



**Request for Proposal
Front Street Interceptor Cleaning Addendum No. 2 to
RFP No. 400603.78.0108
February 6, 2019**



The following information encompasses Addendum No. 2 for the above referenced RFP. Bidders shall fully consider and acknowledge this Addendum in the preparation and submittal of its formal Proposal. Failure to do so may result in the rejection of the Proposal.

Section 1 – Additional Questions

Section 2 – Updated Technical Specifications - Addition of Technical Memorandum

All other conditions and requirements remain unchanged.

**Section 1
Additional Questions**

Q1: Can work at Gayoso begin before May?

SARP10: Work at the Gayoso lift station manhole is allowed during May.

Q2: If the contractor is not entering the pipe, can work continue during rain days (excluding lighting and other rain events that would cause for an unsafe workplace)?

SARP10: There is no restriction for work during rain events. As long as proper PPE and safeguards are taken working in inclement weather, there is no restriction. For example, if wind speed is above allowable limit for crane operation.

Q3: Is there a pipe level threshold for diver entry into the pipe?

SARP10: No, it's a case by case decision between BV Safety and the dive safety officer.

Q4: What is the landfill location that will be accepting the waste stream?

SARP10: Contractors can dispose at any landfill where they have approved permits for dumping. For this proposal, assume all debris will be disposed at a landfill located in Shelby County.

Q5: How much ragging and large and foreign debris are in the existing debris field?

SARP10: All information about the existing debris field can be found in the reports in the proposal package and in this addendum.

Q6: Will large and foreign debris removal be paid for separately?

SARP10: No.

Q7: Will extra payment be made if ragging becomes heavy and clogs the submersible pumps?

SARP10: No.

Q8: Will proposals be accepted for installation of additional access points?

SARP10: No.

Q9: This debris has been in the pipe for a long time, is there an extra pay item for stubborn debris?

SARP10: No.

Q10: Will there be an additional pay item to remove debris that won't fit in the pump?

SARP10: No.



**Request for Proposal
Front Street Interceptor Cleaning Addendum No. 2 to
RFP No. 400603.78.0108
February 6, 2019**



Q11: If a projected time savings is proposed, will the liquidated damages begin at the new time estimate or the original 300 days?

SARP10: Liquidated damages will be incurred after the contract time has expired for whichever contract is awarded. The contract time is pulled from the proposal time indicated.

Q12: If a shorter duration to completion is proposed, will there be additional penalties incurred if the timing is not met?

SARP10: No additional penalties beyond liquidated damages stated in the proposal documents will be incurred if the contract time is not met.

Q13: Will traffic control be allowed to remain set up during off-shift hours?

SARP10: Traffic control will be permitted to stay up during off-shift hours unless specified by SARP10 due to a special City function or event.

Q14: When the pipe flow was reversed, was any other construction other than the installation of the gate near the Mississippi River completed?

SARP10: No other known construction on the interceptor was completed.

Q15: What was the date of the gate installation?

SARP10: The design drawings indicate 1937.

Q16: What is the elevation change at the gate location and the invert of the Gayoso MH?

SARP10: There is roughly a 7-foot elevation change from the gate to the Gayoso MH.

Q17: What is the average velocity during dry weather in the pipe?

SARP10: The average velocity is unknown in the pipe.

Q18: Have velocities been individually checked at each differing pipe size?

SARP10: No.

Q19: Is there additional data on the pipe condition and debris depths other than the RSC reports?


SARP10: There is a Technical Memorandum from an inspection done of pipes upstream from the cleaning area in 2015. This TM is included in this addendum. No other information about pipe condition or debris depths is known.



