

Imperial County Planning & Development Services Planning / Building

November 6, 2023



Subject: Request for Proposal (RFP) for an Initial Study for the Installation of a New Force Main Pipeline, Repairing Pump Station to include Telemetry Equipment.

Project Applicant: ICDPW Project Name: Initial Study for Country Club Sewer Maintenance District (CCSMD).

• IS #23-0028

Dear Consultant:

The Imperial County Planning & Development Services Department is soliciting proposals for the preparation of Initial Study # 23-0028 for the attached project. **The Imperial County Planning & Development Services Department** will act as the "Lead Agency" for the preparation of the Initial Study pursuant to the California Environmental Quality Act (CEQA) for the project. The successful consultant will work directly for the Imperial County Planning & Development Services Department Services Director in the preparation of this CEQA document.

The COUNTRY CLUB SEWER MAINTENANCE DISTRICT (CCSMD) project includes:

1. Initial Study #23-0028

- Installation of a New Force Main Pipeline.
- Repairing Pump Station to include Telemetry Equipment.
- Eliminate the force main pipeline breaks and subsequent sewer spills.
- Installation within existing IID easement, offset and parallel to existing force main which begins at the sewer pump station.
- APN: 045-100-069-001
- Current zone S-1-U (Open Space/Recreational, Urban Overlay)

Please review attached project description.

- I. The County hereby requests the following information: for each item (as appropriate) the hourly rate and estimated total hours for the specific task must be documented.
 - a. Project scope to be utilized in the preparation of a legally adequate CEQA document.
 - b. Identified milestones representing specific tangible work products (tasks) to which payments by the County would be linked and become part of the legal contract. (Please note that all subsequent bills/invoices will be required to include both the identified milestones and percent completed).
 - c. All potential subcontractor(s) that will be utilized along with their estimated staff time and cost breakdown.

801 Main St. El Centro, CA. 92243 (442) 265-1736 Fax (442) 265-1735 planninginfo@co.imperial.ca.us www.icpds.com

- d. An estimated "not to exceed cost" to prepare the Initial Study documents.
- e. A digital (CD) version of all documents prepared by the prime CEQA consultant and potential subcontractor(s).
- f. Also, proposals must incorporate the cost estimate for the printing of the Final environmental documents.

The proposal must provide that prior to any cost overruns, the consultant shall discuss this first and then seek written approval from the County Planning and Development Services Director, Jim Minnick before such costs are incurred. Failure to get prior written approval may result in such costs being disallowed.

We request that you provide within your cost estimate for the proposed Initial Study-including costs for the preparation of the following studies\analysis.

- Aesthetics
- Agriculture and Forest Resources
- Air Quality / Greenhouse Gas emissions
- Hydrology and Water Quality
- Biological Resources
- Cultural Resources/Historical/Archaeology
- Geology and soils
- Hazards and Hazardous Materials
- Land Use Planning
- Noise
- Public Services (Police, Fire, Schools)
- Transportation
- Tribal Cultural Resources
- Utilities and Service System
- Energy
- Wildfire
- Mineral Resources
- Population and Housing
- Recreation
- AB-52 Tribal Cultural Resources
- CEQA Findings for Project
- Mitigation, Monitoring & Reporting Program (MM&RP)

II. The following format should be used in preparing the proposal, additional information/items may be used to further bolster your proposal:

One page cover letter introducing your firm.

- 1. Project Understanding
- 2. Project Team
 - Identify all company and consultant team personnel who will work on the project and short description of their education and work experience.
 - Resumes of the prime and technical consultants should be included and can be attached to the proposal as an appendix.
 - Organization Charts-Elaborate organization charts are not necessary.

3. Scope of Work

- Describe the proposed tasks to accomplish the scope of work.
- Include deliverables, when applicable, for each task.
- Include all applicable site visits, scoping meetings, staff meetings and public hearings.
- Be specific regarding your approach to completing the CEQA notice requirements.

4. The tasks should be presented as follows:

- a) <u>Project Initiation</u> Include research, site visit, data collection, CEQA notices, scoping meetings, etc.
- b. <u>Administrative Draft Initial Study</u> Include mandatory CEQA sections, required and optional technical studies, number of revisions, meetings, and coordination with County Staff.
- c. <u>Public Review Draft Initial Study (EEC Hearing)</u> Include document preparation, CEQA notice, Scoping meeting, and coordination with County Staff.
- <u>Final Initial Study</u> Include document preparation, Response to Comments, CEQA notice, meetings, coordination with County Staff and attendance at Planning Commission and Board of Supervisors hearing.
- e. <u>Mitigation, Monitoring and Reporting Program</u> Include the preparation per CEQA identification of all mitigation measures, identification of all responsible parties, timing and enforcement.
- f. <u>CEQA Findings and Notice of Determination</u> Include the preparation per CEQA requirements.
- g. Assumptions

Please provide a specific section for assumptions. Include your assumptions regarding travel time, mileage, public noticing, or anything else that needs clarification.

h. Meetings

The number of meetings and hearings that are included in your proposal should be detailed under each task.

5. Proposed Schedule

Provide the number of weeks for each task in tabular form from project initiation to public hearings; there is expected to be two (2) public hearings (Environmental Evaluation Committee, and Planning Commission).

6. Cost Estimate/Milestones

- Provide a discussion of the proposed cost and any optional costs.
- Include a spread sheet that details your personnel, any subcontractors to be used, their estimated hours, and associated costs per task (can be attached as an appendix).
- A table of project milestones should be included in the Cost Estimate discussion.

7. Consultant Selection Criteria

- a) Understanding of the project: the proposer should demonstrate an understanding of key elements of the project and, accordingly, provide the names of personnel and their expertise.
- **b)** Approach to the project: The selection process will evaluate the extent to which the proposer has recognized and identified special circumstances on the project and whether the proposer has provided logical approach to tasks and issues of the project.

- c) Professional qualifications necessary for satisfactory performance: The project manager and key team members should be qualified to perform the work categories on the project; and the proposer's knowledge of standards and procedures will be examined.
- d) Specialized experience and technical competence in the type of work required: The proposal should provide information about comparable projects they have been involved with and/or successfully accomplished; past performance on contracts with government agencies and private industry will be considered together with past performance evaluations; and the capacity to accomplish the work in the required time will also be evaluated.
- **III.** It is requested that you disclose any conflict or potential conflict that you may have if you are submitting a proposal. The conflict by the County envisions, at the very minimum, current/ongoing or previous contracts (within the past year) with the applicant(s); this also includes current technical studies that either are or have been prepared for the applicant(s) within the last year.

IV. <u>Not providing the extent of information (including hourly rate and total estimated hours per task) may</u> negatively impact the evaluation of your proposal.

If you are interested in submitting a proposal, please submit it to the Director at Imperial County Planning & Development Services Department, 801 Main Street, El Centro, CA, 92243, **no later than <u>November 20, 2023, at</u>** <u>5:00 PM.</u> This must be post-marked or sent via facsimile on or before this date and time.

Please note that it is **not necessary to present us with voluminous references or individualized background data** on persons or personnel within your organization. We may require this at a later date. We look forward to receiving your RFP submittal.

Please submit a total of 2 hard copies and a CD.

If you do have any questions, please contact the assigned Planner for this project, Evelia Jimenez, Planner II at ejimenez@co.imperial.ca.us or at ext. 1747.

Sincerely,

Bv Evelia Jimenez Planner II

Jim Minnick, Director Planning & Development Services Department

Attachments: Project Applications

CC:

Jim Minnick, Director of Planning and Development Services Michael Abraham, AICP, Assistant Director of Planning & Development Services Diana Robinson, Planning Division Manager Project File: IS23-0028 APN 045-100-069-000 Files:10.102; 10.101; 10.104; 10.105 SVAIIUsersVAPNI045(100)0669/JS23-0028/RFP Letter/Country Club Sewer Maintenance.docx

BARBARA WORTH COUNTRY CLUB SEWER MAINTENANCE DISTRICT

CCSMD

PRELIMINARY ENGINEERING REPORT (PER) FOR FORCE MAIN REPLACEMENT AND PUMP STATION UPGRADES

Final

OCTOBER 2021

Prepared for:

John Gay, Public Works Director - County of Imperial

Country Club Sewer Maintenance District

Prepared By:

David Dale, PE

daviddalepe@gmail.com



CCSMD Service Area

Contents

Introduction/Executive Summary
History of the CCSMD4
Description of the CCSMD7
Description of the CCSMD Problems7
Proposed System Improvements
PROPOSED IMPROVEMENTS:
Phasing Recommendations and Engineer's Cost Estimate
Phase 1 – Engineer's Opinion of Probable Project Quantities and Costs
Phase 2 – Engineer's Opinion of Probable Project Quantiles and Costs
Phase 3 – Engineer's Opinion of Probable Project Quantities and Costs
Engineer's Opinion of Probable Total Project Costs
Discussion of Engineer's Opinion of Probable Project Costs
References
Exhibit A – Bureau Veritas "Country Club Sewer Maintenance District Final Facilities Assessment Report", December 19, 2012
Exhibit B – Colorado River Basin Regional Water Quality Control Board – NOTICE OF VIOLATION, Barbara Worth Country Club Collection System, October 5, 2021.22

Introduction/Executive Summary

The purpose of the Preliminary Engineering Report (PER) is to examine the Barbara Worth Country Club Sewer Maintenance District (CCSMD) force main and pump station, to respond to the Notice of Violation (NOV) dated October 5, 2021 from the Colorado River Basin Regional Water Quality Control Board (RWQCB), and to determine the most favorable method to eliminate future sanitary sewer overflows (SSO) in the future.

Another reason for this report is to recommend the diameter size of the replacement force main. As a part of this report, the existing documentation was reviewed and analyzed. There have been multiple reports over the years - starting in 1998 – recommending replacement of the existing 4-inch diameter pipe with different force main diameter sizes (6", 8" and 10"). Currently there is a proposed new RV Park development in the CCSMD service area. Therefore, the diameter size will be determined based on existing flows and proposed flows with the RV Park. In addition, the pump station was inspected and upgrades are recommended as a part of this report.

This PER does not address the gravity sewer collection system.

History of the CCSMD

On June 16, 1970, the Board of Supervisors determined that a Sewer Maintenance District should be formed. The Country Club Sewer Maintenance District (CCSMD) was created to perform the functions authorized under Chapter 4, Part 3, Division 5, of the Health and Safety Code of 1970 to protect public health. Although the County of Imperial oversees it, this Special District is a separate agency. It was created at the request of the property owners to maintain the sewer system for the homes located at the Barbara Worth Country Club. On July 21, 1970 (minute order #7) the Imperial County Board of Supervisors authorized the Department of Public Works to perform the administration of the Country Club Sewer Maintenance District (CCSMD) and to negotiate with the City of Holtville for performance of routine maintenance and operation of the plant. The City of Holtville assumed the responsibility for the operation and maintenance of the district's sewer system on March 31, 1976, under an agreement between the District and the City of Holtville dated December 19, 1972. This agreement gave the City of Holtville the option to opt out of providing maintenance services by giving six months written notice. The City elected this option by giving written notice in December, 2001. Effective July 1, 2002 the CCSMD was responsible for all maintenance costs associated with the sewer lines and the pump station.

This document includes information from several public sources (see references), including the "Country Club Sewer Maintenance District Informational Report", prepared by the County of Imperial, Department of Public Works in June of 2006. This information was placed here for convenience of the reader. The following 11 pages are an excerpt from this report.

On April 16, 1971 David E. Pierson, Director of Imperial County Public Works Department made the first attempt to negotiate with the City of Holtville for maintenance of the sewer system for the CCSMD. At this point the City of Holtville declined the invitation to take over maintenance of the system.

On December 19, 1972 the CCSMD and the City of Holtville entered into an agreement which stipulated that the City of Holtville would operate and maintain the District's sewer system and would establish and collect service charges and maintenance fees to operate the district. This agreement provides the ability for either party to terminate the contract effective at the end of any fiscal year provided that six (6) months prior written notice of such intention is first given. In the event of any such termination, CCSMD shall pay the city a reasonable charge for the right to continue its tie-on with city's sewerage system. If such amount cannot be mutually agreed upon, the charges shall be set through the arbitration process as outlined in paragraph 8 in the 1972 agreement.

On February 15, 1977 the City of Holtville's representatives expressed concern about the 1972 agreement between the city and the CCSMD. The representatives' concern was that the contract could be misconstrued and impose certain duties and obligations on the District to operate and maintain, on the basis or terms set forth therein, sewerage improvements installed on lands which are annexed into the CCSMD in the future; and thereby overburden facilities owned in the city.

The CCSMD was willing to amend the contract as follows:

The city's obligation, under the contract, is to operate and maintain CCSMD's sewage system and to ensure the proper functioning thereof and shall pertain only to the sewage system and works constructed within the district's current legal description. City shall not, by reason of the contract, be responsible for the operation and maintenance of sewage facilities constructed in any area which might be annexed to the legal description stipulated in October 3, 1975 agreement. On December 26, 2001 the Holtville City Council took action to officially notify the County of Imperial and the CCSMD that the City of Holtville was invoking Paragraph 10 of the 1972 agreement between the County, the CCSMD, and the city. Paragraph 10 states the following:

"10. City's agreement to operate and maintain District's sewerage system and to establish and collect service charges and fees may be terminated by either party effective at the end of any fiscal year provided that six (6) months prior written notice of such intention is first given. In the event of any such termination, District shall pay City a reasonable charge for the right to continue the tie-on with City's sewerage system. If the amount of charges cannot be mutually agreed upon, the charges shall be set through the arbitration process as outlined in paragraph 8 above".

In their letter, the Council, City Staff and the City Manager (John A. Jordan), stated their interest in bringing the project to a mutually agreeable resolution. This letter notified the County of Imperial to assume full responsibility for the operation and the maintenance of CCSMD's facilities which included the pump station and sewer force main line no later than June 30, 2002.

On December 26, 2001, the Holtville City Council took action to officially notify the County of Imperial (CCSMD) that the City of Holtville is invoking Paragraph 10 of the agreement between the County CCSMD and the city.

In his letter the City Manager (John A. Jordan) informed the county that the city is only obligated to "maintain the sewer line," it is the county's responsibility to provide funds for the replacement, and to accept any liability should the line fail in any way. The City Manager also states that the council and city staff is interested in bringing the project to a mutually agreeable resolution. This letter notified the County of Imperial to assume full responsibility for the operation and the maintenance of the pump station and sewer line no later than June 30, 2002.

Description of the CCSMD

Sewer service is provided approximately 1.5 miles outside of the city limits to the Barbara Worth Country Club and surrounding residential community. This development is located south of the Alamo River. Wastewater is conveyed from this development to the city's wastewater treatment plant through a dedicated sewer pump station and force main system. The Barbara Worth Pump Station, located off Holton Road, conveys wastewater from the Barbara Worth Country Club and surrounding community. The Barbara Worth Pump Station is a small package type pump station. Wastewater flows from residential sewers to a PVC gravity sewer interceptor that flows underneath State Route 115 and the Holton Interurban Railroad to a sub grade manhole type wet well. Duplex end-suction pumps with automatic controls discharge to a 4-inch PVC force main. The force main parallels the Barbara Worth Canal, crosses under the Rositas Canal and the Alamo River and ultimately connects to the city's sewer outfall main located in Kamm Road near the city's wastewater treatment plant. The total length of the 4inch force main is approximately 10,400 feet.

Description of the CCSMD Problems

The CCSMD sewer collection system is considerably old, and has experienced operational problems prior to 1998. In addition to maintenance related problems, the system has had difficulty handling high peak flows. This results in high head losses in the small 4-inch diameter, long length of force main pipe. In 1998, the pump station was considered to be at capacity under current service loads. The lift station does not have a permanent back-up power supply; however, the city's trailer-mounted generator is available to operate the lift station during extended power outages.

The 10,200 lineal foot wastewater force main extending downstream of the Barbara Worth Pump Station has been a source of pipeline ruptures, pipeline clogs, and pump maintenance problems for over three decades. The continued rupturing of the 4-inch wastewater force main results in health and safety issues in the vicinity of the Imperial Irrigation District Canal Network. It would be prudent for Imperial County to replace the existing undersized 4-inch diameter force main with a heavy wall AWWA C-900, Class 150 PVC wastewater force main as soon as possible.

On February 8, 2006, The Holt Group, Inc. prepared a report for the County of Imperial named "Barbara Worth Wastewater Forcemain Installation and Sanitary Sewer Pump Station Replacement Report". In this report the Holt Group, Inc. concluded that during the last 10-years the existing wastewater pump station has continued to deteriorate and periodically fail. The maintenance cost, time and effort devoted to keep the pump station in a working condition is significant and far in excess of what is normally required. The electrical panels and pumping units are aged, outdated, inefficient and in a deteriorated condition. The replacement of the existing 4-inch diameter force main with a larger diameter force main would allow for the installation of the wastewater pumps at a lower total dynamic head requiring less energy to operate. The pumps would produce a greater flow at less total dynamic head (and pressure) resulting in less maintenance. The electrical costs associated with the wastewater pump station would decrease.

On December 9 2012, Bureau Veritas (BV) presented the "Country Club Maintenance District Final Facilities Assessment Report". This report is very detailed regarding the condition of the collection system and pump station as of approximately nine years ago. In it, the flow from the pumps through the 4-inch main is 75 gpm at 34 psi (approximately 35% efficient) even though the design point is approximately 400 gpm at 26 psi (50% efficient). The BV report will not be repeated word for word in this report. A meeting at the site occurred on 10/15/21 with the system operator. The condition of the pump station and 4-inch diameter force main was discussed. In the meeting it was determined that:

- 1. The most pressing need for the system at this time is to replace the first section of force main pipeline, from the pump station to Zenos Road. This section has presented numerous problems over the years with pipeline ruptures. It has ruptured at least once per year, sometimes twice a year causing sanitary sewer overflows (SSO). There is approximately 5,814 feet of the wastewater force main to be replaced, extending from the Barbara Worth Pump Station to a point immediately south of the Rosita Lateral and Alamo River. Two recent ruptures caused Sanitary Sewer Overflow (SSO) of approximately 66,000 gallons of sewage, which resulted in a Notice of Violation dated October 5, 2021 from the Colorado River Basin Regional Water Quality Control Board.
- 2. There are no alarms on the pump station. At minimum there should be an alarm to notify operators of high sanitary sewer levels (i.e., pumps are inoperable or there is a clog in the system). The alarm would be based on cellular coverage, since there is no telephone service at this location. Additional alarms would be loss of power, low level and possibly temperature of the pumps (i.e., loss of prime).
- 3. The control panels and electrical and gauges should be all be replaced. The control panel is located inside the weather cover of the pump station (presumably for shade), causing exposure to hydrogen sulfide gas. It is also more difficult to access.
- 4. There should be a flow meter on the pump station. There is an hour meter. The pumps run about 10 hours per day.
- 5. There should be a surplus pump and motor onsite in case there is a problem with the pumps or motors.
- There is no backup generator onsite; operators bring a portable generator when needed.

7. The pumps were replaced in 2015 and are in good condition. The pumps were replaced with the same pumps that were there as described in detail in the BV report.

Proposed System Improvements

It has been clearly shown in the above-named reports, notice of violation and site inspections that the 4-inch force main pipe is past its useful life, is structurally unsound, and is insufficiently sized for the pumps installed and the flow required from the development. The question then is what size the force main should be. Bigger is not necessarily better in this case; a pipe sized too big would result in lower than required scour velocities (need greater than 2 feet per second inside the pipe) to keep the pipe from clogs. Additionally, a long sewer force main pipe sized too big will result in the formation of hydrogen sulfide gas inside the pipe due to septic biologic processes. Therefore, the pipe should be sized appropriately, not too big and not too small.

The Bureau Veritas report (Exhibit A) did an in-depth analysis on the appropriate pipe size for the existing community. According to the report, a 6-inch diameter pipe (class 150 or higher) would adequately convey 260 gpm at 60 feet total dynamic head (TDH) or 26 psi. This would result in a pipeline velocity of 2.8 feet per second (fps), greater than the needed 2.0 fps for scour velocity.

Since there is no flowmeter, to calculate the actual flow from the pump station:

The operator states that the pump station runs approximately 10 hours per day. The BV report indicates that the pump station in its current condition runs at about 75 gallons per minute:

10 hours per day x 60 min./hour x 75 gallons/min = <u>45,000 gallons per day of sewer flow</u> generated per day.

The *average* flow would then be 45,000 gal / 24 hour / 60min./hr = 31 gal per min.

Actual Peak flow based on these calculations is: 31 gpm x 4.0 = 124 gpm.

45,000 gal per day / 215 EDU = **209 gal. per EDU** per day generated on average.

The *theoretical average peak flow* from the development is 215 gpm per the BV Report or 0.31024 million gallons per day (MGD). Peak flow was estimated using a 4.0 multiplier against the calculated average daily flow.

Consideration is now needed for the potential development for the RV Park at the Barbara Worth Country Club. Again, this report is not taking into consideration the existing gravity flow collection system, only the pump station and force main.

There are 215 EDUs connected to the CCSMD collection system. Theoretical Peak flow is 215 gpm as stated above. Therefore, there is 1 gpm average peak flow per EDU. The RV Park is proposing to have 116 RV spaces. Typically, an RV Space is allocated to 0.25 EDU for calculating water demand and sewer flows. Therefore, the RV park would increase the peak sewer flows by 0.25 EDU/Space * 1gpm/EDU * 116 spaces = **29 gpm**. If 0.50 EDU is used, the theoretical peak flow would be 58 gpm; using 1.0 EDU it would be 116 gpm.

The total theoretical average peak flow is therefore 215 + 29 = 244 gpm. The pumps would be able to keep up with the peak flow at 260 gpm as stated in the BV report, even with the RV Park added to the system. This is backed up by calculations based on hourly pumping of 124 gpm peak flow of existing connections (shown above).

Therefore, even with the proposed RV Park (116 spaces), a 6-inch diameter force main pipeline class 150 pipe is recommended. An 8-inch diameter pipe would be sized for 400 gpm; however, the theoretical peak flow is not more than the 260 gpm at 60 feet total head as described in the BV Report. Installing a pipe with a larger-than-needed diameter would result in undesirable conditions: (1) a scour velocity less than 2.0 ft/sec, (2) the retention time in the 2-mile-long force main pipe would be increased causing hydrogen sulfide gasses to form, and (3) higher project costs. One benefit of installing the 8-inch force main would be that it would beneficial for future development resulting in a system capable of serving more than 800 EDU at the current flow of 209 gallons per day per EDU.

Barbara Worth Country Club		
Existing Residential EDU	111	
Existing Hotel EDU	104	
Total Existing EDU	215	
1 EDU capacity	209	Average Gallons per Day (as measured based on 10 hours pump station operation and 75gpm per BV Report)
Pumping Capacity (with 4- inch diameter force main)	75	Gallons per Minute (Per BV Report)
Pumping Capacity (with 6- inch diameter force main)	260	Gallons per Minute (Per BV Report)
Existing Sanitary Sewer Flow	45,000	Gallons per Day
Pumping Capacity (with 4- inch diameter force main)	54,000	Gallons per Day (50% Operation time)
Pumping Capacity (with 6- inch diameter force main)	187,200	Gallon per Day (50% operation time)
Pumping Capacity (with 8- inch diameter force main)	288,000	Gallon per Day (50% operation time)
Total EDU Capacity of pump station (with 4-inch diameter force main)	258	EDU (Existing 215 EDU)
station (with 6-inch diameter force main)	895	EDU
Total EDU Capacity of pump station (with 8-inch diameter force main)	1378	EDU

CCSMD EDU Capacity

PROPOSED IMPROVEMENTS:

Recommended Force Main Improvements:

 Replace the existing 4-inch diameter force main pipeline with a 6-inch diameter pipeline in phases as described in the next section. Use long sweep elbows in lieu of 90-degree bends, as stated in the BV report.

Recommended Pump Station Improvements:

- 2. Install alarms. At minimum there should be an alarm to notify operators of high sanitary sewer levels (i.e., pumps are inoperable or there is a clog in the system). The alarm would be based on cellular coverage since there is no telephone available. Additional alarms could include temperature of the pumps and low level conditions.
- Replace the electrical, control panels and distribution switchboard which will include the Installation of new electrical service per I.I.D requirement. The new control panel should be located outside the weather cover of the pump station. A small shade structure will be necessary.
- 4. Install a flow meter on the pump station.
- 5. Clean the wet well. Repair the bottom surface of the wet well and coat all interior surfaces with a protective coating.
- 6. There should be a surplus pump and motor onsite in case there is a problem with the pumps or motors.
- 7. Sandblast and coat piping of the pump station.
- 8. Remove and replace the pump station above grade P.C.C. slab.
- 9. Install emergency power generator set for the Barbara Worth Pump Station

Phasing Recommendations and Engineer's Cost Estimate

A detailed Engineer's Opinion of Probable Cost was prepared regarding the replacement of the existing 4-inch diameter force main with a 6-inch diameter line. The phased installation of the force main would allow for the inclusion of the costs relative to a given phase to be placed in an agency's budget for a given fiscal year. The phased improvements would also increase local contractors' participation with regard to the bidding of the project. The installation of segments of the force main would eliminate the pipeline ruptures along the length of the wastewater force main which was replaced and decrease the pressure exerted by the Barbara Worth Lift Station pumps.

Phase 1 Improvements include 5,814 feet of the wastewater force main extending between the Barbara Worth Pump Station and a point immediately south of the Rosita Lateral and Alamo River. Ruptures and blockages of the wastewater force main have been noted to be most prevalent along this section of the pipeline in the past five years. There have been at least one to two ruptures per year along this section. It has been repaired numerous times over the past 20 plus years.

Phase 2 would entail the replacement of the approximately 300 feet of pipeline section which presently passes beneath the Alamo River and Rosita Lateral. This is considered higher priority than Phase 3 because of the proximity to the river. The pipe would be directional drilled beneath said river and lateral, to be installed inside a larger 12" dia. protective casing pipe.

Phase 3 improvements recommend that an approximate 4,086 – foot section of the wastewater force main be replaced between a point immediately north of the Alamo River and the termination point of the wastewater force main at the manhole located along the gravity outfall sewer pipeline at the intersection of Gowling Road and Kamm Road immediately upstream of the Holtville Wastewater Treatment Plant. The installation of the majority of the wastewater force main per Phases I and II would drastically reduce the frictional loss along the length of the pipeline and consequently reduce the maintenance associated with the Barbara Worth Pump Station.



PROPOSED PHASING MAP

ITEM	QUA	UNIT	ITEM	ι	INIT COST		AMOUNT	
1	1	LS	Mobilization of equipment and material, Bonds,	\$	32,000.00	\$	32,000.00	
			Insurances, project signs, and fees, Restroom Facilities,					
			Business license, and Similar expenses and other costs.					
2	1	LS	Preparation and Implementation of Dust Control Plan Per	\$	1,500.00	\$	1,500.00	
			Imperial County Air Pollution Control District					
3	1	LS	Preparation of Traffic Control Plan, Implementation of	\$	5,500.00	\$	\$ 5,500.00	
			Traffic Control and Construction Area Signs					
4	1	LS	Potholing of the Existing Underground Utilities and	\$	4,000.00	\$	4,000.00	
			Pipelines as indicated on Improvement Plans.					
5	5,814	LF	Furnish and Install New 6-inch Dia. AWWA C-900 DR 18 -	Ş	50.00	Ş	290,700.00	
			Pressure Class 150 PVC Force Main Pipeline, Including all					
			Fittings, magnetic tape, Backfill and Compaction.					
6	12	EA	Install force main cleanouts	\$	3,500.00	\$	42,000.00	
7	180	CYD	Furnish and install Import sand material for backfilling the	\$	100.00	\$	18,000.00	
			forcemain pipe.					
8	40	LF	Sawcut AC Pavement at Pipeline Trench Crossing Zeons	\$	50.00	\$	2,000.00	
			Road					
9	0.5	CYD	Remove and Dispose of AC Pavement	Ş	2,700.00	Ş	1,350.00	
10	50	SF	Install 4-inches of AC over 10 inches Class 2 Base Zenos	Ş	100.00	Ş	5,000.00	
			Road	•				
11	1	LS	Contractor to Complete Hydrostatic Pressure Testing per	Ş	5,000.00	Ş	5,000.00	
12	4		Specifications.	ć	<u> </u>		F 000 00	
12	1	LS	Imperial County Encroachment Permit Fee Allowance.	Ş	5,000.00	ې د	5,000.00	
13	1	LS	Repair Wet Well Floor, Clean and Line Wet Well with	\$ 20,000.00		Ş	20,000.00	
1.4			Epoxy Coating	¢ 27.000.00		<u> </u>	27.000.00	
14		LS	Replace Electrical, Control Panels and Gauges.	ې د	27,000.00	ې د	27,000.00	
15		LS		ې د	3,500.00	ې د	3,500.00	
16		LS	Install 6-Inch flowmeter	ې د	5,000.00	ې د	5,000.00	
1/		EA	Furnish (1) surplus pump and (1) surplus motor	ې د	10,000.00	ې د	10,000.00	
18	1	LS	Install and Program Alarms	\$	4,500.00	\$	4,500.00	
				Tot	al Bid Items:	\$	482,050.00	
			Contingencies @10%			\$	48,205.00	
			Total Construction Phase I			¢	530 255	
SOFT C	OSTS		Total construction maser			Ŷ	550,255	
50110			Research right of ways and easements along nineline			Ś	37 118	
			route tonographic survey engineering design				27,110	
			nrenaration of plans meetings @ 7%					
			Bidding of Project			\$	4,000.00	
			Construction Administration and Management @ 7%			\$	37,118	
			Total Soft Costs			\$	78,236	
			Total Project Costs Phase 1			\$	608,491	

Phase 1 – Engineer's Opinion of Probable Project Quantities and Costs

Phase 2 – Engineer's Opinion of Probable Project Quantiles and Costs

ITEM	QUA	UNIT	ITEM	UNIT COST	AMOUNT	
1	1	LS	Mobilization of equipment and material, Bonds,	\$ 10,000.00		10,000.00
			Insurances, project signs, and fees, Restroom Facilities,			
			Business license, and Similar expenses and other costs.			
2	300	LF	Directional Drill a 12-Inch Diameter C900 Fusible Casing	\$ 400.00	\$	120,000.00
			Beneath the Alamo River and the IID Lateral. Install a 6-			
			Inch Diameter AWWA C-900, Class 150 PVC Pipeline			
			within the Casing. Utilize Skids to Place the Pipe.			
				Total Bid Items:	\$	120,000.00
			Contingencies @10%		\$	12,000.00
			Total Construction Phase 2		\$	132,000.00
SOFT CO	OSTS					
			Research right of ways and easements along pipeline		\$	9,240
			route, topographic survey, engineering design,			
			preparation of plans, meetings @ 7%			
			Bidding of Project		\$	4,000.00
			Construction Administration and Management @ 7%		\$	9,240
			Total Soft Costs		\$	22,480
			Total Project Costs Phase 2		\$	154,480

Phase 3 – Engineer's Opinion of Probable Project Quantities and Costs

ITEM	QUA	UNIT	ITEM		UNIT COST		AMOUNT
1	1	LS	Mobilization of equipment and material, Bonds,	\$ 21,000.00		\$	21,000.00
			Insurances, project signs, and fees, Restroom Facilities,				
			Business license, and Similar expenses and other costs.				
2	1	LS	Preparation and Implementation of Dust Control Plan Per	\$ 1,500.00			1,500.00
			Imperial County Air Pollution Control District				
3	1	LS	Preparation of Traffic Control Plan, Implementation of	\$ 5,500.00			5,500.00
			Traffic Control and Construction Area Signs				
4	1	LS	Potholing of the Existing Underground Utilities and	\$	4,000.00	\$	4,000.00
			Pipelines as indicated on Improvement Plans.				
5	4,086	LF	Furnish and Install New 6-inch Dia. AWWA C-900 DR 18 -	\$	50.00	\$	204,300.00
			Pressure Class 150 PVC Force Main Pipeline, Including all				
			Fittings, magnetic tape, Backfill and Compaction.				
6	8	EA	Install force main cleanouts	\$	3,500.00	\$	28,000.00
7	120	CYD	Furnish and install Import sand material for backfilling the	\$	100.00	\$	12,000.00
			forcemain pipe.				
8	1	LS	Connect to existing manhole along Kamm Road.	\$ 3,500.00		\$	3,500.00
9	1	LS	Contractor to Complete Hydrostatic Pressure Testing per	\$ 5,000.00		\$	5,000.00
			Specifications.				
10	1	LS	Imperial County Encroachment Permit Fee Allowance.	\$	5,000.00	\$	5,000.00
11	1	LS	Furnish and Install Backup Generator for Pump Station	\$	100,000.00	\$	100,000.00
				То	tal Bid Items:	\$	389,800.00
			Contingencies @10%			¢	38 980 00
			contingencies @ 1070			Ŷ	30,300.00
			Total Construction Phase 3			\$	428,780
SOFT CO	OSTS						
			Research right of ways and easements along pipeline			\$	30,015
			route, topographic survey, engineering design,				
			preparation of plans, meetings @ 7%				
			Bidding of Project			\$	4,000.00
			Construction Administration and Management @ 7%			\$	30,015
			Total Soft Costs			\$	64,029
			Total Project Costs Phase 3			\$	492,809

Engineer's Opinion of Probable Total Project Costs

Consti	ruct	ion	So So	Soft Costs Soft Costs			Subtotal	
Phase 1	\$	530,255	Phase 1	\$	78,236		\$	608,491
Phase 2	\$	132,000	Phase 2	\$	22,480		\$	154,480
Phase 3	\$	428,780	Phase 3	\$	64,029		\$	492,809
Totals	\$	1,091,035		\$	164,745		\$	1,255,780

As of 10/19/21:

Discussion of Engineer's Opinion of Probable Project Costs

Project costs have risen drastically in the past 12 months. The costs for pipe have increased 300% since March 2020. Costs for fittings, parts and equipment have increased. The prepandemic cost estimate for this project, based on bids received for similar projects, was approximately **\$826,024**. The cost estimates for this project are based on conversations with local contractors who do this type of work and are familiar with current pricing. The engineer's estimate of probable project cost is now **\$1,255,780**.

