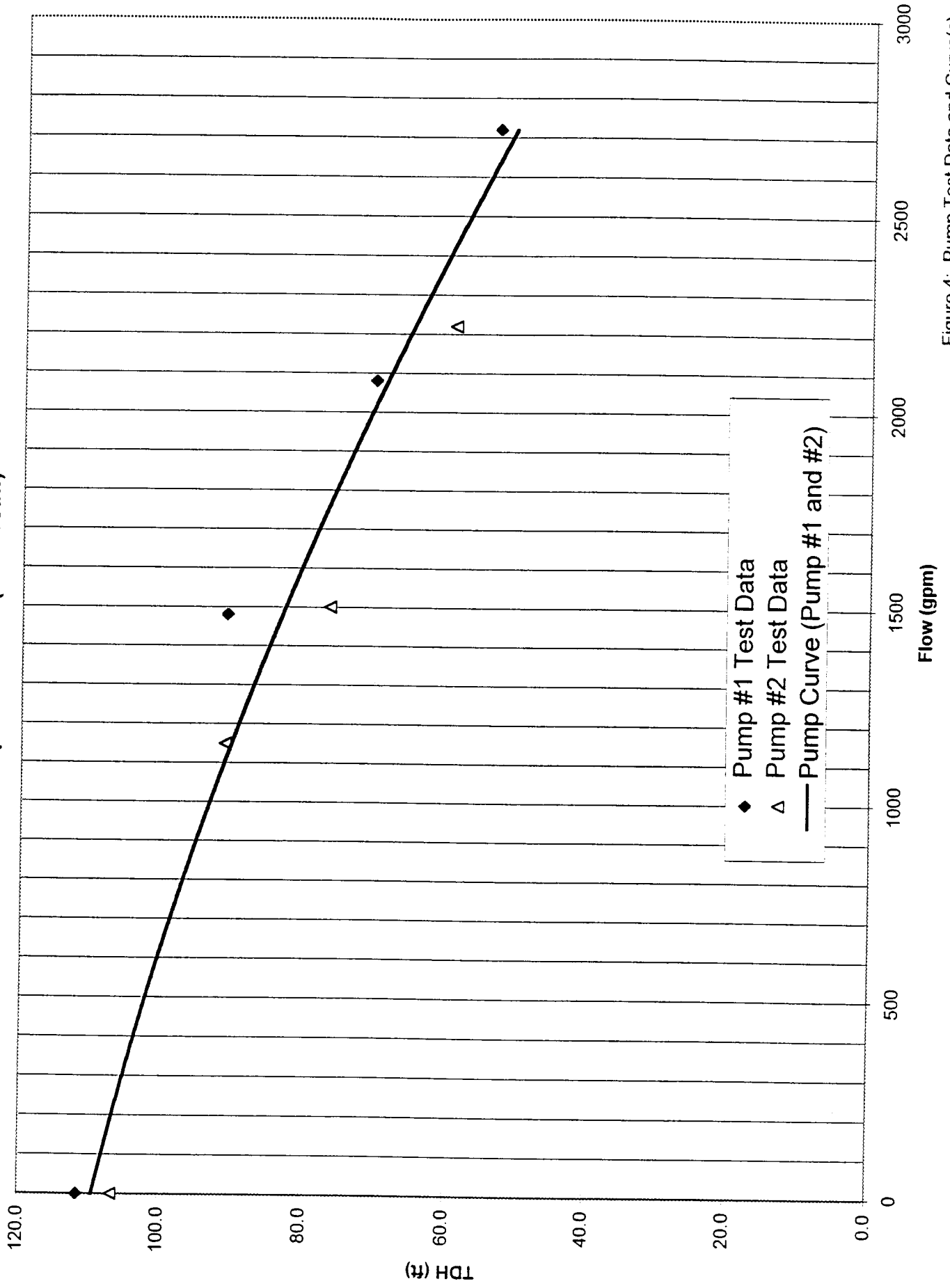


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 141

General Information

PS No. 141 PS Facility Chickasaw Address 3841 Metropolitan Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 6 inch Pump Discharge 6 inch FM Diameter 8 inch

Suction Valve Size 0 inch Discharge Valve Size 8 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 8 inch

Dry Well Dimensions 0 ft. dia. Length 12.3 ft. Width: 11 ft. Depth 7 ft.

Pump centerline* 1.6 ft. Centerline of discharge pipe* 4.3 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 141

Pump Controls

Lead pump on 6 ft. Type of Controls bubbler
Lead pump off 1.25 ft.
Lag pump on 7 ft.
Lag pump off 2.5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair except for the dampness on the wall surrounding the pipe penetrations.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition Mortar over brick in lower portion of wet well.

Comments _____

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 16.2 ft.

Sewer Invert(s) Depth* 12.8 ft.

12.4 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 141

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device not available

Size of main protective device 250 amps, dual element, fusible disconnect switch

Size of motor protective device 125 amps, dual element, fusible disconnect switch

Service wire size 250 kcmil Size of motor starter in NEMA 4

Motor wire size #1 AWG Motor Horsepower 75

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1185

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # KK405TTDS7086FD Serial Number - Motor # not available

Model Number - Motor # KK405TTDS7086 Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The pump station has aluminum conduit.

Pump Station 141 (Chicasaw)



Photo Number 1



Photo Number 2

Pump Station 141 (Chicasaw)



Photo Number 3



Photo Number 4

Pump Station 141 (Chicasaw)

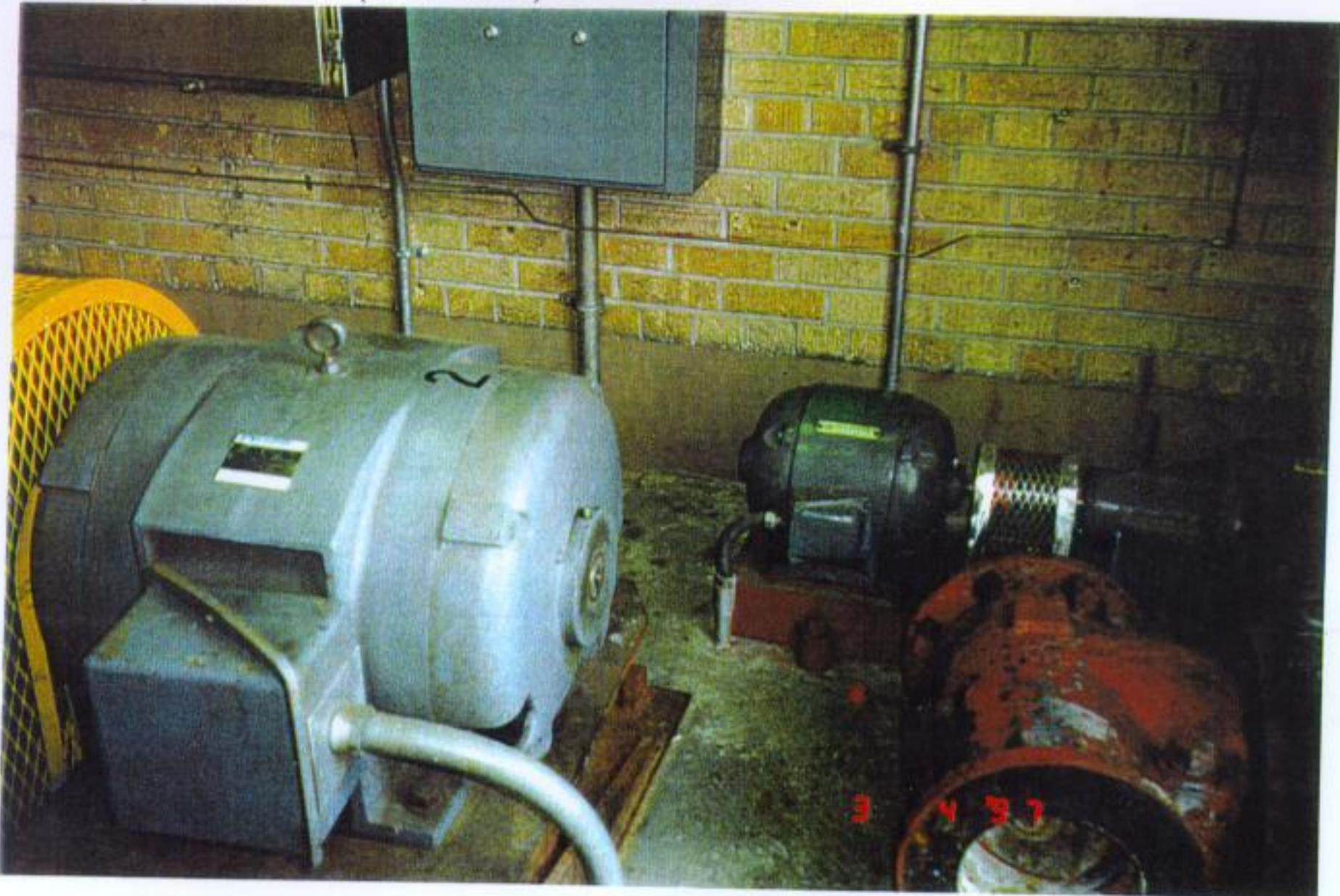


Photo Number 5

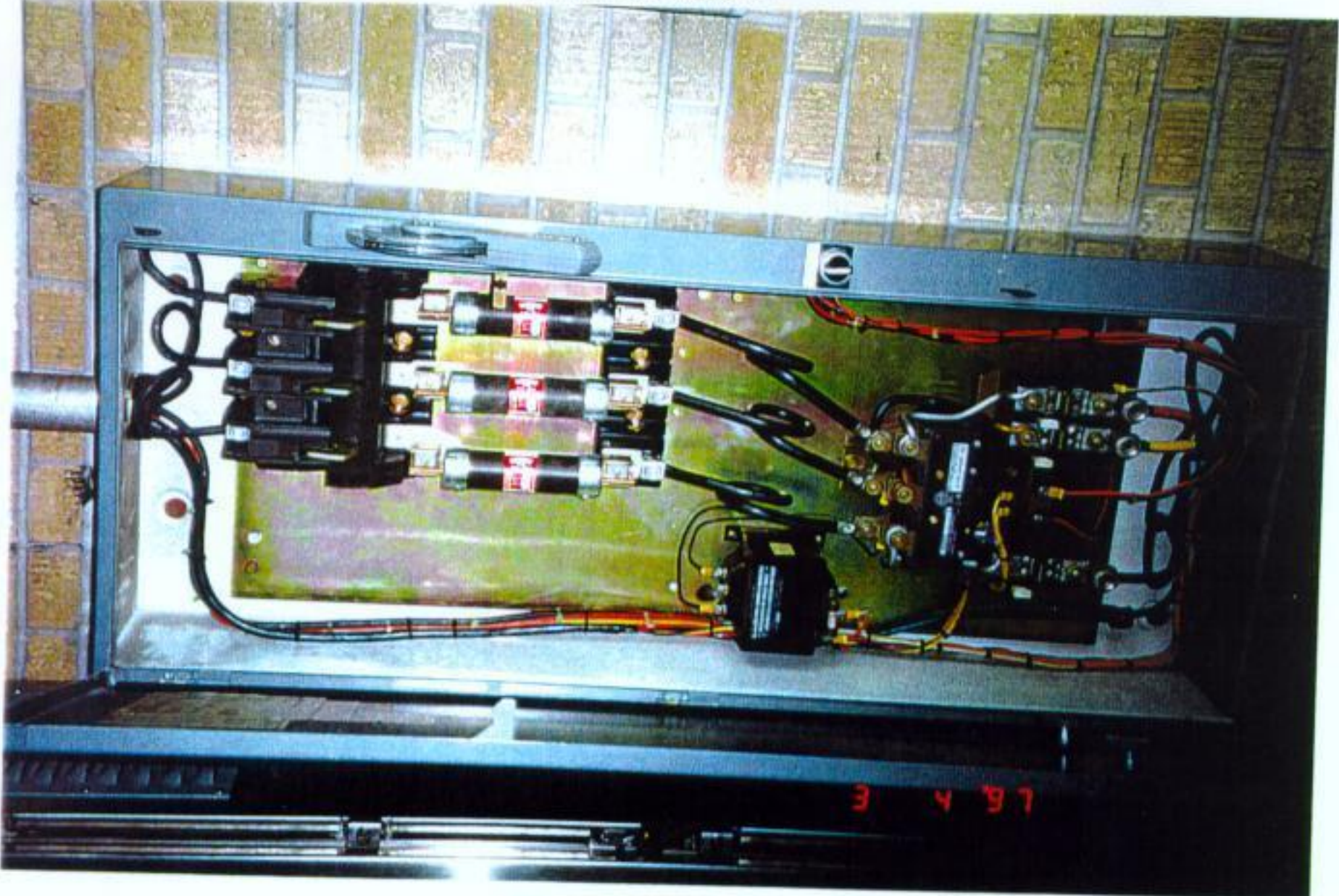


Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 142 (CITY PARK)
5700 MARCONI BOULEVARD

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 142 (City Park)

Pump Station 142 is a walk-in, suction-lift station located on 5700 Marconi Boulevard. Flow discharges the station via a 8-inch diameter force main and connects to the Florida Avenue force main through a 36-inch force main. Pump Station 142 does not repump flow from any other station however, its flow gets repumped by pump station 187 ("D"). Figure 1 shows the schematic subsystem surrounding Pump Station 142.

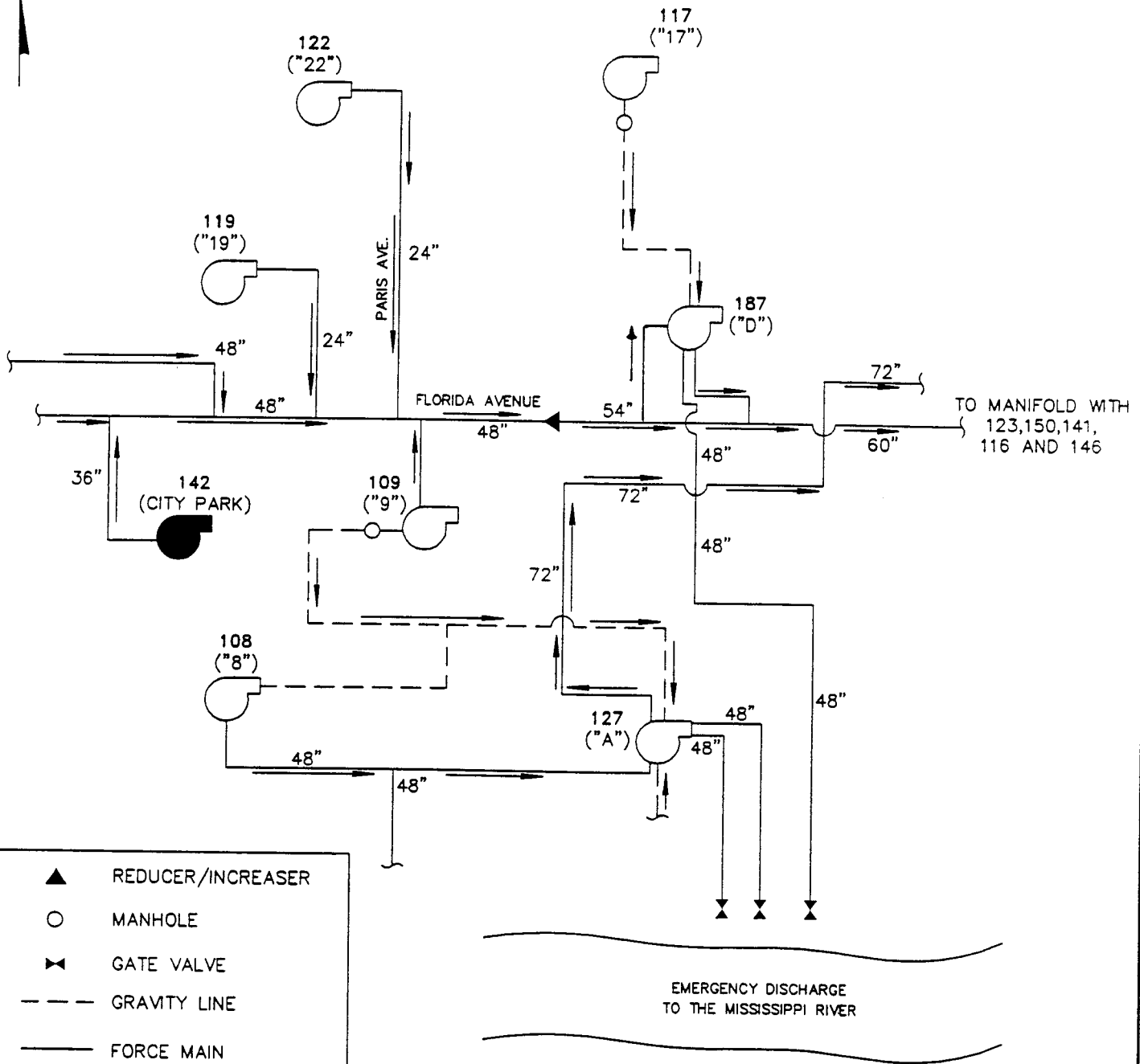
Pump Station 142 contains two (6-inch by 6-inch) Gorman Rupp horizontally aligned pumps with 10.7-inch impellers. Each pump is powered by a 15 horsepower (hp) U.S. Electric motor operating at a speed of 1175 revolutions per minute (rpm). This equipment is housed in a 13.3-foot by 16-foot stucco/block dry well structure, completely above ground. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is good as can be seen in the attached photos.

Pump Station 142 collects wastewater from the surrounding gravity sewer system into a 21.5-foot deep reinforced concrete wet well. The cross sectional area of the wet well is circular with an estimated 10-foot diameter. The overall condition of the wet well appears to be good.

A draw down/fill test was conducted to determine the capacity of Pump Station 142. Figure 4 shows the pump curve constructed from obtained test data. Pump #1 has an approximate capacity of 375 gallons per minute (gpm) at 56 feet of head. The shut-off head of Pump #1 was found to be 69 feet. Pump #2 has an approximate capacity of 40 gpm at 55 feet of head. The shut-off head of Pump #2 was found to be 55 feet. A pump curve was not assumed for Pump #2 due to its inconsistent flow during the test. The difference in pump performance can possibly be attributed to a wide range of problems including pump wear, line or valve blockage, loss of suction and/or priming system failure.

Recommendations:

1. It is recommended that an investigation to determine the cause for significant capacity reduction in Pump #2 be conducted.



- ▲ REDUCER/INCREASER
- MANHOLE
- ⋈ GATE VALVE
- - - GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- ◐ PUMP STATION
- ◑ REF. PUMP STATION
- EBSTP EAST BANK SEWERAGE TREATMENT PLANT

EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER

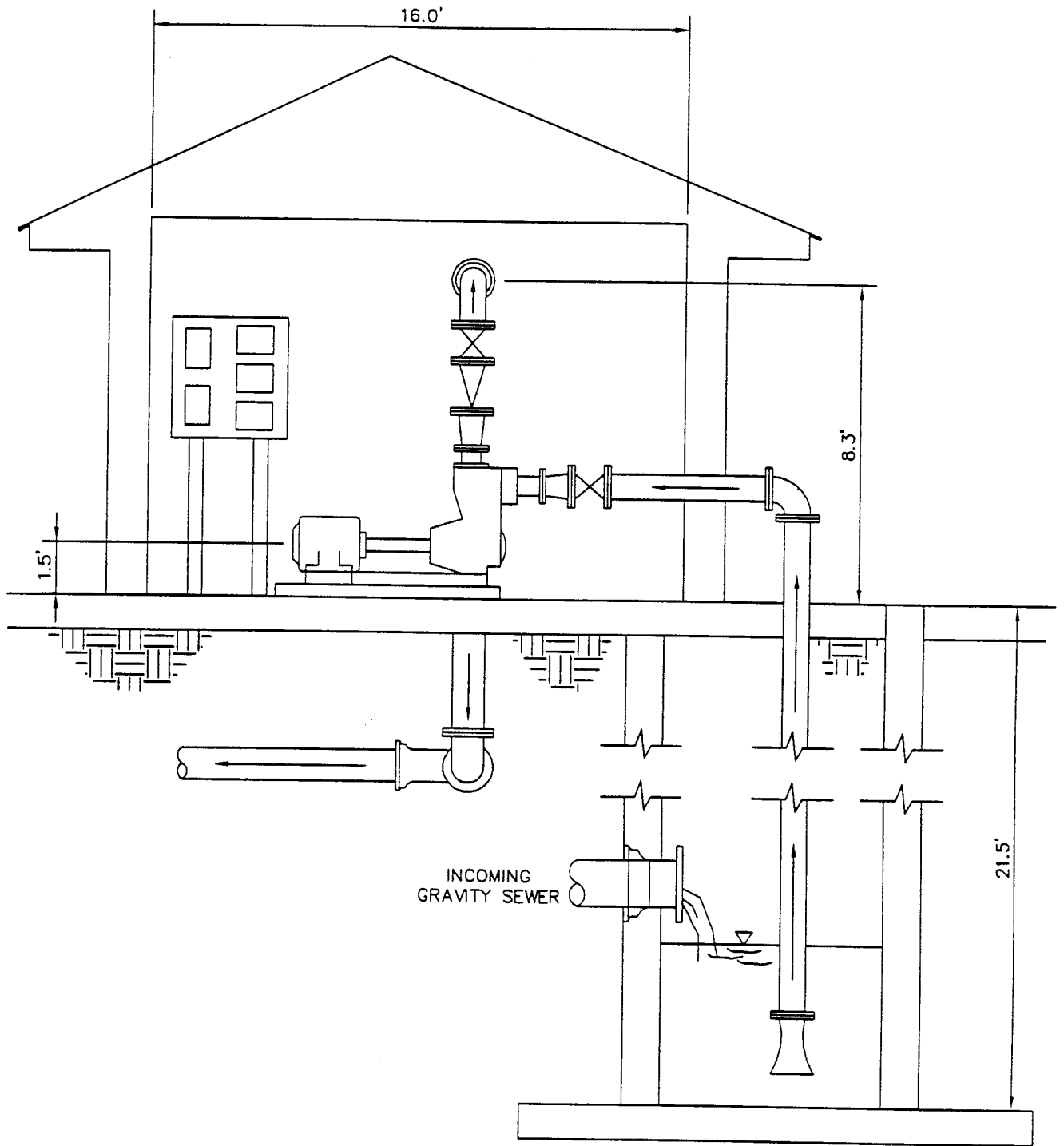
NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 142 JOB NO.: 1113030.01090120 DATE: 3/28/97



PUMP STATION 142 (CITY PARK)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1
DATE:
3/28/97



ELEVATION
(NOT TO SCALE)

FILE NO.: 142 AG JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

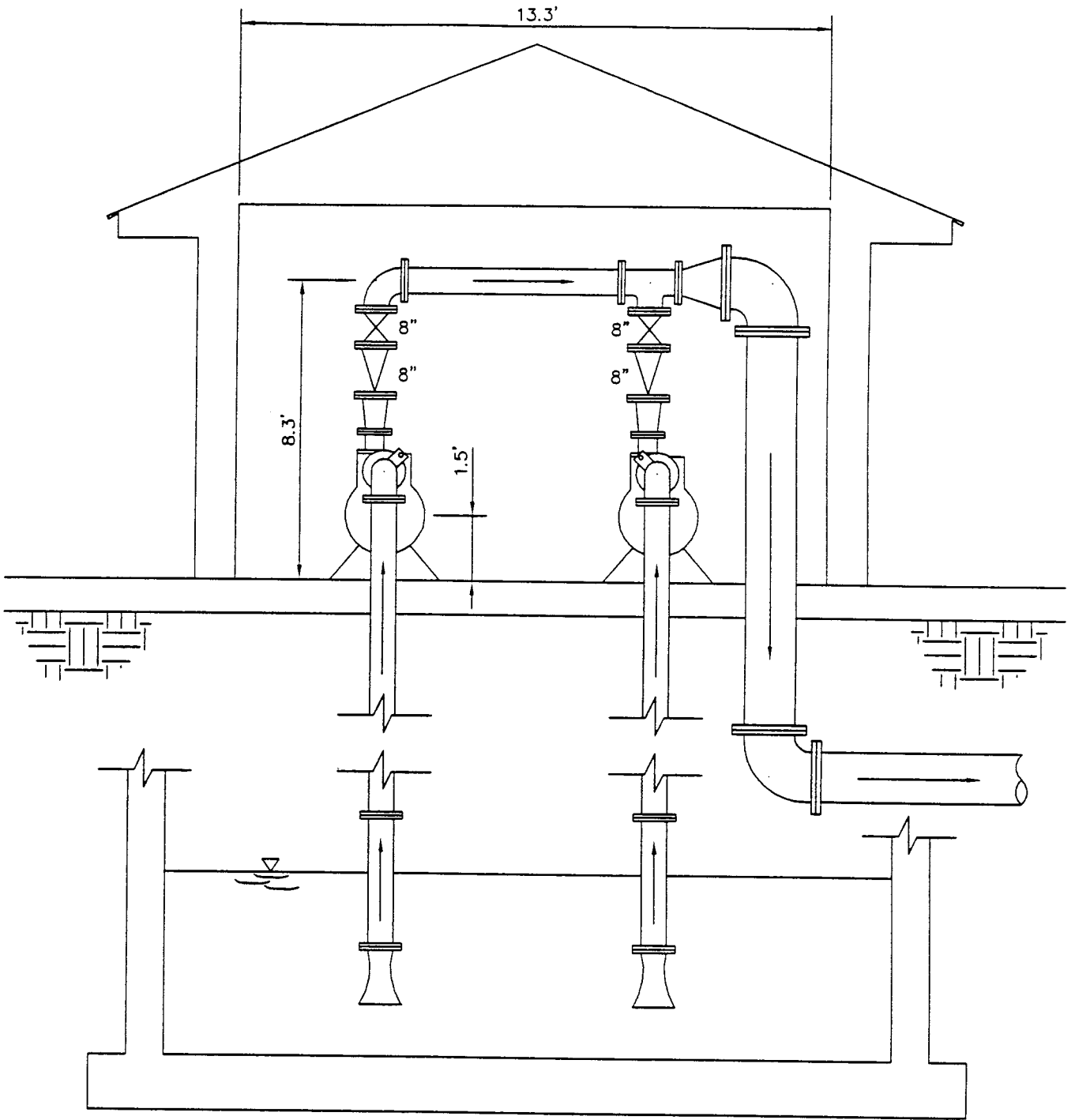
PUMP STATION 142 (CITY PARK)
WALK-IN SUCTION LIFT

FIGURE:

2

DATE:

3/28/97



10' DIA. CONCRETE
WET WELL

FRONT VIEW
(NOT TO SCALE)

FILE NO.: 142 G. JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 142 (CITY PARK)
WALK-IN SUCTION LIFT

FIGURE:

3

DATE:

3/28/97

Pump Station: 142 (City Park)

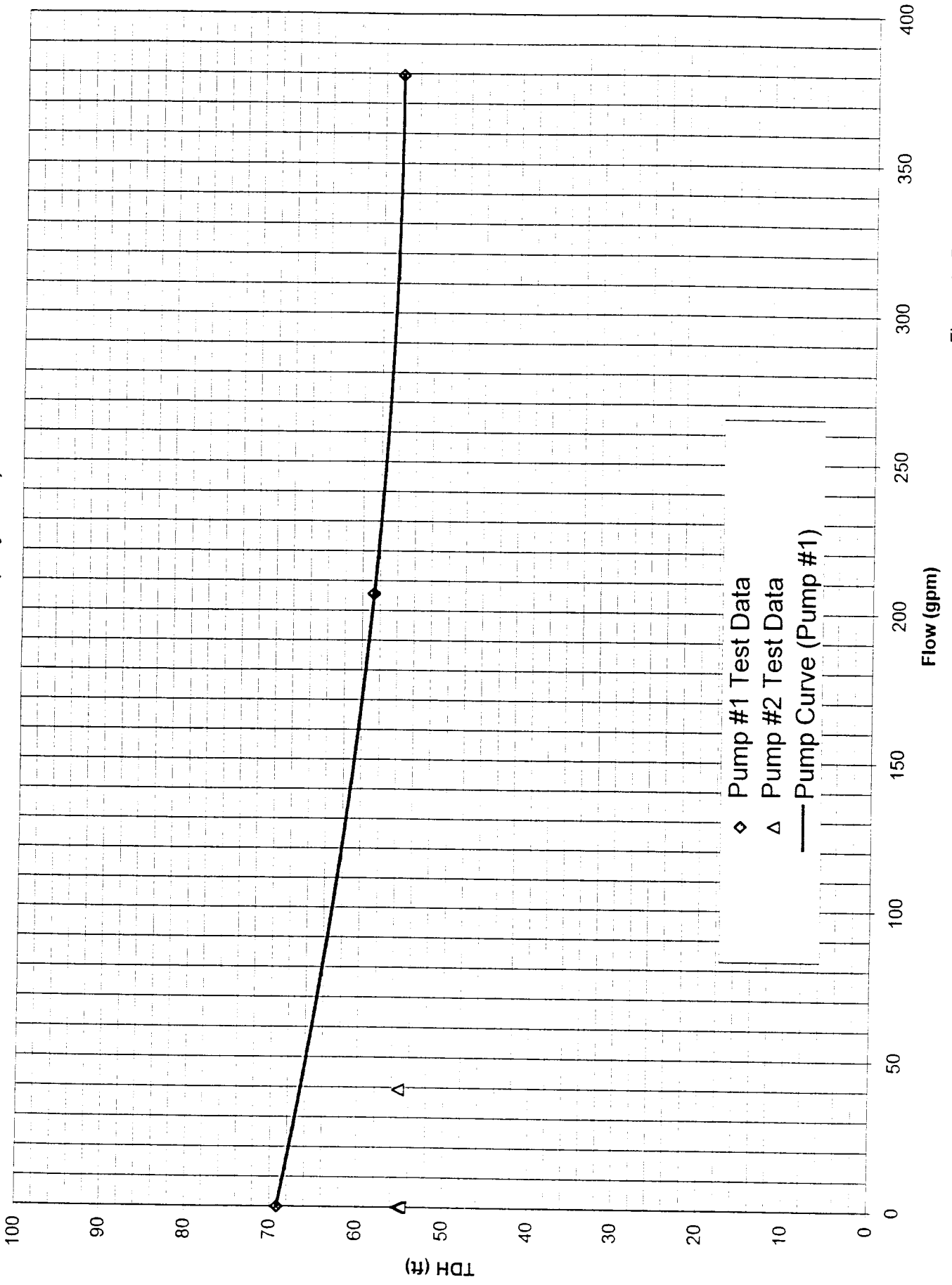


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 142

General Information

PS No. 142 PS Facility City Park Address 5700 Marconi Boulevard

- PS Type: [] Regional, [] Flooded Suction (can type), [] Flooded Suction (multi-level), [x] Suction Lift (above ground), [] Suction Lift (bi-level), [] Suction Lift (hut), [] Submersible, [] Discharge to gravity, [x] Discharge to force main

Notes: It's flow gets repumped by pump station ("D")

Pump Information

Number of Pumps: 2 Pump Manufacturer: Gorman-Rupp
Impeller Diameter: 11 inch
Model Number-Pump #1: 16C20-B (1) Serial Number-Pump #1: 827498N
Model Number-Pump #2: 16C20-B (2) Serial Number-Pump #2: 27497
Model Number-Pump #3: - Serial Number-Pump #3: -
Model Number-Pump #4: - Serial Number-Pump #4: -
Pump Configuration: [] Vertical [x] Horizontal
Nameplate Rating: 0 gpm 0 ft. of head 0 rpm
Pump Suction: 6 inch Pump Discharge: 6 inch FM Diameter: 8 inch
Suction Valve Size: 8 inch Discharge Valve Size: 8 inch
Suction Valve Type: gate Discharge Valve Type: gate
Check Valve Size: 8 inch
Dry Well Dimensions: 0 ft. dia. Length: 16 ft. Width: 13.3 ft. Depth: 0 ft.
Pump centerline*: 1.5 ft. Centerline of discharge pipe*: 8.3 ft.

* measured from dry well bottom.

Notes:

Operational Observations

- Do check valves operate properly? [x] Yes [] No Which One?
Do discharge valves operate properly? [x] Yes [] No Where?
Pump seals leaking? [] Yes [x] No Which One?

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 142

Pump Controls

Lead pump on 7 ft. Type of Controls bubbler
Lead pump off 5 ft.
Lag pump on 8 ft.
Lag pump off 6 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 10 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 21.5 ft.

Sewer Invert(s) Depth* 16.1 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 142

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device Not Available

Size of main protective device 125 amps, dual element, fusible disconnect switch

Size of motor protective device 35 amps, dual element, fusible disconnect switch

Service wire size Not Available Size of motor starter in NEMA 3

Motor wire size #4 AWG Motor Horsepower 15

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1175

Frequency in Hertz 60

Type of starter Full voltage non-revesing (FVNR)

Model Number - Motor #1 not available Serial Number - Motor # 1 not available

Model Number - Motor #2 not available Serial Number - Motor # 2 not available

Model Number - Motor #3 - Serial Number - Motor # 3 -

Model Number - Motor #4 - Serial Number - Motor # 4 -

Comments The physical condition of the motors, motor controller, main disconnect switch and control panel is fair. The pump station has a fusible disconnect switch .

Pump Station 142 (City Park)



Photo Number 1



Photo Number 2

Pump Station 142 (City Park)



Photo Number 3



Photo Number 4

Pump Station 142 (City Park)



Photo Number 5



Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 143 (CROWDER)
5500 CROWDER ROAD

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 143 (Crowder)

Pump Station 143 is a flooded-suction, can-type station located on 5500 Crowder Road. Flow discharges the station via a 12-inch diameter force main and connects to the 48-inch portion of the Crowder Road force main. Pump Station 143 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 143.

Pump Station 143 contains two (8-inch by 6-inch) Fairbanks Morse vertically aligned pumps with 13.75-inch diameter impellers. Each pump is powered by a 40 horsepower (hp) General Electric motor operating at a speed of 1170 revolutions per minute (rpm). This equipment is housed in an 11-foot by 11-foot reinforced concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 25.2 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair although there is isolated corrosion located around the pump as seen in photo number 2 and 3. Photo number 4 illustrates evidence of groundwater seepage into the dry well structure at the location where the discharge main exits the structure.

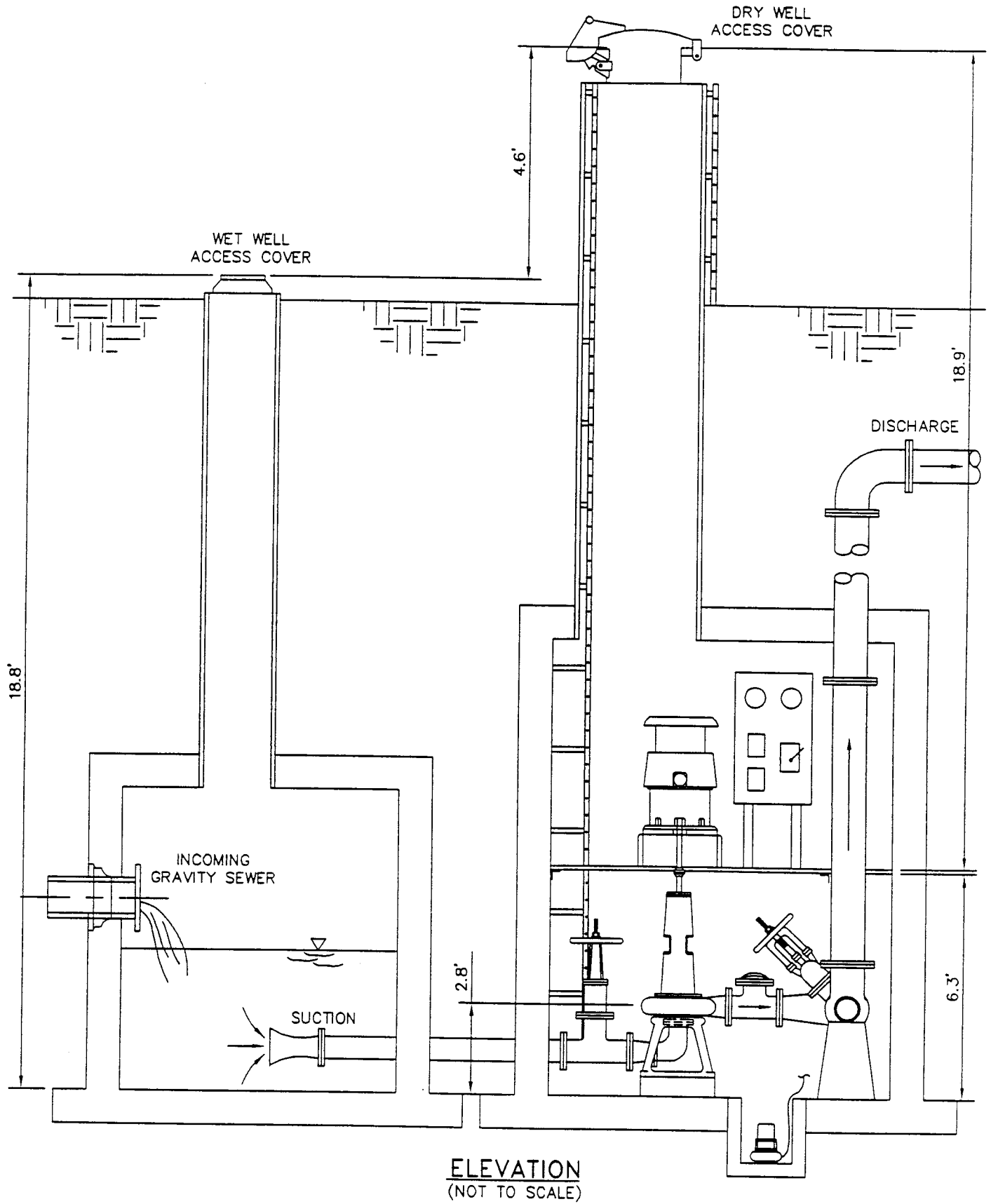
Pump Station 143 collects wastewater from the surrounding gravity sewer system into a 18.8-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated 11-foot by 11-foot dimensions. The concrete aggregate and steel reinforcing is exposed throughout the interior surface of the wet well suggesting a corrosion problem.

A draw down/fill test was conducted to determine the capacity of Pump Station 143. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 1600 gallons per minute (gpm) at 32 feet of head. The shut-off head of both pumps was found to be 86 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 3000 gpm at 35 feet of head.

Recommendations:

1. Groundwater seepage into the dry well structure can cause corrosion throughout. It is recommended that this problem be further investigated and addressed.
2. An initial observation of the wet well suggests that corrosion is occurring. The extent of the damage should be further investigated and corrected as necessary.
3. It is noted that the motor protective device is undersized. It is recommended that this electrical issue be addressed.

FILE NO.: 143 .AC JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

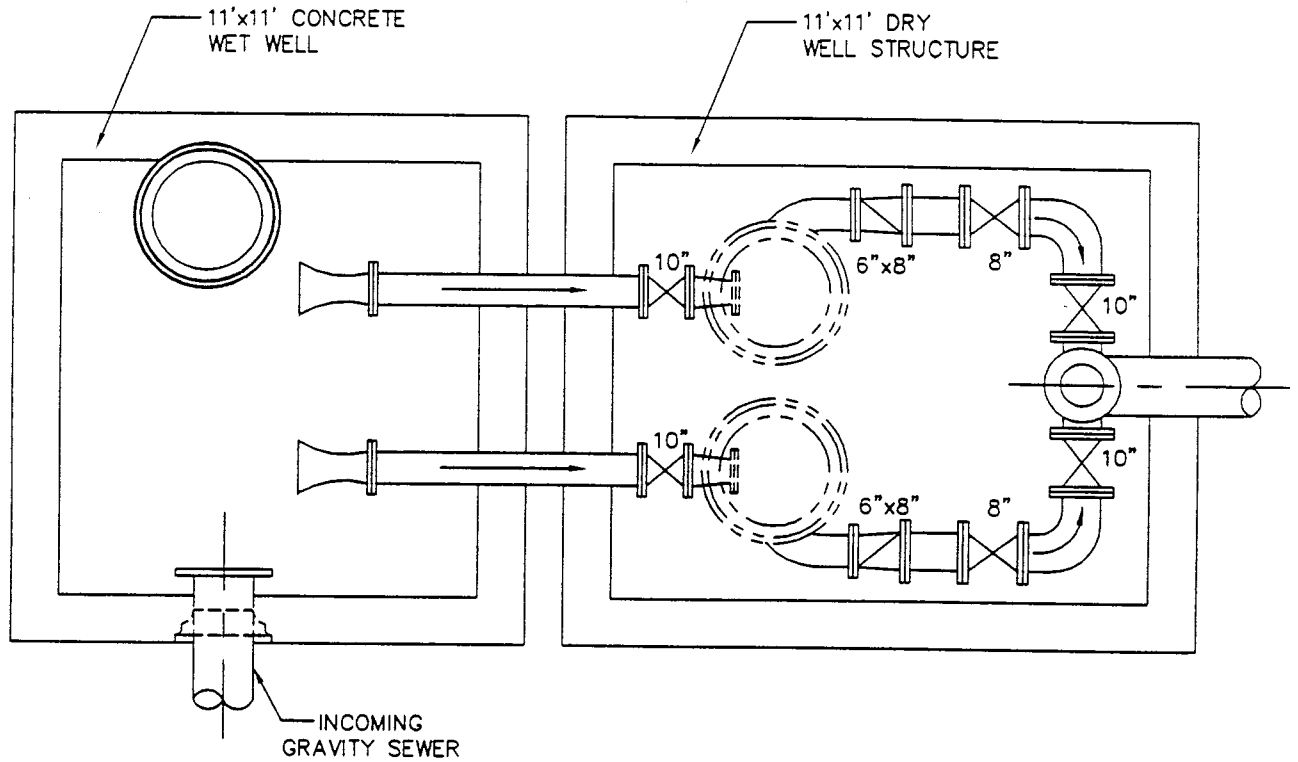
PUMP STATION 143 (CROWDER)
CAN TYPE FLOODED SUCTION

FIGURE:

2

DATE:

3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 143-
JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 143 (CROWDER)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 143 (Crowder)

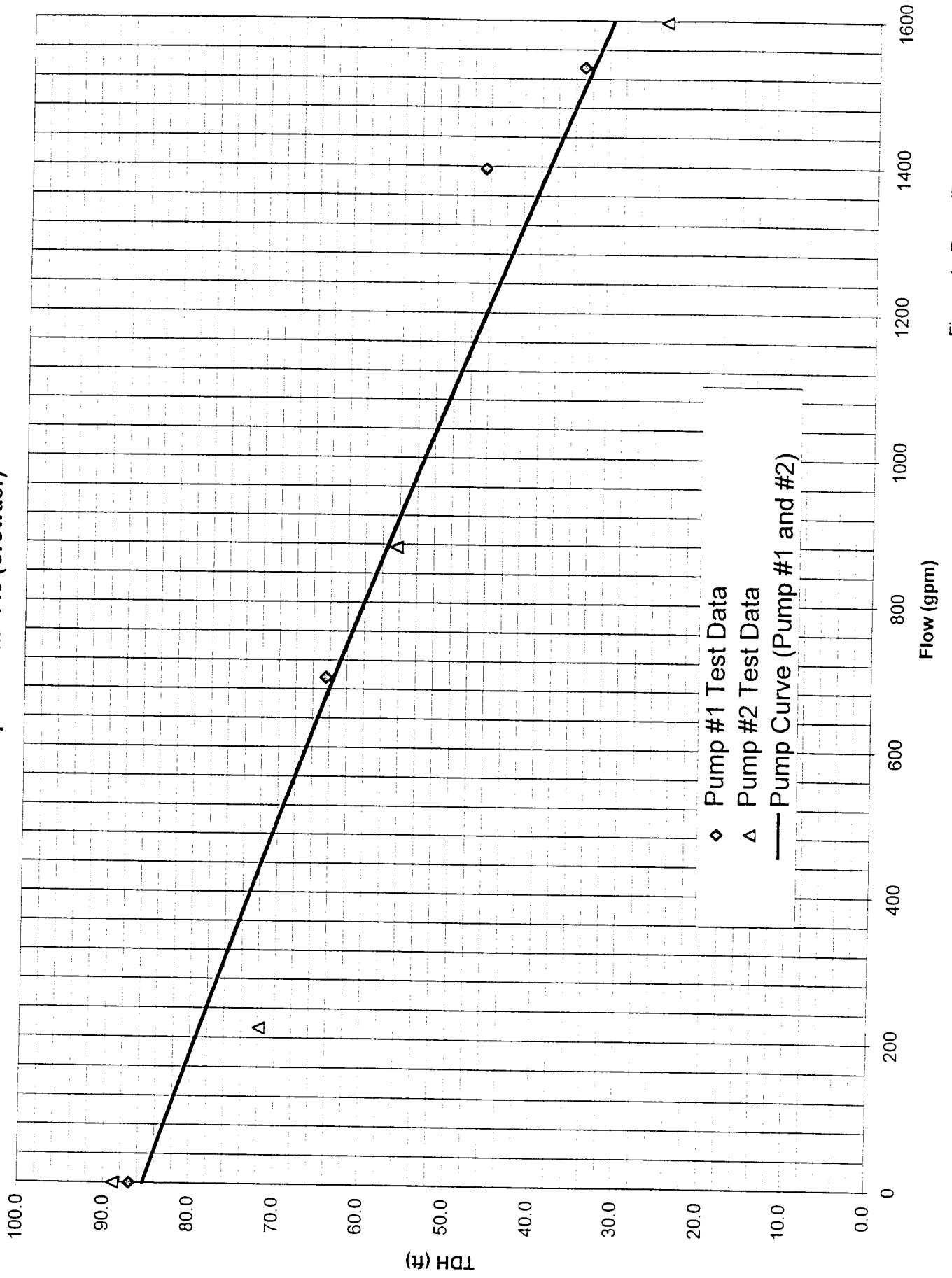


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 143

General Information

PS No. 143 PS Facility Crowder

Address 5500 Crowder Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 13.75 inch

Model Number-Pump #1 5414C Serial Number-Pump #1 KZM1042973

Model Number-Pump #2 5414C Serial Number-Pump #2 KZM1042973-1

Model Number-Pump #3 - Serial Number-Pump #3 _____

Model Number-Pump #4 - Serial Number-Pump #4 _____

Pump Configuration Vertical Horizontal

Nameplate Rating 1000 gpm 38 ft. of head 1150 rpm

Pump Suction 8 inch Pump Discharge 6 inch FM Diameter 12 inch

Suction Valve Size 10 inch Discharge Valve Size 8 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 6 x 8 inch

Dry Well Dimensions 0 ft. dia. Length 11 ft. Width: 11 ft. Depth 25.2 ft.

Pump centerline* 2.8 ft. Centerline of discharge pipe* 12.5 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 143

Pump Controls

Lead pump on 10 ft. Type of Controls bubbler
Lead pump off 4 ft.
Lag pump on 11 ft.
Lag pump off 5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room and ground water seepage around

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Reinforcement is exposed one foot from the top of the wet well.

Diameter 0 ft. Length 11 ft. Width 11 ft.

Bottom Depth* 18.8 ft.

Sewer Invert(s) Depth* _____ ft.

_____ ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 143

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 240V three phase open delta (2 transformers bank)

Size of service protective device 200 amps, dual element, fusible

Size of main protective device not available

Size of motor protective device 80 amps, dual element, fusible disconnect switch

Service wire size 350 kcmil Size of motor starter in NEMA 4

Motor wire size #4 AWG Motor Horsepower 40

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1170

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # 5K6257XH223A Serial Number - Motor # not available

Model Number - Motor # 5K6257XH223A Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, main disconnect switch and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficeint grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The motor protective

Pump Station 143 (Crowder)



Photo Number 1

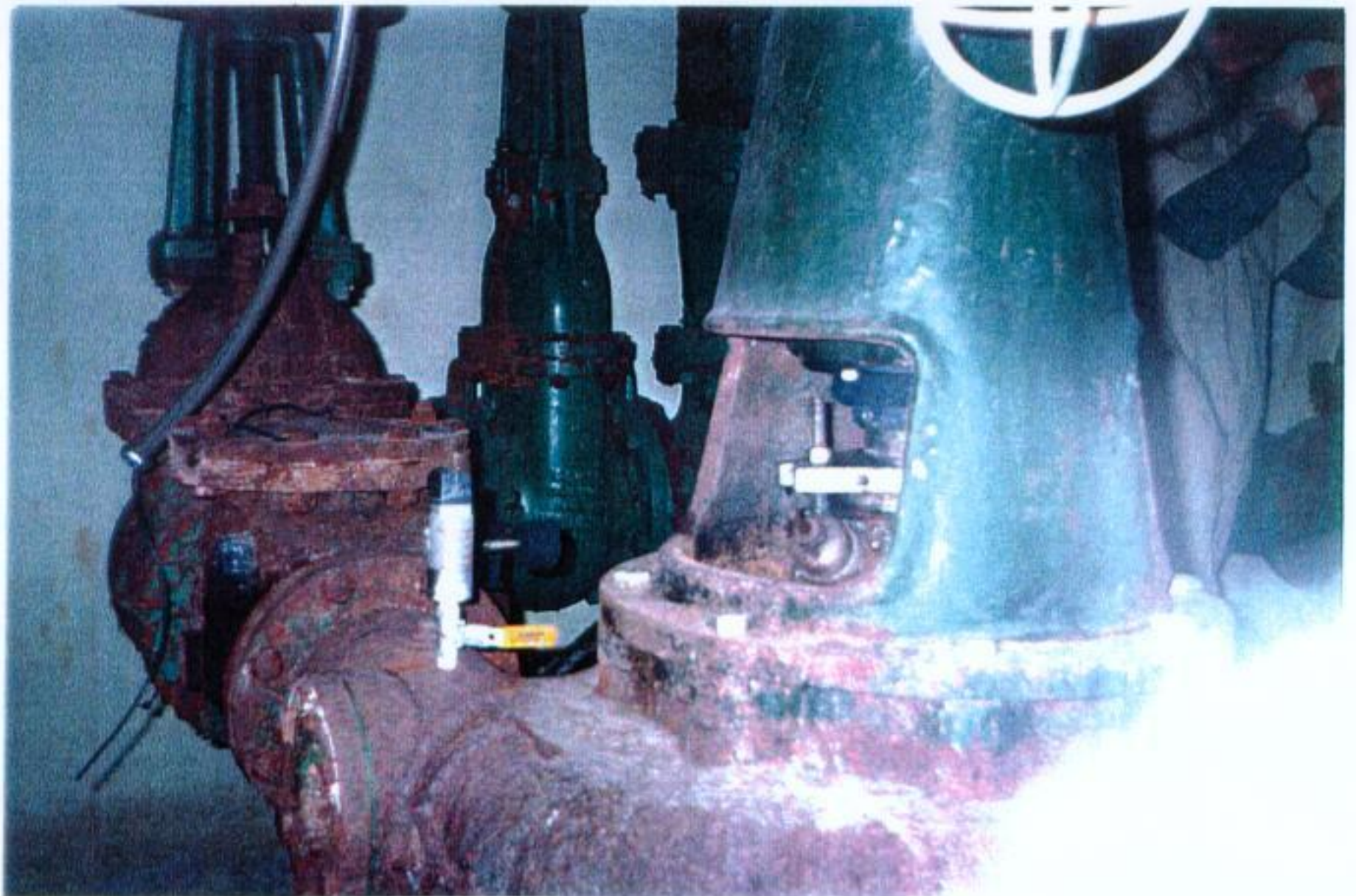


Photo Number 2

Pump Station 143 (Crowder)

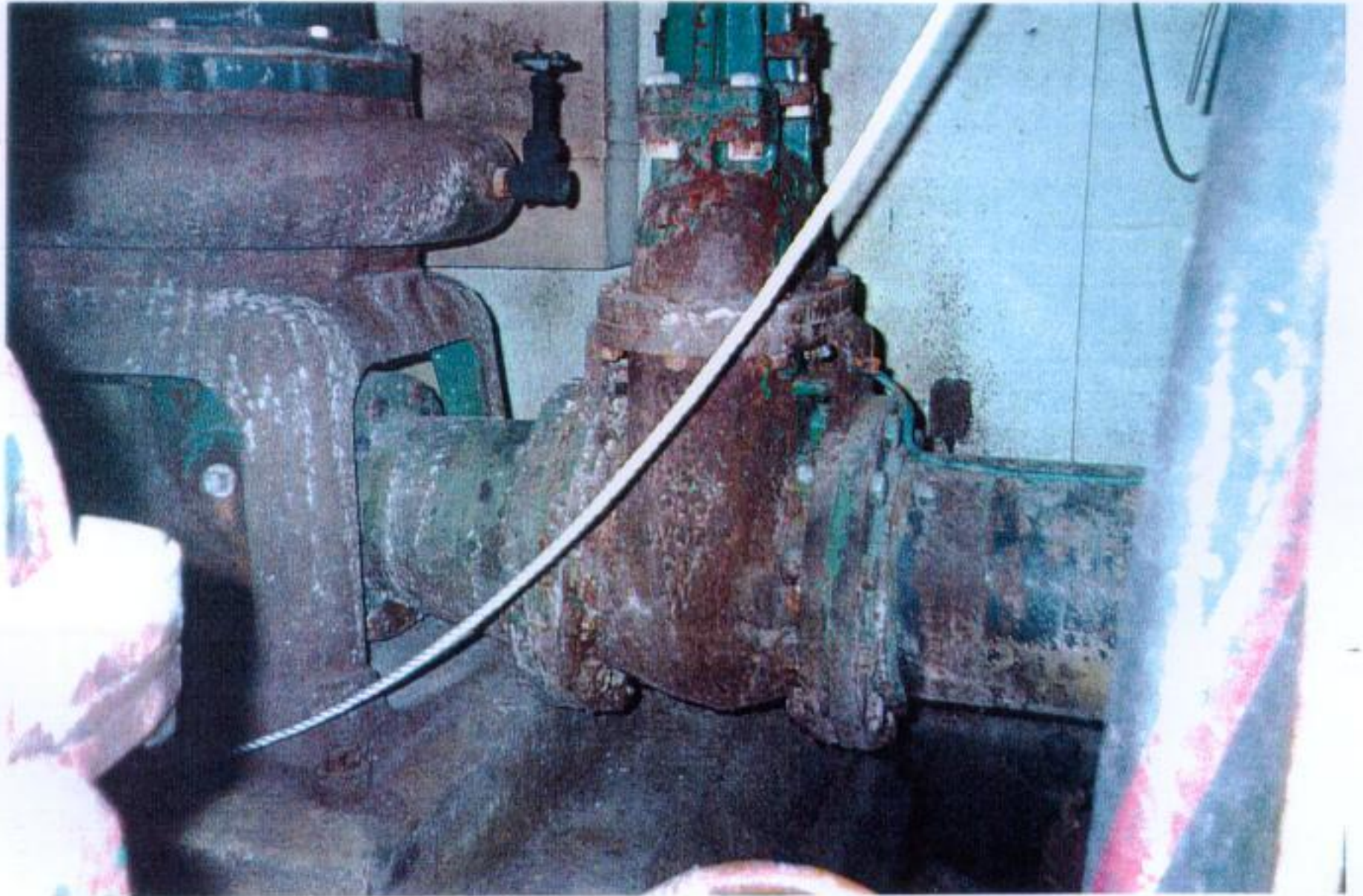


Photo Number 3



Photo Number 4

Pump Station 143 (Crowder)



Photo Number 5



Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 144 (DOTD)
8118 CHEF HIGHWAY**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 144 (Dodt)

Pump Station 144 is a flooded-suction, can-type station located on 8118 Chef Menteur Highway. Flow discharges the station via a 12-inch diameter force main and connects to the 54-inch force main crossing the Mississippi River Gulf Outlet and afterwards flowing to the East Bank Sewage Treatment Plant. Pump Station 144 repumps all wastewater pumped from Pump Stations 161 (Plum Orchard) and 190 (McCoy). Figure 1 shows the schematic subsystem surrounding Pump Station 144.

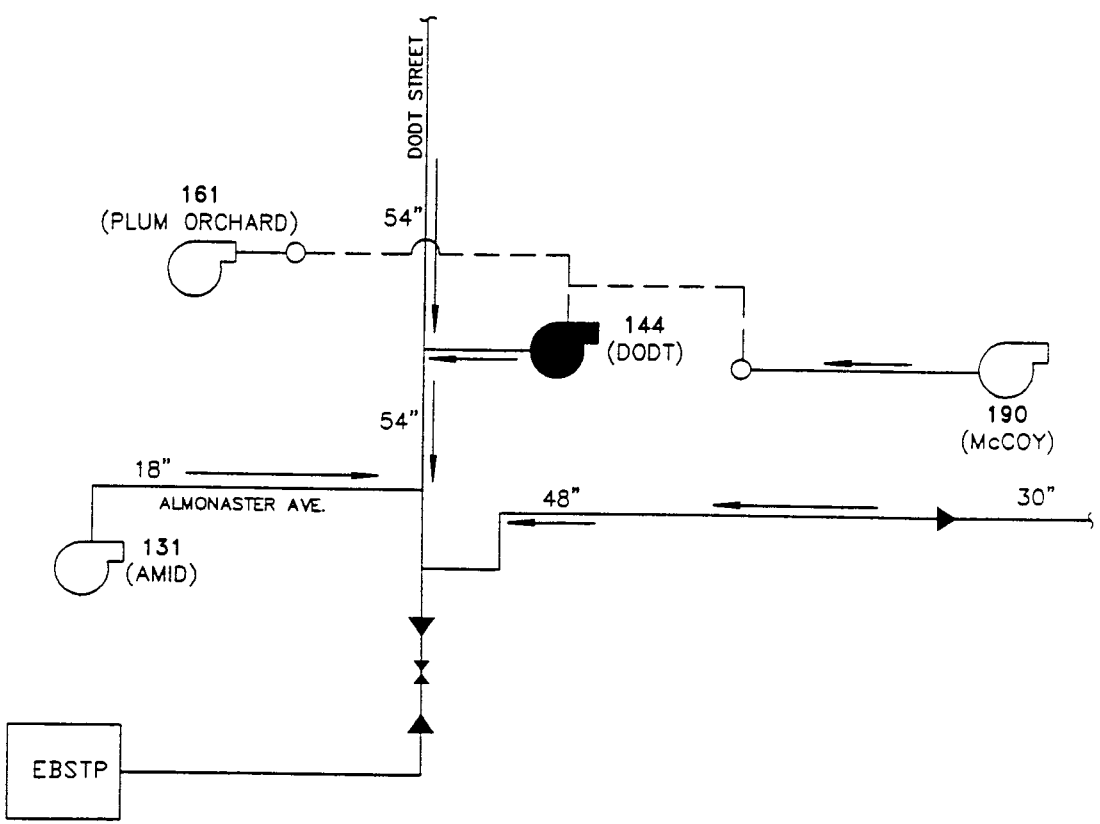
Pump Station 144 contains two (8-inch by 8-inch) Yeoman Brothers vertically aligned pumps. Each pump is powered by a 50 horsepower (hp) Westinghouse electric motor operating at a speed of 885 revolutions per minute (rpm). This equipment is housed in an 11-foot by 11-foot reinforced concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 24.3 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair although there is severe corrosion located around the pumps as seen in the attached photos.









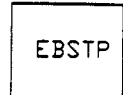
Pump Station 144 collects wastewater from the surrounding gravity sewer system into a 19.3-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated 11-foot by 11-foot dimensions. The overall condition of the wet well appears to be fair.

A flow measuring test was conducted to determine the capacity of Pump Station 144. Figure 4 shows pump curve constructed from obtained test data. Each pump has an approximate capacity of 3700 gallons per minute (gpm) at 28 feet of head. The shut-off head of both pumps was found to be 85 feet.

Recommendations:

1. Corrosion in the pump room is significant. Measures should be taken to protect or replace severely corroded piping, valves and other components.
2. It is noted that the physical condition of the electrical service disconnect switch is poor due to corrosion. It is recommended that this electrical issue be addressed.



-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 144 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 144 (DODT)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

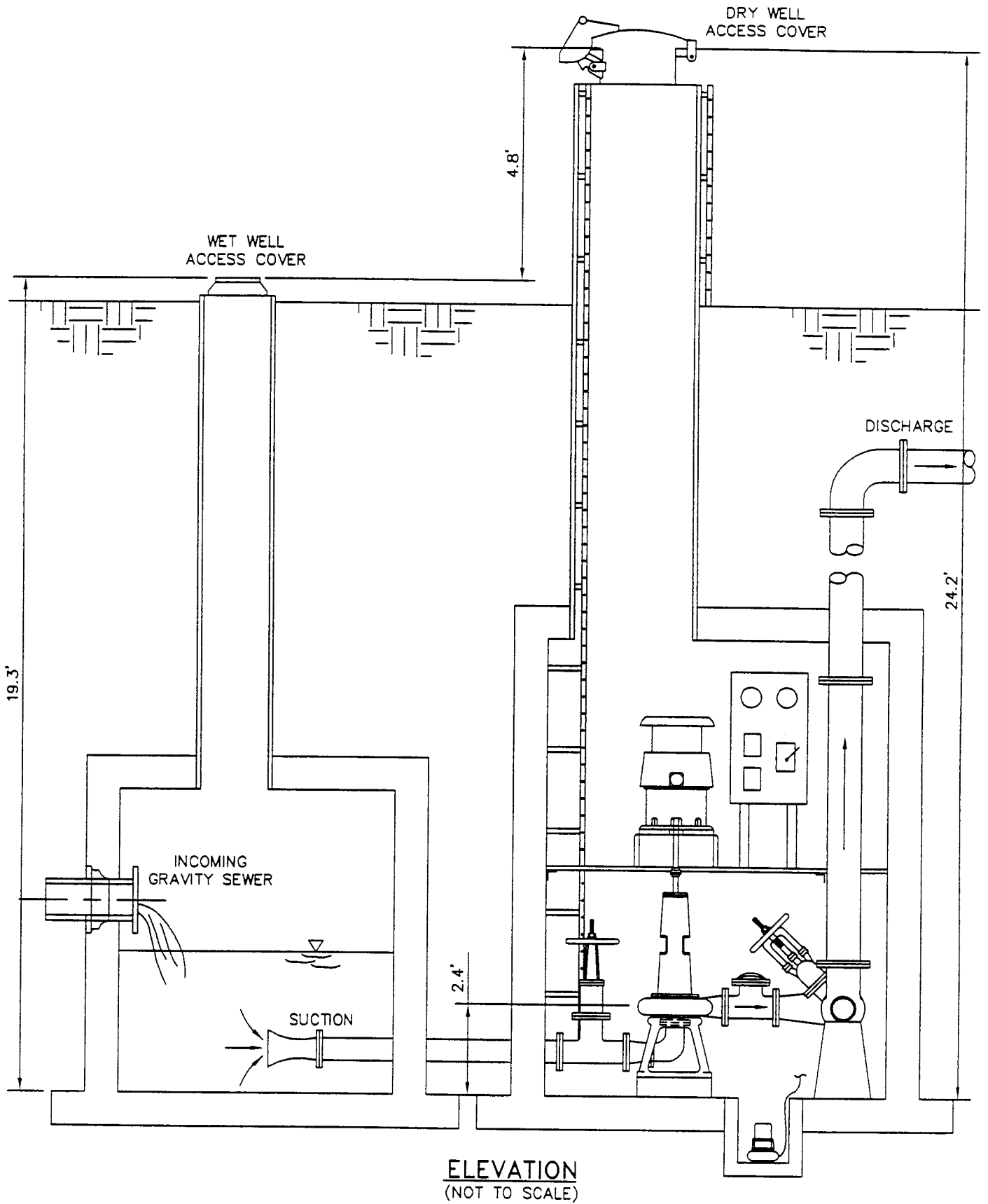
FIGURE:

1

DATE:

3/28/97

FILE NO.: 144-3 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 144 (DODT)
CAN TYPE FLOODED SUCTION

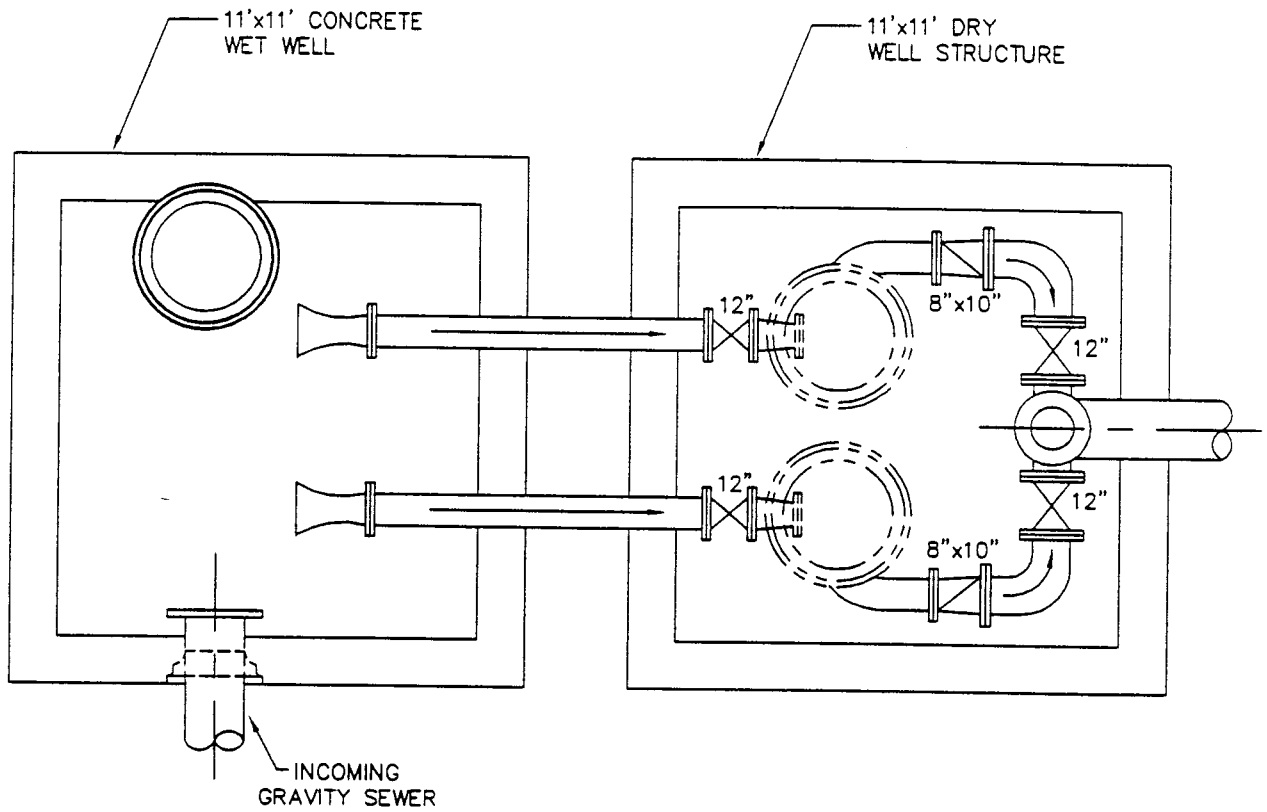
FIGURE:

2

DATE:

3/28/97

FILE NO.: 144-3 JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 144 (DODT)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 144 (Dodt)

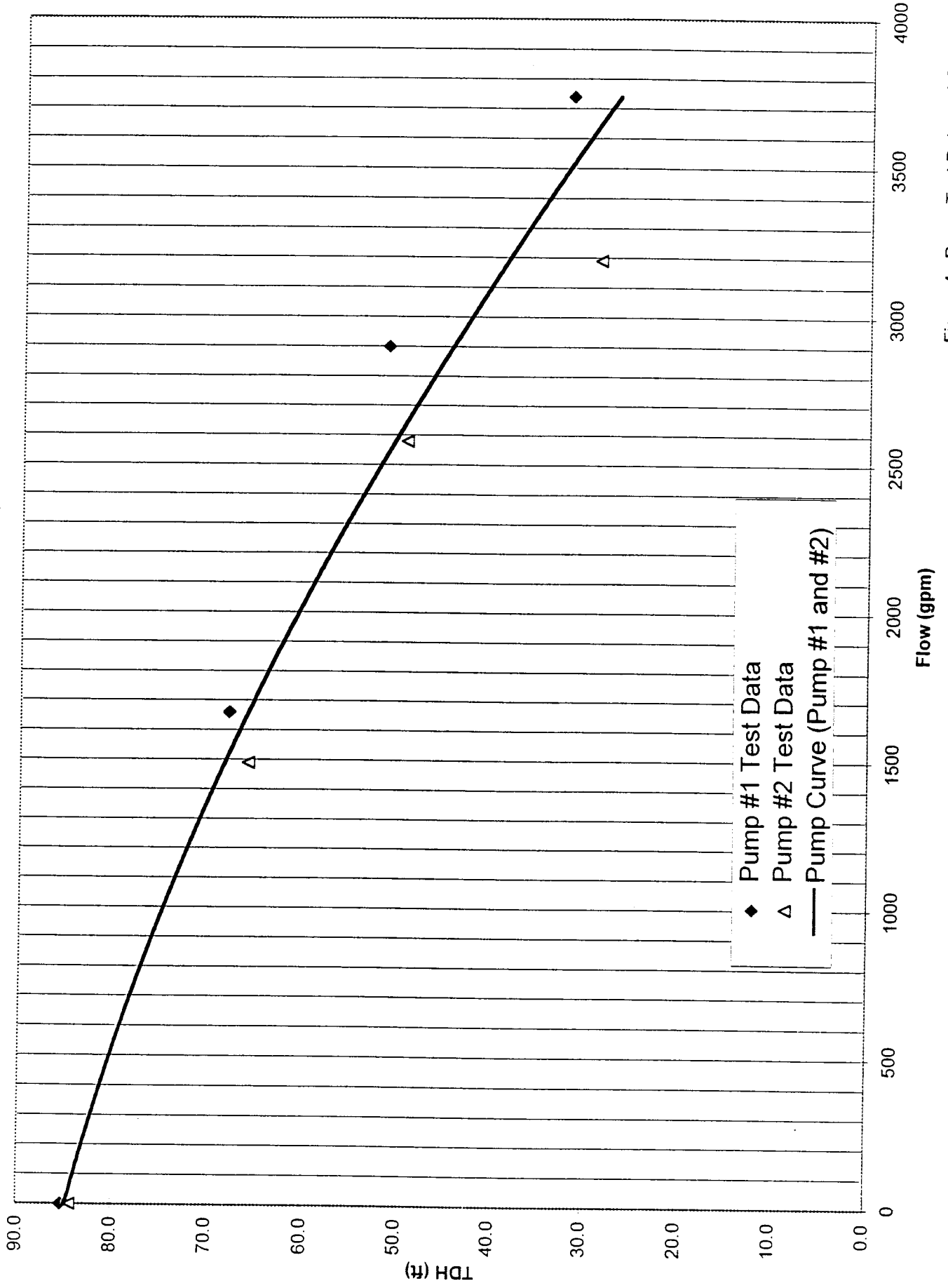


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 144

General Information

PS No. 144 PS Facility Dodt Address 8118 Chef Highway

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Yeoman Brothers

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 55063/1

Model Number-Pump #2 not available Serial Number-Pump #2 55063/2

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 1200 gpm 60 ft. of head 860 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size 12 inch Discharge Valve Size 12 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 8 x 10 inch

Dry Well Dimensions 0 ft. dia. Length 11 ft. Width: 11 ft. Depth 24.3 ft.

Pump centerline* 2.4 ft. Centerline of discharge pipe* 0 ft.

* measured from dry well bottom.

Notes: The centreline of the discharge pipe appears to be vertical.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 144

Pump Controls

Lead pump on 6 ft. Type of Controls bubbler
Lead pump off 2 ft.
Lag pump on 8 ft.
Lag pump off 3 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is poor due to severe corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments MH to side is used as a 2nd WW. It is cement over brick and in poor condition.

Diameter 0 ft. Length 11 ft. Width 11 ft.

Bottom Depth* 19.3 ft.

Sewer Invert(s) Depth* 18 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 144

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device 400 amps, dual element, fusible disconnect switch

Size of main protective device Not Available

Size of motor protective device 80 amps, dual element, fusible disconnect switch

Service wire size #3/0 AWG Size of motor starter in NEMA 4

Motor wire size #2 AWG Motor Horsepower 50

Number of motors 2 Motor Speed Single

Speed(s) in rpm 885

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # ABDP Serial Number - Motor # 55063/1

Model Number - Motor # ABDP Serial Number - Motor # 55063/2

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the service disconnect switch is poor due to corrosion. The physical condition of the motor controller and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester, and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location

Pump Station 144 (Dodt)



Photo Number 1



Photo Number 2

Pump Station 144 (Dodt)



Photo Number 3



Photo Number 4

Pump Station 144 (Dodt)



Photo Number 5

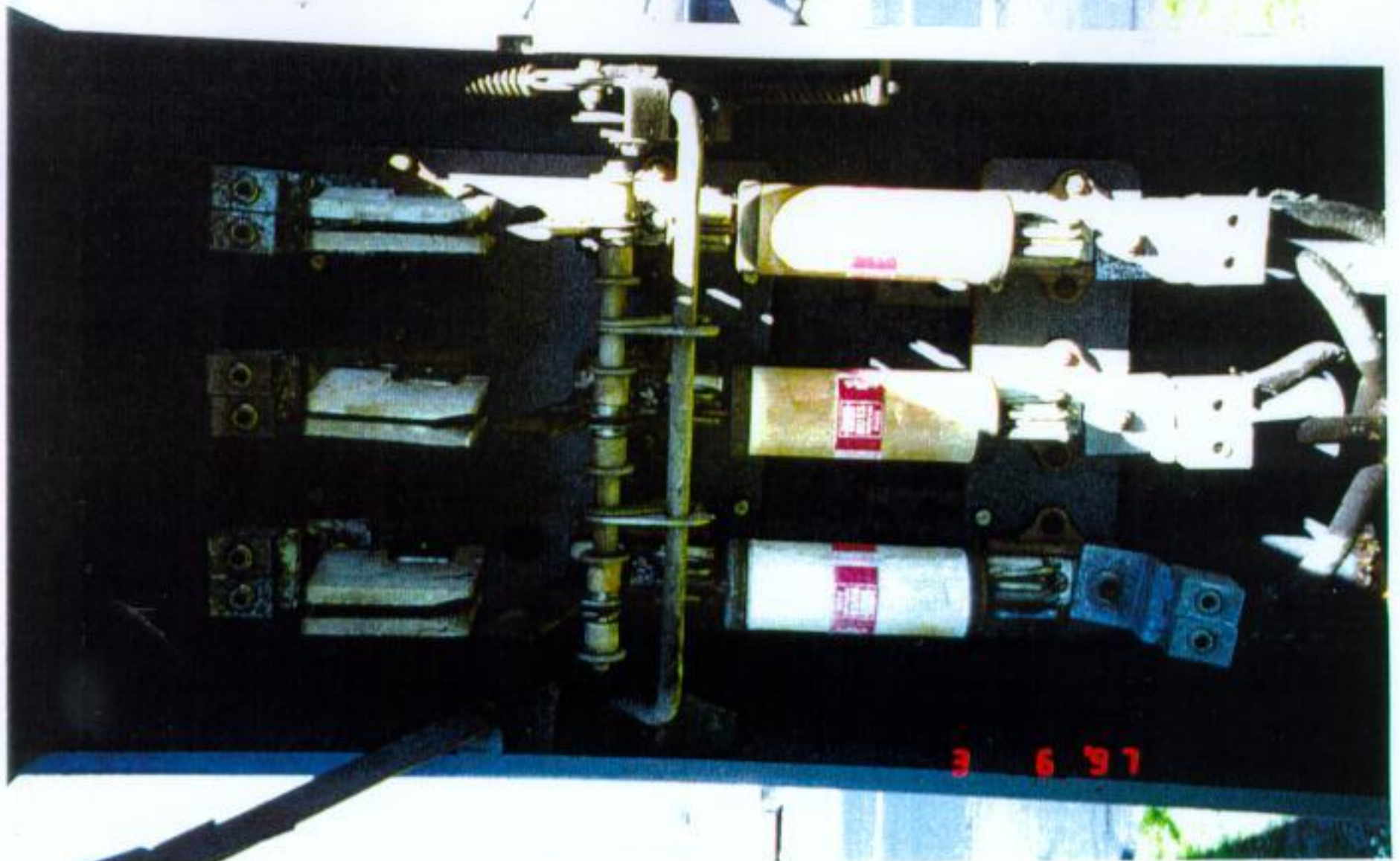


Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 145 (EASTOVER)
6051 EASTOVER DRIVE

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 145 (Eastover)

Pump Station 145 is a multi-leveled, flooded-suction station located on 6051 Eastover Drive. Flow leaves the station via a 12-inch diameter force main and connects to the 16-inch portion of the Dwyer Road force main. Pump Station 145 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 145.

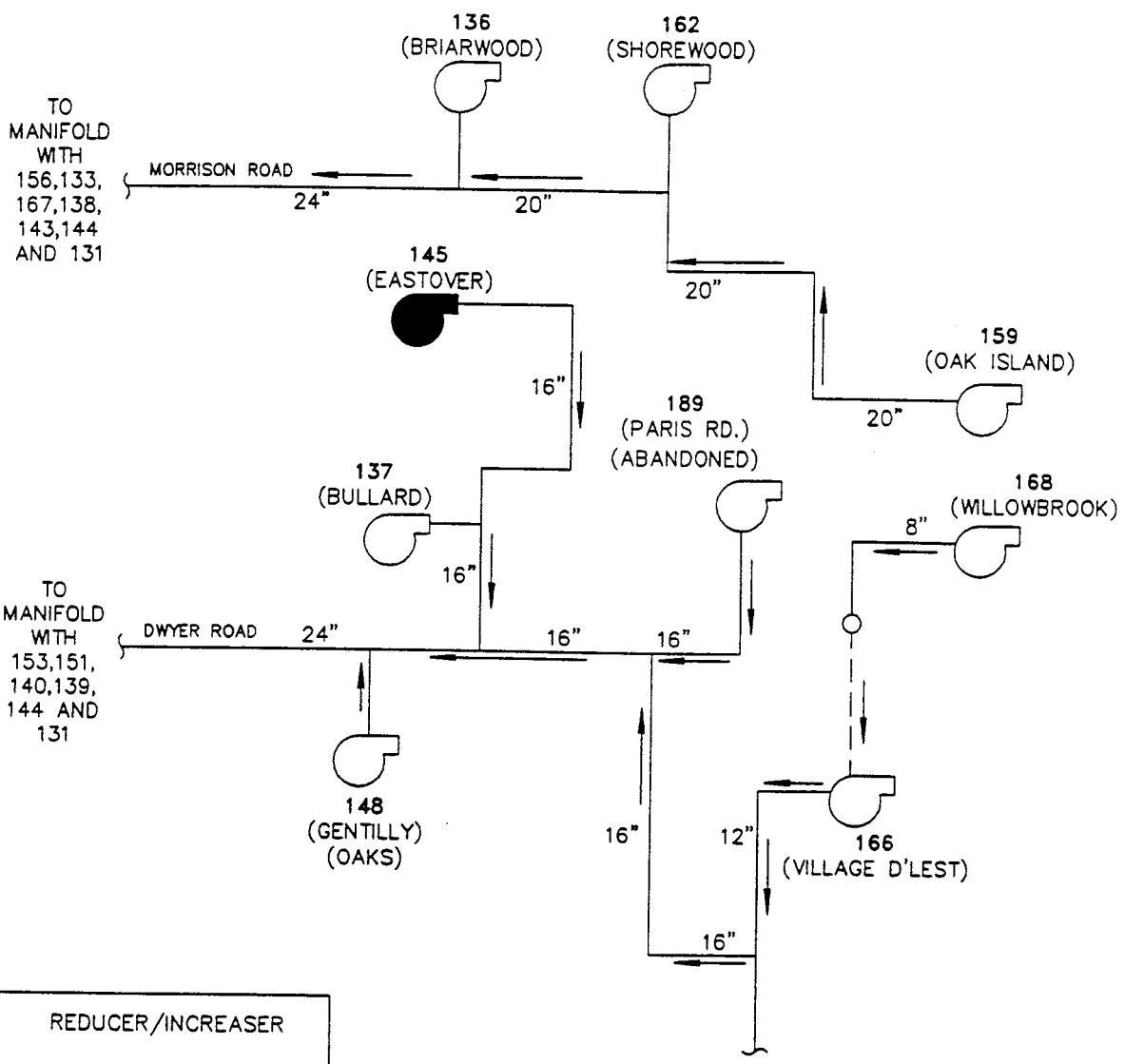
Pump Station 145 contains two (10-inch by 8-inch) Fairbanks Morse vertically aligned pumps with 15.9-inch diameter impellers. Each pump is powered by a 125 horsepower (hp) electric motor operating at a speed of 1190 revolutions per minute (rpm). This equipment is housed in a 12-foot by 13-foot reinforced concrete and stucco/block dry well structure. The total depth of the dry well from the floor of the motor control room to the bottom is 29.8 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is good although there is isolated corrosion located around the pump as seen in photo number 3 and 4.

Pump Station 145 collects wastewater from the surrounding gravity sewer system into a 21.5-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated 12-foot by 13-foot dimensions. The overall condition of the wet well appears to be good.

A draw down/fill test was conducted to determine the capacity of Pump Station 145. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 2500 gallons per minute (gpm) at 68 feet of head. The shut-off head of both pumps was found to be 114 feet.

Recommendations:

After an initial evaluation of Pump Station 145 no site specific recommendations can be made at this time.



TO
MANIFOLD
WITH
156,133,
167,138,
143,144
AND 131

TO
MANIFOLD
WITH
153,151,
140,139,
144 AND
131

	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 145
JOB NO.: 1113030.01090120
DATE: 3/28/97

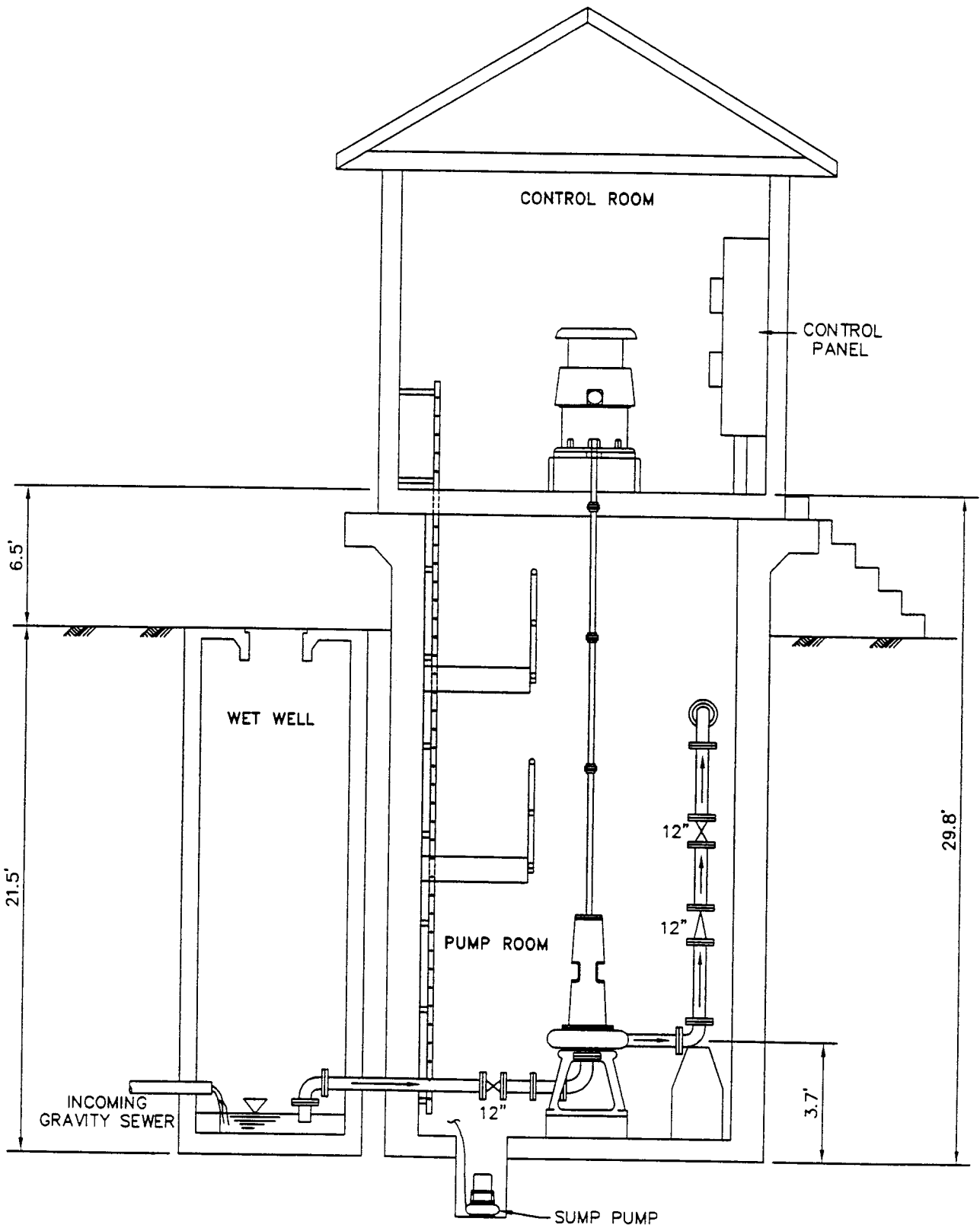
SEWERAGE AND WATER BOARD
OF NEW ORLEANS

MONTGOMERY WATSON

PUMP STATION 145 (EASTOVER)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1
DATE:
3/28/97

FILE NO.: 145 JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 145 (EASTOVER)
MULTI-LEVEL FLOODED SUCTION

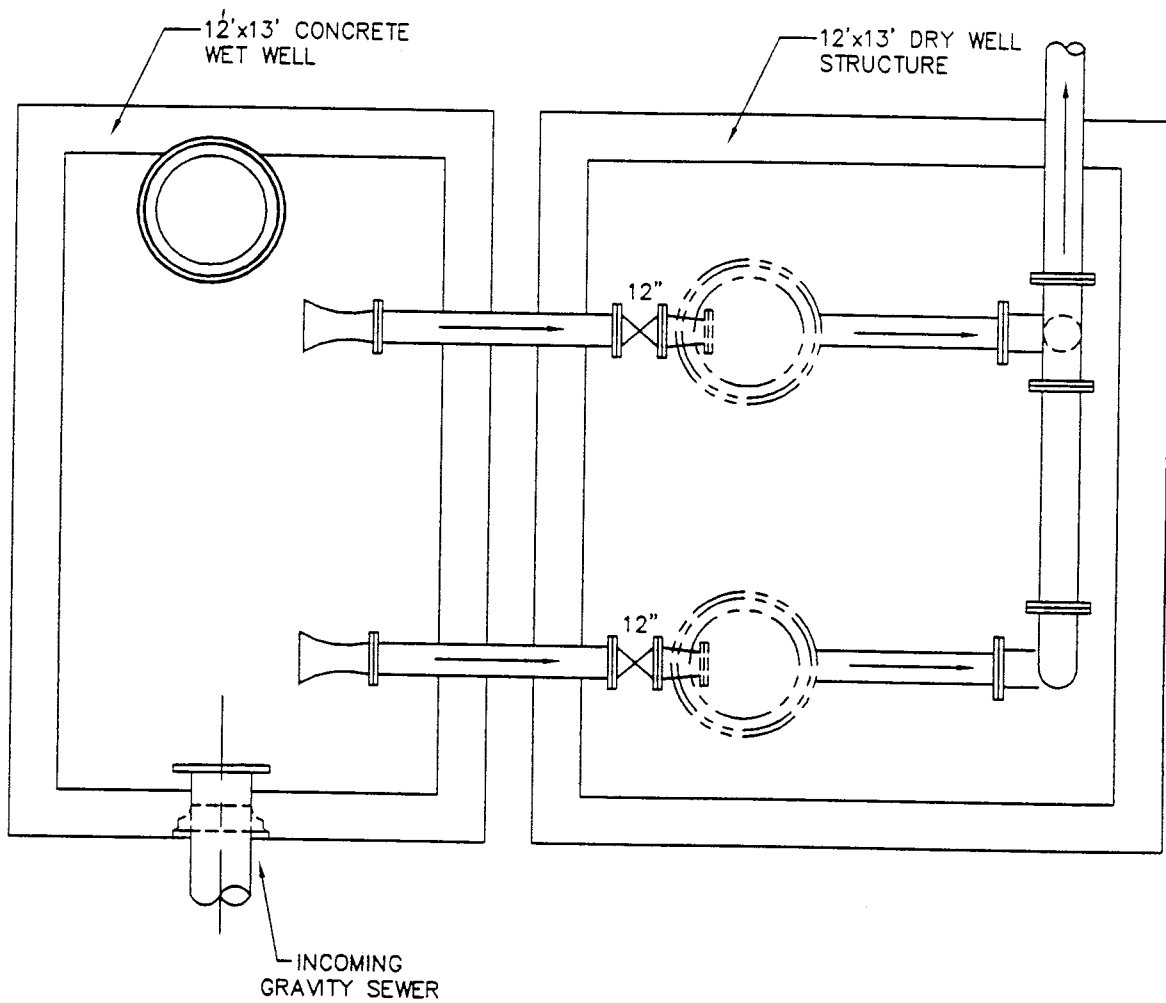
FIGURE:

2

DATE:

3/28/97

FILE NO.: 14: JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 145 (EASTOVER)
MULTI-LEVEL FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 145 (Eastover)

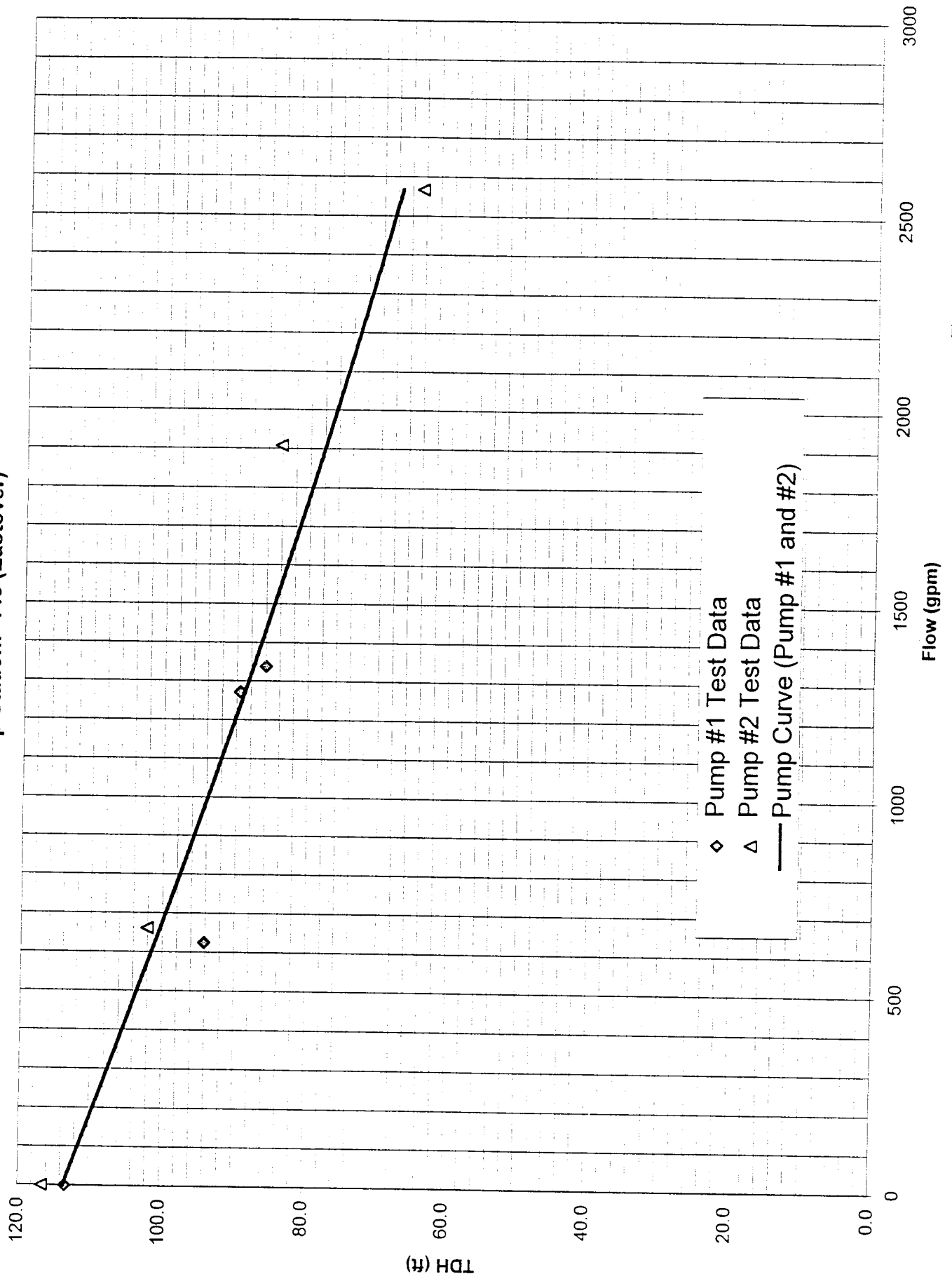


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 145

General Information

PS No. 145 PS Facility Eastover Address South I-10 Service Road near I-510

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 15.9 inch

Model Number-Pump #1 not available Serial Number-Pump #1 KPI-056839-0

Model Number-Pump #2 not available Serial Number-Pump #2 KPI-056839-0

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 3200 gpm 75 ft. of head 0 rpm

Pump Suction 10 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size _____ inch Discharge Valve Size 12 inch

Suction Valve Type _____ Discharge Valve Type gate

Check Valve Size 12 inch

Dry Well Dimensions 0 ft. dia. Length 13 ft. Width: 12 ft. Depth 29.8 ft.

Pump centerline* 3.7 ft. Centerline of discharge pipe* 17 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? packing leaked

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 145

Pump Controls

Lead pump on 4 ft. Type of Controls bubbler
Lead pump off 0 ft.
Lag pump on 6 ft.
Lag pump off 3 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room..

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 0 ft. Length 13 ft. Width 12 ft.

Bottom Depth* 21.5 ft.

Sewer Invert(s) Depth* 13.2 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 145

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service Pad Mounted Transformer, 480/277V three phase

Size of service protective device not available

Size of main protective device 400 amps, dual element, fusible disconnect switch

Size of motor protective device 225 amps, dual element, fusible disconnect switch

Service wire size 250 kcmil Size of motor starter in NEMA 5

Motor wire size #3/0 AWG Motor Horsepower 125

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1180

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # POIN2550157R-1 Serial Number - Motor # not available

Model Number - Motor # POIN2550157R-1 Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller and control panel is good. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The pump station has aluminum conduit.

Pump Station 145 (Eastover)



Photo Number 1



Photo Number 2

Pump Station 145 (Eastover)



Photo Number 3



Photo Number 4

Pump Station 145 (Eastover)



Photo Number 5



Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 146 (FRANCE AND FLORIDA)
2701 FRANCE ROAD AT FLORIDA CANAL**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 146 (France and Florida)

Pump Station 146 is a flooded-suction, can-type station located on 2701 France Road at the Florida Canal. Flow discharges to a 12-inch force main and shortly thereafter connects to the 54-inch Florida Avenue force main. Figure 1 shows the schematic subsystem surrounding Pump Station 146. Pump Station 146 repumps wastewater from Pump Station 157 (Meco).

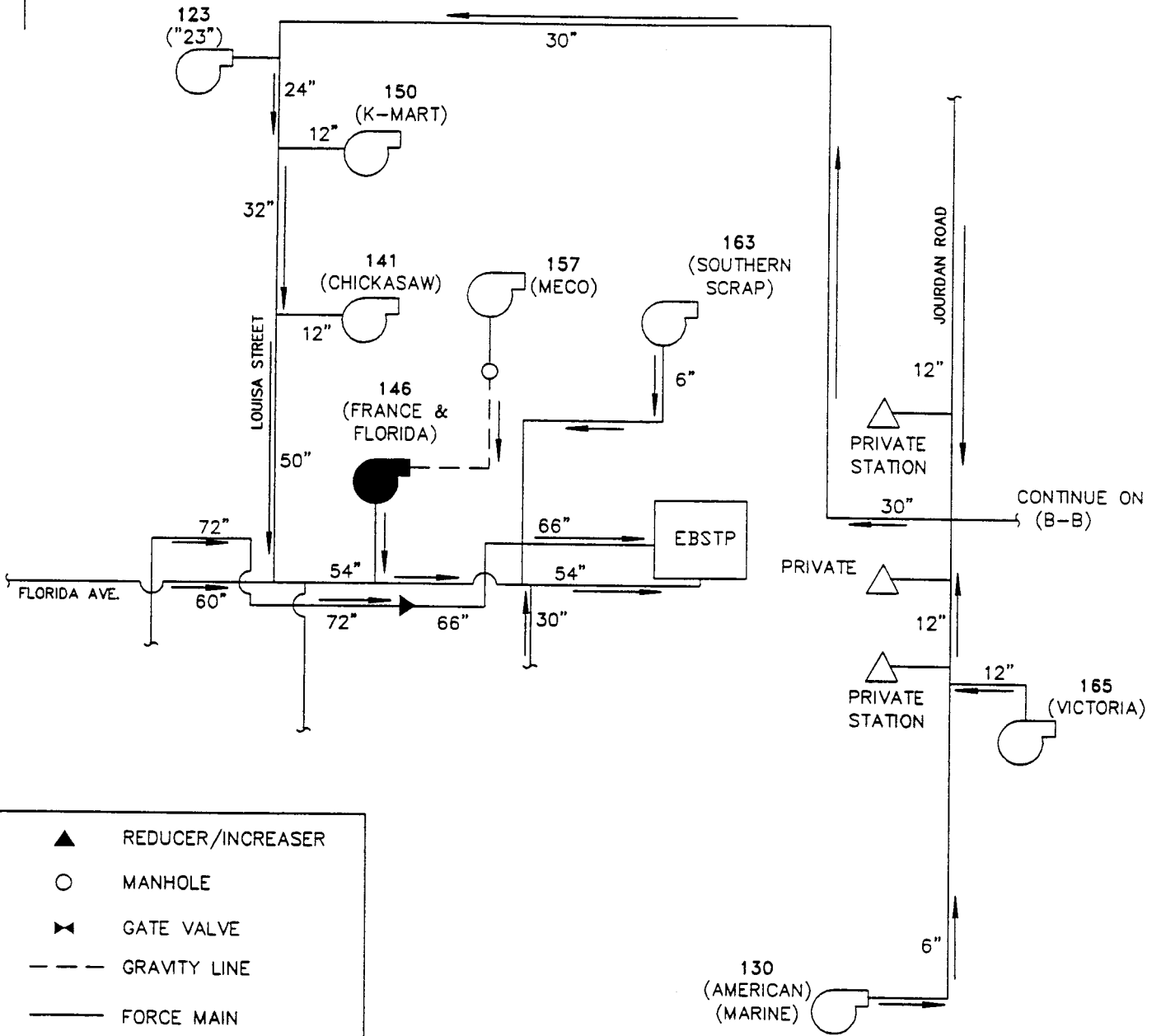
Pump Station 146 contains two (8-inch by 6-inch) Fairbanks Morse vertically aligned pumps with 15.5-inch diameter impellers. Each pump is powered by a 25 horsepower (hp) Marathon Electric motor operating at a speed of 885 revolutions per minute (rpm). This equipment is housed in a 10.3-foot diameter steel dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 22.5 feet. Figures 2 and 3 illustrate the elevation and plan views of the station. There is extreme corrosion in the lower room of the dry well, specifically on the steel floor of the dry well. This corrosion can be seen in attached photos 2, 3 and 4.









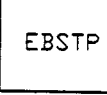
Pump Station 146 collects wastewater from the surrounding gravity sewer system into a 19.5-foot deep wet well. The cross sectional area of the wet well is an arched pipe shape with estimated 77-inch by 122-inch dimensions. The concrete aggregate is exposed throughout the interior surface of the wet well suggesting a corrosion problem.

A draw down/fill test was conducted to determine the capacity of Pump Station 146. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 1700 gallons per minute (gpm) at 24 feet of head. The shut-off head of both pumps was found to be 64 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 3100 gpm at 35 feet of head.

Recommendations:

1. An initial observation of the wet well suggests that corrosion is occurring. The extent of the damage should be further investigated and corrected as necessary.
2. Corrosion in the pump room is significant. Measures should be taken to protect or replace severely corroded piping, components and the dry well structure itself. The steel floor should be analyzed for structural integrity and corrected as required.



-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

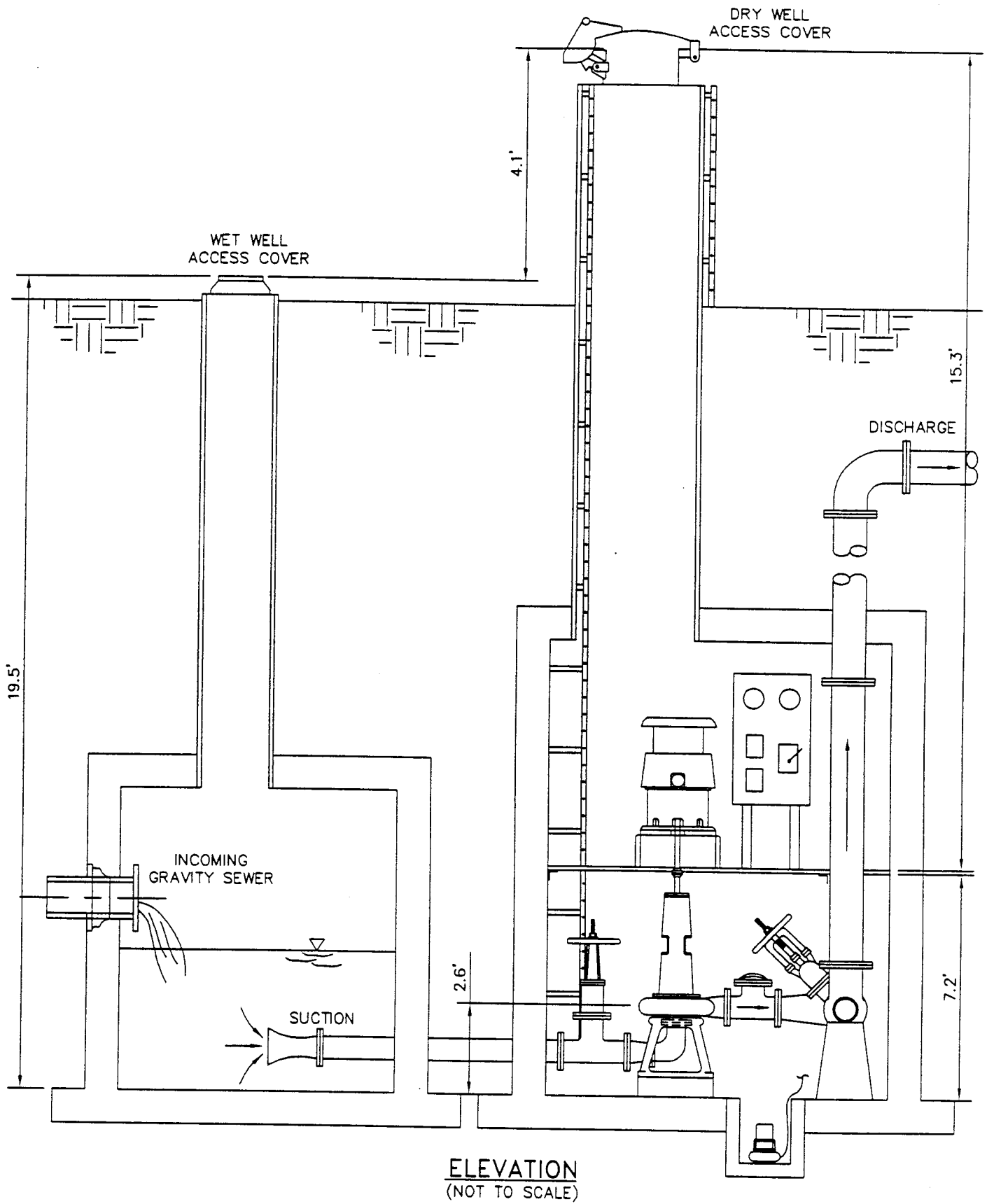
G. JOB NO.: 1113030.01090120 DATE: 3/28/97
FILE NO.: 14.



PUMP STATION 146 (FRANCE & FLORIDA)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1
DATE:
3/28/97

FILE NO.: 146. G JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 146 (FRANCE AND FLORIDA)
CAN TYPE FLOODED SUCTION

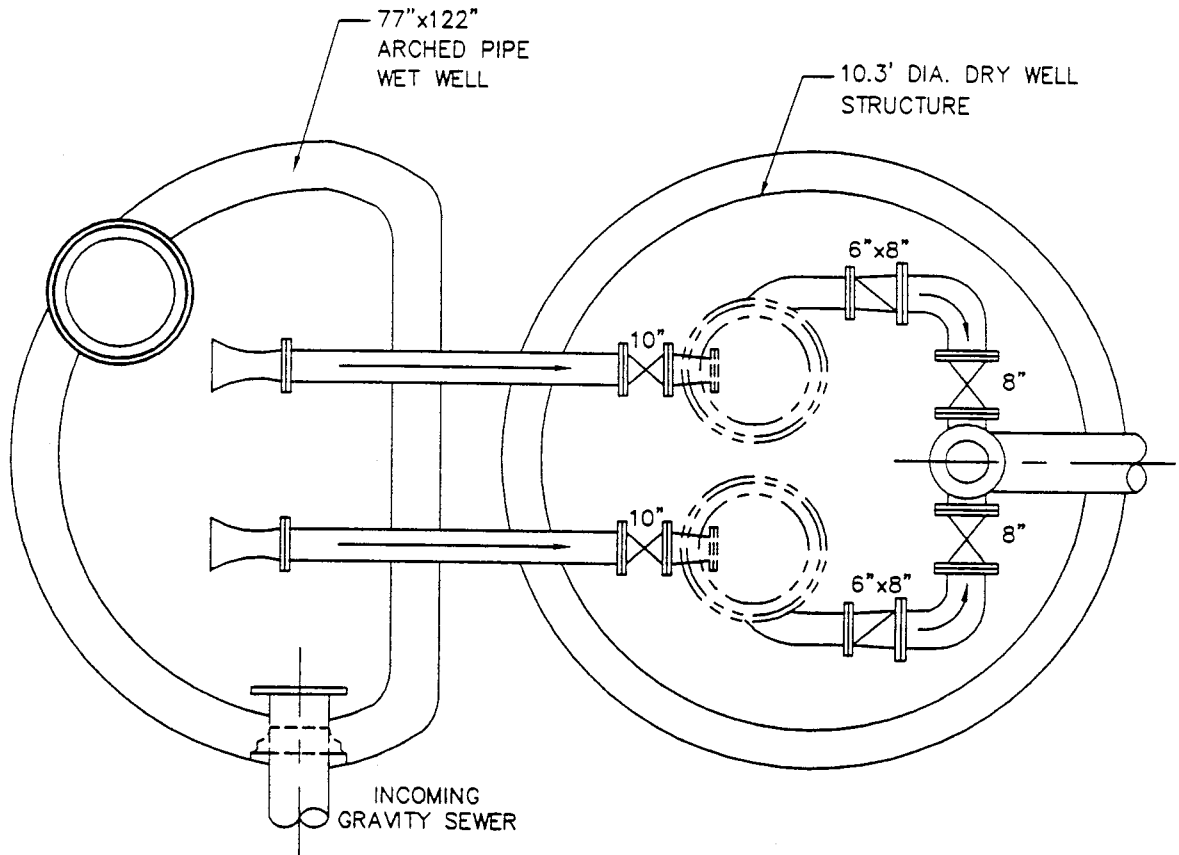
FIGURE:

2

DATE:

3/28/97

FILE NO.: 146. G. JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 146 (FRANCE AND FLORIDA)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 146 (France & Florida)

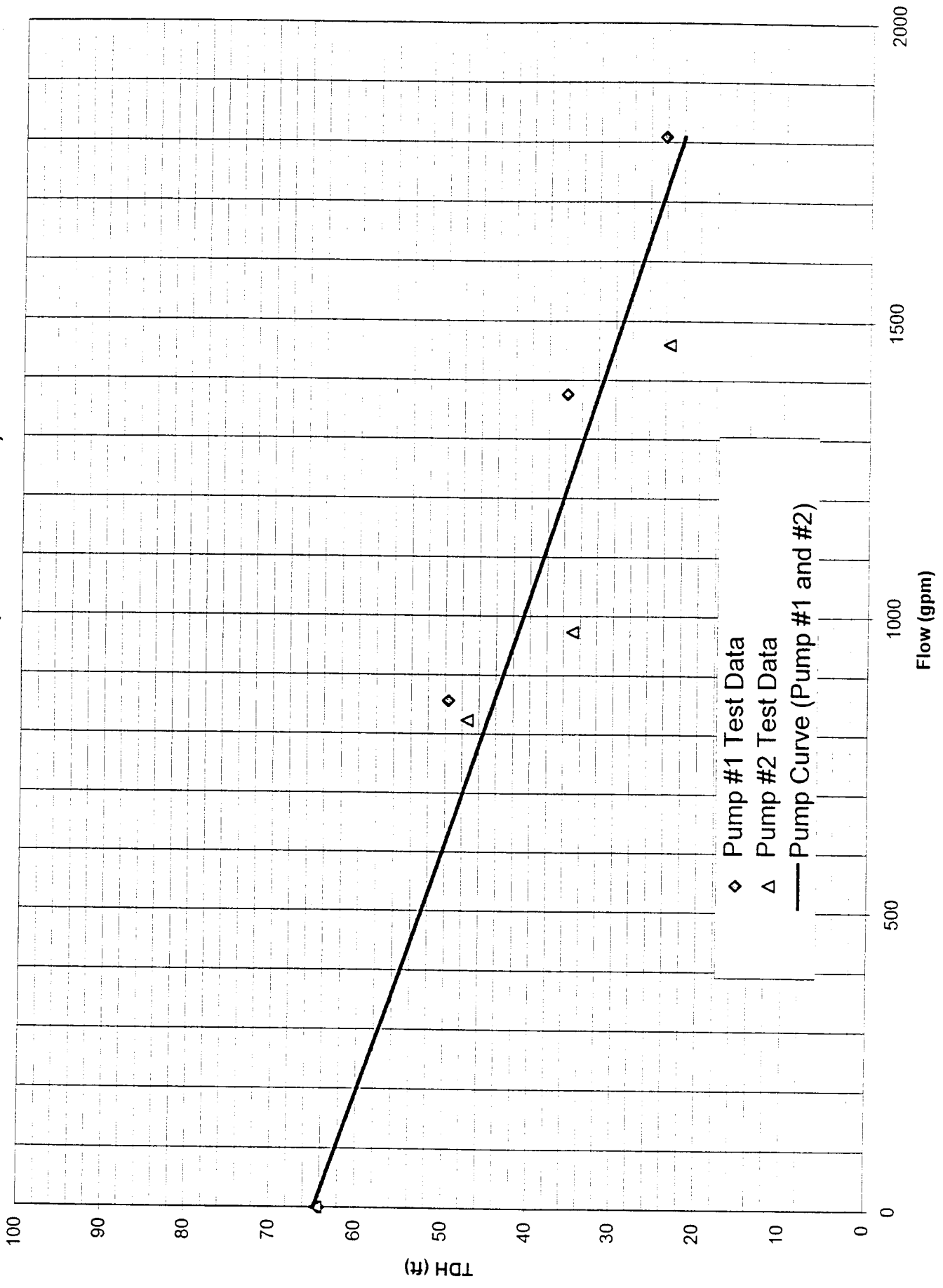


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 146

General Information

PS No. 146 PS Facility France and Florida Address 2701 France Road at Florida Canal

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 15.5 inch

Model Number-Pump #1 not available Serial Number-Pump #1 K2V1071296

Model Number-Pump #2 not available Serial Number-Pump #2 K2V1071296-1

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 1000 gpm 50 ft. of head 875 rpm

Pump Suction 8 inch Pump Discharge 6 inch FM Diameter 12 inch

Suction Valve Size 10 inch Discharge Valve Size 8 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 6 x 8 inch

Dry Well Dimensions 10.3 ft. dia. Length 0 ft. Width: 0 ft. Depth 22.5 ft.

Pump centerline* 2.6 ft. Centerline of discharge pipe* 10.3 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 146

Pump Controls

Lead pump on 5 ft. Type of Controls Bubbler
Lead pump off 2 ft.
Lag pump on 7 ft.
Lag pump off 3 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is poor due to severe corrosion in the pump room, specifically the steel dry well structure.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments 77-inch x 122-inch concrete arched pipe

Diameter _____ ft. Length _____ ft. Width _____ ft.

Bottom Depth* 19.5 ft.

Sewer Invert(s) Depth* 14.1 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 146

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformer bank)

Size of service protective device 125 amps, dual element, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 70 amps, circuit breaker

Service wire size #1 AWG Size of motor starter in NEMA 2

Motor wire size #8 AWG Motor Horsepower 25

Number of motors 2 Motor Speed Single

Speed(s) in rpm not available

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # 166394

Model Number - Motor # not available Serial Number - Motor # 166395

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller and control panel is good. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 146 (France and Florida)



Photo Number 1

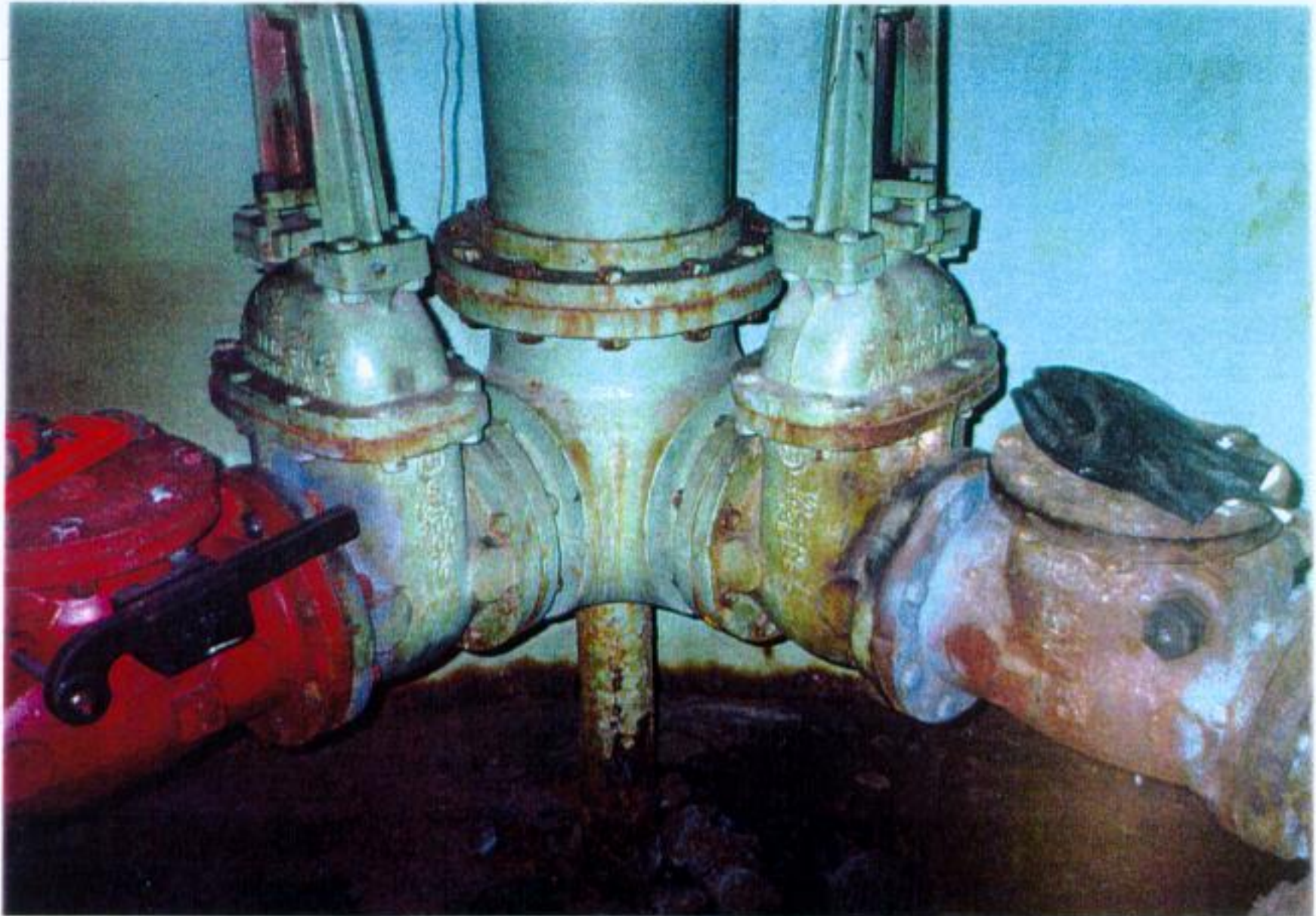


Photo Number 2



Photo Number 3



Photo Number 4

Pump Station 146 (France and Florida)

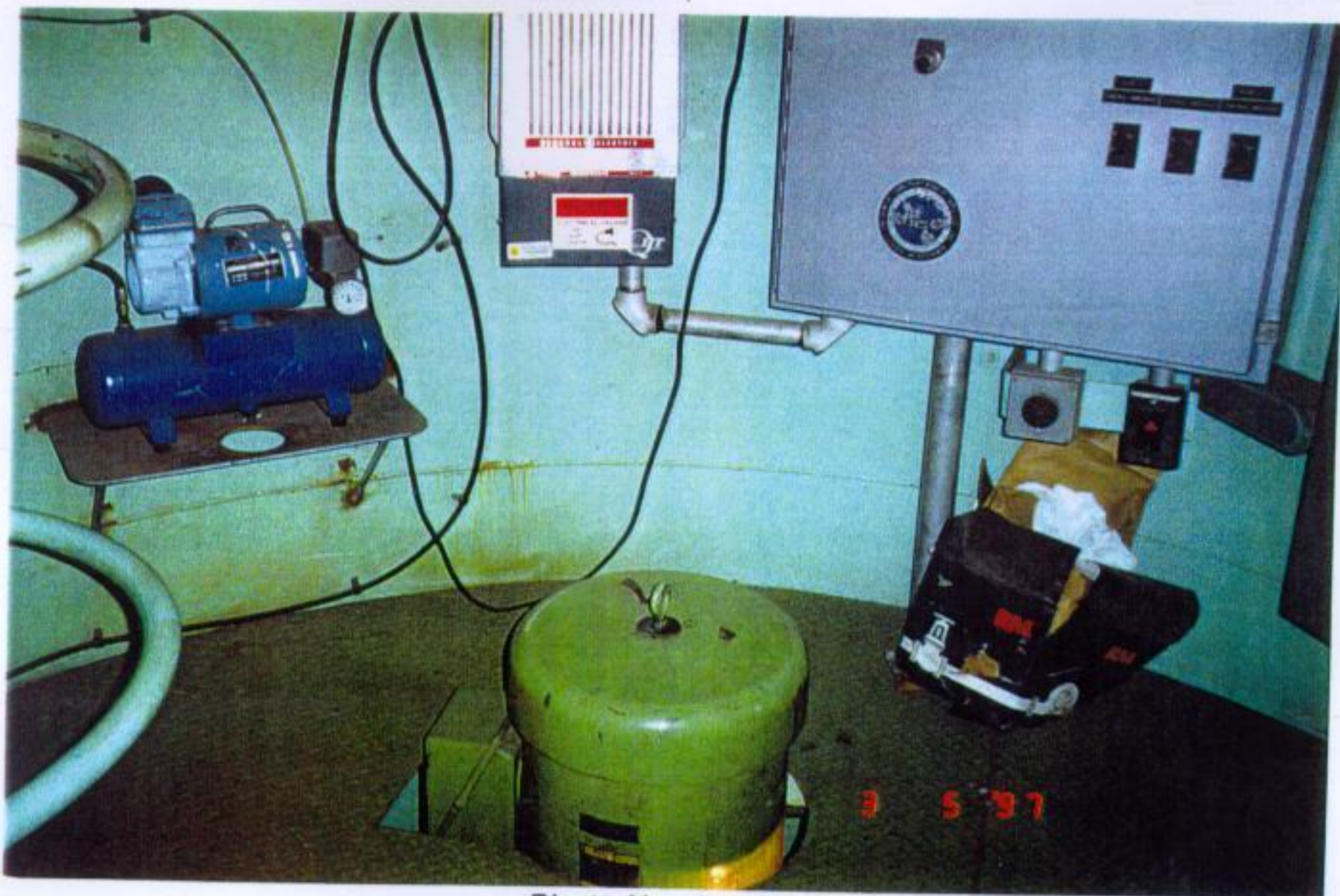


Photo Number 5

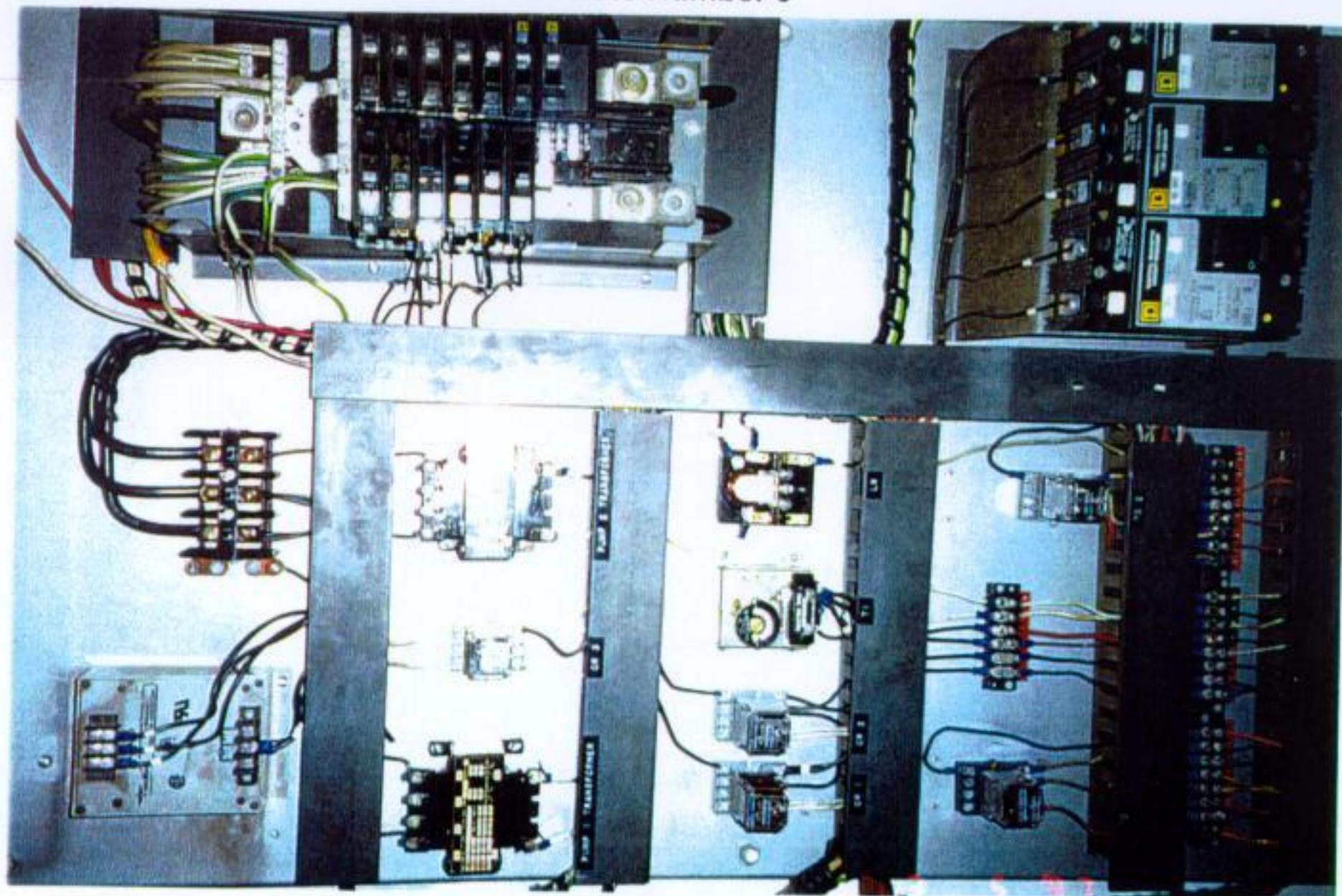


Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 147 (FOLGER'S)
14601 OLD GENTILLY ROAD

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 147 (Folger's)

Pump Station 147 is a flooded-suction, can-type station located on Old Gentilly Road in front of the Folger's coffee plant. Flow discharges the station via a 8-inch diameter force main and connects to the 30-inch portion of the Old Gentilly Road force main. Pump Station 147 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 147.

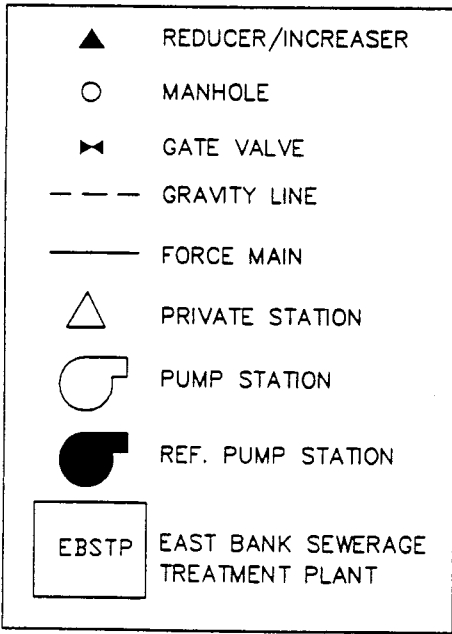
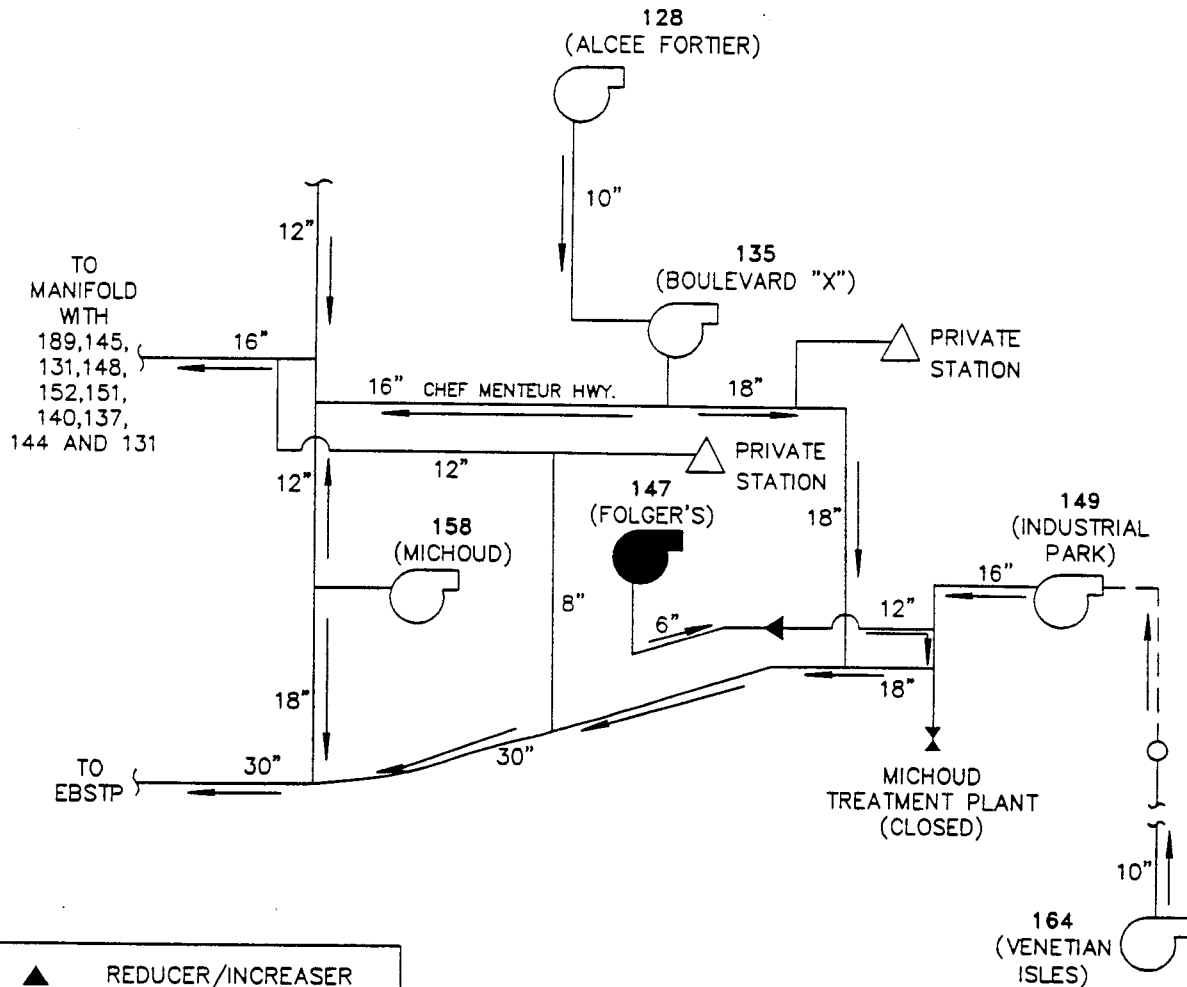
Pump Station 147 contains two (6-inch by 6-inch) Smith & Loveless vertically aligned pumps. Each pump is powered by a 20 horsepower (hp) Smith & Loveless electric motor operating at a speed of 1160 revolutions per minute (rpm). This equipment is housed in a 9.3-foot diameter steel dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 24.5 feet. Figures 2 and 3 provide plan and elevation views of the station. There is extreme corrosion in the lower room of the dry well, specifically on the steel floor of the dry well. This corrosion can be seen in the attached photos 2, 3, 4 and 5.

Pump Station 147 collects wastewater from the surrounding gravity sewer system into a 19.3-foot deep concrete wet well. The cross sectional area of the wet well is circular with an estimated 7-foot diameter. There is a large crack in the wet well wall through which infiltration enters the sewer system.

The Doppler meter was used to determine the capacity of Pump Station 147. Figure 4 shows pump curve constructed from obtained test data. Each pump has an approximate capacity of 1000 gallons per minute (gpm) at 32 feet of head. The shut-off head of both pumps was found to be 70 feet.

Recommendations:

1. Corrosion in the pump room is significant. Measures should be taken to protect or replace severely corroded piping, components and the dry well structure itself. The steel floor should be analyzed for structural integrity and corrected as required.
2. Repair of the crack allowing infiltration into the wet well is recommended.
3. It is noted that the physical condition of the motor controller is poor due to corrosion. It is recommended that this electrical issue be addressed.



NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 14.
JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 147 (FOLGER'S)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

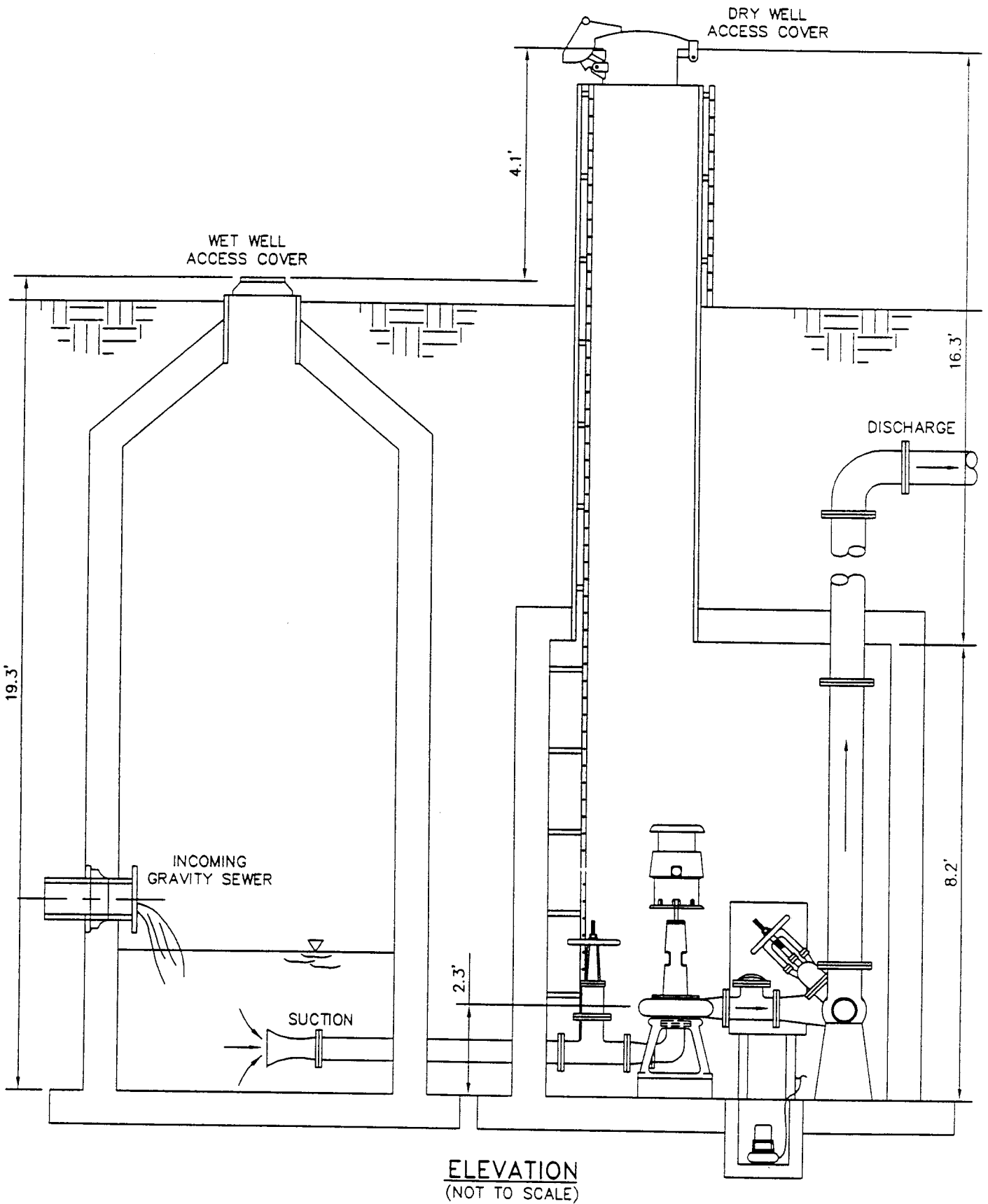
FIGURE:

1

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3/28/97

FILE NO.: 147 .G. JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

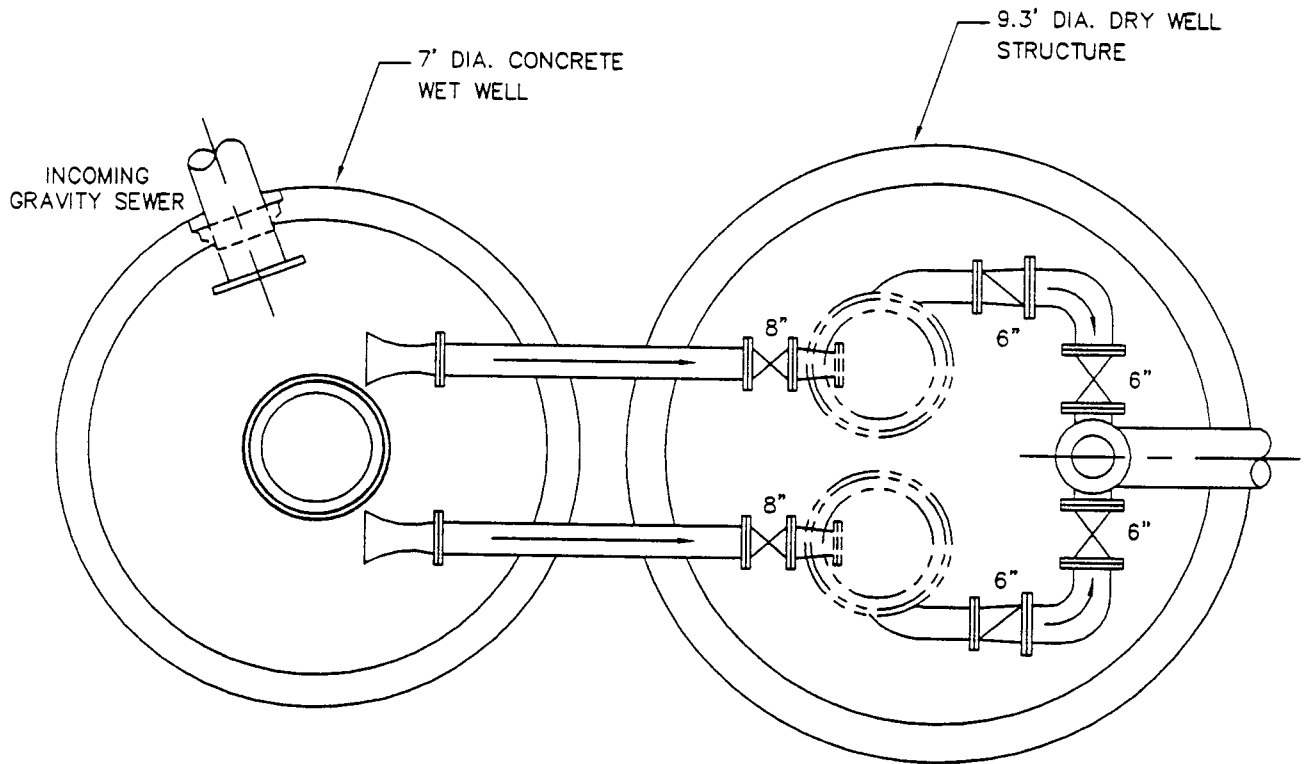
PUMP STATION 147 (FOLGER'S)
CAN TYPE FLOODED SUCTION

FIGURE:

2

DATE:

3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 147 .G JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 147 (FOLGER'S)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 147 (Folger's)

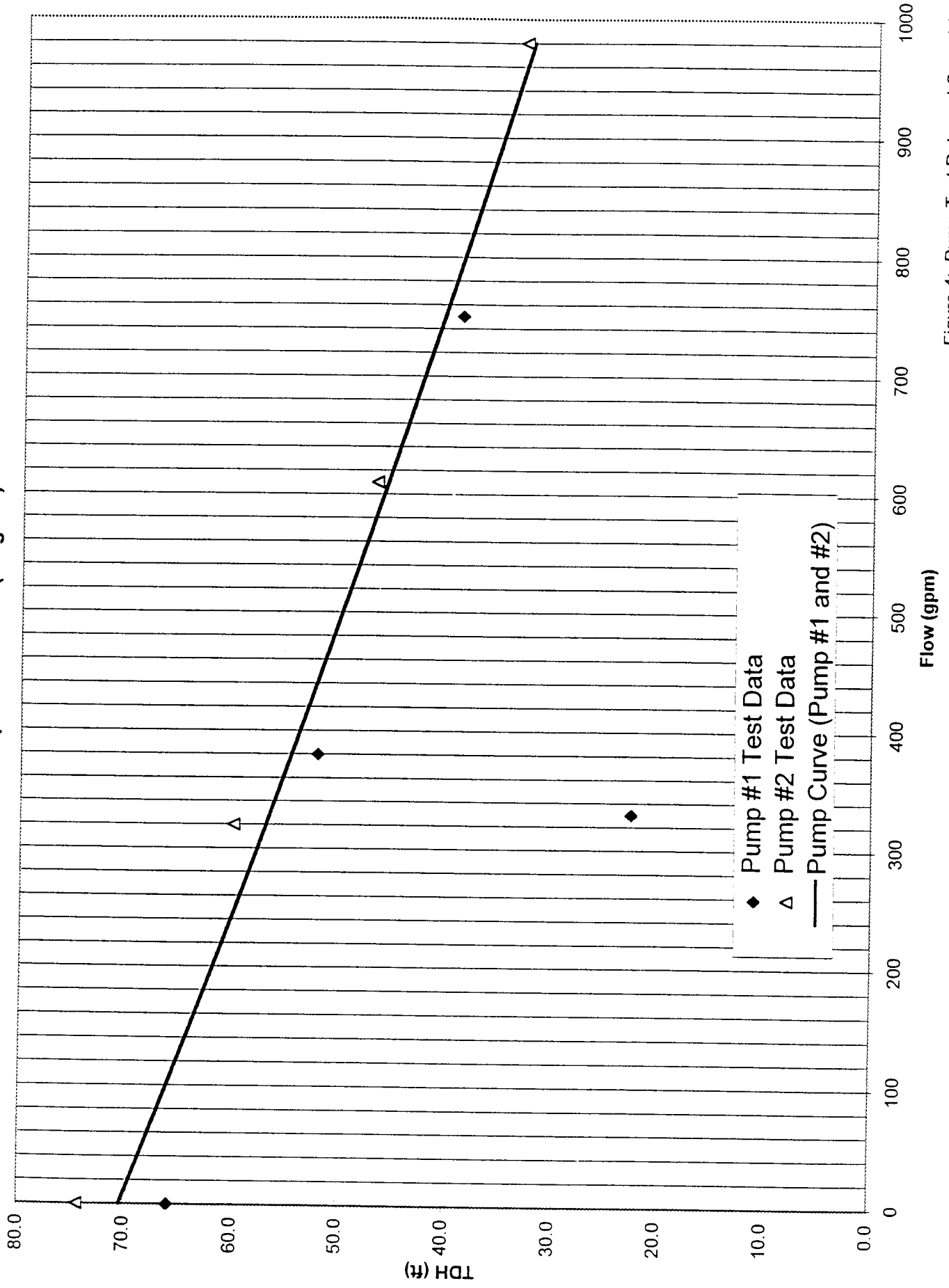


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 147

General Information

PS No. 147 PS Facility Folger's Address 14601 Old Gentilly Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Smith & Loveless Inc.

Impeller Diameter 0 inch

Model Number-Pump #1 not given Serial Number-Pump #1 60D1102

Model Number-Pump #2 not given Serial Number-Pump #2 60D1102

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 4500 gpm 57 ft. of head 0 rpm

Pump Suction 6 inch Pump Discharge 6 inch FM Diameter 8 inch

Suction Valve Size 8 inch Discharge Valve Size 6 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 6 inch

Dry Well Dimensions 9.3 ft. dia. Length 0 ft. Width: 0 ft. Depth 24.5 ft.

Pump centerline* 2.3 ft. Centerline of discharge pipe* _____ ft.

* measured from dry well bottom.

Notes: The centreline of the discharge pump is vertical.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 147

Pump Controls

Lead pump on 5 ft. Type of Controls bubbler
Lead pump off 1 ft.
Lag pump on 6 ft.
Lag pump off 2 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is poor due to the severe corrosion in the pump room, specifically the steel dry well structure.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments A crack was observed in the side of the wet well which allowed flow through.

Diameter 7 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 19.3 ft.

Sewer Invert(s) Depth* 0 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 147

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 240V three phase open delta (2 transformers bank)

Size of service protective device 200 amps, dual element, fusible disconnect switch

Size of main protective device _____

Size of motor protective device 90 amps, circuit breaker

Service wire size #3/0 AWG Size of motor starter in NEMA 3

Motor wire size #4 AWG Motor Horsepower 20

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1160

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # 326-12750-01 Serial Number - Motor # 60D1103

Model Number - Motor # 326-12750-01 Serial Number - Motor # 60D1103

Model Number - Motor # - _____ Serial Number - Motor # - _____

Model Number - Motor # - _____ Serial Number - Motor # - _____

Comments The physical condition of the motor controller is poor due to corrosion. The physical condition of the motors, service disconnect switch and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubina conduit has no conduit seal fitting for hazardous location

Pump Station 147 (Folger's)

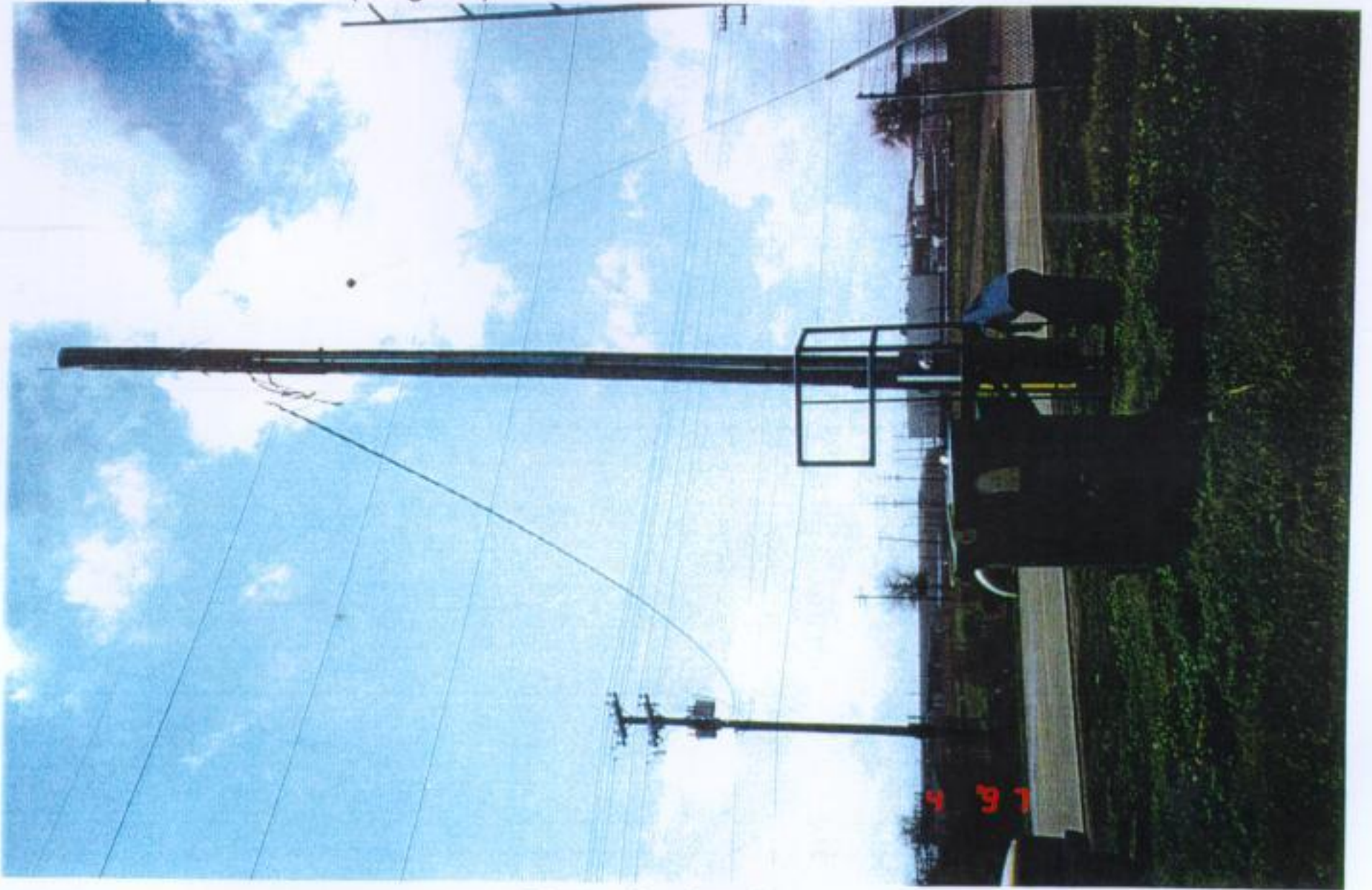


Photo Number 1



Photo Number 2

Pump Station 147 (Folger's)

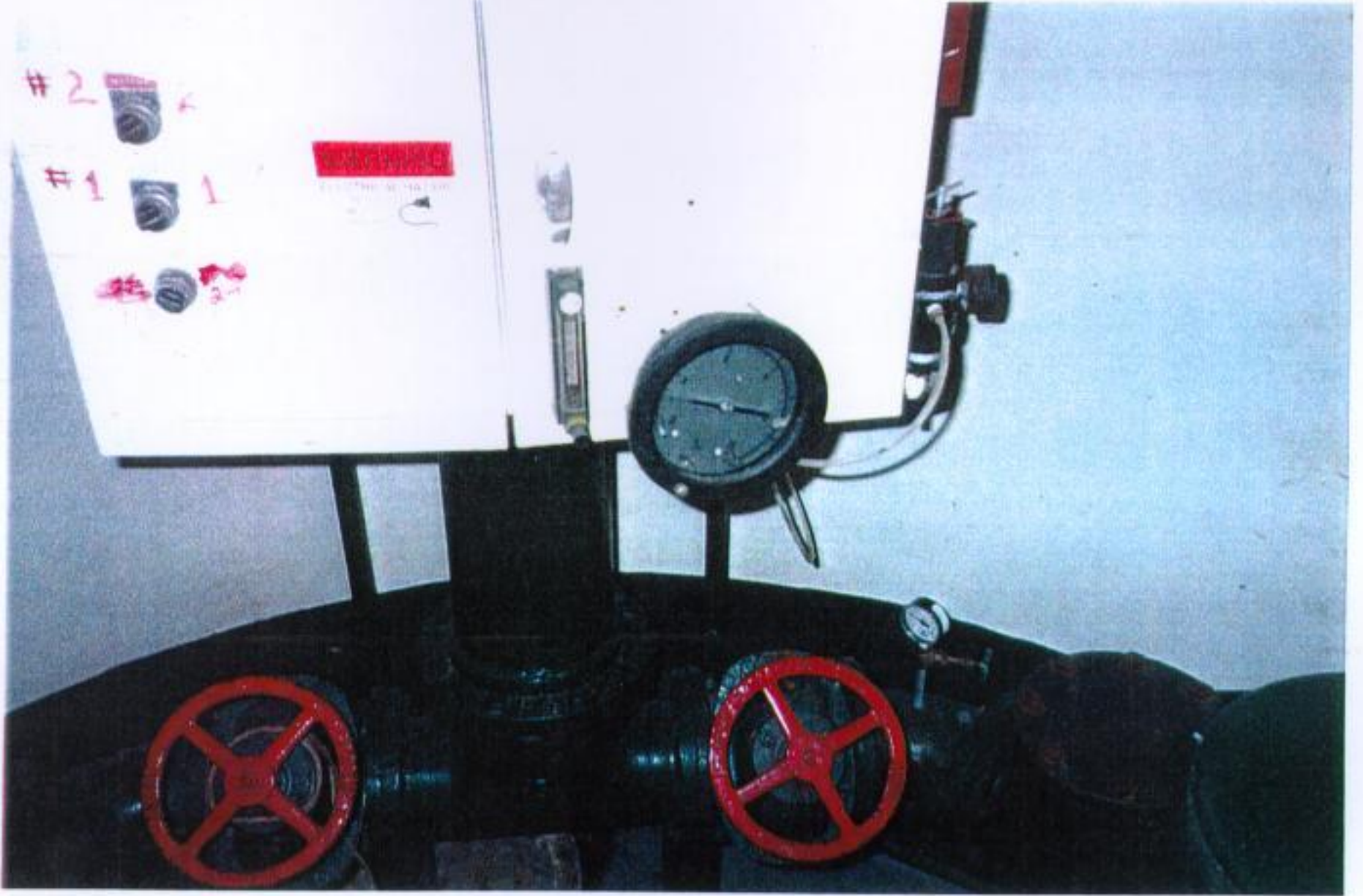


Photo Number 3



Photo Number 4

Pump Station 147 (Folger's)



Photo Number 5



Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 148 (GENTILLY OAKS)
5000 PAPANIA DRIVE

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 148 (Gentilly Oaks)

Pump Station 148 is a bi-level, suction-lift station located at 5000 Papania Drive. Flow discharges the station and connects to the 24-inch portion of the Dwyer Road force main. Pump Station 148 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 148.

Pump Station 148 contains two (6-inch by 6-inch) Nash horizontally aligned pumps. Each pump is powered by a 60 horsepower (hp) Atlas Electric motor operating at a speed of 1770 revolutions per minute (rpm). This equipment is housed in a 10.3-foot by 10.3-foot stucco/block dry well structure, partially below grade. The total depth of the dry well from the floor of the motor control room to the bottom is 6.3 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair although there is isolated corrosion located around the pumps as seen in the attached photos.

Pump Station 148 collects wastewater from the surrounding gravity sewer system into a 16.8-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated 13-foot by 9-foot dimensions. The concrete aggregate is exposed throughout the interior surface of the wet well suggesting a corrosion problem.

A draw down/fill test was conducted to determine the capacity of Pump Station 148. Figure 4 shows pump curve constructed from obtained test data. At the time of testing Pump #1 was inoperable due excessive noise and vibration and therefore could not be evaluated. Pump #2 has an approximate capacity of 1700 gallons per minute (gpm) at 62 feet of head. The shut-off head of Pump #2 was found to be 101 feet.

Recommendations:

1. It is recommended that Pump #1 be placed into working condition and its performance evaluated.
2. An initial observation of the wet well suggests that corrosion is occurring. The extent of the damage should be further investigated and corrected as necessary.



TO
MANIFOLD
WITH
156,133,
167,138,
143,144
AND 131

MORRISON ROAD

24"

20"

145
(EASTOVER)

16"

189
(PARIS RD.)
(ABANDONED)

159
(OAK ISLAND)

20"

137
(BULLARD)

16"

168
(WILLOWBROOK)

8"

TO
MANIFOLD
WITH
153,151,
140,139,
144 AND
131

DWYER ROAD

24"

16"

16"










148
(GENTILLY)
(OAKS)

16"

166
(VILLAGE D'LEST)

12"

16"

-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 14. JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 148 (GENTILLY OAKS)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

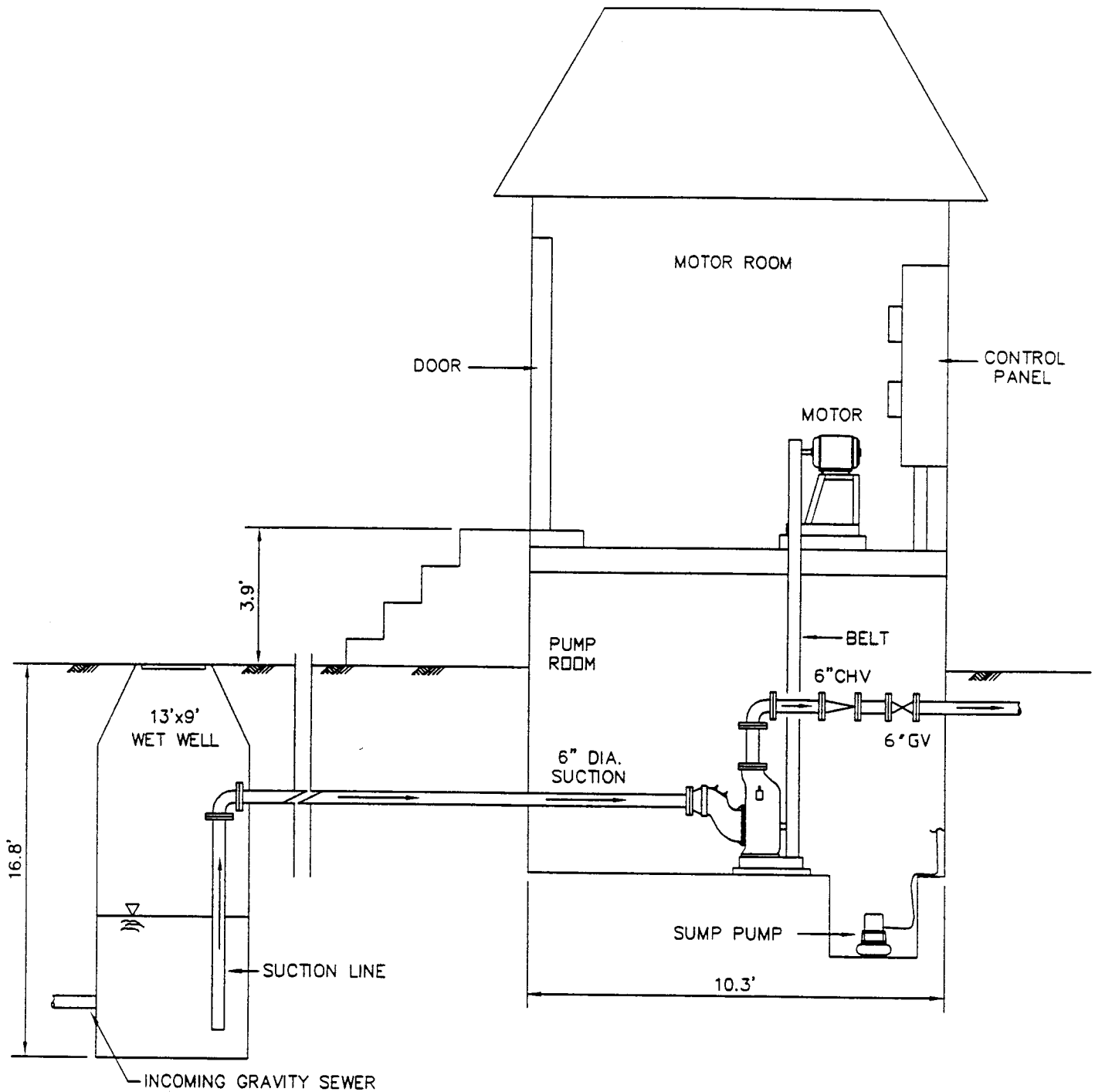
FIGURE:

1

DATE:

3/28/97

FILE NO.: 148 JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 148 (GENTILLY OAKS)
BI-LEVEL SUCTION LIFT

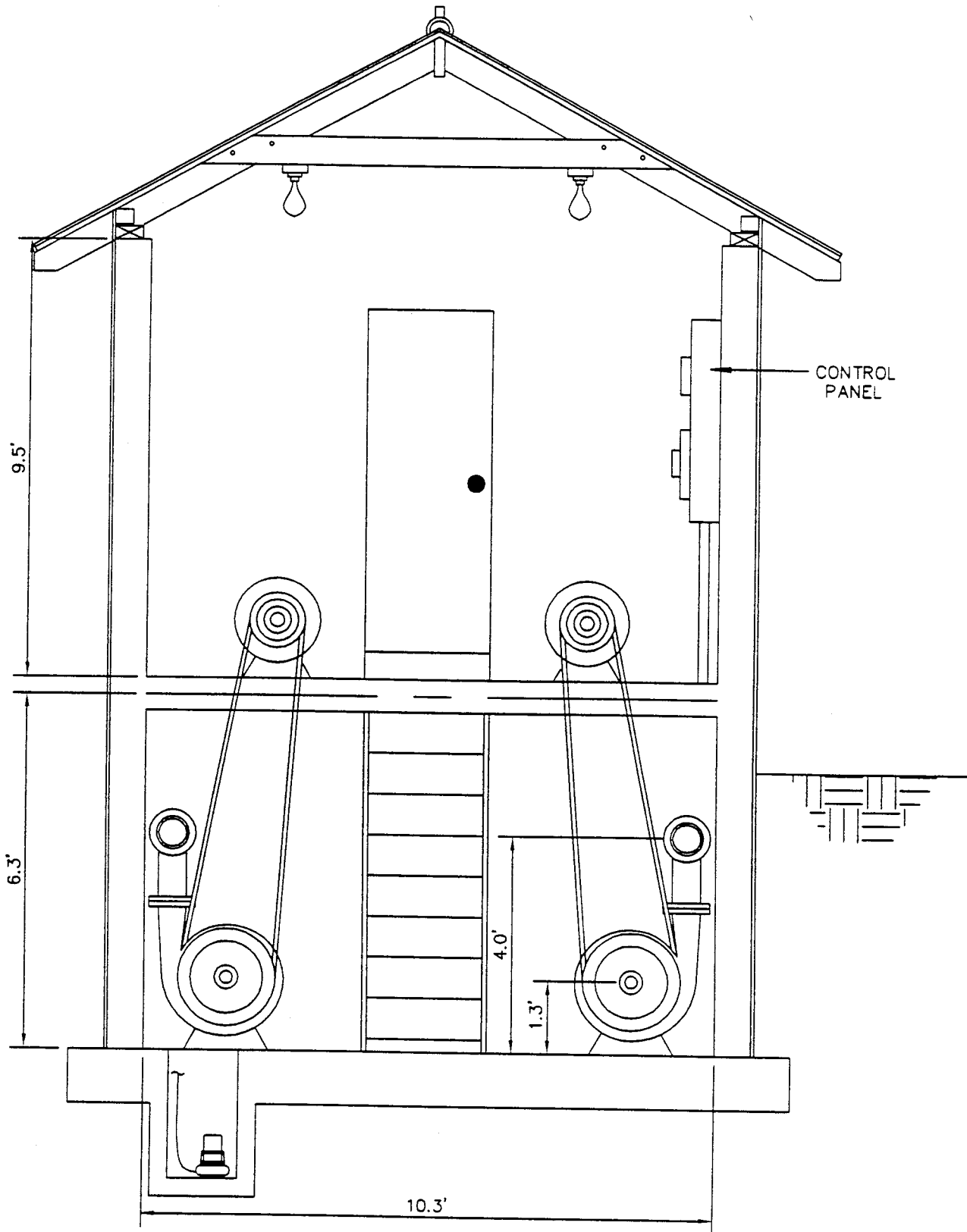
FIGURE:

2

DATE:

3/28/97

FILE NO.: 14. .dWG JOB NO.: 1113030.01090120 DATE: 3/28/97



FRONT VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 148 (GENTILLY OAKS)
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/28/97

Pump Station: 148 (Gentilly Oaks)

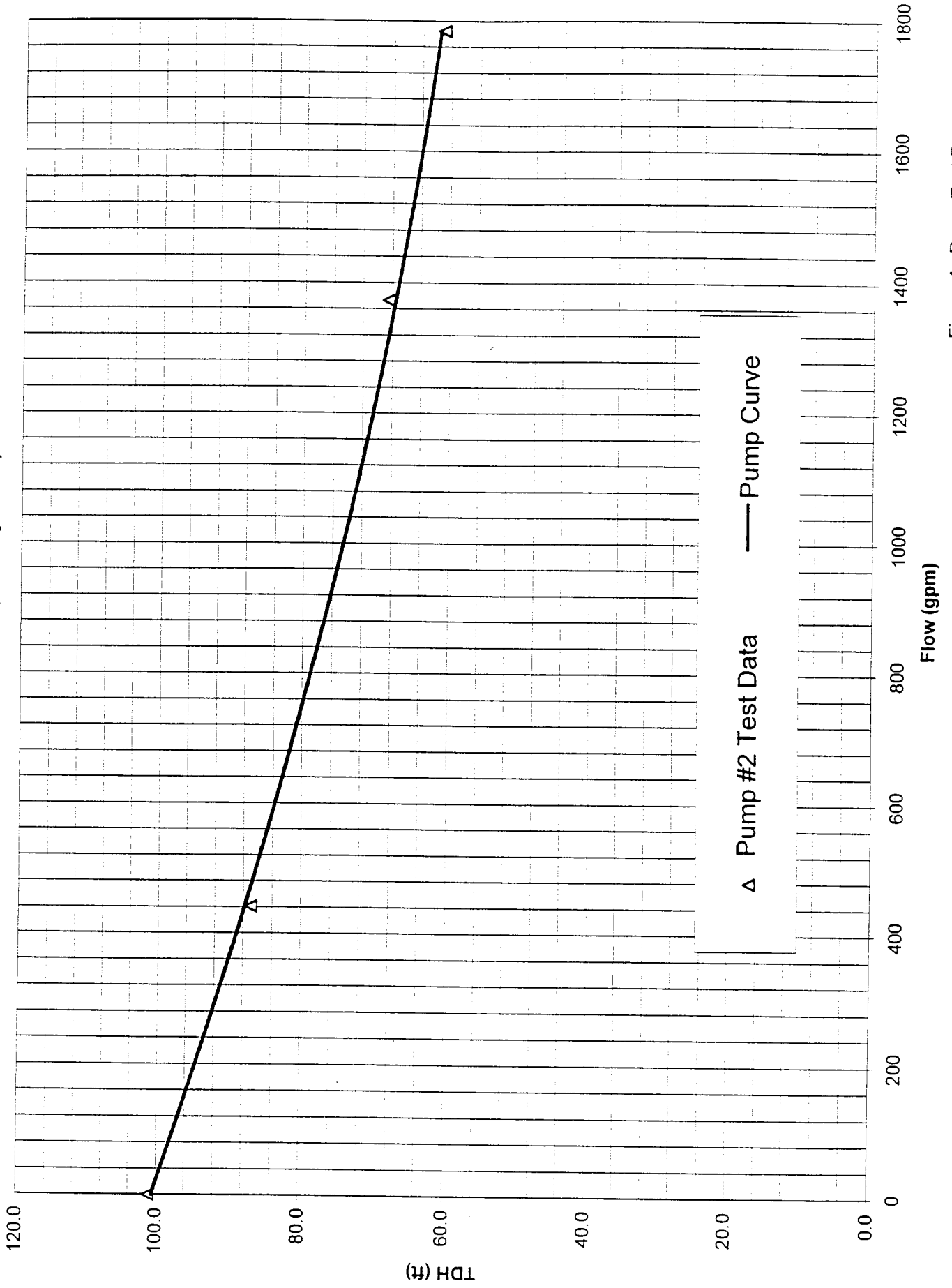


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 148

General Information

PS No. 148 PS Facility Gentilly Oaks Address 5000 Papania Drive

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Nash

Impeller Diameter 27 inch

Model Number-Pump #1 not readable Serial Number-Pump #1 not readable

Model Number-Pump #2 not readable Serial Number-Pump #2 not readable

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 6 inch Pump Discharge 6 inch FM Diameter 6 inch

Suction Valve Size 6 inch Discharge Valve Size 6 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 6 inch

Dry Well Dimensions 0 ft. dia. Length 10.3 ft. Width: 10.3 ft. Depth 6.3 ft.

Pump centerline* 1.3 ft. Centerline of discharge pipe* 4 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? # 1

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 148

Pump Controls

Lead pump on 6 ft. Type of Controls bubbler
Lead pump off 1.25 ft.
Lag pump on 7 ft.
Lag pump off 1.25 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 0 ft. Length 13 ft. Width 9 ft.

Bottom Depth* 16.8 ft.