**Request for Proposal
Front Street Interceptor Cleaning Addendum No. 2 to
RFP No. 400603.78.0108
February 6, 2019**



**Section 2
Updated Technical Specifications
Addition of Technical Memorandum**



The Evaluation of The Memphis Front Street Interceptor

A Technical Memorandum

Prepared by Compliance EnviroSystems

8/28/2015

The Evaluation of the Memphis Front Street Interceptor

Table of Contents

Section One: A Brief history of the Memphis Front Street Interceptor

Section Two: The Interceptor Assessment Plan

Section Three: Assessment Findings

- 3 D Manhole Scans

- Illustration 1 – Interceptor at Peabody Place (debris field)

- Table 2- Gas Table from Peabody Place Manhole

- Assessment Observation Notes from Peabody Place at Front Street

- Table 3- Gas Table from Butler Ave Manhole

- Table 4- Clear-box video locations and notes from 10 ft. penetration Butler Ave penetration dive

- Clear-box still images (20 images) DVD of these videos is on file for review

- Table 5- 500 ft. Penetration dive clear-box site location drawing (direction toward Huling St).

- Table 6- 500 ft. Penetration dive clear-box site location drawing (direction toward Calhoun St).

- Illustration 2- schematic of 1000 linear ft. penetration dive with diver observations

- Assessment Observation Notes from dive team evaluation from Butler Ave manhole

Section Four: Conclusions and Recommendations

Section One: A Brief history of the Memphis Front Street Interceptor

Designed in 1937 by Black & Veatch Corporation, the Front Street Interceptor originally collected sewer flows from downtown Memphis and discharged untreated sewerage into the Mississippi River. EPA's (Office of Enforcement) document: "A Summary of Water Pollution and Related Factors, Memphis Metropolitan Area" (1971) lists the untreated discharge of raw sewerage into the Mississippi River at 22.50 MGD. At its time of design it was an engineering and construction marvel.

As a result of the Clean Water Act and the subsequent construction of two wastewater treatment plants in Memphis, around 1975 a sluiceway located in a manhole on Kansas St was closed, effectively blocking the outfall of raw sewerage into the Mississippi River. The flow in the deep interceptor in effect was reversed and now flows to the north under a surcharged gravity head. The flow is now collected at the Gayoso Street pumping station located on the north end of the interceptor which pumps the downtown wastewater to the M.C. Stiles wastewater treatment plant located north of Memphis. As a result of reversing the flow in the deep interceptor, this sewer is surcharged along its entirety and has lost its design scouring velocity. With the loss of scouring velocity, solids have collected in a debris field starting at Kansas Street, back towards the Gayoso Street pumping station. The greater than 70 feet of depth along the alignment enables the interceptor to continue to function, albeit with less efficiency.

One section of the interceptor was designated a Year 1 Priority Area for evaluation under the City of Memphis Consent Decree. The Priority Area portion of the interceptor is located between Beale St and Huling St.



The Manholes



The depth and diameter of the Front Street Interceptor required unique manhole designs. Since the reversal of the flow in the interceptor in 1975, the inspection of these manholes and pipe has been very difficult. The manholes on the interceptor are surcharged to various depths, an average of approximately 15 feet. This surcharged condition has made the inspection of the interceptor by normal methods impossibility. With today's modern evaluation technologies the assessment team was able to inspect target manholes that would be the entry points of for our Specialty Dive Team. The Specialty Dive Team would enter the interceptor via these surcharged manholes.

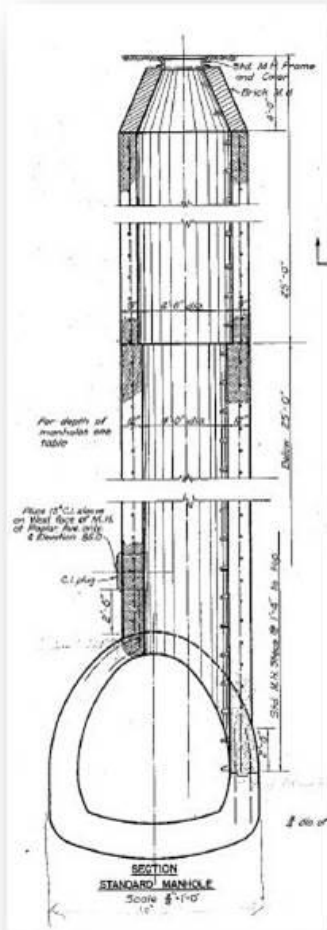
Below are three manhole designs that are present on the Front Street Interceptor.