This represents a 52% increase from March 2020.

** Prices are very unstable at this time. Prices may come back down, or may continue to increase. For this reason, it is important that the cost estimate should be updated at the time of budgeting and project funding.

References

County of Imperial, Department of Public Works Country Club Sewer Maintenance District Informational Report, June 2006

County of Imperial, Clerk of the Board of Supervisors office, "1972 Agreement between the City of Holtville and CCSMD", December 1972

The Holt Group, Inc., "Barbara Worth Forcemain Installation and Sanitary Sewer Pump Station Replacement Report", February 2006

The Holt Group, Inc., "Barbara Worth Wastewater Forcemain Installation", June 16, 1998

Bureau Veritas, "Country Club Sewer Maintenance District Final Facilities Assessment Report", December 19, 2012

Exhibit A – Bureau Veritas "Country Club Sewer Maintenance District Final Facilities Assessment Report", December 19, 2012

Country Club Sewer Maintenance District Final Facilities Assessment Report



December 19, 2012

Prepared For:



Prepared By:

Bureau Veritas North America, inc. 10620 Treena Street, Suite 200 San Diego, CA 92131 Phone: 858.451.6100 Fax: 858.451.2846 www.us.bureauveritas.com

BVNA JN 18020.06





Move Forward with Confidence



Table of Contents

Table of Contents
Executive Summary
Background and Overview
Pipeline Inspections
Manhole Inspections
Pump Station Inspection
Comparison with Previous Pump Station Studies
Force Main Inspection
Conclusions and Recommendations
References
Credits

Appendix A - Pump Station Calculations
Appendix B - CCSMD Sewer Study
Appendix C - CCSMD System Map
Appendix D - Repair Cost Estimates
Appendix E - Manhole Inspection Logs
Appendix F - Pipeline and Force Main Inspection Logs F-1
CD with Digital Inspection Files and Site Photographs Rear Pocket

Prepared Under the Supervision of:

Phil Kern, PE RCE 40831 Registration Expires 3/29/13

Change of Project Manager since January 2013:

Carlos Larios, PE RCE 68543 Registration Expires 3/30/13





Executive Summary

Bureau Veritas North America, Inc.'s (Bureau Veritas') division of Public Works Services was retained by the Imperial County Department of Public Works, acting on behalf of the Country Club Sewer Maintenance District (CCSMD), to evaluate the condition of the wastewater conveyance facilities serving CCSMD. The facilities that were evaluated included gravity sewer mains, sewer manholes, a wastewater pump station, and a sewer force main. CCSMD facilities include the following:

- Approximately 8,830 feet of 8-inch vitrified clay pipe (VCP) and 1.450 feet of 10-inch polyvinyl chloride (PVC) gravity sewer main
- 34 manholes, identified as MH 1 through MH 11, MH 13 through 33, MH 12 North, and MH 12 South
- · 9,963 feet of four-inch FVC sewer force main
- Duplex pumps and motors housed in a fiberglass enclosure above the wet well of the pump station

The gravity sewage collection system serving CCSMD was found to be in poor condition due a lack of regular maintenance and large amounts of debris found in the system. Most of the system had to be pumped or cleaned out before being inspected. The pipeline segments that were cleaned and inspected were in generally in good condition with the typical minor issues such as cracked pipes, root intrusions, and offset pipe joints. The original sewer pipelines were installed with slopes and ease that are too flat to be self-



Vactor truck cleaning operations.

cleaning: it is not economical to completely remedy this issue and needs to be addressed through a long-term maintenance program. The sewer system also has inherent problems with maintenance access, as most of the manholes are located in the front and back yards of residences. A preliminary estimate of the capital repairs required for the collection system is \$450,000, including contingencies.





24 of the 34 total manholes within the CCSMD system were inspected and were found to be in fair to very poor condition, depending on location. The remaining manholes were not found, buried, or otherwise inaccessible when the inspections were performed. The lower, base portions of most manholes were found to be in good condition, with the upper portions suffering from concrete corrosion, damaged grade rings, poorly fitted frames and covers, and obstructions blocking access to the



Manhole 5 showing corresion.

manhole opening. Most of the manholes had concentric cones and steel rungs, features no longer considered acceptable for safety reasons. A total of \$460,000 in capital improvements is recommended for the CCSMD manholes, including contingencies.

The pump station was last upgraded in 2004, and is considered to be in fair condition. The duplex motors, pumps, controls, wel well, and enclosure were evaluated and found to be in acceptable condition. Relatively minor upgrades to the pump station are recommended, totaling approximately \$20,000 with contingencies.

The sewer force main from the pump station was evaluated and found to be undersized from a hydraulic perspective, not allowing the pumps to function in their optimum operating range. The existing force main has also ruptured at least three times in the past several years, most likely due to the marginal strength rating of the original pipe, poor quality control during the initial construction, heat degradation of the pipe material, and pressure spikes from the newer, more powerful pumps. A



the newer, more powerful pumps. A Existing 4-inch force main pipe removed from the trench, preliminary estimate of \$740,000 in improvements, including contingencies, are recommended for the sewer force main, the bulk of which is replacement of the existing four-inch force main with a six-inch pipeline.



а



Background and Overview

The land around the Barbara Worth Country Club was developed in the early 1970s, and included single family residences and a number of duplexes. The country club and the golf course were the only commercial properties in the CCSMD. The CCSMD was originally served by a collection system conveying wastewater to a small package treatment plant located on Barbara Worth Drive, which treated the effluent and discharged it into the Barbara Worth Drain. It is not known to what level the effluent was treated at that time. This arrangement proved unworkable over the long term and, in 1974, a new 10-inch gravity sewer main was constructed and connected to a new wastewater pump station located on Holton Road near the Barbara Worth Drain. The existing treatment plant was then removed from service. Concurrently, a 1.9-mile force main was constructed from the pump station north along Imperial Irrigation District and County rights-of-way to a manhole at the intersection of Kamm Road and Gowling Road. At this manhole the effluent was discharged into the City of Holtville's outfall sewer and conveyed west via gravity to the City's wastewater plant for treatment.



Wastewater pump station



Barbara Worth Drain



Barbara Worth Country Club golf course





Pipeline Inspections

Gravity sewer pipeline inspections were initially performed from September 24 to September 27, 2012 by Affordable Pipeline Services. The inspections were completed using a Cues Inc. OZII Pan-Tilt Optical Zoom II camera mounted on an Ultra Shorty tracked, self-propelled camera transporter. The camera was connected via video cable to a mobile CCTV vari that was specially equipped for inspecting underground pipelines.

Initially access to the system was difficult because of several factors. It was quickly determined that portions of the



Intege taken directly from CCTV camera shows an 8-Inch pipeline between MH 19 and 21 that is 25%+ full of silt and debris.

system were not constructed according to the plans; many manholes were buried under dirt or asphalt; several manholes were located within private yards; and other manholes were not found at all. Several of the manholes were later found by using a tracking device attached to the video camera, which could then be electronically located from the surface. Other manholes could not be located using the camera without clearing the main of debris, nor could they be located on the surface with a metal detector because of the access issues described above.

Portions of the sewer system as constructed did not match the record drawings provided by the County, particularly along Murray Drive. The residences on the east side of Murray Drive appear to be served by a sewer main running through their backyards along the west side of the golf course. Pending full cleaning, inspection, and additional investigation of the system it is still not clear precisely how the block bounded by Murray Drive, Barbara Worth Drive, and Country Club Drive receives sewer service. MH 28 has a small four-



Video inspection operations at MH 26. Note the location of the manhole and sewer line at the rear of the van within private backyards; this is one of the more accessible locations.

inch pipe coming from the west, the direction where MH 33 should be located;





however, a four-inch main is totally inadequate to serve the 10 residences within that block. MH 33 was not found during the inspections, but it is believed to be located in the backyard of 2093 Murray Drive. This block may be served by wye lateral connections across Murray Drive to the east; via a main paralleling Murray Drive along the rear property lines and connecting to MH 28; or connecting to the newer 10-inch sewer north of Barbara Worth Drive. No trench cuts were observed in Barbara Worth Drive to support this latter alternative.

When the actual inspection effort began on September 24, it was quickly apparent that the pipelines were suffering from a lack of regular maintenance. It was not possible to get the camera into many of the sewer mains due to extensive accumulations of silt, dirt, grease, and other debris. Nearly all of the sewer mains were found to be as much as 90% tull of silt and debris; others had blockages from large clumps of grease and tree roots; and others were surcharged with effluent, preventing inspection. Imperial County Department of Public Works (ICDPW) staff arranged to pump out the surcharged mains between MH 1 and MH 5 for inspection, revealing that they were also mostly blocked by debris. Attempted flushing of the lines with a water truck only served to move the debris to the next section of pipe. Following this effort a solid clump of grease and debris was observed in MH 1 that was approximately 6 inches by 6 inches by 24 inches and is illustrative of the debris issues with the system.

As a result of the poor conditions, only 2,703 feet of the 12,000 feet of gravity sewer were inspected during the initial mobilization. Only 6 of the 34 gravity sewer main segments were initially inspected due to debris problems. The portions of the VCP that could be inspected were generally in good condition, with the typical cracks, misaligned/open joints, sags, small roots, projecting laterals, and other relatively minor issues. Unusual conditions that were found include a massive taproot intrusion near MH 25; sharp horizontal bends in the main south of MH 31 that prevented inspection by the camera; and undesirable drop manhole plumbing at MH 31.

A second mobilization to the site on October 25 was accompanied by a Vactor truck, which was used to clean the debris out of the north section of the system along Barbara. Worth Drive to allow for inspection. With camera access to the system the lines could not only be inspected but several additional buried manholes were located, including MHs 7, 11 and 29. It should be noted that inspections were not performed on the newly located manholes. Once the debris was removed the pipelines were found to be in generally good condition. A four-inch lateral coming from the west into MH 28 was also inspected by push camera as far as the centerline of Murray Drive. It is presumed, but not confirmed, that this pipe continues west to MH 33 as noted above.





The CCSMD system has several inherent conditions that contribute to long-term maintenance issues. Although the system has not been surveyed it appears that the pipeline slopes are all less than 0.5 percent, and it is believed that most are in the 0.2 to 0.3 percent range. Several sags and adverse slopes were noted in the inspections. These very mild slopes do not provide for cleansing velocities even at peak flows, so the solids are deposited in the pipelines and are unmoved by subsequent flows, even during peak periods. Eight-inch sever



Vactor truck cleaning operations at newly located MH 7 within the golf course. Note the size of the equipment required to efficiently maintain the system.

lines should be sloped at a minimum of 0.4 percent to provide cleansing velocities at peak flow rates (refer to Appendix B for the CCSMD Sewer Study estimated flows and velocities).

The pipeline sections that cross the golf course were found to be nearly full of silt that prevented access for inspections. The heavy irrigation of the golf course can carry line material from the soil into the sewer pipeline through small cracks or open joints, eventually filling the pipe with silt. Replacing the entire gravity collection system at the proper minimum slope is not economically feasible, and would in turn require replacement of the pump station and likely the force main. Instead, CCSMD should institute a program of regular annual maintenance to address these issues, as well as a capital repair program to address the existing operational issues that have been identified.

Right-of-way preservation and maintenance access is also a major issue with the CCSMD system. The existing sewer mains are located in the parkways of the streets which is not desirable as most homeowners consider that strip as part of their front yards - and along rear property lines, which places them in resident's backyards. No maintenance or utility easements were noted in the documents that were reviewed; it appears maintenance access rights are prescriptive within CCSMD. The backyard sewer locations are very problematic as maintenance access for the proper equipment (i.e., a large Vactor truck) is extremely difficult. In many locations the residents have constructed patios, landscaping, building structures, walls, and fences over the sewer mains and manholes, apparently without knowledge of the facilities' presence or regard for maintenance access. Some of the most serious examples are a large tree





planted directly over the main north of MH 25, which has created a taproot intrusion almost blocking the main, and an enclosed patio structure built over the main behind a residence on Anderholt Road.

In addition to the siliation problems noted above, grease clogs were found to be a recurring issue within the system. Cooking grease, fats, and oils discharged into the system eventually congeal and collect other debris, forming large, solid clumps that block flows. Residents can be educated to avoid discharging large quantities of grease into the sewer, and any commercial kitchens connected to the system should have a grease trap installed.

Another maintenance issue related to the pump station is that the float switches in the wet well are set so high that the collection system was surcharged or backwatered more than 2,000 leet,



Location of MH 25 within a privale patia, as located by the video camera with a tracking device.

all the way up to MHs 5, 6, and 28. This is also an undesirable situation, because as noted previously it causes the solids to drop out of suspension and be deposited in the pipelines. It also causes floating debris, including grease, to congeal and clog the pipeline rather than be conveyed to the pump station. The system cannot be properly inspected or maintained when it is under a constant surcharge.

Video logs from the pipeline inspections are included as Appendix F, and the related digital files are included on compact disks in the rear pocket of this report.





Manhole Inspections

Bill Grigsby, PE, performed inspections on 24 of the 34 manholes within the CCSMD system on September 24 and September 25. 2012. Following the Initial reconnaissance, one additional manhole was located on the golf course between manholes 11 and 12. so they are delineated as manholes 12 North and 12 South. Most of the manholes are relatively shallow, at less than eight feet deep, with a 24-inch diameter manhole opening expanding to 48-inches at the base. Most manholes appear to have concentric cones and steel rungs for access, features not typically seen in



The worker is holding the probe at the center of MH 29, which is in a private backyard underneath the decorative wall on the left and the wrought iron fonce on the right.

current installations for safety reasons. Several of the manholes were located within the yards of private residences (MHs 24 through 27 and MHs 29 through 33); some were accessible for inspection while many others were not. ICDPW management asked that Bureau Veritas inspectors not enter private yards to perform inspections.

Many other manholes are located in the parkway of the public street, which residents typically consider part of their front yard. As a result, residents have placed soli, paving landscaping, or decorative walls over the tops of the manholes. After several days of work at the site. Bureau Veritas, Affordable Pipeline Services, and ICDPW crews were able to locate all manholes except MHs 31 and 33. MH 31 is believed to be located in the backyard of 2068 or 2070 Country Club Drive: it was not able to be located by tracing the tractor camera because of sharp horizontal bends in the pipe to the south and the lack of camera access to MH 30 immediately to the north. MH 33 is suspected to be located in the backyard of 2093 Murray Drive and was not accessible to the tractor camera or locating crews for similar reasons.

Crews were not able to obtain access to MHs 10, 11, 25, 27, 29, and 30 for inspection as they are located in private yards or are otherwise obstructed by private improvements. Typical situations include MHs 11 and 25, which are covered by homeowner's brick patio paving; MH 10, which is behind a small retaining wall under 1 to 2 feet of earth in the front yard of 1345 Barbara Worth Drive; and the most





extreme case of MH 29, which is under a small decorative wall and a wrought iron fence in the backyards of 2090/2092 Murray Drive.

As with the sewer mains, the manholes are also suffering from lack of regular maintenance. The interior surfaces of many of the manholes were originally lined with a bituminous coating. This coating has now largely flaked and peeled off to such a point that it is ineffective, exposing the concrete rings and cone to corresion from hydrogen sulfide sewer gases. Many cases of concrete corrosion were observed in the field due to the trapped gas, high temperatures, and confined atmosphere. Many of the manhole troughs and shelves were deteriorating in a similar manner.



Typical concrete corrosion found within the cone of many of the CCSMD manholes. The concrete cone on the right should be smooth with no exposed aggregate, similar to the section below.

Rebar was observed in broken grade rings during the manhole inspections, indicating that the manhole rings and cones are precast reinforced concrete. As no exposed rebar or evidence of rebar corrosion was observed inside the manholes it is probable that all manholes inspected can be rehabilitated in place, as opposed to being completely replaced. Bureau Veritas recommends replacing and coating all manhole shelves, troughs, and rings internally with a corrosion resistant coating such as epoxy.

Manholes 8 and 15 had nonstandard channels that were originally constructed with such a tight angle that inspection and maintenance of the connecting sewer main is difficult to perform with modern equipment. These nonstandard angles also create increased how resistance and increase the need for maintenance. Bureau Veritas recommends reforming the channels to reduce flow restrictions and improve accessibility for inspection and maintenance.

Other maintenance and repair issues include some damaged and/or detached manhole frames and covers (a few were replaced during the field work). These conditions pose a public safety concern and allow vandals to deposit debris in the system. A total of 21 manholes are recommended to be either raised (15) or have repairs made (6) to the frame and cover as a first order of work. Adjusting the buried manholes will make them accessible to perform other work needed on the system. Manholes with unsecured




frames should also be repaired.

At least four different sizes of manhole rings and covers were observed during the inspections. Bureau Veritas recommends using one standard size manhole frame and cover throughout the system. A standard size for manhole frames and covers increases maintenance efficiency and reduces storage of repair parts.

Manhole locations (northings and eastings) were collected with a Garmin Etrex Vista HCx handheid GPS unit with a <10 meter 95% degree of accuracy, and locations are considered approximate. We recommend surveying the location, rim, and invent elevations for all manholes in the system as one of the first orders of work in the rehabilitation of the system.

Photographs from the manhole inspections, such as those shown below, are included on compact disks in the rear pocket of this report, and the field manhole inspection logs are included as Appendix E.







Manhole 28



Manhole 13









MANHOLE (MH) SUMMARY

MH No.	Northing	Easting	Depth (ft)	Condition Issues
1	32° 48.231'	115* 25.371'	10.5	FC
2	32" 48.236'	115" 25.304'	10.5	FC
3	32° 48.242'	115' 25.234'	9.5	
4	32" 48.247'	115° 25.166'	10	FC
5	32* 48.237'	115* 25.166'	8	FC
6	32° 48.231'	115' 25.164'	Unknown	NI, BUR, ADJ
7	32" 48.188'	115" 25.151'	Unknown	NI, BUR, ADJ
8	32° 48,177'	115" 25.125'	5.5	CH
9	32" 48.185	115" 25.098'	5	
10	32° 48.209'	115* 25.069'	Unknown	NI, BUR, ADJ
11	32° 48,167	115° 25.147'	Unknown	NI, BUR, ADJ
12N	32* 48.132'	115* 25.091'	6	
125	32° 48.110'	115* 25.059'	6	
13	32" 48.079	115" 25.008'	9	FC. CGR
14	32" 48.037	115" 24.944'	7	
15	32° 47,995'	115° 24.871'	6.5	ADJ, CH
16	32° 47.960'	115* 24.900'	6	
17	32° 47.964'	115° 24.913'	5	
18	32° 47.959	115" 24.956'	4	ADJ
19	32° 47,925'	115* 24.895	5,5	
20	32° 47.922	115" 24.929	5	
21	32° 47.881'	115° 24,890'	6	
22	32° 47.848'	115" 24.885"	5	
23	32" 48 002"	115° 24.858'	6.5	ADJ
24	32° 47 986	115* 24.834'	6.5	ADJ
25	32° 47.928'	115* 24.838'	Unknown	NI, BUR, ADJ
26	32" 47,862"	115" 24.831'	4.5	ADJ
27	32° 47.800'	115° 24.834'	Unknown	NI, BUR, ADJ
28	32° 48.235'	115° 25.196'	8	CC, FC
29	Not Available	Not Available	Unknown	NI, BUR, ADJ
30	32" 48.140	115° 25.284'	Unknown	NI, BUR, ADJ
31	Not Available	Not Available	Unknown	NF, NI, ADJ
32	32° 48.033'	115" 25.279'	6	
33	Not Available	Not Available	Unknown	NF, NI, ADJ

Manhole Condition Codes:

- NF = Manhole Not Found
- BUR = Manhole Buried
- FC = Frame/Cover Needs Repair CGR = Replace Cone/Grade Rings
- NI = Manhole Not Inspected
- CC = Concrute Corrosion
- CH = Manhole Channel Needs Repair
- ADJ = Adjust MH to grade





Pump Station Inspections

The inspection and evaluation of the pump station was performed by Carl Sepponen, PE, on September 25, with the assistance of John Burnworth of ICDPW. The Country Club pump station features duplex Gorman Rupp model T4A3-B suction-lift sewage pumps powered by two (2) 1740-RPM electrical motors with belt drives and controls housed in a fiberglass enclosure. From the information available, the current pumps and motors were installed as an upgrade in 2004 to a 1994 Gorman Rupp pump station. This is at least the second replacement pump system installed



Performance of pump station data collection and operational tests. The pump station was last upgraded in 2004 and was found to be in acceptable condition, with only minor modifications required.

at this location since the pump station and wet well were originally constructed in 1974. The newer 2004 pumps continue to use the original wet well, inlet piping, force main, and electrical service.

The serial numbers of Pumps #1 and #2, respectively, are 1292436 and 1292435. The Pump Control Panel is drawing number D-4-02729, S/N 0-1502-AM. The panel is rated for 240-volt, 3-phase, 3-wire, 60-HZ. The sheaves (pulleys) on the motors are nine inches in diameter, and the sheaves on the pumps are 11 inches in diameter. Note that this data differs from that described in the operations and maintenance manual for the pumps installed in 1994, which was provided by ICDPW.

According to the Gorman-Rupp Pumps factory, the basic pumps were manufactured and shipped to Mexicali, Mexico, in 2004 for assembly with their motors and appurtenances. Further information was not available from the factory. Information regarding the pumps was requested from the Mexican factory in Mexicali, but it was not available. Precise information regarding the pump design point (flow and head) was not available. Further, the exact pump RPM is not known, but it can be estimated from other parameters. These motors and pumps are more powerful than previous units at the site, to the point that they may be contributing to distress and failures of the original force main, which was not upgraded.





The wet well consists of precast concrete manhole sections that are six feet in diameter. The condition of the wet well concrete is good to very good, considering it was originally installed in 1974. Substantial concrete corrosion from sulfuric acid is not evident from a visual inspection, although older embedded steel items are severely corroded. The concrete ground slab surrounding the wet well is in poor condition, and rebar is exposed in at least one location. Fortunately, this does not affect the functioning of the pump station. There is clear evidence of the original corroded metal embedded in the upper concrete slab. There is an opening on the east side of the wet well where the new fiberglass enclosure does not cover the original opening; it may be advisable to cover this opening with screen for safety reasons.

It is possible that the openings at the top of the wet well may be the principal reason that the wet well concrete is not badly corroded. The "natural" ventilation may prevent an accumulation of corrosive fumes, thereby preventing corrosion of the concrete. The other reason is that the sewage is relatively "fresh" and is not yet anaerobic, which reduces the corrosive effect.

The suction pipe of Pump #1 is shorter than the suction pipe of Pump #2. This was confirmed by the operator, who said that Pump #1 had its suction pipe replaced (date unknown). This is the likely reason the level control floats are set much higher than the inlet pipe, and why the sewage is always backed up in the collection system.

Based on the pump curves (Figure 1) it is assumed the motors run at a nominal 1760 RPM. The sheaves on the motors and pumps reduce the pump RPM to approximately 1450 or 1550 RPM (Figure 1).

Field measurements indicate the pump station delivers approximately 75 gallons per minute (gpm). However, inspection of the force main indicates the actual flow may be higher due to a relatively clean force main.







Figure 1: Gorman-Rupp T4A-B-4 Pump Performance Curve. Note the circled point on left side, which represents the operating point for the existing pumps and is outside the manufacturer's preferred operating range. Replacement of the force main with a six-inch pipeline would bring the curve back into the optimum operating range as indicated by the hand drawn curve.

The Sewer Study calculations (dated 3 October 2012, Appendix B) give the Average Dry Weather Flow as 0.02432 mgd (about 17 gpm), and the Peak Dry Weather Flow as 0.09728 mgd (about 68 gpm). Based on these calculations the pumps appear adequate for the flow from the development. This is verified by the fact that sewer overflows have not occurred when the pumps are able to operate.

The pumps are operating to the left side of the pump curve (Figure 1), in an area that is outside the operating range recommended by the manufacturer. This occurrence usually results in discharge cavitation, which can adversely affect the pump impeller and its performance. Cavitation issues can be corrected by increasing the flow rate, which could be accomplished by increasing the force main size, thereby lowering the friction head loss in the pipeline.





ĵ.

Yi

ICDPW's operator indicated that Pump #2 functions better than Pump #1. The Gorman-Rupp factory engineers strongly recommend that the pump impellers and wear plates be adjusted by factory technicians at least once a year to assure good performance.

The pump station does not have emergency power at the site and is at risk of overflow if there is an extended power outage.

Photographs from the pump station inspection are included on compact disks in the rear pocket of this report.

Comparison with Previous Pump Station Studies

Previous studies have been prepared to evaluate the Barbara Worth pump station and force main. The following discussion is a comparison of the recommendations of this evaluation with the recommendations of two previous reports, both of which are attached to the *Country Club Sewer Maintenance District Informational Report* (June 2006). The two previous reports are:

- The Master Plan of Sewer (1998) by Kennedy Jenks Consultants (KJC)
- 2006 Barbara Worth Wastewater Force Main Installation and Sanitary Sewer Pump Station Replacement Report by the Holt Group, Inc.

The Master Plan of Sewer (1998) by KJC presents a sewer plan for the year 2020, including future development. The following text is a summary of the KJC report that is in the District Informational Report:

"The report concluded that the Barbara Worth Pump Station and its force main are undersized and recommends increasing the 4-inch sewer force main pipe to an 8-inch pipeline to accommodate the existing demands placed on the system within the current boundaries of the CCSMD."

There is no detailed evaluation of the Barbara Worth Pump Station included in the KJC report. The pump station is assumed to have a 400 gpm existing capacity per available information (source not given) and 750 gpm is required for future development.

Immediately after addressing the Barbara Worth pump station deficiencies, the report includes the following disclaimer on page 5.5:

"It should be noted that since actual pump operating capacities and wastewater flows were not provided, these results are based on several assumed or simulated conditions. Although, these results provide an indication of probable deficiencies, actual field measurements and testing should be conducted prior to final remedial design."





The 2006 report by the Holt Group recommended replacing the existing 4-inch sanitary sewer pipeline with a 10-inch force main in order to facilitate future development and expansion. The following excerpt is from pages 6 and 7 of that report:

"In this report the Holt Group, Inc. concluded that during the last 10-years the existing wastewater pump station has continued to deteriorate and periodically fall. The maintenance cost, time and effort devoted to keep the pump station in a working condition is significant and far in excess of what is normally required. It is apparent that the Pump Station has exhausted its useful life and should be replaced as soon as possible. The physical P.C.C. wet well structure is deteriorated and at the point of collapse. The wet well is no longer salvageable. The electrical panels and pumping units are also aged, outdated, inefficient and in a deteriorated condition. The replacement of the existing 4-inch diameter force main with a 10-inch diameter force main would allow for the installation of the wastewater pumps at a lower total dynamic head requiring less energy to operate. The pumps would produce a greater flow at less total dynamic head (and pressure) resulting in less maintenance. The electrical costs associated with the wastewater pump station would decrease even though the flow capability of the pump station would be dramatically increased (from 400-gallons per minute to 750-gallons per minute).

The 10,200 lineal foot wastewater force main extending downstream of the Pump Station has been a source of pipeline ruptures, pipeline clogs, and pump maintenance problems for over 2 decades. The continued rupturing of the 4-inch wastewater force main results in health and safety issues in the vicinity of the Imperial Irrigation District Canal Network. It would be prudent for Imperial County to replace the existing undersized 4-inch diameter force main with a heavy wall 10-inch diameter AWWA C-900, Class 150 PVC wastewater force main as soon as possible."

The 2006 Holt Group report indicates the pump flow rate was not checked in the field or with the operator. Rather, that report took information directly from the 1998 KJC report (which is unsupported). There is no record of pump serial numbers. No contact with the pump manufacturer is mentioned, there is no pump curve in the report, and no system curves are provided.

In conclusion, all the reports recommend the force main be replaced with a larger size force main. We recommend a 6-inch pipe, the KJC report recommended an 8-inch pipe, and the Holt Group recommended a 10-inch pipe to provide for future development. Our analysis indicates that six inches is the optimum pipe size. It provides a large increase in capacity, allows the pumps to function much more efficiently, and will reduce the risk of force main ruptures in the future.

Our report recommends only minor improvements to the pump station, whereas the Holt Group report recommended the installation of a new pump station. Note that the





Holt Group considered additional flow from future development, which our report does not include. The consideration of additional flow is one of the main reasons the Holt Group's report recommends a new pump station. The Holt Group report concluded the wet well was in such poor condition that it should be replaced. Our recommendations are based on a significantly more thorough analysis than those of the Holt Group. It should be noted that although the pump station and the wet well are not in fine or new condition and have some deficiencies, they are adequate for current needs if the force main is upgraded and some other minor improvements are made.

Our recommendations are based a detailed analysis of the present conditions, whereas the previous reports spent little or no effort in researching the actual pump station condition or gathering field data. No detailed analysis was conducted by KJC or by the Holt Group on the pump station, although some head loss calculations were prepared to show that the existing 4-inch force main is inadequate.





Force Main Inspection

Initial inspection and evaluation of the sewer force main was conducted by Philip Kern, PE, with the assistance of Carl Sepponen, PE, and Affordable Pipeline Services staff on September 25, 2012. One of the main challenges of evaluating the condition of the existing force main is, guite simply, accessibility. Without physically excavating and cutting the existing force main there are only four points at which to inspect the interior of this small diameter pipeline: the force main at the pump station, the discharge manhole at Kamm Road and Gowling Road, and two



Initial video inspection of the force main with a push camera. Pump station is on the left and force main is on the right. Note the sharp 90-degree bend in the force main next to the fence.

cleanouts located on either side of the Alamo River. Neither ICDPW nor Bureau Veritas staffs were able to confirm location of the cleanouts at the Alamo River. Further, the four-inch diameter pipeline is too small to admit a tractor camera for inspection.