Sewer Invert(s) Depth* 15 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 148

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle
Type of service 480/277V three phase four wire (3 transformers bank)
Size of service protective device 200 amps, dual element, fusible disconnect switch
Size of main protective device Not Available
Size of motor protective device 100 amps, dual element, fusible disconnect switch
Service wire size #4/0 AWG Size of motor starter in NEMA 4
Motor wire size #3 AWG Motor Horsepower 60
Number of motors 2 Motor Speed Single
Speed(s) in rpm 1770
Frequency in Hertz 60
Type of starter Full voltage non-reversing
Model Number - Motor # 5K4404A22 Serial Number - Motor # not available
Model Number - Motor # 5K4404A22 Serial Number - Motor # not available
Model Number - Motor # - Serial Number - Motor # -
Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, service disconnect switch and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 148 (Gentilly Oaks)

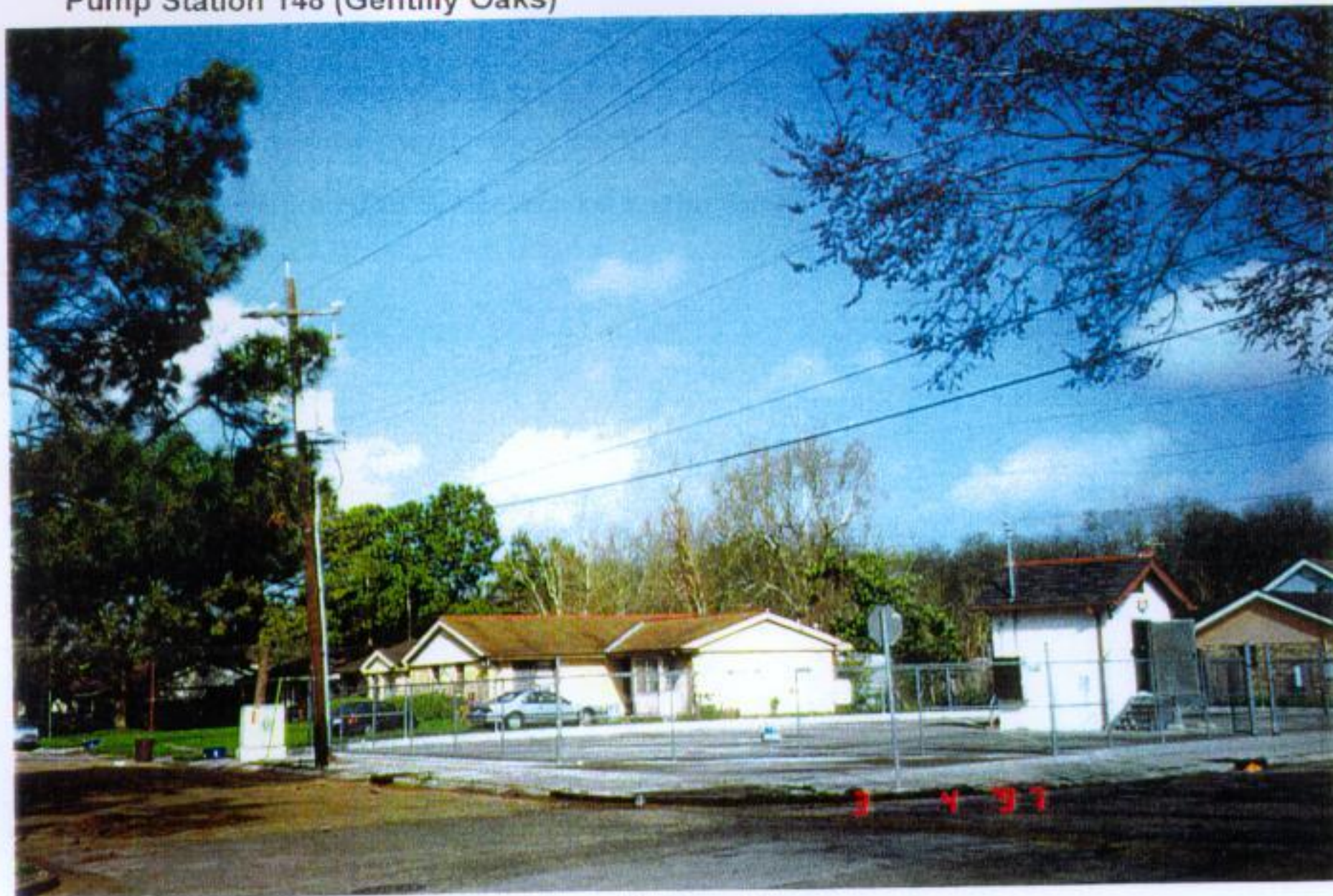


Photo Number 1

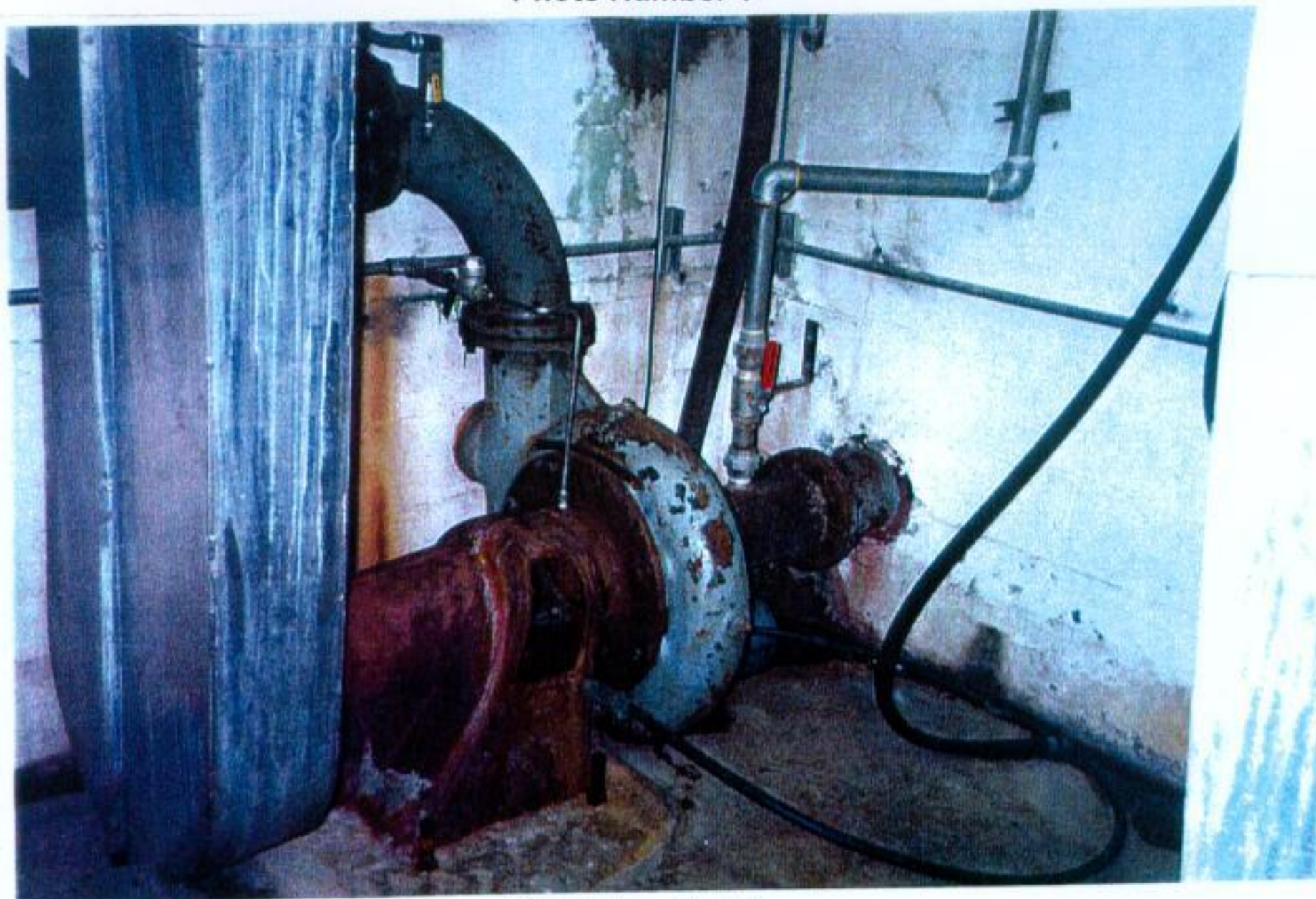


Photo Number 2

Pump Station 148 (Gentilly Oaks)

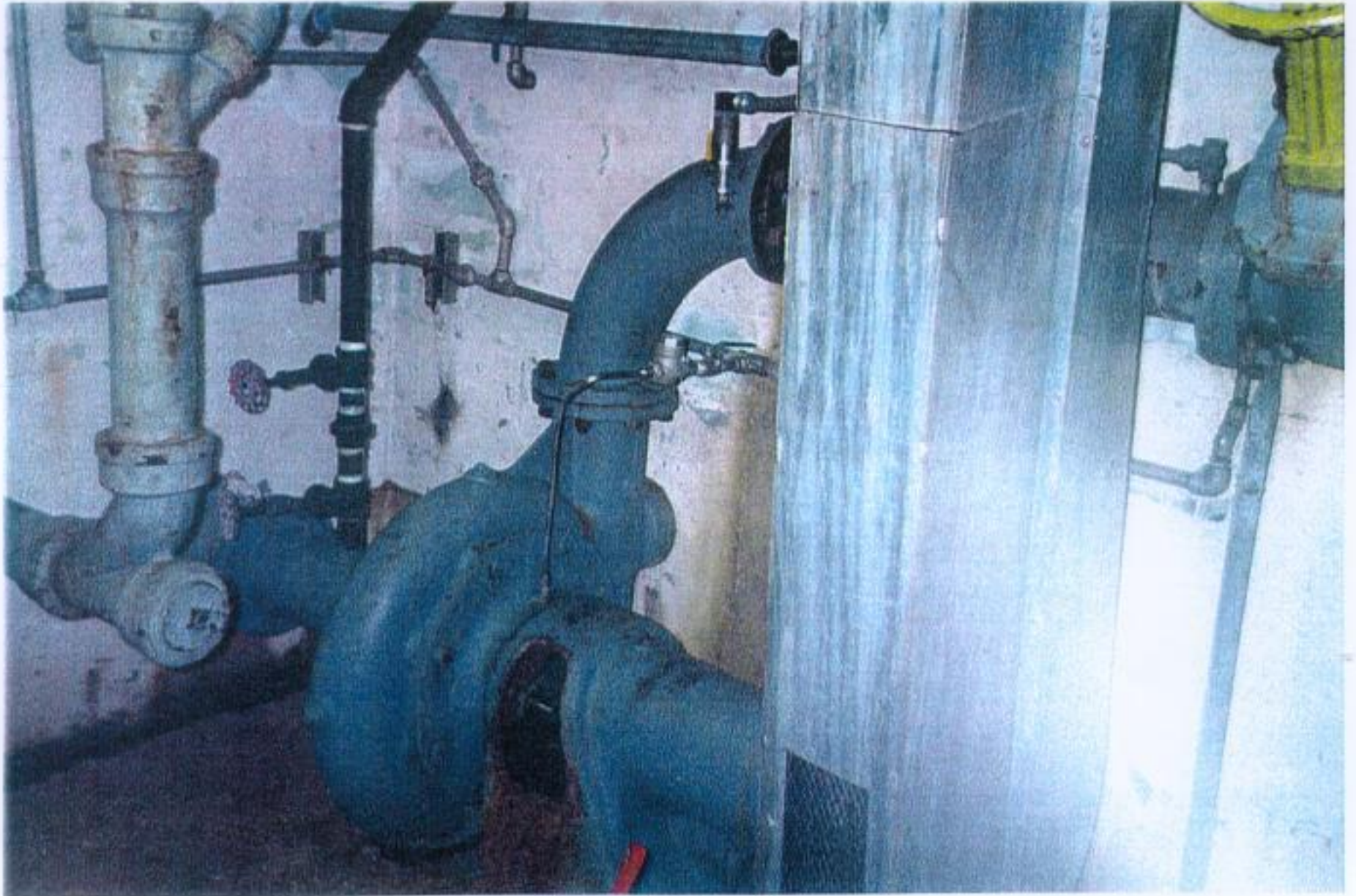


Photo Number 3



Photo Number 4

Pump Station 148 (Gently Oaks)

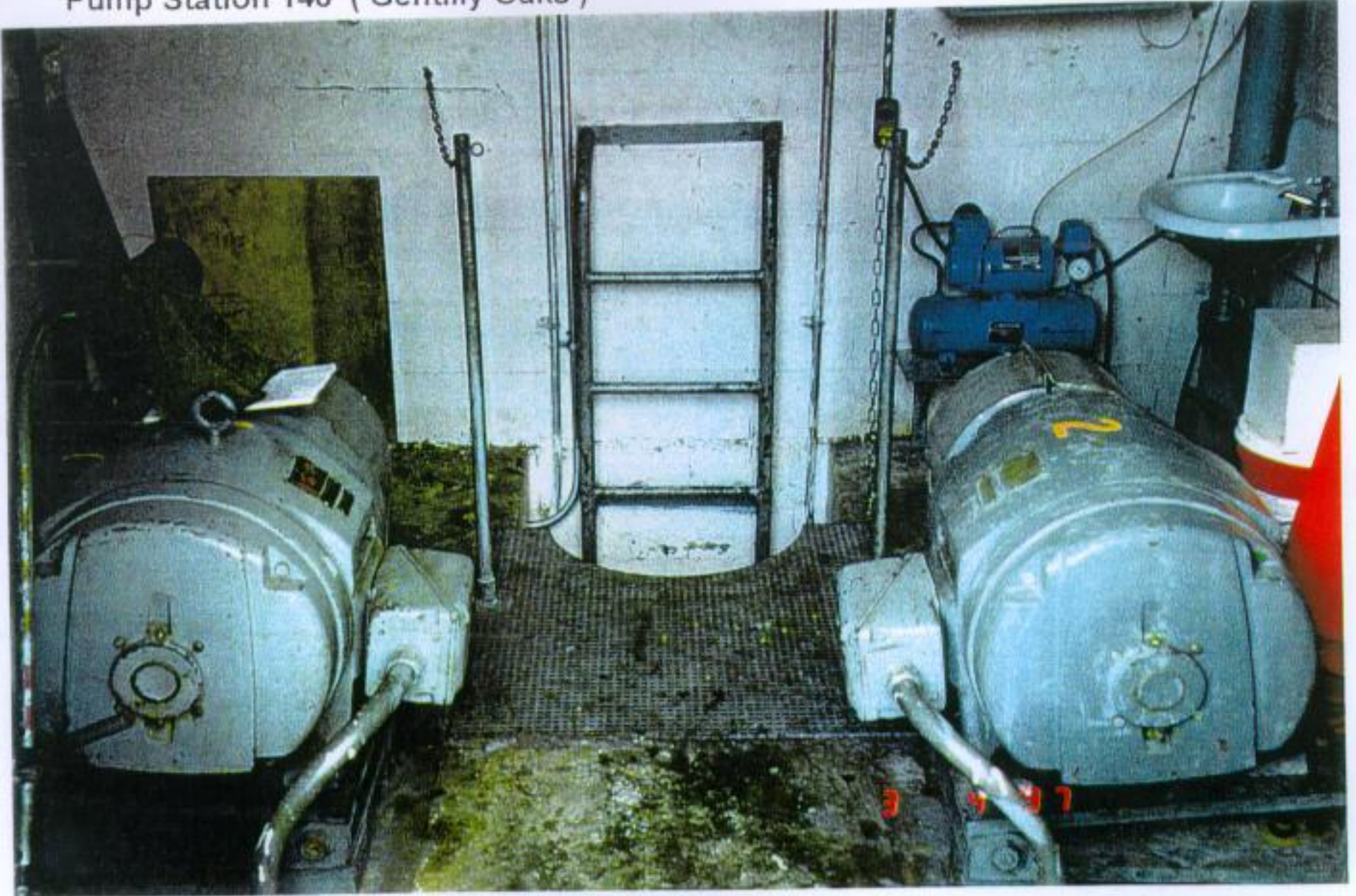


Photo Number 5

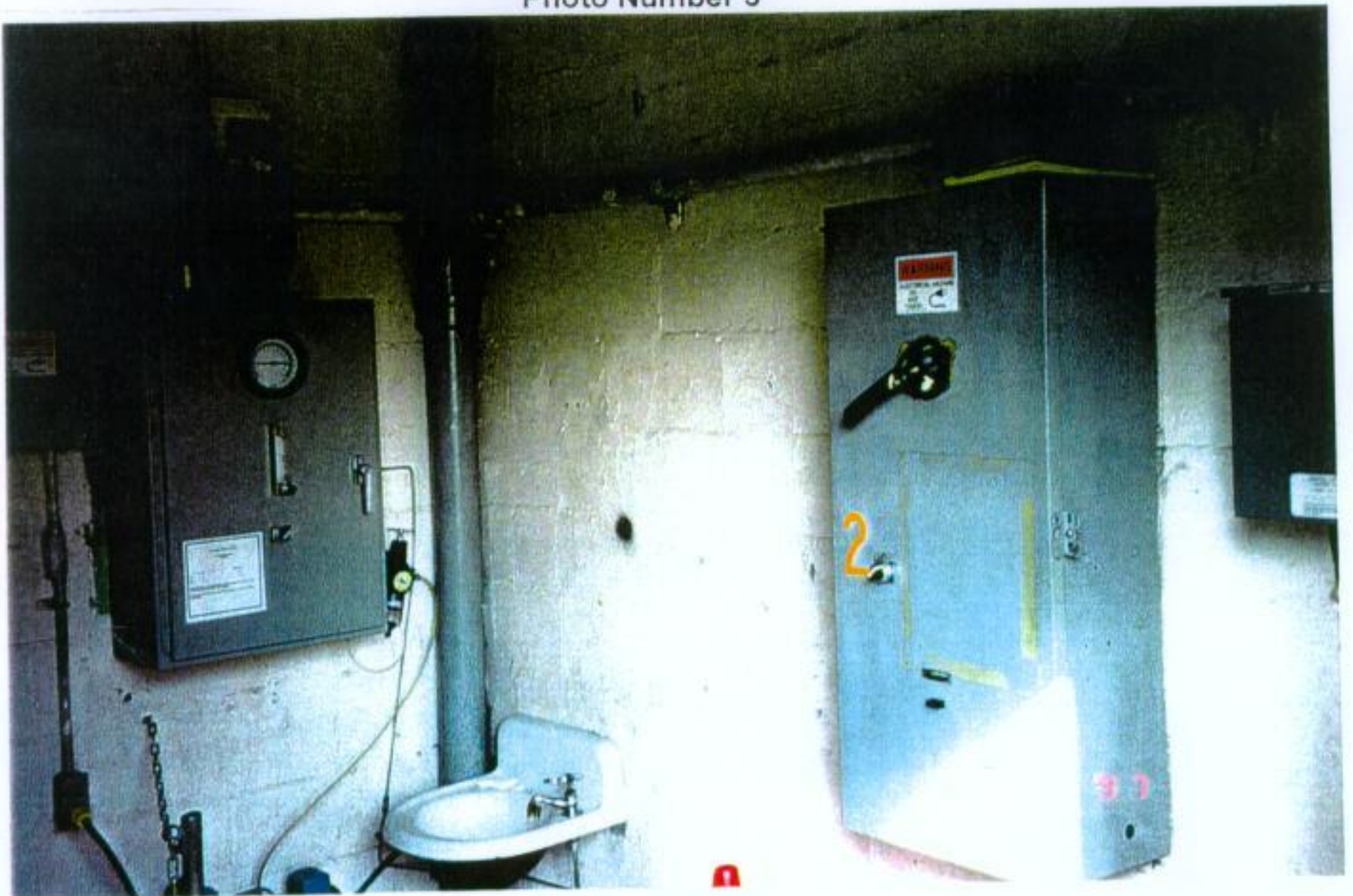


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 149 (INDUSTRIAL PARK)
4200 INDUSTRIAL PARKWAY**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 149 (Industrial Park)

Pump Station 149 is a multi-leveled, flooded-suction station located on 4200 Industrial Parkway. Flow discharges the station via a 12-inch diameter force main and connects to the 16-inch force main along Industrial Parkway. Pump Station 149 does repump flow from Pump Station 164 (Venetian Isles) which is located at 20711 Old Spanish Trail. Figure 1 shows the schematic subsystem surrounding Pump Station 149.

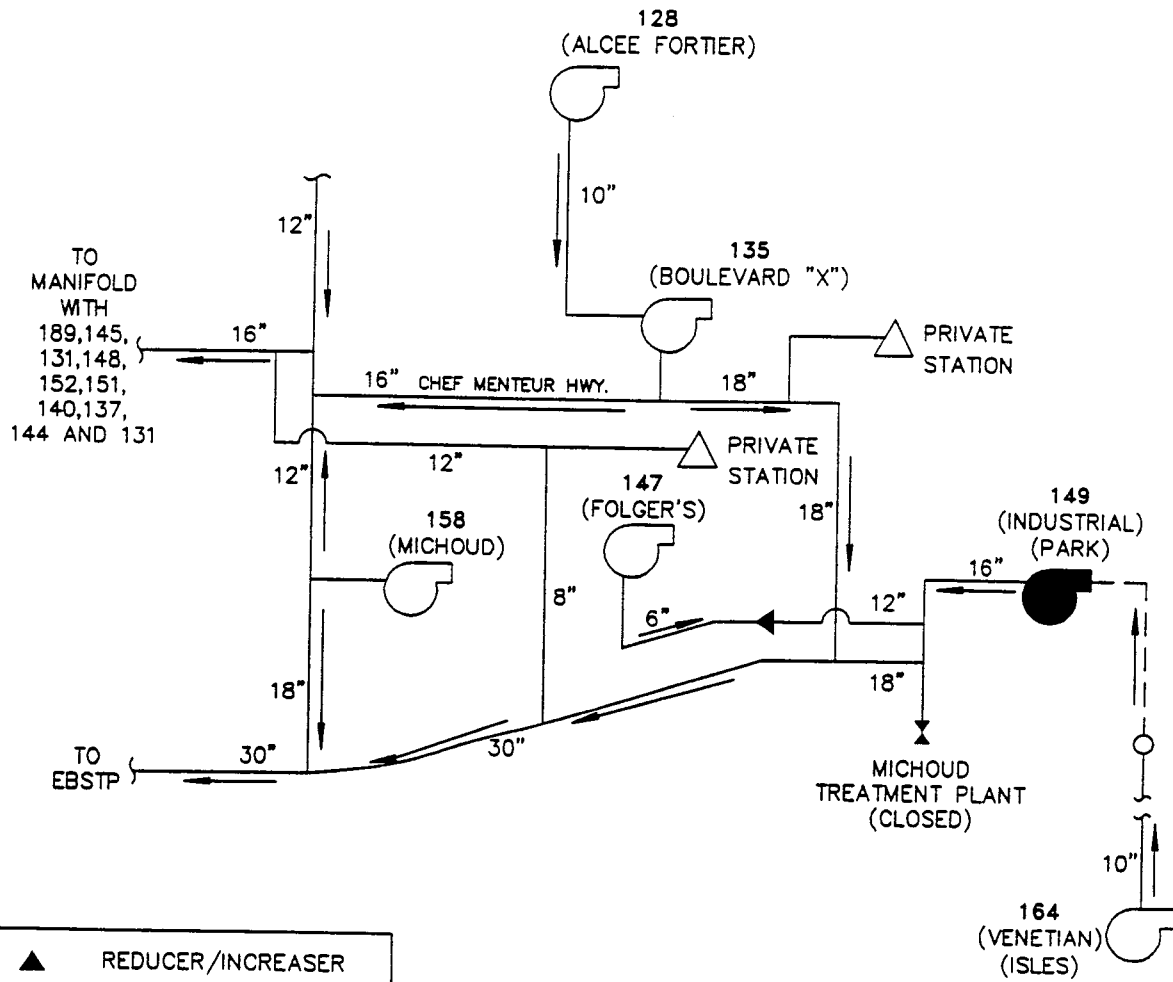
Pump Station 149 contains two (10-inch by 8-inch) Fairbanks Morse vertically aligned pumps with 15.0-inch diameter impellers. Each pump is powered by a 60 horsepower (hp) electric motor operating at a speed of 1175 revolutions per minute (rpm). This equipment is housed in an 11-foot by 12-foot reinforced concrete and stucco/block dry well structure. The total depth of the dry well from the floor of the motor control room to the bottom is 24.2 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is good although there is isolated corrosion located around the pump as seen in the attached photos.









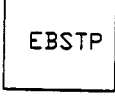
Pump Station 149 collects wastewater from the surrounding gravity sewer system into a 23.2-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated 11-foot by 12-foot dimensions. The overall condition of the wet well appears to be good.

A draw down/fill test was conducted to determine the capacity of Pump Station 149. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 2200 gallons per minute (gpm) at 58 feet of head. The shut-off head of both pumps was found to be 101 feet.

Recommendations:

1. The physical condition of the electrical service disconnect switch is poor due to corrosion. It is recommended that this issue be addressed.



-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 145 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 149 (INDUSTRIAL PARK)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

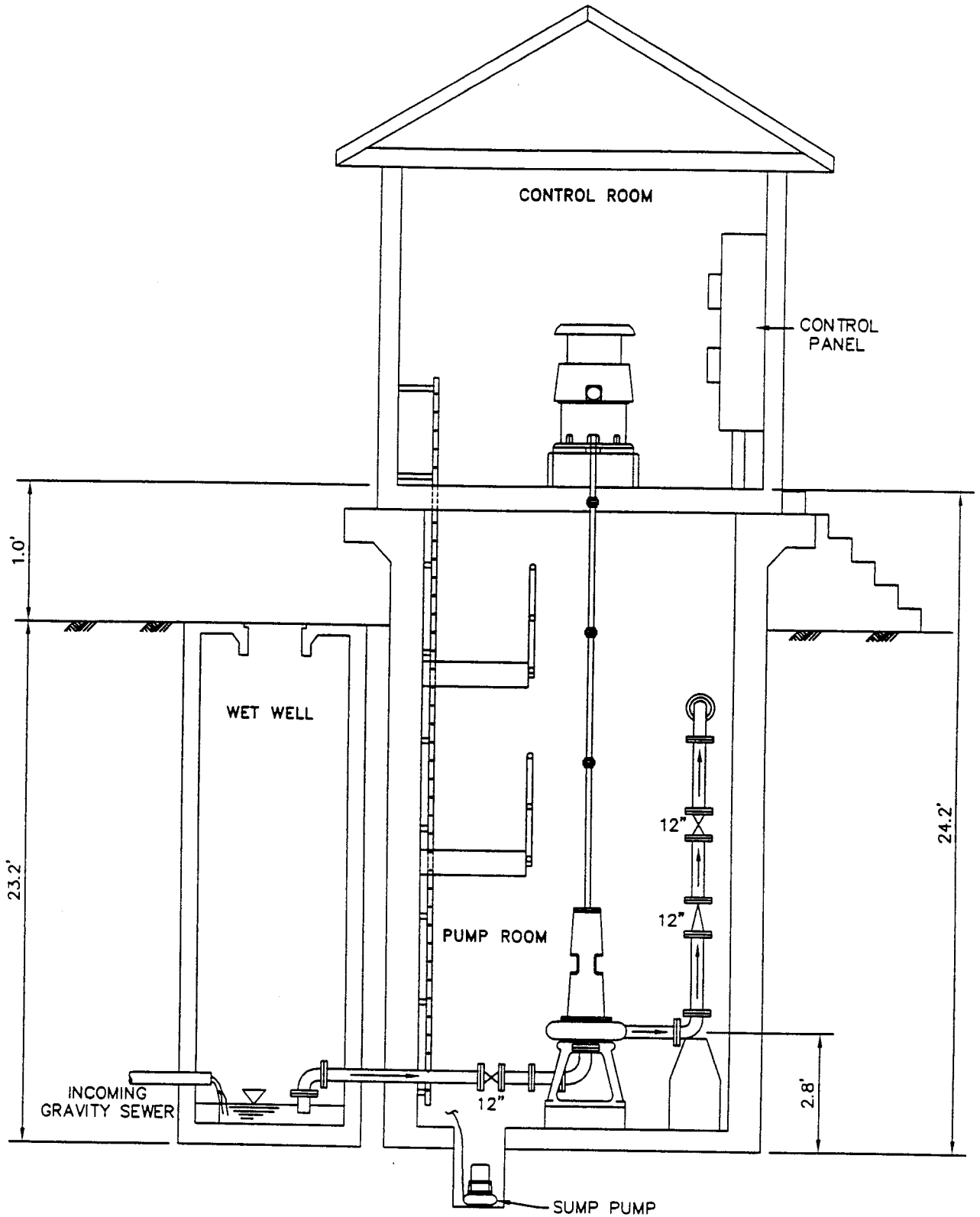
FIGURE:

1

DATE:

3/28/97

FILE NO.: 145 AC JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 149 (INDUSTRIAL PARK)
MULTI-LEVEL FLOODED SUCTION

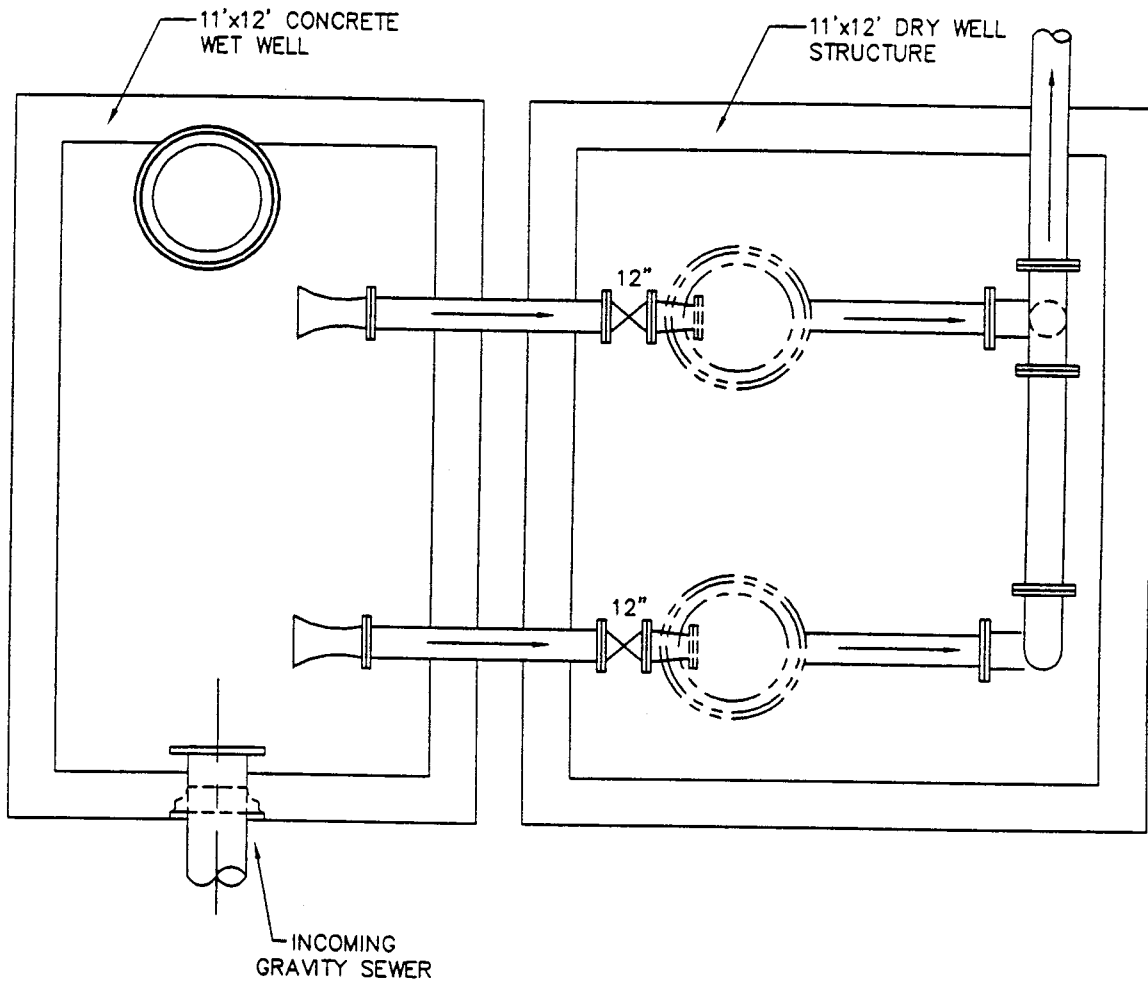
FIGURE:

2

DATE:

3/28/97

FILE NO.: 145
G. JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 149 (INDUSTRIAL PARK)
MULTI-LEVEL FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 149 (Industrial Park)

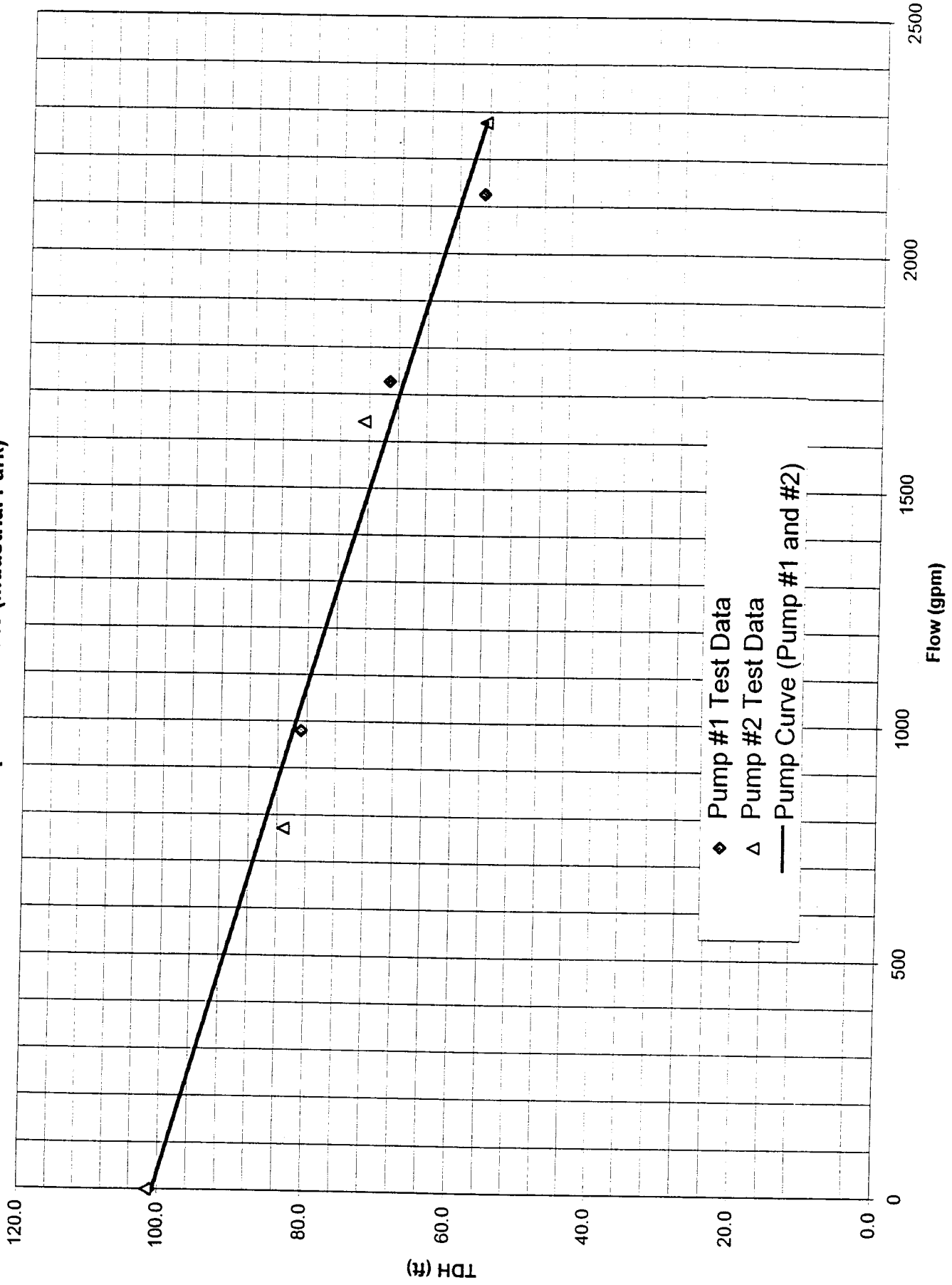


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 149

General Information

PS No. 149 PS Facility Industrial Park Address 4200 Industrial Parkway

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 15 inch

Model Number-Pump #1 not available Serial Number-Pump #1 K3E1050895-1

Model Number-Pump #2 not available Serial Number-Pump #2 K3E1050895-1

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 10 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size 0 inch Discharge Valve Size 12 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 12 inch

Dry Well Dimensions 0 ft. dia. Length 12 ft. Width: 11 ft. Depth 24.2 ft.

Pump centerline* 2.7 ft. Centerline of discharge pipe* 12.2 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 149

Pump Controls

Lead pump on 8 ft. Type of Controls bubbler
Lead pump off 4 ft.
Lag pump on 9 ft.
Lag pump off 5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 0 ft. Length 11 ft. Width 12 ft.

Bottom Depth* 23.2 ft.

Sewer Invert(s) Depth* 18.4 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 149

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device 250 amps, dual element, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 125 amps, circuit breaker

Service wire size 250 kcmil Size of motor starter in NEMA 4

Motor wire size #1 AWG Motor Horsepower 60

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1175

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # 5K6277XH906A Serial Number - Motor # LSJ1105132

Model Number - Motor # 5K6277XH906A Serial Number - Motor # LSJ1105132

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the service disconnect switch is poor due to corrosion. The physical condition of the motors, motor controller and control panel is good. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location

Pump Station 149 (Industrial Park)



Photo Number 1

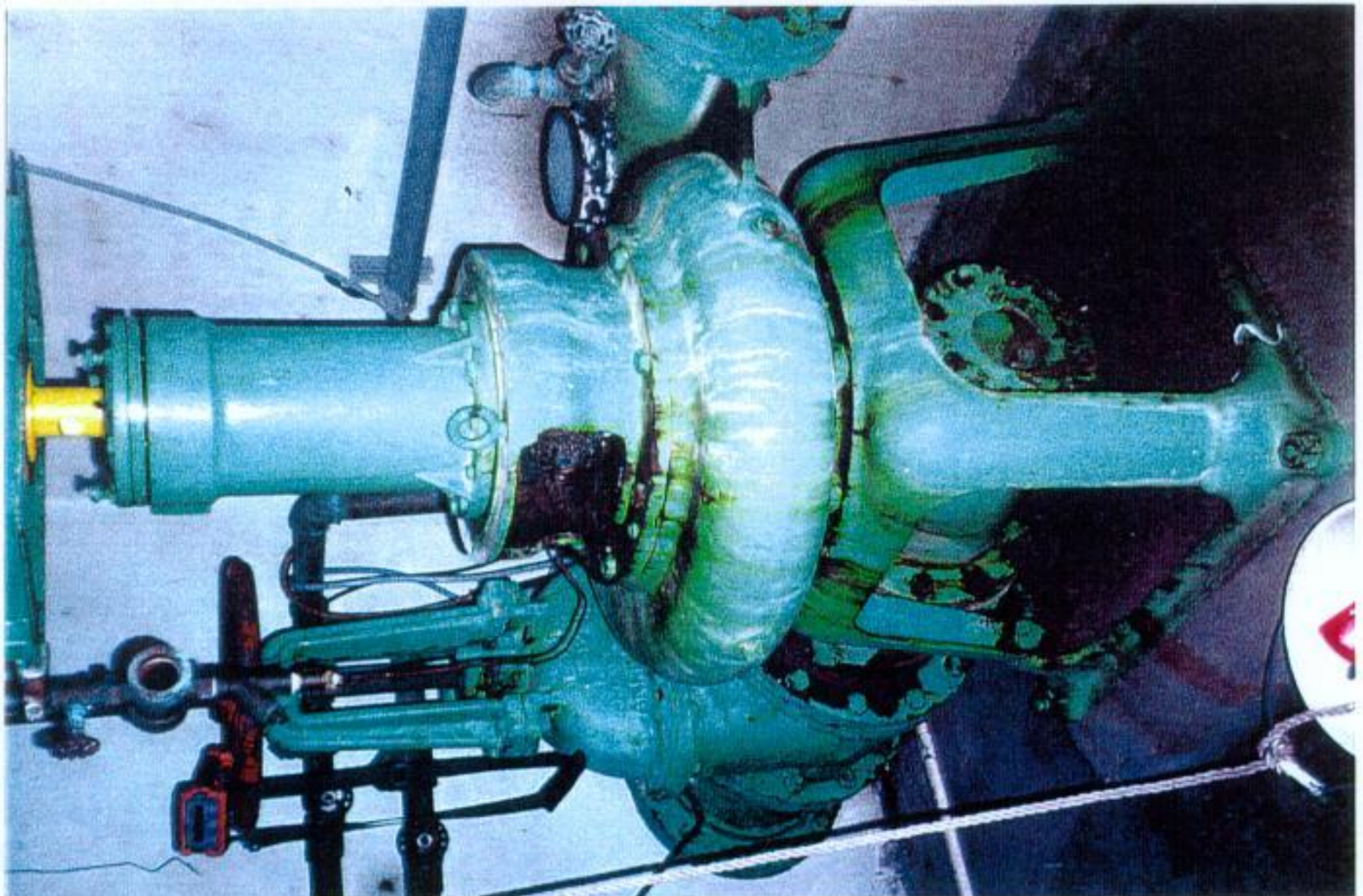


Photo Number 2

Pump Station 149 (Industrial Park)

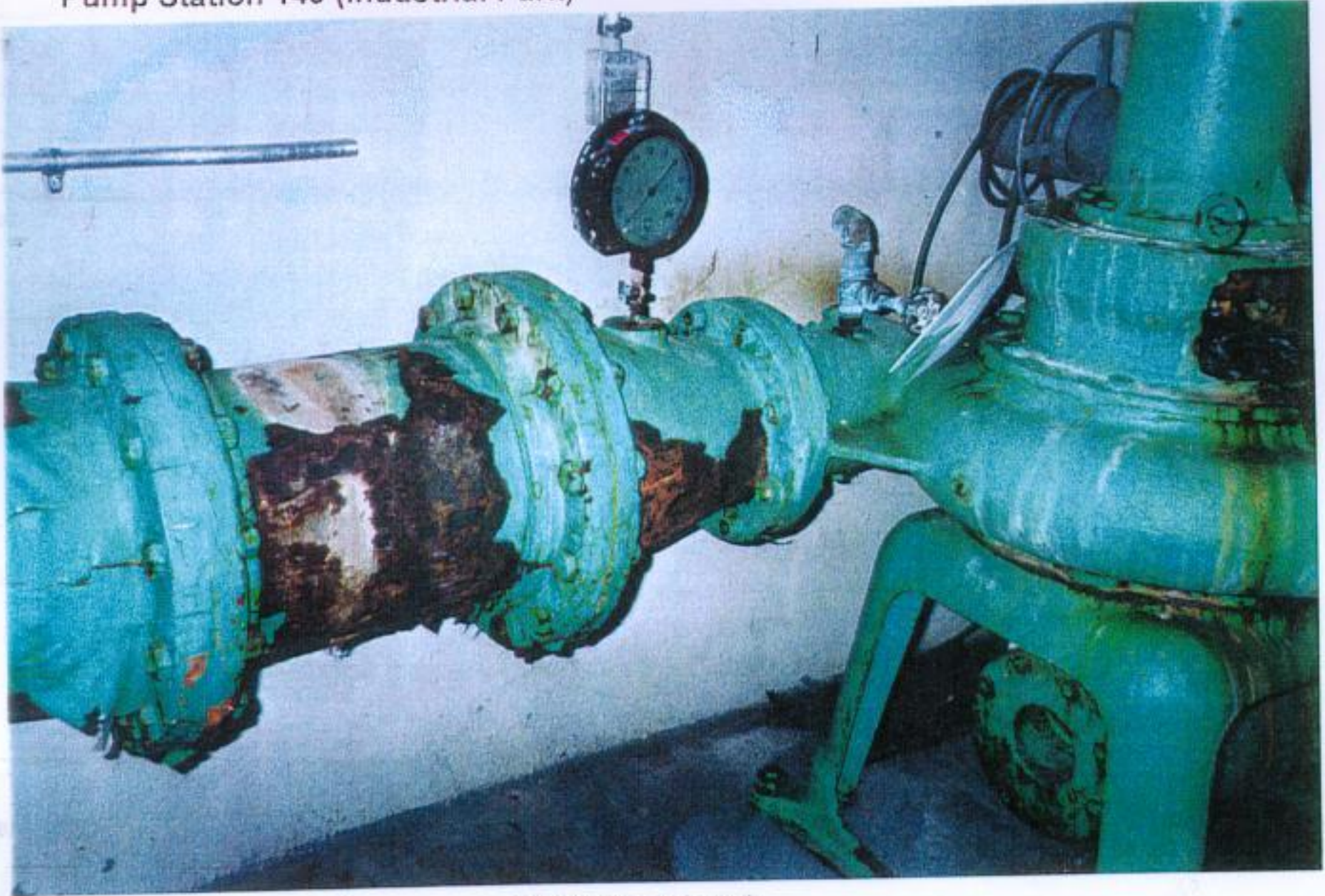


Photo Number 3

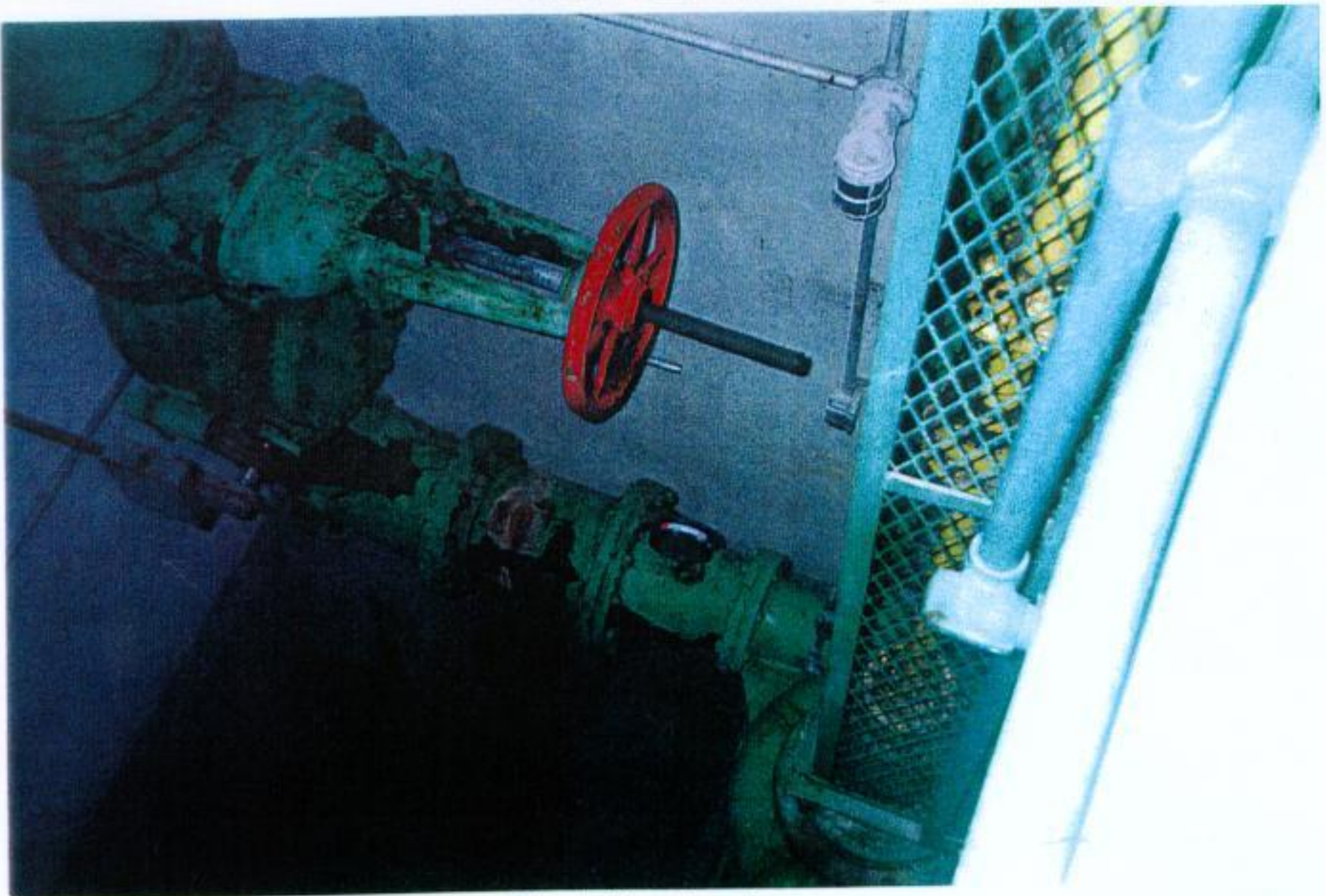


Photo Number 4

Pump Station 149 (Industrial Park)

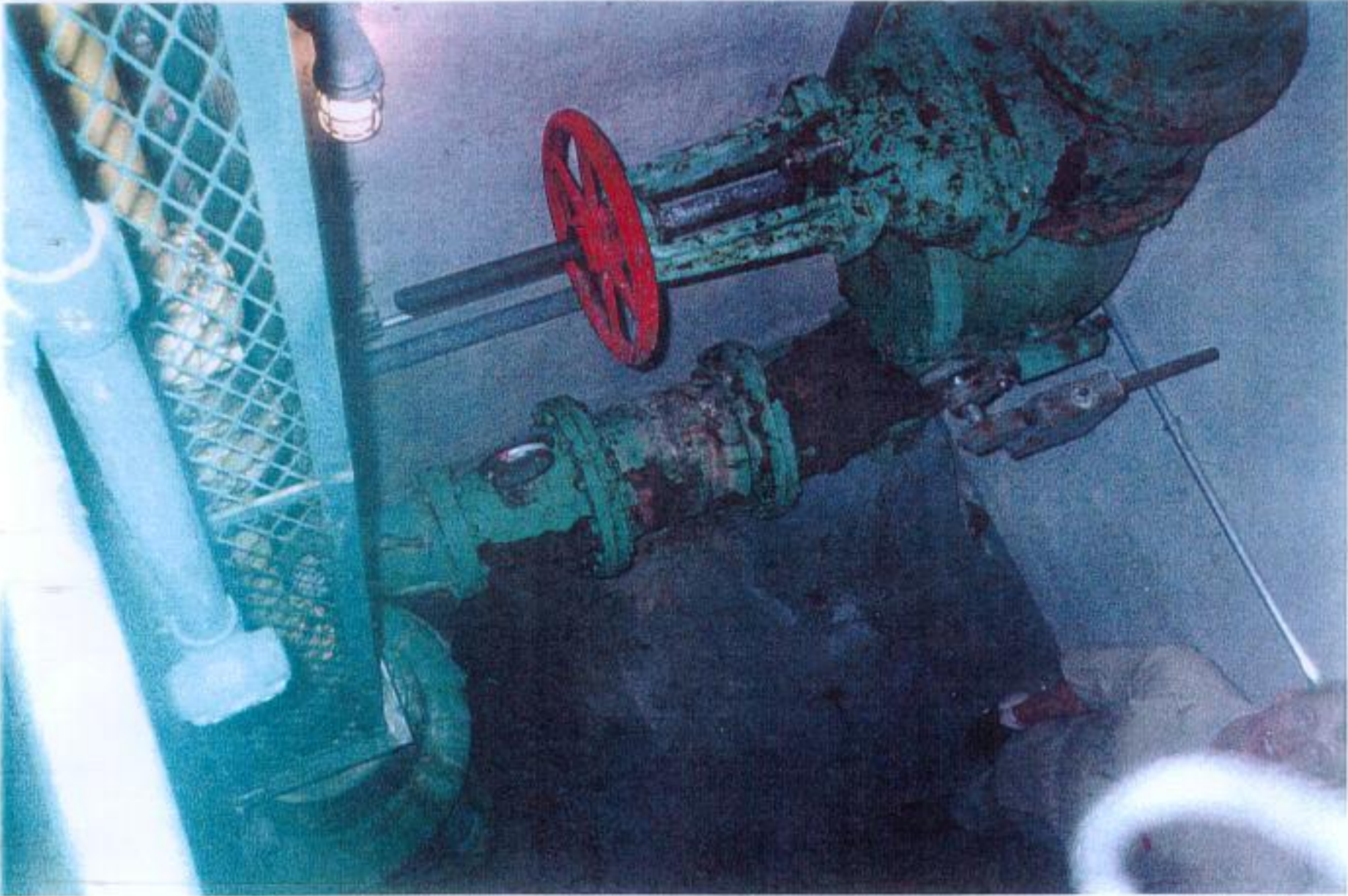
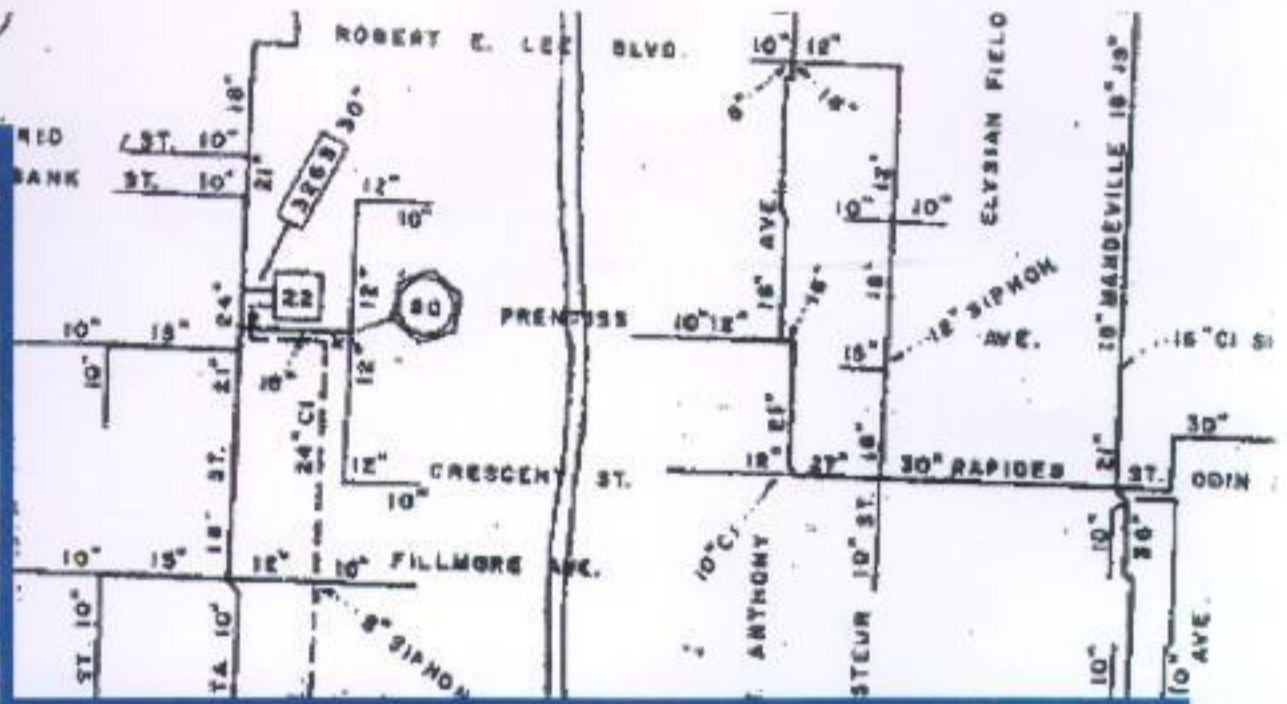


Photo Number 5



Photo Number 6



*Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program*

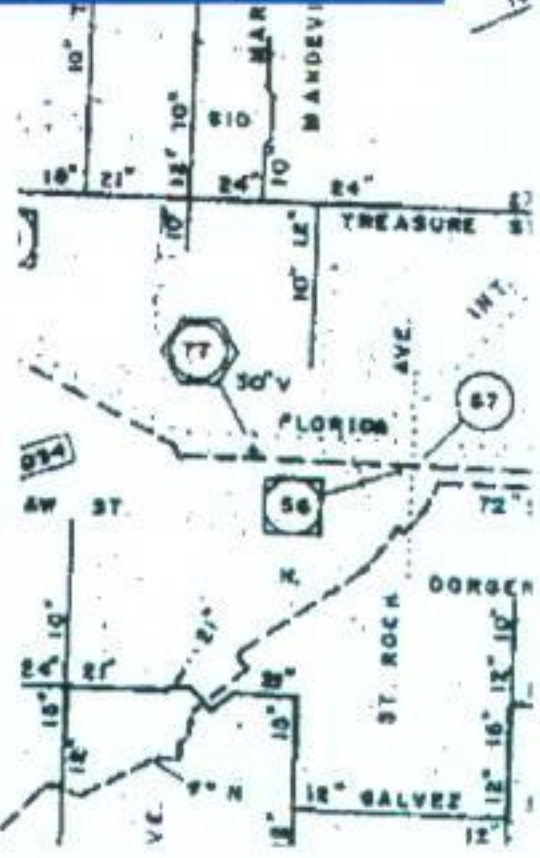
Pump Station Testing and Evaluation

Appendix Vol. II: Pump Stations (150-190) Reports

August 1997



MONTGOMERY WATSON



Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Appendix Volume H

Pump Station (150 - 190) Testing and Evaluation Report

<u>Station Number</u>	<u>Station Name</u>	<u>Station Address</u>
150	K-Mart	Desire at Old Gentilly Road
151	Lake Forest	10451 Lake Forest Boulevard
152	Lakeland Terrace	5057 Warren Drive
153	Lakewood South	Country Club Drive at Marcia
154	Lamb	6450 Morrison Road
155	Lawrence	7900 Morrison Road
156	Liggett	2500 Morrison Road
157	Meco	3855 France Road
158	Michoud	4400 Michoud Boulevard
159	Oak Island	14201 Michoud Boulevard
160	Pine Village	6155 Dwyer Road
161	Plum Orchard	7300 Chef Highway
162	Shorewood	14441 Morrison
163	Southern Scrap	Harbor Road
164	Venetian Isles	20711 Old Spanish Trail
165	Victoria	3620 Victoria Street
166	Village D'Lest	13324 Dwyer Road
167	Weber 10141	Morrison Road
168	Willowbrook	Willowbrook Drive at Michoud Boulevard
169	Wilson	7709 Wilson Avenue
170	English Turn #1	2503 Stanton Road
171	English Turn #2	123 ½ Oak Alley Drive
172	Eton	3440 Eton Street
173	Garden Oaks	3201 Memorial
174	Holiday	3800 Herschel Street
175	Horace	3301 Lawrence Street
176	Huntlee	3201 Huntlee Drive
177	Lower Coast	3700 Belle Chase Highway 406
178	Memorial	2501 Memorial Park Drive
179	Park Timbers	4100 Lennox Boulevard
180	Tall Timbers	3800 Tall Pines Drive
181	Forest Isles	5631 West Forest Isles Drive
182	Woodland	4150 Woodland Drive
183	Wright	Lake Forest Boulevard at Wright Road

**Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Appendix Volume II**

Pump Station (150 - 190) Testing and Evaluation Report

<u>Station Number</u>	<u>Station Name</u>	<u>Station Address</u>
184	Aurora	6000 Carlisle Court
185	Blair	3800 Blair Street
186	Bridge Plaza	2914 Vespasian Street
187	SPS "D"	2801 Florida Avenue
188	SPS "C"	1107 Pacific Street
190	McCoy	McCoy Street at Old Gentilly Road

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 150 (K-MART)
DESITE AT OLD GENTILLY ROAD

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 150 (K-Mart)

Pump Station 150 is a flooded-suction, can-type station located at the intersection of Desire and Old Gentilly Road. Flow discharges the station via a 12-inch diameter force main and connects to the 32-inch portion of the Louisa Street force main. Pump Station 150 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 150.

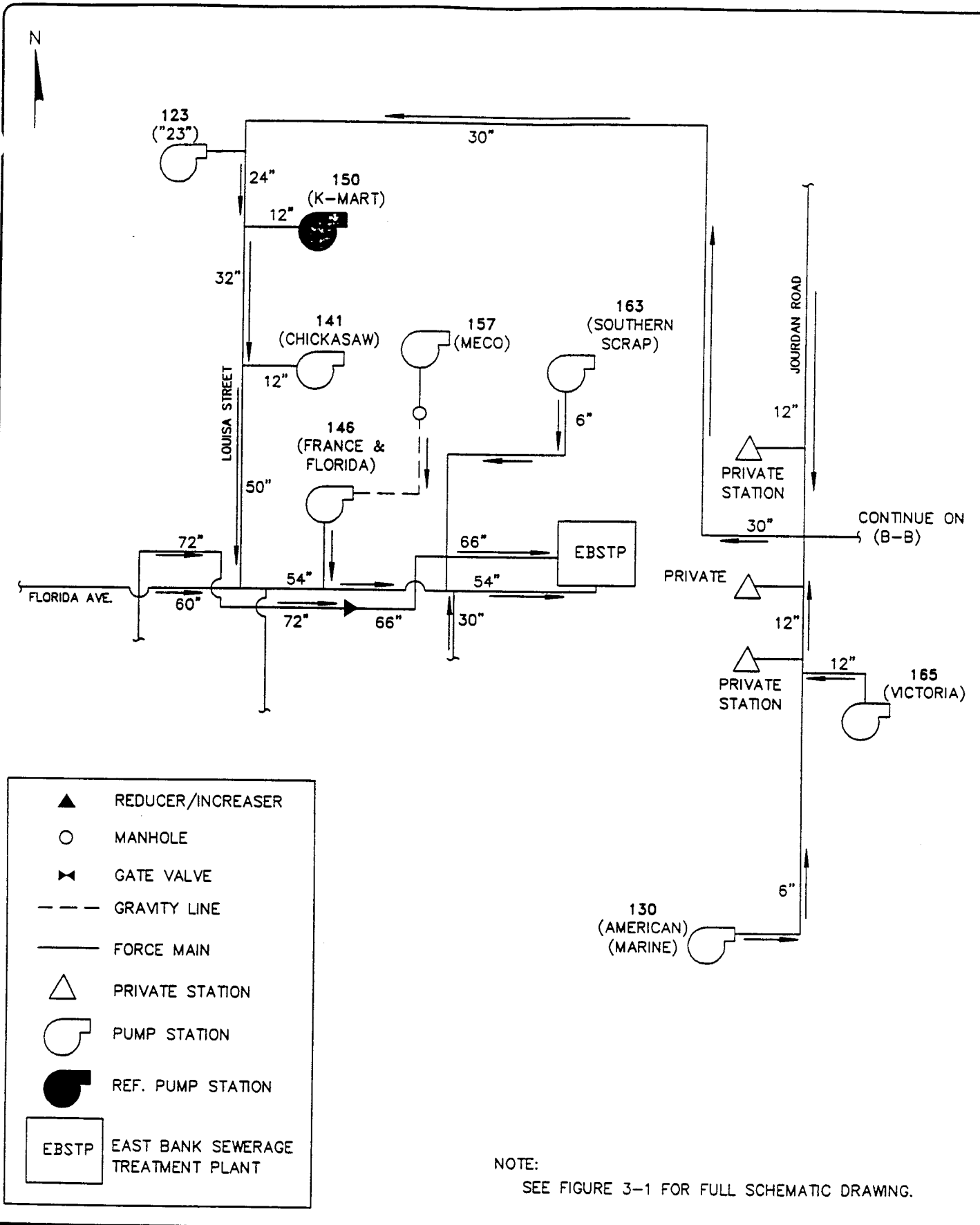
Pump Station 150 contains two (6-inch by 6-inch) Fairbanks Morse vertically aligned pumps. Each pump is powered by a 100 horsepower (hp) Reliance electric motor operating at a speed of 1125 revolutions per minute (rpm). This equipment is housed in a 10.5-foot by 10.5-foot reinforced concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 25.3 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair although there is isolated corrosion located around the pumps as seen in photo number 2 and 3.

Pump Station 150 collects wastewater from the surrounding gravity sewer system into a 20.7-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated 10.5-foot by 10.5-foot dimensions. The overall condition of the wet well appears to be good.



A draw down/fill test was conducted to determine the capacity of Pump Station 150. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 2350 gallons per minute (gpm) at 46 feet of head. The shut-off head of both pumps was found to be 122 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 4000 gpm at 69 feet of head.

Recommendations:

1. It is noted that the physical condition of the two motors and the electrical service circuit breaker is poor due to corrosion as seen in photos 4, 5 and 6. It is recommended that this electrical issue be addressed.



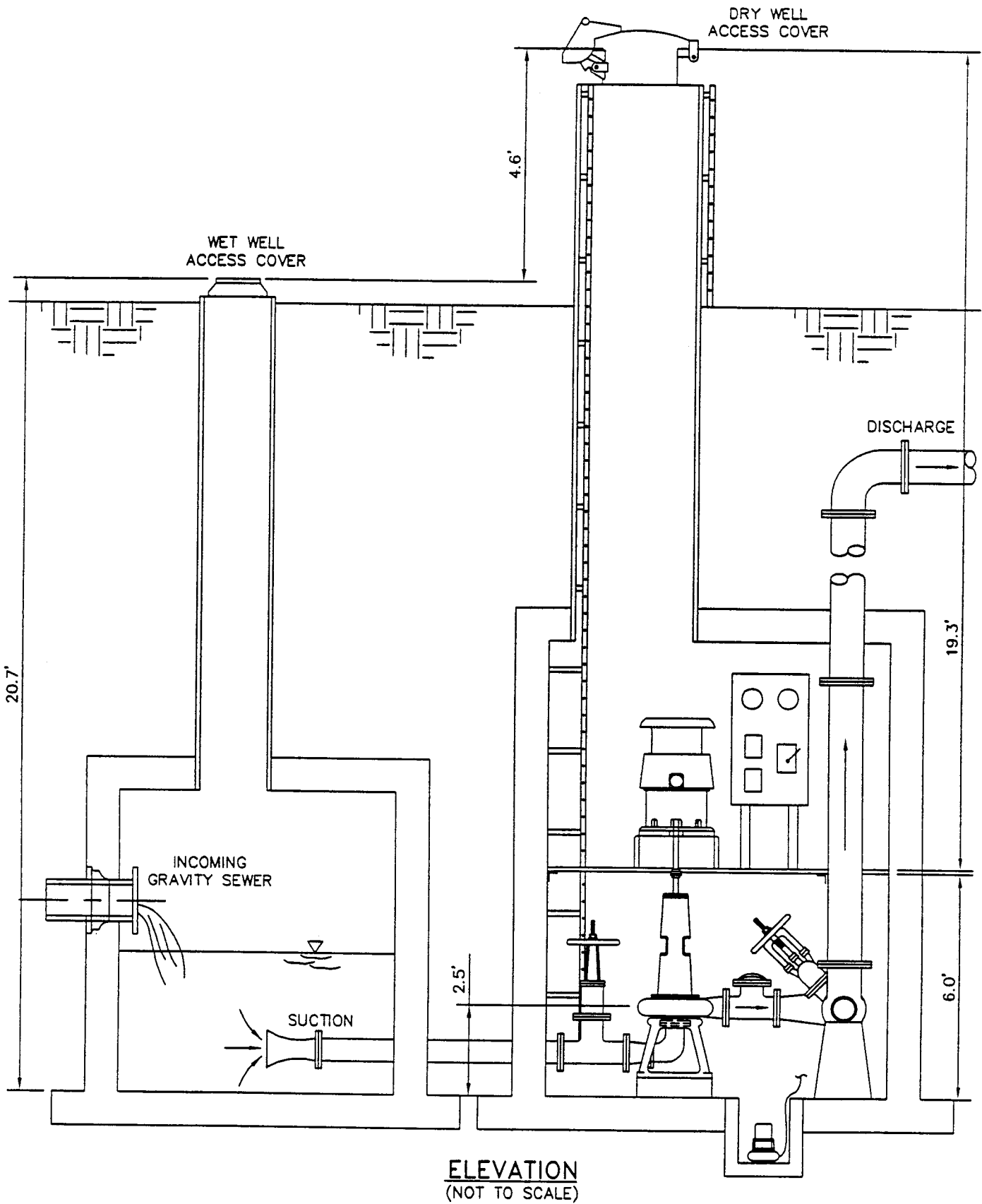
FILE NO.: 150
 JOB NO.: 1113030.01090120 DATE: 3/28/97

 SEWERAGE AND WATER BOARD OF NEW ORLEANS	 MONTGOMERY WATSON
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PUMP STATION 150 (K-MART)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97

FILE NO.: 150- JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 150 (K-MART)
CAN TYPE FLOODED SUCTION

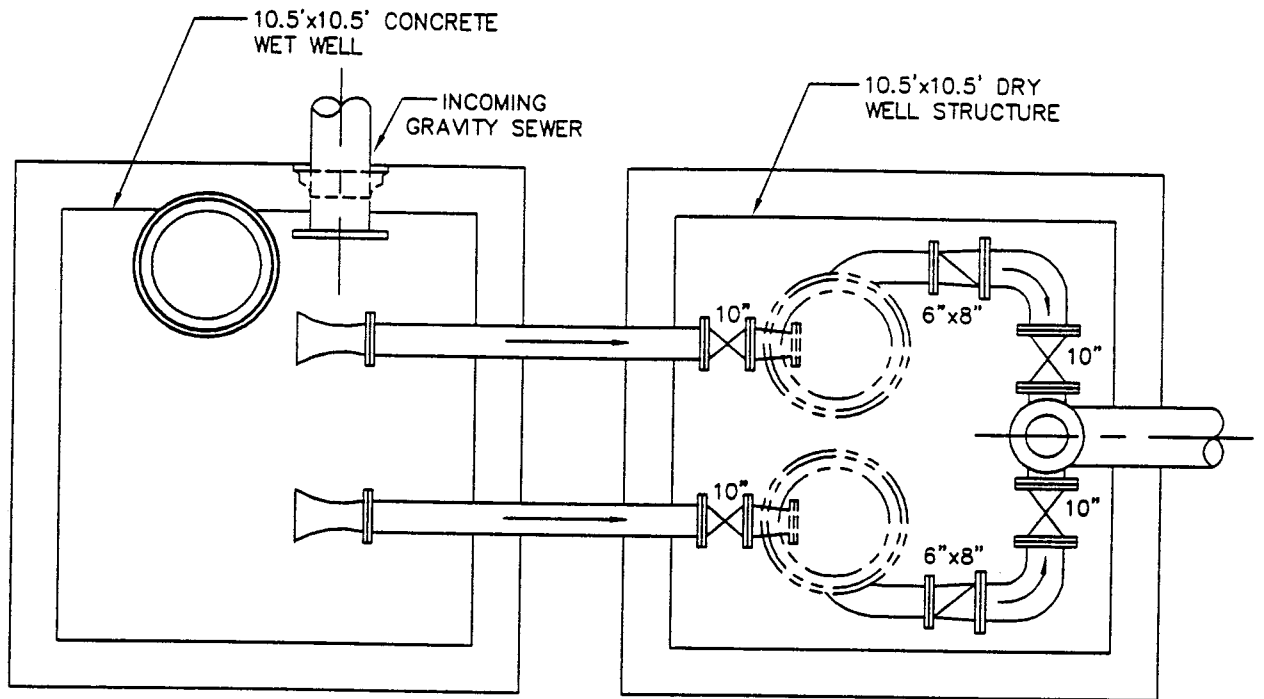
FIGURE:

2

DATE:

3/28/97

FILE NO.: 15L JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 150 (K-MART)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 150 (K-Mart)

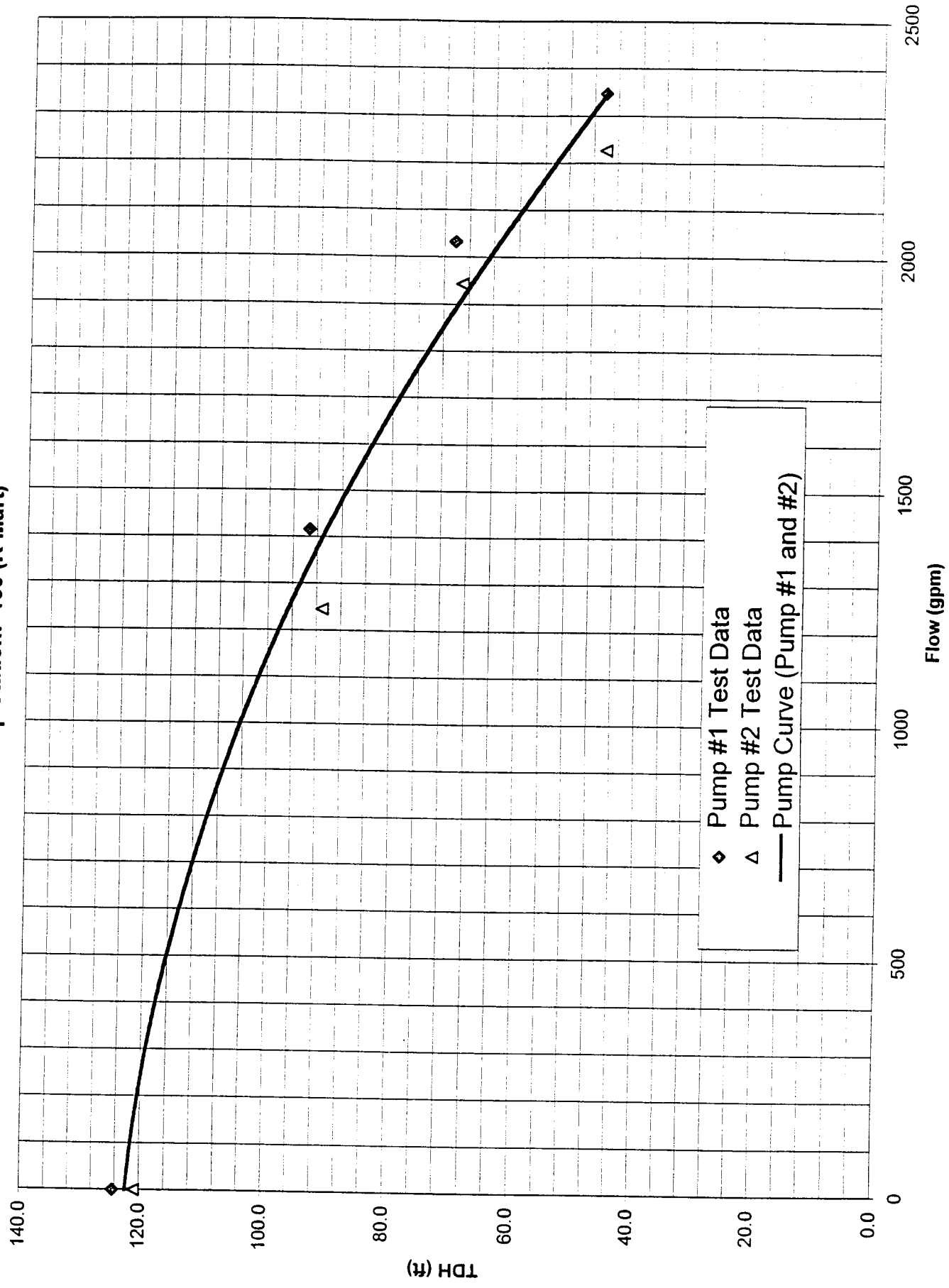


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 150

General Information

PS No. 150 PS Facility K-Mart

Address Desire at Old Gentilly Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter _____ inch

Model Number-Pump #1 unreadable Serial Number-Pump #1 unreadable

Model Number-Pump #2 unreadable Serial Number-Pump #2 KZE31527

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 1050 gpm 48 ft. of head 0 rpm

Pump Suction 6 inch Pump Discharge 6 inch FM Diameter 12 inch

Suction Valve Size 0 inch Discharge Valve Size 10 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 6 x 8 inch

Dry Well Dimensions 0 ft. dia. Length 10.5 ft. Width: 10.5 ft. Depth 25.3 ft.

Pump centerline* 2.5 ft. Centerline of discharge pipe* 0 ft.

* measured from dry well bottom.

Notes: The centreline of the discharge pipe is vertical.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 150

Pump Controls

Lead pump on 9 ft. Type of Controls bubbler
Lead pump off 3.5 ft.
Lag pump on 6 ft.
Lag pump off 2.5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is poor due to corrosion throughout.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 0 ft. Length 10.5 ft. Width 10.5 ft.

Bottom Depth* 20.7 ft.

Sewer Invert(s) Depth* 16.9 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 150

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device not available

Size of main protective device not available

Size of motor protective device 175 amps, dual element, fusible disconnect switch

Service wire size 350 kcmil Size of motor starter in NEMA 4

Motor wire size #4 AWG Motor Horsepower 100

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1185

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the two motors and service circuit breaker is poor due to corrosion. The physical condition of the motor controller and control panel is fair. The motor fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location

Pump Station 150 (K-Mart)



Photo Number 1

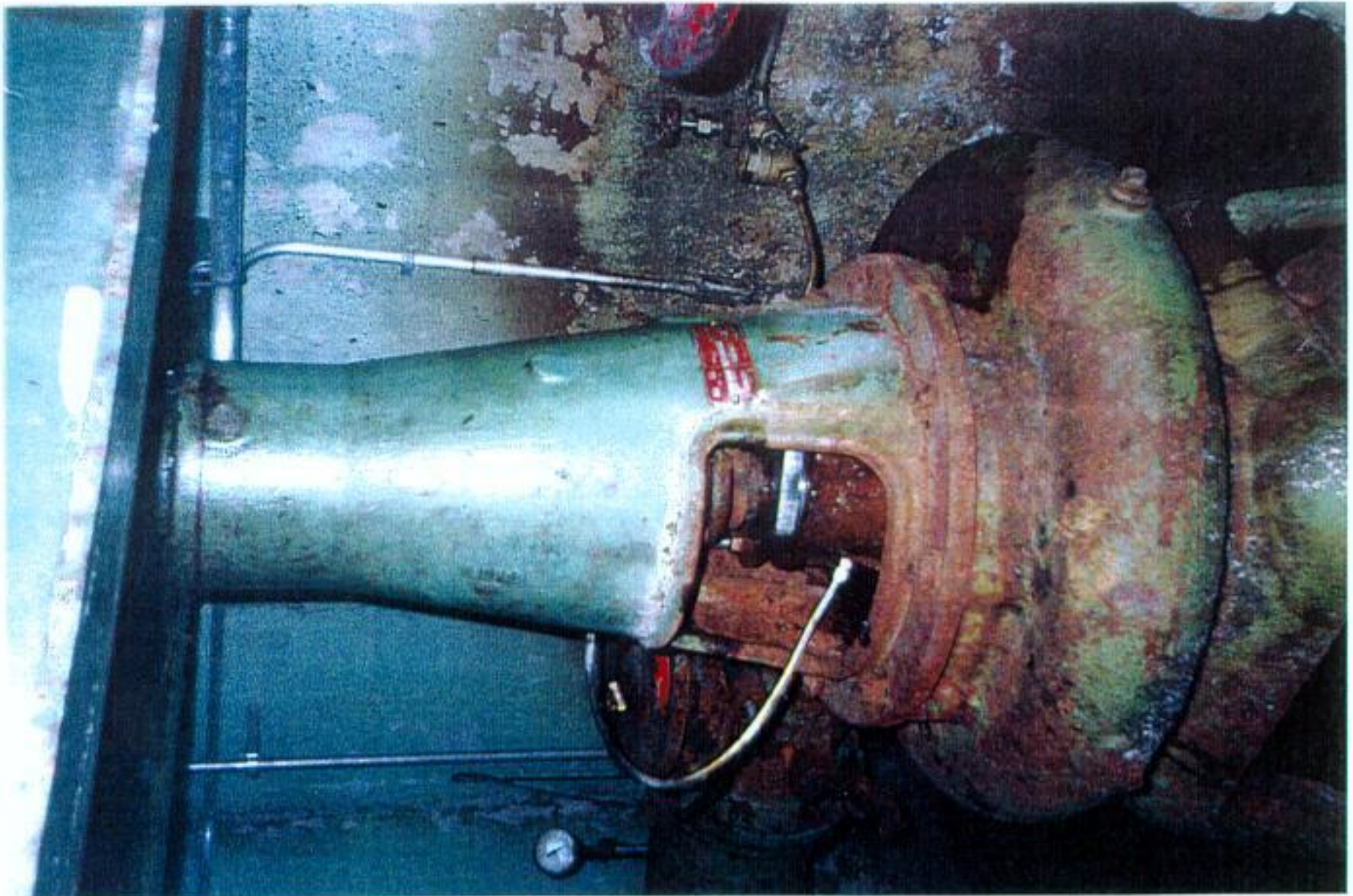


Photo Number 2

Pump Station 150 (K-Mart)



Photo Number 3



Photo Number 4

Pump Station 150 (K-Mart)

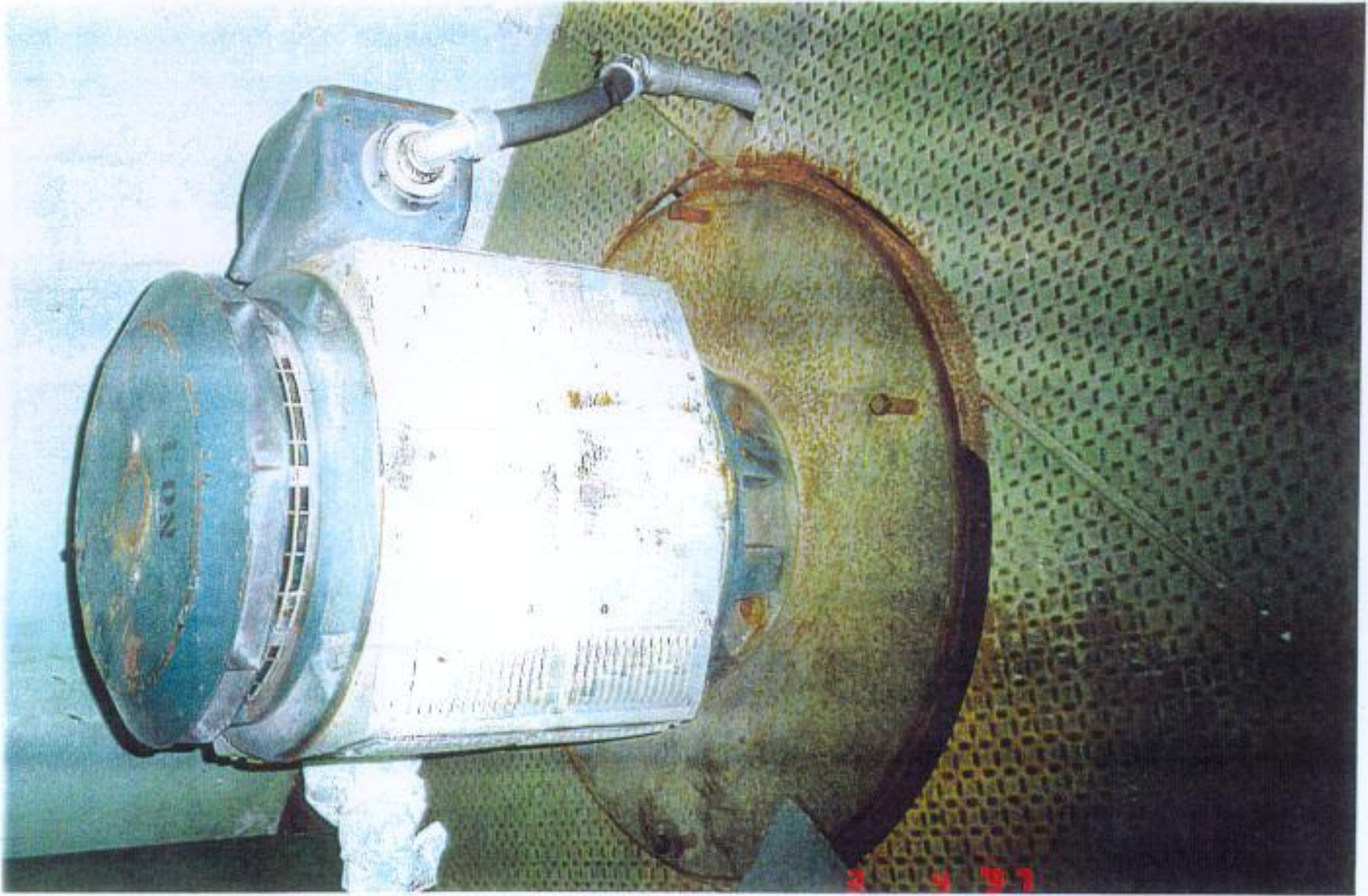


Photo Number 5



Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 151 (LAKE FOREST)
10451 LAKE FOREST BOULEVARD**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 151 (Lake Forest)

Pump Station 151 is a flooded-suction, can-type station located at 10451 Lake Forest Boulevard. Flow discharges the station via a 18-inch diameter force main and connects to the 24-inch portion of the Dwyer Road force main. Pump Station 151 repumps all flow from Pump Station 183 (Wright). Figure 1 shows the schematic subsystem surrounding Pump Station 151.

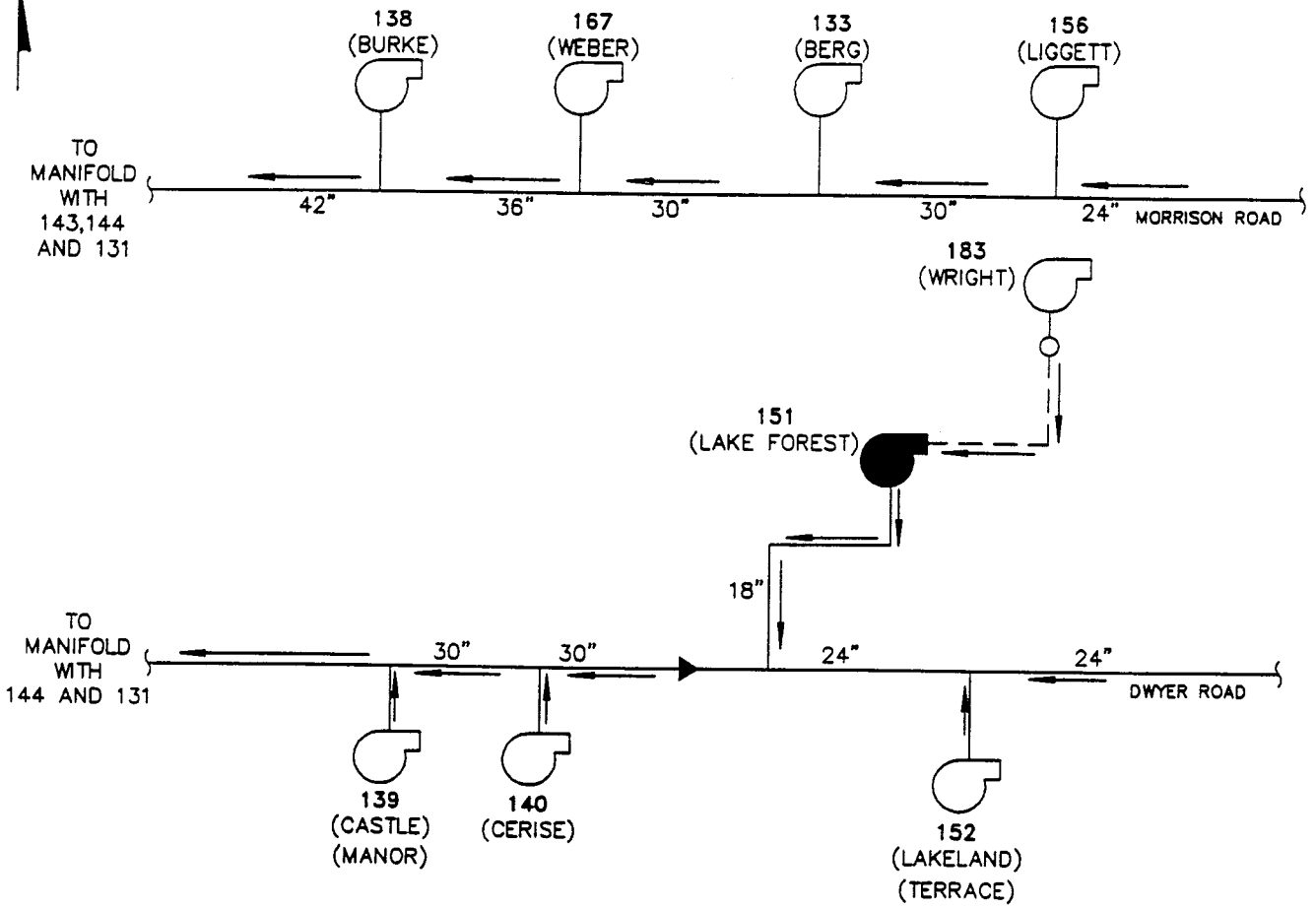
Pump Station 151 contains two (8-inch by 8-inch) Fairbanks Morse vertically aligned pumps with 16.1-inch impellers. Each pump is powered by a 75 horsepower (hp) Westinghouse electric motor operating at a speed of 1165 revolutions per minute (rpm). This equipment is housed in an 11-foot by 13-foot reinforced concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 26.3 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair although there is isolated corrosion located around the pumps as seen in the attached photos number 2 and 3.

Pump Station 151 collects wastewater from the surrounding gravity sewer system into a 20.2-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated 11-foot by 11-foot dimensions. The overall condition of the wet well appears to be fair.

The capacity of the pumps at this station should be similar to other operable (8-inch by 8-inch) Fairbanks Morse pumps. Figure 4 shows a reproduction of the manufacturer's pump curve which is the assumed pump curve for Pump Station 151.

Recommendations:

1. The physical condition of the motors, motor controller, electrical service disconnect switch and the control panel is poor due to corrosion and messy wiring. Also, it is noted that the motor wiring is undersized. It is recommended that these electrical issues be addressed.



	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 151 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

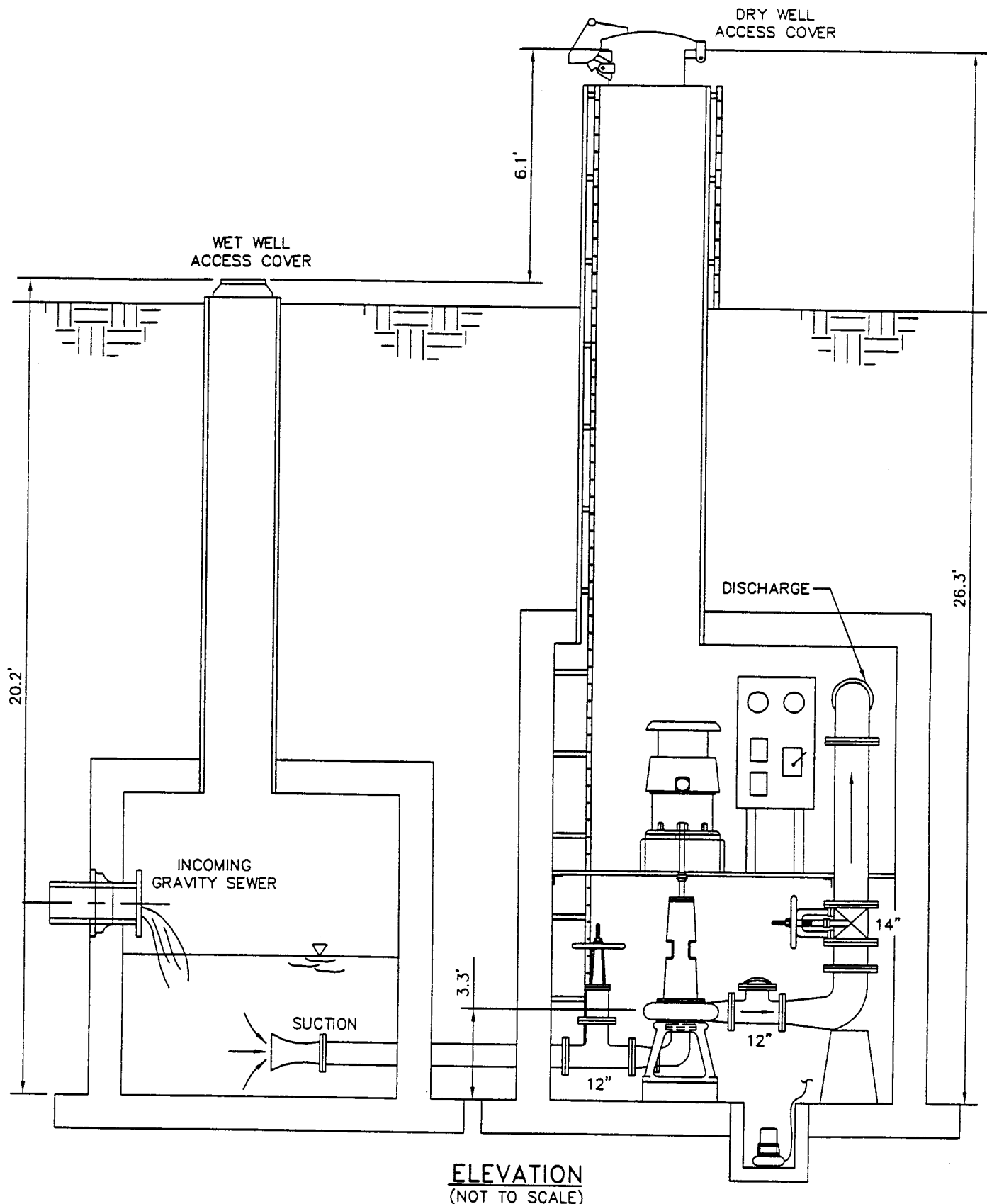
PUMP STATION 151 (LAKE FOREST)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

1

DATE:

3/28/97



ELEVATION
(NOT TO SCALE)

FILE NO.: 151-
 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

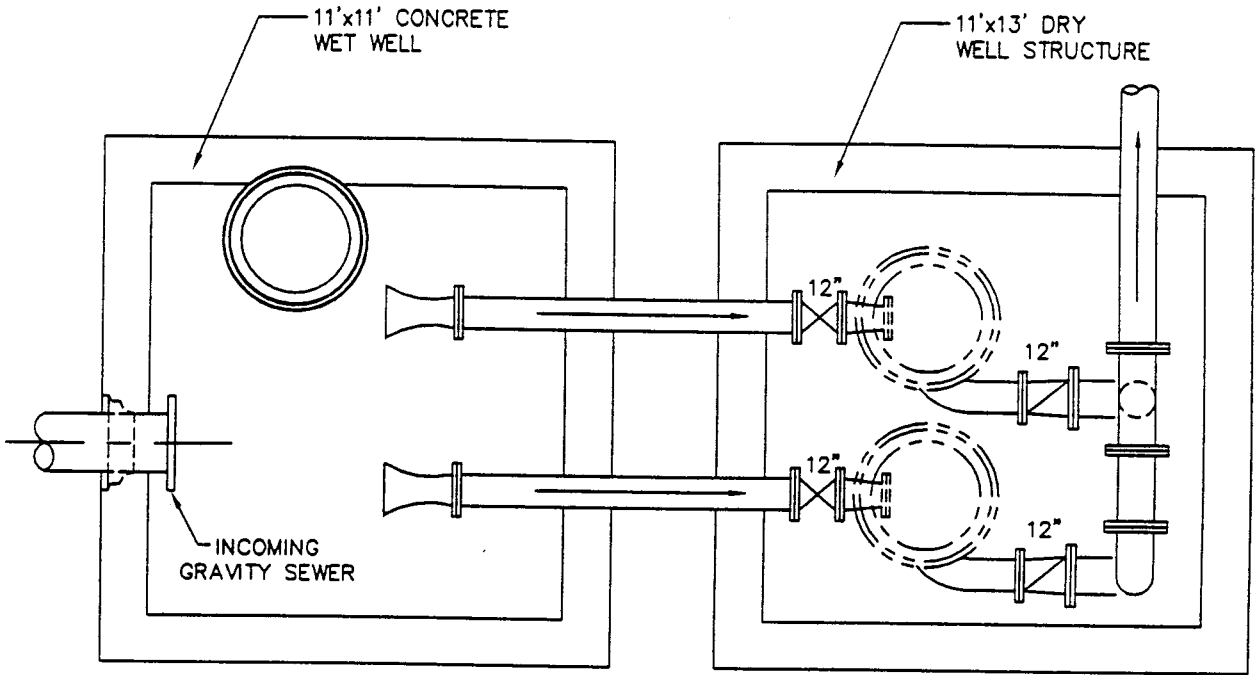
PUMP STATION 151 (LAKE FOREST)
CAN TYPE FLOODED SUCTION

FIGURE:

2

DATE:

3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 151-
JOB NO.: 111.3030.01090120 DATE: 3/28/97

	SEWERAGE AND WATER BOARD OF NEW ORLEANS
	MONTGOMERY WATSON

PUMP STATION 151 (LAKE FOREST)
CAN TYPE FLOODED SUCTION

FIGURE:	3
DATE:	3/28/97

Pump Station: 151 (Lake Forest)

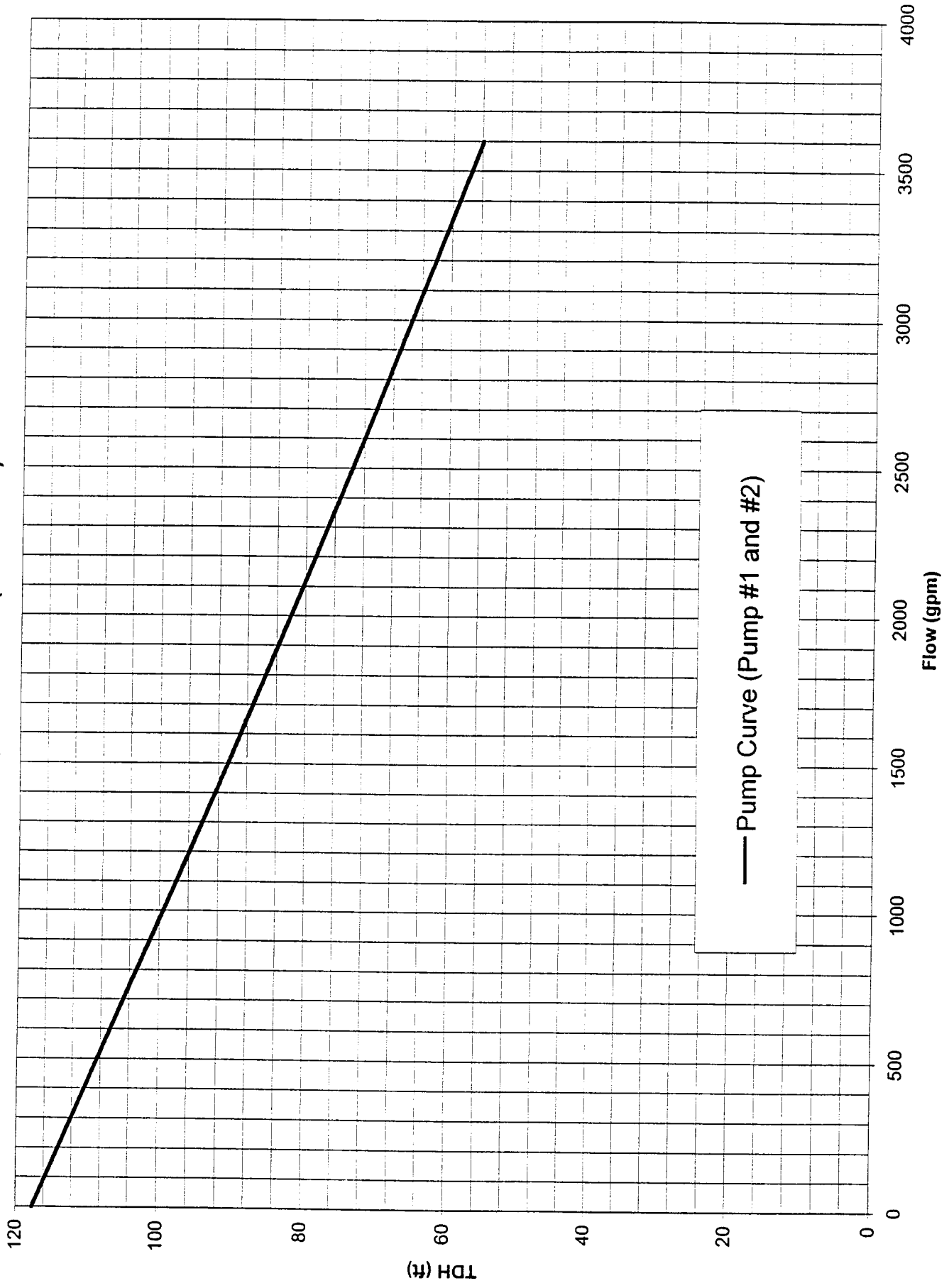


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 151

General Information

PS No. 151 PS Facility Lake Forest Address 10451 Lake Forest Boulevard

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 K2T1067599-1

Model Number-Pump #2 not available Serial Number-Pump #2 K2T1067599-2

Model Number-Pump #3 _____ Serial Number-Pump #3 -

Model Number-Pump #4 _____ Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 2800 gpm 35 ft. of head 860 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 18 inch

Suction Valve Size 12 inch Discharge Valve Size 14 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 12 inch

Dry Well Dimensions 0 ft. dia. Length 11 ft. Width: 13 ft. Depth 26.3 ft.

Pump centerline* 3.3 ft. Centerline of discharge pipe* 12 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 151

Pump Controls

Lead pump on 7 ft. Type of Controls bubbler
Lead pump off 2 ft.
Lag pump on 8 ft.
Lag pump off 3 ft.

Notes: speed (2) 9,5,10,6;

Structural Observations

Exterior The overall condition of the exterior is fair except for access drive.

Interior The overall condition of the interior is fair except for isolated corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 0 ft. Length 11 ft. Width 11 ft.

Bottom Depth* 20.2 ft.

Sewer Invert(s) Depth* _____ ft.

 0 ft.

**measured from top of wet well cover.*

Pump Station 151 (Lake Forest)



Photo Number 1



Photo Number 2

Pump Station 151 (Lake Forest)

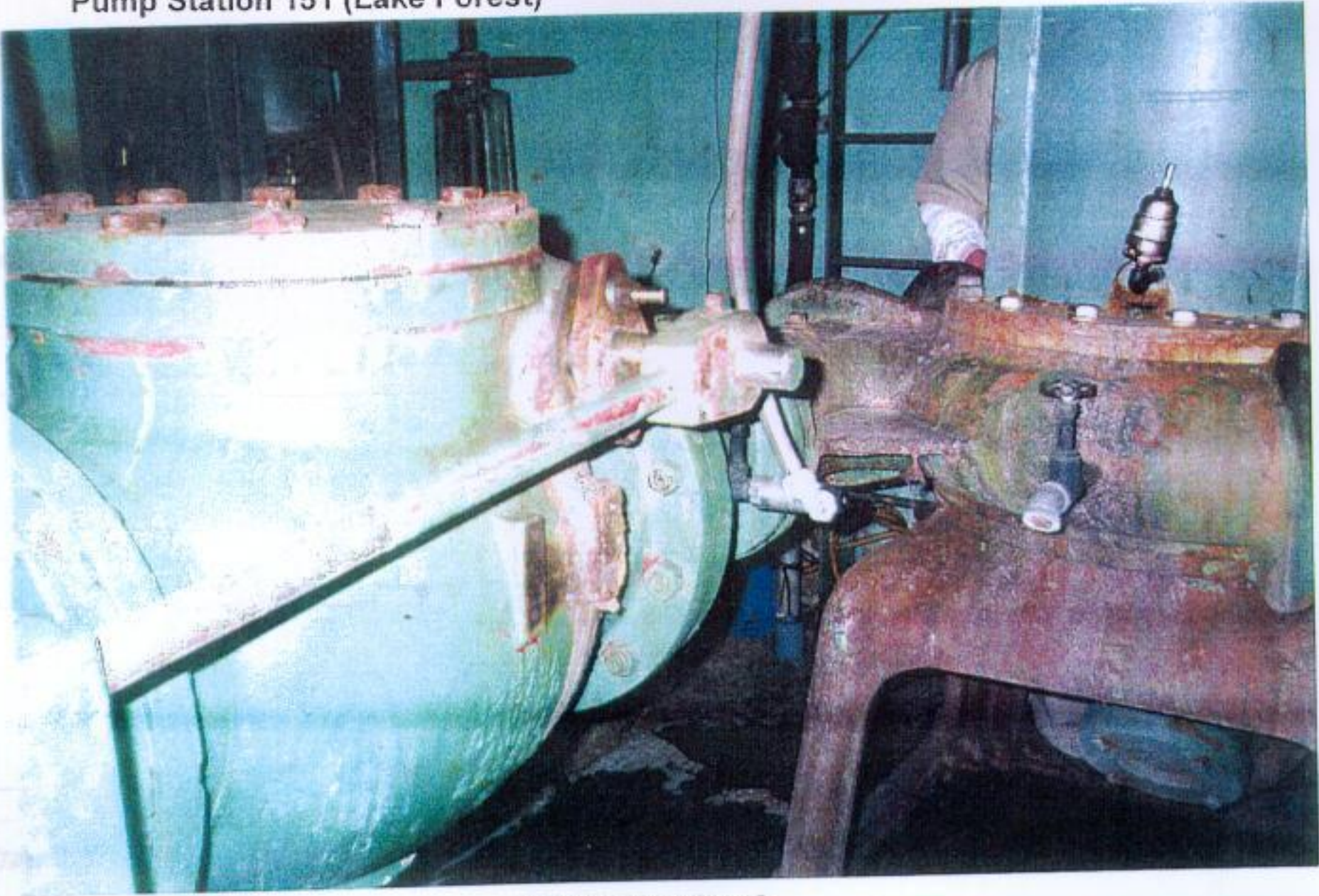


Photo Number 3

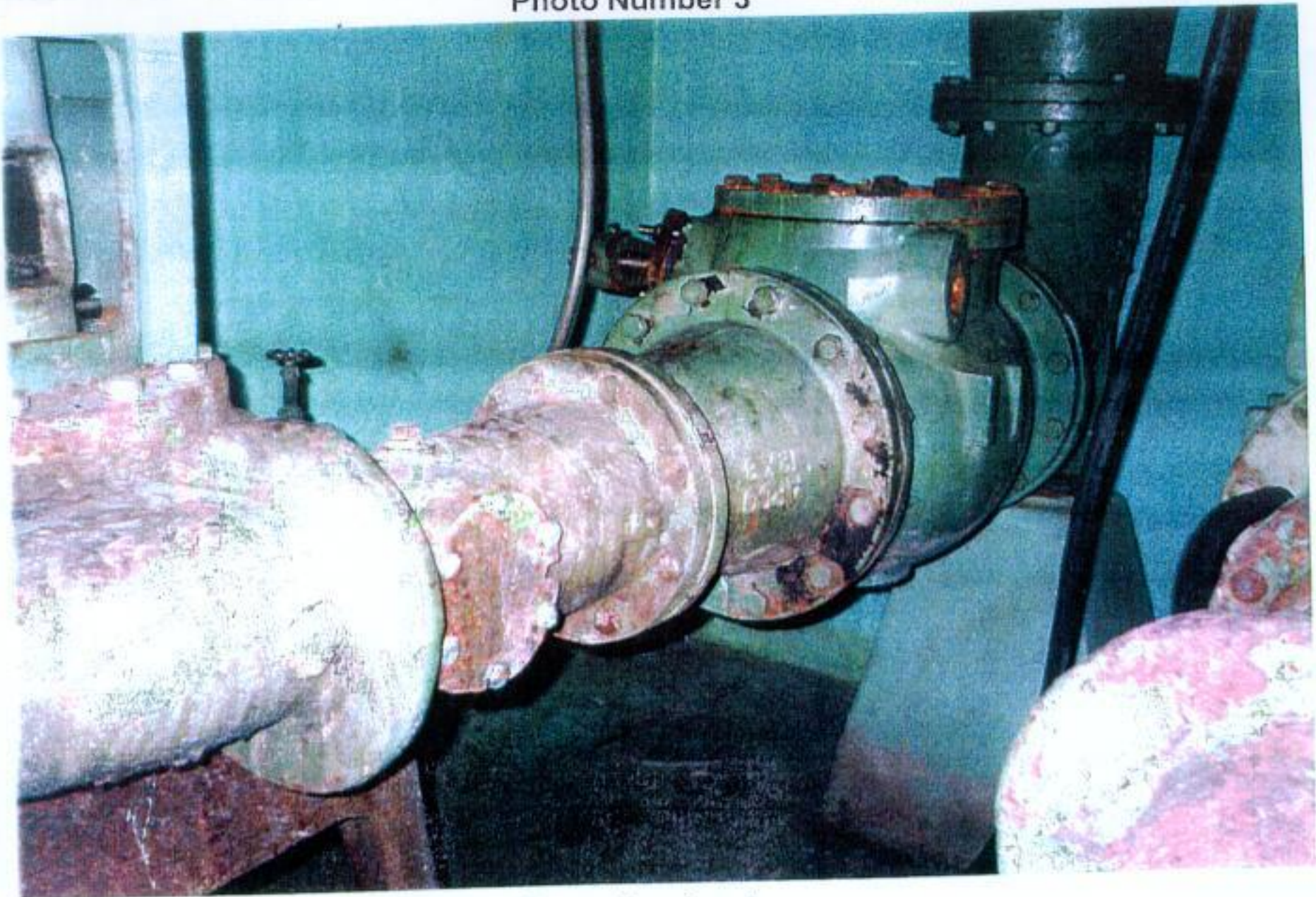


Photo Number 4

Pump Station 151 (Lake Forest)



Photo Number 5

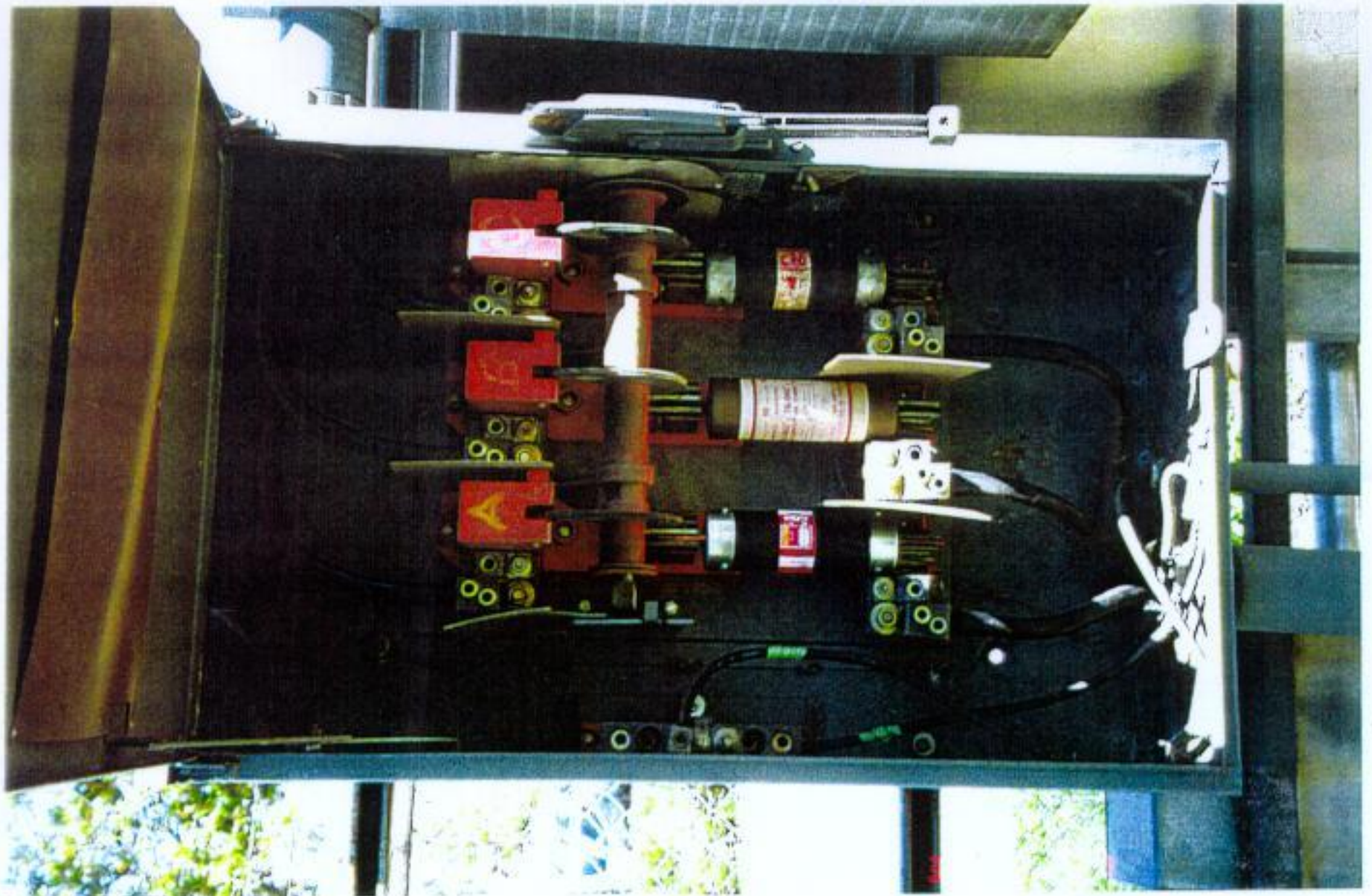


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 152 (LAKELAND TERRACE)
5057 WARREN DRIVE**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 152 (Lakeland Terrace)

Pump Station 152 is a bi-level, suction-lift station located at 5057 Warren Drive. Flow discharges the station and connects to the 24-inch portion of the Dwyer Road force main. Pump Station 152 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 152.

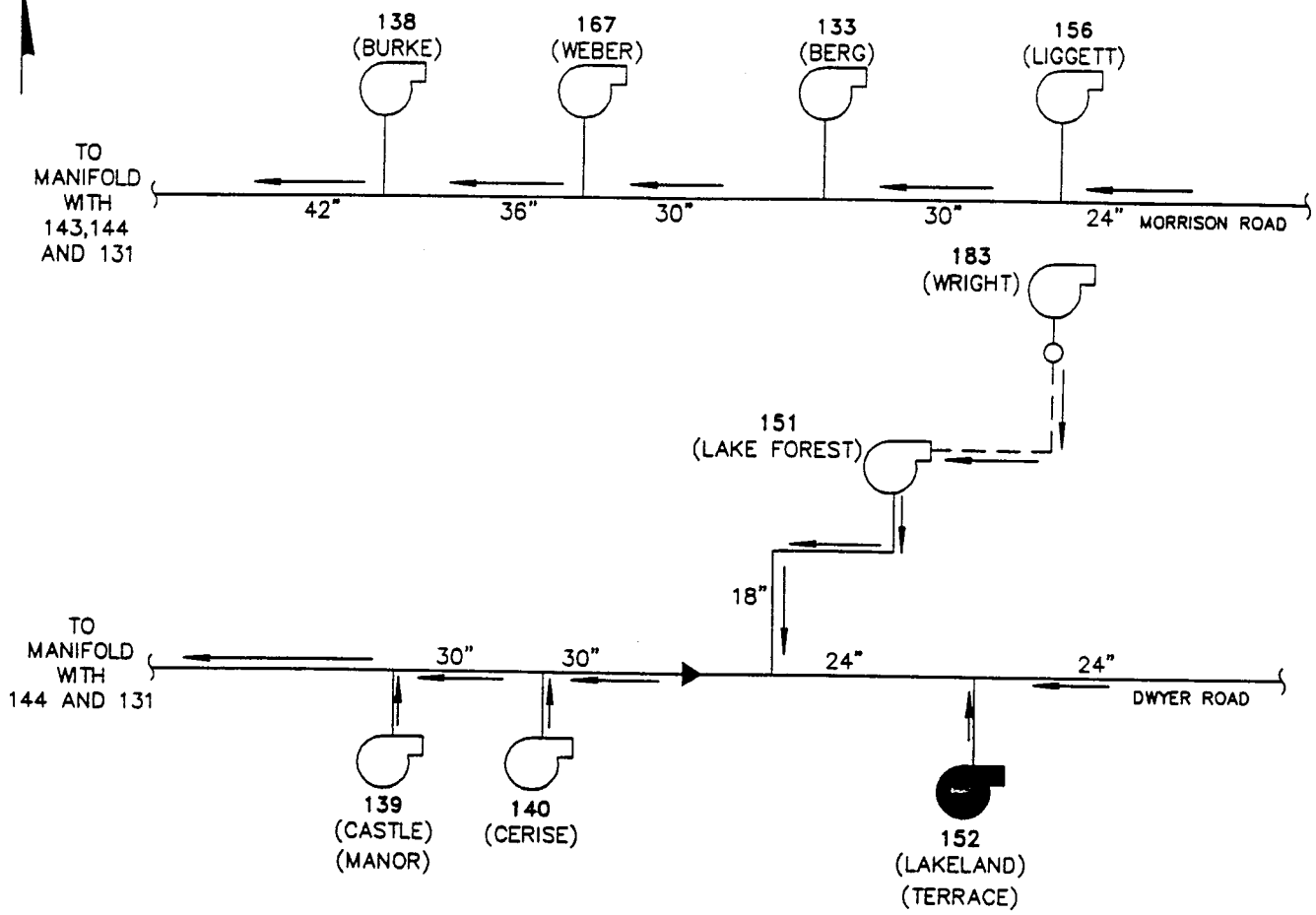
Pump Station 152 contains two (6-inch by 6-inch) Nash horizontally aligned pumps. Each pump is powered by a 60 horsepower (hp) General Electric motor operating at a speed of 1770 revolutions per minute (rpm). This equipment is housed in an 11.2-foot by 12.5-foot brick/block dry well structure, partially below grade.. The total depth of the dry well from the floor of the motor control room to the bottom is 6.9 feet. Figures 2 and 3 provide front and elevation views of the station. The overall condition of the station is fair although there is isolated corrosion located around the pumps as seen in the attached photos.










Pump Station 152 collects wastewater from the surrounding gravity sewer system into a 14-foot deep cement-lined brick wet well. The cross sectional area of the wet well is circular with an estimated 6-foot diameter. The cement lining has completely deteriorated throughout the interior surface of the wet well suggesting a corrosion problem.

The Doppler meter was used to determine the capacity of Pump Station 152. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 2700 gallons per minute (gpm) at 52 feet of head. The shut-off head of both pumps was found to be 110 feet.

Recommendations:

1. An initial observation of the wet well suggests that corrosion is occurring. The extent of the damage should be further investigated and corrected as necessary.



-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

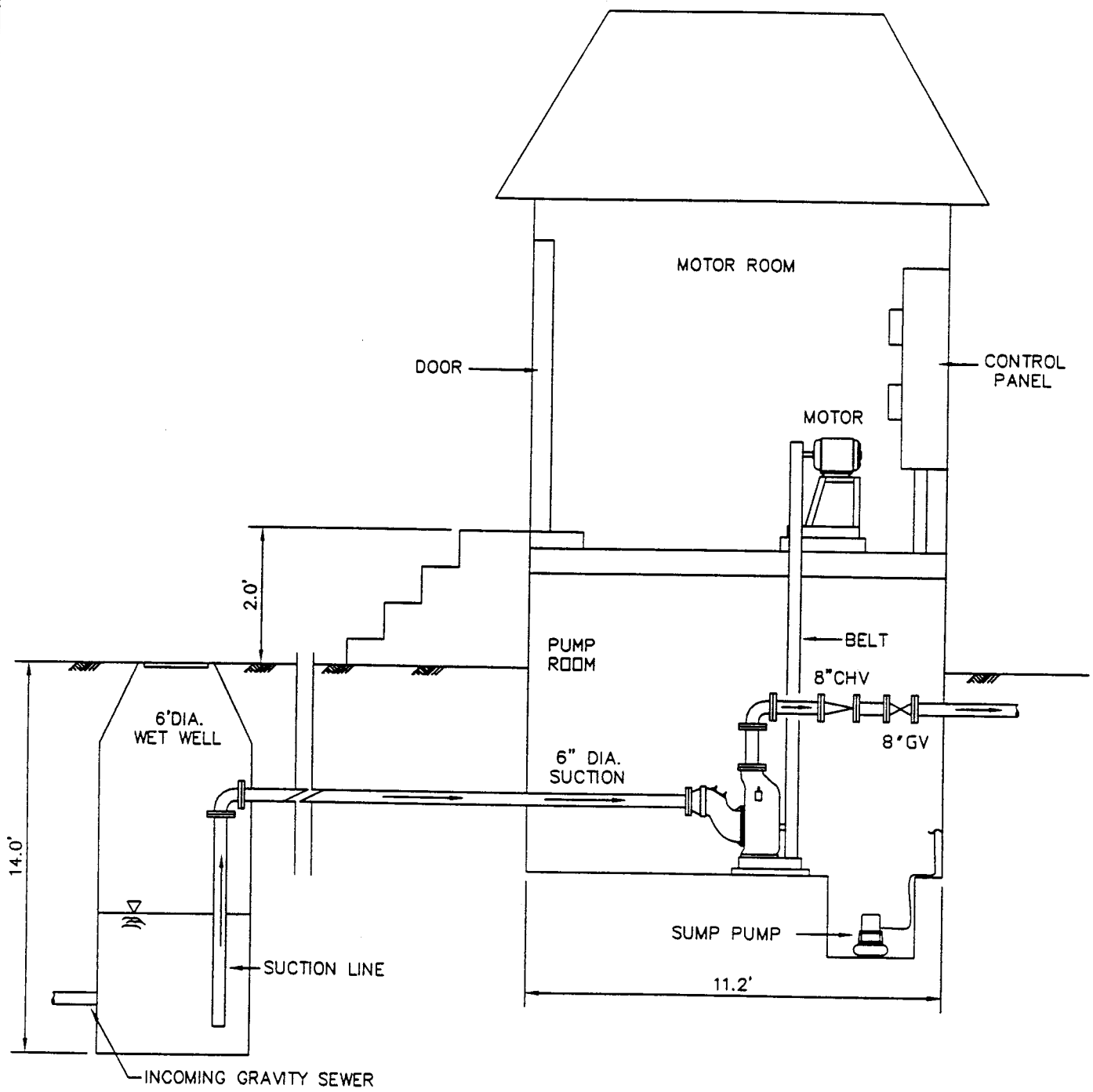
FILE NO.: 152 JOB NO.: 1113030.01090120 DATE: 3/28/97



PUMP STATION 152 (LAKELAND TERRACE)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97

FILE NO.: 15. JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)

 **SEWERAGE AND WATER BOARD**
OF NEW ORLEANS

 **MONTGOMERY WATSON**

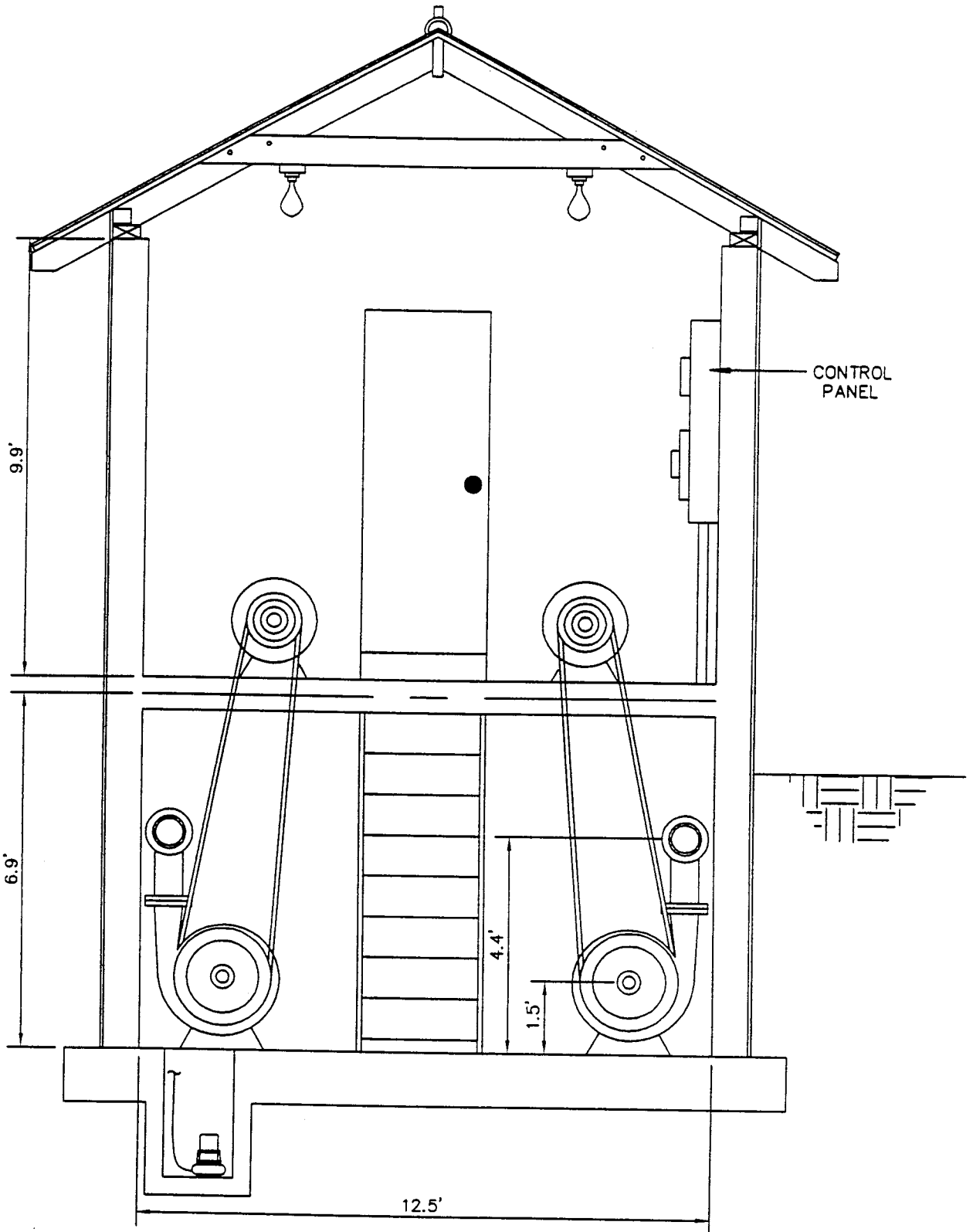
PUMP STATION 152 (LAKELAND TERRACE)
BI-LEVEL SUCTION LIFT

FIGURE:

2

DATE:

3/28/97



FRONT VIEW
(NOT TO SCALE)

FILE NO.: 152 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 152 (LAKELAND TERRACE)
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/28/97

Pump Station: 152 (Lakeland Terrace)

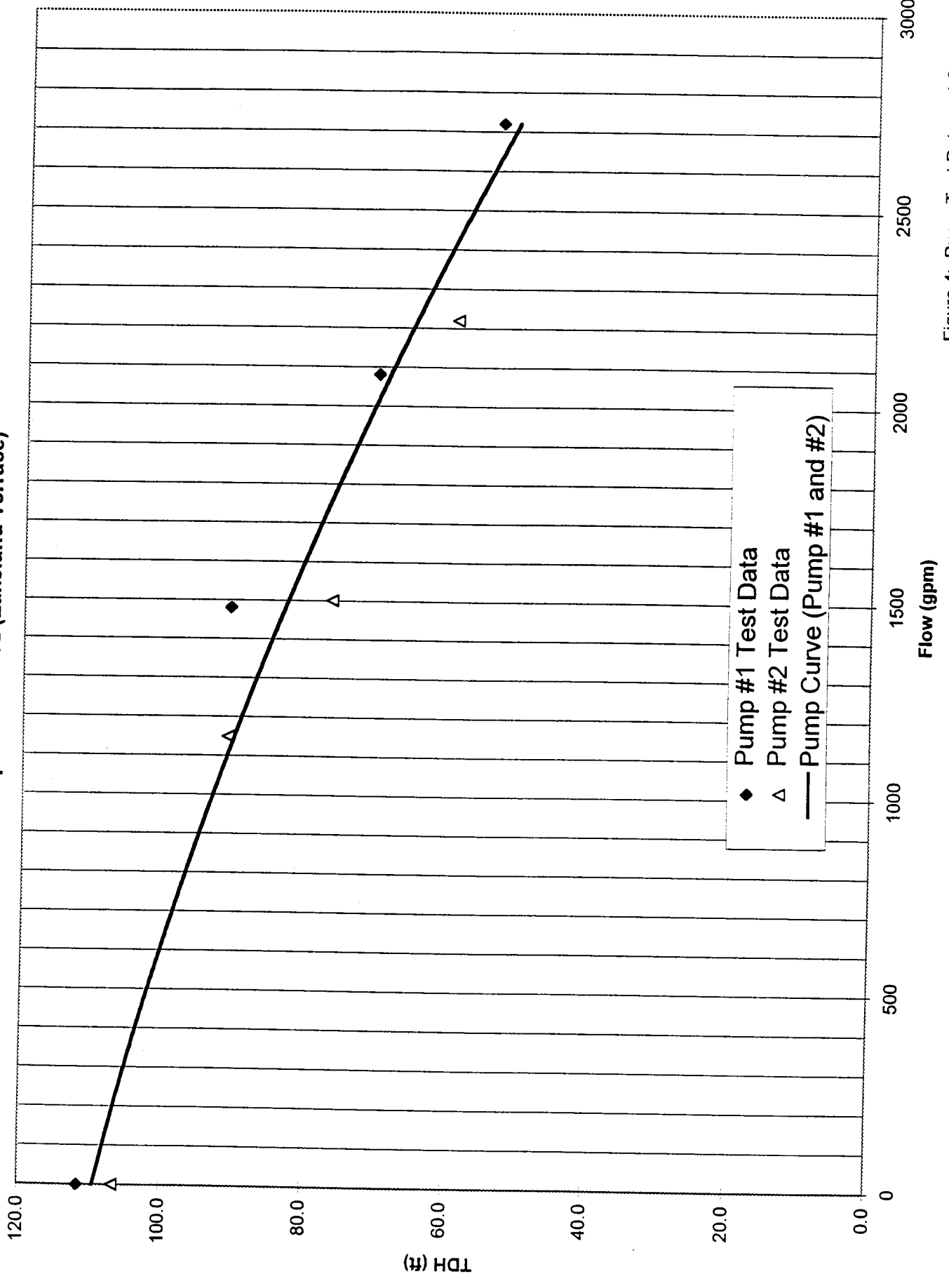


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 152

General Information

PS No. 152 PS Facility Lakeland Terrace Address 5057 Warren Drive

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer unreadable

Impeller Diameter 0 inch

Model Number-Pump #1 unreadable Serial Number-Pump #1 unreadable

Model Number-Pump #2 unreadable Serial Number-Pump #2 unreadable

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 6 inch Pump Discharge 6 inch FM Diameter 8 inch

Suction Valve Size 0 inch Discharge Valve Size 8 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 8 inch

Dry Well Dimensions 0 ft. dia. Length 12.5 ft. Width: 11.2 ft. Depth 6.9 ft.

Pump centerline* 1.5 ft. Centerline of discharge pipe* 4.4 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? # 2

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 152

Pump Controls

Lead pump on 6 ft. Type of Controls bubbler
Lead pump off 3 ft.
Lag pump on 7 ft.
Lag pump off 3 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair except for isolated corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition The cement lining is badly deteriorated.

Comments _____

Diameter 6 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 14 ft.

Sewer Invert(s) Depth* 14 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 152

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device _____

Size of main protective device 200 amps, dual element, fusible disconnect switch

Size of motor protective device 175 amps, dual element, fusible disconnect switch

Service wire size #4/0 AWG Size of motor starter in NEMA 4

Motor wire size #2/0 AWG Motor Horsepower 125

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1770

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # not available Serial Number - Motor # not available

Model Number - Motor # - _____ Serial Number - Motor # - _____

Model Number - Motor # - _____ Serial Number - Motor # - _____

Comments The physical condition of motors, motor controller and controller panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The pump station has aluminum conduit.

Pump Station 152 (Lakeland Terrace)



Photo Number 1

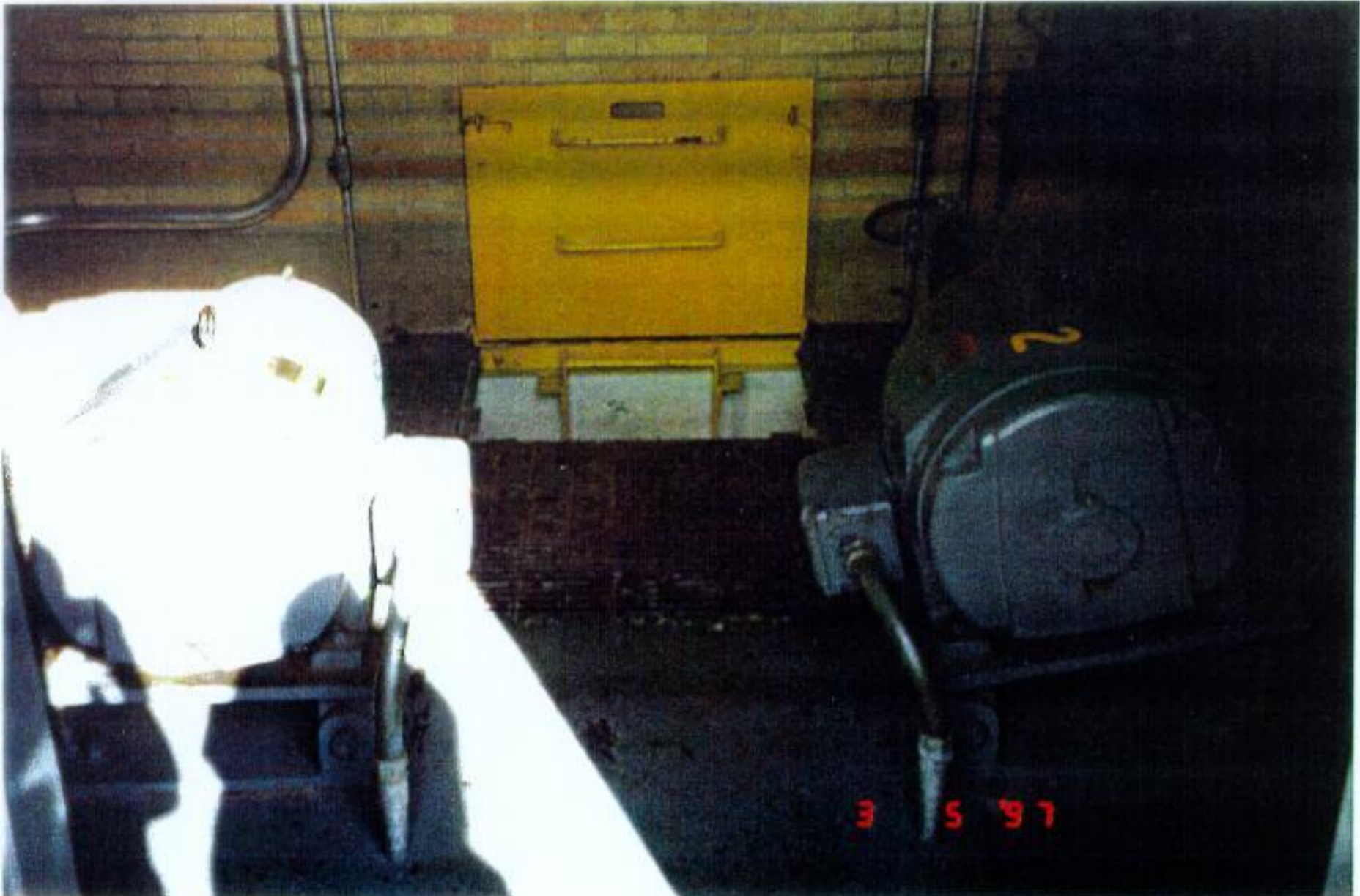


Photo Number 2

Pump Station 152 (Lakeland Terrace)



Photo Number 3

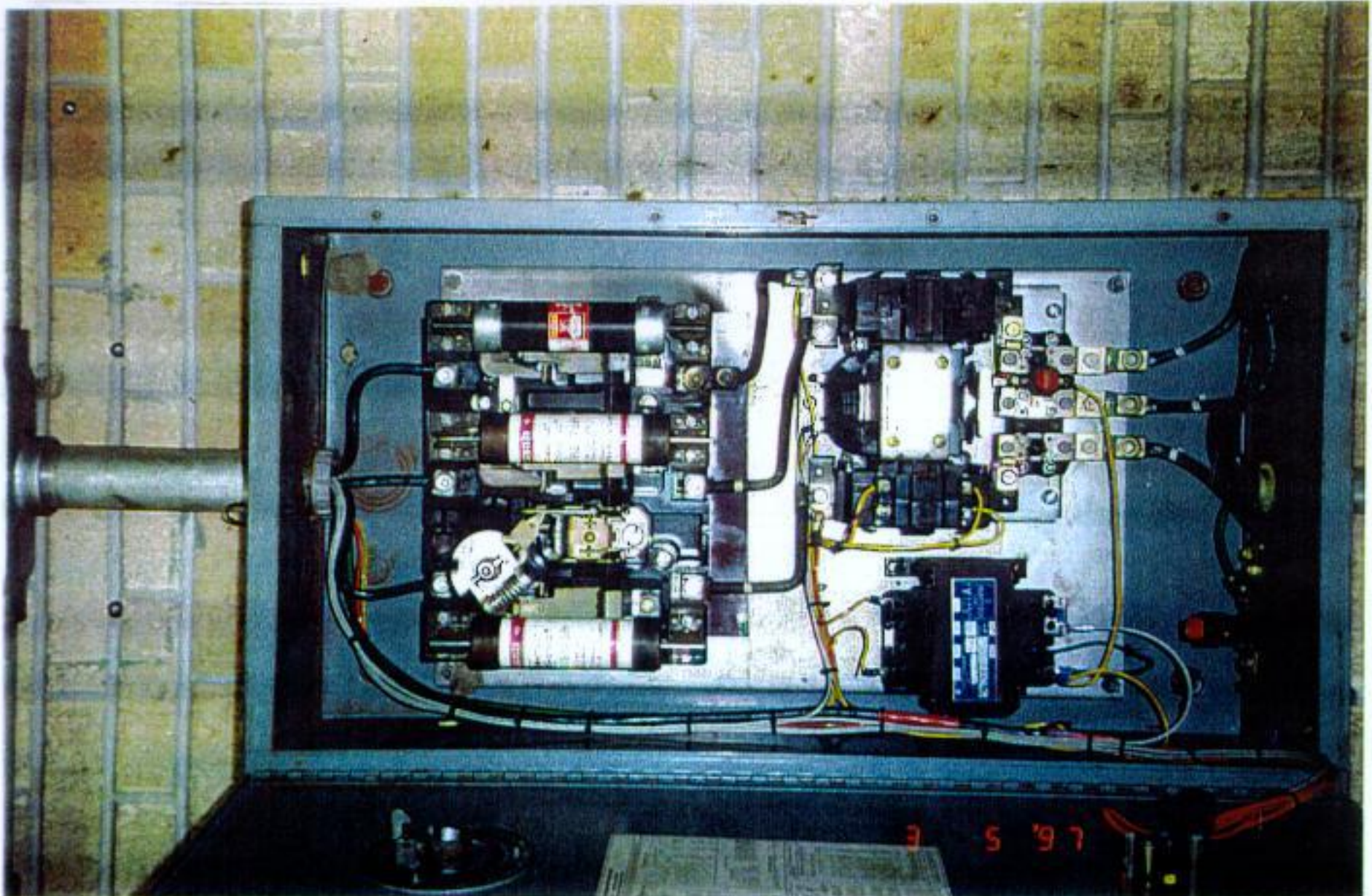


Photo Number 4

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 153 (LAKEWOOD SOUTH)
COUNTRY CLUB DRIVE AT MARCIA**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 153 (Lakewood South)

Pump Station 153 is a flooded-suction, can-type station located at the intersection of Marcia and Country Club Drive. Flow discharges the station via a 12-inch diameter force main and ultimately connects to the 36-inch portion of the Florida Avenue force main. Pump Station 153 does not repump flow from any other station however, its flow gets repumped by Pump Station 187 ("D"). Figure 1 shows the schematic subsystem surrounding Pump Station 153.

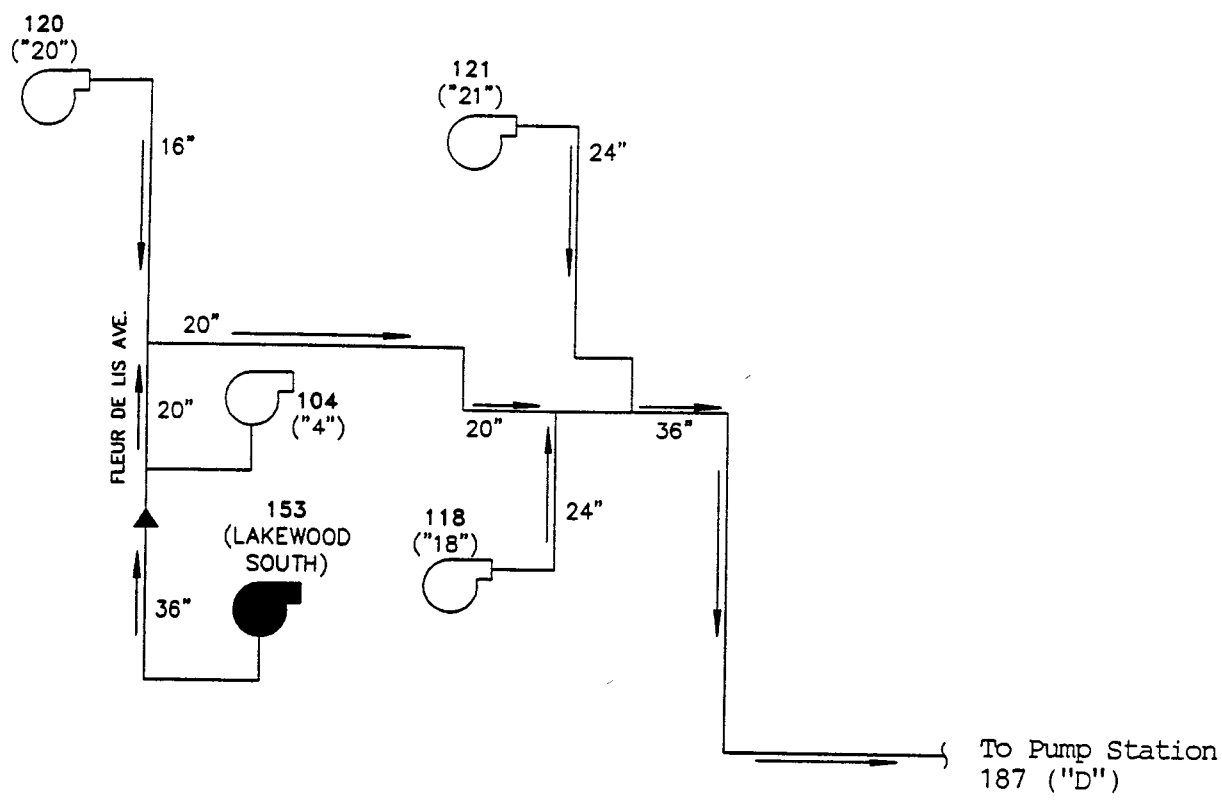
Pump Station 153 contains two (8-inch by 6-inch) Yeoman Brothers vertically aligned pumps. Each pump is powered by a 40 horsepower (hp) Westinghouse electric motor operating at a speed of 1175 revolutions per minute (rpm). This equipment is housed in a 10.8-foot by 12.8-foot reinforced concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 22.0 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair although there is isolated corrosion located around the pumps as seen in photo number 4 and 5.

Pump Station 153 collects wastewater from the surrounding gravity sewer system into a 19.5-foot deep concrete-lined, brick wet well. The cross sectional area of the wet well is circular with estimated 10.5-foot diameter. The overall condition of the wet well appears to be good.

A draw down/fill test was conducted to determine the capacity of Pump Station 153. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 1350 gallons per minute (gpm) at 42 feet of head. The shut-off head of both pumps was found to be 90 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 1700 gpm at 65 feet of head.

Recommendations:

1. It is noted that the motor protective device is undersized. It is recommended that this issue be addressed.



FILE NO.: 15. JOB NO.: 1113030.01090120 DATE: 3/28/97

	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EBSTP EAST BANK SEWERAGE TREATMENT PLANT

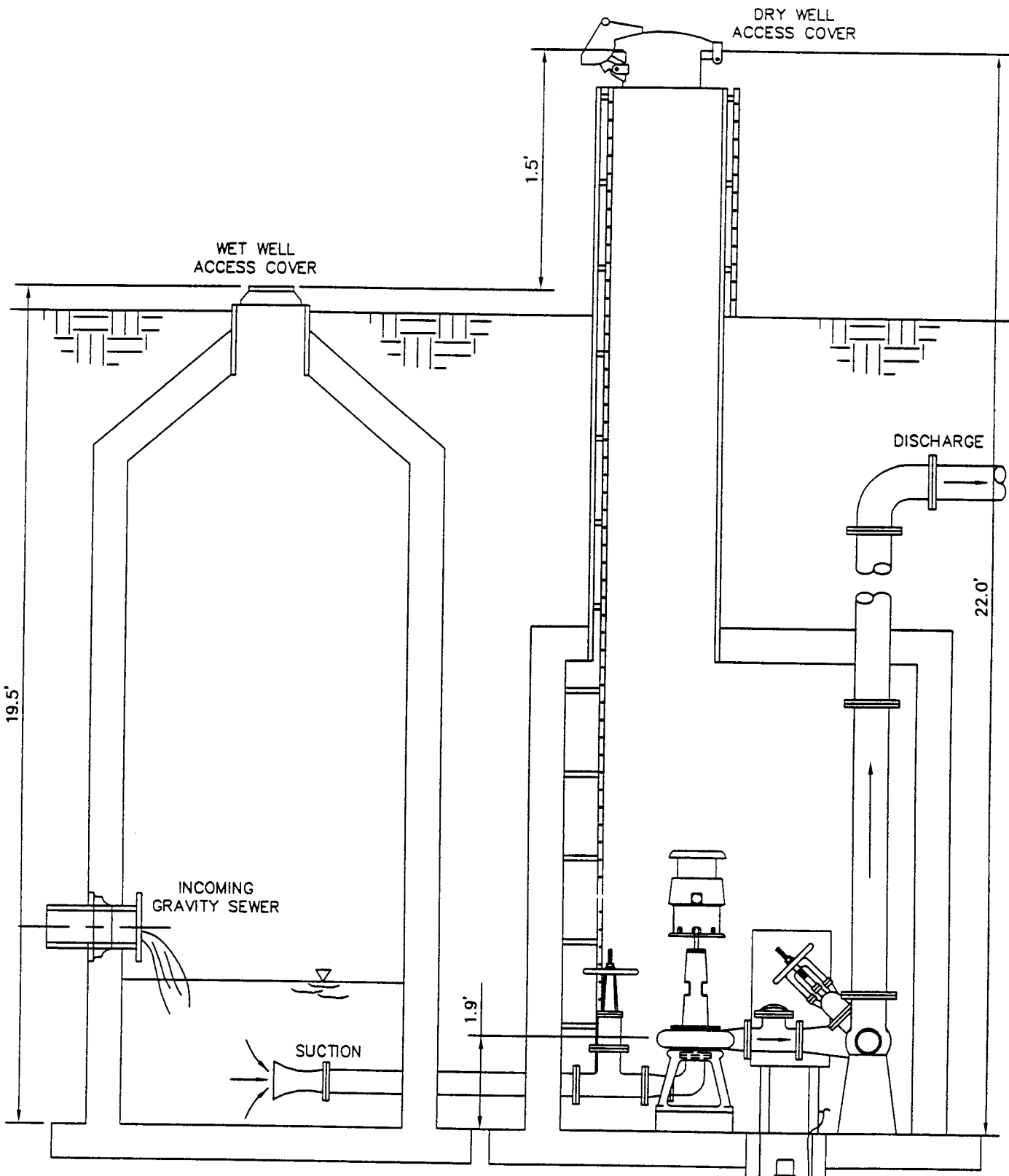
NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.



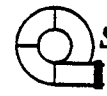
PUMP STATION 153 (LAKEWOOD SOUTH)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97

FILE NO.: 152 JOB NO.: 111.3030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

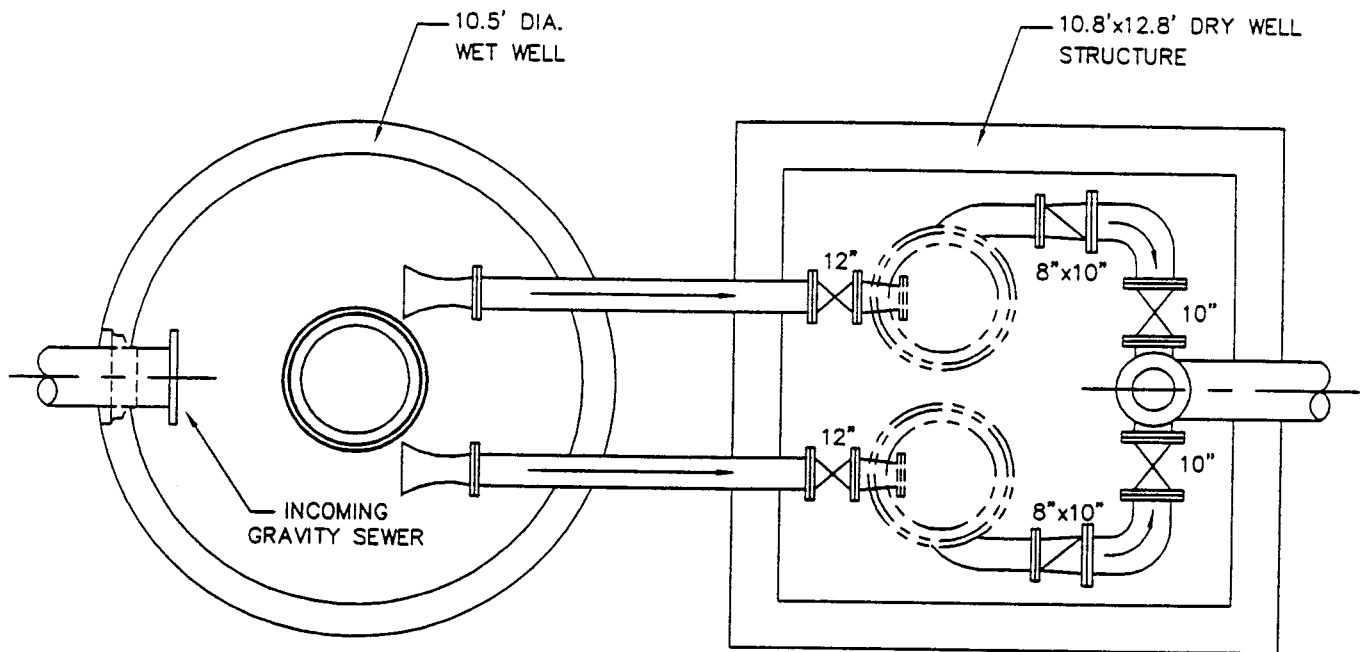
PUMP STATION 153 (LAKEWOOD SOUTH)
CAN TYPE FLOODED SUCTION

FIGURE:

2

DATE:

3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 15. JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 153 (LAKEWOOD SOUTH)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 153 (Lakewood South)

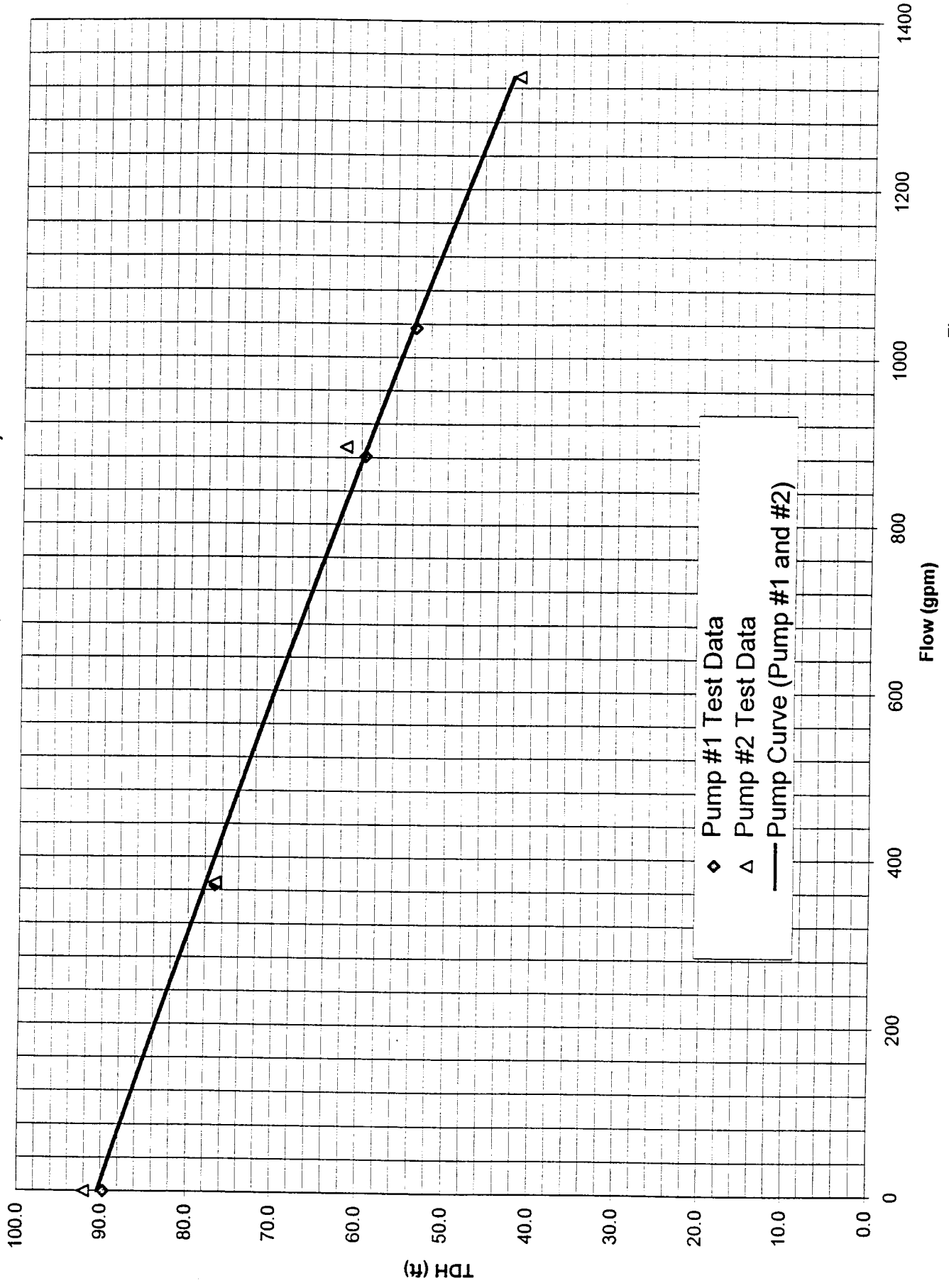


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 153

General Information

PS No. 153 PS Facility Lakewood South Address Country Club Drive at Marcia

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes It's flow gets repumped by pump station ("D")

Pump Information

Number of Pumps 2 Pump Manufacturer Yeoman Brothers

Impeller Diameter 0 inch

Model Number-Pump #1 unreadable Serial Number-Pump #1 53702

Model Number-Pump #2 unreadable Serial Number-Pump #2 53702

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 1000 gpm 72 ft. of head 0 rpm

Pump Suction 8 inch Pump Discharge 6 inch FM Diameter 12 inch

Suction Valve Size 12 inch Discharge Valve Size 10 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 8 x 10 inch

Dry Well Dimensions 0 ft. dia. Length 10.8 ft. Width: 12.8 ft. Depth 22 ft.

Pump centerline* 1.9 ft. Centerline of discharge pipe* _____ ft.

* measured from dry well bottom.

Notes: The centreline of the discharge pipe is vertical.

Operational Observations

Do check valves operate properly? Yes No Which One? _____
 Do discharge valves operate properly? Yes No Where? _____
 Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 153

Pump Controls

Lead pump on 7 ft. Type of Controls bubbler
Lead pump off 3 ft.
Lag pump on 0 ft.
Lag pump off 0 ft.

Notes: 1 pump only.

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.
Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition There is a concrete liner present.

Comments _____

Diameter 10.5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 19.5 ft.

Sewer Invert(s) Depth* 15 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 153

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device 200 amps, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 70 amps, fusible disconnect switch

Service wire size #3/0 AWG Size of motor starter in NEMA 3

Motor wire size #4 AWG Motor Horsepower 40

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1175

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor #1 ABDP Serial Number - Motor # 1 23N5768

Model Number - Motor #2 ABDP Serial Number - Motor # 2 23N5768

Model Number - Motor #3 - Serial Number - Motor # 3 -

Model Number - Motor #4 - Serial Number - Motor # 4 -

Comments The physical condition of the motors, motor controller, service disconnect switch and control panel is fair. The pump station has a fusible disconnect switch. The motor protective device is undersize

Pump Station 153 (Lakewood South)



Photo Number 1



Photo Number 2

Pump Station 153 (Lakewood South)



Photo Number 3

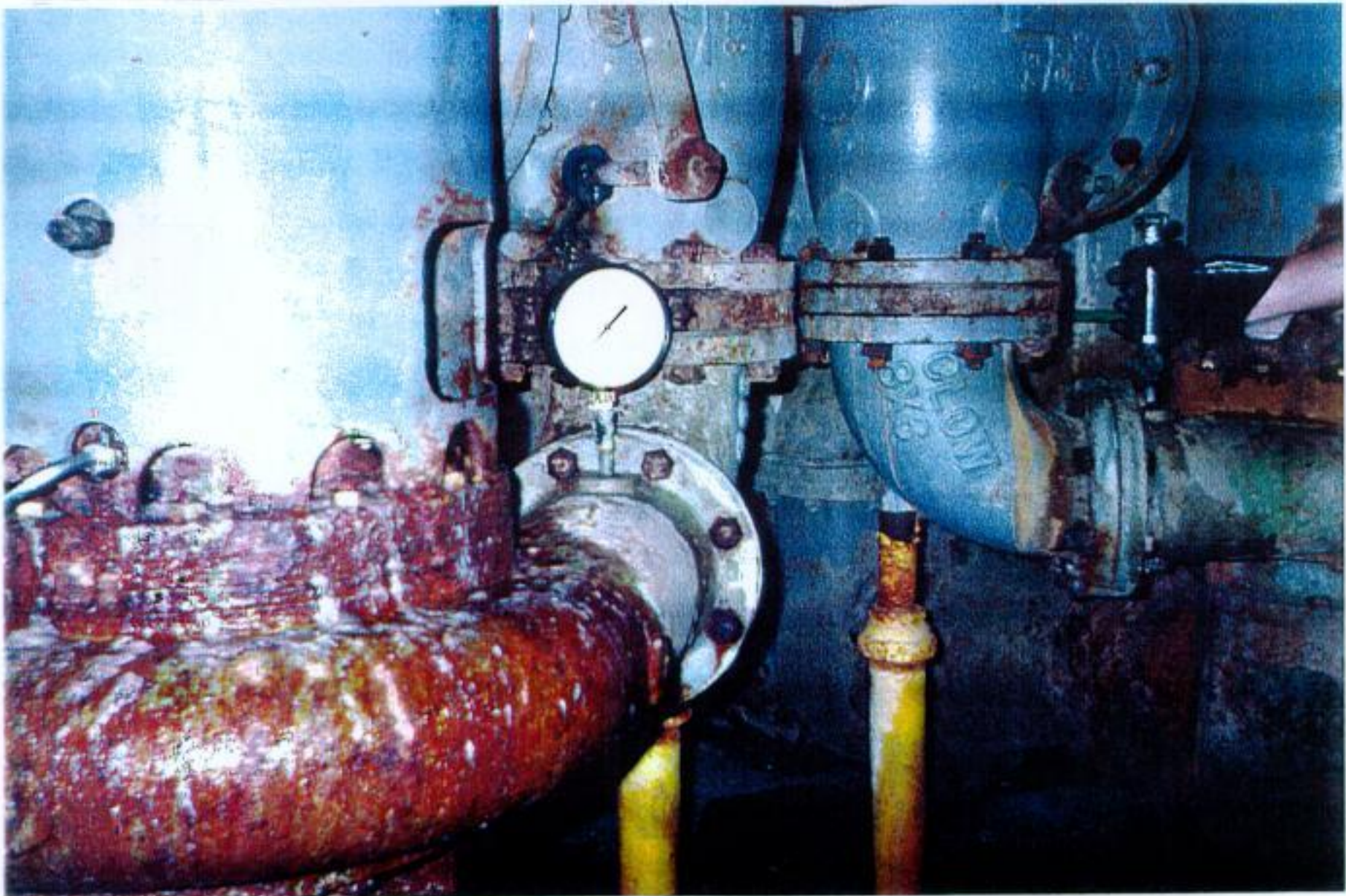


Photo Number 4

Pump Station 153 (Lakewood South)

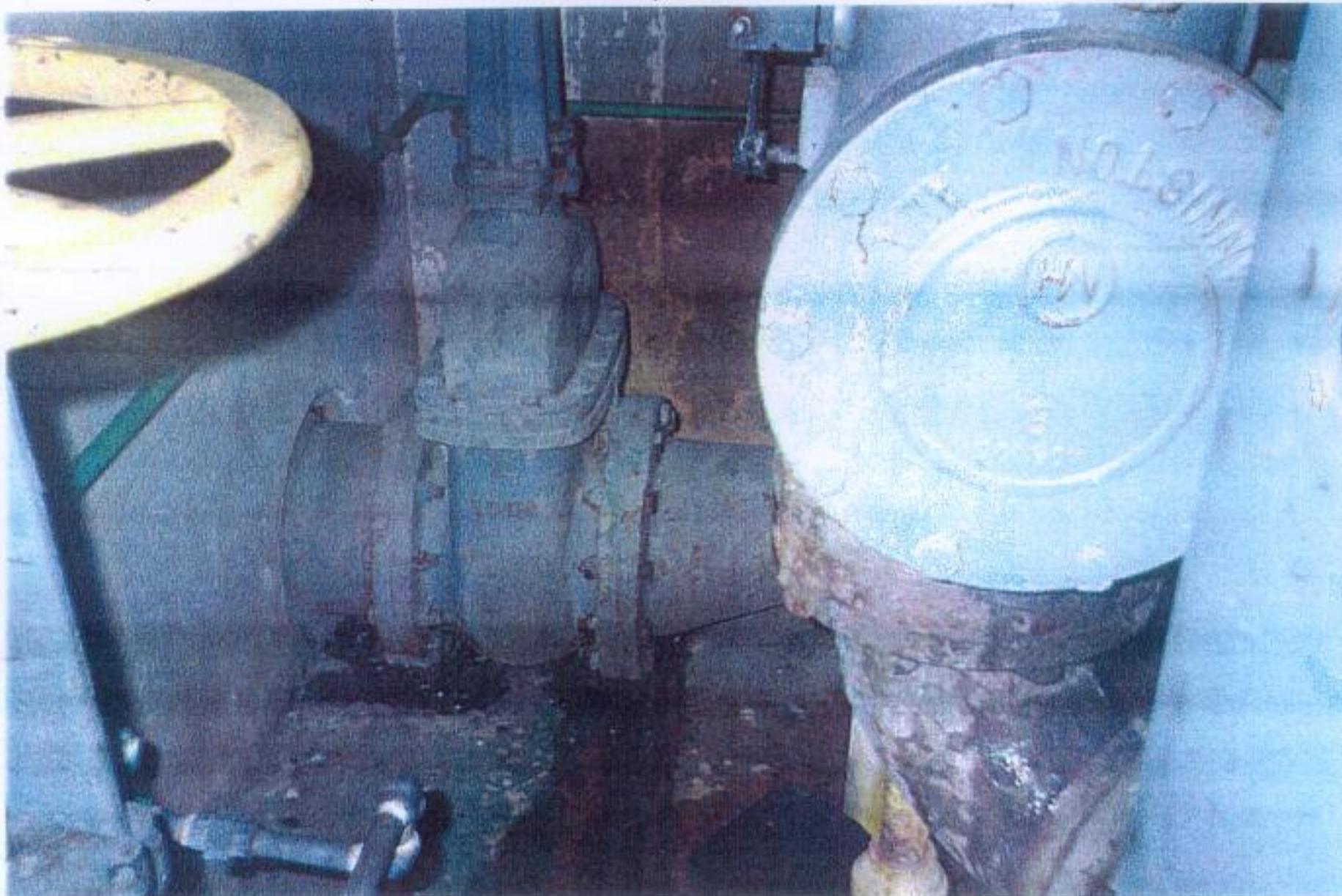


Photo Number 5

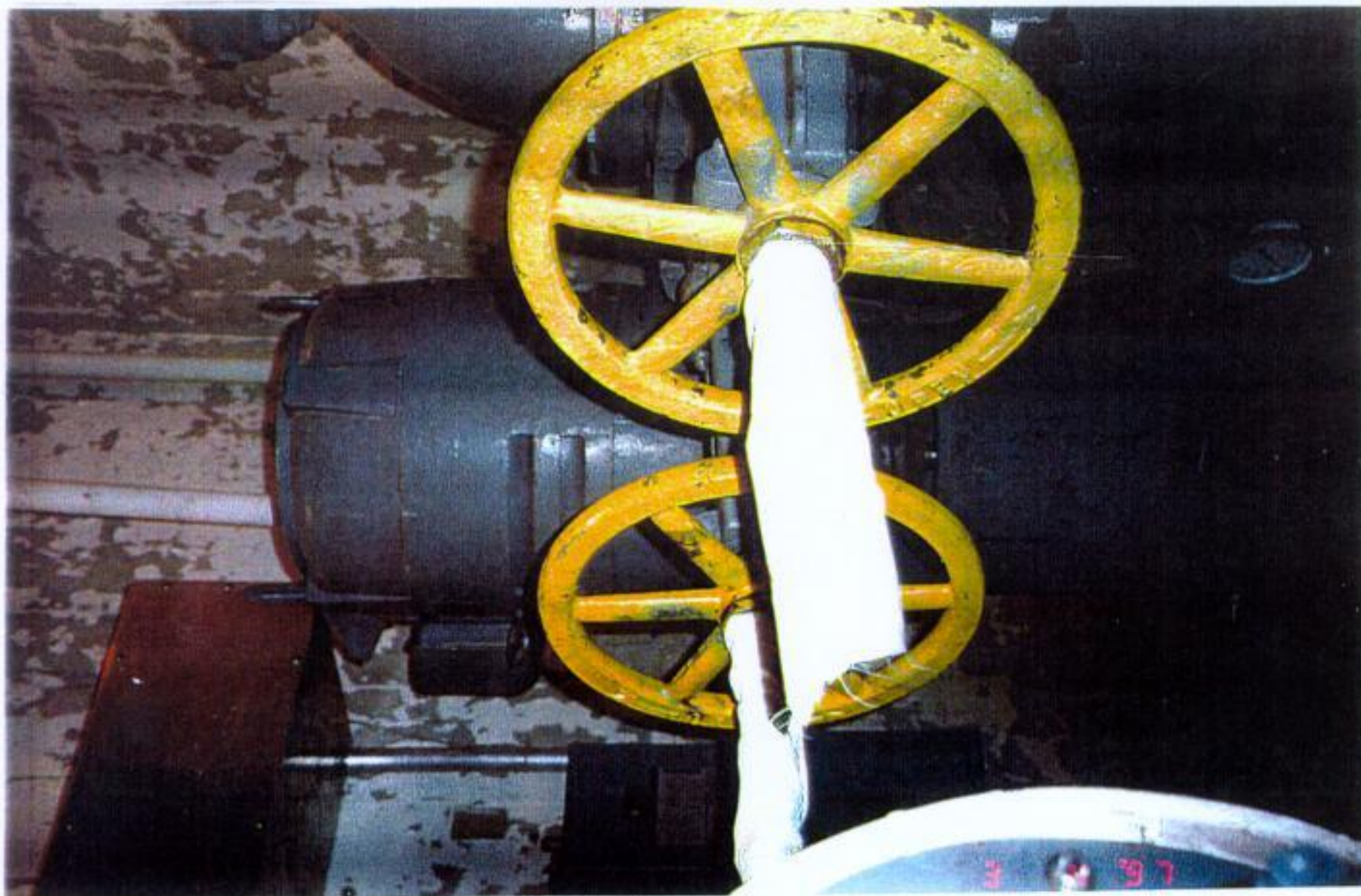


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 154 (LAMB)
6450 MORRISON ROAD**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 154 (Lamb)

Pump Station 154 is a flooded-suction, can-type station located on 6450 Morrison Road. Flow discharges the station via a 16-inch diameter force main and connects to the 16-inch portion of the Morrison Road force main. Pump Station 154 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 154.