Type 1- This is a typical manhole. There are brick with fixed pre-cast steps that lead into the interceptor. These are the manholes that the Specialty Dive Team will enter.

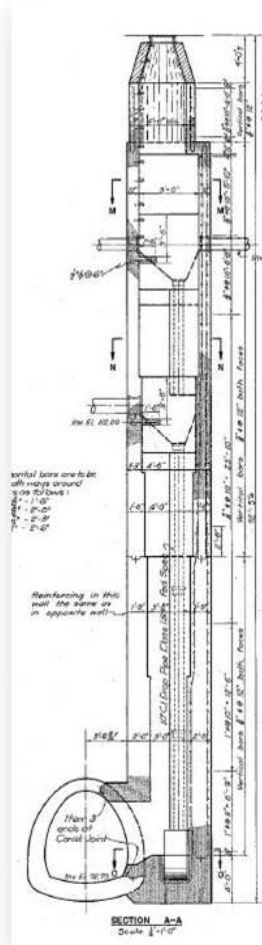
Type 2- These manholes have various chambers and drop lines that carry flow from the street level into the interceptor. They are complex in design and are extremely difficult to inspect and access.

Type 3 – This unique manhole has multiple chambers and a sluice gate with a control wheel for opening and shutting. The sluice gate has been closed since around 1975.

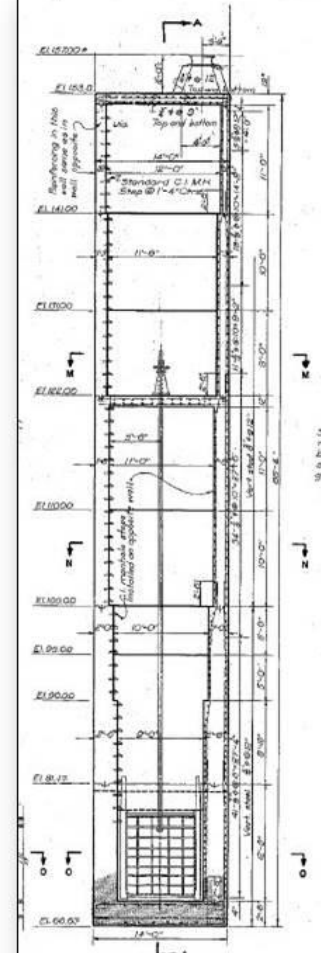
Type 1- Standard MH



Type 2- Drop MH



Type 3- Sluice Gate MH



Section 2: Condition Assessment Planning

The development of the proposed plan of execution for this project required several months of careful planning. The assessment team drew from the expertise of key team industry members. This involved industry experts in engineering, collection systems evaluation, specialty diving, safety as well as local knowledge and history of the Front Street interceptor. Once the plan of execution was developed, a Seven Task approach was put into action. These tasks included:

TASK 1:

Perform 3D Optical Manhole Inspection Scans on the manholes located at:

- Front Street and Poplar Ave
- Front Street and Peabody Place
- Front Street and Butler Ave
- Alternate Manhole 1 (if required)*All locations provided by Allen & Hoshall*
- Alternate Manhole 2 (if required)*All locations provided by Allen & Hoshall*

TASK 2:

Dive Team reviews 3D Manhole Scans and selects the best two manholes for entry. One manhole will be chosen north of Beale Street and one manhole will be selected south of Huling St. (Between the Priority Area).

TASK 3:

Dive Team develops a comprehensive plan/approach to inspect the interceptor at the bottom of the target manholes. The inspection of the interceptor will require several preparatory tasks. These tasks will include removal of all manhole steps that could entangle any air hoses, safety lines and personnel stages. All grease, solids and other materials that would block the divers' safe and efficient entry from the bottom of the manhole into and the interceptor will be removed and disposed at the surface.