These conditions limited the initial inspection opportunities to the use of a small specialized 'push camera" inserted from either end of the force main. On September 25 a trailer letter was used at the Kamm Road manhole to drag the push camera into the main, with video data collected as the camera was withdrawn from the main. The crew discovered that the force main was not constructed on a straight grade as indicated on the plans but rather "porpoises" up and down with high and low spots in the profile. These high and low spots prevent full draining of the line as well as clear visibility for inspection. The



Second video inspection of the force main along Barbara Worth Drain, pump station is in the left background. The end of the pipeline can be seen in the trench, one line in the pipe is the video cable, the other is the jetter line used to pull the camera into the pipe.





portions of this section of force main which were visible on the video appeared to be in good condition, and no ruptures have been reported near the north end.

Unfortunately, two sharp 90-degree bends on the pump station discharge line prevented insertion of the push camera and jetter any significant distance into the south portion of the force main during the September 25 inspection, even with removal of a section of the discharge line at the pump station. ICDPW staff has reported three ruptures in recent memory of the force main in this section of the pipeline so it was a priority for inspection. A small washout about 200 feet north of the pump station along Barbara Worth Drain was reportedly the location of the last pipeline failure. The short distance that was able to be inspected showed a fairly thick slime coating on the interior of the pipe, which masked details of the condition of the PVC pipeline.

At the request of the Director of ICDPW, the crew returned to the site on October 25. ICDPW crews excavated and removed an eight foot section of the force main approximately 200 feet north of the pump station and the Affordable Pipeline Services crew inserted a push camera, again using the trailer jetter to draw it into the pipeline. The pipeline was accessed 308 feet to the north and 178 feet to the south toward the pump station. The results were similar to the previous inspection in that the force main was not installed on a grade and would not fully drain. As a result, the camera was submerged for much of the time and the interior of the pipeline could not be seen clearly. The portions that were visible appeared to be in good condition, with some debris noted in the pipeline and the slime coating appearing to diminish as the camera traveled further from the pump station.

The eight-foot portion of the pipe that was excavated and removed was particularly instructive. This section contained a repair coupling where a previous break had been repaired; had a 4-inch to 6-inch lengthwise crack on the spigot end where it would normally be protected by the bell end of the next section of pipe; and also exhibited some splintering from damage incurred by the backhoe when it was removed, which is unusual for PVC pipe. The force main pipe was inscribed with the following description: *4ⁿ J-M Ring-Tite PVC 1120 IPS 125 PSI SDR 32.5 ASTM D-2241*. By current standards this is relatively thin-wall, light-duty pressure pipe that would be considered marginally acceptable for this application. No sand bedding, tracer wire, or warning tape was observed within the excavation, which is not consistent with current public works standards. Further, there is no information available regarding compaction of the trench backfill. PVC pipe, being a flexible pipe, is particularly sensitive to the type and compaction of the bedding and backfill as it uses these elements to resist internal forces. Use of uncontrolled and/or poorly compacted native material for bedding can create stress points along the pipeline, which can lead to pipe failures. Stress points can





be even more of a concern on a force main which experiences pressure spikes due to pump operations, as opposed to a gravity-fed water supply main which would normally see consistent pressure levels. PVC pipe is also sensitive to ultraviolet (UV) radiation If installed or stored outdoors for extended periods without protection. Older, above-ground sections of pipe at the pump station had some indications of UV degradation, although it is not known if UV exposure contributed to the cracking or splintering of the force main sections that were inspected. It is more likely that the crack was caused by rough handling of the pipe at the time of installation.



Existing 4-inch force main pipe removed from the trench. Note the splintered section on the left, repair coupling in the middle, and the barely visible chip and crack in the spigot end of the shorter section on the right.

The force main pipe was found to be a JM Eagle brand I.P.S. Pressure PVC Pipe conforming to ASTM D2241 for standard dimension ratios (SDRs). It is available in varying strengths, including SDR 64 (63 psi), SDR 41 (100 psi), SDR 32.5 (125 psi), SDR 26 (160 psi), SDR 21 (200 psi), and SDR 17 (250 psi). This force main is a SDR 32.5 (125 psi pressure rating) pipe with an internal diameter of 4.207 inches. For comparison, 4-inch PVC Schedule 40 has an ID of 4.026 inches (maximum working pressure of 220 psi), and Schedule 80 has an ID of 3.826 inches (maximum working pressure of 320 psi). The 4-inch ductile iron pipe (DIP) inside the Gorman-Rupp pump station has a nominal pressure rating of 350 psi.

There are several reasons why the force main may be breaking and leaking:

- The line is operating at a pressure higher than the original design. The
 pumps installed in 1994 were design for 200 gpm at just 21 feet of head
 according to the operations and maintenance (O&M) manual. The pumps
 installed in 2004 have a much high rpm and produce a higher pressure. A
 higher pressure, combined with any of the factors listed above, can lead to
 breaks.
- Pressure surges are occurring when the pumps stop. Each time the pumps start and stop, but especially when they stop, a pressure surge occurs





that increases the pressure in the pipeline.

 High temperature of the water and / or soil may be reducing the strength of the PVC. High temperature decreases the strength and therefore the pressure rating of the pipe as follows:

Temperature ("F)	De-Rating Factor
73	1,00
80	0.88
90	0.75
100	0.62
110	0.51
120	0.40
130	0.31
140	0.22

For example, if the PVC temperature is 90 degrees, the pressure rating is decreased from 125 psi to 94 psi. Given the ambient temperatures in the summer months in the Imperial Valley, the force main pipe could be at 50 to 75 percent of its rated strength.

- Poor installation may have caused breaks. Poor installation can stress a PVC pipe and create a weak point and eventually the pipe may break under high pressure.
- Storage in sunlight prior to installation may have caused the PVC to become brittle. It is well known that PVC pipe should be stored away from sunlight prior to installation. The UV rays affect the chemical structure of the PVC and it can become brittle and can easily be shattered and broken. PVC pipe is usually stored in bundles, and only some of the pipe lengths are subject to high UV exposure. Those subject to the high UV exposure are the ones most likely to break.

Video data from the force main inspection are included on compact disks in the rear pocket of this report, and inspection logs from the force main inspection are included as Appendix F.





Conclusions and Recommendations

The following recommendations are based on analysis of data collected in the field and through research of available documentation. Although much of this work could be performed by ICDPW forces, the repair cost estimates in Appendix D presume that these tasks would be accomplished by outside contractors. As the entire CCSMD system has not yet been inspected, allowances and contingencies have been made in the estimate. These costs are considered preliminary in nature and suitable for planning purposes only.

Pipelines

The principal issue with the gravity pipelines is their very flat slope, which will require regular long-term maintenance to effectively function. It is not considered economical to replace the entire collection system to remedy this issue. Other than implementation of a long-term regular maintenance plan, the following capital repairs are recommended:

- Locate remaining sewer mains and manholes
- Complete cleaning of all pipelines with Vactor truck
- · Complete inspection of all pipelines
- Perform spot repairs on root intrusions
- Install grease traps on commercial laterals
- Inform residents of pipeline location and remove trees over pipelines
- · Replace sag portions of pipe at the proper grade
- Replace undersized mains with 8-inch pipe
- · Replace pipelines with horizontal bends
- Replace drop manhole plumbing

Manholes

The lower portions of existing manholes were found to be in generally good condition. Capital repairs for manholes are focused on providing access for maintenance and repairing or replacing deteriorated items in the upper portions.

- Survey manhole locations, rim, and Invert elevations to establish grades
- Adjust to grade and secure manhole frame and covers, replace with standard frame and cover if necessary
- Modify utilities, irrigation lines, paving and structures which are obstructing manhole openings





- Rechannel manhole troughs for proper flow, inspection and maintenance access
- Replace corroded manhole cones with new T-lock or epoxy-coated cones
- Remove steps and coat interior, trough, and shelf of all manholes with T-Lock or epoxy coating

Pump Station

The pump station was found to be in acceptable condition with adequate capacity. The 8-year old pumps do not need to be replaced, although some of the following observations and recommendations are important to improve pump performance and life expectancy.

- The Pump #1 suction pipe should be replaced with a longer pipe to match that of Pump #2, and the level control floats should be set much lower so that the collection system pipes drain during every pumping cycle. The start level can be set several feet above the inlet pipe, but the stop point should be set below the inlet pipe level. These changes will improve the collection system capability and reduce the amount of sediment in the collection system. Although it is best to have both the start and stop levels below the inlet pipe, it is not always possible. In this case the floats are located not much below the inlet pipe, and the suction-lift pumps function better when the start level is not set too low.
- Some of the gauges need to be replaced. Each pump should have two
 working pressure gauges one gauge on the discharge side and one gauge
 on the suction side of the pump. Having two gauges is the best way to
 quickly evaluate any pump problems that may occur.
- The pump impellers should be inspected and adjusted by a factory technician annually (or at least every two years; the official Gorman-Rupp recommendation is to have the pumps checked every six months).
 Gorman-Rupp should be contacted to conduct this service.
- The concrete wet well does not need to be replaced, although epoxy lining the wet well for longevity is recommended.
- Although the concrete base slab around the wet well is in poor condition, replacement is not critical. If its condition interferes with the operator's work at the station, it is recommended that the concrete base slab be replaced. The replacement cost is not high and could be easily accomplished.





- The pump station should have some means of functioning during a prolonged power outage. If not already provided, it is recommended that the electric service be configured for connection to a portable generator, and a portable generator be purchased or a standby rental agreement be made with a local company.
- Install screen across wet well opening(s)

Force Main

The force main has been problematic in the past and has had several failures. In addition to being undersized, the pipe strength is marginal for this application and it was not installed to current standards. The following recommendations are suggested:

 Replace the existing 10,000 feet force main with a stronger and larger pipeline. It is recommended the force main be replaced with a 6-inch PVC pipe with a higher pressure rating and to current standards, such as a minimum of AWWA C-900 Class 150. The AWWA C-900 pipe has higher safety factor than the IPS pipe presently installed.

In addition to the higher safety factor, increasing the pipeline size and reducing the friction headloss is recommended to increase the pump flow rate and move the operating point near or into the recommended operating range. This will eliminate impeller cavitation. As shown in Appendix A, the plot on the pump curve shows an operating point of 260 gpm at 60 feet TDH. The pipeline velocity is 2.6 fps, well above the recommended minimum of 2.0 fps.

As an alternative to replacing the entire force main, the section under the Alamo River could be left in place. However, if there is a history of pipeline breaks in this section under or near the Alamo River, this alternate approach is not advisable because it may cause additional pipeline breaks.

- Replace sharp 90 degree bends in force main at pump station with larger radius bends
- Install cleanouts at regular intervals for inspection and maintenance





References

- Plans for Interceptor Sewer, City of Holtville, prepared by Wilsey & Ham, Sheets 1-5, approved May 21,1974
- Plans for Improvements, Tract No. 839, prepared by The Parker-Riddle Co., sheets 1-4, approved May 23, 1978

Credits

The following personnel contributed to the data collection, field investigations and development of this report:

Imperial County Department of Public Works	
John Burnworth	
David Krommenhoek	
Martin Lang	
Affordable Pipeline Services	
Duane Johnson, Supervisor	
Nick Provencio, Camera Operator	
Mark Enrique, Video Assistant	-
Bureau Veritas	
BIII Grigsby, PE, Manhole Evaluation	
Carl Sepponen, PE, Pump Station and Force Main Evaluation	
Steve Dodge, Graphics	*
Ruth Licht, Report Preparation	
Philip Kern, PE, Project Manager	



Appendix A

Pump Station and Force Main Calculations





Pump Station and Force Main Calculations

Pump Speed (RPM)

The Pump RPM can be calculated by knowing the motor RPM and diameter of the sheaves (pulleys):

Motor RPM = approximately 1760 RPM

Motor sheave diameter = 9.0 inches

Pump sheave diameter = 11.0 inches

Pump Speed = Motor RPM x (Motor sheave diameter / Pump sheave diameter)

= 1760 RPM x (9.0" / 11.0")

= 1440 RPM, say 1450 RPM (which is shown on the Gorman-Rupp pump curves)

System Curves (to graph on pump flow va. head chart)

The force main is mainly 4-inch J-M Ring-Tite PVC 1120 IPS 125 PSI SDR 32.5 ASTM D-2241, and the piping at the pump station is 4-inch Ductile Iron Pipe (DIP). The internal diameter of the PVC pipe is 4.207 inches according to the manufacturer's data. The internal diameter of the DIP is 4.15 inches, but the difference will be ignored. Since the length of the DIP is insignificant compared to the long PVC force main, the entire force main will be assumed to have an internal diameter of 4.207 inches.

The length of the force main is 9,440 feet. Adding 523 feet for station equation equals 9,963 feet.

Equivalent lengths are calculated for the minor losses and added to the actual force main length for the following head loss calculations:

Item	Number	Equivalent Length (Ft) Each	Total Equiv. Length (Ft)
90° bend	5+4=9	13	117
45° bend (or less than 90°)	6	5	30
Plug valve	1	10	10
Tee (run)	3	8	24
Tee (branch flow)	1	22	22
Total Head Loss Lengths			203





Total Equivalent Length = 9,963 feet + 203 feet = 10,166 feet

Prepare System Curves for C = 140, C = 110, and C = 80 for comparison

Static Head

Ground elevation at pump station from plans is approximately 945.0 feet

The force main discharge elevation is given as 933.70 feet

The distance from the pump station ground elevation to the water levels during pumping varies from approximately 82 to 116 inches (or elevations 938.2 feet to 935.3 feet)

Therefore, the static lift varies from minus 4.5 feet to minus 1.6 feet (the discharge is lower than the wet well level). Alternatively, the static lift is -3 feet, ± 1.6 feet.

Calculate Headloss and Total Dynamic Head (TDH) for various flows at 3 "C" values using Hazen-Williams equation

Friction loss = ((0.2083 x (100/C)^{1.852} x (flow)^{1.852}) / (diameter)^{4.8655}

Diameter = 4.207 inches in all cases

C = 140							
Flow (gpm)	Headloss (ft/100 ft)	Headloss (feet)	Total Dynamic Head (feet)				
0	0	0	-3				
50	0.144	15	12				
100	0.520	53	50				
150	1.10	112	109				

C = 110							
Flow (gpm)	Headloss (ft/100 ft)	Headloss (feet)	Total Dynamic Head (feet)				
0	0	0	-3				
50	0.225	23	20				
100	0.81	82	79				
150	1.72	175	172				





C = 80							
Flow (gpm)	Headloss (ft/100 ft)	Headloss (feet)	Total Dynamic Head (feet)				
0	Ð	0	-3				
50	0.406	41	38				
100	1.466	149	146				
150	3.107	316	313				
		22166					

The calculated TDH / flow points are plotted on the pump curve as shown on the next page. The 3-system curves are labeled for each of the "C" values.

Operating Point

During the field investigation the flow and head was estimated as follows:

The wet well was pumped down to below the inlet pipe using Pump #2. The wet well depth was observed and recorded over an 11-minute period and averaged 13.3 gpm. The drawdown was observed for several minutes and recorded after the pump started; the pumping rate was 61.6 gpm. Then the average inflow was added to the observed pumping rate to account for the sewage coming into the wet well while the pump was running.

The pumping rate was = 61.6 gpm + 13.3 gpm = 74.9 gpm, say 75 gpm

The pumps usually operate at a pressure of 26 to 28 psi (60 to 65 feet), which is taken at the top of the pumps, about 3 feet above the pump station ground slab. To get the TDH the distance from the pressure gauge to the water level below is added to the pressure reading:

TDH = 62 feet + 3 feet + 14 feet = 79 feet at flow of 75 gpm - This point is also plotted on the pump / system curves.

Conclusions from the graph

Looking at the graph it appears the pump is likely running at 1550 rpm (not 1450 rpm as calculated above). But other field readings and / or measurements could be in error, so the actual value of the pump rpm is uncertain.

One can see that the system is running at a "C" value of approximately 90.



Force Main Velocity

The velocity in the force main at different flows is:

At 50 gpm = 1.15 lps

At 100 gpm = 2.31 fps

At 150 gpm = 3.46 fps

The velocity of the sewage in the force main with a flow of 75 gpm is only 1.7 fps, which is below the recommended minimum of 2.0 fps to maintain sewage solids in suspension.

Calculation of Flow and TDH for Proposed 6-Inch Force Main

Assume a new 6-inch PVC force main with ID = 6.13 inches

C = 120

Flow (Gpm)	Headloss (Ft/100 Ft)	Headloss (Feet)	Total Dynamic Head (Feet)
0	0	0	-3
50	0.031	3	0
100	0.111	11.4	8
150	0.235	24	21
200	.40	41	38
300	0.848	86	83

The plot on the pump curve shows an operating point of 260 gpm at 60 feet TDH. The pipeline velocity is 2.8 fps, well above the recommended minimum of 2.0 fps.









Appendix B

CCSMD Sewer Study





Projects 10022500 Bigt II Avent

Country Club Server Maintenance District Sever Study

Stett: 1 :01 5-040-12 Date

1

line	(Featre)	//re	Popel. per Dir	in too OD1	Yrogail Ny 431er	Popul. Eurodative	Georági Per Capita/Ouy Igz4	Average Dry Weather How Impli	Probless Factor	Peak Dry Weather Hose (regd)	tane Sum, D (m)	Design Nope (%)	Marrial Depth, dry fini	hefall de/D	File Velocity (h/i)
_	Mer 11	MH 25	16	14	a.	W	£0	o-bearta	99	0.02304	8	3224	3.32	\$7%	A/98
-	44122	MI 11	11.11	11	10	le .	80	6-20141	10	P.III'115	3	0.11	3.35	4.1714	1.04
-	MH 11	All 7	A.H	0	Ð.	10	90	1111100	3.0	ACUMPATS	1	art	21.01	.71%	1.43
	WH 30	MH 7	3.0	1.0	42	42	81	(túttate	40	101344		0.15	11:00	119	1080
5	MH 2	Add II	44	0	P	103	40.	(0)175e	4.0	1116016	8	0.74	2.26	12414	1.10
-	MH.11.	MHIE	12	13	1	at :	33	0.0075#	4D	840910		0.01	1.44	3,716	1.01
1	NH5	Add 1	11	0	÷	- HUL	(9)	0.02433	4.0	1:00026	1	0.25	125	134%	1.42

Note:

Z

STATISTICS.

Treatment IDE despresent an Anderstell TEL, all depleters on Glaimmy Crisb Brive, 10/0005 to/ WWC C 3. This care and design Report tracking deplets for of servery 0. Generation rate and pending factors are Cits of 50 Server Design Bacter 8. Monosity's n=0.12.3 for all lates



Appendix C

CCSMD System Map





68



Appendix D

Repair Cost Estimate





COUNTRY CLUB SEWER MAINTENANCE DISTRICT PRELIMINARY REPAIR COST OPINION

Item Description	Quantity	Unit	Unit Cost	Total Cost
PIPELINES		-		
Locate Sewer Mains and MHs	1	LS	\$5,000	\$5,000
Clean Sewer Mains	5	Days	\$3,000	\$15,000
Inspect Sewer Mains	3	Days	\$2,500	\$7,500
Spot Repairs (Root Intrusions, etc.)	4	Each	\$5,000	\$20,000
Install Grease Trap	1	Each	\$5,000	\$5,000
Inform Residents of Sewer Locations	1	LS	\$5,000	\$5,000
Replace Sag Portions of 8" sewer to grade	2,000	LF	\$100	\$200,000
Replace 4" VCP with 8" PVC	500	LF	\$100	\$50,000
Replace 8" VCP Bends with 8" PVC pipe	200	LF	\$100	\$20,000
Replace drop MH plumbing	1	EA	\$5,000	\$5,000
				ANHOLES
Survey Manhole Locations	1	LS	\$7,500	\$7,500
Adjust MH to grade, replace frame and cover	17	EA	\$2,000	\$34,000
Modify Private Facilities Obstructing Mapholes	1	LS	\$100,000	\$100,000
Bechannel MH Troughs	4	FA	\$2,500	\$10,000
Replace MH Cone	30	EA	\$4,000	\$120,000
Line Interior of MH with Epoxy	34	EA	\$2.000	\$68,000
	1	1.000	PUM	P STATION
Reset Float Switch Levels	1	LS	\$1,000	\$1,000
Extend Suction Line for Pump #2	1	LS	\$3,000	\$3,000
Install Screen on Wet Well Opening	1	LS	\$1.000	\$1,000
Line Wet Well with Epoxy Coating	1	LS	\$10,000	\$10,000
		III -	FC	ORCE MAIN
Locate Existing Cleanouts	1	LS	\$2,500	\$2,500
Replace Sharp Bends at Pump Station	1	LS	\$5.000	\$5.000
Install Force Main Cleanouts	20	EA	\$2,000	\$40.000
Replace 4" PVC with 6" PVC force main	10.000	LF	\$50	\$500.000
Subtotal Construction				\$1.234.500
Construction Contingency	20%			\$246,900
Administration & Design	15%			\$185,175
GRAND TOTAL				\$1,666,575



Appendix E

Manhole Inspection Logs





FT

DATA DROP LINE [] DROP LINE [] DROP LINE [] DROP LINE [] DISTANCE FT DISTANCE

COMMENTS: rianhole odde



PIPE	10	DUI GOING LINE					
DATA	DROP LINE	DROP LINE	FI	FROM MH # DROP LINE	FT	TO MH #	FT
TYPE			T		1.223	1000	
DIAMETER						16	
FLOW							

COMMENTS:



PIPE		OUTGOING LINE						
ENTRANCE	PROM WHY	PT	FROM MH # DROP LINE [] DISTANCE	हा	PROMINH #		TO MH #	
TYPE		-1						
DIAMETER		-						
FLOW								

COMMENTS:



DATA				the set is the sector when the sector when
	FROM MH # DROP LINE D DISTANCE FT	FROM MH # DROP LINE [] DISTANCE FT	FROM MH # DROP LINE	TO MH #
TYPE				
DIAMETER				
FLOW				

COMMENTS: 19" PVC in & out














DATA	FROM MH # DROP LINE D DISTANCE FT	FROM MH # DROP LINE [] DISTANCE FT	PROM MH # DROP LINE	TO MH #
TYPE				
DIAMETER				
FLOW				



PIPE ENTRANCE DATA		OUTGOING LINE		
	PROM MH # DROP LINE DISTANCE FE	FROM MH # DROP LINE [] DISTANCE FT	FROM MH # DROP LINE DISTANCE FT	TO MH #
TYPE	1-5-02			Contraction (Contraction Contraction)
DIAMETER				
FLOW				

TO MH 11





	and the second s	12	the set
COMMENTS:	D	12	JOUIN

261 (a



FLOW

COMMENTS:

DIAMETER

2161.33



FLOW



PIPE		OUTGOING LINE		
DATA	PROM MH # 17 DROP LINE (1 DISTANCE FT	FROM MH #	FROM MH # DROP LINE[] DISTANCE FT	TO MH #
TYPE				
DIAMETER				
FLOW				



14

DATA	DROP LINE	DROP LINE D DISTANCE FT	DROP LINE	DISTANCE FT
TYPE	AL			
DIAMETER	Clay			
FLOW		3		



PIPE	INCOMING LINES			OUTGOING LINE	
DATA	FROM MH 4 DROP LINE DISTANCEFT	FROM MH # DROP LINE D DISTANCE PT	FROM WH # DROP LINE DISTANCE FT	DISTANCE FT	
TYPE					
DIAMETER		TO MH	7 Clay	Pile /	
FLOW			1	110	
COMMENT	Blocking	g- late	ral to	1366	
U	/1		L	ista Vede	

COMMENTS:



FLOW

to mes

2030 Fairway lateral Blocked



PIPE ENTRANCE DATA		OUTGOINGLINE		
	FROM MH 4 DROP LINE DISTANCE FT	FROM MH # DROP LINE D DISTANCE FT	DROP LINE	TO MH 4
TYPE	- optimited			A CONTRACTOR OF CONTRACTOR OFO
DIAMETER				
FLOW				



FLOW

COMMENTS:

τ.



DISTANCE

FT

FT

DATA DROP LINE D DROP LINE D DROP LINE DISTANCE FT DISTANCE FT DISTANCE



15

10

FLOW



DATA	DROP LINE D	DROP LINE	FT	DROP LINE	PT	DISTANCE	FT.
TYPE							
DIAMETER							
FLOW							

1123



	INVOLUTION ENTED				DOLADING FINE		
DATA	FROM MH # 26	FROM MH # DROP LINE [] DISTANCE	FT	FROM MH # DROP LINE	FT		
TYPE			1			Clean	
DIAMETER			1			12	
FLOW							

 $i \Lambda$



PIPE		OUTGOING LINE		
DATA	DROP LINE	FROM MH # DROP LINE D DISTANCE F	DROP LINE	TO MH #
TYPE				
DIAMETER				
FLOW				



PIPE		OUT GOING LINE		
DATA	DROP LINE DISTANCE FT	PROM MA N DROP LINE	FROM SMA S DROP LINE	DISTANCE FT
TYPE		(in in in a second s		
DIAMETER				
FLOW		h	<u> </u>	
COMMENT	·s.	70 25	not found	yet

Good condition overall Could raise Frame of cover 3"toc"



DATA	FROM MH # DROP LINE [] DISTANCE FT	FROM MH # DROF LINE [] DISTANCE FT	FROM MH # DROP LINE DISTANCE	FT	TO MH #		
TYPE			T				
HAMETER			T			5000	
FLOW			1				_

9 D



COMMENTS: TO MH # 5 GOOD Flow rate

MANHOLE INSPECTION REP	ORT 9.35
MANHOLE #: 29 STREET: 0014 CALLOR WEATHER:	TOR(5): 14
DIAMETER:INCHES MOT	Found cover
EVIDENCE OF LEAKAGE TES LINO LI	- COMMEL
ANHOLE FRAME CONDITION: SOUND D BROKEN D TO EVIDENCE OF LEAKAGE: YES D NO D INVERT	$\langle \cdot \rangle$
CORBEL AND WALLS CONSTRUCTION: PRECAST C BRICK C CONDITION: GOOD C DETERIORATING C	STEPS
BENCH WALLS CONDITION: GOOD D DETERIORATING D DEPOSITS: MUD D DEBRIS D SLUDGE D DEPTH OF DEPOSITS:INCHES	TROUGH
CONDITION: GOOD C DETERIORATING C	
CONDITION: GOOD CI DETERIORATING CI EVIDENCE OF LEAKAGE: YES CI NO CI	TYPICAL MANHOLE
NFLOW AND INFILTRATION EVIDENCE OF INFLOW: YES DINO DEVIDENCE OF SUR INCHES ABOVE INVERT: INCHES EVIDENCE OF INFILTRATION: YES DINO DE ESTIMATE LOCATION/DESCRIPTION OF INFILTRATION:	ICHARGING: YES 🗆 NO 🗔 ED FLOW RATE:GPM
PIPE INCOMING LINES	OUTGOINGLINE
	A TO WHY

PIPE		OUTGOING LINE		
DATA	FROM NH # DROP LINE DISTANCE FT	FROM MH # DROP LINE [] DISTANCE FT	FROM MH #	TO MH #
TYPE				
DIAMETER				
FLOW				



FLOW/



PIPE		OUTGOING LINE		
DATA	FROM MH # DROP LINE [] DISTANCE FT	FROM MH # DROP LINE C DISTANCE PT	FROM MH # DROF LINE	TO MH #
TYPE	a particular a par			and the second
DIAMETER				
FLOW				

144



COMMENTS:

1.000

1 Drop connection into viding into MH

Photo takeh DATE: 9-24-12 MANHOLE INSPECTION REPORT STREET: BARDIC WOI MANHOLE #: WEATHER: NSPECTOR(S): MANHOLE COVER Maphile not COVER INCHES DIAMETER: NO. OF HOLES IN COVER: FRAME SUNA CONDITION OF FIT: LOOSE I TIGHT I SEALED D BOLTED D EVIDENCE OF LEAKAGE: YES INO - COREEL MANHOLE FRAME DEPTH CONDITION: SOUND D BROKEN D TO EVIDENCE OF LEAKAGE: YES INO I INVERT FT. IN. STEPS CORBEL AND WALLS CONSTRUCTION: PRECAST [] BRICK [] CONDITION: GOOD DETERIORATING CI EVIDENCE OF LEAKAGE: YES INO BENCH WALLS BENCH WALLS CONDITION: GOOD C DETERIORATING TROUGH DEPOSITS: MUD C DEBRIS SLUDGE DEPTH OF DEPOSITS: INCHES INVERT STEPS CONDITION: GOOD D DETERIORATING D EVIDENCE OF DEBRIS ON STEPS : YES LINO L TROUGH CONDITION: GOOD D DETERIORATING D TYPICAL MANHOLE EVIDENCE OF LEAKAGE: YES INO INFLOW AND INFILTRATION EVIDENCE OF INFLOW: YES INO I EVIDENCE OF SURCHARGING: YES INO I INCHES ABOVE INVERT: INCHES EVIDENCE OF INFILTRATION: YES DINO D ESTIMATED FLOW RATE: GPM LOCATION/DESCRIPTION OF INFILTRATION:

PIPE		OUTGOING LINE		
DATA	DROP LINE	FROM MH # DROP LINE [] DISTANCE FT	DROP LINE	DISTANCE FT
TYPE				
DIAMETER				
FLOW				



Appendix F

Pipeline and Force Main Inspection Logs



aprilau	Report	of Pl	LR US		<u> </u>		or	But	881	1 Aeu	SAS NA		
Work	Order	10111		Contract	1				Vide	0		Setup 25	
F	acility			Operator	NJP	Van Ref 10			Survey	Surveyed On 09/25/2012			
Str Loca Survey	set Name tion type Sorfece / purpose	Bart Ranc	tom sur	nh Rd vey of pipes and th	ngs		City	Hoi	har	Dry			
Pipe Use Sanitary Shape Circular Material Polyvinly chioride Lining					Sched Size 10 Joint Speci Year laid	i langth by ing	ini Fi	F		From To Direc Pre-c	01 PUMP STATION Ition Down Iean N Last Ci	Depth Depth Septh	FI FI
Gener Locatio	al note Li on note	ine ine	ds acro	ss Even Howee Hy	~					Struct	urat Service Terrecon Hydrawic	Xanet	nuctional
Video	Count	CD	Code				Sav	Fr	To	Value	Hemarks		
	0.0		ST	Start of Survey									
	0.0		541-1	Marinoln/Node			1.50			-	01		
	0.0	2	WL.	Water level						- 18			
	2.0	100	DEG	Deprill (Greese).			L				10.m 1/2 mmg		
	2.0		GØ	General observal	1001						BLOCKED BY LAR	GE DEBRIS I	NINH
	2.0		SA	Survey abandons	ed (4.2			100		1000000	comes.
	Z/0	PL	Total L	anglis Surveyed							-		
Scores Structural: Service:				Total Total	n 150	Ne	en D en D	inte Inte	ct 10 ct 75	Peak 0 Peak 150	Mean P Mean P	ipe 0 ipe 75	

PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-6023

 \hat{p}_{1}

Pipe Graphic Report of PLR 01	x	for Bureau Ver	Itas NA
Work Order Co	ntract	Video	Setup 25
Fedliky	Operator NJP	Van Ref 10	Surveyed On 09/25/2012
Streat Name Berbara Worth Rd Location type Surface Survey purpose Random survey of pip	City es and things	Holtville Weather	Dry
Pipe Use Banitary	Schedule length	Ft From 01	Depth Ft
Shape Circular	Size 10 by	Im To PLM	P STATION Depth Ft
Material Polyviniy chlorida	Joint specing F	t Direction 0	Jownstreem
Uning	Year laid	Pre-clean M	4 Last cleaned
General note Line teats across Evan H	icwes Hwy	Seuctoral	Service Constructional
Location note		Muceŝanegia	A Hydrautic



Pipel.ogix Inc. Phone: 866-299-3150 Fax: 760-405-6023

PIPELOGIXX

CETV pictures of III X for Bureau Verilas NA.