Pump Station 154 contains three (10-inch by 8-inch) Fairbanks Morse vertically aligned pumps. Each pump is powered by a 75 horsepower (hp) Fairbanks Morse electric motor operating at a speed of 1175 revolutions per minute (rpm). This equipment is housed in a 12-foot diameter steel dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 51.1 feet. Figures 2 and 3 provide plan and elevation views of the station. There is extreme corrosion in the lower room of the dry well, specifically on the steel floor of the dry well.

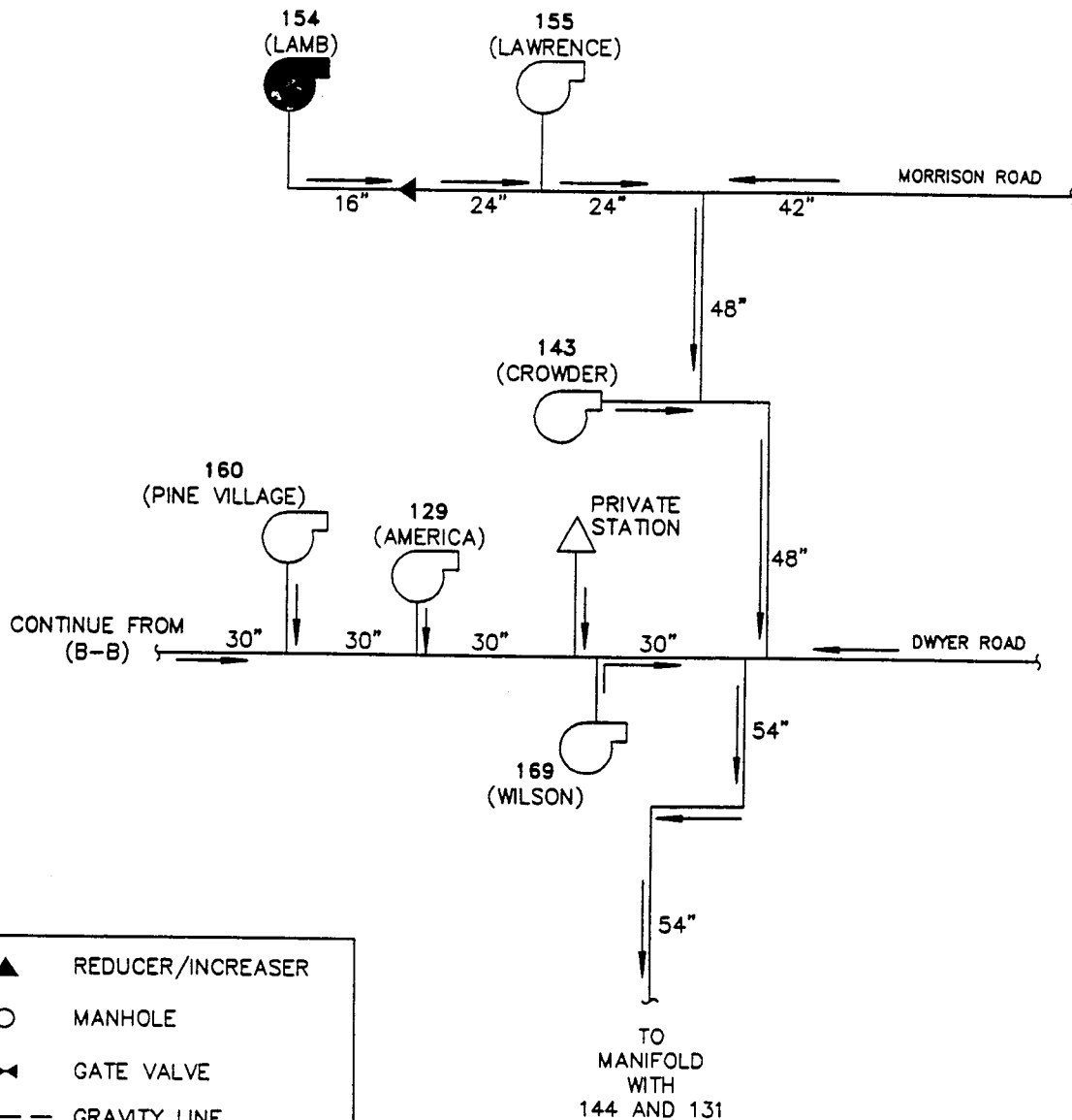
Pump Station 154 collects wastewater from the surrounding gravity sewer system into a 29.4-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated 11-foot by 11-foot dimensions. There is significant corrosion in the steel upper portion of the wet well.

A draw down/fill test was conducted to determine the capacity of Pump Station 154. Figure 4 shows a pump curve constructed from obtained test data. At the time of testing data could not be collected for pump #3. Each pump has an approximate capacity of 2750 gallons per minute (gpm) at 40 feet of head. The shut-off head of the pumps was found to be 104 feet. With both pumps #1 and #2 operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 3200 gpm at 60 feet of head.

Recommendations:

1. Corrosion in the pump room is significant. Measures should be taken to protect or replace severely corroded piping, components and the dry well structure itself. The steel floor should be analyzed for structural integrity and corrected as required.
2. An initial observation of the wet well suggests that corrosion is occurring. The extent of the damage should be further investigated and corrected as necessary.

N



- ▲ REDUCER/INCREASER
- MANHOLE
- ⋈ GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- ◐ PUMP STATION
- ◑ REF. PUMP STATION
- EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 15
JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

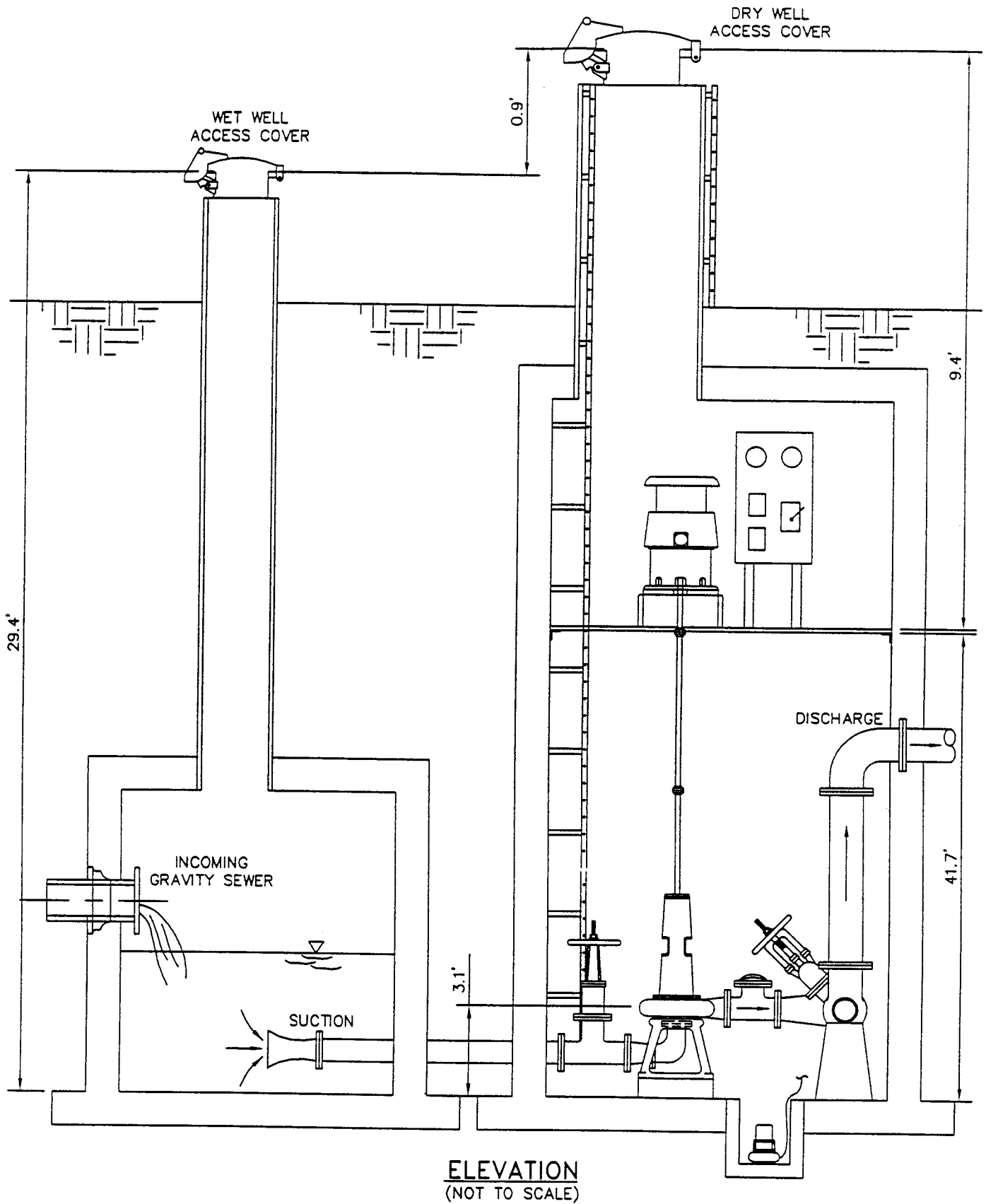
PUMP STATION 154 (LAMB)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

1

DATE:

3/28/97



FILE NO.: 154 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

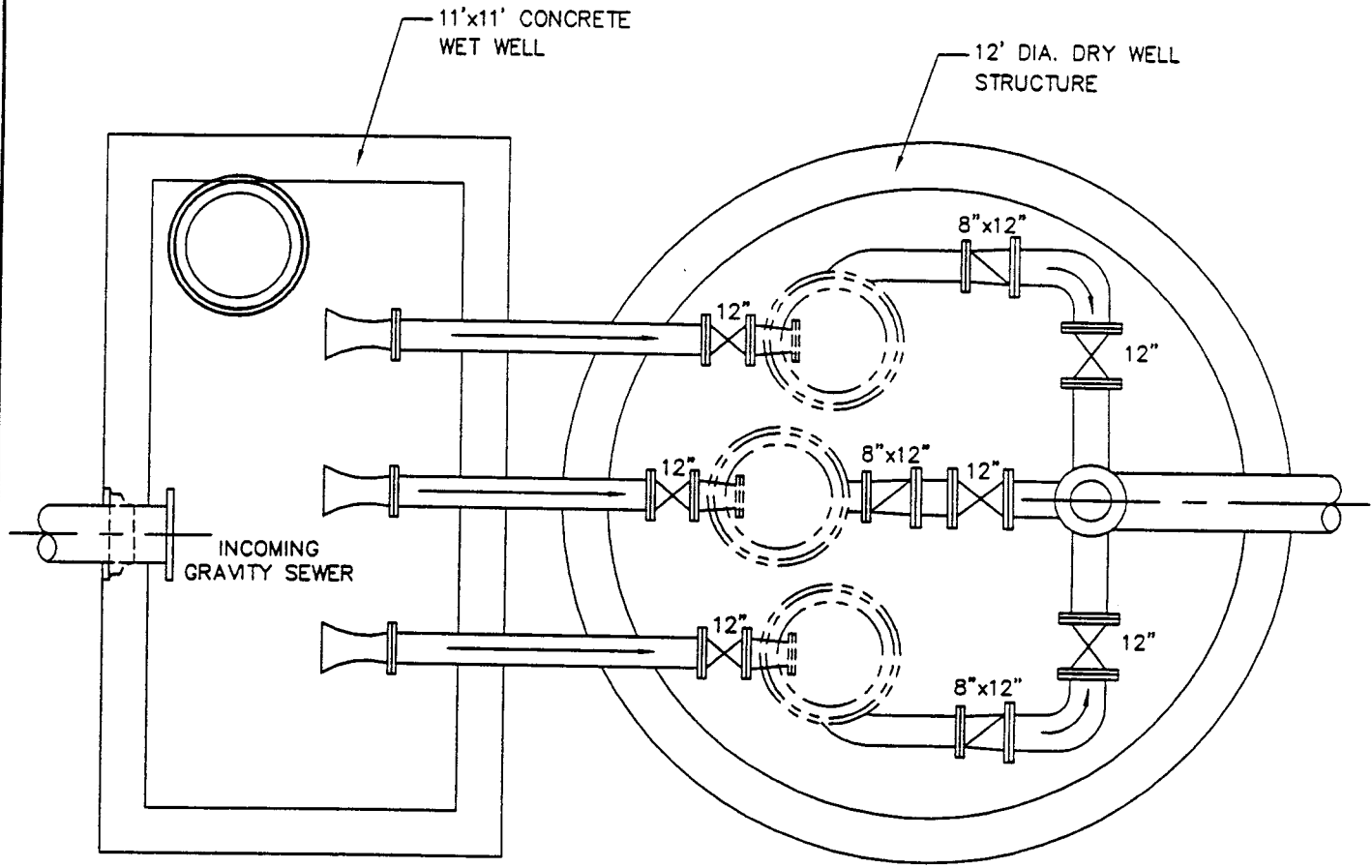
PUMP STATION 154 (LAMB)
CAN TYPE FLOODED SUCTION

FIGURE:

2

DATE:

3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 15x JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 154 (LAMB)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 154 (Lamb)

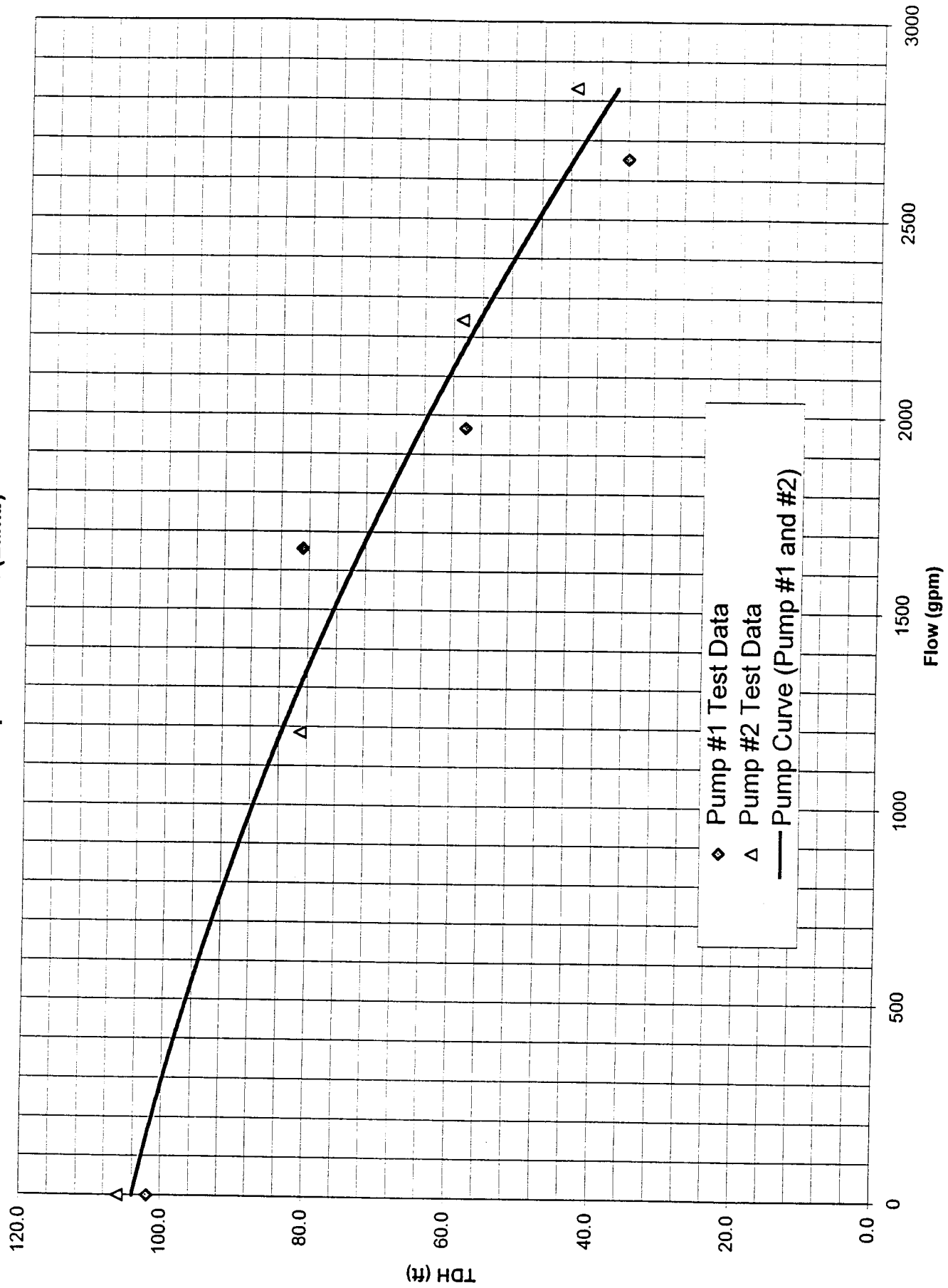


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 154

General Information

PS No. 154 PS Facility Lamb

Address 6450 Morrison Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 3 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 A01314 Serial Number-Pump #1 not readable

Model Number-Pump #2 A01314 Serial Number-Pump #2 not readable

Model Number-Pump #3 A01314 Serial Number-Pump #3 not readable

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 10 inch Pump Discharge 8 inch FM Diameter 16 inch

Suction Valve Size 12 inch Discharge Valve Size 12 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 8 x 12 inch

Dry Well Dimensions 12 ft. dia. Length 0 ft. Width: 0 ft. Depth 51.1 ft.

Pump centerline* 3.1 ft. Centerline of discharge pipe* 18.7 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? # 1

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 154

Pump Controls

Lead pump on 18.5 ft. Type of Controls From wet well tube
Lead pump off 24 ft.
Lag pump on 0 ft.
Lag pump off 0 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for the corrosion in the pump room area

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition Coal tar epoxy; cracking and missing in locatio

Comments The steel tube at the top of the wet well is badly corroded.

Diameter _____ ft. Length 11 ft. Width 11 ft.

Bottom Depth* 29.4 ft.

Sewer Invert(s) Depth* 22.4 ft.

22 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 154

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service Pad Mounted Transformer, 480/277V three phase

Size of service protective device 400 amps, dual element, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 175 amps, circuit breaker

Service wire size 500 kcmil Size of motor starter in NEMA 4

Motor wire size #1/0 AWG Motor Horsepower 100

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1175

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # F426124

Model Number - Motor # not available Serial Number - Motor # F426123

Model Number - Motor # not available Serial Number - Motor # F426078

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, service disconnect switch and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 154 (Lamb)



Photo Number 1

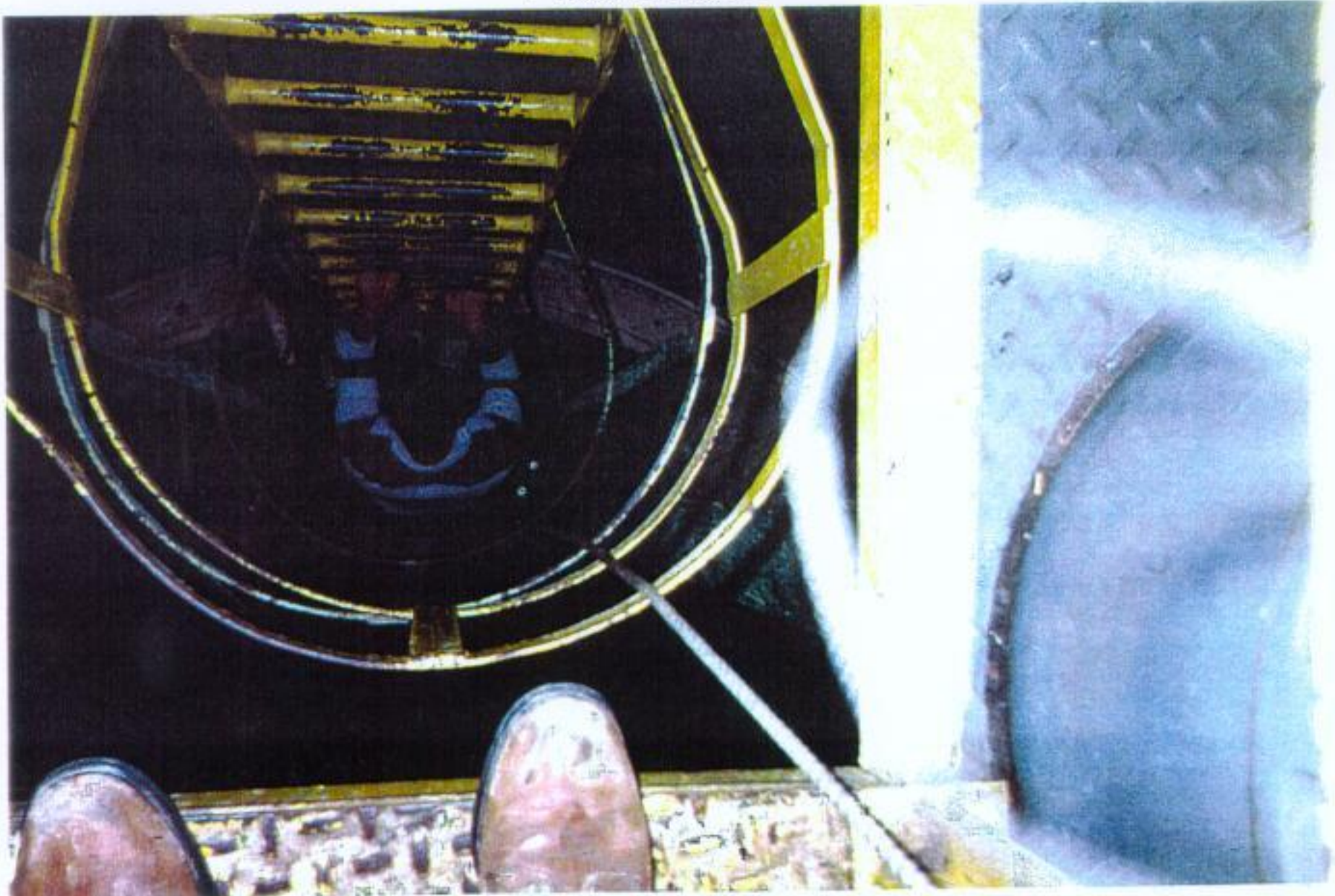


Photo Number 2

Pump Station 154 (Lamb)

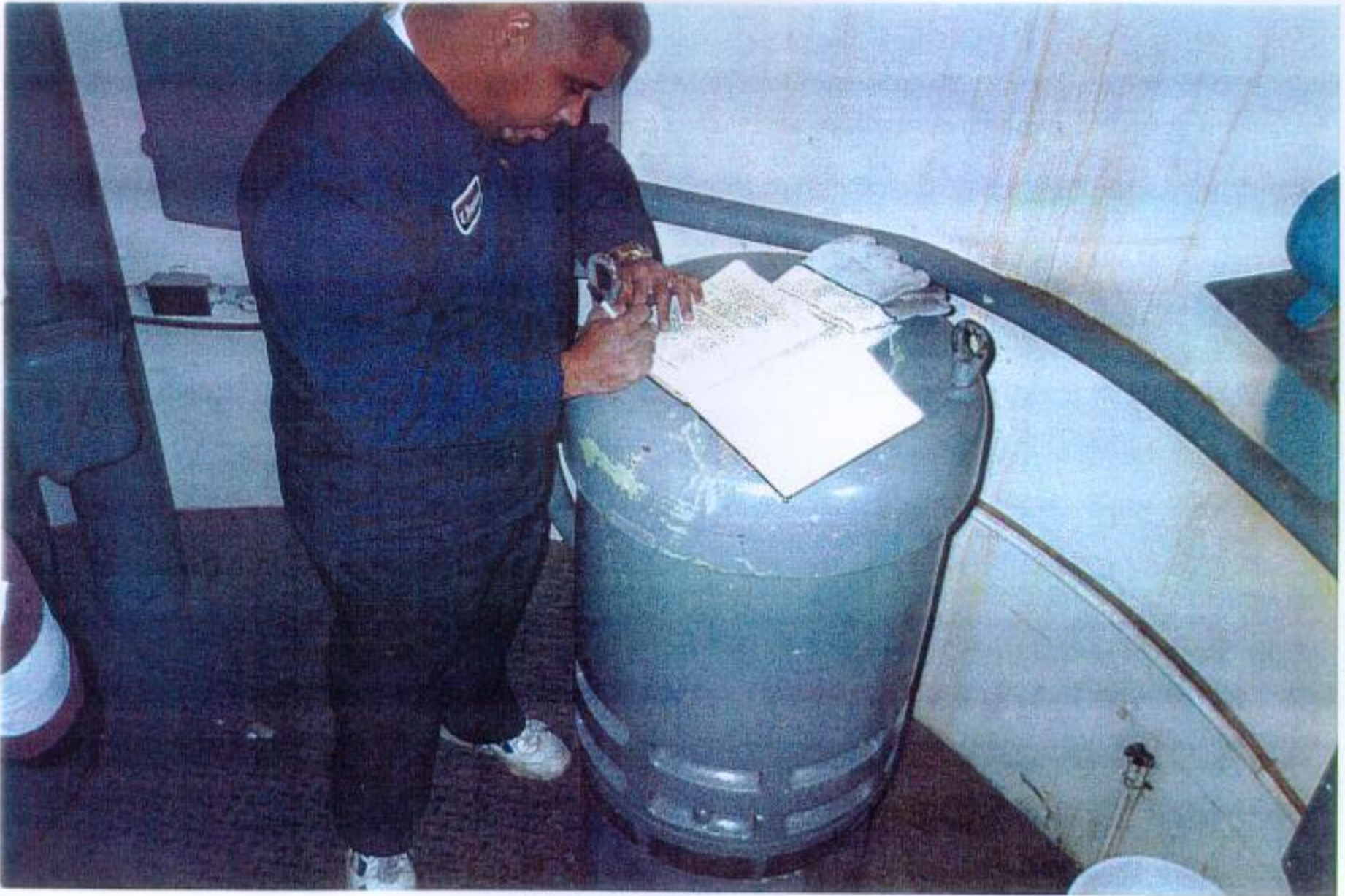


Photo Number 3

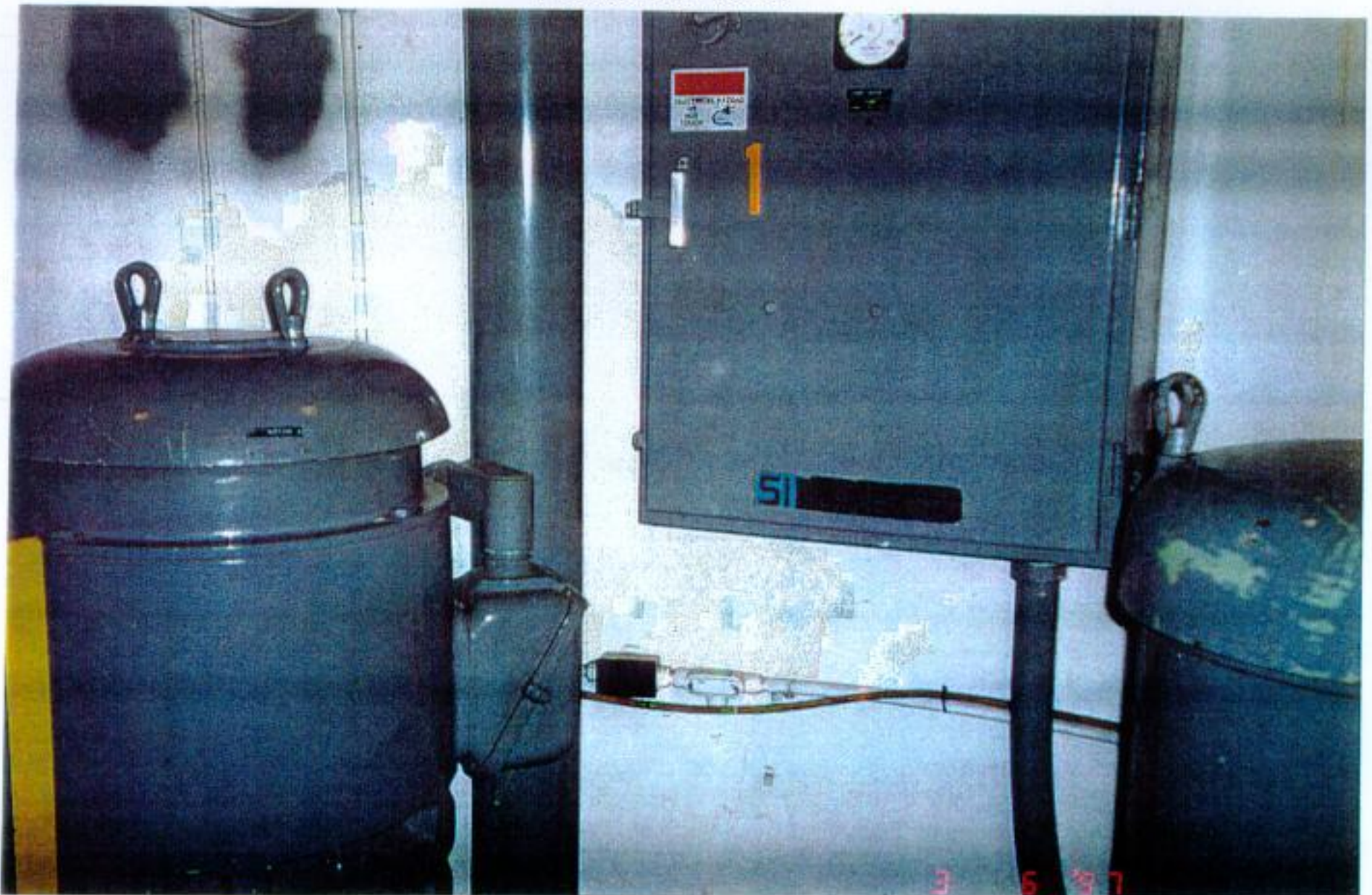


Photo Number 4

Pump Station 154 (Lamb)



Photo Number 5

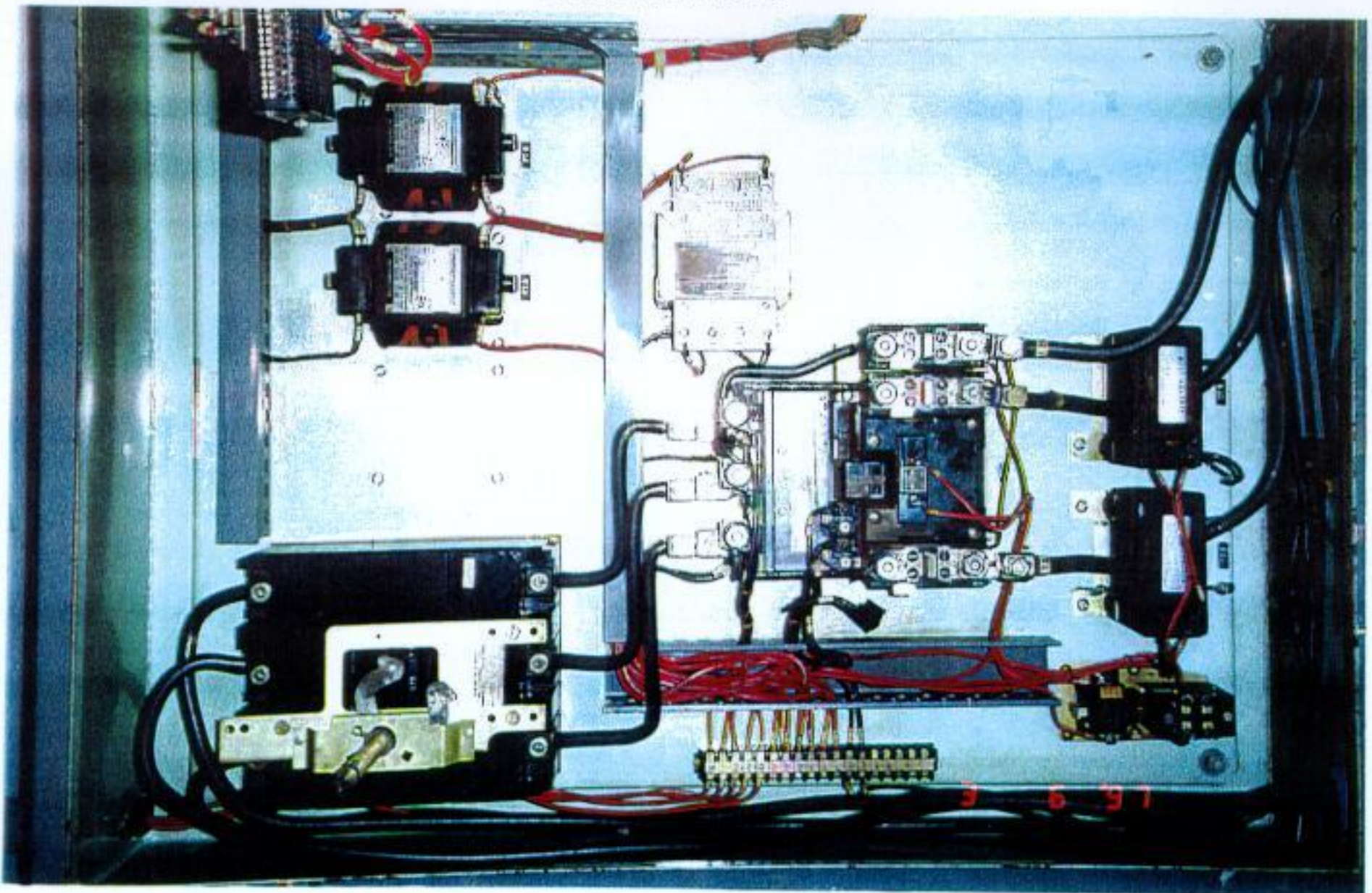


Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 155 (LAWRENCE)
7900 MORRISON ROAD

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 155 (Lawrence)

Pump Station 155 is a flooded-suction, can-type station located on 7900 Morrison Road. Flow discharges the station via a 16-inch diameter force main and connects to the 24-inch portion of the Morrison Road force main. Pump Station 155 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 155.

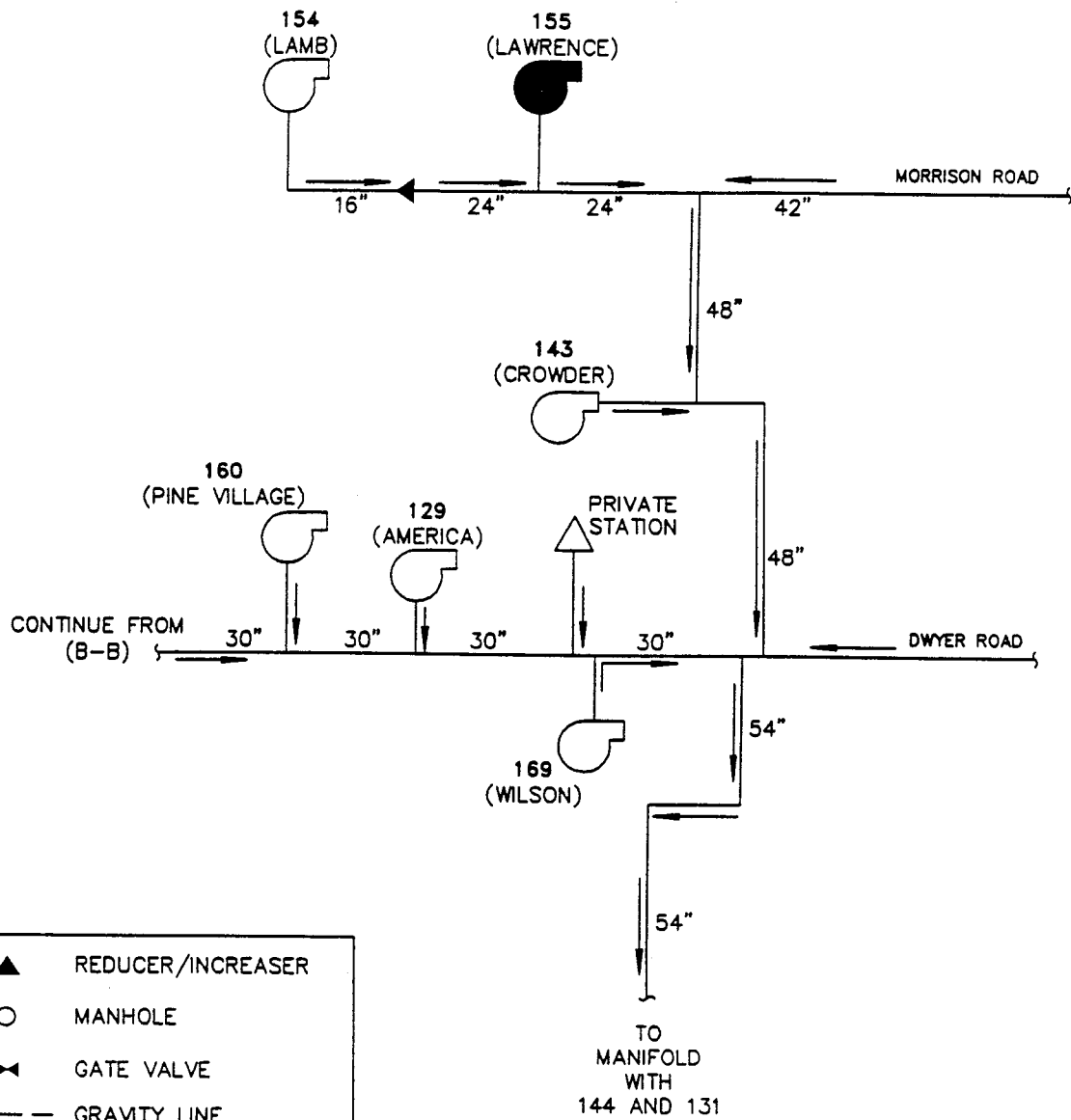
Pump Station 155 contains two (8-inch by 8-inch) Fairbanks Morse vertically aligned pumps. Each pump is powered by a 100 horsepower (hp) Reliance electric motor operating at a speed of 1185 revolutions per minute (rpm). This equipment is housed in an 11-foot by 11-foot reinforced concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 29.2 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair although there is corrosion around the pump as seen in photo number 2, 3 and 4. While inspecting the station's valves and piping, it was found that the suction gate and check valves for both pumps do not seat properly and therefore allow backflow from the force main into the wet well.

Pump Station 155 collects wastewater from the surrounding gravity sewer system into a 24.3-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated 11-foot by 11-foot dimensions. The overall condition of the wet well appears to be fair.

A draw down/fill test was conducted to determine the capacity of Pump Station 155. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 4100 gallons per minute (gpm) at 76 feet of head. The shut-off head of both pumps was found to be 153 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 6600 gpm at 89 feet of head.


Recommendations:

1. It is recommended that both the suction gate valves and the check valves be adjusted to insure proper seating such that backflow will not occur.
2. The physical condition of the electrical service disconnect switch is in poor condition due to corrosion (see photo number 6). It is recommended that this issue be addressed.



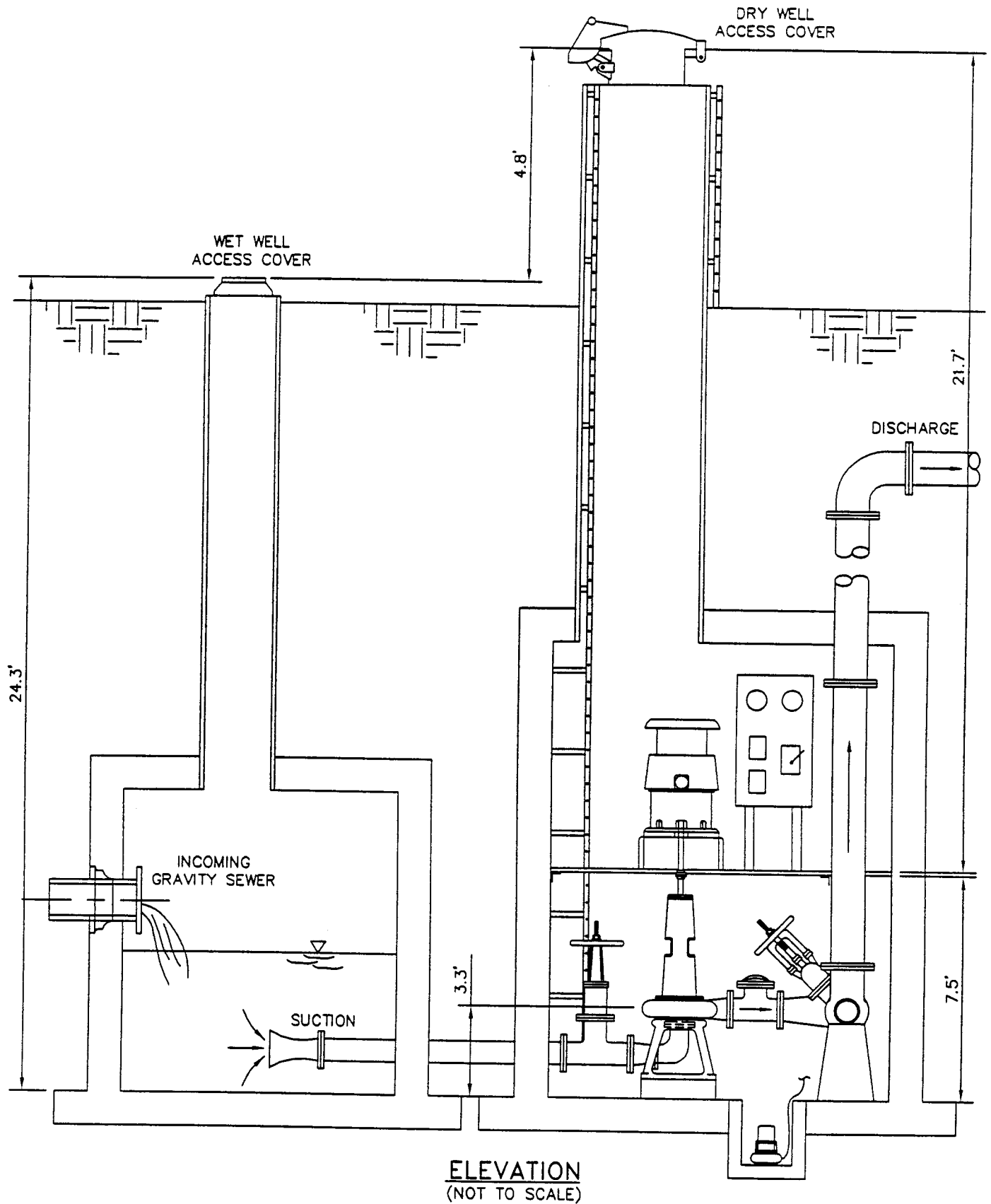
NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 155 JOB NO.: 1113030.01090120 DATE: 3/28/97

 <p>SEWERAGE AND WATER BOARD OF NEW ORLEANS</p>	<p>MONTGOMERY WATSON</p>

PUMP STATION 155 (LAWRENCE)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97



FILE NO.: 15L G JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 155 (LAWRENCE)
CAN TYPE FLOODED SUCTION

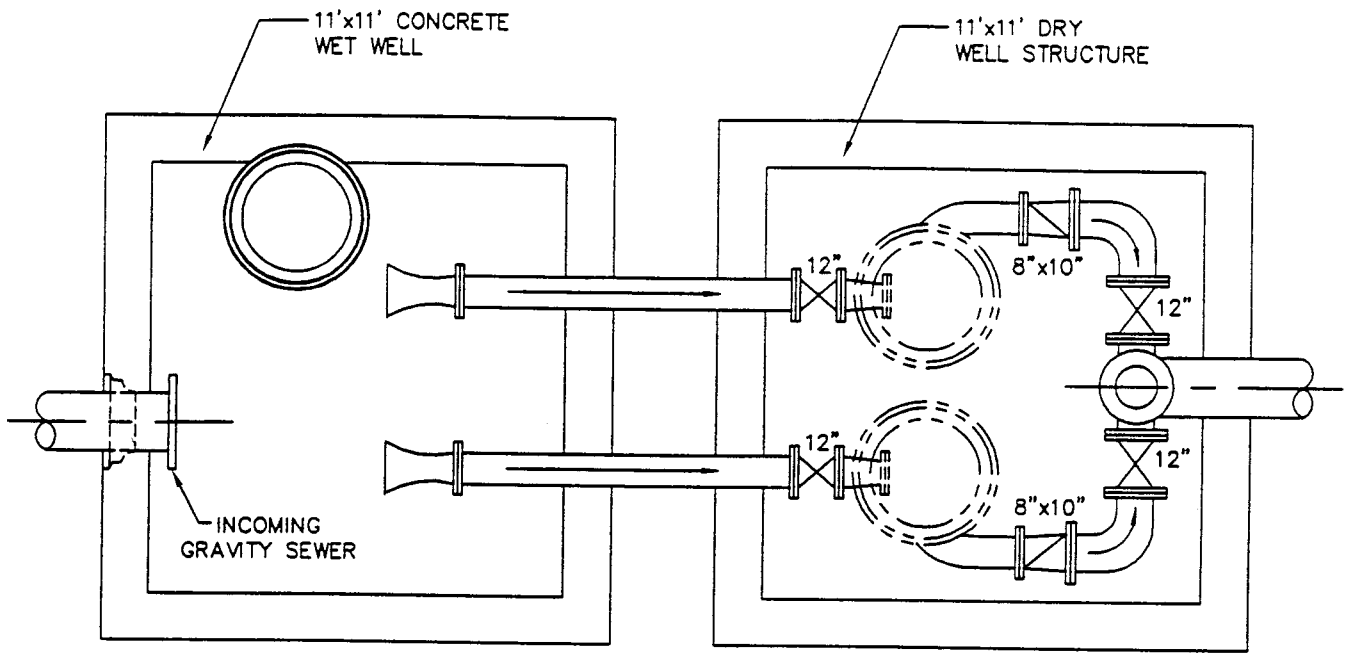
FIGURE:

2



DATE:

3/28/97

FILE NO.: 155 JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)

 <p>SEWERAGE AND WATER BOARD OF NEW ORLEANS</p>
 <p>MONTGOMERY WATSON</p>

PUMP STATION 155 (LAWRENCE)
CAN TYPE FLOODED SUCTION

FIGURE:	3
DATE:	3/28/97

Pump Station: 155 (Lawrence)

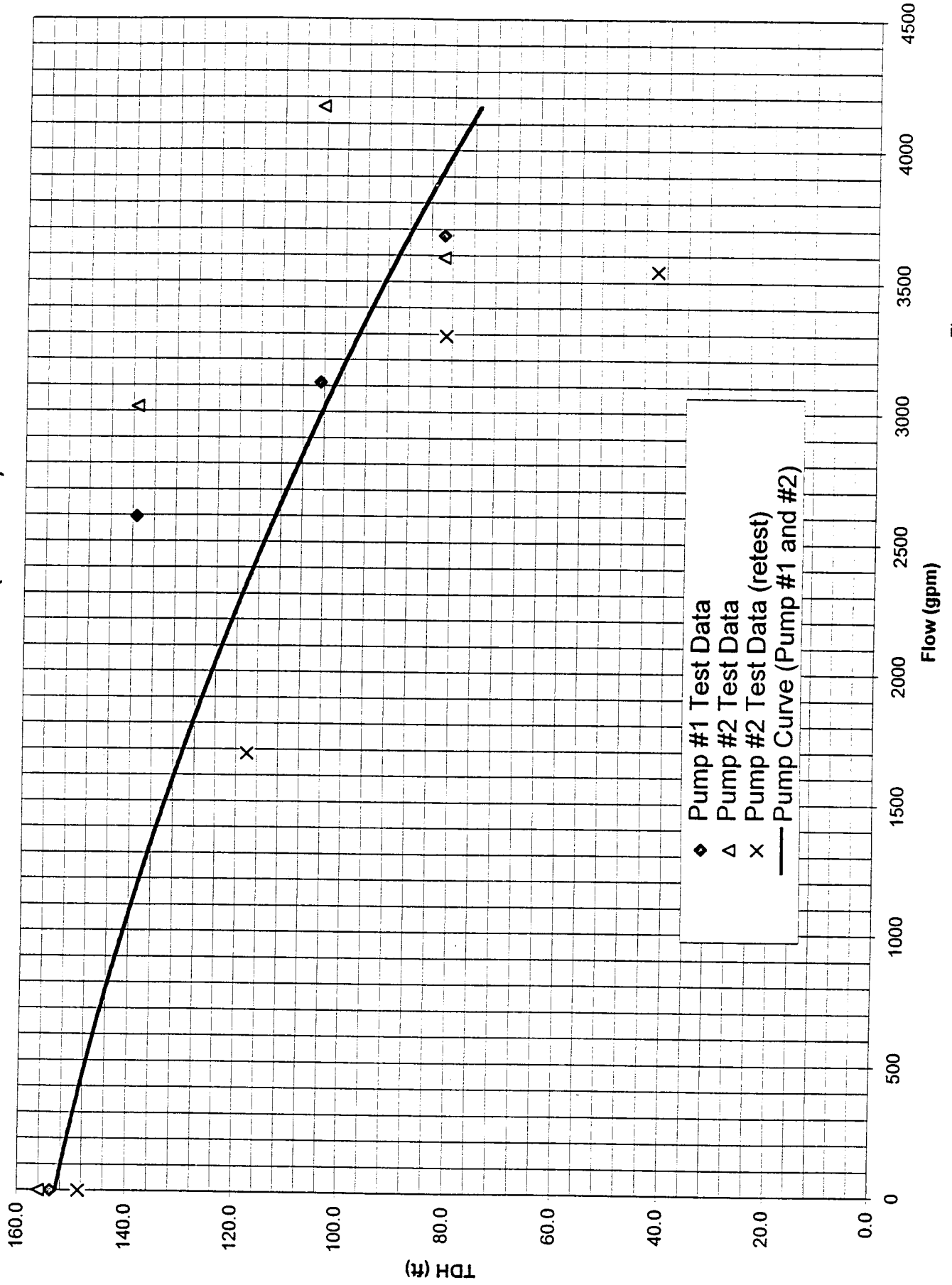


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 155

General Information

PS No. 155 PS Facility Lawrence Address 7900 Morrison Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 762359 Serial Number-Pump #1 unreadable

Model Number-Pump #2 762359 Serial Number-Pump #2 unreadable

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 3000 gpm 10 ft. of head 0 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 16 inch

Suction Valve Size 12 inch Discharge Valve Size 12 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 8 x 10 inch

Dry Well Dimensions _____ ft. dia. Length 11 ft. Width: 11 ft. Depth 29.2 ft.

Pump centerline* 3.3 ft. Centerline of discharge pipe* _____ ft.

* measured from dry well bottom.

Notes: The centreline of the discharge pipe is vertical.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? # 1

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 155

Pump Controls

Lead pump on 11.5 ft. Type of Controls bubbler
Lead pump off 5 ft.
Lag pump on 13 ft.
Lag pump off 6.5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Could only see the concrete shaft that leads to the rectangular wet well.

Diameter 0 ft. Length 11 ft. Width 11 ft.

Bottom Depth* 24.3 ft.

Sewer Invert(s) Depth* 19 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 155

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source not available

Type of service not available

Size of service protective device 300 amps, dual element, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 175 amps, dual element, fusible disconnect switch

Service wire size 350 kcmil Size of motor starter in NEMA 4

Motor wire size #2/0 AWG Motor Horsepower 100

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1185

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # KZKU-2 Serial Number - Motor # F441555

Model Number - Motor # KZKU-2 Serial Number - Motor # F441555

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the service disconnect switch is poor. The physical condition of the motors, motor controller and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-

Pump Station 155 (Lawrence)



Photo Number 1

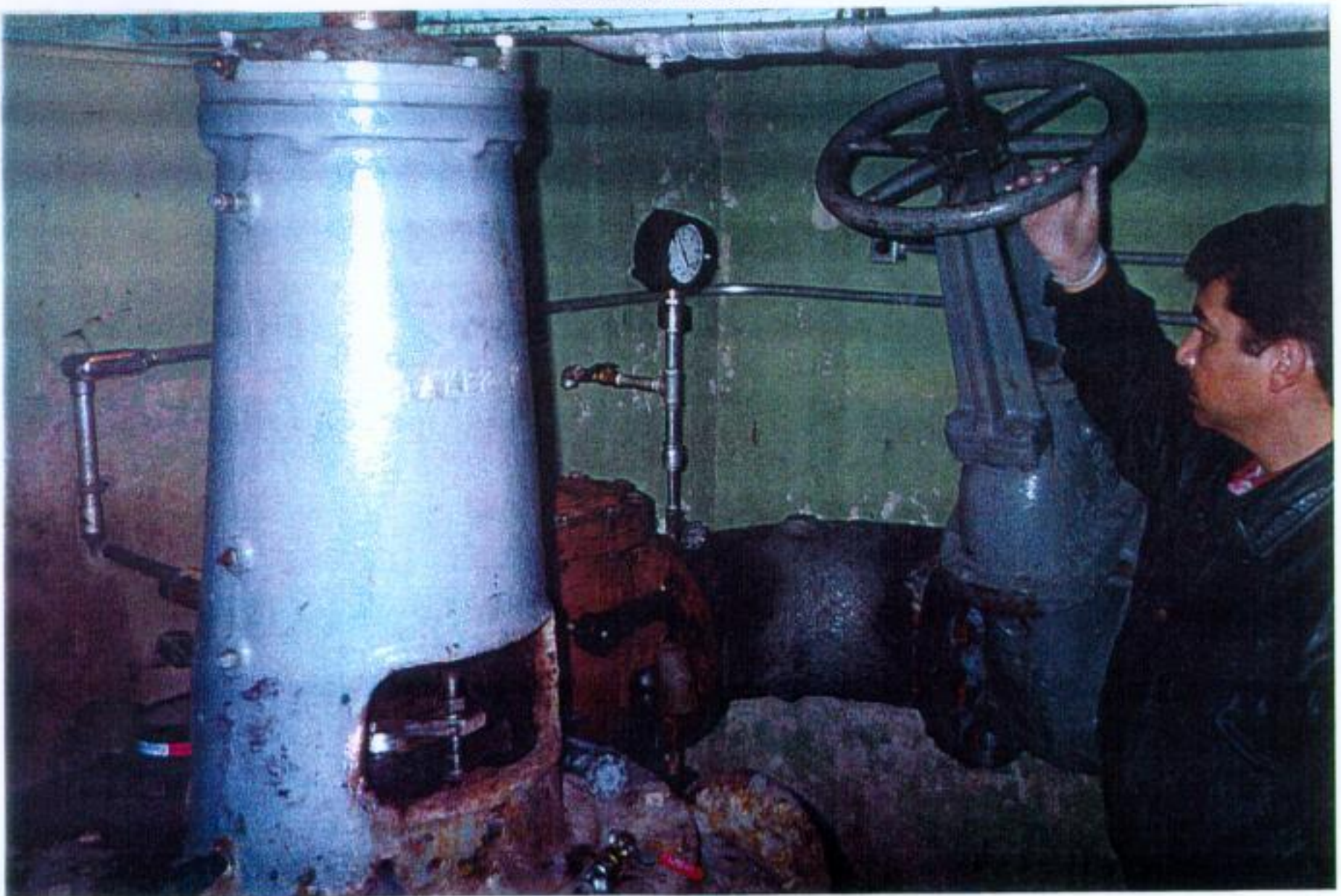


Photo Number 2

Pump Station 155 (Lawrence)

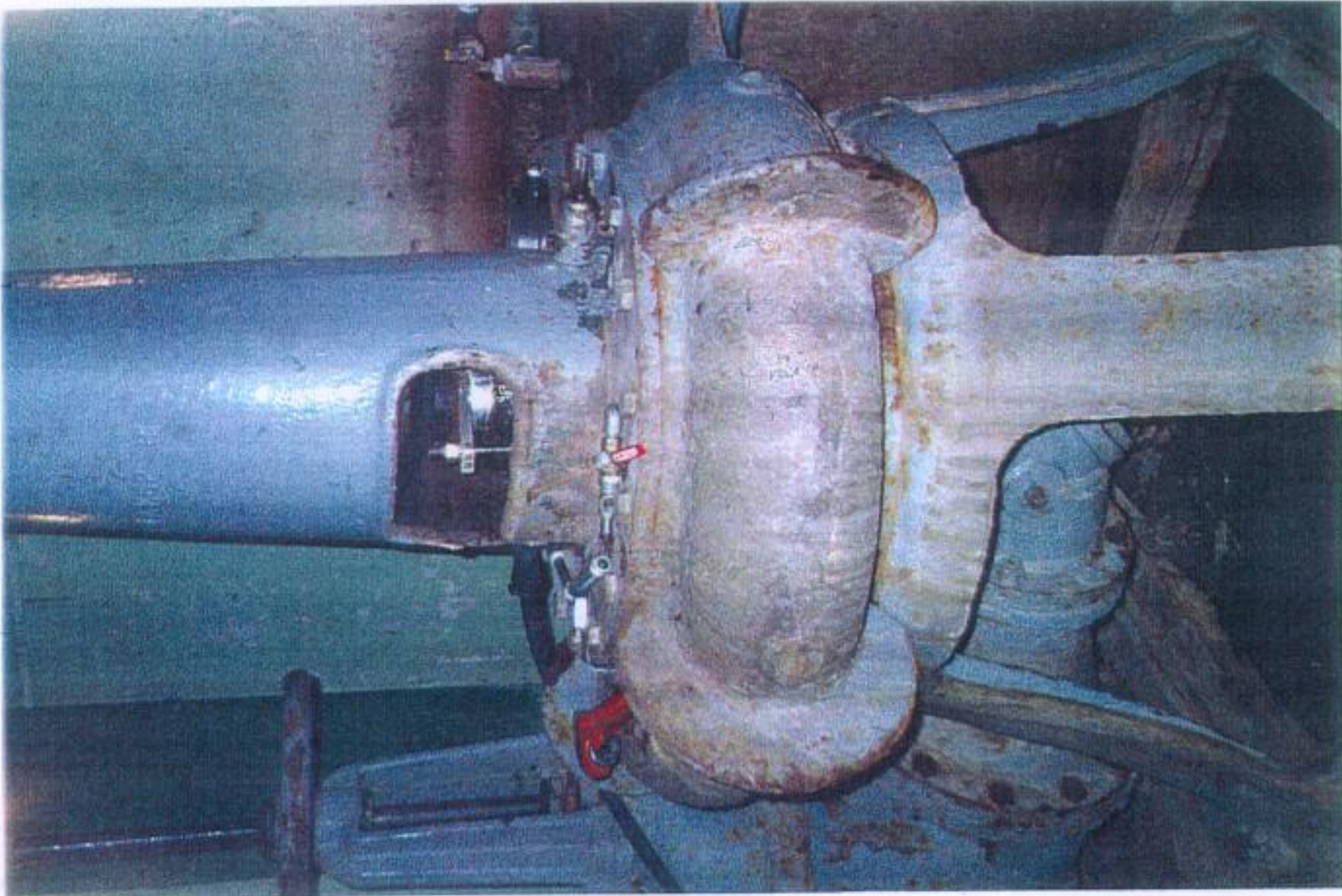


Photo Number 3

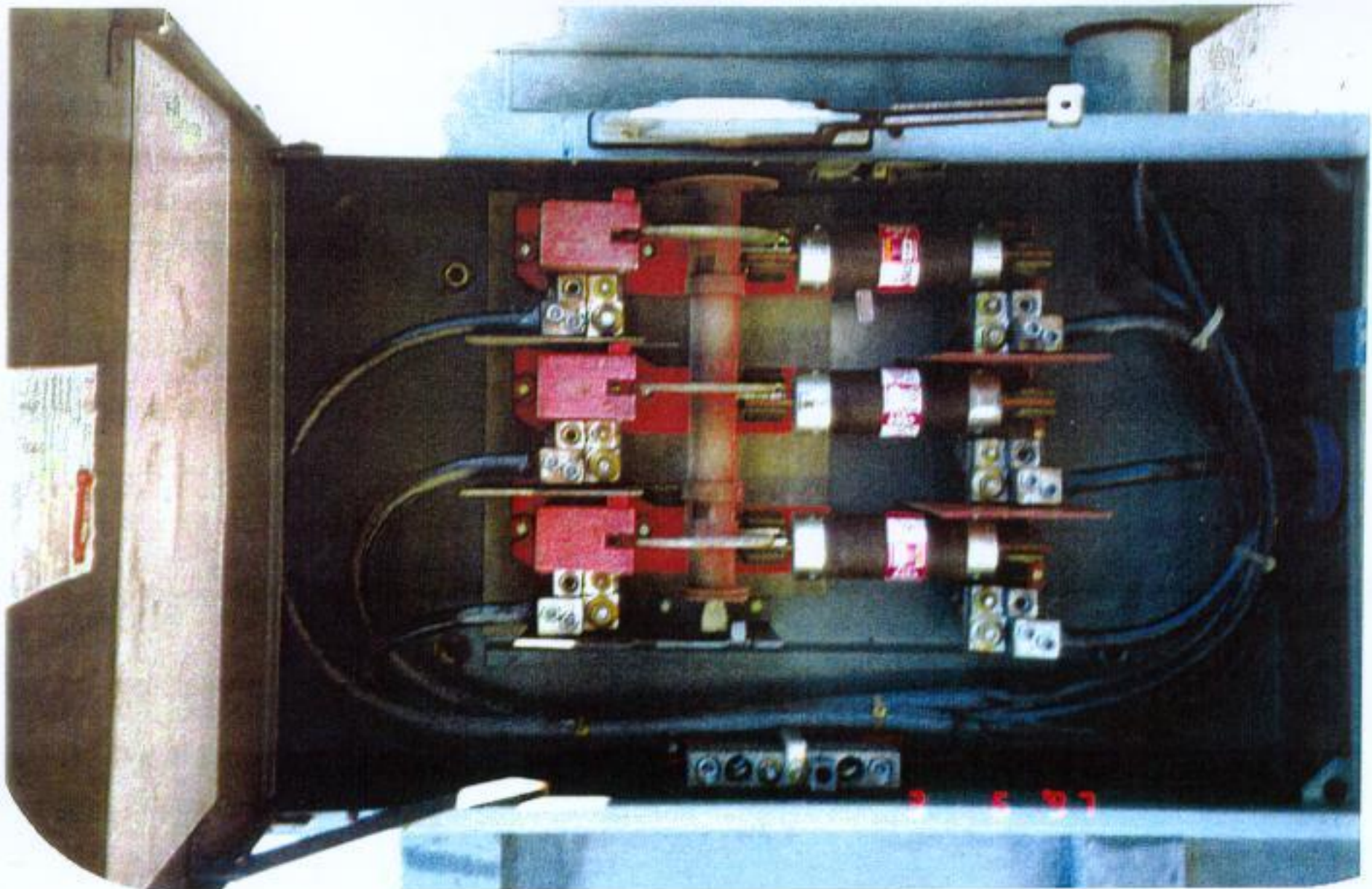


Photo Number 4

Pump Station 155 (Lawrence)



Photo Number 5



SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 156 (LIGGET)
12500 MORRISON ROAD

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 156 (Liggett)

Pump Station 156 is a flooded-suction, can-type station located on 12500 Morrison Road. Flow discharges the station via a 16-inch diameter force main and connects to the 30-inch portion of the Morrison Road force main. Pump Station 156 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 156.

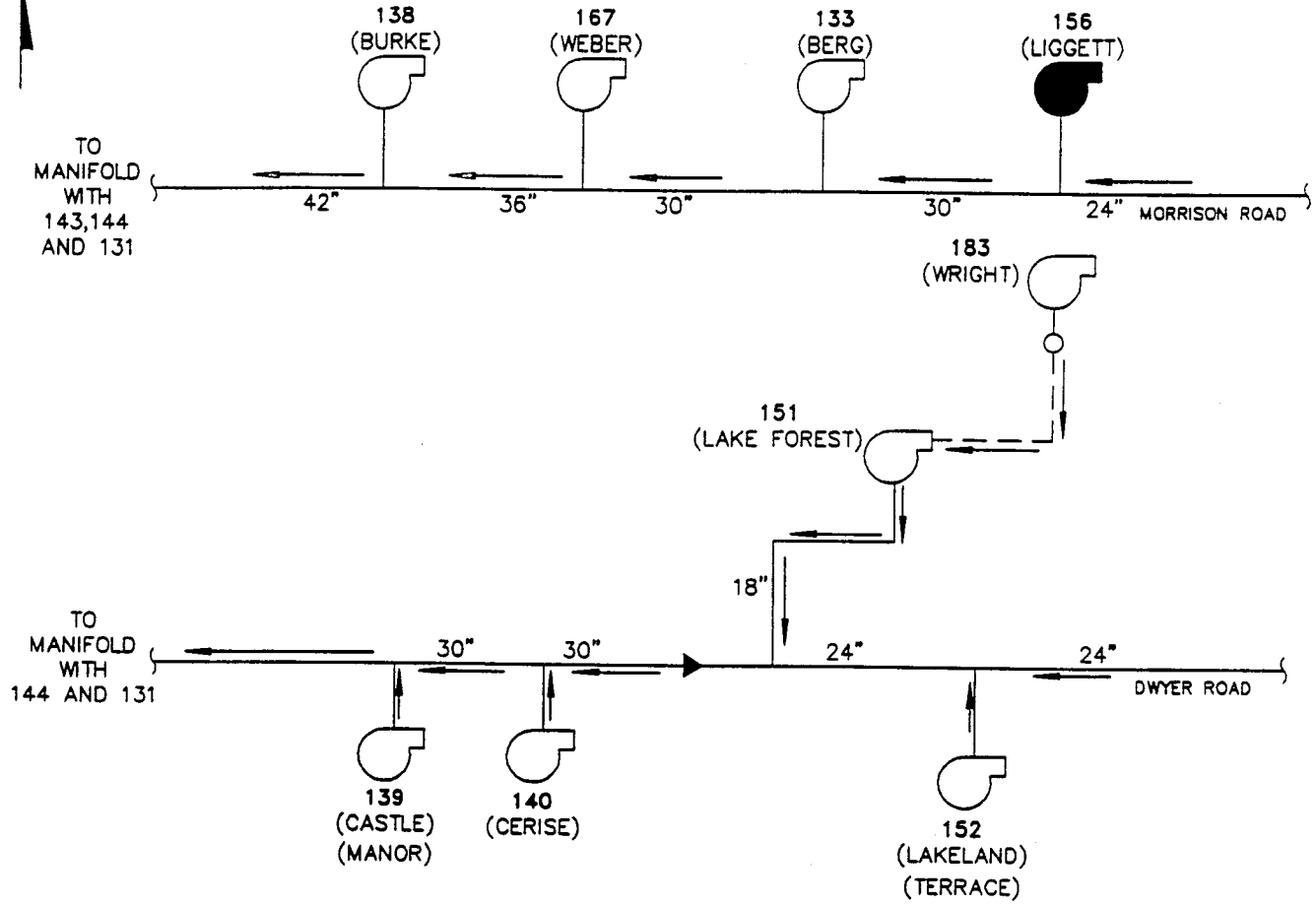
Pump Station 156 contains two (10-inch by 6-inch) Fairbanks Morse vertically aligned pumps with a 16.5-inch diameter impeller. Each pump is powered by a 60 horsepower (hp) Westinghouse two-speed electric motor operating at speeds of 885 and 1180 revolutions per minute (rpm). This equipment is housed in a 12-foot by 11-foot reinforced concrete dry well structure, mostly underground. The total depth of the dry well from the access hatch to the bottom is 27.7 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair although there is isolated corrosion located around the pump as seen in photo number 2 and 3. Also, there is evidence of groundwater seepage into the dry well structure at the location where the discharge main exits the structure (see photo number 4).









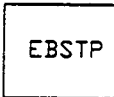
Pump Station 156 collects wastewater from the surrounding gravity sewer system into a 19.3-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated 11-foot by 11-foot dimensions. The concrete aggregate and steel reinforcing is exposed throughout the interior surface of the wet well suggesting a corrosion problem.

A draw down/fill test was conducted to determine the capacity of Pump Station 156. Figure 4 shows the pump curves constructed from obtained test data. Each pump has an approximate low-speed capacity of 900 gallons per minute (gpm) at 30 feet of head and a high-speed capacity of 1600 gpm at 34 feet of head. The shut-off heads of both pumps were found to be 58 feet (low-speed) and 104 feet (high-speed).

Recommendations:

1. An initial observation of the wet well suggests that corrosion is occurring. The extent of the damage should be further investigated and corrected as necessary.
2. Groundwater seepage into the dry well structure can cause corrosion throughout. It is recommended that this problem be further investigated and addressed.
3. The physical condition of the motors, motor controller, electrical service disconnect switch and control panel are in poor condition due to corrosion and messy wiring (see photo number 5 and 6). Also, the motor protective device is oversized and might not trip during minimum fault. It is recommended that these above electrical issues be addressed.



-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 154 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS

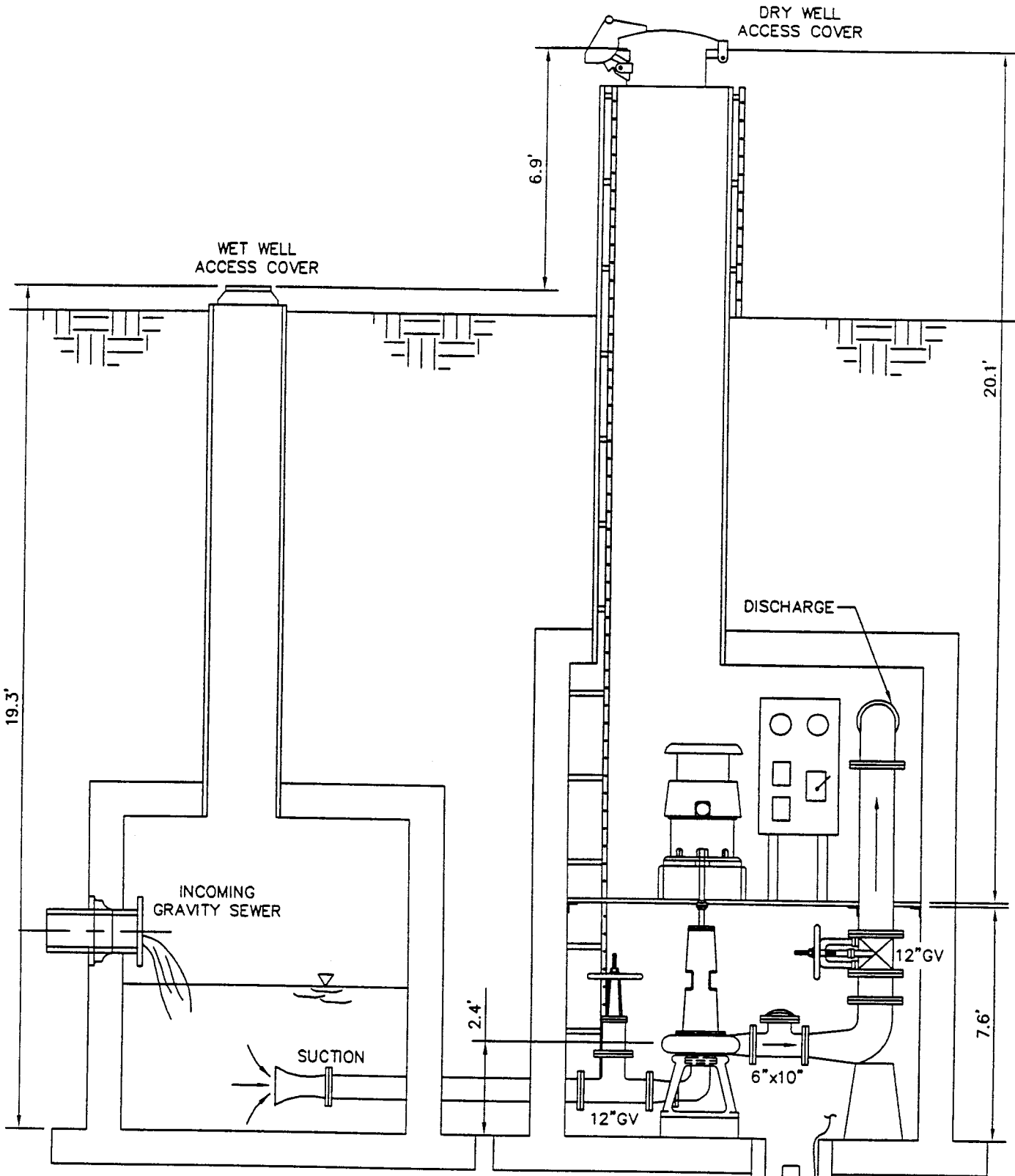


MONTGOMERY WATSON

PUMP STATION 156 (LIGGETT)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1
DATE:
3/28/97

FILE NO.: 156 .G JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

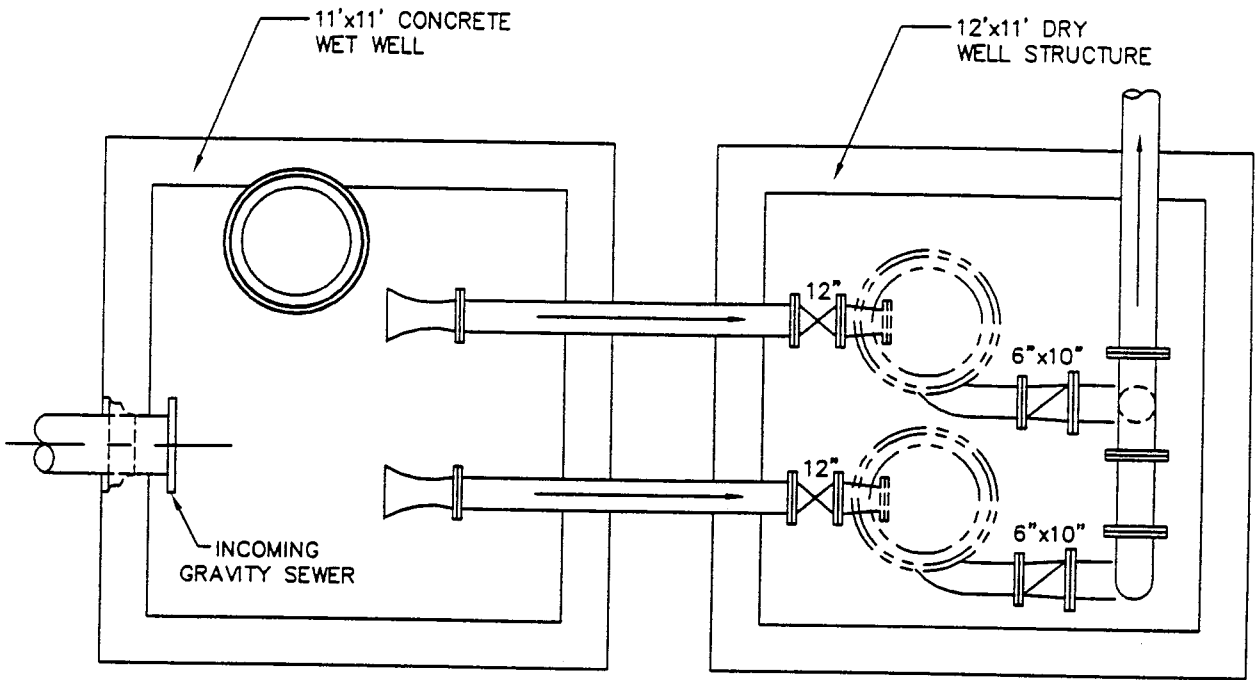
PUMP STATION 156 (LIGGETT)
CAN TYPE FLOODED SUCTION

FIGURE:

2

DATE:

3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 15L JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 156 (LIGGETT)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 156 (Liggett)

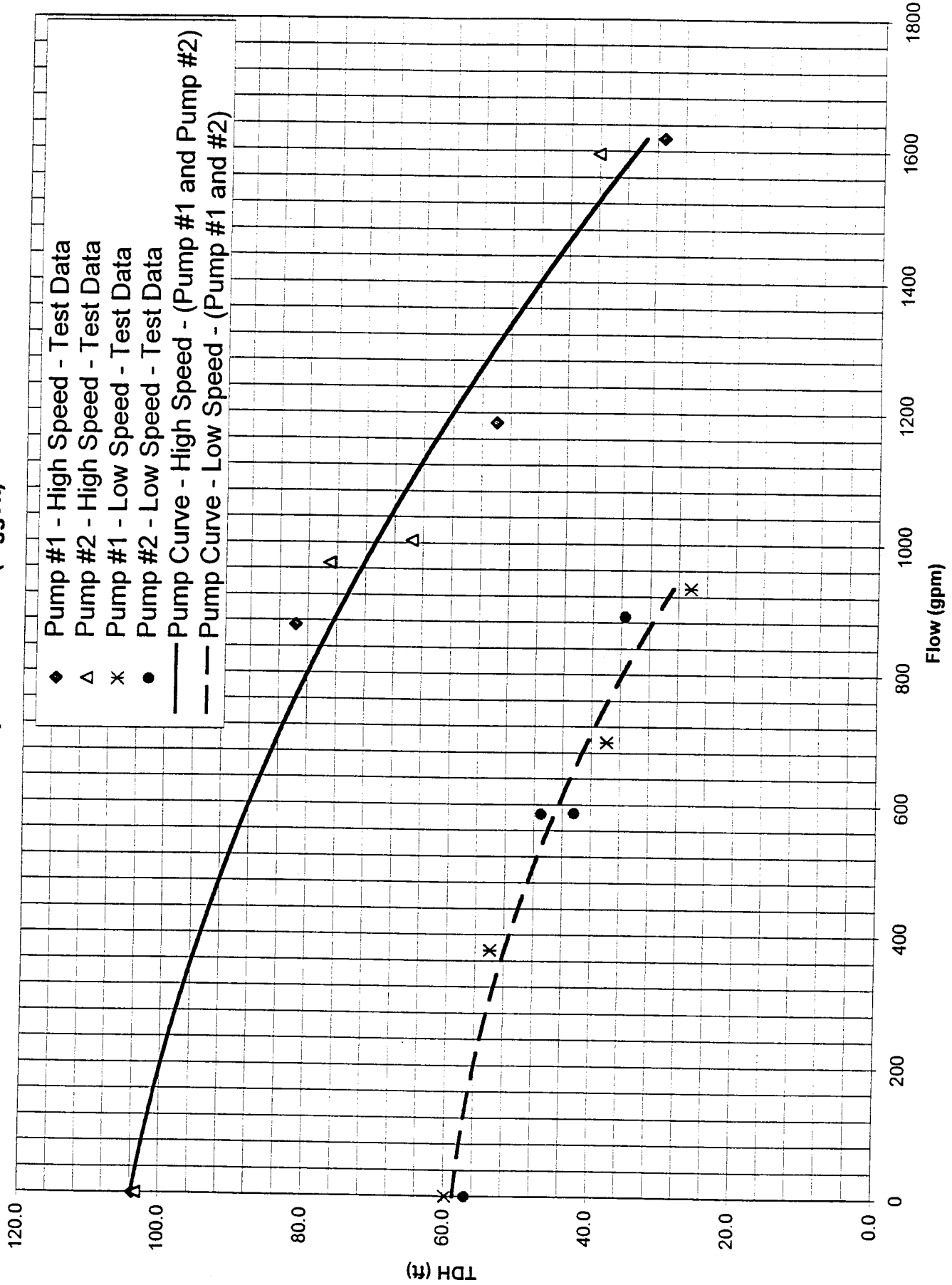


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 156

General Information

PS No. 156 PS Facility Liggett Address 12500 Morrison Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 16.5 inch

Model Number-Pump #1 _____ Serial Number-Pump #1 K2T1066965

Model Number-Pump #2 _____ Serial Number-Pump #2 K2T1066965

Model Number-Pump #3 _____ Serial Number-Pump #3 -

Model Number-Pump #4 _____ Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 2500 gpm 70 ft. of head 0 rpm

Pump Suction 10 inch Pump Discharge 6 inch FM Diameter 16 inch

Suction Valve Size 0 inch Discharge Valve Size 12 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 10 inch

Dry Well Dimensions 0 ft. dia. Length 12 ft. Width: 11 ft. Depth 27.7 ft.

Pump centerline* 2.4 ft. Centerline of discharge pipe* 0 ft.

* measured from dry well bottom.

Notes: The centreline of the discharge is vertical.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 156

Pump Controls

Lead pump on 10 ft. Type of Controls bubbler (speed 1)
Lead pump off 6 ft.
Lag pump on 11 ft.
Lag pump off 7 ft.

Notes: (speed 2) lead on 11.5, off 7.5; lag on 12, off 8

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room and seepage around the discharge

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Exposed reinforcement was observed at 1-foot

Diameter 0 ft. Length 11 ft. Width 11 ft.

Bottom Depth* 19.3 ft.

Sewer Invert(s) Depth* 14.3 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 156

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service Pad Mounted Transformer, 480/277V three phase

Size of service protective device 400 amps, dual element, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 125 amps, circuit breaker

Service wire size Parallell of two 2 Size of motor starter in NEMA 3

Motor wire size #2 AWG Motor Horsepower 40

Number of motors 2 Motor Speed Multiple

Speed(s) in rpm 590, 1180

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # 72G40475 Serial Number - Motor # KVAG7206

Model Number - Motor # 72G40475 Serial Number - Motor # KVAG7206

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, service disconnect switch and control panel is poor due to corrosion and messy wiring. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter for motor running time and simultaneous opertaion. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-

Pump Station 156 (Liggett)



Photo Number 1



Pump Station 156 (Liggett)

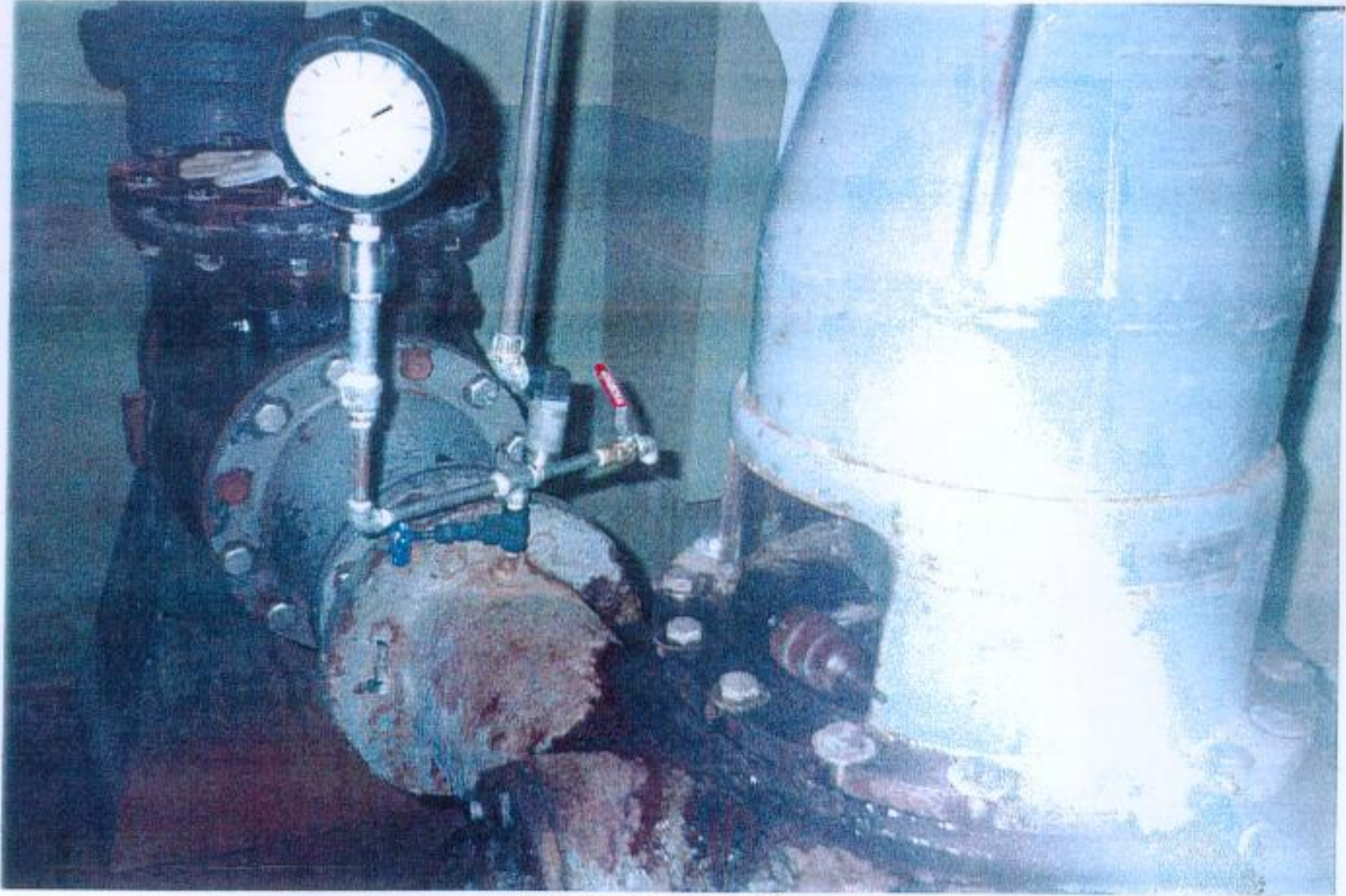
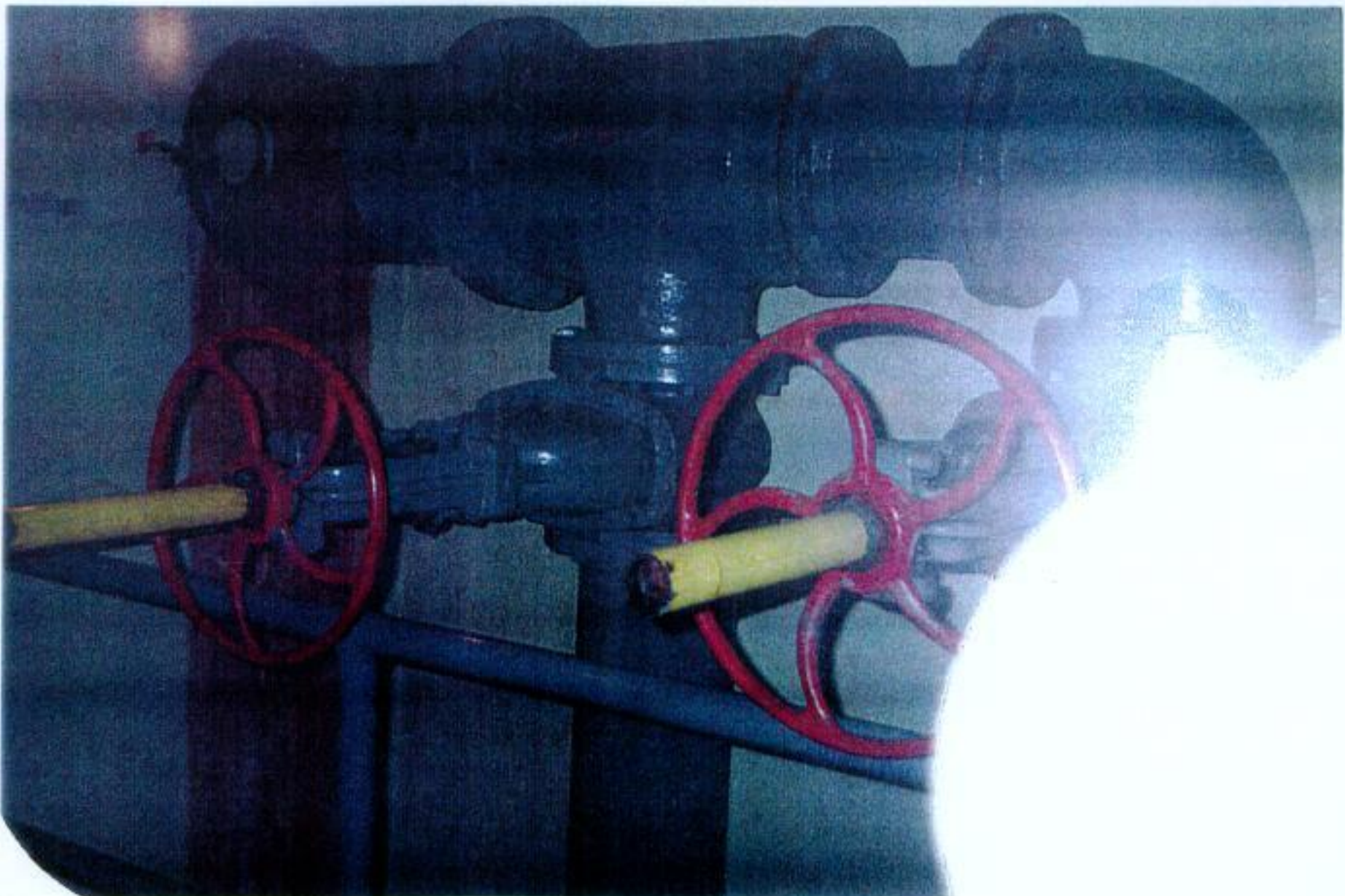


Photo Number 3



Pump Station 156 (Liggett)

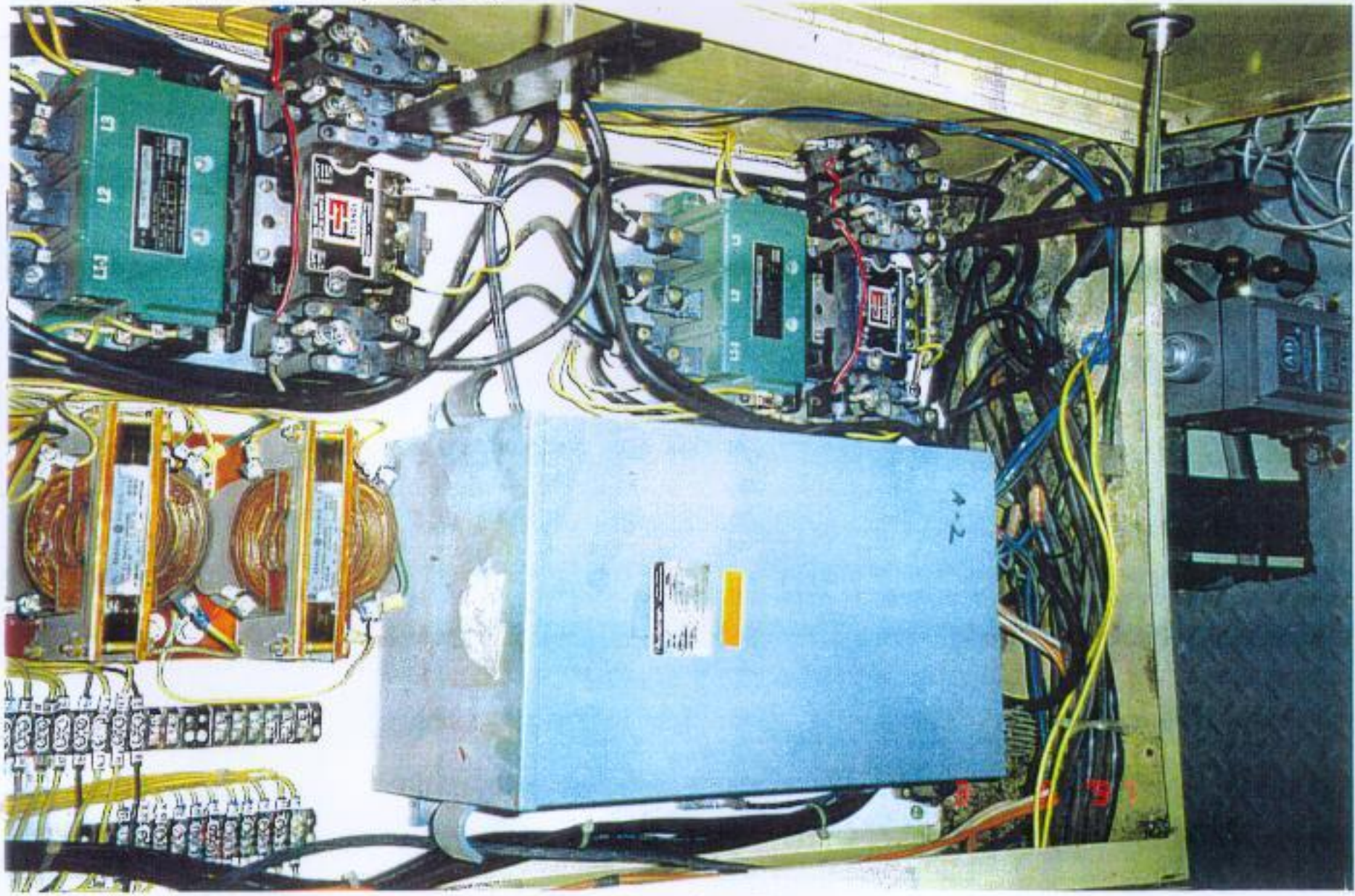
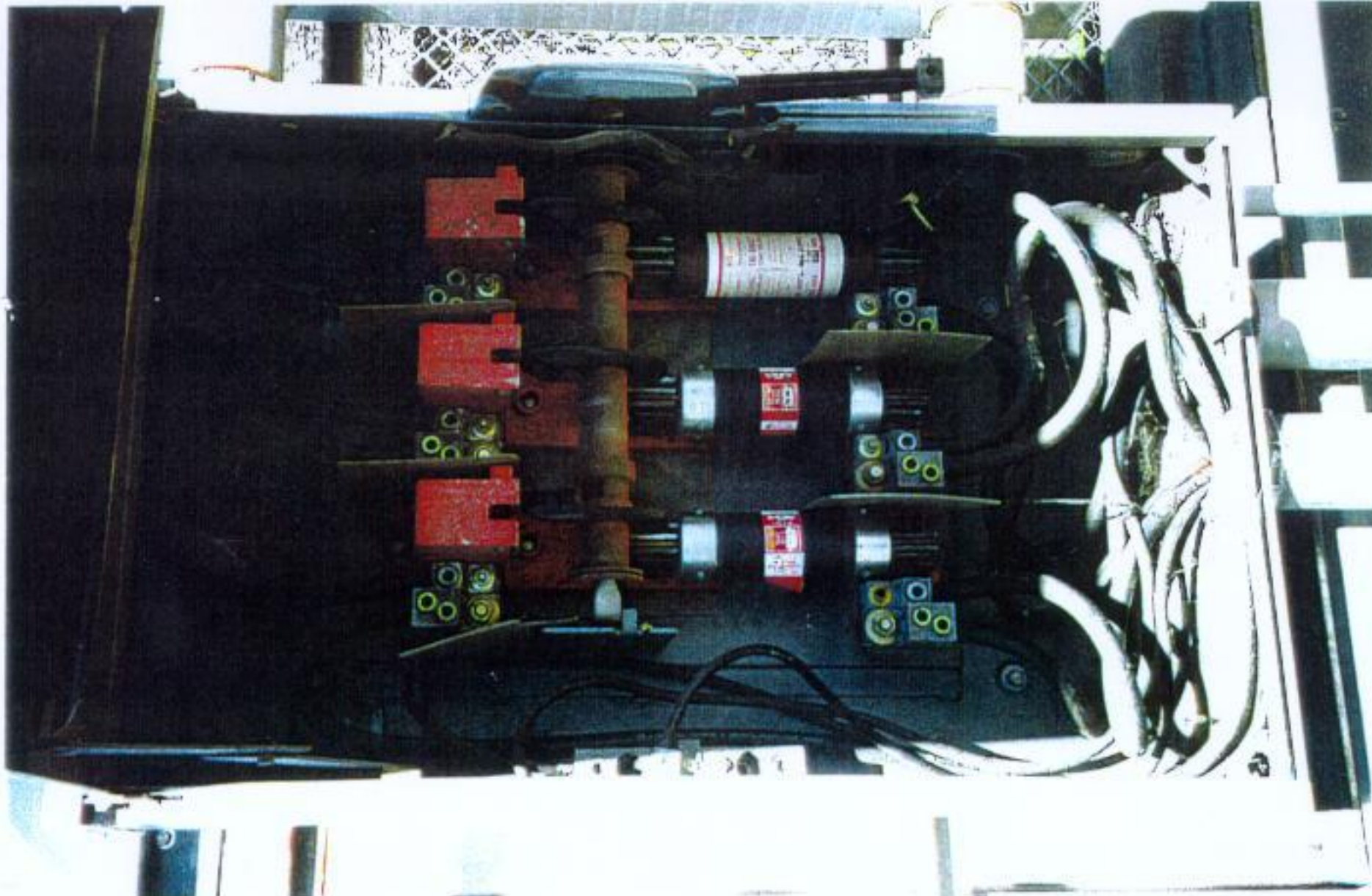


Photo Number 5



**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 157 (MECO)
3855 FRANCE ROAD**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 157 (Meco)

Pump Station 157 is a flooded-suction, can-type station located on 3855 France Road. Flow discharges the station via approximately 4000 feet of 6-inch diameter force main before entering the wet well of Pump Station 146 (France and Florida) located at 2701 France Road. Pump Station 157 does not repump flow from any other station. However, all of its flow is repumped by Pump Station 146. Figure 1 shows the schematic subsystem surrounding Pump Station 157.

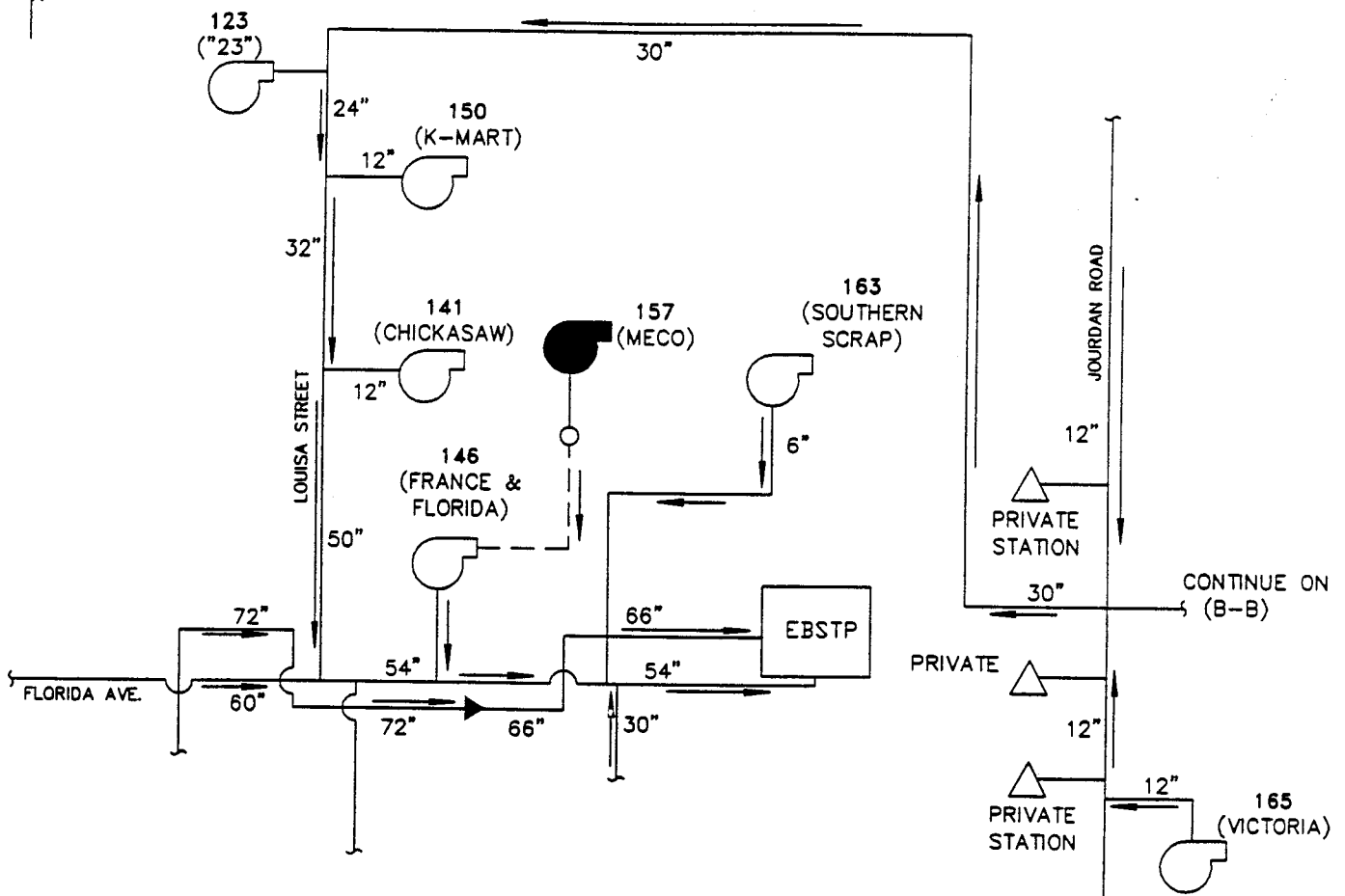
Pump Station 157 contains two (8-inch by 6-inch) Fairbanks Morse vertically aligned pumps with 16-inch diameter impellers. Each pump is powered by a 20 horsepower (hp) Marathon Electric motor operating at a speed of 880 revolutions per minute (rpm). This equipment is housed in a 10.3-foot diameter steel dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 28.3 feet. Figures 2 and 3 provide elevation and plan views of the station. There is extreme corrosion in the lower room of the dry well as seen in attached photos 2 and 3.

Pump Station 157 collects wastewater from the surrounding gravity sewer system into a 21.7-foot deep concrete wet well. The cross sectional area of the wet well is an arched pipe shape with estimated 77-inch by 122-inch dimensions. The concrete aggregate is exposed throughout the interior surface of the wet well suggesting a corrosion problem.

A drawdown/fill test was conducted to determine the capacity of Pump Station 157. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 260 gallons per minute (gpm) at 66 feet of head. The shut-off head of both pumps was found to be 69 feet. The pumps normal operating head is close to the shut-off head which suggests that the pumps or the downstream piping may require a capacity increase. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 265 gpm at 68 feet of head. This further illustrates that a downstream piping or pump capacity increase could be necessary due to the fact that operating two pumps essentially does not increase the station's capacity.

Recommendations:

1. An initial observation of the wet well suggests that corrosion is occurring. The extent of the damage should be further investigated and corrected as necessary.
2. Corrosion in the pump room is significant. Measures should be taken to protect or replace severely corroded piping, components and the dry well structure itself. The steel floor should be analyzed for structural integrity and corrected as required.
3. The pumps are operating in the "flat" portion of the curve close to shut-off head. The capacity of the pumps is significantly reduced due to the friction head required through the downstream 6-inch piping. A hydraulic analysis should be conducted to determine the total flows through Pump Station 157 and its effect on the downstream forcemain network.
4. The physical condition of the motors is poor due to corrosion. It is recommended that this situation be addressed.



	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 15; JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 157 (MECO)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

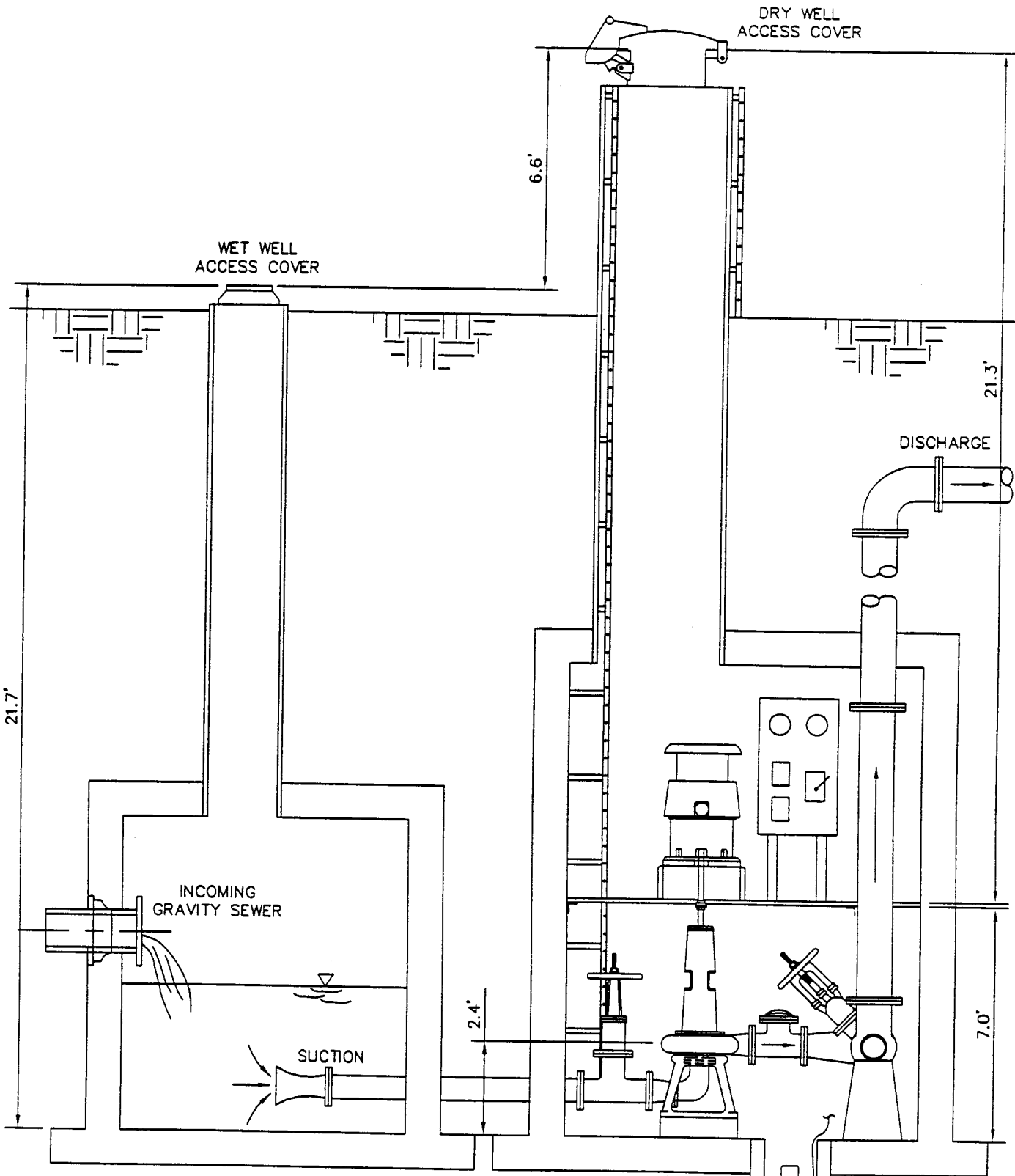
FIGURE:

1

DATE:

3/28/97

FILE NO.: 15. JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)

 **SEWERAGE AND WATER BOARD**
OF NEW ORLEANS

 **MONTGOMERY WATSON**

PUMP STATION 157 (MECO)
CAN TYPE FLOODED SUCTION

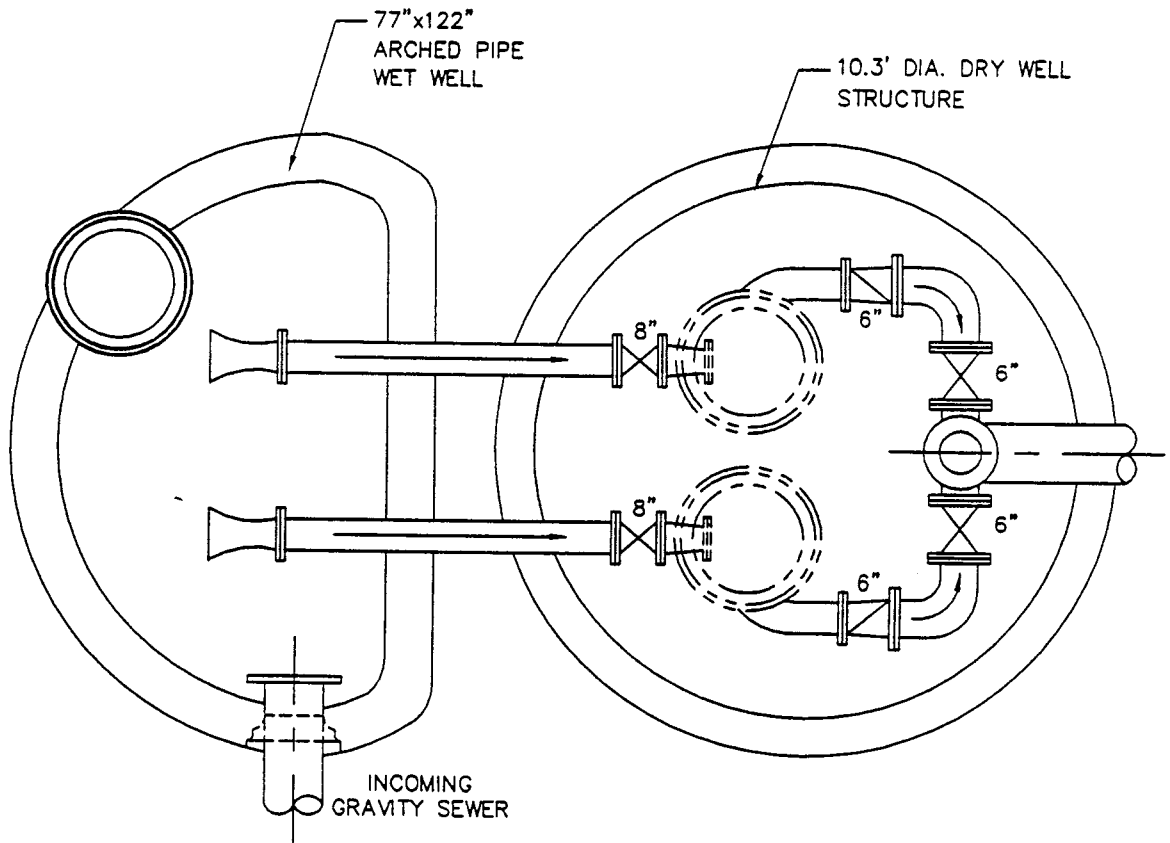
FIGURE:

2

DATE:

3/28/97

FILE NO.: 15 JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 157 (MECO)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 157 (MECO)

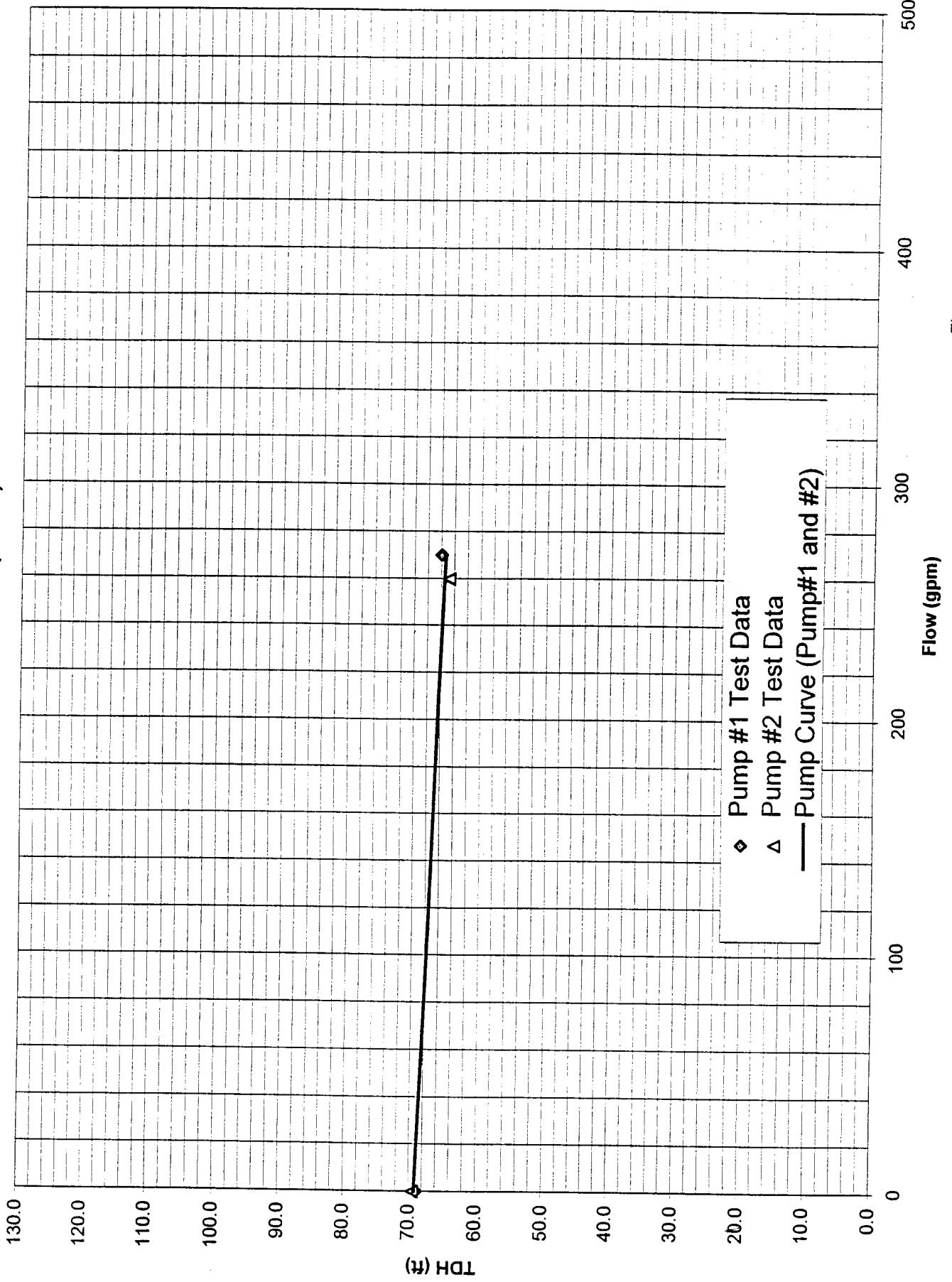


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 157

General Information

PS No. 157 PS Facility Meco

Address 3855 France Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 16.0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 K2X1080231-1

Model Number-Pump #3 _____ Serial Number-Pump #3 _____

Model Number-Pump #4 _____ Serial Number-Pump #4 _____

Pump Configuration Vertical Horizontal

Nameplate Rating 300 gpm 64 ft. of head 870 rpm

Pump Suction 8 inch Pump Discharge 6 inch FM Diameter 6 inch

Suction Valve Size 8 inch Discharge Valve Size 6 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 6 inch

Dry Well Dimensions 10.3 ft. dia. Length 0 ft. Width: 0 ft. Depth 28.3 ft.

Pump centerline* 2.4 ft. Centerline of discharge pipe* _____ ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 157

Pump Controls

Lead pump on 6.5 ft. Type of Controls bubbler
Lead pump off 3 ft.
Lag pump on 7.5 ft.
Lag pump off 4 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is poor due to severe corrosion in the pump room, specifically the steel dry well structure.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments 77" x 122" arch pipe

Diameter 0 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 21.7 ft.

Sewer Invert(s) Depth* 16.7 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 157

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480V three phase open delta (2 transformers bank)

Size of service protective device 175 amps, dual element, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 60 amps, dual element, fusible disconnect switch

Service wire size #2/0 AWG Size of motor starter in NEMA 2

Motor wire size #8 AWG Motor Horsepower 20

Number of motors 2 Motor Speed Single

Speed(s) in rpm not available

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # ED324TTDD7108AA Serial Number - Motor # 1008247

Model Number - Motor # ED324TTDD7108AA Serial Number - Motor # 1008246

Model Number - Motor # - _____ Serial Number - Motor # - _____

Model Number - Motor # - _____ Serial Number - Motor # - _____

Comments The physical condition of the motor controller and control panel is fair. The physical condition of the two motors is poor due to corrosion. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or tow of the three fuses are blown. The electrical control has no pahse montiro circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-

Pump Station 157 (Meco)



Photo Number 1



Pump Station 157 (Meco)

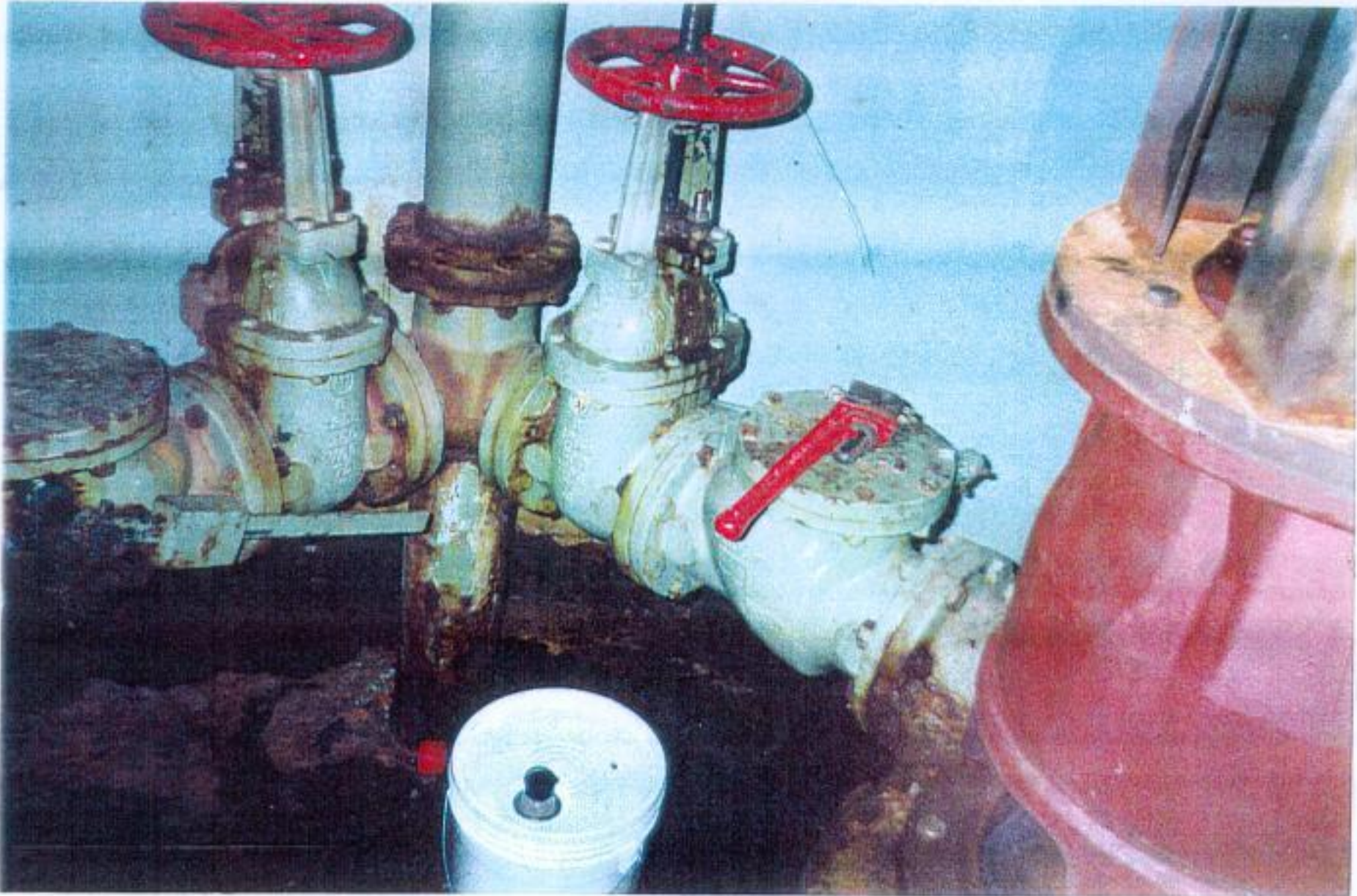


Photo Number 3



Pump Station 157 (Meco)

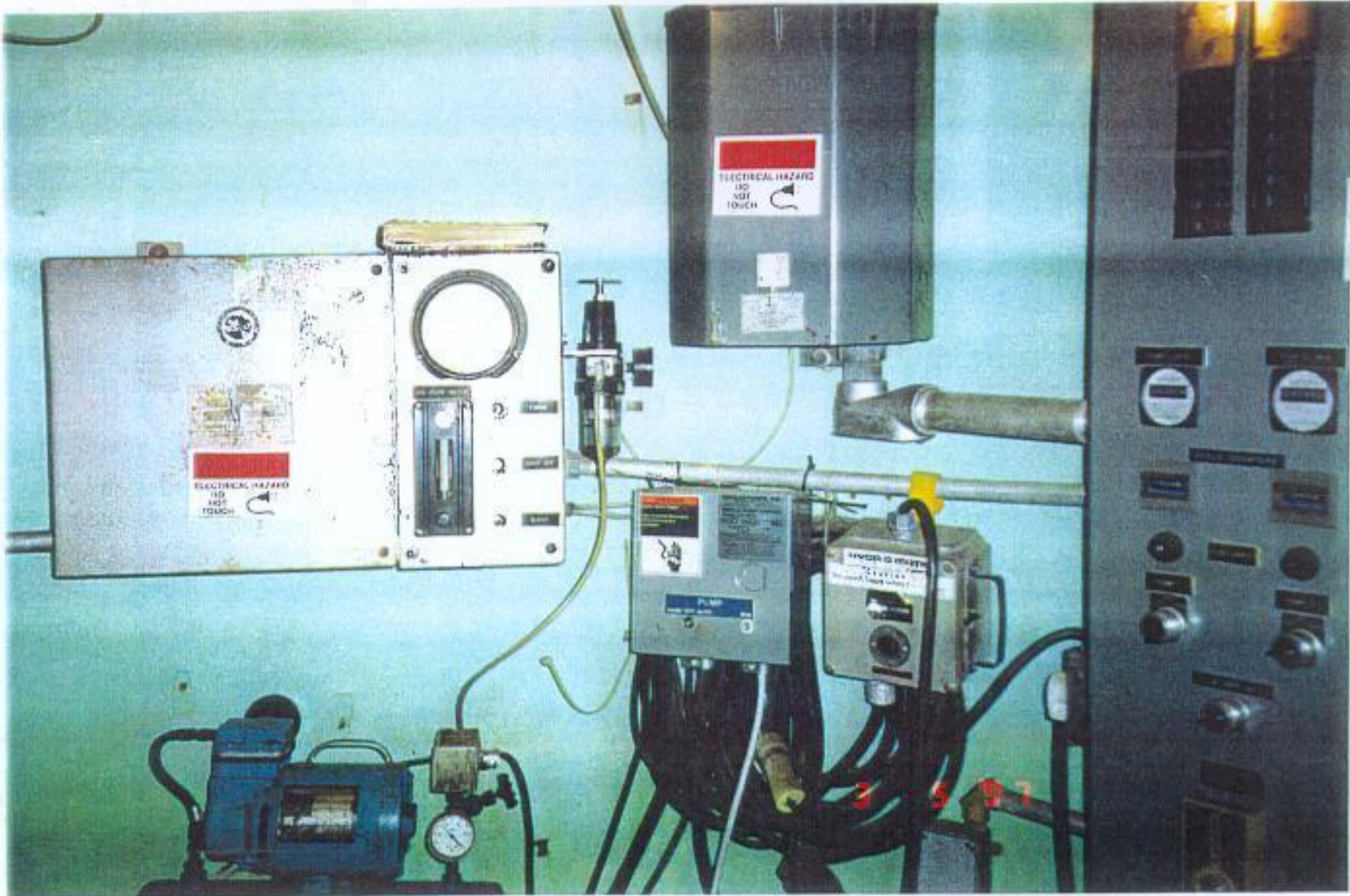


Photo Number 5



**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 158 (MICHOU D)
4400 MICHOU D BOULEVARD**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 158 (Michoud)

Pump Station 158 is a flooded-suction, can-type station located on 4400 Michoud Boulevard. Wastewater discharges the station via a 12-inch diameter force main and connects to an 18-inch force main along Michoud Boulevard. Pump Station 158 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 158.

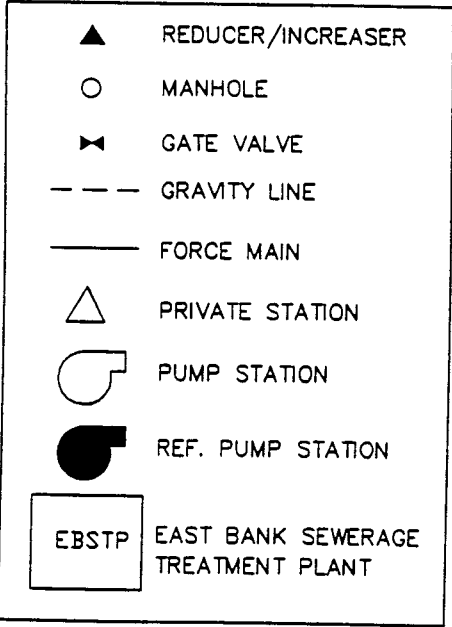
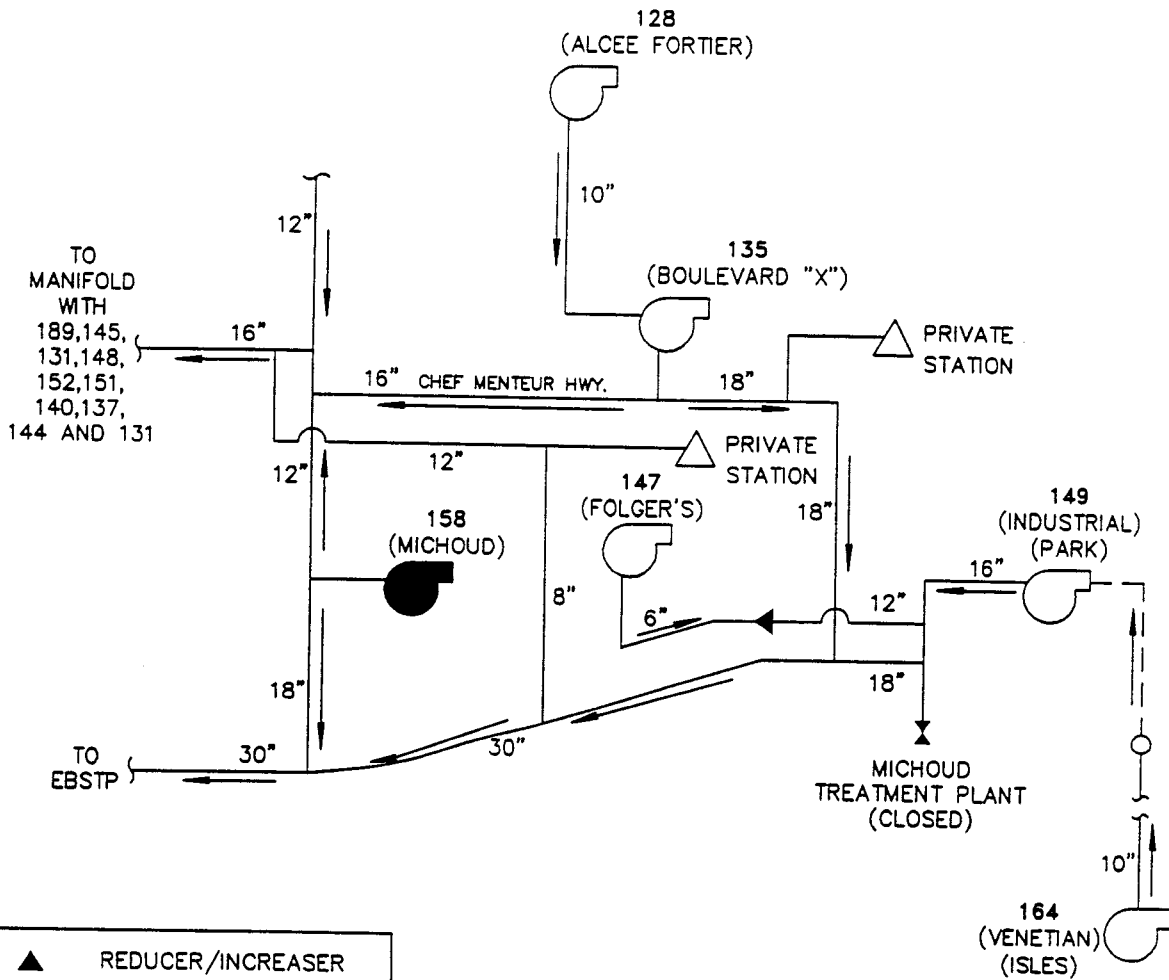
Pump Station 158 contains two (8-inch by 8-inch) Fairbanks Morse vertically aligned pumps. Each pump is powered by a 100 horsepower (hp) General Electric dual-speed motor operating at a speed of 880 revolutions per minute (rpm). These motors can be operated at a higher speed of 1180 rpm. However, the motors are never operated at 1180 rpm and are electrically prevented from operating at this rate. This equipment is housed in a 10.4-foot diameter steel dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 29.0 feet. Figures 2 and 3 provide plan and elevation views of the station. There is extreme corrosion in the lower room of the dry well, specifically on the steel floor of the dry well. This corrosion can be seen in attached photos 2 and 3.

Pump Station 158 collects wastewater from the surrounding gravity sewer system into a 26.1-foot deep concrete wet well. The cross sectional area of the wet well estimated as circular with a 7-foot diameter. There is a hole in the side of wet well through which inflow was seen entering during wet weather.

A draw down/fill test was conducted on two occasions to determine the capacity of Pump Station 158. Figure 4 shows pump curves constructed from obtained test data for each pump. Pump #1 has an approximate capacity of 2000 gallons per minute (gpm) at 55 feet of head. The shut-off head of Pump #1 was found to be 93 feet. Pump #2 has an approximate capacity of 1000 gallons per minute (gpm) at 46 feet of head. The shut-off head of Pump #2 was found to be 62 feet.

Recommendations:

1. Corrosion in the pump room is significant. Measures should be taken to protect or replace severely corroded piping, components and the dry well structure itself. The steel floor should be analyzed for structural integrity and corrected as required.
2. Repair of the hole allowing inflow into the wet well is recommended.
3. It is noted that the physical condition of the motors, motor controller and the electric service disconnect switch is poor due to corrosion. It is recommended that these issues be addressed.



NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

JOB NO.: 1113030.01090120 DATE: 3/28/97

FILE NO.: 15L



PUMP STATION 158 (MICHLOUD)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

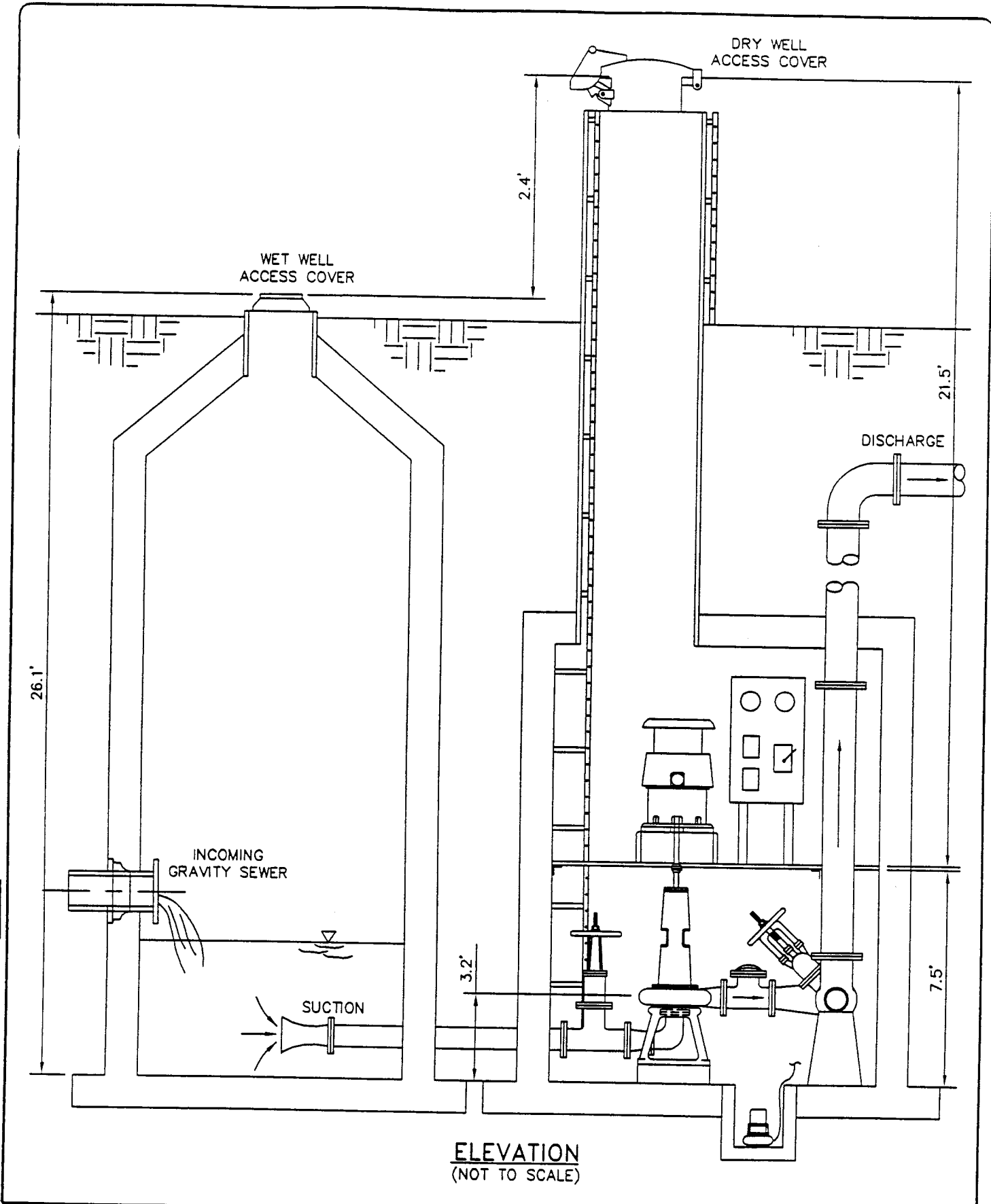
FIGURE:

1

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3/28/97

FILE NO.: 156
JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 158 (MICHLOUD)
CAN TYPE FLOODED SUCTION

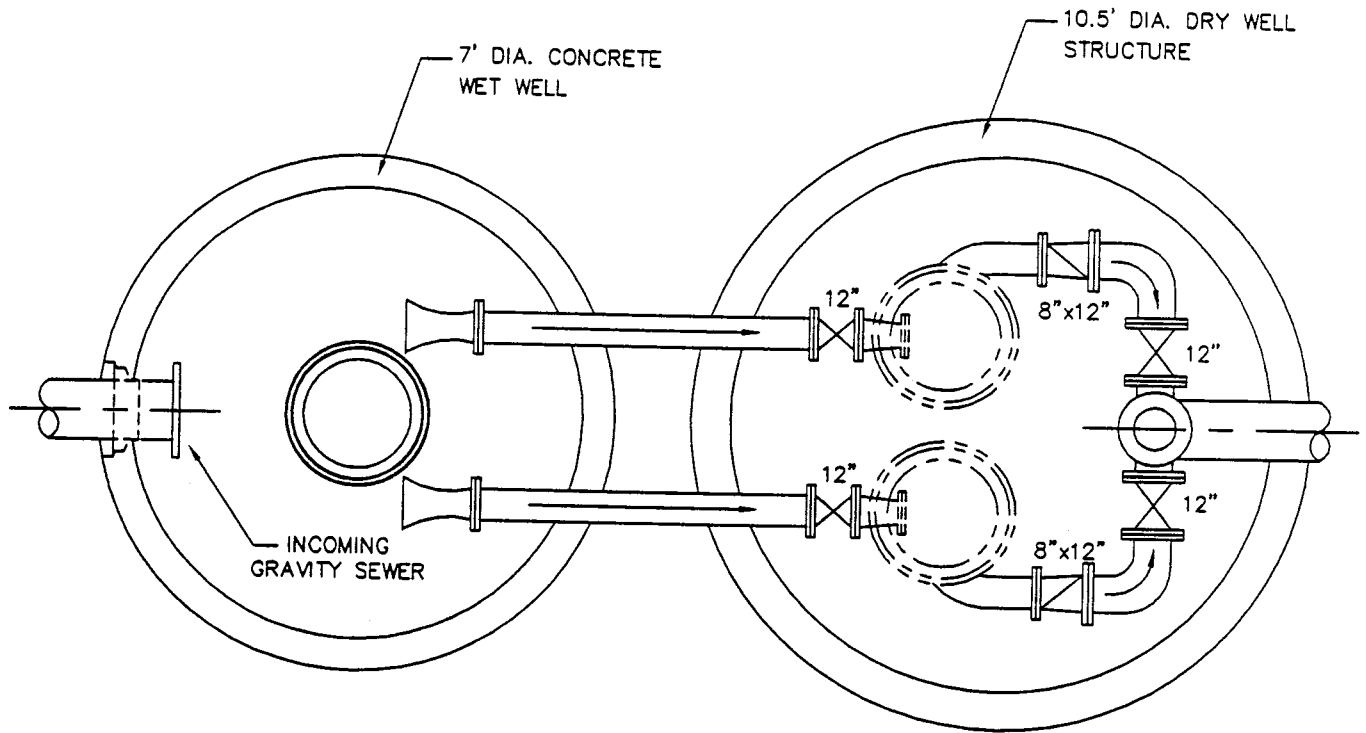
FIGURE:

2

DATE:

3/28/97

FILE NO.: 151
JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 151



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 158 (MICHOD)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 158 (Michoud)

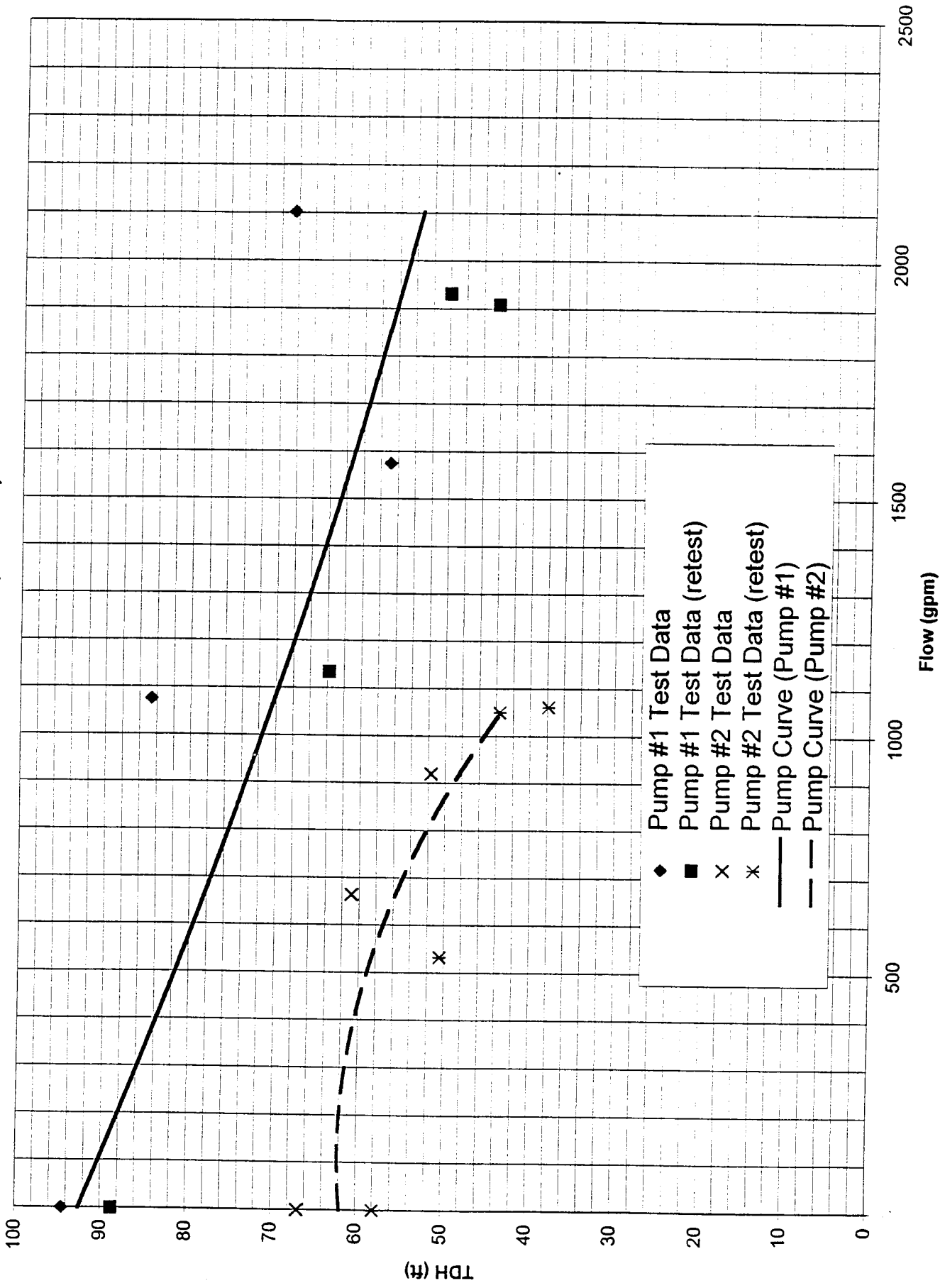


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 158

General Information

PS No. 158 PS Facility Michoud Address 4400 Michoud Boulevard

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer not readable

Impeller Diameter 0 inch

Model Number-Pump #1 not readable Serial Number-Pump #1 not readable

Model Number-Pump #2 not readable Serial Number-Pump #2 not readable

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size 0 inch Discharge Valve Size 12 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 8 x 12 inch

Dry Well Dimensions 10.4 ft. dia. Length 0 ft. Width: 0 ft. Depth 29 ft.

Pump centerline* 3.2 ft. Centerline of discharge pipe* 0 ft.

* measured from dry well bottom.

Notes: The centreline of the discharge pipe is vertical.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 158

Pump Controls

Lead pump on 14 ft. Type of Controls bubbler
Lead pump off 7 ft.
Lag pump on 15 ft.
Lag pump off 8 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is poor due to the severe corrosion in the pump room, specifically the steel dry well structure.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition Concrete

Comments A hole was observed in the liner which allowed infiltration.

Diameter 7 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 26.1 ft.

Sewer Invert(s) Depth* 20.5 ft.

15.5 ft.

**measured from top of wet well cover.*

Pump Station 158 (Michoud)



Photo Number 1

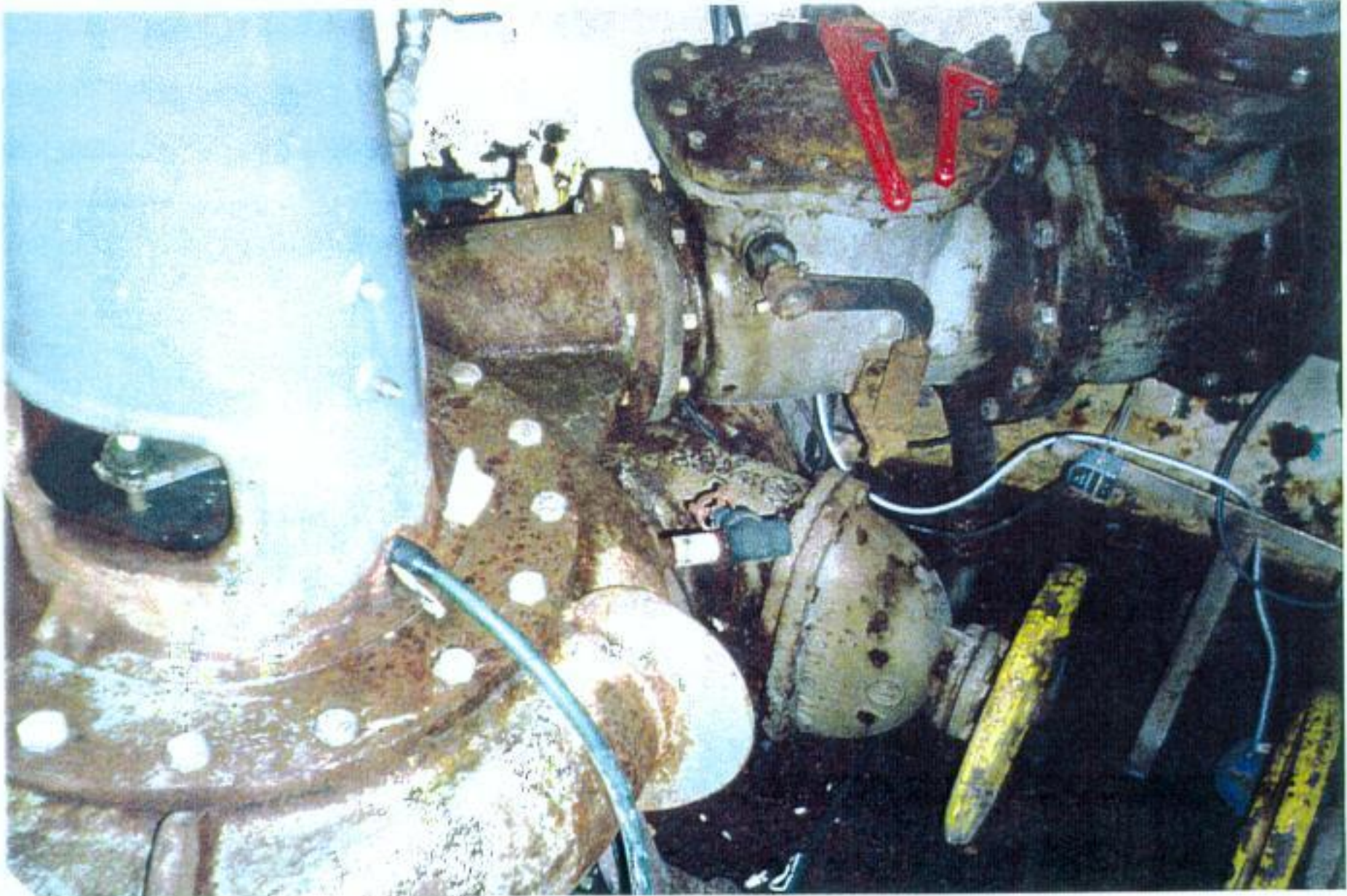


Photo Number 2

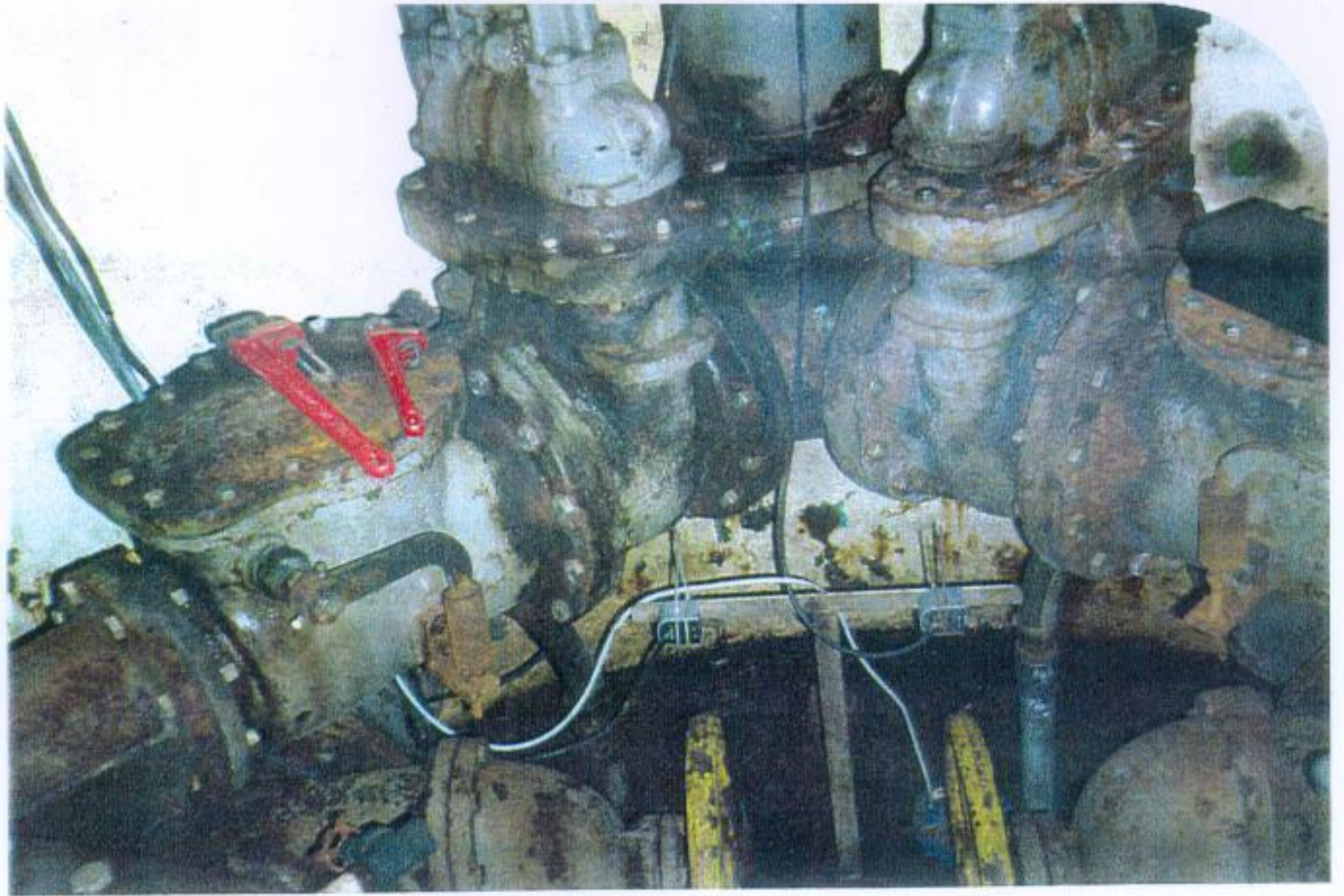


Photo Number 3



Photo Number 4



Photo Number 5

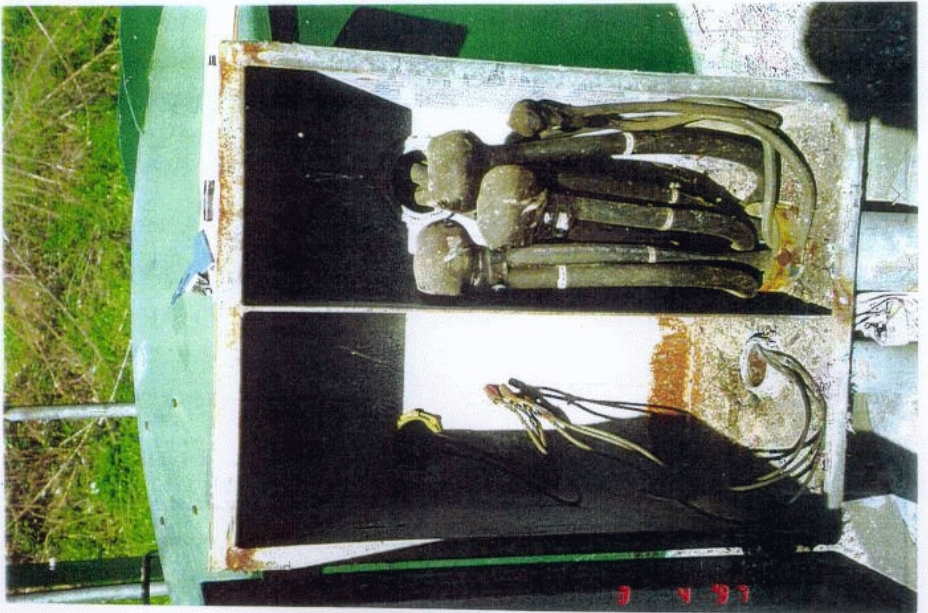


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 159 (OAK ISLAND)
14201 MICHLOUD BOULEVARD**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 159 (Oak Island)

Pump Station 159 is a multi-leveled, flooded-suction station located on 14201 Michoud Boulevard. Flow discharges the station via a 14-inch diameter force main and connects to the 20-inch portion of the Morrison Road force main. Pump Station 159 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 159.

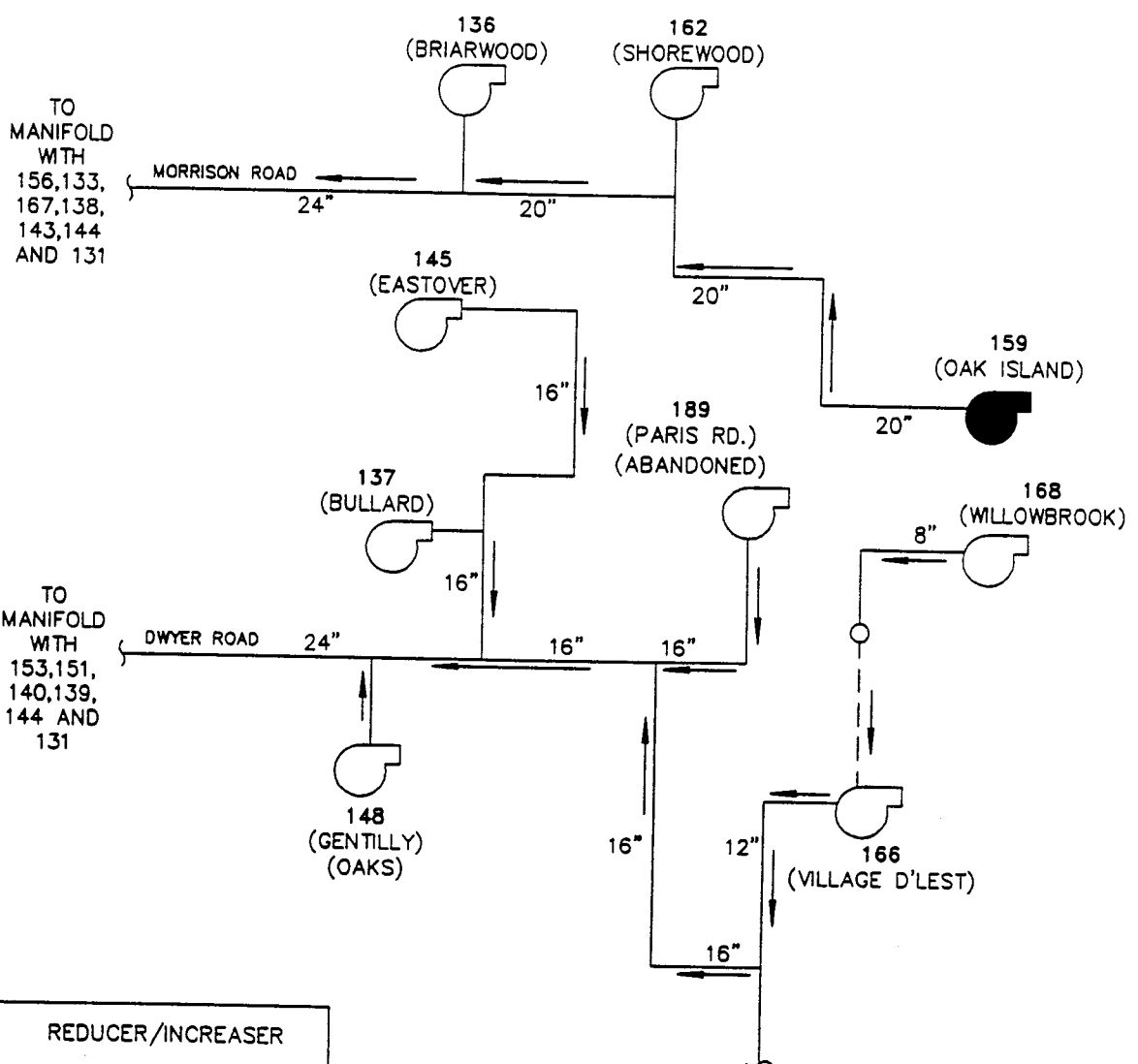
Pump Station 159 contains two (8-inch by 8-inch) Fairbanks Morse vertically aligned pumps with 16-inch diameter impellers. Each pump is powered by a 125 horsepower (hp) General Electric motor operating at a speed of 1180 revolutions per minute (rpm). This equipment is housed in a 12-foot by 13-foot reinforced concrete and stucco/block dry well structure. The total depth of the dry well from the floor of the motor control room to the bottom is 25.3 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is good although there is isolated corrosion located around the pump as seen in photo number 2.

Pump Station 159 collects wastewater from the surrounding gravity sewer system into a 18.3-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated 12-foot by 13-foot dimensions. The overall condition of the wet well appears to be fair.

A draw down/fill test was conducted to determine the capacity of Pump Station 159. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 2300 gallons per minute (gpm) at 68 feet of head. The shut-off head of both pumps was found to be 120 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 3000 gpm at 88 feet of head.

Recommendations:

After an initial evaluation of Pump Station 159 no site specific recommendations can be made at this time.



TO
MANIFOLD
WITH
156,133,
167,138,
143,144
AND 131

TO
MANIFOLD
WITH
153,151,
140,139,
144 AND
131

	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

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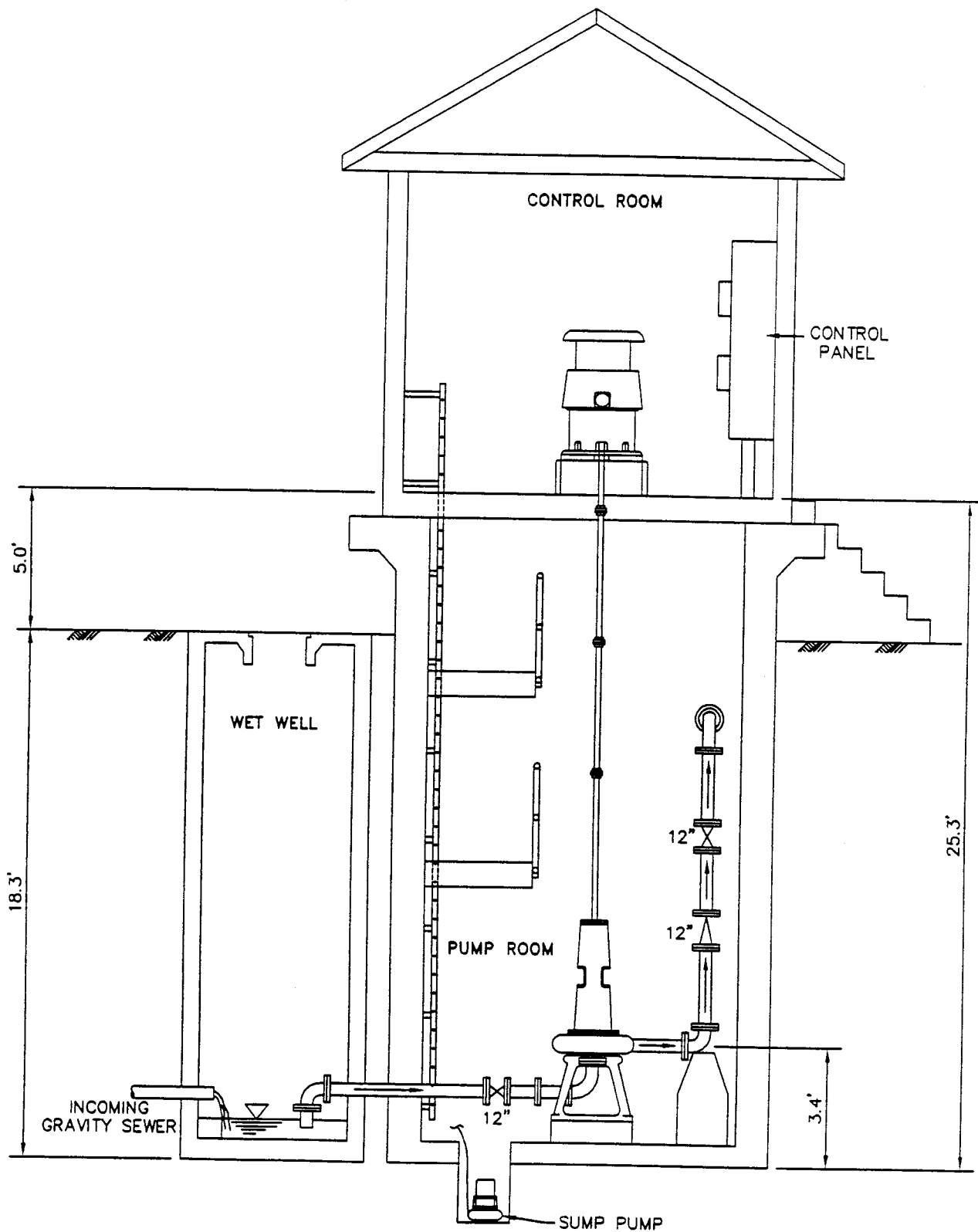
	SEWERAGE AND WATER BOARD OF NEW ORLEANS

PUMP STATION 159 (OAK ISLAND)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97

JOB NO.: 1113030.01090120 DATE: 3/28/97

FILE NO.: 156



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 159 (OAK ISLAND)
MULTI-LEVEL FLOODED SUCTION

FIGURE:

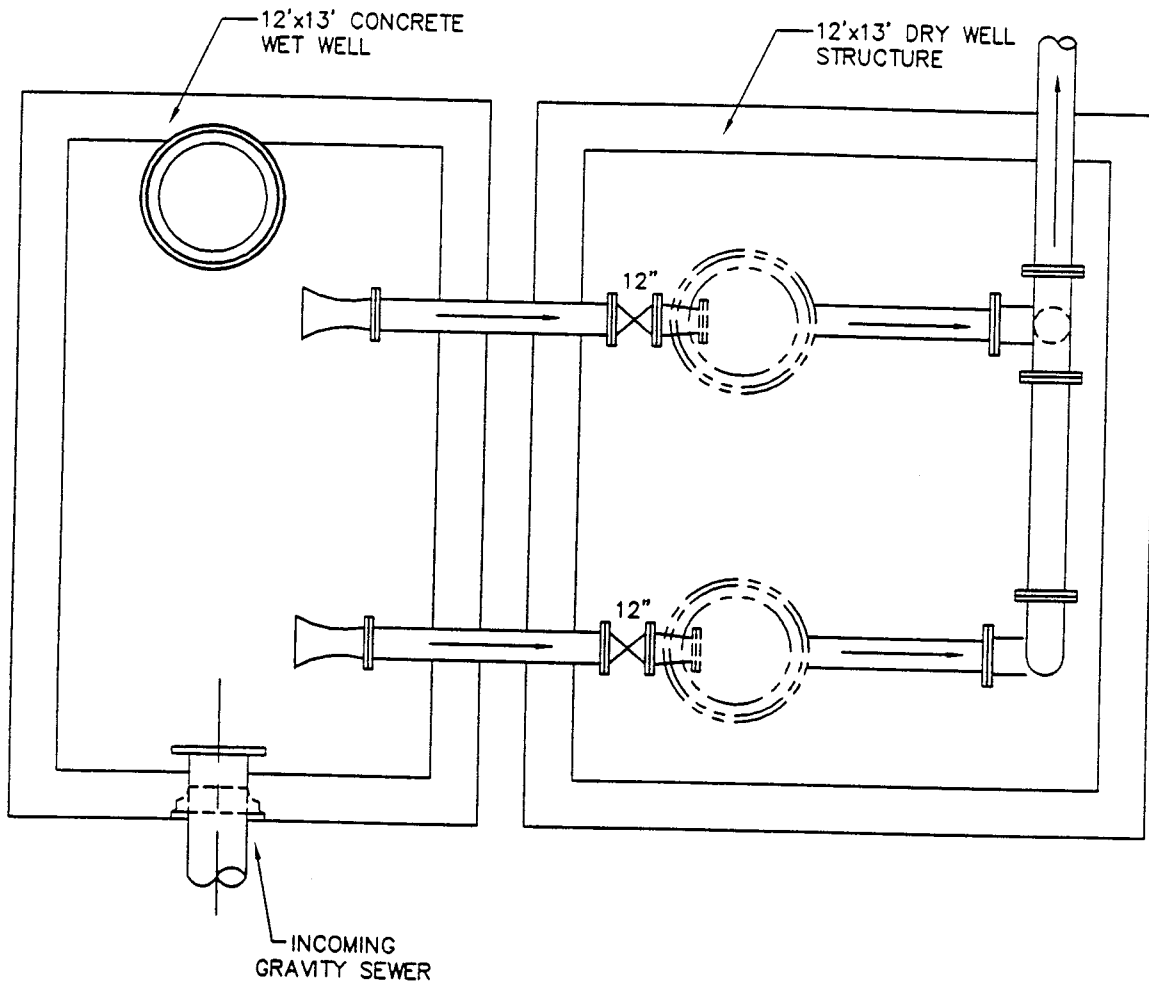
2

DATE:

3/28/97

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PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 159 (OAK ISLAND)
MULTI-LEVEL FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 159 (Oak Island)

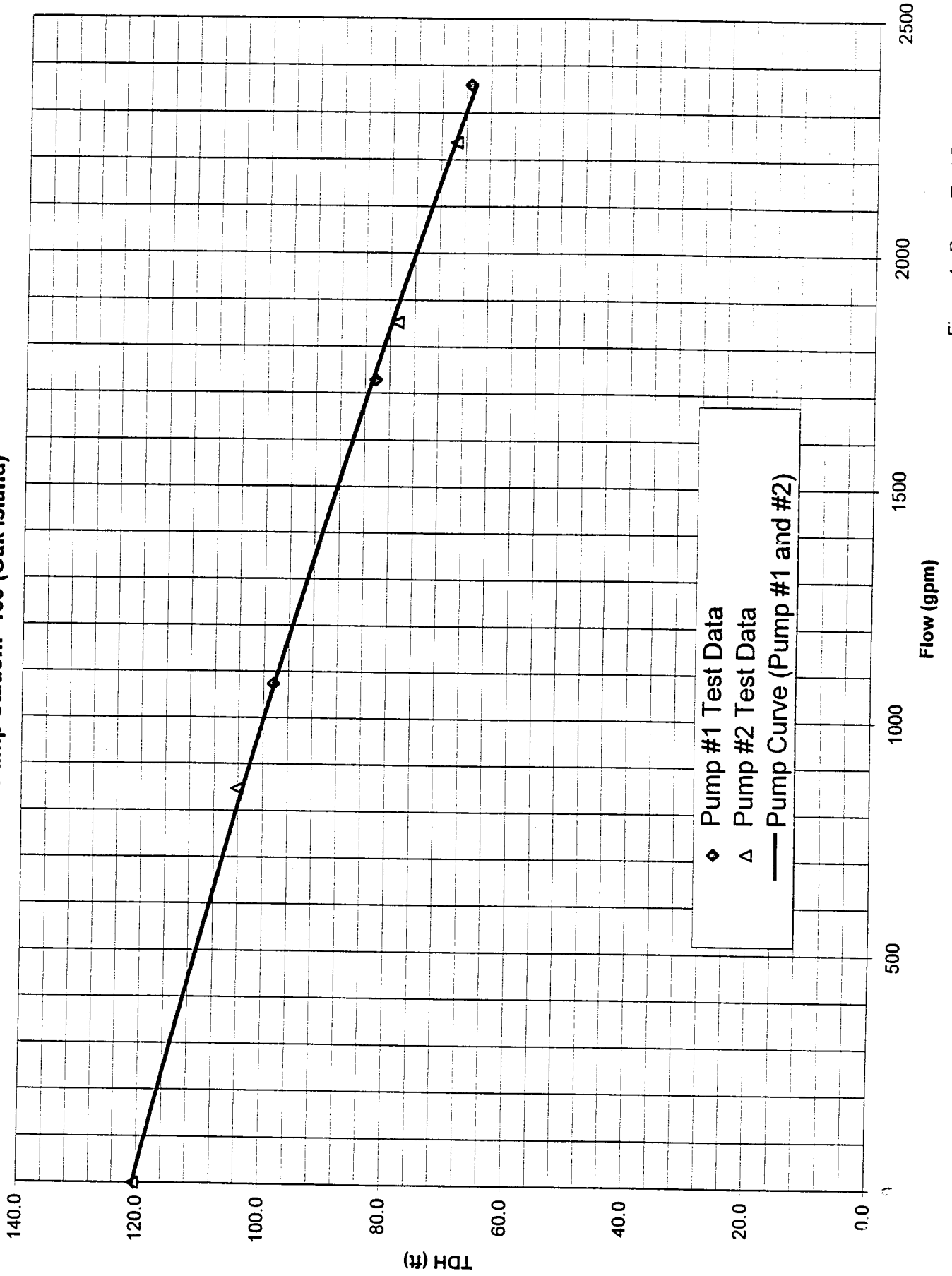


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 159

General Information

PS No. 159 PS Facility Oak Island Address 14201 Michoud Boulevard

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 16 inch

Model Number-Pump #1 B5415 Serial Number-Pump #1 K3H1060251-1

Model Number-Pump #2 B5415 Serial Number-Pump #2 K3H1060251-1

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 14 inch

Suction Valve Size 0 inch Discharge Valve Size 12 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 12 inch

Dry Well Dimensions 0 ft. dia. Length 12 ft. Width: 11 ft. Depth 25.3 ft.