TASK 4:

Two target manholes have been identified from the review of our 3D Manhole Optical Scans as Scan # 1 : Manhole FS031211- E. BUTLER AVE 7 and Scan # 3: Manhole FS031142- Peabody Place and Front St.. These target manholes will be modified (made larger) for the safe entry of the dive team personnel and equipment. This will involve street cuts, removal of brick cones to a diameter approved by the Dive Team Manager allowing for safe entry and emergency extraction if required. Traffic control will be required.

TASK 5:

Procedure for Accessing and Inspecting the Memphis Front Street Interceptor. The Dive Team will begin operations at manhole (FS031142, located at Peabody Place at Front St). All steps will be removed from the manhole to ensure that stage and hoses will not hang on them. Divers will proceed to the bottom of the manhole to determine debris levels and penetration challenges. If debris has to be removed for Divers to make their penetration, this will be set up by pumping equipment and material will be removed to the surface and handled by the surface team. Once it is determined safe for Divers to penetrate the interceptor, they will start their penetrations to a determined length. A two man Dive Team will enter the interceptor and perform penetration inspections in the upstream and downstream directions from the bottom of the target manholes. The penetrations will be in distances of 10' linear feet from each direction of the manhole as determined by the representatives of the City of Memphis. The Dive Team will evaluate the general characteristic of interceptor including, visibility, flow conditions, debris characteristics, debris levels, capacity (free space of the interceptor), and wall conditions. The dive team will utilize a (clear box with video) to capture images of the interceptor wall conditions. The surface team will provide clean water source which will be pumped into and displace the black water in the "clear box" which will allow for video capture of the structural conditions of the interceptor walls. The Dive Team will collect one video image of the interceptor wall for approximately every 10 linear feet. This process will be repeated at the second targeted manhole (FS031142, located at Peabody Place at Front St).

***If instructed by the City of Memphis representatives, the Dive Team will assist with deployment and removal of RedZone Robotics assets (Sonar Sub). The established per day Dive Team rate will apply to any deployment assistant for the RedZone Robotics assets.

*** If the Dive Team is unable to penetrate the interceptor after making every reasonable effort due to major obstructions, cave-ins, lack of capacity (head clearance) or other reasons the inspection will be considered as complete and the Dive Team will be compensated for all fees plus "Penetrations fees to 50 linear feet. ***

TASK 6:

From the Butler Street manhole, the Dive Team to conduct double 500 lf penetration dives. The first dive will be to the north toward the manhole located at Huling Street. The goal and purpose of Task 6 are for divers to evaluate/ assess the general characteristics of the Front Street interceptor. The divers will observe the characteristics of the wastewater and structural conditions of the interceptor. They will note visibility, temperature, suspended solids, debris levels, and conditions of the walls and interceptor floor. The second dive will be to the south toward the manhole located at Calhoun Street. The Dive Team will also utilize clear box camera technology to capture images every one hundred feet, at three specific locations within the interceptor. The divers will utilize Pneumofathometer technology to determine the debris depth at the bottom of the interceptor. For documentation, the Dive Team will make DVDs, and create accurate drawings depicting image

locations and the depth of debris. All data will be submitted for evaluation of Black & Veatch and representatives of the City of Memphis.

TASK 7:

From the Butler Street manhole, the Dive Team to conduct double 1000 lf penetration dives. The objective of this double penetration dive is to evaluate the conditions within the Memphis Front Street Interceptor. Penetration Dive No. 1 will have the Dive Team enter the Front Street Interceptor from the manhole located at Front Street and Butler Ave. The diver will then proceed north along Front Street towards Peabody Place until he has traveled (evaluated) 1000 linear feet of the Interceptor or has encounter obstructions or a debris field which would block his forward progress. The dive will be videoed utilizing the diver's video equipment (Latest generation GoPro technology).

Penetration Dive No. 2 will proceed south on Front Street towards Calhoun Street. The diver will conduct the same evaluation as on Penetration Dive No. 1, including tactile observations, debris field observations and any other conditions that would reflect the conditions of the Interceptor.