Work Order			Video	Surveyed On 09/25/2013	Direction Councilment	Settap 25		
Street Name Datass Worts Rd. Only Name Fisibility			-	Weather Dry				
Location	From Manhole of					To Manhole PUMP STATION		
APP 00/25/2012	10000	ALL DATE	De	ar ostazota	of Incident States	-		
alanser 2.0.Fl	destant on the	and the second se	In	dance: 20 Pi				
Wei Debris (Demani)	Concercion in a	A DOTATION OF	104	te General staat vebra				

Comments.

BLOCKED BY LARGE DEERIG IN NH AND PIPE

Committee 107 to 1/2 PAPE



the second se	
The second strength of the local second seco	Contraction of the local distance of the loc
	and the second
and the second second	
	and the second second
the second second	

PipeLogis Inc. Phone: 866-299-5150 Fax: 766-405-6025

abular	Report	of P	LR G		C	105	Bure	au y	/671	tas NA		
Work	Onder			Contract		Video			100	Betup 23		
	sceny			Operator	O ²		v pri	Hat	10	30774	yes on cous	2912
Laca	set Name allos type Berface purpose	Race	lent wo	rey of pipes and th	ngs	City	Vesta	er i	Dry			
Pipe	Use Sani	an/			Sched long	pth .	Ft	F	m	60	Dupth	Pt.
Bhape Citodar B Material Polyviniy chilacide J					Size it by Joint Specing Year laid	R		D p	To Hind	ci tion Down fean Ni Last (Depth	P1
Gener	nal note on note							B N	triuct triscie	unal Soules Aaneous Hydeau	Conial	ructional
Video	Count	CD	Code			3ev	Fr. 1	to V	alue	Remarks		
	0.0		67	Slart of Survey								
	0,0	1.1	3.44	Mannaie/Mode		-		1	_	00		
	0.0		WL.	Walint Isovid				1	-10			
_	8.0		DE	Detoria		16			· · · ·			
	12.0		(年)	Debute		1.1		_	_			
	24.8	5-0	DE .	Onbrie		1.		1	-	CONTINUES		
	25.3		GO	Genetal observat	ion .					SLOCKED BY DE	870S	
	25.3	8	00	General observed	ion					DEBRIB TOO HE	AVY FOR US A	TTEM.
	25.6		EA	Survey abandone	đ			1		Y		
	25.6	11	Total	snight Burveyod								
	Score	۰F		Structural: Service:	Total 0 Total 450	Me.	en De an De	fect (o 112	Peak 0 5 Peak 150	Mean P Mean P	ipe 0 ipe 17.6

PipeLogix Inc. Phone: 866-299-3150 Fax: 769-405-6023

Pipe Graphic Report of PLR 02	×	for Bureau Ve	ritas NA
Work Order Co	ontract	Video	Setup 23
Feclity	Operator NJP	Van Ref 10	Surveyed On 09/25/2012
Street Name Barbara Worth Rd Location type Surface Survey purpose Random survey of pip	City bes and things	Holville Weather	Diy
Pipe Usa Sanitary	Schedule langth	Ft From 02	Depth Ft
Shapa Circular	Size 8 by	ns To 01	Depth Ft
Material Polyvinty chioride	Joint specing F	t Direction (Dowsstream
Lining	Year laid	Pre-clean f	V Last cleaned
General note		Skuttural	Bervice Constructional
Location note		Miscelareou	N Hydrawic



CCTV pictures of 02 X for Bureau Veritas NA

Wark Onter	Video	Surveyed On 03/25/2012	Direction Downstmam	Betup 23
Storest Name Barborn Worlty Rd	City Name Hollville	19a	wither Dry	
Location		From Manhala gg	Te Manhole os	
		- SAMILIN - SAME		

Deex 08/25/2012 Determine: 6/2 Ft Obs: Delete

Comments:

Deter 05/35/2012 Distance: 24.9 Pt One: Debris

Commente CONTINUING



Dete: 29(25/1013 Distance: 12.9 Ft Obs: Debris

Committee



PipeLogix Inc. Phone: 856-209-3158 Fax: 769-406-6023

Tabular	Report	of P	LR 03	5	×	for	Bui	691	a Vert	tao NA	
Work Order Contra Facility Operator				NUP		Va	Vide In Re	es et 10	Surv	Setup 24 syed On 69/25/2012	
Sh Loci Survey	ation type Burfecs y purpose	e Bart : : : Ranc	bura Wo som eur	rth Rd way of pipes and t	nings	Cit	y Ho Veat	her	Dry		
Pipe Si Mati	Use San hape Circ erial Poly ning	tery ular vrity c	shilaridə		Sched Size # Joint Specify Year laid	length by in ng Fl	8 8		From To Direc Pre-0	03 02 Ition Down Jean N Last	Depth Ft Depth Ft Cleaned
Gener	ral note C on note	REAT	EDSUP	WEY, HEAVY GR	REASE IN MH				Shud	aral Servic Raneovis Hydrai	e Constructional
Video	Count	CD	Code	hannen son state		Sev	Fr	To	Value	Remarks	
1996210	0.0	10000	ST	Start of Survey			1	1.00	1000	1 Carlow	
	0.0		MH	Manhole/Node			1		1	.03	
	0.0		WL.	Water invest	20.55	- 1 - C	-		10		
	0.0		GO	General absaru	dariath.					HEAVY GREASE	IN MH
	0.0		GO	General observa	THOMAS					PUMP STATION	PUMPED DOWN FOR.
1	0.0	1	040	General posiervo	stitute:					LINE #310.10	FULL OF DEBRI
-	0.0	1	60	Ganeval observa	etion.		1	1		DID NOT ATTEN	PT VIDEO DUE TO
	0.0		SA	Skinvey abundar	ed		1		1		
	0.0	FL	/ota/L	angth Surveyed	e/14 %						
	Score	5		Structurel: Service:	Total 0 Total 0	Ma	un E an E	lofo Jofn	et 0 et 0	Peak 0 Peak 0	Mean Pipe 0 Mean Pipe 0



PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-6023
abular	Report	of P	LH D		š	TOP	But	eat	1 Aeu	tas NA		
Work Fr	Order			Contract Operator	ile:	Video Van Ref 10			na at 10	Surveyer	Setup 22 Surveyed On 09/25/2012	
Str Loca Survey	eet Name stion type Surface purpose	Ron	dom sur	mh Rd vey of pipes and thi	nge	Cih	Vest	itville	Dry			
Pipe St Mate	Use Seni tape Circl trial Poly ning	llary Llar viniy i	chsionide		Sched len Size 8 by Joint Specing Year laid	igth in Ft	F	•	From To Dirw Pre-	04 03 Ction Down ofean N Last Clea	Depth Depth Ined	Ft Ft
Gener	al note eton note								Struct Mac	anal Scrict Notavilo	Constructs	ona
Video	Count	CO	Code			Sev	Ft	To	Valu	e Remarks		
	0.0		MH	Marrison/Ande					-	04		
	0.0		195.	Walar tevel								
	0.0	1	DE	Debria		1		. 1		LARIGE DEBRIS MIN	5ie	
	1.0		60	General observation	on.					CEMH SURCHURGE	D. FULL OF DE	18.
-	1.2		00	General observation						BLOCKED BY DEBIN	5	
	1.2		SA	Survey abandone	£	1			1.5			
	1.2	m.	Total (angth Surveyed								
	Score	•		Service:	Total 0 Total 150	Me	en D en D	efe	at 0 at 75	Panh 0 Pank 150	Mean Pipe	0

11.1

.....

PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-6023

Pipe Graphic Report	t of PLR 04	x	for	Bureau Verita	as NA	
Work Order Facility	Contract Operator	NJP	Video Van	Raf 10	Setup Serveyed On	22 09/26/2012
Street Name Bart Location type Surfece Survey purpose Ran	ers Worth Rd dom survey of pipes and thin	City 94	Hotvi	io Waathar C	λγ	
Pipe Use Sanitary	Sc	hedule langth	Ft	From 04	Dept	h PL
Shape Circular Material Polyviniy chir Lining	Siz Jo Ye	ue 6 by intepacing er/aid	ina Pt	To 03 Direction Dov Pre-clean N	Dept matroom Last cleaned	h R
General note Location note				Structural Miscelarycous	Service (Hydraulic	Constructional



CCTV pictures of D4 X Ror Buroou Vertue NA

Want Onlar	Visiosi	Surveyed On 0003522012	Direction Downstream	Setup 22
Street Name Datters Worth Hat	City Name Hotels	-	attive City	
Location		From Maribole Gd	To Marihole 03	

Date delibitions Observes 0.9 Pt Observes

LANCE DEBRIE IN MIL



Pipel.ogla tec. Phone: 868-299-3150 Fax: 700-400-6823

Tabular	Report	of Pl	.R 05	1	N.	for	Bur	eas	Vert	tas NA		
Work	Order			Contract	la i Xii-			Vide	0	65	Setup 34	
F	eallity			Operator	NJP		Va	n Re	01.10	Burvey	red On 03/27	2012
Struey	reet Name ation type Surfece y purpose	Rand	ara Wo	th Rd ey of pipes and th	ngs	Cit	y ita Neet	hulle har	Dry			
Pipe Si Met	i Uae Sani hape Circu erial Viril ining	tary Jar Ied cia	ĸ		Sched is Size 8 by Joint Specing Year leid	ngth y In 1 Fi	. '		From To Direc Pre-c	05 06 tion Down Iean N Last C	Depth Depth	Ft Ft
Gene	ral nota Ci on riote	reated	survey	Could not attempt	l Ine,				Struct Mistre	urali Bervica Bankova Hydraoli	Const	ructional
Video	Count	CD	Code			Sav	Fr	To	Value	Remarks		
	0.0		ST	Blatt of Survey		100	1	1.1				
	0.0		M94	Marshole/Node						0E		
3V 8	0.0	-	WL _	Water tavel				-	0			
	0.0		00	General observat	nov					MAPS INCORREC	T. MH 05 LEA	08.0
_	0.0		GO	General observat	ion.				0	BOTH US AND DR	MITS SURCE	ANHISE_
	00		60	General observat	kon					LINES POSSIBLY	SURCHARGE	O DUE_
	0,0	Ft	Tota L	ength Surveyed		1.201100	1		1045	Leader owner wet		
	Score	8	1	Structural: Service:	Total Total	Me	uan D uan D)efe	cit cit	Ponk Peak	Minan P Mean P	ipe ipe

PipeLogix inc. Phone: 866-299-3150 Fax: 760-406-6023

Tabular	Report	of Pl	LR 08	ŭ	A	for	Bur	,eist	u Veri	tas NA		
Work	Order			Contrac	NP		Va	Vide n R	00 f	Surve	Setup 33 wed On 09/27/2	012
917 Loca Survey	eet Name ation type Surface purpose	e Bart) Reno	sara Wo	th Rd	Angs	Cit	y Hoi Neat)	her	Dry			
Pipe Si Mate Lit	Une Seni sepe Circu erial Virif ning	tary ular fied ch	iy.		Sched law Size 8 by Joint Spacing Year laid	sgith Is Pj	8		From To Direc Pre-c	06 04 tiloin Down tiloin N Last	Depth Depth Cleaned	FI FI
Gener	nal notu C on note	reated	2 SUITWAY	Could not alterns	t line.				Struct	wat Sereto Ilaneous Hydrau	i Constru Ilc	otiona
Video	Count	CD	Code			5ev	Fr	To	Value	Remarks	1.25	X87
	0.0		ST	Start of Survey		C ^{ab}	1	2005			-	
5	0.0		N30++	Manhole/Mode			11	1	· · · · ·	041		
	0.0	1	2002	Water level				100	0			_
	0.0		GC	General abserve	don	- 6.5				BOTH US AND D	5 MHS SURCH	AGE.
	0.0	-	GO	Ganeral observa	sion	100	1			NO ACCESS OR	VISIBILITY	of the second se
	00		GC.	General absorva	tion	1			1	LINES POSSING	SUNCHARGED	DUE
	0.0		GØ.	General observa	don					MAPE INCORRE	CT. MH 08 LEAD	50.
	0.0	Ft	Total L	ength Surveyed					1941			-
	Score	s		Structural: Service:	Total Total	Mo	an D	efo	ct ct	Peak Peak	Mean Pip Mean Pip	

PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-8023

Tabular	Report	of Pl	LR 07		A	fo	r (1	Bui	neau	u Veri	tas NA			
Work	Order			Contract	N/D				Vide	10		8	atup 32	
Str Loci Survey	actiny reet Name ation type Surface y purpose	a Bat i Rend	lom serv	th Rd	ings	(W	Ho	her	Dry		SUIVEYO	0.08 (8/2/	12912
Pipe St Mate	Use Sant hape Circi ariat Vicit ining	itary uler Sed.cli	ey:		Sched Stre 5 Joint Spec Year laid	longth by ing	ins Ft	F	t	From To Dires Pre-c	07 08 sties Down steas N	Last Cia	Depth Depth	Ft Fl
Gene Locati	ral nota C on nota	reated	survey.	Could not attemp	t linut.					Shire Misce	lund slämepus 1	liervick tydraulic	Const	ructional
Video	Count	CD	Code	ba	1	5	ev.	Fr	To	Value	Remarks			
	0.0	1.000	ST	Start of Survey	100		Cho I		1.00		Personal res	0		
	0.0		MH	Marihole/Node	-	-	_	_		<u></u>	07	_		
	0.0	1 m	WI.	Water level					<u> </u>	0				
	0.0		30	General observa	tion					÷	US MH NO	T FOUND		
	0.0		GO	General observa	Ran				1	1	CS MH SU	RCHARGE	ED, NO ACI	DESS OL
	0.0		60	General observa	ilari -					1	COULD NO	TATTEN	FTENE	
	0.0		60	General observed	ion:						LINE POR	SIDLY BUS	CHANGED	DUE
	0.0	PT	Total L	ength Surveyed			- 6			11-			-	
	Score	s	1	Structural: Service:	Total Total		Nes Mot	in D	efer lefo	ct ct	Paak Peak		Mean P Mean P	loe Ipe

PIPE

PipeLogix Inc. Phone: 886-299-3150 Fax: 760-406-6023

Tabular	Report	of Pl	LR DE	3 A	¥	for	Bu	1881	u Veri	tas NA		
Work F	Order eclility			Contract Operator !	Vidi NJP Van R		Vide n R	eo Setup 3 ef 10 Surveyed On (Setup 31 yed On 09/27	2012	
Str Loca Survey	stion type Surfece purpose	Fant Rand	sara Wo	rth Rd vey of pipes and thi	nge	City	Voat	ltvill: hor	e Dry			
Pipe Si Mata Li	Use Suni hapé Cros artial Vicif ning	bary ulur led cis	ıy		Schad le Size 8 by Joint Specing Year laid	ngth r lei Ft	•	•	From To Direc Pre-c	08 07 stion Down slean N Lest (Depth Depth Cleaned	Ft Fl
Goner	rai note C on note	reated	d survey	. Could not altempt	ēna.				Struc Misca	tsiral Service Hanédus Hydrau	Coopt	ructional
Video	Count	CD	Code	N		Sev	Fr	To	Value	Ramarka		
escond.	0.0		0T	Start of Survey			1	12				_
	0.0	ĝ. ".	MPI.	Manhole/Node					1	OII.		
-	0.0	-	WIL .	Winter lowed				-	- 0			
	0.0		60	General observation	gn.	- P				US MILLEEND TO	O TIGHT IN TR	AUG.
	0.0		GD	General obuerval	011					DS MH NOT FOU	ND	CASA CONTRACTOR
	0.0		GO .	General observab	on .	1.0			1	COULD NOT ATT	EMPT LINE	
	0.0	F1	Total L	angth Surveyed								
	Score	5		Structural: Service:	Total Total	Me	an C an C)efe	ct ct	Peak Peak	Mean P Mean P	ipe Ipe

PIPE ž

PipeLogix Inc. Phone: 856-299-3150 Fax: 760-406-5023

Tabular	Report	of P	LR 04	3	x	for	Bure	hau Ver	itas NA		
Work F	Order ecility			Contrac Operator	t NJP	Video Van Ret 10			Surv	Setup 28 Surveyed On 09/26/2012	
Sti Loci Surve	reat Name ation type Burlace y purpose	Bart Rans	berii Wo	nh Rd vey of pipos and i	hings	City	y Holt	er Dry			
Pipe Si Mati	use Seni hape Circ erial Vitri Ining	tary ulur Pod cli	sy.		Sched len Size A by Joint Specing Year lakt	gth In Ft	Ft.	From To Direct Pro-	09 08 ttion Down Clean N Last	Depth Ft Depth Ft Cleaned	
Gener Locati	General note position note dec Count CD Code							Struct	tutal Servici eltaneous Hydrax	Constructiona vic	
Video	Count	CD	Code			Sev	Fr	To Valu	e Remarks		
	0.0		5T	Biari at Burety			11				
	0.0		MH	Manhole/Nocie		10			00		
	0.0		445	Water level				1 7			
	6.0		CB	Break in Connec	tion	-	09				
_	8.0		06	Ge0/4		54					
	41.8		CN	Service Connec	tion		68		La		
_	51.5		尾	Oabria		- E		-	CONTINUING		
	84.8	-	CN	Service Connec	tion	-	10		L		
	128.1		CN	Service Connep	sion		09				
	146.3		MH	Manhole/Node			1		08		
	146.3		FH	Finish of Server	6		11		1		
	146.3	Ft	Total I	angth Surveyed							
	Score	\$		Structural:	Total 0	Me	an De	fact 0	Pesk D	Mean Pipe 0	

 \mathcal{Q} Tabula Barris Andre B 100

cones	Structural	Total 0	Mean Detect 0	Peak D	Mean Pipe 0
CRARTE TO	Service	Total 225	Mean Defect 75	Peak 150	Mean Pipe 1.5

• / PIPE 5

PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-8023

Pipe Graphic Report of PLR 09	X	for	Bureau Verit	as NA	
Work Order Cu Pacility	operator NJP	Vildeo Van	Rof 10	Batup Surveyed On	28 09/28/2012
Street Nama Barbara Wonh Rd Location type Surface Survey purpose Random survey of pip	City es and things	Holbill	e. Waather i	Diy	
Pipe Use Senitary Shape Circular Material Vitrified ciay Lining	Schedule length Size 8 by Joint spacing Year laid	Ft Ins Fl	From 08 To 98 Direction Do Pre-clean N	Dept Depti watream Last cleaned	h Fl h Fl
General note Location note	61		Siructural Miscellaneous	Sanoce (Hydraulie	Constructional





PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-6023

CCTV pictures of	09	X	for:	Bureau	Veritar NA

Video	Burveyed On 0808/2012	Clearthus Downstream	5+6-p 25
City Name Ituttella	25 G2250000	Weather Dry	
	From Marihelie (G	To Manhole (6	
	w available		_
Distance in the second s	10.0 B.0.0	at a second second	100
OR INCOMENT	pi Debris		
	erte rita		-
	ne: 0926/2012 fance: ST.S.FI e: Dente		
	NATING INVE		N. N.
and	nc autobiliz forma 122.171 n: Service Connection	All Streets	
			-99
	City Name Heads	Value Surveyed On Waters (11) City Name Hotels From Marines (11) From Marines (11) From Marines (11) From Marines (11) Date: Account(12) From Marines (11) Date: Account(12) Contraction Date: Account(12) From Marines (11) Date: Boot(12) From Marines (11) Date: Boot(12)	Value Surveyed On Operation Description Description City Name Hellolis From Marhale (IS Yeather Day From Marhale (IS To Machine (I) To Machine (I) Object Description To Machine (I) To Machine (I) Object Description Description To Machine (I)

PipeLogix Inc. Phone: 868-299-3151 Fax: 760-405-6023

Tabular	Report	of Pf	LR 10	3	<	for	But	1881	u Veri	tas NA			
Work	Order			Contract				Vide	00		-	Setup 27	
E C	acility	. Post	tores 14kg	Operator	A1b	Pin	Va	nR	01 10		Surveye	d On 09/26/2	012
Loc	ation type Surface y purpose	Rand	tom sun	vey of pipes and thi	aga	v	Vent	her	" Dry				
Pipa Si Mat Li	Pipe Use Sanitary Shape Circular Material Vizified day Lining			Sched leng Size 8 by Joint Specing Year laid	ed length Ft by ine scing Ft id			From09 To 10 Direction Up Pre-clean N		Depth Depth Last Cleaned		R FI	
Gene Locati	ral note on note								Struc Mece	iyral Amooiis	Sarvice Hydraulic	Constru	clional
Video	Count	CD	Code			Sev	Fr	To	Value	Roman			
0.002101	0.0	1	ST	Stan of Survey				-		22			
	0.0		MH	Manhole/Node		_	-	_	_	09			
	0.0	-	WI,	Waler lovel		-	-	_	. 3				
_	5.0	1	BE	Detrie		5		-	<u> </u>		_		_
	11.5		CN	Service Connecti	n		10	_	_				_
_	20,1		CN	Service Connecto	but		02						_
	55.8		DEG	Debna (Grase(i)		8							
_	09.5		GRA	Rours among Lat	einei	5	00						_
	69.7		CB	Break in Connect	lon	_	03						
	73.8		GN	Senice Connecti	bn		10				_	-	_
	84.4		CB	Break in Connect	kon :		02						_
	87.0		CN	Service Connection	08		02		-	1	_		
	87.6		DEG	Debns (Crasse)		M				CONTIN	UNG		
	115,6		030	Debrin (Greek)		M			1	CONTIN	UNIT		
	139.2		CN	Service Connecti	on.		10						
_	152.4		CN	Service Connects	on		az			×			
	166.5		DEG.	Debris (Grassa)		L				CONTIN	UIIVG		
	196.8		OP	Plugged Connect	ion -	1.000	03	1		- seed winne			
	201.4		GO	General observet	ion -					LINE CO	NTINUES	15	
	201.4		MH	Marhole/Node				1		10			
	201.4		FH	Finish of Surveya									
	201.4	Ft	Totel L	angth Surveyed									
	Score			Structural: Service:	Total 0 Total 420	Ma Ma	an D an D	lafa lafa	et 0 et 60	Pea	₩ 0 ₩ 150	Newn Pip Mean Pip	e 0 e 2.1

PipeLogix Inc. Phone: 866-299-3150 Fax: 760-405-6023

Pipe Graphic Report of PLR 10	×	for Bureau Ver	Itas NA
Wark Order G	Operator N.P	Video	Setup 27
Fecility		Van Ref 19	Surveyed On 09/26/2012
Street Name Barbara Worth Rd Location type Surface Survey purpose Rendom survey of p	City	Hotville Weather	Dry
Pipe Use Sanitary	Schedule length	FI From 09	Depth FL
Shape Circular	Size 8 by	Ins To 10	Depth FL
Material Vibilies day.	Joint specing	Ft Direction U	pstream
Lining	Year lakt	Pre-clean N	Lest cleaned
General note		Sõuduar	Service Constructional
Location note		Miscelaneoui	4 Hydraulic





PipeLogix Inc. Phone: 866-299-3150 Fax: 760-405-6623

Pipe Graphic Report of PLR 10	×	for Bureau Verites NA						
Wark Order C	Operator NJP	Video	Setup 27					
Feallity		Van Rof 10	Serveyed On 06/26/2012					
Street Name Barbara Worth Rd Location type Surface Survey purpose Random survey of pi	Chy pes and things	Hothrite Weather	τ Dry					
Pipe Use Sonitary	Schedule length	Ft From 09	Depth Fi					
Shape Circular	Size 6 by	Ins To 10	Depth Fi					
Material Vitified cloy	Joint specing	Ft Direction	Upstream					
Uning	Year laid	Fre-clean	N Lest cleaned					
General note		Stuctural	Service Constructional					
Location note		Miscelaneo	Inis Hydraulic					





Pipel.og/x Inc. Phone: 866-299-3150 Fax: 760-406-6023 CCTV pictures of 10 X for Burdee Ventas NA

Work Cetter	Video	Surveyed On 09/20/2012	Streation Operation	Setup 27
Street Hame Dathats Worth Fut	City Name Hotydia		Number Cry	
Location		Prom Manhole (p)	To Marihole 50	
Date: (HCHSDIP12) Dealerine: E.D.FT Oles: Detrin	Ball Telling, and and Date Office	e OkG650912 amor: 11.4 Pt c Sentr:Connection	1	-
Comments:		urra ria:		1
Deer carosocris Deternes: 32.1 H Ote: Service Connection	Det	e: 06/25/012 Innoe: 56.6 Pt i: Dobra (Grasse)		Va
Cammanta	-		1	
Delsi De2502013 Distance: G8.575 Dist. Roots around		a. 080552912 Innor: 30.7 Ft Read: in Connector	em «	
Gorements:	and a second		Z.	8

FipeLogix Inc. Phone: 866-299-3158 Fax: 760-406-6023

CCTV pictures of 10 X for Bureau Vertex NA

Wark Order	Video	Surveyed On Olicit/2012	Desilition Upetnam	Satup 27				
Street Mane Nettons Worth Hd	City Name Politica	Weather Dry						
Location		From Manhola (3)	To Manhole 10					
Dese Schlaner; Determe: 75.8 Pr Zies Service Cornection		Date: definition Determine: 04.4 Pt Dem: Break in Connection						
		Commenter		1				
Date: 04/25/2013 Distance: (F.D.P1 Diss: Service Convention		Dete: 09352012 Distance: 07.6 Pt Obs: Detris (Grean)	11 2 A 1 19 11 2					
Commente:		Contractor CONTINUENTS	-					
Data (SUS2017 Deterring 116.0 P) Dis Balan (Street)	martin at an	Date: 340543012 Distance: 1393 FP Disc: Deryko Connector	1000					
Commenta Contracting	E E	Communital						

PipeLogis Inc. Phone: 866-296-3150 Fax: 760-406-6023

CCTV pictures of 10 X for Bureau Vertias NA

Work Order	Video	Surveyed On 3608/2012	Direction Upstmany	Sellap 27					
Street Name Barbara Worth Rd.	City Name Hotville	Weather Dry							
Location		From Marihole co	To Manhole 10						

Date: 001301012 Distance: 152.4 Pt Dist. Service Connection

Calenterra:



Date: 80563013 Distance: 166.5 Pi Oto: (Stros (Groand)

Comments.



Date: 04/08/2012 Distance: 196.8 /1 Dist: Plugged Connection

Commenter



Pipel.ogia Inc. Phone: 066-295-3150 Fax: 760-406-6023

Tabular	Report	of P	LR 11	të	x	for	Bu	reau	Veri	tas NA	
Work F	Order acliity			Contrat Operator	NJP	Video Set Van Ref 10 Surveyed C			Setup 30 eyed On 09/27/2012		
Str Loca Survey	ation type Surfece y purpose	Batt Rand	dom surv	nh Dr vey of pipes and th	singa	Cit	y Ha Nest	itvilie her	Dry		
Pipe Si Metr	Use Sani hape Circi orial Vittl ning	Unry Jier Sed cia	зy	-	Sched Size 8 Joint Spack Year laid	length by in VA Fi	F	1	From To Direc Pre-c	11 07 tilon Down tieen N Lest	Dopth F Dopth F Claemed
Gener	ral note C on note	reated	d Survey	. Could not attem	at line.				Smid	arel Sarvin Tampous Hydra	 Construction
Video	Count	CD	Code	i	=2	Sev	Fr	To	Value	Remarks	
	0.0	1441-00	ST	Start of Survey		120	1000	1			
	0.0		MH	Manhole/Node						11	
	0.0	1	V93.	Wuller Ervel			T		- 0	£	
	0.0		GD .	General observe	illiant.					US AND DE MH	S BURIED/NOT FOU.
	0.0		GÓ	General abserva	nion				2	COLLE NOT AT	TEMPT LINE
	0.0	Ft	Total L	angth Survayed				20			
Scores 5		Structural: Service:	Total Total	Mu Me	an D	lefec Nefec	t	Peak Peak	Mean Pipe Mean Pipe		

PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-6023

Tabular	Report	of Pl	LR 12)	£	fo	r I	Bur	10:11	i Veri	itas NA	
Work	Order			Contract				!	Vide	e	Setup 18	
F	acility		-	Operator !	4UP	Van Ref 10 Surve					Surveyed On 09/24/2013	2
Sh Loca	set Name ation type Surface	E Fan	way Dr (Golf Course)			City	Hoi	ber	Des		
Pipe Use Santary Shape Croular Material Vitilied day Lining					Sched Size 8 Joint Spec Year laid	l length by ing	th Ft From 12 Day ins To 11 Day Pt Direction Down Pre-clean N Last Cleaned			12 Depth 11 Depth ction Down Sean N Last Cleaned	nth Ft nth Ft	
Gener	ral note on note									Struct Misce	tural Service Constructio elaneous Hydraulic	กล
Video	Count	CD	Code			5	÷.	Fr	Tø	Value	e Remarke	
	0.0		57	Start of Survey		ï						
	0.0		MH_	Manhole/Node	-		_				12	
	0.0	() ()	WL	Water jewet						5		
	1.0		01	Deinnis	1.14181		5		1.1			
	1.9		GO	General observat	00					1	BLOCKED BY DEBRIE	
1.1	1.9		GO	General observat	óń:					-	US MH IS BURIED/NOT FOUND	
	19		5A	Survey abandone	d							
	1,9	PI.	Total L	ength Surveyed					19			
Scores		2	Structural: Service:	Total Total	150	Mea	n D n D	sfec	f 0 f 75	Peak 0 Mean Pipe 0 Peak 150 Mean Pipe 7) /0.0	

PIPE

Pipe Graphic Report of PLR 1	2 X	for Bureau	Veritas NA
Work Order	Contract	Video	Satup 16
Facility	Operator NJP	Van Raf 10	Surveyed On 98/24/2012
Street Name Fairway Dr (Golf C Location type Surface Survey purpose Random survey of	ouree) City	Holtville Weat1	her Ory
Pipe Uss Socialary	Schedule langth	Ft From 1	2 Depth Fi
Shope Circular	Size 9 by	ins To 1	1 Depth Fi
Metartal Vitified city	Joint specing	Ft Direction	1 Downetroam
Lining	Year laid	Pre-clean	1 N Lest cleaned
General nota		Structural	i Service Constructional
Location note		Miscellari	eous Hytraillic



CCTV pictures of 12 X for Burnau Vertag NA

Wart Ooler	Video	lec Surveyed On 00/04/2012 Direction Downstream Setup 15 Weather Dry									
Strait Name Fairway Cr (Golf Course)	City Name Hobile		Weather Dry								
Location		From Manhole (2	To Marbolic 11								

Date: Million(01)2 Distance: 1.379 Obs: Debra

Commercial



PipeLogix Inc. Phone: 806-299-3150 Fax: 760-606-0623

abulat	Report	OT PL	N 13	-	<u> </u>	TOP	Bu	1690	Ven	
Work	Order			Contract				Video	9	Setup 14
	acility			Operator	NJ#		V.	n Re	f 10	Surveyed On 09/24/2012
St Loc Survey	ation type Surface y purpose	Rand	ABY Dr (G	Soff Course) ry of pipes and thi	ings	City	y Ho Veat	itvile ther	Dγ	
Pipe Use Sentary Shape Circular Material Vinified day Lining General note				Schedie: Size 8 by Joint Specing Year laid	ngth in Ft	•	e I	From 13 Depth To 12 Depth Direction Down Pre-clean N East Cleaned Stuctural Bervice Coresin		
Locati	en note	_				_		1	Misce	Raneous Hydraulic
Video	Count	CD	Code			Sav	Fr	To	Volus	Romarks
	0.0		51	Start of Survey			Ľ.		204	
	0.0		MH 1	Marthole/Node		_				13
_	0.0		ML 1	Walter level				1	- 92	
	1.1		DEG	Dimvia (Giessini)		L				
	11		GO	General observat	ion				_	BLOCKED BY DEBRIS
_	11		SA Survey abandoned				1	1 1	-	
	11		1007	STIARA BOGUCCIM	Pel .	the second se	-		_	
-	11	Ft.	Total Le	ogh Serveyed	N		-			

· PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-6023

Pipe Graphic Report of PLR 13	×	for	Bureau Verila	as NA	
Work Order Contr Facility O	ract perator NJP	Video Van F	Ref 10	Setup Serveyed On	14 09/24/2012
Strest Name Fairway Dr (Golf Course) Location type Burface Survey purpose Random survey of pipes	City and things	HotMite	t Wentfor D)ry	
Pipe Lies Sanibry Shape Circular Material Vitrified day Lining	Schedule length Size 8 by Joint epacing Year laid	R Ins R	From 13 To 12 Direction Dov Pre-clean N	Dept Dept watroom Last cleaned	h Ft h At
General note Location note			Structural Miscelloneous	Service C Hydrautic	Constructional



Fax: 760-405-6023

Tabular	Report	of PL	R 13	2	4	for	Bu	real	u Verl	tas NA			
Work	Order aciilty			Contract Operator	uP.		Va	Vide in R	el 10		Surveyed	tup 15 On 09/24	/2012
Str Loca Survey	tion type Surface purpose	Rando	om sarv	Golf Course) ey of pipes and thi	nga	City	y Ha Nest	divili her	Dry				
Pipe St Mate	Use Sani hepe Circu orini Vitrit ning	tary Jar Ied clay	,		Sched len Size 8 by Joint Specing Year laid	ngth in Ft	s	7	From To Direc Pre-c	12 13 ction Up ciean N	Last Clos	Depth Depth ined	P1 F1
Gener	ral note on note				Colorina and				Struc Milace	tural Italieous	Bervica Hydrautic	Const	ructional
Video	Count	CD	Code	ter di seren		Sev	Fr	To	Value	Remark	5		
	0:0		ST	Start of Survey		100		100					-
	0.0		ME	Matthole/Node						12	<u> </u>	2	
	0.0		WI.	Watur lavid		12	1		.5				
	2.0		30	Debra		1	L			1 -			
	20 GO Ganoral observ				ion			L		SLOCKE	O BV DEBRA	5	
	20		5A	Survey abandoné	d		Ι.			1		344	
	2.0	Pt .	Total L	angth Surveyed									
	Scores Sto			Structural: Service:	Total 0 Total 150	Me	an D an D)efe	ct 0 ct 75	Peak	0	Mean P Mean P	ipe 0 ipe 75

CCTV pictures of 13 X for Eureou Vertas NA

Work Onlar	Webe	Surveyed On 09/24/2012	Direction Downstream	Setup 14
Bined Name Fairway Dr (Golf Course)	City Name Hoh/Se	W	wither Dry	
Location		From Manhole 13	To Maniholia 12	

Date IRGAUD12 Detance 1.133 Det Dolon (Sreec)

Curvente



PipeLog/s Inc. Phone: 866-299-3150 Fax: 7(0-496-6023

aouar	report	or r	LIN IN		and the second second	104	0.00	car	AGIN	LOID INM			
Work	Order			Contract	£			Vide	ю		Sa	tup 13	
E	acility			Operator	ella.		Va	n R	of \$6	1.1	Surveyed	On 09/24	2012
Str Loca Survey	et Name ation type Surfsca y purpose	Fair Rate	way Dr (dom sun	Golf Course) vey of pipes and thi	ngs	City	Veat	halle har	Dry				
Pipe Use Sankary Shape Circular Material Virified day Lining					Sched len Size 3 by Joint Spacing Year laid	gih în Fi	F	Ł	From To Direc Pre-c	13 14 fion Up lean N	Depth Depth Last Cleaned		
Gener	note an note								Struct Misce	laneous	Service Hydraulic	Const	octions.
Video	Count	CD	Code			Sey	Fr	To	Value	Remarks		Sec.	
	0.0		H.F.	Start of Survey									
	0.0	-	3/04	ManholeMode						13			
	0.0		WL.	Water level					- 5				
F	- 1.1		CEG	Desvin (Greado)		1.4	13	- 1		W1MH	_		
	4.9	1	1 50	General observat	ian					BLOCKED	IN MH BY	DEBRIS	
	4.9		6A	Survey abaridane	M.						101 - P.M.	1344.44	
4.9 Ft Lotal Length Surveyed													
	Score	s	3	Structural: Service:	Total 0 Total 150	Ma	an D an D	ofe	nt 0 nt 75	Peak Peak	0 150	Mean P	De 30.