Pump centerline* 3.4 ft. Centerline of discharge pipe* 12.6 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? seals leak

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 159

Pump Controls

Lead pump on 6.8 ft. Type of Controls bubbler
Lead pump off 3.8 ft.
Lag pump on 7.8 ft.
Lag pump off 4.2 ft.

Notes: Drag Down on 3.8, off 4.2

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments There is significant corrosion of the manhole cover and ring.

Diameter 0 ft. Length 11 ft. Width 12 ft.

Bottom Depth* 18.3 ft.

Sewer Invert(s) Depth* 14.6 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 159

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service Pad Mounted Transformer, 480/277V three phase

Size of service protective device not available

Size of main protective device 400 amps, dual element, fusible disconnect switch

Size of motor protective device 200 amps, dual element fusible disconnect switch

Service wire size 500 kcmil Size of motor starter in NEMA 4

Motor wire size #3/0 AWG Motor Horsepower 125

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1180

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # 5K6286XH745A Serial Number - Motor # CVJ714112

Model Number - Motor # 5K6286XH745A Serial Number - Motor # CVJ714112

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller and control panel is good. The pump station has a main fusible disconnect switch and a combination of a circuit breaker and fuses for motor protection. The three phase fuse arrangement is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lighting arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for

Pump Station 159 (Oak Island)



Photo Number 1



Pump Station 159 (Oak Island)



Photo Number 3



**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

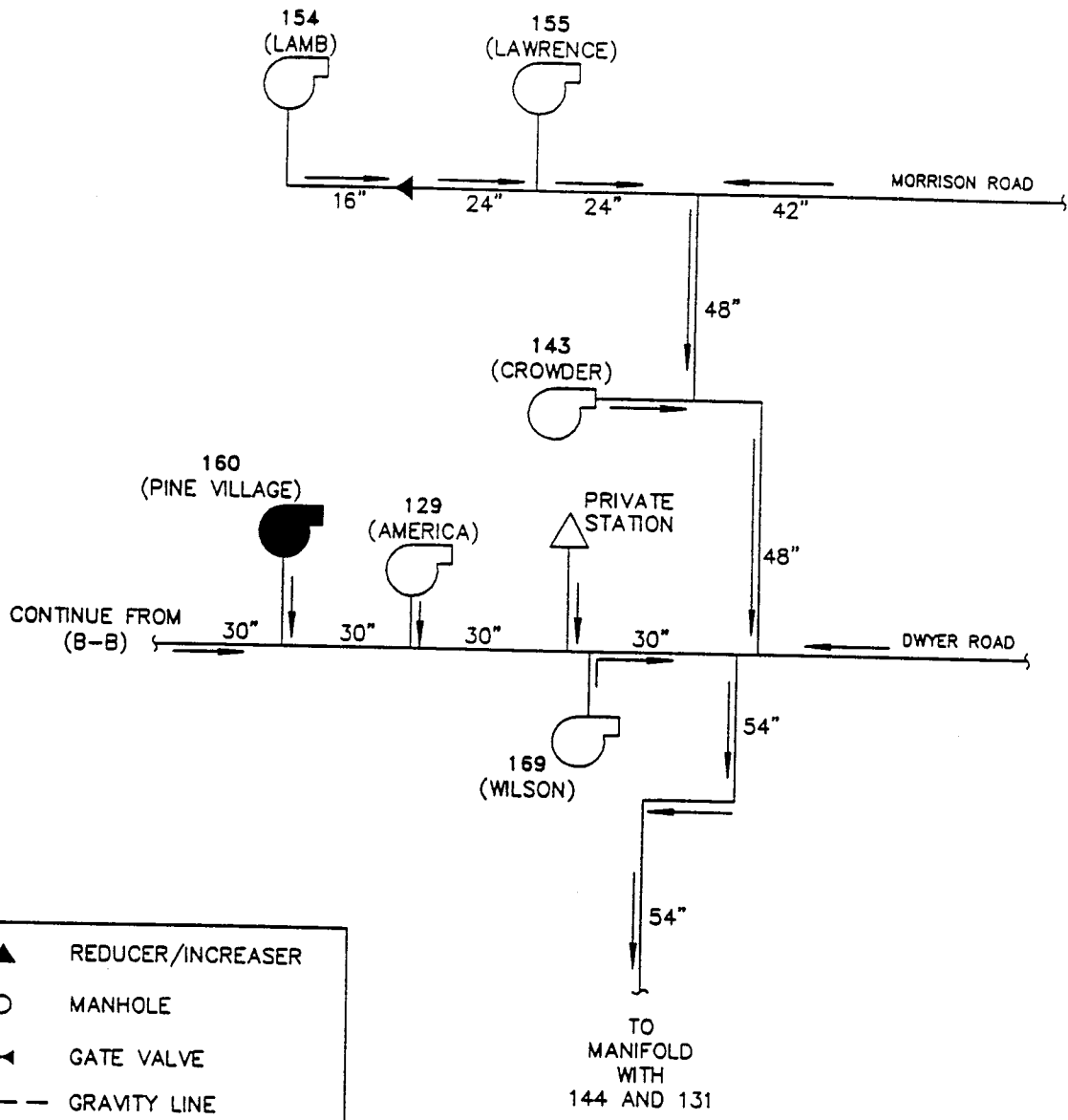
**SEWERAGE PUMPING STATION
NUMBER 160 (PINE VILLAGE)
6155 DWYER ROAD**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 160 (Pine Village)

Pump Station 160 is located at 6155 Dwyer Road. It discharges into a force main which manifolds with the 30-inch diameter portion of the Dwyer Road force main. No testing, condition assessment, or equipment inventory was performed due to its scheduled replacement.



- ▲ REDUCER/INCREASER
- MANHOLE
- ⋈ GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- ◐ PUMP STATION
- ◑ REF. PUMP STATION
- EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

JOB NO.: 1113030.01090120 DATE: 3/28/97

FILE NO.: 160



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 160 (PINE VILLAGE)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

1

DATE:

3/28/97

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 160

General Information

PS No. 160 PS Facility Pine Village Address 6155 Dwyer

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 0 Pump Manufacturer _____

Impeller Diameter 0 inch

Model Number-Pump #1 _____ Serial Number-Pump #1 _____

Model Number-Pump #2 _____ Serial Number-Pump #2 _____

Model Number-Pump #3 _____ Serial Number-Pump #3 _____

Model Number-Pump #4 _____ Serial Number-Pump #4 _____

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 0 inch Pump Discharge 0 inch FM Diameter 0 inch

Suction Valve Size 0 inch Discharge Valve Size 0 inch

Suction Valve Type 0 Discharge Valve Type 0

Check Valve Size 0 inch

Dry Well Dimensions 0 ft. dia. Length 0 ft. Width: 0 ft. Depth 0 ft.

Pump centerline* 0 ft. Centerline of discharge pipe* 0 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 160

Pump Controls

Lead pump on ___ 0 ___ ft. Type of Controls _____

Lead pump off ___ 0 ___ ft.

Lag pump on ___ 0 ___ ft.

Lag pump off ___ 0 ___ ft.

Notes: _____

Structural Observations

Exterior _____

Interior _____

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter ___ 0 ___ ft. Length ___ 0 ___ ft. Width ___ 0 ___ ft.

Bottom Depth* ___ 0 ___ ft.

Sewer Invert(s) Depth* ___ 0 ___ ft.

 ___ 0 ___ ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 160

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device _____

Size of main protective device 200 amps, dual element, fusible disconnect switch

Size of motor protective device 125 amps, dual element, fusible disconnect switch

Service wire size #3/0 AWG Size of motor starter in NEMA 4

Motor wire size #2 AWG Motor Horsepower 60

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1765

Frequency in Hertz 60

Type of starter Full voltage non-reversing

Model Number - Motor # _____ Serial Number - Motor # _____

Model Number - Motor # _____ Serial Number - Motor # _____

Model Number - Motor # _____ Serial Number - Motor # _____

Model Number - Motor # _____ Serial Number - Motor # _____

Comments The physical condition of the motors, motor controller, main disconnect switch and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 161 (PLUM ORCHARD)
7300 CHEF HIGHWAY**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 161 (Plum Orchard)

Pump Station 161 is a flooded-suction, can-type station located on 7300 Chef Menteur Highway. Wastewater discharges the station via a 8-inch diameter force main for approximately 100 feet where it begins gravity flow and is repumped by Pump Station 144 (Dodt). Pump Station 161 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 161.

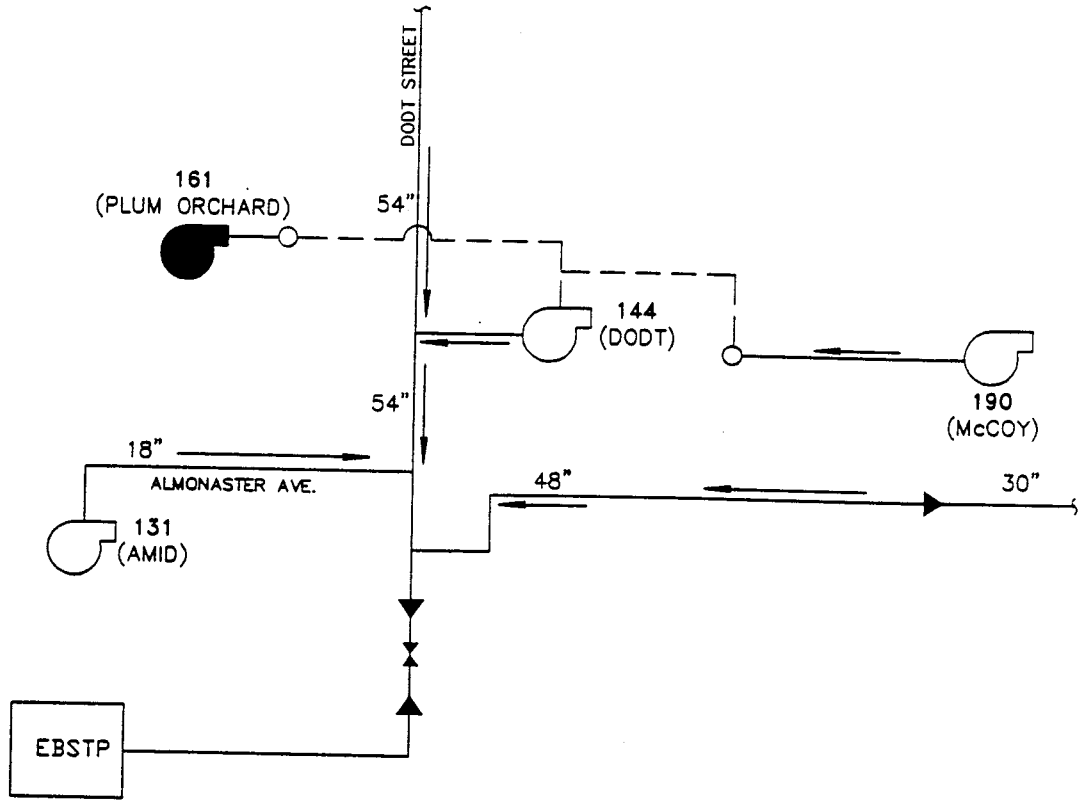
Pump Station 161 contains two (8-inch by 5-inch) Yeoman Brothers vertically aligned pumps with 12.5-inch impellers. Each pump is powered by a 5 horsepower (hp) Westinghouse electric motor operating at a speed of 585 revolutions per minute (rpm). This equipment is housed in a (9.5-foot by 9.5-foot) reinforced concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 24.4 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair although there is isolated corrosion located around the pumps as seen in the attached photos.









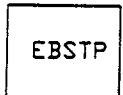
Pump Station 161 collects wastewater from the surrounding gravity sewer system into a 19.2-foot deep cement-lined brick wet well. The cross sectional area of the wet well is circular with an estimated 5-foot diameter. The overall condition of the wet well appears to be fair.

A draw down/fill test was conducted to determine the capacity of Pump Station 161. Figure 4 shows pump curve constructed from obtained test data. Each pump has an approximate capacity of 300 gallons per minute (gpm) at 9 feet of head. The shut-off head of both pumps was found to be 15 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 380 gpm at 11 feet of head.

Recommendations:

1. The physical condition of the electrical service disconnect switch is poor due to corrosion. It is recommended that this electrical issue be addressed.



-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

JOB NO.: 1113030.01090120 DATE: 3/28/97

FILE NO.: 16



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 161 (PLUM ORCHARD)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

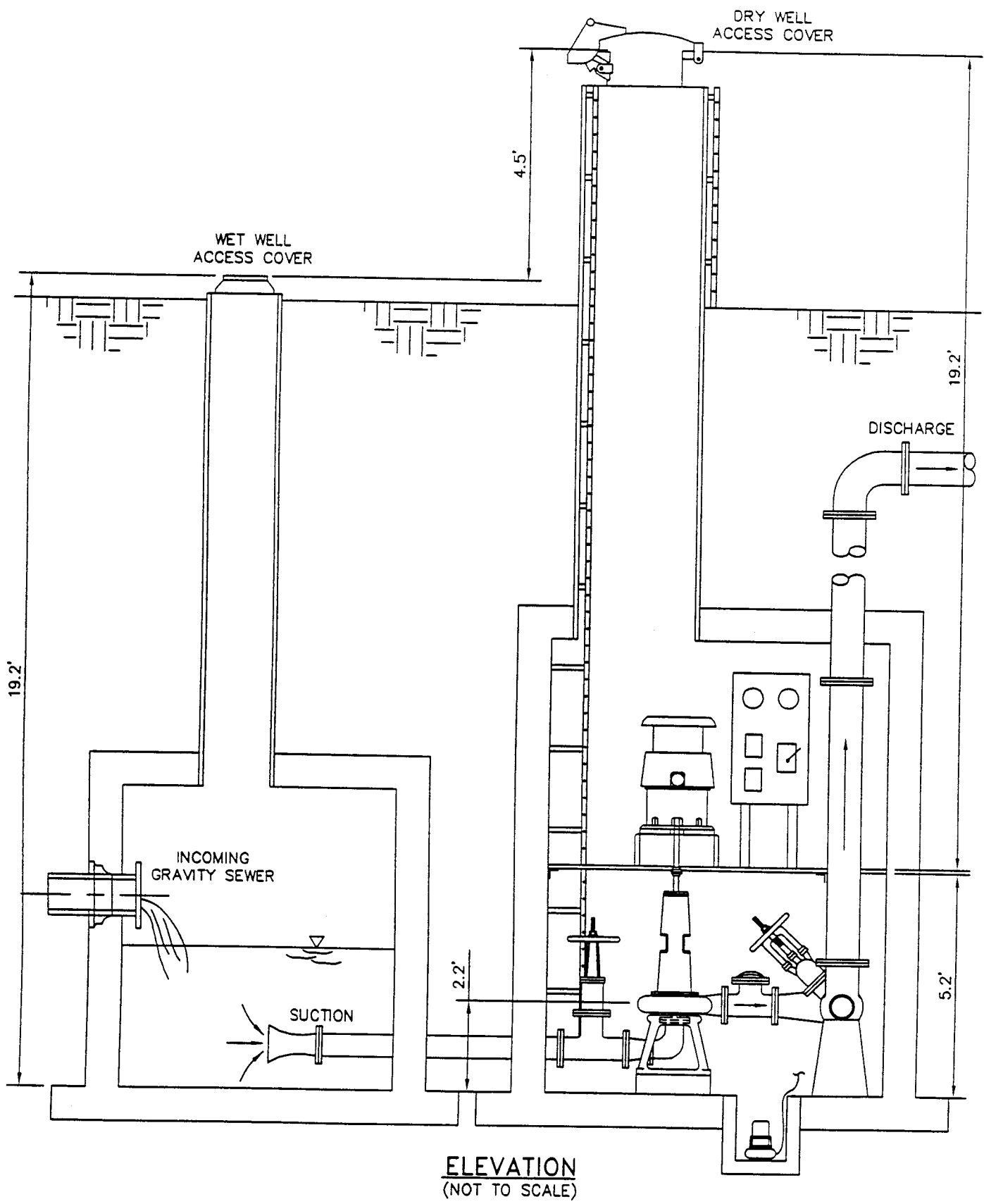
1

DATE:

3/28/97

JOB NO.: 1113030.01090120 DATE: 3/28/97

FILE NO.: 161



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

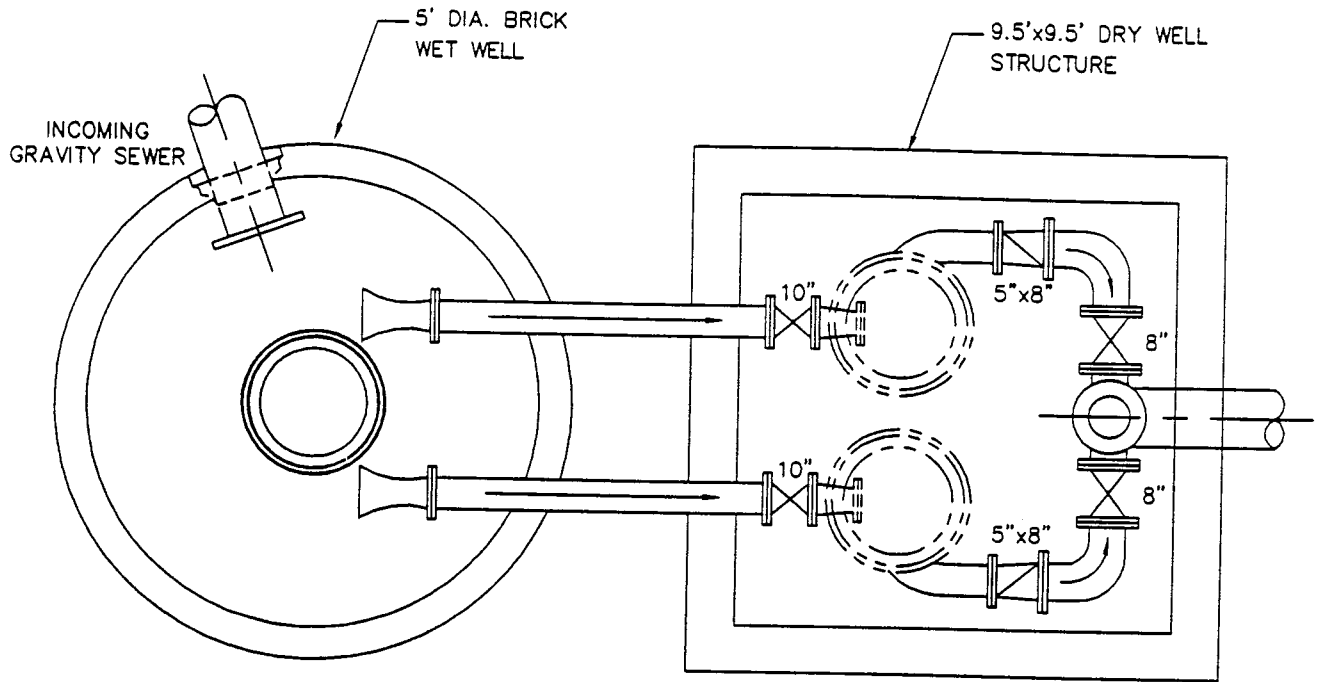
PUMP STATION 161 (PLUM ORCHARD)
CAN TYPE FLOODED SUCTION

FIGURE:

2

DATE:

3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 161 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 161 (PLUM ORCHARD)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 161 (Plum Orchard)

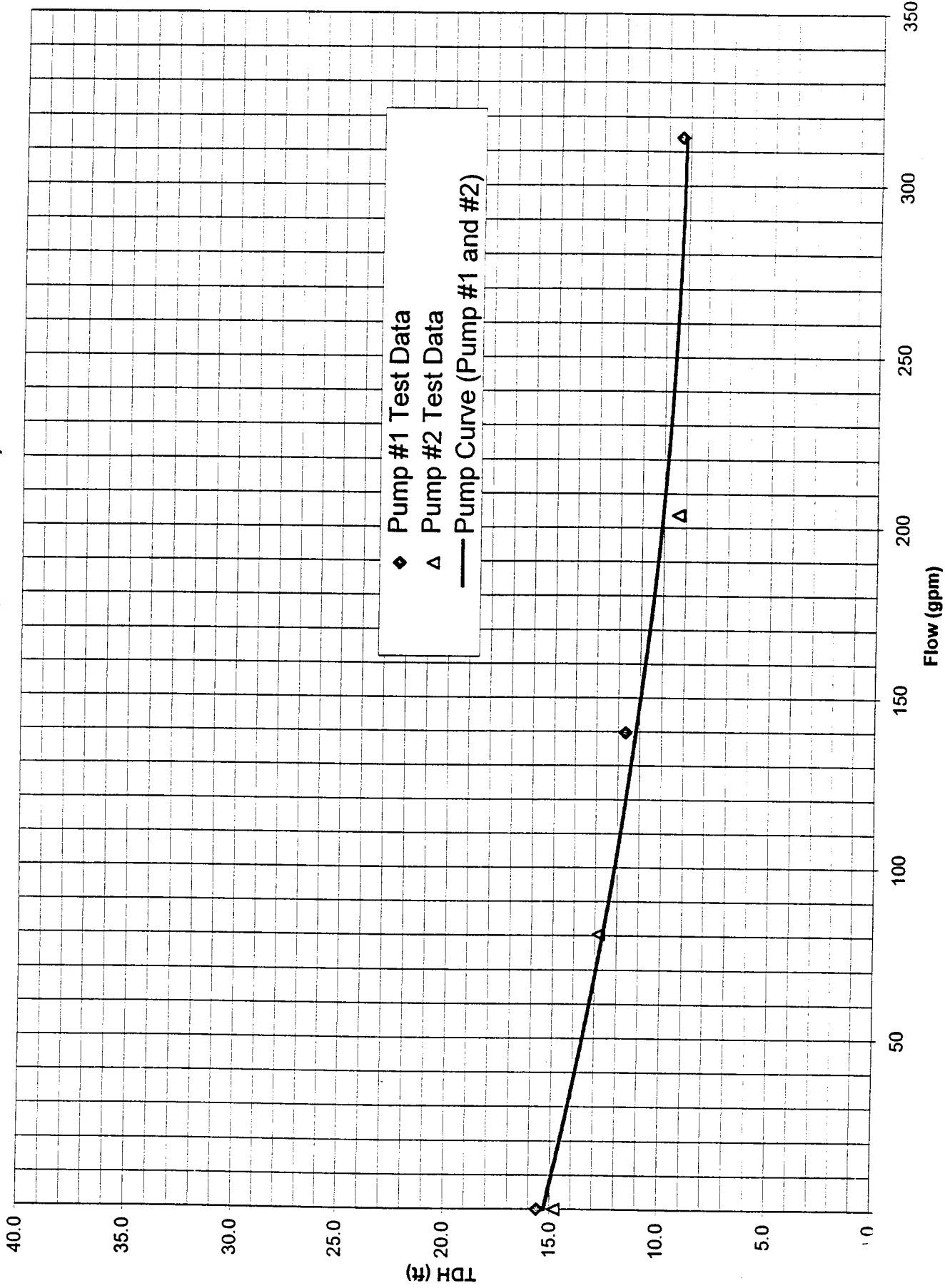


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 161

General Information

PS No. 161 PS Facility Plum Orchard Address 7300 Chef Highway

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Yeoman Brothers

Impeller Diameter 12.5 inch

Model Number-Pump #1 not readable Serial Number-Pump #1 55064

Model Number-Pump #2 not readable Serial Number-Pump #2 55064

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 500 gpm 25 ft. of head 580 rpm

Pump Suction 8 inch Pump Discharge 5 inch FM Diameter 8 inch

Suction Valve Size 10 inch Discharge Valve Size 8 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 5 x 8 inch

Dry Well Dimensions 0 ft. dia. Length 9.5 ft. Width: 9.5 ft. Depth 24.4 ft.

Pump centerline* 2.2 ft. Centerline of discharge pipe* _____ ft.

* measured from dry well bottom.

Notes: The centreline of the discharge pipe appears to be vertical.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 161

Pump Controls

Lead pump on 6 ft. Type of Controls bubbler
Lead pump off 2 ft.
Lag pump on 7 ft.
Lag pump off 3 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition The liner is cement over brick.

Comments The wet well has a section of uPVC jammed in it.

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 19.2 ft.

Sewer Invert(s) Depth* 13.8 ft.

13.5 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 161

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 240V three phase open delta (2 transformers bank)

Size of service protective device 100 amps, dual element, fusible disconnect switch

Size of main protective device Not Available

Size of motor protective device 30 amps, dual element, fusible disconnect switch

Service wire size #3 AWG Size of motor starter in NEMA 2

Motor wire size #10 AWG Motor Horsepower 5

Number of motors 2 Motor Speed Single

Speed(s) in rpm 585

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # ABDP Serial Number - Motor # 24N6857-2

Model Number - Motor # ABDP Serial Number - Motor # 24N6857-1

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the service disconnect switch is poor due to corrosion. The physical condition of the motors, motor controller and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location

Pump Station 161 (Plum Orchard)

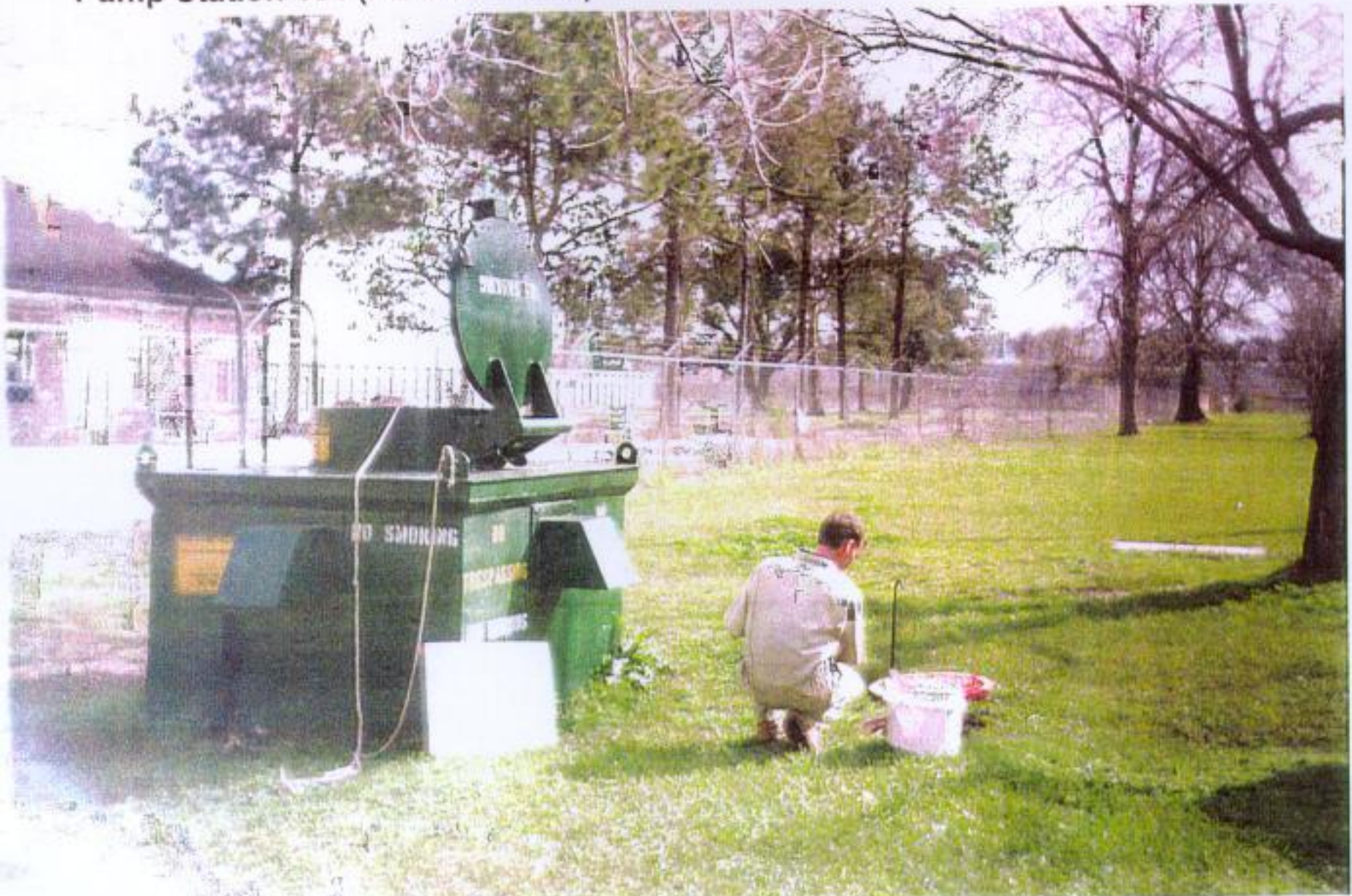


Photo Number 1



Photo Number 2

Pump Station 161 (Plum Orchard)

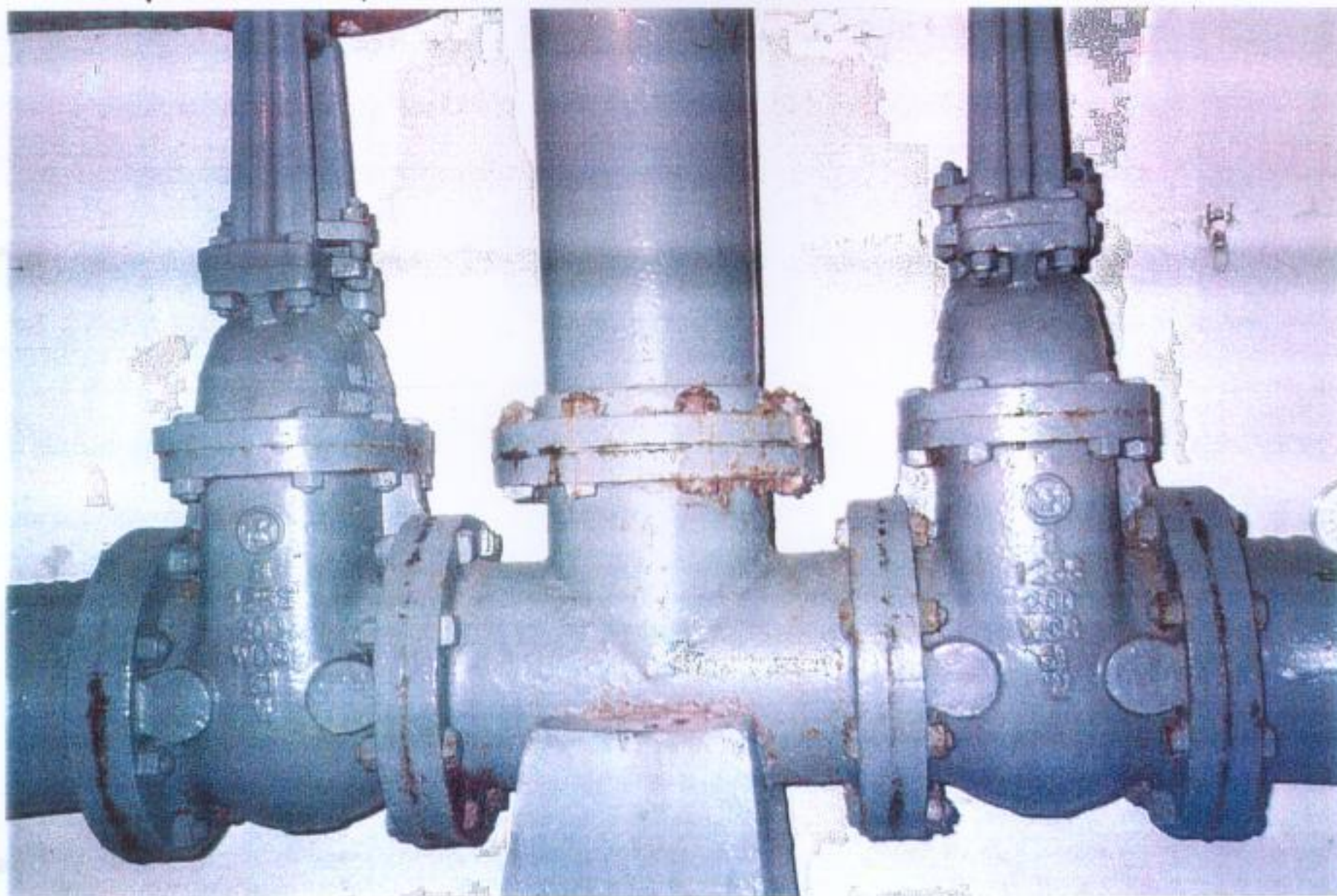


Photo Number 3



Photo Number 4

Pump Station 161 (Plum Orchard)



Photo Number 5

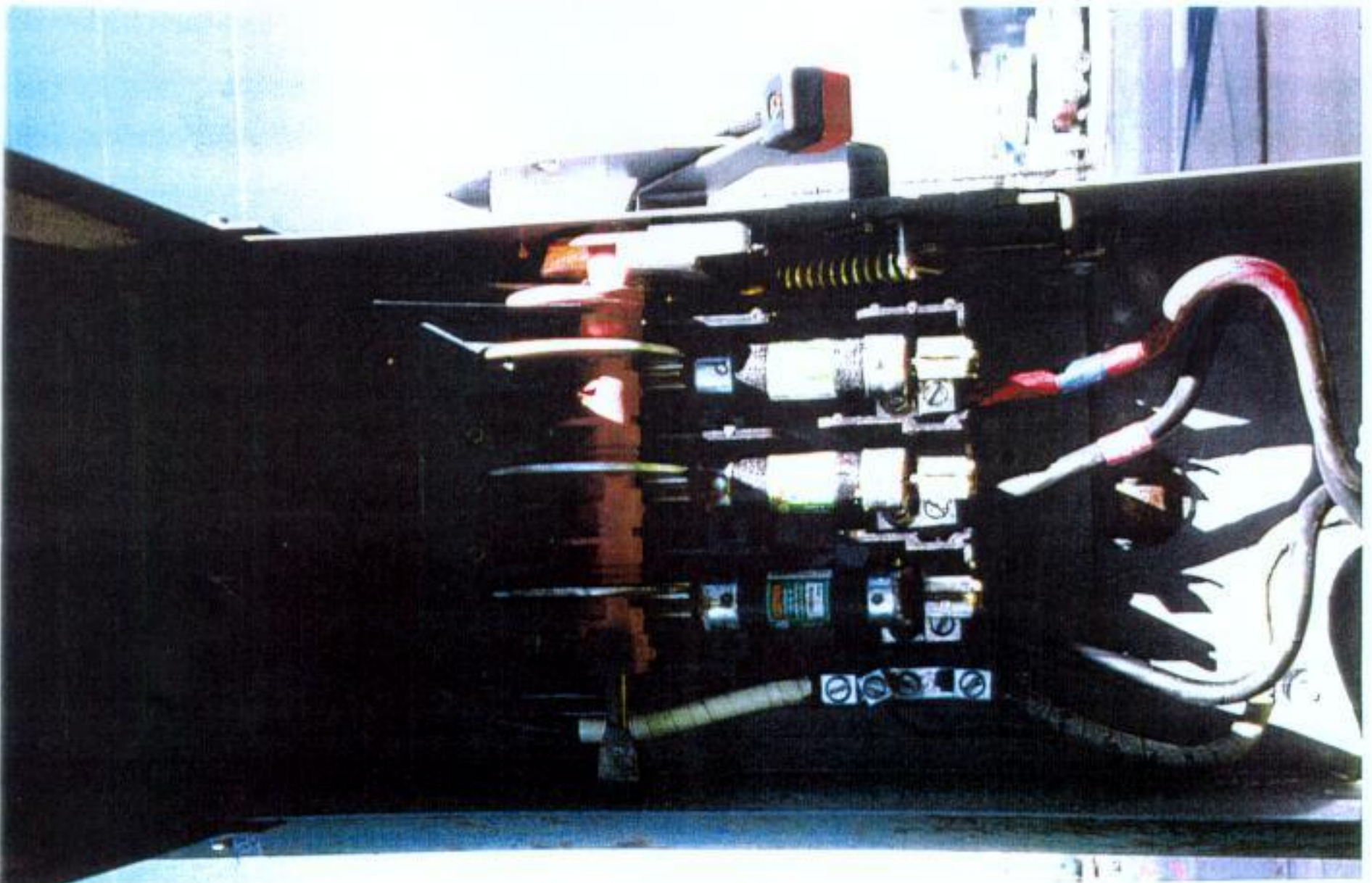


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 162 (SHOREWOOD)
14441 MORRISON ROAD**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 162 (Shorewood)

Pump Station 162 is a flooded-suction, can-type station located on 14441 Morrison Road. Wastewater discharges the station via a 16-inch diameter force main and connects to the 20-inch portion of the Morrison Road force main. Pump Station 162 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 162.

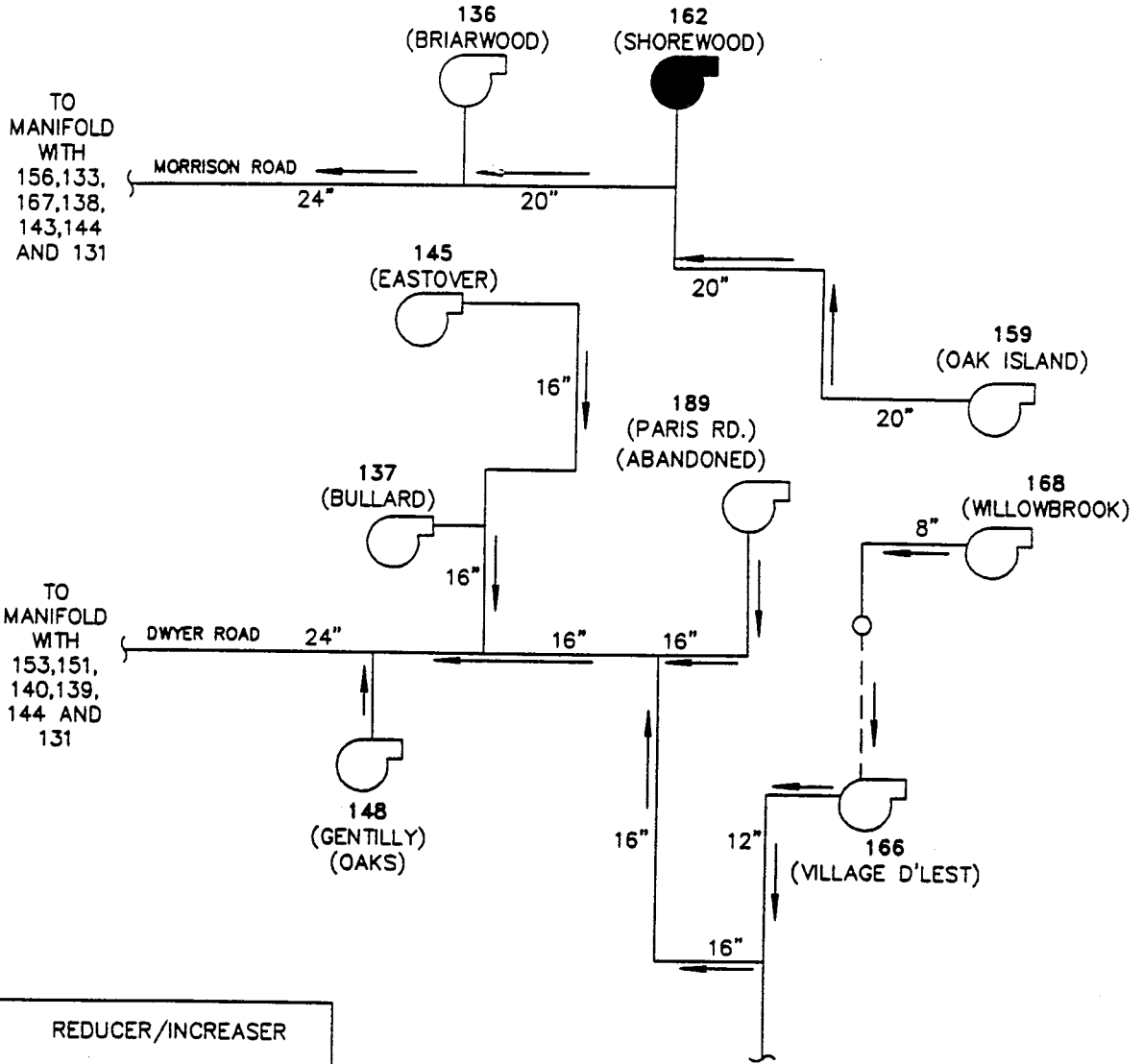
Pump Station 162 contains two (8-inch by 8-inch) Fairbanks Morse vertically aligned pumps with 17.8-inch diameter impellers. Each pump is powered by a 50 horsepower (hp) Fairbanks Morse electric motor operating at a speed of 885 revolutions per minute (rpm). This equipment is housed in an 11-foot by 12-foot reinforced concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 28.2 feet. Figures 2 and 3 provide elevation and plan views of the station. The overall condition of the station is fair although there is isolated corrosion in the pump room as seen in photo number 2. Also, there is evidence of groundwater seepage into the dry well structure at the location where the discharge main exits the structure (See photo number 3).

Pump Station 162 collects wastewater from the surrounding gravity sewer system into a 20.1-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated 11-foot by 11-foot dimensions. The concrete aggregate is exposed throughout the visible interior surface of the wet well suggesting a corrosion problem.

A drawdown/fill test was conducted to determine the capacity of Pump Station 162. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 2100 gallons per minute (gpm) at 44 feet of head. The shut-off head of both pumps was found to be 82 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 3400 gpm at 59 feet of head.

Recommendations:

1. An initial observation of the wet well suggests that corrosion is occurring. The extent of the damage should be further investigated and corrected as necessary.
2. Groundwater seepage into the dry well structure can cause corrosion throughout. It is recommended that this problem be further investigated and addressed.



- ▲ REDUCER/INCREASER
- MANHOLE
- ⋈ GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- PUMP STATION
- REF. PUMP STATION
- EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 16
JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS

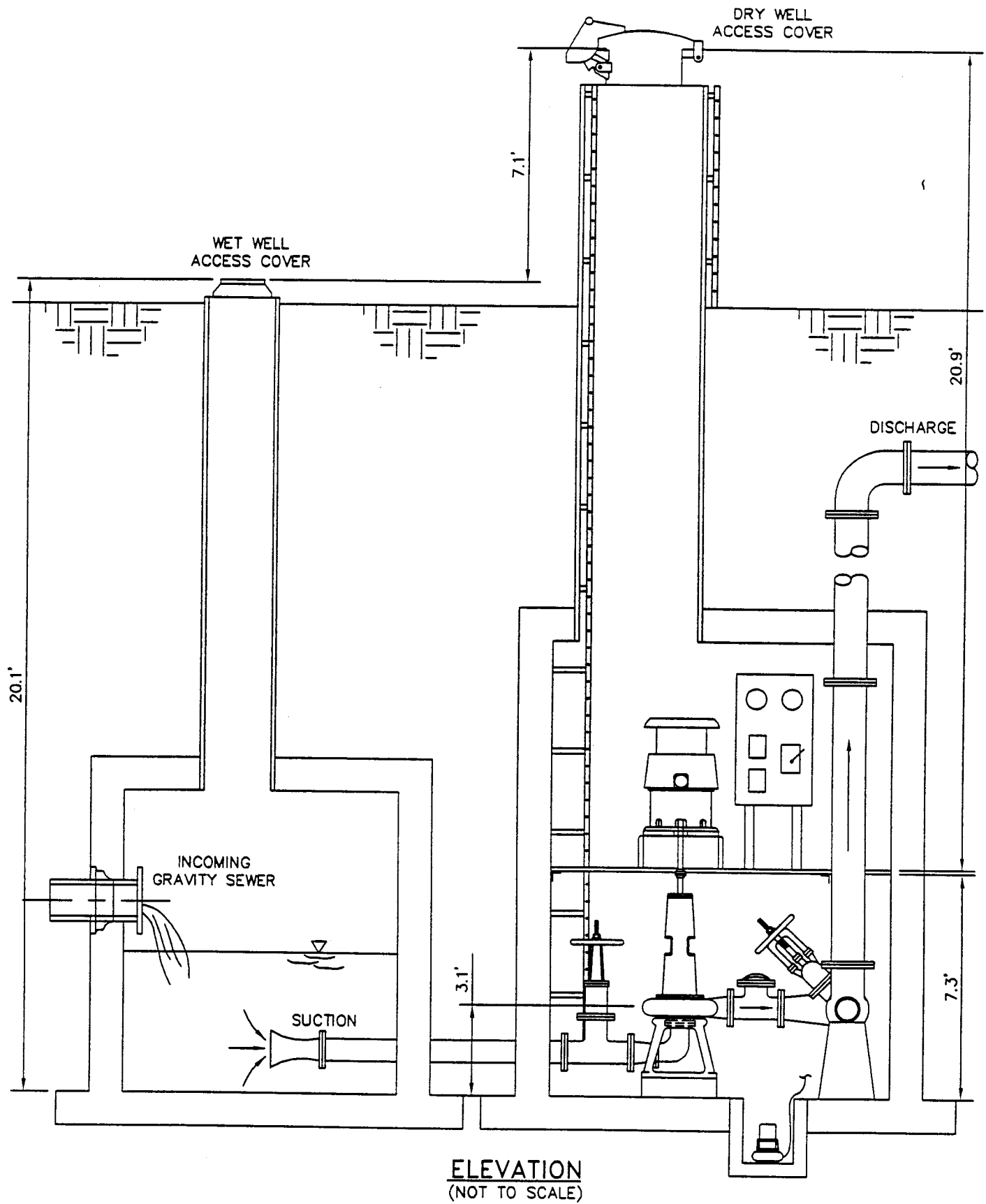


MONTGOMERY WATSON

PUMP STATION 162 (SHOREWOOD)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1
DATE:
3/28/97

FILE NO.: 162 AG JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 162 (SHOREWOOD)
CAN TYPE FLOODED SUCTION

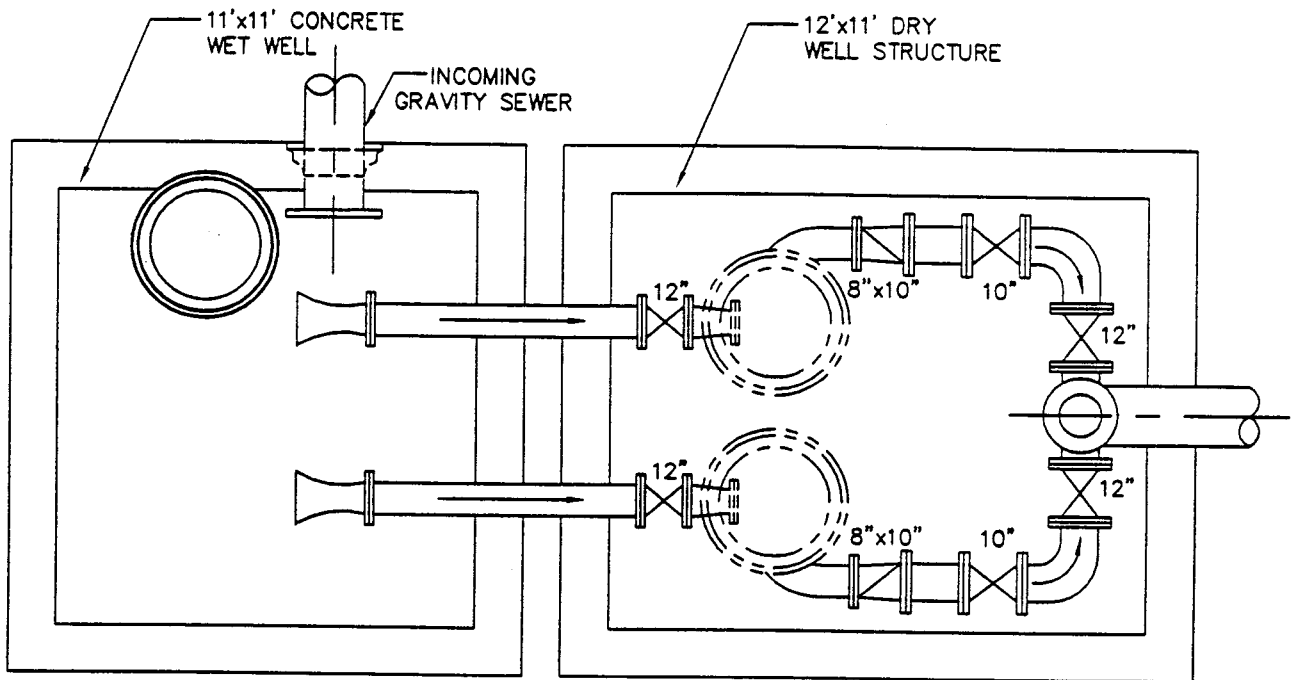
FIGURE:

2

DATE:

3/28/97

FILE NO.: 164 JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 162 (SHOREWOOD)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 162 (Shorewood)

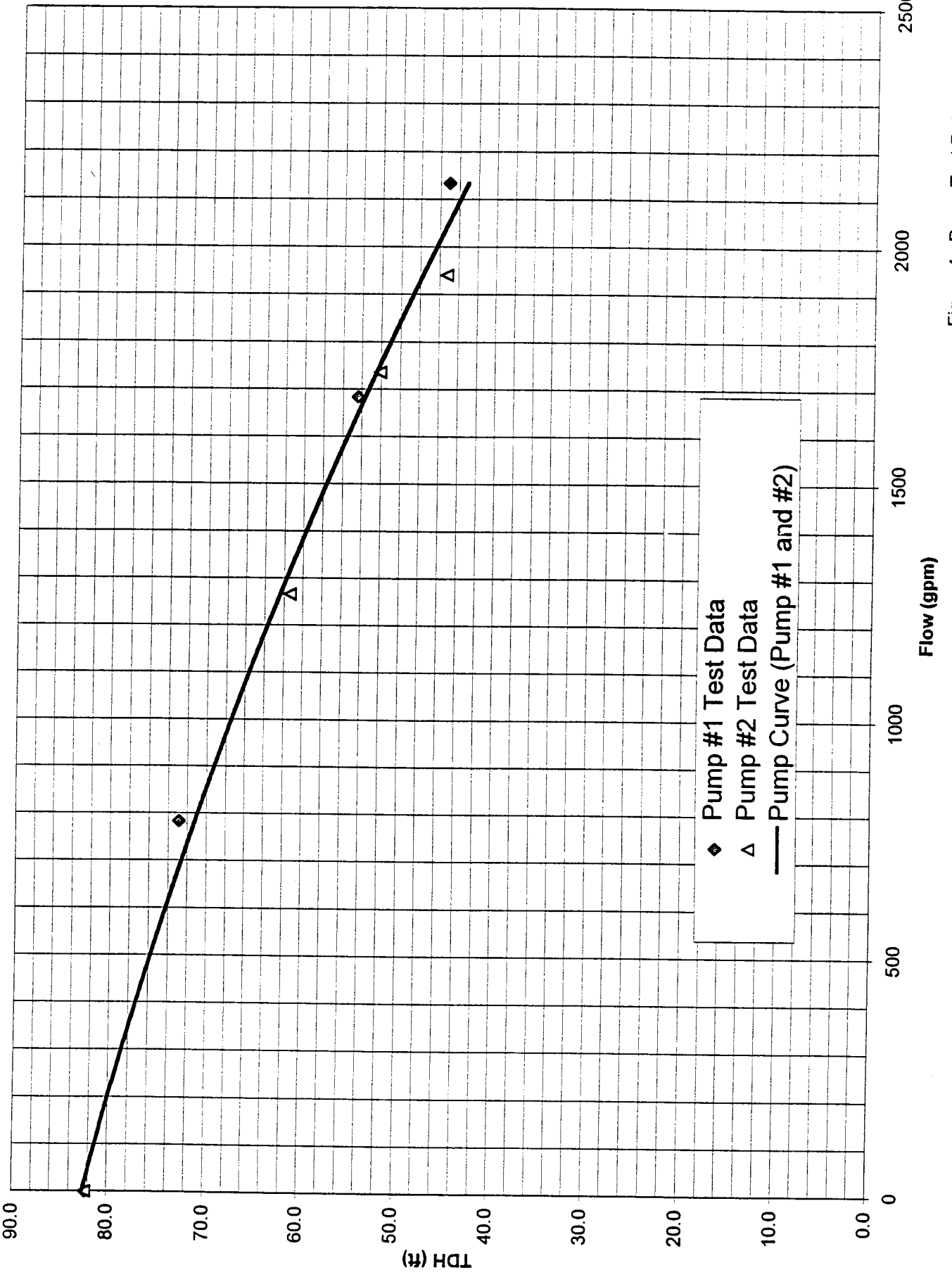


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 162

General Information

PS No. 162 PS Facility Shorewood Address 14441 Morrison Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 17.75 inch

Model Number-Pump #1 5445B Serial Number-Pump #1 not readable

Model Number-Pump #2 5445B Serial Number-Pump #2 not readable

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 3900 gpm 35 ft. of head 860 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size 12 inch Discharge Valve Size 12 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 8 x 10 inch

Dry Well Dimensions 0 ft. dia. Length 12 ft. Width: 11 ft. Depth 28.2 ft.

Pump centerline* 3.1 ft. Centerline of discharge pipe* 12.9 ft.

* measured from dry well bottom.

Notes: There is a 10" and a 12" valve on the discharge of each pump.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? #1

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 162

Pump Controls

Lead pump on 8.5 ft. Type of Controls bubbler
Lead pump off 4.5 ft.
Lag pump on 9.5 ft.
Lag pump off 5.5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room and seepage around the discharge

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 0 ft. Length 11 ft. Width 11 ft.

Bottom Depth* 20.1 ft.

Sewer Invert(s) Depth* 16.8 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 162

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service Pad Mounted Transformer, 480/277V three phase

Size of service protective device 250 amps, circuit breaker

Size of main protective device not available

Size of motor protective device 100 amps, dual element, fusible disconnect switch

Service wire size 250 kcmil Size of motor starter in NEMA 4

Motor wire size #2 AWG Motor Horsepower 30

Number of motors 2 Motor Speed Single

Speed(s) in rpm 885

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # KZKU Serial Number - Motor # 5D3417R2

Model Number - Motor # KZKU Serial Number - Motor # 5D3417R2

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, service circuit breaker and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The pump station has

Pump Station 162 (Shorewood)



Photo Number 1

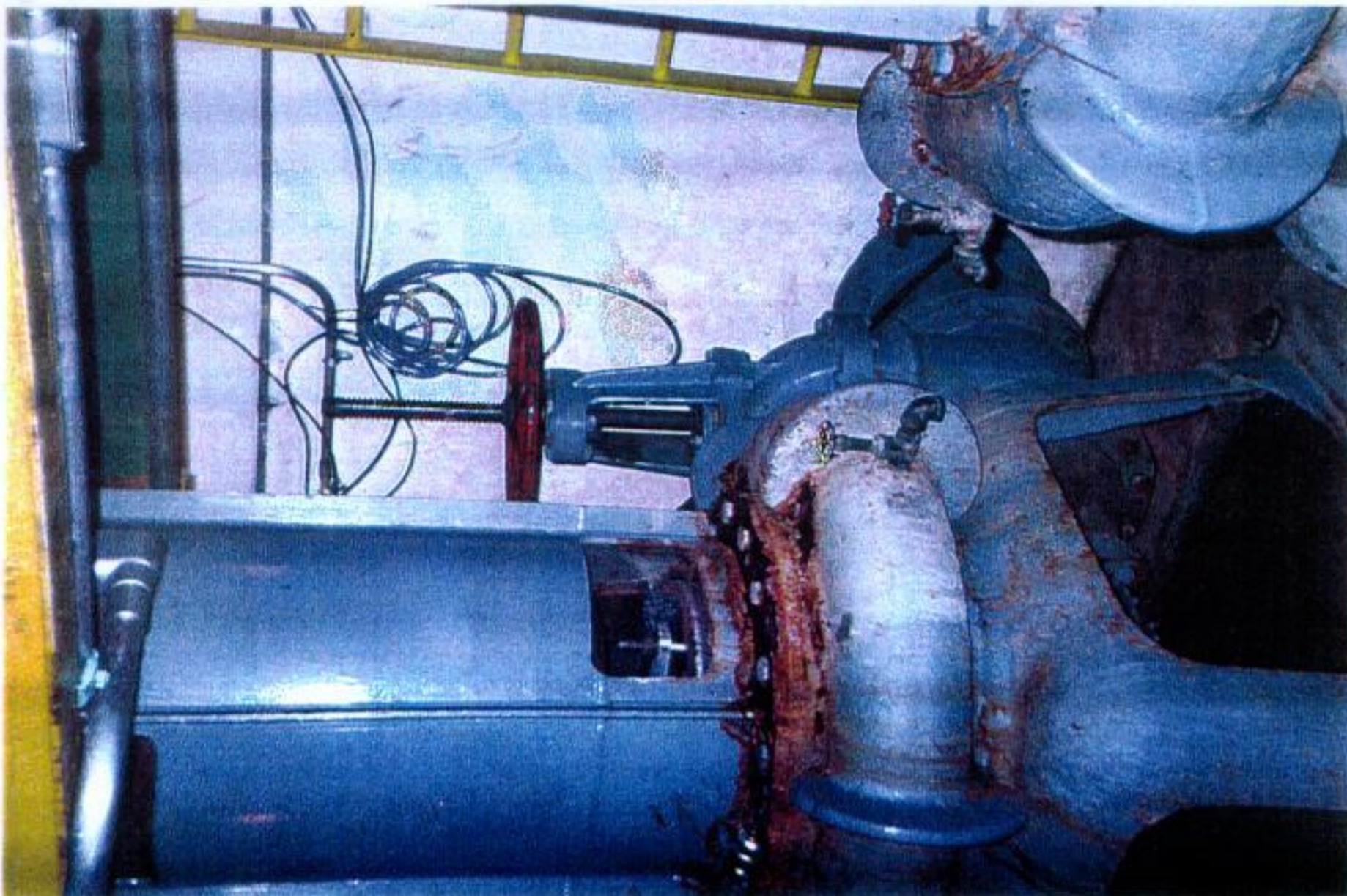


Photo Number 2

Pump Station 162 (Shorewood)



Photo Number 3

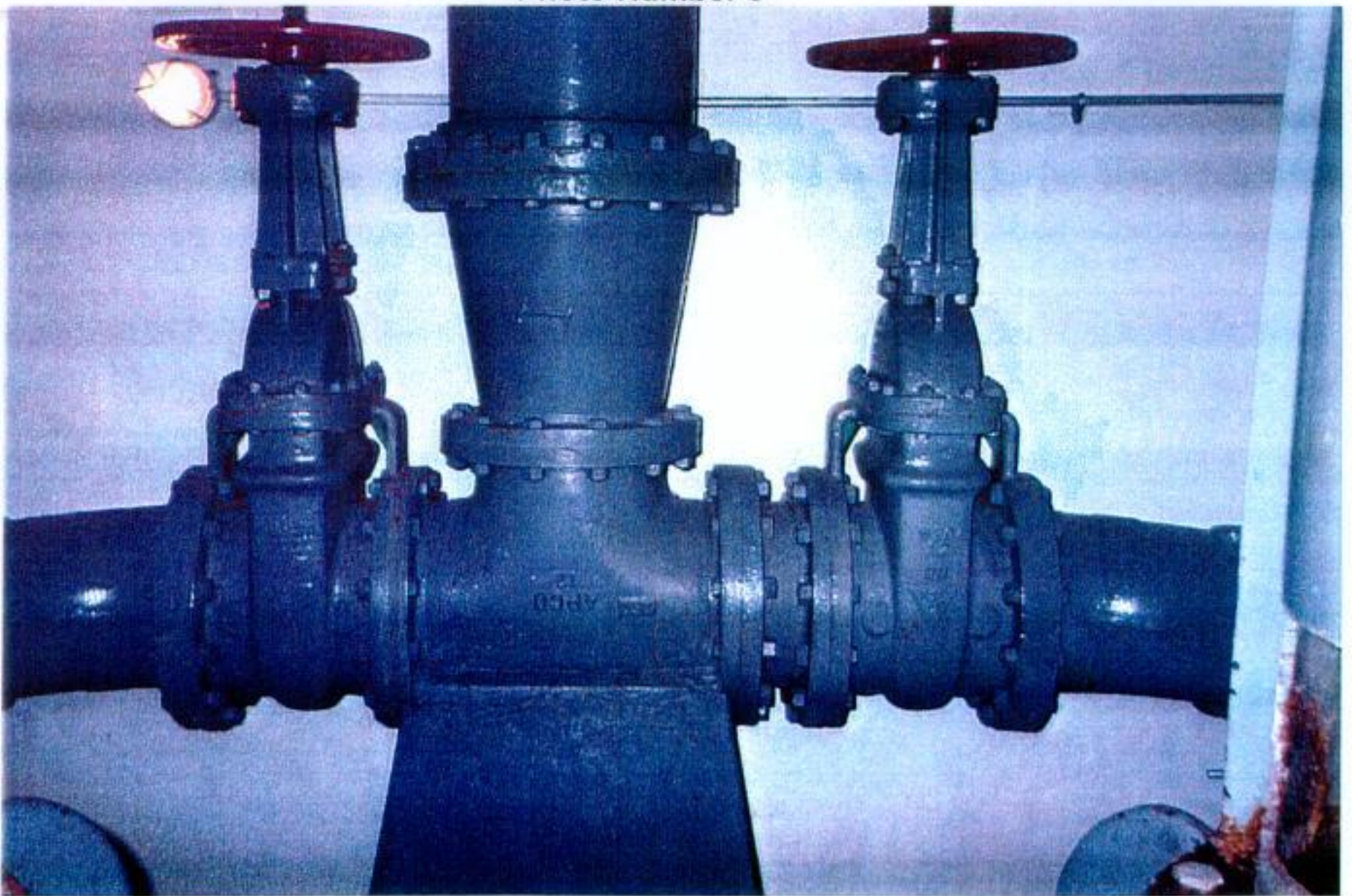


Photo Number 4

Pump Station 162 (Shorewood)

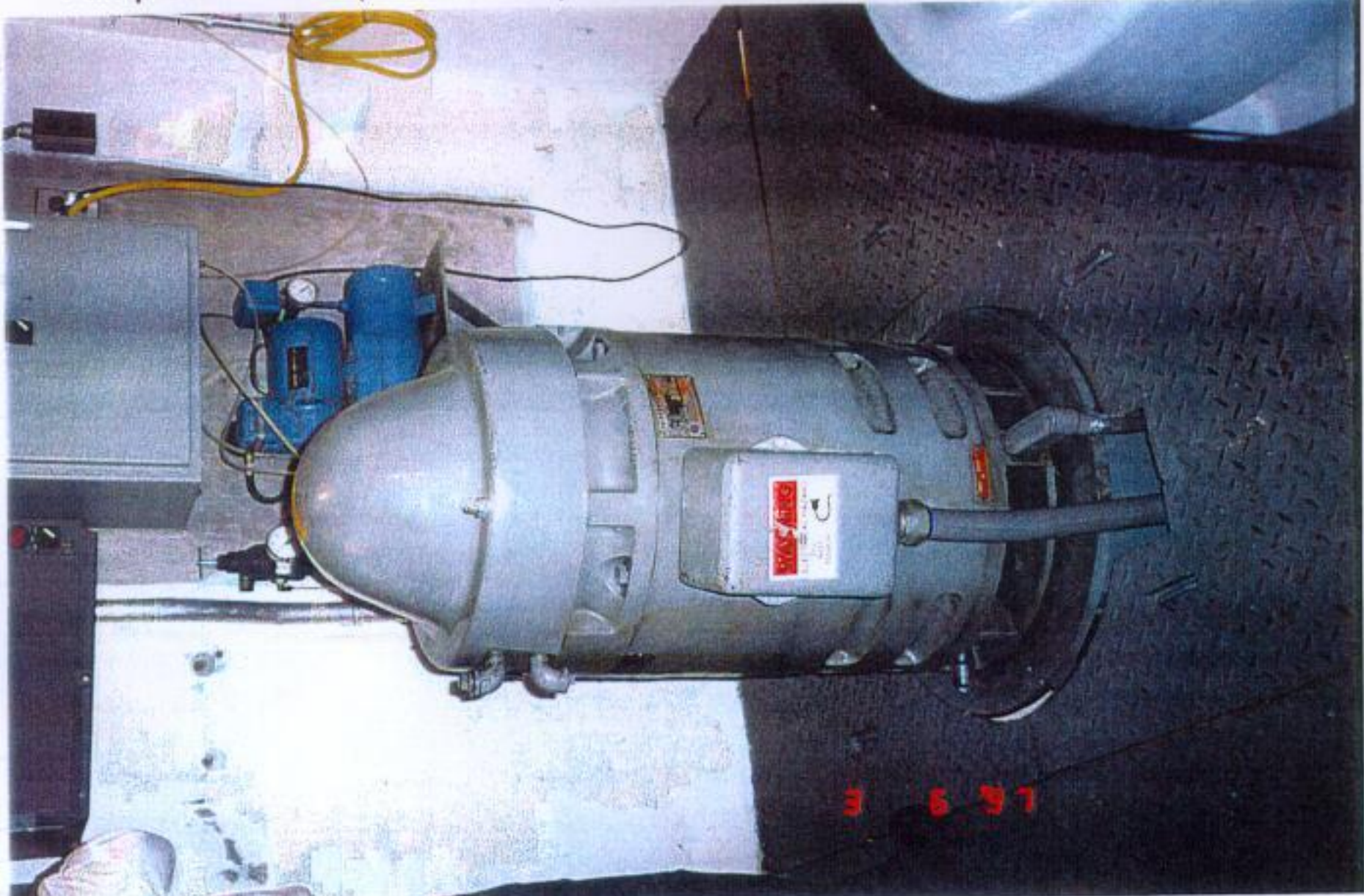


Photo Number 5

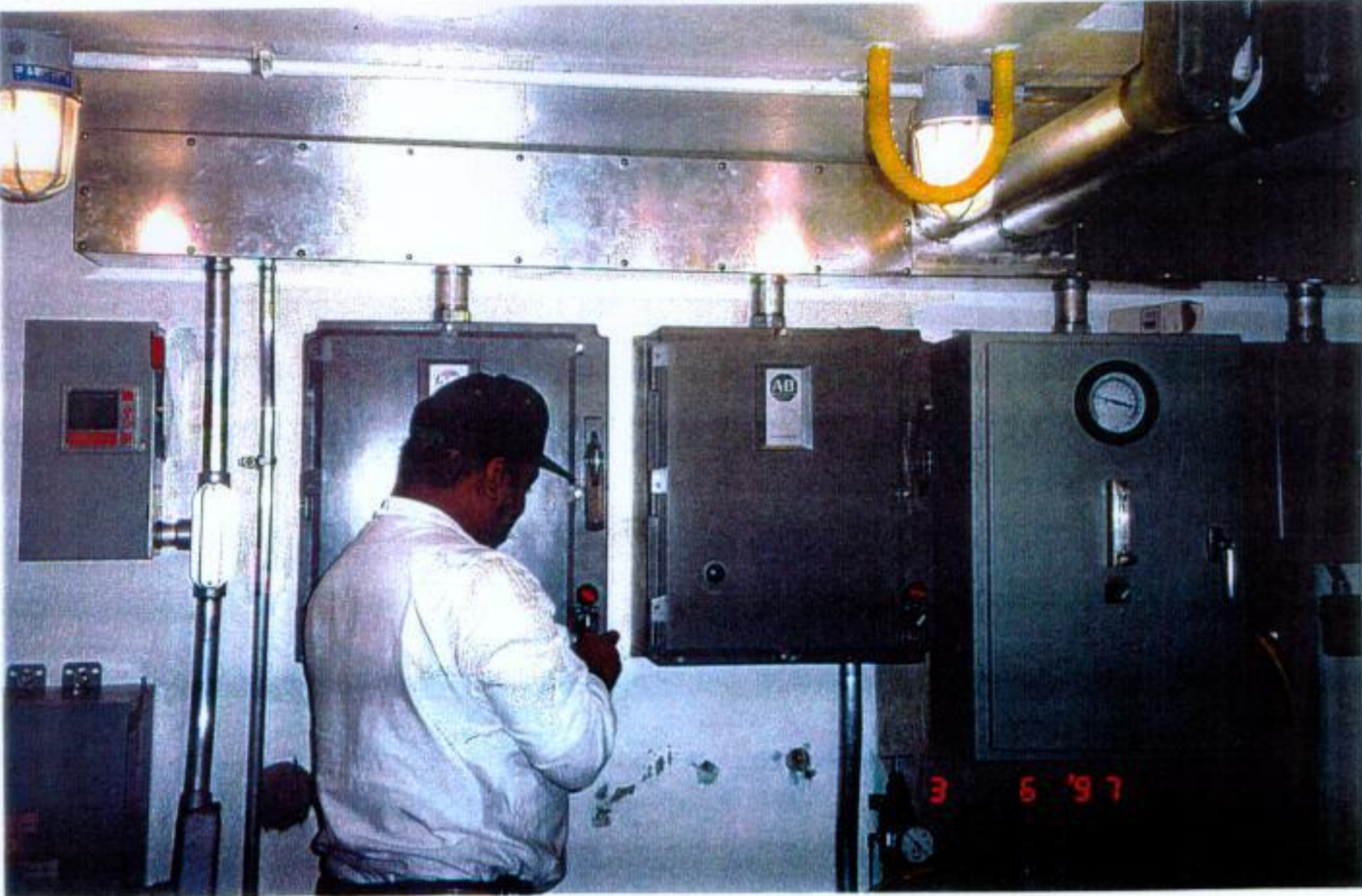


Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 163 (SOUTHERN SCRAP)
HARBOR ROAD

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 163 (Southern Scrap)

Pump Station 163 is a flooded-suction, can-type station located on Harbor Road. Flow discharges to a 6-inch force main which connects to the 54-inch Florida Avenue force main. Figure 1 shows the schematic subsystem surrounding Pump Station 163. Pump Station 163 does not repump wastewater from any other station.

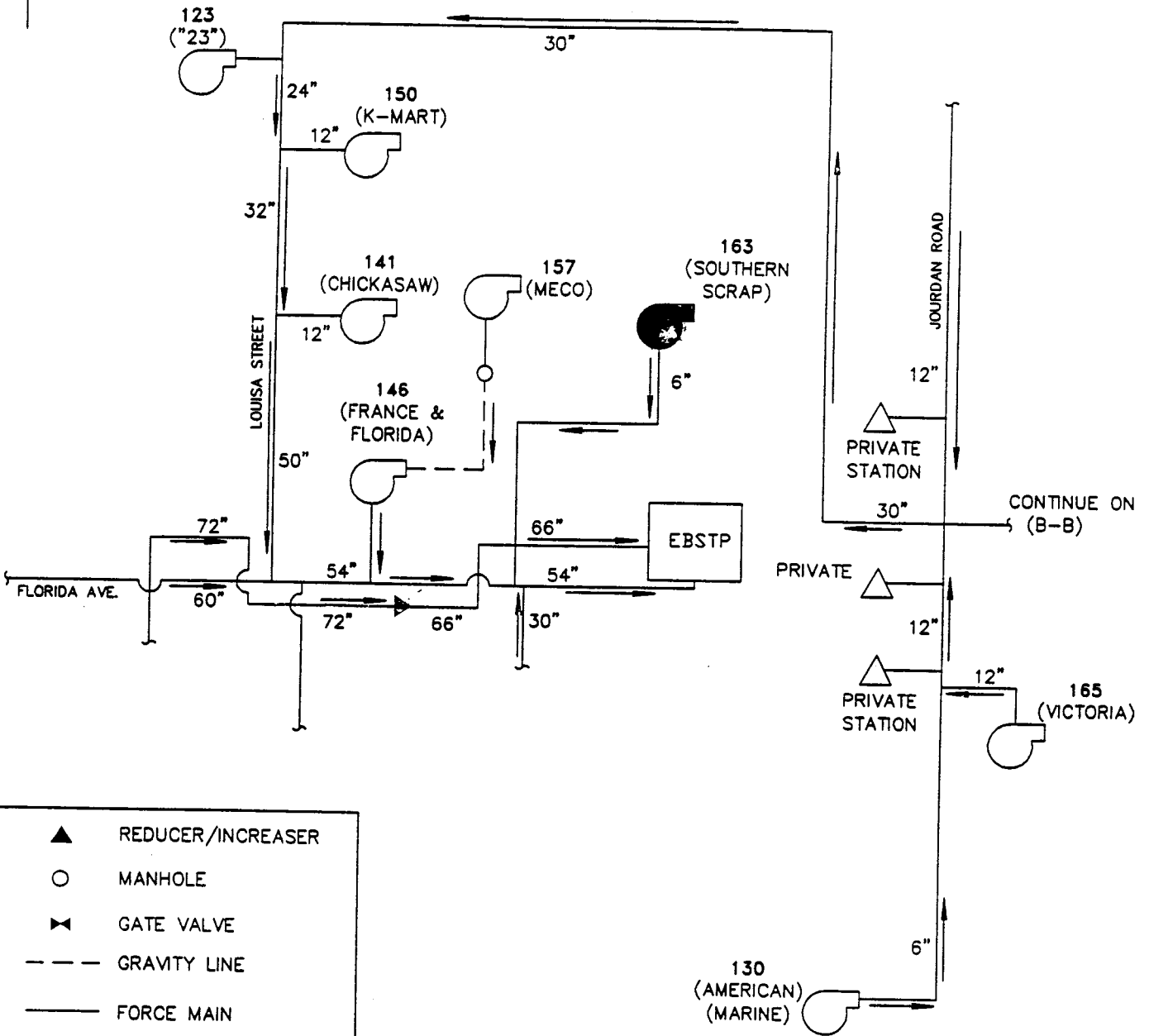
Pump Station 163 contains two (8-inch by 6-inch) Fairbanks Morse vertically aligned pumps with 14-inch diameter impellers. Each pump is powered by a 25 horsepower (hp) Marathon Electric motor operating at a speed of 1150 revolutions per minute (rpm). This equipment is housed in a 10.3-foot diameter steel dry well structure, mostly underground. The total depth of the dry well from the access hatch to the bottom is 29.9 feet. Figures 2 and 3 provide elevation and plan views of the station. Pump Station 163 is somewhat dirty because no running water is available. Water must be hauled for cleaning. There is extreme corrosion in the lower room of the dry well, specifically on the steel floor of the dry well. This corrosion can be seen in attached photos 2 and 3. Pump number 2 is inoperable due to leaking check, suction gate and discharge gate valves.

Pump Station 163 collects wastewater from the surrounding gravity sewer system into a 22.3-foot deep concrete wet well. The cross sectional area of the wet well is an arched pipe shape with estimated 77-inch by 122-inch dimensions. The overall condition of the wet well is fair.

A draw down/fill test was conducted to determine the capacity of Pump Station 163. Pump number 2 was out of service and unable to be tested. Figure 4 shows a pump curve constructed from obtained test data for pump number 1. Pump number 1 has an approximate capacity of 385 gallons per minute (gpm) at 77 feet of head. The shut-off head of pump number 1 was found to be 85 feet.

Recommendations:

1. It is recommended that clean water be accessible at each station. Extending water service to this station should be considered.
2. Corrosion in the pump room is significant. Measures should be taken to protect or replace severely corroded piping, components and the dry well structure itself. The steel floor should be analyzed for structural integrity and corrected as required.
3. Replacement of the abovementioned leaking valves is recommended. Pump number 2 should be placed into service to restore the designed "back-up" should something unforeseen occur.
4. The physical condition of the electrical service disconnect switch is poor due to corrosion. It is recommended that this issue be addressed.



- REDUCER/INCREASER
- MANHOLE
- GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- PRIVATE STATION
- PUMP STATION
- REF. PUMP STATION
- EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 16. JOB NO.: 1113030.01090120 DATE: 3/28/97



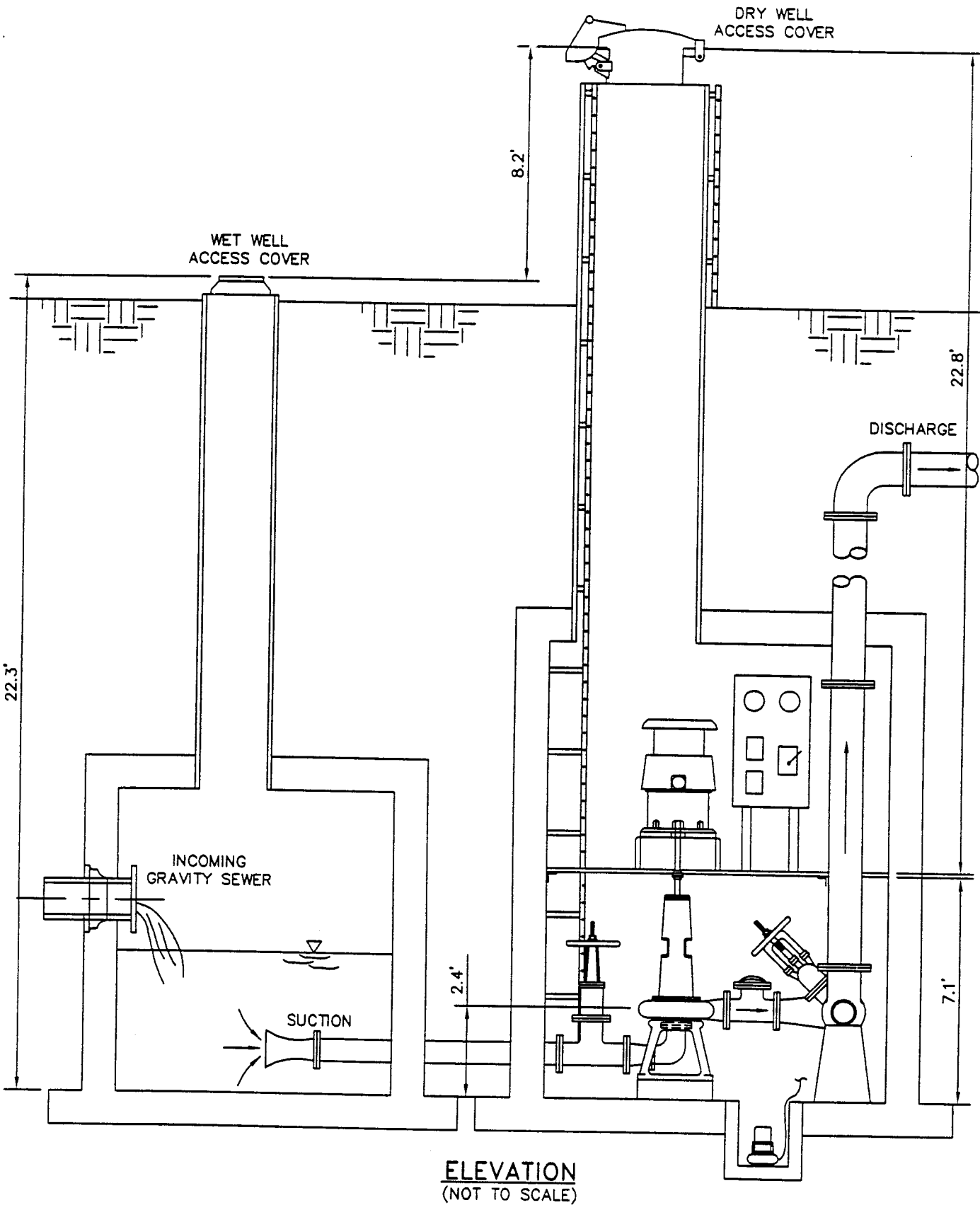
SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 163 (SOUTHERN SCRAP)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1
DATE:
3/28/97



FILE NO.: 16. AG JOB NO.: 1113030.01090120 DATE: 3/28/97

SEWERAGE AND WATER BOARD
OF NEW ORLEANS

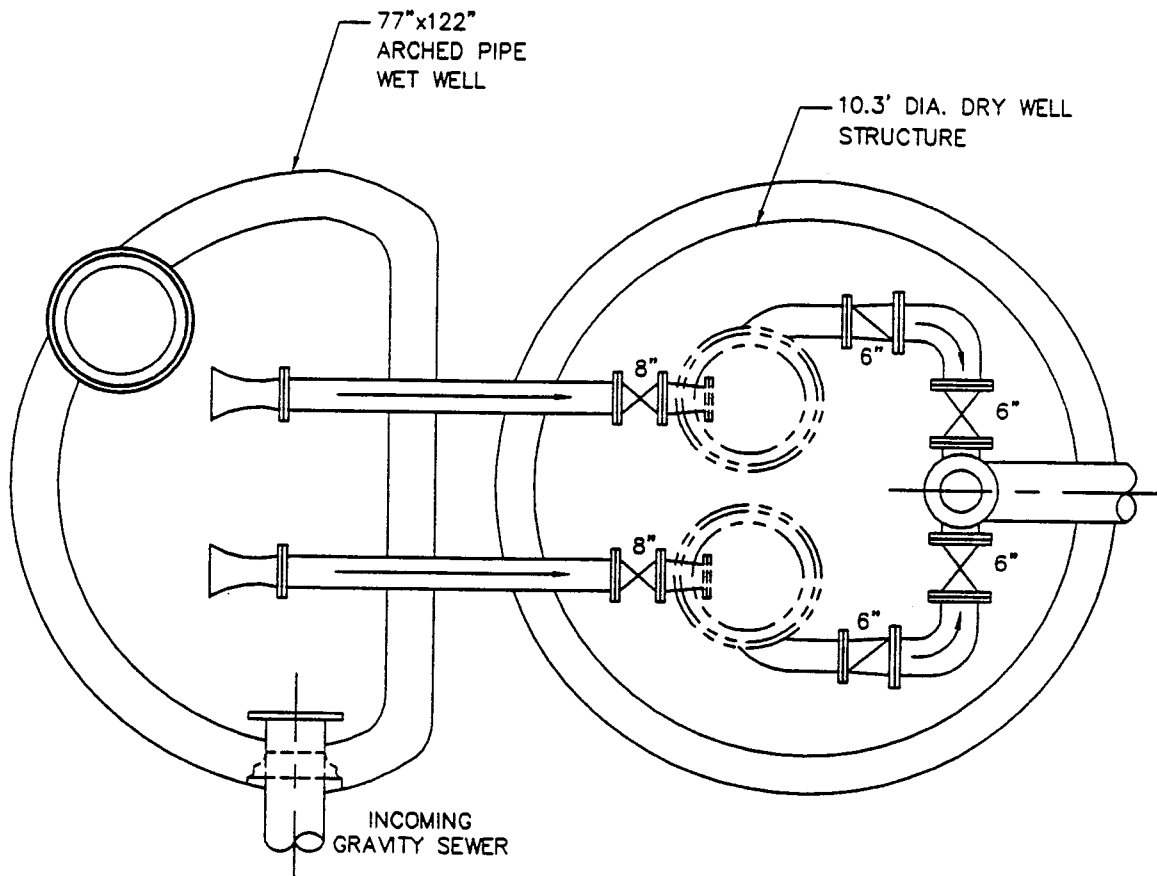
MONTGOMERY WATSON

PUMP STATION 163 (SOUTHERN SCRAP)
CAN TYPE FLOODED SUCTION

FIGURE:
2

DATE:
3/28/97

FILE NO.: 163 G JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 163 (SOUTHERN SCRAP)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 163 (Southern Scrap)

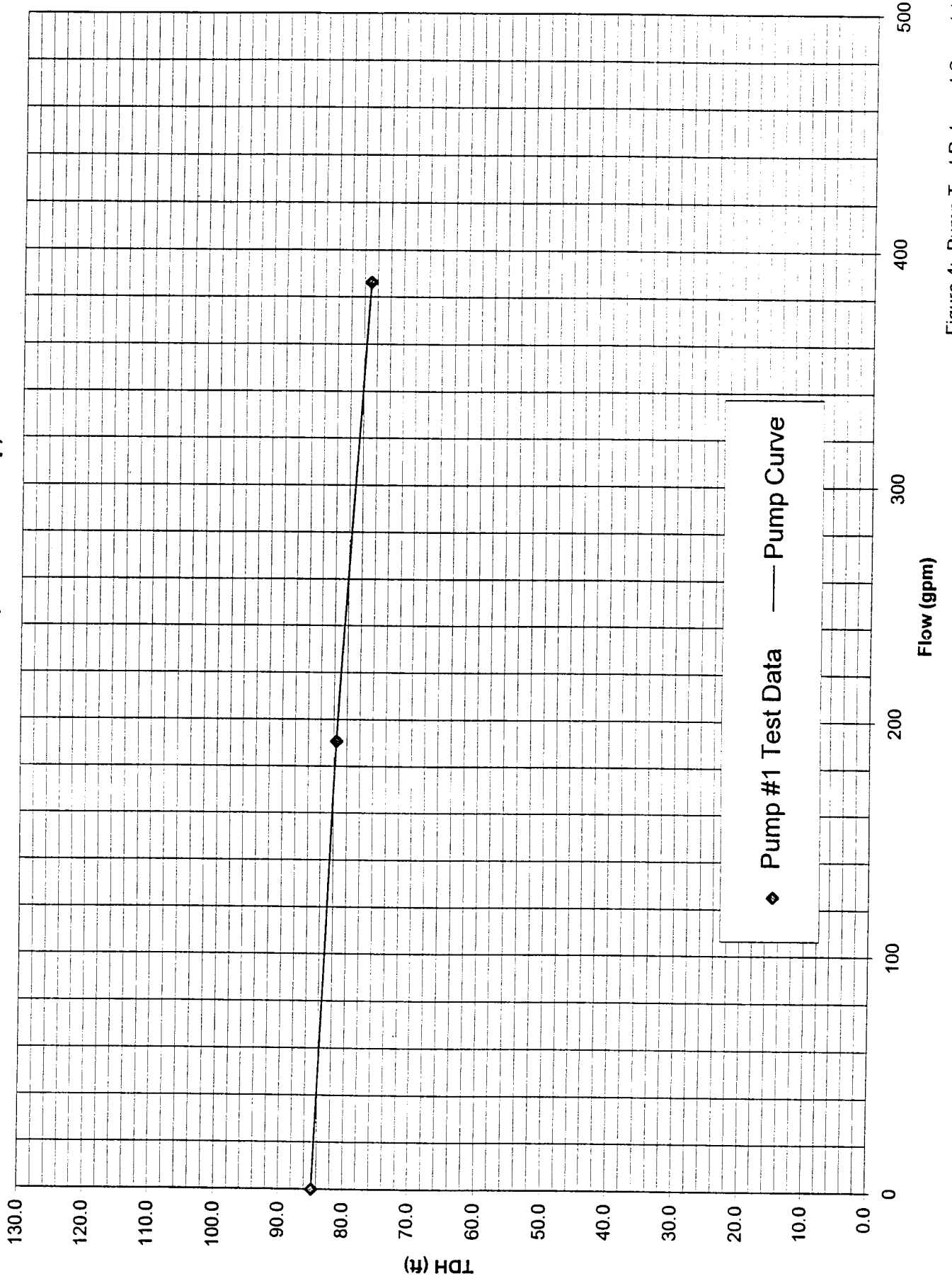


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 163

General Information

PS No. 163 PS Facility Southern Scrap Address Harbor Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 14 inch

Model Number-Pump #1 5444F Serial Number-Pump #1 KZX1079105

Model Number-Pump #2 5444F Serial Number-Pump #2 KZX1079105

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 380 gpm 80 ft. of head 0 rpm

Pump Suction 8 inch Pump Discharge 6 inch FM Diameter 6 inch

Suction Valve Size 8 inch Discharge Valve Size 6 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 6 inch

Dry Well Dimensions 10.3 ft. dia. Length 0 ft. Width: 0 ft. Depth 29.9 ft.

Pump centerline* 2.4 ft. Centerline of discharge pipe* 12.6 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 163

Pump Controls

Lead pump on 5 ft. Type of Controls bubbler
Lead pump off 2 ft.
Lag pump on 6 ft.
Lag pump off 3 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is poor due to the severe corrosion in the pump room, specifically the steel dry well

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate

Exposed reinforcement

Liner Present Liner type/Condition _____

Comments 77" x 122" arch pipe

Diameter 0 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 22.3 ft.

Sewer Invert(s) Depth* 18.3 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 163

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial, no generator receptacle

Type of service 480/277V three phase open delta (2 transformers bank)

Size of service protective device 125 amps, dual element, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 70 amps, circuit breaker

Service wire size #1 AWG Size of motor starter in NEMA 2

Motor wire size #6 AWG Motor Horsepower 25

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1150

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # DM324TTDR7393A Serial Number - Motor # not available

Model Number - Motor # DM324TTDR739 Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the service disconnect switch and old conduit is poor due to corrosion. The physical condition of the motors, motor controller and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal

Pump Station 163 (Southern Scrap)



Photo Number 1

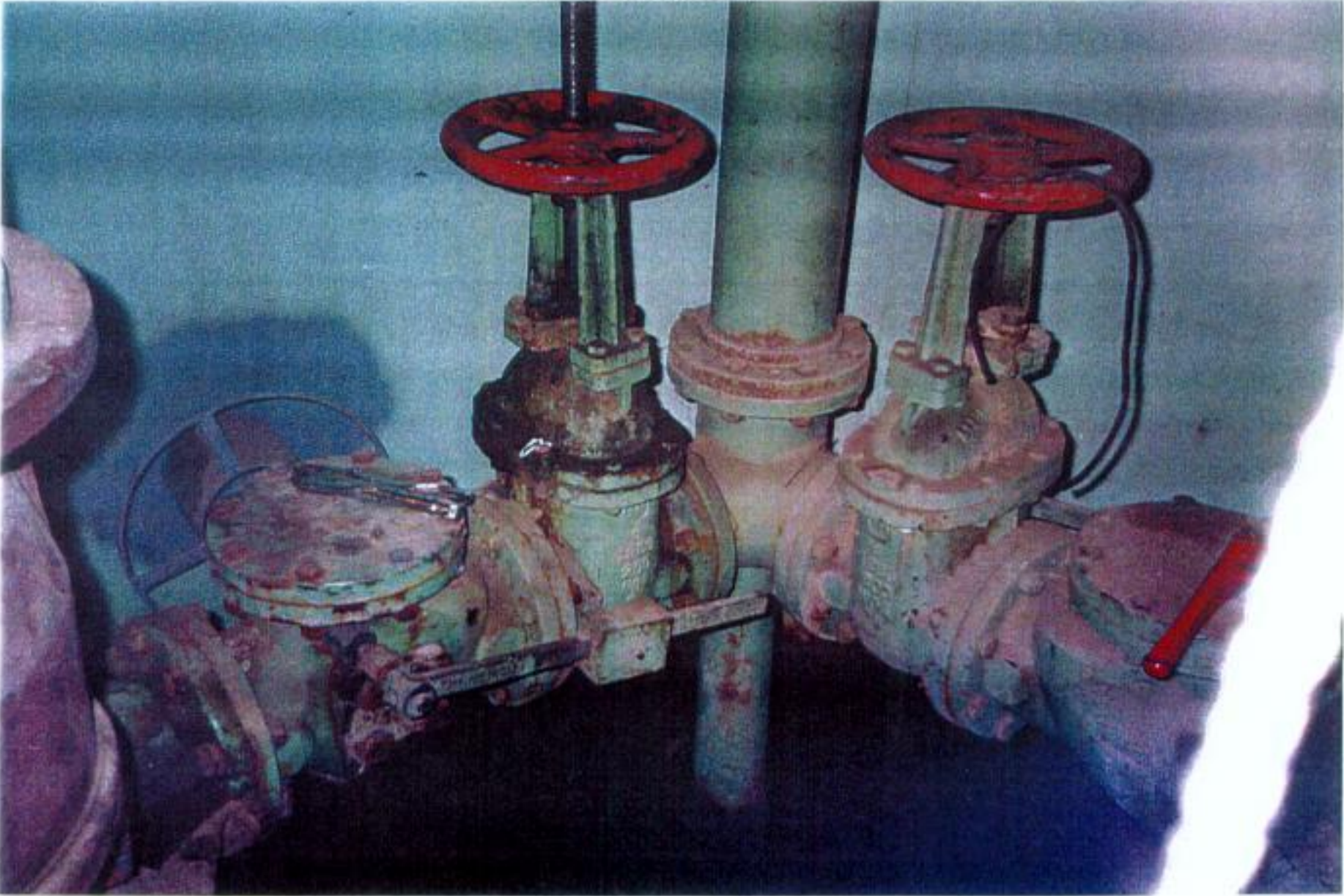


Photo Number 2

Pump Station 163 (Southern Scrap)



Photo Number 3

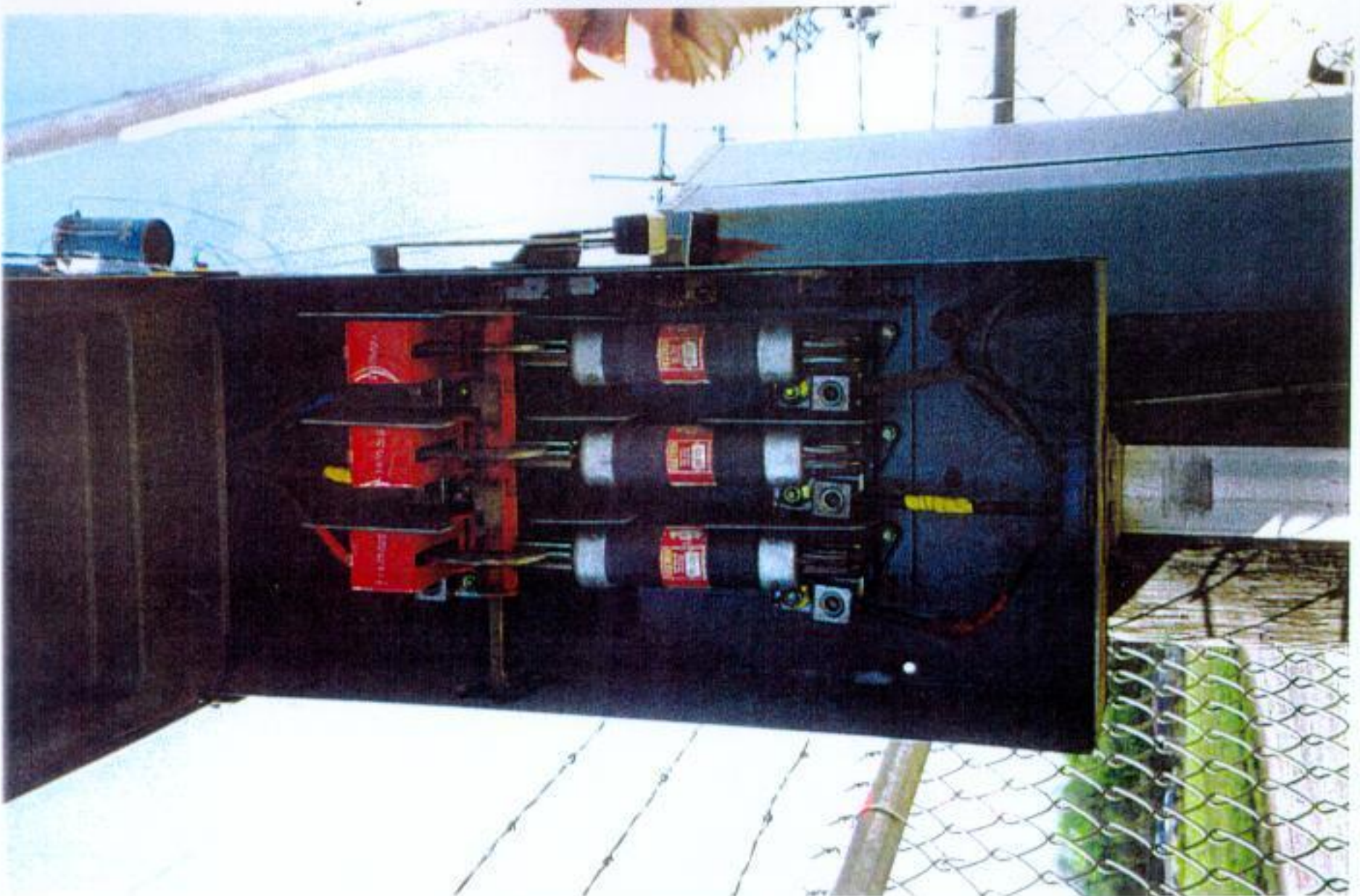


Photo Number 4

Pump Station 163 (Southern Scrap)

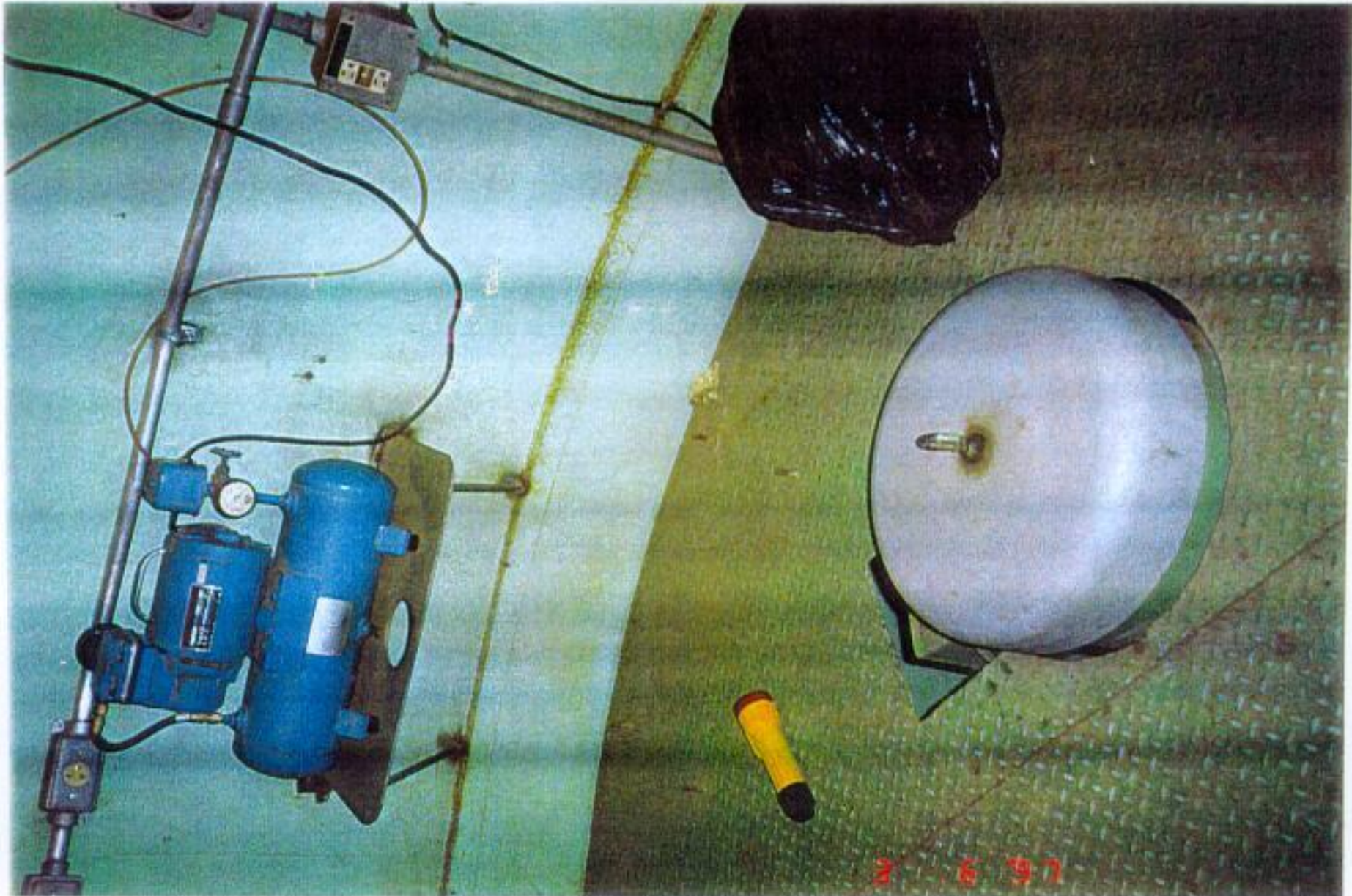


Photo Number 5

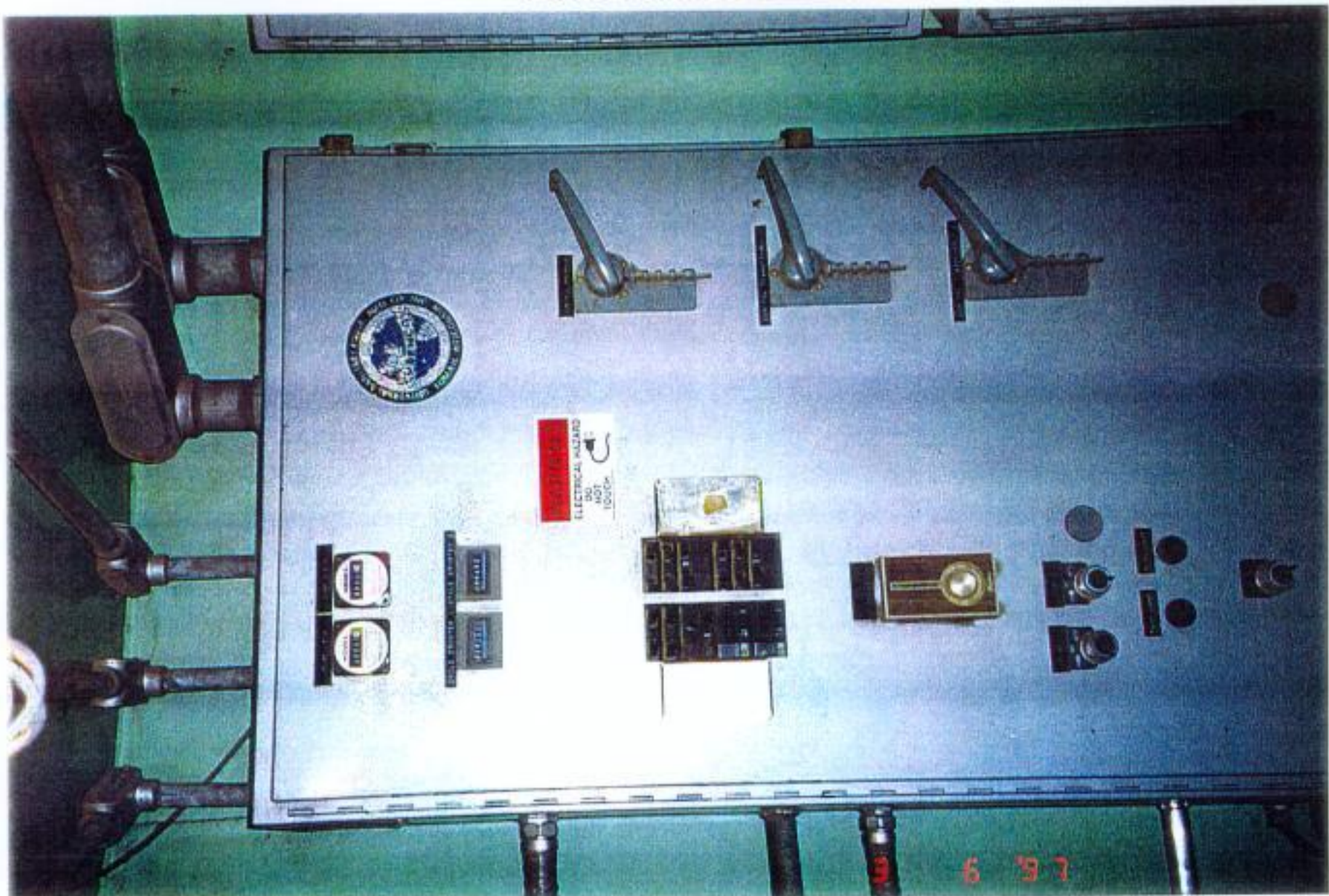


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 164 (VENETIAN ISLES)
20711 OLD SPANISH TRAIL**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 164 (Venetian Isles)

Pump Station 164 is a flooded-suction, can-type station located on 20711 Old Spanish Trail. Wastewater discharges the station via an 8-inch diameter force main and flows under pressure through the 10-inch main parallel to Chef Menteur Highway for several miles before it becomes gravity-flowing and enters the wet well of Pump Station 149 (Industrial Park). Pump Station 164 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 164.

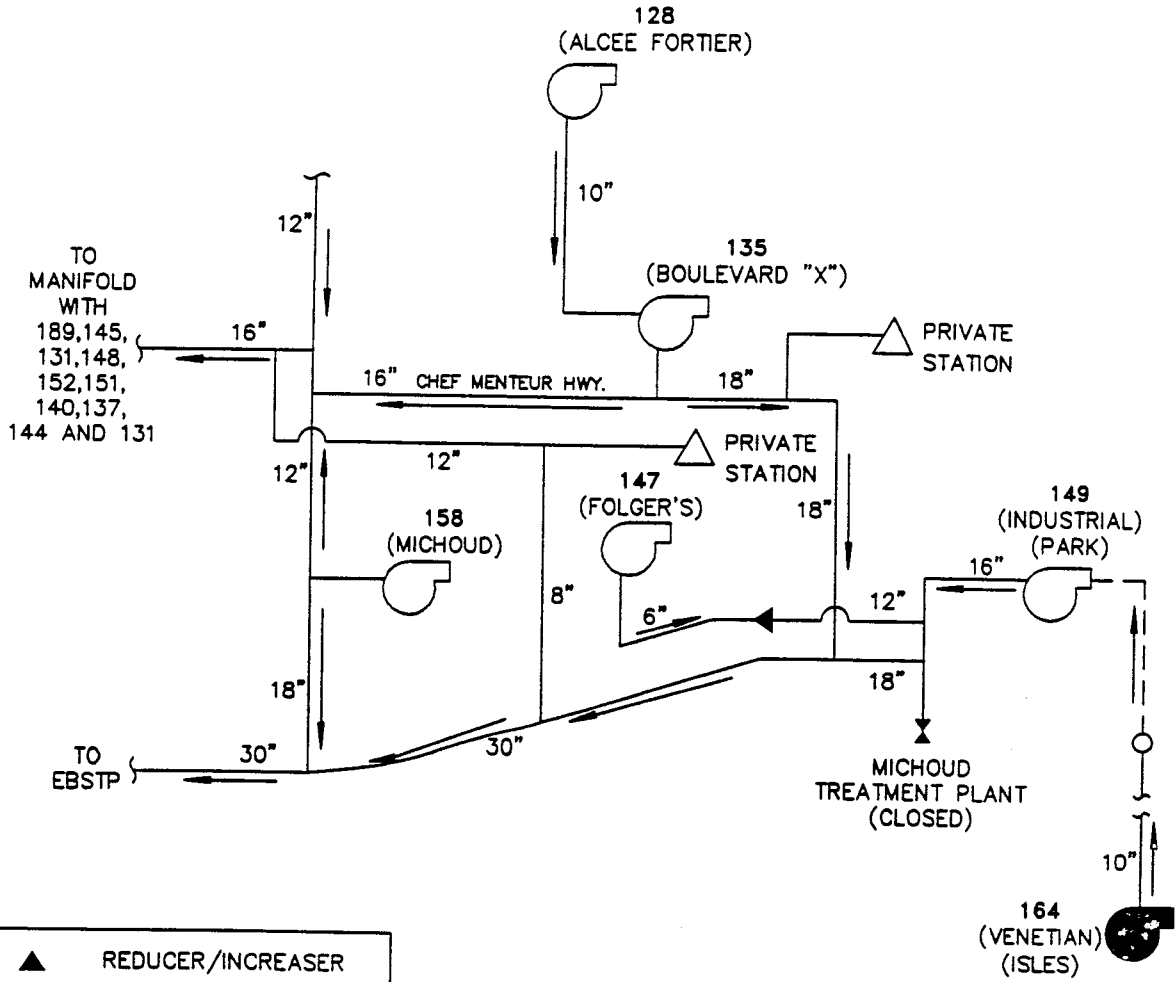
Pump Station 164 contains two (4-inch by 4-inch) Fairbanks Morse vertically aligned pumps. Each pump is powered by a 20 horsepower (hp) Westinghouse electric motor operating at a speed of 1760 revolutions per minute (rpm). This equipment is housed in a 8-foot diameter steel dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 26.6 feet. Figures 2 and 3 provide plan and elevation views of the station. There is extreme corrosion in the lower room of the dry well, specifically on the steel floor of the dry well. This corrosion can be seen in the attached photos 2, 3 and 4.

Pump Station 164 collects wastewater from the surrounding gravity sewer system into a 23.0-foot deep cement lined brick wet well. The cross sectional area of the wet well is circular with an estimated 7-foot in diameter. There are several roots penetrating into the wet well allowing infiltration to enter.

A draw down/fill test was conducted to determine the capacity of Pump Station 164. Figure 4 shows pump curve constructed from obtained test data. Each pump has an approximate capacity of 750 gallons per minute (gpm) at 51 feet of head. The shut-off head of both pumps was found to be 90 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 875 gpm at 68 feet of head.

Recommendations:

1. Corrosion in the pump room is significant. Measures should be taken to protect or replace severely corroded piping, components and the dry well structure itself. The steel floor should be analyzed for structural integrity and corrected as required.
2. Removing the roots and repair of the holes allowing infiltration into the wet well is recommended.
3. It is noted that the physical condition of the motors, motor controller, electric service disconnect switch, and control panel is poor due to corrosion. It is recommended that these issues be addressed.



- REDUCER/INCREASER
- MANHOLE
- GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- PRIVATE STATION
- PUMP STATION
- REF. PUMP STATION
- EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

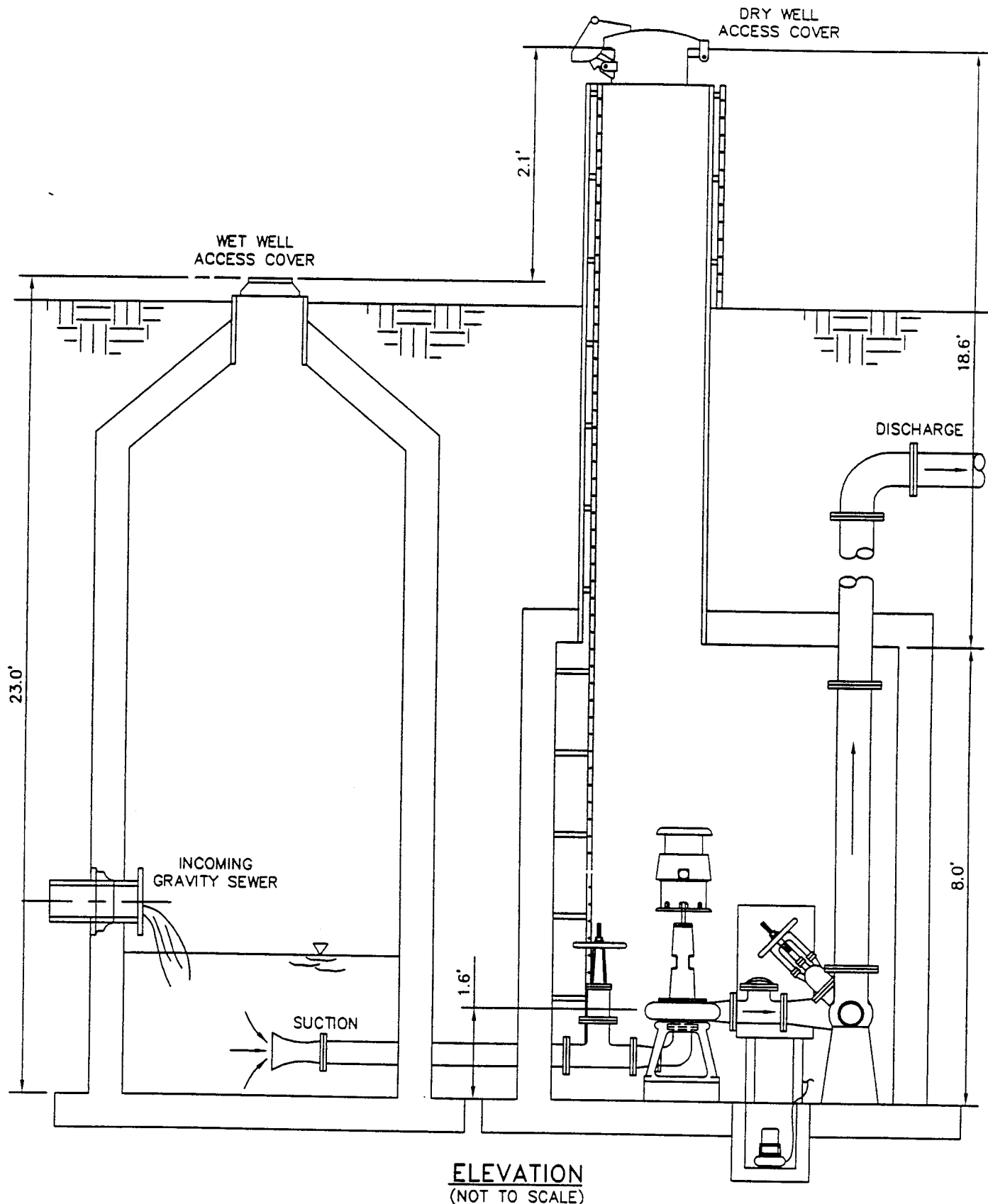
FILE NO.: 164 .AG JOB NO.: 111.3030.01090120 DATE: 3/28/97

SEWERAGE AND WATER BOARD
OF NEW ORLEANS

MONTGOMERY WATSON

PUMP STATION 164 (VENETIAN ISLES)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97



FILE NO.: 161 AG JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

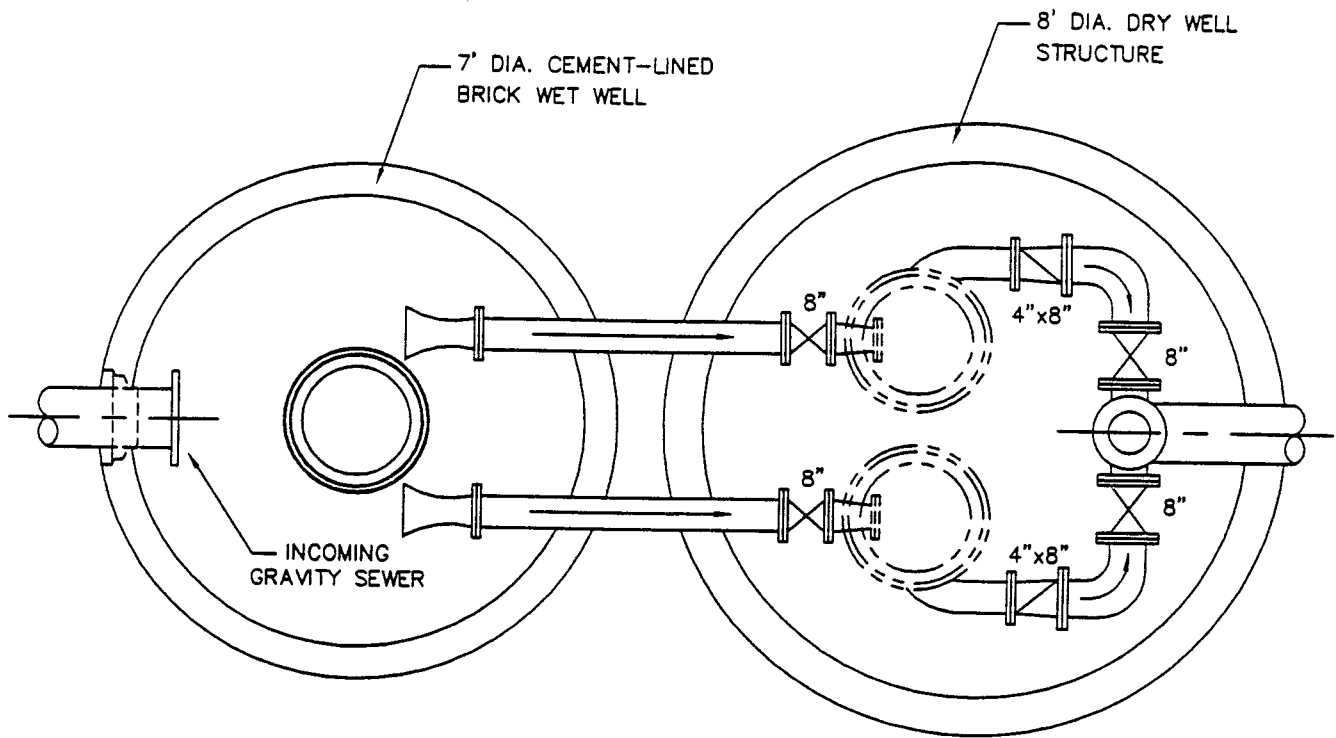
PUMP STATION 164 (VENETIAN ISLES)
CAN TYPE FLOODED SUCTION

FIGURE:

2

DATE:

3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 16A AC JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 164 (VENETIAN ISLES)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 164 (Venetian Isles)

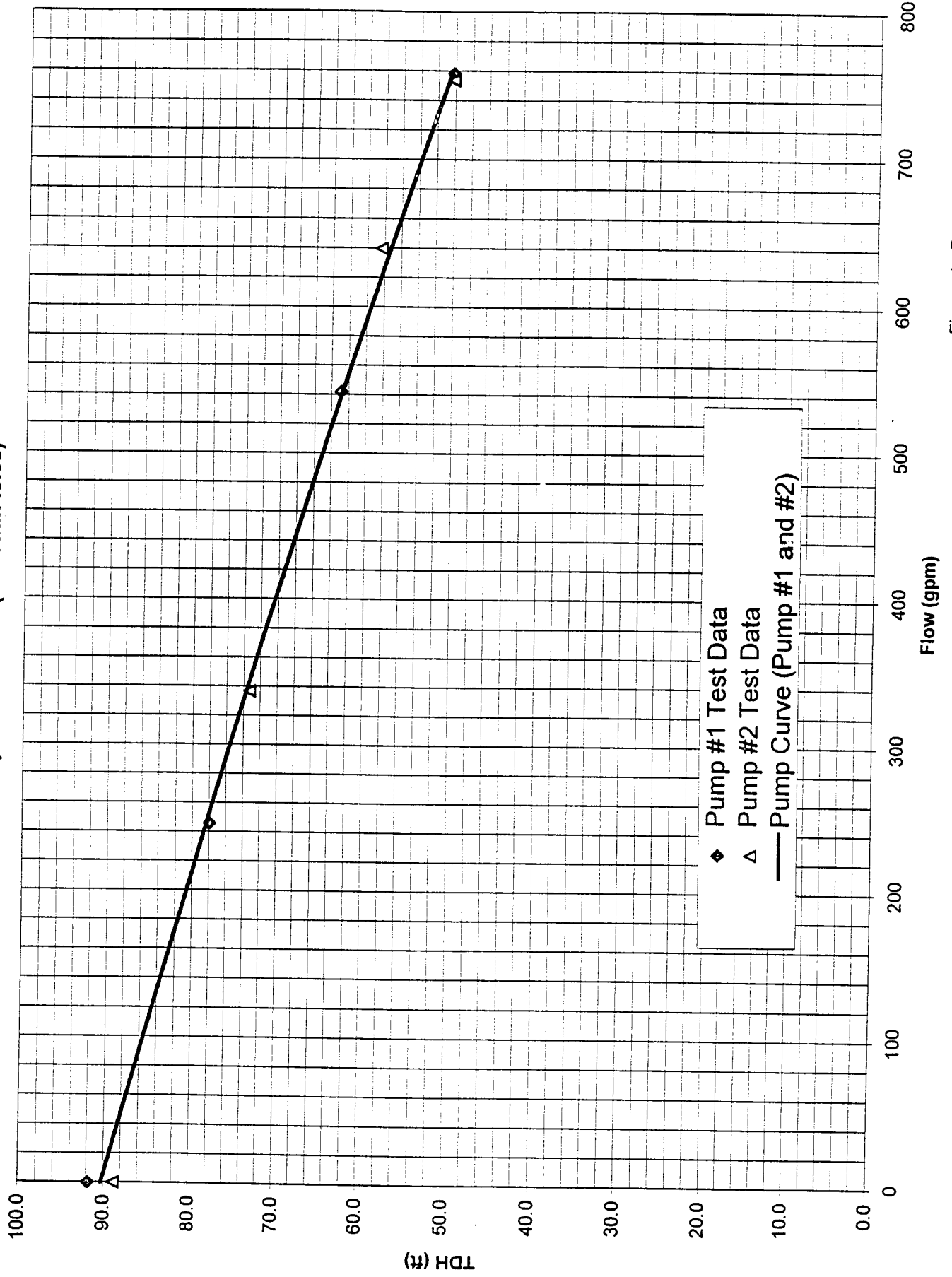


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 164

General Information

PS No. 164 PS Facility Venetian Isles Address 20711 Old Spanish Trail

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 9 inch

Model Number-Pump #1 not available Serial Number-Pump #1 K3N1-055597

Model Number-Pump #2 not available Serial Number-Pump #2 K3N1-055597

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 4 inch Pump Discharge 4 inch FM Diameter 8 inch

Suction Valve Size 0 inch Discharge Valve Size 8 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 4 x 8 inch

Dry Well Dimensions 8 ft. dia. Length 0 ft. Width: 0 ft. Depth 26.6 ft.

Pump centerline* 1.6 ft. Centerline of discharge pipe* _____ ft.

* measured from dry well bottom.

Notes: The dimension of the centreline of the discharge pipe could not be measure

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? # 1 and 2

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 164

Pump Controls

Lead pump on 8 ft. Type of Controls bubbler
Lead pump off 3 ft.
Lag pump on 9 ft.
Lag pump off 4 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is poor due to the severe corrosion throughout, specifically the steel dry well structure.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition There is a concrete liner.

Comments It was observed that there are roots penetrating into the wet well causing infiltra

Diameter 7 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 23 ft.

Sewer Invert(s) Depth* 17.5 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 164

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 240V three phase open delta (2 transformers bank)

Size of service protective device 225 amps, circuit breaker

Size of main protective device not available

Size of motor protective device 100 amps, dual element, fusible disconnect switch

Service wire size #1/0 AWG Size of motor starter in NEMA 4

Motor wire size #3 AWG Motor Horsepower 20

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1760

Frequency in Hertz 60

Type of starter Full voltage non-reversign (FVNR)

Model Number - Motor # ADBP Serial Number - Motor # 26N4395

Model Number - Motor # ADBP Serial Number - Motor # 26N4395

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, service circuit breaker and control panel is poor due to corrosion. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The service wire

Pump Station 164 (Venetian Isles)



Photo Number 1



Photo Number 2

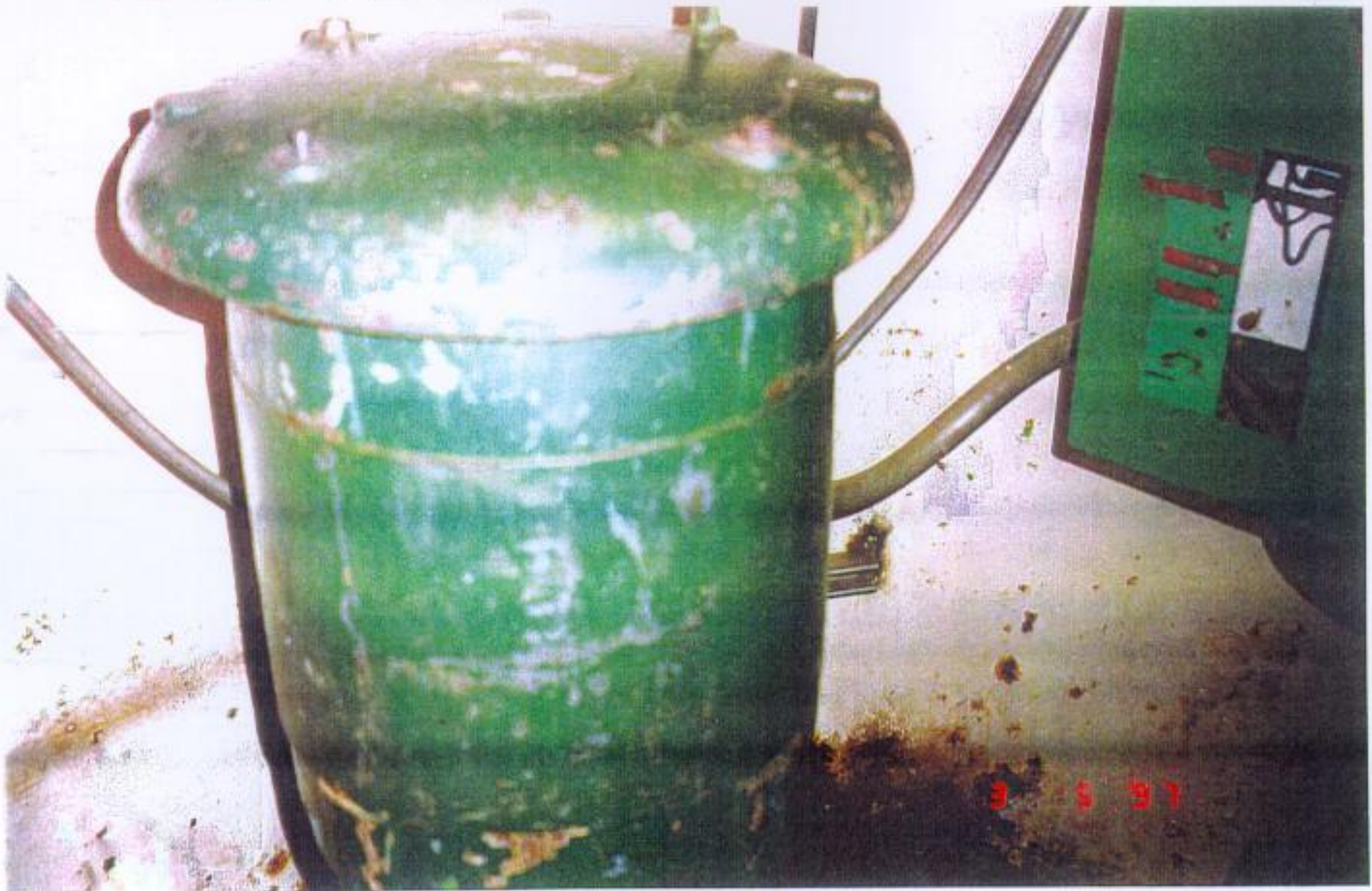


Photo Number 3



Photo Number 4

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 165 (VICTORIA)
3620 VICTORIA STREET**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 165 (Victoria)

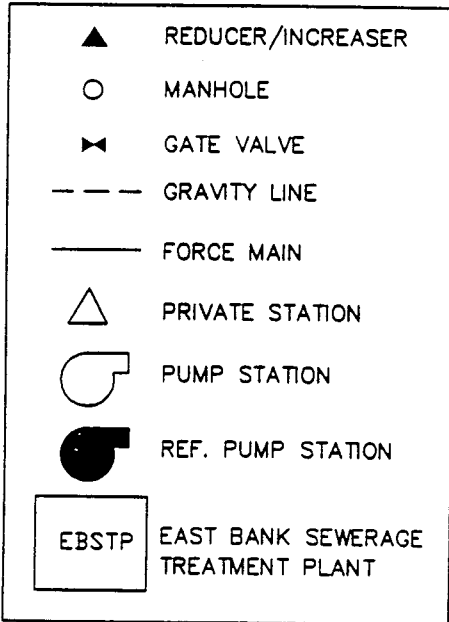
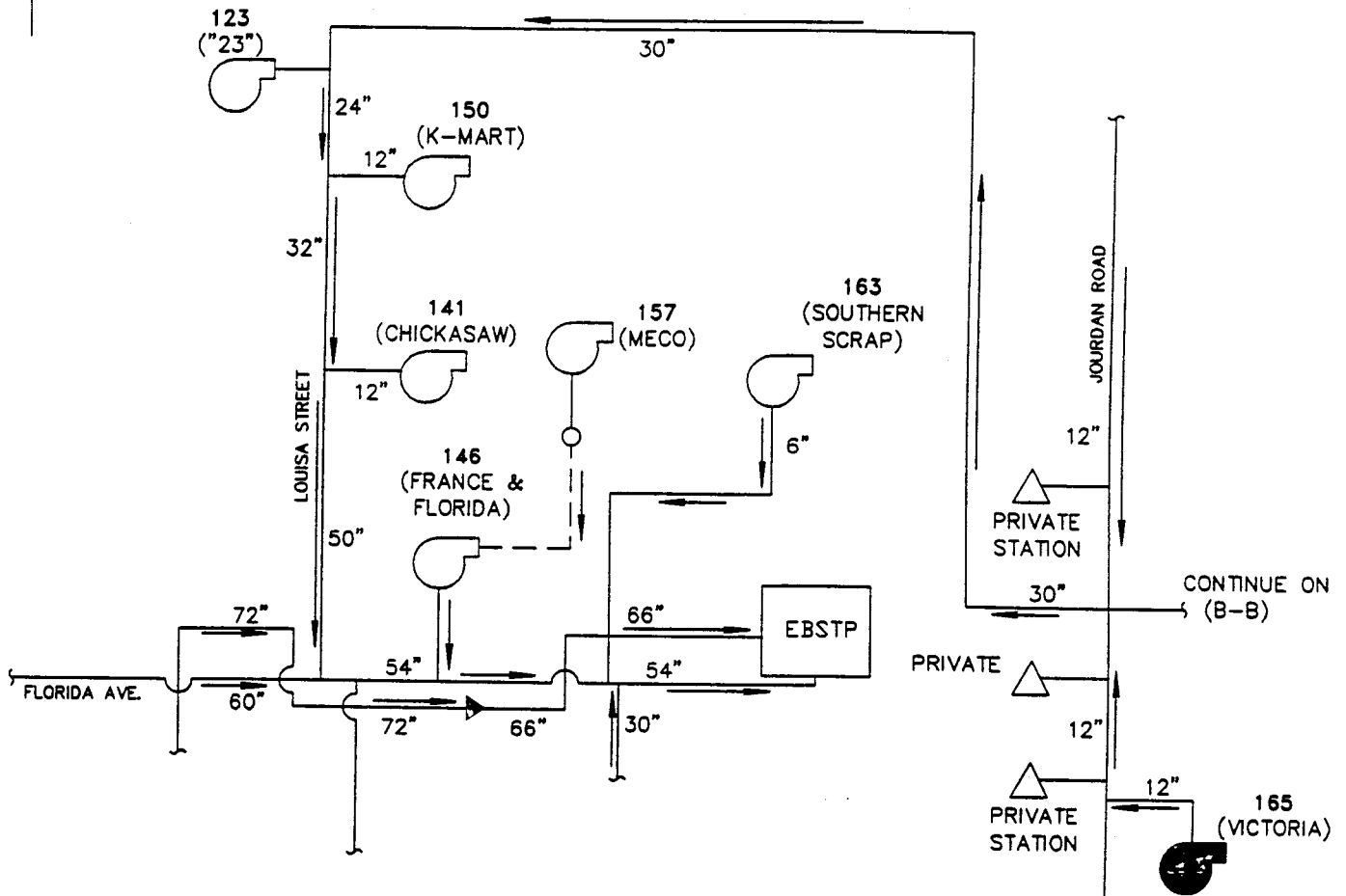
Pump Station 165 is a flooded-suction, can-type station located at 3620 Victoria Street. Flow discharges the station via a 12-inch diameter force main and connects to the 30-inch portion of the Dwyer Road force main. Pump Station 165 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 165.

Pump Station 165 contains two (6-inch by 6-inch) Fairbanks Morse vertically aligned pumps. Each pump is powered by a 40 horsepower (hp) Fairbanks Morse electric motor operating at a speed of 1175 revolutions per minute (rpm). This equipment is housed in an 11-foot by 11-foot reinforced concrete dry well structure, primarily below grade. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair. Pump Station 165 collects wastewater from the surrounding gravity sewer system into a circular wet well.

The capacity of the pumps at this station should be similar to other operable (6-inch by 6-inch) Fairbanks Morse pumps. Figure 4 shows a reproduction of the manufacturer's pump curve which is the assumed pump curve for Pump Station 128.

Recommendations:

1. The physical condition of the electrical service disconnect switch is in poor condition due to corrosion. Also, it is noted that the motor protective device is undersized. It is recommended that these electrical issues be addressed.



NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 161 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

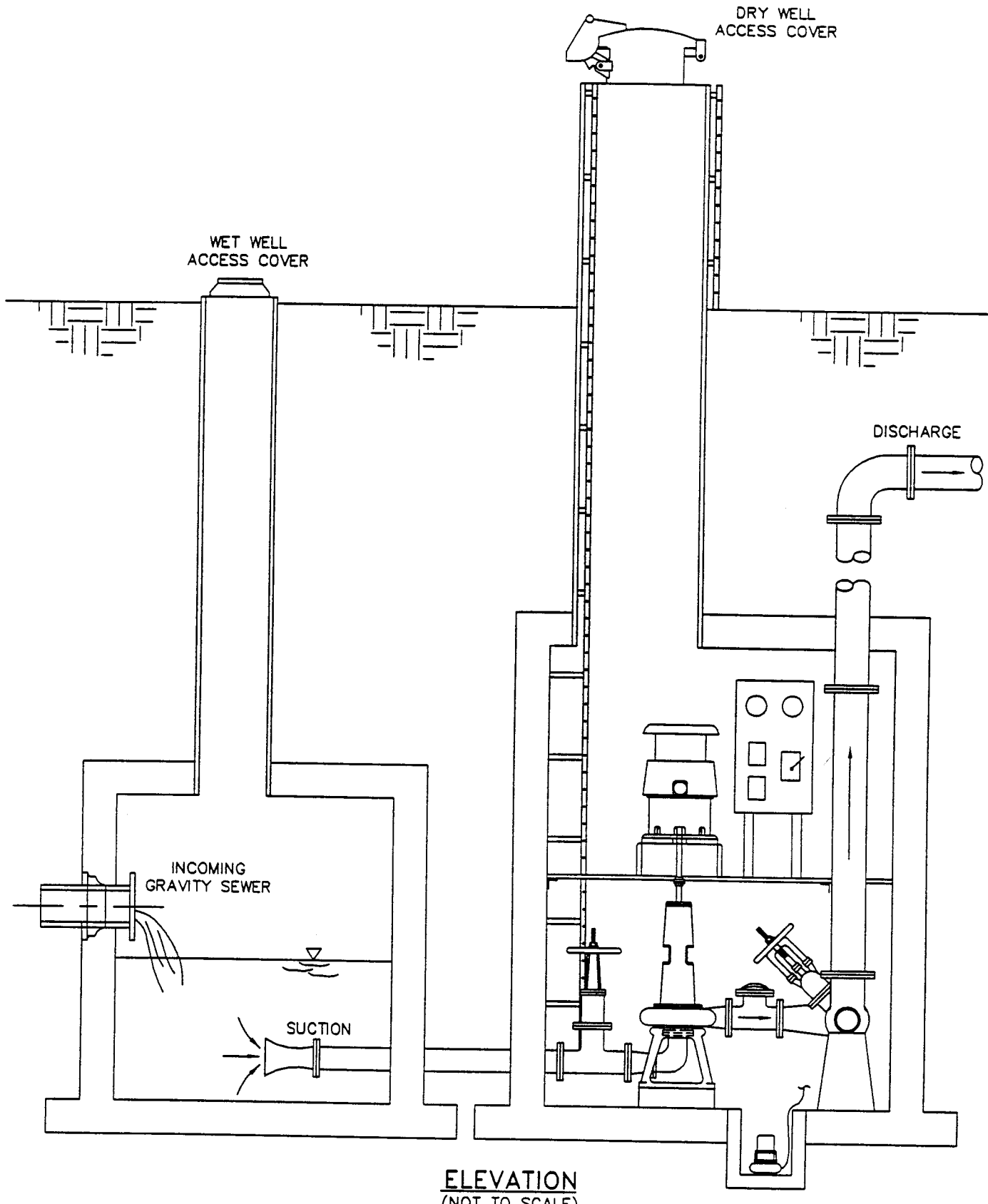
PUMP STATION 165 (VICTORIA)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

1

DATE:

3/28/97



FILE NO.: 16. AC JOB NO.: 1113030.01090120 DATE: 3/28/97

ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

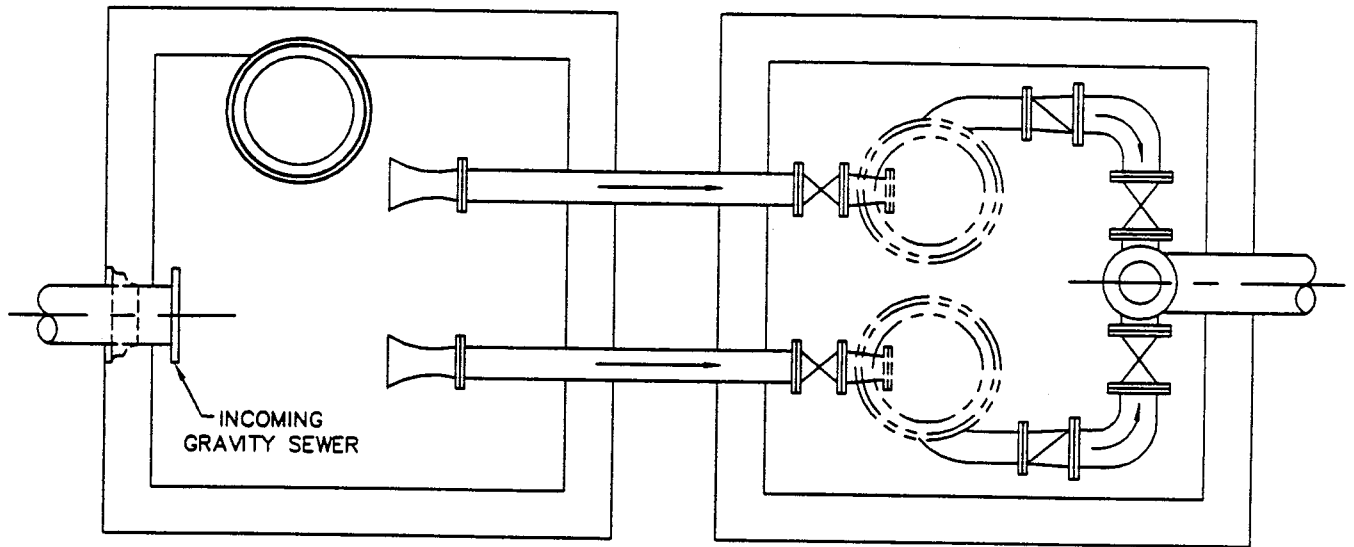
PUMP STATION 165 (VICTORIA)
CAN TYPE FLOODED SUCTION

FIGURE:

2

DATE:

3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 165 .AG JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 165 (VICTORIA)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 165 (Victoria)

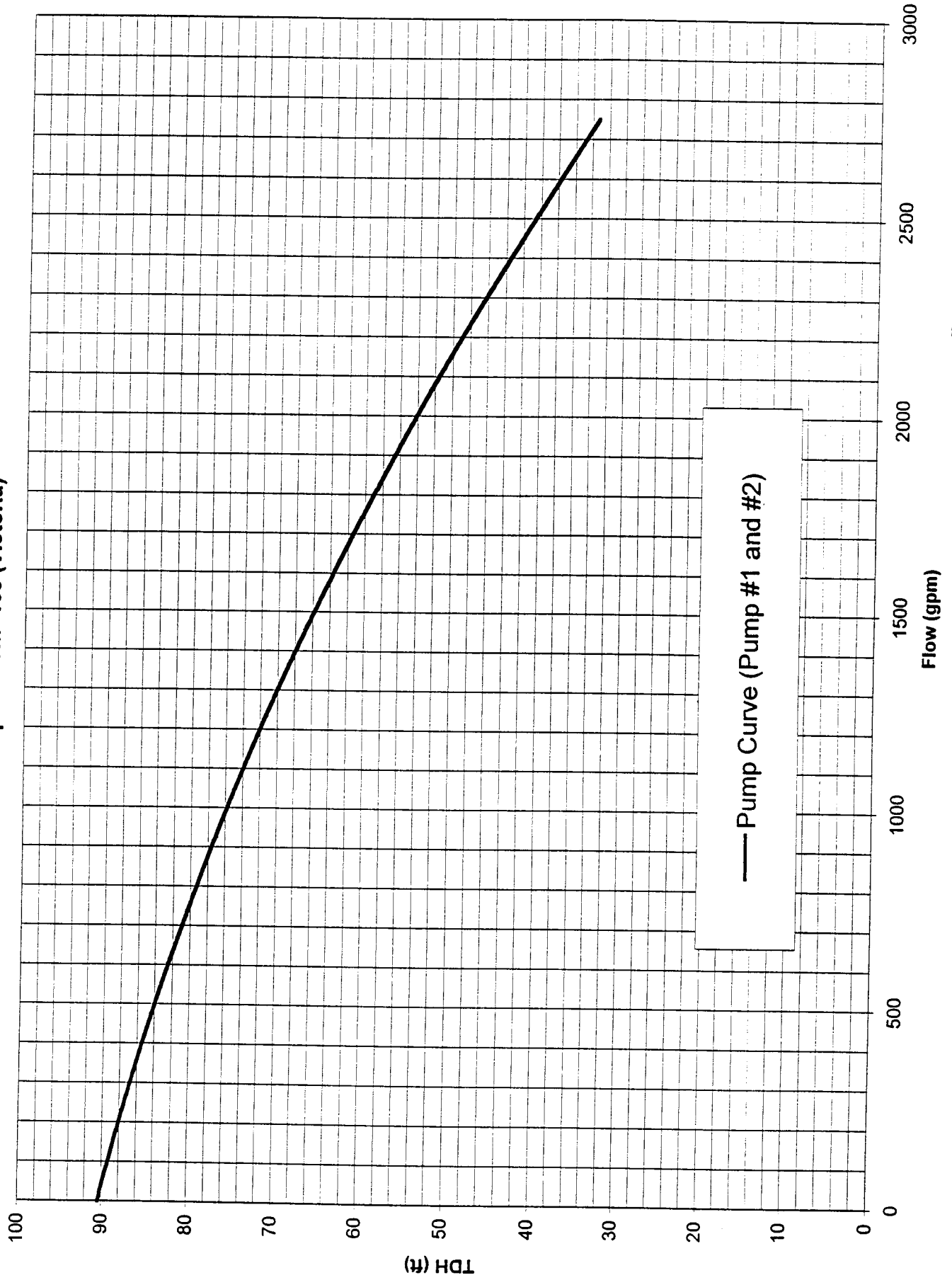


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 165

General Information

PS No. 165 PS Facility Victoria

Address 3620 Victoria Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 500 gpm 78 ft. of head 0 rpm

Pump Suction 6 inch Pump Discharge 6 inch FM Diameter 12 inch

Suction Valve Size 10 inch Discharge Valve Size 10 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 6 x 8 inch

Dry Well Dimensions 0 ft. dia. Length 11 ft. Width: 11 ft. Depth 0 ft.

Pump centerline* 0 ft. Centerline of discharge pipe* 0 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 165

Pump Controls

Lead pump on 0 ft. Type of Controls _____
Lead pump off 0 ft.
Lag pump on 0 ft.
Lag pump off 0 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair except for isolated corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 0 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 0 ft.

Sewer Invert(s) Depth* 0 ft.

 0 ft.

**measured from top of wet well cover.*

Pump Station 165 (Victoria)



Photo Number 1



Photo Number 2

Pump Station 165 (Victoria)

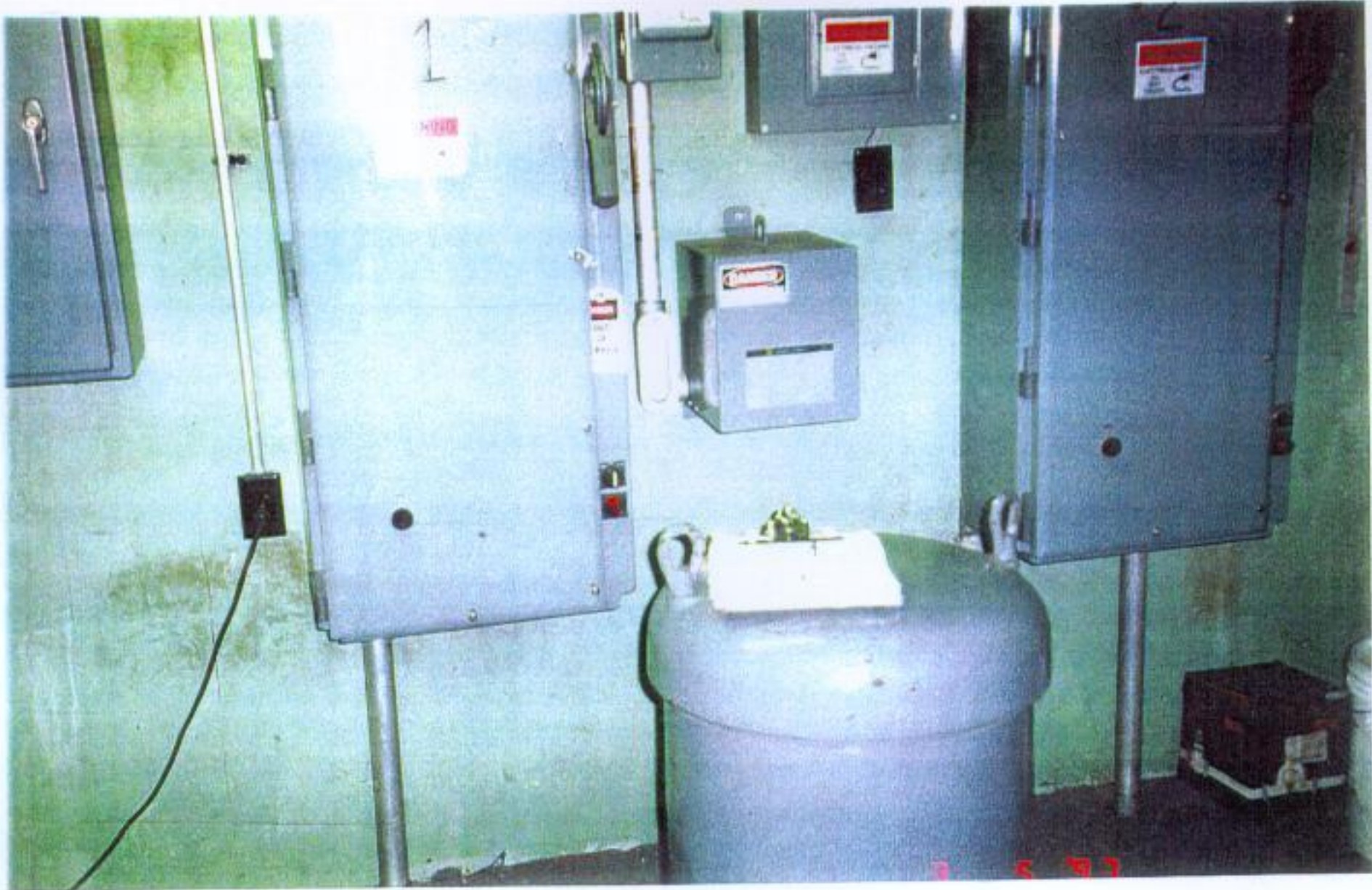


Photo Number 3

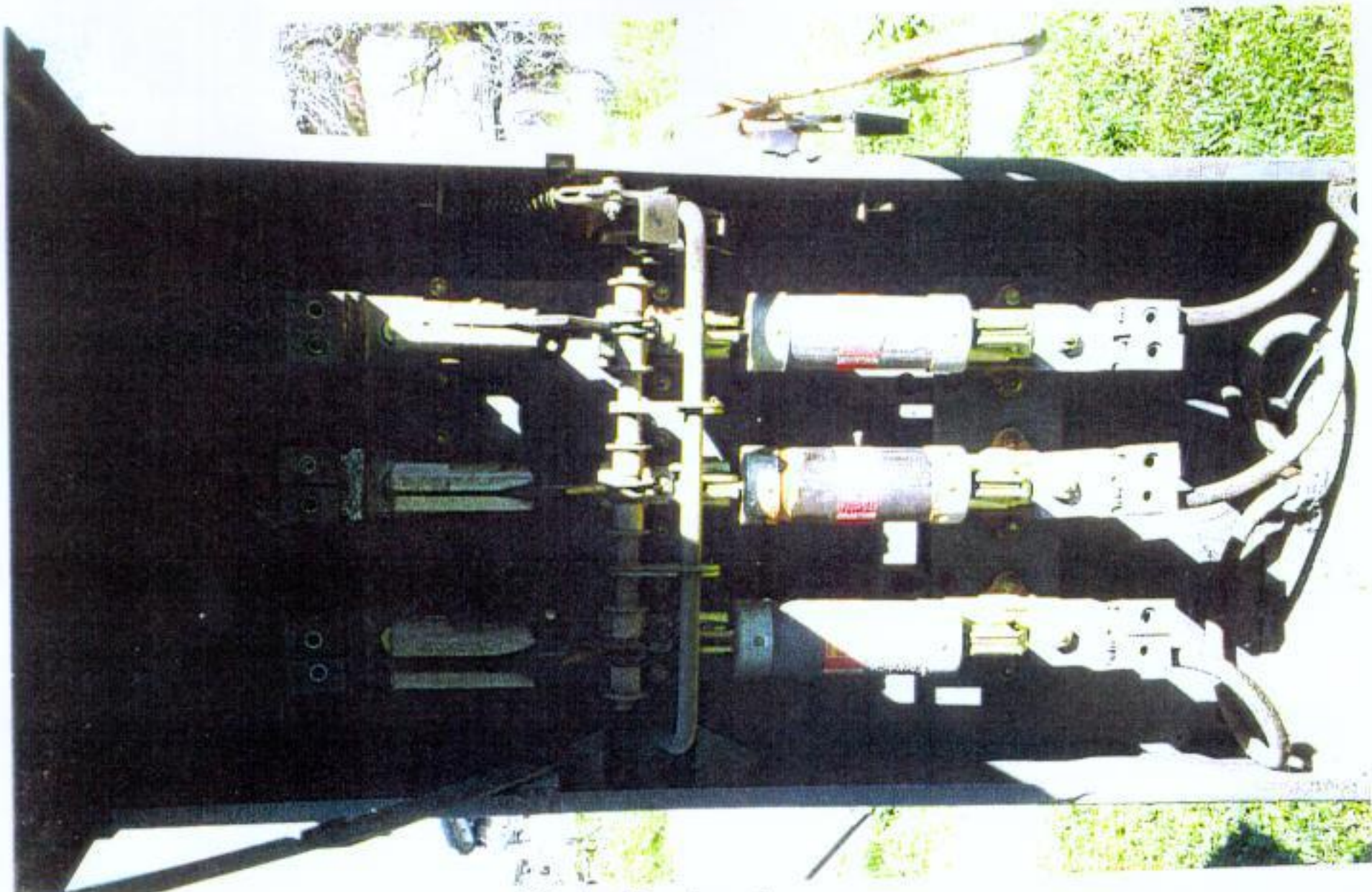


Photo Number 4

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 166 (VILLAGE D'LEST)
13324 DWYER ROAD**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 166 (Village D'Lest)

Pump Station 166 is a flooded-suction, can-type station located on 13324 Dwyer Road. Flow discharges the station via a 14-inch diameter force main and afterwards reduces into the 12-inch force main buried parallel to Michoud Boulevard. Pump Station 166 does repump flow from Pump Station 168 (Willowbrook). Figure 1 shows the schematic subsystem surrounding Pump Station 166.

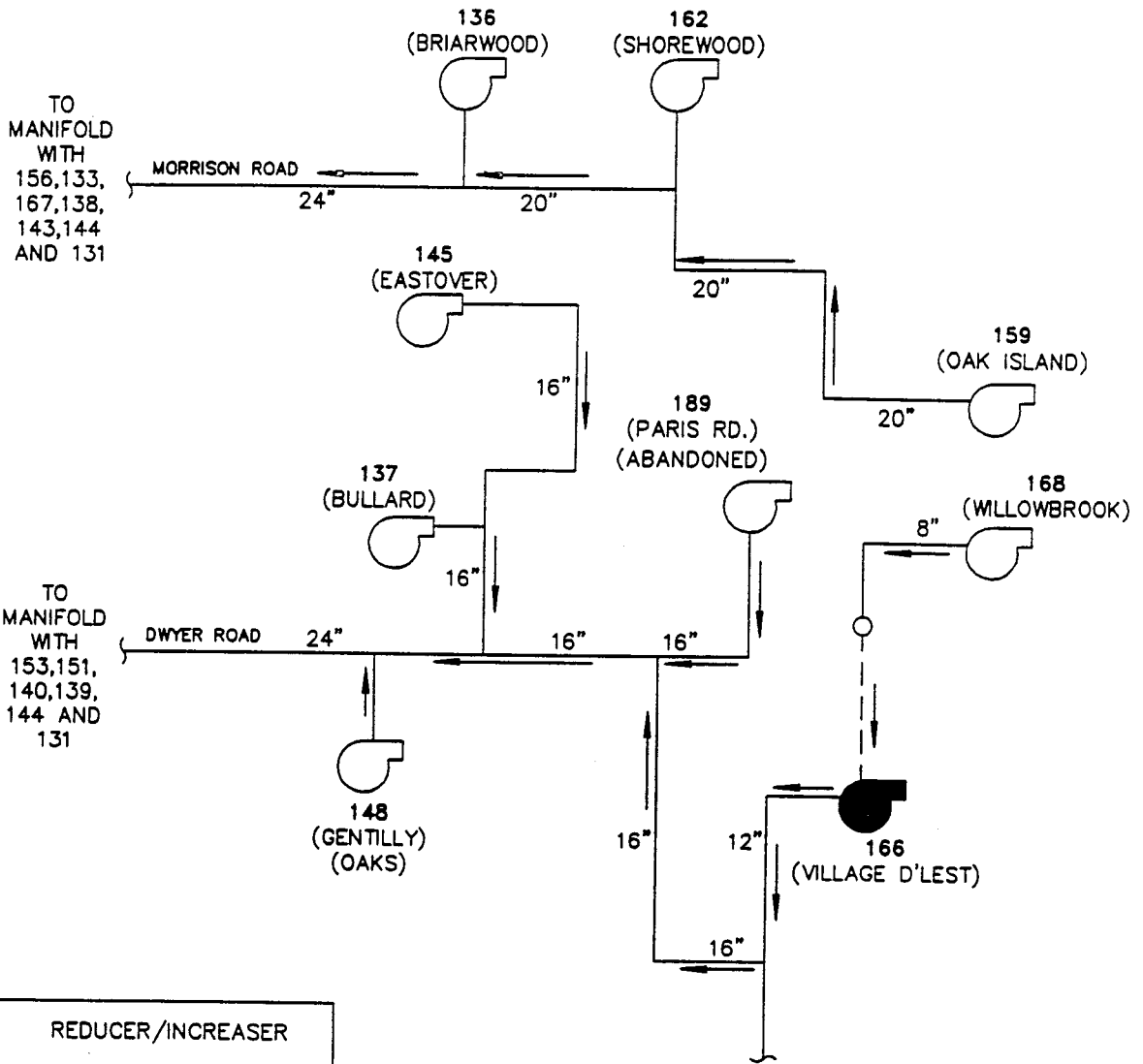
Pump Station 166 contains two (8-inch by 8-inch) vertically aligned pumps. Each pump is powered by a 100 horsepower (hp) Westinghouse electric motor operating at a speed of 1880 revolutions per minute (rpm). This equipment is housed in a 10.4-foot diameter steel dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 28.1 feet. Figures 2 and 3 provide plan and elevation views of the station. There is extreme corrosion in the lower room of the dry well, specifically on the steel floor of the dry well. This corrosion can be seen in the attached photos 2, 3 and 4.

Pump Station 166 collects wastewater from the surrounding gravity sewer system into a 24.7-foot deep cement-lined brick wet well. The cross sectional area of the wet well is circular with an estimated 7-foot diameter. There is a large hole in the wall of wet well allowing infiltration to enter.

A draw down/fill test was conducted to determine the capacity of Pump Station 166. Figure 4 shows pump curve constructed from obtained test data. Each pump has an approximate capacity of 1650 gallons per minute (gpm) at 102 feet of head. The shut-off head of both pumps was found to be 142 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 1800 gpm at 118 feet of head.

Recommendations:

1. Corrosion in the pump room is significant. Measures should be taken to protect or replace severely corroded piping, components and the dry well structure itself. The steel floor should be analyzed for structural integrity and corrected as required.
2. Repair of the hole allowing infiltration into the wet well is recommended.
3. It is noted that the physical condition of the motors, motor controller, electric service disconnect switch, and control panel is poor due to corrosion and rotten wires. It is recommended that these issues be addressed.



	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EAST BANK SEWERAGE TREATMENT PLANT

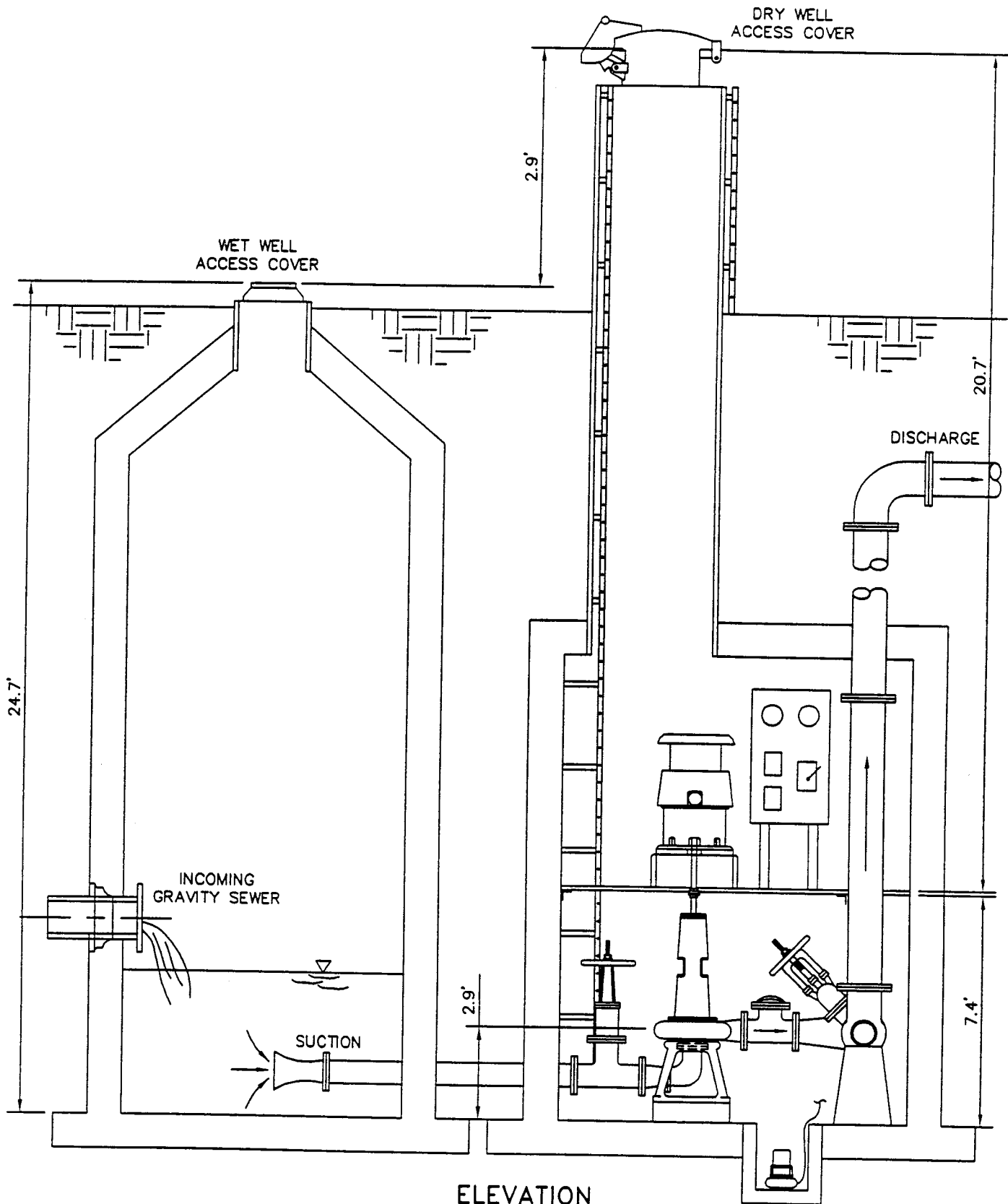
NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 161
 JOB NO.: 1113030.01090120 DATE: 3/28/97

	SEWERAGE AND WATER BOARD OF NEW ORLEANS
	MONTGOMERY WATSON

PUMP STATION 166 (VILLAGE D'LEST)
 PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97



ELEVATION
(NOT TO SCALE)

FILE NO.: 16L
 JOB NO.: 1113030.01090120
 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

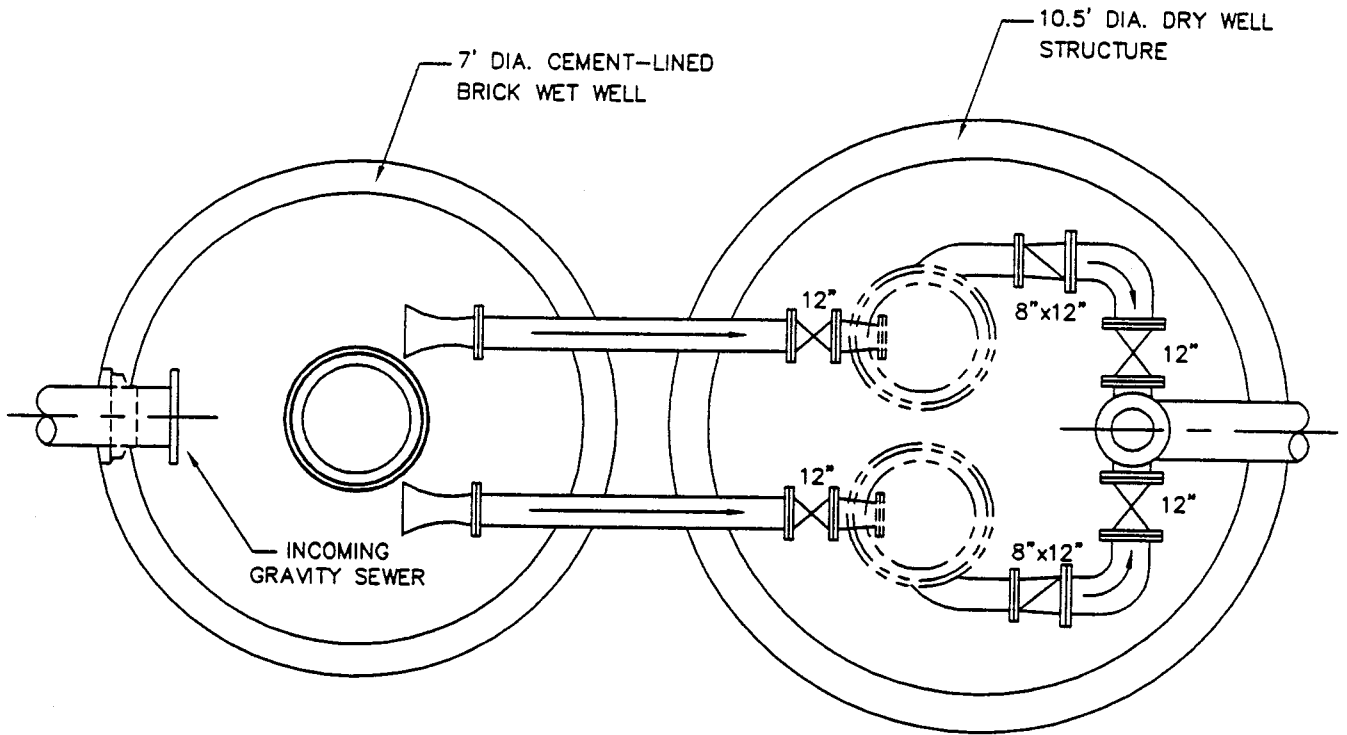
PUMP STATION 166 (VILLAGE D'LEST)
CAN TYPE FLOODED SUCTION

FIGURE:

2

DATE:

3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 166 AG JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 166 (VILLAGE D'LEST)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 166 (Village D'Lest)

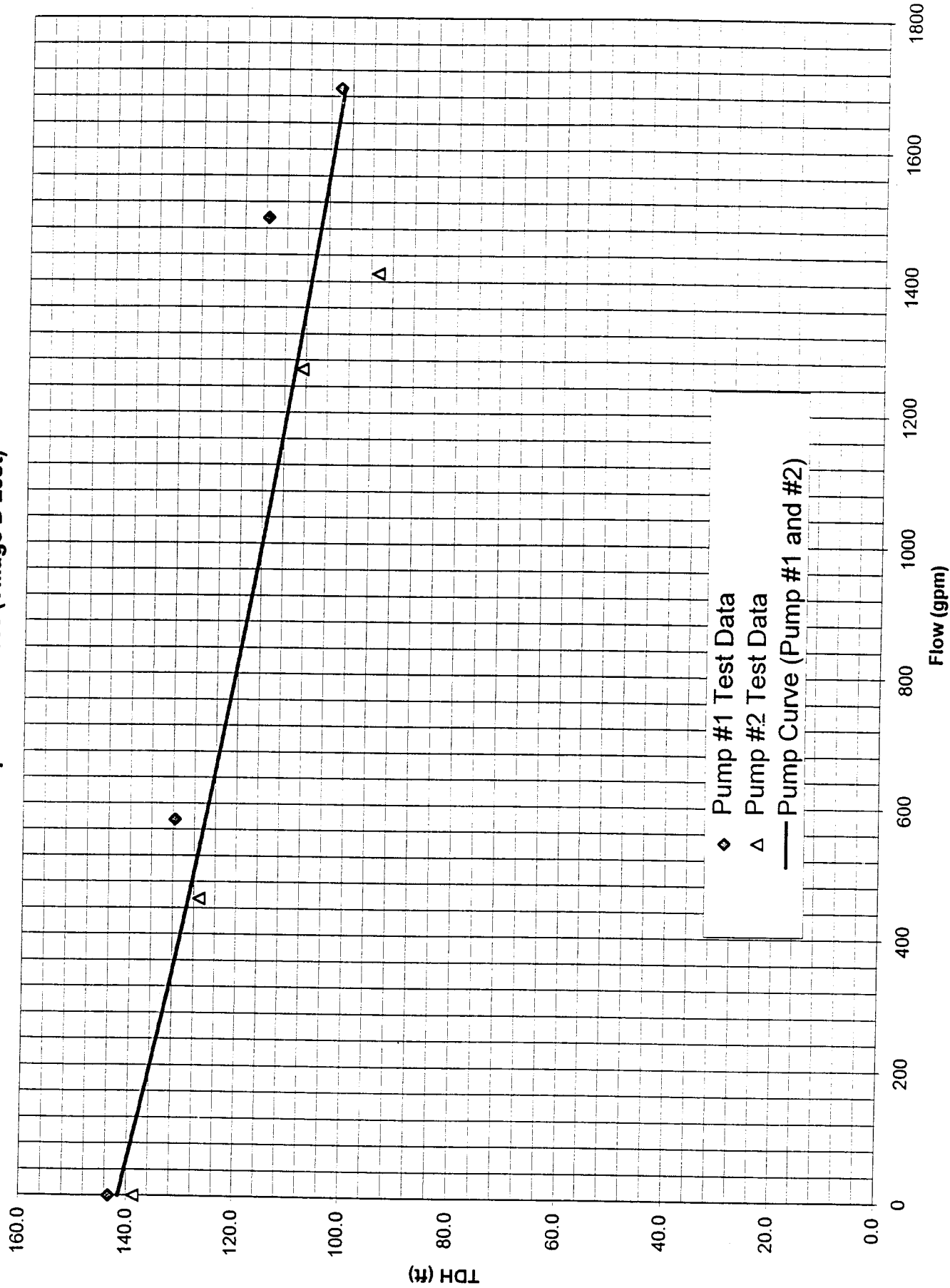


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 166

General Information

PS No. 166 PS Facility Village D'Lest Address 13324 Dwyer Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer not readable

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 14 inch

Suction Valve Size 12 inch Discharge Valve Size 12 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 8 x 12 inch

Dry Well Dimensions 10.4 ft. dia. Length 0 ft. Width: 0 ft. Depth 28.1 ft.