TASK 7: Special Provisions and Directives:


- If during either penetration dive the diver encounters an obstruction that blocks his forward progress or that would present the risk of entanglement, the dive will be terminated and considered as complete.
- These rates approved for a 1000' double penetration dive will only be used when approved by Mr. Joe Collins or Mr. Bradley Davis.
- The decision to go south on penetration dive number 2 will be made on site and approved by Mr. Joe Collins.

Section 3: Condition Assessment Planning

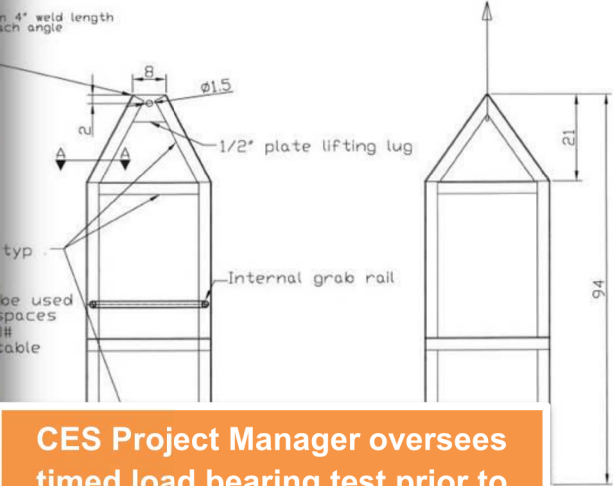
Tasks 1 thru 7 of the Assessment Plan and operation required specialized equipment and safety considerations. The following images document and reflect these efforts.



A special dive cage (stage) was required for this project. The cage was designed by a professional engineer. Each day prior to operations the dive cage would be “load tested” to ensure that the divers and the operation would be safe.




TEST LOAD
1600#




NOTES:

1. All material A36 Carbon Steel.
2. All load path welds to be inspected 100% LPT or Mag Partice by AWS certified inspector.
3. Inspection tag must be affixed to the work basket.
4. Inspection and Test Records must be filed on location.
5. Personnel Work Basket must be lightly marked on the interior of the basket as follows:
 - a. Manufacturer's name and address
 - b. Basket rating in Max Wt.
 - c. Basket rating in Max number of personnel
 - d. Identification or Serial number
 - e. Weight of empty basket
 - f. Date of manufacture
 - g. List of any unique environments for which it was designed

WORKING LOAD LIMIT=1070 lbs
 MAXIMUM PERSONNEL=2
 TARE/EMPTY WEIGHT=370 lbs
 TEST LDAD=1.5X1070=1600 lbs



BRIAN SAUCIER
 License No. 23325
 PROFESSIONAL ENGINEER
 STATE OF LOUISIANA





BLUM ENTERPRISES, INC.
 1800 HOWE AVENUE
 MONROE, LOUISIANA
 ENGINEERS, DESIGNERS & FABRICATORS

SPECIALTY DIVING

NO.	DESCRIPTION	BY	DATE	ISSUED	REVISION

DATE		BASKET	
TIME		SERIAL #	
JOB NO.		DWG. NO.	

CES Project Manager oversees timed load bearing test prior to all daily operations

Dive operations have many dangers and potential hazards. Due to the complex nature of operations, the dive team prepares for “self rescue” prior to each day of operation. The on-site decompression chamber is critical to “self rescue”. In this image, a commercial diver checks out the oxygen supply and pressure chambers to ensure efficient operations.

This image reflects the primary and redundant equipment systems necessary for a safe penetration dive. Back-up air sources, decompression chamber, hoses, fall protection systems and stand by divers can be seen during the dive at Front Street and Butler Avenue.