Mean Pipe 30.6

Tabular Report of PLP 14 for Dumanu Meritan MA v



÷.

Pipe Graphic Report of PLR 1	4 X	for	Bureau Verit	as NA	
Work Order Fecility	Contract Operator NJP	Video Van	Ref 10	Setup 1 Surveyed On (3 19/24/2012
Street Name Fairway Dr (Golf C Location type Surface Survey ptrpose Rendom turvey of	ourse) City	Haltvi	le Weather	Dry	
Pipe Use Sanitary	Schedule length	Ft	Frons 13	Depth	- R
Sheps Circular Material Vibilied day Lining	Bize 5 by Joint specing Year laid	ina Pi	To 14 Direction Up Pre-clean N	Depth streen Last cleaned	FL
General note Location note			Spuctoral Miscellaneoux	Service Co Hydraulic	nanctions!



iabular	Report	of Pl	LH 14	· /	· · · · · · · · · · · · · · · · · · ·	for	Bui	reat	n Aeu	tas NA			
Work	Order			Contract				Vide	90		Setup 12		
F	scility	-		Operator	NJP	Ven Rel 10 Surveyed On 09/24/2012						2012	
Str Loca Survey	eet Name stion type Surface punpose	Ranc	way Dr (tom surv	(Golf Course) vey of pipes and th	ings	City	Veat	italia her	e Dry				
Pipe St Mate	Ues Sani nape Circi erial Vini ning	itary utar lied cla	ау		Sched lang Sire it by Joint Specing Year laid	jth in Fi		t	From To Direc Pre-3	14 13 ction Down clean N Last C	Depth Depth Jeaned	FI FI	
- Gener	ral note on note								Struc Mirpor	tural Service elleneous Mydraul	Constr	uctional	
Video	Count	CD.	Code	n teach anns		Sev	Fr	To	Value	e Remarke	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~		
	0.0		ST	Start of Survey									
	0.0	1	NEH	Manhola/Node						14			
	0.0		Wite	Water swit				1	. 5				
	1.1		DE.	Debrin	3.000.071.0	- In		1.0	1	1			
	11 GD Genetal observe				lion	15-1				BLOCKED IN MH	BY HEAVY DE	BRIS	
1.1 SA Survey abando				Survey abandoni	ad	- Y-		1	1	1	annino e se	10-0	
1.1 Ft Total Lar				ength Surveyed					1		- 22		
	Scores Stru			Structurel; Service;	Total 0 Total 180	Me	an C an C)ofe)efe	ct 0 ct 75	Peak 0 Peak 150	Moon Pi Menn Pi	pe 0 pe 136.4	



Pipe Graphic Rej	port of PLR 14	x	for	Bureau Verita	as NA	
Work Order Facility	Contract Oper	ator NJP	Vide Va	o- nRef 10	Setup Surveyed On	12 09/24/2012
Street Nama i Location type Surfece Survey purpose i	alovey Dr (Golf Course) Random survey of pipes and	City	Holb	ilie Weathor (λγ	
Pipe Uea Sentary Shape Circular Matarial Vitrified d Lining	lay	Schedule length Size 8 by Joint specing Year laid	FL FL FL	From 14 To 13 Direction Do Pre-clean N	Dept Dept westream Lest cleaned	lh Fi h Fi
General note Location note				Structural Miscellaneous	Service (Hydraulis	Constructional



CCTV pictures of 14 X Bor Bureau Verilan NA

Work Onter	Video	Burwyed On 09/24/2012	Direction Countrient	Setup 12
Street Name Failway Dr (Golf Course)	City Name Hatalia	Wa	ather Dry	
Location		From Manhole 14	To Manholis 13	

Dete: 0804/0012 Distance: 1.171 Obs: Detetts

Exernets



Pipel.ogix inc. Phone: 856-299-3150 Fax: 766-406-4023

abular	sbular Report of PLR 15				K.	for	Bu	rea:	u Veri	itae NA			
Work F	Order acility			Contract Operator	N,IP		Va	Vid In R	ef 10	Surveye	Setup 11 Surveyed On 09/24/		
Str Loci Survey	reet Name ation type Surface purpose	Fan Rem	way Dri	(Golf Course) vey of pipes and th	inga	City	Veal	iterit	Dry				
Pipe Use Senitary Shape Circular Material Vicified cay Lining					Schedian Size # by Joint Specing Year laid	gth im Fl		it.	From To Direc Pro-c	15 15 ction Up clean N Last Cle	Depth F Depth F Last Clasned		
Gener	ral note on note								Struct Misto	tural Bievica slavinous Hydraylic	Const	nuctional	
Video	Count	CO	Code	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	8	Sev	Fr	To	Value	e Romarka	1.1	1	
	0.0		ST	Start of Survey									
	0.0	-	MH	Manhisia/Node		1.				14		-	
	0.0		WE	Water level									
	1.0	-	00	tiebtin		14	1			中国新闻			
	1.0		00	General observat	ion					BLOCKED BY DEB	US IN MH.		
	1.0		BA	Survey abandone	ed .		1	100	11				
	1.0	FI	Totali	angth Surveyed									
	Score	s		Structural: Service:	Total 0 Total 150	Mo	an I an I	Defe Defe	et 0 et 75	Peak 0 Peak 150	Mean P Mean P	ipe 0 Ipe 150	

PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-6023

Tabular	Report	of PL	.R 15	×	5	for	Bur	reau	Veri	las NA				
Work	Ordar			Contract	-			Video		- Entering	Setup 10	-		
Str	eet Name tios type Surface	Fairy	way Dr (Golf Course)	108	City	y Ho	tvile ber	Dry	54194	yeu on week	a via		
Pipe Sh Mate	Use Sent tape Circu trial Vittle ning	tery Jar iec cla	y.		Sched leng Size 8 by Joint Spacing Year laid	¢h in Ft	F		From To Direc Pre-c	15 14 Hom Down Heam N Last C	Depth			
Gener	al note					-			Shirt Mrsce	ural Service Renocus Htydraul	Coniti Ic	votional		
Video	Count	CD	Code			Sev	Fr	To	Value	Remarks				
-11 m	0.0	1	ST	Start of Survey Menhole/Node		-W	F		1	15				
	0.0		WI.	Walter leviel	- Say -	l.			. 5					
	2.0		DEG	Debris (Grissan)			1		_			÷ –		
	4.0		DEG	Doprin (Gresse)		1.4	-	-		50% OF PIPE FUI	L OF GREASE			
4.0 GO General observa				General observation	ais			-		BLOCKED BY GR	EASE	_		
	4.0		5A	Survey abandone	d									
4.0 Ft Total Langth Surveyed														
Scores St		Structural:	Total 0 Total 300	Me	un D	lefect	100	Peak 0 Peak 150	Mean P	pe 0				

PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-6023

Pipe Graphic Report of PLR 15	x	for Bureau V	/eritas NA
Work Order C	Operator NJP	Video	Satup 10
Facility		Van Ref 10	Surveyed On 05/24/2012
Street Name Fairway Dr (Golf Co. Location type Surface Survey purpose Rendom survey of pi	rse) City	Hotvile	er Dry
Pipe Use Sanitary	Schedule length	Ft From 15	Depth Ft
Shepe Circular	Size & by	Ins To 14	Depth Ft
Material Vitified clay	Joint epecing	Ft Direction	Downstreem
Lining	Year laid	Pre-clean	N Last cleaned
General note		Studural	Service Constructional
Location note		Miscellana	ous Hydravito



CCTV pictures of 15 X for Bureau Vertas NA

Work Order	Video	Surveyed On 09/26/2012	Omether Downstream	Secup 10
Nevel Name Fairway Dr (Golf Course)	City Name Hothile	Wa	ather Dry	
Location		From Marshole 15	To Mantsule 14	

Deex 0004-0010 Between 2-076 Ota Outvio (Grasse)

Cohewate

Date: 08/2x2012 Distance: 4.0 Pt Ohe: General Observation

Comments: BLOCKED BY OREASE

PipeLogis Inc. Phone: 886-299-3150 Fax: 760-498-5623





Dete: 86/04/2012 Dete:ros: 4.0.Pr Obs: Detvic (Crosser)

Commente: SPS OF MPE FULL OF GREASE



Tabular	Report	of P	LR 16	3	<	for	Bui	reau	Veri	tas NA	110-11-11-11-11-11-11-11-11-11-11-11-11-	
Work	Order	10.50		Contract			1	Vide	•	E.2. 1.1.	Setup 9	-
F	acility		-	Operator (NJP		Va	in Ra	10	Sur	veyed On 09/24/	2012
Str Loca Survey	reet Name ation type Surface y purpose	e Fair I I Ranc	way Dr	vey of pipes and th	nga	Cit	y Ho Weat	ibille har	Dry			
Pipe Use Sankary Shape Croular Material Vibilisd clay Lining					Sched ie Size 6 by Joint Specing Year laid	ngth / in Pl	*	u	From To Direc Pre-c	15 16 ction Up claam N Las	Depth Depth depth	FI Ft
Gener	nal note on note				=				Shuct Misce	turel Skriv staneous Hydr	ce Constr sulic	uctional
Video	Count	¢Þ	Code	5		Sev	Fr	To	Value	Remarks		
	0.0		ST	Start of Survey					72	Prost Column 1		
	0.0	1.1	681	Manholehiode	- 23				82	15		
	0.0	1	WL	Water Invest			1.1		- 3			
	1.0		00	Gineral observat	ion .					1/5 MH 15 SUR	CHARGED NO A	CCES .
	- 33		DEG	Detets (Girsesit)		1				AT ENTRANCE	TO PPE	
	1.1		60	General observed	ian.					BLOCKED IN N	H BY TIGHT BEN	O.A.
	31		SA	Servey abandone	hd					1		
7.1 Fr Total Langth Burnaya		weigh Surveyed				i i			1124			
	Score	s F	-	Structural: Service:	Total 0 Total 150	Me	an D	efect	0	Peak 0 Peak 150	Mean Pi Mean Pi	pe 0 pe 135,

Pipe

PipaLogix Inc. Phone: 866-299-3150 Fax: 760-406-6023

Tabular	Report	of P	LR 17			for	Bu	nea	u Veri	tas NA	
Work Order Contra Facility Operato			Contract Operator	t Vide NJP Van R			eo ef 10	Survey	Setup 8 Surveyed Os 09/24/2012		
Str Loca Survey	eet Name ation type Surface purpose	Vist. Ranc	a Verde Jam surv	Dr ey of pipes and thi	ngs	City	y Ho Veat	itor	e Dvy		
Pipe Use Sanitary Shape Circular Material Vitrified clay Lining				Sched kin Size 6 by Joint Specing Yeer laid	gth In Ft	Ft Ins Ft		From To Direc Pre-C	17 16 Sion Down Soon N Leat Ch	Depth Ft Depth Ft n Leat Cleaned	
Gener	nal note an note								Strug	taral Service. Manecus Hydrauld	Constructions
Video	Count	CD	Code			Sev	Fr	To	Value	Remarks	
	0.0	120	MH	Manhoia/Node		1,000	1		200	17	
_	0.0		WL	Water Instal					3		
	14.9	-	DEG	Dettin (Greater)		1.1					
	23.3	_	DEG	Danis (Gesuse)		L			1	CONTINUING	
	35.1		DEG	Debrin (Gesese)		1.5				CONTINUING	
	41.1		GÖ.	General covervati	ith .			1		OS MH SURCHARD	ED DID NOT ATT
	41.2		GØ	General observal	pro-				1	BLOCKED BY GRE	ASE
	41.2		34 Survey abandoned								
41.2 Ft Scores		Ft	t Total Length Surveyed								
		• F	Structural: Sarvice:		Total 0 Total 450	Mean Defe Mean Defe			et 0 ct 112	Peak 0 5 Peak 150	Mean Pipe 0 Masn Pipe 10.1

· PipeLogix Inc. Phone: 888-299-3150 Fax: 760-406-6023

Pipe Graphic Report of PLR 1	×	for Bureau Ve	ritas NA	
Work Order	Contract	Video	Setup 8	
Facility	Operator NJP	Van Raf 10	Surveyed On 09/24/2012	
Street Name Vista Vorde Dr Location type Surface Survay perpose Random survey of J	City	Hotville Weather	Dry	
Pipe Use Senilary	Schedule length	Pt From 17	Depth Ft	
Shape Circular	Size 6 by	Ics To 18	Depth Ft	
Naterial Vibilied day	Joint specing	Ft Direction 5	Downstream	
Lining	Year laid	Pre-clean 9	N Last cleaned	
General note		Seuctural	Berves Constructional	
Location note		Miscellaneou	e Hydraulic	


CCTV pictures of 17 X for Bursou Veritos NA

When Online	Video	Barwayed Chr. 09/240/012	Desction Downshoam	Setup 5
Street Name Vista Verda Dr	City Name Histolle	***	uther Dry	
Location		From Manhole 17	To Manhole 18	

Dete: 08048010 Distance: 14,0 M Ube: Oxfork (Granae)

Comments



Desi: INDVD113 Destanon: 23.3 Pt Ober: Debris (Orseve)

CONTINUING



Date: 09/24/2012 Distance: 38.1 Pt Obs: Degra (Grasse)

Contente: CONTINUINO



Tabular	Report	STPLR 1	8 X		for	Bu	rea	u Veri	itas NA		
Work	Order		Contract	2042			Vid	80		5	atup 7
F	eculty	_	Operator N	LIP .		Va	In R	of 10	1	Surveyed	On 09/24/2012
Str Loca Survey	net Name stion type Surface / purpose	Vista Verde Random sur	Dr vey of pipes and thir	ige	CRy	v Ho Veet	avis her	e Dry			
Pipe Si Mate	Use Sank nepe Circul relat Vitrifi ning	ary Iar ad clay		Sched lengt Size 6 by Joint Specing Year laid	h In Ft	F	4	From To Direc Pre-c	18 17 ction Down clean N	Last Cle	Depth Ft Depth Ft aned
Gener	al note							Struct	tural ellangous i	- Hydraulec	Constructional
Video	Count	CD Code			Sev	Fr	To	Vatu	e Remarke		
Pour la company	0.0	- 67	Start of Skrives								
	0.0	MH	Mentusie/Node						18		
	0.0	WL	Water invel		-	1		3			
_	2.0	CC.	Citcular Grack		5	12	12				
	17.0	CN	Service Connection	ei -		03					
	10.1	DEG	Debris (Grease)		1.4			_	1		
	88.1	C	Concision of Cl		M	07	98			_	
_	77.5	CN	Service Connection	0	1	03			-		
	79.4	CN.	Service Connectio	n		68					
	140.0	0.6	Booin Pipe Seg.	10 10 10 10 10 10 10 10 10 10 10 10 10 1	1.1						
	147.5	CN	Service Cormectio	n		83	2	-			
	149.3	ÇN	Sarvice Connection	n	-	09		-			
21 M	1510	DF	End pipe sag		1.		1	1	1	_	
	197.7	25	Begin Pipe Sag		1_						
_	213.1	CN	Service Connecto	n		09			1		
	214.7	CN	Service Connecto	0	1	03	1		-		
_	220.8	60	General absorbed	17					LANGE OF	IMIS N D	5 AN+
	220.0	GÐ	General obtervals	in.				1	SAG CONT	前前部分	ROUCH MH
	221.8	MOH	Manhois/Node						17		
	221.8	FH	Finish of Suniage								
	221.8	Ft Total	Length Surveyed								
	Scores		Structural:	Total 200	Me	an C	Jole	ot 60	Peak	200	Meen Pips 1.4

ores [Structural	Total 200	Mean Defect 60	Peak 200	Meen Pipe 1.4
	Service:	Total 150	Mean Defect 75	Pank 150	Mean Pige 0.7

PIPE Ā

Pipe Graphic Report of PLR	18	x	for	r Bureau Verit	as NA	
Work Order Facility	Contract Operator	NJP	Vide Va	o nRef 10	Setup Surveyed On	7 99/24/2012
Street Name Vista Verde Dr Location type Surface Survey purpose Rendom survey	of pipes and thing	City	Hot	vila Wasther I	ית	
Pipe Use Sanitary Shape Circular Material Vitr≊ed clay Unlag	Ach Size Joir Yes	edule length fi by nt specing rriald	Pt ins F1	From 18 To 17 Direction Do Pro-clean M	Dept Dept wordream Lest claaned	h Fi h Fi
General note Location note				Structural Miscellaneous	dervice d Hydraufic	Constructional





Pipe Graphic Report of PLR 1	в Х	for Bureau Veri	tas NA
Work Order	Contract	Video	Setup 7
Facility	Operator NJP	Van Rof 10	Surveyed On 08/24/2012
Street Name Mata Vente Dr Location type Surface Survey purpose Random survey of	City	Habille Weather	Dry
Pipe Use Senilary	Schedule length	Ft From 18	Dapth Ft
Shape Circular	Size 0 by	Ins To 17	Dapth Ft
Material Vitified day	Joint specing	Ft Direction Do	xwnatmem
Uning	Year laid	Pre-clean N	Lest cleaned
General note		Structurat	Bervice Constructional
Location note		MaceTeneous	Hydraulic



0.01

CCTV pictures of 18 X Ser Burbau Ver tas NA

Work Croiw	Video	Burveyed On 09(24/2012	Describe Operation	Setter 7
Binet Name Visla Visch Dr	City Hame Huthills		Weather Dry	
Locetion		From Manhole 10	To Marthoir 17	
Des externers Desses 2011 Des Circule Cock	A CONTRACTOR OF THE OWNER OWNER OF THE OWNER OW	Internet DA/240012 Internet 17.2 Ft Inter Sames Consumer	ante antenante antenante Milita Internetionen de la constante de la const Constante de la constante de la	
Canada	A. T.			
Dess (Mithington) Diatance: 16.1 M Olie: Debris (Disaber)	auno ta a	Nete: 03/04/0012 Return: 68.1 Fr Nex: Contention of C	-1 COALS	14
Contract into:	Starting of the second		1 Jan	101
Date Mich.5012 Distance 77.6 P Obe Service Connection		hene Decivitional Tensense 70.4 Ft Nen Service Connection	and the second second	
Comments		-		

CCTV pictures of 18 X for Ikreau Veritas NA

Work Order		Video	Burwyyd On 09/24/2	th2 Desction Downstream Setup 7
Street Name Vista Vanle Dr	City Name Hub-Re			Weather Dry
Location			Prom Manholis 18	To Marihoin 57
New Oschwoorts Destance: MO.R Pl Des: plagte Pipe Sag	ne Tenter the		Dan: (604238) Dalaman 147.5 M Dis: Service Damacturi Gamments	
Data: 0904/2012 Distance: (45.3 F) Obs: Service Connection Committe:			Data: 9404(3012) Data: 161.0.11 One: End gen sog Cammenta:	Alla, T. Akina (A. 1913) Million and Anton Million anton Million anton Million anton Million anton Mil
Dana (1923-52172) Distance: 167,7 F1 Obs. Degin Pisc Seg	and a second state		Dem: (559+5012 Determe: (13.17) Obs: : Eavier Connectors	
Connect	ZOOK		Conners	and the second

CCTV pictures of 18 X for Bureau Vertian NA

Work Order	Videe	Surveyed On 00/04/2012	Direction Downlines	Betup 7
Street Name Vista Varde Dr	City Name Hohrite		unther Dry	
Location		From Machole.10	To Manhole 17	

Date: ISIO-2012 Distance: 214.771 Dist:: Sorvice Connection

Corverts



Swit;	090402112
Castor	IN 6.052 320.8 Ft
Db#	Galward chevrother
DOM:	

Cammanite

LANGE DEBRIE IN DS MIT



Tabular	Report	of P	LR 1	a	x	for	Bur	*a	u Veri	itas NA
Work	Order			Contra	et .			Vid	00 ef 10	Setup 5
Sta Local Survey	actiny reet Name ation type Surface y purpose	i Feir)) Raw	way Dr fom eur	vey of pipes and	linings	CH	West	itvia	e Dry	Surveyed Off Serzezziz
Pipa Si Nati	Use Sani hape Circl mint Vitrii ning	tary J <i>isr</i> lied cli	sy		Sched i Size 3 b Joint Specin Year laid	ength ay is g F	F	ť	From To Direc Pre-c	19 Depth Ft 16 Depth Ft clien Down clean N Last Cleaned
Gener Locatio	ral note on note				al diversi				Struct Misce	naal Service Controctional statiedus hydraulio
Video	Count	CD	Code			Set	Fr.	To	Value	e Remerka
	0.0		341	Manhols/Note:		110		100		10
	0.0		34	Want Invest						
_	20		DEG	Detrity (Greater	1	1.	1	_		
	28.9		DEU	Dennis Groger	4	L	-			CONTRAUBIC
	69.6	[D50	District (Developed)	l	- 1		1		CONTINUING
1.1	78.9		CB-	Break'in Come	cilion	-	12	-	-	
_	81.2		00	General observ	1008					DIS MH SURCHARGED DID NOT AYT.
	81.3	-	(III)	General observ	ation	-	-	_	-	INLOCAED BY GREASE
	81.3		SA.	Summy strende	thetd					
	81.3	Ft	Total I	Length Surveyor	•					
	Score	s		Structural: Service:	Total 45	0 M	en D	efe late	ct 0 ct 112	Peak 0 Mean Pipe 0 5 Peak 160 Mean Pipe 5.5

PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-6023

Pipe Graphic Report of PLR 19	×	for Bureau Verita	5 NA
Work Order Cr	Operator NJP	Video	Setup 5
Facility		Van Ref 10	Surveyed On 09/24/2012
Street Name Fairway Dr Location type Surface Survey purpose Random survey of pip	City es and things	Holtville Weather Dr	ry.
Pipe Use Smitary	Schedule length	Ft From 19	Depth Fi
Shape Circular	Size & by in	To 16	Depth Fi
Material Virified day	Joint specing FI	Direction Dow	networn
Lining	Year leid	Pre-clean N	Lest classed
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydrautic



Fax: 760-406-6023

PIPELOGIX

CCTV pictures of 10 X for Buresu Veriles NA

Wark Order	Video	Surveyed On DE247013	Direction Cowestman	Setup 5
Street Nome Fairway Dr	City Name Hutbille	**	alliar Dry	
Location		From Manhole 19	To Manhole 15	

Dem UN(%0000 Distance 2.0 r) Oter Octors (Grasse)

Constantia:

Deler 09/24/2012 Dielerenie IBLS Pr (Bis. Debra (Gretaro)

Communitie CONTINUING





Dami (1004-2013) Dataman (25.5 P) Otto: (Settis (Grana)

Comments: CONTINUING

Date: 09(2)(2012 Distance: 10.0 F1 Ote: Break is Constition

Committe





Tabular	Report	of P	LR 20		X	for	Bu	reau	Ver	tas NA		
Work Order Contrac Facility Downstor			NJP		V	Video In Rel	1 10	Survey	Setup 6 Surveyed On 09/26/2012			
Sta Loca Survey	eet Name tion type Surface purpose	Con Ren:	nino Ven Som svrv	ia Dr ay of pipes and th	ings	City	y Ho Vsat	itvite her	Dry			
Pipa Sh Mala Lir	Uee Sani ape Gree ria: Veni sing	lany ular Sed cla	ny.		Sched ion Size 5 by Joint Specing Year laid	gth In Ft		ť	From To Direc Pre-c	20 19 stion Down lean N Last Ci	Depth Depth eaned	Pt Ft
Generatio	al notil								tillnud Missix	tural Service Renératus Hyrizcuste	Construct	ional
Video	Count	CD	Code			Sev	Fr	To	Value	s Remarks		
	0.0	-	ST	Start of Sulvey		-						
	0.0	1	MF4	Manhole/Node		1			_	20		
_	0.0		304	Water Mont					1			
	1.0		- 5¢	Detroit		1.1.				沙谷毛 新生日丸1 (2)	Dill 1	
	1.1		30	Denanel obsence	541					CHE MH BEND 700	TIGHT OF THALS	a
	1.1.1	-	1997	General observat	fot					ILOCKED BY DES	9.8	
	1.1	1	5A	Birriey abendone	R.							
	1,1	Ft	Totai L	englik Survayed						hi		
Scores		3		Structural: Service:	Total 0 Total 150	Ma Ma	en D en D	Nefact	0	Peak 0 Peak 150	Mean Pipe Mean Pipe	0.