Pump centerline* 2.9 ft. Centerline of discharge pipe* _____ ft.

* measured from dry well bottom.

Notes: The centerline of the discharge pipe is vertical.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 166

Pump Controls

Lead pump on 9 ft. Type of Controls bubbler
Lead pump off 2 ft.
Lag pump on 10 ft.
Lag pump off 3 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is poor due to severe corrosion in the pump room, specifically the steel dry well structure.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition There is a liner present for 5'; rest is brick.

Comments _____

Diameter 7 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 24.7 ft.

Sewer Invert(s) Depth* 17.3 ft.

14.1 ft.

*measured from top of wet well cover.

Pump Station 166 (Village D'Lest)



Photo Number 1

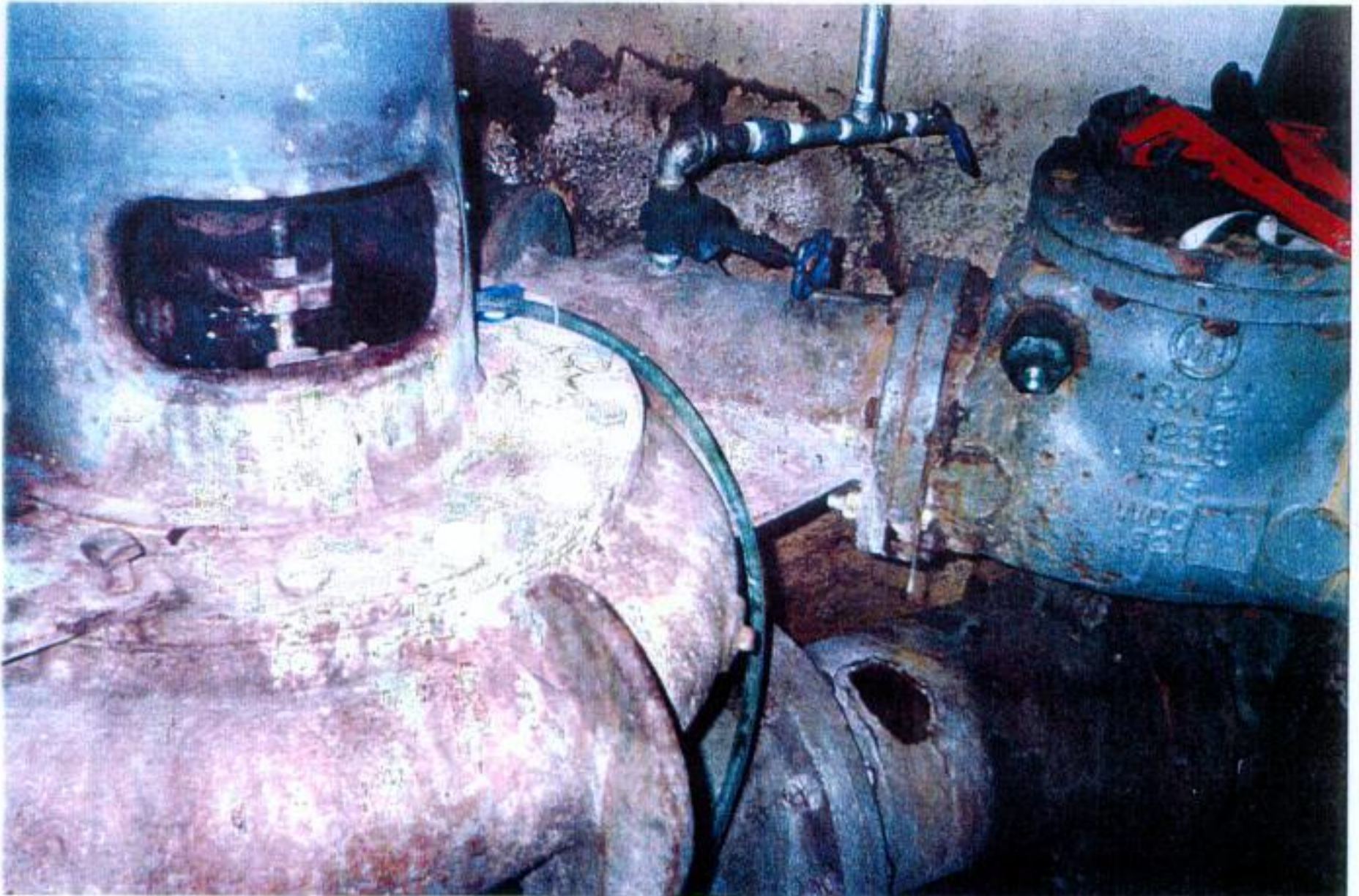


Photo Number 2

Pump Station 166 (Village D'Lest)

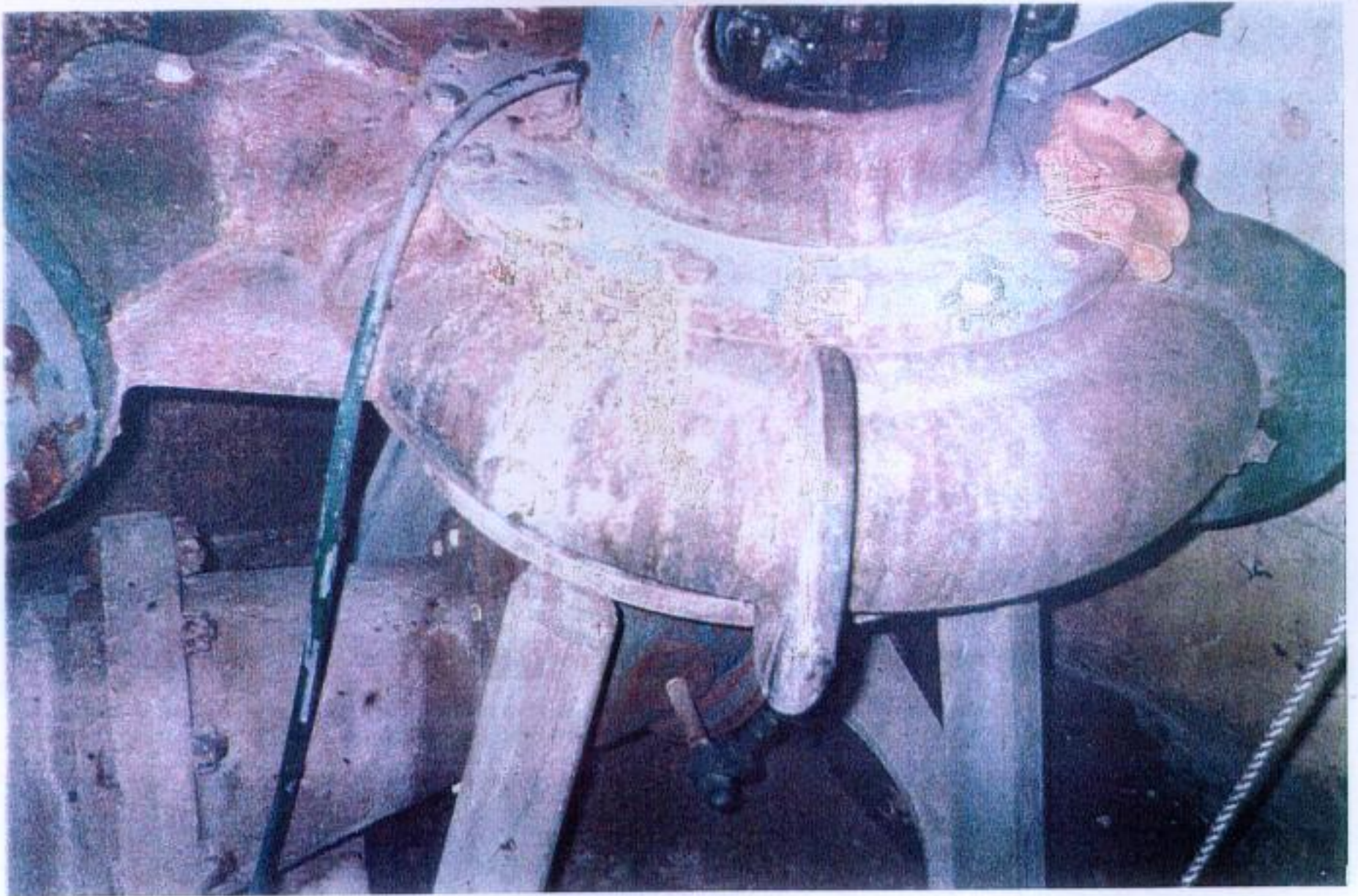


Photo Number 3



Photo Number 4

Pump Station 166 (Village D'Lest)

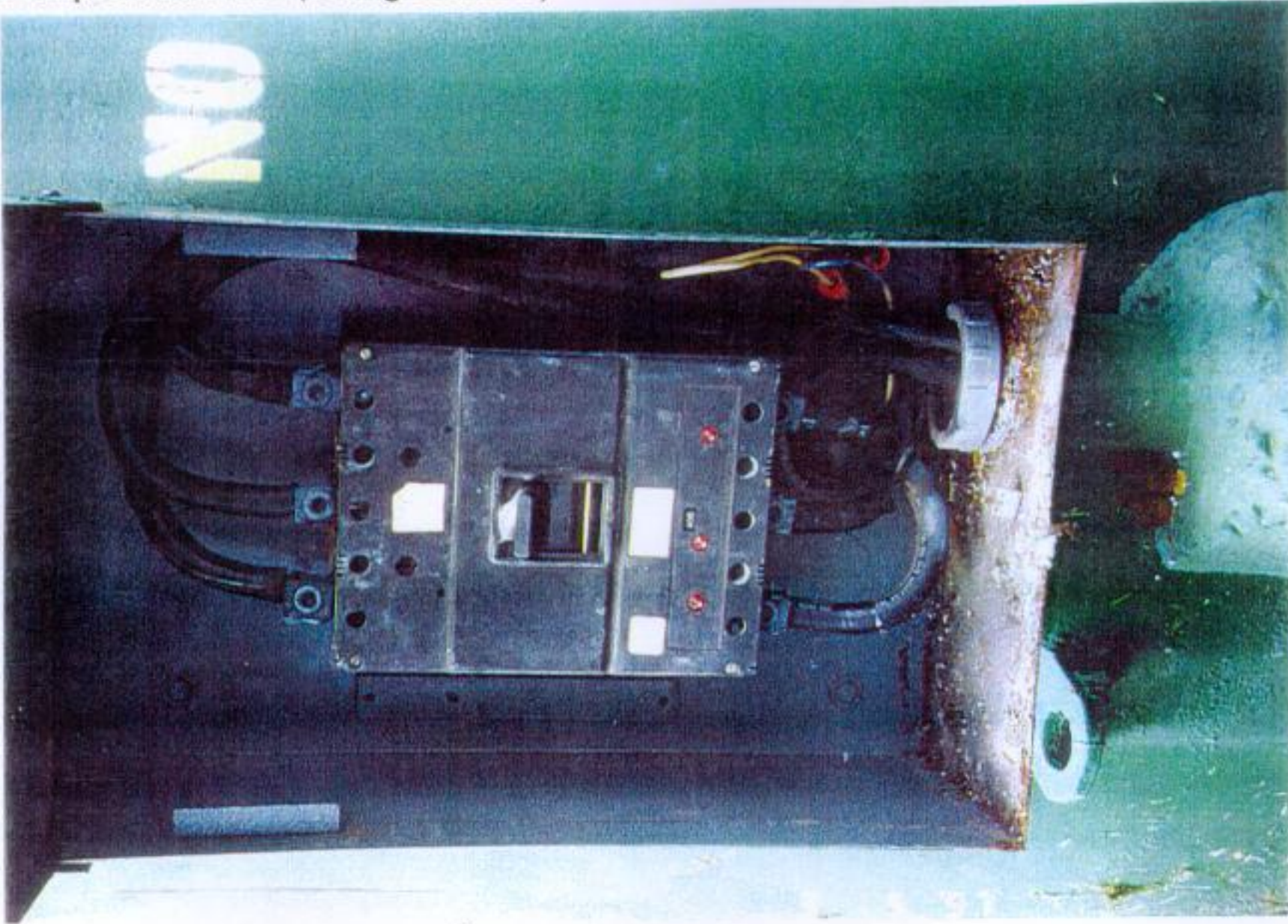


Photo Number 5

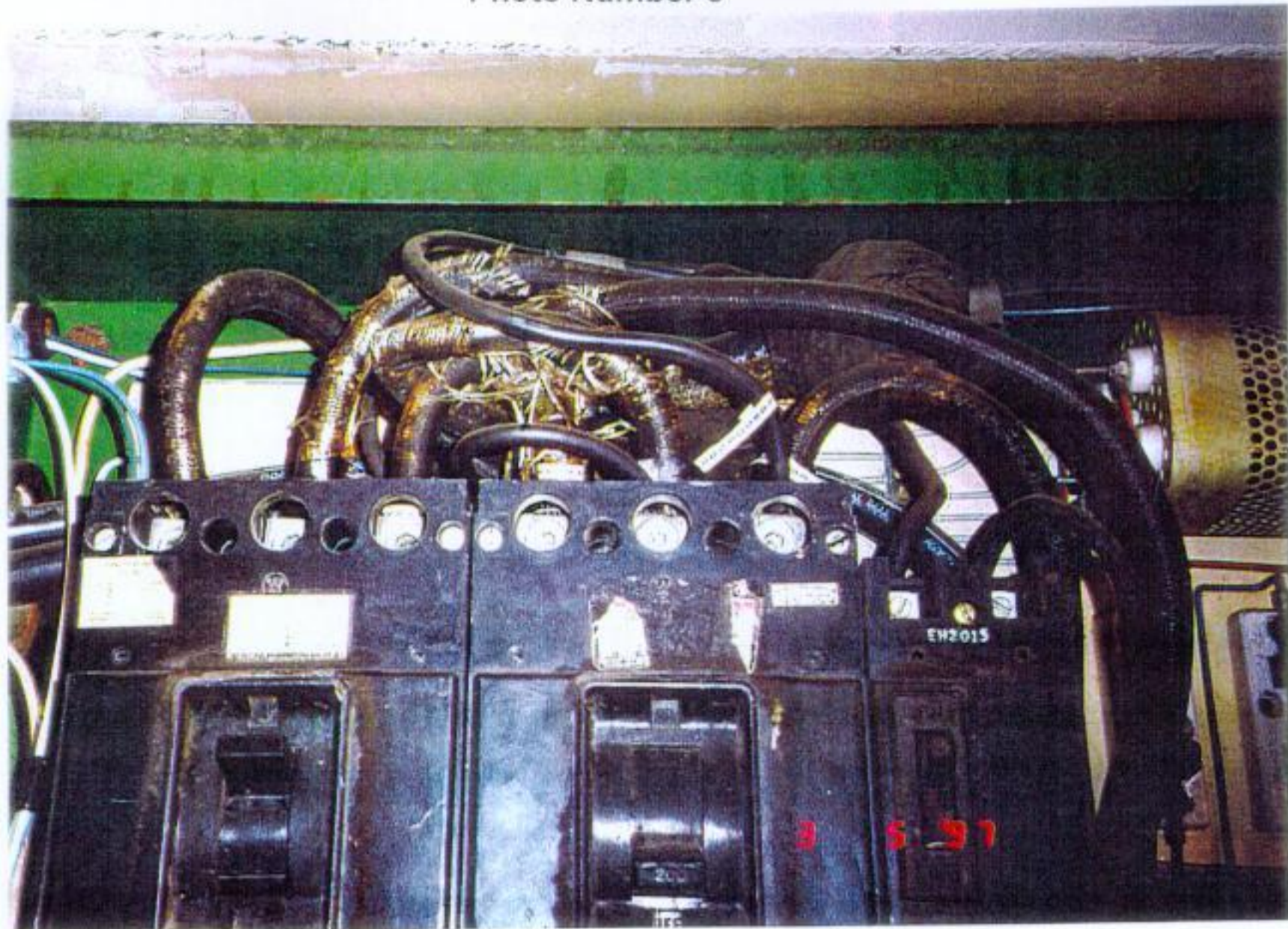


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 167 (WEBER)
10141 MORRISON ROAD**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 167 (Weber)

Pump Station 167 is a flooded-suction, can-type station located on 10141 Morrison Road. Wastewater discharges the station via a 16-inch diameter force main and connects to the 36-inch portion of the Morrison Road force main. Pump Station 167 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 167.

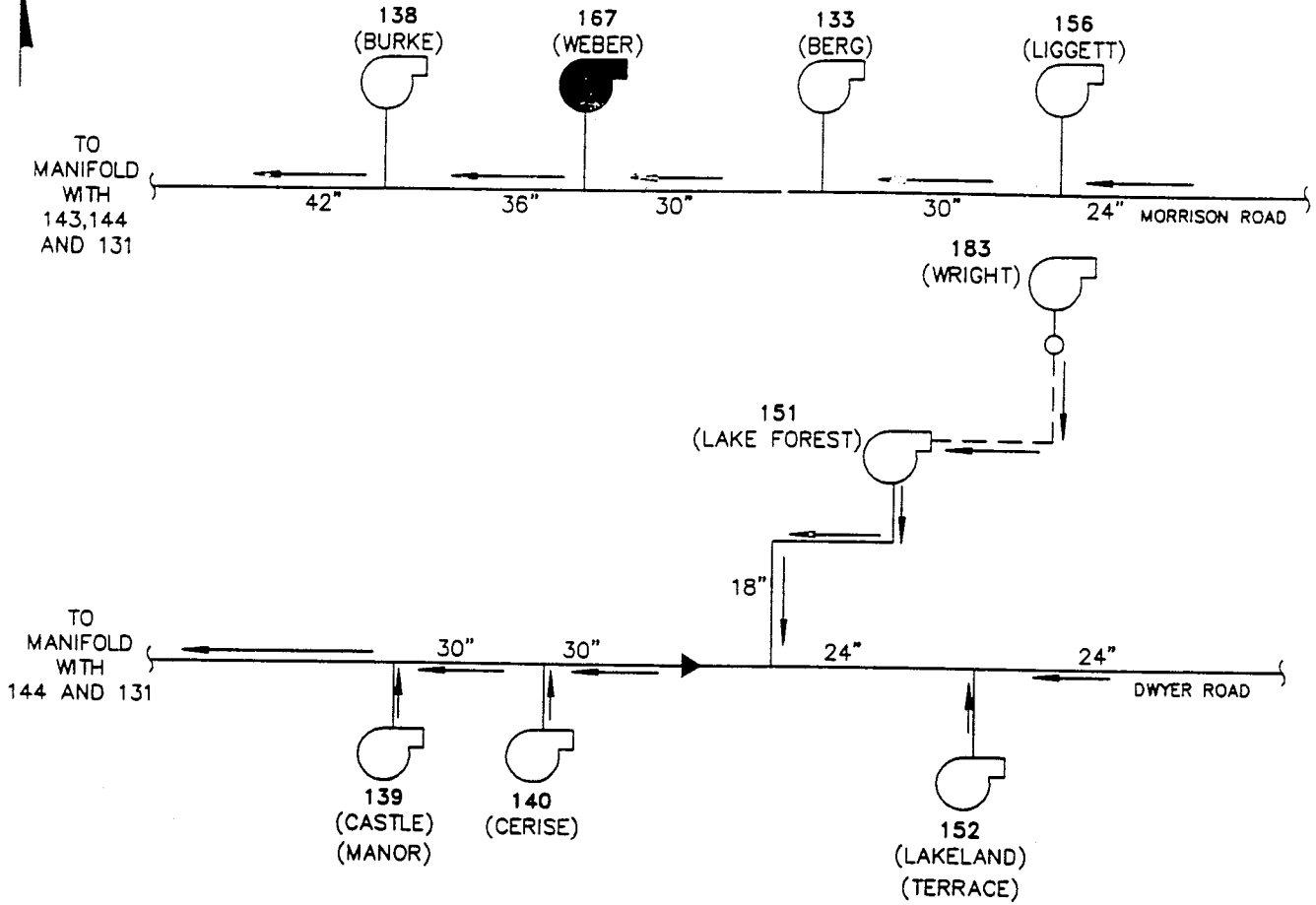
Pump Station 167 contains two (8-inch by 8-inch) Fairbanks Morse vertically aligned pumps. Each pump is powered by a 100 horsepower (hp) Fairbanks Morse electric motor operating at a speed of 1175 revolutions per minute (rpm). This equipment is housed in an 11-foot by 11-foot reinforced concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 30.5 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair although there is corrosion around the pump as seen in photo number 2 and 3. While inspecting the station's valves and piping, it was found that the suction gate and check valves for pump number 1 do not seat properly and therefore allow backflow from the force main into the wet well.

Pump Station 167 collects wastewater from the surrounding gravity sewer system into a 24.2-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated (11-foot by 11-foot) dimensions. The overall condition of the wet well appears to be fair.

A drawdown/fill test was conducted to determine the capacity of Pump Station 167. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 3500 gallons per minute (gpm) at 54 feet of head. The shut-off head of both pumps was found to be 102 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 4800 gpm at 68 feet of head.

Recommendations:

1. It is recommended that the suction gate valve and the check valve for pump number 1 be adjusted to insure proper seating such that backflow will not occur.
2. The motor protective device and wire size are both undersized. It is recommended that these issues be addressed.



- ▲ REDUCER/INCREASER
- MANHOLE
- ⋈ GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- ⊔ PUMP STATION
- REF. PUMP STATION
- ▭ EBSTP EAST BANK SEWERAGE TREATMENT PLANT

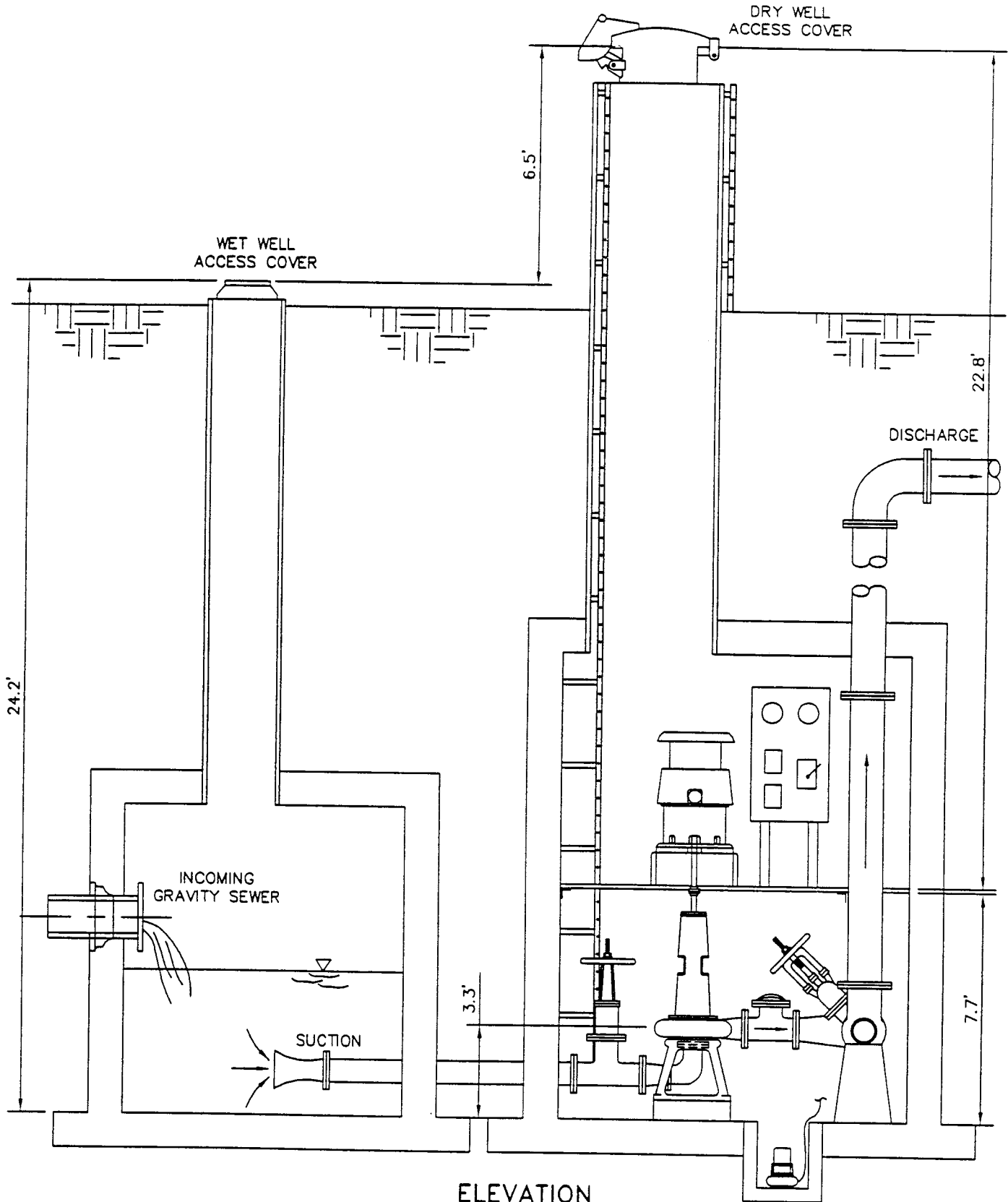
NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 16; JOB NO.: 1113030.01090120 DATE: 3/28/97



PUMP STATION 167 (WEBER)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97



FILE NO.: 167. JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

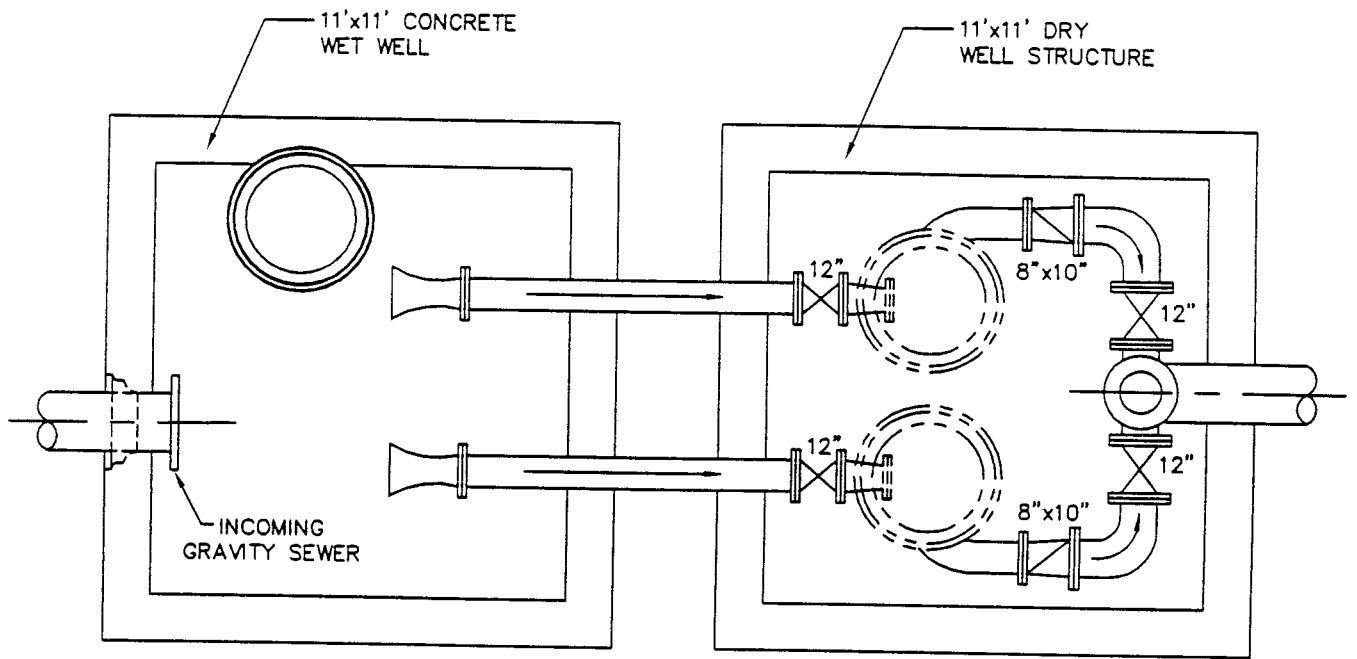
PUMP STATION 167 (WEBER)
CAN TYPE FLOODED SUCTION

FIGURE:

2

DATE:

3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 16. JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 167 (WEBER)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 167 (Weber)

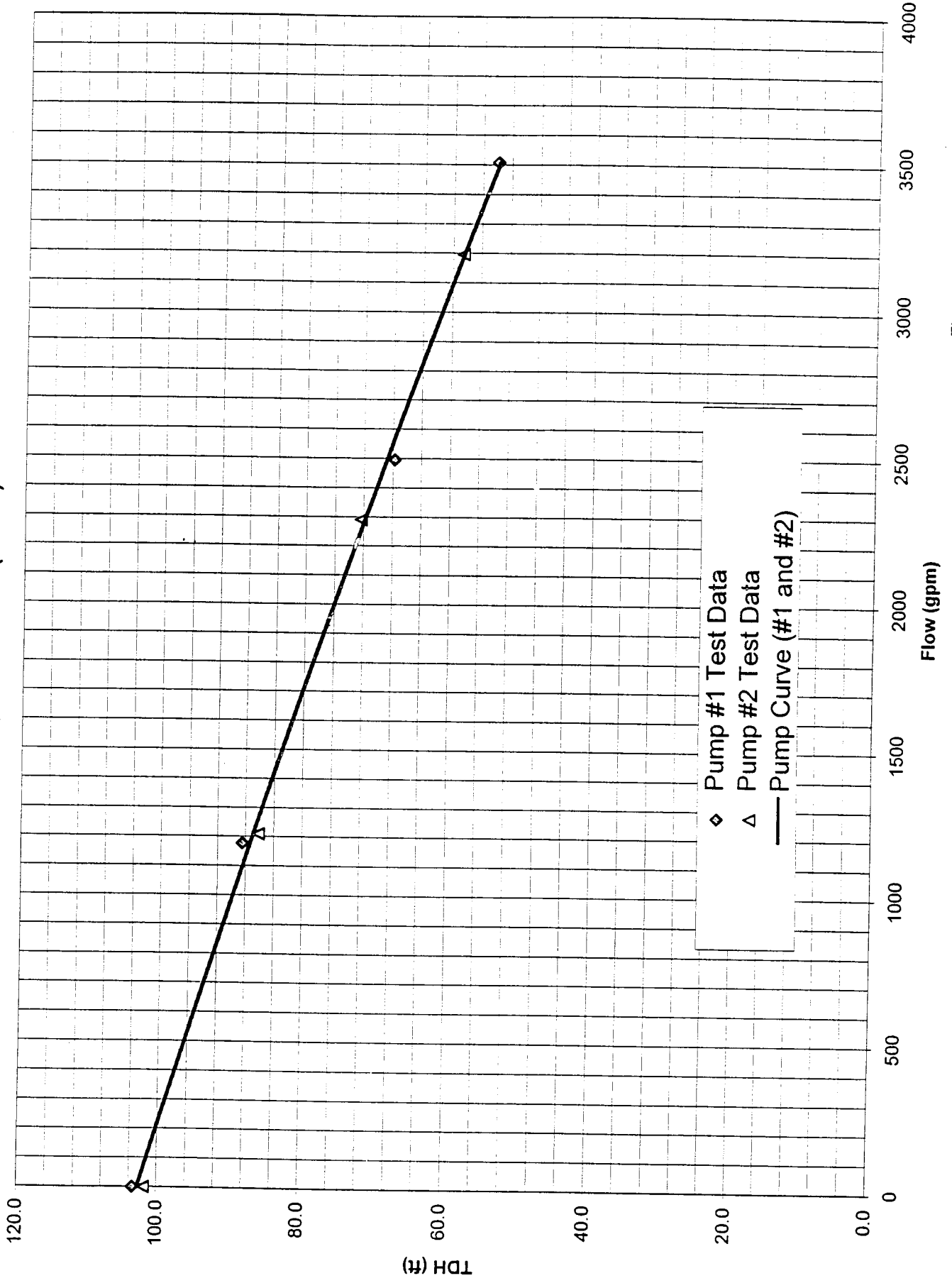


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 167

General Information

PS No. 167 PS Facility Weber Address 10141 Morrison Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter _____ inch

Model Number-Pump #1 not readable Serial Number-Pump #1 not readable

Model Number-Pump #2 not readable Serial Number-Pump #2 not readable

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 16 inch

Suction Valve Size 12 inch Discharge Valve Size 12 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 8 x 10 inch

Dry Well Dimensions 0 ft. dia. Length 11 ft. Width: 11 ft. Depth 30.5 ft.

Pump centerline* 3.3 ft. Centerline of discharge pipe* _____ ft.

* measured from dry well bottom.

Notes: The centreline of the discharge pipe is vertical.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 167

Pump Controls

Lead pump on 10.5 ft. Type of Controls bubbler
Lead pump off 6 ft.
Lag pump on 11 ft.
Lag pump off 7 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments It was not possible to observe the lower rectangular portion of the wet well.

Diameter 0 ft. Length 11 ft. Width 11 ft.

Bottom Depth* 24.2 ft.

Sewer Invert(s) Depth* 21.3 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 167

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source not available

Type of service not available

Size of service protective device 300 amps, dual element, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 150 amps, dual element, fusible disconnect switch

Service wire size 350 kcmil Size of motor starter in NEMA 4

Motor wire size # 1/0 AWG Motor Horsepower 100

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1175

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # F449653 Serial Number - Motor # unreadable

Model Number - Motor # F449653 Serial Number - Motor # unreadable

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The motor protective device and wire size are both undersize. The motor vibrates when running.

Pump Station 167 (Weber)



Photo Number 1

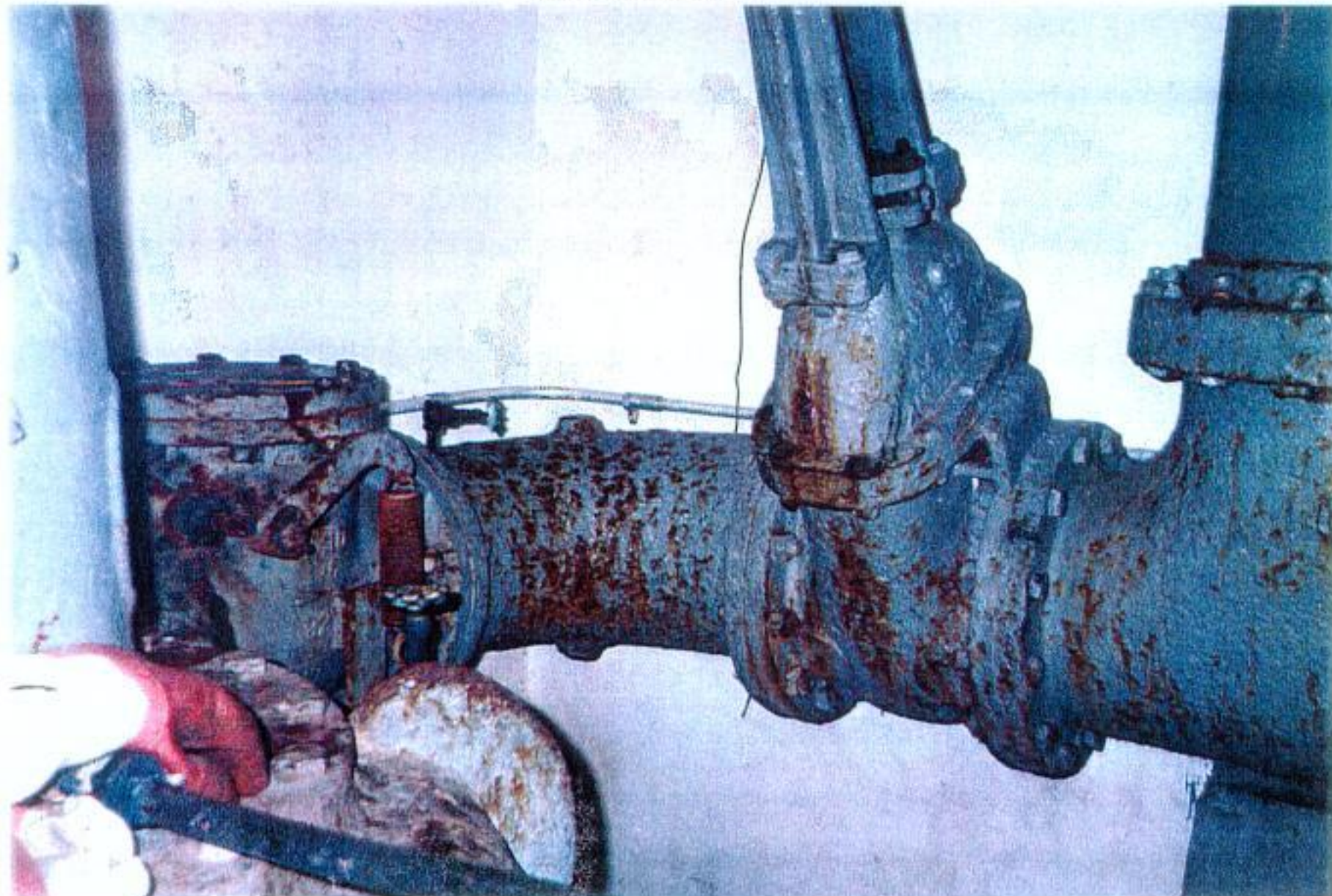


Photo Number 2

Pump Station 167 (Weber)

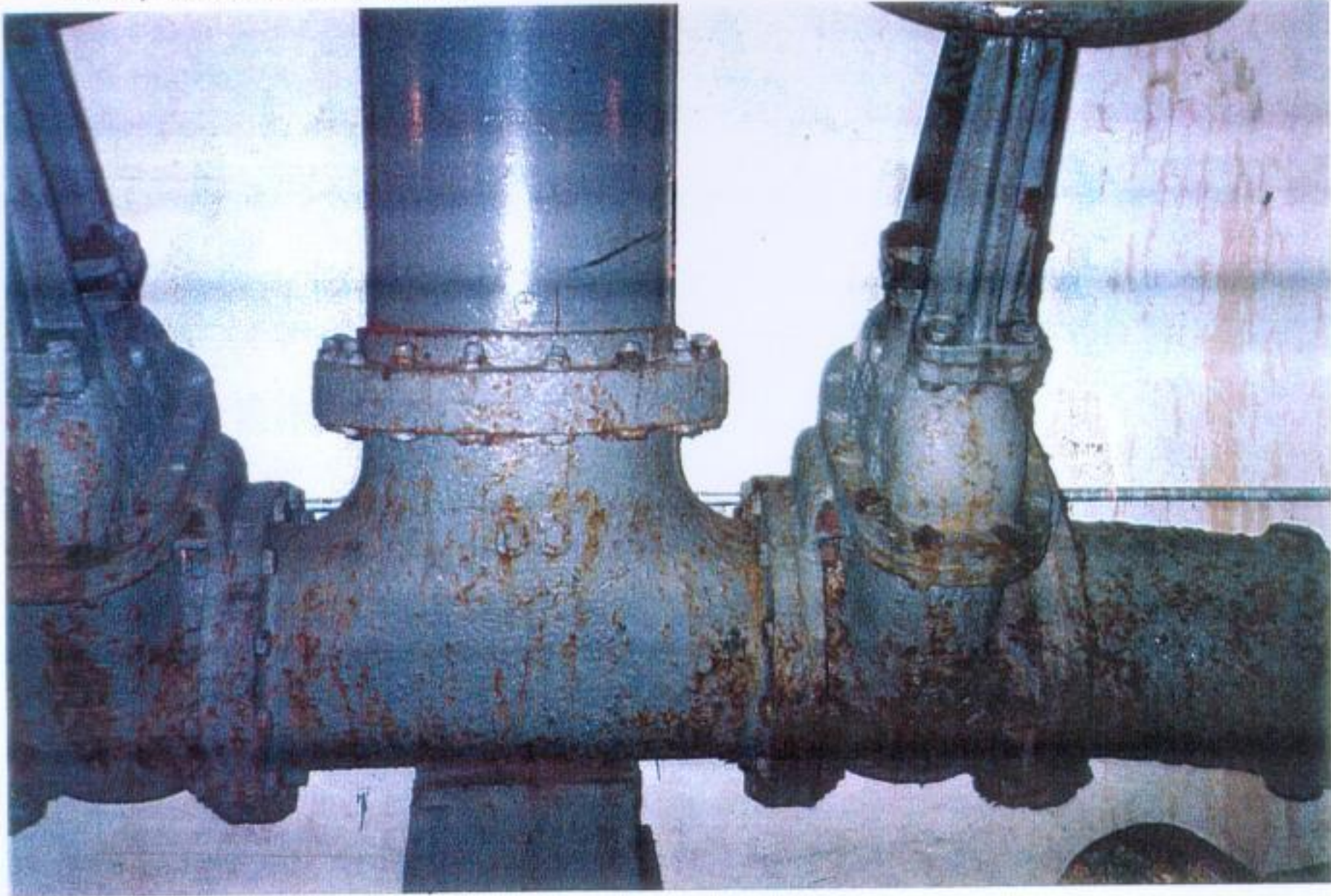


Photo Number 3

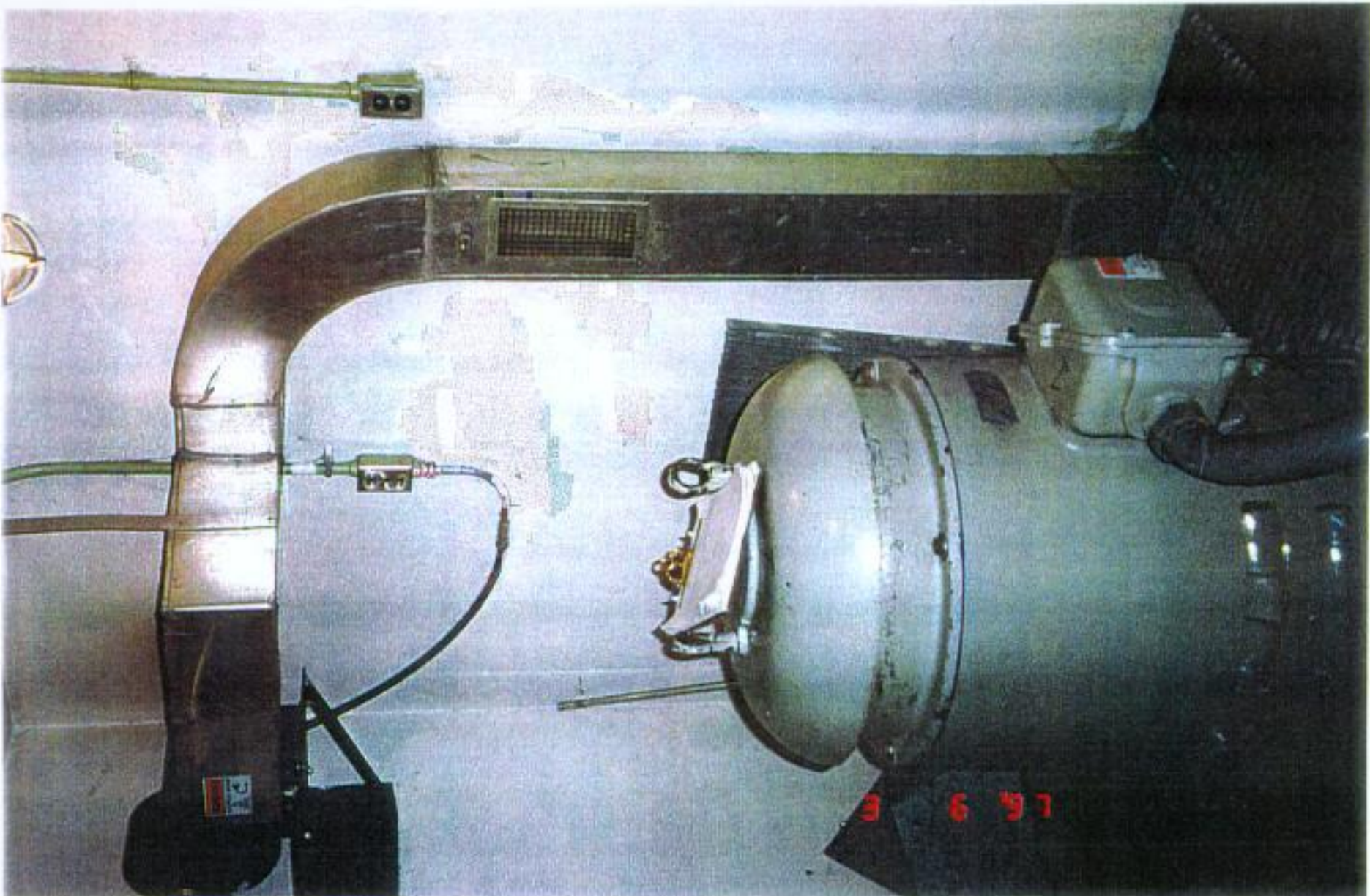


Photo Number 4

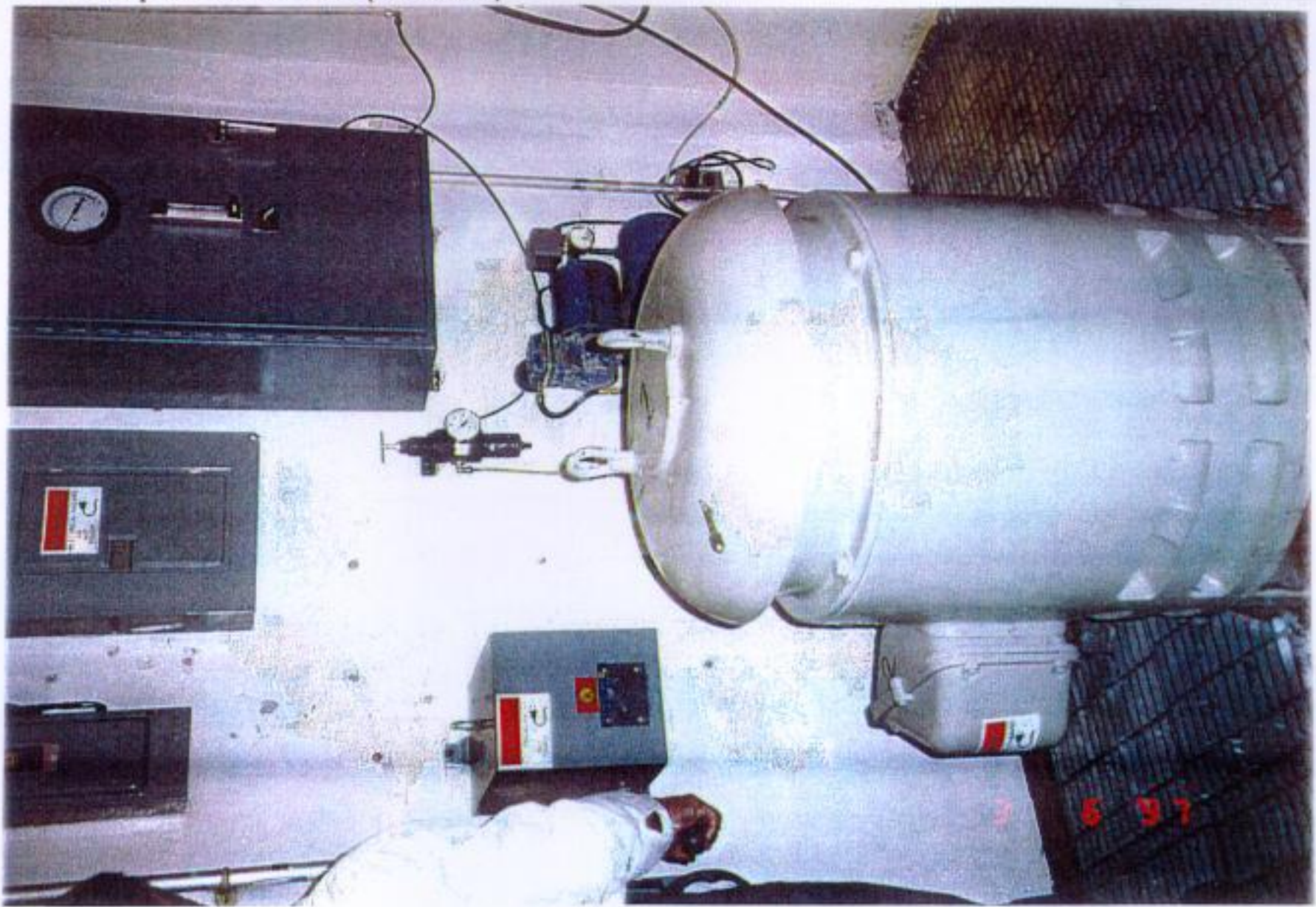


Photo Number 5



Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 168 (WILLOWBROOK)
WILLOWBROOK DRIVE AT MICHLOUD BOULEVARD

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 168 (Willowbrook)

Pump Station 168 is a hut-type, suction-lift station located on Willowbrook at Michoud Acadiana Place. Wastewater discharges the station via an 8-inch diameter force main for approximately 2000 feet where it begins gravity flow and is repumped by Pump Station 166 (Village D'Lest). Pump Station 168 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 168.

Pump Station 168 contains two (6-inch by 6-inch) Gorman Rupp horizontally aligned pumps. Each pump is powered by a 20 horsepower (hp) Allis Chalmers electric motor operating at a speed of 1750 revolutions per minute (rpm). This equipment is housed in a (10-foot by 7-foot) sliding fiberglass shell completely above ground. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair.

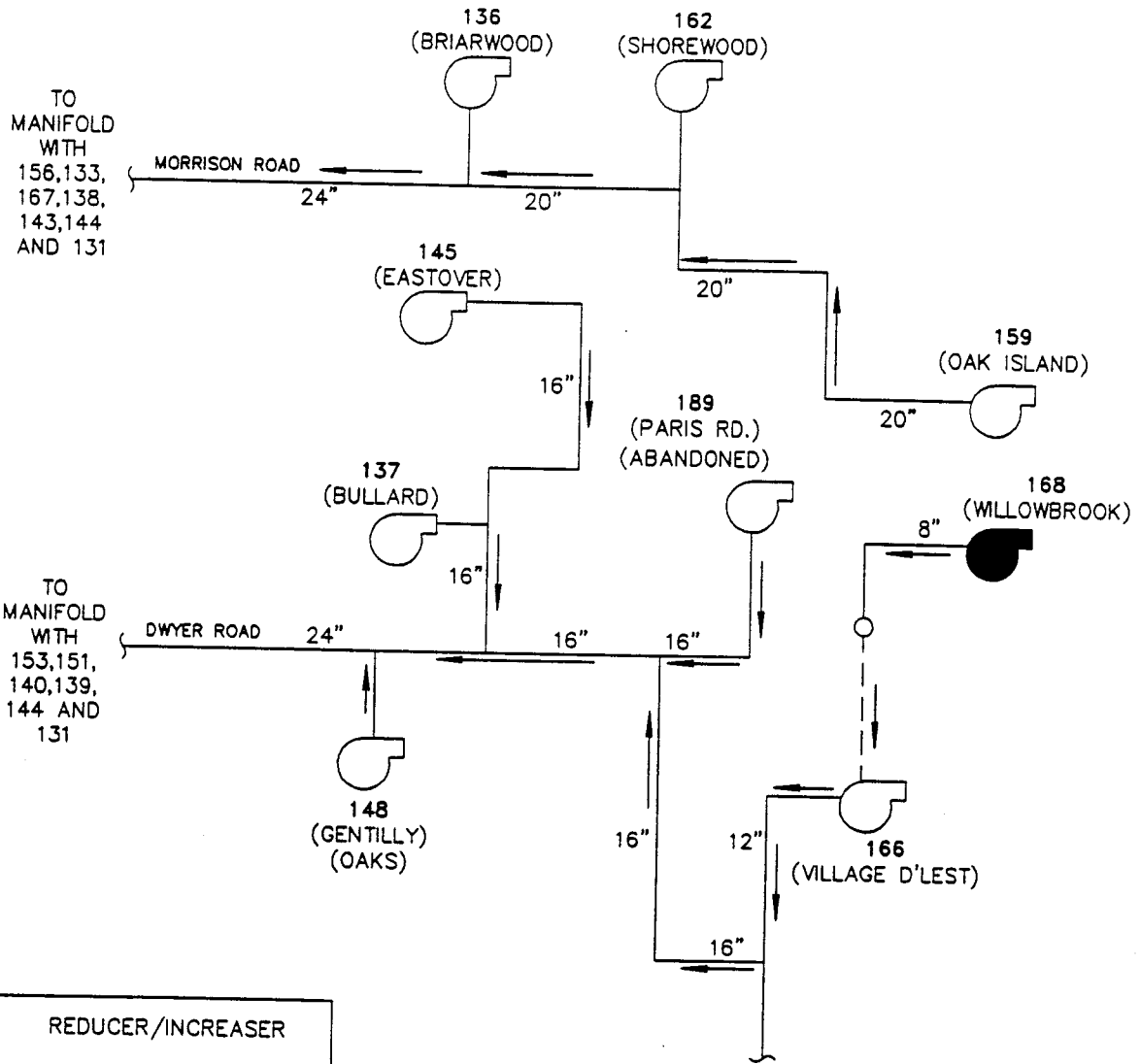
Pump Station 168 collects wastewater from the surrounding gravity sewer system into a 18.6-foot deep concrete wet well. The cross sectional area of the wet well is an arched pipe shape with estimated 77-inch by 122-inch dimensions. The concrete aggregate is exposed throughout the interior surface of the wet well suggesting a corrosion problem.

A draw down/fill test was conducted on two occasions to determine the capacity of Pump Station 168. Figure 4 shows the pump curves constructed from obtained test data. Pump #1 has an approximate capacity of 625 gallons per minute (gpm) at 43 feet of head. The shut-off head of Pump #1 was found to be 68 feet. Pump #2, which was tested twice, has an approximate capacity of 525 gpm at 19 feet of head. The shut-off head of Pump #2 was found to be 34 feet. The difference in pump performance can possibly be attributed to a wide range of problems including pump wear, line or valve blockage, loss of suction and/or priming system failure.

Recommendations:

1. An initial observation of the wet well suggests that corrosion is occurring. The extent of the damage should be further investigated and corrected as necessary.
2. It is recommended that an investigation to determine the cause for significant capacity reduction in Pump #2 be conducted.
3. The physical condition of the motors, motor control, electrical service disconnect switch and the control panel is poor due to corrosion. It is recommended that these electrical issues be addressed.

N



▲	REDUCER/INCREASER
○	MANHOLE
⋈	GATE VALVE
---	GRAVITY LINE
—	FORCE MAIN
△	PRIVATE STATION
⊂	PUMP STATION
●	REF. PUMP STATION
EBSTP	EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

G JOB NO.: 1113030.01090120 DATE: 3/28/97

FILE NO.: 14



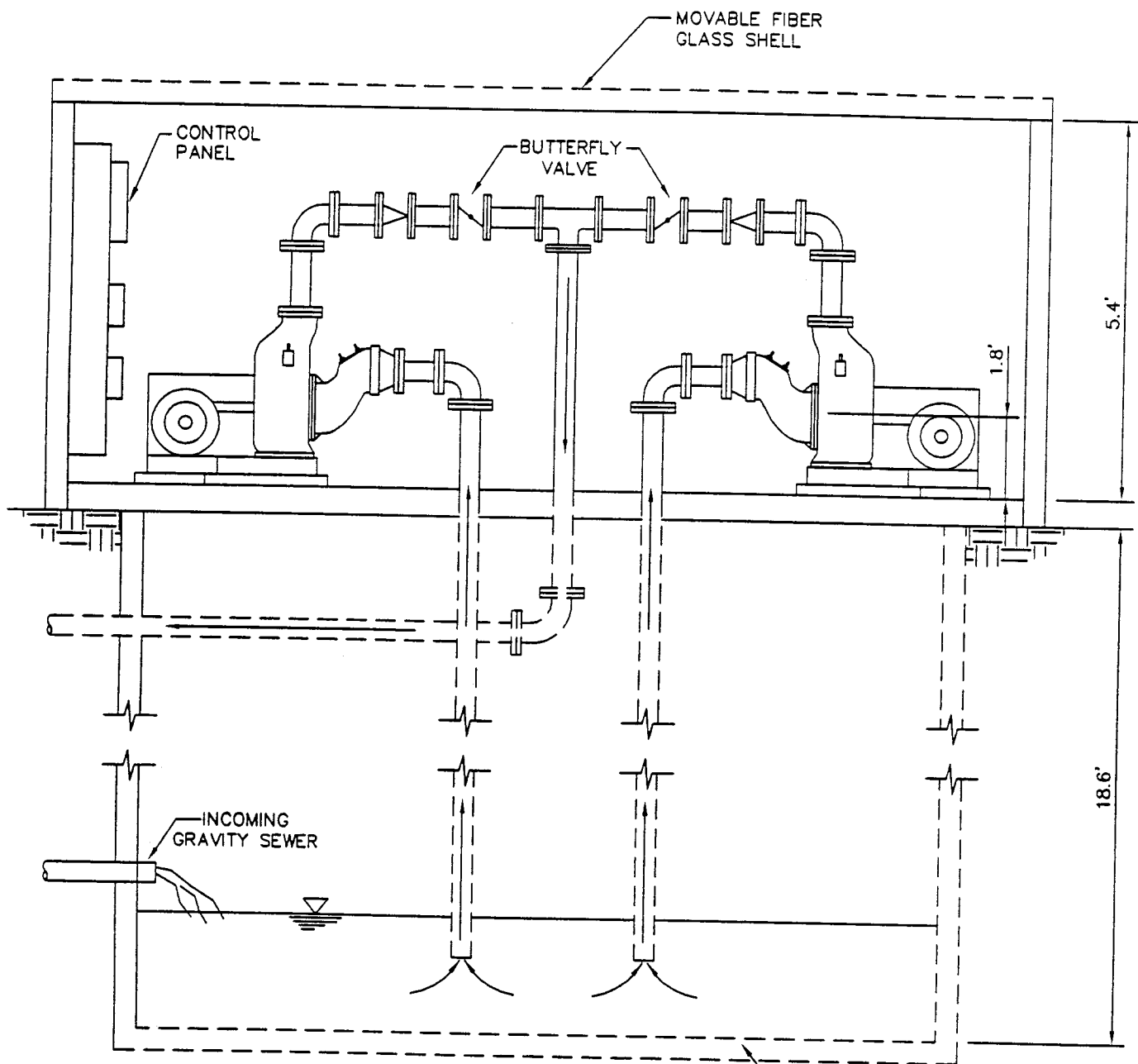
**PUMP STATION 168 (WILLOWBROOK)
PUMP STATIONS AND FORCEMAINS SCHEMATIC**

FIGURE:

1

DATE:

3/28/97



ELEVATION
(NOT TO SCALE)

FILE NO.: 16L
 JOB NO.: 1113030-01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

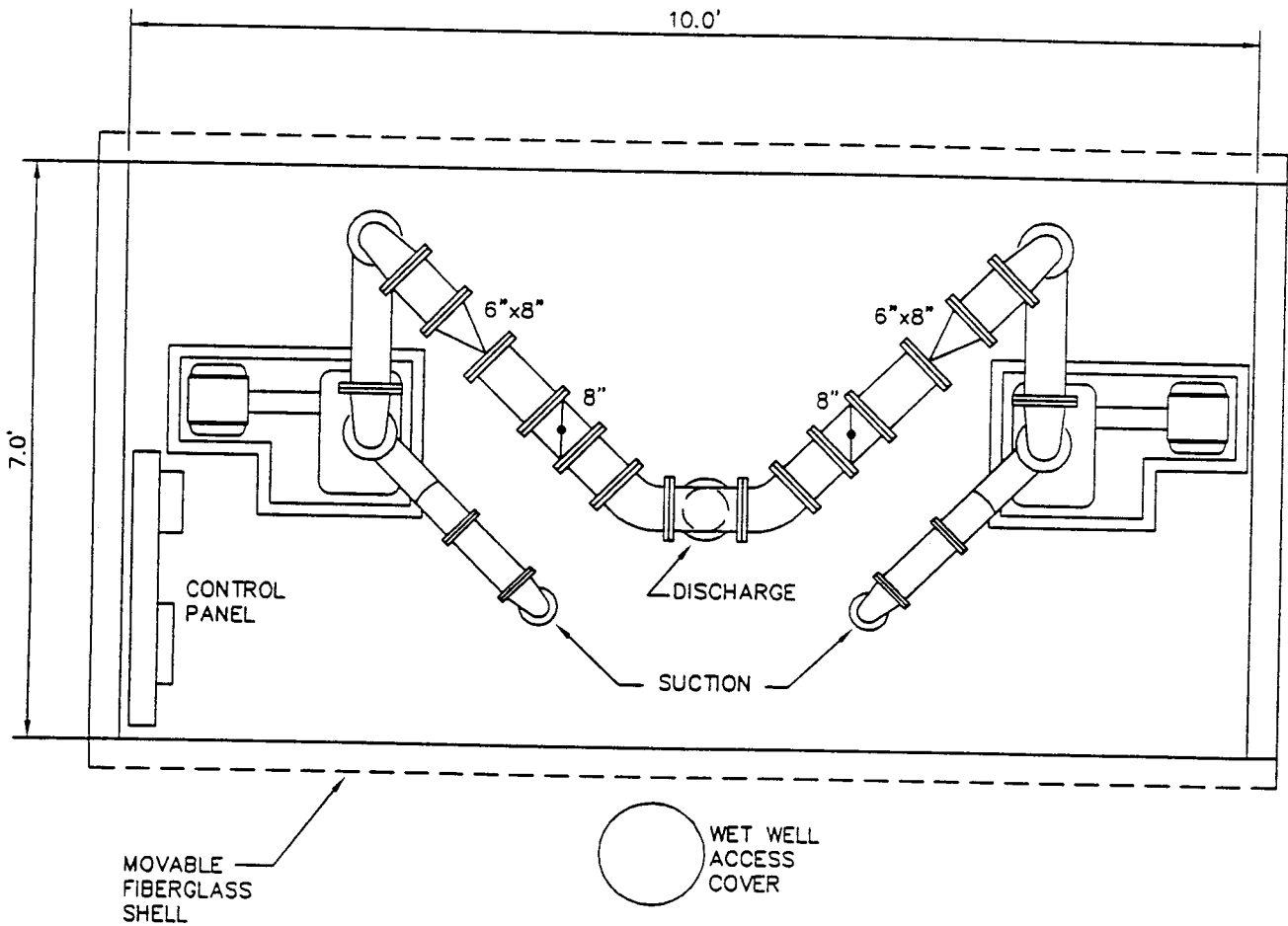
PUMP STATION 168 (WILLOWBROOK)
HUT-TYPE SUCTION LIFT

FIGURE:

2

DATE:

3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 161
JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 168 (WILLOWBROOK)
HUT-TYPE SUCTION LIFT

FIGURE:

3

DATE:

3/28/97

Pump Station: 168 (Willowbrook)

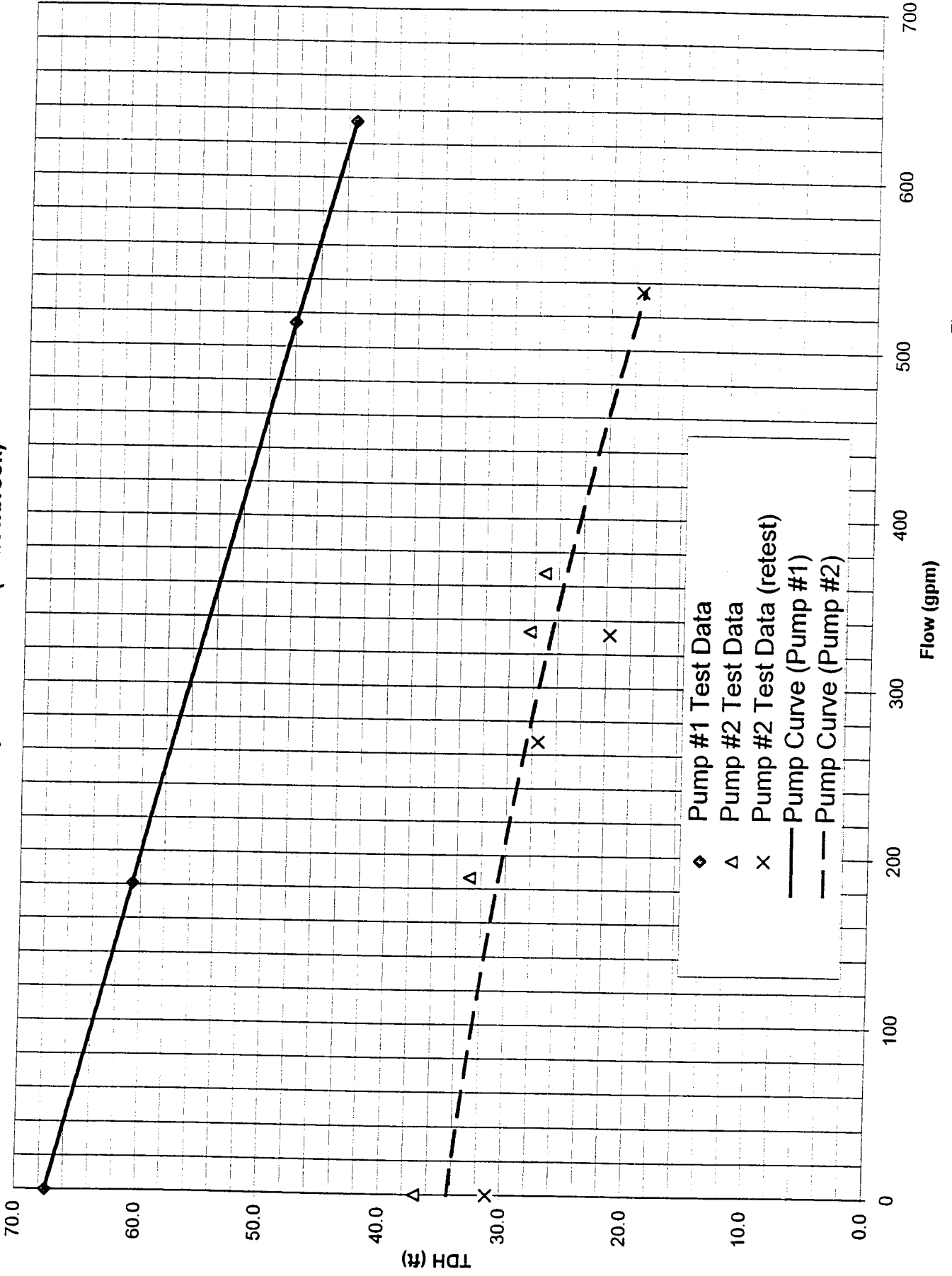


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 168

General Information

PS No. 168 PS Facility Willowbrook Address Willowbrook at Michoud
Acadiana Pl

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Gorman-Rupp

Impeller Diameter 0 inch

Model Number-Pump #1 T6A3B Serial Number-Pump #1 not readable

Model Number-Pump #2 T6A3B Serial Number-Pump #2 not readable

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 6 inch Pump Discharge 6 inch FM Diameter 8 inch

Suction Valve Size 0 inch Discharge Valve Size 8 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 6 x 8 inch

Dry Well Dimensions 0 ft. dia. Length 10 ft. Width: 7 ft. Depth 0 ft.

Pump centerline* 1.8 ft. Centerline of discharge pipe* 3.6 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 168

Pump Controls

Lead pump on 9 ft. Type of Controls bubbler
Lead pump off 2 ft.
Lag pump on 10 ft.
Lag pump off 3 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion throughout.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Aggregate exposed throughout the 77" x 122" arched pipe wet well.

Diameter 0 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 18.6 ft.

Sewer Invert(s) Depth* 0 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 168

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial source, no generator receptacle

Type of service Pad Mounted Transformer, 240V three phase

Size of service protective device 150 amps, dual element, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 50 amps

Service wire size # 2/0 AWG Size of motor starter in NEMA 3

Motor wire size # 4 AWG Motor Horsepower 20

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1750

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # 635 Allis Chalmers Serial Number - Motor # 51-305-630

Model Number - Motor # 635 Allis Chalmers Serial Number - Motor # 51-305-630

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, service disconnect switch and control panel are in poor condition due to corrosion. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-

Pump Station 168 (Willowbrook)



Photo Number 1

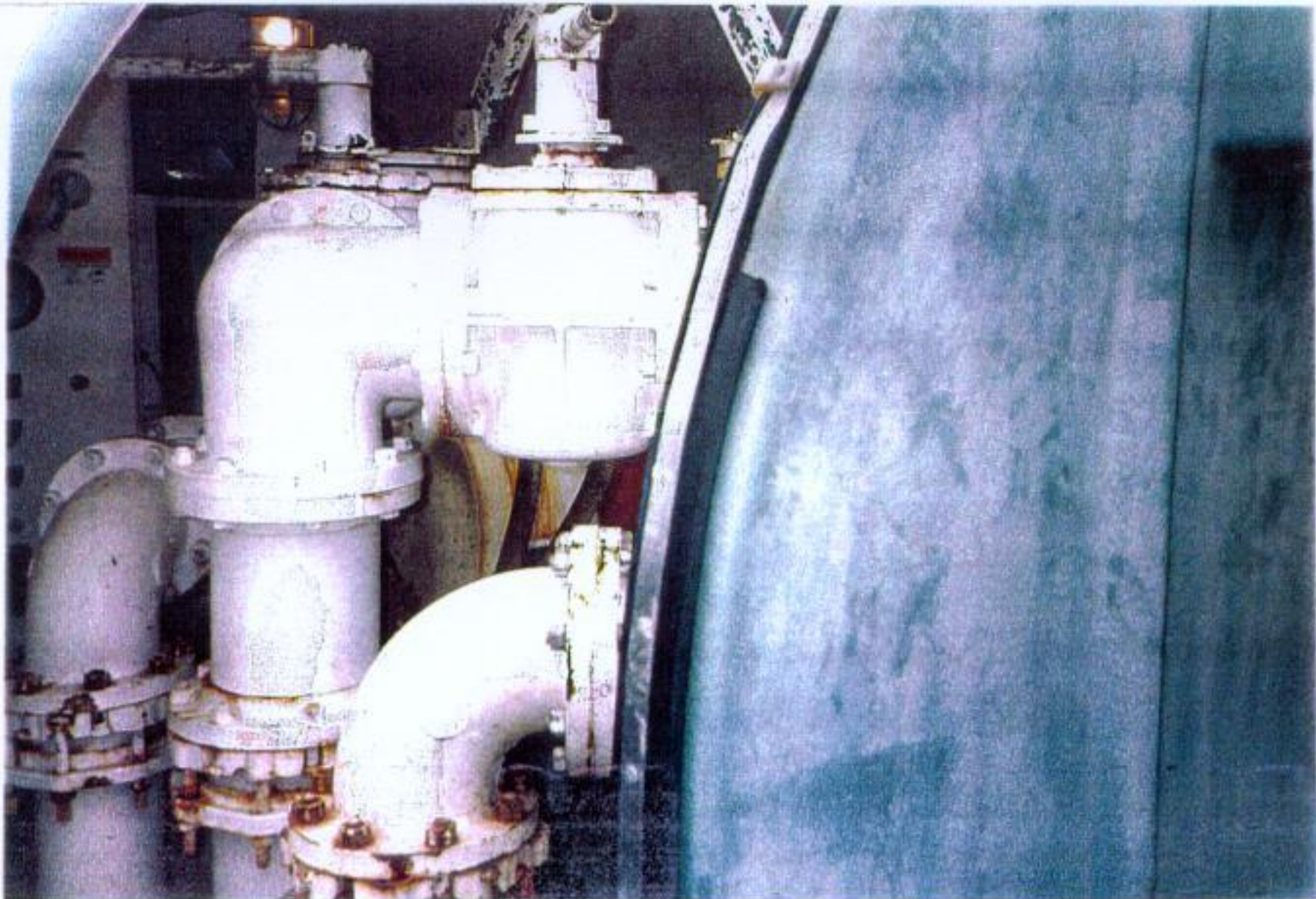


Photo Number 2

Pump Station 168 (Willowbrook)

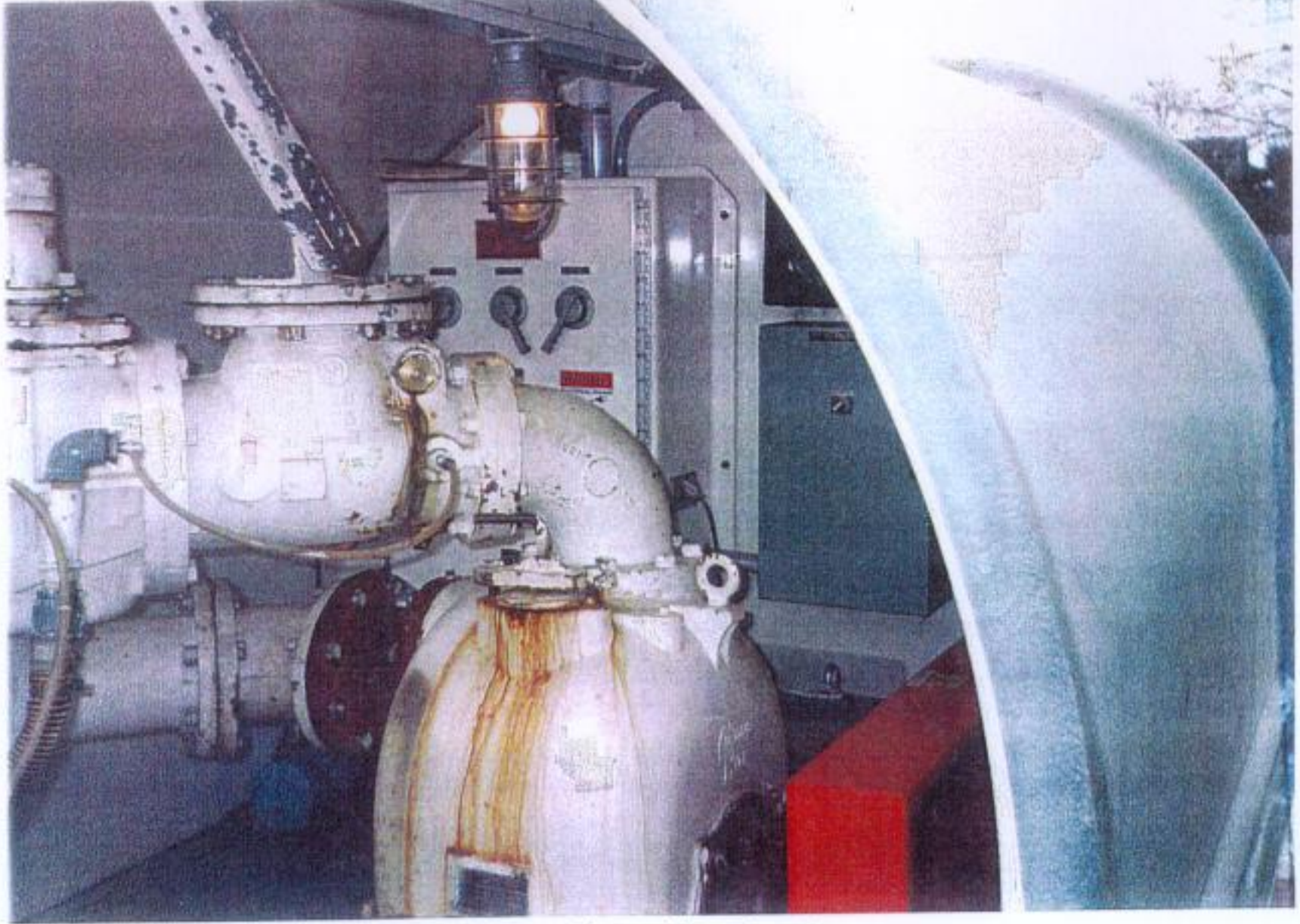


Photo Number 3



Photo Number 4

Pump Station 168 (Willowbrook)



Photo Number 5

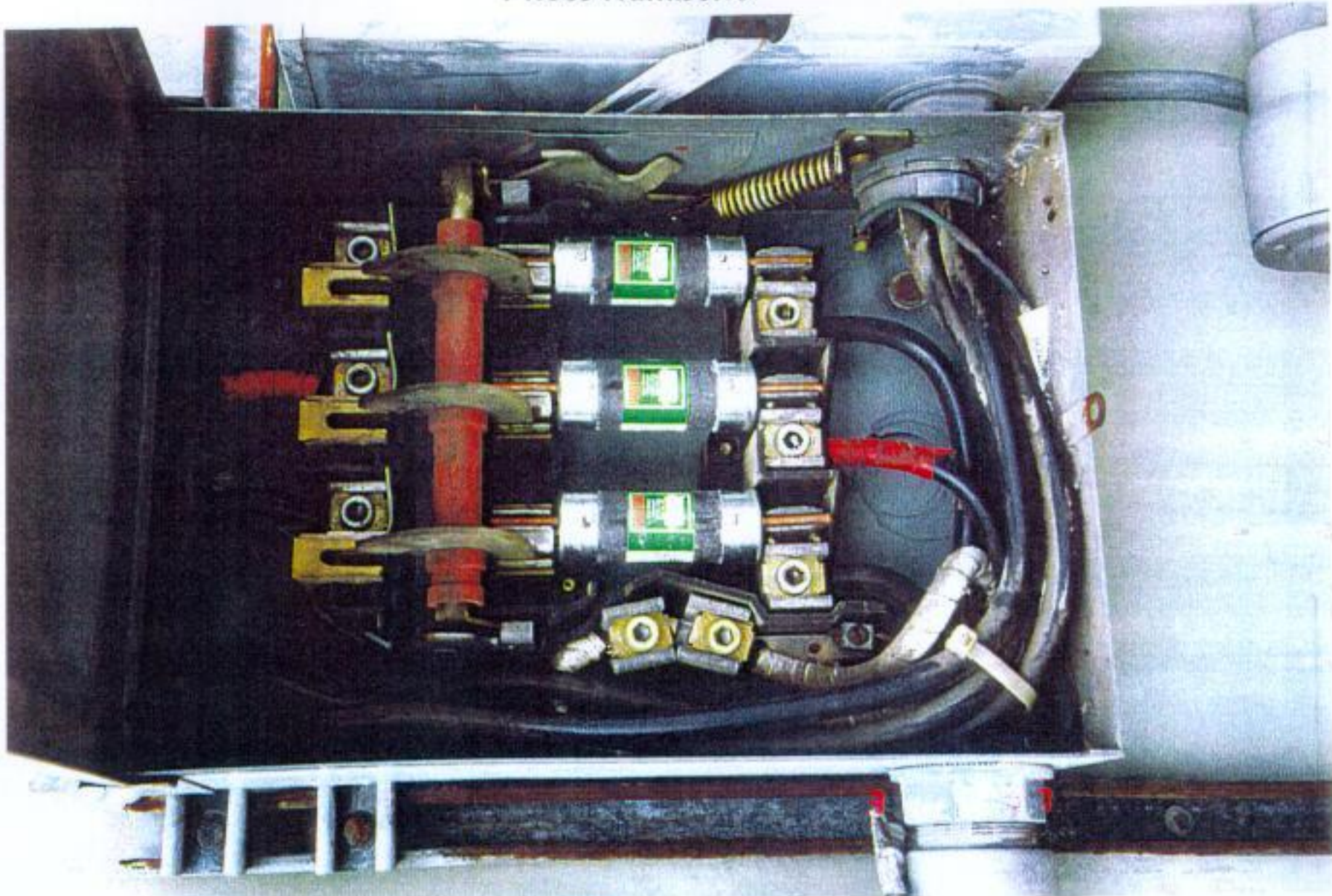


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 169 (WILSON)
7709 WILSON AVENUE**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 169 (Wilson)

Pump Station 169 is a bi-level suction lift station located on 7709 Wilson Avenue. It discharges to a 30-inch force main along Dwyer Road via a 12-inch diameter force main. Pump Station 169 does not repump flow from any other station and its flow is not repumped by any other station. Figure 1 shows the schematic of the subsystem surrounding Pump Station 169.

Pump Station 169 contains two (8-inch by 8-inch) Fairbanks Morse horizontally aligned pumps. Each pump is powered by a 60 horsepower (hp) General Electric Motor operating at a constant speed of 1770 revolutions per minute (rpm). This equipment is housed in a 12.3-foot by 11-foot brick dry well structure, which is partially below grade. The depth below grade of the pump room section of the dry well is 7.4 feet. Figures 2 and 3 provide elevation and front views of the station.

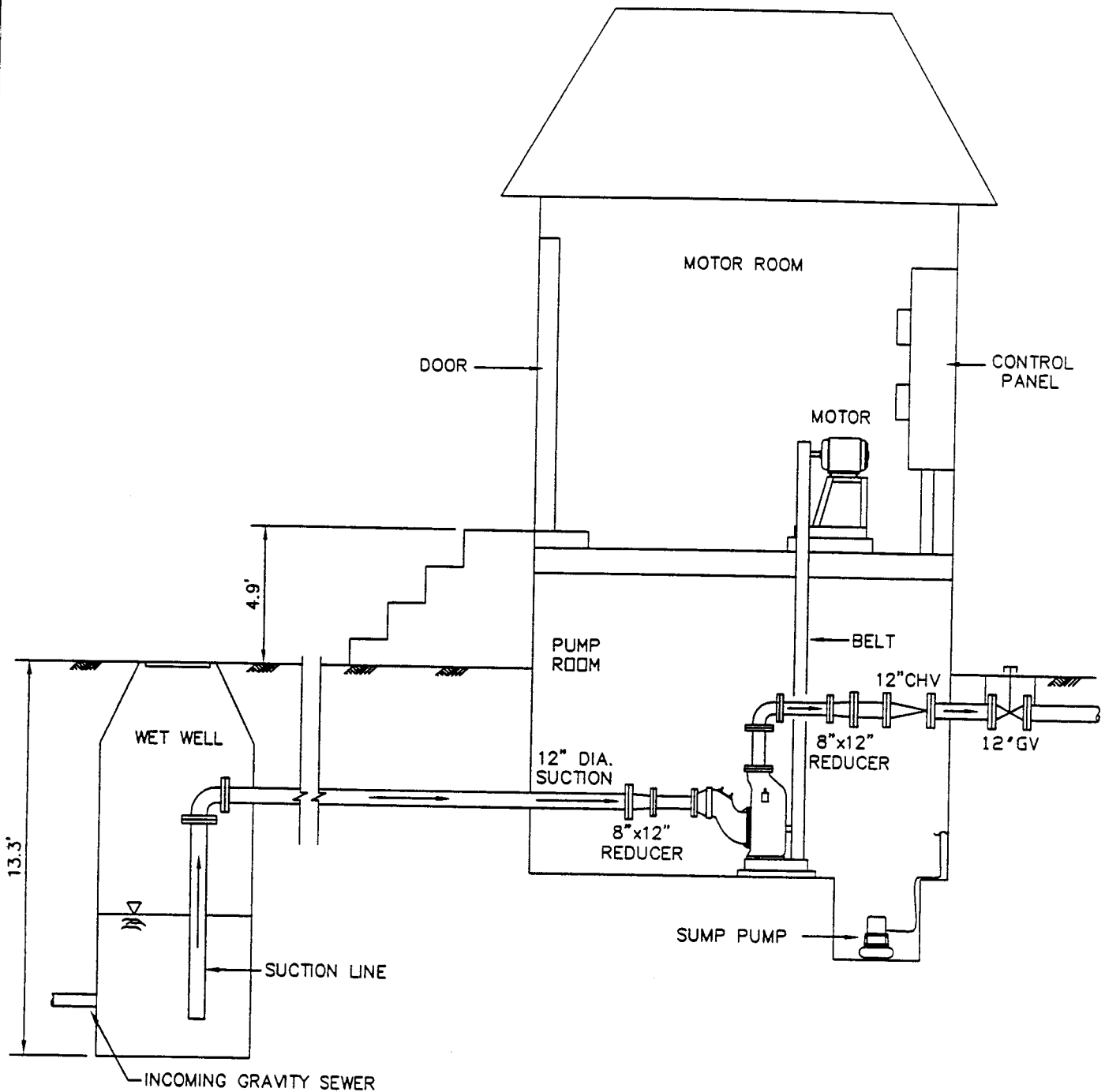
Pump Station 169 collects wastewater from the surrounding gravity sewer system into a 13.3-foot deep brick wet well. The diameter of the wet well was measured as approximately 5 feet.

The Doppler Flow Meter was used to determine the capacity of Pump Station 169. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 3,400 gallons per minute (gpm) at 45 feet of head. The shut-off head for both pumps was found to be approximately 95 feet.

Recommendations:

1. An initial observation of the wet well suggests that the brick upper portion may need regrouting. The extent of the corrosion should be further investigated and corrected in some locations.
2. It was also observed that the motor controller and control panel are in poor condition due to corrosion. The extent of the corrosion should be further investigated and the equipment replaced as necessary.

FILE NO.: 169
 JOB NO.: 1113030.01090120 DATE: 3/21/97



ELEVATION
 (NOT TO SCALE)



SEWERAGE AND WATER BOARD
 OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 169 (WILSON)
 BI-LEVEL SUCTION LIFT

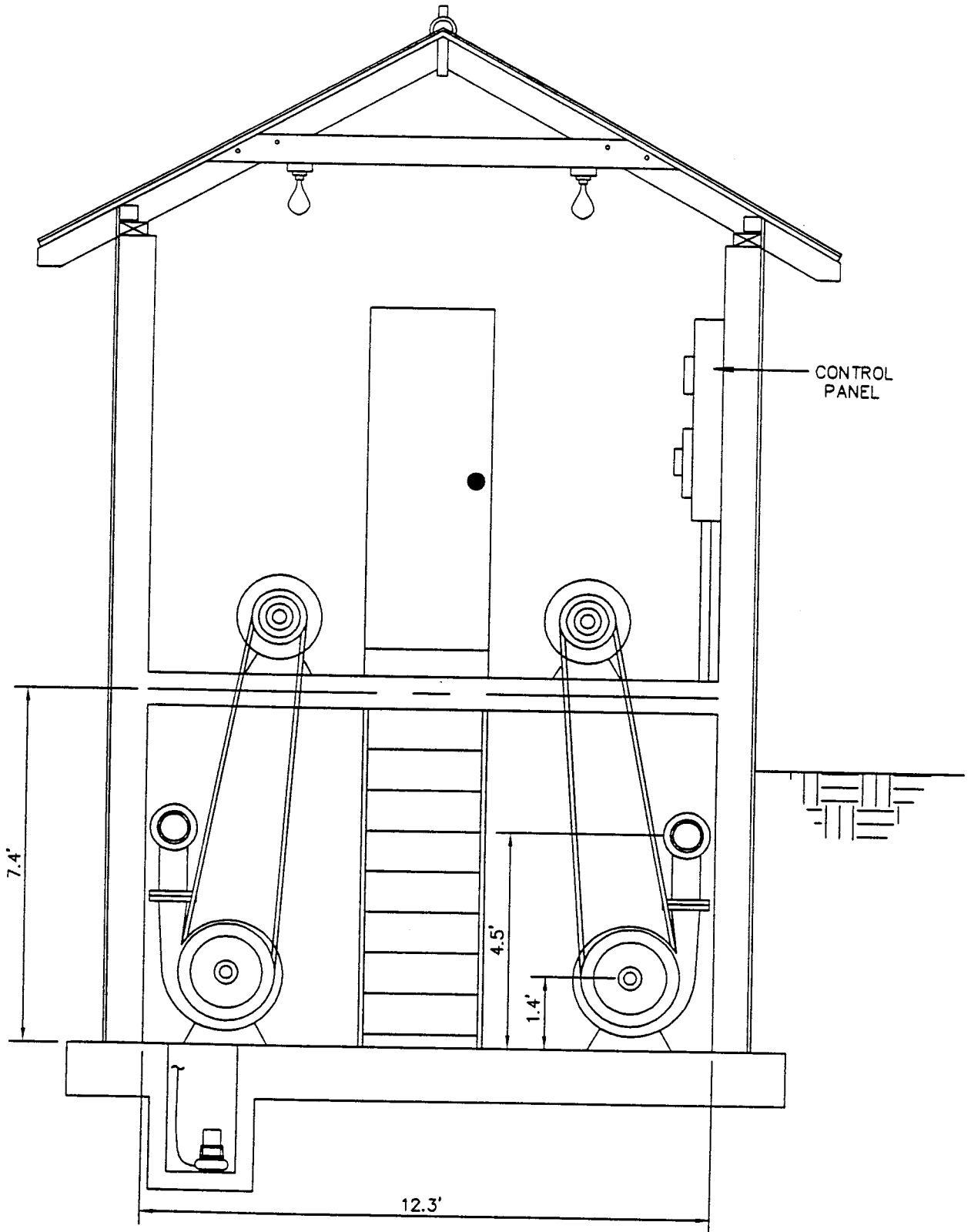
FIGURE:

2

DATE:

3/21/97

FILE NO.: 169 JOB NO.: 1113030.01090120 DATE: 3/21/97



FRONT VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 169 (WILSON)
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/21/97

Pump Station: 169 (Wilson)

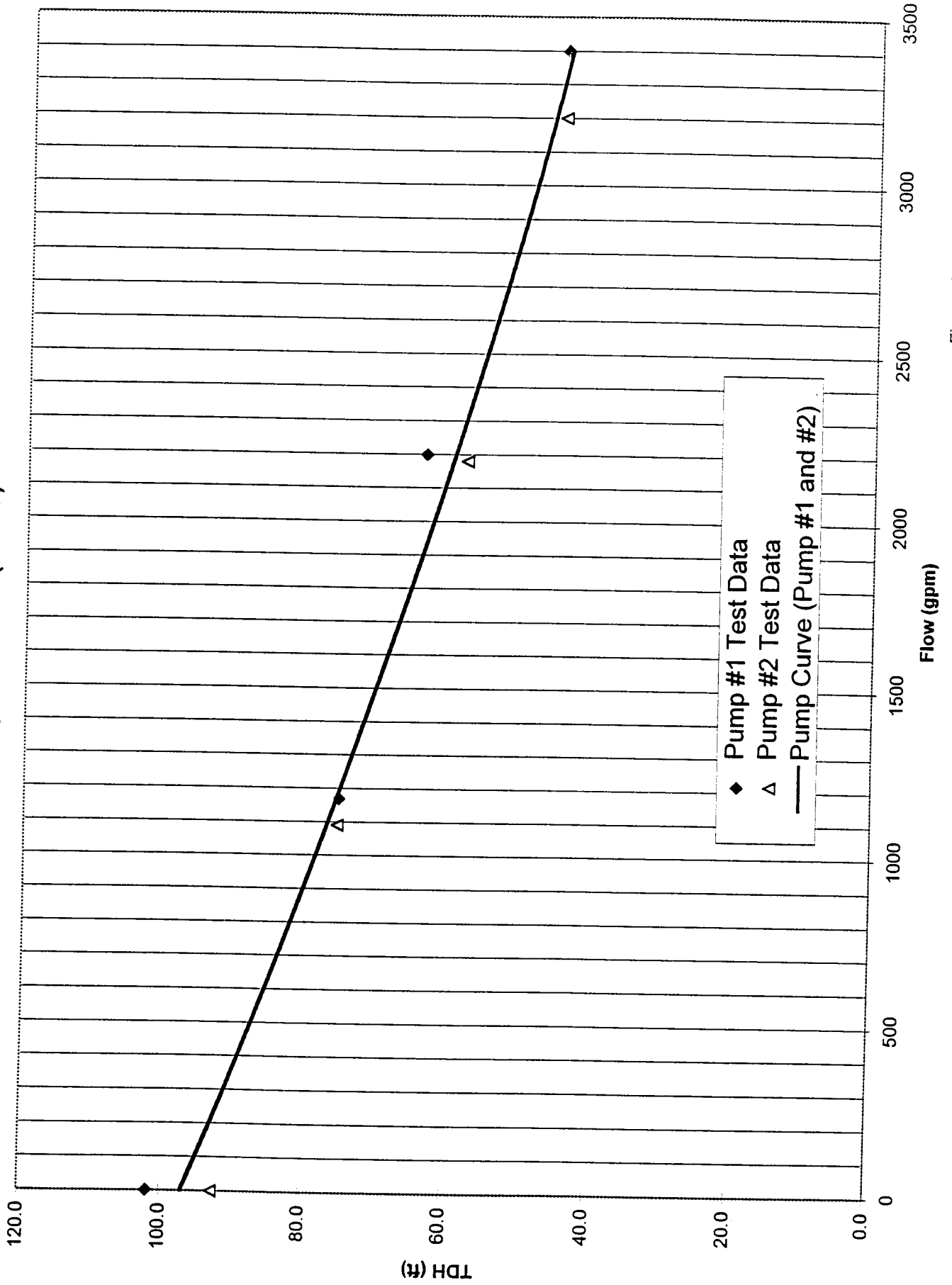


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 169

General Information

PS No. 169 PS Facility Wilson Address 7709 Wilson Avenue

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter _____ inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating _____ gpm _____ ft. of head _____ rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size 0 inch Discharge Valve Size 12 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 12 inch

Dry Well Dimensions 0 ft. dia. Length 12.3 ft. Width: 11 ft. Depth 7.4 ft.

Pump centerline* 1.4 ft. Centerline of discharge pipe* 4.5 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 169

Pump Controls

Lead pump on 6 ft. Type of Controls bubbler
Lead pump off 2 ft.
Lag pump on 7 ft.
Lag pump off 2 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Could not access wet well.

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 13.3 ft.

Sewer Invert(s) Depth* _____ ft.

_____ ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 169

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device _____

Size of main protective device 200 amps, dual element, fusible disconnect switch

Size of motor protective device 100 amps, dual element, fusible disconnect switch

Service wire size #1/0 AWG Size of motor starter in NEMA 4

Motor wire size #2 AWG Motor Horsepower 60

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1770

Frequency in Hertz 60

Type of starter Full voltage non -reversing (FVNR)

Model Number - Motor # 5K4404A22 Serial Number - Motor # not available

Model Number - Motor # 5K4404A22 Serial Number - Motor # not available

Model Number - Motor # - _____ Serial Number - Motor # - _____

Model Number - Motor # - _____ Serial Number - Motor # - _____

Comments The physical condition of the two motors is fair. The physical condition of the motor controller and control panel is poor due to corrosion. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-

Pump Station 169 (Wilson)

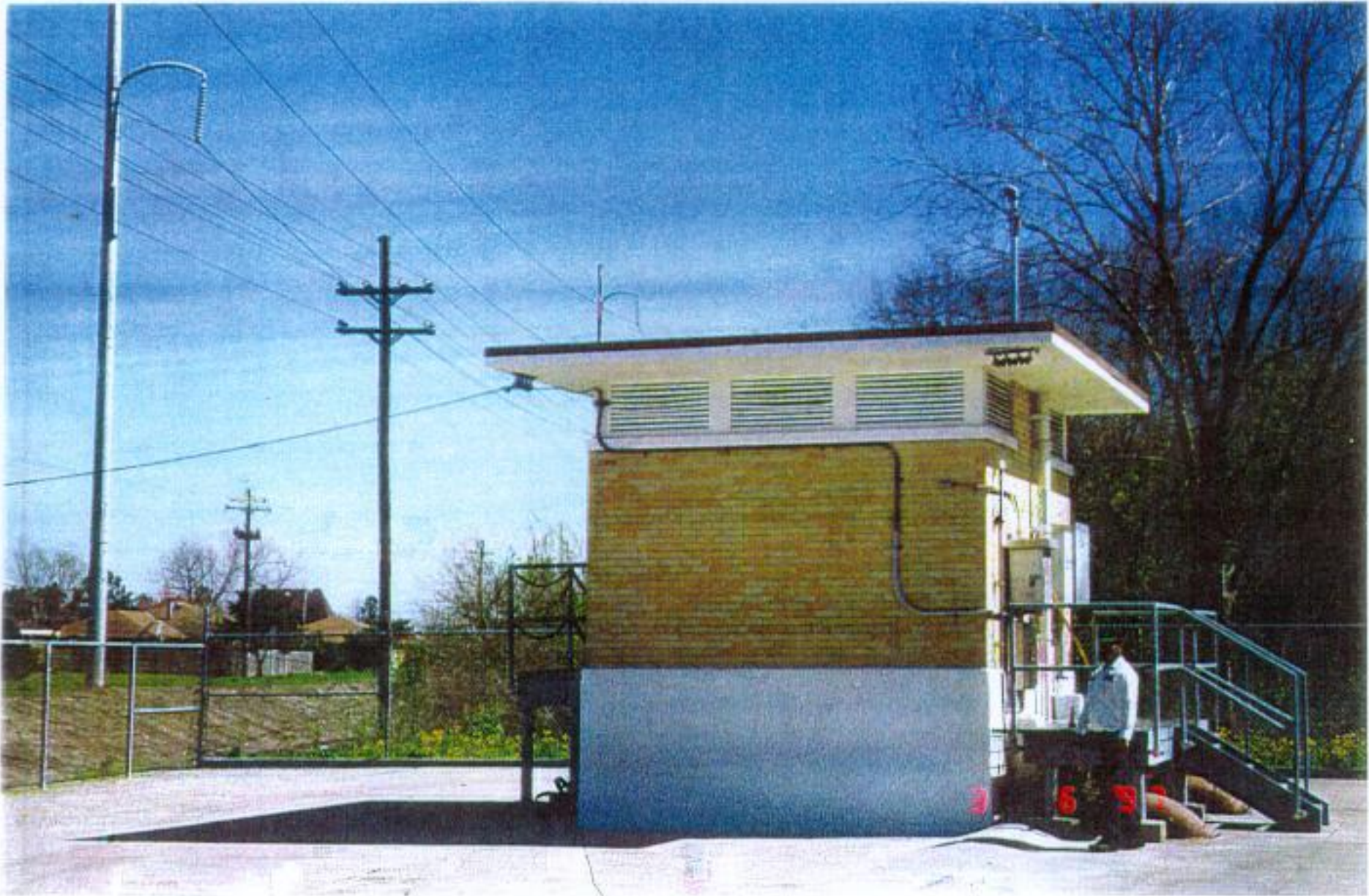


Photo Number 1



Photo Number 2

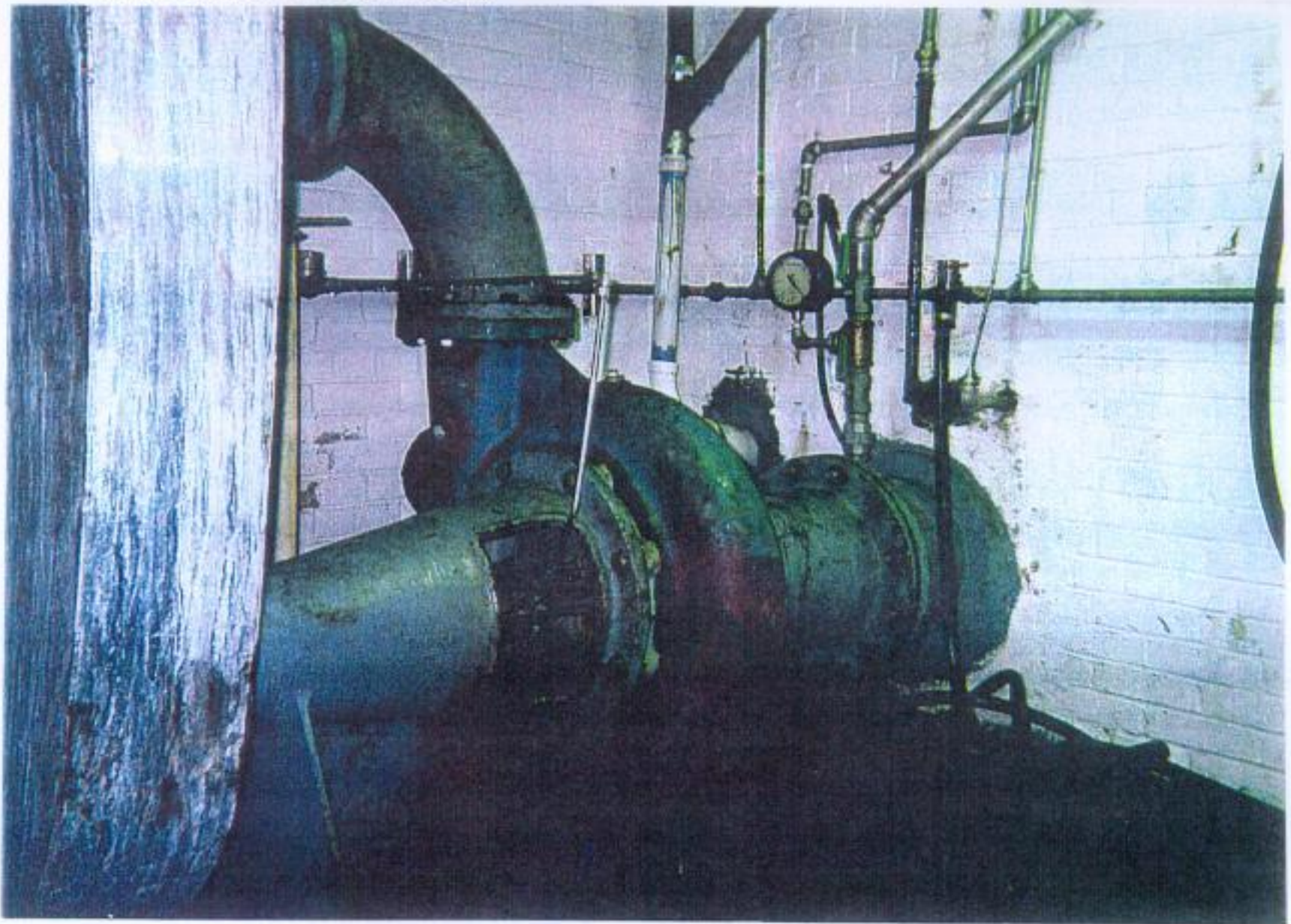


Photo Number 3

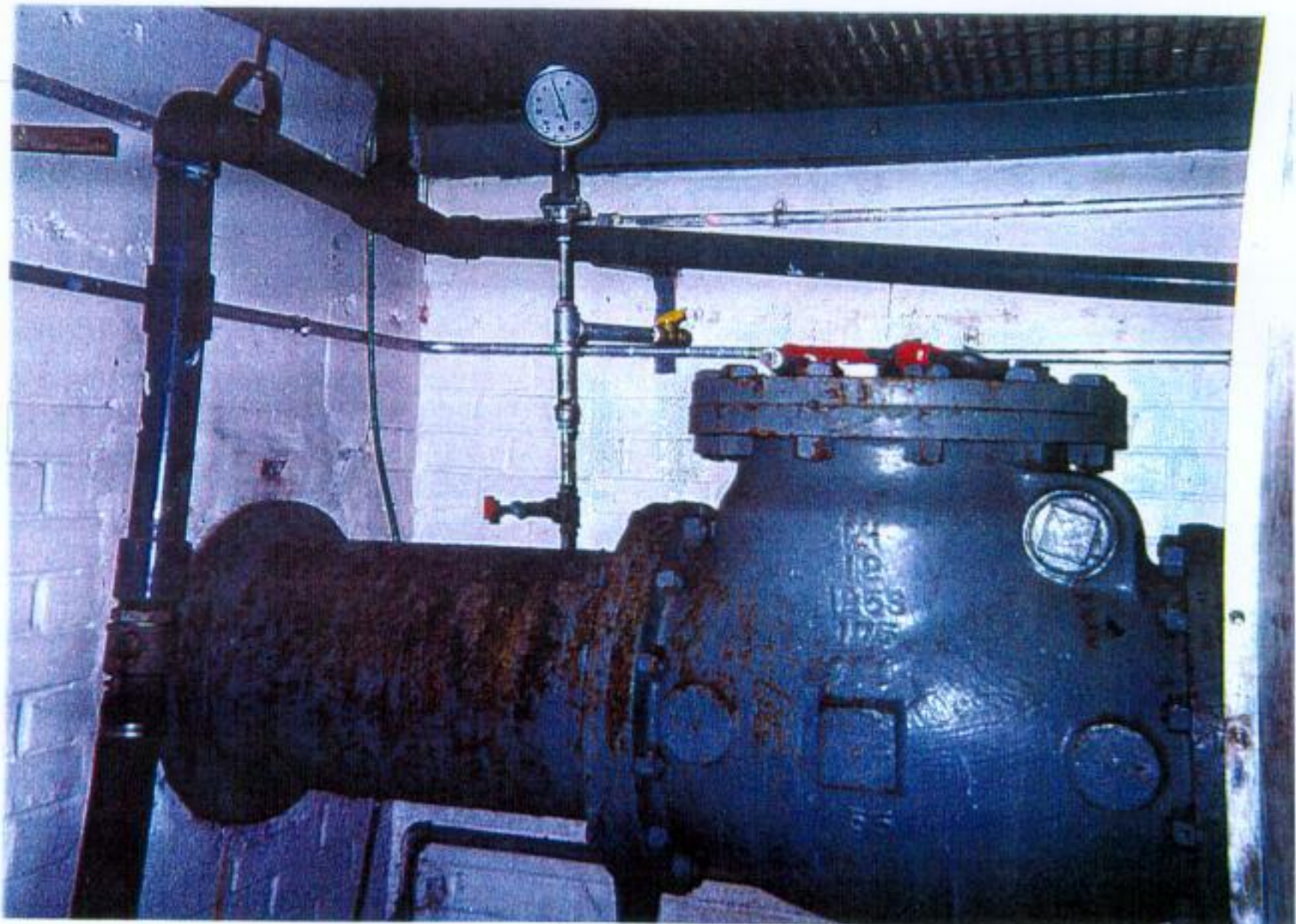


Photo Number 4

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 170 (ENGLISH TURN #1)
2503 STANTON ROAD**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 170 (English Turn #1)

Pump Station 170 is a multi-leveled, flooded-suction station located on 2503 Stanton Road. Flow leaves the station via a 14-inch diameter force main and afterwards travels through a 20-inch PVC force main to the West Bank Sewerage Treatment Plant. Pump Station 170 does repump all flow from Pump Station 171 (English Turn #2). Figure 1 shows the schematic subsystem surrounding Pump Station 170.

Pump Station 170 contains two (10-inch by 8-inch) Fairbanks Morse vertically aligned pumps. Each pump is powered by a 40 horsepower (hp) General Electric motor operating at a speed of 885 revolutions per minute (rpm). This equipment is housed in a 12-foot by 12-foot reinforced concrete and stucco/block dry well structure. The total depth of the dry well from the floor of the motor control room to the bottom is 26.5 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is good although there is isolated corrosion located around the pumps as seen in the attached photos.

Pump Station 170 collects wastewater from the surrounding gravity sewer system into a 22.5-foot deep reinforced concrete wet well. The cross sectional area of the wet well is rectangular with estimated 12-foot by 12-foot dimensions. The overall condition of the wet well appears to be good.

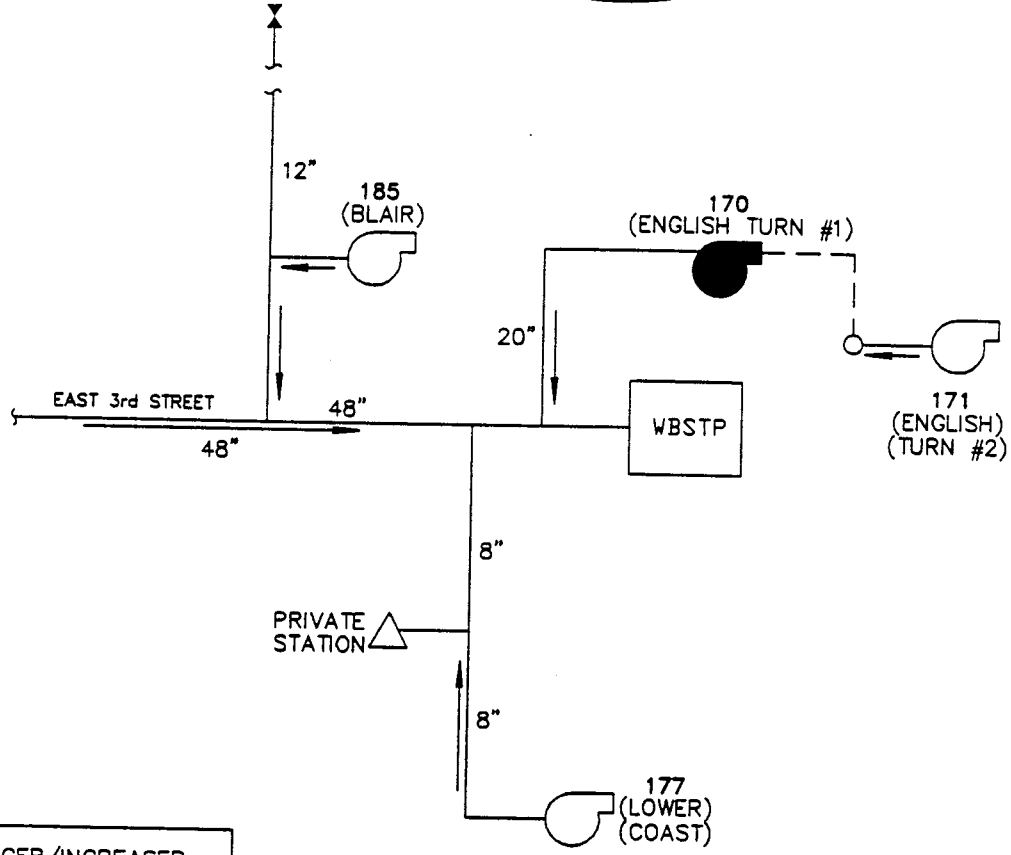
A draw down/fill test was conducted to determine the capacity of Pump Station 170. Figure 4 shows a pump curve constructed from obtained test data. Each pump has an approximate capacity of 1200 gallons per minute (gpm) at 43 feet of head. The shut-off head of both pumps was found to be 61 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 1650 gpm at 48 feet of head.

Recommendations:

After an initial evaluation of Pump Station 170 no site specific recommendations can be made at this time.



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER



- REDUCER/INCREASER
- MANHOLE
- GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- PRIVATE STATION
- PUMP STATION
- REF. PUMP STATION
- WEST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 171
JOB NO.: 1113030.01090120 DATE: 3/28/97

SEWERAGE AND WATER BOARD
OF NEW ORLEANS

MONTGOMERY WATSON

PUMP STATION 170 (ENGLISH TURN #1)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

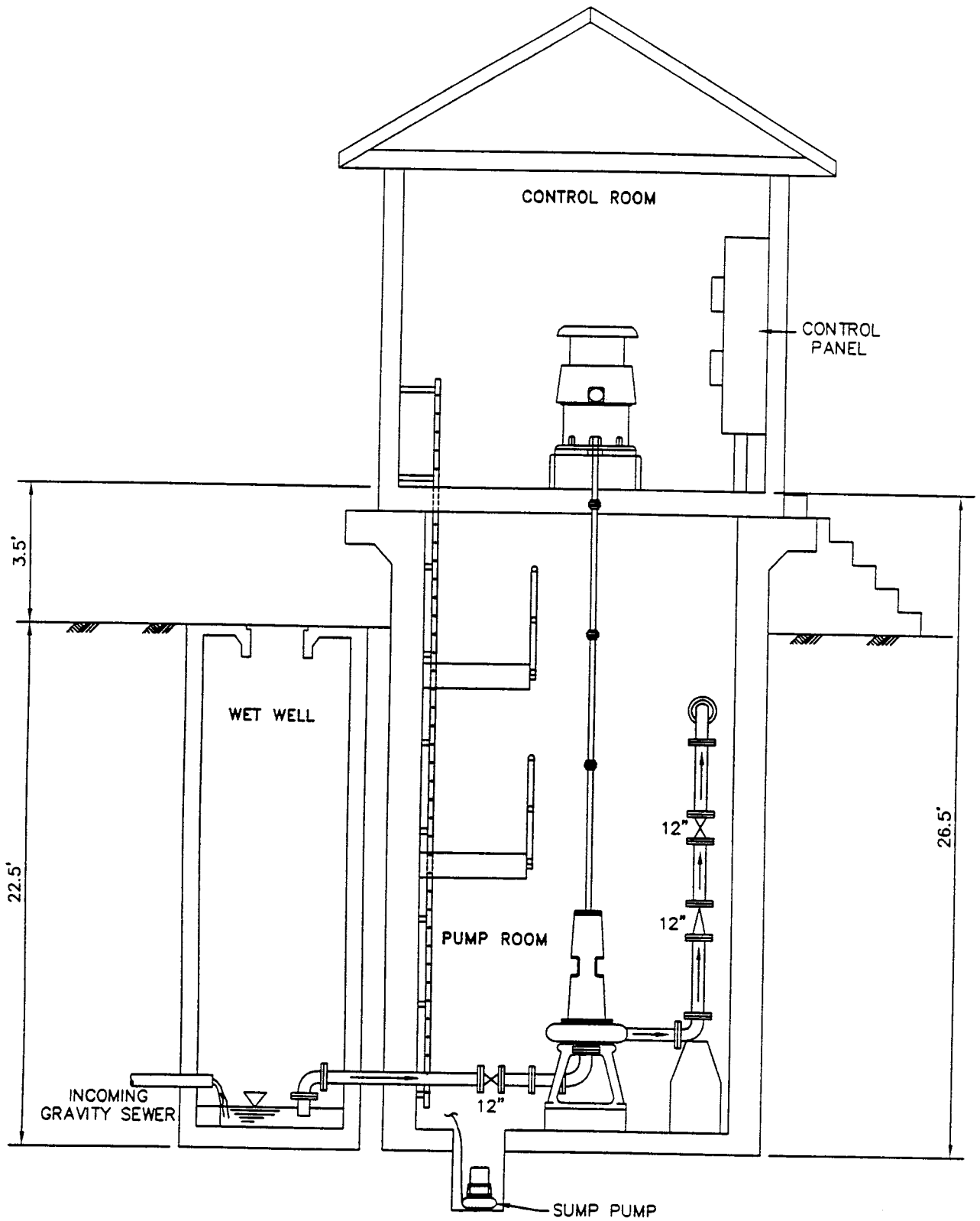
FIGURE:

1

DATE:

3/28/97

FILE NO.: 170 JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 170 (ENGLISH TURN #1)
MULTI-LEVEL FLOODED SUCTION

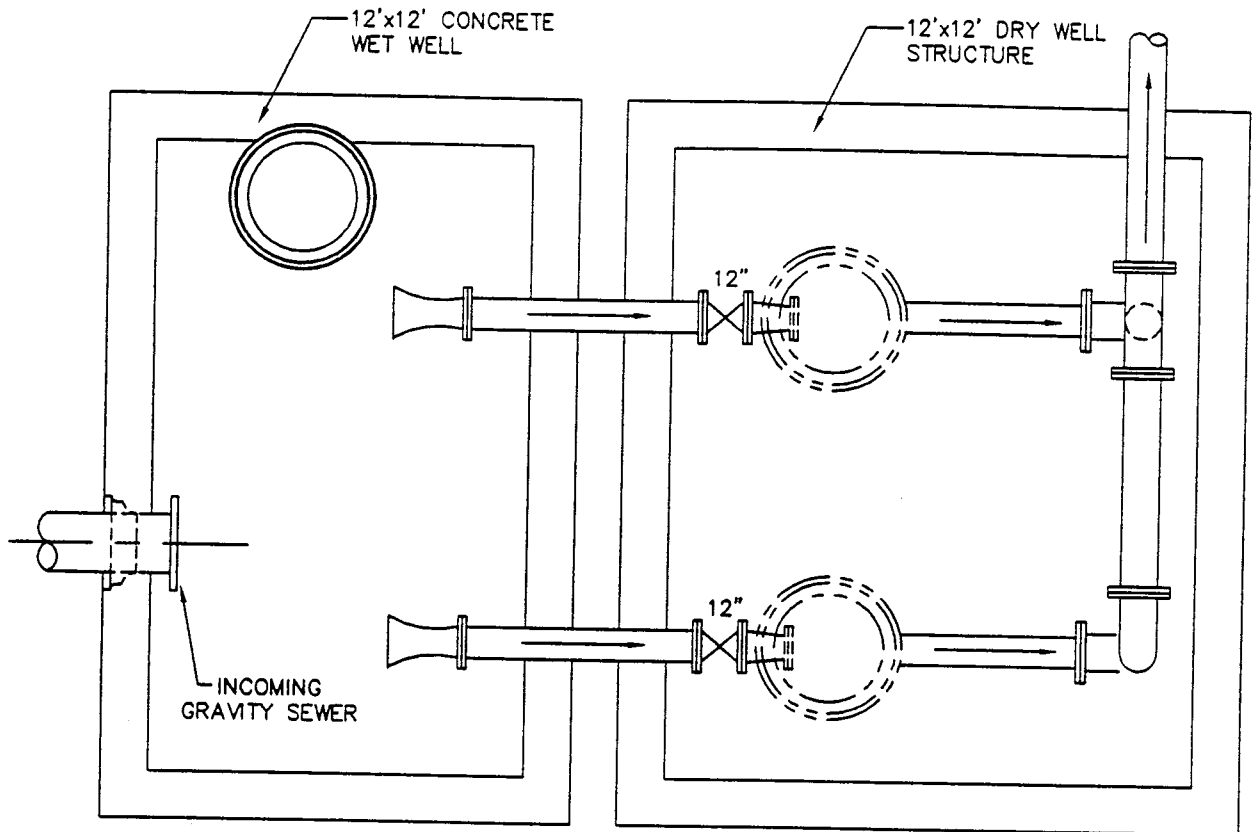
FIGURE:

2

DATE:

3/28/97

FILE NO.: 17L JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 170 (ENGLISH TURN #1)
MULTI-LEVEL FLOODED SUCTION

FIGURE:

3

DATE:

3/28/97

Pump Station: 170 (English Turn #1)

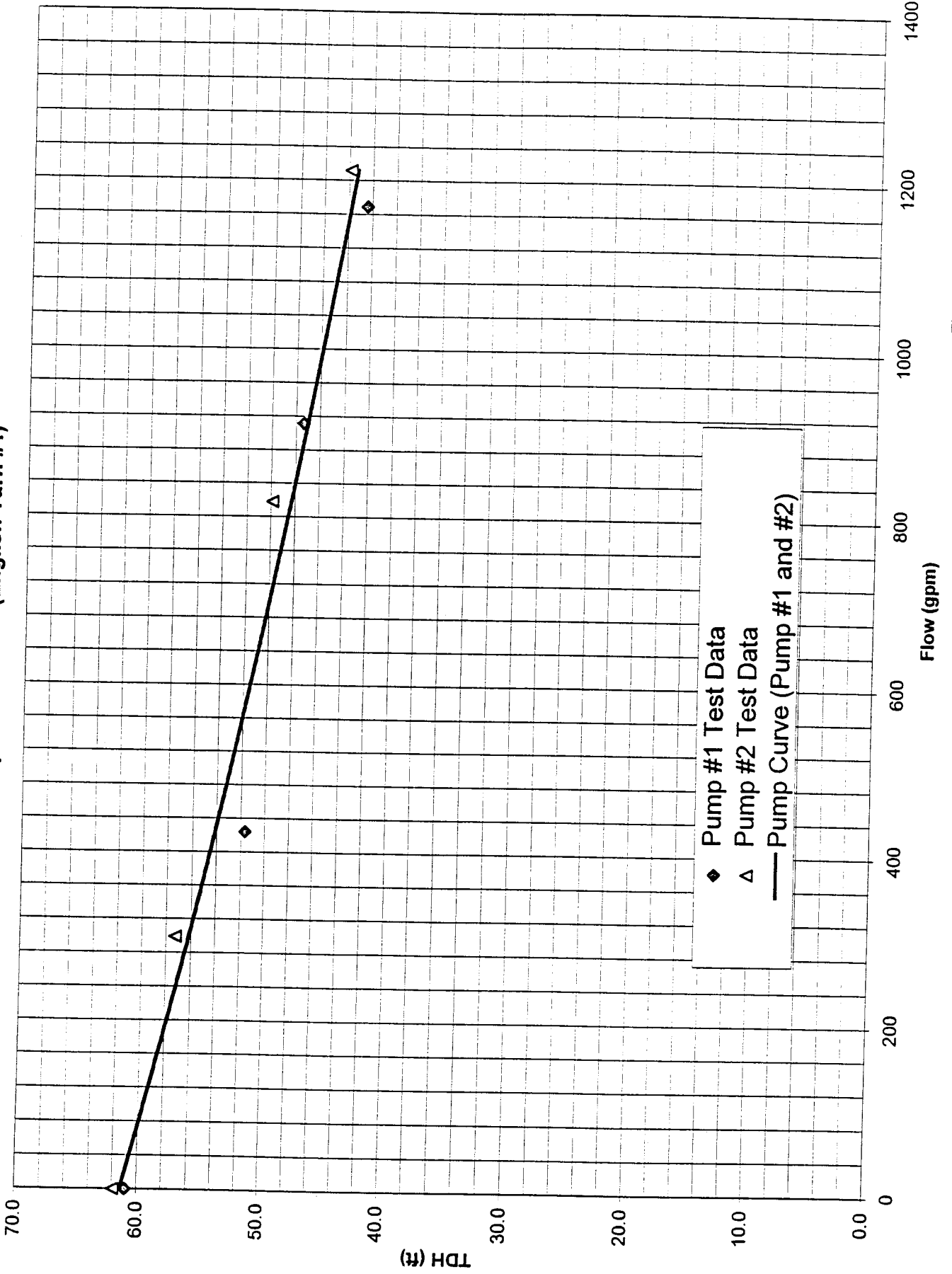


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 170

General Information

PS No. 170 PS Facility English Turn #1 Address 2503 Stanton Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 5415-B Serial Number-Pump #1 K3R1-057617-1/0

Model Number-Pump #2 5415-B Serial Number-Pump #2 K3R1-057617-1/0

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 10 inch Pump Discharge 8 inch FM Diameter 14 inch

Suction Valve Size 0 inch Discharge Valve Size 12 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 0 inch

Dry Well Dimensions 0 ft. dia. Length 12 ft. Width: 12 ft. Depth 26.5 ft.

Pump centerline* 3.5 ft. Centerline of discharge pipe* 11 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 170

Pump Controls

Lead pump on 6 ft. Type of Controls bubbler
Lead pump off 2 ft.
Lag pump on 9 ft.
Lag pump off 4 ft.

Notes: Drag Down on 4.0, off 1.0.

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.
Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor
 Exposed aggregate Exposed reinforcement
 Liner Present Liner type/Condition _____

Comments The wet well is constructed of reinforced concrete.

Diameter 0 ft. Length 12 ft. Width 12 ft.

Bottom Depth* 22.5 ft.

Sewer Invert(s) Depth* 16.3 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 170

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service Pad Mounted Transformer, 480/277V three phase

Size of service protective device not available

Size of main protective device 175 amps, fusible disconnect switch

Size of motor protective device 70 amps, fusible disconnect switch

Service wire size # 2/0 Size of motor starter in NEMA 5

Motor wire size # 3/0 AWG Motor Horsepower 40

Number of motors 2 Motor Speed Single

Speed(s) in rpm 885

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # 5K444DP403 Serial Number - Motor # 0C065040

Model Number - Motor # 5K444DP403 Serial Number - Motor # 0C065039

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller and control panel is good. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 170 (English Turn #1)



Photo Number 1

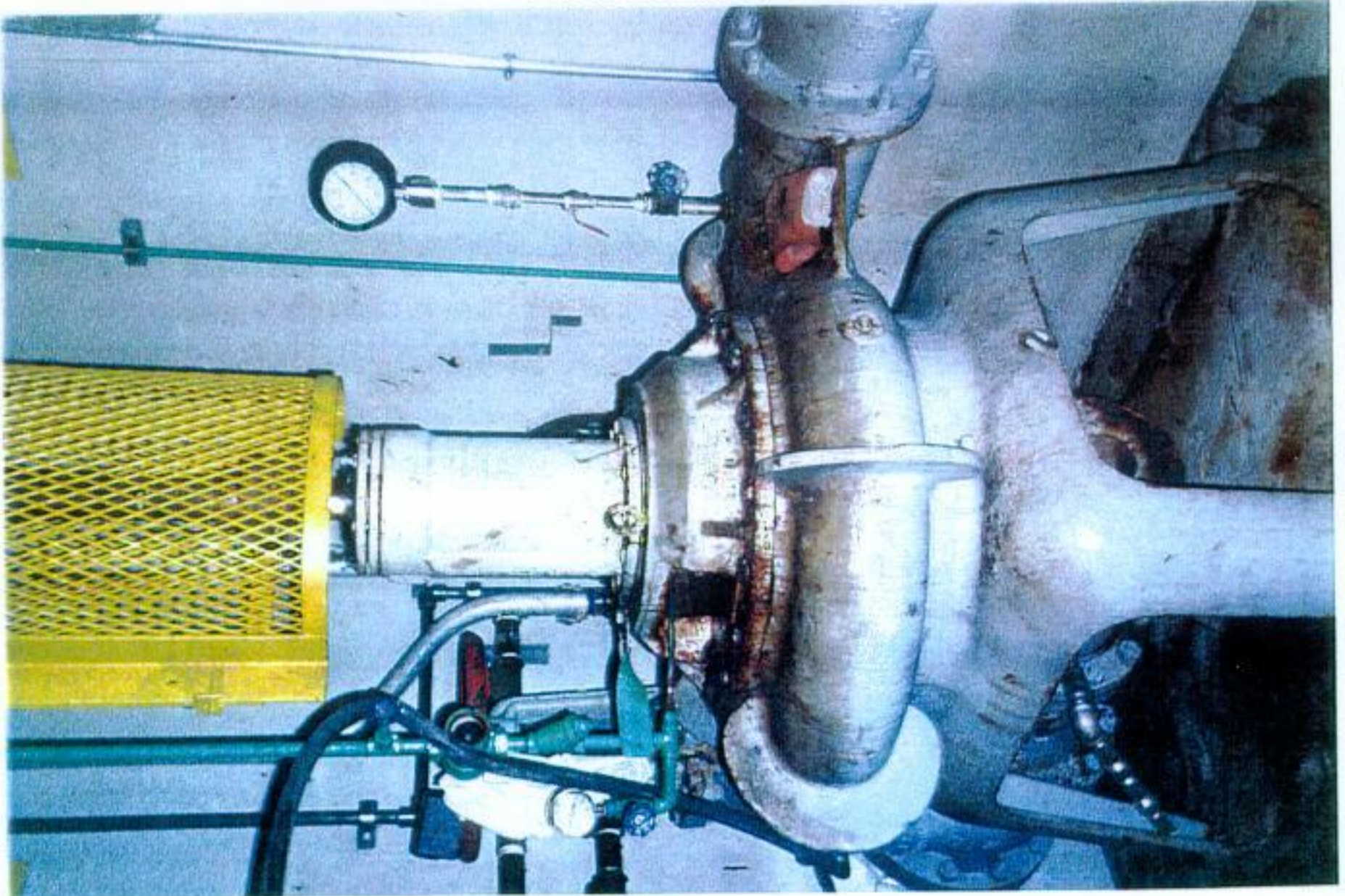


Photo Number 2

Pump Station 170 (English Turn #1)

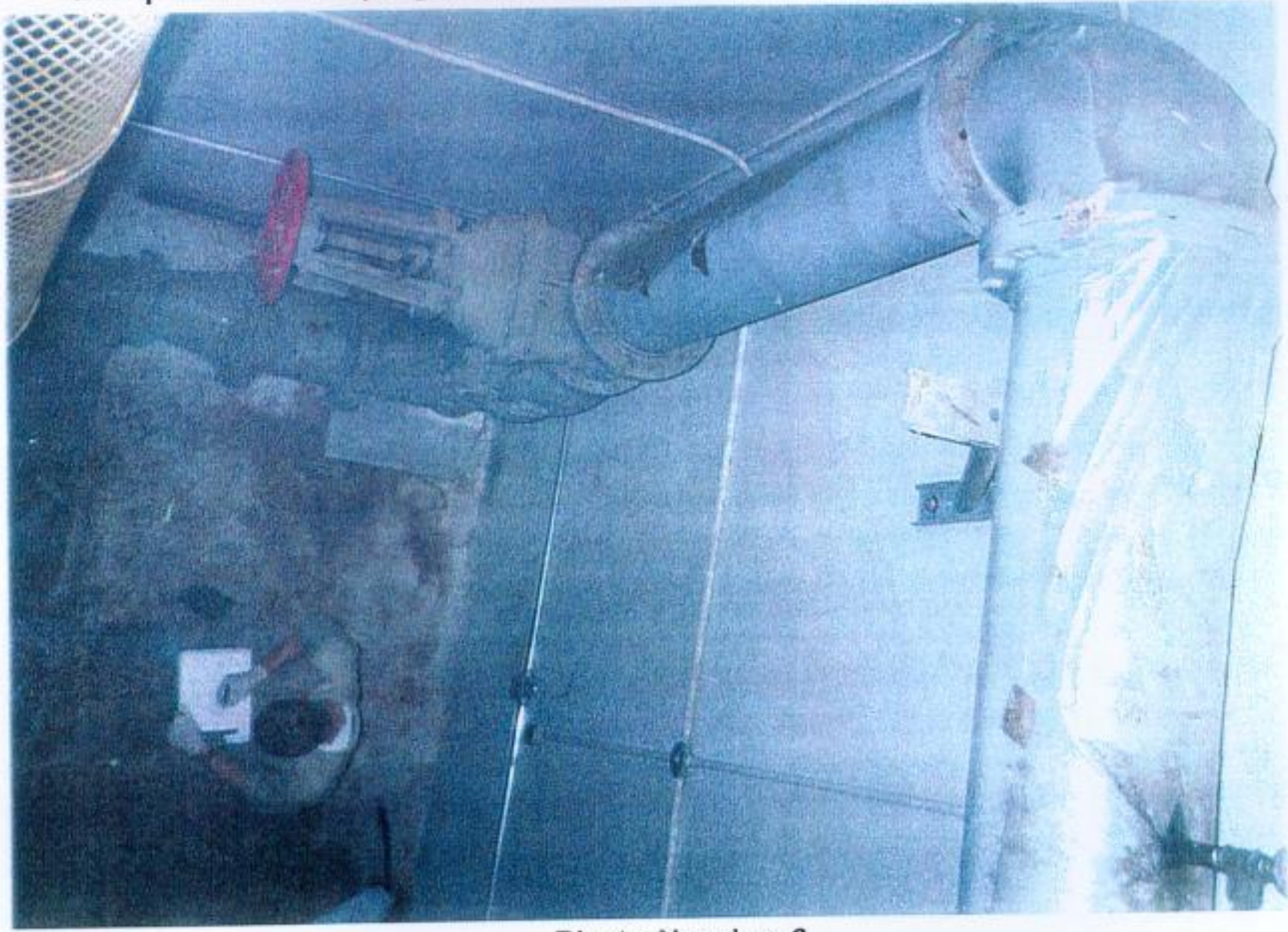


Photo Number 3

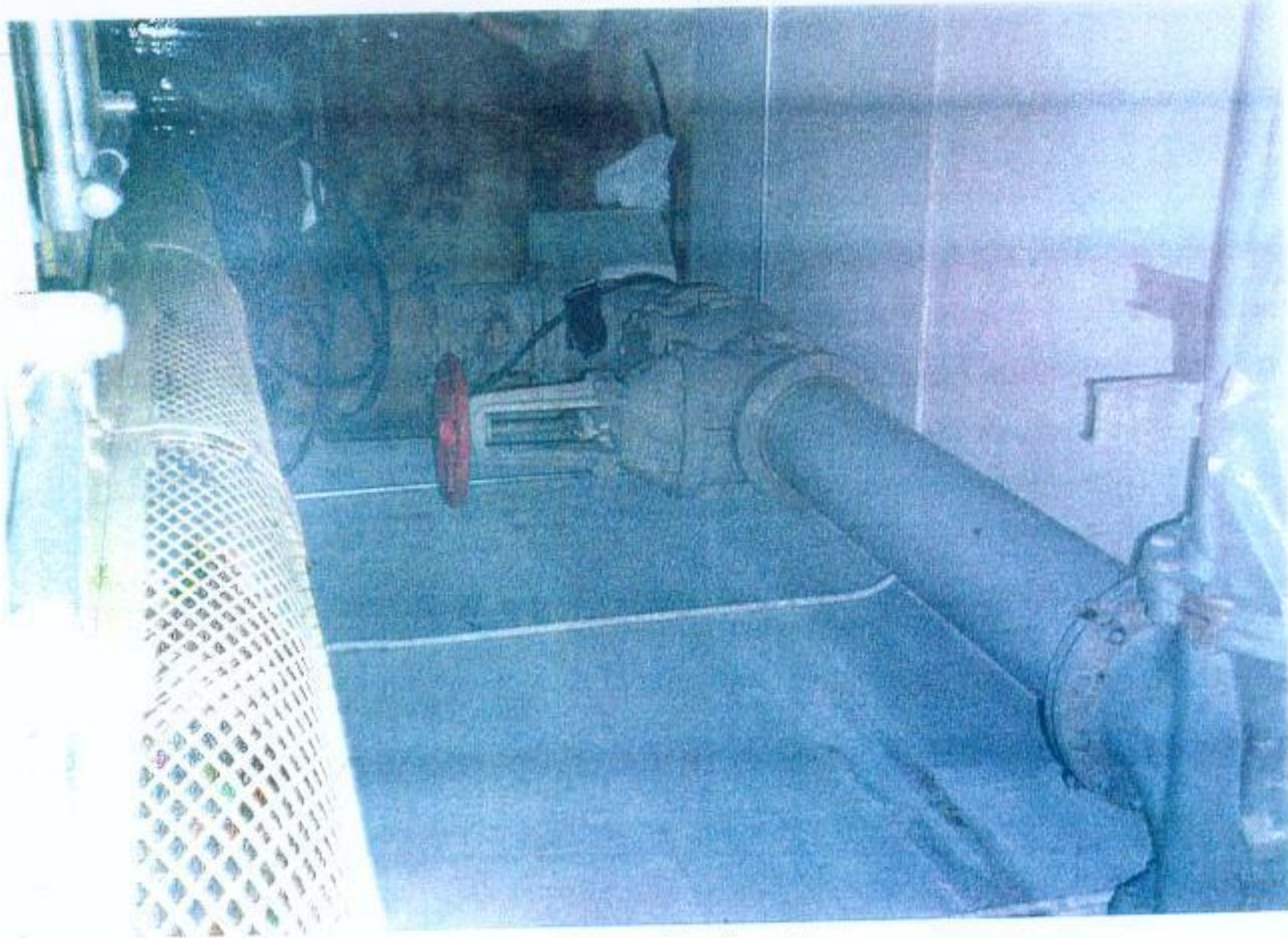


Photo Number 4

Pump Station 170 (English Turn #1)

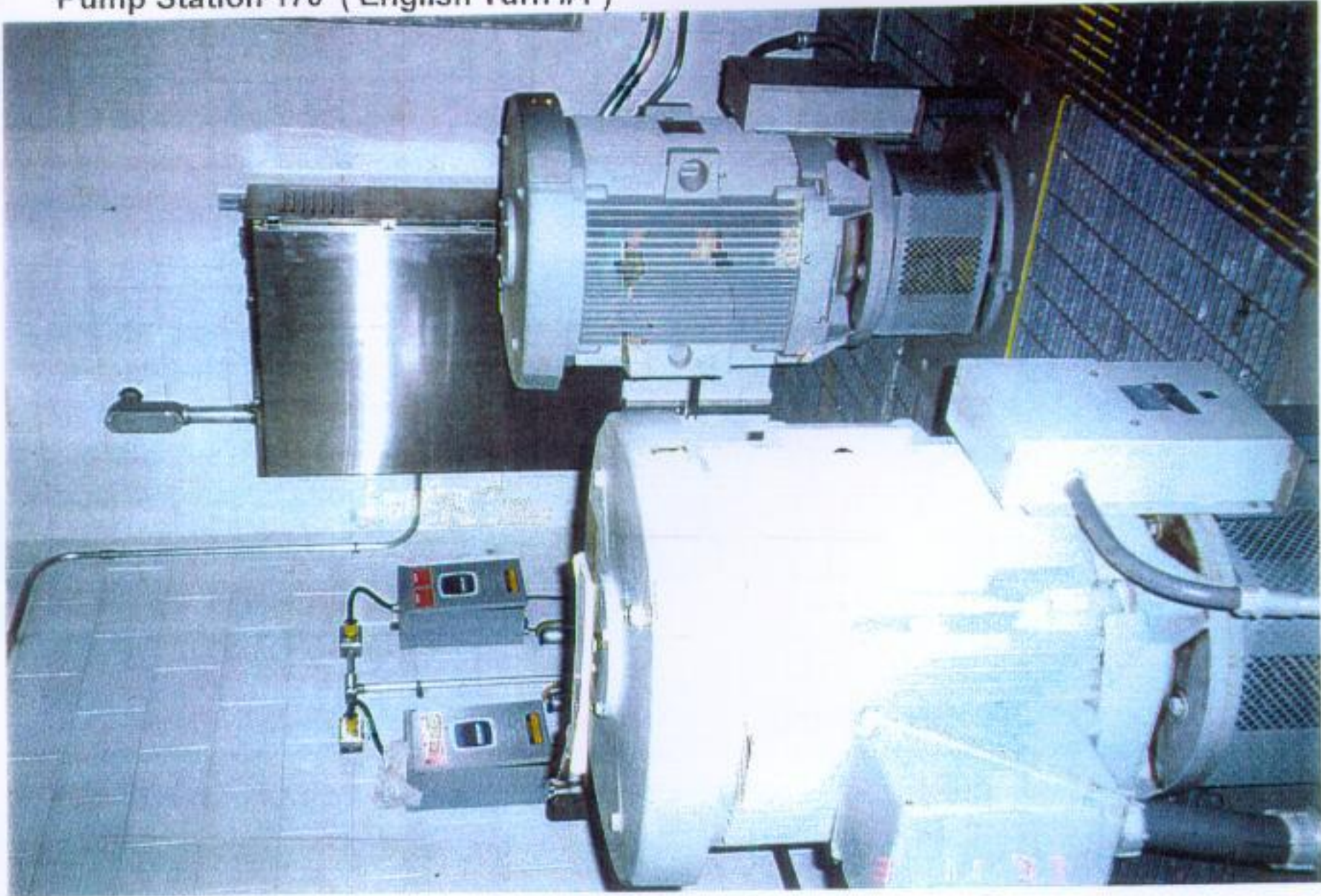


Photo Number 5

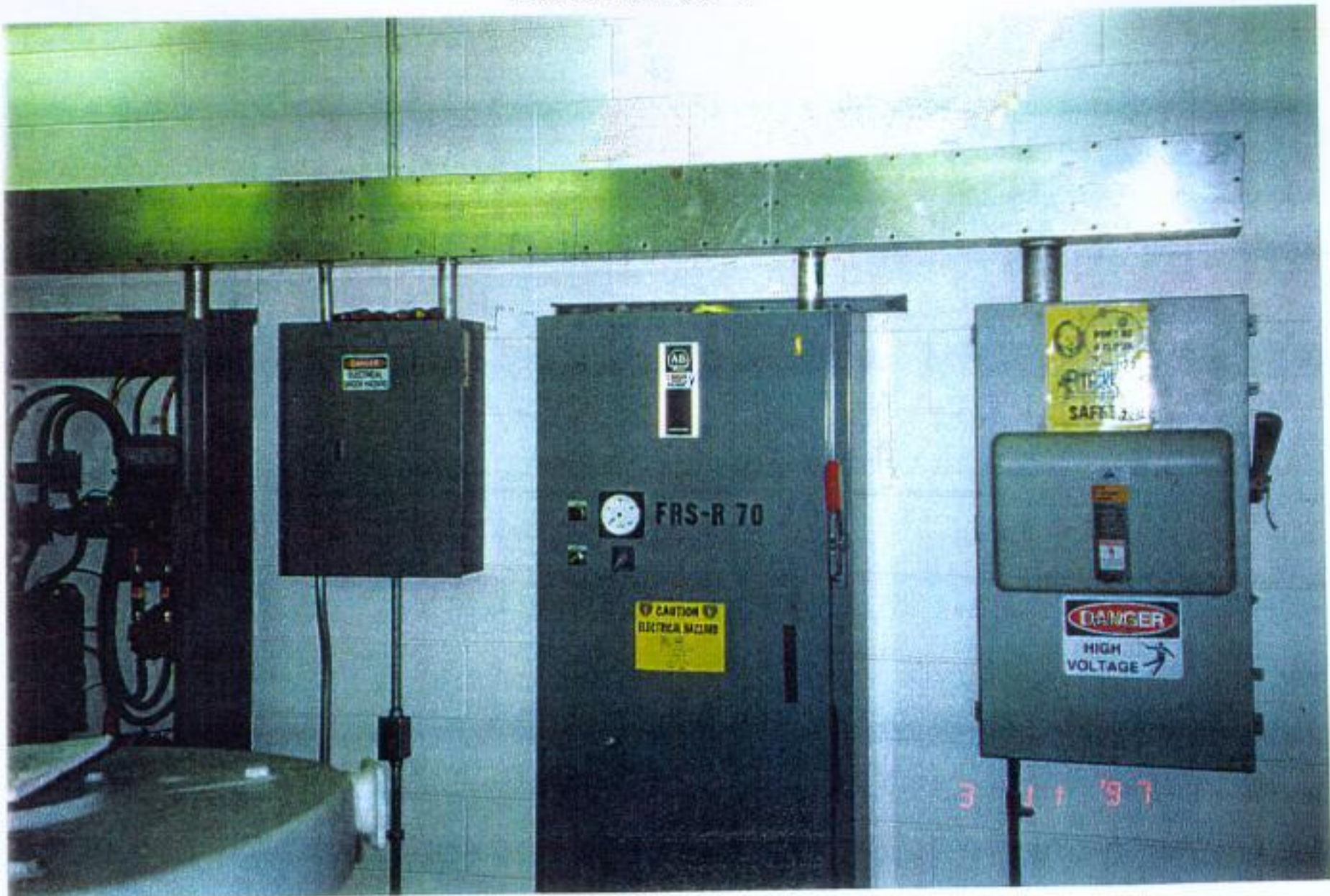


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 171 (ENGLISH TURN #2)
123 ½ OAK ALLEY DRIVE**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 171 (English Turn #2)

Pump Station 171 is a walk-in, suction-lift station located on 123 1/2 Oak Alley Drive. Wastewater discharges the station via a 6-inch diameter force main for approximately 3000 feet where it begins gravity flow and is repumped by Pump Station 170 (English Turn #1). Pump Station 171 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 171.

Pump Station 171 contains two (4-inch by 4-inch) Gorman Rupp horizontally aligned pumps. Each pump is powered by a 20 horsepower (hp) Toshiba electric motor operating at a speed of 1760 revolutions per minute (rpm). This equipment is housed in a 10.3-foot by 13-foot brick/block dry well structure, completely above ground. Figures 2 and 3 provide front and elevation views of the station. The overall condition of the station is good as can be seen in the attached photos.

Pump Station 171 collects wastewater from the surrounding gravity sewer system into a 21.2-foot deep reinforced concrete wet well. The cross sectional area of the wet well is circular with an estimated 8-foot diameter. The overall condition of the wet well appears to be good.

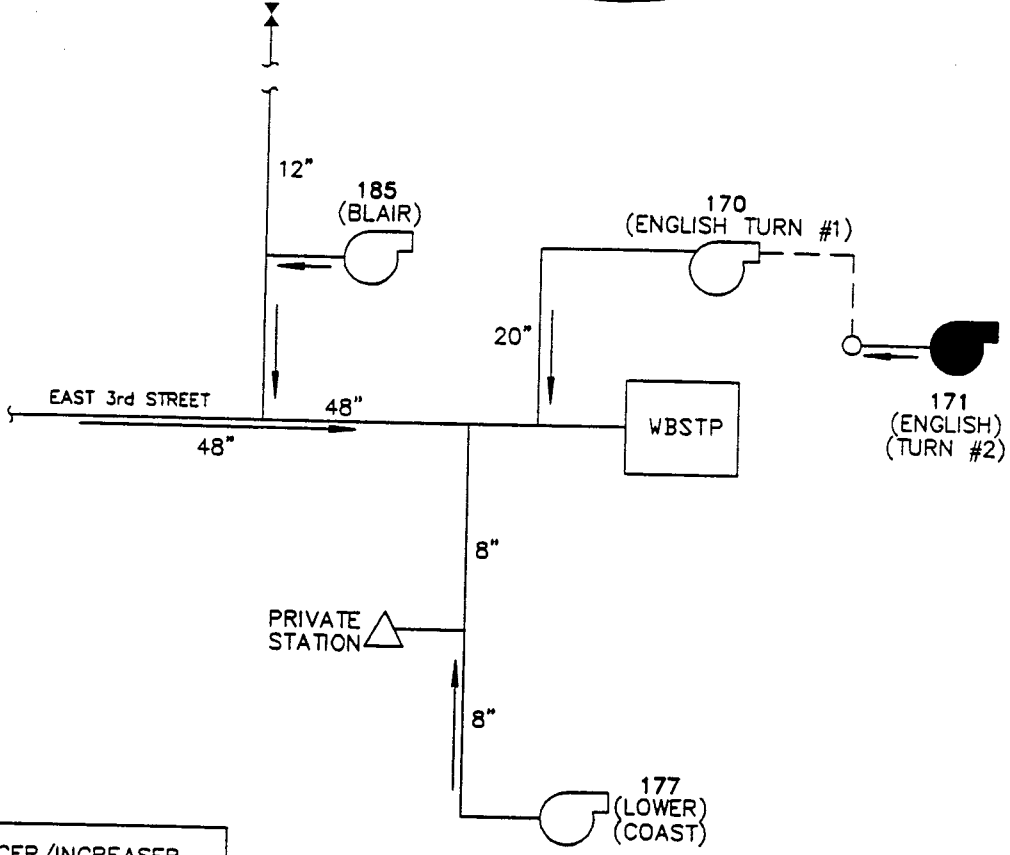
A draw down/fill test was conducted to determine the capacity of Pump Station 171. Figure 4 shows the pump curve constructed from obtained test data. Pump #1 has an approximate capacity of 80 gallons per minute (gpm) at 37 feet of head. The shut-off head of Pump #1 was found to be 42 feet. At the time of testing Pump #2 was inoperable due to priming failure and/or blockage in the suction line.

Recommendations:

1. It is recommended that Pump #2 be placed into working condition and its performance evaluated.



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER



- REDUCER/INCREASER
- MANHOLE
- GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- PRIVATE STATION
- PUMP STATION
- REF. PUMP STATION
- WEST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

JOB NO.: 1113030.01080120 DATE: 3/28/97

FILE NO.: 17



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 171 (ENGLISH TURN #2)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

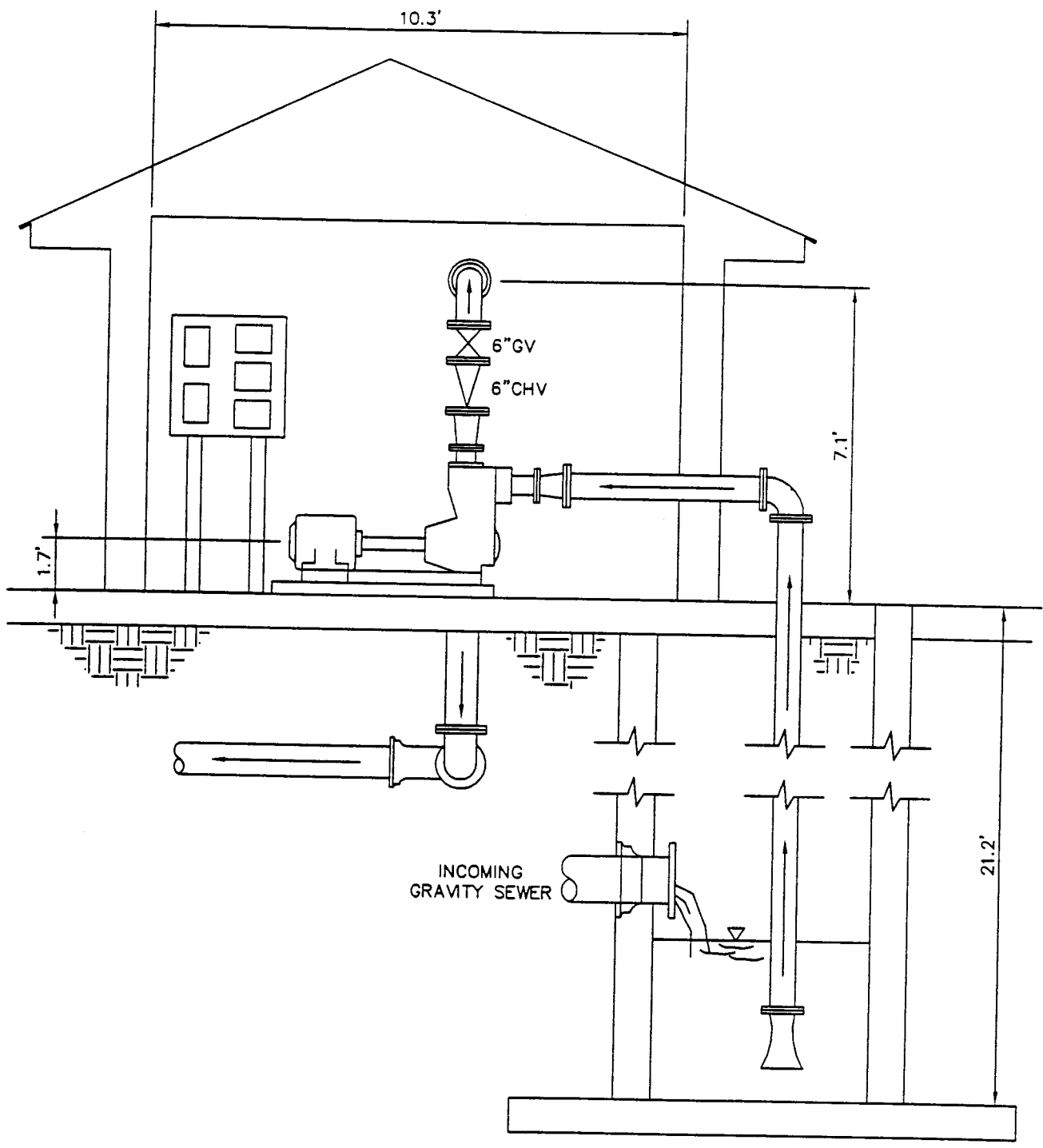
FIGURE:

1

DATE:

3/28/97

FILE NO.: 171
JOB NO.: 1113030.01090120 DATE: 3/28/97

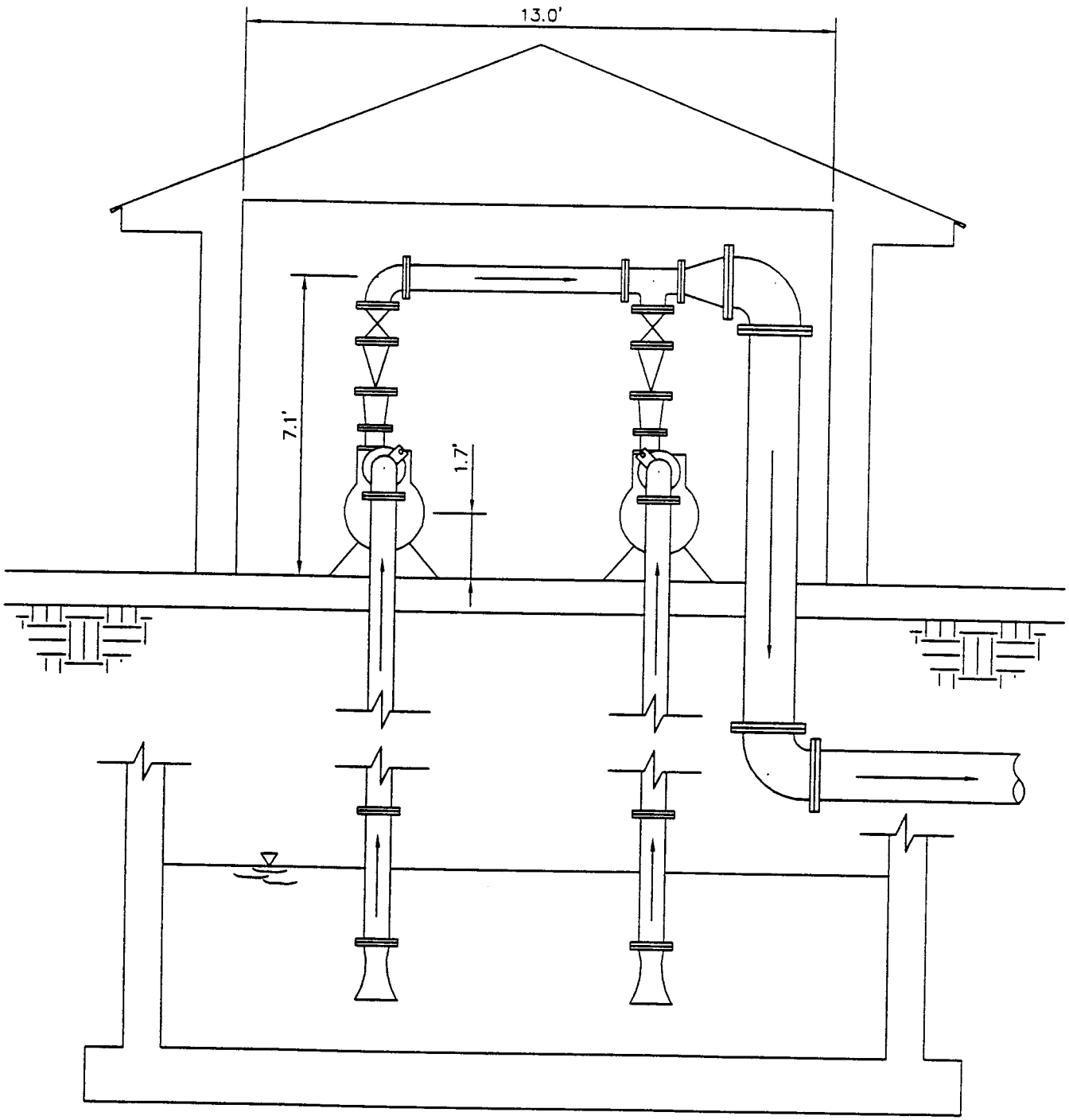


ELEVATION
(NOT TO SCALE)



PUMP STATION 171 (ENGLISH TURN #2)
WALK-IN SUCTION LIFT

FIGURE:
2
DATE:
3/28/97



8' DIA. CONCRETE WET WELL

FRONT VIEW
(NOT TO SCALE)

FILE NO.: 171
JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 171 (ENGLISH TURN #2)
WALK-IN SUCTION LIFT

FIGURE:

3

DATE:

3/28/97

Pump Station: 171 (English Turn #2)

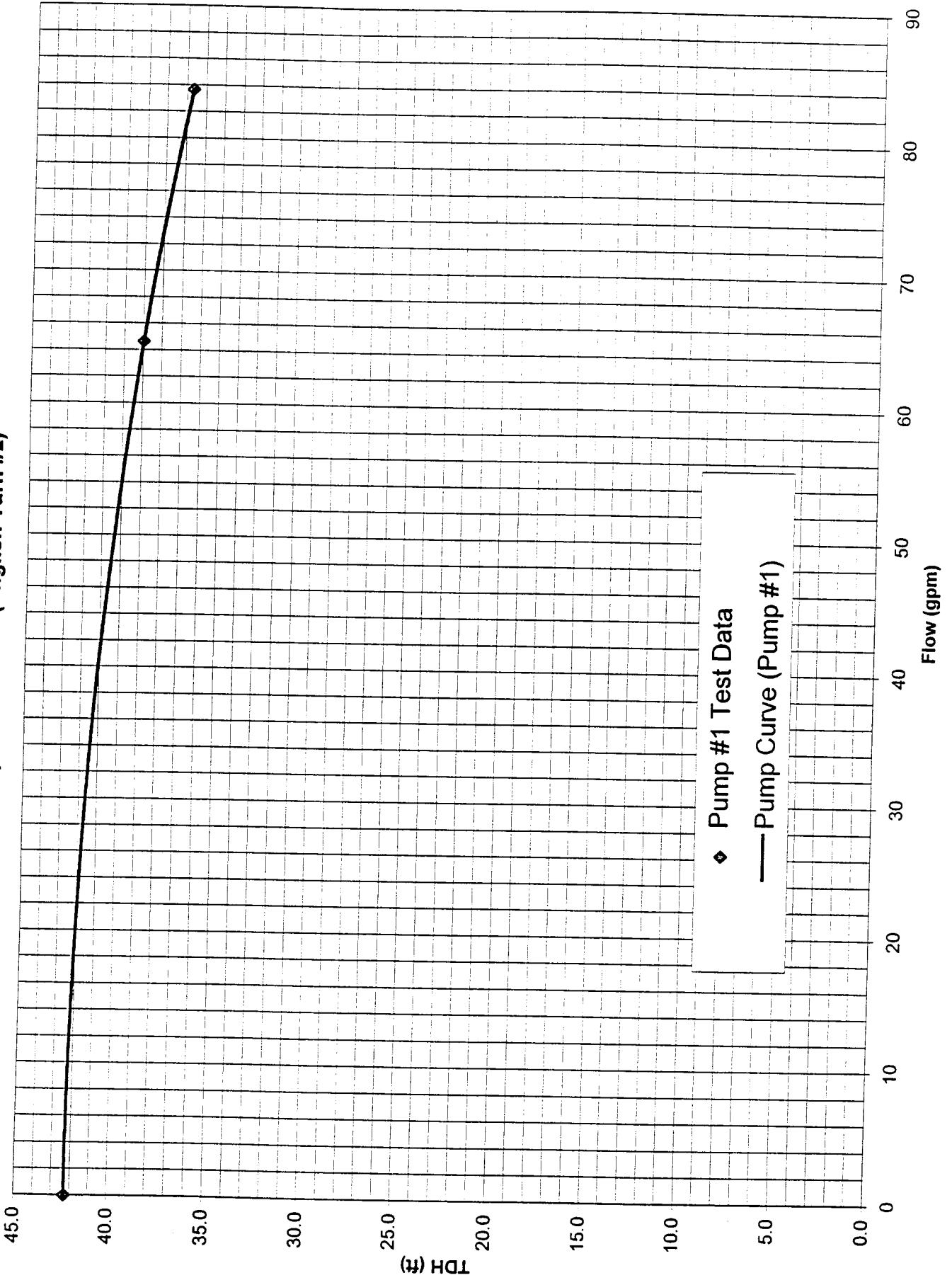


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 171

General Information

PS No. 171 PS Facility English Turn #2 Address 123 1/2 Oak Alley Drive

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Gorman-Rupp

Impeller Diameter 0 inch

Model Number-Pump #1 T4A3-B Serial Number-Pump #1 968197

Model Number-Pump #2 T4A3-B Serial Number-Pump #2 968197

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 4 inch Pump Discharge 4 inch FM Diameter 6 inch

Suction Valve Size 0 inch Discharge Valve Size 6 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 6 inch

Dry Well Dimensions 0 ft. dia. Length 13 ft. Width: 10.3 ft. Depth 0 ft.

Pump centerline* 1.7 ft. Centerline of discharge pipe* 7.1 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 171

Pump Controls

Lead pump on 9 ft. Type of Controls bubbler
Lead pump off 7 ft.
Lag pump on 11 ft.
Lag pump off 8 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the exterior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 8 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 21.2 ft.