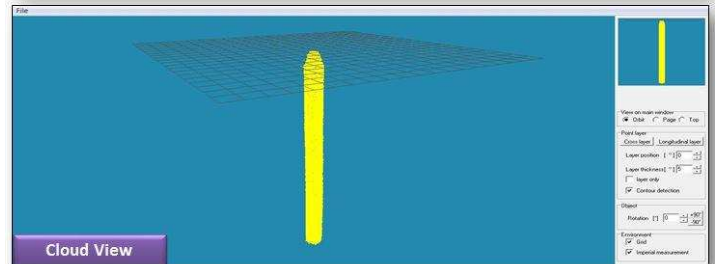


Section 4: Assessment Findings-Manhole Scans

3D Optical Manhole Scan 1- FS031211 Front St at Butler Ave



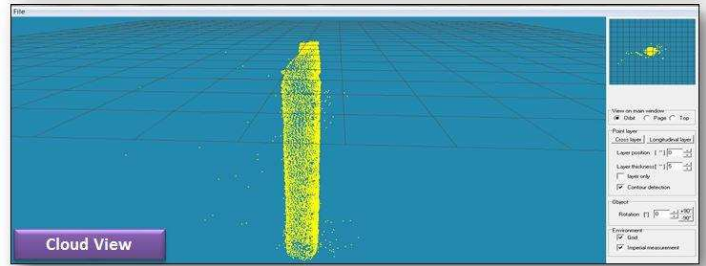
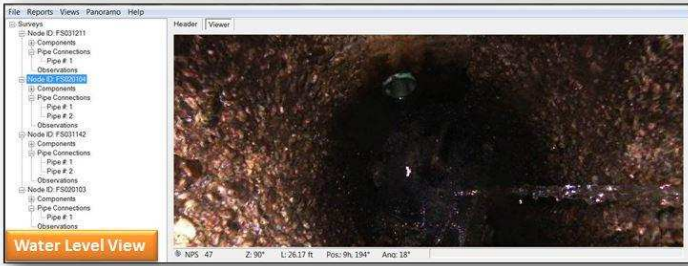
3D Optical Manhole Scan 1- FS031211 Front St at Butler Ave



3D Optical Manhole Scan 2- FS020104 Front St at Poplar



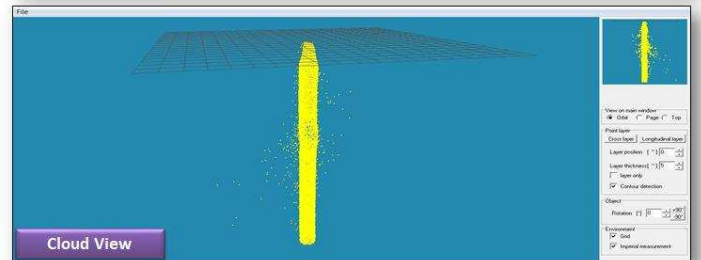
3D Optical Manhole Scan 2- FS020104 Front St at Poplar