PIPE

Pipe Graphic Report of PLR 20	X	for Bureau'Ve	ritas NA
Work Order Cont Facility C	inact Iperator NJP	Video Van Ref 10	Setup 5 Surveyed On 09/26/2012
Street Name Camino Verde Dr Location type Surface Survey purpose Random survey of pipes	City and things	Holtville	Dry
Pipe Use Sanitary Shape Circular Material Viviliad day Lining	Schedule length Size 8 by Joint specing Year leid	Ft From 20 ins To 19 Ft Direction Pre-clean	Depth Fit Depth Fit Downstmam N Last cleaned
General note Location note		Sauctural Miscelarioou	Sirvice Constructional & Hydraulic



CCTV pictures of ;	20	X for	r Buteau V	eritas NA
and the granted and days				

Work Orther	Video	Burveyed On 09/04/2012	Direction Downstimant	Satisgi 6		
Street Name Casting Vecto D1 City Name Politike		Wunther Dry				
Location		From Manhole 30	To Mantole 19			

Data: WONDOT? Differen: 1,011 Dire: Dates

PPE 80% FOLL OF DWIT

ALC: N			
0			222
		1	sc).
	-	444	180

abular	Report	of Pi	R 2		×	r;	70	Bui	1831	u Veri	tas NA	_	1400000	
WORK	Criter			Contrac				10-	VIDA	10			Setup 3	0010
Street Name Fairway Dr Location type Surface Surface			hings	City Holbilie					ter 10 Surveyed On 09/24/2			(2012		
Pipe Usa Sanitary Shape Circular Material Vitrified day Lining			Sche Size 8 Joint Spa Year Iai	Sched langth Ft Siza B by ins Joint Spacing Ft Year laid			From21 Depth To 19 Depth Direction Down Pre-clean N Last Cleaned		Pi Pi					
Locati	on note	_								Misce	laneom	Hydrat	uía	ructiona
Video	Count	CD	Code	0		2	Sev	Fr	To	Value	Roman	kis		
	0.0		\$1	Stat of Survey					1		÷			
	0.0		MH	Menhole/Node							21	_		
	0.0	-	M.,	Water Rever	_		_			3		_		_
	8.1		\$€a	Datina (Grease)			4							
	30.2		CB	Break in Connes	chion		_	尿			-			
	40.7		CN	Service Connect	bon			83						
	43.8	11	GN	Service Connec	tion			09		1				
_	65.6		DEC	Osbris (Grosse)			1				CONTR	CHHIG		
_	101.8	- 1	C/RA	Ropta erstand La	110-10		1	12	_					
_	102.1		CB	Break in Connec	choix.			12				_		
_	112.4		CN	Bervice Connec	boa			63	1					
_	115.3		CN	Service Connect	látáni		1	69	6	· · · · ·				
	1 557.2		020	Dobrist (Greense)			$ \mathbf{k}\rangle$		Ň		CONTR	CINICS.		
_	134.2		90	General observa	than .	-					RLOCK	ED BY HE	医高导性 结相医病结白	
	134.2		5A	filming attaindon	ent					1				
	134.2	Ft	Total 1	ength Surveyed										
	Scores	F		Structurel: Service:	Total	0 625	Mai	in D	iste Nife	ct 0 ct 105	Par	k 0	Maan P Mean P	me 0 me 3,9

Pipe Graphic Report of PLR 21	X	for Bu	reau Veritz	as NA		
Work Order 4 Fecility	Operator NJP	Video Van Ref	10	Satup 3 Surveyed On 09/24/2012		
Street Name Fairway Dr Location type Surface Survey purpose Random survey of c	City	Holtville	Wanther E	λų.		
Pipe Use Sanitary	Schedule length	Ft Fro	im 21	Dept	n Fi	
Shape Circular Material Virified clay Lining	Size 8 by Joint specing Year laid	ins Ti Fi Dir Pre	o 19 ection Dov -clean N	Oept: Anstream Last cleaned	- E	
General note Location note		Ser Mi	uctural scellaneous	Service C Hymrauna	onstructional	





CCTV pictures of 21	× .	for Bureau Veritan NA
		THE REPORT OF A PARTY

Wark Onter	Videp	Surveyed On 09/04/001	Direction Downstraim	Setup 3
Street Name Fairway (2	City Nerve Hotolis		Weather Dry	
Localiton		Prom Manhole 21	To Manhole 19	
Ante: 06/04/30/11 Destantes: 3.171 Dis: Detrie (Conser)		Dete: 002/0/2012 Demense: 20/2 Fi One: Break to Connection		
Date: 18/04/2012 Detainer: 43.7 Ft Die: Bereins Connection Generation		Owne DWINDUTU Distance 45.511 Opr Service Connection Comments	mar.i: 0x44est (1.0) no.ite Concertian) -13 no.	
Date (p(G42012) Datemen (K.S.A) Clas. (Seewe)	an a	Dame Ostosofoto Distances 101.0 P1 Ohisi Motifs second Lateral Commenta		

PipeLogix Inc. Phone: 866-299-3150 Fax: 760-408-6823

CCTV pictures of 21 X for Bursau Voritas NA

Work Order	Video	Surveyed On 09/24/2012	Direction Downstreem	Setup 3	
Street Name Fairway Dr	City Name Holtylin		Weather Dry		
Location		From Masshole 21	To Manibole 19	_	
hale: BiblyASUP;2 Hatamon: 152,114 Ster: Brasil is Castrocher	Deter Dete Deter Deter	- IBL2401173 Benica Connectors			
Convents		-	1	1	
Delen 09/24/2012 Delaner: 115.3 Fr Ote: Seven Convector	Den	(0404001) area: 1172 Fi Detris (Graane)	na diana itan Ma	1	
Comments	Com COM	TINUNG			
tara: 18040000 Nationali 104.2 Ft Nationali Converticosoriation		1			
Commental RLOCKED BY HEAVY GREADE	And and a set of the s				

Tabular	Report	of P	LR 21	1	x		for	Bur	ea.	u Veri	tas NA			
Work	Order			Contract	NIP			Ve	Vide n Re	io af 10		Sarvey	Setup 4 ved On 08/2	4/2012
Street Name Farway Dr City Holtwile Location type Surface Survey purpose Random survey of pipes and things Weather Dry														
Pipe Use Senitary Shape Circular Material Vitrified day Lining				Size 8 Joint S Year	had lengt by pecing laid	h Im Pl	F1	L	From To Direc Pre-c	19 21 tion Up lean N	Last C	Depth Depth	FI FI	
Gener	ral note on note									Sind Misco	ural Nanecius	Service Hydrauli	Cona	tractional
Video	Count	CD	Code				Sev	Fr	To	Value	Remar	ks		
0.000	0.0	-	ST	Start of Survey			1.00							
	0.0		MH	Manhole/Node	_						19			
	0.0	-	WL.	Weller level						. 3	<u></u>			
	61		CN	Service Connect	601			03						
	6.0	-	Diff:	Dabris (Repuse)			5				2			
	33.8		0.90	Debca (Olsase)			L				E			
	33.8		C+D	General observa	tio#						BLOCK	ED BY GR	EASE	
	33.6		SA	Survey abandon	ed		13				S			
	33.8	Ft	Total L	ength Surveyed	- Gene									
	Score	s		Structural: Service:	To To	tet 0 tet 300	Me Me	an D an D	afer	ci () zi 100	Per	ak 0 ak 150	Mean F Mean F	Nipe 0 Nipe 6.9

PipeLogix Inc. Phone: 666-299-3150 Fax: 760-406-6023

Pipe Graphic Report of PLF	1 21 X	for Bureau Verita	is NA
Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 4 Burveyed On: 09/24/2012
Street Name Fairway Dr Location type Surface Survey purpose. Random surve	City s of slows and things.	Holvile Weather O	lity
Pipe Use Senitary	Schodule length	Ft From 19	Depth Ft
Shepe Circular Material Virified day	Size 8 by Joint specing	ins To 25 Fi Direction Upo	Depth Ft straam
Lining	Year laid	Pre-clean N	Last cleaned
General note Location note		Seudural Misorianeous	Service Constructional Hydraulic



OCTV pictures of 21 X for Bureau Ventas NA

Work Order	Video	Surveyed Die 09/24/2012	Direction Upstraam Setup 4		
Servet Name Fairway Dr	City Name Instylle	w	wither Dry		
Location		From Manhola 13	To Manhols 21		

Date: 09/040/012 Chatanos: 6.171 Obs. Service Connection

Commenter

Deter (NOACOC) Distance: 33.6 % Obs: Dobris (Ground)

Gasemente



Date: IB634/0017 Distance: 810 Ft Glos: Dabto (Grosse)

Committee

Date: 09242013 Distance: 33&9t Obs: General observation

Commente: DLOOKED BY GREASE





Tabular	Report	of P	LR 22	2	<	for	Bu	reitti	Veri	tas NA		
Work	Order			Contract	1	Video			0	Setup 1		
F	acility			Operator	NJP	Van Ref 10			1 10	Surveyed On 00/34/2012		
Sit Loca Survey	eat Name ation type Surface y purpose	e Fair I I Rena	way Dr dom sur	vey of pipes and th	ings.	Chy	y Ho Neat	ltvile ther	Dry			
Pipe Use Sanitary Shape Circular Material Vizilled day Lining				Schedien Size 8 by Joint Spacing Year laid	diength Ft by Ins Ling Ft			From To Direc Pre-c	22 Depth Fi 21 Depth Fi fligh Down fleen N Lent Cleaned			
Genor	nsi nate U on note	IS MH	has no	lid. Mil an large ar	neum of dirt				Misce	ural Service Contenctione elaneous Hydrautic		
Video	Count	CD	Code			5av	Fr	To	Value	Remarks		
_	0.0		- 51	Start of Survey								
	0.0		1494	Merbole/Nocie						22		
	0.0		266	Water layer								
	0.0		DE	(Dyers)		160	1			NJ 3204		
	10	-	30	Debris	<u> </u>	1 L				90% OF FIPE AT MH		
	10		GO	General observal	ion .		1			BLOCKED BY DEBRES		
	1.0		SA Survey abandoned									
	1.0	Ft	Total L	ength Surveyed								
	Score	s	_	Structural: Sarvice:	Total 0 Total 225	Ma Ma	an D an D	Jefec Jefec	1 0 t 75	Peak 0 Mean Pipe 0 Peak 150 Mean Pipe 22		



Pipe Graphic Report of PLR 22	x	for Bureau Verit	as NA
Work Order C	ontract	Video	Setup 1
Facility	Operator NJP	Van Ref 10	Surveyed On 09/24/2012
Street Name Fairway Dr Location type Surface Survey purpose Rendom survey of p	City per and things	HolMile Weather 4	2m
Pipe Use Santary	Schedule langth	Ft From 22	Depth Ft
Bhapa Circular	Size 8 by	Ins To 21	Depth Ft
Material VitriSet cipy	Joint epscing f	Ct Direction Dow	wnetroom
Lining	Year laid	Pre-clean N	Last cleaned
General note US MH has no lid. MH a	s large amount of dirt	Stradural	Sanvice Constructional
Location note		Miscelaneous	Hydraulic



Fax: 760-406-6023

CCTV pictures of 22 X for Illurosu Voriton HA.

Work Online	Video	Barwyed Dn 39242012	Direction Operations	Setup 1
Street Name Fairway Dr	City Name Hutville	-	all'er Dry	
Location		From Manhelia 22	To Marbale 21	

Date: 05042172 Deterrie: 1.0FR Obs: Detro

Comments: SOL OF MPE AT MH



PipeLogis Inc. Phone: 885-299-3150 Fax: 700-406-5023

Tabular	abular Report of PLR 22 X				\$	for	Bur	188	u Veri	tas NA			
Work	Order			Contract	Sec. 2.1		Video				Setup 2		
F	acility			Operator 1	V. (P ⁴	_	Va	n R	of 10		Surveyed On 09/24/2012		
Str Loca Survey	Street Name Fairway Dr Location type Surfece Survey purpose Random survey of pipes and things						City Holtville Weather Dry						
Pipe Use Sanitary Shape Circular Noterial Vitrified day Lining				Schedion Size 8 by Joint Specing Year laid	d longth Ft by ina sing Ft			From To Direc Pre-c	21 22 flon Up lean N	Lest (Depti Depti Seaned	n Fi Fi	
Gener	al note								Misce	ura) Naneous	Hydrau	la C	analructon
Video	Count	CD	Code	ē		Sev	Fr	To	Value	Remark			
	0.0		57	Start of Survey							_		
	0.0		MH	Manhoie/Node						21	_	_	
	00		WL.	Water lovel	a		-		0				
	5.0		DEG	Debris (Grease)		M							
	9.4		CB	Break in Connact	on		10		1	·			
	11.7	1	DEG	Detrin (Grenere)		1.12	L						
	26.6		CN	Service Connecto	an.		63						
	34.5		CN	Service Connecto	271		00			LARGE	DEBRIS I	N LATERU	Ľ
_	45.0		CP	Plygget Connecti	on		99			100	0212-000		
	47.8		CP	Plugget Connect	00		63				12.2		
	53.1		DEG	Debrin (Greano)	YIN	1				CONTIN	UNG		
	74.3	L	CC	Girailer Crack		M	12	12					_
	74.0		CL.	Crack longitudinal		M	50						
	75.3		CB	Break in Connect	on .		30	1				_	-
	76.0		GL	Crack longiturine	1	\$	12						_
	97.9		DEG	Debris (Grease)		11				CONTIN	UING		
_	103.2	1	CN	Sanice Connection	an.		-03		1				_
	111.1		CN	Service Connectk	m		60				_		_
	1134		CP.	Plugged Connect	on		412						
	179.3		GN	Service Connects	an .		69				_		
	197.1		CN	Service Connects	n	_	69						
	197.1		DE	Dethrin	1	1.				FIPE 80	% FULL C	FORT	_
	197.1		GO	General observat	00					BLOCKE	DBYDE	BRIE	
	197.1	1	SA	Survey abendone	d			1					
	197,1	FI	Total	ength Surveyed									
	Score	s		Structurel: Service:	Total 400 Total 675	Ma Me	an C an D	lefe lefe	ct 50 ct 112,	Pea 5 Pea	k 150 k 150	Mu	an Pipe 2 an Pipe 34

Pipe Graphic Report of PLR	2 X	for Bureau Ver	itas NA
Work Order	Operator NJP	Video	Setup 2
Facility		Van Rof 10	Surveyed On 08/24/2012
Street Name Fairway Dr Location type Surface Survey purpose Random survey of	City	HotHie Weather	Day
Pipe Use Sanitary	Schedule length	Fi From 21	Depth Ft
Shape Circular	Size 8 by	ins To 22	Depth Ft
Meterial Vitrified clay	Joint specing	Fi Direction U	prineam
Lining	Year laid	Pre-clean N	Lest cleanad
General note		Sinctural	Service Constructional
Locatica note		Miscelaneous	Hydrautic



Pipe Graphic Report of Pl	LR 22 X	for Bureau Ven	itas NA
Work Order	Contract	Video	Setup 2
Facility	Operator NJP	Ven Ref 10	Surveyed On 09/24/2012
Street Name Fairway Dr Location type Surface Survey purpose Random sur	City	Hollville Weather	Dry
Pipe Use Santary	Schedule length	Ft From 21	Depth Ft
Shape Circular	Size 8 by	Ins To 22	Depth Ft
Material Vibilied cley	Joint specing	Ft Direction U	pairsam
Lining	Year laid	Pre-clean N	Last cleaned
General note		Sirucanai	Bervice Constructional
Location note		Miscetaneau	Hydraotic



DCTV pictures of 22 X for Ecrosu Veritas NA

Wurk Onler	Video	Surveyed On 09/34/201	 Dew New Upstram 	Sell-(0.2
Street Harrer Fairway Dr	City Name Holtville		Weather Dry	
Location		From Manhole 21	To Hanhole 22	
line (#04001) Sidates 1.0 Fl Die Debie (Geame)		Determine 3-4 Pt Office Brook in Connection	5	
Comment	and and and		\bigcirc	1
Deter Oscaldulla Deter Oscaldulla Deter Deter (Groupel		Data: 00/240012 Bittomen 26.0 Ft Obs: Service Consection		
Comments:		Comments		
Deta: 09/24/2012 Deta::::::::::::::::::::::::::::::::::::	California (11)	Salar Alabertoni Salar 45,07t Ober Prograd Connection	de serend our	
Commente LARGE DEBRIS IN LATERAL		(more the second s		

CCTV pictures of 22 X for Bureau Vorian NA

Work Onlar	Video	Serveyed On 08/04/001	2 Dentifier Upstroam	Setup 2
Street Name Fairway Dr	City Name Hotella		Weather Dry	
Licetion		From Manhole 21	To Munhole 22	
New: 040+0210	STATISTICS IN CONTRACTOR	Date: 03/24/2013		
Distance: 47.5 Th	the second second	Distange: 53.1 Pt	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Disa. Phagod Cornectur		Otom: (United)		
Commente	the state of the	Convertis:		
		CONTINUE		
Damer Distanzinz		Date: Decordati		
Distance: 74.2 Ft Obe: Citoulor Crask		Obst. Crock long/µChai		
Connertia:	nia.	Comments:	19	an l
Annie 10204/2012 Datamen 76.3 FL Oka Brack in Companyo	-	Date: 19/040012 Date: 28.0 Pt Ote: Cach Mondhay	1111 1284 1115 2112 21 21 21 21 21 21 21 21 21 21 21 21	
		1		

CCTV pictures of 22 X for Bursau Veritas NA

Work Order	Video	Surveyed On OBD4001	Describen Uppersam	Bettep 2
Street Name Fairway Dr	City Name Pathole		Winathin Dry	
Location		From Manhole 21	To Marchole 22	
Inne (1954-004) Polanese (7.9 Pr Des Debrie (Grane)		Date: 06050010 Distance: 103.2 Pl Obs: Denks Comuchus		
tommente: SONTIMUMOS		Convertie:		24
Dete: DAV2A/2013 Distantial 111.1 Fi Dist. Service Constellars Terminal 111.1 Fi	Children and an	Debe: 09/24/2013 Distantial: 113.4 Pl Obs: Physical Committion		
Community		Comments	in the state	
New: DADAQ012 Intelement 179.3 P1 Ultra Service Connection	a section of the sect	Deles: (Billinkabrid Distance: 157.1 F1 Olis:: Service Connector	and a second second	
Common		Commente:		

CCTV pleturee of 22 X for Bureau Vertex NA

Work Order	Vicieo	Surveyed On 06/24/2012	Direction (April 1997)	Sittig 2		
Street Name Forway Dr	City Harna Ykstella	Weather Dry				
Location		From Manhole 21	To Manhole 22			

Den: 04040013 Distance: 197,171 Nov: Dates

Conservations INFIE BOYS FULL OF DIRET



PipeLogis Inc. Phone: 856-295-3158 Fax: 760-401-0023

Tabular	Report	of P	LR 23	£	x	for	Bu	reat	ı Veri	tas NA		
Work F	Order			Contract Operator	t NJP	Video Van Rei		en 10	Surveye	ietup 17 d On 09/25/	2012	
Sto Loca Survey	tion type Surface purpose	s Fain Rand	wey Di Jom sun	vey of pipes and If	wigs	Cit	y Ho Nest	itvilie Itor	Dry			
Pipe Use Sanitary Shape Circular Material Vitrified day Luning					Sched len Size I by Joint Specing Year laid	gth In Fi	•	ł	From To Direc Pre-c	23 15 Stion Down Stean N Last Cle	Depth Depth aned	PI PI
Gener	note				in concentration				Struct Misca	tural Service Elemenus Hydraulin	Consta	uctiona
Video	Count	CD	Code			Sev	Fr	To	Value	Remarks		_
	0.0		87	Start of Survey		1	1		1	age and a second s		
	0.0		MH	Manhole/Nede		_			·	23	_	
	0.0		WL.	Water Texnel			1		3	-10		
	2.0		OEG	Detsin IDeseno		4		1	-			_
	2.0		GO	General observa	dian					BLOCKED BY DEER	1.1	
2.0 SA Burvey abandor				ed				1			_	
2.0 Pt Total L				ength Surveyed								
Scores		s		Service:	Totel 0 Total 150	Ma	an C) efec	1 0 1 75	Peak 0 Peak 150	Mean Pig Mean Pig	0 0 08 75

PipeLogix Inc. Phone: 856-299-3150 Fax: 760-406-8023

Pipe Graphic Report of PLR 2	3 X	for Bureau Ve	eritas NA
Work Order	Contract	Video	Setup 17
Facility	Operator NJP	Van Rof 10	Surveyed On 09/25/2012
Street Name Fairway Dr Location type Surface Survey purpose Random survey of	City	Holtville Weather	Dry
Pipe Use Senitary	Schedule length	Pt From 23	Depth Ft
Shape Circular	Size 6 by	Ins To 15	Depth Ft
Material Vitrified city	Joint spacing	Pt Direction	Downsiream
Lining	Year faild	Pre-clean	N Last cleaned
General nois		Structural	Service Constructional
Location note		Modelianeo	us Hydraulic



Work Order Contract			Video Vice Part 1			60 at 10	Surve	Setup 16 wed On 09/25/2012				
Stri Loca Survey	et Namo tion type Surface purpose	Fairv	way Dr	wy of pipes and the	ngs	City	Voat	her	Dry		100 011 012012012	
Pipe Use Senitary Shape Circular Material Vitrified clay Lining					Sched length Size 6 by Inc Joint Specing Ft Year laid			Pt Fro I T Di Pr		24 23 tion Down Isan N Last (Depth Ft Depth Ft Last Cleaned	
General	al note n note								Struct Mince	ural Service Itaniecus Hydrau	Constructional	
Video	Count	¢0	Code			5ev	Fr	To	Value	Remarka		
- 1 Y UF	0.0	100	(IT	Start of Survey		12	-	-	1000	CONTRACTOR -		
	0.0		MH	Mantiole/Node				_		24		
	0.0		WL.	Weter loopi		_		1	5			
	18,1		DEG	Genns (Grann)		8		_		k		
	45.0		0ft	Ocoria		45						
	103.3		5E	Detrie		M.				CONTINUING		
=	126.0		DE	Definia						CONTINUING		
	159.5		CUB	Camera Submerged Bagin General observation								
	189.9		60							BLOCKED BY DEMINE		
	159.9		SA	Survey abandone	d							
		1.1.1.1	121-121-121-121									
	159.9	Ft :	Total L	ength Surveyed								

PIPE

Pipe Graphic Report of PLR 2	4 X	for Bureau Verit	as NA
Work Order	Contract	Video	Setup 18
Facility	Operator NJP	Van Ref 10	Surveyed On 09/25/2012
Street Name Fairway Dr Location type Surface Survey purpose Random survey of	City	Halville Weather	Diy
Pipe Use Sanitary	Schedule length	Ft From 24	Depth Ft
Shape Circular	Size & by	Ins To 23	Depth Ft
Material Vitrified clay	Joint spacing	Pt Direction Do	wnstieam
Lining	Year laid	Pre-clean N	Last cleaned
General note		Structural	Service Constructional
Location note		Macelaneous	Hydraulic



Fax: 750-406-6023

CCTV pictures of 24 X for Dureau Vertax NA

Work Celler		Vide	B Surveyed On 175	05:2012	Direction Constituent	Setup 18			
Bread Name Fairway Dr		City Name Hotville	Weetbor Dry						
Incation			From Manifelie 24	To Manholie 23					
New INSIGN	والمراجع المراجع الم	100	Danie Okdantzela Danie okdantzela			100			
Debts (Grand)	通信な	100 Million (1991)	tites Detrie	Siderer.	test.	100			

Comments:

Date: SHOWINGS Distance: 1013.3 Ft Obsi Drami

Commantia: CONTINUME





Ole Outrie

Commercia:

Delle ShONYON? Distance: 125.0 Pt Ohn: Daties

Cianiments: CONTRACTOR





FipeLogiz Inc. Phone: 868-299-3158 Fax: 760-408-6023

Tabular	Report	of P.	LR 25	5)	£	for	Bur	'ea	u Veri	tas NA		
Work Order Contract						Video Setup 19						
Facility Operator N.P							Va	nR	ef 10	Survey	Surveyed On 09/26/2012	
Sti Loca Survey	ation type Burface purpose	Rand	way Dr tom sur	vey of pipes and thi	ngs.	CH	r Hol Vezti	itvile hær	e Dry			
Pipe Use Sanitary Shape Circular Material Vitrified day Lining					Sched length Ft Size 8 by ins Joint Specing Ft Year Iald			From To Direc Pre-c	24 25 tion Up Ison N Last Cl	Depth Ft Depth Ft Last Cleaned		
Gener	ral note on note								Struct Misco	ural Eschica Itaneous Hydrautic	Constructional	
Video	Count	CO	Coda			Sev	Fr	To	Value	Remarks		
1.011115	0.0	1.55	ST	Blart of Survey		1			1000			
	0.0	1	MH	Manhole/Node		1				24		
_	0.0		WIL.	Water Hower					. 9			
	31,1		DEC	Dotters (Dreaser		N.			-			
	41.1		CB	Bress in Connecti	on.	_	08			LATERAL HAS DEBRIS		
	72.3	1	CB.	Break in Connecti	¢n	-	12	_				
	104.5		CB	Break in Connecti	on		12					
_	122.0		CXC	Connection defect	ive:	L	100			LARGE DEGRIS FR	OM LATERIAL	
	122.0		CB	Break in Contecti	00	-	09					
	187.7		CN	Intruding Laterel	1	5	12	-	0010			
	187.8		CB	Break in Connecti	on		12					
	192.9		CP-	Plugged Connecti	0/1		10			_		
	272.8	1.3	(>	Plugged Gomect	@1	1	10	1.18				
_	283.6	1	CL	Creck ionaltudinel		S	12	1.1	-			
	283.5		CNI	Intructing Lateral	2	\$	12		0005			
	283.8		C8	Break in Connecti	00		12		1000			
	148.6		10	Roots at jost		1	1		1	TAP SOGTE		
	350,1		CR	Flocis trom lateral		1.	12			LARGE TAF NOOTS		
	350.1		CB	Break in Connecti	αn		17	-	1.11			
	350.1		100	General observation	50 S	1				REDCKED BY LARC	SETAP ROOTS	
	350.1		54	Survey abandante	ð							
	350.1	7t	Total	ength Surveyed								
	Score	• [Structural: Service:	Total 400 Total 250	Mo	an D an D	efe	at 30,5 at 112,5	Peak 150 Peak 100	Mean Pipe 1.1 Mean Pipe 0.7	

PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-6023 .0
Pipe Graphic Report of PLR 25	×	for B	lumau Verita	IS NA	
Work Order G Facility	Operator NJP	Video Van Re	ef 10	Setup Surveyed On	19 09/25/2012
Street Name Fairway Dr Location type Surface Survey purpose Rendom survey of p	City less and things	Holtyle	Weather D	Y	
Pipe Use Sanitary	Schedule length	Pi Pi	rom 24	Dept	h Pi
Shape Circular Material Vitrilied city Lining	Size 6 by Joint epecing Year laid	ina Ft D Pr	To 25 Irection Ups re-clean N	Dept tream Lost cleaned	h R
General note Location note		S	āructurai Ascelītarietus	Service (Hydraulic	Constructional





C ACCH P R

١,

į.

Pipe Graphic Report of PLR 25	×	for Bureau Ve	ritas NA
Work Order G	ontract	Video	Setup 25
Facility	Operator NJP	Van Rof 10	Surveyed On 09/25/2012
Street Name Anderhoft Rd Location type Surface Survey purpose Random survey of pi	City ces and things	HotMile Weather	Dey
Pipe Ues Sanitory	Schedule length	Ft From 25	Depth FL
Shape Circular	Size 8 by	Ins To 24	Depth FL
Material Vitrified cley	Joint specing	Ft Direction	Downstream
Lining	Year laid	Pre-clean	N Last cleaned
General note		Structural	Service Constructional
Location note		Miscolaneos	us Hydraxic



CCTV pictures of 25 X for Bureau Veritas NA.



CCTV pictures of 25 X for Sursau Ventas NA

Work Order	Video	Burweyed On Oli/25/2012	Direction Upstream Setup 19
Street Name Forway Dr	City Manue Holoible		Weather Dry
Location		Pears Manhele 24	Te Manhole 25
late (4000012		Cate: 00/19/09/0	
listanue: 587.7 Ft	CONTRACTOR OF A	Gistanen 132.8.F1	
Sher: Initiating Lateral	(1) (1) (1)	Office: Break in Govraction	22
Semenente:	Ar I	Comm	
Date: INVESTIG		Date: 08/34/3012	And a state of the
Obs. Plugget Convector		Oles Pagged Connection	the state of the s
Continuentar		Commente	
Salar WOSSING	A 434 0 10	Date: MOSETVE Federer: 2010/1	gener motal in w
Ole Crack krytudnu	Construction and Construction	Obe: emuting Loans	1
Communit	and the second	Courses	150
100	1000	13	A Maria

CCTV pictures of 25 X for Bureou Veritan NA

Wark Order	via	se Surveyed On 09/25/201	2 Dimethan Upstream	Setup 19
Streat Name Fairway Dr	City Name Institute		Weather Dry	
Location	-146-150	From Manhola 24	To Washole 25	
Dens andreament	A STATISTICS	Demi motetaria	Sin agent to a	
Obe Brysk In Connection	B. M.	Ohn: Roots at post	1/C	
Conversion .	1	Camparter TAP ROOTS		$J_{\rm c}$
Data: BICTU2012 Data:rook 320-1 Pt		Data: 09/05/2012 Data:e: 29/05/2012	ED.EXA	
Office : Pacela porti laterca		Deal Byeak in Connector	A Pr	

LAAGE TAP ROOTS

PipeLogis Inc. Phone: 866-290-3150 Tex: 760-406-6023

Tabular	Report	of Pl	R 25		×	f	ा	Bui	eau	Veri	itas NA
Work	Order			Contract					Vide	0	Setup 26
F	scillty			Operator	NJP*			Va	n Ke	(10	Surveyed On 0925/2012
Local	stion type Surface y purpose	s Andi S Rand	erholt R/	d nev of place and it	inge		City	Vent	itylin her	Dry	
Pipe Si Mutu U	Use Smi hape Circi arial Virif ning	tary ular Ned cla	y		Site é Joint Spi Year le	ed length by scing id	ini Ft			From To Direc Pre-c	23 Depth Pt 24 Depth Ft cifen Down olean N Last Cleaned
Gener Locatio	nat note				1A)		_			Smud Misca	tural Service Constructions effaneous Hydrau@c
Video	Count	CD	Code				Sev	Fr	To	Value	e Remarks
	0.0	1	\$1.	Start of Survey		144244	10.1	4		121	
	0.0		MH	Manhole/Node							25
	0.0		WL.	Waterlever		-				3	
	29.5		TR.J	Roote ac print.			L	1			LARGE TAP ROOT
	21.3		CP	Plugged Connec	tion	2007		03		-	
	31.9		GO	General observa	ton						POSSIBLE BREAK IN CONNECTION
	33.9		GO	General observa	501						REACHED OVERLAP POINT
	31.9		5A	Survey abandon	ed	1.1				1.5	
	31.0	Ft	Total L	ongth Surroyed				•	. 1		
	Score	۰F	3	Structural: Service:	Tota	1 0 1 100	Ma Ma	an C an C	Asfac Jefec	1 0	Peak 0 Mean Pipe 0 Peak 100 Mean Pipe 3.1



Pipe Graphic Report of PLR	25 X	for Bureau Veri	tas NA
Work Order	Contract	Video	Setup 26
Facility	Operator NJP	Ven Raf 10	Serveyed On 06/25/2012
Street Name Anderholt Rd Location type Surface Survey purpose Random survey	City of pipes and things	HolMile Weather	Dry
Pipe Use Sanitary	Schedule length	Fl From 25	Depth FL
Shape Circular	Size & by	Ins To 24	Depth FL
Material Vibilied city	Joint spacing	Ft Direction D:	Swnatraum
Lining	Year laid	Pre-clean N	Last cleaned
General note		Silvetural	Service Constructional
Losation note		Mixelaneoux	Hydraulio



CCTV picturus of 25 X for Bureau Ventes NA

Wark Order		Visioo	Surveyed On 00/25/201	Direction Downstream	Setup 31				
Btreet Name Avalance Rd City Name Hotolike Location			Weather Dry						
			Prom Manhole 25	To Menhole 24					
lana (MCSJON) Malance: 20.8 Ft New Noos ar joint	HE AL	Data Data Data	e moscutut menti 213 R Rugged Connection	2	2				
Commente: ARGE TAP ROOT		C3	- 1						
Commente: LARGE TAP ROOT		6	_	-41					

Tabular	Report	of F	LR 26	3)	ę	for	Bu	rea	u Vert	tas NA			
Work	Ordar			Contract				Vid	00		8	ietup 21	
F	acility			Operator 1	40P	Van Ref 10					Surveye	d On 09/25/	2012
Str Loca Survey	reet Name ation type Surface y purpose	a Ank a a a Ran	demoit R	d vey of pipes and the	ngu	City	y Ho Neat	ibili her	e Dry				
Pips Si Mate Li	Use San hape Circi anial Vitil ning	tary ular fied c	lay		Sched leng Size 8 by Joint Specing Year laid	ith in Ft	. F	t	From To Direc Pre-c	20 25 Stion Down Jean N	Lest Cie	Depth Depth aned	Ft
Gense	eton im on note								Struct Misce	ukal I Ilaneous H	ienvicki lydiautic	Cansey	<i>ictional</i>
Video	Count	CD	Code			Sev	Fr	To	Value	Remarks			
22.001-022	0,0	1	ST	Start of Survey			100		1.000				
	0.0		14H	Manhule/Node						26			
	0.0		WL	Walet level				1	3		_		
_	10.4		050	Debres (Greeker		- 5		1			_		
	20.4		CP	Plugged Connecti	on		03	L					
_	63.3		CB	Break in Connecti	on		03	1			_		
	92.7		CP	Plagged Connecti	Cm		03						
_	111.0		CL	Crack longitudinal	k	M	07		1				
	112.9		CB	Break in Connects	on .		02						
	146.5	2	CHG	Demis (Greate)		3				CONTINUE	12	3-53	_
	158.9		R.L	Roots at joint		8	1.						
_	168.3	0.00	SR	Roots from lateral	÷ · · · · · · · · · · · · · · · · · · ·	M	03	1		6			
	166.3		CN	Service Connection	bit		03						
_	217.5		CB	firmak in Connecti	on:		03	1					
	217.5		CRA	Roots around Late	e cui	. 2.	05					_	
_	245.1		OP	Plugged Connect	on		01						_
	293.0		DEG	Debris (Grease)		1.5				CONTINUE	IG:		
	324.2		C#	Plugged Connect	011		03	1	1				
	355.1		CB	Break in Connect	on		02	6					
	355.0	1	CRA	Roots alound Lab	Stial	M	03						
	355.3	1	RJ	Roots el joint		1.1				TAPRIOT	ā		
	361.5		MH	MachshelNode			1			25			
	361 5	0	1995	Filtern of Surveys									
	361.5	Pt	Total L	ength Surveyed									
	Score	a		Structural:	Total 150 Total 395	Ma	an C an C	lefe Iefe	ct 16.7	Post	50	Moon Pig	0.4