Sewer Invert(s) Depth* 19.9 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 171

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, has generator receptacle

Type of service Pad Mounted Transformer, 240/120V three phase

Size of service protective device not available

Size of main protective device 150 amps, fusible disconnect switch

Size of motor protective device 60 amps, fusible disconnect switch

Service wire size #1/0 AWG Size of motor starter in NEMA 3

Motor wire size #4 AWG Motor Horsepower 40

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1760

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # B0204DLF2UM Serial Number - Motor # 91S02736

Model Number - Motor # B0204DLF2UM Serial Number - Motor # 91S02736

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, service disconnect switch and control panel is poor due to corrosion. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 171 (English Turn #2)



Photo Number 1



Photo Number 2

Pump Station 171 (English Turn #2)



Photo Number 3

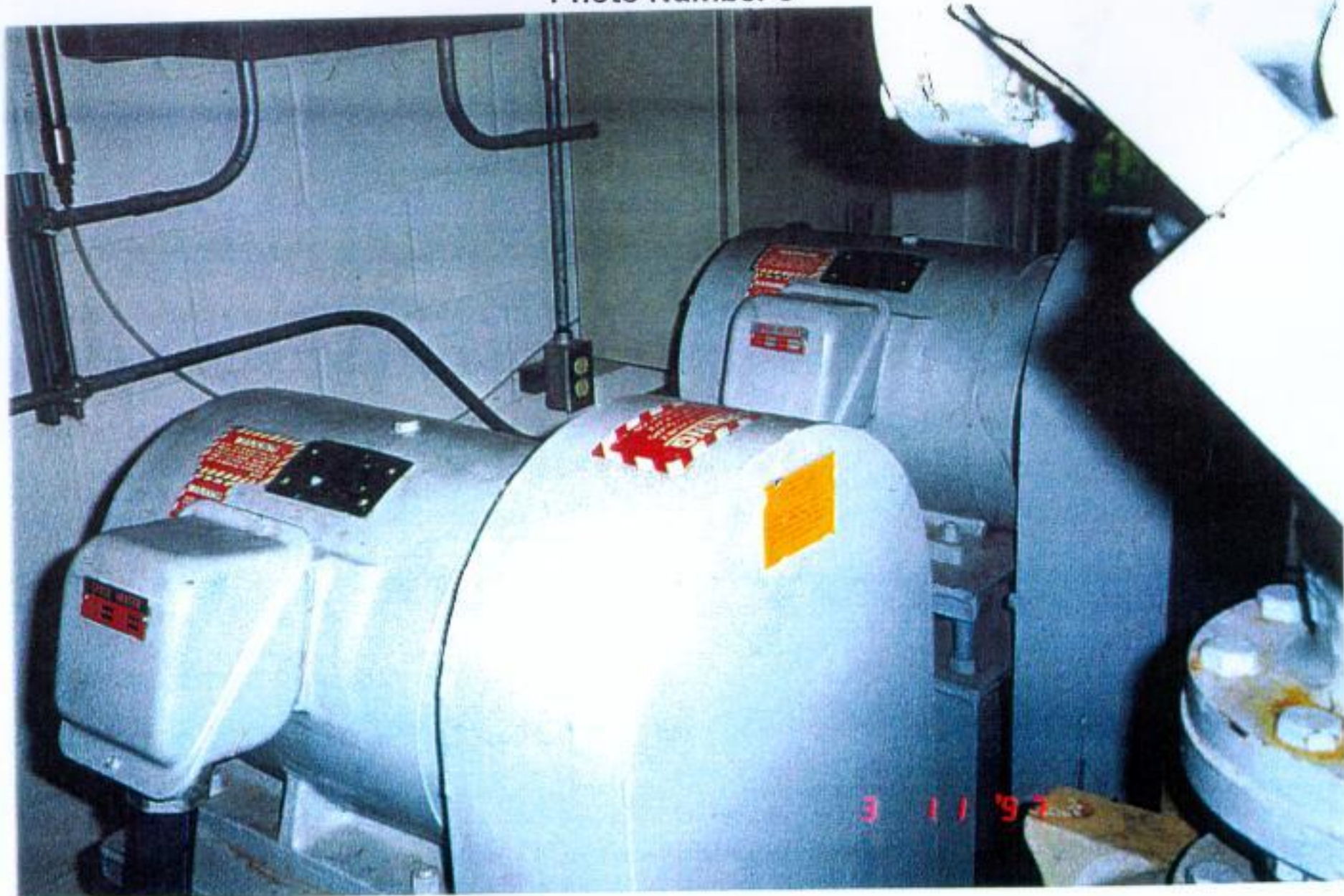


Photo Number 4

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 172 (ETON)
3440 ETON STREET**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 172 (Eton)

Pump Station 172 is a bi-level, suction-lift station located at 3440 Eton Street. Flow discharges the station and connects to the 54-inch portion of the force main flowing towards the West Bank Sewage Treatment Plant. Pump Station 172 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 172.

Pump Station 172 contains two (8-inch by 8-inch) Fairbanks Morse horizontally aligned pumps. Each pump is powered by a 40 horsepower (hp) Fairbanks Morse electric motor operating at a speed of 1170 revolutions per minute (rpm). This equipment is housed in an 11-foot by 12.3-foot brick/block dry well structure, partially underground. The total depth of the dry well from the floor of the motor control room to the bottom is 7.3 feet. Figures 2 and 3 provide front and elevation views of the station. The overall condition of the station is fair although there is isolated corrosion located around the pumps as seen in the attached photos.

Pump Station 172 collects wastewater from the surrounding gravity sewer system into a 13.3-foot deep cement-lined brick wet well. The cross sectional area of the wet well is circular with an estimated 5-foot diameter. The overall condition of the wet well is fair.

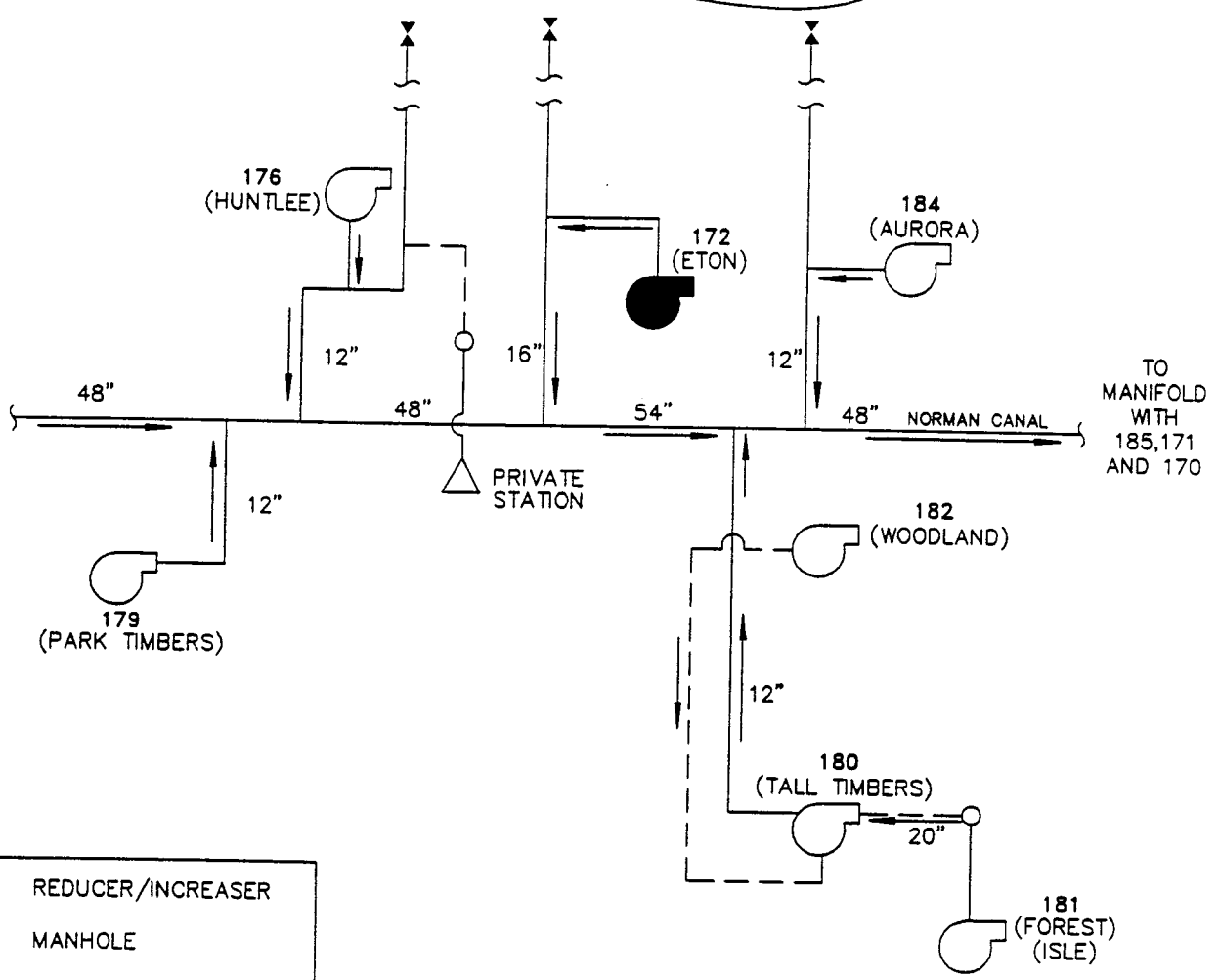
A draw down/fill test was conducted to determine the capacity of Pump Station 172. Figure 4 shows pump curve constructed from obtained test data. Each pump has an approximate capacity of 2000 gallons per minute (gpm) at 39 feet of head. The shut-off head of both pumps was found to be 46 feet. When comparing the Pump Curve (Pump #1 and #2) to a reproduction of the Manufacturer's Curve, also shown in Figure 4, one can see that the lower end of the Pump Curve follows the Manufacturer's Curve while the upper end does not. This suggests that the discharge gate valves could have been leaking during the test.

Recommendations:

1. It is recommended that both discharge gate valves be adjusted to insure proper seating such that backflow will not occur when they are closed.



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER



- REDUCER/INCREASER
- MANHOLE
- GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- PRIVATE STATION
- PUMP STATION
- REF. PUMP STATION
- WBSTP WEST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

JOB NO.: 1113030.01090120 DATE: 3/28/97

FILE NO.: 17.



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 172 (ETON)
PUMP STATIONS AND FORCEMANS SCHEMATIC

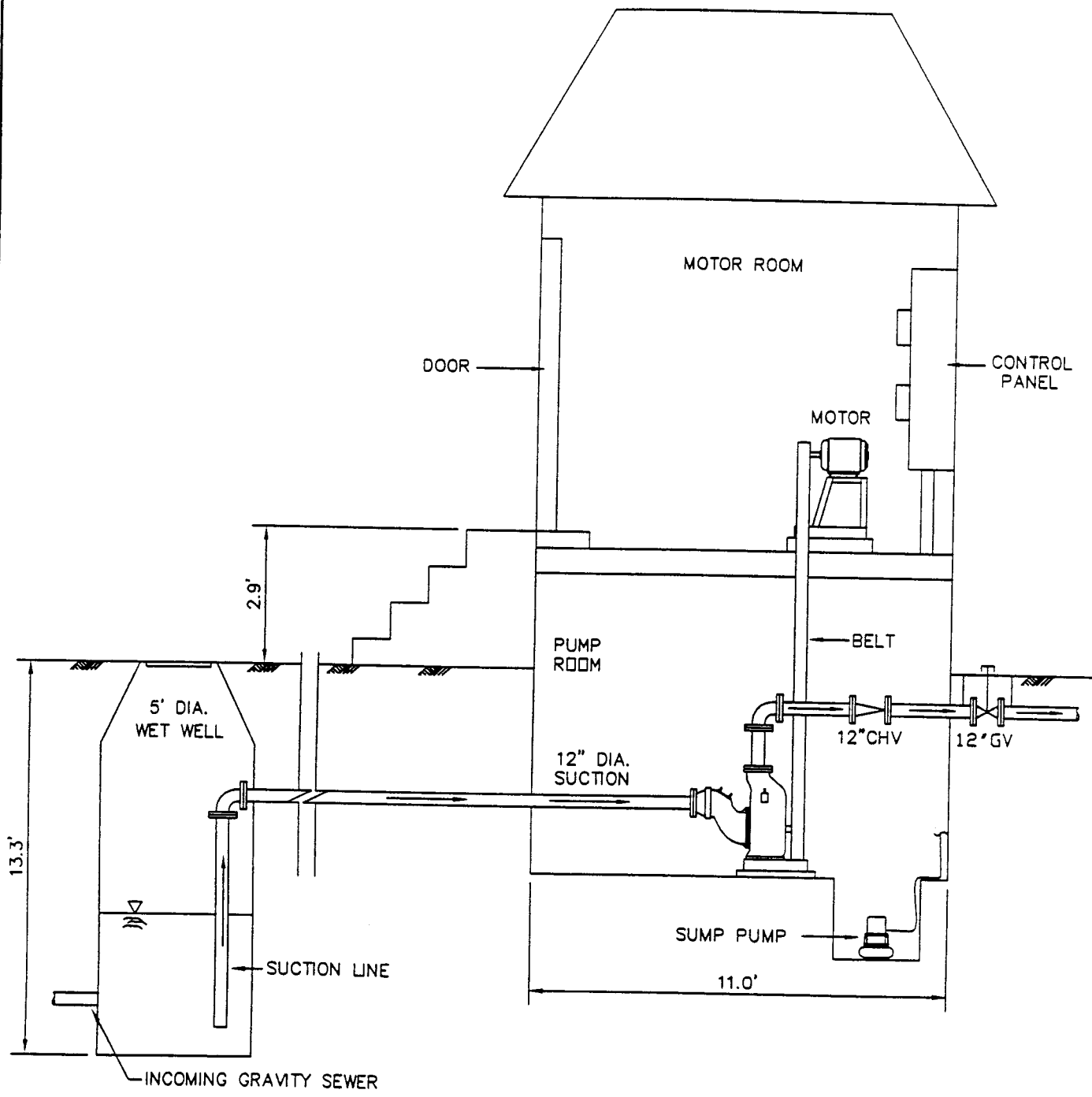
FIGURE:

1

DATE:

3/28/97

FILE NO.: 174
JOB NO.: 1113030.01090120 DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 172 (ETON)
BI-LEVEL SUCTION LIFT

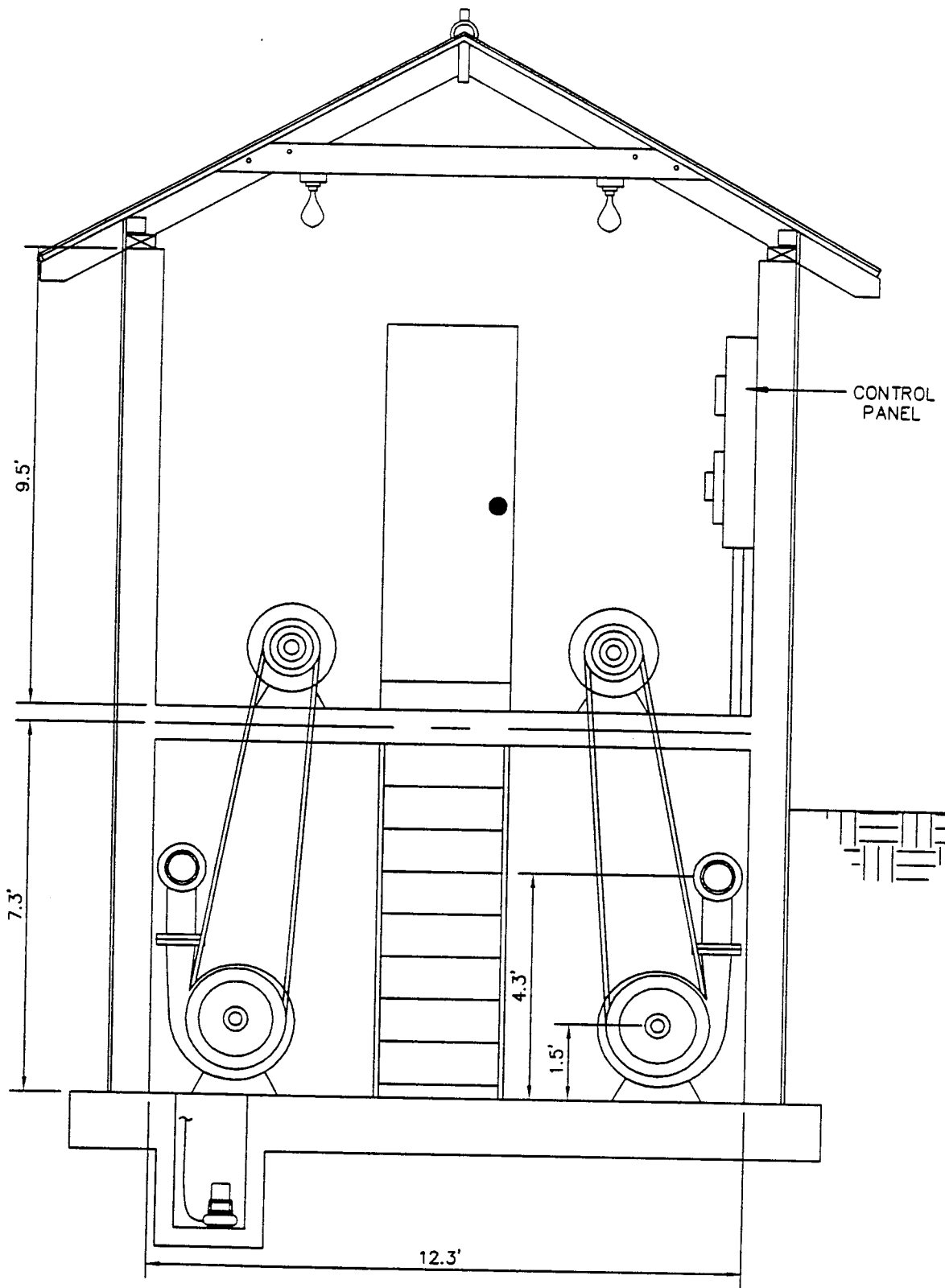
FIGURE:

2

DATE:

3/28/97

FILE NO.: 172
JOB NO.: 1113030.01090120 DATE: 3/28/97



FRONT VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 172 (ETON)
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/28/97

Pump Station: 172 (Eton)

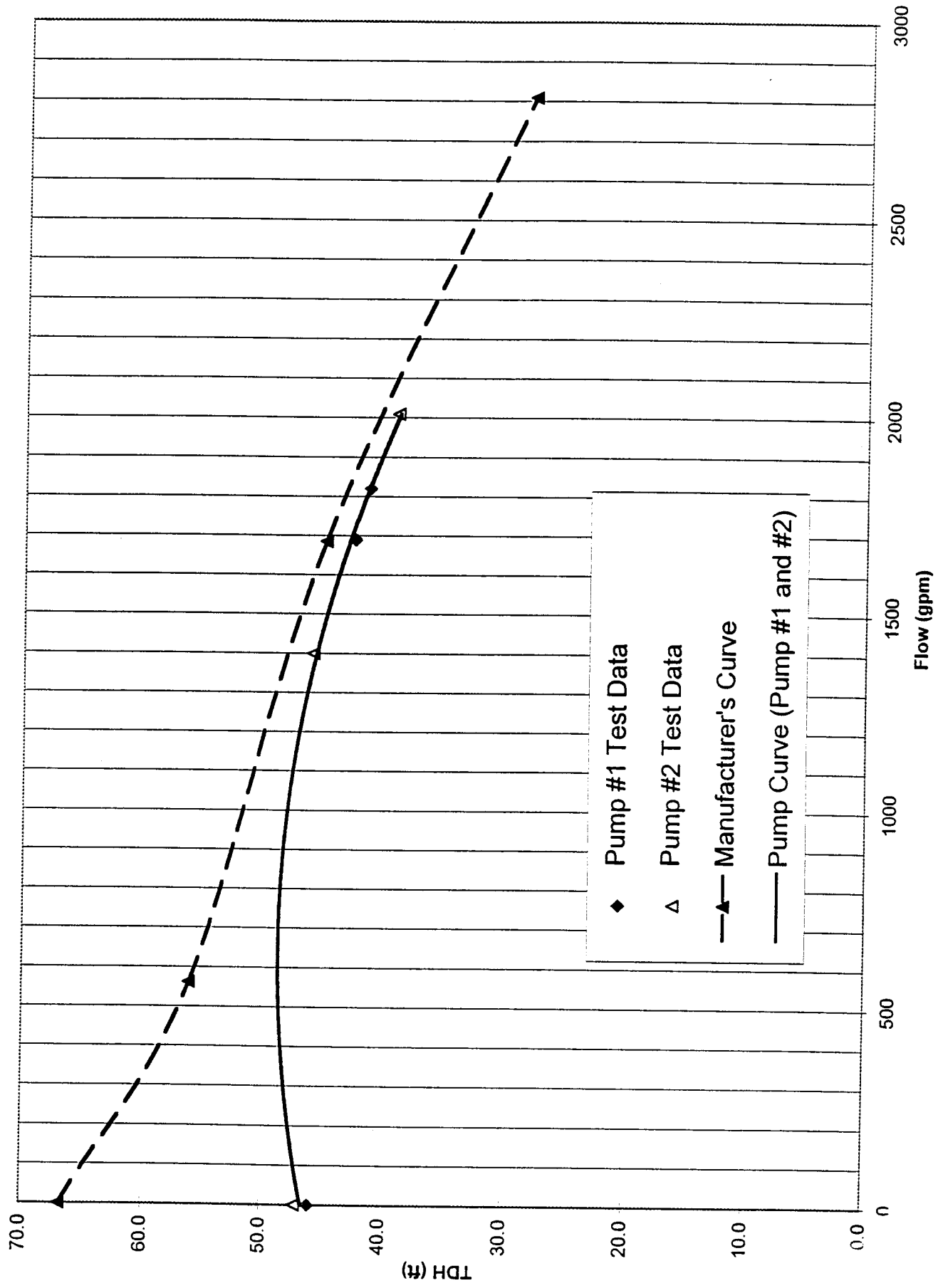


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 172

General Information

PS No. 172 PS Facility Eton

Address 3440 Eton Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size 0 inch Discharge Valve Size 12 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 12 inch

Dry Well Dimensions 0 ft. dia. Length 12.3 ft. Width: 11 ft. Depth 7.3 ft.

Pump centerline* 1.5 ft. Centerline of discharge pipe* 4.3 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 172

Pump Controls

Lead pump on 10.8 ft. Type of Controls bubbler
Lead pump off 7.8 ft.
Lag pump on 11.8 ft.
Lag pump off 8.8 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition The liner is cement over brick.

Comments _____

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 24.8 ft.

Sewer Invert(s) Depth* 13.3 ft.

0 ft.

**measured from top of wet well cover.*

Pump Station 172 (Eton)



Photo Number 1

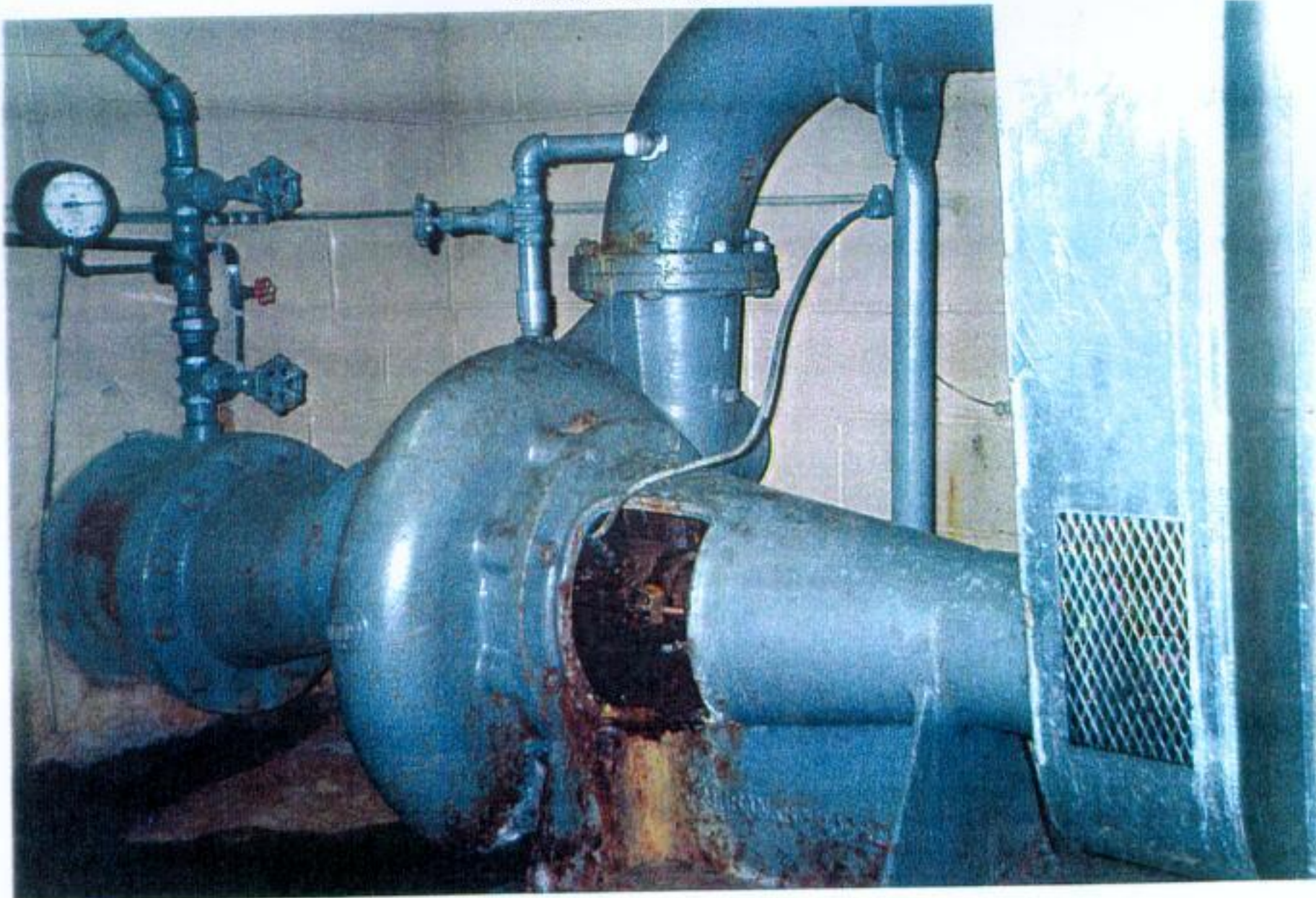


Photo Number 2

Pump Station 172 (Eton)



Photo Number 3

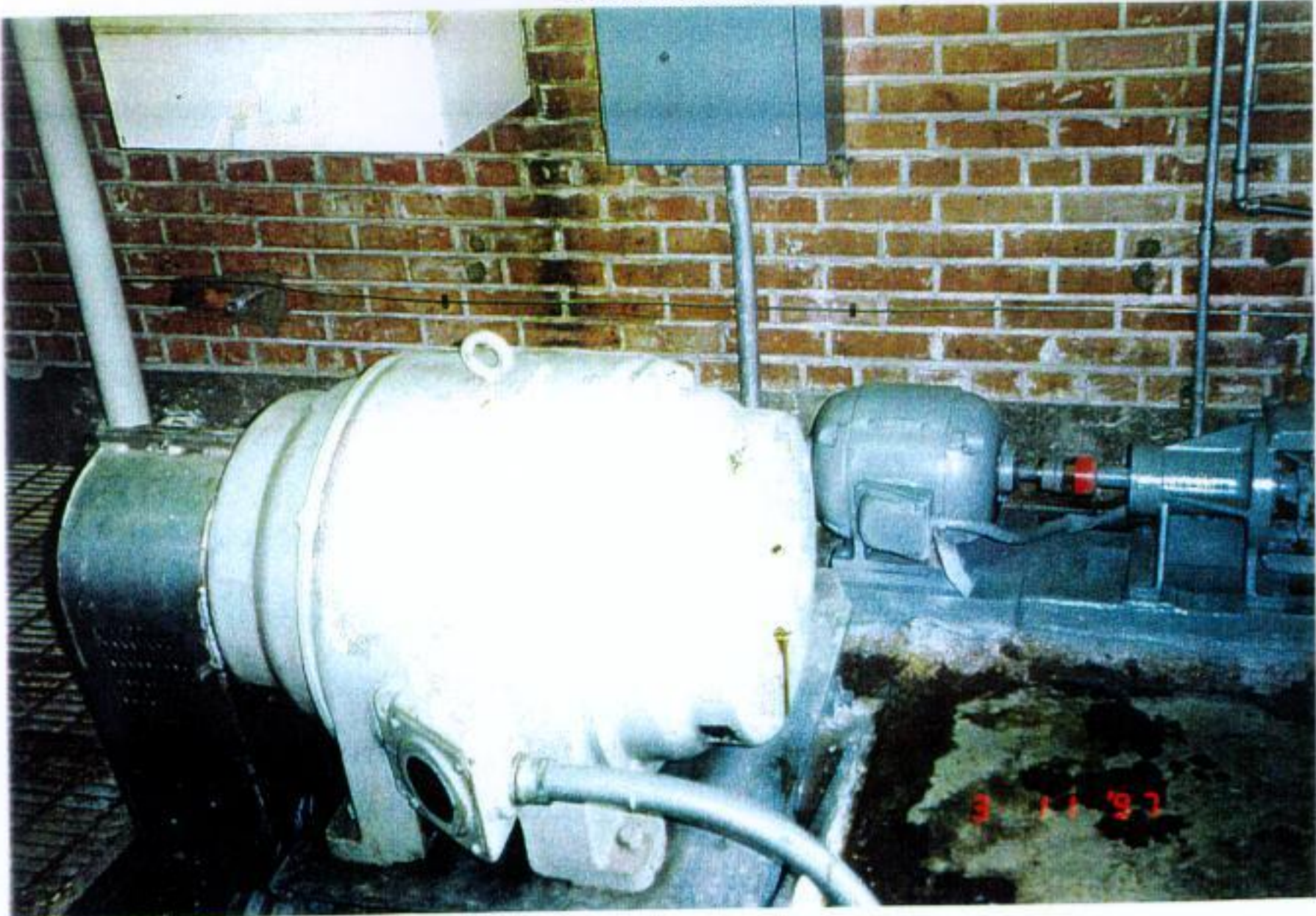


Photo Number 4

Pump Station 172 (Eton)



Photo Number 5

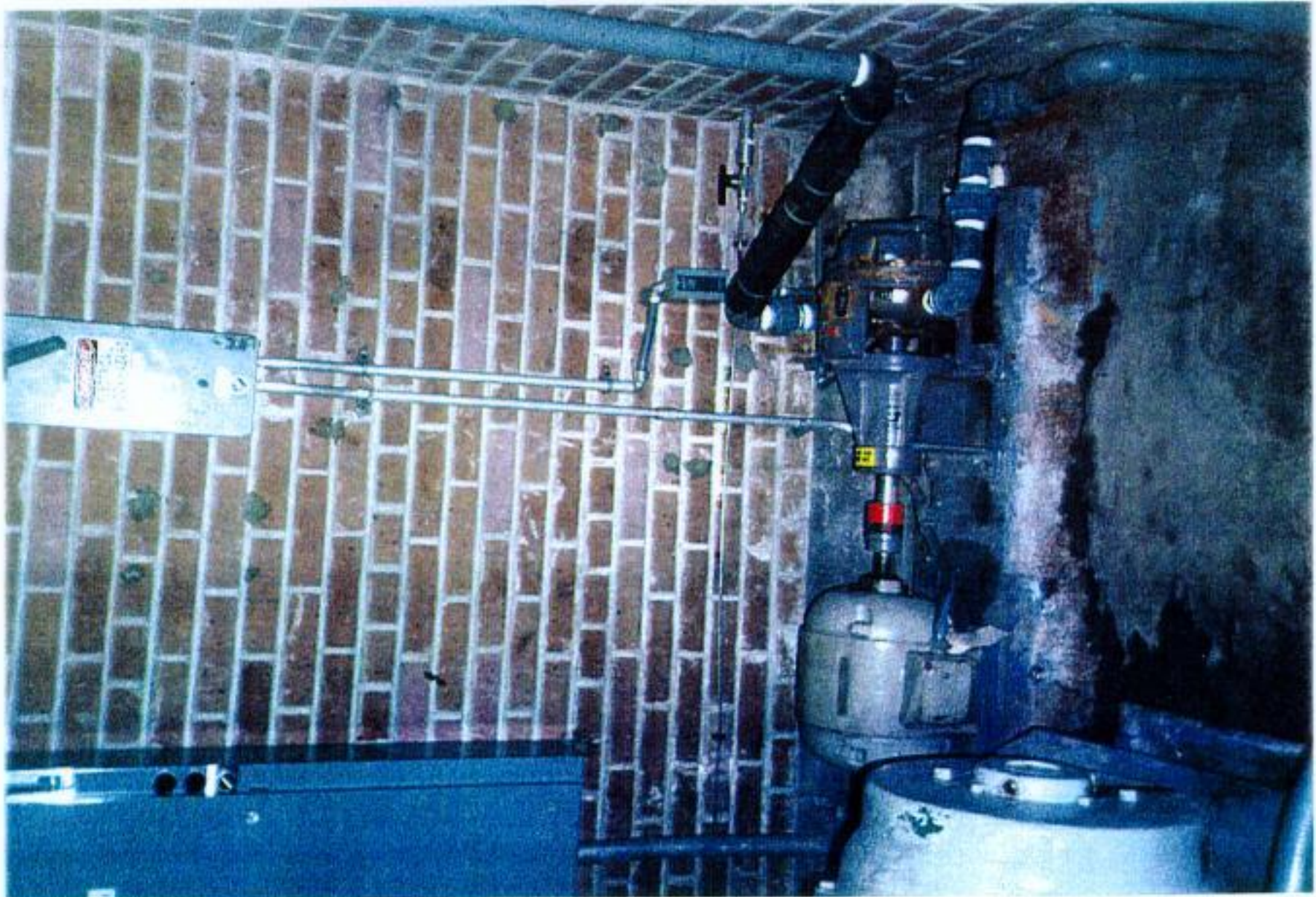


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 173 (GARDEN OAKS)
3201 MEMORIAL**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 173 (Garden Oaks)

Pump Station 173 is a flooded-suction, can-type station located on 3201 Memorial Park Drive. Flow discharges the station via a 12-inch diameter force main and connects to the 42-inch portion of the Memorial Park Drive force main. Pump Station 173 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 173.

Pump Station 173 contains two (6-inch by 6-inch) Fairbanks Morse vertically aligned pumps with 14.7-inch diameter impellers. Each pump is powered by a 50 horsepower (hp) General Electric motor operating at a speed of 1175 revolutions per minute (rpm). This equipment is housed in a (11-foot by 11-foot) reinforced concrete dry well structure, primarily below grade. The total depth of the dry well from the access hatch to the bottom is 23.8 feet. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair although there is severe corrosion located around the pumps as seen in the attached photos.

Pump Station 173 collects wastewater from the surrounding gravity sewer system into an 18.8-foot deep concrete wet well. The cross sectional area of the wet well is rectangular with estimated 11-foot by 11-foot dimensions. The overall condition of the wet well appears to be fair.

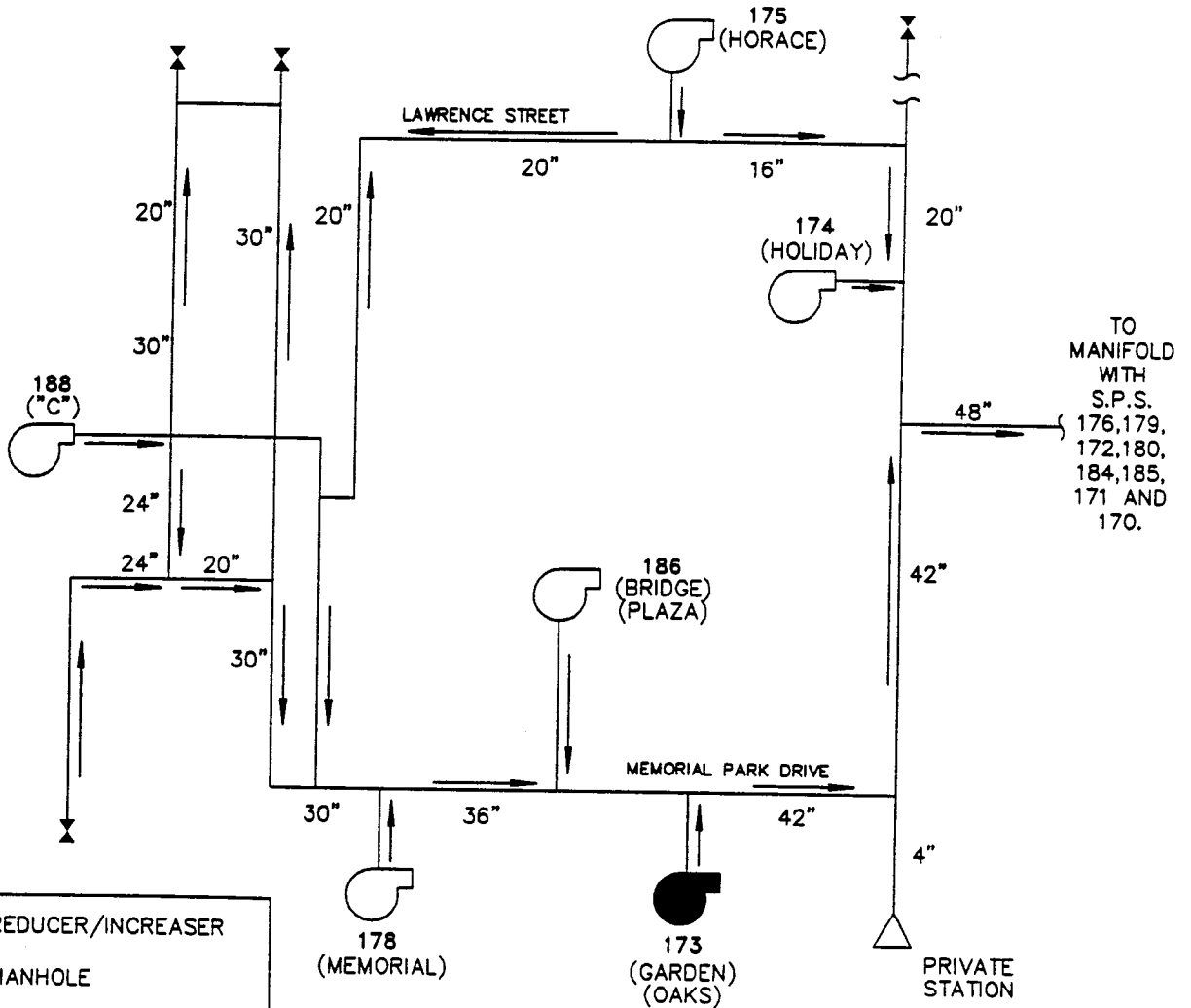
A draw down/fill test was conducted to determine the capacity of Pump Station 173. Figure 4 shows pump curve constructed from obtained test data. Each pump has an approximate capacity of 3000 gallons per minute (gpm) at 45 feet of head. The shut-off head of both pumps was found to be 95 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 5800 gpm at 53 feet of head.

Recommendations:

1. Corrosion in the pump room is significant. Measures should be taken to protect or replace severely corroded piping, valves and other components.
2. It is noted that the physical condition of the electrical service disconnect switch is poor due to corrosion and rotten wiring. It is recommended that this issue be addressed.



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER



	REDUCER/INCRASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	WEST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 17
JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

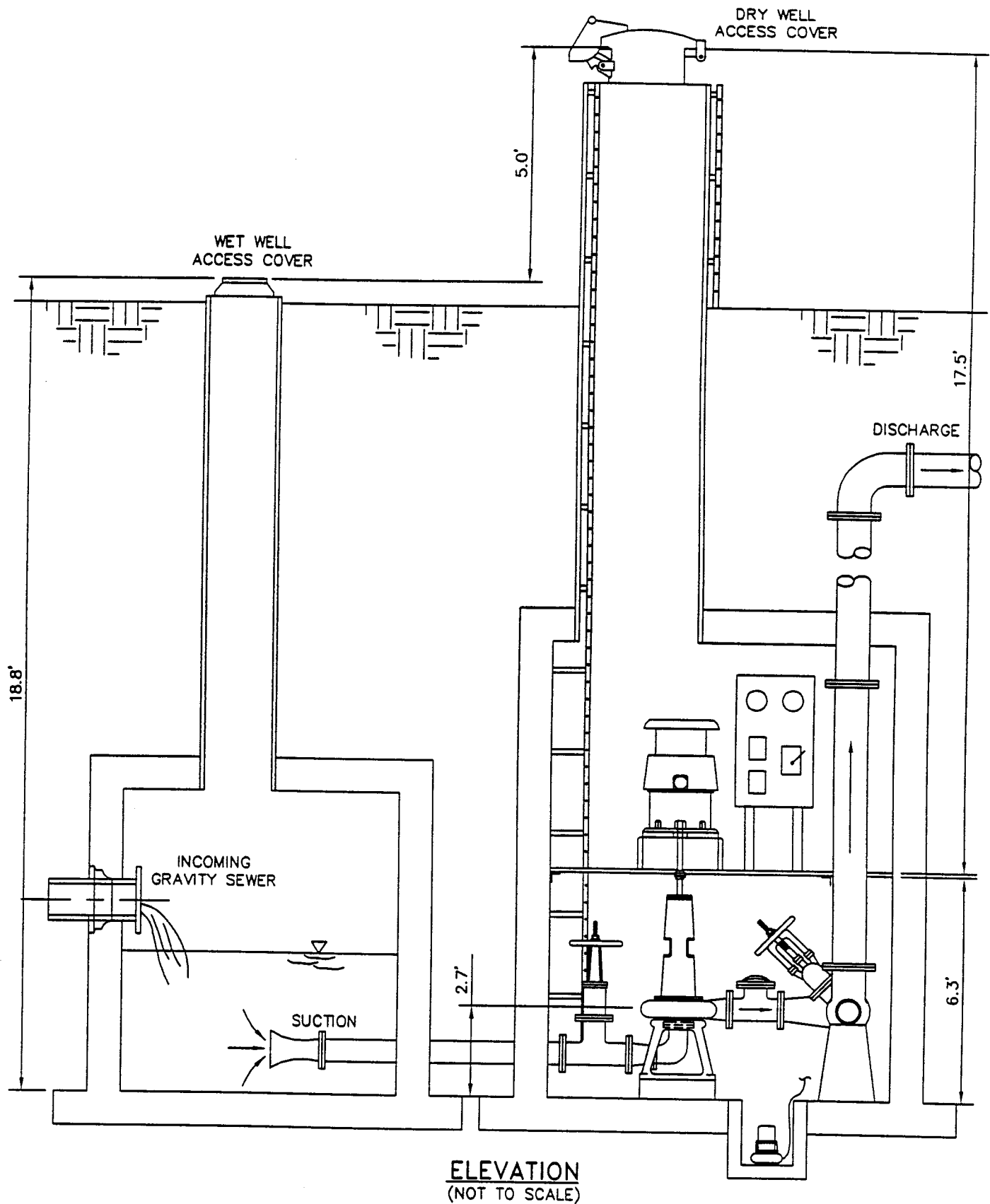
PUMP STATION 173 (GARDEN OAKS)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

1

DATE:

3/28/97



FILE NO.: 173 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 173 (GARDEN OAKS)
CAN TYPE FLOODED SUCTION

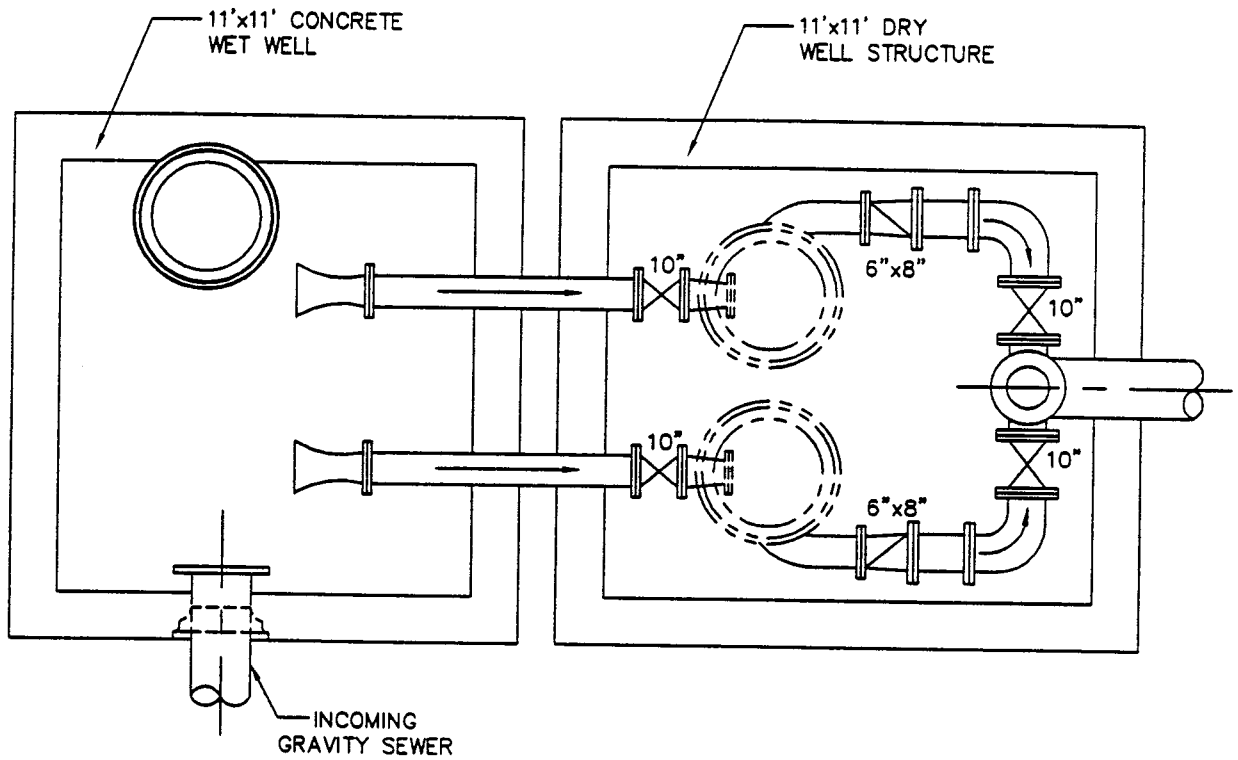
FIGURE:

2

DATE:

3/28/97

FILE NO.: 17L- AS JOB NO.: 1113030.01090120 DATE: 3/28/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 173 (GARDEN OAKS)
CAN TYPE FLOODED SUCTION

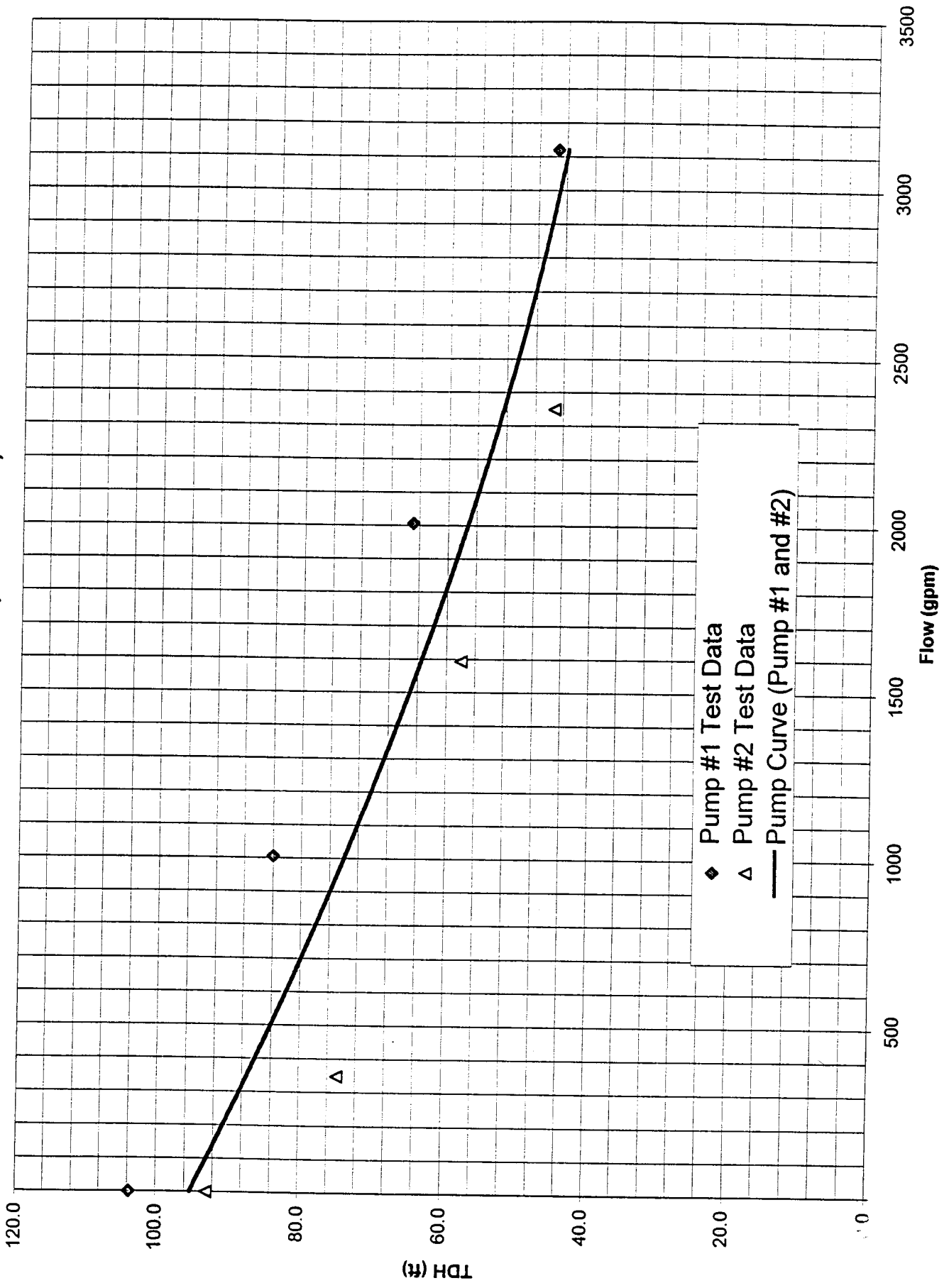
FIGURE:

3

DATE:

3/28/97

Pump Station: 173 (Garden Oaks)



Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 173

General Information

PS No. 173 PS Facility Garden Oaks Address 3201 Memorial Park Drive

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 15 inch

Model Number-Pump #1 5414C Serial Number-Pump #1 K2J1020526

Model Number-Pump #2 5414C Serial Number-Pump #2 K2J1020526

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 2000 gpm 60 ft. of head 0 rpm

Pump Suction 6 inch Pump Discharge 6 inch FM Diameter 12 inch

Suction Valve Size 0 inch Discharge Valve Size 10 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 6 x 8 inch

Dry Well Dimensions 0 ft. dia. Length 11 ft. Width: 11 ft. Depth 23.8 ft.

Pump centerline* 2.7 ft. Centerline of discharge pipe* 0 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? #2

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 173

Pump Controls

Lead pump on 8.5 ft. Type of Controls bubbler
Lead pump off 3 ft.
Lag pump on 9.5 ft.
Lag pump off 4 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is poor due to severe corrosion throughout the pump room.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Exposed reinforcement is visible 4-feet below the TBM.

Diameter 0 ft. Length 11 ft. Width 11 ft.

Bottom Depth* 18.8 ft.

Sewer Invert(s) Depth* 14.5 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 173

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial source, no generator receptacle
Type of service 480/277V three phase four wire (3 transformers bank)
Size of service protective device 175 amps, fusible disconnect switch
Size of main protective device not available
Size of motor protective device 125 amps, circuit breaker
Service wire size # 2/0 AWG Size of motor starter in NEMA 4
Motor wire size # 4 AWG Motor Horsepower 50
Number of motors 0 Motor Speed Single
Speed(s) in rpm 1175
Frequency in Hertz 60
Type of starter Full voltage non-reversing (FVNR)
Model Number - Motor # 5K6267XC248A Serial Number - Motor # KAJ1027165
Model Number - Motor # 5K6267XC248A Serial Number - Motor # KAJ1027165
Model Number - Motor # - Serial Number - Motor # -
Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the service disconnect switch is in poor condition due to corrosion and rotten wiring. the physical condition of motors, motor controller and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for

Pump Station 173 (Garden Oaks)



Photo Number 1



Photo Number 2

Pump Station 173 (Garden Oaks)

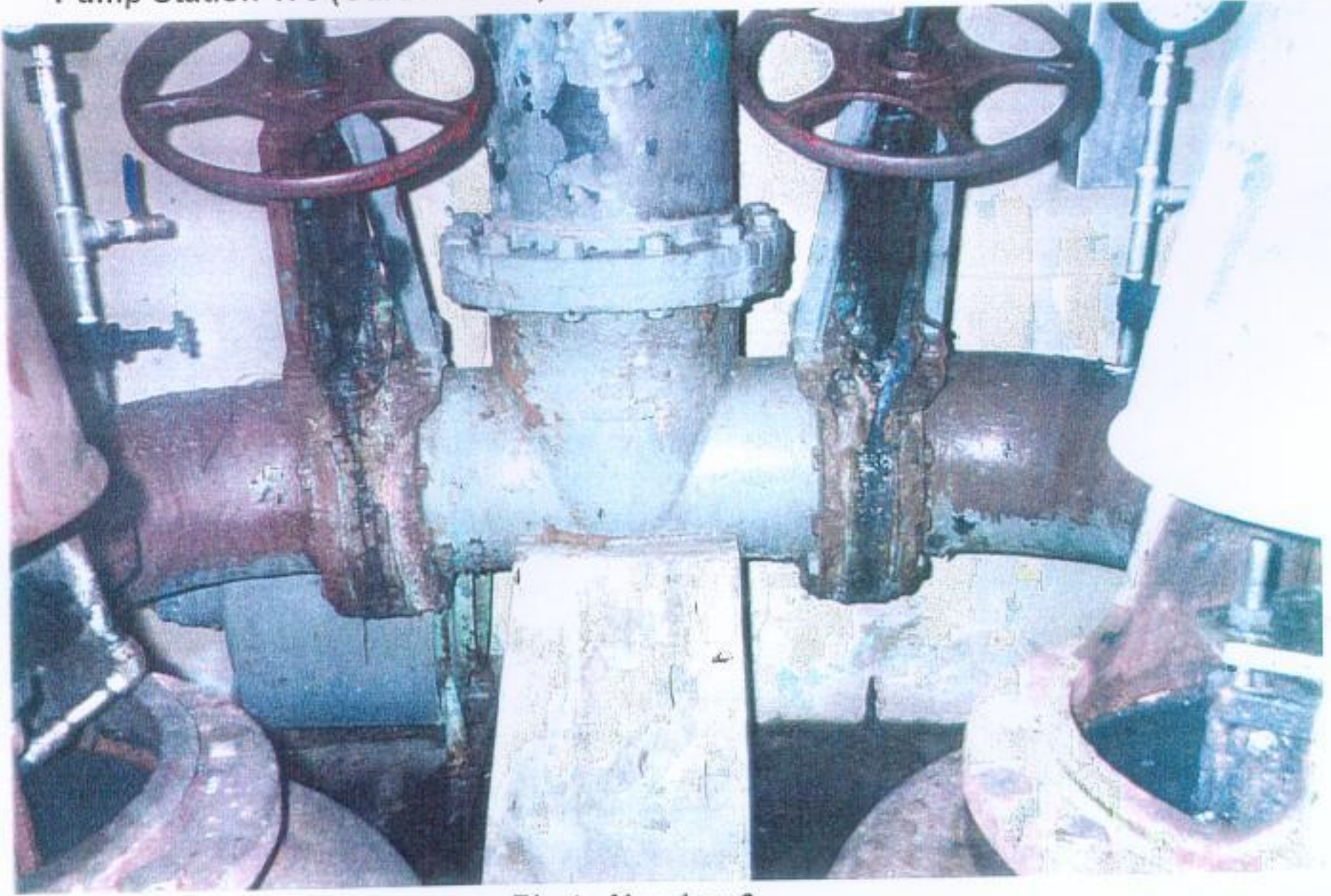


Photo Number 3



Photo Number 4

Pump Station 173 (Garden Oaks)

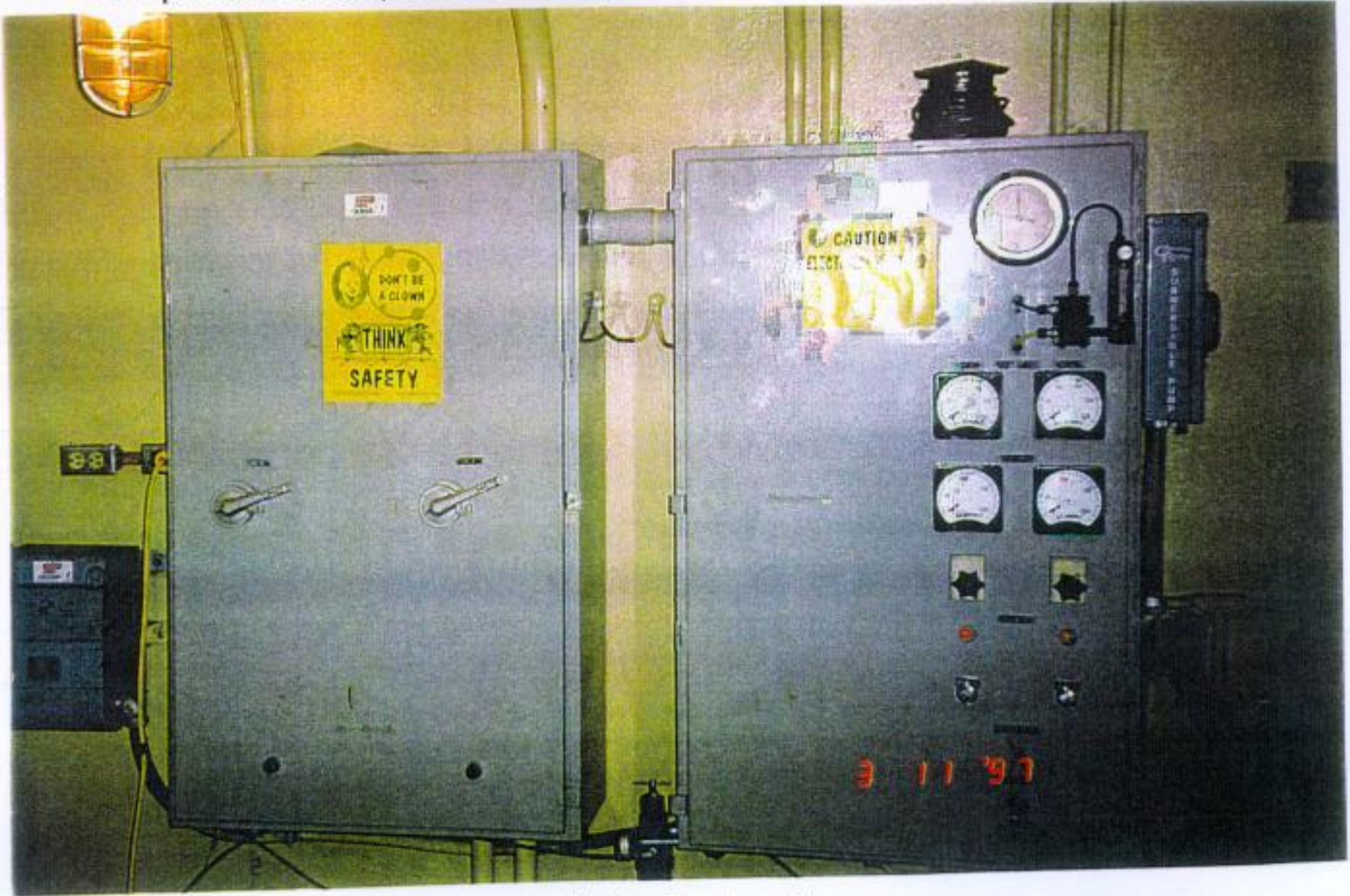


Photo Number 5



Photo Number 6

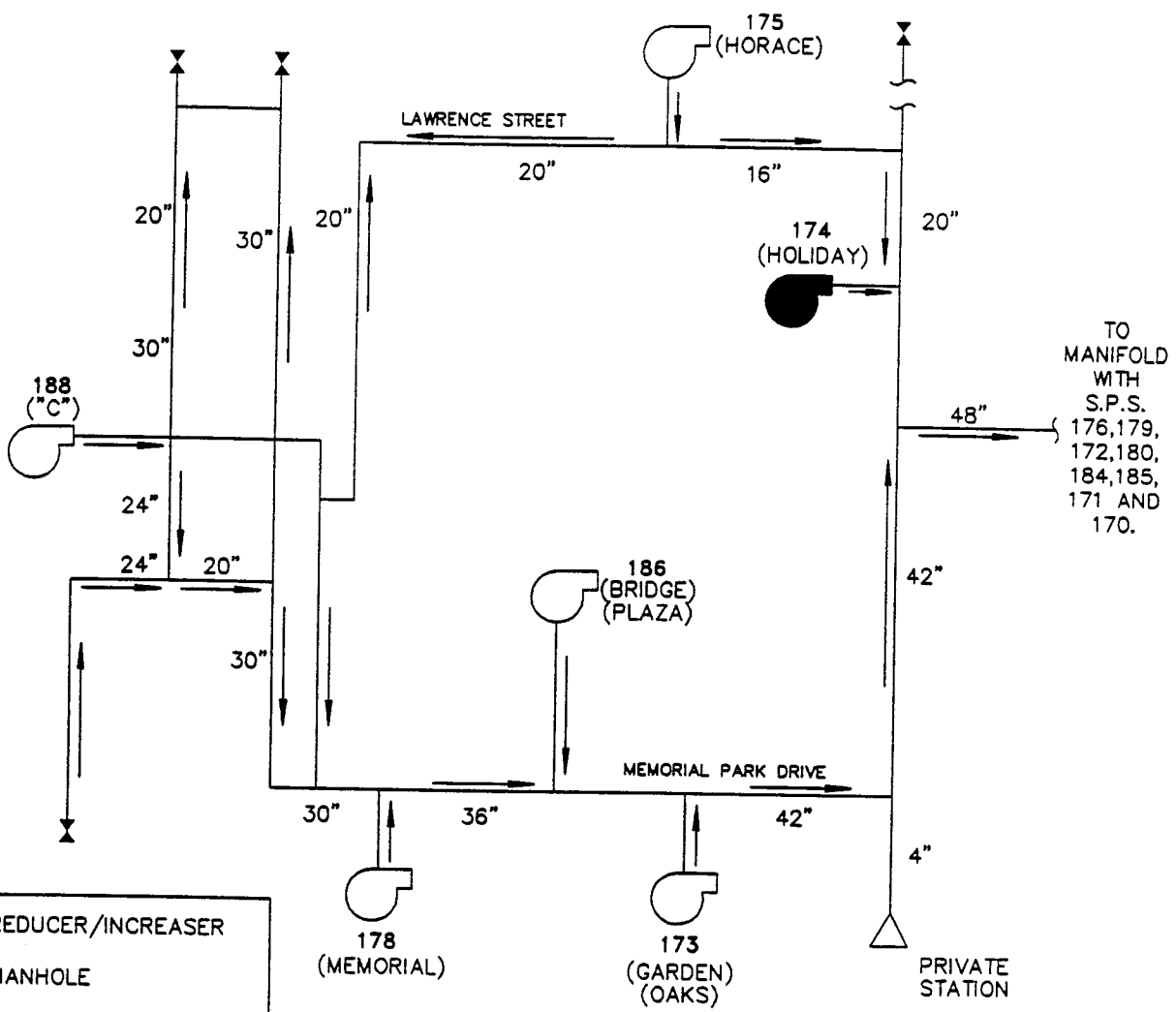
**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 174 (HOLIDAY)
3800 HERSCHEL STREET**

**MONTGOMERY WATSON
APRIL 1997**



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER



- ▲ REDUCER/INCREASER
- MANHOLE
- ⋈ GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- ☪ PUMP STATION
- REF. PUMP STATION
- WBSTP WEST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

JOB NO.: 1113030.01090120 DATE: 3/28/97

FILE NO.: 174



PUMP STATION 174 (HOLIDAY)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

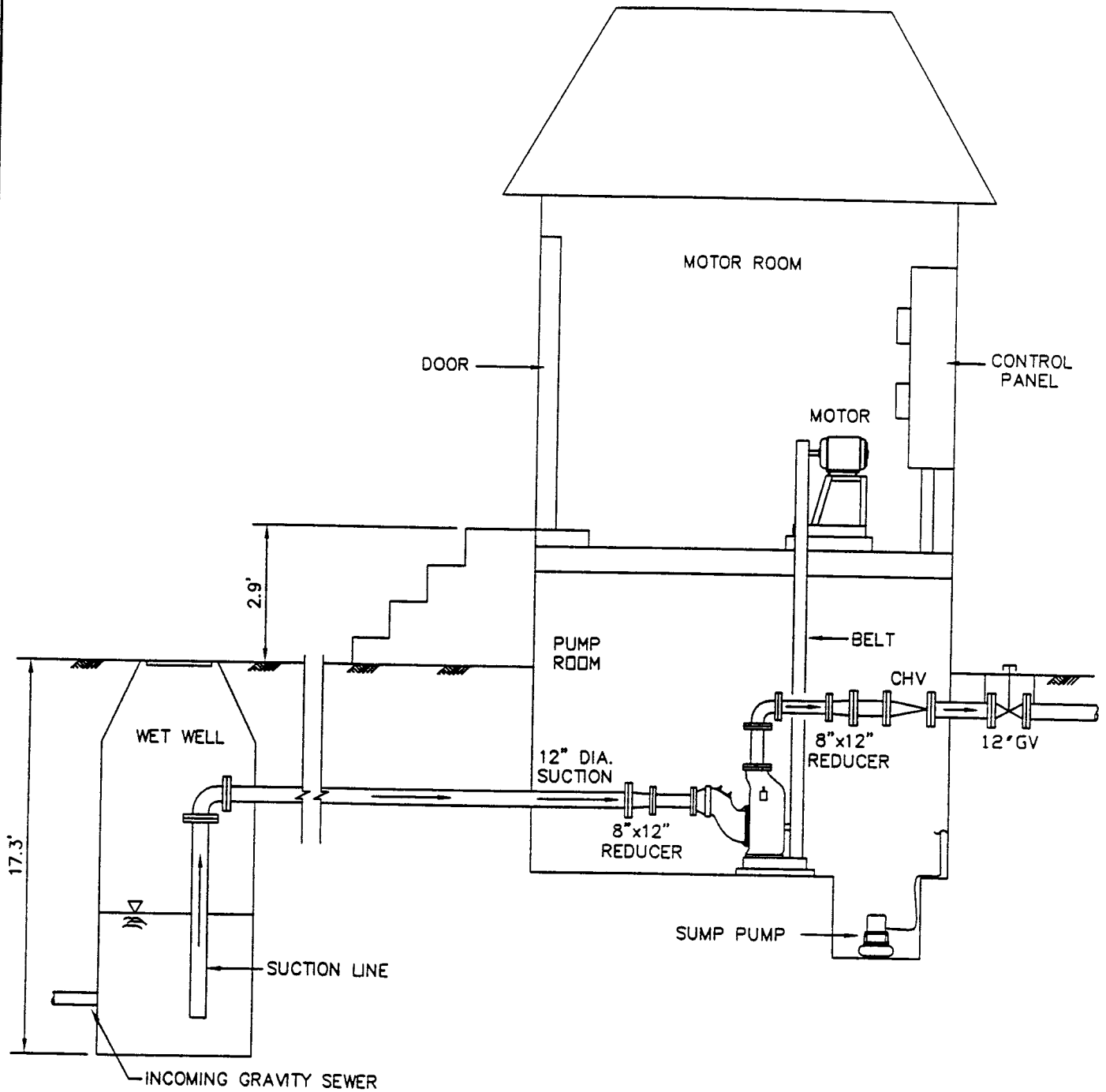
1

DATE:

3/28/97

JOB NO.: 1113030.01090120 DATE: 3/21/97

FILE NO.: 174



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 174 (HOLIDAY)
BI-LEVEL SUCTION LIFT

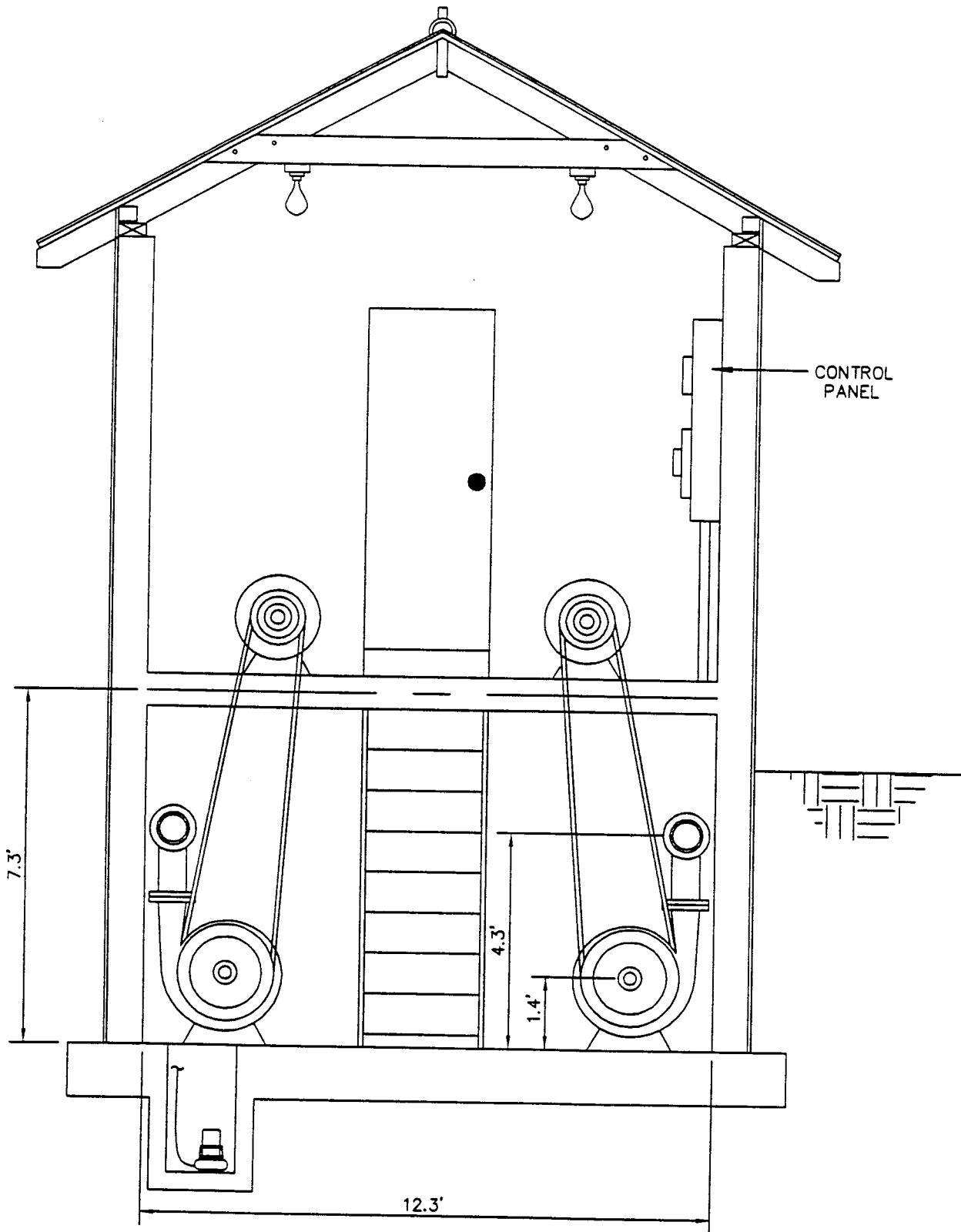
FIGURE:

2

DATE:

3/21/97

FILE NO.: 174
JOB NO.: 1113030.01090120 DATE: 3/21/97



FRONT VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 174 (HOLIDAY)
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/21/97

Pump Station: 174 (Holiday)

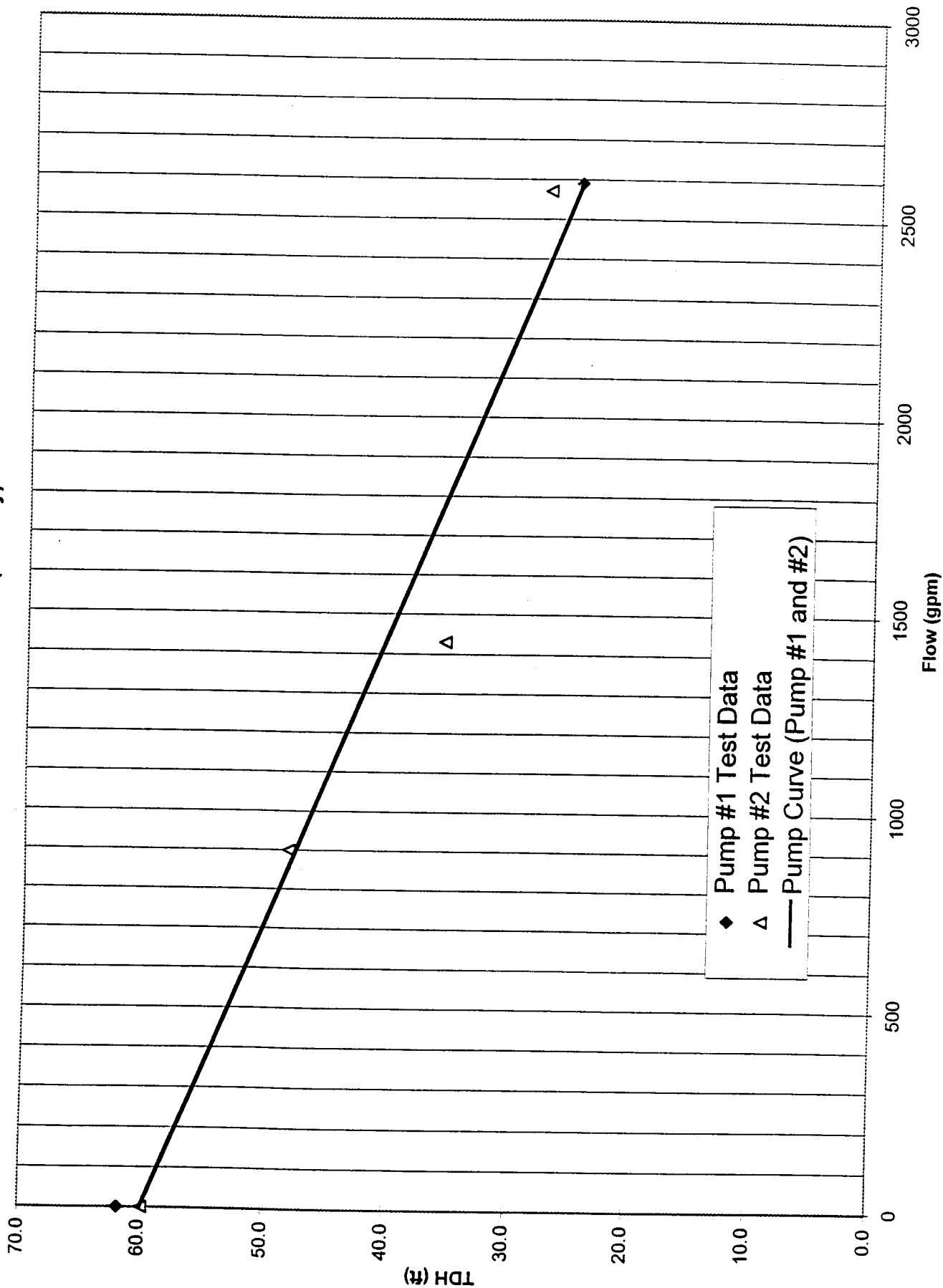


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 174

General Information

PS No. 174 PS Facility Holiday Address 3800 Herschel Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter _____ inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating _____ gpm _____ ft. of head _____ rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size 0 inch Discharge Valve Size 12 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 12 inch

Dry Well Dimensions 0 ft. dia. Length 12.3 ft. Width: 11 ft. Depth 7.3 ft.

Pump centerline* 1.4 ft. Centerline of discharge pipe* 4.3 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? pump # 2

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 174

Pump Controls

Lead pump on 8.5 ft. Type of Controls bubbler
Lead pump off 5 ft.
Lag pump on 10 ft.
Lag pump off 6 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair except for the areas of peeling paint on the foundations.

Interior The overall condition of the interior of the pump station is fair except for the dampness on the walls surrounding the pipe penetrations.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Could not access.

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 17.3 ft.

Sewer Invert(s) Depth* 0 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 174

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 400/277V three phase four wire (3 transformers bank)

Size of service protective device not available

Size of main protective device 400 amps, dual element, fusible disconnect switch

Size of motor protective device 150 amps, dual element, fusible disconnect switch

Service wire size n.a. Size of motor starter in NEMA 4

Motor wire size #4 AWG Motor Horsepower 50

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1770

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # 299B730G37

Model Number - Motor # not available Serial Number - Motor # 299B730G37

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, main disconnect switch and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 174 (Holiday)



Photo Number 1



Photo Number 2

Pump Station 174 (Holiday)

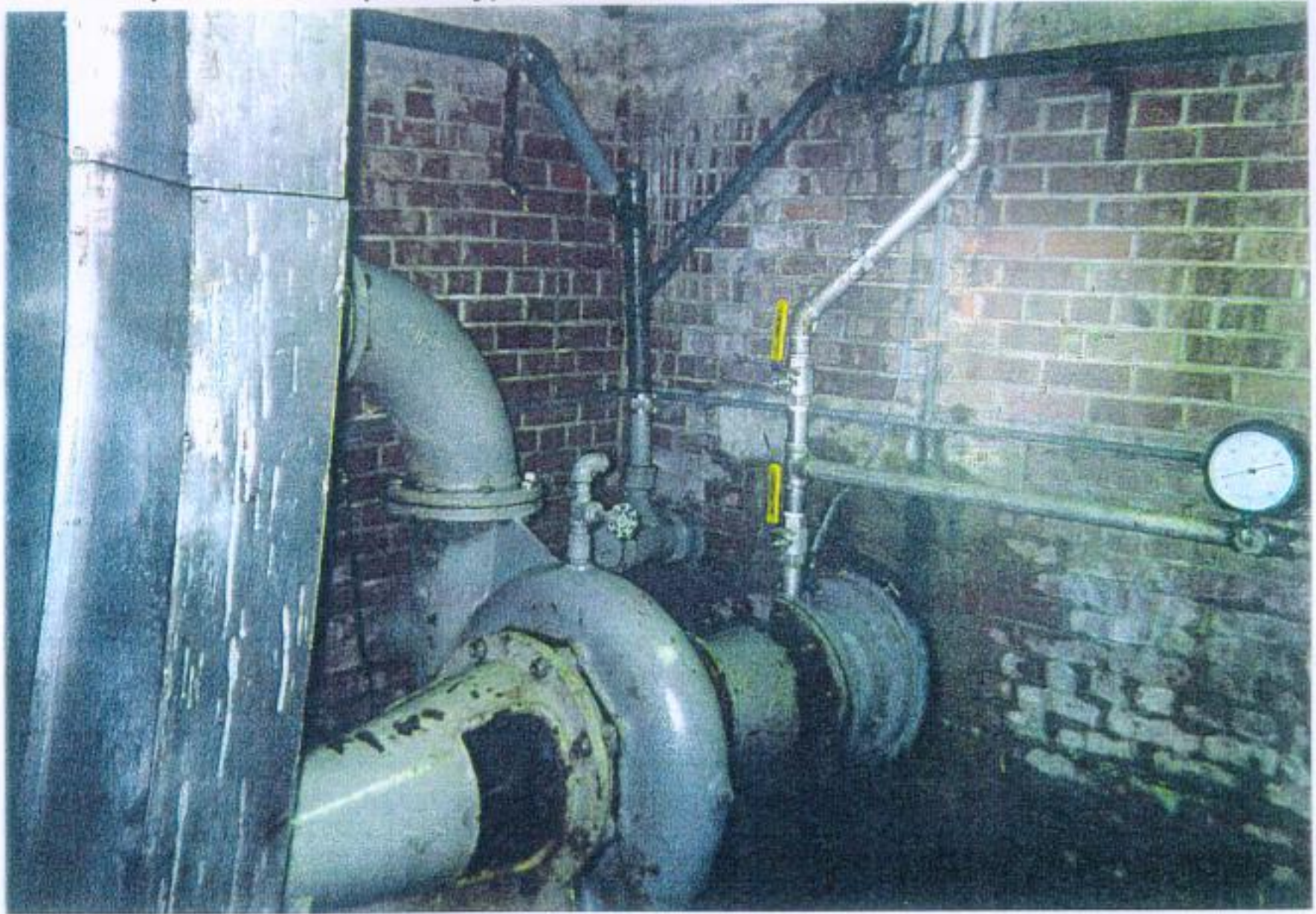


Photo Number 3



Photo Number 4

Pump Station 174 (Holiday)

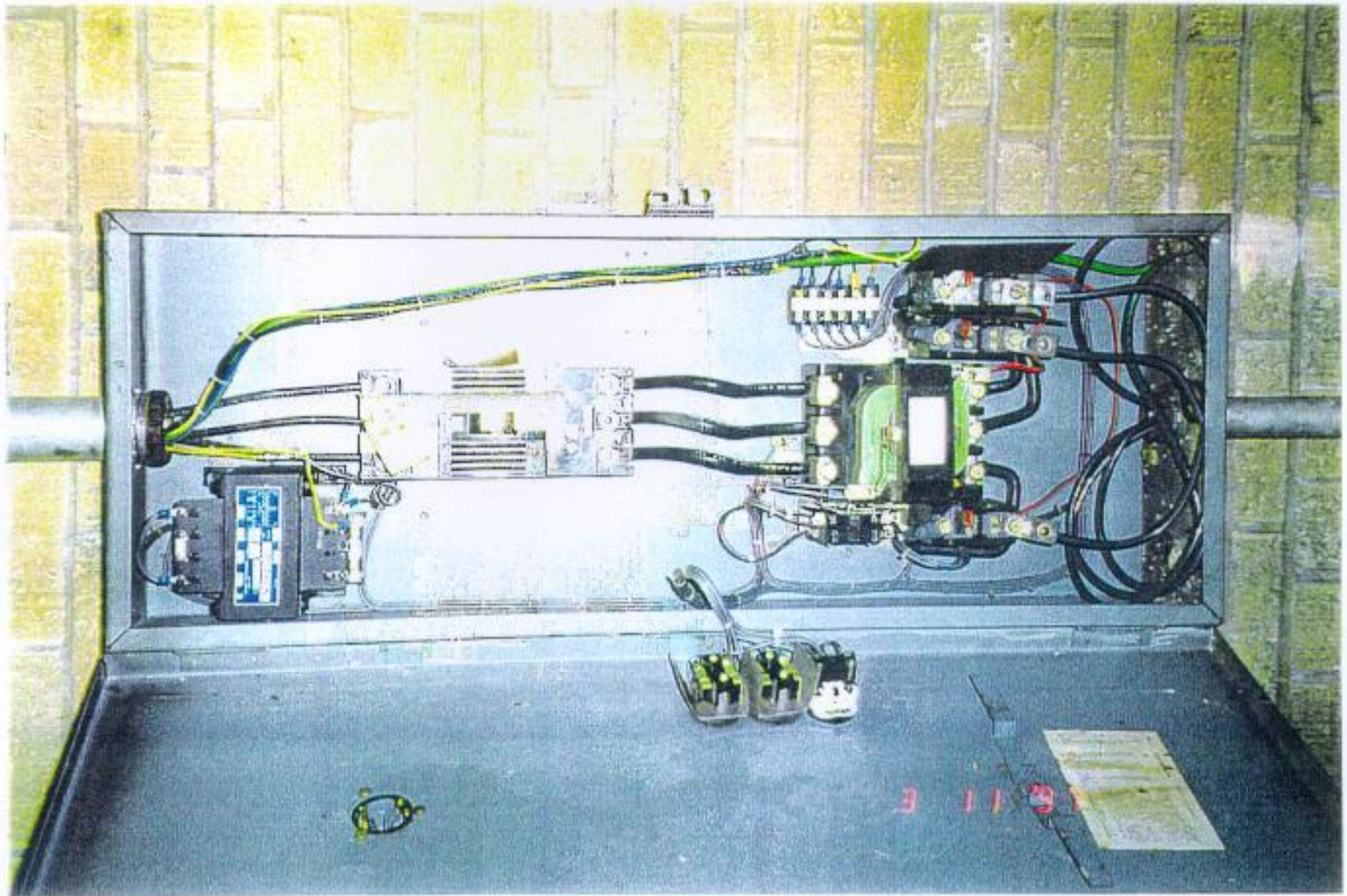


Photo Number 5



Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 175 (HORACE)
3301 LAWRENCE STREET

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 175 (Horace)

Pump Station 175 is a bi-level suction lift station located on 3301 Lawrence Street. It discharges to a 16-inch force main along Lawrence Street via approximately 30 feet of 12-inch diameter force main. Pump Station 175 does not repump flow from any other station and its flow is not repumped by any other station. Figure 1 shows the schematic of the subsystem surrounding Pump Station 175.

Pump Station 175 contains two (8-inch by 8-inch) Fairbanks Morse horizontally aligned pumps. Each pump is powered by a 75 horsepower (hp) Fairbanks Morse motor operating at a constant speed of 1150 revolutions per minute (rpm). This equipment is housed in a 12.3 by 10.9-foot brick dry well structure, which is partially below grade. The depth below grade of the pump room section of the dry well is 7.5 feet. Figures 2 and 3 provide elevation and front views of the station.

Pump Station 175 collects wastewater from the surrounding gravity sewer system into a 19.9-foot deep brick wet well. The wet well diameter was measured to be approximately 6 feet.

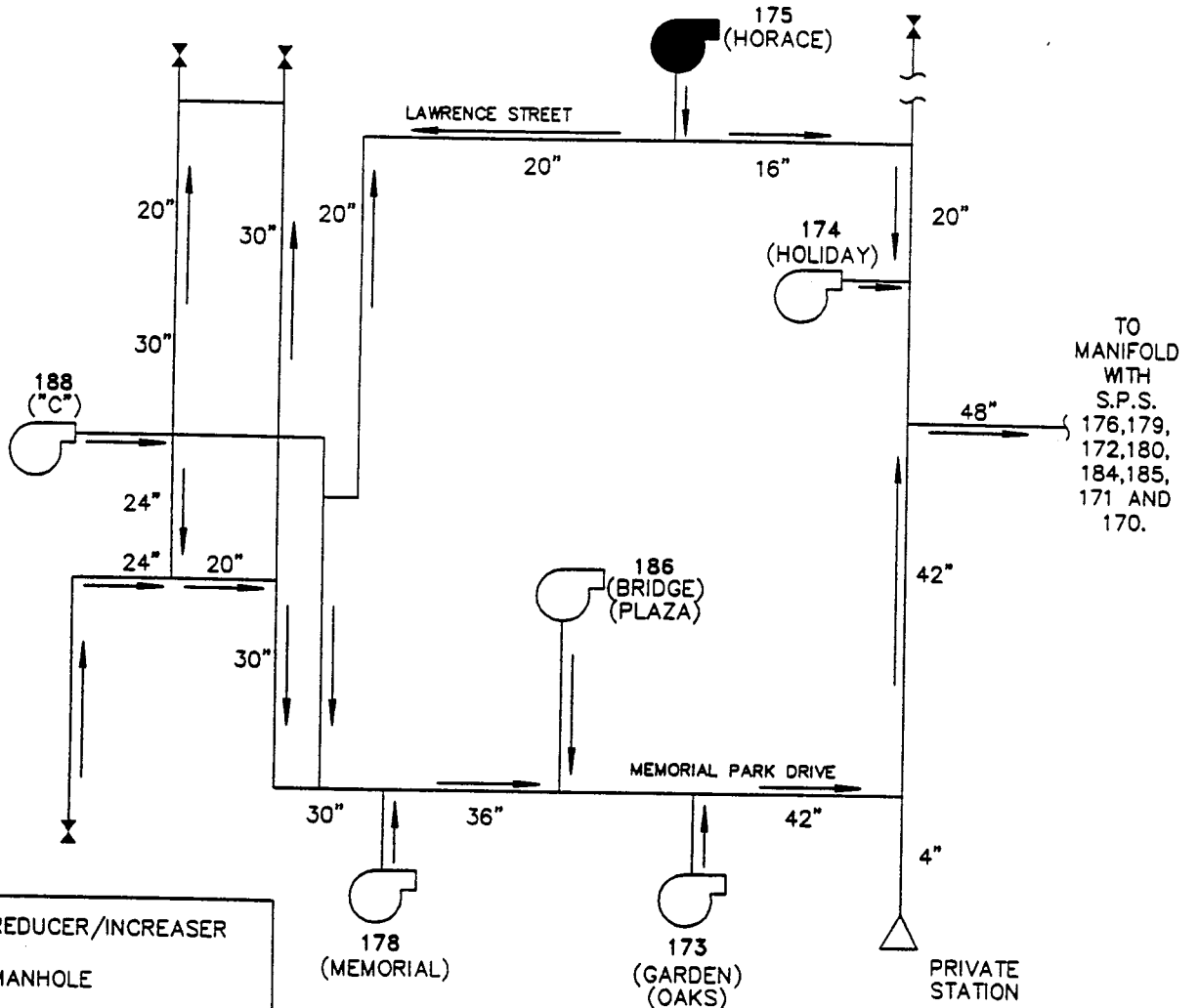
The Doppler Flow Meter was used to determine the capacity of Pump Station 175. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 3,000 gallons per minute (gpm) at 60 feet of head. The shut-off head for both pumps was found to be approximately 95 feet.

Recommendations:

1. An initial observation of the wet well suggests that the brick upper portion may need regrouting. The extent of the corrosion of the wet well should be further investigated and corrected in some locations.



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER




TO
MANIFOLD
WITH
S.P.S.
176,179,
172,180,
184,185,
171 AND
170.

- ▲ REDUCER/INCREASER
- MANHOLE
- ⋈ GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- ◐ PUMP STATION
- ◑ REF. PUMP STATION
- WBSTP WEST BANK SEWERAGE TREATMENT PLANT


NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

JOB NO.: 111.3030.01090120 DATE: 3/28/97

FILE NO.: 172



**SEWERAGE AND WATER BOARD
OF NEW ORLEANS**

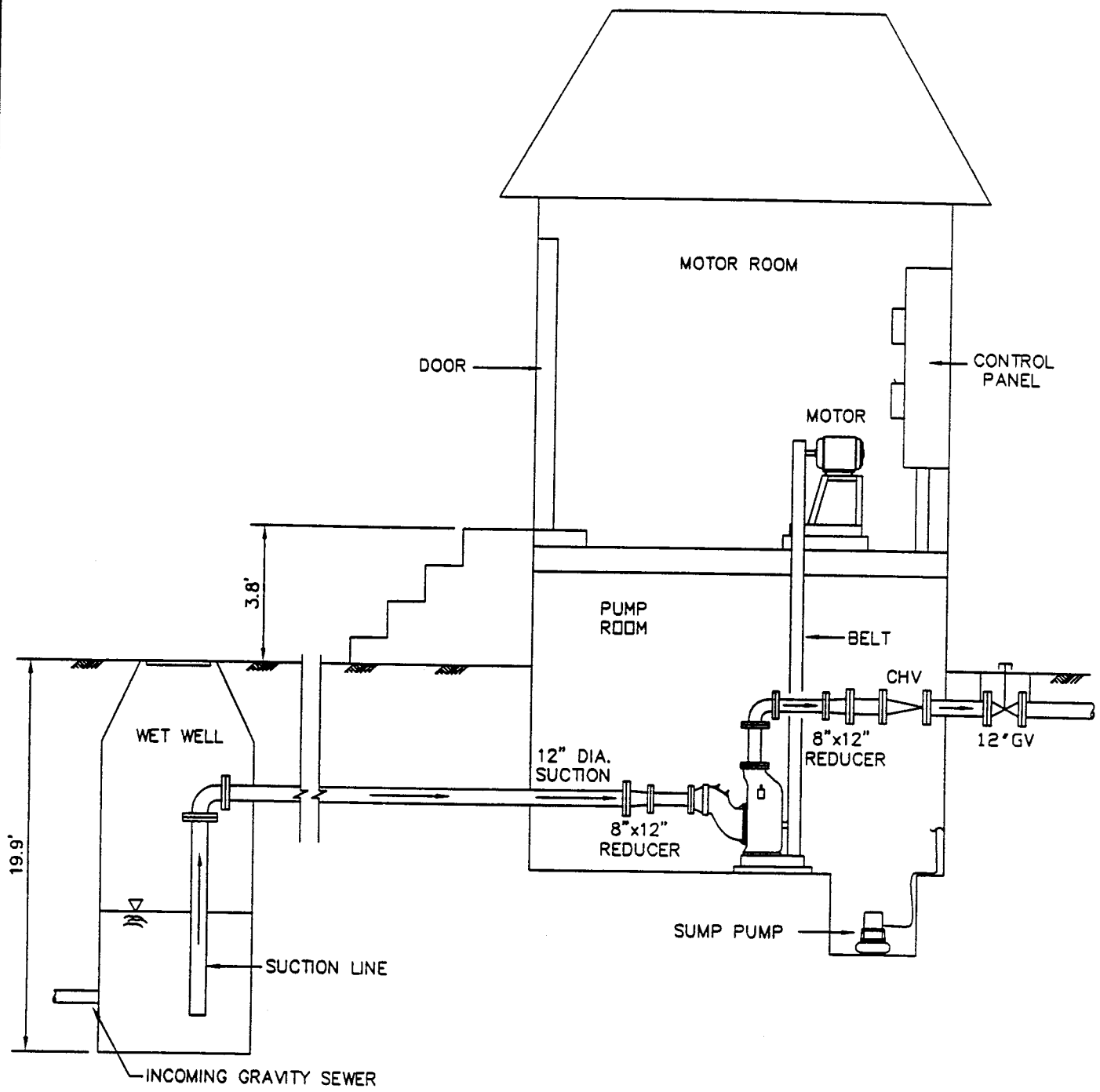


MONTGOMERY WATSON



**PUMP STATION 175 (HORACE)
PUMP STATIONS AND FORCEMAINS SCHEMATIC**

FIGURE:	1
DATE:	3/28/97

FILE NO.: 175
JOB NO.: 1113030.01090120 DATE: 3/21/97



ELEVATION
(NOT TO SCALE)

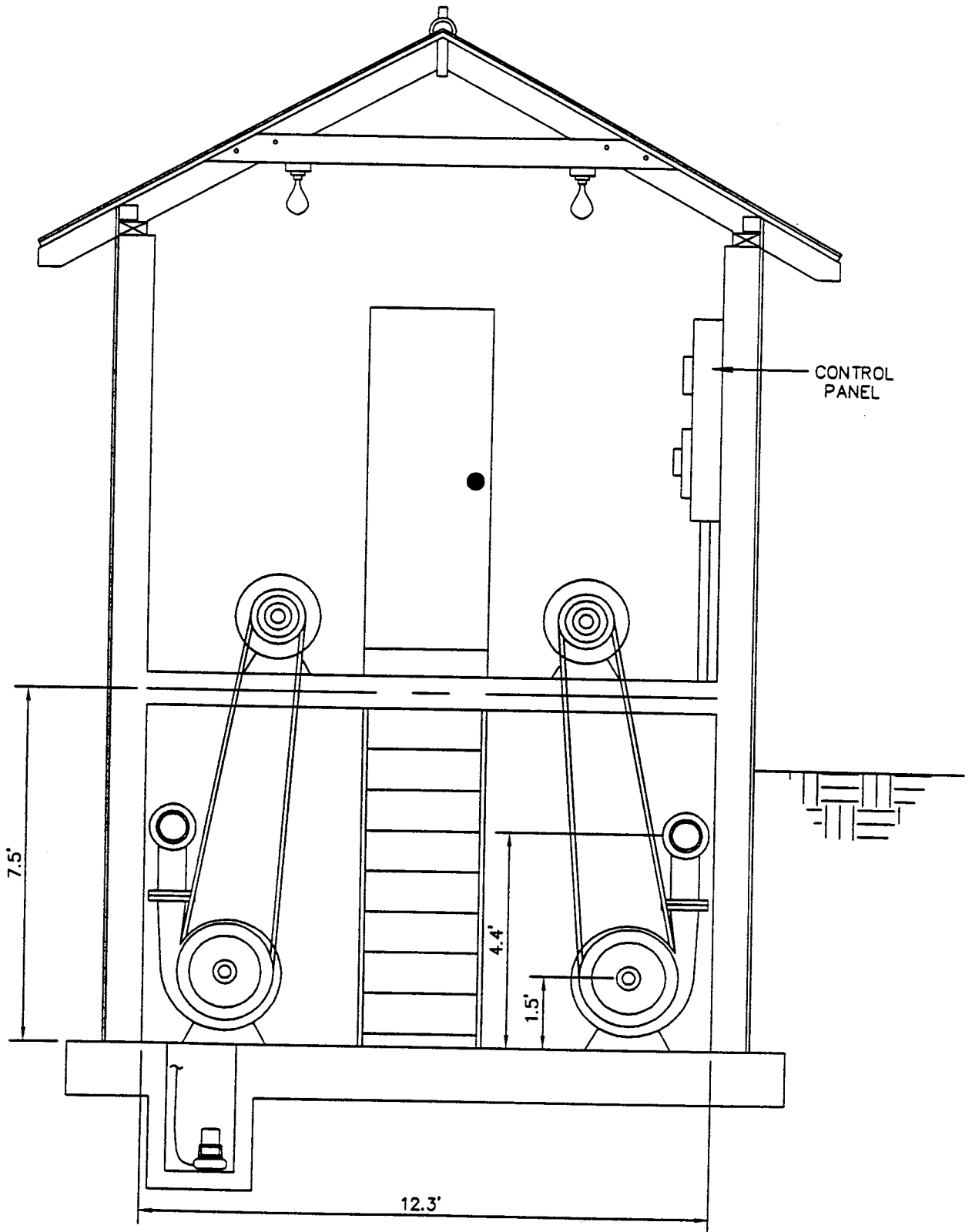
 SEWERAGE AND WATER BOARD OF NEW ORLEANS
 MONTGOMERY WATSON

PUMP STATION 175 (HORACE)
BI-LEVEL SUCTION LIFT

FIGURE:	2
DATE:	3/21/97

JOB NO.: 1113030.01090120 DATE: 3/21/97

FILE NO.: 175



FRONT VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 175 (HORACE)
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/21/97

Pump Station: 175 (Horace)

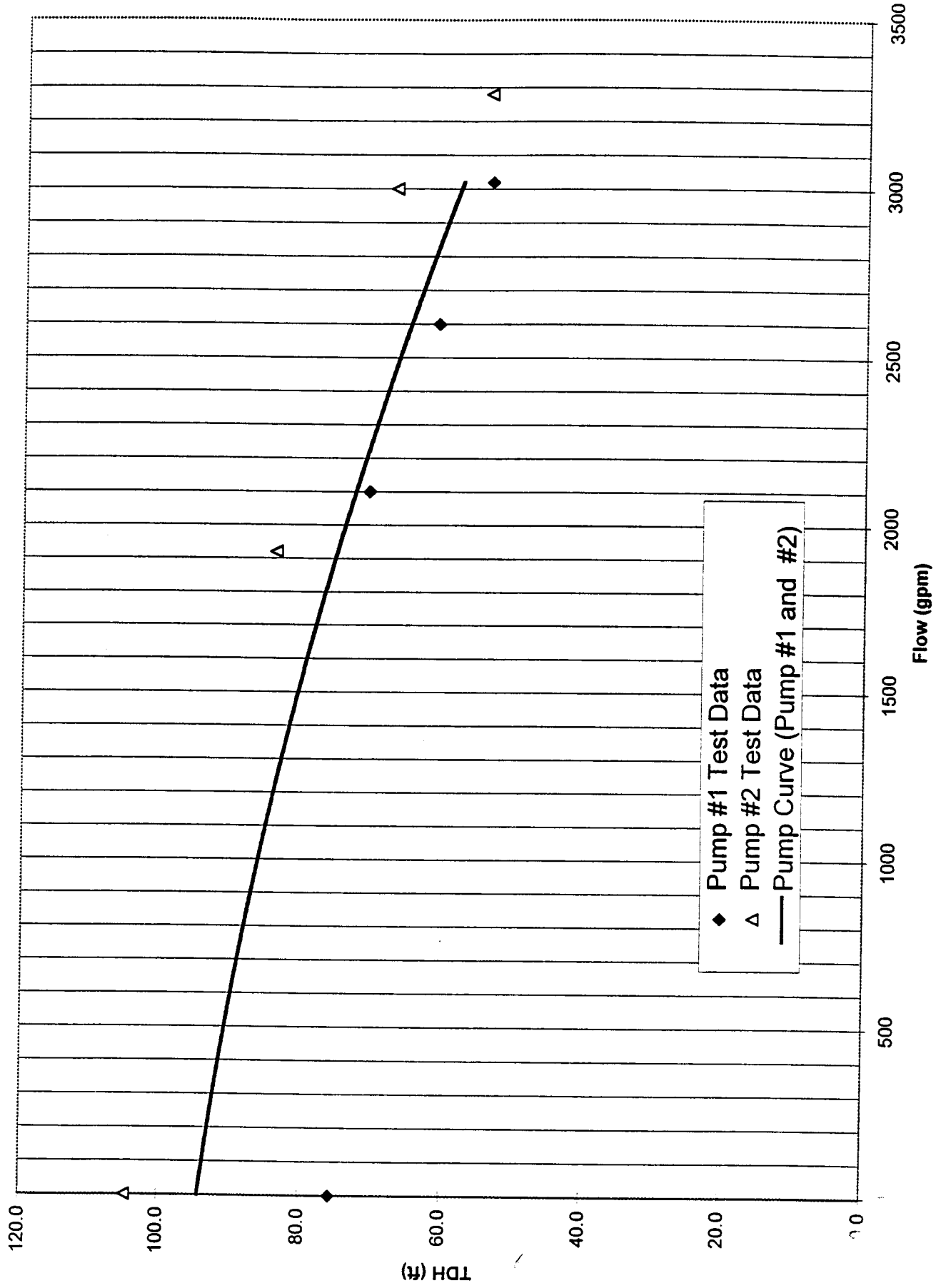


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 175

General Information

PS No. 175 PS Facility Horace Address 3301 Lawrence Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating _____ gpm _____ ft. of head _____ rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size 0 inch Discharge Valve Size 12 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 12 inch

Dry Well Dimensions 0 ft. dia. Length 12.3 ft. Width: 10.9 ft. Depth 7.5 ft.

Pump centerline* 1.5 ft. Centerline of discharge pipe* 4.4 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 175

Pump Controls

Lead pump on 13 ft. Type of Controls bubbler
Lead pump off 8 ft.
Lag pump on 14 ft.
Lag pump off 10 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the pump station exterior is fair.

Interior The overall condition of the pump station interior is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments No cement coating on upper portion. Severe corrosion of grout.

Diameter 6 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 19.9 ft.

Sewer Invert(s) Depth* 18.4 ft.

12.9 ft.

**measured from top of wet well cover.*

Pump Station 175 (Horace)



Photo Number 1



Photo Number 2

Pump Station 175 (Horace)



Photo Number 3



Photo Number 4

Pump Station 175 (Horace)



Photo Number 5

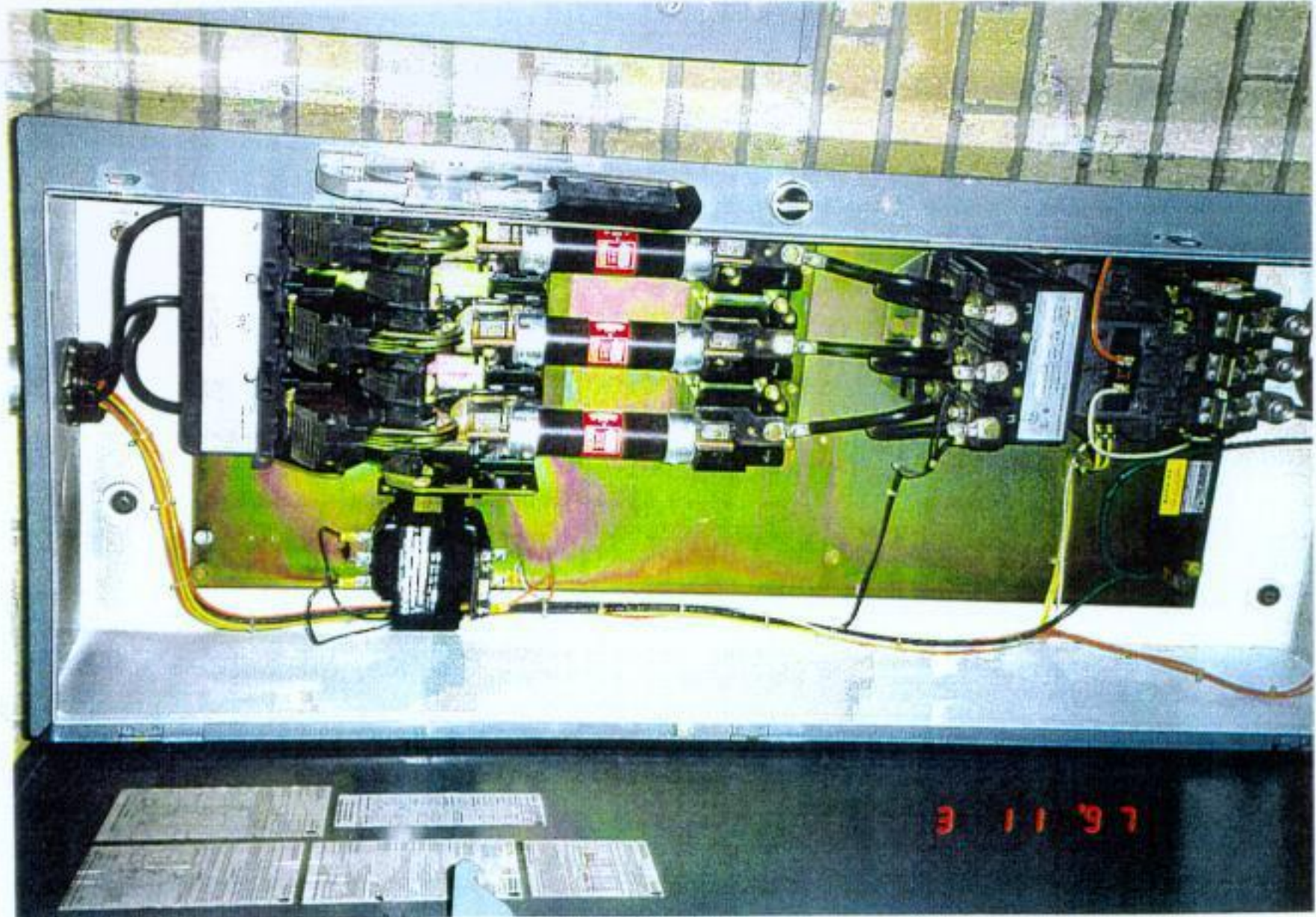


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 176 (HUNTLEE)
3201 HUNTLEE DRIVE**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 176 (Huntlee)

Pump Station 176 is a bi-level suction lift station located on 3201 Huntlee Drive. It discharges to a 12-inch force main along Huntlee Canal via a 6-inch diameter force main. Pump Station 176 does not repump flow from any other station and its flow is not repumped by any other station. Figure 1 shows the schematic of the subsystem surrounding Pump Station 176.

Pump Station 176 contains two (6-inch by 6-inch) Fairbanks Morse horizontally aligned pumps. Each pump is powered by a 60 horsepower (hp) General Electric Motor operating at a constant speed of 1725 revolutions per minute (rpm). This equipment is housed in a 10.3 by 10.3-foot brick dry well structure, which is partially below grade. The depth below grade of the pump room section of the dry well is 6.9 feet. Figures 2 and 3 provide elevation and front views of the station.

Pump Station 176 collects wastewater from the surrounding gravity sewer system into a 16-foot deep brick wet well. The wet well diameter was measured as approximately 5 feet.

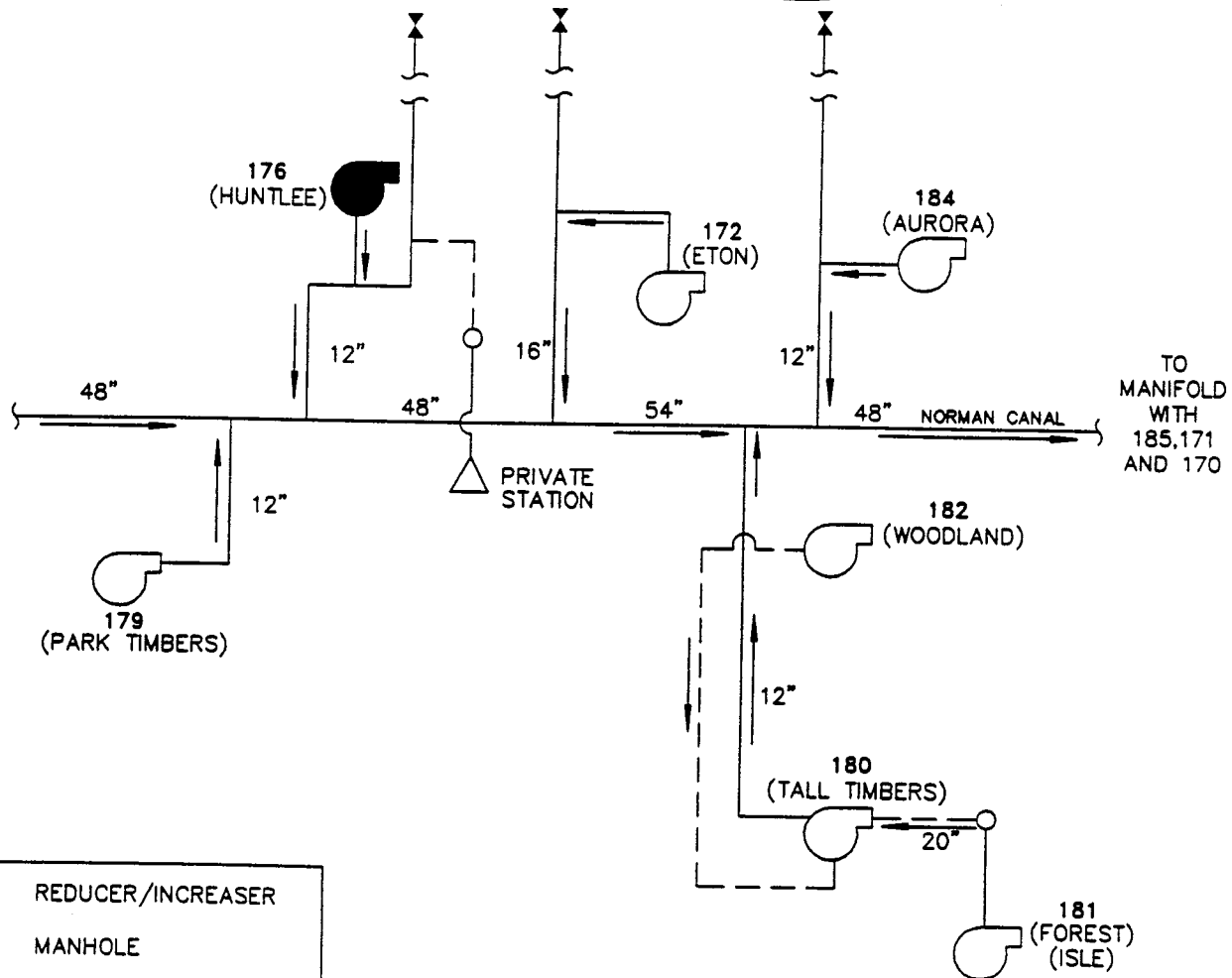
The Doppler Flow Meter was used to determine the capacity of Pump Station 176. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 2,700 gallons per minute (gpm) at 50 feet of head. The shut-off head for both pumps was found to be approximately 110 feet.

Recommendations:

1. An initial observation of the wet well suggests that the brick upper portion need regrouting. The extent of the corrosion should be further investigated and corrected in some locations.
2. It was also observed that the check valve leaked during the testing of pump number 2. The extent of the leakage should be further investigated and corrected as required.



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER



	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	WBSTP WEST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 17L
JOB NO.: 1113030.01090120 DATE: 3/28/97

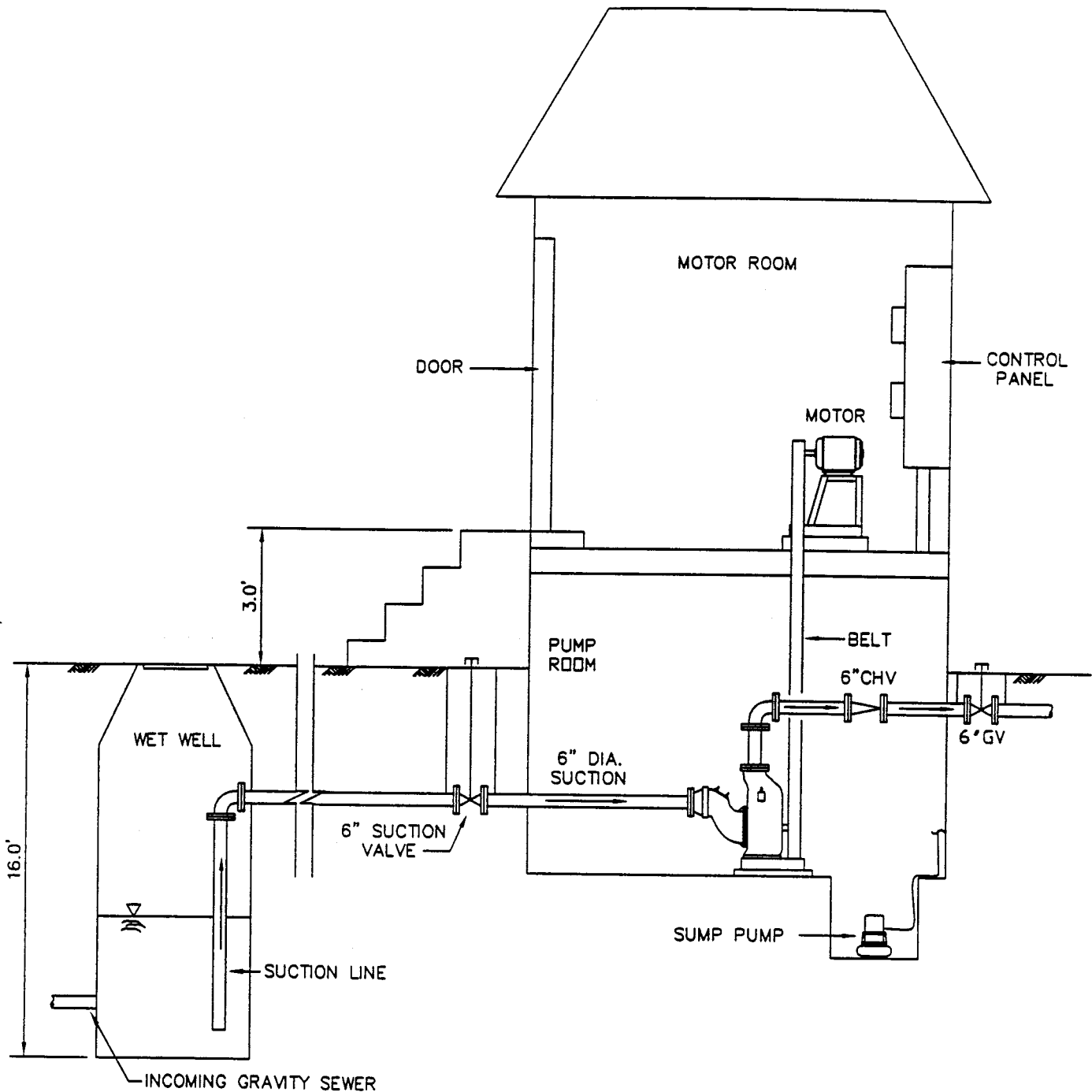


SEWERAGE AND WATER BOARD
OF NEW ORLEANS

PUMP STATION 176 (HUNTLEE)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1

DATE:
3/28/97



ELEVATION
(NOT TO SCALE)

FILE NO.: 176 JOB NO.: 1113030.01090120 DATE: 3/21/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

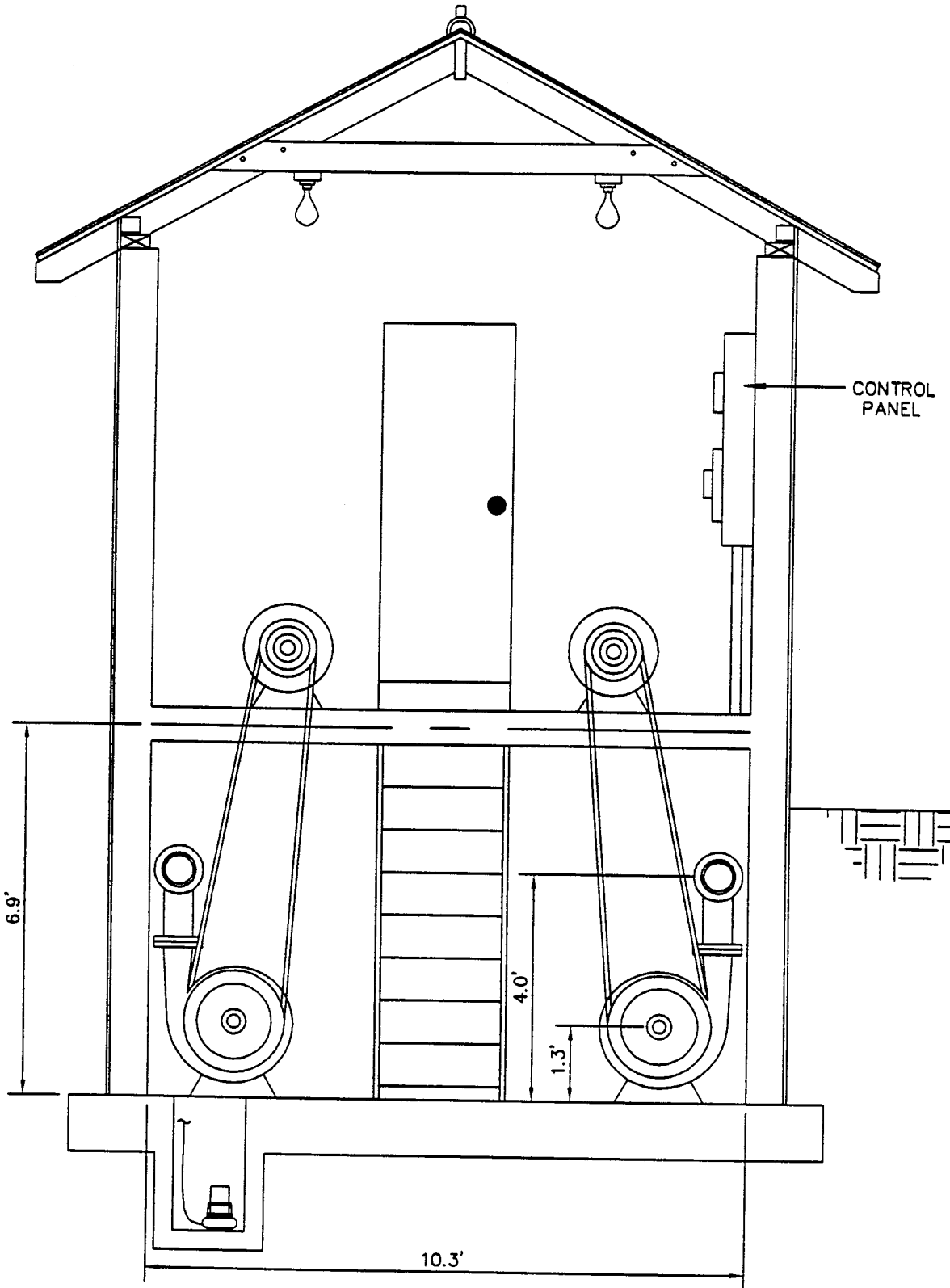
PUMP STATION 176 (HUNTLEE)
BI-LEVEL SUCTION LIFT

FIGURE:

2

DATE:

3/21/97



FRONT VIEW
(NOT TO SCALE)

FILE NO.: 171 .46 JOB NO.: 1113030.01090120 DATE: 3/21/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 176 (HUNTLEE)
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/21/97

Pump Station: 176 (Huntlee)

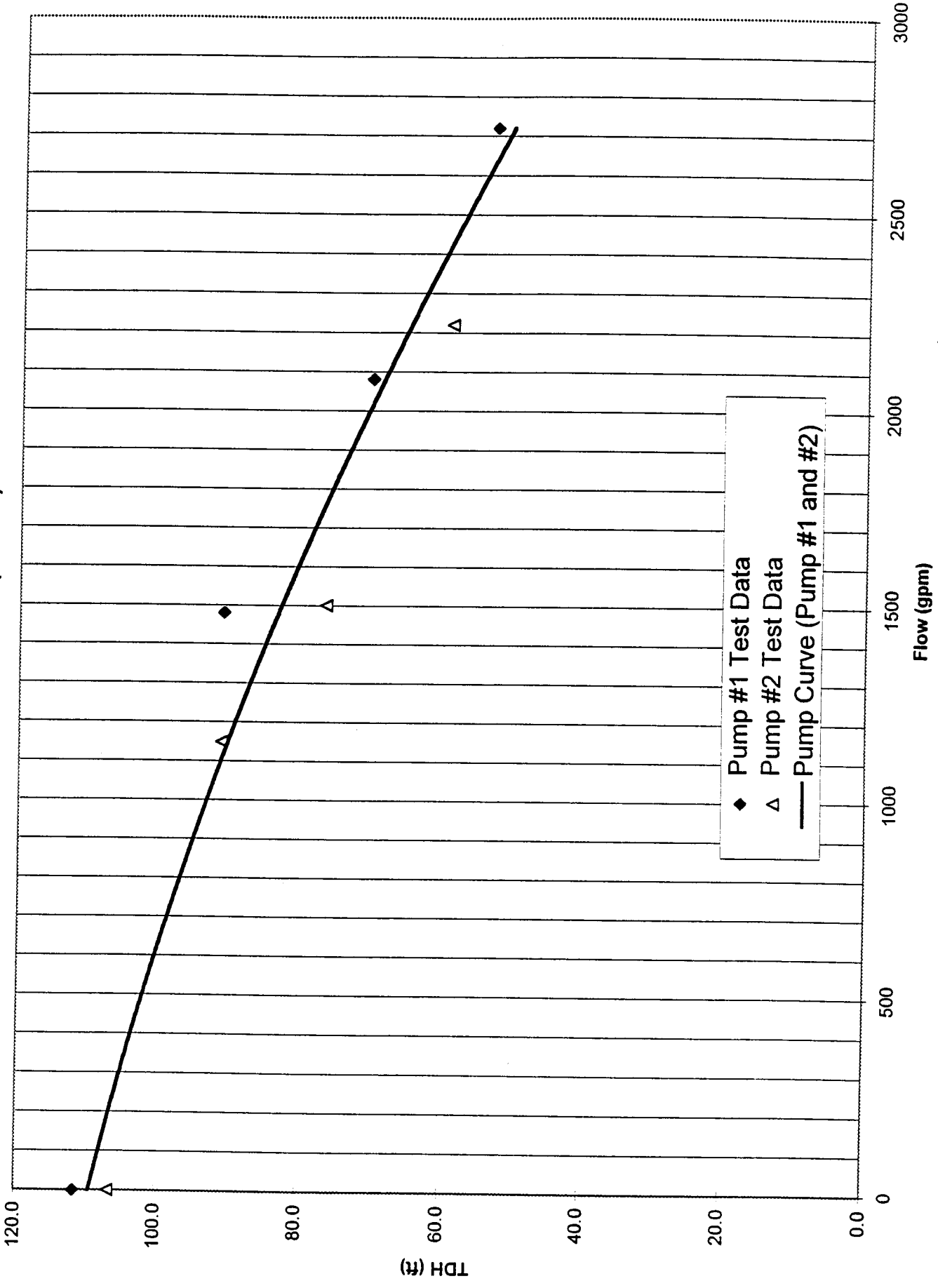


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 176

General Information

PS No. 176 PS Facility Huntlee Address 3201 Huntlee Drive

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 6 inch Pump Discharge 6 inch FM Diameter 6 inch

Suction Valve Size 6 inch Discharge Valve Size 6 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 6 inch

Dry Well Dimensions 0 ft. dia. Length 10.3 ft. Width: 10.3 ft. Depth 6.9 ft.

Pump centerline* 1.3 ft. Centerline of discharge pipe* 4 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 176

Pump Controls

Lead pump on 10 ft. Type of Controls bubbler
Lead pump off 7 ft.
Lag pump on 13.5 ft.
Lag pump off 8 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair except for dampness on the wall surrounding the pipe penetrations.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Severe corrosion of the mortar between the bricks was observed.

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 16 ft.

Sewer Invert(s) Depth* 15.3 ft.

0 ft.

*measured from top of wet well cover.

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 176

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device not available

Size of main protective device 200 amps, dual element, fusible disconnect switch

Size of motor protective device 100 amps, circuit breaker

Service wire size # 4/0 AWG Size of motor starter in NEMA 4

Motor wire size # 2 AWG Motor Horsepower 60

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1800

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # 1395821

Model Number - Motor # not available Serial Number - Motor # 1395821

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, main disconnect switch and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 176 (Huntlee)



Photo Number 1



Photo Number 2

Pump Station 176 (Huntlee)



Photo Number 3

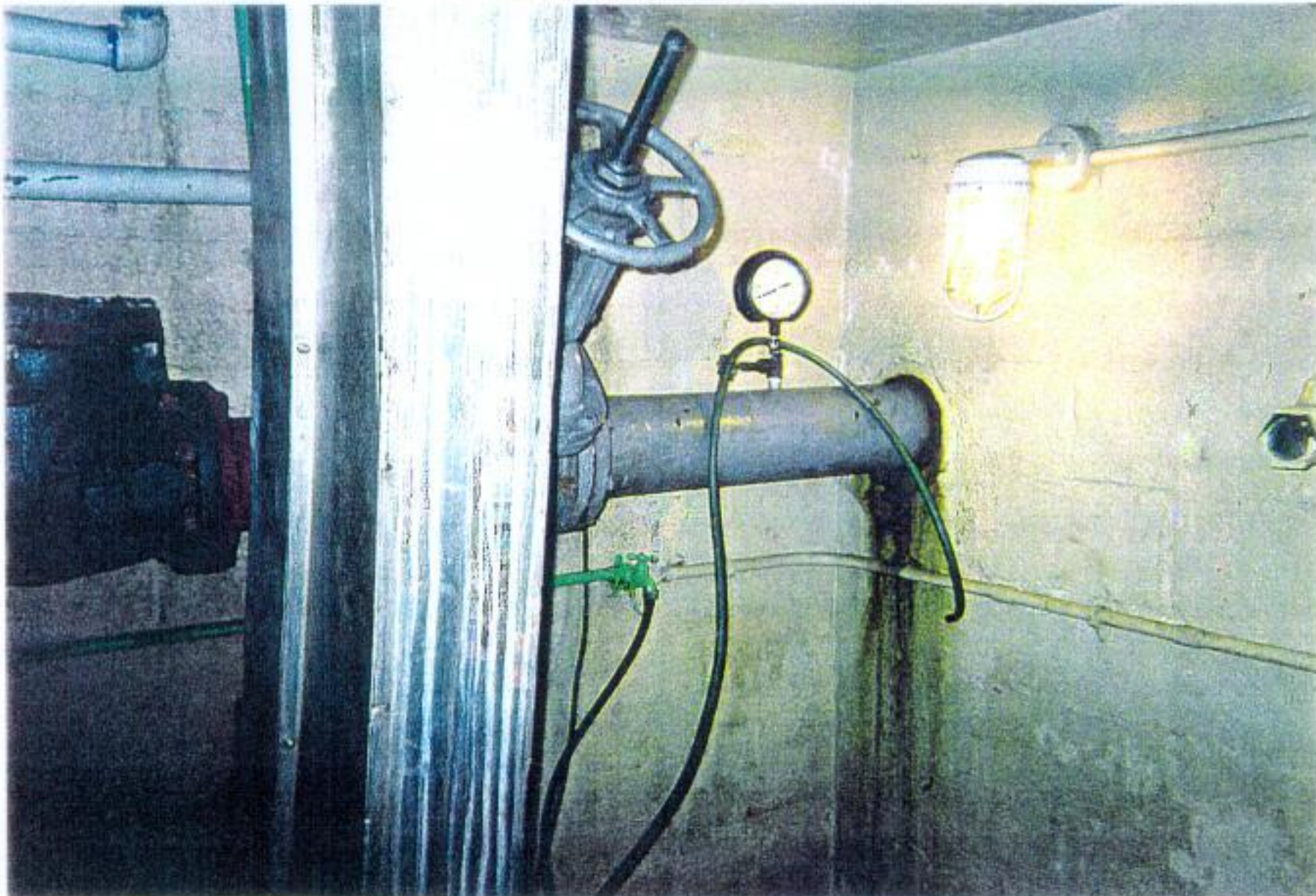


Photo Number 4

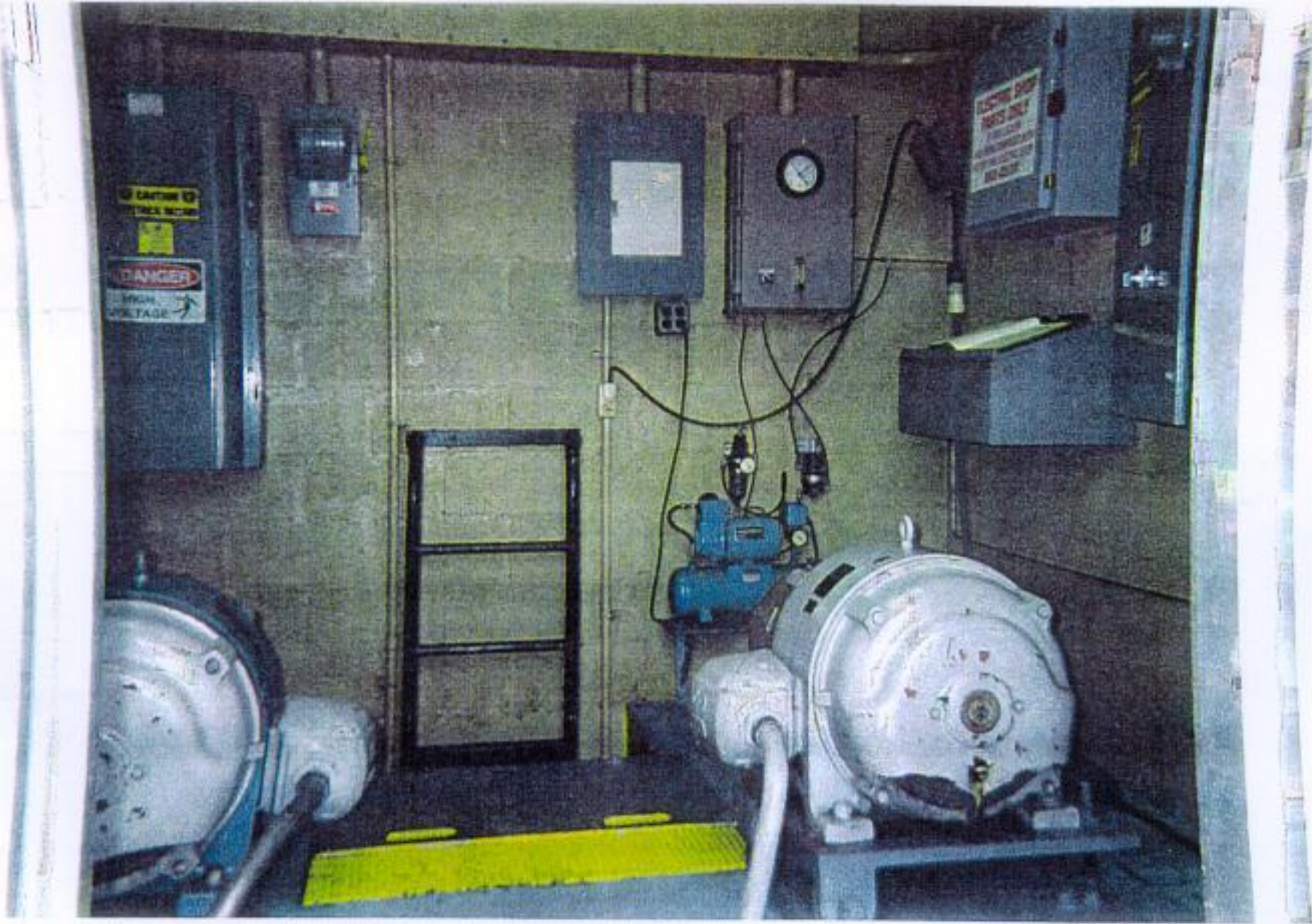


Photo Number 5

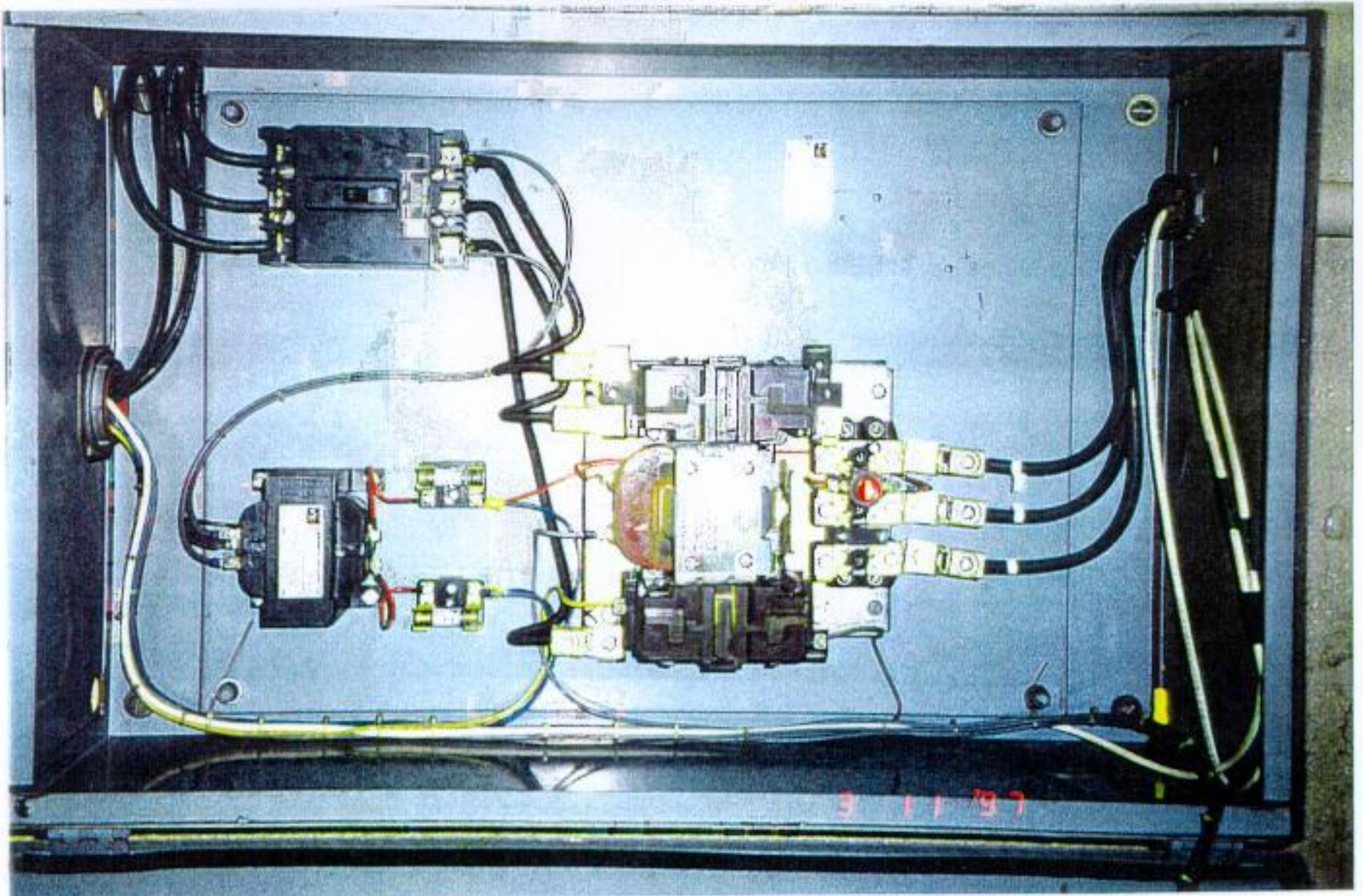


Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 177 (LOWER COAST)
3700 BELLE CHASE HIGHWAY 406

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 177 (Lower Coast)

Pump Station 177 is a hut-type, suction-lift station located at 3700 Belle Chase Highway 406. Wastewater discharges the station via an 8-inch diameter force main for approximately 2000 feet where it begins gravity flow and is repumped by a private station (Belle Chase). Pump Station 177 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 177.

Pump Station 177 contains two (6-inch by 6-inch) Gorman Rupp horizontally aligned pumps. Each pump is powered by a 10 horsepower (hp) Allis Chalmers electric motor operating at a speed of 1740 revolutions per minute (rpm). This equipment is housed in a 10-foot by 7-foot sliding fiberglass shell completely above ground. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair.

At this time there is no development around Pump Station 177. Therefore, the station has no surrounding gravity sewer system and no sanitary sewer flow into its 16-foot deep concrete wet well. All of the wastewater in the wet well is due to groundwater infiltration and inflow collected over the years. The cross sectional area of the wet well is an arched pipe shape with estimated 77-inch by 122-inch dimensions. The overall condition of the wet well is fair.

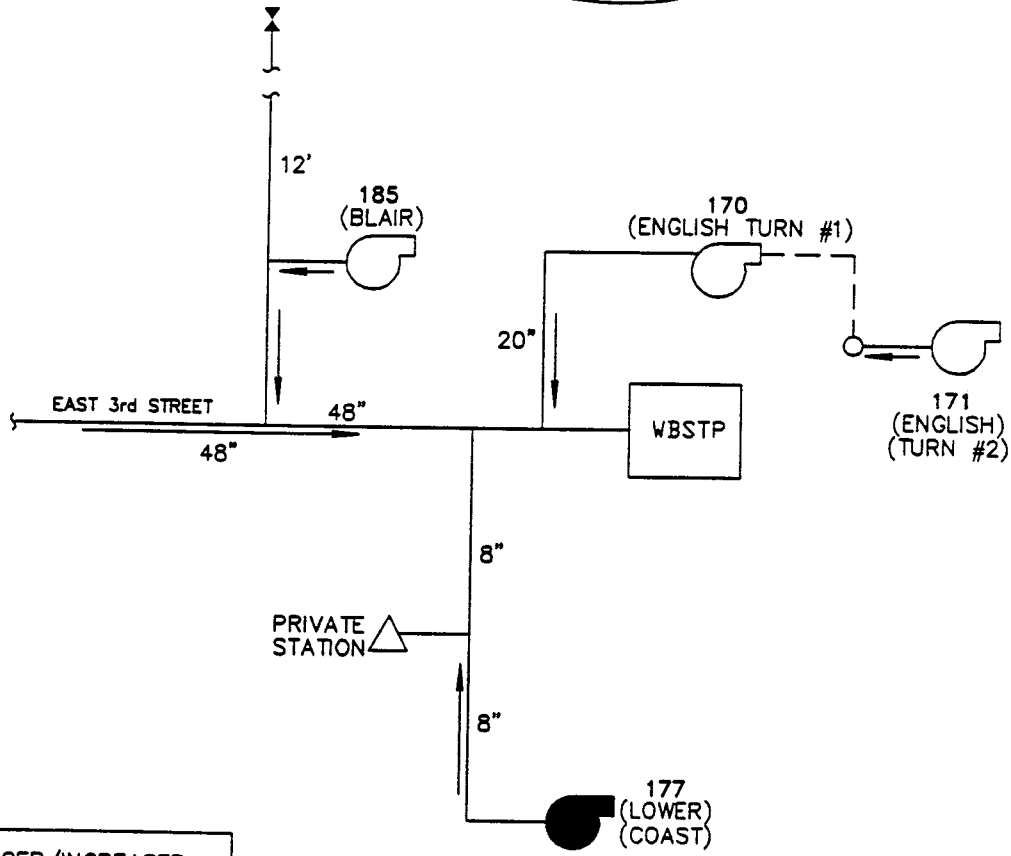
Due to an inadequate supply of wastewater in the wet well, a flow measuring test was not conducted at this station. The capacity of the pumps at this station should be similar to the other operable hut-type, suction-lift pumps powered by a 10 hp motor such as Forest Isles Pump #2. Figure 4 shows the assumed pump curve for Pump Station 177.

Recommendations:

1. The physical condition of the motors, motor control, electrical service disconnect switch and the control panel is poor due to corrosion and rotten wiring. It is recommended that these electrical issues be addressed.
2. This station and its components have weathered several years without benefiting the system. It is recommended that Pump Station 177 be disconnected from the existing sanitary sewer system. Further, the dismantling and storage of this station should be considered to preserve the components and/or possibly utilize them in other areas.



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER



- REDUCER/INCREASER
- MANHOLE
- GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- PRIVATE STATION
- PUMP STATION
- REF. PUMP STATION
- WBSTP WEST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 172
JOB NO.: 1113030.01090120 DATE: 3/28/97

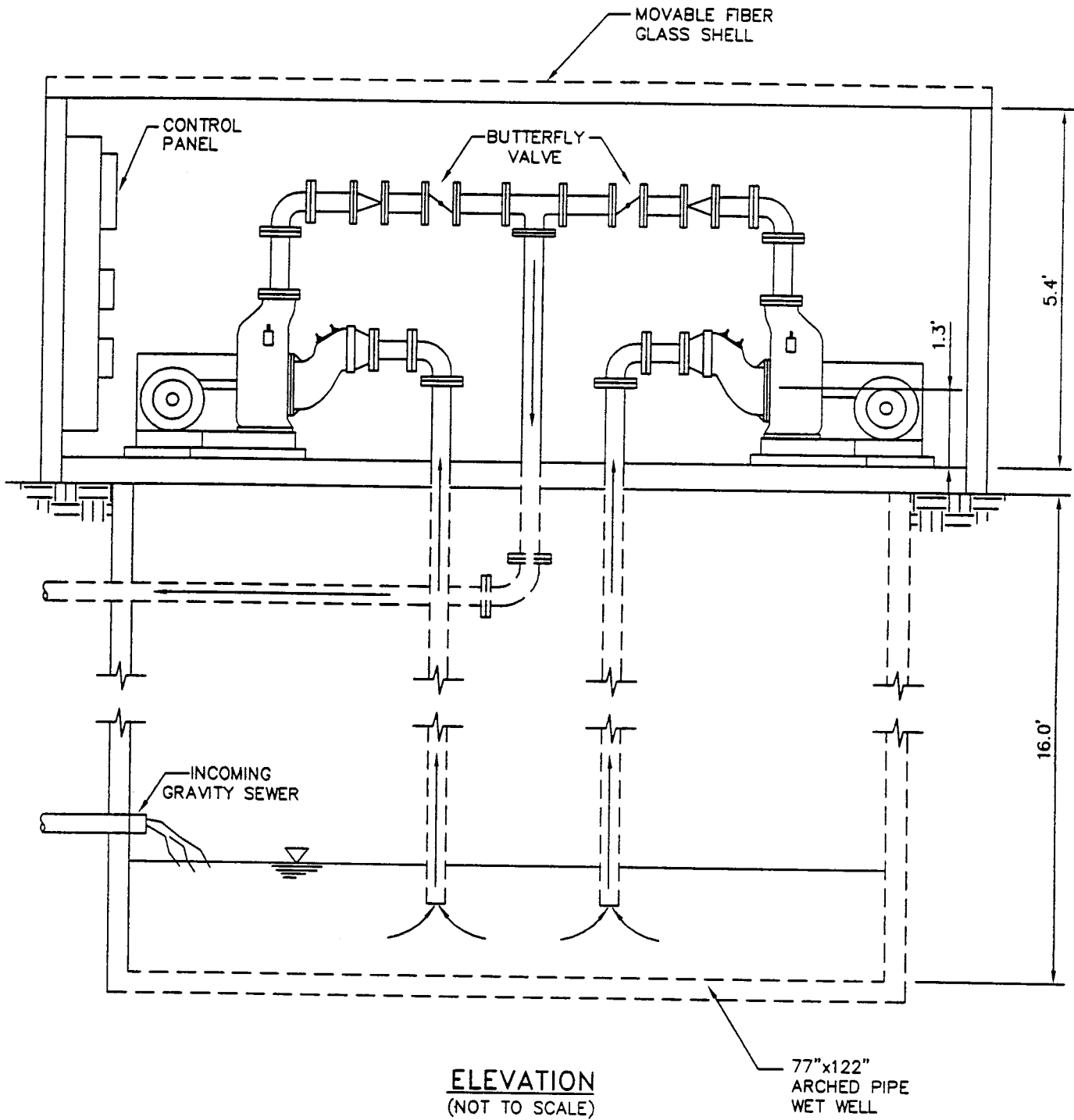


SEWERAGE AND WATER BOARD
OF NEW ORLEANS

PUMP STATION 177 (LOWER COAST)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1

DATE:
3/28/97



FILE NO.: 177 .G JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

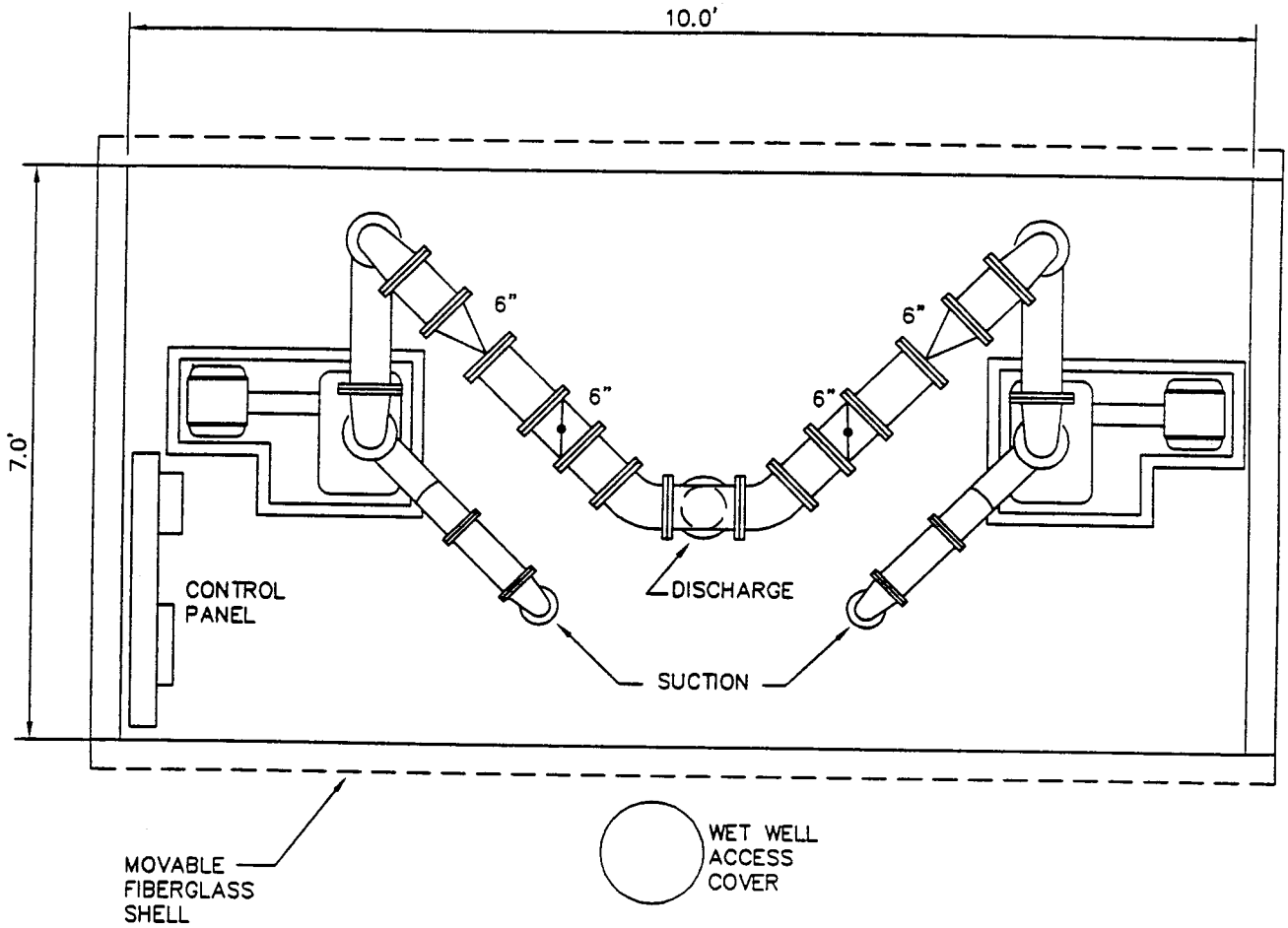
PUMP STATION 177 (LOWER COAST)
HUT-TYPE SUCTION LIFT

FIGURE:

2

DATE:

3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 177- G JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 177 (LOWER COAST)
HUT-TYPE SUCTION LIFT

FIGURE:

3

DATE:

3/28/97

Pump Station: 177 (Lower Coast)

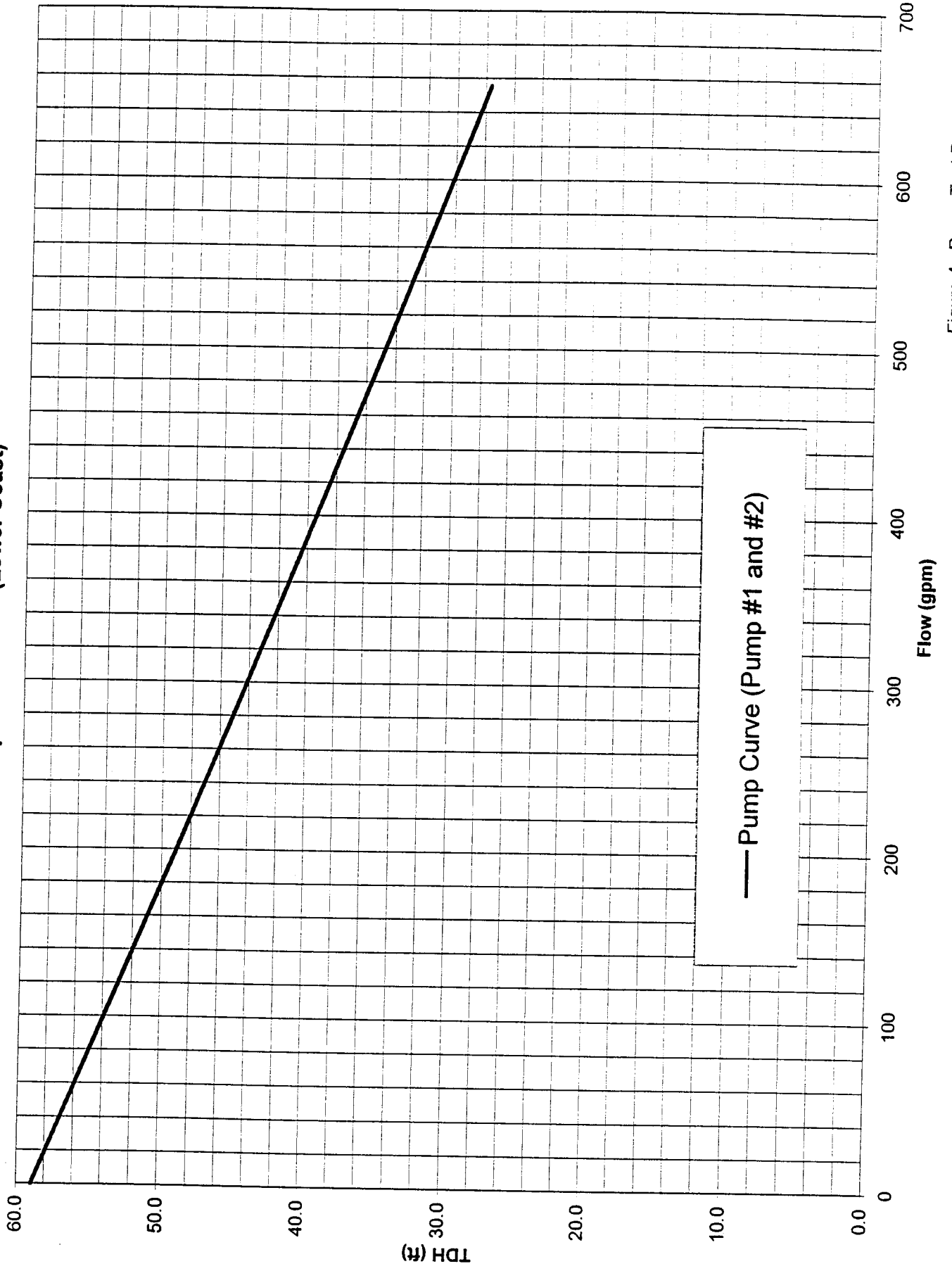


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 177

General Information

PS No. 177 PS Facility Lower Coast

Address 3700 Highway 406

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Gorman-Rupp

Impeller Diameter 0 inch

Model Number-Pump #1 T6A3-B Serial Number-Pump #1 573659

Model Number-Pump #2 T6A3-B Serial Number-Pump #2 573659 (2)

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 6 inch Pump Discharge 6 inch FM Diameter 8 inch

Suction Valve Size 0 inch Discharge Valve Size 6 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 6 inch

Dry Well Dimensions 0 ft. dia. Length 10 ft. Width: 7 ft. Depth 0 ft.

Pump centerline* 1.3 ft. Centerline of discharge pipe* 3.5 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 177

Pump Controls

Lead pump on _____ ft. Type of Controls bubbler
Lead pump off _____ ft.
Lag pump on _____ ft.
Lag pump off _____ ft.

Notes: No information available

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the exterior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter _____ ft. Length 0 ft. Width 0 ft.

Bottom Depth* 16 ft.

Sewer Invert(s) Depth* _____ ft.
0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 177

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 240V three phase open delta (2 transformer bank)

Size of service protective device 100 amps, circuit breaker

Size of main protective device not available

Size of motor protective device 60 amps, circuit breaker

Service wire size #3 AWG Size of motor starter in NEMA 2

Motor wire size #8 AWG Motor Horsepower 10

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1740

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # 51-333-995

Model Number - Motor # not available Serial Number - Motor # 51-333-995

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of motors, motor controller, service circuit breaker and control panel is poor due to corrosion and rotten wiring. The pump station has a fusible disconnect switch and it is susceptible to single phasing if 1 or 2 of the 3 fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The space

Pump Station 177 (Lower Coast)



Photo Number 1



Photo Number 2

Pump Station 177 (Lower Coast)

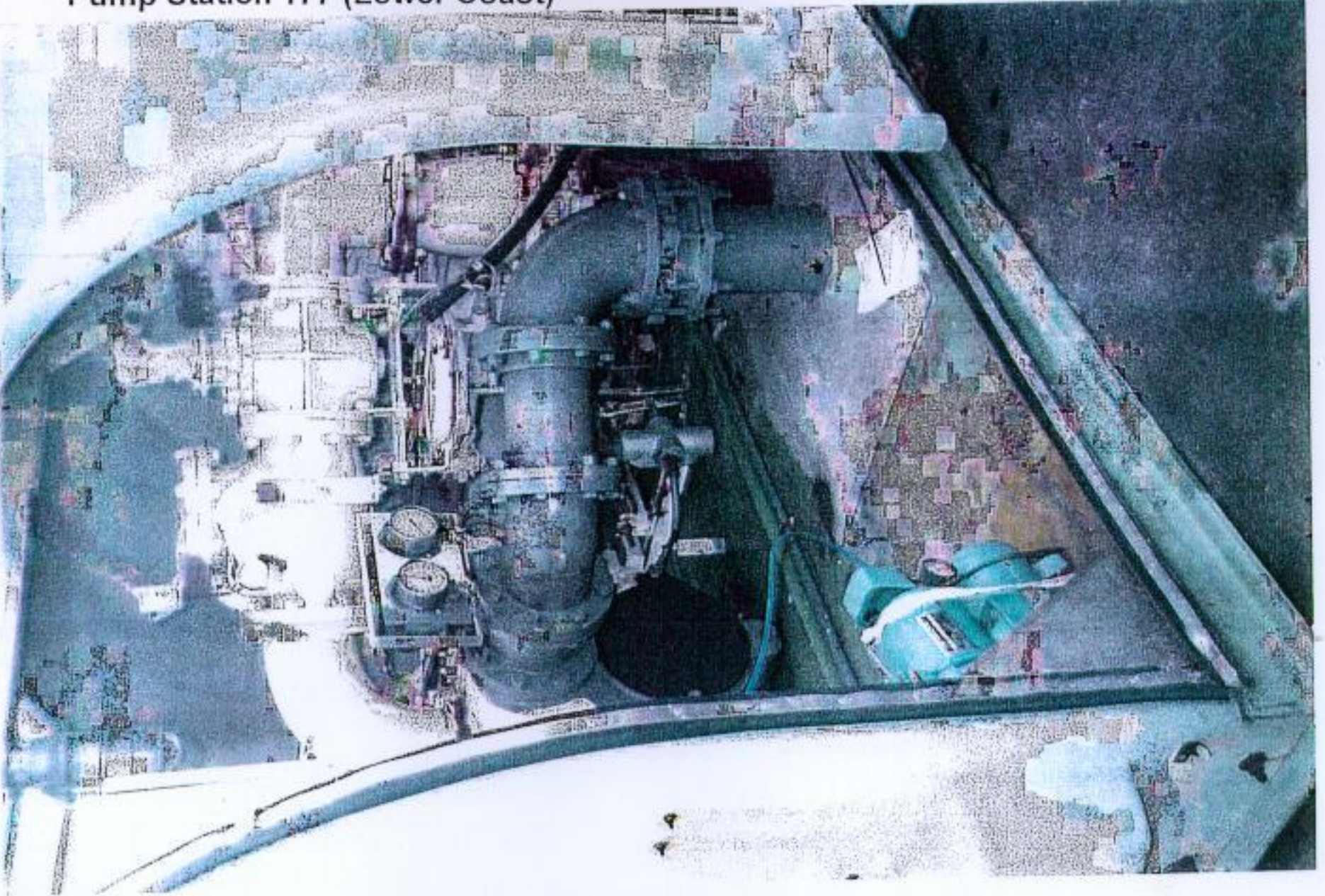


Photo Number 3

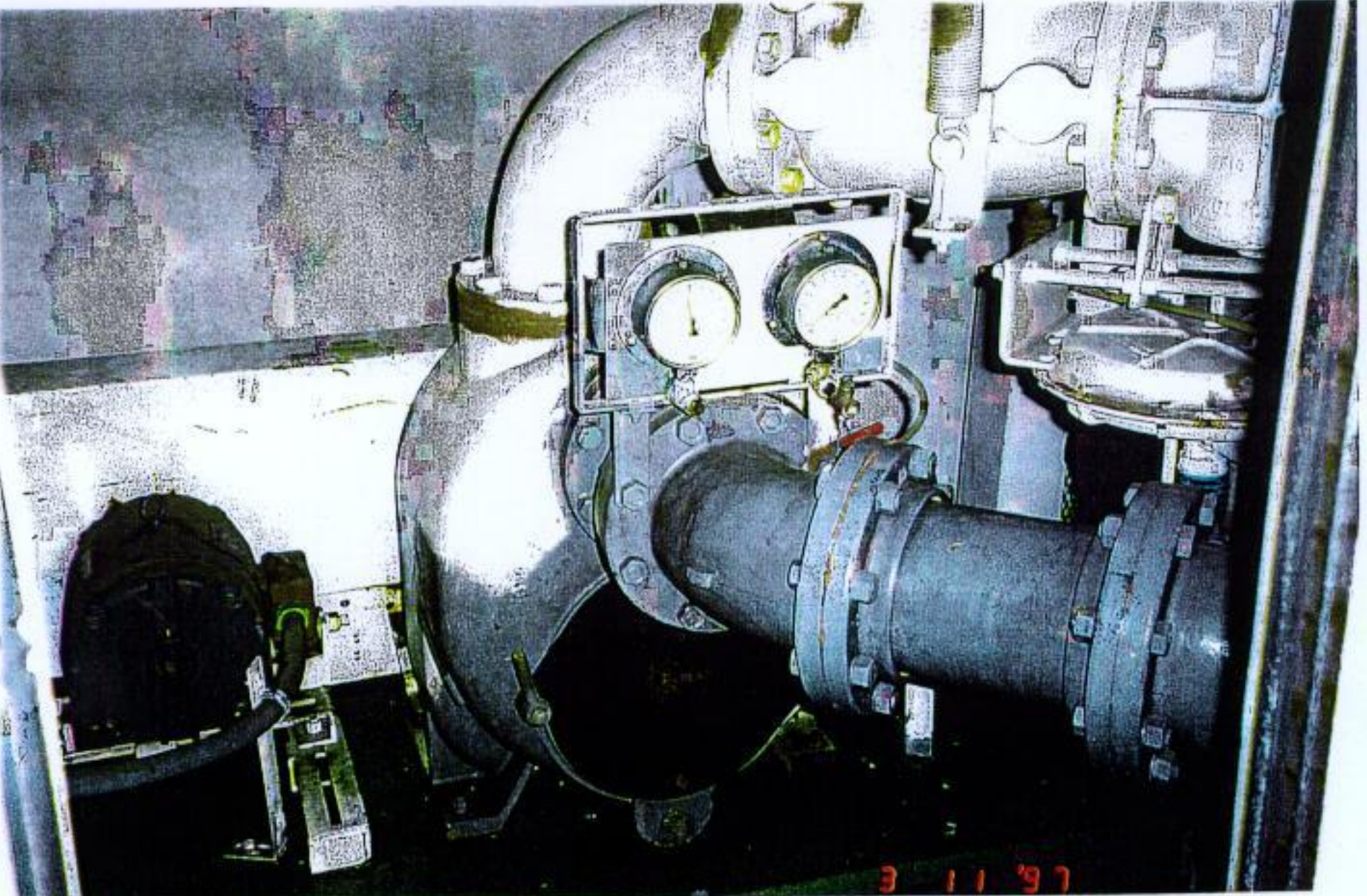


Photo Number 4

Pump Station 177 (Lower Coast)

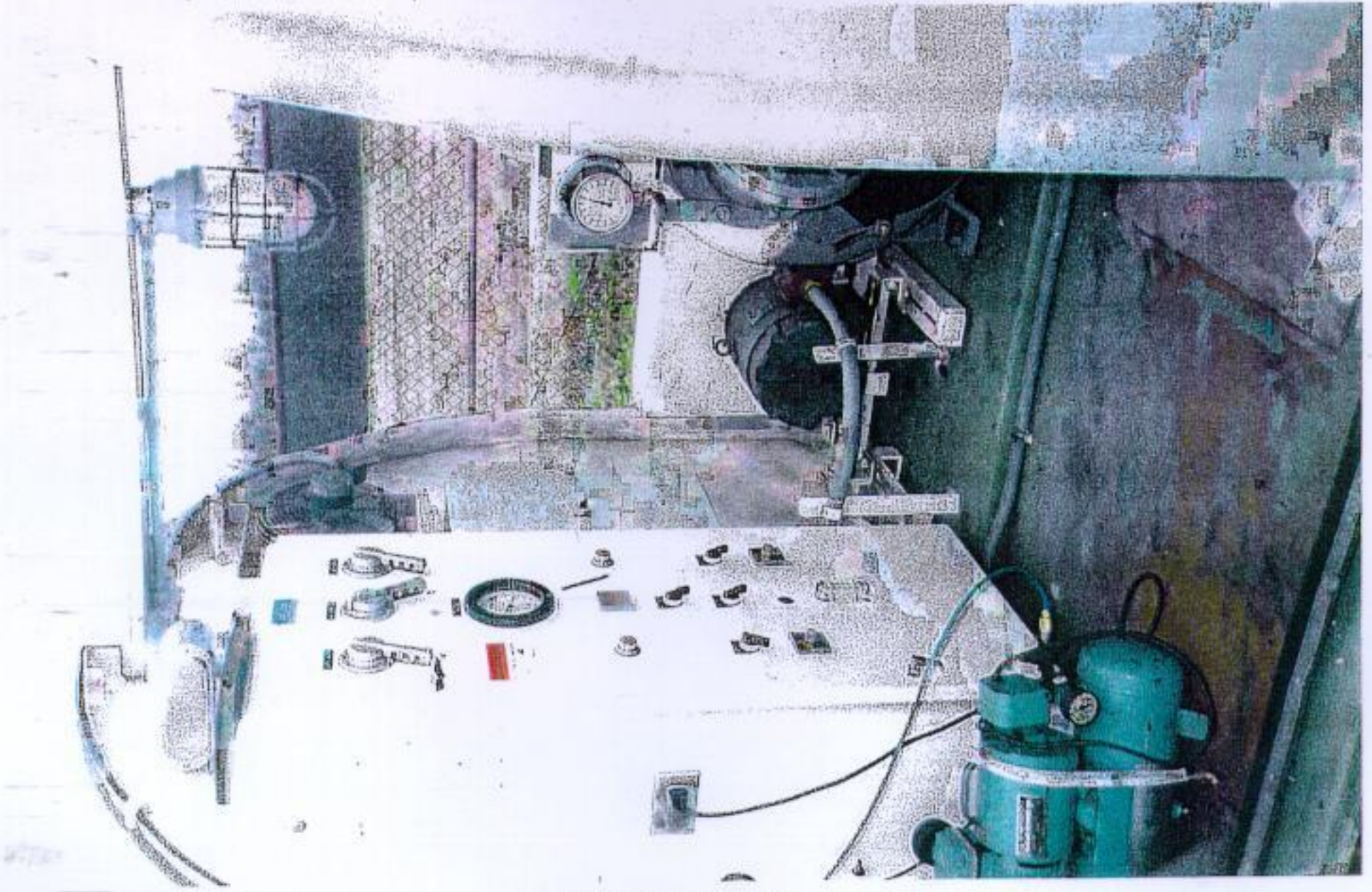


Photo Number 5



Photo Number 6

SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION

SEWERAGE PUMPING STATION
NUMBER 178 (MEMORIAL)
2501 MEMORIAL PARK DRIVE

MONTGOMERY WATSON
APRIL 1997

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 178 (Memorial)

Pump Station 178 is a flooded-suction, can-type station located on 2501 Memorial Park Drive. It discharges to a 36-inch force main on Memorial Park Drive via a 16-inch diameter force main. Pump Station 178 does not repump flow from any other station and its flow is not repumped by any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 178.

Pump Station 178 contains two (8-inch by 8-inch) 34-inch volute Yeoman Bros vertically aligned pumps. Each pump is powered by a 100 horsepower (HP) Westinghouse motor operating at a constant speed of 1180 revolutions per minute (rpm). This equipment is housed in an 11-foot by 11-foot reinforced concrete dry well structure, which is partially below grade. The total depth of the dry well from the access hatch to the bottom is 29.3 feet. Figures 2 and 3 provide elevation and plan views of the station.

Pump Station 178 collects wastewater from the surrounding gravity sewer system into a 25.4-foot deep wet well. The measured cross sectional area of the wet well is 11-foot by 11-foot square.