3D Optical Manhole Scan 3- FS031142 Front St at Peabody Place



3D Optical Manhole Scan 3- FS031142 Front St at Peabody Place



3D Optical Manhole Scan 4- FS020103 Front St at Commerce

3D Optical Manhole Scan 4- FS020103 Front St at Commerce

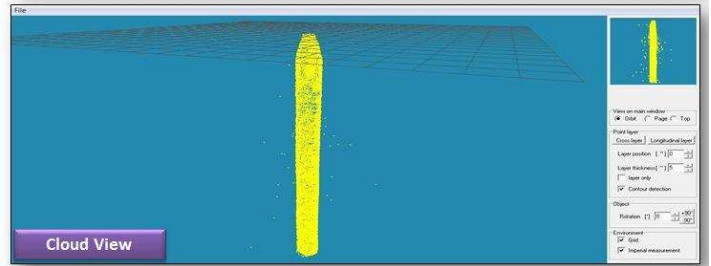
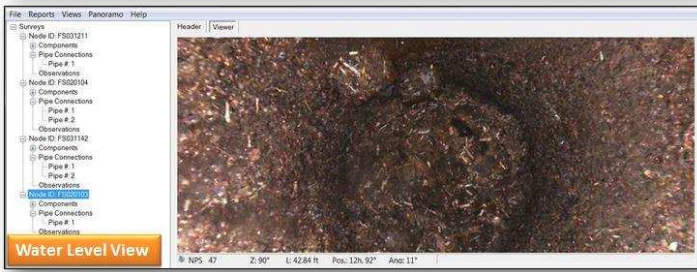
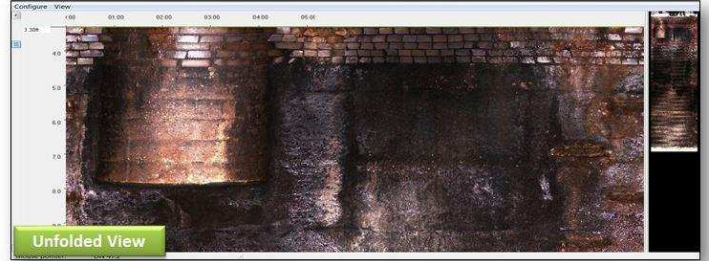
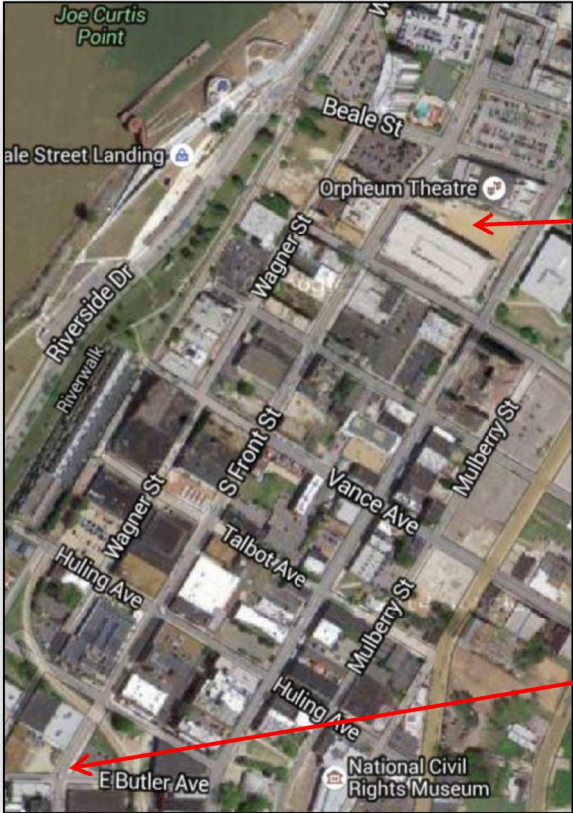


Illustration 1 – Interceptor at Peabody Place (debris field)

The Front Street Interceptor at this location has lost most of its carrying capacity. The illustration represents the shape of the debris field. The debris consist of heavy impacted solids. There is minimal flow capacity at this location.



TABLE 2				
Gas Reading From Peabody Place Manhole				
H2S	O2	CO	Combust	
5	20.7	0	1.7	Surface
9	19.7	0	8.8	10 ft
20	18.7	0	XXX	20 ft
29	17.7	8	XXX	30 ft
39	17.0	4	XXX	40 ft
41	16.7	11	XXX	50 ft
47	16	15	XXX	60 ft