PIPE

Pipe Graphic Report of PLR 20	×	for Bureau Ver	itas NA
Work Order (Contract	Vildeo	Setup 21
Facility	Operator NJP	Van Ref 10	Surveyed On 09/25/2012
Street Name Anderholt Rd Location type Surface Survey parpose Random survey of s	City	Hotvile	[3 79
Pipe Use Sanitary	Schedule length	Ft From 25	Depth Fi
Shape Circular	Size 6 by	Ins To 25	Depth Pi
Natorial Whifed day	Joint specing F	t Direction C	Iownstream
Lining	Year leid	Pre-clean M	I Last closingd
General note		Structural	Service Constructional
Location note		Miscellanyour	Hydraulic





Pipe Graphic Report of P	LR 26 X	for Bureau Ve	ritas NA
Work Order	Contract	Video	Setup 21
Facility	Operator NJP	Van Ref 10	Surveyed On 09/25/2012
Street Name Andorholt R Location type Surface Survey purpose Random su	d City	Holville Weather	Day
Pipe Use Senitary	Schedule length	Ft From 26	Depth FL
Shape Circular	Size 0 by	ins To 25	Depth Ft
Material Viutifed clay	Joint epacing	FL Direction (Downstream
Lining	Year tald	Pre-clean f	4 Last cleaned
General note		Structural	Service Constructional
Location note		Misonturieou	Mydrautic



CCTV pictures of 20 X Nor Bureau Voritas NA

Work Onler	Videe	Surveyed On: 00(25/00)	Direction Downstream	Bellup 21
Street Name Antertalt IId	City Name Hohile		Treatment Dry	1.7
Location		Fran Marhoin 25	To Manhalia 25	
Dete: (M252014) Distanze: 10.4 Pl Dist: Datus (Green)		en 04/25/2012 Hence 22.4 ft Phaged Consistion		
Constants	°			
Desis (9423/2012 Desise (923/11) Ota: Broak in Constantine (res (1))		er (BODQOI) eterne 12.7/1 in Pagel Constan	£	1
Conners	94 -			
Detex 08/25/2012 Distance: 111.0.11 Obs: Credit lingto dina		Ne: 087550017 Manager 112:871 Ne: Wrath II Connector		
Commertiz	Strate and			1

PipeLogis Inc. Phone: 866-299-3150 Fax: 750-406-5023

CCTV pietures of 26 X for Bureau Veritas NA

Where Order	Video	Surveyed On 09/25/2012	Direction Downshiem	Setup 21
Street Name Aniorhalt Ha	City Name Halt-Siz	1000 M 1000 M 1000	Number Dry	
Location		Frish Manholie 26	To Manhola 25	
Des mostora	Difference and the second	er 660520H2	ALL	
Netania 150.8 Fi Nec Room at joint	1) Dia	entrose 1983 P1 az Gasta Porte Amerika	20. A.	
Cummieste:	•	nownia	Par	
Data (SCH-DI-12 Data (SCH-DI-12 Data (SCH-DI-12)		Aur Soldsholls Auros 2173 Pl		7
Commentari		mmenta:		1
Dete (ExCINCO18 Distance: 217.5 F1 Oten Roots around		ne: (9/05/1012 Narce:: 265.1.F) n:: Phagad Connector	COT DO	
Commention				

Wark Order	Valve	Burveyad On 00(25/201)	Direction Doerstram Selup 21
Birwell Name Anderholt Rd	City Name Hotolin		Weather Dry
Location		From Matcholie 26	To Manhola 25
00/25/2018		Outo: (9425/2017	and the second
263.0Ft /11.4	D	Distance 3N2 Pt	and share and the
Ani Defini (Grosse)	And And And And	Che Phagoet Contaction 1	The state
mouth	A 101555	Coorteette	The second second
ele (00292011) Manue: 3553 Pi Re: Break in Connectors		Balar 0025/2012 Distance: 305.2 ²¹ Ots: Accesses/PD Laborat	ing same
		Connens	V ar
da 00/00/201	the atta		
wance 355.5 Pt			
se: Roots at joint	1		
annala:			
/ ROOTS			

Work	Order acility	of P	LR 27	Contract Constant		for	Va	Vide n R	NO 10	tas NA	Surveyo	etup 20 d On 0W26/	2012
Str Loca Survey	set Name ition type Surface purpose	And Rend	emolt R	d rdy of pipes and thi	-00	City	Ho	hor	Dry				
Pipo Si Man Li	Use Soni lape Gros stal Vivit Ning	tary Jar Ied de	'y		Sched lang Size it by Joint Specing Year laid	th Ina ₽1	n ft Ins Pl		From 20 To 27 Dimetion Up Pre-clean N		Depth Depth Last Cleaned		р Я
Gener	af nots on note								Site	tutal Banenias	Servece Hydraulic	Coner	votional
Video	Count	CD	Code			Sev	Ŧr	To	Valu	Roman		-	
100	0.0	-	57	filet of Buryey		1		-	1				
	0.0		MPt	Matricial/Node						200			
_	0.0	-	WL.	Watter lawer					3	1 C	1.0	1.1	
	14.7		CEG	Option (General)		. 0				-			
-	17.8		Ch.	Crack toopiludina		10	10	1					
	18.2		č8.	Bassia in Connect	(alt		10	<u></u>		1			_
	54.5		CP .	Plugged Connect	00		ΥD			1			
	61.3		DEG	Debrin (Gimaser)		5				CONTIN	ÚNG .		
	105.6		Off	firms in Connect	an		10						
	178.2		CH	Break in Connects	00		10		1				
	164.2		CB	Break in Connects	00		30						
	164.3		RJ	Process of ports		M							
	207.4		CP .	Plubbied Connect	all's		10			1			
	281.1		CP	Phopped Compect	00		09			1			-
	201.0		154	Cecil longitudine		3	10						
-	282.4		CM.	Cracks multiple		0	12	12		1000			100
	382.8		CB	Brask in Connecti	air.		10		-				
	305.1		iCL,	Oracle length all that			TD						-
14	303.5		0.0	Brank in Connects	ant .		10			100			-
	302.3		MN	Mahhula/Node		1			_	27			
L	362.3		FH	Finish of Surveys						1			
	362.3	Ft	Total L	anglh Europyed		· · · · · ·							
	Second	. E	5	Structure:	Total 400	Mai	ni D	ie fie	et 35 K	Pas	ik 100	Man P	-

66 L	Berinsturni:	Total 400	Mean Defect 30.5	Peak 100	Mean Place 1.1
	Service	Total 175	Neas Defect 43.8	Peak 75	Mean Pipe 0.5



Pipe Graphic Report of PLR 27	X	for Bureau Veri	itas NA
Work Order Co	Operator N.P	Vidao	Satup 20
Facility		Van Raf 10	Surveyed On 09/25/2012
Street Name Anderholt Rd Location type Surface Survey purpose Random survey of pic	City	Holiville Weethor	Dry
Pipe Use Senitary	Schndule length	Ft Fram 26	Depth Ft
Shape Circular	Size & by	ins To 27	Depth Ft
Material Vitrified clay	Joint spacing	Ft Direction U	pstream
Lining	Year Icid	Pre-clean N	Last cleaned
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic





Pipe Graphic Report of Pl	R 27 X	for Bureau Ve	ritas NA
Work Order	Contract	Video	Setup 20
Facility	Operator NJP	Van Ref 10	Surveyed On 00/25/2012
Street Name Anderholt Ro Location type Surface Survey purpose Flandom sur	d City	Hotelle	Dity
Pipe Use Sanitery	Schedule length	Pt From 25	Depth Pt
Shepe Circular	Size 6 by	ins To 27	Depth Ft
Material Vitified day	Joint specing	Ft Direction (Ipsteam
Lining	Year Isid	Pre-clean)	Last cleaned
General note		Siluctural	Sarvice Constructional
Location pote		Miscelanecu	In Hydraulic



CCTV pictures of 2? X Byr Bureau Veritse NA

Vildeo	Surwyed On 09/25/2012	Direction Upstream	Sistup 20
City Name Habile)	Healter Dry	
	From Manhole 26	To Manhale 27	
Transferration	ten aussiand Internet (7.3 P. Smith Englisches	nia materiale La reactione Materiale	
CR .	arrow de		
	News (1975-2017) Nataroon (1975-71) News: Phoggad Connection	States and	-
		10 million	and and
	ten (1973-1917) 1956 Fr Itali Bruss In Connection		
	Convente:		
		Video Surveyed On Disconsist City Name Hathile From Manhala 26 Image: Subscript Disconsist (7,5 P) Date: (\$250015) Image: One (\$250015) Date: (\$250015) Image: Plagad Connection Image: Plagad Connection Image: Plagad Connection Image: Plagad Connection	Video Surveyed On 00000012 Dewellion Lyppiceum City Hanne Hathale Franz Manhade 20 To Manhade 27 Image: USBORDUP Dese: 00000013 Dese: 00000013 To Manhade 27 Image: USBORDUP Dese: 00000013 Dese: 00000013 Image: 00000000 Image: USBORDUP Dese: 00000013 Dese: 00000000 Image: 0000000 Image: USBORDUP Dese: 00000000 Dese: 00000000 Image: 00000000 Image: USBORDUP Dese: 00000000 Dese: 00000000 Image: 000000000 Image: 000000000 Image: USBORDUP Dese: 000000000 Dese: 000000000 Image: 0000000000 Image: 0000000000 Image: 000000000000000000000000000000000000



PipeLogis Inc. Phone: 866-299-3150 Fax: 760-486-5023

CCTV pictures of 27 X for Burgau Varitas NA

Video	Sarvoyad On (19/25/2912)	Describer Upstream	Setup 20
City Name Helbille	in,	alber Dry	2-22
	From Manhole 26	To Manhole 27	
	City Name Hotolike	Video Barvoyed On 1925/2012 City Name Hotolike We From Manhole 26	Video Barveyed On 1925/2012 Devotion Upstroom City Name Hotolike Provide Upstroom From Machine 26 To Manhole 27

Deter 2005-0012 Distance: 202.471 Obe: Dista multiple

Comments:

Dete: 03/25/0012 Destinct: 3(2.17) Obs: Crack beginsteal

Cumments:



Date: IM250013 Detunce: 2024 Pt Ote:: Brest & Correctue	
Convention:	
Data: 04/25/2012 Datasea: 303.5 Fi Obs. (Read to Connection	
Currentif	

abular	Report	of P	LR 28	A		for	Burea	u Var	itas NA		
Work	Order eclity			Gontract Operator N	NG Vid NG Ven R				(4	Setup 35 Surveyed On 09/27/2012	
Str Lota Survey	eet Harne ation type Sorfece purpose	Bart	bura Worth Ri Som survey of) (plost and thing	p	GR	y Hohil	ie Dry			
Pipe Si Mate	Use Sani hape Circl orial Victo ning	itary ulur Nec ci	7		Sched lar Site 5 by Joint Specing Year laid	igth in Fl		From To Dire Pre-	05 05 ction Down clown N	Cepth Depth	Pl Fl
Gener	nal nota C an nota	heate	d survey. Gou	id not attempt in	NI.			Struct Misco	elianteolog M	errite Con 9draulio	utryckena
Video	Count	CD	Code			544	fr T	o Valu	a Remarks		
	0.0		5T \$2#	t of Survey			11	1			
	0.0		MPI Mar	bols/Node		1		1	20		
	0.0		45. We	or invest				1 9			
	0.0		GCI Gat	eral maerkatio					US AND DS	MH'S ILINCHARD	建0 00
-	0.0	1	GO Oen	evi aneenatio	Y	1		1	LINES POB	SHLY BURCHARD	BUD OBE
	0.0	Pt	Total Lengt	h Surveyed							
	Score	•	Stru	ctural: arvice:	Total	Ma	an Def	est.	Peak Peak	Maan	Pipe

PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-6023

Tabular Report of PLR 29				1	A for Bureau Veritae NA								
Work	Order			Contract		Video			-	Setup 37			
5tr Loca	set Name silon type Surface	e Bart	bera Wor	n Ra	ur.	City	Hci	n Ko	8	durve	yeu on oszr	2012	
Survey	purpose	Rand	dom sarv	ey of pipes and thi	nge	y	/eat	her	Dry				
Pipe Si Mate Li	Usa San tape Cro trial Virit ning	tary ulur led cli	чy		Schedien; Size 5 by Joint Specing Year laid	gth ini Pt	F	E	From To Disso Pre-d	29 25 Sion Down Jean N Lost (Depth Depth Cloaned	Ft Ft	
Gener	nal nota C on aute	reated	d survey.	Could not attempt	line			Į	Struct Misca	ший ⊆олное Изперію Нудгац	Const.	ructional	
Vidao	Count	CD	Code			Sev	Fr	To	Value	Remarks			
	0.0		37	Start of Survey		12.22		1	P	·			
	0.0		MPI.	Manhois/Node		_				29			
-	0.0	_	WL	Water tevel					D				
	0.0		00	General observation	05					US MIN NOT FOU	NÖ		
	0.0		GD	General observati	on.					OS MH BURCHA	OS MH BURCHARGED COULD NO		
	0.0	~	GO	General observati	órz	- 11 - 3				DS MH POSSIBL	Y SURCHARGE	BD DUE	
	0.0	Pt	Total L	ength Surveyed	39		-		ni — 1	11-10011-0-00			
Scores Structural: Service:		Structural: Service:	Total	Mo	an D an D)ufo)ufo	ot ot	Peak	Mean P Mean P	ipe			

Tabular Report of PLR 29 A for Bureau Veritae NA



Tabular	Report	of P	LR 30	2	A	for	Bun	anu V	eri	tae NA		
Work	Order			Contract	NP		Ver	ideo Ref		Succes	Setup 38	
Str Loca Burvey	set Name ation type Surface y purpose	Bert Rank	saris Wo	wh Rd	inga	City	y Hall	wite	y.			
Pipa Si Nata Li	Una Sani Impe Oros Infal Viril Ning	tary sinr lied ch	vy		Sched in Size 4 by Joint Specing Year laid	ngth in Ft	Pi	Pri 1 Di Pr	om fo irec	30 29 Ition Down Isan N Lost C	Depth Depth	Ft Ft
Gener	ral note C on note	roated	i survey	. Could not attemp	t Irie.			SR M	tud	tural Service Haneous Hydraulio	Constr	uceona
Video	Count	CD	Code			Sev	Fr	To Va	allus	Remarks		
	0.0		ar	Start of Survey				1				
	0.0		MH	Manhole/None						30		
- 223	0.0		WL	Water level		100		1.5	- 0			
	00		GO	General observa	tion :					LEWH IN FRIVATI	PROFERTY.	NO_
0.0 GC Senera observ					600					DS MH NOT FOUN	D. COULD NO	TAT.
	0.0	Pt_	Total L	eogin Surveyed					_			
Scores Structural: Service:			Total Total	Me Me	an De an De	fect	foct Peak Mean fact Peak Mean			pe		

272284-022



Tebular	Report	of PL	.R 31	· · · · · · · · · · · · · · · · · · ·	X	for	Bu	reat	Veri	tao NA		
Work	Order			Contract				Vide	0	21	Setup 3#	
F	acitity			Operator 1	N.MP	Van Ref 10					eyed On 09/27/2/	012
Str Look Survey	reat Name ation type Surfece y purpose	s Barb Rand	ana Wo	th Rd ey of pipes and th	nge	City	y Ho Vent	itvilie Ser	Dry			
Pipe Si Mati	Use San hape Circl ertal Vird bing	hary uter fied cla	у	1	Sched in Size 8 by Joint Specing Year laid	ngth / In Pt		1	Fram To Direc Pra-c	31 30 tion Down tean N Last	Depth Depth	FI FI
Gener Locatio	ral nota C on note	rested	anvaaA	Courd out ettempt	ine.				Struct Moce	ural Servic Ilanacus Hydra	e Construction	ctiona
Video	Count	CD	Code			Sev	Fr	То	Value	Remarks		
	0.0		ST	Start of Survey			T	1	6 PP			
	0.0		MH	Marthole/Node		1	1			31		
140	0.0		WA_	Water appel			1	1	- 0			
	0.0		GO	General observat	ion		1			US NH NOT FO	UND	
	0.0	-	GO	General observat	ion:	1.15			1-1-1	DS MH IN PRIV	ATE PROPERTY.)	NO
	D.D	Ft	Total L	angth Surveyed	0.000							
Scores Structural: Service:					Total Total	Ma Ma	an C an C	leter Jefer	1 1	Peak Peak	Meen Pip Mean Pip	



l'abular	Report	of P	LR 32	×		for	Bur	eat	J Veri	as NA		
Work	Order			Contract				Victo	10			Setup 29
F Str Loca Sarvey	scility net Name ition type Sarface y purpose	Cou Ranc	intry City	Operator N 5 Dr rey of pipes and this	1JP 1 3 9	City	Va Ha	n ro Itvilk	Dry		Serveyed On 19/26/2012	
Pipe 51 Mate	Use Sent hape Circl erial Vitrif aling	tary Jar Net cla	γx		Sched leng Size 5 by Joint Spacing Year laid	ih ine Fi	h Pt ine Pt		From 32 To 31 Direction Dow Pre-clean N		n Last Ci	Depth Fi Depth Fi seried
Gener	eton Ian								Shud	ural faméousi	Service Hydrwalid	Construction
Video	Count	CD	Code			Sev	Fr	To	Value	Remark	8	
	0,0		-644	Manhola/Node						32		
	0.0		WL.	Water level					- 3			
	2.1		A.I	Rooin at joint		L.			1			-
	50.1		R.1	Roots M joint		5					_	
	50,1		CN	Service Connectio	m	1	12			un sul a		
- 53-	98,7		18.1	Reports HI yould		S		1	-			
	105.9		84	Floots at joint		#			1			
	118.1		R4	Floots at parts		5						- Sec
	124.2		R.I	Roots at joint		11				CONTIN	JING	
-	144.2		ÇN	Service Connecto	m		01			-		11
	170.8	-	DEG	Debris (Gissase)		3			10			
	231.3	-	CN	Service Connection	n		12	-	1	-		14 AN 17 AN
	297.2		09	Begin Pipe Sag								
-	307.0	_	DF	Eac mpe sag		-	1		1			
	328.9		GN	Service Connectio	111	_	12	Ľ.,				
1.50	329.9		14	Bend in pipe 108		101		1				
	330.4		00	Canaral observation	an_					BEND TX	O TIGHT	FOR TRACTOR
	330.5		GQ	General observal	on				1	DE MH N	OTFOUN	D NO ACCESS FO
	330.6		\$A.	Servey attemptione	d				10.5	1		
	330.6	FI	Total L	ength Sciveyed						200 - C.		
	330.6 Ft Total Length Serveya Scores Structural: Service:				Total 0 Total 275	Me	an C an C	lefe Jofe	ct 0 ct 34.4	Pea	k 0 k 100	Mean Pipe 0 Mean Pipe 0.0

· CPIPEL DODA

PipeLogix Inc. Phone: 868-299-3150 Fax: 760-406-6023

10.

Pipe Graphic Report of PLR 32	X	for Bureau V	eritas NA
Work Order Con	tract	Video	Setup 29
Fecility (Operator NJP	Van Raf 10	Surveyed On 09/26/2012
Street Name Country Club Dr Location type Surface Survey purpose Random survey of piper	City and fulge	Holiville	f Dry
Pipe Use Sanitary	Schedule length	Pt From 32	Depth Ft
Bhapa Circular	Size 5 by	ins To 31	Depth Ft
Material Vitiled day	Joint specing	Pt Direction	Downstream
Lining	Year laid	Pre-clean	N Last closed
General note		Sinuctoral	Service Constructional
Location note		Miscellanes	aus Hydraulic





Pipe Graphic Report of PLR 32	×	for Bu	reau Verita	s NA	
Work Order Con Facility C	irect Iperator N.P	Video Van Ref	10	Setup Surveyed On	29 06/26/2012
Street Name Country Club Dr Location type Surface Surrey purpose Random survey of pipes	City and Bibga	Hobile	Weather D	y.	
Pipe Use Sentery	Schedule length	ft Fre	om 32	Dept	n Pt
Shepe Circular Retertal Virited Cay Lining	Size 6 by Joint spacing Year faid	ins T FL Dir Pre	u 21 rection Dow -clean IV	Dept netmen Last cleaned	h Fi
General note Location note		Sir	udurai sceluneous	Sonne d Hydraulie	Constructional





CCTV pictures of 32 X for Bureau Verias NA

Work Cedar	Video	Surveyed On 29/35/2010	2 Olivertan Downstream Setup 29
Street Name Country Club Dr	City Name Hotelle		Weather Dry
Location		From Manhole 32	To Manhale 31
Jeta: 09052012		tale 04/202013	Contraction of the
Relance 21ft 2021	EDS STRUCTS	ginlance: SC1 FI	Con un U
Ra. Room at your		Unit. Hoora al pint	and the second se
Consulta:		Detroits	
			21 21
and the second se		-	
and the second sec			
Sam: (NOSCOIL	AND AND A	Cute: INDAWN/ Clistence: IN 7 Ft	A STATE AND A STATE OF A STATE
Obe: Serves Connecten	A CONTRACTOR	Ond: Rooth at joint	and the second s
- Alberto			And the second se
Comments H	and the	Cattrents.	3= 2 × 1
12.00	State Astron	100	
		100	
Date pty25/2812	and the second s	Date: 01050012	110 m 10 m 10 m
Dietorice: 106.9 P1		Distance 116.1 Ft 114	Station and state
Cita: Rolfs (jok)	ALC: NO	CAVET FOODER 25, DEST	1 de militar
Commanda	The second second	Community	
*3			A CONTRACTOR
- S.	e It	ALC: N	And the second second
10000		-	and the second second

Pipel.ogiz Inc. Phone: 856-229-3150 Fax: 750-405-6023

CCTV pictures of 32 X for Bureau Veritas NA



CCTV pictures of 32 X for Bureau Veritas NA

Werk Orster	Video	Surveyed On 09/25/2012	Direction Downstmam	Setup 20
Sitnet Name Country Club Dr	Gity Narras Historia		ather Dry	
Lacation		From Manhole 32	To Monthole 31	

Date: 04/20/2012 Date: 220.0 Ft Date: Barrist pipe wit

Committee.



Tabular	Report	of Pl	R 33		Α	for	But	neau	Veri	tas NA			
Work	Order			Contract	NIP		Va	Vide o Re	0 / 10	3	Setup 36 Superved On 09/27/2012		
Str Loca Survey	stion type Surface	Darb Rand	ara Wo	rth fild	ingsi	Ci	ty Ho West	itvilio tser	Dry				
Pipe St Meta	Use Sani hope Circu orial Vitit ning	tary Jiar Ied da	v		Sched is Size 1 by Joint Specing Year laid	ngth / k I F	F Na t	1	From To Direc Pre-c	33 29 tion Down Seen N	D D Last Clean	wpih lopth ed	FI
Gener	ral neta C on note	ropted	survey	. Could not attemp	t Inc.				Situat Misce	tariel 5 Barielous H	ervitte (dtauão	Constructio	na
Video	Count	CD	Code	(-	50	V Fr	To	Value	Romarks			-
	0.0	1	\$T	Start of Survey		1			Ş				-
	0.0		MH	Manhole/Node			1			33			
	0.0		392	Winter tevel		- 11		2	- 0				
	0.0		00	Ormotol observat	tun.		1			UR MHINGT	FOUND, D	NE NH BURCH	IA.
11.12	0.0		GO.	Goneral obunivat	San	52 Q.	1		12	LINE POSS	IBLY SURC	HARGED DU	E.
0.0 Ft Yotal Length Burveye					and the second s							er-errit dankad	
Scores Biructural: Service:			Total Total	M	Mean Defect Peel Mean Defect Peel			Peak		Mean Pipe Mean Pipe			



Fabular	Report	of PL	R 06	83	×	for	Bu	real	u Veri	tas NA			
Work	Order			Contract	2013		- 56	Vide	10		34	Setup 42	200
F	acility			Operator	NJP		Va.	in R	a 1 10		Survey	od On 10/25	/2012
Loci	ation type Surface y purpose	Barb Rand	ara Wo	nth Rul vey of places and th	inge	CI	ty 210 Weat	itvili her	Dry				
Pipe Si Metr Li	Use Sehi hape Circl eriel Poly ning	Nariy uler vitily el	vlaride		Schod in Sian 10 by Joint Specing Year laid	ingih y ir j F	gih Ft Ina Ft			04 06 tion Up tean N	Depth Depth Last Classed		Ft Ft
Gener Locatio	General note Location note								Siluci	ural Itanéoua	Servico Hydraulic	Const	rucliosa
Video	Count	CD.	Code			50	r Fr	То	Value	Roman	8.8		
	0.0	신 문	MH	Mentrul e/Nodia						04			-
	0.0		WI.	Waterdaye		- 1			- 6				
_	0.0		0\$	Begin Pipe Seg		-	-	L.,	191	1			
	0.0		机印	Cannin Silbinin	nige6 ting		1.						
2.4	1.7		87	朝鮮代 新 Burying						1	0.000	10110	
	5.1		00	Catha		L			1				-
1.4	20.0	1 4	54.HE	COMMON SUBMON	ded Bedeu		100			1.0			1.1.1
	56.0		D≠	End pipe sep			1						
	P1.2		LR	Band in pipe righ	1		1.5						
	91.5 GC Deni				flar.				1	WLDCK	SD BY TICH	OF BEAD	-
	91.5 BA Burvay mandon				30	_							
	91.5	P1	Votal L	ength Surveyed		_							
	Scores Structural Survice:				Total Total	M	ean C)ufe	ct ct	Pa	ak.	Mean P	ipe ipe

PipeLogix Inc. Phone: 865-299-3150 Fax: 760-406-6023

Pipe Graphic Report of PLR 06 X	for	Bureau	Veritas NA	
---------------------------------	-----	--------	------------	--

Work Order Facility	c	ontract Operator NJP	Vide Va	o NRef 10	Setup Surveyed On	42 10/25/2012
Street Name Location type Surface Survey purpose	Barbera Worth Rd Rendom survey of pi	City pes and livings	Hab	illa Weather D	Dry	
Pipe Use Santar Shape Dircula Material Polyvin Lining	Y r ly chloride	Schedule length Size 10 by Joint spacing Year laid	Ft int Ft	From 04 To 08 Direction Up Pre-class N	Depth Depth Stream Last classed	R Fi
General note Location note				Structurel Miscullanceut	Service C Hydradia	onein clipnei





Tabular	Report	of P	LR 07		¢	for	Bu	real	u Ver	tas NA			
Work	Order			Contract	NP		v	Vide in R	e0 ef 10	Setup 43 0 Surveyed On 10/25/261			512
Struey	ation type Surface purpose	a Cou Rans	dam sur	b Dr rey of pipes and th	City Hotelle								
Pipe Si Mate	Use Service haps Circle artial Viter ming	itary dist Net ck			Size 10 by Joint Specing Year laid	igiti in Fi	th Ft Promit Ima To C Ft Direct Pre-ol			00 07 tion Up tion N	D Lest Close	epith epith ed	Pt Ft
Gener	ral note on note								Struct	sural Manadus	Service Hydraulic	Conside	icticini e
Video	Count	CD	Code			544	Fr	To	Valo	e Ramarka			
	0.0		\$7.	Sent of Burney					[[_	
	0.0		MH	ManholerRode			1			06	_		
	0.0		LWE:	Viales invel					1				
	75.7		05	Bagen Pittle Sag						1	100		
	105.3		CUS	Carries Subrian	jed thegin								
	174.5		CUE	Camera Submer	ped find (1		1		1.1.1.1		
	197.4		0F	End pipe stig					1	d-5' Deco	Change		
	268,4		104	Manhole/Node						dT .			
	265.4 PH Fitten of thursey		Fitmin of INJUNY						1				
268.4 Ft Total Length Surveys				angth Surveyed									
	Score	• [-	Structural: Service:	Total Total	No.	an I)ufe)ufe	et.	Peak		Mean Pig Mean Pig	AR



Pipe Graphic Report of PLR	07 X	for Bureau Ver	itas NA
Work Order	Contract	Video	Setup 43
Facility	Operator NJP	Van Raf 10	Surveyed On 10/25/2012
Street Name County Club Dr Location type Surface Survey purpose Rendom survey	City of pipes and things	Hotvite Weather	Dry
Pipe Use Sanitary	Schedule length	Ft From C0	Depth Ft
Shape Circular	Size 10 by	Ins To 07	Depth Ft
Material Vitrited day	Joint spacing	Ft Direction L	Jpstream
Lining	Year laid	Pre-clean f	4 Last clauned
General note		Structural	Service Constructional
Location note		Macellandou	# Hydrouilc



Tabular	Report	of Pi	LR 07	×		for	Bur	080	u Veri	tas NA		
Work	Order			Contract			- 19	Vide	0		Setup 44	
F	acility			Operator N	JP		Va	n Ro	01 10	Su	Surveyed On 10/25/2012	
Str Loca Survey	tion type Surface purpose	e Gou e Rand	ntry Citu Iom sun	b Dr vey of pipes and this	iga	Cit N	y Hoi Neat	itu tir	Dry			
Pipe St Mate Lis	Usa San Ape Circi Infal Vitil Infag	itory ular Fedica	w.		Sched ler Sixe 10 by Joint Specing Year Isid	ud length Ft by Ins icing Ft id			From To Dires Pre-c	o7 06 :tion Down :tiesn N Le	Depth Depth at Closened	Ft Ft
Gener	al note an note								Sirud Misco	tunti Sare Manadua Hyar	ca Conth aulic	uctions
Video	Count	CD	Code			Sev	Fr	To	Value	Romarka		
	0.0		57	Stan of Survey				1	11.5	1		
-	0.0		MH	Manhole/Node						07		
	0.0		WL	Water Toyor		_	17.5		- 5			
	18.1		DEG	Cubris (G-masel		10	12					
	86.6		DS	Begin Plate Beg	2		110					
	88.6		UU	General optionet	30				1	Camera going	a bria . begramdus	÷
	88.6	1 5	04	Durvey attanciones	1			1			CALCULATED FOR THE STATE	
88.5 Ft Total Langth Surveyed					100				-			
	Score	•		Structural:	Total	Ma	an D	iste leto	d	Paak Peak	Mean P	pe pe

PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-6023
Pipe Graphic Report of PLR	07 X	for	Bureau Veritz	BS NA	
Work Order Facility	Contract Operator NJP	Video Var	o Ref 10	Setup Surveyed On	65 10/25/2012
Street Name Country Club Dr Location type Surface Survey purpose Random survey of	City	Holp	fte Weather C	ληγ	
Pipe Use Santary Shape Circular Material Vitrified day Lining	Schedule length Size 10 by Joint specing Year laid	Ft Ins Ft	From 07 To 08 Direction Do Pre-clean N	Depti Depti wistream Last cleared	h R h R
General note Location note			Skuptural Mecellencous	Service C Hydraute	oostn.cticoolii



PipeLogix Inc. Phone: 866-299-3150 Fex: 760-406-6023

IPELOGIX8

abdiar Report of PLR			a 1	8 U A I				m Anu	Las PLA			
Work	Order			Contract	NID		Vid	leo Ref. 10		Se	tup 45 On 10/25/	012
Survey	stion type Surface y purpose	Rande	om sun	rth Dr	ingi	City	Hillow	r Dry		and repair	THE TREES	in ite
Pipa Si Matu Li	Use Soni tepe Cim wist Vitit ning	tury atar twd.clay	e		Sched lee Size 8 by Joint Specing Year laid	ngih ini Fi	Ĥ	From To Direc Pre-c	07 11 stion Lip Jaan N	Last Clea	Depth Depth ned	FI FI
Gener	nal moto on note							Shive	ural Kanpovit	Senite Hymaulic	Cossela	Hibbea
Video	Count	69	Orde			54+	Fr To	n Yetor	Remarks			
	0.0		âТ	Blait of Buryay								
	0.0		8.811	Manispin/Node					07			
	0.0		WI.	Water House				5				
-	7.0		<i>3</i> C	Jorni Displationt		N			1			
	103.4		00	Oatote		1.1			1/2.95pe %	accertg for 4		
	103.4		nes.	Didn's (Drama)		1.						
	103.4		0C	General absences	lor:				Nicoland by	276930		
	103.4		84	Buyey approxime	N							
	103.4	F1	Total L	moth Surveyed							_	
	Score	۰E	1	Structural: Service:	Total	Ma Mo	an Dafe an Dafe	ect	Paak Paak		Mean Ph	00 00