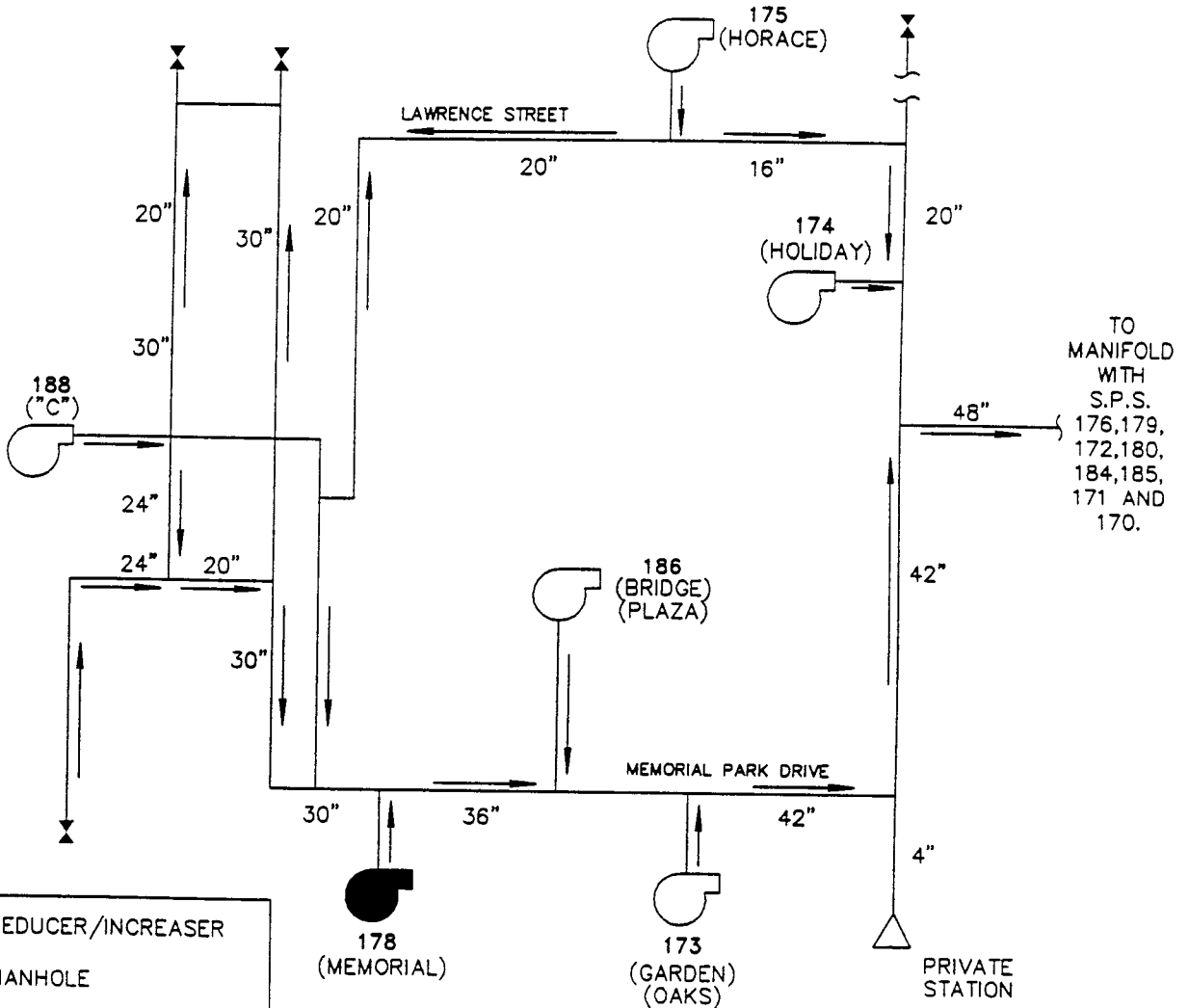
The Doppler Flow Meter was used to determine the capacity of Pump Station 178. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 2,660 gallons per minute (gpm) at 77 feet of head. The shut-off head for both pumps was found to be 145 feet.

Recommendations:

1. It was observed that the pumps were in poor condition due to corrosion. Measures should be taken to treat or replace severely corroded pumps along with piping and fittings.
2. It was also observed that the service disconnect is in poor condition due to corrosion. The extent of the corrosion should be further investigated and the service disconnect replaced as necessary.

N

EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER



- ▲ REDUCER/INCREASER
- MANHOLE
- ⋈ GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- ⊔ PUMP STATION
- REF. PUMP STATION
- WBSTP WEST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 17E JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

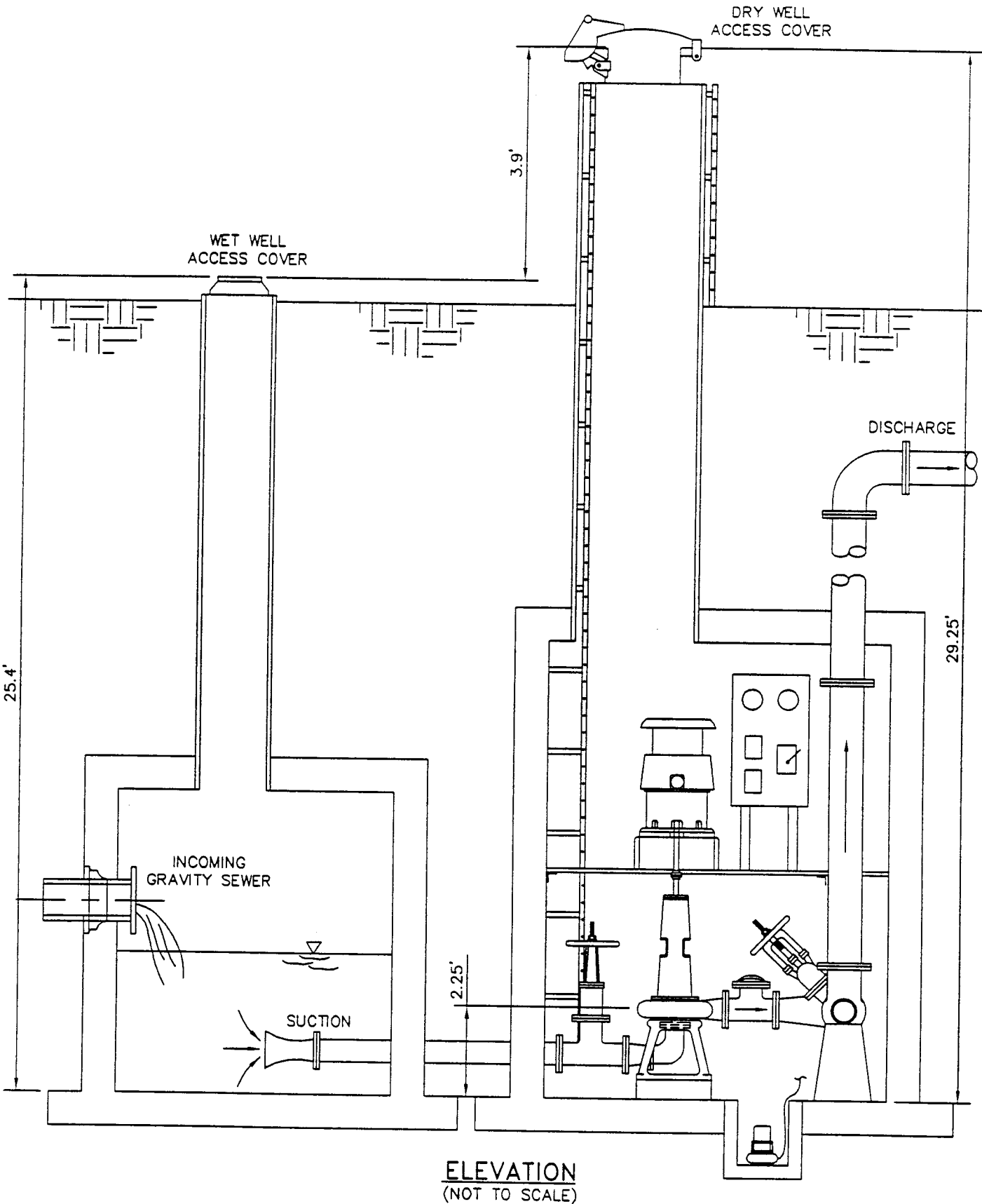
PUMP STATION 178 (MEMORIAL)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

1

DATE:

3/28/97



FILE NO.: 174 JOB NO.: 1113030.01090120 DATE: 3/21/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

ELEVATION
(NOT TO SCALE)

PUMP STATION 178 (MEMORIAL)
CAN TYPE FLOODED SUCTION

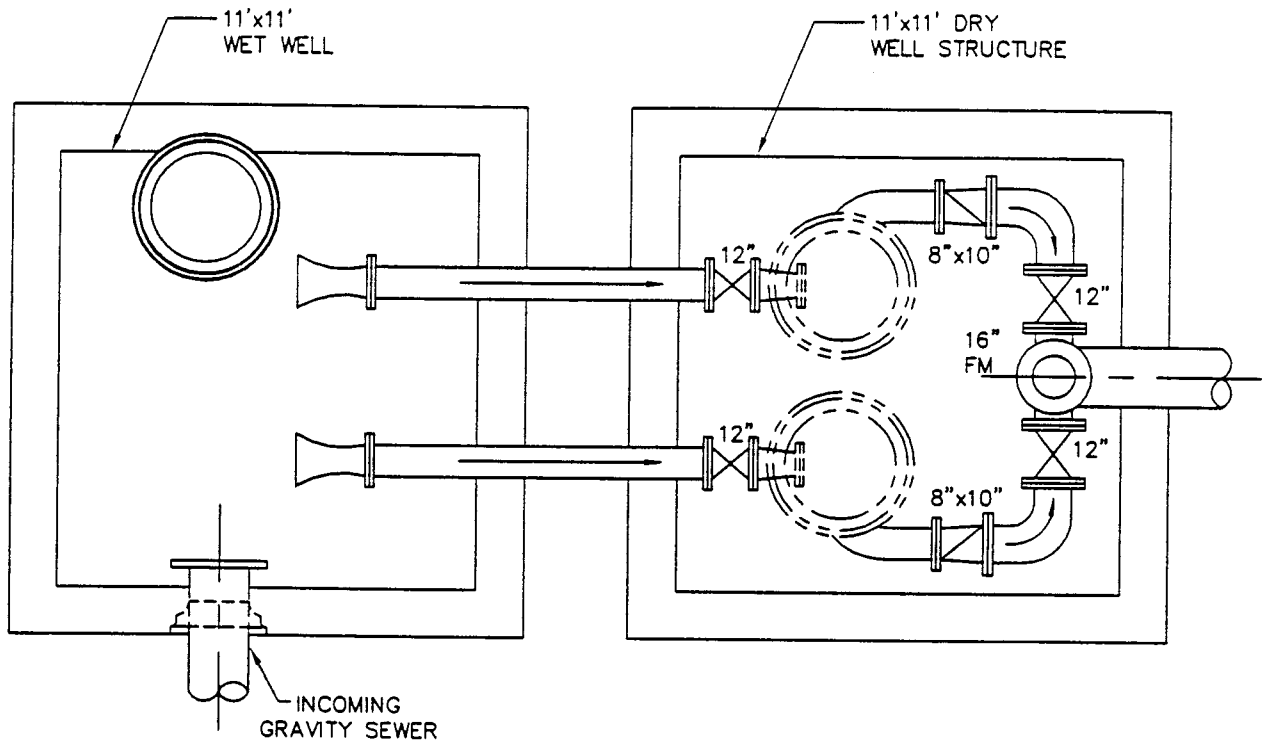
FIGURE:

2

DATE:

3/21/97

FILE NO.: 178. G JOB NO.: 1113030.01090120 DATE: 3/21/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 178 (MEMORIAL)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/21/97

Pump Station: 178 (Memorial)

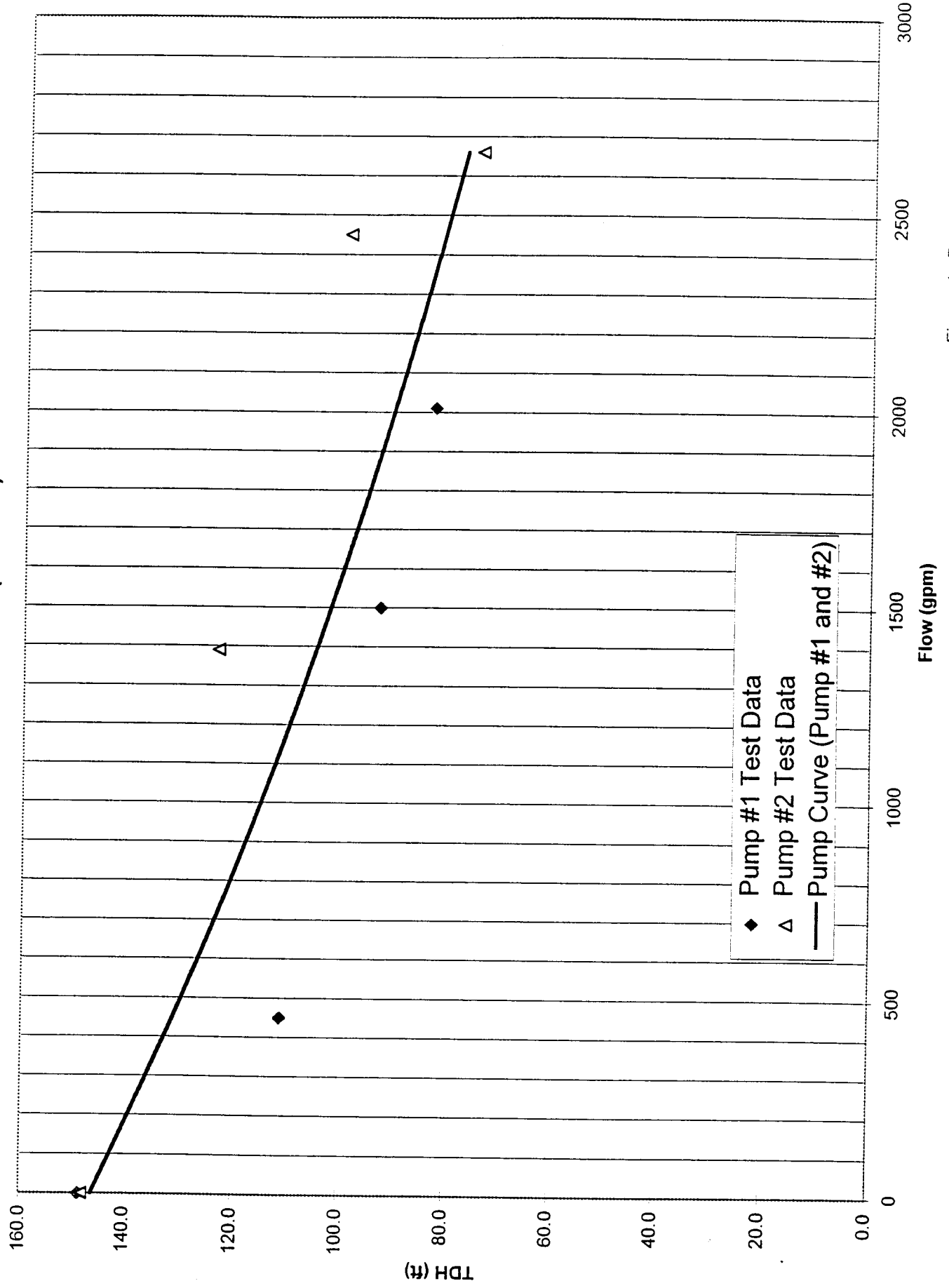


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 178

General Information

PS No. 178 PS Facility Memorial Address 2501 Memorial Park Drive

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Yeoman Bros

Impeller Diameter 34 inch

Model Number-Pump #1 55062 Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 3000 gpm 70 ft. of head 1150 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 16 inch

Suction Valve Size 12 inch Discharge Valve Size 12 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 8 x 10 inch

Dry Well Dimensions 0 ft. dia. Length 11 ft. Width: 11 ft. Depth 29.3 ft.

Pump centerline* 2.25 ft. Centerline of discharge pipe* 0 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 178

Pump Controls

Lead pump on 10 ft. Type of Controls bubbler
Lead pump off 5 ft.
Lag pump on 12 ft.
Lag pump off 6 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior is fair except for areas of patchy paint, corrosion of patches of the motor room floor and some of the steel

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments The wet well was not able to be accessed.

Diameter 0 ft. Length 11 ft. Width 11 ft.

Bottom Depth* 25.4 ft.

Sewer Invert(s) Depth* _____ ft.

_____ ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 178

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Radial Source, no generator receptacle
Type of service 480/277V three phase four wire (3 transformers bank)
Size of service protective device 300 amps, dual element, fusible disconnect switch
Size of main protective device 400 amps, dual element, fusible disconnect switch
Size of motor protective device 150 amps, dual element, fusible disconnect switch
Service wire size 350 kcmil Size of motor starter in NEMA 4
Motor wire size #1/0 AWG Motor Horsepower 100
Number of motors 2 Motor Speed Single
Speed(s) in rpm 1180
Frequency in Hertz 60
Type of starter Full voltage non-reversing (FVNR)
Model Number - Motor # ABDP Serial Number - Motor # not available
Model Number - Motor # ABDP Serial Number - Motor # not available
Model Number - Motor # - Serial Number - Motor # -
Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the service disconnect switch in poor condition due to corrosion. The physical condition of the motors, motor controller and control panel are in fair condition. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250.

Pump Station 178 (Memorial)



Photo Number 1

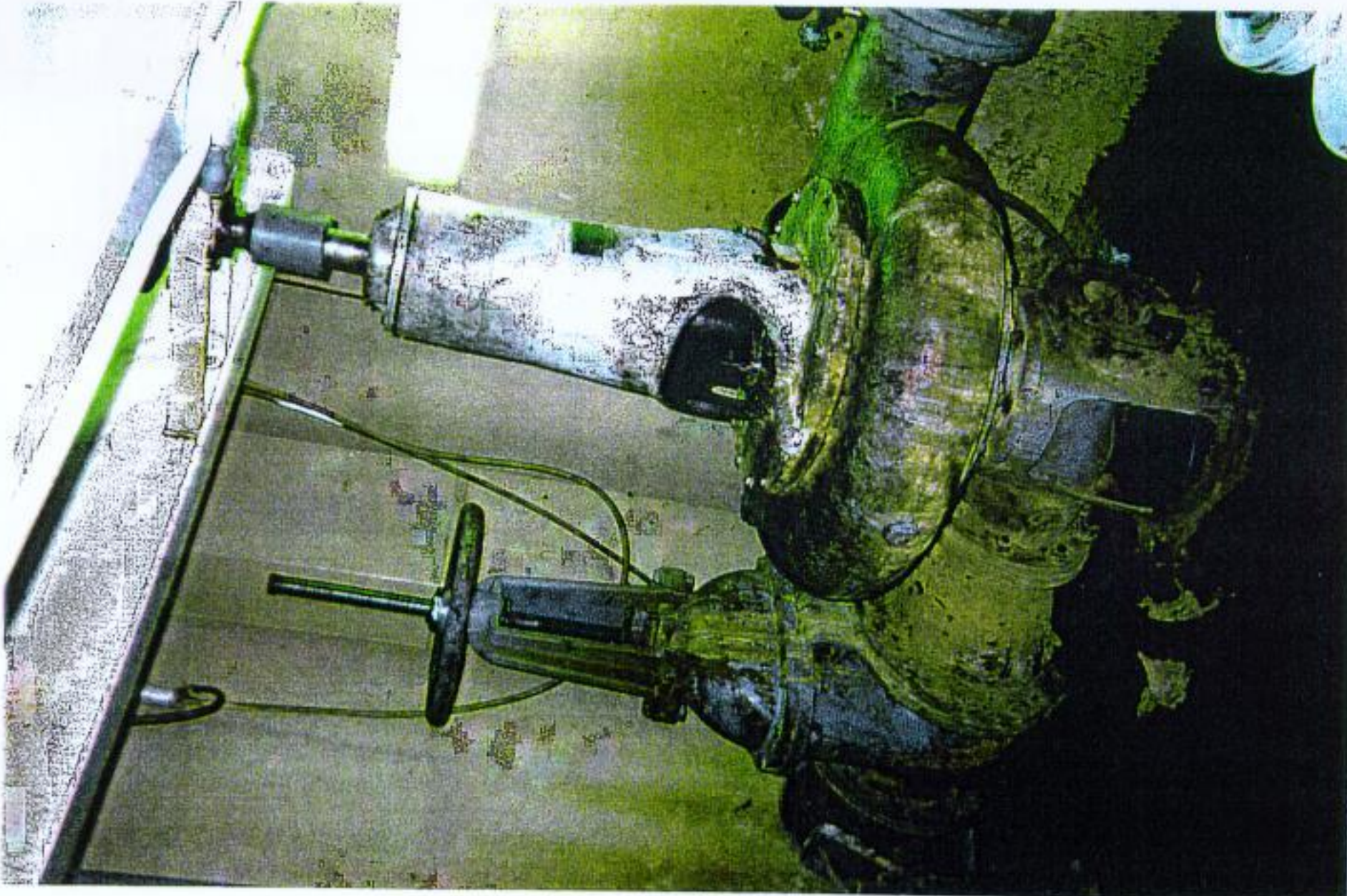


Photo Number 2

Pump Station 178 (Memorial)

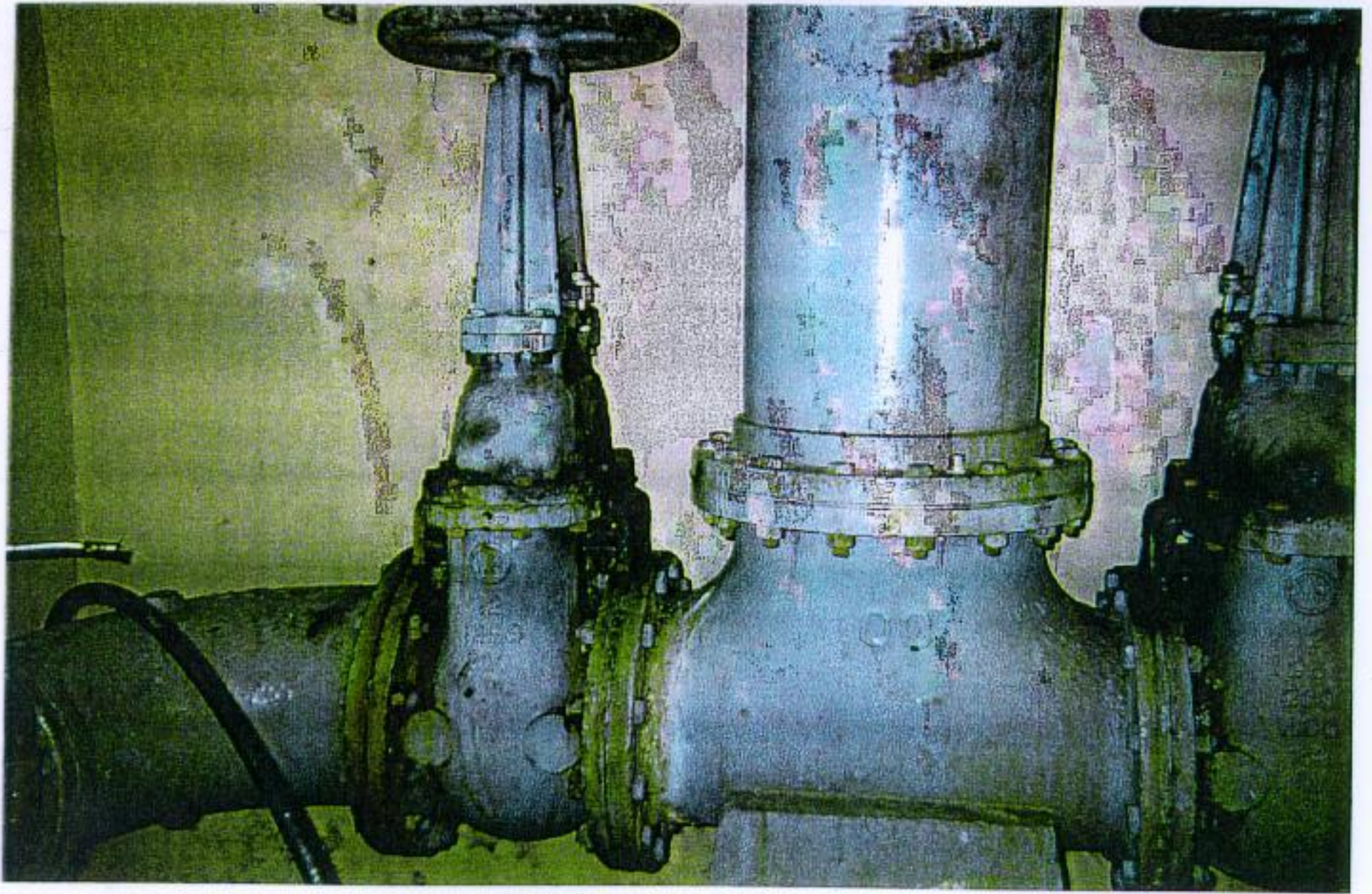


Photo Number 3

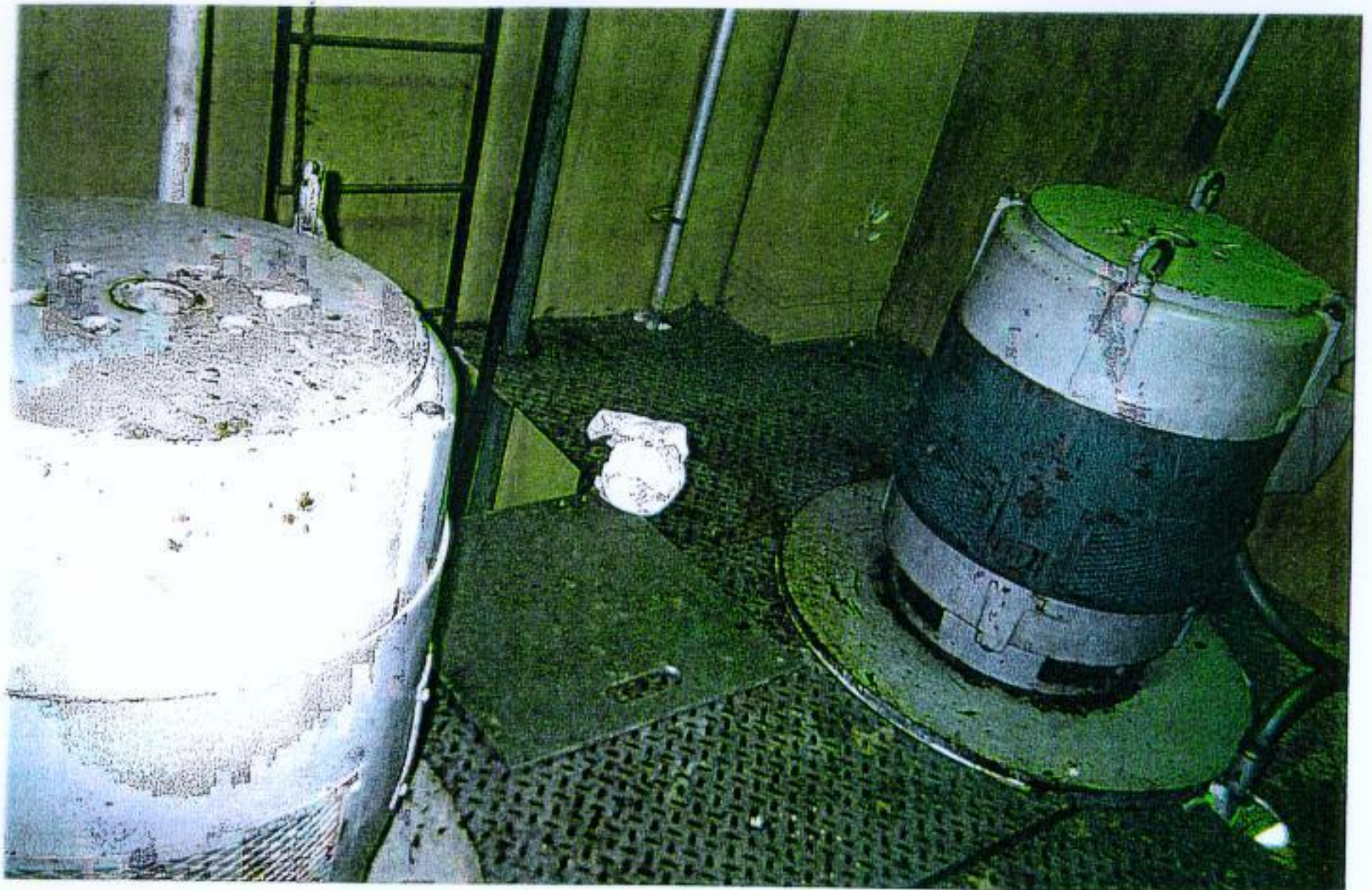


Photo Number 4

Pump Station 178 (Memorial)



Photo Number 5

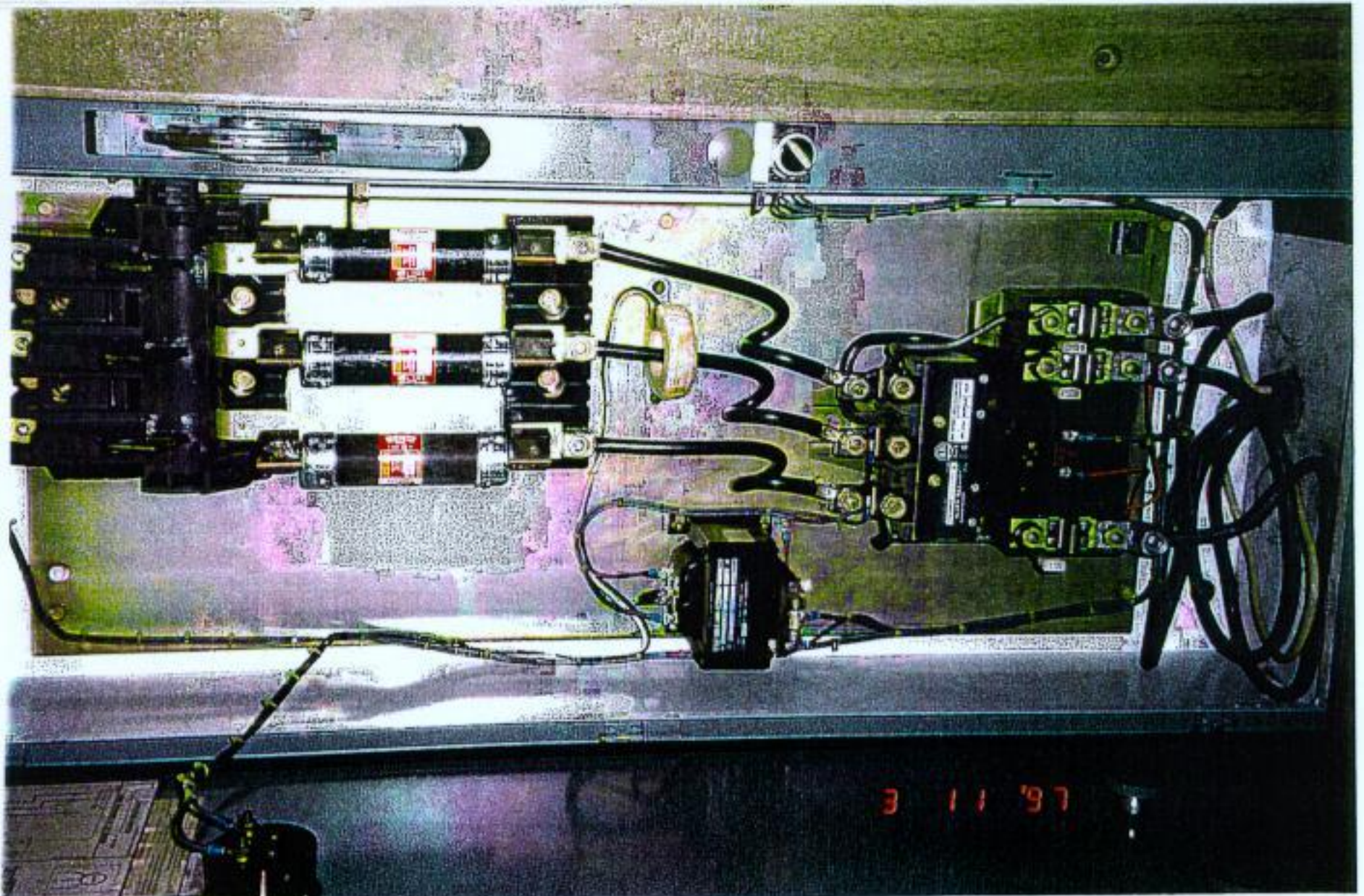


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 179 (PARK TIMBERS)
4100 LENNOX BOULEVARD**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 179 (Park Timbers)

Pump Station 179 is a flooded-suction, can-type station located on 4100 Lennox Boulevard. It discharges to a 12-inch force main on Lennox Boulevard. Pump Station 179 does not repump flow from any other station and its flow is not repumped by any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 179.

Pump Station 179 contains two (8-inch by 6-inch) 15.9-inch impeller Fairbanks Morse vertically aligned pumps. Each pump is powered by a 25 horsepower (hp) General Electric motor operating at a constant speed of 875 revolutions per minute (rpm). This equipment is housed in a 11 by 11-foot reinforced concrete dry well structure, which is partially below grade. The total depth of the dry well from the access hatch to the bottom is 25.7-feet. Figures 2 and 3 provide elevation and plan views of the station.

Pump Station 179 collects wastewater from the surrounding gravity sewer system into a 20.6-foot deep wet well. The measured cross sectional area of the wet well is 11 by 11-foot square.

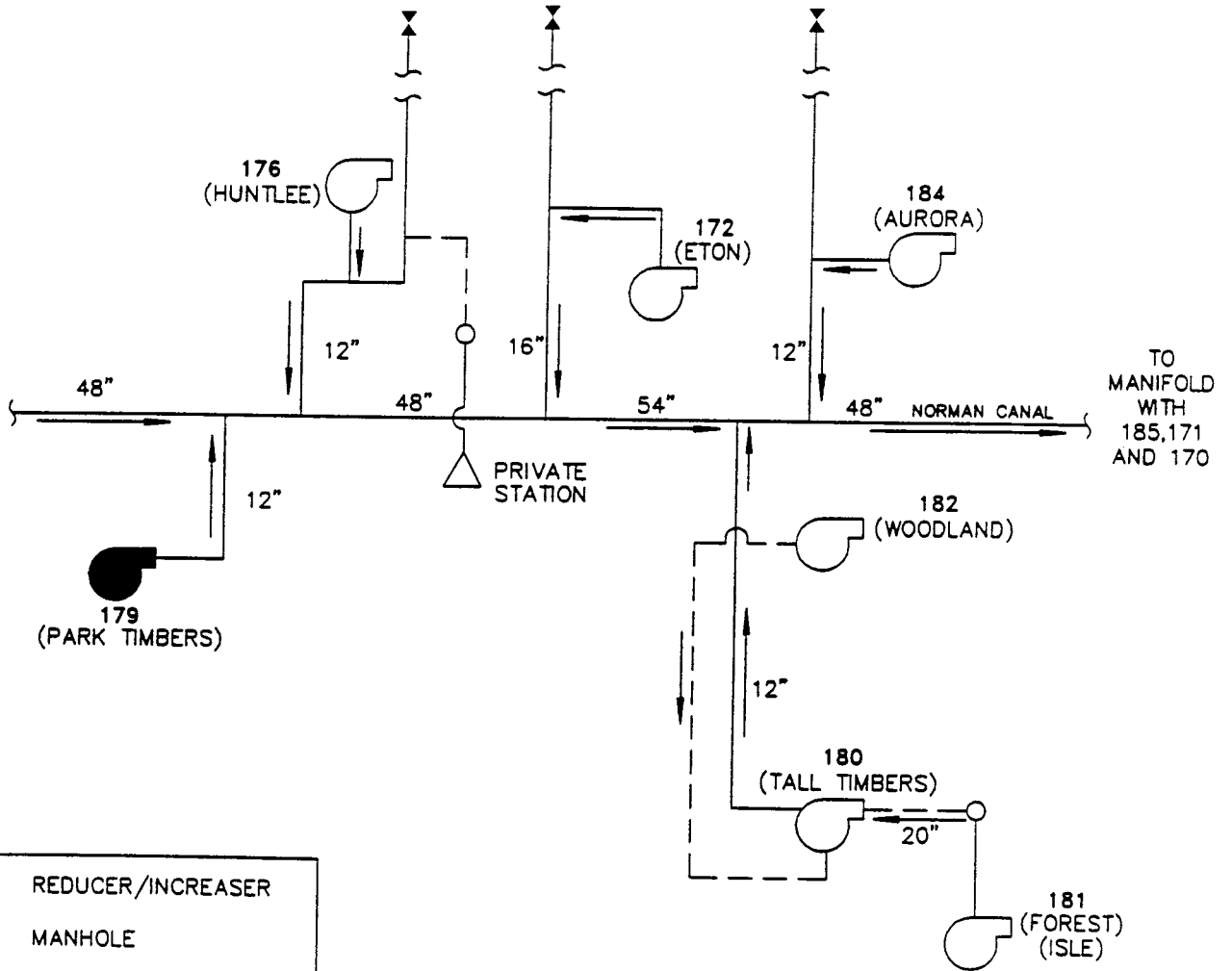
The Doppler Flow Meter was used to determine the capacity of Pump Station 179. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 2,700 gallons per minute (gpm) at 50 feet of head. The shut-off head for both pumps was found to be approximately 110 feet.

Recommendations:

Pump station was found to be in fair condition. No improvements are recommended at this time.



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER



TO
MANIFOLD
WITH
185, 171
AND 170

	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	WBSTP WEST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 175 /G JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

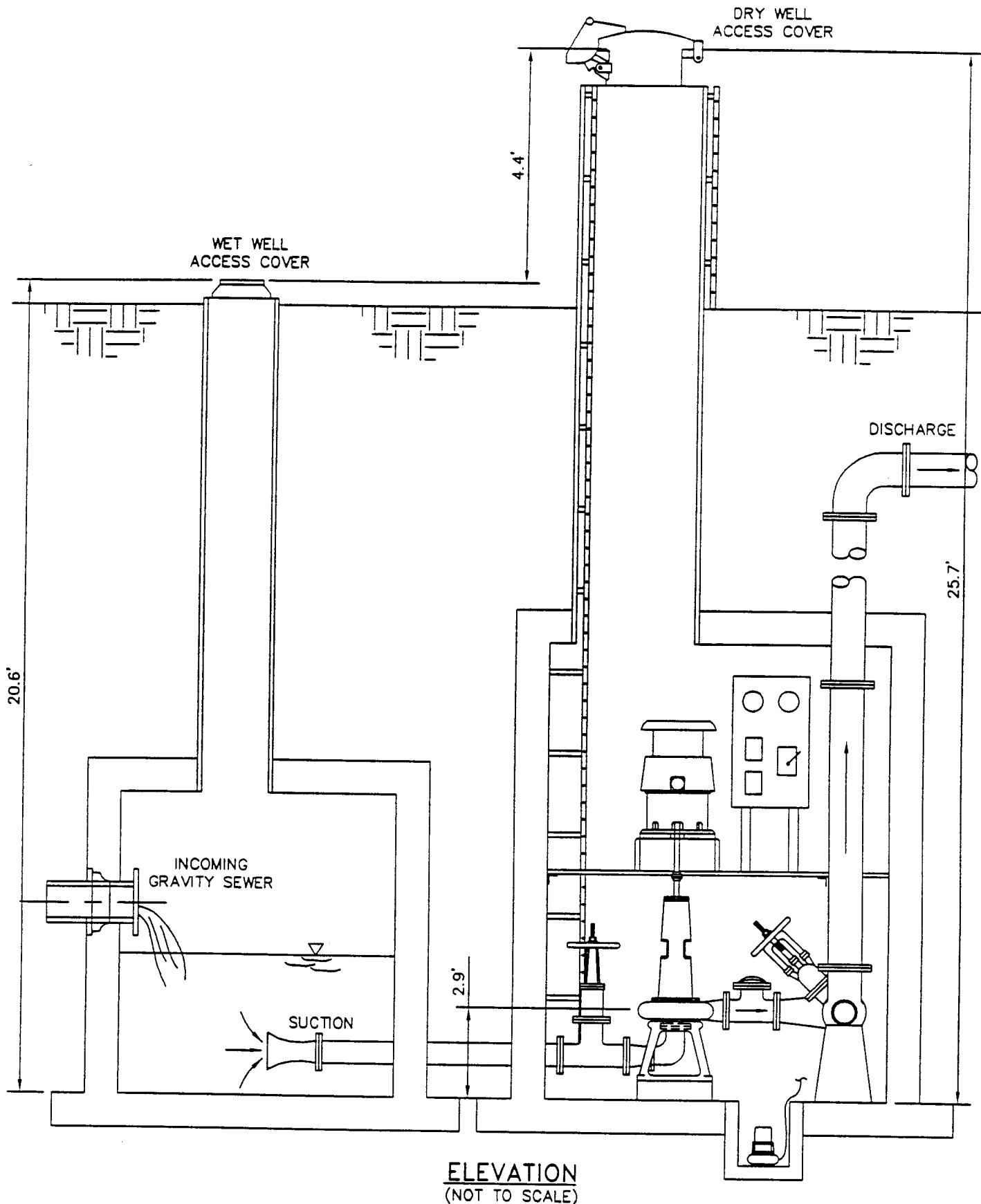
PUMP STATION 179 (PARK TIMBERS)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

1

DATE:

3/28/97



FILE NO.: 179 G JOB NO.: 1113030.01090120 DATE: 3/21/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 179 (PARK TIMBERS)
CAN TYPE FLOODED SUCTION

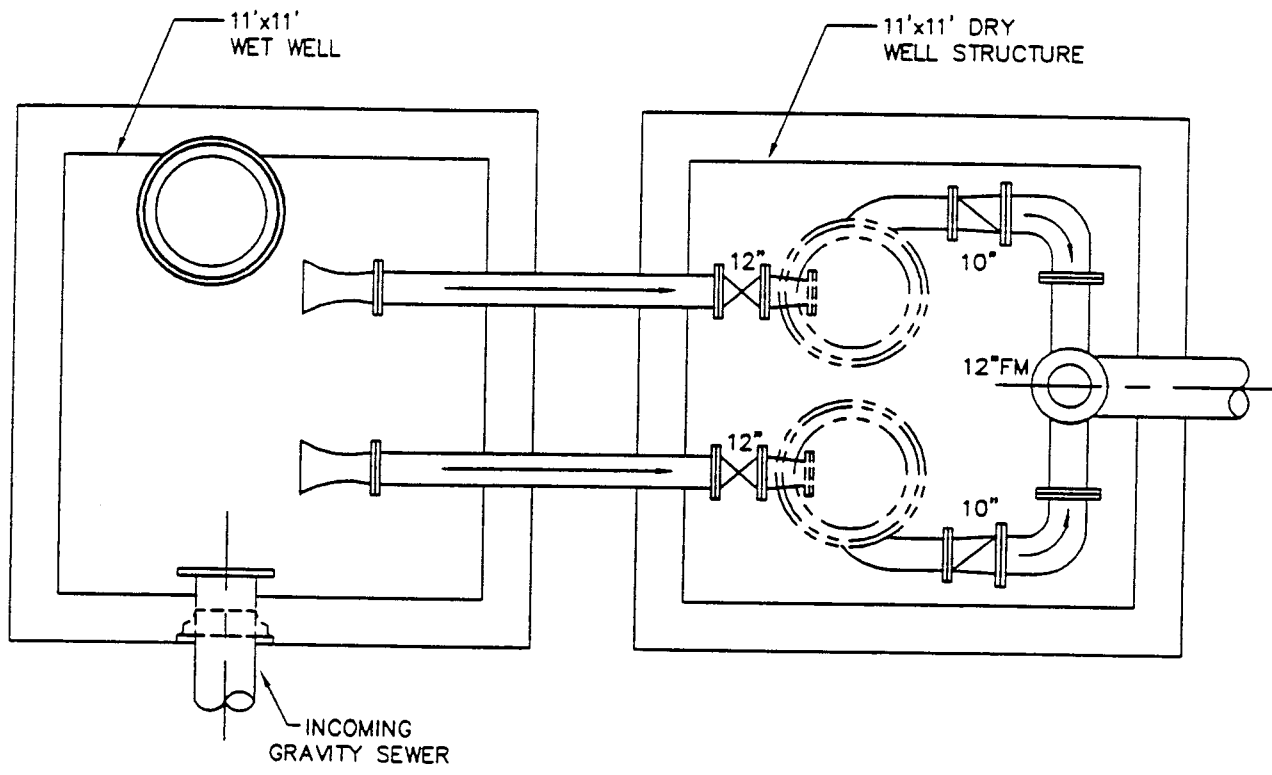
FIGURE:

2

DATE:

3/21/97

FILE NO.: 175 JOB NO.: 1113030.01090120 DATE: 3/21/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 179 (PARK TIMBERS)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/21/97

Pump Station: 179 (Park Timbers)

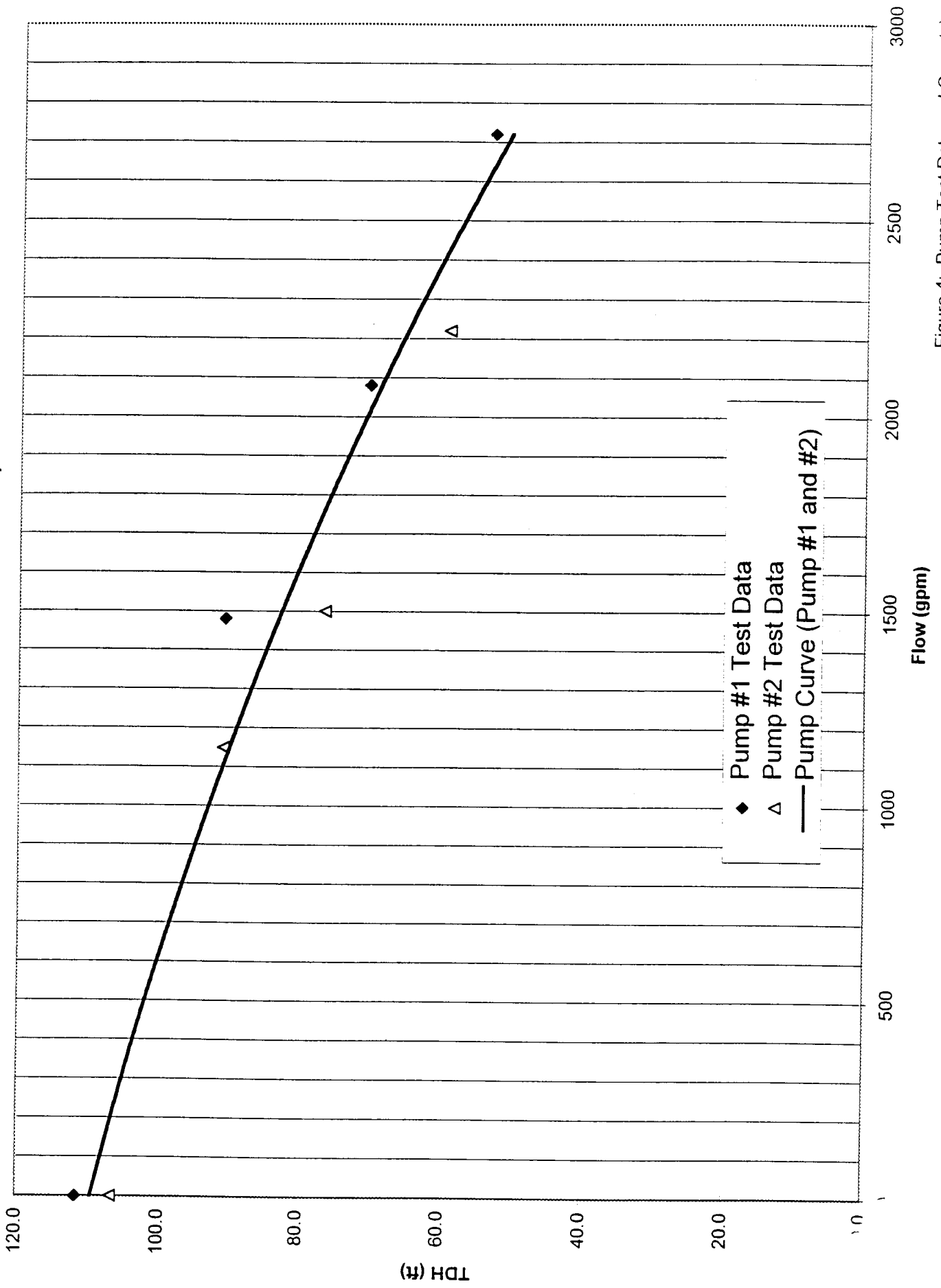


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 179

General Information

PS No. 179 PS Facility Park Timbers Address 4100 Lennox Boulevard

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 16 inch

Model Number-Pump #1 5444C Serial Number-Pump #1 K2V1071888

Model Number-Pump #2 5444C Serial Number-Pump #2 K2V1071888

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 700 gpm 58 ft. of head 875 rpm

Pump Suction 8 inch Pump Discharge 6 inch FM Diameter 12 inch

Suction Valve Size 12 inch Discharge Valve Size 12 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 10 inch

Dry Well Dimensions 0 ft. dia. Length 11 ft. Width: 11 ft. Depth 25.7 ft.

Pump centerline* 2.9 ft. Centerline of discharge pipe* 11.6 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 179

Pump Controls

Lead pump on 7 ft. Type of Controls bubbler
Lead pump off 3.5 ft.
Lag pump on 8 ft.
Lag pump off 4.5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair except for the patchy paint work.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 0 ft. Length 11 ft. Width 11 ft.

Bottom Depth* 20.6 ft.

Sewer Invert(s) Depth* 17.6 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 179

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source not available

Type of service not available

Size of service protective device 175 amps, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 100 amps, circuit breaker

Service wire size # 3/0 AWG Size of motor starter in NEMA _____

Motor wire size _____ Motor Horsepower 25

Number of motors 2 Motor Speed Single

Speed(s) in rpm 875

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # 5K6248XH17A Serial Number - Motor # not available

Model Number - Motor # 5K6248XH17A Serial Number - Motor # not available

Model Number - Motor # - _____ Serial Number - Motor # - _____

Model Number - Motor # - _____ Serial Number - Motor # - _____

Comments The physical condition of the service disconnect switch, control panel and motor controller are in poor condition due to corrosion and old wiring. The physical condition of the motors are in fair condition. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250.

Pump Station 179 (Park Timbers)



Photo Number 1



Photo Number 2

Pump Station 179 (Park Timbers)

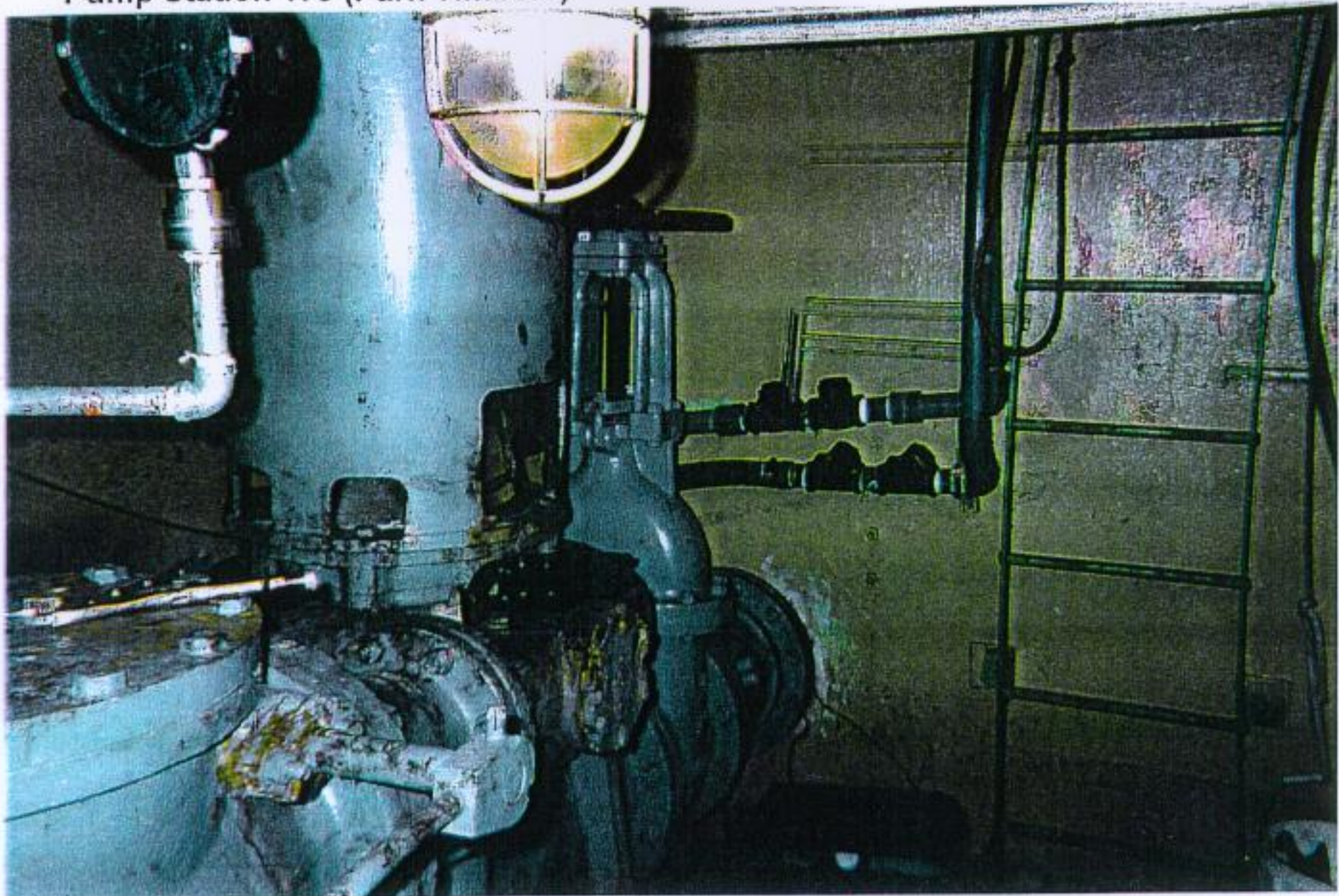


Photo Number 3

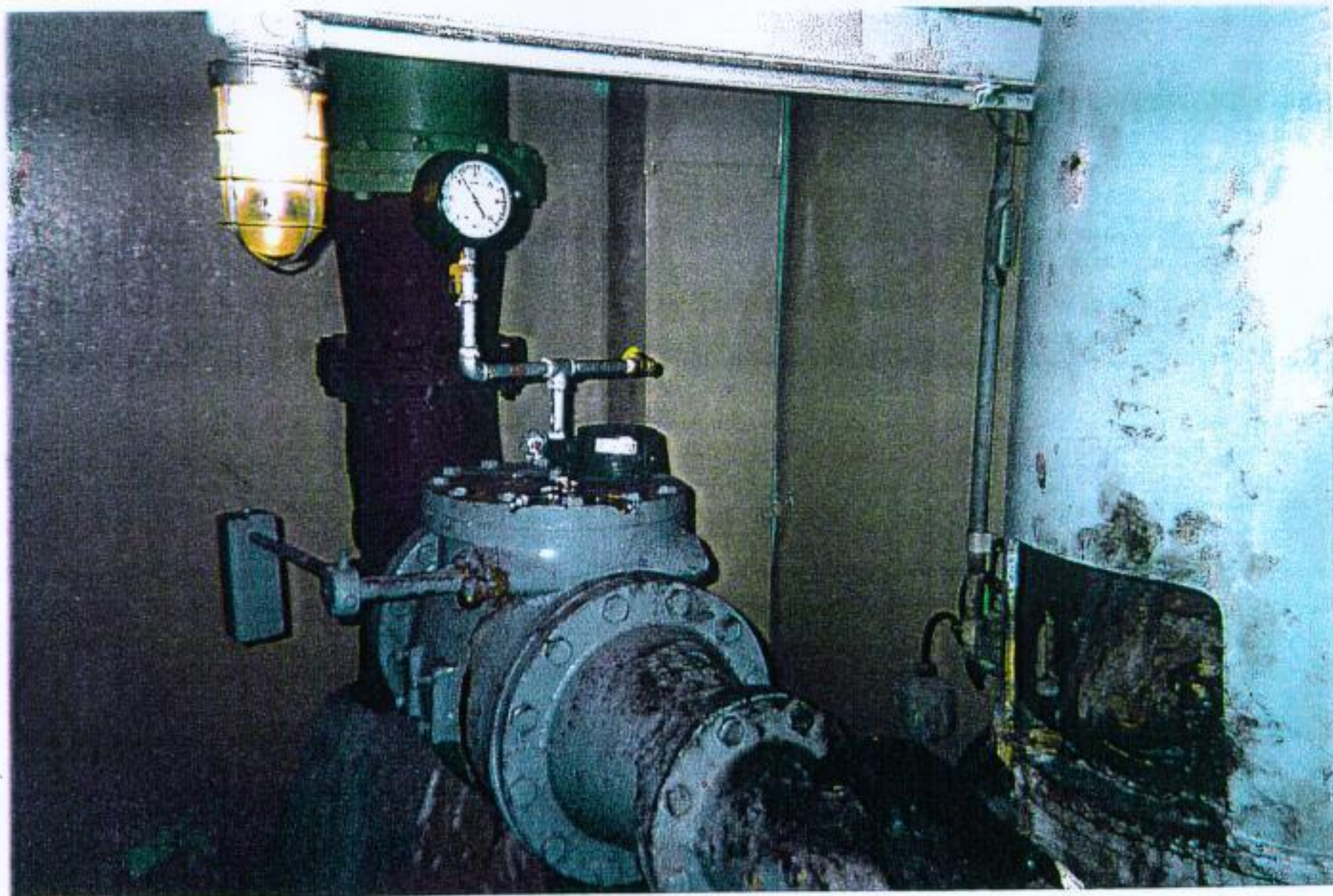


Photo Number 4

Pump Station 179 (Park Timbers)



Photo Number 5

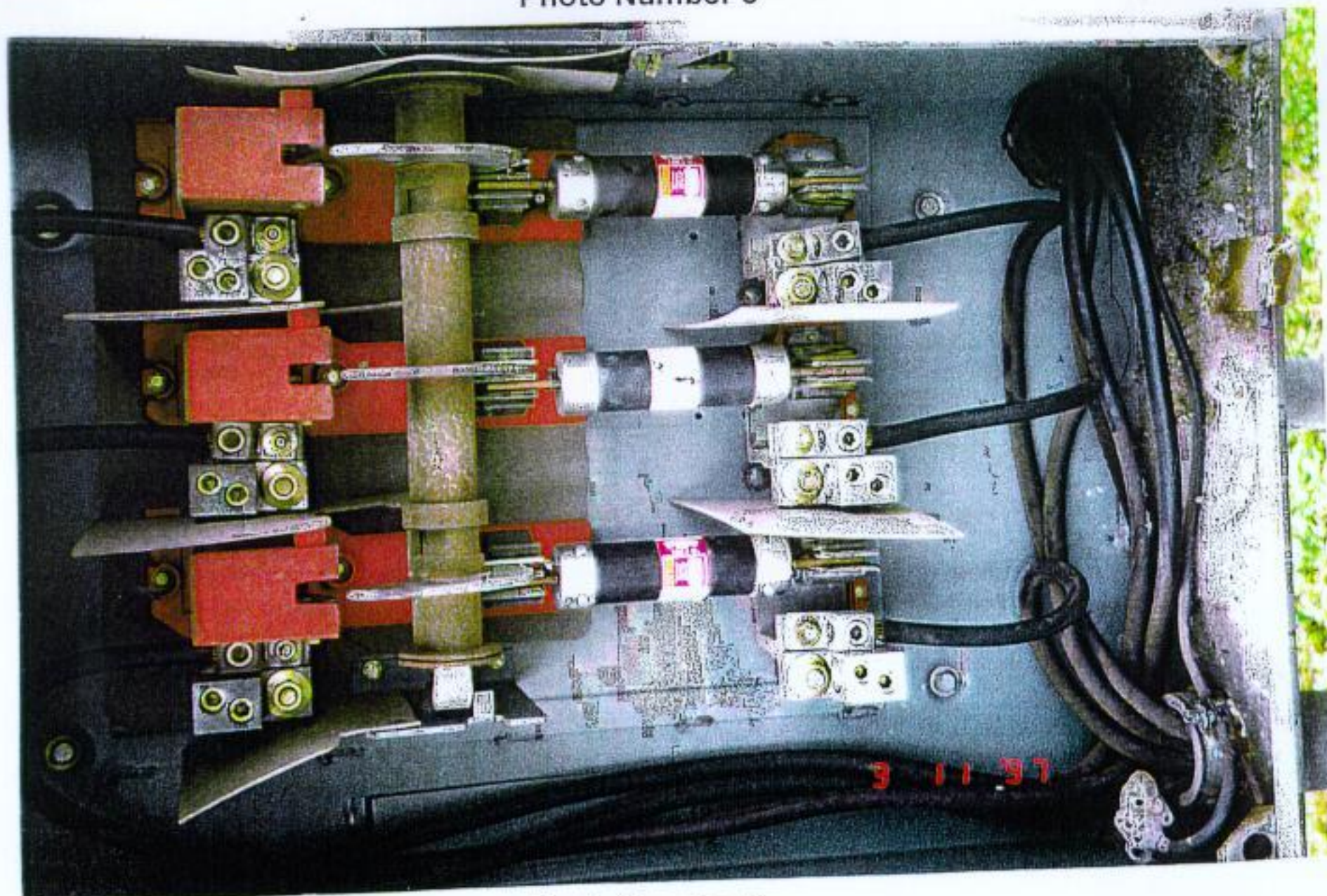


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 180 (TALL TIMBERS)
3800 TALL PINES DRIVE**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 180 (Tall Timbers)

Pump Station 180 is a flooded-suction, can-type station located on 3800 Tall Pines Drive. It discharges to a 12-inch force main along Timbers Drive. Pump Station 180 repumps flow from stations 181 (Forest Isles) and 182 (Woodland). Its flow is not repumped by any other station. Figure 1 shows the schematic for the subsystem surrounding Pump Station 180.

Pump Station 180 contains two (8-inch by 6-inch) Yeoman Bros. vertically aligned pumps. Each pump is powered by a 40 horsepower (hp) General Electric Motor operating at a constant speed of 1170 revolutions per minute (rpm). This equipment is housed in an 11-foot by 11-foot reinforced concrete dry well structure, which is partially below grade. The total depth of the dry well from the access hatch to the bottom is 26-feet. Figures 2 and 3 provide elevation and plan views of the station.

Pump Station 180 collects wastewater from the surrounding gravity sewer system into a 20.5-foot deep wet well. The cross sectional area of the wet well is about 11 feet square.

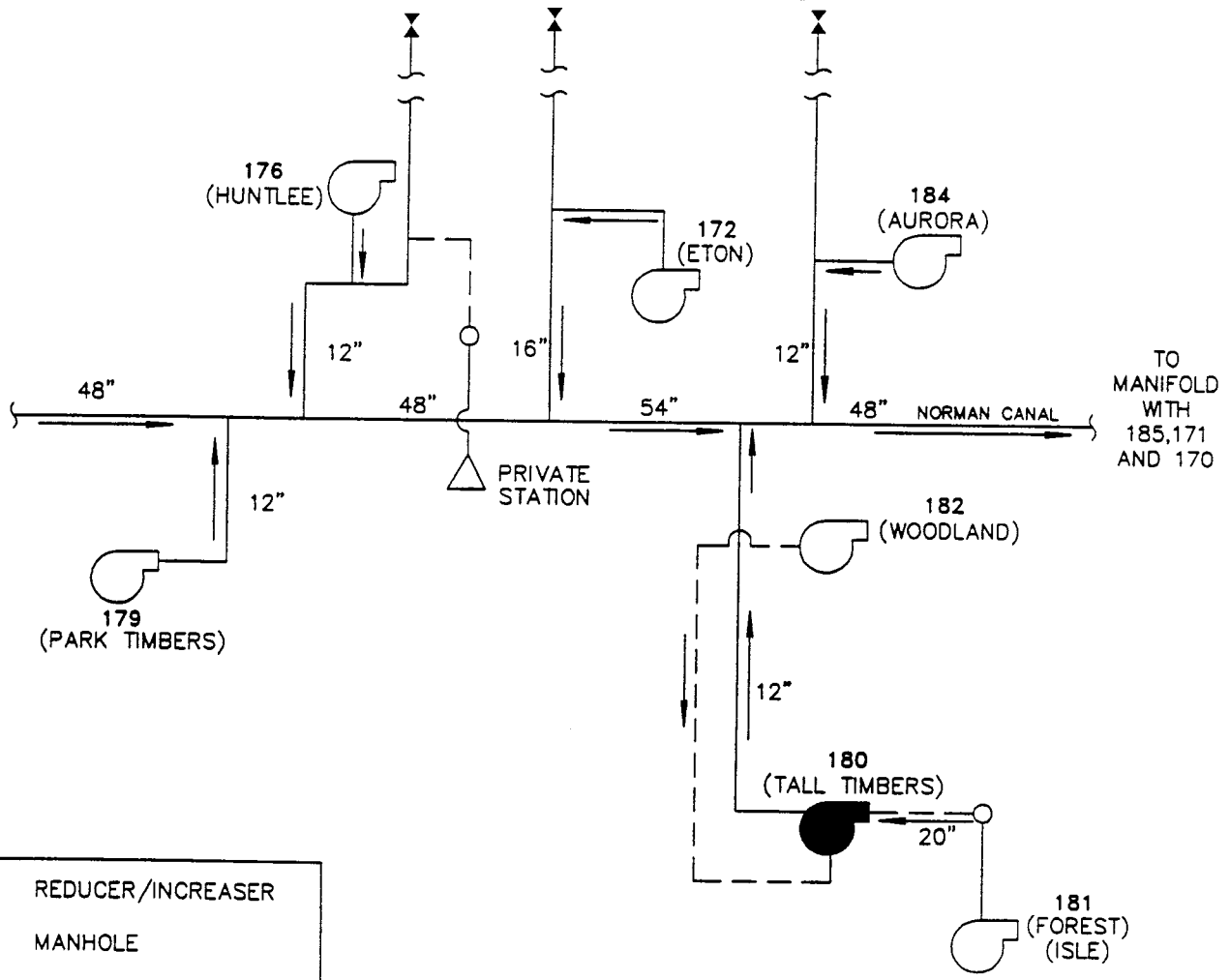
The Doppler Flow Meter was used to determine the capacity of Pump Station 180. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 2400 gallons per minute (gpm) at 70 feet of head. The shut-off head for both pumps was found to be approximately 110 feet.

Recommendations:

1. It was observed that the motors, motor controller, service disconnect switch and control panel are in poor condition due to corrosion and rotten wiring. The extent of the corrosion should be further investigated and the equipment replaced as necessary.



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER



- ▲ REDUCER/INCREASER
- MANHOLE
- ⋈ GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- ☪ PUMP STATION
- REF. PUMP STATION
- WBSTP WEST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 18L JOB NO.: 1113030.01090120 DATE: 3/28/97



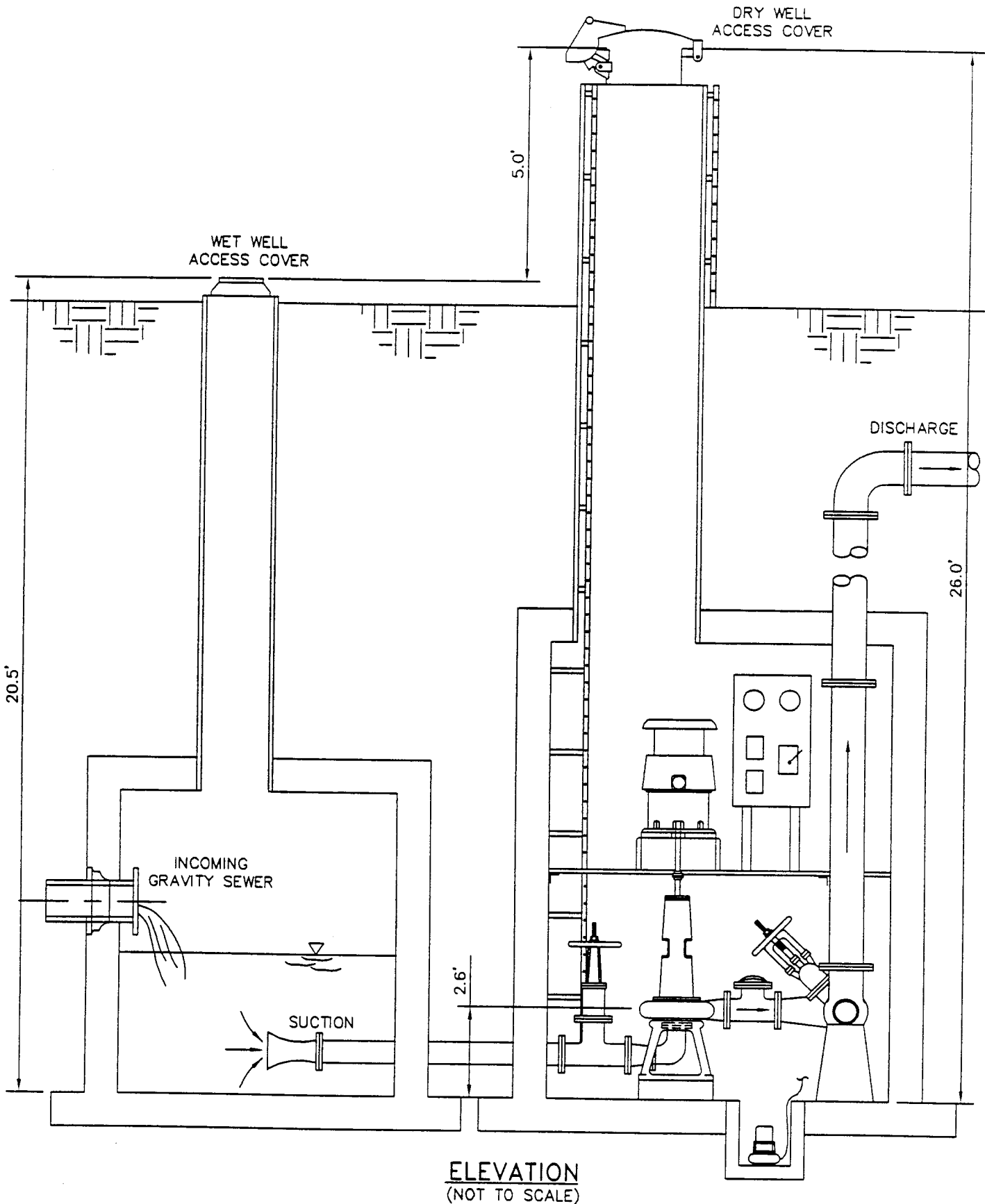
PUMP STATION 180 (TALL TIMBERS)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

1

DATE:

3/28/97



FILE NO.: 18C JOB NO.: 1113030.01090120 DATE: 3/21/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 180 (TALL TIMBERS)
CAN TYPE FLOODED SUCTION

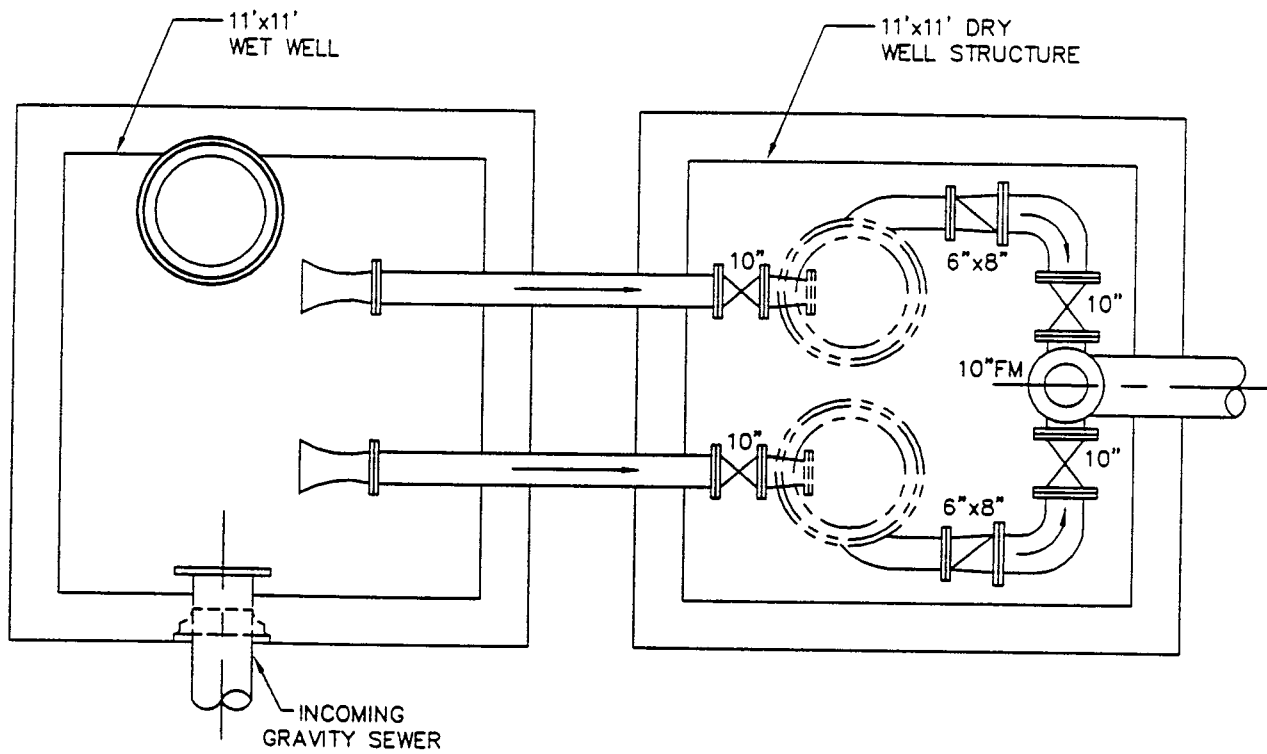
FIGURE:

2

DATE:

3/21/97

FILE NO.: 186 JOB NO.: 1113030.01090120 DATE: 3/21/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 180 (TALL TIMBERS)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/21/97

Pump Station Name: 180 (Tall Timbers)

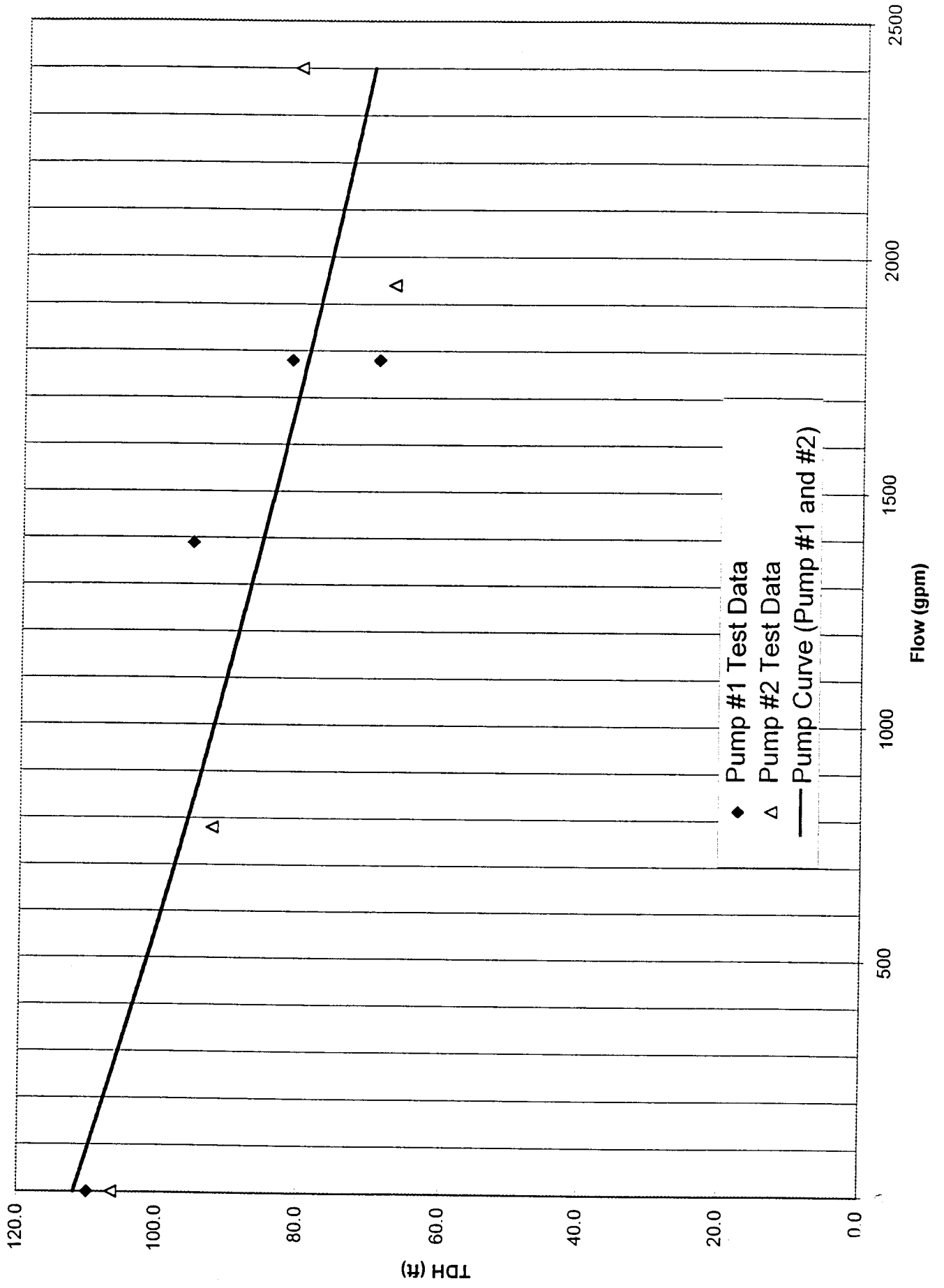


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 180

General Information

PS No. 180 PS Facility Tall Timbers Address 3800 Tall Pines Drive

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Yeoman Bros.

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 1500 gpm 72 ft. of head 0 rpm

Pump Suction 8 inch Pump Discharge 6 inch FM Diameter ? inch

Suction Valve Size 10 inch Discharge Valve Size 10 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 6 x 8 inch

Dry Well Dimensions 0 ft. dia. Length 11 ft. Width: 11 ft. Depth 26 ft.

Pump centerline* 2.6 ft. Centerline of discharge pipe* _____ ft.

* measured from dry well bottom.

Notes: Centreline of discharge pipe not available.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 180

Pump Controls

Lead pump on 8 ft. Type of Controls bubbler
Lead pump off 3 ft.
Lag pump on 9 ft.
Lag pump off 4 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 0 ft. Length 11 ft. Width 11 ft.

Bottom Depth* 20.5 ft.

Sewer Invert(s) Depth* 0 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 180

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service Pad Mounted Transformer, 480/277V three phase

Size of service protective device 150 amps, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 100 amps, circuit breaker

Service wire size #3/0 AWG Size of motor starter in NEMA 3

Motor wire size #2 AWG Motor Horsepower 40

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1170

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # 5K6257XH223A Serial Number - Motor # not available

Model Number - Motor # 5K6257XH223A Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of motors, motor controller, service disconnect switch and control panel is poor due to corrosion and rotten wiring. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 180 (Tall Timbers)



Photo Number 1



Photo Number 2

Pump Station 180 (Tall Timbers)

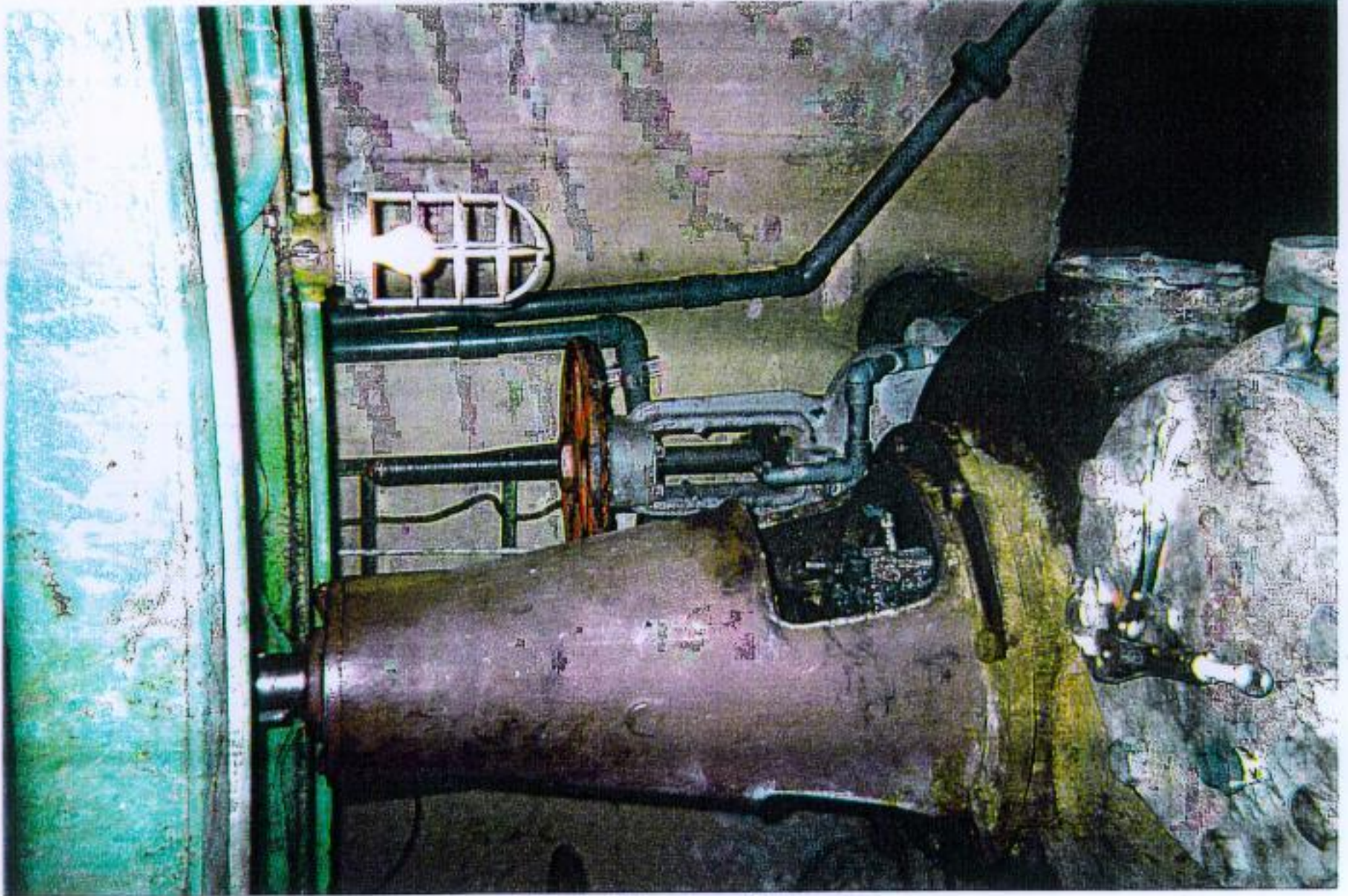


Photo Number 3

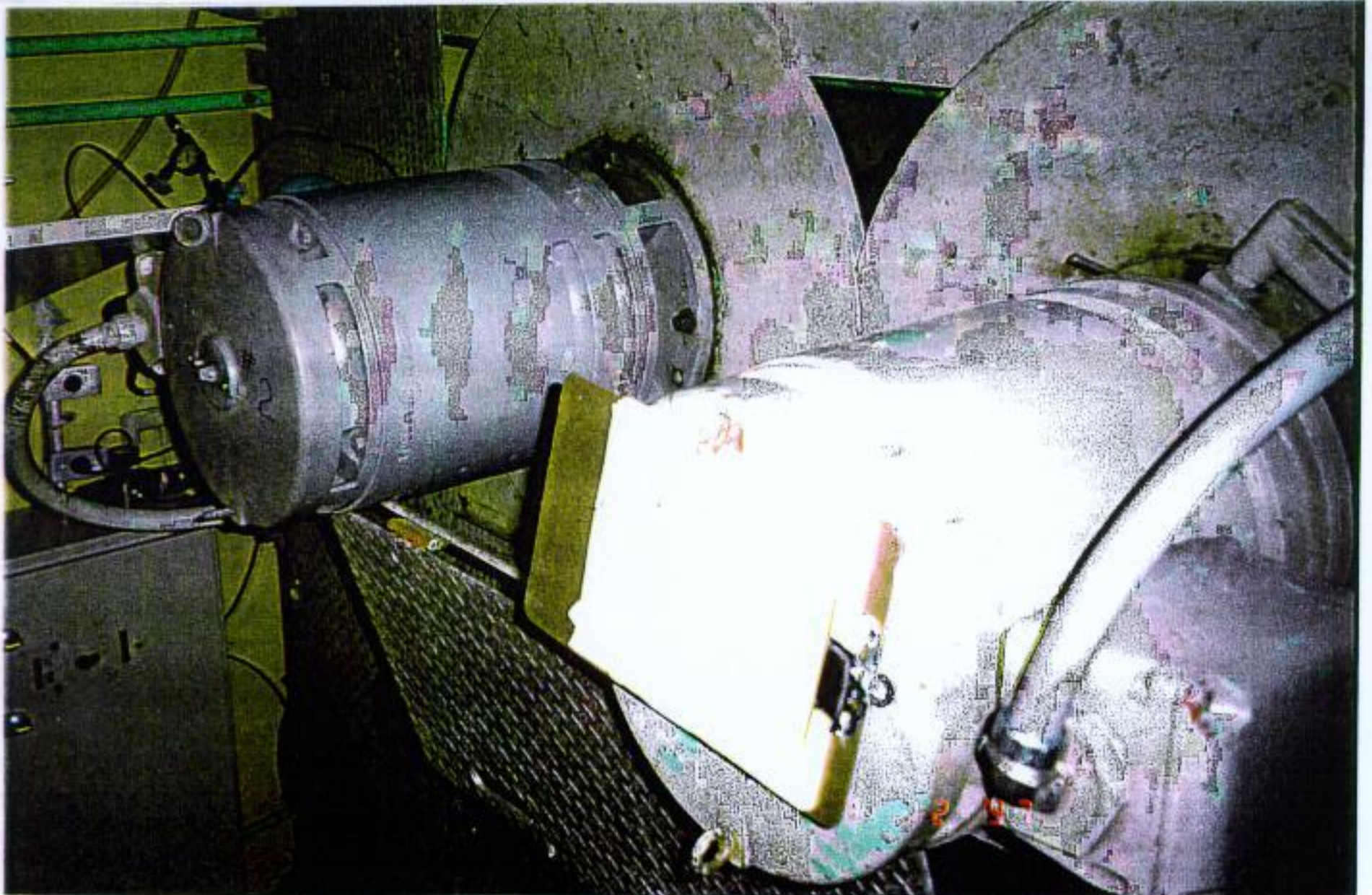


Photo Number 4

Pump Station 180 (Tall Timbers)

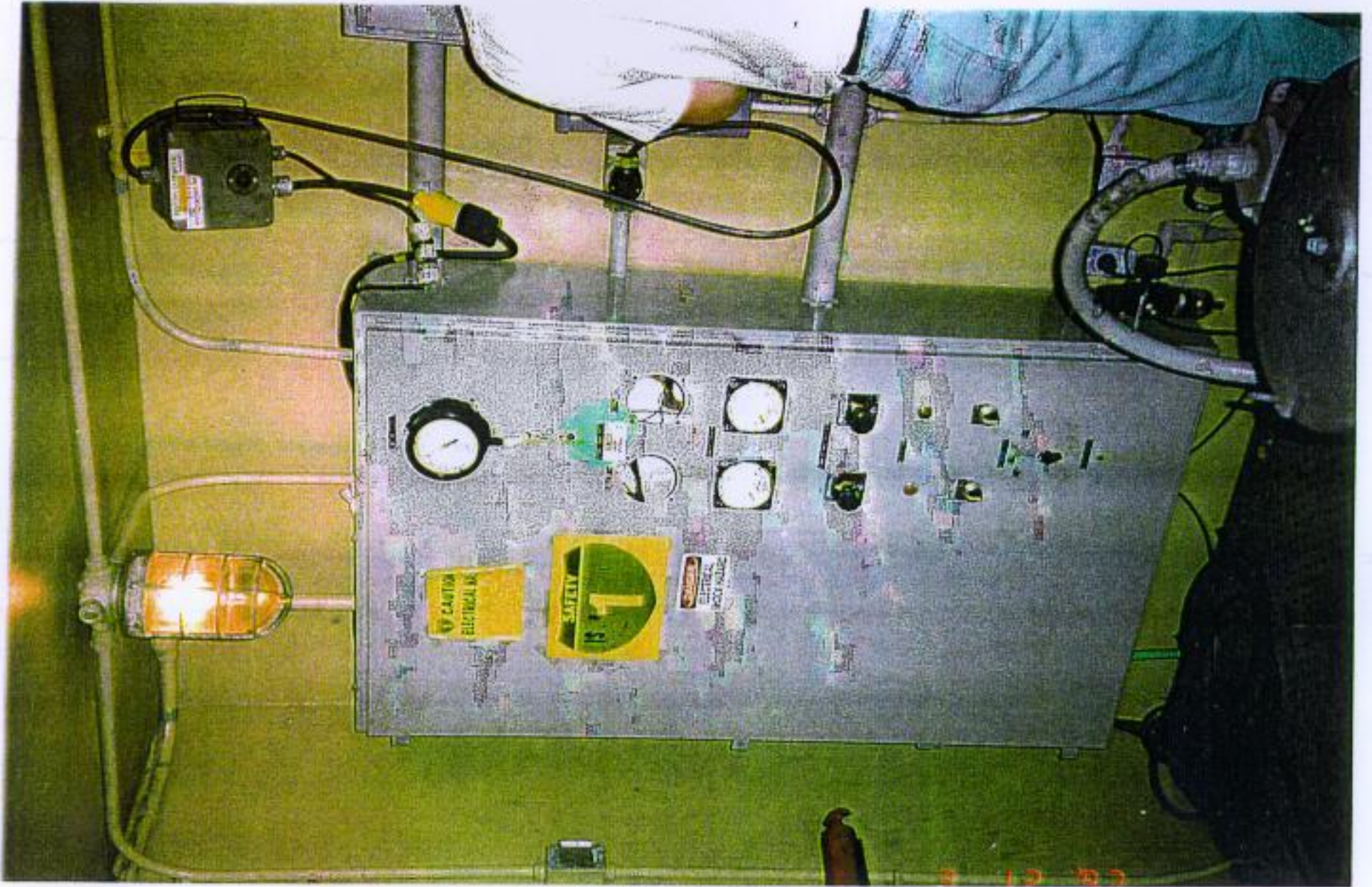


Photo Number 5

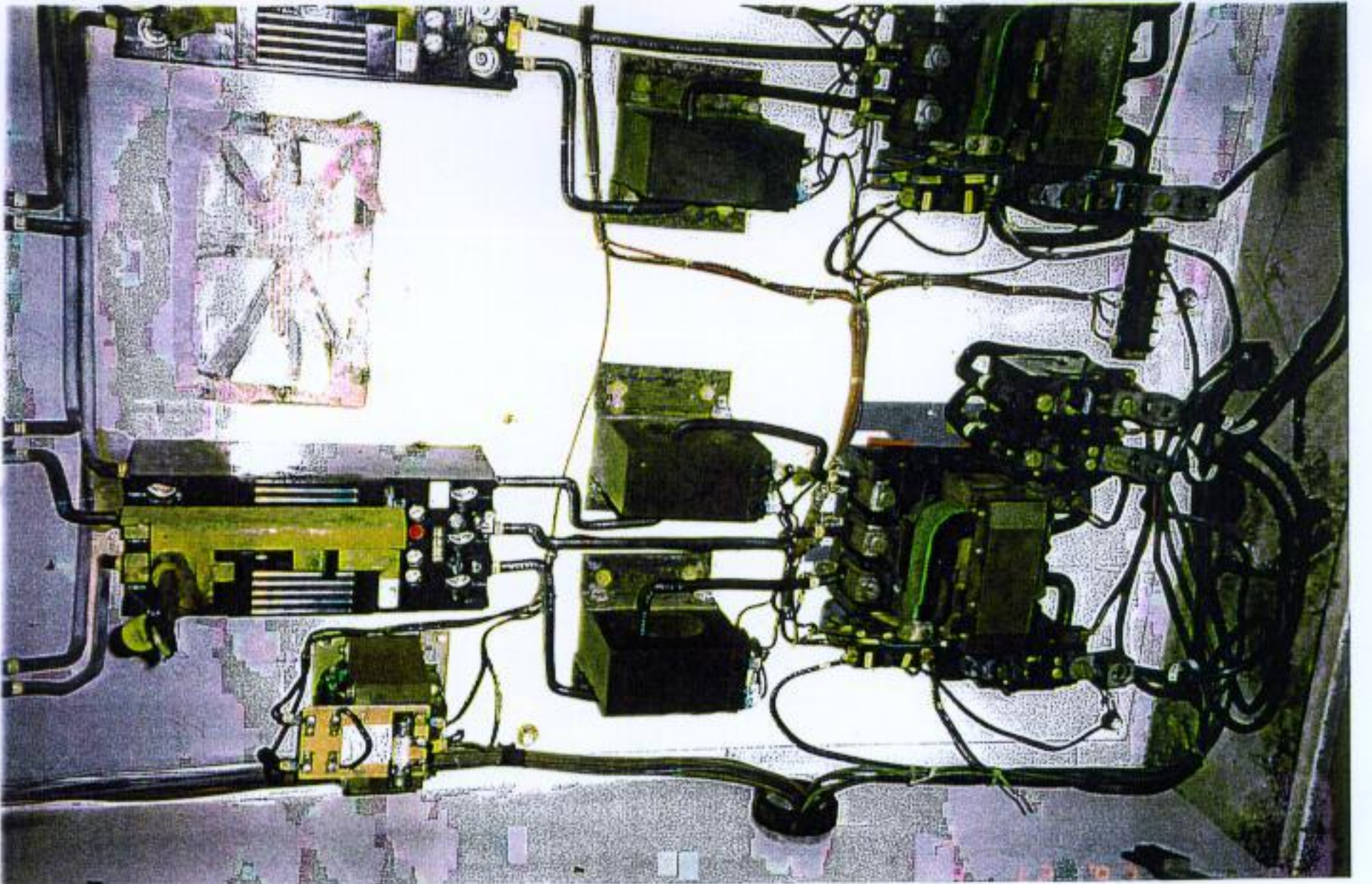


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 181 (FOREST ISLES)
5631 WEST FOREST ISLES DRIVE**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 181 (Forest Isles)

Pump Station 181 is a hut-type, suction-lift station located at 5631 West Forest Isles Drive. Wastewater discharges the station via an 8-inch diameter force main for approximately 1000 feet where it begins gravity flow and is repumped by Pump Station 180 (Tall Timbers). Pump Station 181 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 181.

Pump Station 181 contains two (6-inch by 6-inch) Gorman Rupp horizontally aligned pumps. Each pump is powered by a 20 horsepower (hp) Reliance electric motor operating at a speed of 1760 revolutions per minute (rpm). This equipment is housed in a 10-foot by 7-foot sliding fiberglass shell completely above ground. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair.

Pump Station 181 collects wastewater from the surrounding gravity sewer system into a 21.6-foot deep concrete wet well. The cross sectional area of the wet well is an arched pipe shape with estimated 77-inch by 122-inch dimensions. The concrete aggregate is exposed throughout the interior surface of the wet well suggesting a corrosion problem.

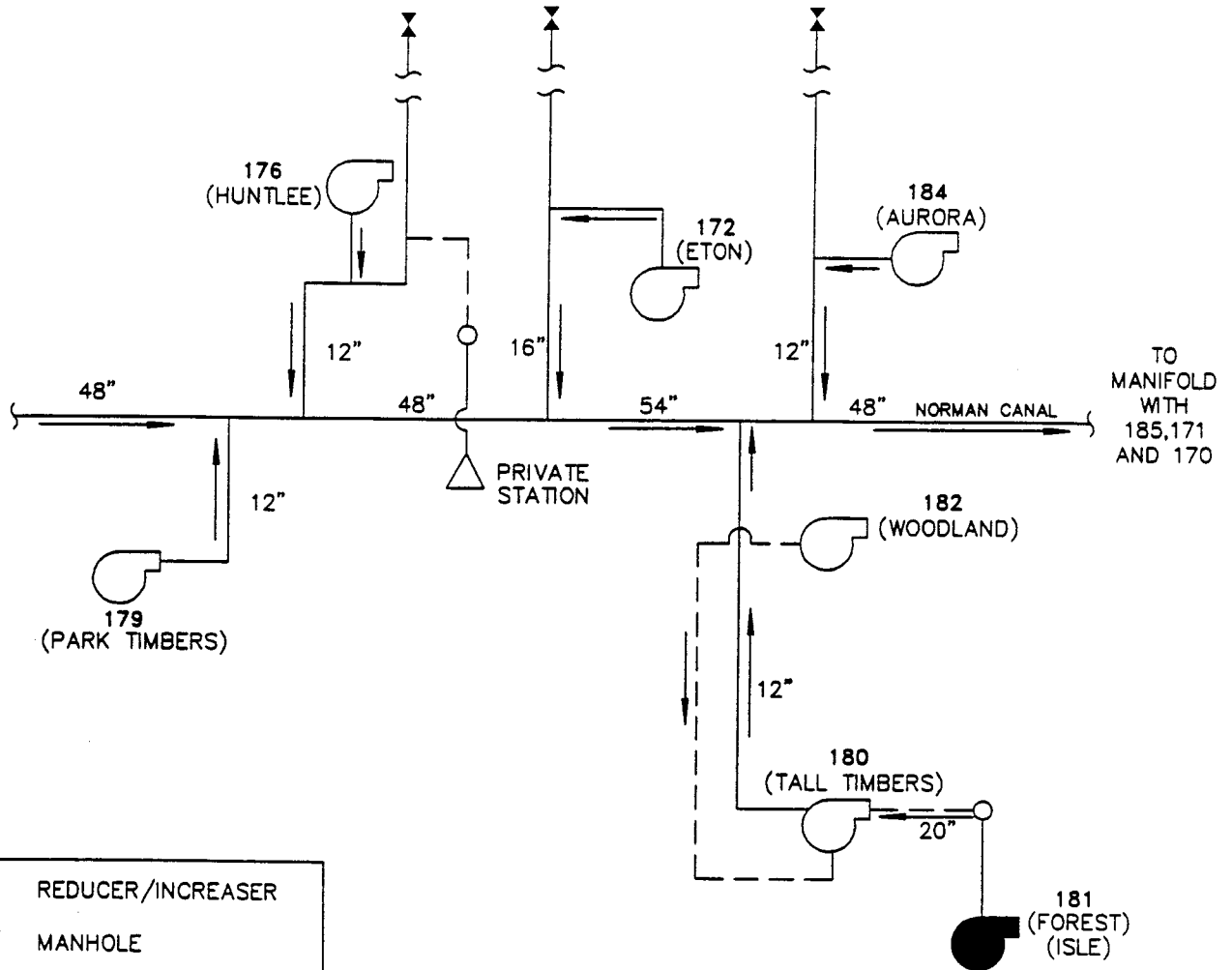
A draw down/fill test was conducted to determine the capacity of Pump Station 181. Figure 4 shows the pump curve constructed from obtained test data. Pump #1 has an approximate capacity of 140 gallons per minute (gpm) at 29 feet of head. The shut-off head of Pump #1 was found to be 29 feet. A pump curve was not assumed for Pump #1 due to its inconsistent flow during the test. Pump #2 has an approximate capacity of 650 gpm at 28 feet of head. The shut-off head of Pump #2 was found to be 59 feet. The difference in pump performance can possibly be attributed to a wide range of problems including pump wear, line or valve blockage, loss of suction and/or priming system failure.

Recommendations:

1. An initial observation of the wet well suggests that corrosion is occurring. The extent of the damage should be further investigated and corrected as necessary.
2. It is recommended that an investigation to determine the cause for significant capacity reduction in Pump #1 be conducted.
3. The physical condition of the motors, motor control, electrical service disconnect switch and the control panel is poor due to corrosion. It is recommended that these electrical issues be addressed.



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER



	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	WBSTP WEST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

JOB NO.: 1113030.01090120 DATE: 3/28/97

FILE NO.: 181



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 181 (FOREST ISLES)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

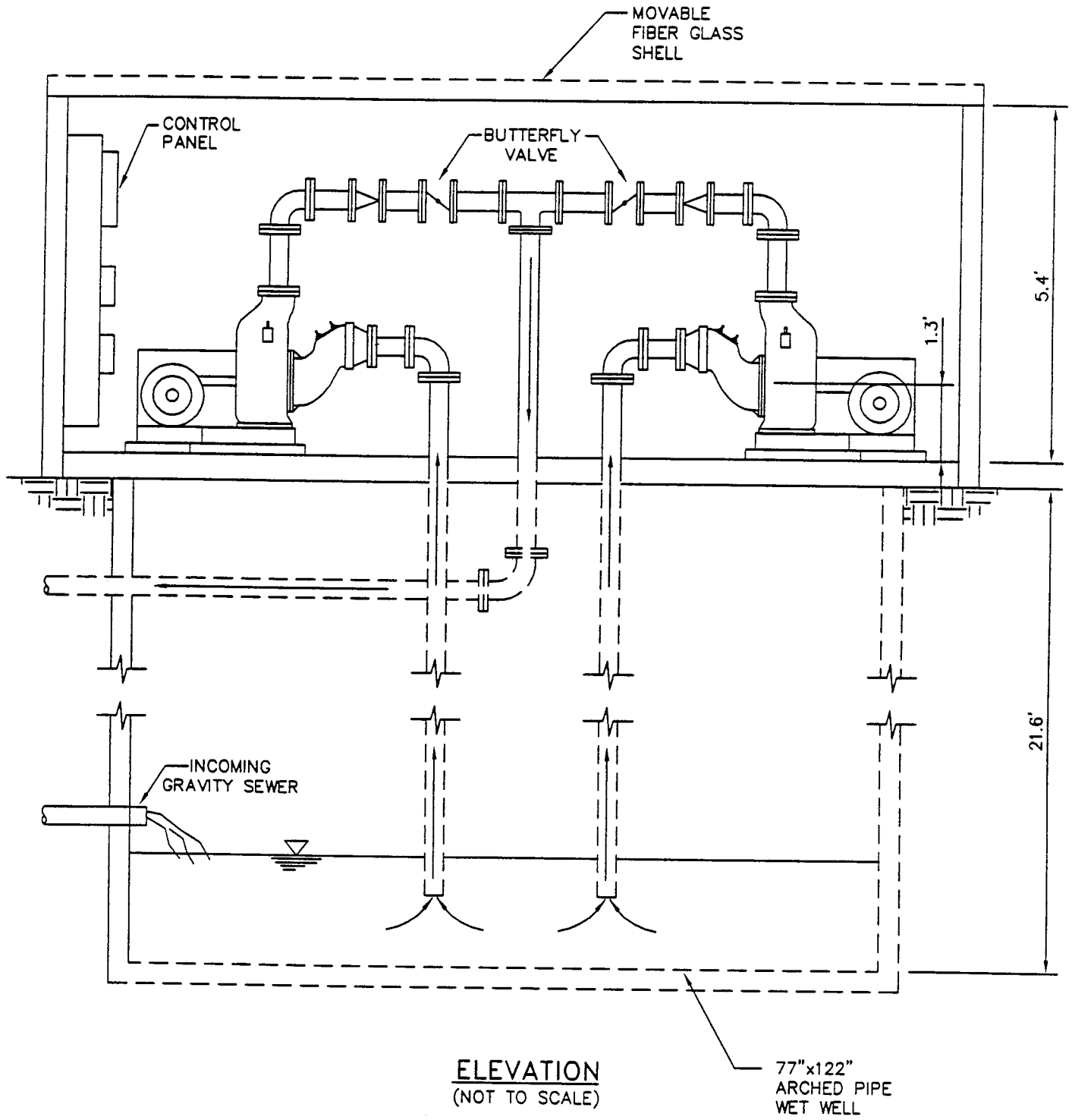
FIGURE:

1

DATE:

3/28/97

FILE NO.: 18. JOB NO.: 1113030.01090120 DATE: 3/28/97





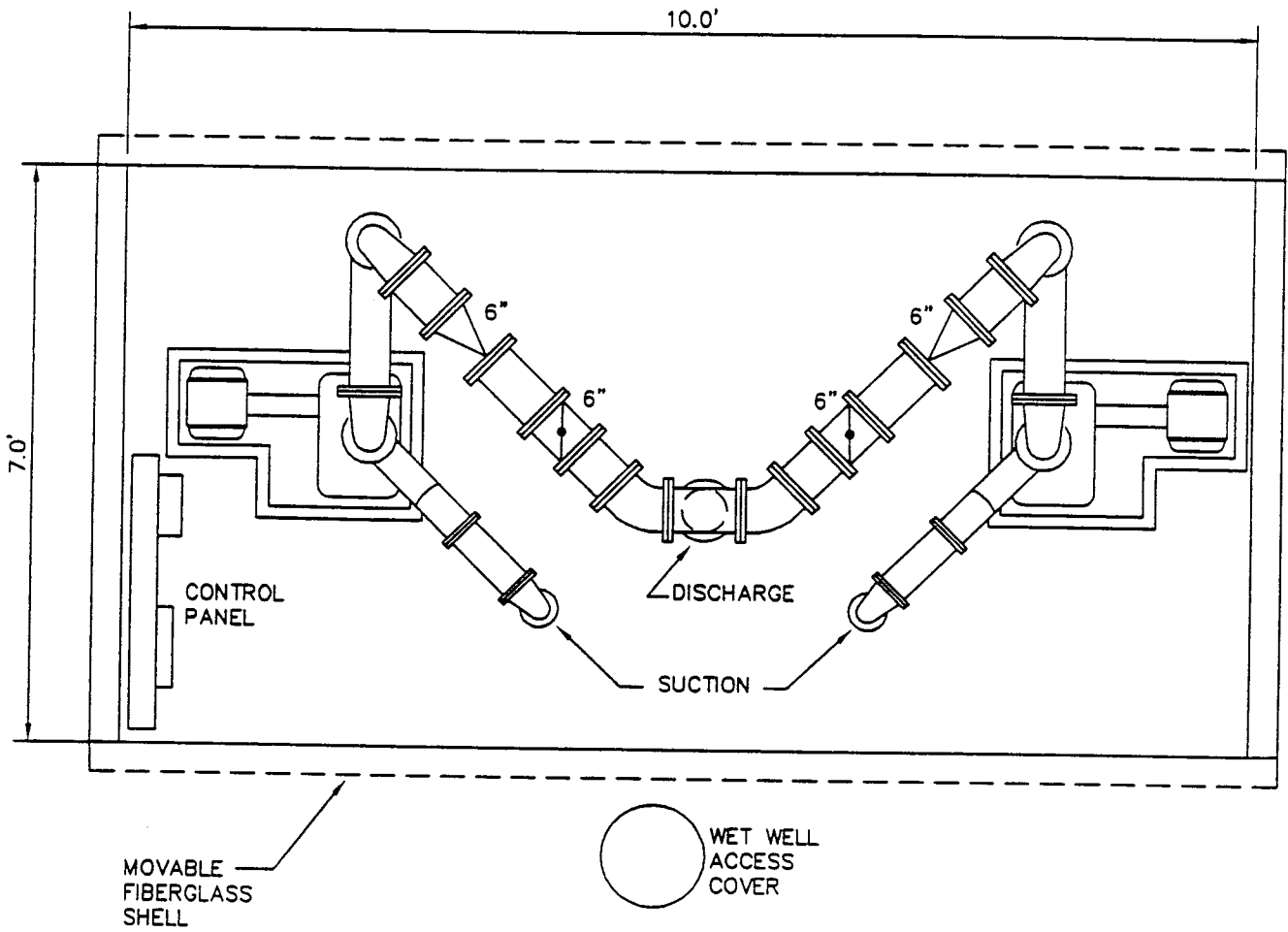
 <p>SEWERAGE AND WATER BOARD OF NEW ORLEANS</p>	<p>PUMP STATION 181 (FOREST ISLES) HUT-TYPE SUCTION LIFT</p>
 <p>MONTGOMERY WATSON</p>	

FIGURE:	2
DATE:	3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 181 .G JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 181 (FOREST ISLES)
HUT-TYPE SUCTION LIFT

FIGURE:

3

DATE:

3/28/97

Pump Station: 181 (Forest Isles)

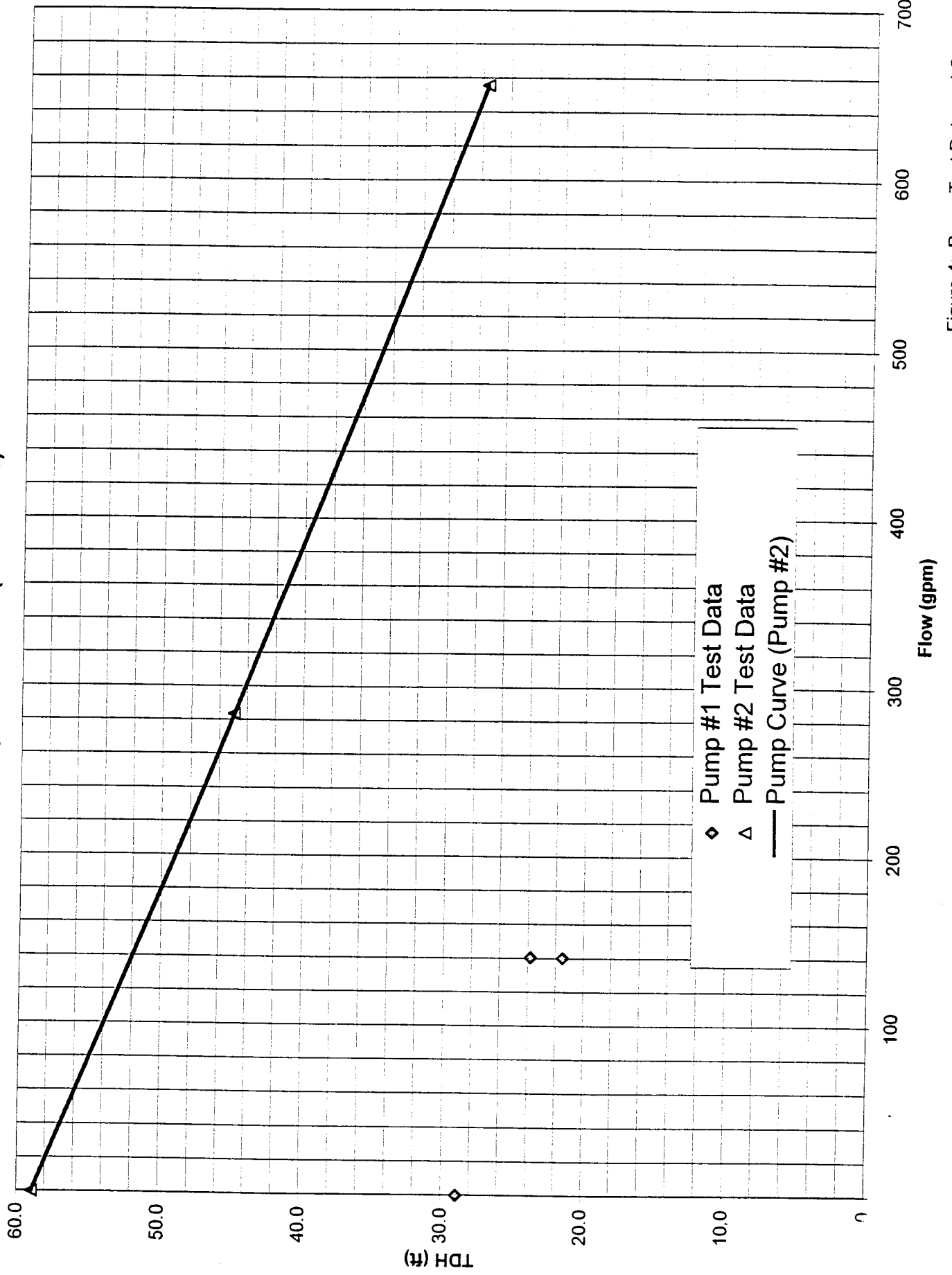


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 181

General Information

PS No. 181 PS Facility Forest Isles Address 5631 West Forest Isles Drive

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Gorman-Rupp

Impeller Diameter 0 inch

Model Number-Pump #1 not readable Serial Number-Pump #1 not readable

Model Number-Pump #2 not readable Serial Number-Pump #2 not readable

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 6 inch Pump Discharge 6 inch FM Diameter 8 inch

Suction Valve Size 0 inch Discharge Valve Size 6 inch

Suction Valve Type 0 Discharge Valve Type butterfly

Check Valve Size 6 inch

Dry Well Dimensions 0 ft. dia. Length 10 ft. Width: 7 ft. Depth 0 ft.

Pump centerline* 1.3 ft. Centerline of discharge pipe* 3.5 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 181

Pump Controls

Lead pump on 6 ft. Type of Controls bubbler
Lead pump off 1 ft.
Lag pump on 7 ft.
Lag pump off 2 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments 77" x 122" arched concrete pipe.

Diameter 0 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 21.6 ft.

Sewer Invert(s) Depth* 15.8 ft.

0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 181

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 240V three phase

Size of service protective device 250 amps, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 90 amps, circuit breaker

Service wire size #1/0 AWG Size of motor starter in NEMA 3

Motor wire size #6 AWG Motor Horsepower 20

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1760

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # P25G12A Serial Number - Motor # not available

Model Number - Motor # P25G12A Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The condition of the motors, control panel and other equipment is poor due to corrosion. The pump station has a fusible disconnect switch and it is susceptible to single phasing if 1 or 2 of the 3 fuses are blown. The control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500. The distance between the motor and controller is insufficient. Not

Pump Station 181 (Forest Isles)



Photo Number 1

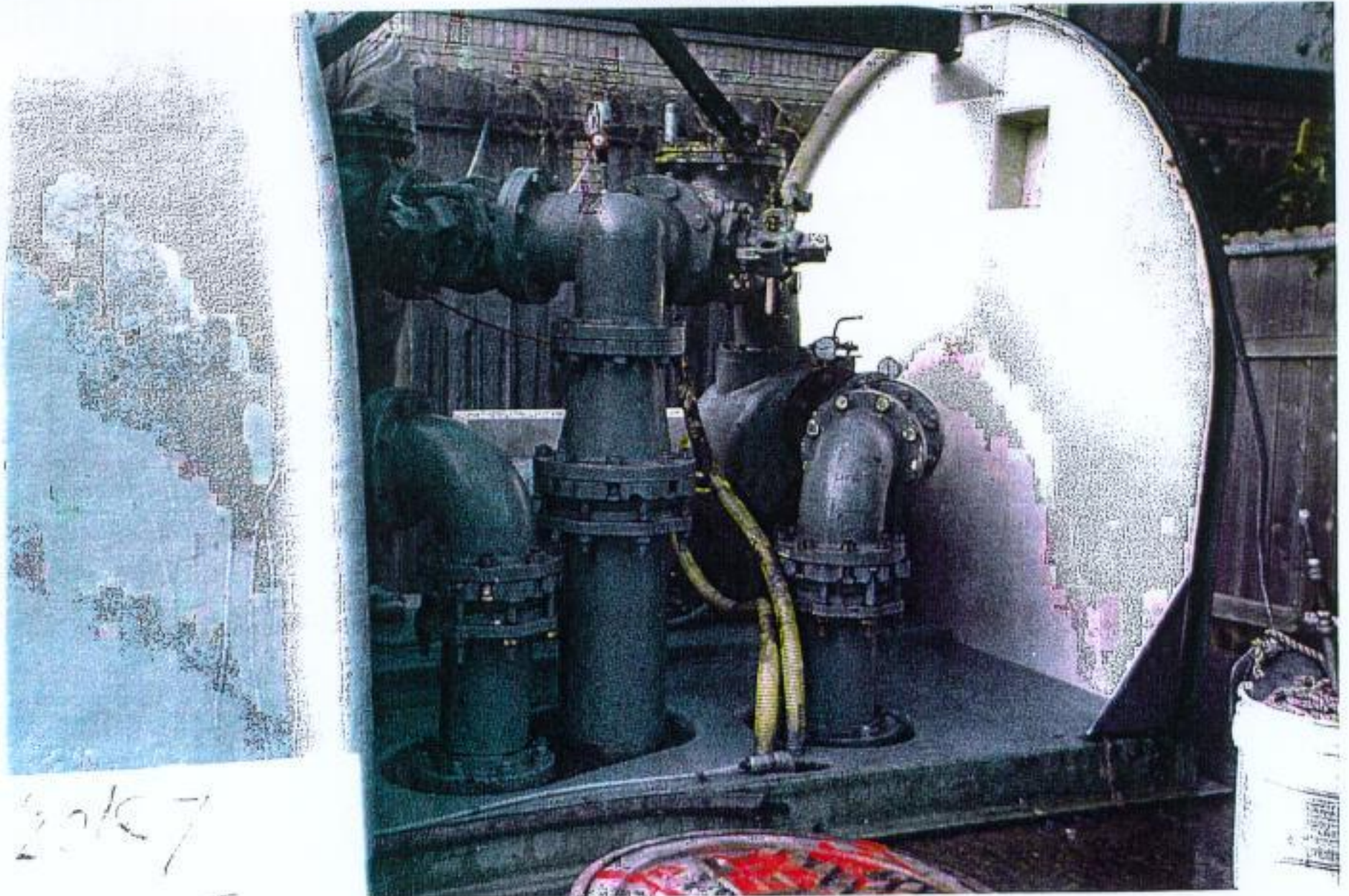


Photo Number 2

Pump Station 181 (Forest Isles)

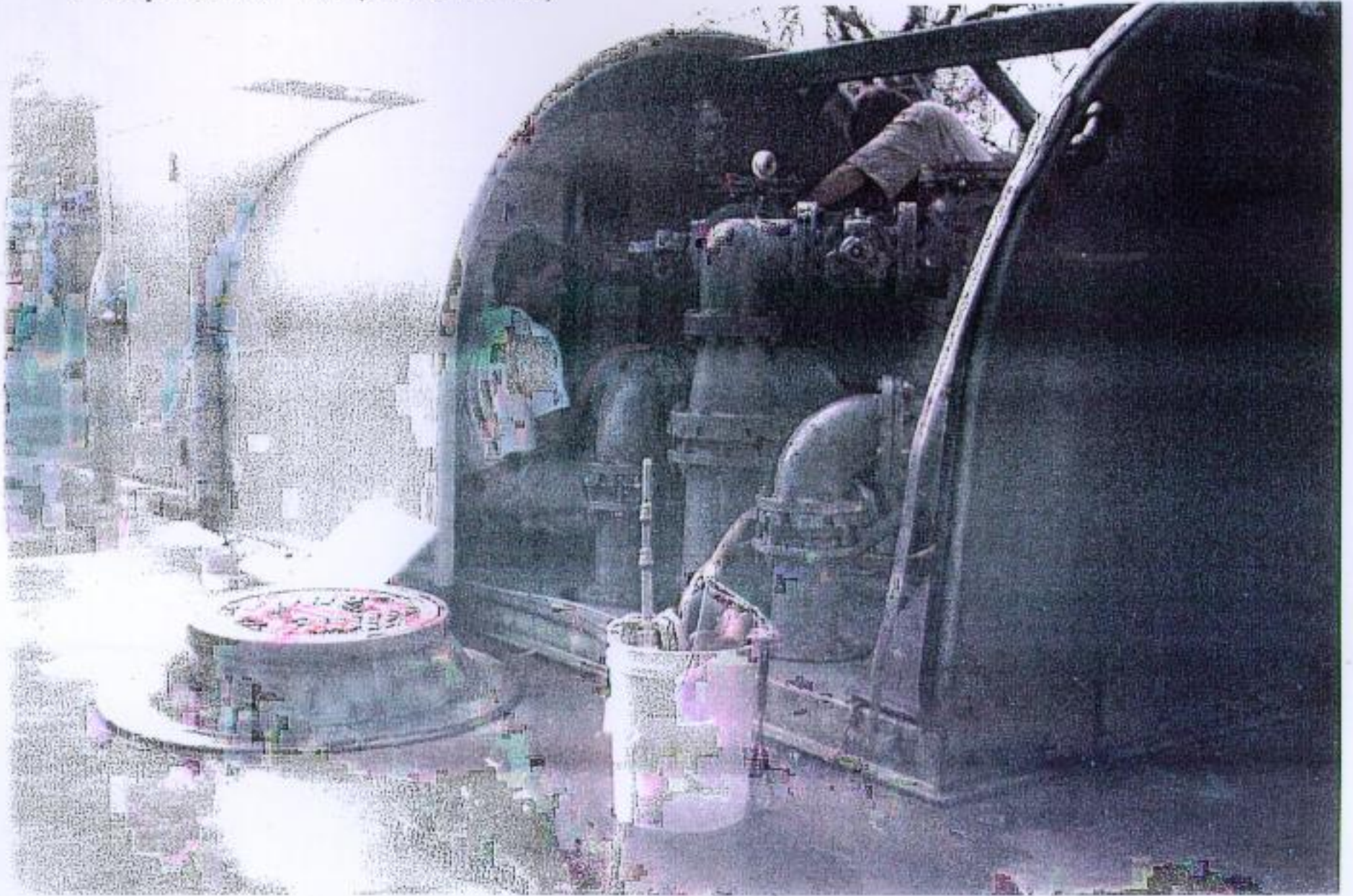


Photo Number 3

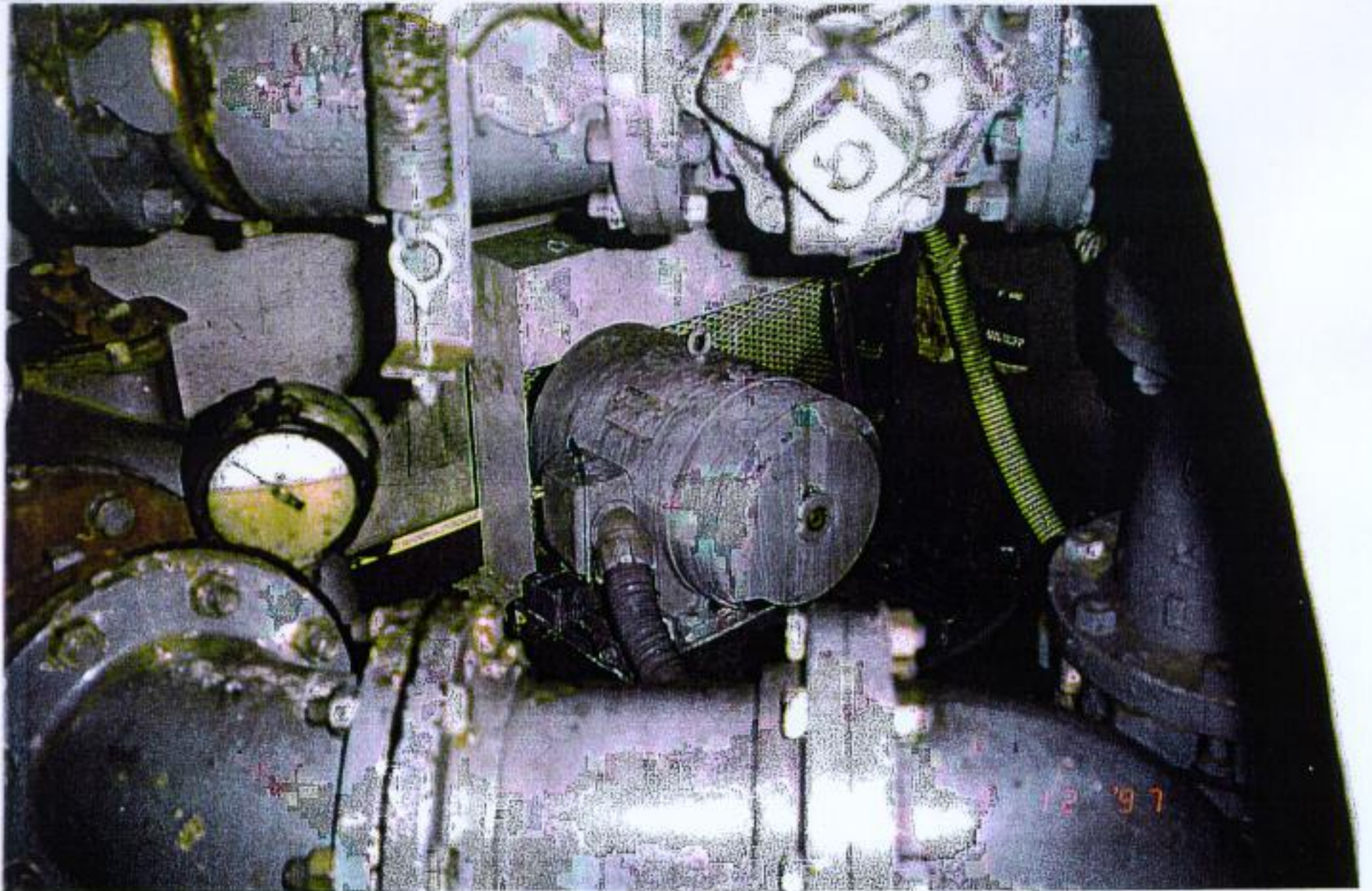


Photo Number 4

Pump Station 181 (Forest Isles)

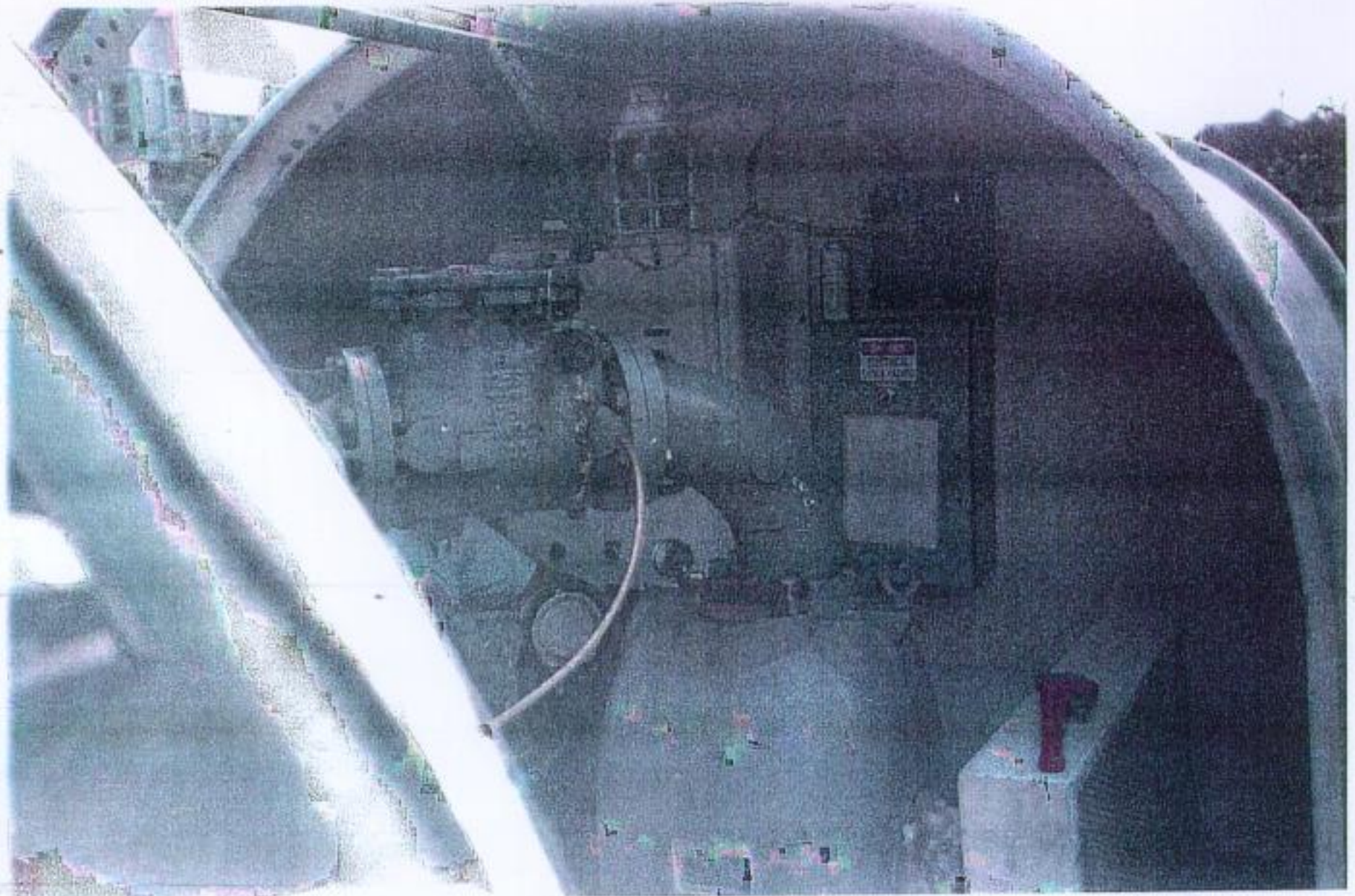


Photo Number 5



Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 182 (WOODLAND)
4150 WOODLAND DRIVE**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 182 (Woodland)

Pump Station 182 is a hut-type, suction-lift station located at 4150 Woodland Drive. Wastewater discharges the station via a 6-inch diameter force main for approximately 100 feet where it begins gravity flow and is repumped by Pump Station 180 (Tall Timbers). Pump Station 182 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 182.

Pump Station 182 contains two (6-inch by 6-inch) Gorman Rupp horizontally aligned pumps. Each pump is powered by a 10 horsepower (hp) Reliance electric motor operating at a speed of 1755 revolutions per minute (rpm). This equipment is housed in a 10-foot by 7-foot sliding fiberglass shell completely above ground. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair.

Pump Station 182 collects wastewater from the surrounding gravity sewer system into a 19.3-foot deep cement-lined brick wet well. The cross sectional area of the wet well is circular with an estimated 6-foot diameter. The overall condition of the wet well is fair.

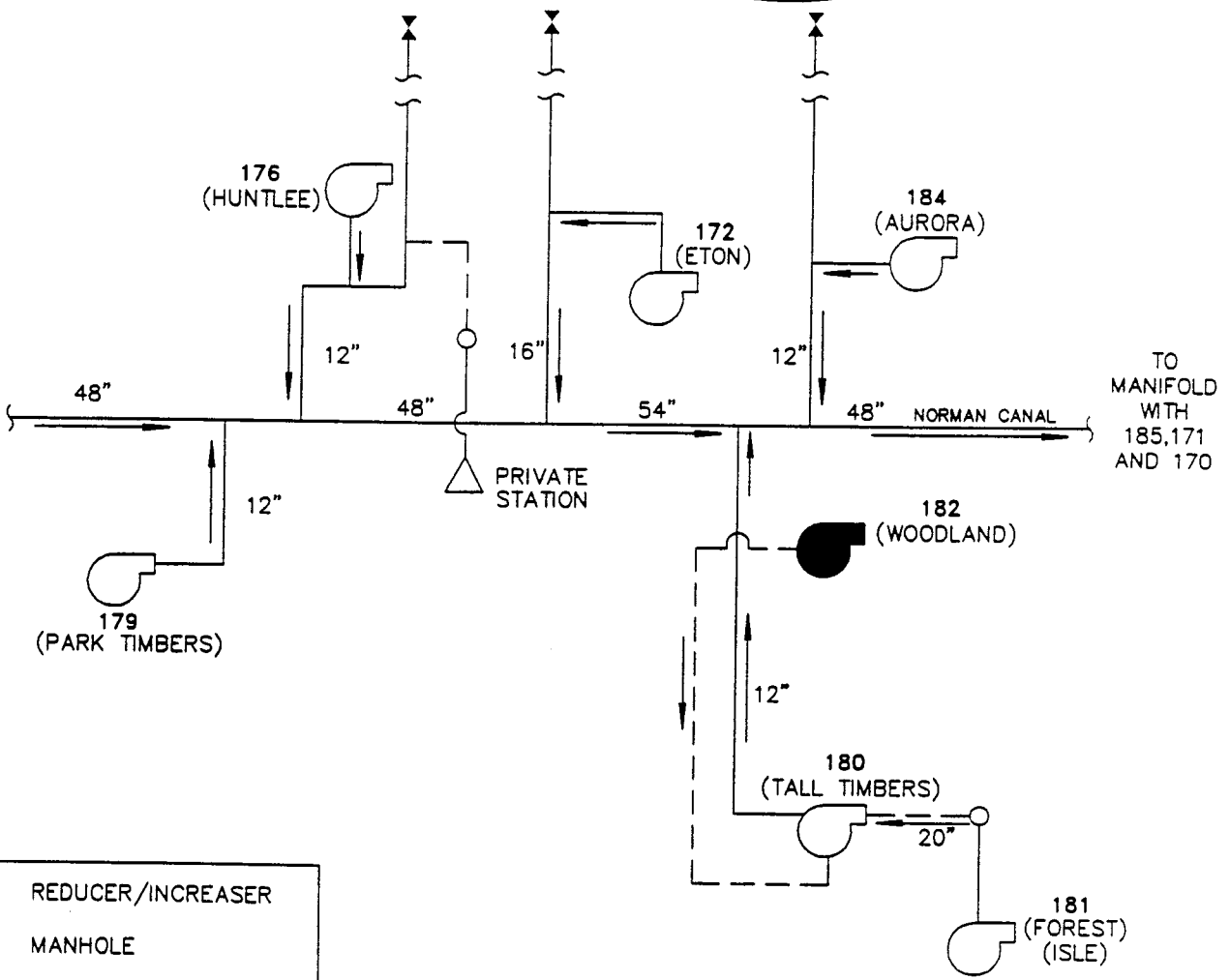
A flow measuring test was conducted to determine the capacity of Pump Station 182. Figure 4 shows the pump curve constructed from obtained test data. Pump #1 has an approximate capacity of 700 gallons per minute (gpm) at 24 feet of head. The shut-off head of Pump #1 was found to be 50 feet. At the time of testing Pump #2 was inoperable due to priming failure and/or blockage in the suction line.

Recommendations:

1. It is recommended that Pump #2 be placed into working condition and its performance evaluated.
2. The physical condition of the motors, motor control, electrical service disconnect switch and the control panel is poor due to corrosion. It is recommended that these electrical issues be addressed.



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER



- ▲ REDUCER/INCREASER
- MANHOLE
- ⋈ GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- △ PRIVATE STATION
- ☪ PUMP STATION
- REF. PUMP STATION
- WBSTP WEST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 182
JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

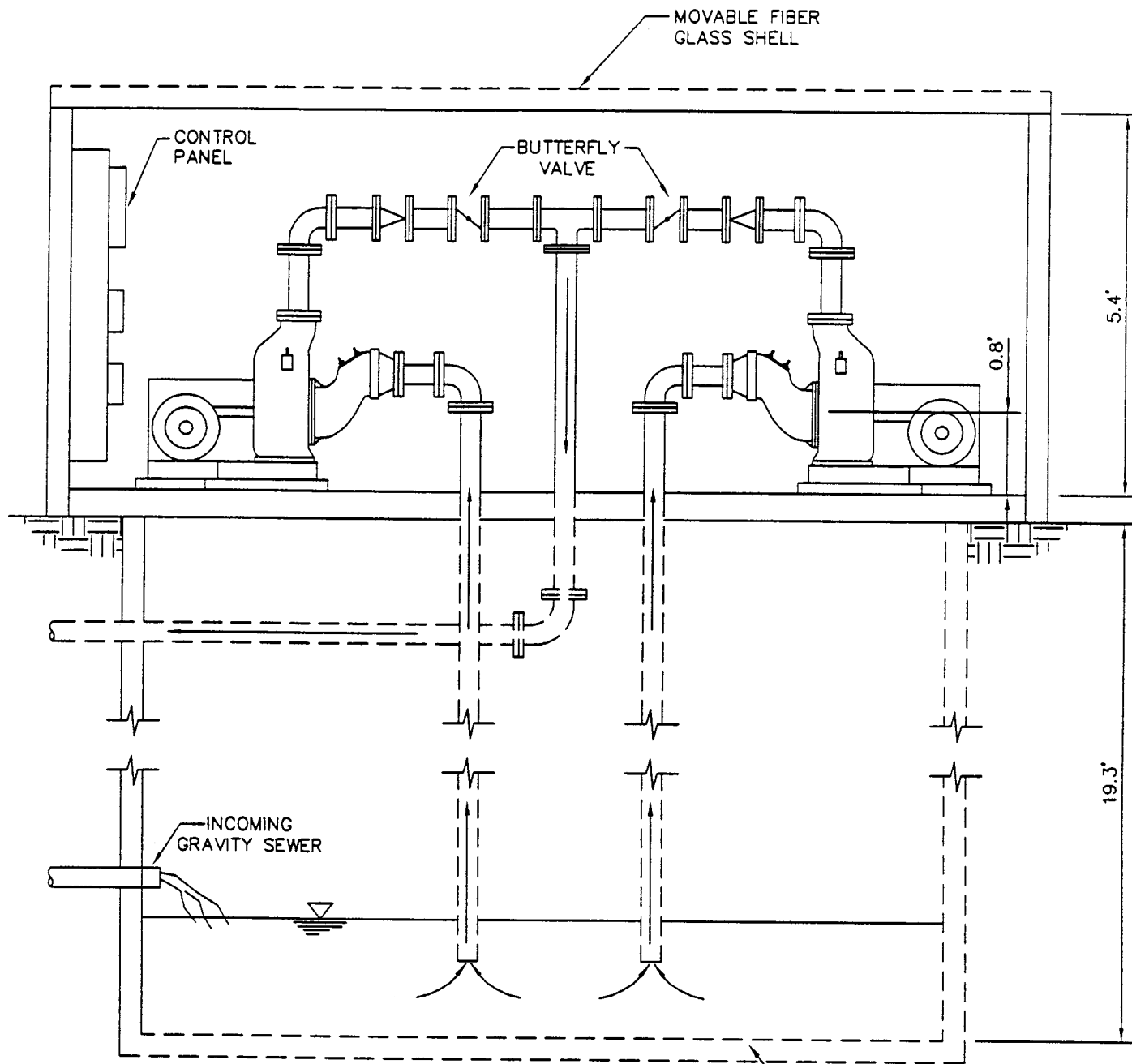
PUMP STATION 182 (WOODLAND)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

1

DATE:

3/28/97

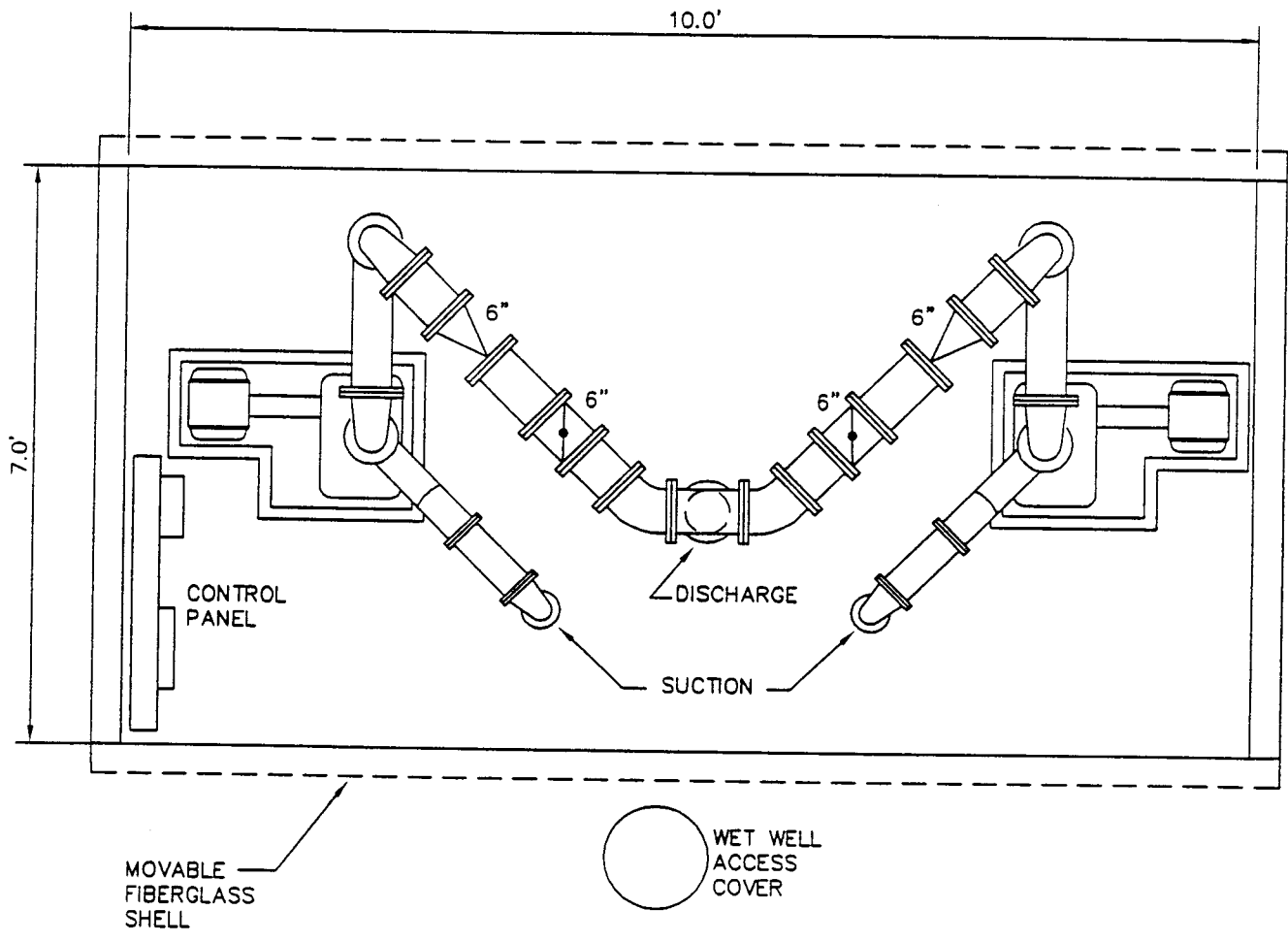


FILE NO.: 182. 3 JOB NO.: 1113030.01090120 DATE: 3/28/97



PUMP STATION 182 (WOODLAND)
HUT-TYPE SUCTION LIFT

FIGURE:
2
DATE:
3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 182 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 182 (WOODLAND)
HUT-TYPE SUCTION LIFT

FIGURE:

3

DATE:

3/28/97

Pump Station: 182 (Woodland)

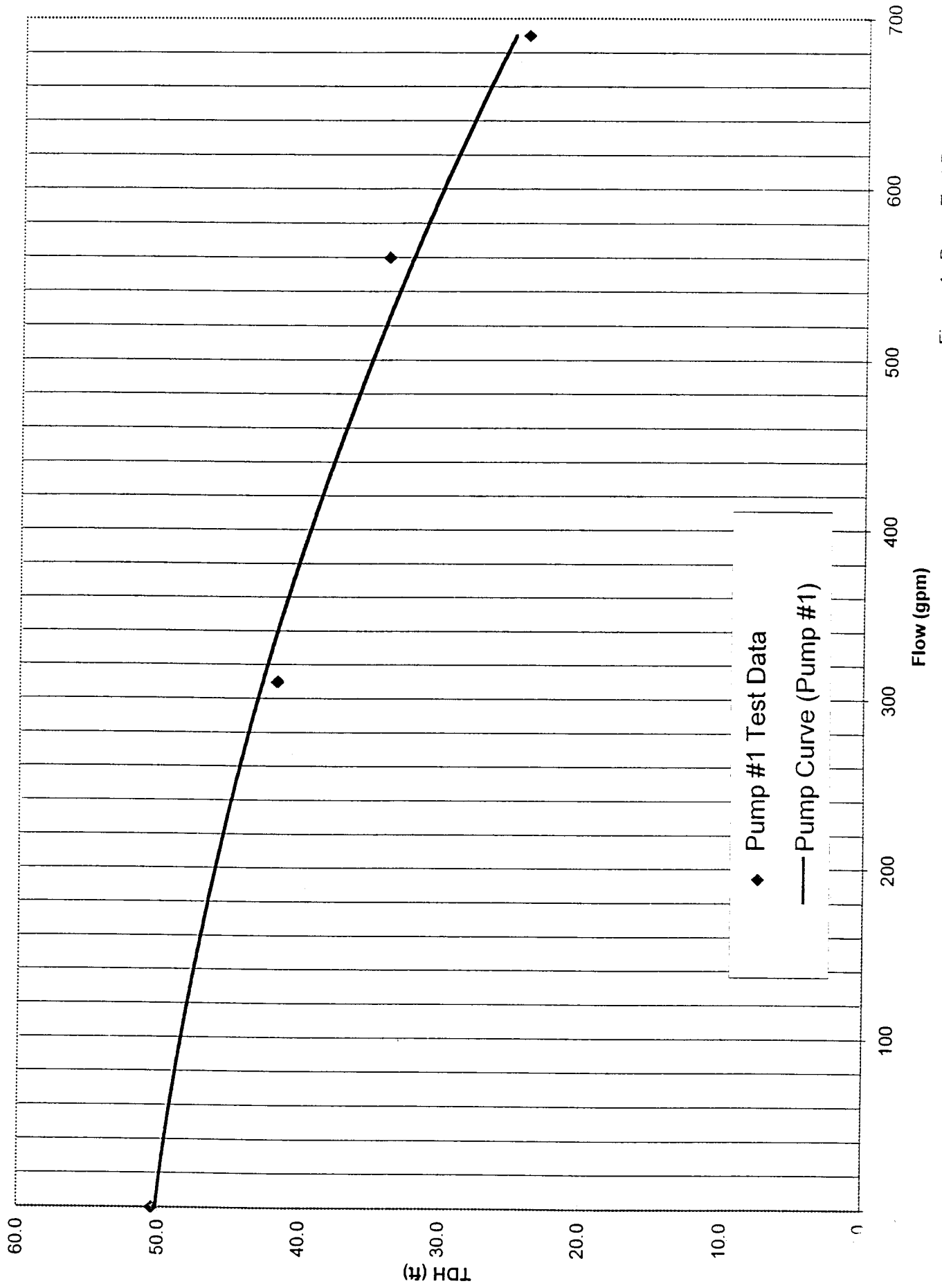


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 182

General Information

PS No. 182 PS Facility Woodland Address 4150 Woodland Drive

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Gorman-Rupp

Impeller Diameter 0 inch

Model Number-Pump #1 T6A3B Serial Number-Pump #1 467450

Model Number-Pump #2 T6A3B Serial Number-Pump #2 467450

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 6 inch Pump Discharge 6 inch FM Diameter 6 inch

Suction Valve Size 0 inch Discharge Valve Size 6 inch

Suction Valve Type 0 Discharge Valve Type butterfly

Check Valve Size 6 inch

Dry Well Dimensions 0 ft. dia. Length 10 ft. Width: 7 ft. Depth 0 ft.

Pump centerline* 0.8 ft. Centerline of discharge pipe* 3.4 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 182

Pump Controls

Lead pump on 10 ft. Type of Controls bubbler
Lead pump off 5 ft.
Lag pump on 11 ft.
Lag pump off 6 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 6 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 19.3 ft.

Sewer Invert(s) Depth* 17.3 ft.

 0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program

Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 182

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 240V three phase open delta (2 transformers bank)

Size of service protective device 100 amps, dual element, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 50 amps, dual element, fusible disconnect switch

Service wire size #3 AWG Size of motor starter in NEMA 2

Motor wire size #8 AWG Motor Horsepower 10

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1755

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # 221G12B Serial Number - Motor # not available

Model Number - Motor # 221G12B Serial Number - Motor # not available

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, main disconnect switch and control panel is poor due to corrosion. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 182 (Woodland)



Photo Number 1



Photo Number 2

Pump Station 182 (Woodland)



Photo Number 3

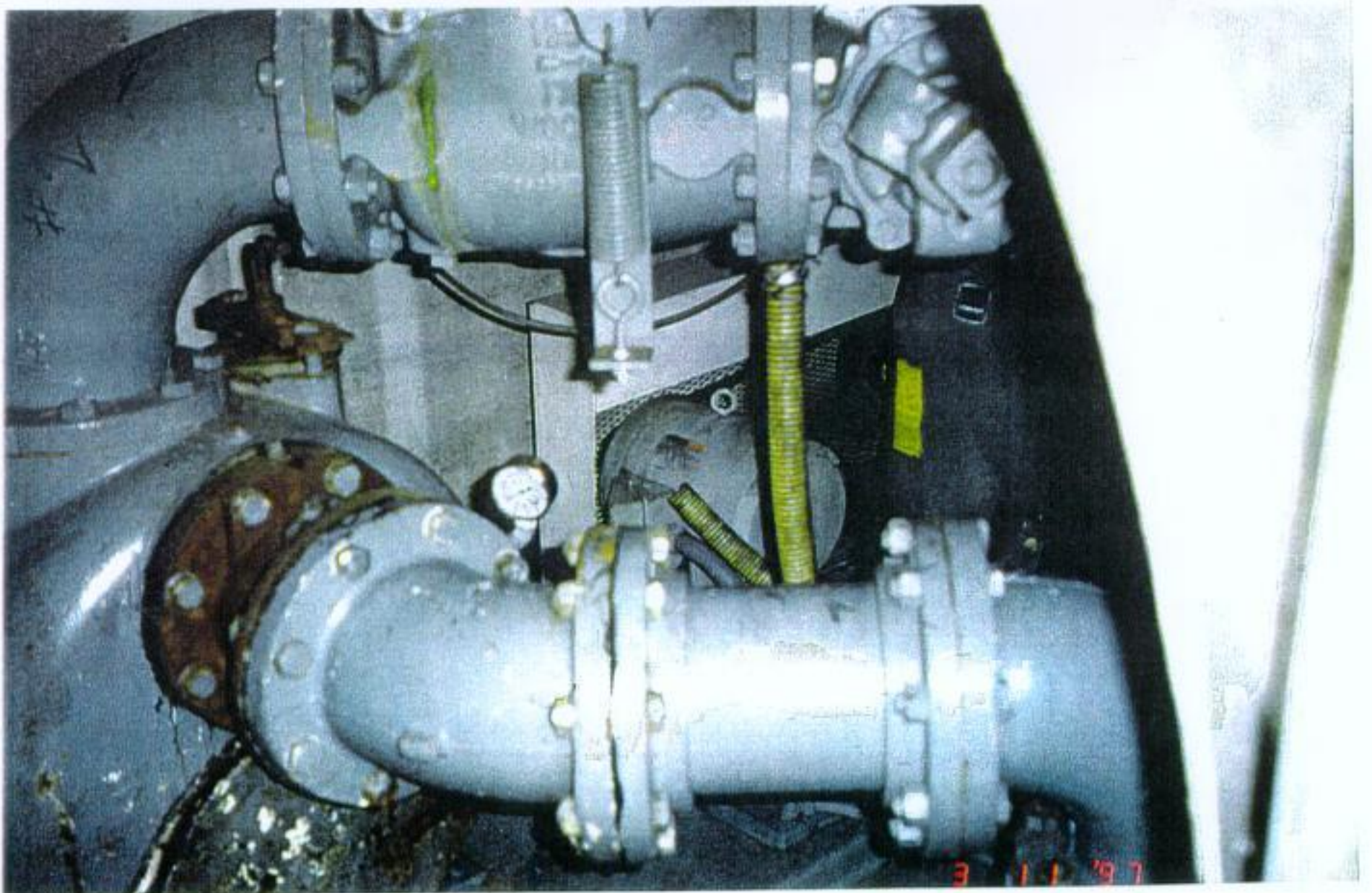


Photo Number 4

Pump Station 182 (Woodland)

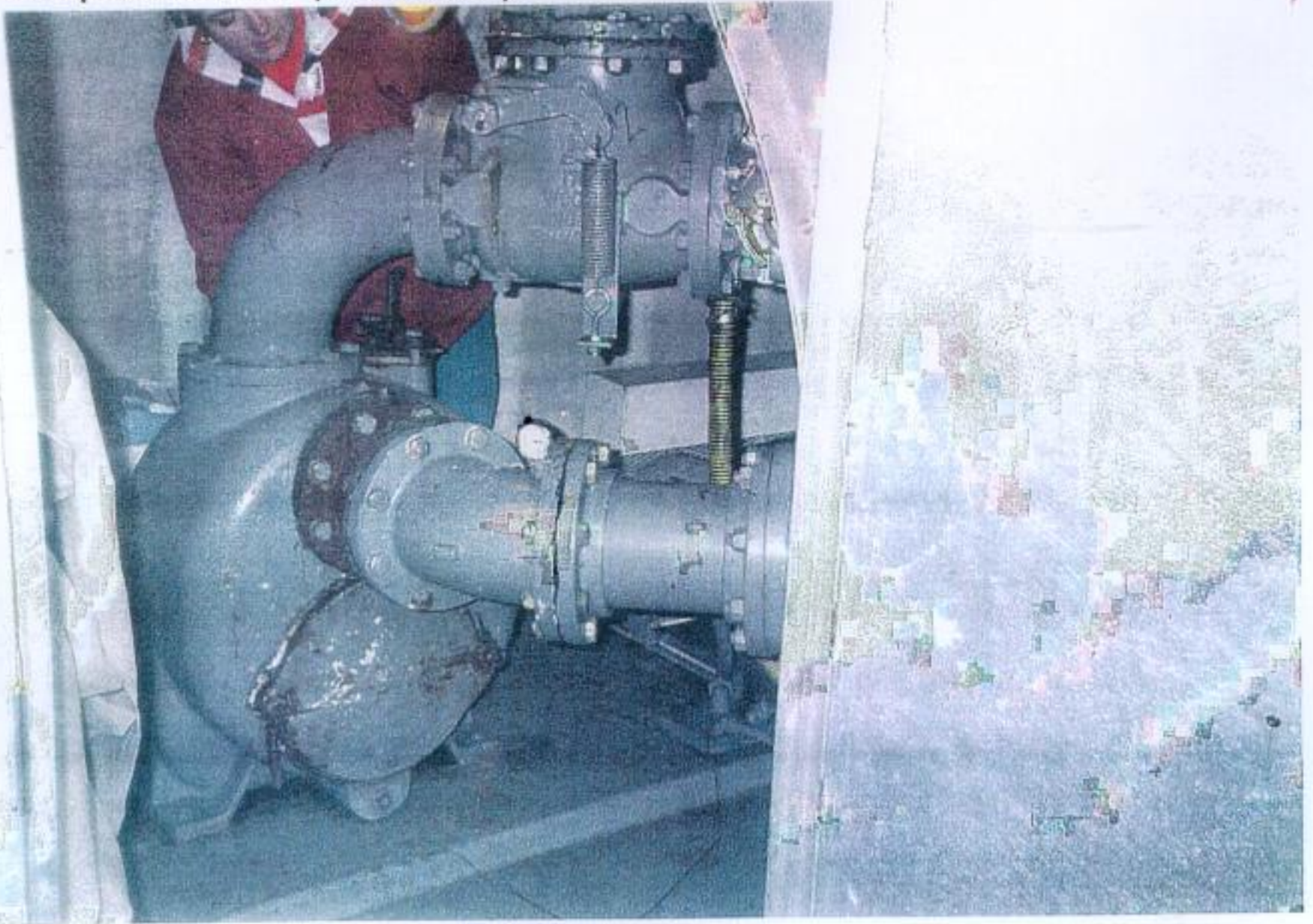


Photo Number 5

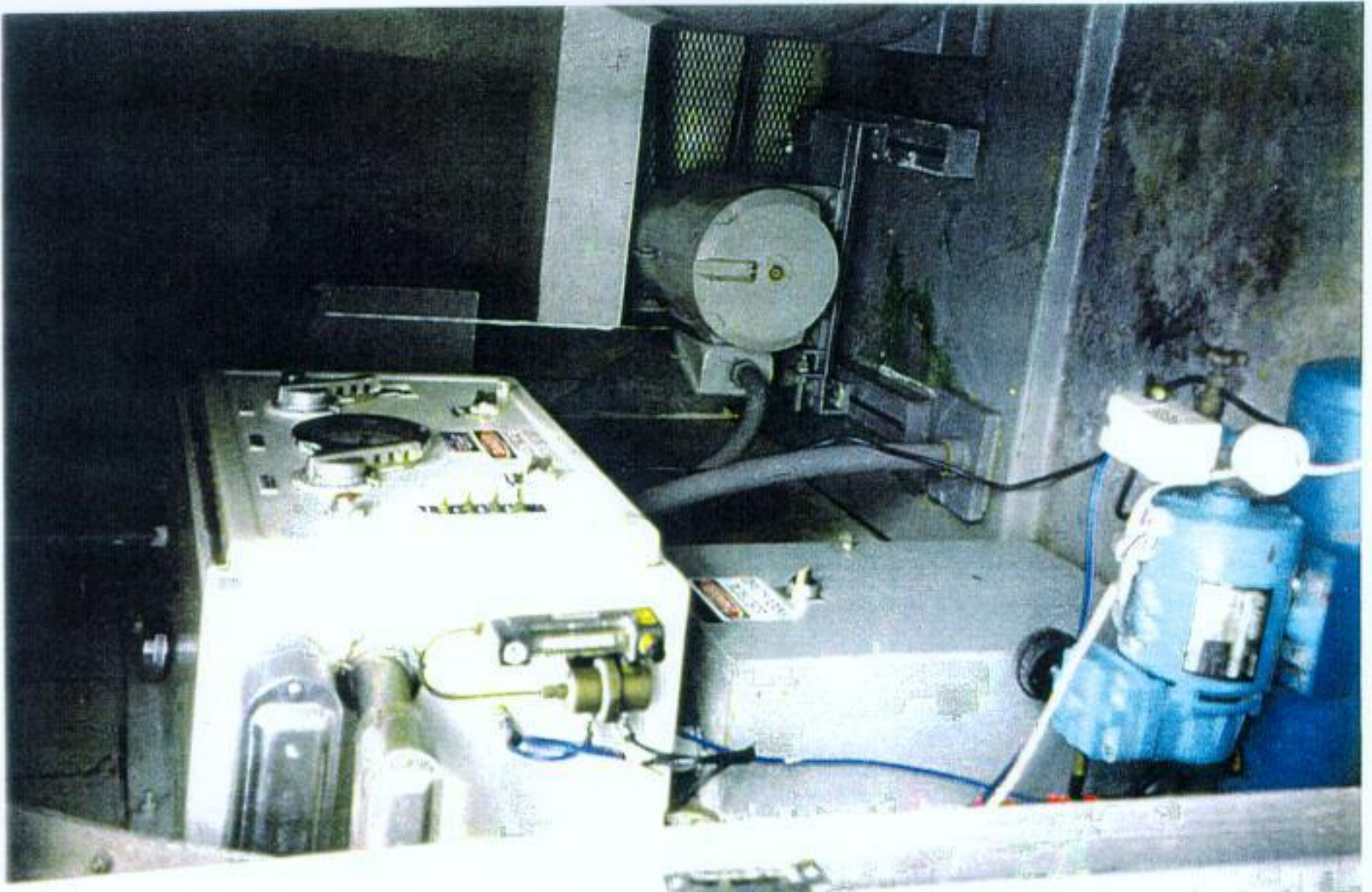


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 183 (WRIGHT)
LAKEFORREST BOULEVARD AT WRIGHT ROAD**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 183 (Wright)

Pump Station 183 is a hut-type, suction-lift station located at the intersection of Lake Forest Boulevard and Wright Road. Wastewater discharges the station via an 8-inch diameter force main for approximately 20 feet where it begins gravity flow and is repumped by Pump Station 151 (Lake Forest). Pump Station 183 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 183.

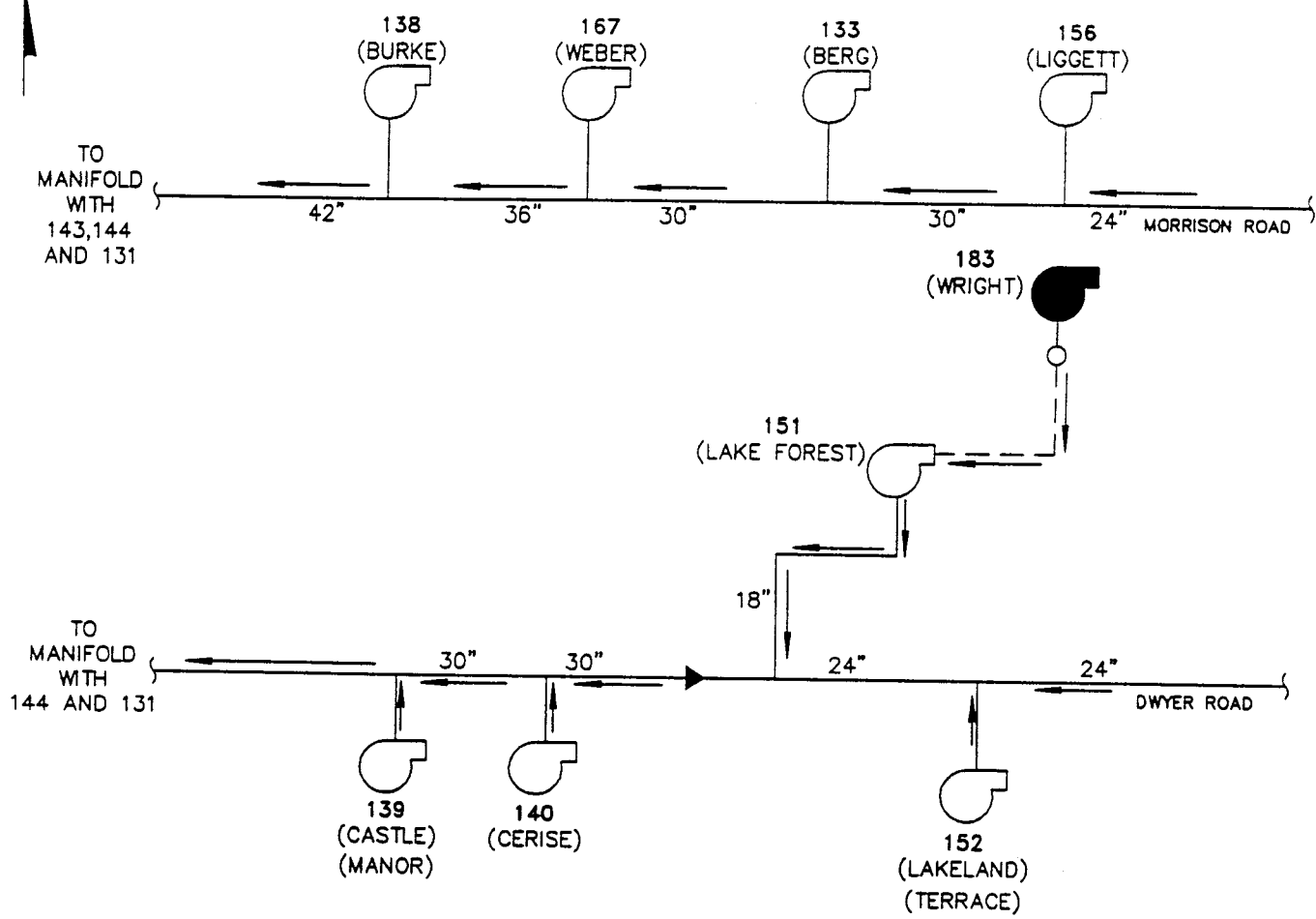
Pump Station 183 contains two (6-inch by 6-inch) Gorman Rupp horizontally aligned pumps. Each pump is powered by a 20 horsepower (hp) Allis Chalmers electric motor operating at a speed of 1750 revolutions per minute (rpm). This equipment is housed in a 10-foot by 7-foot sliding fiberglass shell completely above ground. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair.










Pump Station 183 collects wastewater from the surrounding gravity sewer system into a 21.7-foot deep concrete wet well. The cross sectional area of the wet well is an arched pipe shape with estimated 77-inch by 122-inch dimensions. The concrete aggregate is exposed throughout the interior surface of the wet well suggesting a corrosion problem.

A draw down/fill test was conducted to determine the capacity of Pump Station 183. Figure 4 shows the pump curves constructed from obtained test data. Each pump has an approximate capacity of 850 gallons per minute (gpm) at 25 feet of head. The shut-off head of both pumps was found to be 54 feet. With both pumps operating simultaneously, as may be required in certain events, the maximum capacity of the station was tested as 1700 gpm at 28 feet of head.

Recommendations:

1. An initial observation of the wet well suggests that corrosion is occurring. The extent of the damage should be further investigated and corrected as necessary.
2. The physical condition of the motors, motor control, electrical service disconnect switch and the control panel is poor due to corrosion. It is recommended that these electrical issues be addressed.



-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 185 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

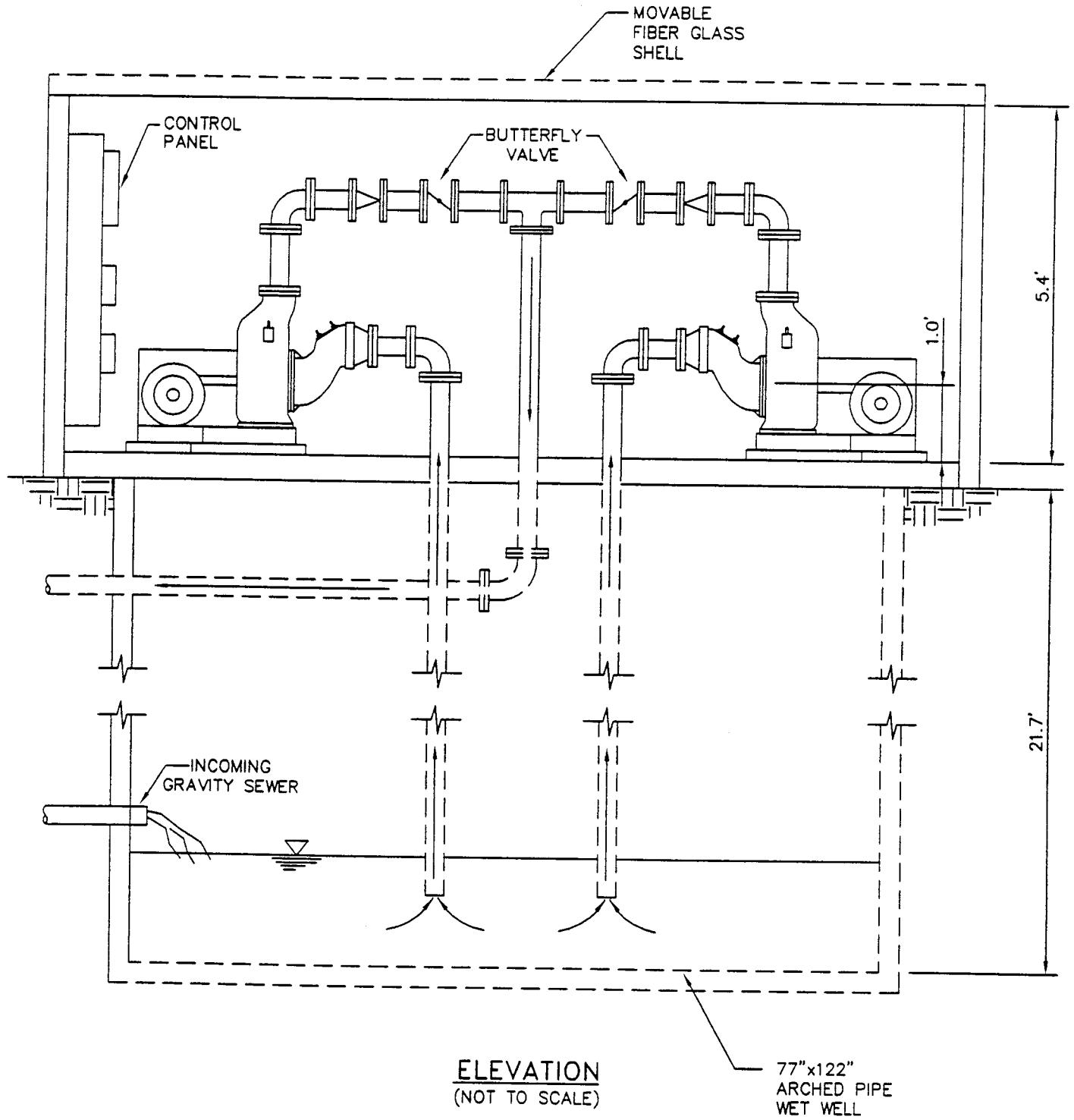
PUMP STATION 183 (WRIGHT)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

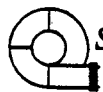
1

DATE:

3/28/97



FILE NO.: 183 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

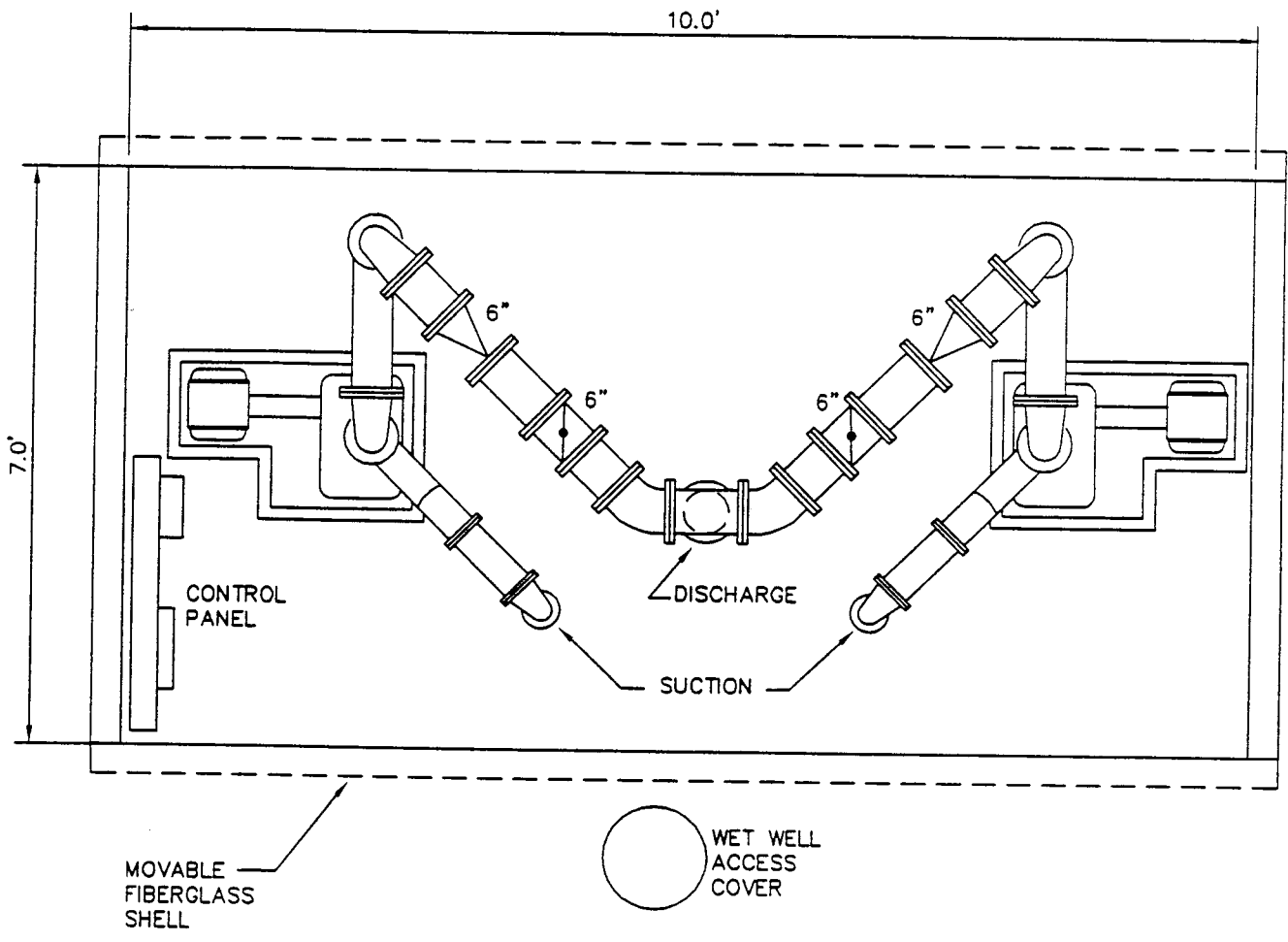
PUMP STATION 183 (WRIGHT)
HUT-TYPE SUCTION LIFT

FIGURE:

2

DATE:

3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 183 JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 183 (WRIGHT)
HUT-TYPE SUCTION LIFT

FIGURE:

3

DATE:

3/28/97

Pump Station: 183 (Wright)

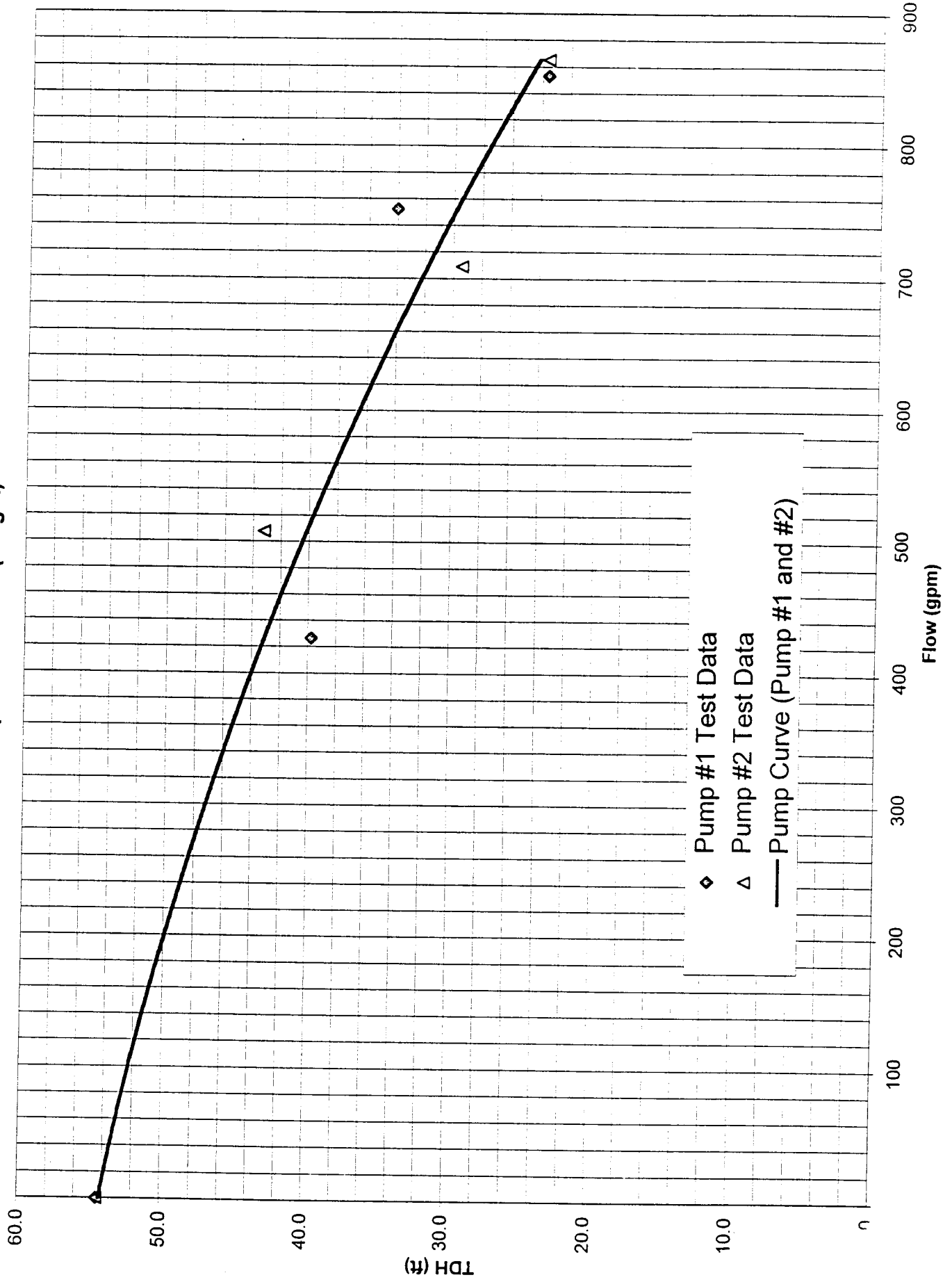


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 183

General Information

PS No. 183 PS Facility Wright Address Lake Forest Boulevard at Wright Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Gorman-Rupp

Impeller Diameter 0 inch

Model Number-Pump #1 T6A-B Serial Number-Pump #1 537983

Model Number-Pump #2 T6A-B Serial Number-Pump #2 537983

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 6 inch Pump Discharge 6 inch FM Diameter 8 inch

Suction Valve Size 0 inch Discharge Valve Size 6 inch

Suction Valve Type 0 Discharge Valve Type butterfly

Check Valve Size 6 inch

Dry Well Dimensions 0 ft. dia. Length 10 ft. Width: 7 ft. Depth 0 ft.

Pump centerline* 1 ft. Centerline of discharge pipe* 3.6 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 183

Pump Controls

Lead pump on 6 ft. Type of Controls bubbler
Lead pump off 3 ft.
Lag pump on 10 ft.
Lag pump off 5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion throughout.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments 77" x 122" arched pipe

Diameter 0 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 21.7 ft.

Sewer Invert(s) Depth* 16.9 ft.

16.3 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 183

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial source, no generator receptacle

Type of service Pad Mounted Transformer, 240V three phase

Size of service protective device 125 amps, dual element, fusible disconnect switch

Size of main protective device not available

Size of motor protective device 60 amps, dual element, fusible disconnect switch

Service wire size # 1 AWG Size of motor starter in NEMA 2

Motor wire size # 6 AWG Motor Horsepower 15

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1750

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # 613 Allis Chalmers Serial Number - Motor # 51-305-629

Model Number - Motor # 613 Allis Chalmers Serial Number - Motor # 51-305-629

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, service disconnect and control panel is poor due to corrosion. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 183 (Wright)



Photo Number 1

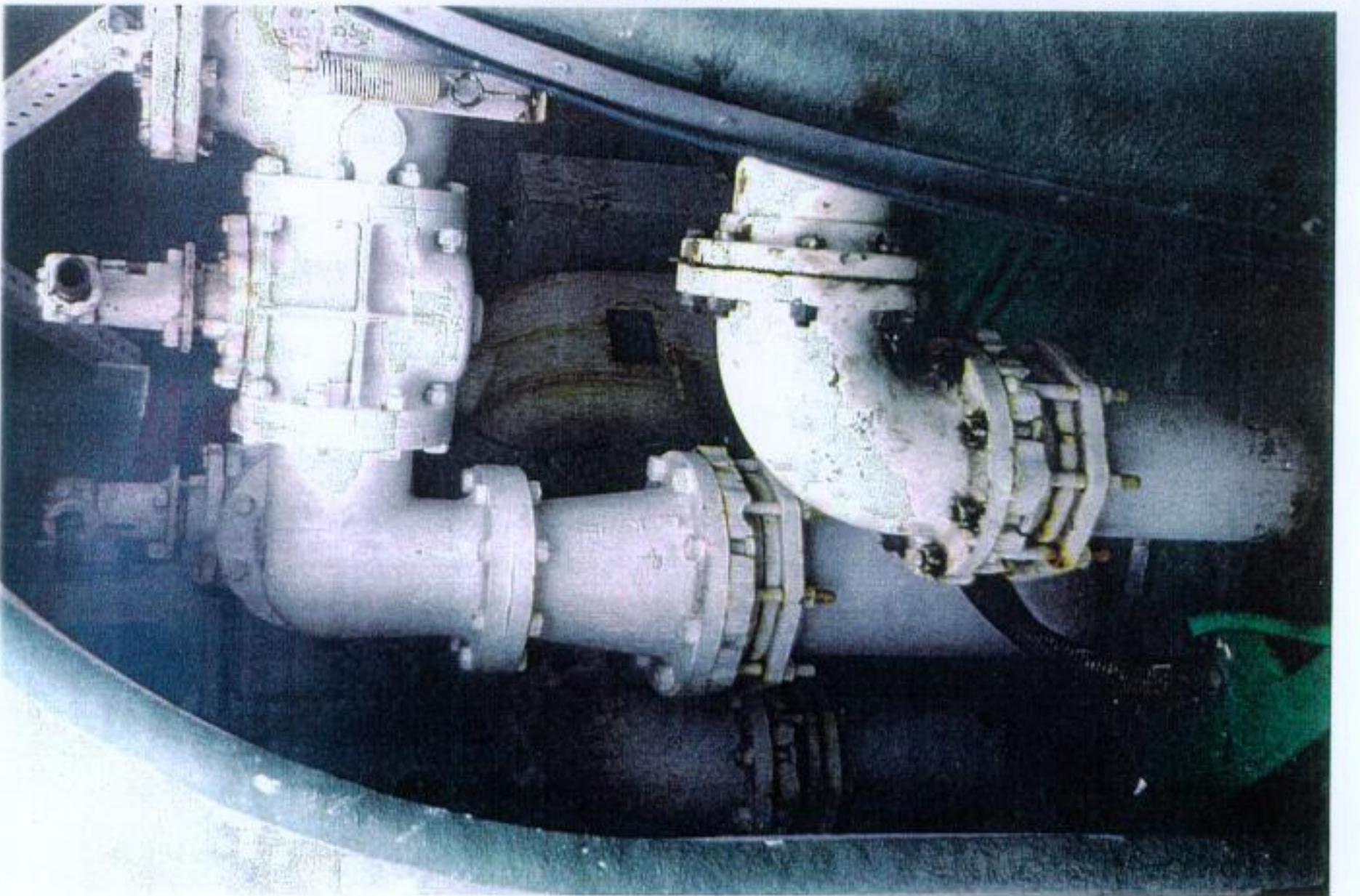


Photo Number 2

Pump Station 183 (Wright)



Photo Number 3

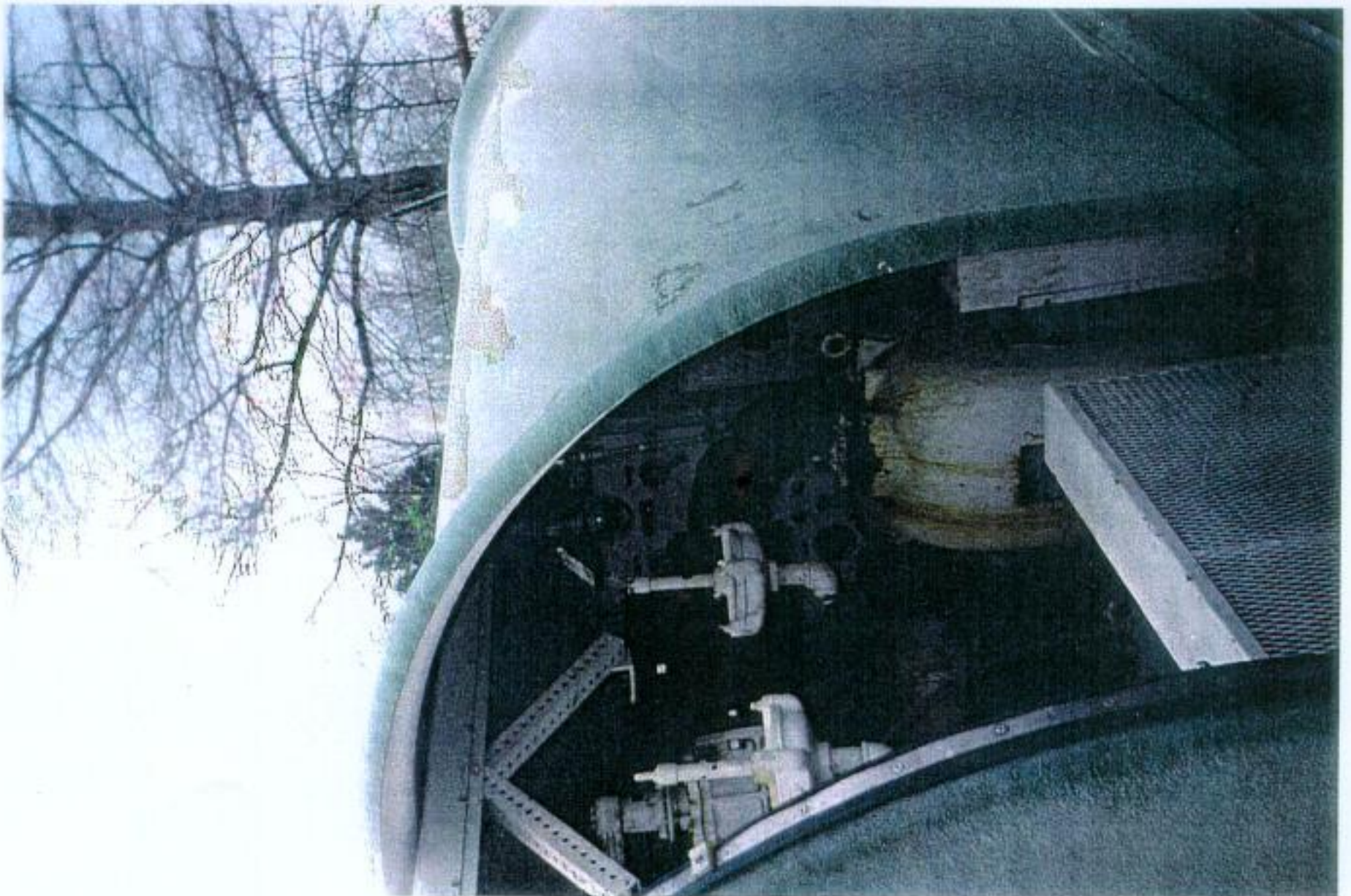


Photo Number 4

Pump Station 183 (Wright)



Photo Number 5

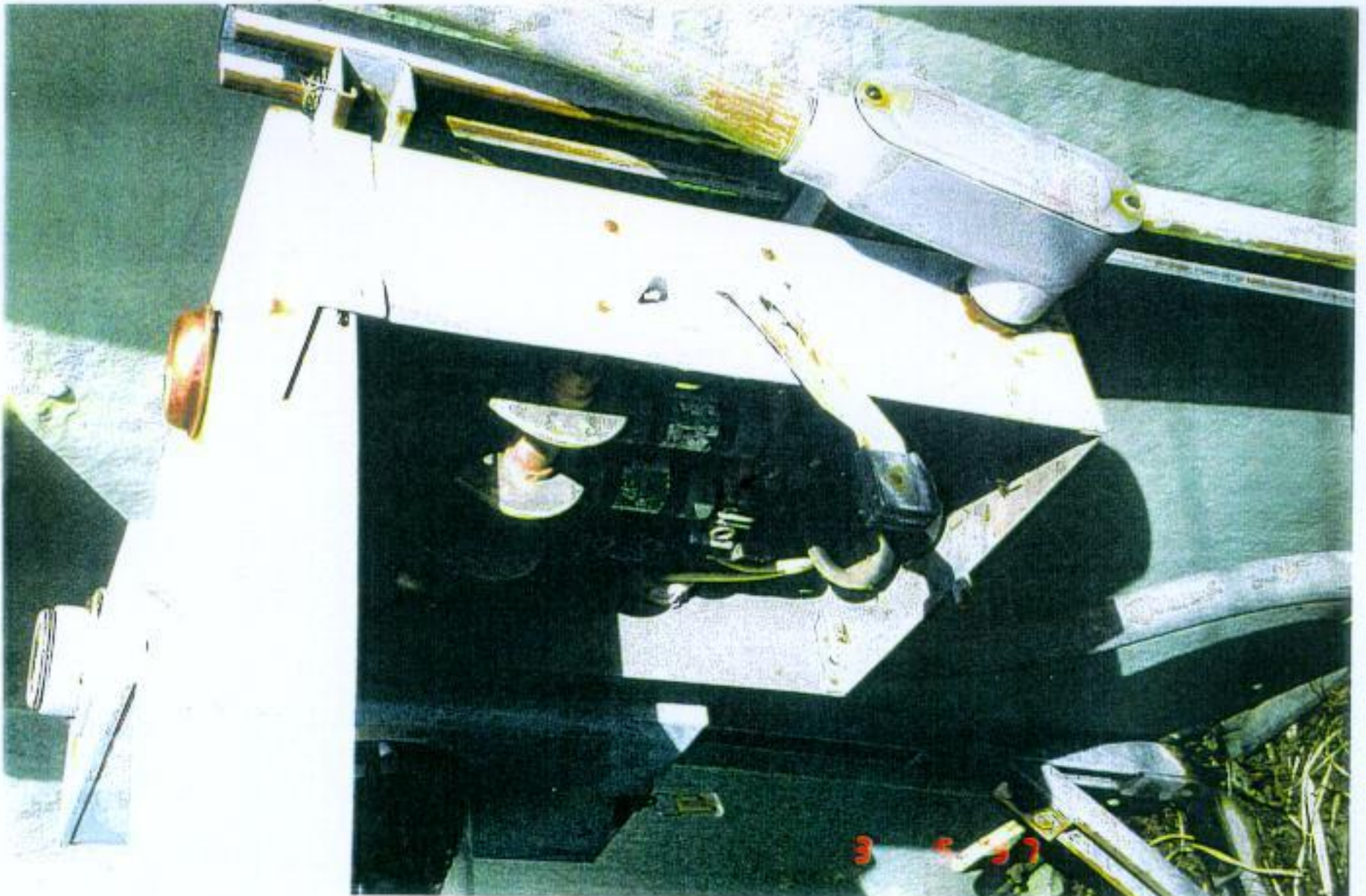


Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 184 (AURORA)
6000 CARLISLE COURT**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 184 (Aurora)

Pump Station 184 is a bi-level, suction-lift station located at 6000 Carlisle Court. Flow discharges the station and connects to the 48-inch portion of the force main flowing towards the West Bank Sewage Treatment Plant. Pump Station 184 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 184.

Pump Station 184 contains two (6-inch by 6-inch) Fairbanks Morse horizontally aligned pumps. Each pump is powered by a 60 horsepower (hp) U.S. Motors electric motor operating at a speed of 1800 revolutions per minute (rpm). This equipment is housed in a 10.2-foot by 10.2-foot stucco/block dry well structure, partially below grade. The total depth of the dry well from the floor of the motor control room to the bottom is 6.3 feet. Figures 2 and 3 provide front and elevation views of the station. The overall condition of the station is fair although there is isolated corrosion located around the pumps as seen in the attached photos. Also, there is evidence of groundwater seepage into the dry well structure at the location where the suction line enters the structure (see photo number 3).

Pump Station 184 collects wastewater from the surrounding gravity sewer system into a 13.2-foot deep cement-lined brick wet well. The cross sectional area of the wet well is circular with an estimated 5-foot diameter. The overall condition of the wet well is fair.

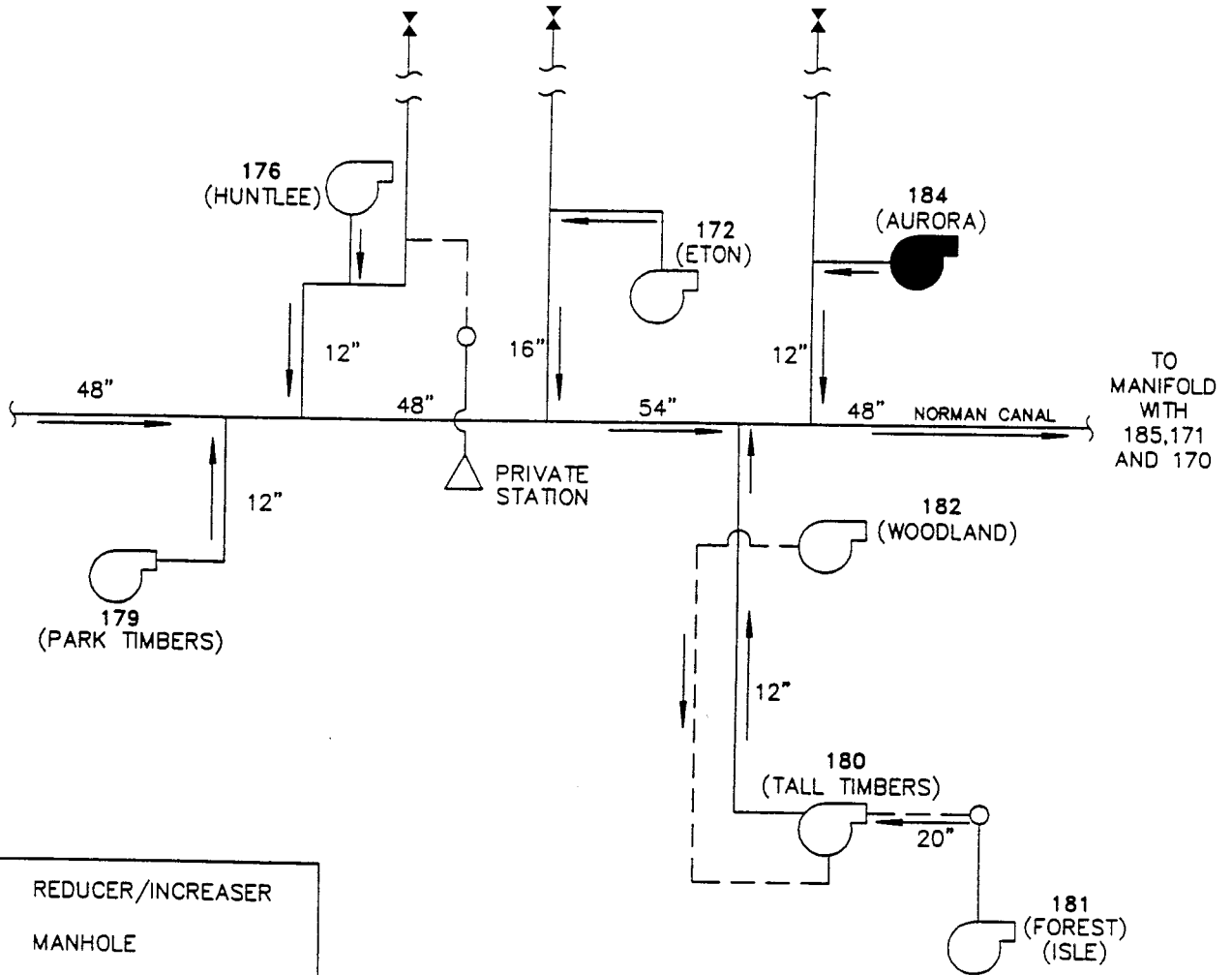
A draw down/fill test was conducted to determine the capacity of Pump Station 184. Figure 4 shows pump curve constructed from obtained test data. Each pump has an approximate capacity of 1200 gallons per minute (gpm) at 80 feet of head. The shut-off head of both pumps was found to be 112 feet.

Recommendations:

1. Groundwater seepage into the dry well structure can cause corrosion throughout. It is recommended that this problem be further investigated and addressed.



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER



	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	WBSTP WEST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 184 JOB NO.: 1113030.01090120 DATE: 3/28/97



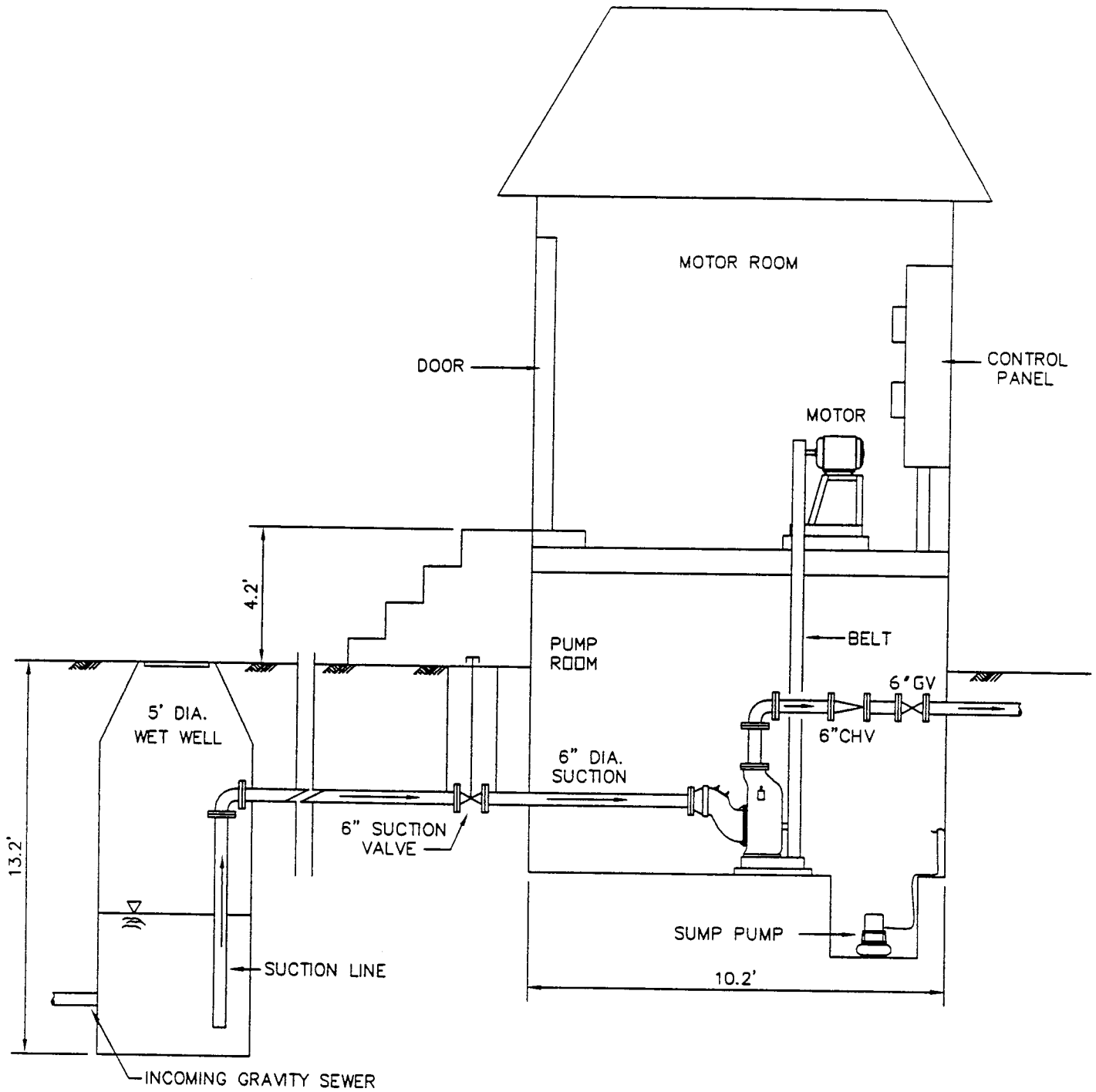
SEWERAGE AND WATER BOARD
OF NEW ORLEANS

PUMP STATION 184 (AURORA)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1

DATE:
3/28/97

FILE NO.: 184
JOB NO.: 1113030.01090120
DATE: 3/28/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

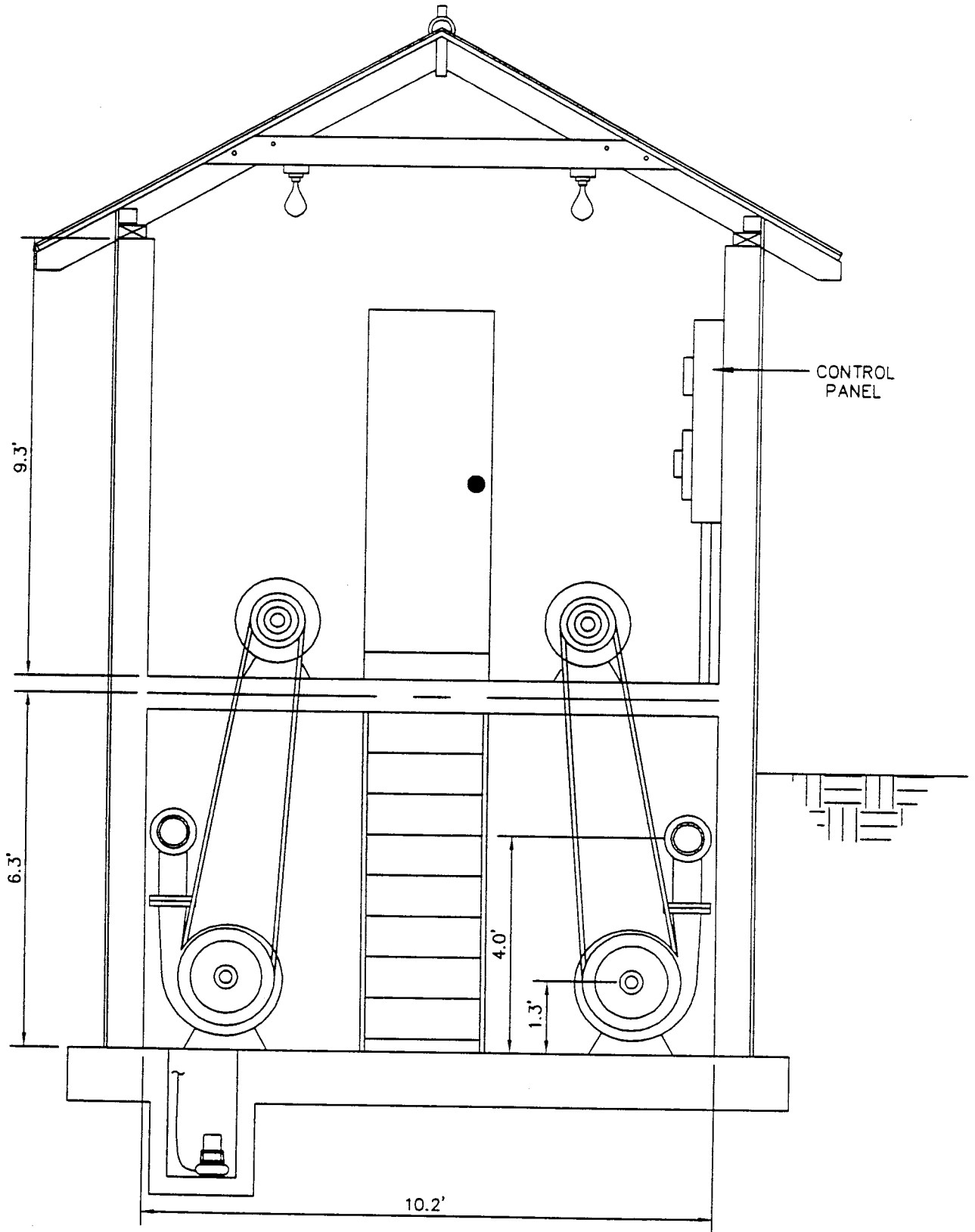
PUMP STATION 184 (AURORA)
BI-LEVEL SUCTION LIFT

FIGURE:

2

DATE:

3/28/97



FRONT VIEW
(NOT TO SCALE)

FILE NO.: 18A JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 184 (AURORA)
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/28/97

Pump Station: 184 (Aurora)

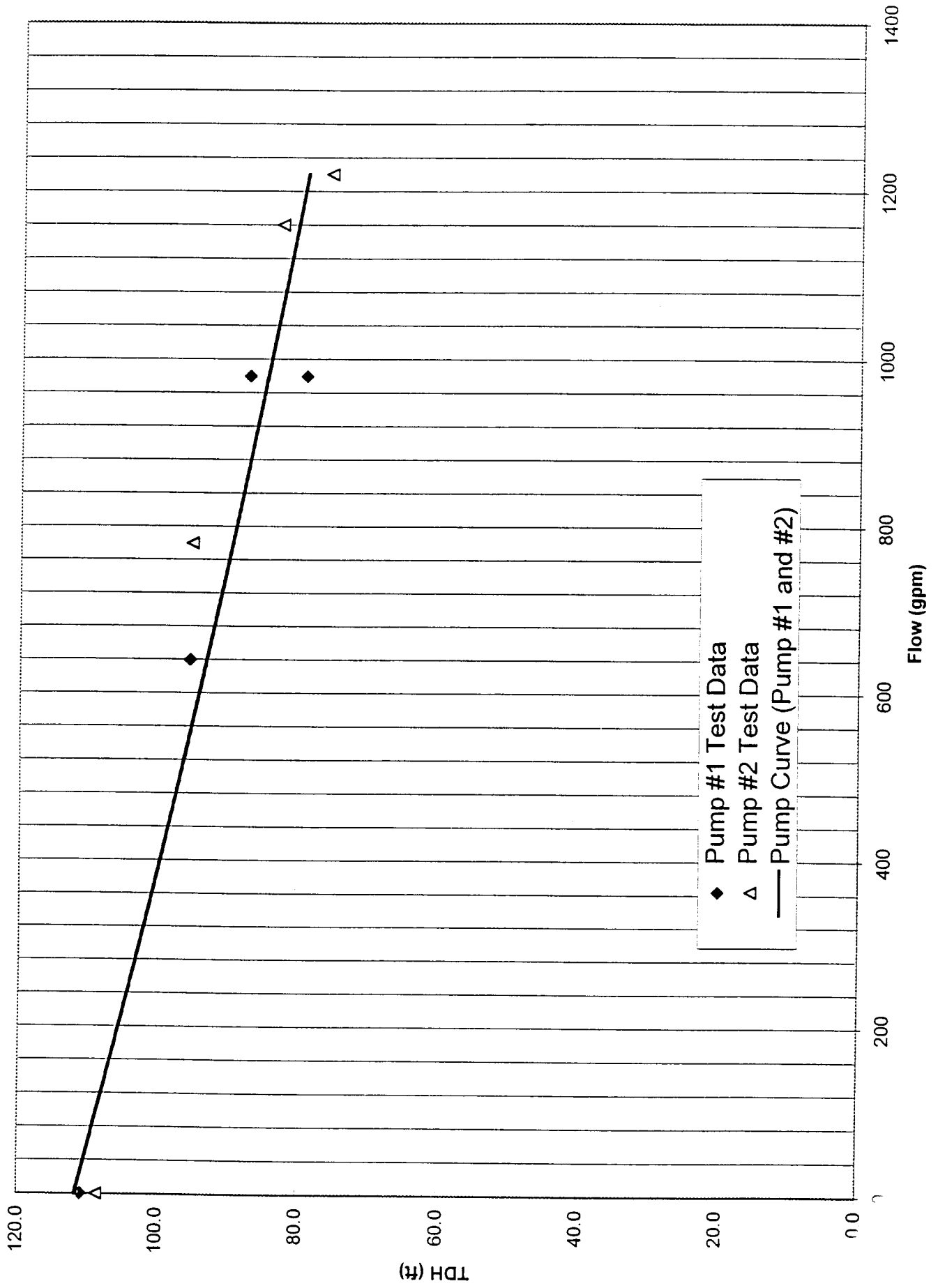


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 184

General Information

PS No. 184 PS Facility Aurora Address 6000 Carlisle Court

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 _____ Serial Number-Pump #1 _____

Model Number-Pump #2 _____ Serial Number-Pump #2 _____

Model Number-Pump #3 _____ Serial Number-Pump #3 _____

Model Number-Pump #4 _____ Serial Number-Pump #4 _____

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 6 inch Pump Discharge 6 inch FM Diameter 6 inch

Suction Valve Size 0 inch Discharge Valve Size 6 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 6 inch

Dry Well Dimensions 0 ft. dia. Length 10.2 ft. Width: 10.2 ft. Depth 6.3 ft.

Pump centerline* 1.3 ft. Centerline of discharge pipe* 4 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 184

Pump Controls

Lead pump on 12.3 ft. Type of Controls bubbler
Lead pump off 8.5 ft.
Lag pump on 13 ft.
Lag pump off 9.5 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pumping station is fair except for isolated corrosion in the pump room and seepage around the suction pipe.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition The liner is cement over brick.

Comments _____

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 13.2 ft.

Sewer Invert(s) Depth* 12.8 ft.

12.3 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 184

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device not available

Size of main protective device 200 amps, dual element, fusible disconnect switch

Size of motor protective device 100 amps, dual element, fusible disconnect switch

Service wire size #3/0 AWG Size of motor starter in NEMA 4

Motor wire size #2 AWG Motor Horsepower 60

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1800

Frequency in Hertz 0

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # not available Serial Number - Motor # 1395962

Model Number - Motor # not available Serial Number - Motor # 1395961

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the motors, motor controller, service disconnect and control panel are fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

Pump Station 184 (Aurora)



Photo Number 1



Photo Number 2

Pump Station 184 (Aurora)

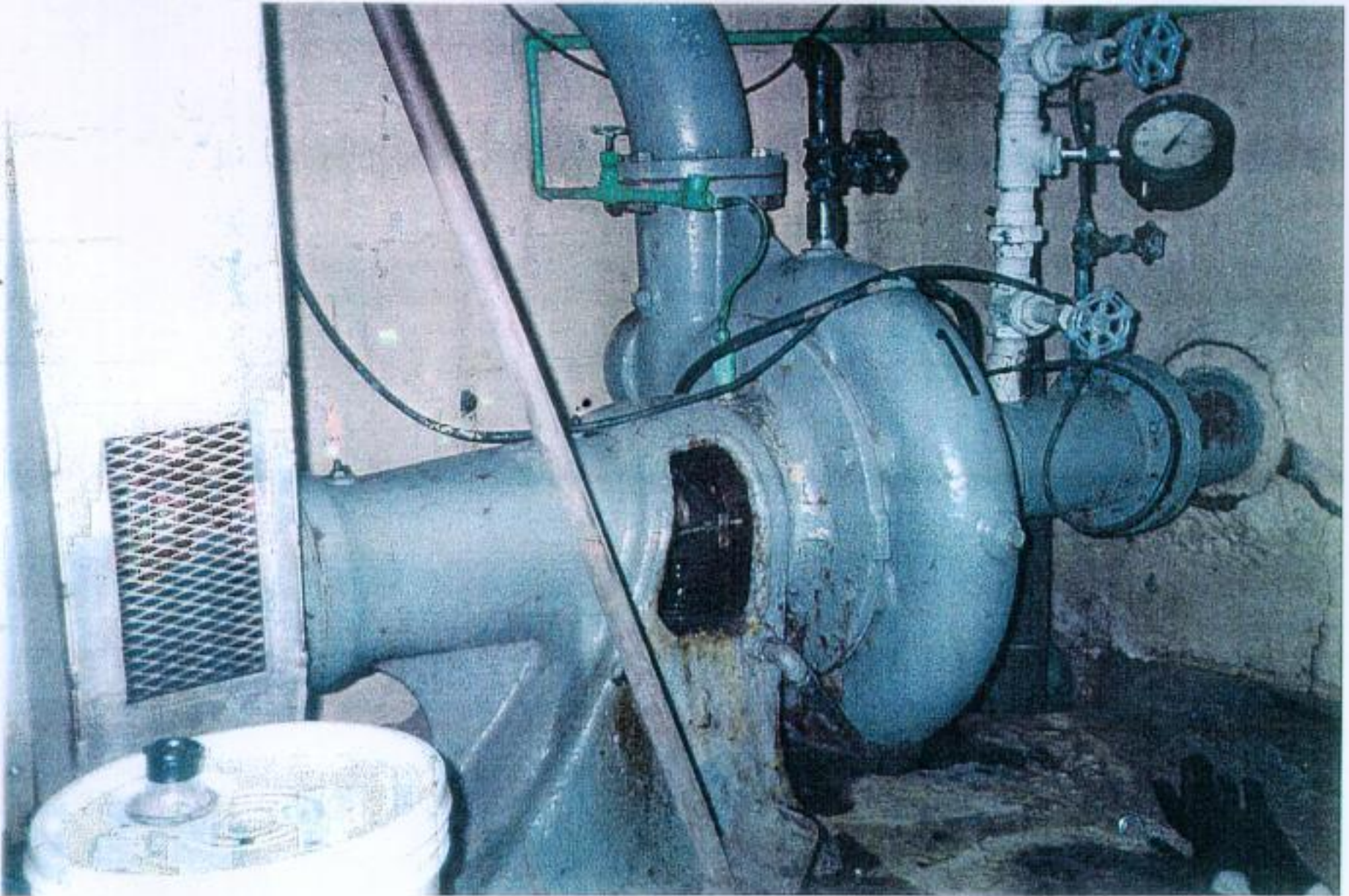


Photo Number 3

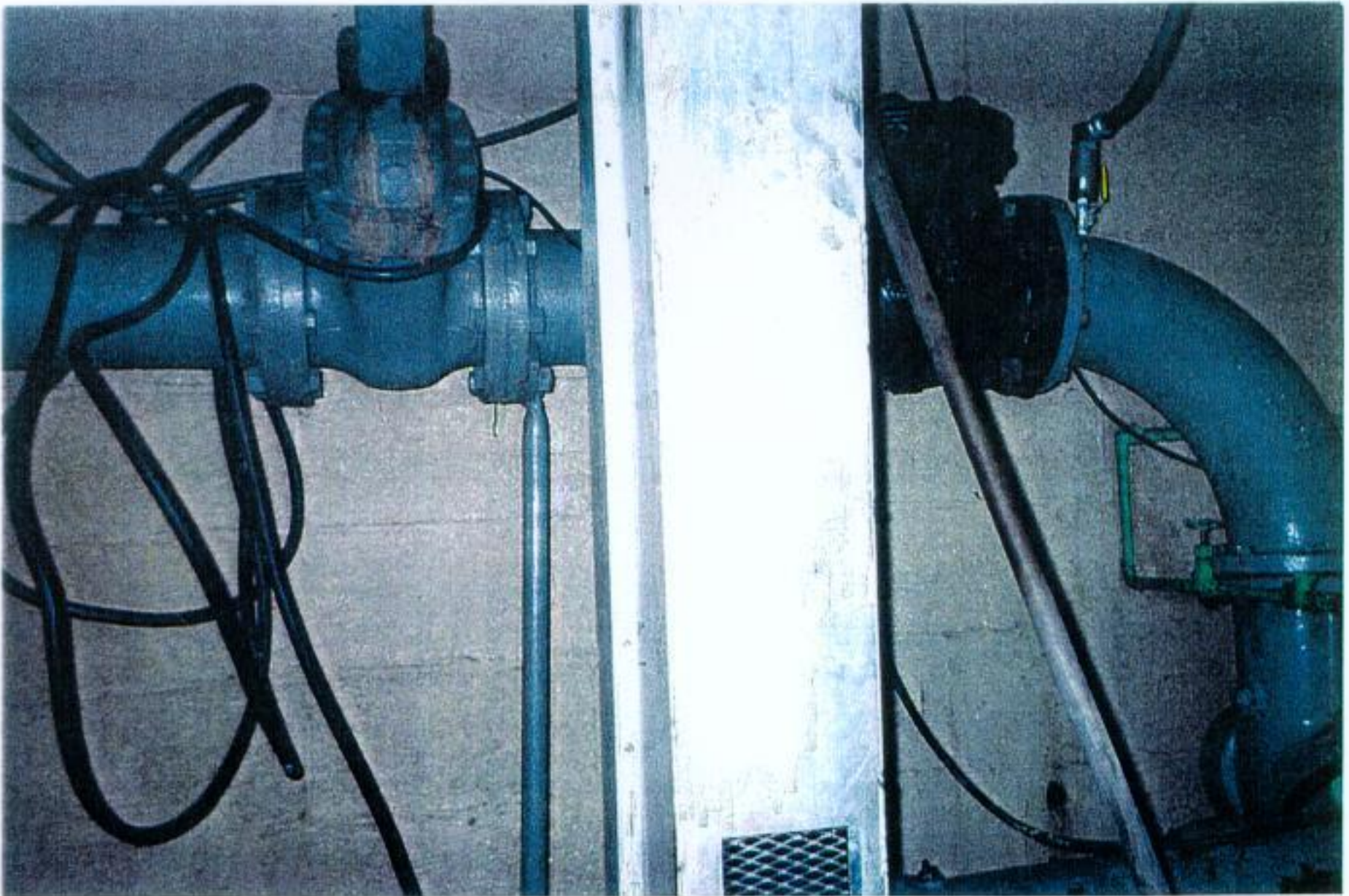


Photo Number 4

Pump Station 184 (Aurora)



Photo Number 5



Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 185 (BLAIR)
3800 BLAIR STREET**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 185 (Blair)

Pump Station 185 is a bi-level suction lift station located on 3800 Blair Street. It discharges to an 18-inch force main along Blair Street via a 12-inch diameter force main. Pump Station 185 does not repump flow from any other station and its flow is not repumped by any other station. Figure 1 shows the schematic of the subsystem surrounding Pump Station 185.

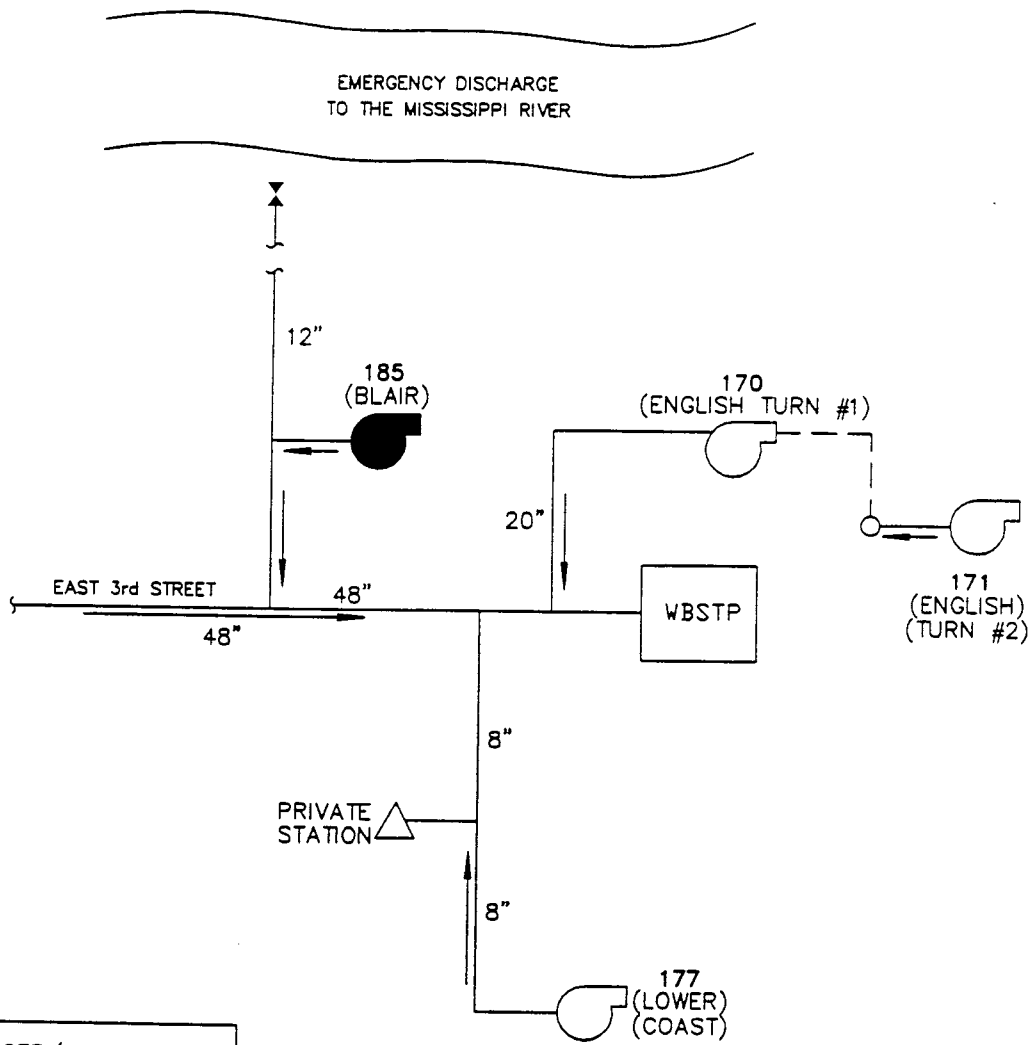
Pump Station 185 contains two (8-inch by 8-inch) Fairbanks Morse horizontally aligned pumps. Each pump is powered by a 60 horsepower (hp) General Electric Motor operating at a constant speed of 1170 revolutions per minute (rpm). This equipment is housed in a 12.3 by 11-foot brick dry well structure, which is partially below grade. The depth below grade of the pump room section of the dry well is 7.2 feet. Figures 2 and 3 provide elevation and front views of the station.

Pump Station 185 collects wastewater from the surrounding gravity sewer system into a 15.5-foot deep brick wet well. The diameter of the wet well was measured as approximately 5 feet.

The Doppler Flow Meter was used to determine the capacity of Pump Station 185. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 3000 gallons per minute (gpm) at 40 feet of head. The shut-off head for both pumps was found to be approximately 75 feet.

Recommendations:

1. Leakage was noticed during the testing of pump number 1 and 2 which suggests the seals of the pumps need to be checked.
2. It was also observed that the motor controller and main disconnect are in poor condition due to corrosion. The extent of the corrosion to the motor controller and the main disconnect should be further investigated and the equipment replaced as necessary.



- REDUCER/INCREASER
- MANHOLE
- GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- PRIVATE STATION
- PUMP STATION
- REF. PUMP STATION
- WEST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

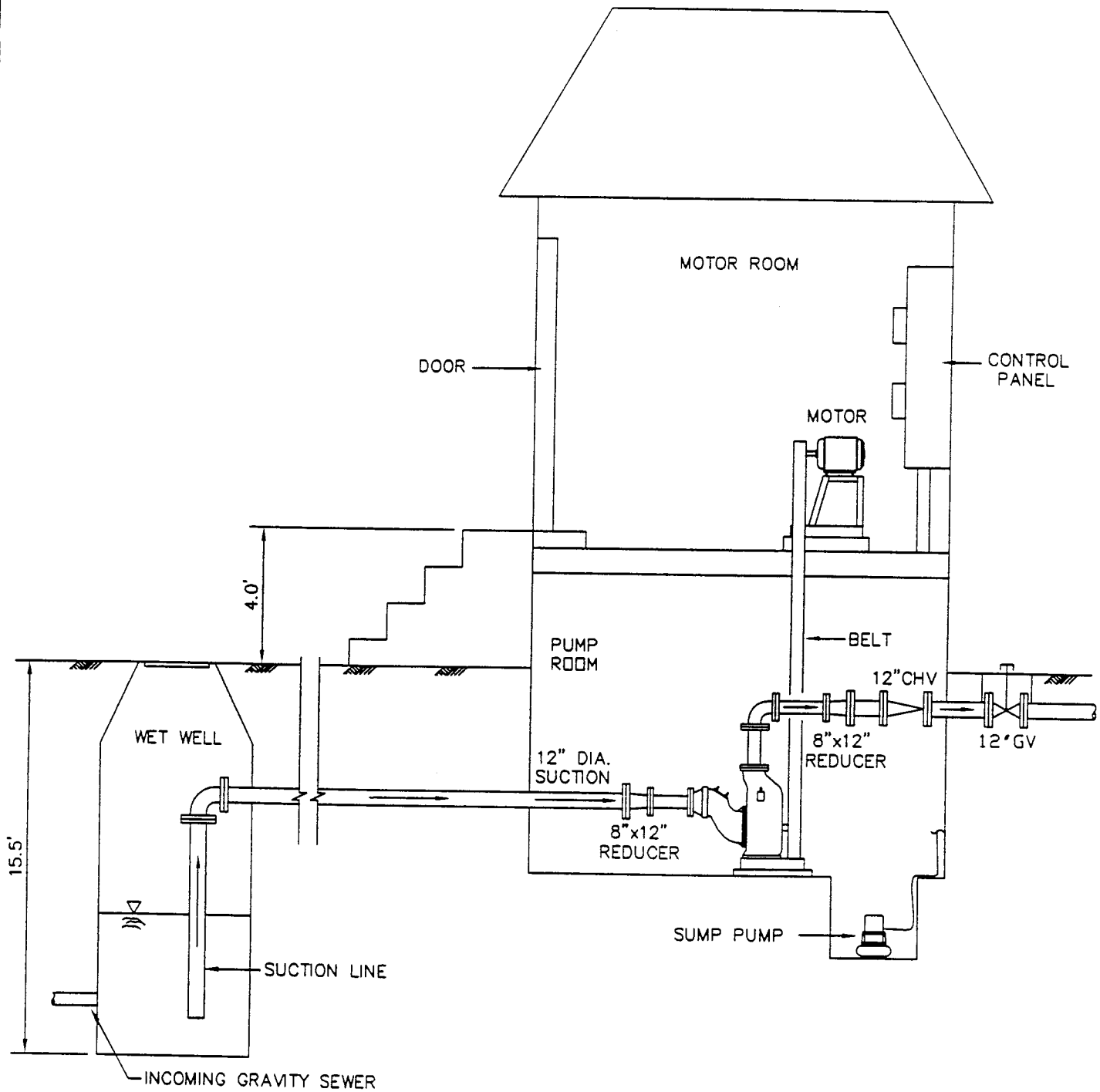
FILE NO.: 185 JOB NO.: 1113030.01090120 DATE: 3/28/97



PUMP STATION 185 (BLAIR)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1
DATE:
3/28/97

FILE NO.: 185 JOB NO.: 1113030.01090120 DATE: 3/21/97



ELEVATION
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 185 (BLAIR)
BI-LEVEL SUCTION LIFT

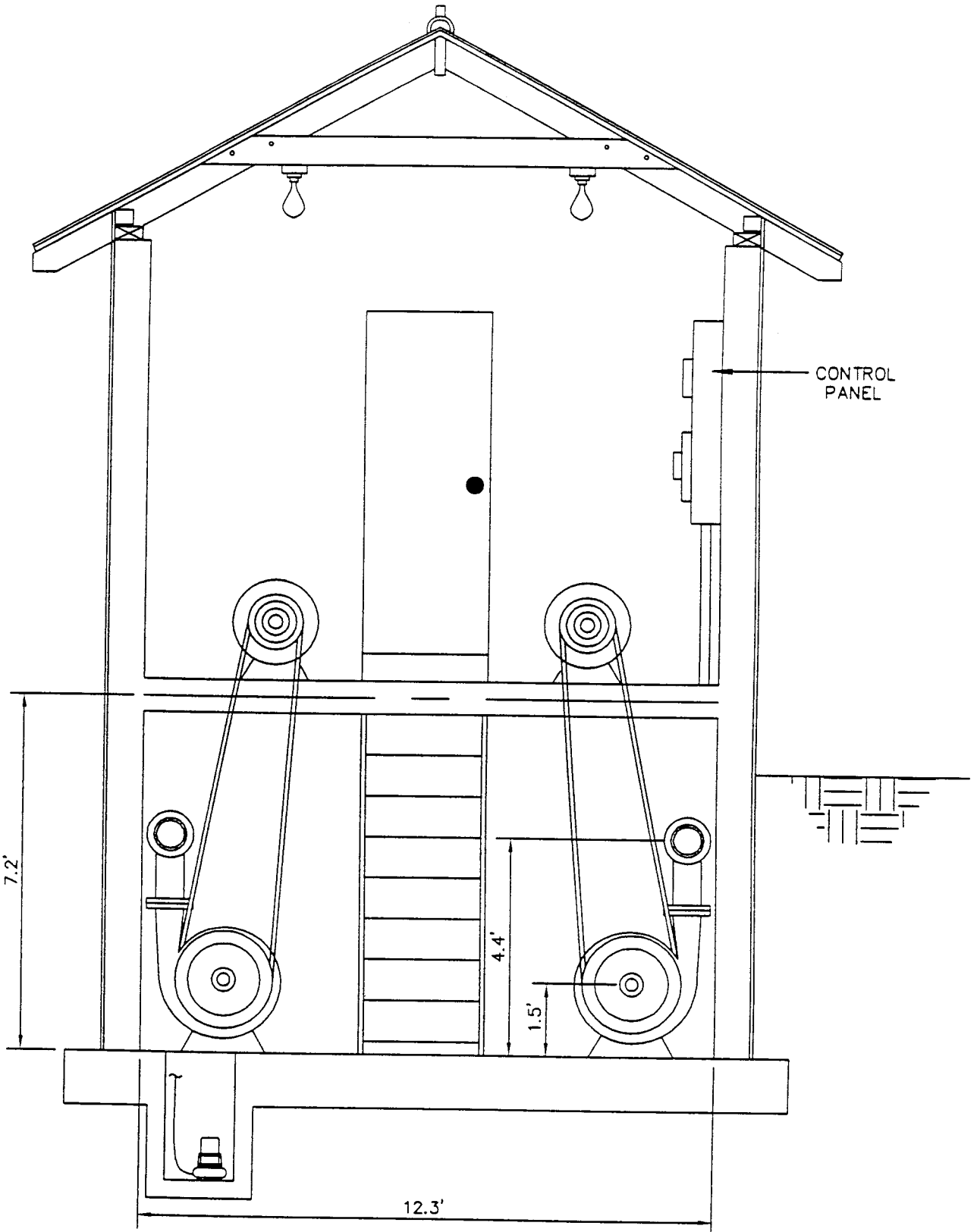
FIGURE:

2

DATE:

3/21/97

FILE NO.: 185 JOB NO.: 1113030.01090120 DATE: 3/21/97



FRONT VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 185 (BLAIR)
BI-LEVEL SUCTION LIFT

FIGURE:

3

DATE:

3/21/97

Pump Station: 185 (Blair)

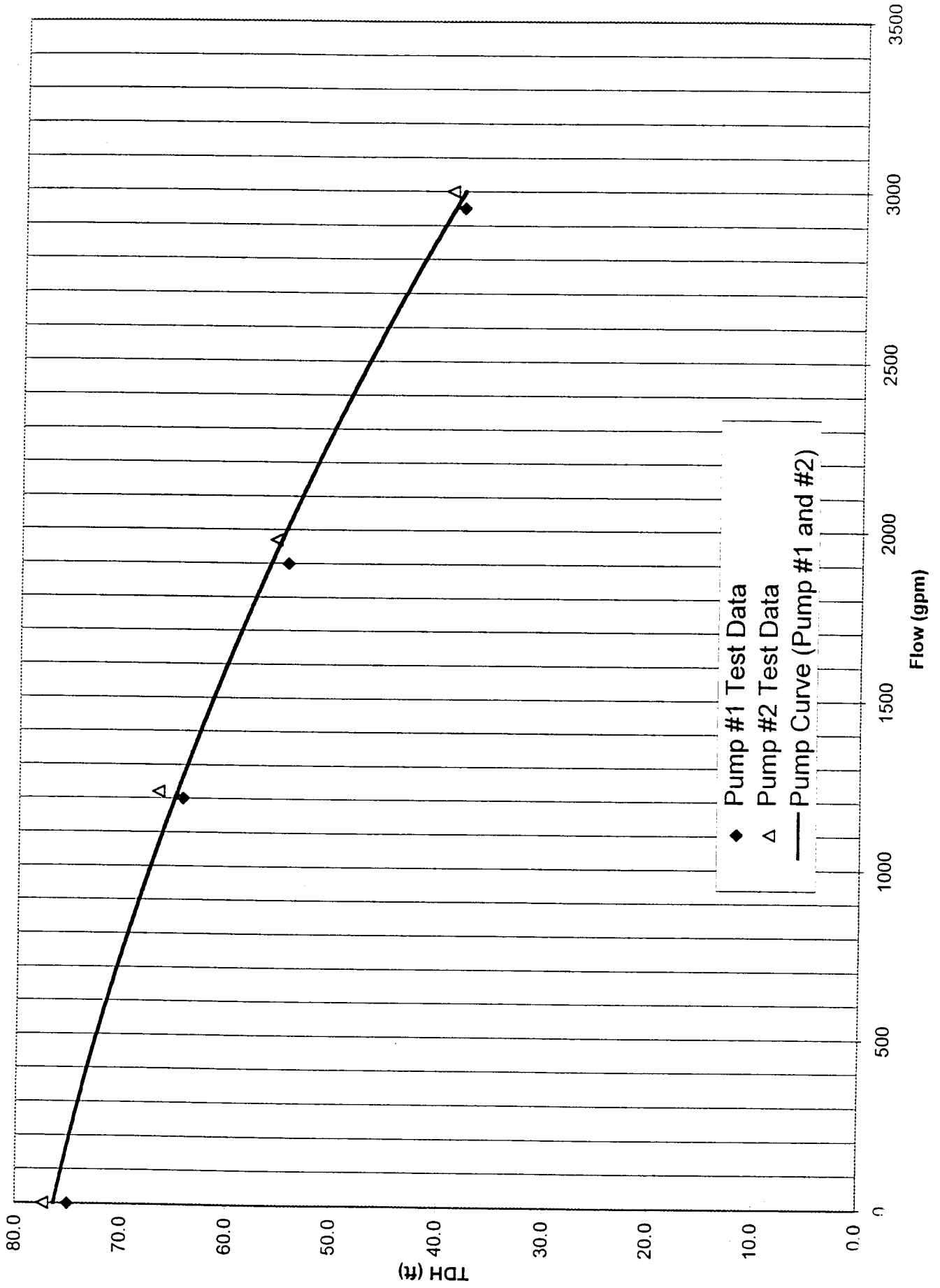


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 185

General Information

PS No. 185 PS Facility Blair

Address 3800 Blair Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 12 inch

Suction Valve Size 0 inch Discharge Valve Size 12 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 12 inch

Dry Well Dimensions 0 ft. dia. Length 12.3 ft. Width: 11 ft. Depth 7.2 ft.

Pump centerline* 1.5 ft. Centerline of discharge pipe* 4.4 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? # 1 and 2

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 185

Pump Controls

Lead pump on 11.5 ft. Type of Controls bubbler
Lead pump off 8 ft.
Lag pump on 12.5 ft.
Lag pump off 9 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior of the pumping station is fair.

Interior The overall condition of the interior of the pump station is fair except for the areas of chipped block work and patches of corrosion on the motor room

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments The wet well was not accessed.

Diameter 5 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 15.5 ft.

Sewer Invert(s) Depth* 8.28 ft.

7 ft.

*measured from top of wet well cover.

Pump Station 185 (Blair)



Photo Number 1

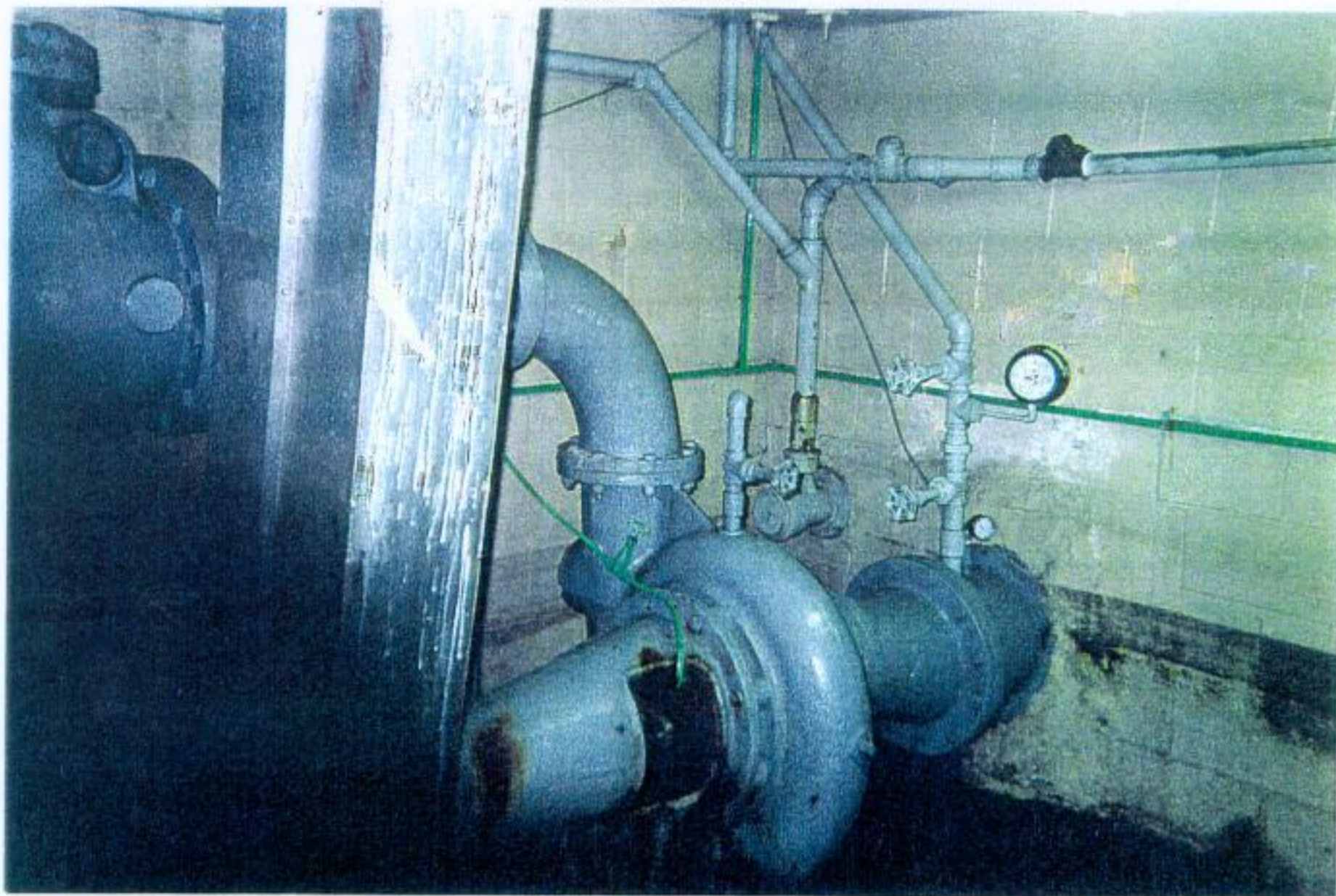


Photo Number 2

Pump Station 185 (Blair)

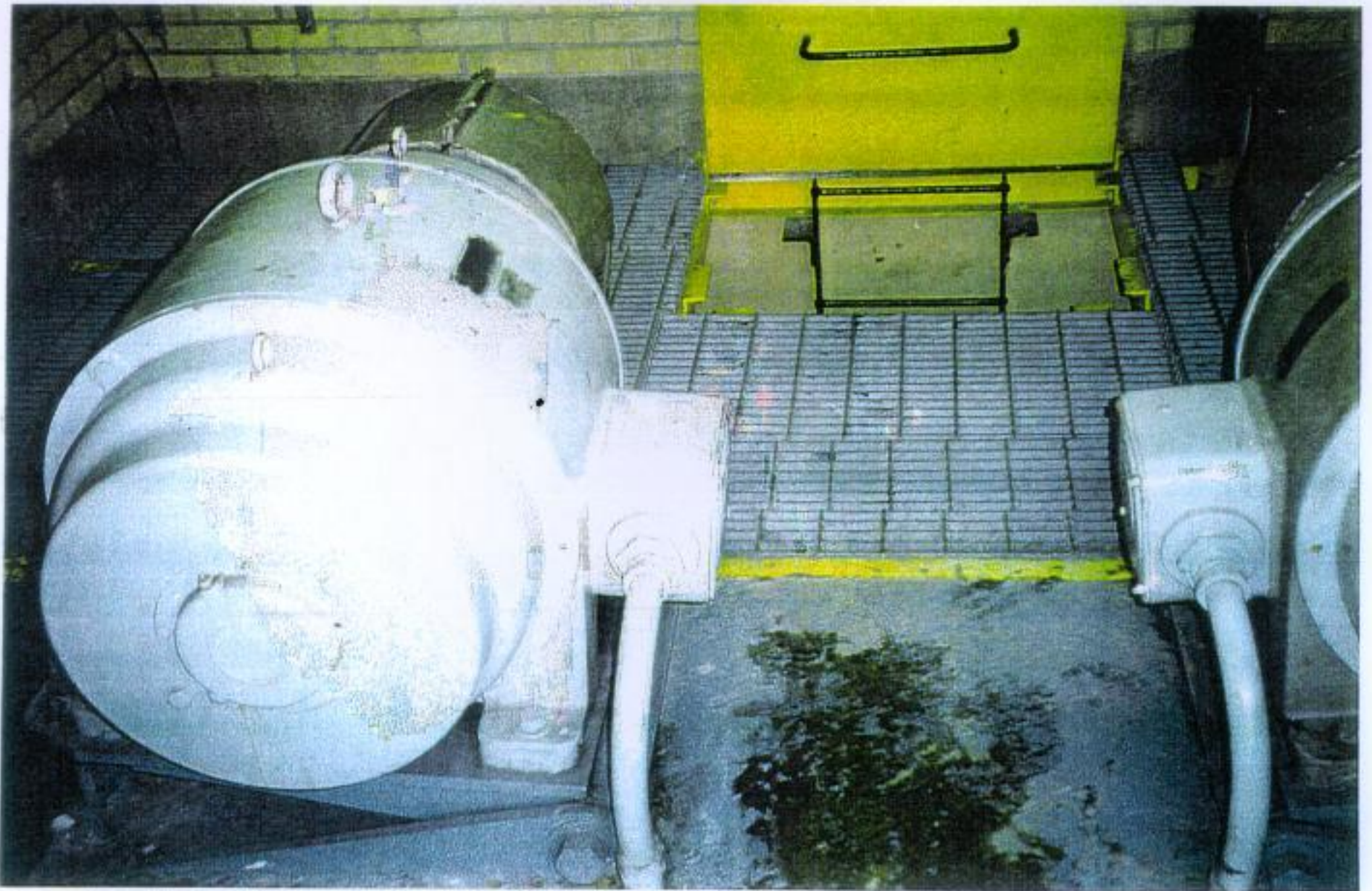


Photo Number 3

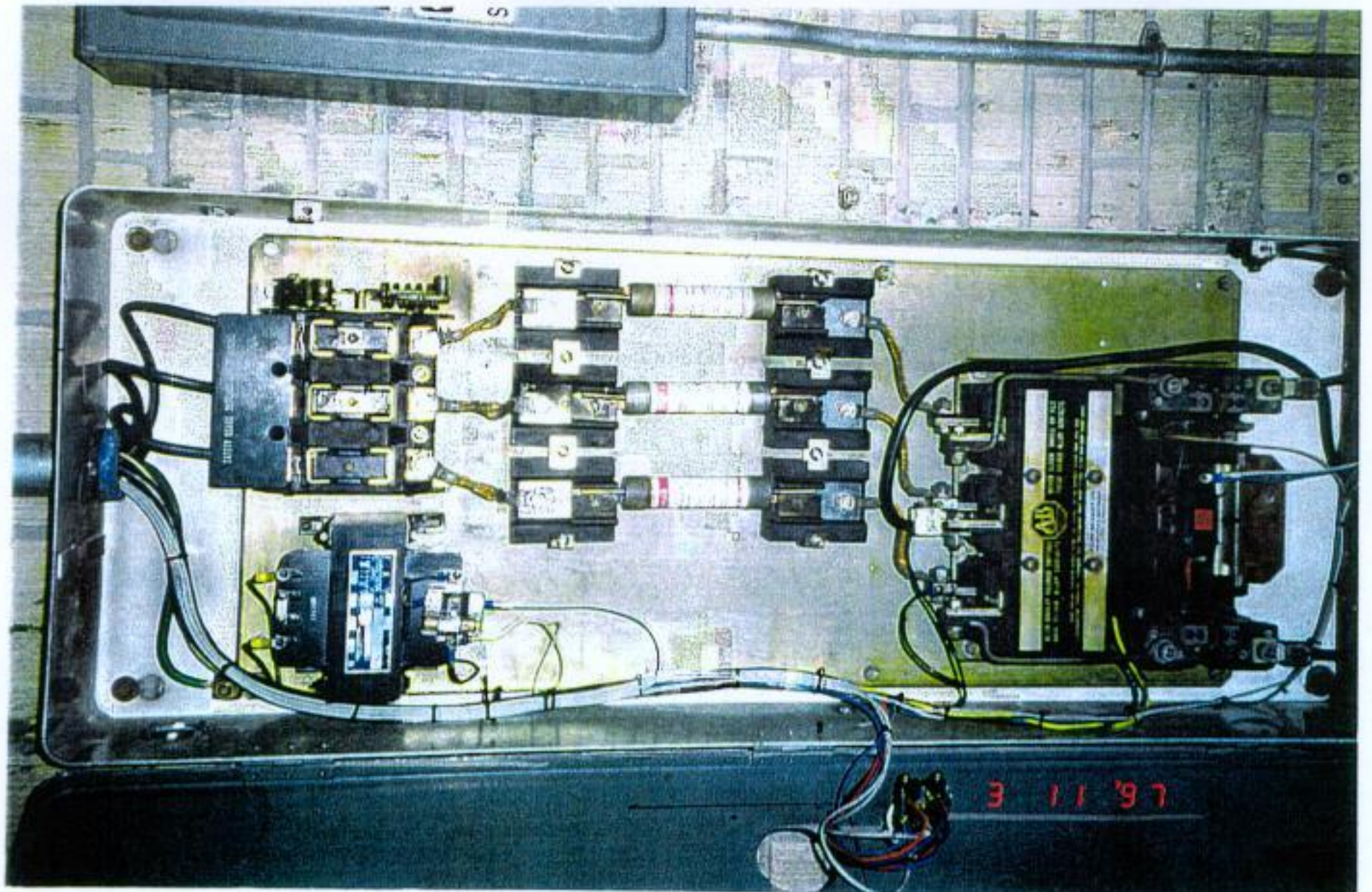


Photo Number 4

Pump Station 185 (Blair)

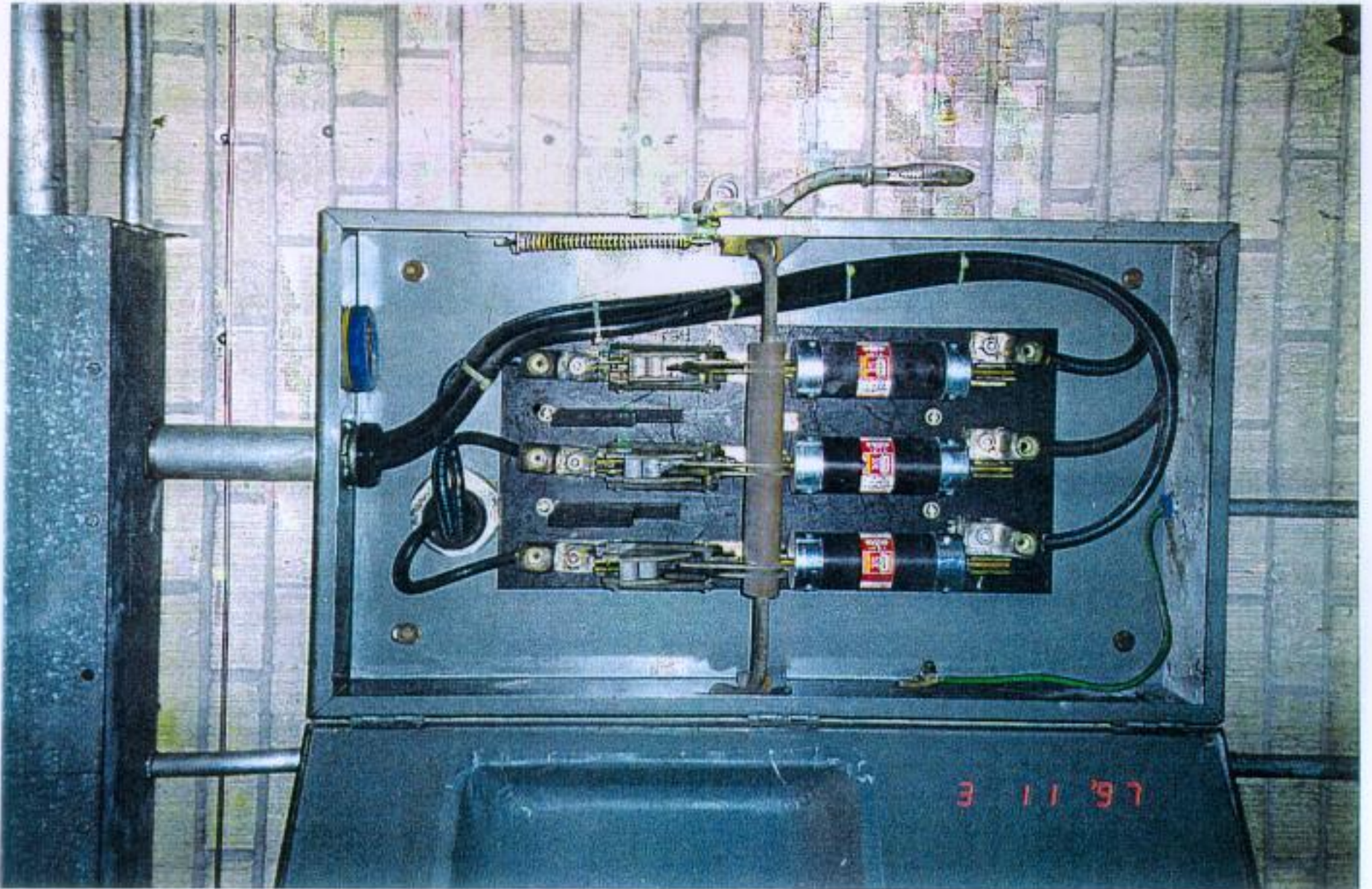


Photo Number 5



Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 186 (BRIDGE PLAZA)
2914 VESPIAN STREET**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 186 (Bridge Plaza)

Pump Station 186 is a flooded-suction, can-type station located on 2914 Vespasian Street. It discharges to a 16-inch force main along Seine Street. Pump Station 186 does not repump flow from any other station and its flow is not repumped by any other station. Figure 1 shows the schematic of the subsystem surrounding Pump Station 186.

Pump Station 186 contains two (8-inch by 8-inch) 34-inch volute Yeoman Bros vertically aligned pumps. Each pump is powered by a 100 horsepower (hp) Westinghouse motor operating at a constant speed of 1180 revolutions per minute (rpm). This equipment is housed in an 11-foot by 11-foot reinforced concrete dry well structure, which is partially underground. The total depth of the dry well from the access hatch to the bottom is 27-feet. Figures 2 and 3 provide elevation and plan views of the station.

Pump Station 186 collects wastewater from the surrounding gravity sewer system into a 22.8-foot deep wet well. The cross sectional area of the wet well is about 11 feet square.

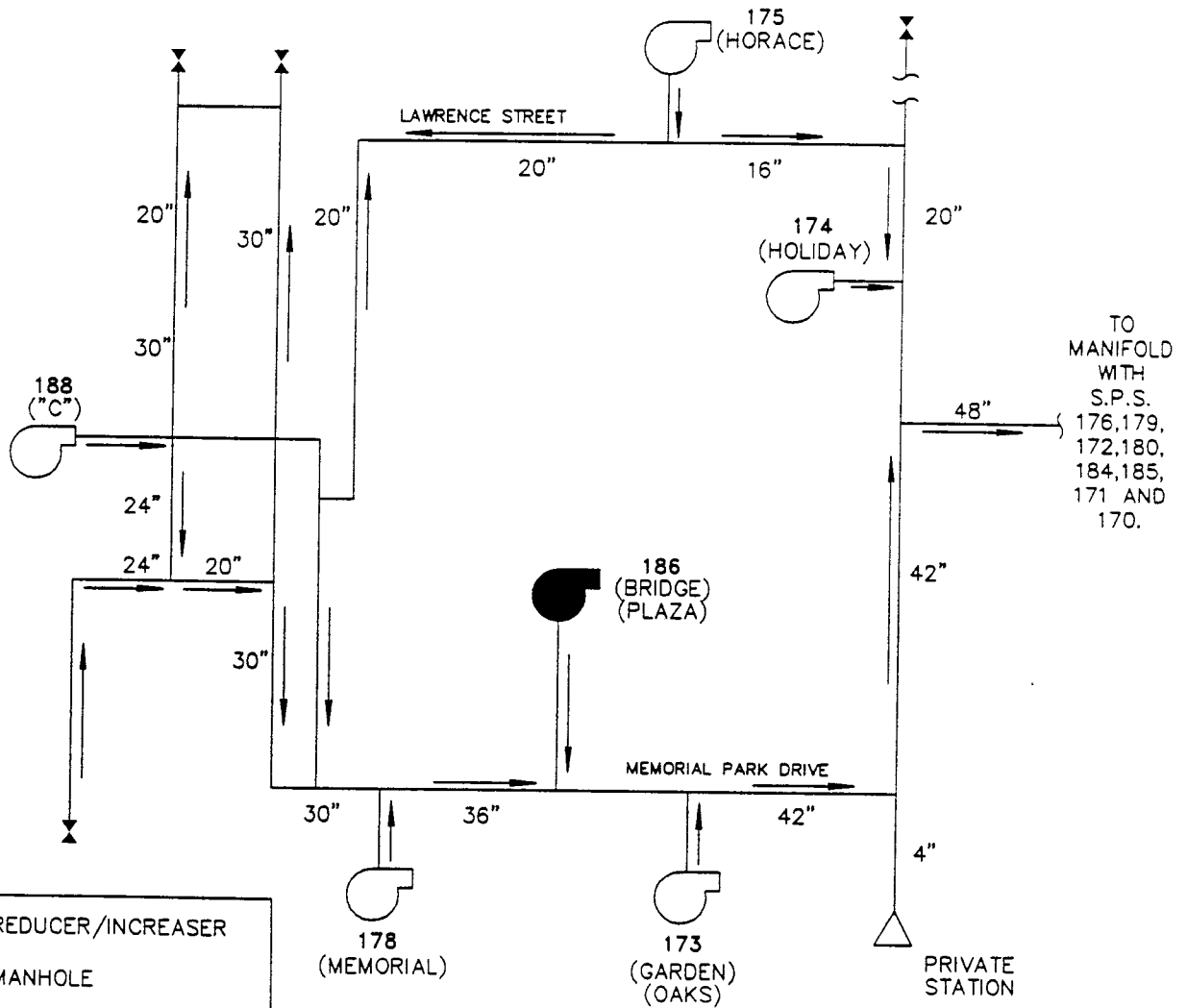
The Doppler Flow Meter was used to determine the capacity of Pump Station 186. Figure 4 shows a pump curve constructed from obtained data. At the time the test was conducted each pump had an approximate pumping capacity of 4,200 gallons per minute (gpm) at 70 feet of head. The shut-off head for both pumps was found to be 125 feet.

Recommendations:

1. Corrosion of the pumps is significant. Measures should be taken to treat or replace severely corroded pumps along with piping and fittings.
2. It was also observed that the service disconnect is in poor condition due to corrosion. The extent of the corrosion should be further investigated and the service disconnect replaced as necessary.



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER



- REDUCER/INCREASER
- MANHOLE
- GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- PRIVATE STATION
- PUMP STATION
- REF. PUMP STATION
- WBSTP WEST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

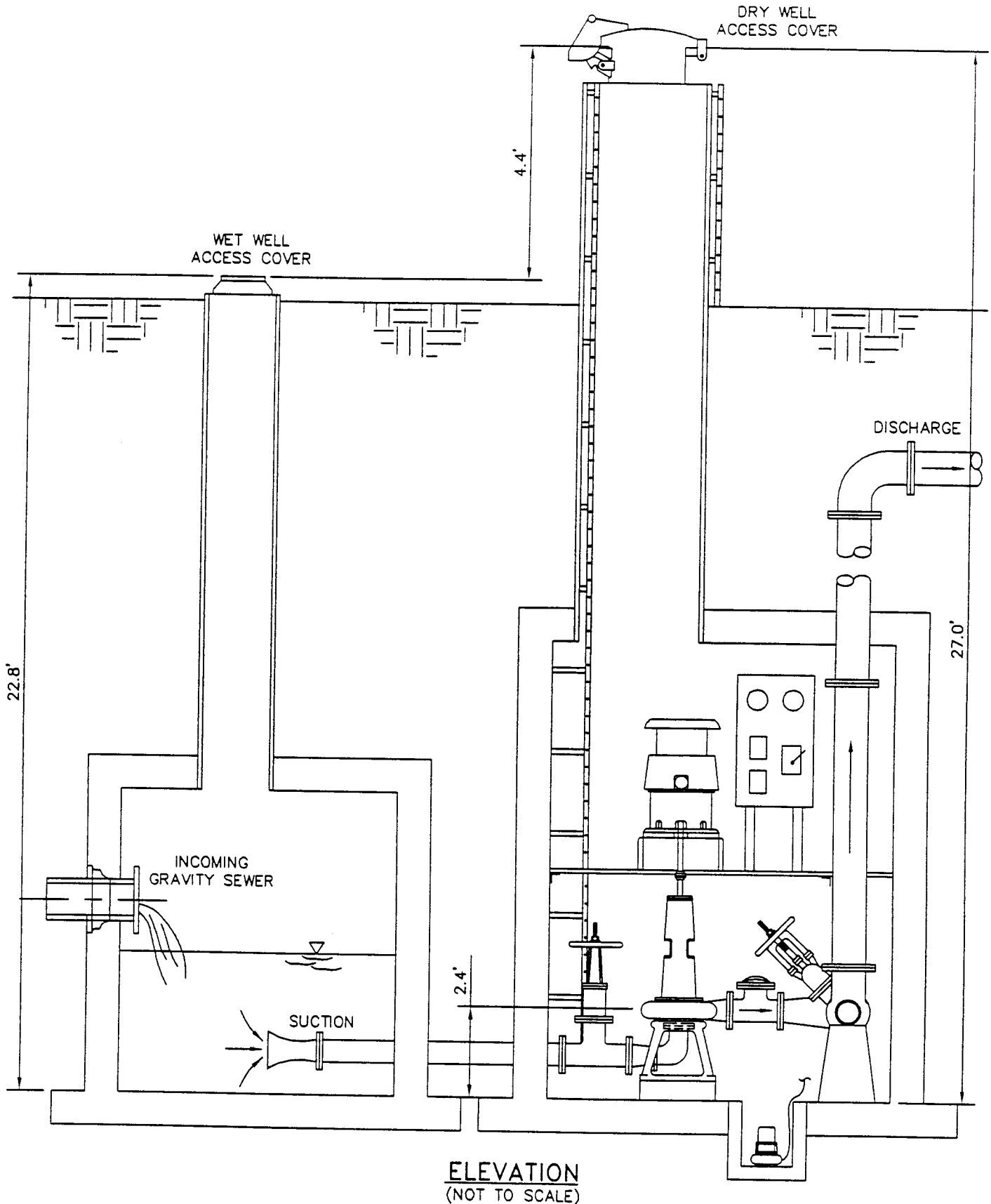
JOB NO.: 1113030.01090120 DATE: 3/28/97

FILE NO.: 186



PUMP STATION 186 (BRIDGE PLAZA)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97



JOB NO.: 1113030.01090120 DATE: 3/21/97

FILE NO.: 186



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 186 (BRIDGE PLAZA)
CAN TYPE FLOODED SUCTION

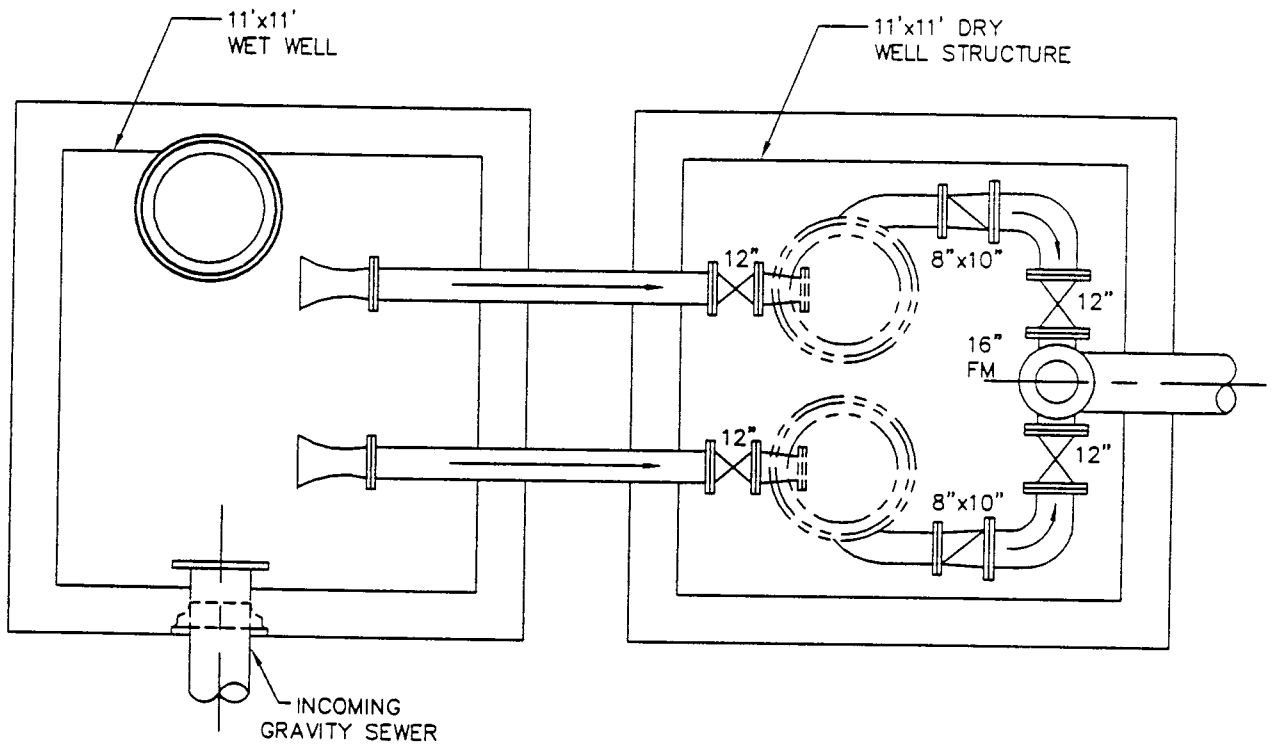
FIGURE:

2

DATE:

3/21/97

FILE NO.: 186 JOB NO.: 1113030.01090120 DATE: 3/21/97



PLAN VIEW
(NOT TO SCALE)



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

PUMP STATION 186 (BRIDGE PLAZA)
CAN TYPE FLOODED SUCTION

FIGURE:

3

DATE:

3/21/97

Pump Station: 186 (Bridge Plaza)

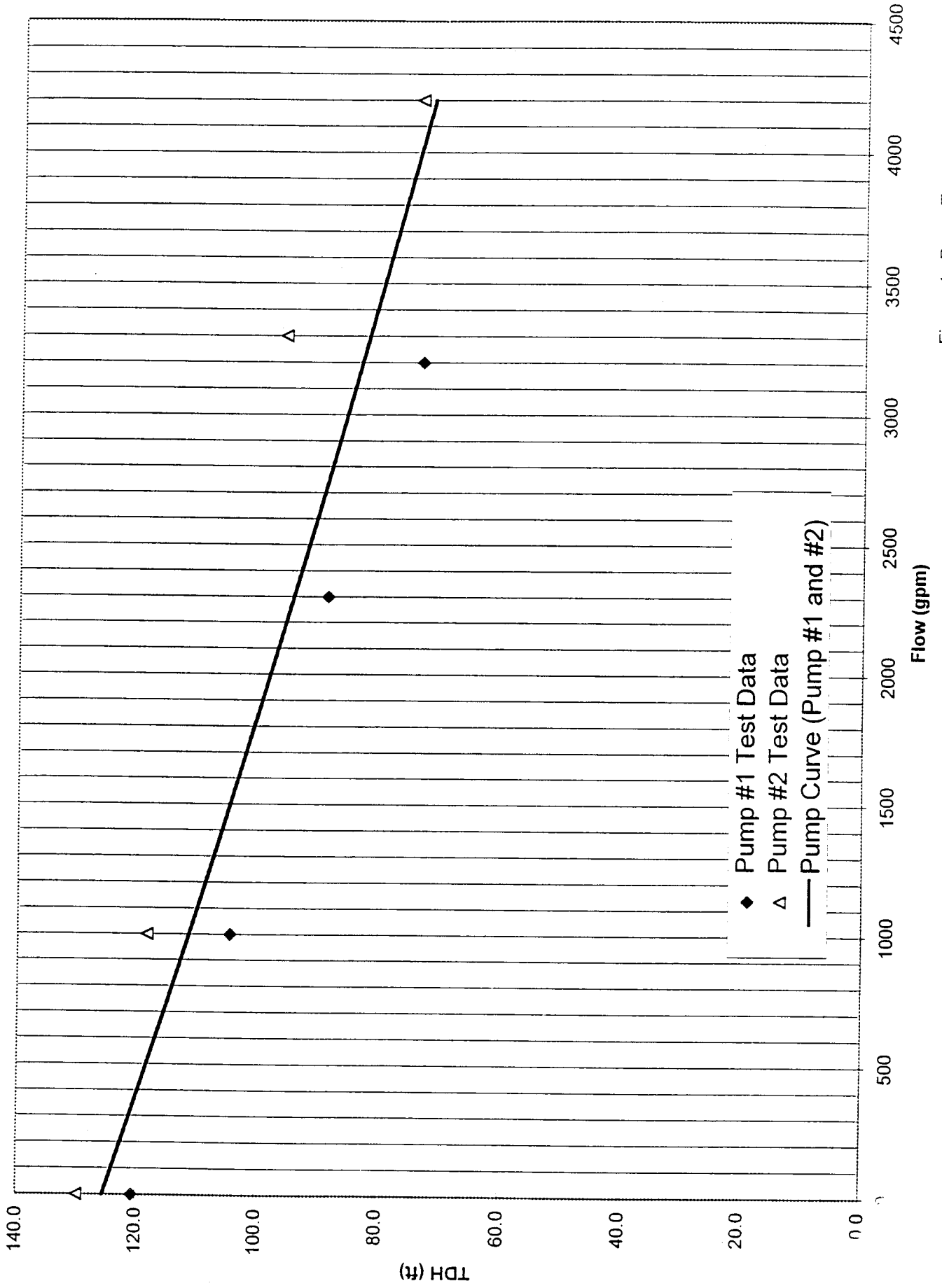


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 186

General Information

PS No. 186 PS Facility Bridge Plaza Address 2914 Vespasian Street

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer Yeoman Bros

Impeller Diameter 34 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 2200 gpm 80 ft. of head 1150 rpm

Pump Suction 8 inch Pump Discharge 8 inch FM Diameter 16 inch

Suction Valve Size 12 inch Discharge Valve Size 12 inch

Suction Valve Type gate Discharge Valve Type gate

Check Valve Size 8 x 10 inch

Dry Well Dimensions 0 ft. dia. Length 11 ft. Width: 11 ft. Depth 27 ft.

Pump centerline* 2.4 ft. Centerline of discharge pipe* _____ ft.

* measured from dry well bottom.

Notes: Centreline of discharge appears to be vertical.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 186

Pump Capacity Test Type

Portable Doppler flow meter

Wet well draw/fill

Electrical Equipment

Power source Radial Source, no generator receptacle

Type of service 480/277V three phase four wire (3 transformers bank)

Size of service protective device 350 amps, dual element, fusible disconnect switch

Size of main protective device _____

Size of motor protective device 150 amps, dual element, fusible disconnect switch

Service wire size 350 kcmil Size of motor starter in NEMA 4

Motor wire size #2/0 AWG Motor Horsepower 100

Number of motors 2 Motor Speed Single

Speed(s) in rpm 1180

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # ABDP Serial Number - Motor # 244653

Model Number - Motor # ABDP Serial Number - Motor # 244653

Model Number - Motor # - Serial Number - Motor # -

Model Number - Motor # - Serial Number - Motor # -

Comments The physical condition of the service disconnect is poor due to corrosion. The physical condition of motors, motor controller and control panel is fair. The pump station has a fusible disconnect switch and it is susceptible to single phasing if one or two of the three fuses are blown out. The electrical control has no phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location.

Pump Station 186 (Bridge Plaza)



Photo Number 1



Photo Number 2

Pump Station 186 (Bridge Plaza)

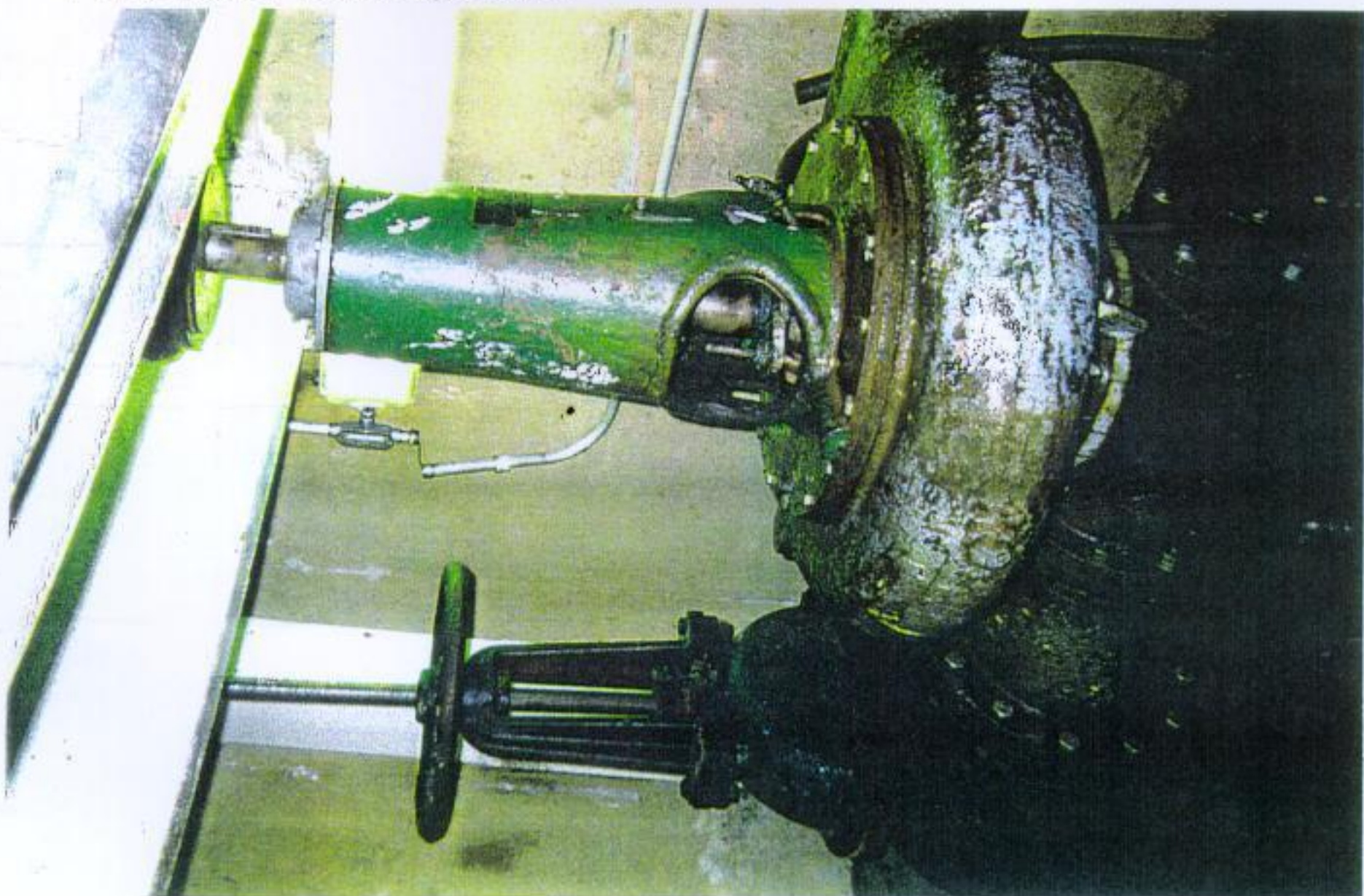


Photo Number 3



Photo Number 4

Pump Station 186 (Bridge Plaza)



Photo Number 5



Photo Number 6

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 187 (SPS "D")
2801 FLORIDA AVENUE**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 187 (“D”)

Pump Station 187 is a regional above ground suction lift station located on 2801 Florida Avenue. It manifolds with the 60-inch diameter portion of the Florida Avenue force main. Pump Station 187 repumps flow from Pump Station 117. Figure 1 shows the schematic subsystem surrounding Pump Station 187.

Pump Station 187 contains one vertically aligned pump and two (36-inch by 36-inch) horizontally aligned pump. The vertically aligned pump, shown in photo number 2, is powered by a single speed 25 hertz motor rated at 275 horsepower (hp) at 353 revolutions per minute (rpm). One 60 hertz 13 speed motor rated at 2,500 hp at 298 rpm, shown in photo number 3, powers the two horizontally aligned pumps. This equipment is housed in an above ground structure. This station can be characterized as being in good condition.

Pump Station 187 collects wastewater from the surrounding gravity sewer system into a wet well having cross-sectional area of x square feet and a depth of x-feet.

The Doppler flow meter was utilized to determine flows at various discharge heads to develop the pump curves for each of the two horizontally aligned pumps, pump B and C, as shown in Figures 2 and 3 respectively. Test data was only collected for the first 7 of the 13 speeds, which are the only speeds the motors are operated. Test data was not collected for the vertically aligned pump, pump E, due to its being operated only under emergency conditions such as power failures or during extremely severe storm events such as hurricanes. The approximate capacities of pump B and of pump C are as follows:

Pump B

Speed	Flow	Head
1	35,000	46
2	38,000	54
3	42,000	58
4	45,000	62
5	48,000	66
6	52,000	72
7	55,000	76

Pump C

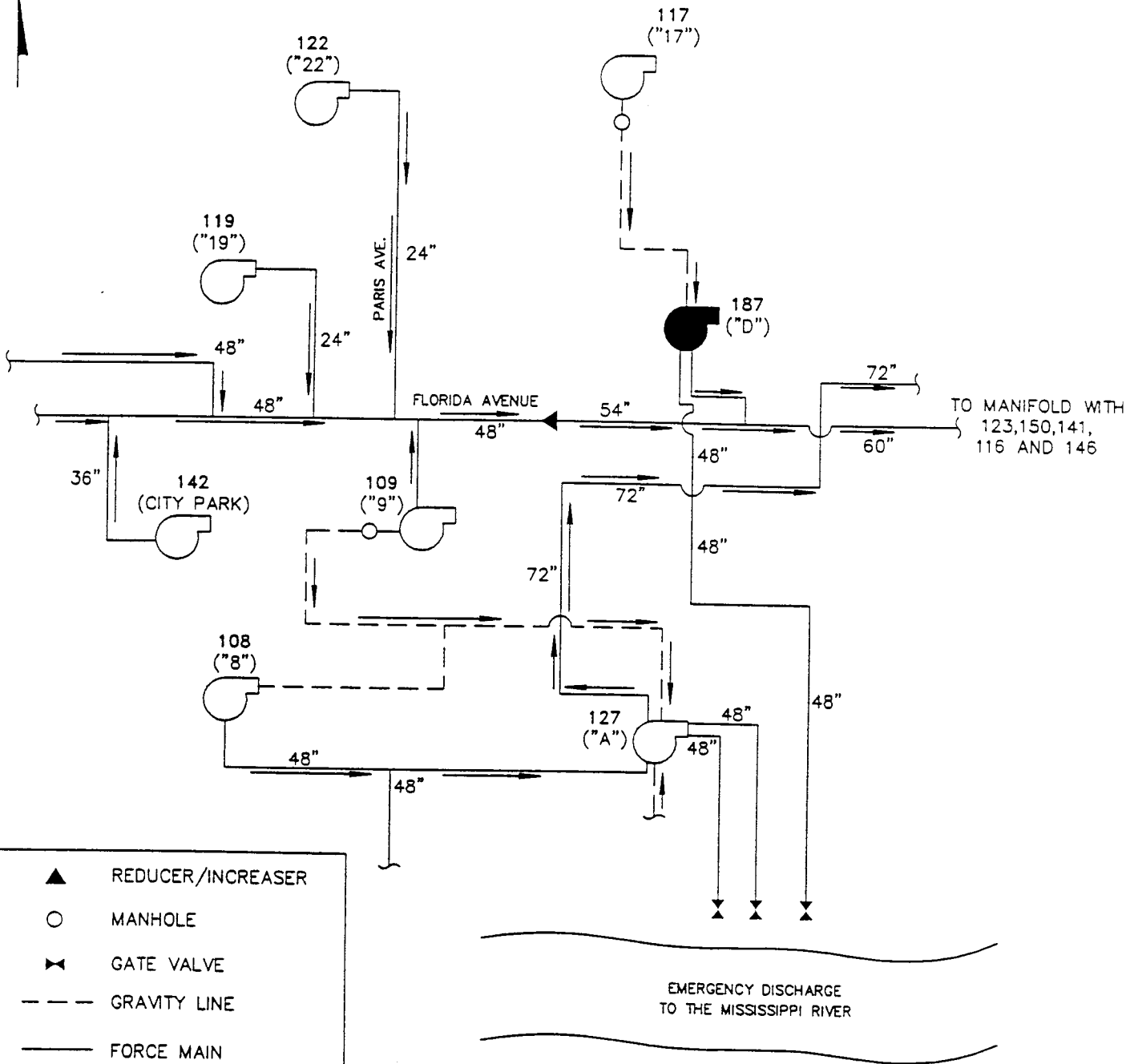
Speed	Flow	Head
1	14,000	28
2	20,000	30
3	24,000	31
4	28,000	32
5	40,000	33

6	46,000	34
7	51,000	36

Pump B and C are driven by a common drive shaft and therefore, rotate together. However, usually only one is primed to pump.

Recommendations:

1. The condition of the electro-mechanical speed controller is poor due to corrosion. Its condition needs to be further investigated and corrected as necessary.



TO MANIFOLD WITH
123,150,141,
116 AND 146

EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER

NOTE:
SEE FIGURE 3-1 FOR FULL SCHEMATIC DRAWING.

JOB NO.: 1113030-01090120 DATE: 3/28/97

FILE NO.: 187

	REDUCER/INCREASER
	MANHOLE
	GATE VALVE
	GRAVITY LINE
	FORCE MAIN
	PRIVATE STATION
	PUMP STATION
	REF. PUMP STATION
	EBSTP EAST BANK SEWERAGE TREATMENT PLANT

SEWERAGE AND WATER BOARD
OF NEW ORLEANS

MONTGOMERY WATSON

PUMP STATION 187 (SPS 'D')
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:	1
DATE:	3/28/97

Pump Station Name: 187 ("D")

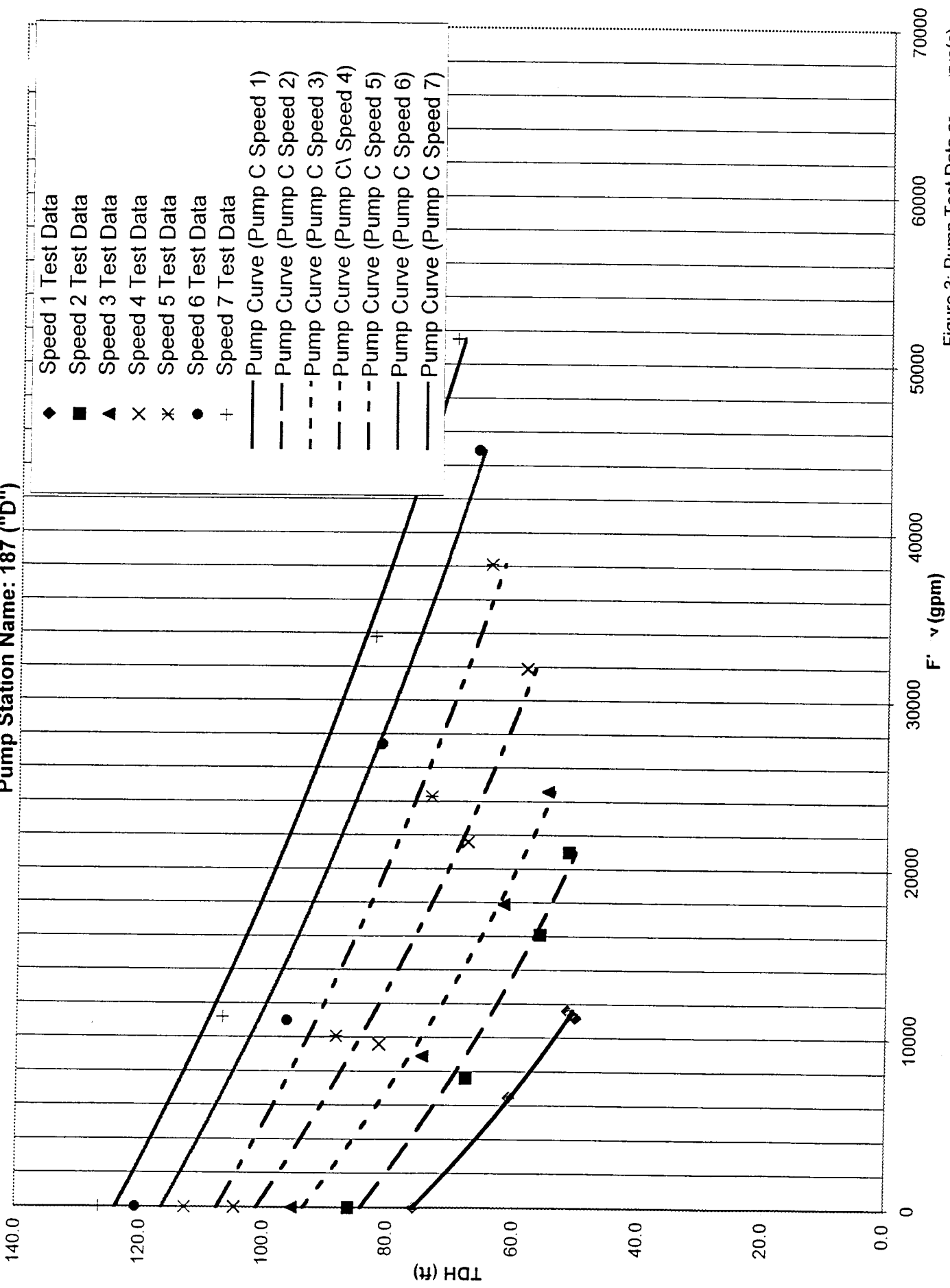


Figure 3: Pump Test Data

Pump Station Name: 187 ("D")

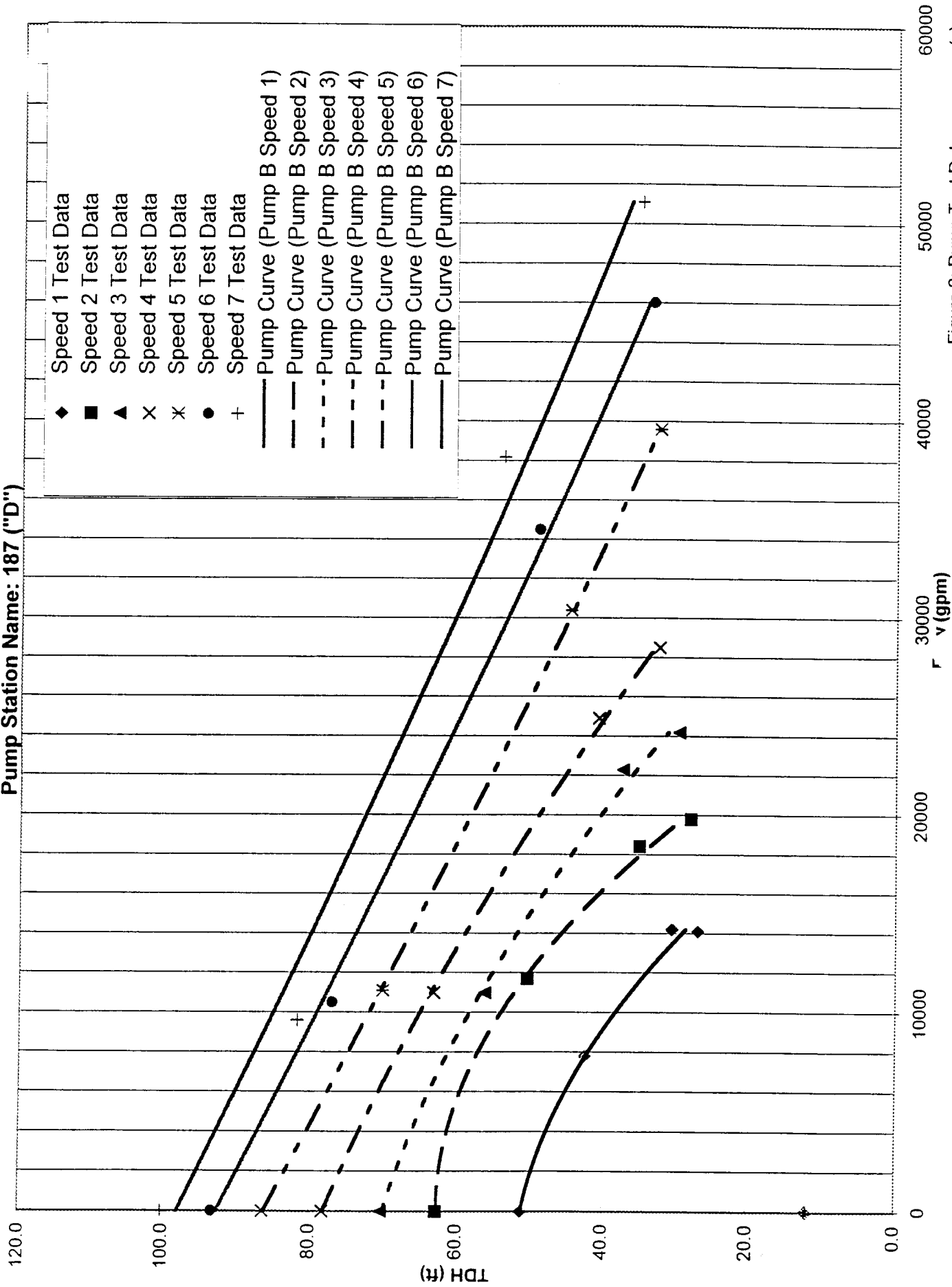


Figure 2: Pump Test Data at

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 187

General Information

PS No. 187 PS Facility SPS "D" Address _____

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 3 Pump Manufacturer not available

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 36 inch Pump Discharge 36 inch FM Diameter 48 inch

Suction Valve Size 0 inch Discharge Valve Size 36 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 36 inch

Dry Well Dimensions 0 ft. dia. Length ft. Width: ft. Depth 0 ft.

Pump centerline* ft. Centerline of discharge pipe* ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? both

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 187

Pump Controls

Lead pump on 0 ft. Type of Controls Manual Controls
Lead pump off 0 ft.
Lag pump on 0 ft.
Lag pump off 0 ft.

Notes: All manual Controls

Structural Observations

Exterior The overall condition of the exterior of the pump station is fair.

Interior The overall condition of the interior of the pump station is fair.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments Could not access.

Diameter _____ ft. Length 0 ft. Width 0 ft.

Bottom Depth* 20 ft.

Sewer Invert(s) Depth* 0 ft.

 0 ft.

**measured from top of wet well cover.*

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 187

Pump Capacity Test Type

Portable Doppler flow meter



Wet well draw/fill



Electrical Equipment

Power source Double Ended, Normal & Alternate Source

Type of service 4160V three phase, medium voltage

Size of service protective device Not Available

Size of main protective device Not Available

Size of motor protective device Circuit breaker

Service wire size Not Available Size of motor starter in NEMA Not Available

Motor wire size Not Available Motor Horsepower 2-2500 & 1-275

Number of motors 3 Motor Speed Multiple-2500 & Single

Speed(s) in rpm 13 speeds of 297.5 (2500 HP) & 1 speed of (353)

Frequency in Hertz 60

Type of starter Full voltage non-reversing (FVNR)

Model Number - Motor # Not available Serial Number - Motor # Not available

Model Number - Motor # Not available Serial Number - Motor # Not available

Model Number - Motor # - _____ Serial Number - Motor # - _____

Model Number - Motor # - _____ Serial Number - Motor # - _____

Comments The physical condition of the motor speed controller is poor due to corrosion. The 275 HP motor conduit is not liquid tight flexible metal conduit. The physical condition of the motors, motor controller control panell is fair. The electrical control does not have a phase monitor circuit or device, automatic alternation, surge protection, lightning arrester and elapsed time meter (ETM) for motor running time and simultaneous operation. The pump station has an insufficient grounding system per NEC 70-250. The bubbler tubing conduit has no conduit seal fitting for hazardous location installation per NEC 70-500.

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 188 (SPS "C")
1107 PACIFIC STREET**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 188 ("C")

Pump Station 188 is an above ground suction lift station located on 1107 Pacific Street. It pumps to the West Bank Sewerage Treatment Plant through a manifolded force main system. Pump Station 188 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 188.

Pump Station 188 contains three (10-inch by 10-inch) horizontally aligned pumps. Each pump is powered by a 3-speed motor rated at 125 horsepower (hp) at 881 revolutions per minute (rpm). These pumps and motors are shown in photo number 2. This equipment is housed in an above ground structure. This station can be characterized as being in good condition.

Pump Station 188 collects wastewater from the surrounding gravity sewer system into a reinforced concrete wet well. This wet well is in poor condition due to extensive corrosion of the concrete wall surfaces. Exposed aggregate was observed and concrete corrosion is in excess of 1-inch in depth from its original surface.

The Doppler flow meter was utilized to determine flows at various discharge heads to develop the pump curves for two of the three horizontally aligned pumps, pump numbers 2 and 3, as shown in Figures 2 and 3 respectively. Pump number 1 was not tested because its motor was out of service. Pump number 2 was tested as having the approximate capacities of 2,300 gallons per minute (gpm) at 39 feet of head, 4,300 gpm at 31 feet of head, and 3,650 gpm at 51 feet of head on speeds 1, 2, and 3 respectively. Pump number 3 was tested as having the approximate capacities of 1,600 gpm at 34 feet of head, 1,800 gpm at 37 feet of head, and 5,000 gpm at 46 feet of head on speeds 1, 2, and 3 respectively.

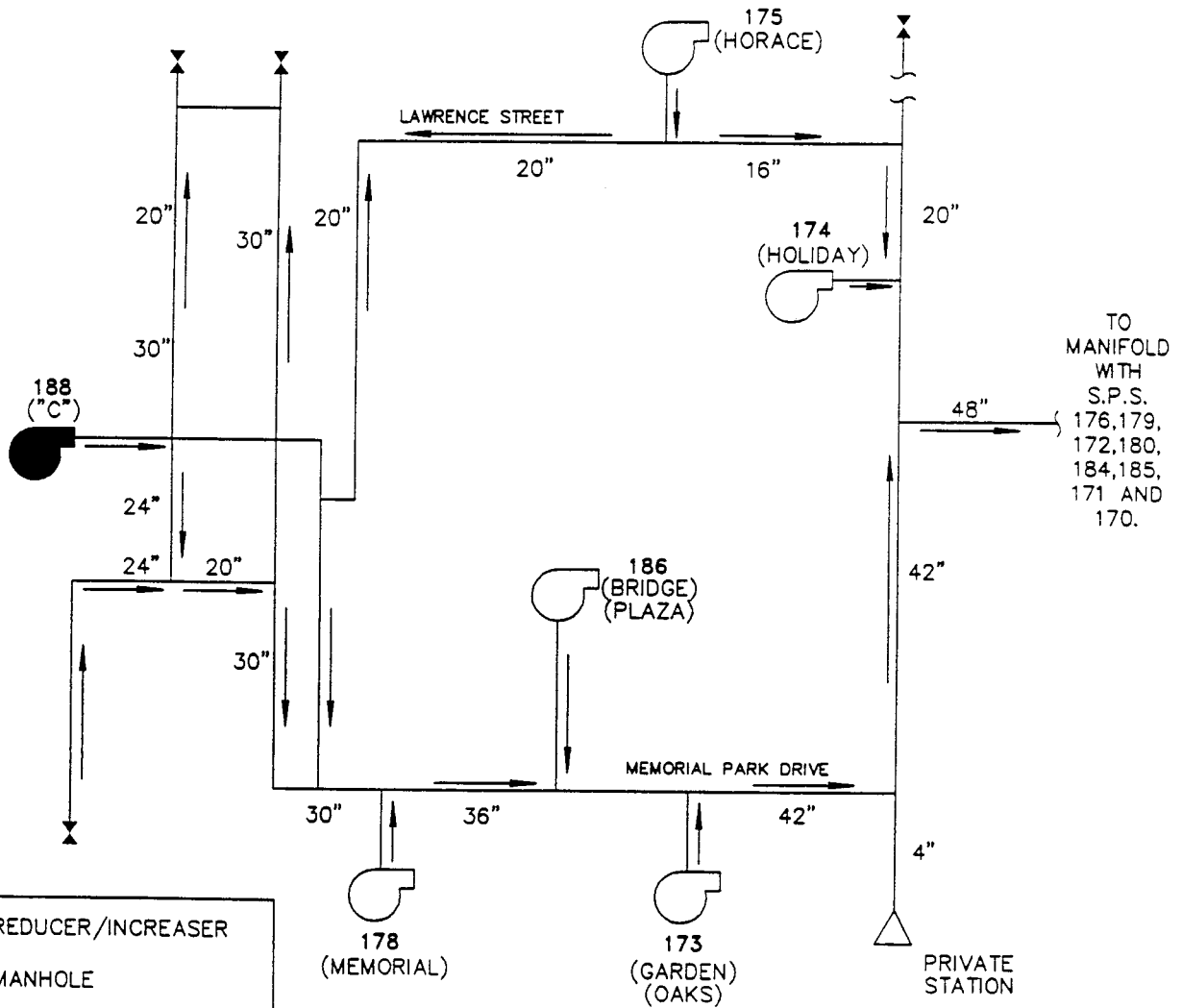
Pumps are driven by a common drive shaft and therefore, rotate together. However, usually only one is primed to pump.

Recommendations:

1. The condition of the electro-mechanical speed controller is poor due to corrosion. Its condition needs to be further investigated and corrected as necessary.



EMERGENCY DISCHARGE
TO THE MISSISSIPPI RIVER



TO
MANIFOLD
WITH
S.P.S.
176,179,
172,180,
184,185,
171 AND
170.

- REDUCER/INCREASER
- MANHOLE
- GATE VALVE
- GRAVITY LINE
- FORCE MAIN
- PRIVATE STATION
- PUMP STATION
- REF. PUMP STATION
- WBSTP WEST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-3 FOR FULL SCHEMATIC DRAWING.

FILE NO.: 18b JOB NO.: 1113030.01090120 DATE: 3/28/97

SEWERAGE AND WATER BOARD
OF NEW ORLEANS

MONTGOMERY WATSON

PUMP STATION 188 ("C")
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:
1
DATE:
3/28/97

Pump Station: 188 ("C")

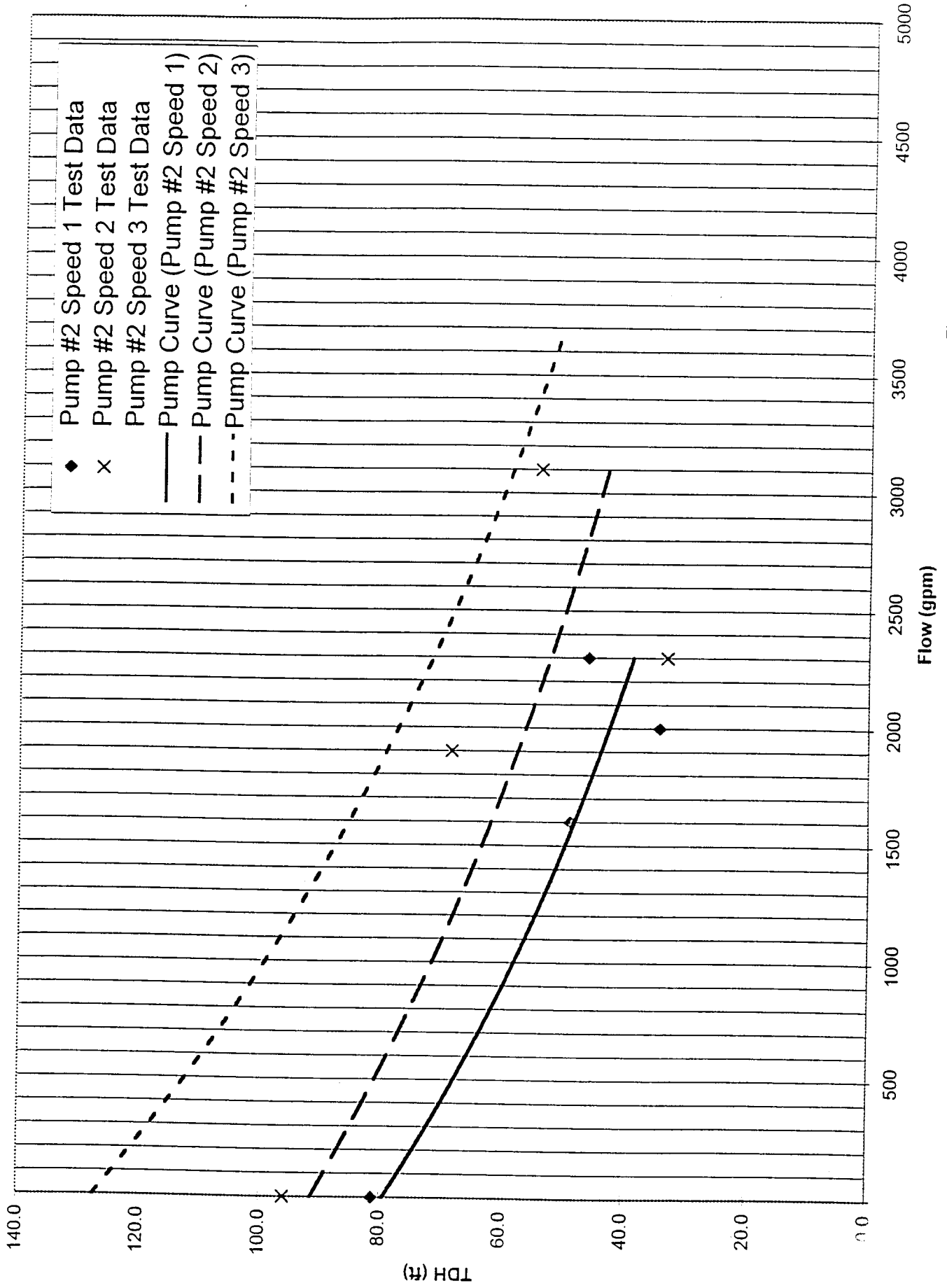


Figure 2: Pump Test Data and Curve(s)

Pump Station 188 ("C")

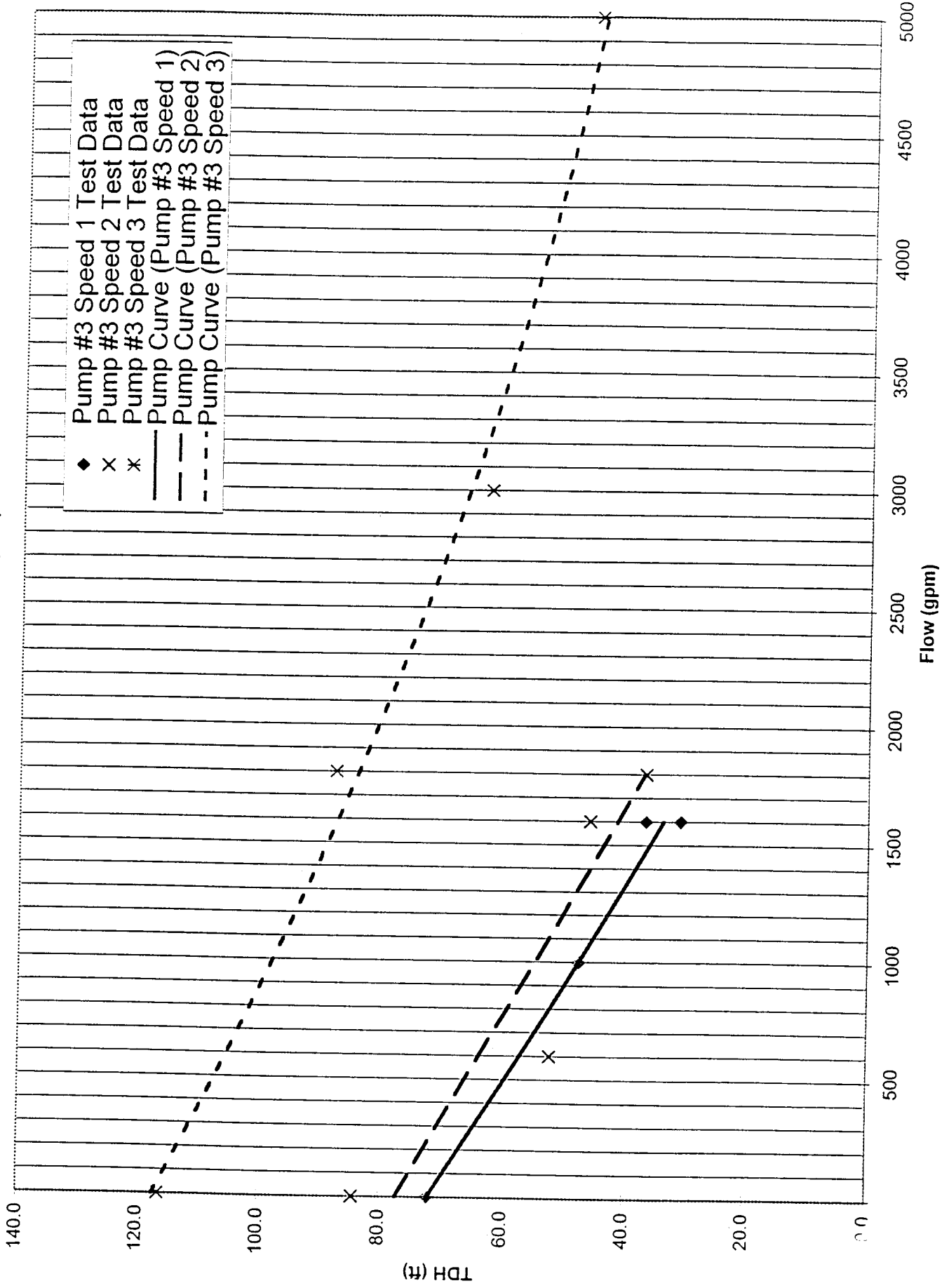


Figure 3: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 188

General Information

PS No. 188 PS Facility SPS "C" Address _____

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 3 Pump Manufacturer Fairbanks Morse

Impeller Diameter 0 inch

Model Number-Pump #1 MR99163 Serial Number-Pump #1 K-99164

Model Number-Pump #2 MR99163 Serial Number-Pump #2 K-99163

Model Number-Pump #3 MR99163 Serial Number-Pump #3 K-99165

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 5000 gpm 60 ft. of head 860 rpm

Pump Suction 10 inch Pump Discharge 10 inch FM Diameter 20 inch

Suction Valve Size 0 inch Discharge Valve Size 20 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 20 inch

Dry Well Dimensions 0 ft. dia. Length 30 ft. Width: 10 ft. Depth 5 ft.

Pump centerline* 2 ft. Centerline of discharge pipe* 4 ft.

* measured from dry well bottom.

Notes: Pump centerline measured from ground slab.

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

**Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation**

Montgomery Watson

DATE: MARCH, 1997

PS No. 188

Pump Controls

Lead pump on 0 ft. Type of Controls Manual Controls
Lead pump off 0 ft.
Lag pump on 0 ft.
Lag pump off 0 ft.

Notes: _____

Structural Observations

Exterior Not applicable
Interior Not applicable

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments No measurements taken.

Diameter 0 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 0 ft.

Sewer Invert(s) Depth* 0 ft.

 0 ft.

**measured from top of wet well cover.*

**SEWERAGE & WATER BOARD OF NEW ORLEANS
SEWER SYSTEM EVALUATION AND REHABILITATION PROGRAM
PUMP STATION TESTING AND EVALUATION**

**SEWERAGE PUMPING STATION
NUMBER 190 (McCOY)
McCOY STREET AT OLD GENTILLY ROAD**

**MONTGOMERY WATSON
APRIL 1997**

Sewerage and Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Pump Station Testing and Evaluation

Pump Station 190 (McCoy)

Pump Station 190 is a submersible station located at the intersection of McCoy Street and Old Gentilly Road. Wastewater discharges the station via a 6-inch diameter PVC force main for approximately 3000 feet where it begins gravity flow and is repumped by Pump Station 144 (Dodt). Pump Station 190 does not repump flow from any other station. Figure 1 shows the schematic subsystem surrounding Pump Station 190.

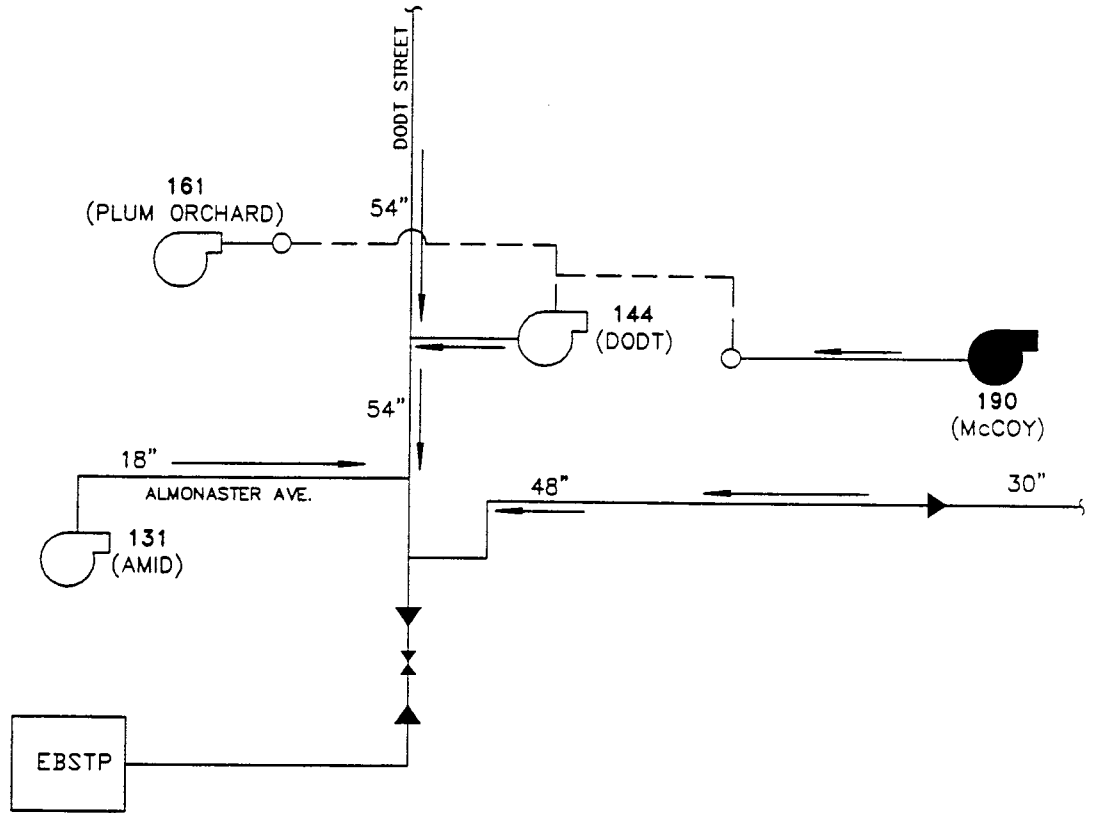
Pump Station 190 contains two (4-inch) submersible pumps. Each pump is powered by a 5 horsepower (hp) electric motor operating at a constant speed. This equipment is submerged in a 14.9-foot deep concrete wet well. Figures 2 and 3 provide plan and elevation views of the station. The overall condition of the station is fair although the paving on site is severely broken and cracked as seen in the attached photos.










Pump Station 190 collects wastewater from the surrounding gravity sewer system into the wet well having a circular cross sectional area with an estimated 6-foot diameter. The overall condition of the wet well is fair.

A draw down/fill test was conducted to determine the capacity of Pump Station 190. Figure 4 shows the pump curves constructed from obtained test data. Each pump has an approximate capacity of 200 gallons per minute (gpm) at 49 feet of head. The shut-off head of both pumps was found to be 59 feet. It was noted that when operating two pumps simultaneously overflows occur at the downstream manhole due to its small size (6-inch) and therefore limited capacity of the downstream gravity sewer. Therefore, the two pumps are normally never run together. However, with both pumps operating simultaneously, as may be required in the future, the maximum capacity of the station was tested as 250 gpm at 55 feet of head.

Recommendations:

1. A hydraulic analysis should be conducted to determine the total flows through Pump Station 190 and its affect on the receiving downstream gravity sewer.
2. It is recommended that the control panel be mounted on a secure-framed structure.
3. The physical condition of the motor control, electrical service disconnect switch and the control panel is poor due to corrosion. It is recommended that these electrical issues be addressed.



-  REDUCER/INCREASER
-  MANHOLE
-  GATE VALVE
-  GRAVITY LINE
-  FORCE MAIN
-  PRIVATE STATION
-  PUMP STATION
-  REF. PUMP STATION
-  EBSTP EAST BANK SEWERAGE TREATMENT PLANT

NOTE:
SEE FIGURE 3-2 FOR FULL SCHEMATIC DRAWING.

JOB NO.: 1113030.01090120 DATE: 3/28/97

FILE NO.: 19



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

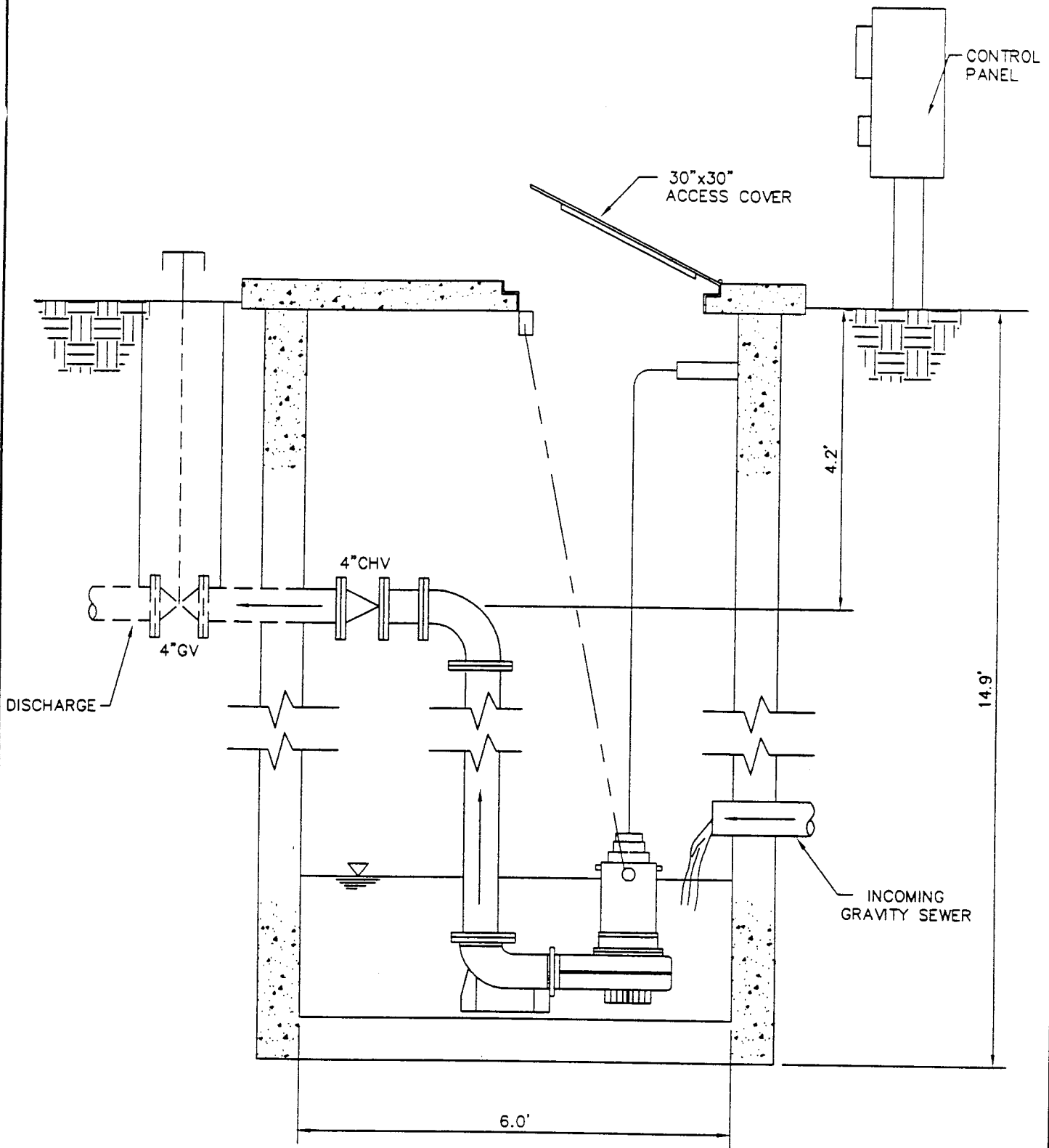
PUMP STATION 190 (McCOY)
PUMP STATIONS AND FORCEMAINS SCHEMATIC

FIGURE:

1

DATE:

3/28/97



ELEVATION
(NOT TO SCALE)

FILE NO.: 19C JOB NO.: 1113030.01090120 DATE: 3/28/97



SEWERAGE AND WATER BOARD
OF NEW ORLEANS



MONTGOMERY WATSON

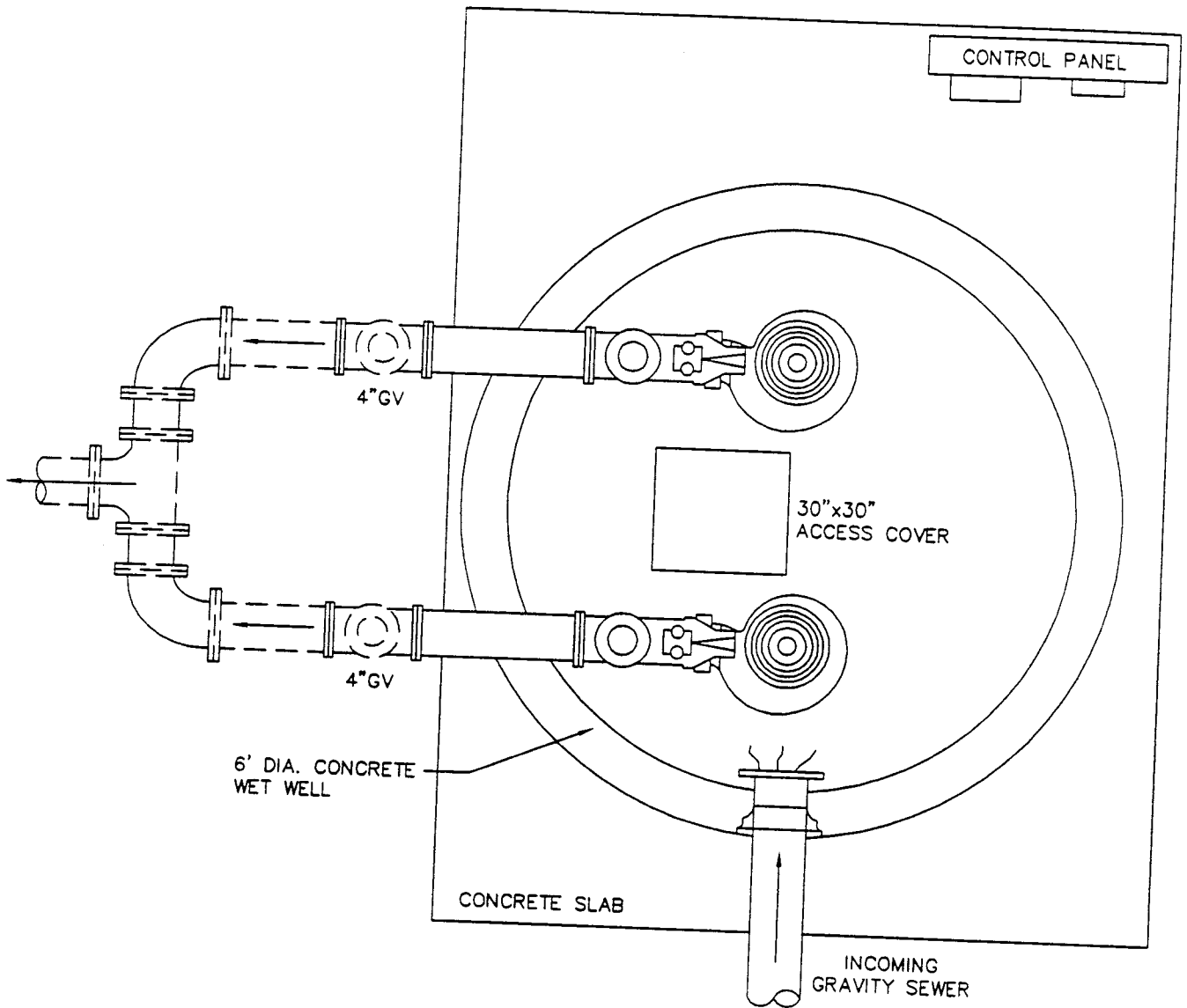
PUMP STATION 190 (McCOY)
SUBMERSIBLE

FIGURE:

2

DATE:

3/28/97



PLAN VIEW
(NOT TO SCALE)

FILE NO.: 15 JOB NO.: 1113030.01090120 DATE: 3/28/97



 <p>SEWERAGE AND WATER BOARD OF NEW ORLEANS</p>	 <p>MONTGOMERY WATSON</p>

FIGURE:	3
DATE:	3/28/97

Pump Station: 190 (McCoy)

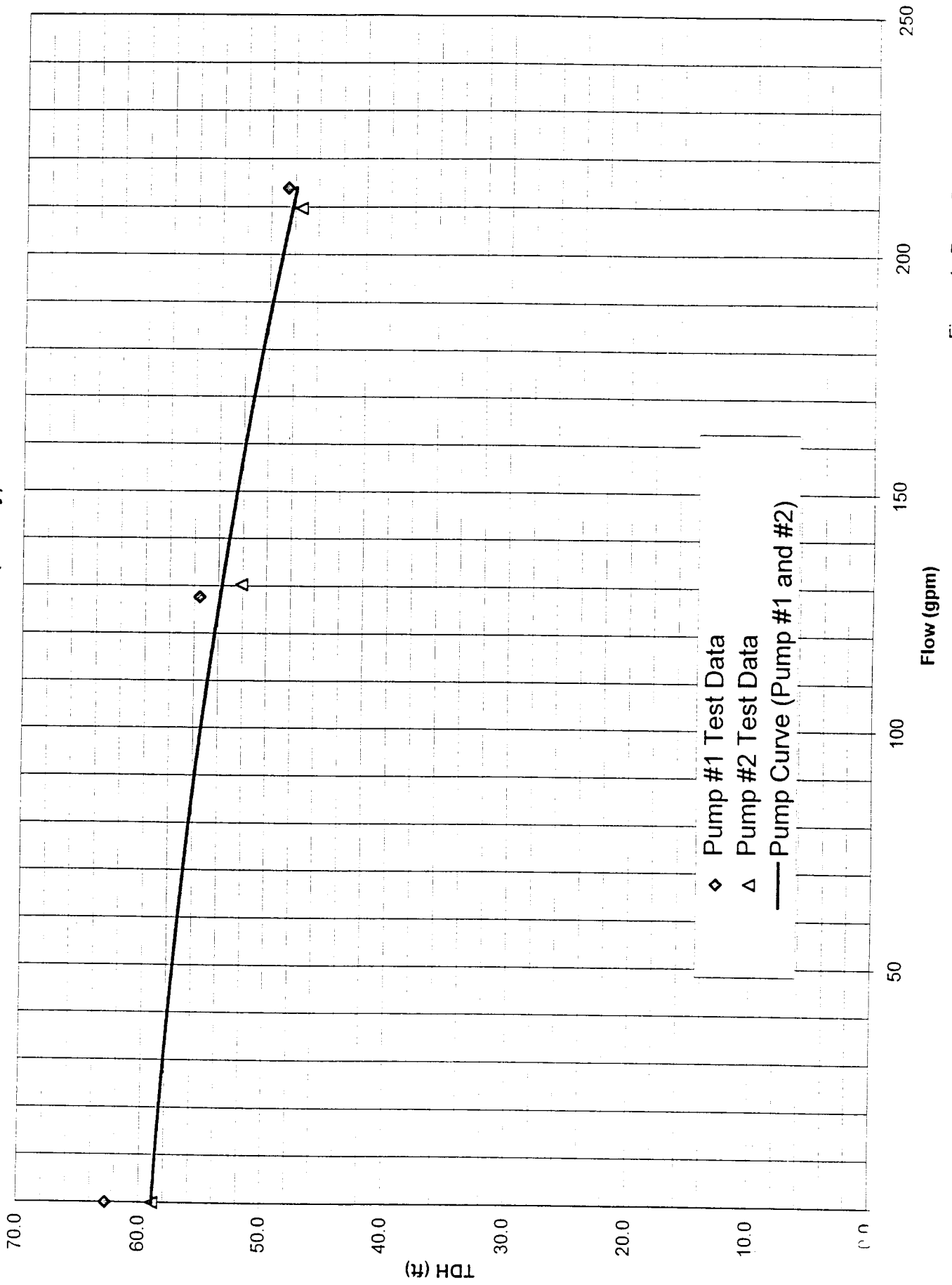


Figure 4: Pump Test Data and Curve(s)

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 190

General Information

PS No. 190 PS Facility McCoy Address McCoy Street at Old Gentilly
Road

PS Type Regional Flooded Suction (can type) Flooded Suction (multi-level)
 Suction Lift (above ground) Suction Lift (bi-level) Suction Lift (hut)
 Submersible Discharge to gravity Discharge to force main

Notes _____

Pump Information

Number of Pumps 2 Pump Manufacturer not available

Impeller Diameter 0 inch

Model Number-Pump #1 not available Serial Number-Pump #1 not available

Model Number-Pump #2 not available Serial Number-Pump #2 not available

Model Number-Pump #3 - Serial Number-Pump #3 -

Model Number-Pump #4 - Serial Number-Pump #4 -

Pump Configuration Vertical Horizontal

Nameplate Rating 0 gpm 0 ft. of head 0 rpm

Pump Suction 0 inch Pump Discharge 0 inch FM Diameter 0 inch

Suction Valve Size 0 inch Discharge Valve Size 4 inch

Suction Valve Type 0 Discharge Valve Type gate

Check Valve Size 4 inch

Dry Well Dimensions 0 ft. dia. Length 0 ft. Width: 0 ft. Depth 0 ft.

Pump centerline* 0 ft. Centerline of discharge pipe* 0 ft.

* measured from dry well bottom.

Notes: _____

Operational Observations

Do check valves operate properly? Yes No Which One? _____

Do discharge valves operate properly? Yes No Where? _____

Pump seals leaking? Yes No Which One? _____

Sewerage and Water Board of New Orleans

Sewer System Evaluation and Rehabilitation Program Pump Station Testing and Evaluation

Montgomery Watson

DATE: MARCH, 1997

PS No. 190

Pump Controls

Lead pump on 4 ft. Type of Controls bubbler
Lead pump off 1.25 ft.
Lag pump on 4.5 ft.
Lag pump off 2 ft.

Notes: _____

Structural Observations

Exterior The overall condition of the exterior is poor. The fencing and paving are in need of repair.

Interior Not applicable.

Wet Well Information/Observations

Wet Well Condition Good Fair Poor

Exposed aggregate Exposed reinforcement

Liner Present Liner type/Condition _____

Comments _____

Diameter 6 ft. Length 0 ft. Width 0 ft.

Bottom Depth* 14.9 ft.

Sewer Invert(s) Depth* 12.4 ft.

0 ft.

**measured from top of wet well cover.*

Pump Station 190 (McCoy)



Photo Number 1

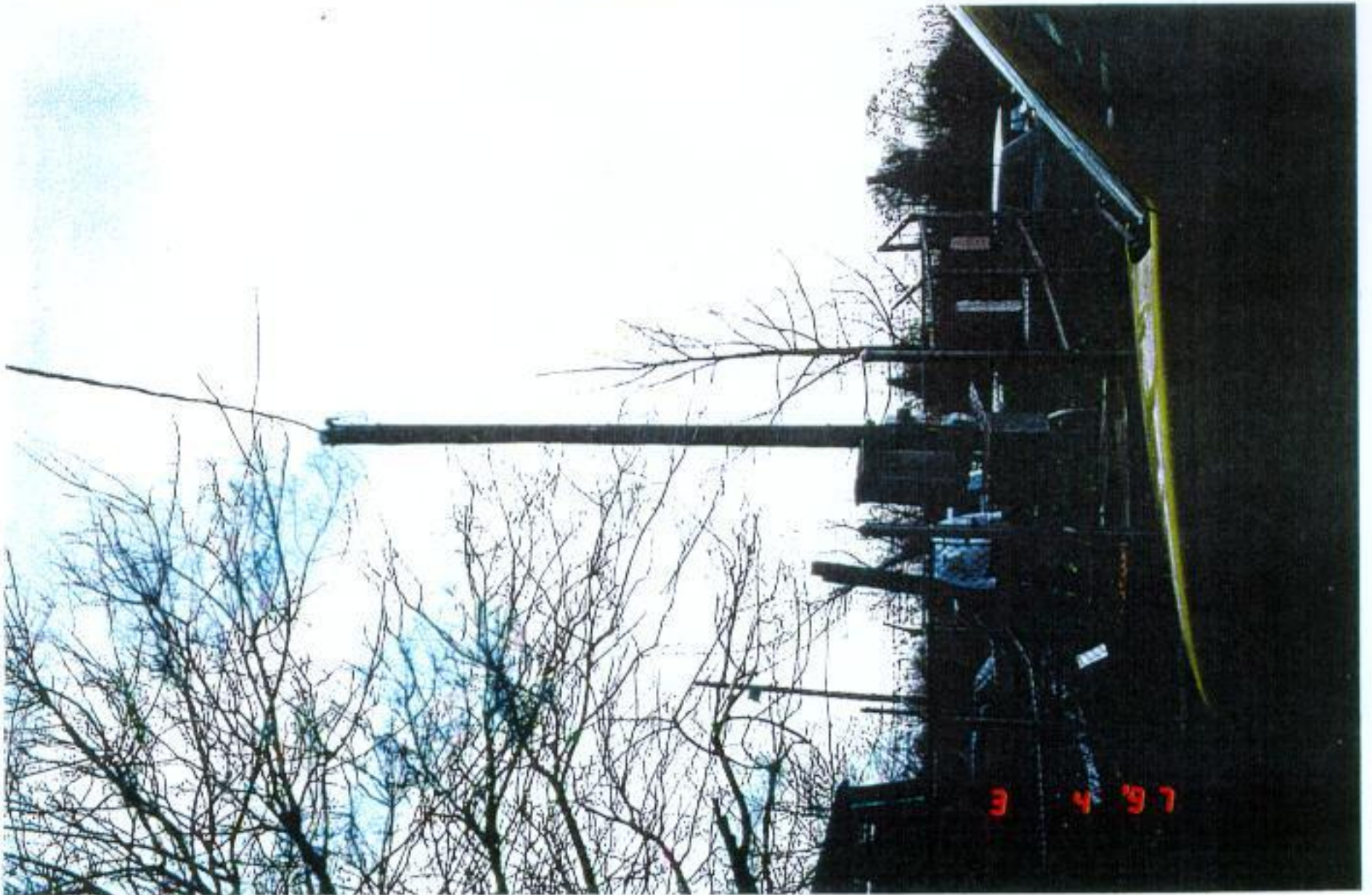


Photo Number 2

Pump Station 190 (McCoy)



Photo Number 3

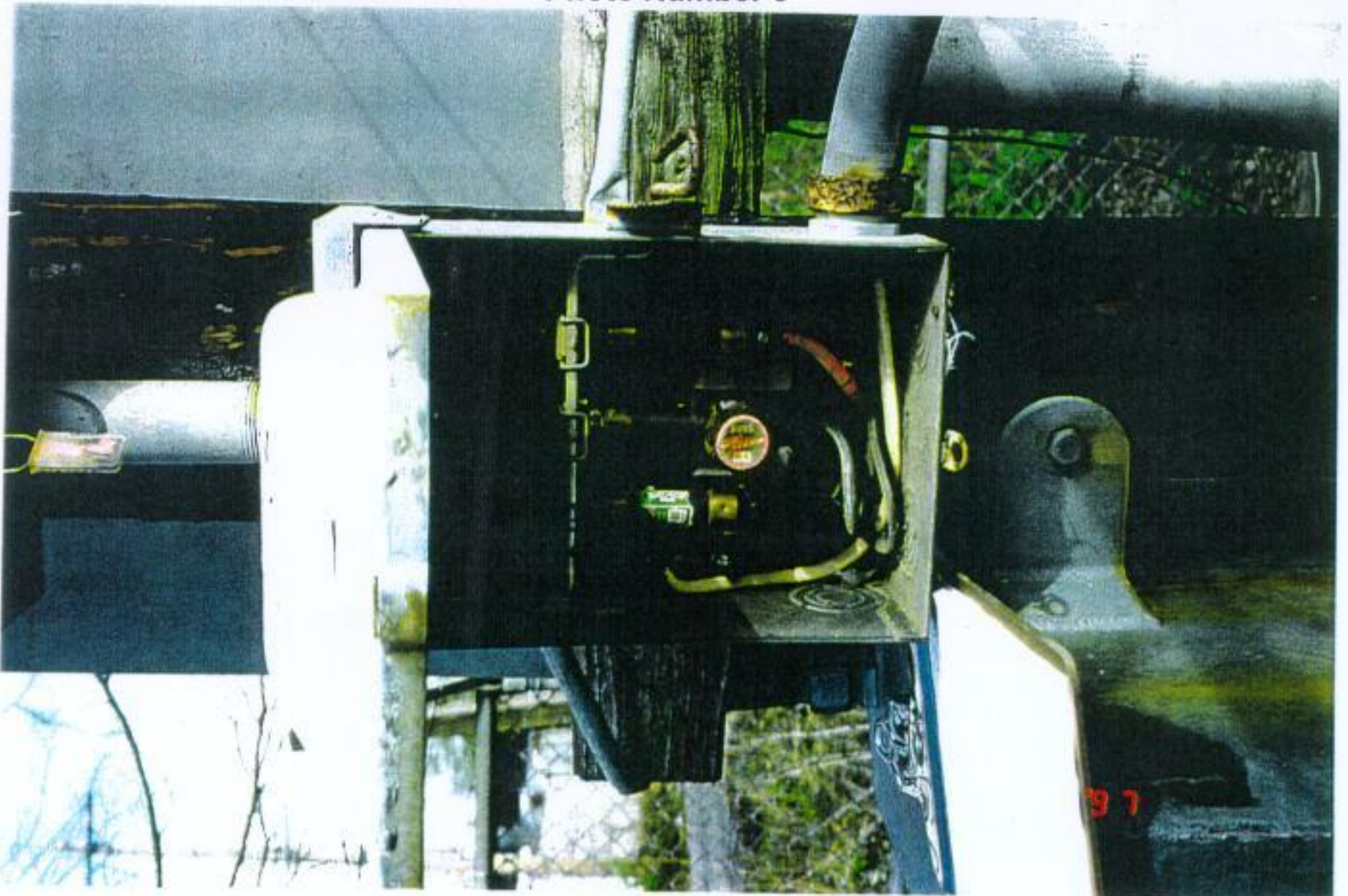


Photo Number 4

Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Appendix Volume II

Pump Station (150 - 190) Testing and Evaluation Report

<u>Station Number</u>	<u>Station Name</u>	<u>Station Address</u>
150	K-Mart	Desire at Old Gentilly Road
151	Lake Forest	10451 Lake Forest Boulevard
152	Lakeland Terrace	5057 Warren Drive
153	Lakewood South	Country Club Drive at Marcia
154	Lamb	6450 Morrison Road
155	Lawrence	7900 Morrison Road
156	Liggett	2500 Morrison Road
157	Meco	3855 France Road
158	Michoud	4400 Michoud Boulevard
159	Oak Island	14201 Michoud Boulevard
160	Pine Village	6155 Dwyer Road
161	Plum Orchard	7300 Chef Highway
162	Shorewood	14441 Morrison
163	Southern Scrap	Harbor Road
164	Venetian Isles	20711 Old Spanish Trail
165	Victoria	3620 Victoria Street
166	Village D'Lest	13324 Dwyer Road
167	Weber 10141	Morrison Road
168	Willowbrook	Willowbrook Drive at Michoud Boulevard
169	Wilson	7709 Wilson Avenue
170	English Turn #1	2503 Stanton Road
171	English Turn #2	123 ½ Oak Alley Drive
172	Eton	3440 Eton Street
173	Garden Oaks	3201 Memorial
174	Holiday	3800 Herschel Street
175	Horace	3301 Lawrence Street
176	Huntlee	3201 Huntlee Drive
177	Lower Coast	3700 Belle Chase Highway 406
178	Memorial	2501 Memorial Park Drive
179	Park Timbers	4100 Lennox Boulevard
180	Tall Timbers	3800 Tall Pines Drive
181	Forest Isles	5631 West Forest Isles Drive
182	Woodland	4150 Woodland Drive
183	Wright	Lake Forest Boulevard at Wright Road

**Sewerage & Water Board of New Orleans
Sewer System Evaluation and Rehabilitation Program
Appendix Volume II**

Pump Station (150 - 190) Testing and Evaluation Report

<u>Station Number</u>	<u>Station Name</u>	<u>Station Address</u>
184	Aurora	6000 Carlisle Court
185	Blair	3800 Blair Street
186	Bridge Plaza	2914 Vespasian Street
187	SPS "D"	2801 Florida Avenue
188	SPS "C"	1107 Pacific Street
190	McCoy	McCoy Street at Old Gentilly Road