Tabular Report of D: P 11 All Madina MA

PipeLogix Inc. Phone: 866-299-3150 Fex: 760-406-6023

Pipe Graphic Report of PLR 11	X	for Bureau Ver	itars NA
Work Order Cont	nact	Video	Setup 45
Facility O	parator NJF	Van Raf 10	Surveyed On 10/25/2012
Street Name Barbare Worth Dr Location type Surface Survey purpose Random survey of pipes	City	Hathile Weather	Dry
Pipe Use Senitory	Bohedule length	Pt From 07	Depth Fi
Shape Circular	Size 6 by i	is To 11	Depth Fi
Material Vicified clay	Joint specing Ft	Direction U	patream
Lining	Year leid	Pro-clean N	Last cleaned
General note		Structuret	Service Constructional
Location note		Miscolarisous	Mydraulic



labular Re	port	of PL	H 11	×	(for	Bur		u Verl	tas NA			
Work Ord	for			Contract				Vide	-			Setup 46	and all
*#688	in y		and the state	Operator N	<i>.</i>	**************************************					aurway	ag 04, 1031	\$2012
Location St Survey pu	n type urface rposa	Rando	201 904	rey of pipes and this	ign .	old M	y Ho Veat	tier	₽ D×y				
Pipe Use Shape Material Lining	e Seni e Circu I Marit 2	lary uisr lad dim	e		Schod Jan Siles 8 by Joint Spacing Year leid	igth In Fi	•	•	From To Direc Pre-c	07 11 tion Up Jean N	Last C	Depth Depth	R R
General n Location n	oto						-		Silve	unit Renedua	Service Hydraule	Cons	evoliona
Video C	ouni.	CD	Code			Sev	Er	To	Value	Sameri	la .		
	0.0		W.	Water level		_							
	0.0	-	87	Ran of Bunies	_	_	L .			1			
	0.0		A94	Manhole/Node						07			
1	7.0		<i>.</i> Q	Joint Displaced		M				17.	1.11		
1	64.2		OC.	Gittula: Crack		5	12	12					
	64.T	0.12	H	Hole in sever			02						
	140.2		90	Garterel steenvelo	P1					LANCE	DEBAUDO	READEINU	3 801
3	146.3		MH-F	Marihoste						11			
1	148.3	-	PH	Pinat of Burraya					1				_
)	146.3	F1.	Total L	angth Surveyed									
5	c0/#	• F		Structural: Service:	Total	Me	en D en D	inte Inte	ct.	En Per	ik.	Mean Moon	Pipe -

PipeLogix inc. Phone: 866-299-3150 Fax: 760-406-6023

Pipe Graphic Report of PLR	11 X	for Bureau Ver	ilas NA
Work Order	Contract	Video	Setup 45
Facility	Operator NJP	Van Ref 10	Surveyed On 10/25/2012
Street Name Barbara Worth D Location type Surface Survey purpose Rendom survey o	City	Hottelle Weather	Dry
Pipe Use Senitery	Schedule length	Ft From 07	Depth Pt
Shape Gircular	Bize 8 by	Ins To 11	Depth Pt
Material Vitrilied clay	Joint specing	Ft Direction U	pstream
Lining	Year Inid	Pre-clean N	Last cleaned
General note		Structural	Service Constructional
Location note		Missellansous	Hydraulia



Tabular	Report	of Pl	LA DE	X	5	for	Bu	rea	u Vert	Itas NA
Work	Order			Contract	Vid			Vide	10	Setup 47
5ti Loca	aciiny reet Name stion type	Barb	ara Wo	operator N rth Rd	lar.	CB	ty Ho	in K ibili	et 10	surveyed Dr. 1020/2012
Survey	Burface y purpose	Rand	lori son	rey of pipes and this	-gu	8	Weat	her	Dry	S
Pipe St Matu Li	Use Seri hape Circl artal Viol ning	blary Jiller Ned cill	iy.		Sched let Size 8 by Joint Specing Year Isid	ngth / Ir I F	9 18 1	4	From To Direc Pre-C	07 Depth Ft 06 Depth Ft ction Up clean N Last Cleanad
Gener	nai mote								Stud	sural Silvino Constructiona elistesua Hystautic
Video	Count	CD	Code			50	e Fr	To	Value	e Kemarks
10.000	0.0		87	Bist of Burray			1		1.1	
	00		384	Manhole/Node						d7
	0.0	1	WL.	Water level			1		3	
	1.0		0EG	Celoria (Gradew)		L				March 1997
	4.5		OIL	Debrie		L	1	1		CONTINUES
1.	4.0		68	Gaharai observab	2 1			1		BUDCHED BY DESRIE
	4.0		#A	flurvey electridener	+				1	1
	4.0	11	Total L	angiti Surveyed			-			
	Score	۰F		Structural:	Total Total	M	NAR.C)ste Defe	ta ta	Peak Mean Pipe Peak Mean Pipe

PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-6023

Pipe Graphic Report of PLR 08	x	tot	Bureau Verita	a NA	
Work Order Cont Facility D	ract perator NJP	Vide Va	o Roff 10	Setup Surveyed On	47 10/25/2012
Street Name Harbara Worth Rd Locatios type Surface Survey purpose Random survey of pipes	City and things	Holb	dle Westher D	n .	
Pipe Use Santary	Schedule length	Ŕ	From 07	Depth	n Fi
Shape Circular Material Vinted day Lining	Size 8 by Joint spacing Year laid	ine Ft	To GB Direction Ups Pre-clean N	Depth tream Last cleaned	FL
General note Location note	5-11 - 53		Structurel Mistellaneoua	Service C Hydraulic	onsinudional



abular	Report	of PL	RO	s ×		for	Bur	-	u Veri	tas NA	-		
Work	Order			Contract	and a			Vide	0		Betup 40		
F	acility	-		Operator N	1P.		Va	n R	of 10		Surveye	d On 10/25	/2012
Loci	stion type Surface purpose	Dante	ana we	rth Rd vey of pipes and thin	qs.	CH)	Veat	her	Dry	<u></u>			
Pipe	Line Sonit	ary			Sched ler	rigth	F		From	07		Depth	Ft
51	nape Circu	Ser .			Size il by	In	n))'''		To	0ē		Depth	Ft
Material Vitilied dey Lining			Joint Spaning Year Inid	Ft			Direc Pre-c	ction Up Ison N	Last Ck	anad			
Gener Locativ	nate note								Stud	tural sissnooue	Samicu Hydraulic	Const	necilonal
Video	Count	CD	Code	1		Sev	Fr	To	Vatu	e Romark	8		
	0.0	1	81	Biart of Survey		- 1							
	0.0		MH	Manmole/Node						07			
_	0.0		WL	Water teopl	200				1	1.2			
	8.0	0.1	DS.	Bogin Pipe Sag									
	13.7		DF.	End pide sag			18			0.475			
	114.1		CN	Service Connecto	0		02						_
	146.1		00	Circlular Crsck		M	12	12		-			_
-	146.7		CØ.	Brack III Gomecte	Brit		12						
	146.7		CL:	Oneck longitudinal		M	01				_	1	
	147.3	_	B	Broken Pipe		L	12	12	-				
	151.3	-	MH	Manhote/Node	- Ca				-	08		-	
-	151,3		FH	Finish of Burveys		-	1					-	
	161,3	PT	rotal i	Langth Surveyed									
	Scores	νE		Structural:	Total	Me	inn C	hte	ct	Pea	N:	Muun F	lipe
				Service:	Total	Me	ion I)ste	ct	Pan	R.	Mean F	³ ipe

PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-6023

Pipe Graphic Report of PLR 0	в х	for Bureau Verite	IS NA
Work Order	Contract	Viduo	Setup 45
Facility	Operator NJP	Van Ref 10	Surveyed On 10/25/2012
Street Name Berbace Worth Rd Location type Surface Survey purpose Rendom survey of	City pipes and things	Hothile Weather C	ληγ
Pipe Use Santary	Schedule length	Ft From 07	Depth Fi
Shape Circular	Size 8 by	ins To 05	Depth Fi
Material Vitriled civy	Joint spacing	Ft Direction Up	dream
Lising	Your laid	Pra-clean N	Last cleaned
General nots		Structural	Service Constructional
Location note		Misseitengolus	Hydraulio



abular	Report	of P	LR 2	3 3	()	for	Bur	884	u Vert	tas NA	§		
Work	Order			Contract			19	Vide	0			Setup 49	
F	acillty			Operator	NJP		Va	n Re	of 10	-	Surveyed On 10/25/2012		
Str Loca Survey	tion type Surface / purpose	Rend	iora We	inth Rd vey of pipes and th	nga	CRy	y Ho Neat	tvilie her	s Dry				
Pipe Si Mab Li	Use Seni Ispa Circ. Ining ning	tary Jier led clt	w.		Schad length Size 8 by Joint Spacing Year laid	in Ft	F		From To Direc Pre-c	28 29 tion Up lean N	Last Ck	Depth Depth	Ft Ft
Gener	nainota on note								Struct	unit Kandola	Behice Hydrautic	Const	ructional
Video	Count	CD	Code		0.000 C	Sev	Fr	To	Vatur	Remark	ita :		
	0.0		IIT.	Wart of Buryey		T		I					
	0.0		MH	Menhale/Node		1	4			28			
	0.0		WL.	Water Invel		1	1.0		1				
	105.6		OF.	Plugged Connect	loit.		03						10
	192.6		CP	Plugged Connect	lan		43			- 22			_
	202.4	S 1	CB	Break In Connect	ton	1	02	LÍ					
	247.3		00	Circular Cracti		1 14	12	12					
	248.1		CB	Break in Connect	loin .		12						
	248.1		CL.	Grack longitudina	EE	1 M	01		1.1				
	253.6		10	Joint Displaced		M	1						
	266.0	-	OP.	Plugged Connect	lon -	1	03						
	318.6		DE	Decilis		L	1			1			_
	325.9		CR	Brostin In Contract	ian	1	92						
	330.6		CP.	Plugged Connect	ion		03						
	365.8		MH	Manmole/Node		-	1			29			
	365.0	21	前	Fatisis of Burveys						1			
	0.880	11	Tratal I	angth Gurveyed									
	Score	• [Siniciural:	Total	Me	an C)efe	ct.	Per	ak. uk	Mean F	ine ipe



Pipe Graphic Report of PLR 29	X	for Bureau Ve	ritas NA
Work Order C	ontract	Video	Setup 48
Facility	Operator NJP	Van Ref 10	Surveyed On 10/25/2012
Street Name Barbara Worth Rd Locetion type Surface Sorvey purpose Random survey of p	City pes and things	Holtxife Westiter	Dry
Pipe Use Sanitary	Schedula length	Ft From 28	Depth Ft
Shapa Circular	Size 8 by	ins To 29	Depth Ft
Matorial Vitrified clay	Joint specing	Ft Direction	Upstmarn
Lining	Year laid	Pre-clean	N Last cleaned
General note		Structural	Service Constructional
Location note		Miedálamoty	a Hydraulia





autorial	Cupotto	0111		(Balanta)	<u> </u>	10	01	14		ar it		-	Batten 40	
WORK	Order			Contra				۷	Cito Cito			-	Setup 30	
Str Look Barvey	test Name ation type Burface y purpose	Bart	wara We	opprints	tings		ity H	ob mh	din or :	77		survey	ea can torge	
Pipe Lise Sanitary Shape Circular Material Viritid Sky Lining General note			Sched length Size 8 by Joint Specing Year Isid		n Pr Ine Fl		Pi D P	From 28 Yo 30 Direction Up Pro-clean N		LastC	Depth Depth	F1 F1		
Gener	nai note on note							_	N	100	ninegine -	Hydraulia	stania t	nickone
Video	Count	CD	Code			5	ev Fr	. 1	lo V	alun	Bemark			
_	0.0		\$T	Bart of Buryoy				T			-			
	0.0	11	5/91	Nanhole/Note				1			29			
_	0.0	1-2	WL.	Water lavar				1	_	1				
	35.8		Cli	Brask in Cance	NICON		0							
	50.2		CP.	Ploggad Cennil	100		10	1		_		1.000		_
	\$1.4		CB	Break In Ganna	dian		0.	ŧL.	1	- 1				_
	124.1		OP.	Plugged Canne	etten		0.0	1					1.5	
_	157.0		¢8	Sneak in Connu	elión		23	1				-	-	
	197.6		CP	Flügges Genne	willer)		0	1						
_	270,7		-ca	Break 纳 Cenne	rilon		- 44	1						
	270.7	- 1	OP	Phage-I Corina	NII ON		. d:	1						
	327.6	- 1	CN	Sarvine Conne	citetty	1	- 65	2						-
	339.7		CN.	Service Conne	dieux.		0;	2						
	359,3		MH	Marihule/Node		1		1	T		30			-
	369.3		PH	Finish of Burva	ya									
	309.3	M	TODA I	.segth Burveys	1	10010								
	Scores	F		Structural:	Tot		Manan	De De	fact.	-	Pas		Mean P	ipe Ine

Scorez

PipeLogix Inc. Phone: 666-299-3150 Fax: 760-406-6023

Pipe Graphic Report of PLR 30	×	for Bure	au Veritas NA
Work Order Cont	bract	Video	Sotup 50
Facility C	Iperator NJP	Van Raf	0 Surveyed On 10/25/2012
Street Name Barbara Worth Rd Location type Burface Survey purpose Random survey of pipes	City and things	Hotville	sather Dry
Plpe Use Senitary	Schedule (ength	Ft From	29 Depth Ft
Shape Circular	Bize 8 by	Ins To	30 Depth Ft
Material Visited day	Joint specing	Ft Direc	tion Upstream
Lining	Year Inid	Pre-cl	ean N Last cleaned
General note		Struct	rual Service Constructional
Location note		Miscu	Illongous Hydraulic





Work	Order		Contract Operator NJP				Video Van Ref 10				Satup 51 Surveyed On: 10/29/2012		
Str Losa Sarvey	et Name tion type Surface purpose	ðerb Rend	era Wo	th Rul ey of nipes and thi	igs	City	v tio	ter	e Dry				
Pipe Use Sonitary Shape Citular Meterial Vitriliad clay Lining					Sched lang Size 4 by Joint Specing Year laid	jih ka Ft	F	t	From To Direc Pre-c	28 33 tion Up lean N	Last C	Depth Depth Cleaned	Ft F1
Gener Locatio	al note R note	AN WI	THPUS	IH CAMERA					Struct	ilaneoue eloneoue	Sarvica Hydraut	Const	national
Video	Count	CD	Code			Sev	Fr	To	Value	Roman	K\$		
	0.0		BT	Start of Survey		1			1	-	-14-22		1.0
	0.0		MH	Marihole/Node		_				28			
	0.0	- 1	WL	Water most			1		- 5		_		
	59.0		CN:	Service Connectio	ni		10)			
	176.0		DE	Options		- 54				CHERRIES.	AND GRE	ARE	_
	150.0		90	General observal	00		100			GAMER	A STOPPS	O PUIDHING	
	160.0		00.	Genami obsarvall	04	3				PULL C	AMERA DA	AGE TO BTAR	r
	180.0		θA.	Survey abandone	d.				1	END AT	0 FDO1		
2.0.1	180.0	PL.	Total L	ength forveyed					W = 1				
Scores		• F		Structural:	Total 0	Ma	an I	lefe	ct 0	Pe	ak 0	Mean P	pe 0

PipeLogix Inc. Phone: 866-299-3150 Fax: 760-406-6023

Pipe Graphic Report of PLR 33	x	for	Bureau Verita	IS NA	
Work Order Contrac Facility Ope	st retor NJP	Video Var	o Ref 10	Setup 5 Surveyed On 1	1 0/29/2012
Street Name Sarbara Worth Rd Location type Surface Survey purpose Random survey of pipes an	City d things	Holty	die Westher D	la,	
Pipe Use Santary Shape Circular Material Vitriliad ciry Lining	Schedule length Size 4 by Joint spacing Yaar laid	Ft Ins Ft	From 20 To 33 Direction Up Pre-clean N	Depth Depth Iroam Last cleannd	Ft Ft
General note RAN WITH PUSH CAMERA Location note			Seucrunal Mocolismocus	Service Car Hydraulic	Hinoficial



FORCE MAIN

Work F	Order			Contrac Operator	NP		Var	/idea	9 † 10	Setup 40 Surveyed On 09/27/2012		
Str Loci Survey	oot Nema allon type Surface y purpose	e Evo e Ranc	n Hewei Iom san	s Hwy vey of pipes and it	linge	City	Veat	tville ver	Dry			
Pipe Use Sentary Shape Croular Meterial Polyvinly chlorida Lining					Size 4 by Joint Specing Year laid	Sched length Ft Size 4 by ins Joint Specing Ft Year taid				PUMP STATION 01 Depth Ft NORTH Depth Ft stion Down steen N Last Cleaned		
Gener	ral note V on note Li	alvo n no le :	emoved a force r	for cartera abces nain	\$				Struct Misca	tural Service Constructional dianeous Hydraulic		
Video	Count	CD	Code			Sev	Fr	To	Value	e Remarks		
	0.0		ST	Start of Gurvey			11 A.					
	0.0	-	MH	Manholiumiode			- 1		-	PUMP STATION D1		
	0.0		WL.	Water level								
	2.0	2.13	03	Bend in pipe day	4F)		1.		-	90 disgrams bend above surface		
	8.0		CUB	Cambra Subme	ged Begin					At Second 90 degree Send		
	43.0		CUE	Comera Subiner	ged find		1		1			
	68.0		CUB	Camera Submit	gud Bagin			_				
	95.0	=	CUE	Camma Subme	tied Cod				1 2			
	95.0		GCI	General observa	itori					Friend from av cemera gen ye		
	100.0		60	General observe	Eon	-				Lost main on camera		
	100.0		5A	Uurvey abendon	d.C.		1 3					
	105.0	R	Total L	ength Surveyed	1. The second							
Scores		Structural: Service:	Total 0 Total 0	Me	an D an D	efec	10	Peak 0 Mean Pipe 0 Peak 0 Mean Pipe 0				

Tabular Report of PLR PUMP STATION 01 A for Bureau Veritas NA



Work Order Facility	Contract Open	tor NJP	Video Var	n Ref 10	Setup 40 Sarveyed On 09/27/201	
Street Name Eve Location type Surface Survey purpose Rai	in Hewas Hwy	City	Holly	Ge Weather D	Jry	
Pipe Use Sanitary Shape Circular Material Polyviniy ch Linkeg	ioride	Schedule length Size 4 by Joint spacing Year leid	Pt ina P1	From PUMPS To NORTH Direction Dov Pre-clean N	STATION 01 Dept Dept Numbershi Levt cleaned	h Fi h Fi
General note Value I Location note Line s	emoved for carriera accer a force main	51		Structural Miscelanitous	Sensce	Constructions

A

for Bureau Veritas NA

Pipe Graphic Report of PLR PUMP STATION 01

Start of Survey Manhole/Node [PUMP STATION 01] 0.0 Ft Water Inpel C @ Ft 2.0 Ft Bend in pipe down [90 degrees bend above surface] B.O.Ft. Carriera Submerged Begin (At Second 96 degree bend) PRIMARY CO Fipe Flow 43.0 Ft Camera Submerged End dfl.0 Pt Camera Submerged Begin Camera Submerged End 95.0 Pt General observation (Losing push on camera due to two 90 degree brinds) 100 Ft General observation [Loct push on camera] 100.0 Ft Survey abandoned



FORCE MAIN

Work F	Order acility			Contract Operator	NJP	Video Van Ref				Setup 41 Surveyed On 08/27/2012
Str Loci Survey	tion type Surface purpose	Eve Rank	n Hewe	s Hwy vey of pipes and th	inge	City	Ho Vest	itville tver	Dıy	
Pipe Use Sanitary Shape Circular Size Material Polyviniy chloride Join Lining Ye					Sched lang Size 4 by Joint Specing Year laid	jth ini Ft	i F	8	From To Direc Pre-c	NORTH Depth R PUMP STATION 01 Depth R stion Up clean Y Last Cleaned 9/25/2012
Gener	nal note R on note in	evers	e setup ion	attempted for max	imum length of				Shud Misca	tural Benoce Constructions etamenus Hydraulic
Video	Count	CD	Code			Sev	Fr	To	Value	e Remarks
	0.0		ST	Start of Survey						
-	0.0		1,011	Manholw/Wode					1	NORTH
	0.0		WL.	Wateriovel		1		1	60	
_	21.0	1	CUB	Chmera Submon	ges Begin				2	
	33.0		CUE	Camera Sobrier	ged Elid					
	89.0		CUB	Camera Submer	çaş Beçin					1
	132.0		CLUE	Camera Submien	ged End	1				
	315.0	2	GQ	General observat	lian	12.7			(Started video at 3158
	315.0	1	SA	Survey abandone	ad				2 - 3	Completed wideo at Oft at DS
	315.0	Ft.	Total L	angth Surveyed			4 - C	1.00		
Scores		Structural:	Total 0 Total 0	Me	en T)efec	10	Peak 0 Mean Pipe 0 Peak 0 Mean Pipe 0		

Tabular Report of PLR PUMP STATION 01 Y for Bureau Veritas NA



Pipe Graphic Report of PLR PUN	IP STATION 01 Y	for Bureau Vori	tas NA
Work Order Co	ntract	Video	Setup 41
Facility	Operator NJP	Van Ref 10	Surveyed On 09/27/2012
Street Name Even Howas Hwy Location type Surface Survey purpose Random survey of pipe	City as and bings	Hotville Weether	Dry
Pipe Use Sanitary	Schedule length	R From NORT	H Depth Pt
Shape Circular	Size 4 by ins	To PUMP	STATION 01 Depth Pt
Material Polyvinly chloride	Joint specing Ft	Direction Up	pateem
Lining	Year laid	Pre-clean Y	Last cleaned B/25/2012
General note Revenue actup attempted	for maximum length of	Shomeral	Service Constructional
Location note inspection		Miscelaneour	Hydrautic



PipeLogix Inc. Phone: 866-299-3150 Fax: 760-405-6023 OGINA

Pipe

PORCE MAIN

Work F	Order		- -	Contrac Operator	NP	Video Van Ref 10			Setup 52 Surveyed On: 10/29/2012	
Str Loca Survey	et Name ston type Surface purpose	Rand	iom eur	rth Hđ rey of pipes and II	inge	City	Ho	itville hør	Diry	
Pipe Si Mate	Use Sent tipe Circl stat visat ning	Sched lengt Size 4 by Joint Specing Year laid	h Im Ft		t	Prom To Direc Pre-c	OPEN PIT Depth Ft TO NORTH Depth Ft tion Down Seam N Last Cleaned			
Gener	nal note S on note	AN W	ITH PUS	SHCAMERA					Siturd Misce	rural Sirvice Constructional steneoue Hydrixulic
Video	Count	ĊD	Code			Sev	Fr	To	Value	a Romarka
	0.0		0T	Start of Survey						- 14 <u>2014 (</u>
	0.0		MH	Mitrihole/Node						OPEN HIT
	0.0	-	WL	Witter Isvei					. 9	
	0.0		00	Danatal observa	tion		1		220	END IN FIT
	64.0	11	CLIE	Camera Submer	ged field					
	165.0	1	CUE	Camera Sutime	god End	1				
	196.0	11	CUE	Camela Subme	post End	-			- 1	1
	190.0		DE	Cebris		M			1	DEBRIS AND GREASE
	218.0		012	Debrie		$\pm M$			- 1	JINDER FLOW
	298.0	4.1	t.L.	Band in pipe left					- 3	
	298.0		CUIE	Carriera Submar	ged Begin		Ι.		. 3	
	308.0		80	Ganeral coetrys	ðar.					END OF CABLE
	308.01		60	Ganeral observe	lion					START OF RUN
	308.0		BA	Euryay abancon	od		41			
	308.8	F1	Total L	ength Surveyed	1					
	Score	•		Structural: Service:	Total 0 Total 158	Mo Me	an C an C)efec	0	Peak 0 Mean Pipe 0 Peak 75 Mean Pipe 0.5

Tabular Report of PLR OPEN PIT for Bureau Veritas NA ×



Pipe Graphic Report of PLR OPEN F	PIT X	for Bureau Veri	las NA
Work Order Contra	st	Video	Setup 52
Facility Opt	arator NJP	Van Ref 10	Surveyed On 10/29/2012
Street Name Barbara Worth Rd Location type Surface Survey purpose Random survey of pipes at	City	Holle	Dry
Pipe Use Sentary	Schedule length	Ft From OPEN	PIT Depth Ft
Shape Circular	Size 4 by	ins To TO NO	DRTH Depth Ft
Material Vitrified day	Joint specing	Ft Direction D	ownstream
Lining	Year laid	Pre-clean N	Last cleaned
General note RAN WITH PUSH CAMERA	descure -	Structural	Service Constructional
Location note		Mecaliphorem	Hydraulio





FALE MAIN

Work F	Order	-	Contrac Operator	NJP	8	Video Van Rof 10				Setup 53 Surveyed On 10/29/2012		
Str Loca Survay	ent Name I etion type Surface purpose R	Serbara Wo	ith Rd vey of pipes and th	inge	City	Holt	ville er Dry	8				
Pipe Si Mate Li	Use Santar tepe Circula mini Martes ning	Sched leng Size 4 by Joint Spacing Year laid	pîn Ana Ft	Ft	From To Dire Pre-	TO PUNF to PUNF ction Up clean N	STATION	Dopih Ft Dopin Ft coned				
Gener	General note RAN WITH PUSH CAMERA Location note						Sinu: Mipo	Dursi silanoove	Service Hydraulic	Constructional		
Video	Count C	D Code			Sev	Fr '	To Valu	e Remark	4			
	0.0	UT I	Bibit of Survey		1		N	1.000				
	0.0	MH	Marmole/Node		1			OPENP	17			
	0.0	1/12	Violer level				1.5			1919) 1919		
	24.0	CUE	Campre Subme	ges End	3			-				
	53.0	CUB	Certora Submar	giát Broin	1							
	72.0	- SUE	Camera Submar	ged Emi	1			1	-	1		
	178,0	00	Gangritt observi	0,009				BTARTO	OP RIVE			
	778.0	CUR	Carnona Subrren	niqidii bogi		134	1 3	-	1			
	178.0	00	Conami abadive	tion		12	0	END OF	RUN AT PI	T)		
12812	178.0	84	Burvey ebandon	ed			13 1	1				
	178.0 P	1 Total	angth Surveyed	£								
	Scores		Structural: Service:	Total 0 Total 0	Ma	an De an De	fect 0 fect 0	Per	ak D ak D	Mean Pipe 0 Mean Pipe 0		

Tabular Report of PLR TO PUMP STATION for Bureau Varitos NA ×



Pipe Graphic Report of PLR TO PUMP STATION X	for	Bureau Venitas NA
----------------------------------------------	-----	-------------------

Work Order Contr Fedility Op	ect erator NJP	Vider Ver	Ref 10 Survey	Setup 53 ed On 10/29/2012
Street Name Barbara Worth Rd Location type Surface Survey purpose Random syrvey of pipes a	City	Holty	Re Weather Dry	
Pipe Lies: Santary Shepe: Circular Material: Vitrited clay Lining	Schedule length Size 4 by Joint spacing Year loid	Ft Ims Ft	From OPEN PIT To TO PUMP STATIO Direction Upstream Pre-clean N Last clear	Depth Ft N Dopth Ft anod
General note RAN WITH PUSH CAMERA Location note			Siluctural Service Miscellonoous Hydraule	Constructional





Exhibit B – Colorado River Basin Regional Water Quality Control Board – NOTICE OF VIOLATION, Barbara Worth Country Club Collection System, October 5, 2021





Colorado River Basin Regional Water Quality Control Board

Certified Mail: 7018 1830 0001 0265 0484

October 5, 2021

John Gay Director of Public Works Imperial County 155 S. 11th Street El Centro, CA 92243 JohnGay@co.imperial.ca.us

SUBJECT: NOTICE OF VIOLATION, BARBARA WORTH COUNTRY CLUB COLLECTION SYSTEM, HOLTVILLE, IMPERIAL COUNTY

Dear Mr. Gay:

The California Regional Water Quality Control Board, Colorado River Basin Region (Regional Water Board), is the public agency with primary responsibility for the protection of ground and surface water quality for all beneficial uses within Imperial County (County) as well as portions of Riverside, San Diego and San Bernardino County, including the referenced property above.

On February 1, 2021 at approximately 1:30 p.m., Joseph Lechuga of Percwater notified the Regional Water Board of a Sanitary Sewer Overflow (SSO) event at Barbara Worth Country Club Force Main south of Zen Drive near 2050 Country Club Drive, Holtville, CA 92250. The total volume of the spill was reported to be 36,000 gallons, with all the sewage percolating into the ground.

On a separate event, April 21, 2021 at approximately 12:34 p.m. Joseph Lechuga of Percwater notified the Regional Water Board of a SSO event at Barbara Worth Country Club Force Main south of Zen Drive near 2050 Country Club Drive, Holtville, CA 92250. The total volume of the spill was reported to be 30,000 gallons, with all the sewage washed away into the drain ditch.

YOU ARE HEREBY NOTIFIED that the discharge violated the California Water Code (CWC) section 13350 as follows:

NANCY WRIGHT, CHAIR | PAULA RASMUSSEN, EXECUTIVE OFFICER

73-720 Fred Waring Drive, Suite 100, Palm Desert, CA 92260 | www.waterboards.ca.gov/coloradoriver

• Discharge of untreated sewage into Waters of the United States

The County is required to comply with the following tasks:

- 1. Immediately implement corrective and preventive actions to prevent further discharge of untreated sewage from the collection system, and
- In accordance to Order No. 2006-0003-DWQ, the enrollee must develop and implement a system-specific Sewer System Management Plan (SSMP). Please provide the SSMP for the Barbara Worth sewer system to the Regional Water Board by November 1, 2021.

Pursuant to CWC section 13350(e), you are subject to penalties of up to \$5,000 for each day in which the violation occurs or \$10 for each gallon of waste discharged, but not both, for the violation listed above. These administrative civil liabilities may be assessed by the Regional Water Board beginning with the date that the violations first occurred and without further warning. This matter may be referred to the Office of the Attorney General for further enforcement. The Regional Water Board reserves its right to take any further enforcement action authorized by law.

If you have any questions concerning this matter, please contact Reggie Tan at (760) 776-8944 (<u>reginald.tan@waterboards.ca.gov</u>), or Jose Cortez at (760) 776-8963 (jose.cortez@waterboards.ca.gov)

Sincerely,

assandra D. Oquers

Cassandra Owens Assistant Executive Officer Colorado River Basin Regional Water Quality Control Board

RT/jc

Enclosure: General Order 2006-0003-DWQ

cc: Joseph Lechuga, Percwater, <u>jlechuga@percwater.com</u> Frank Cornejo, City of Holtville, <u>fcornejo@holtville.ca.gov</u> Jeff Lamoure, Imperial County Department of Environmental Health, <u>jefflamoure@co.imperial.ca.us</u> Alphonso Andrade, Imperial County Department of Environmental Health, <u>AlphonsoAndrade@co.imperial.ca.us</u> Afrooz Farsimadan, State Water Board, <u>Afrooz.Farsimadan@waterboards.ca.gov</u>