Peabody Place Manhole

Butler Ave Manhole

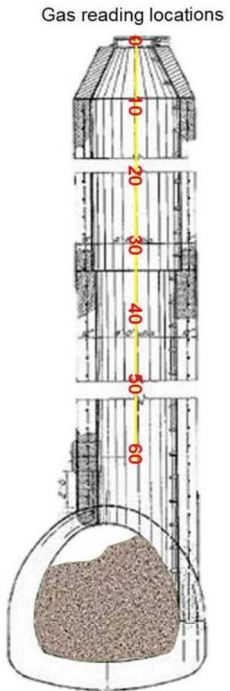


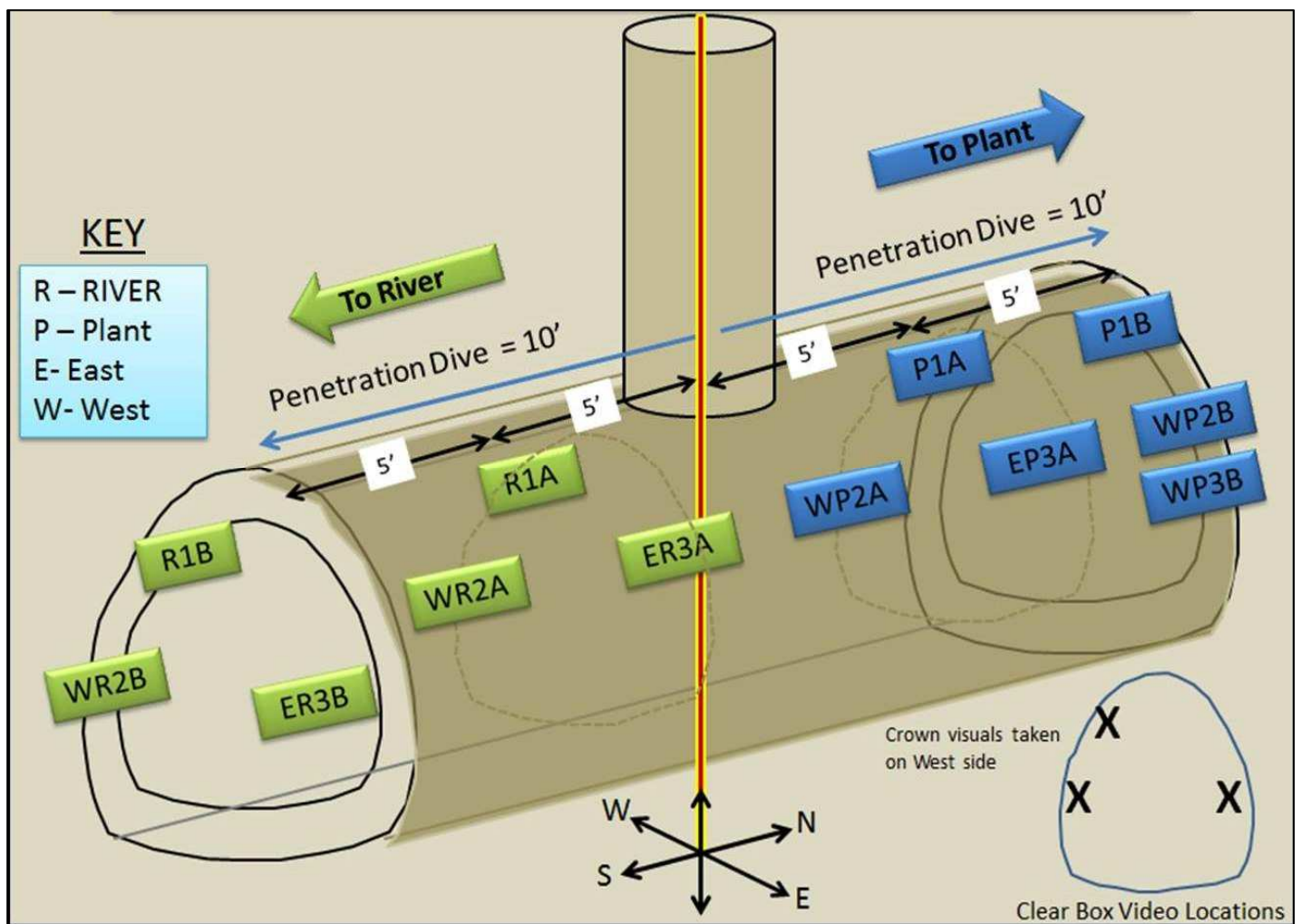
TABLE 3				
Gas Reading From Butler Ave Manhole				
H2S	O2	CO	Combust	
0	20.5	0	0	Surface
0	20.5	0	0	10 ft
0	20.4	0	0	20 ft
0	20.2	0	0	30 ft
0	20.0	0	0	40 ft
0	20.0	0	0	50 ft
0	20.0	0	0	60 ft

Assessment Observation Notes from Peabody Place at Front Street

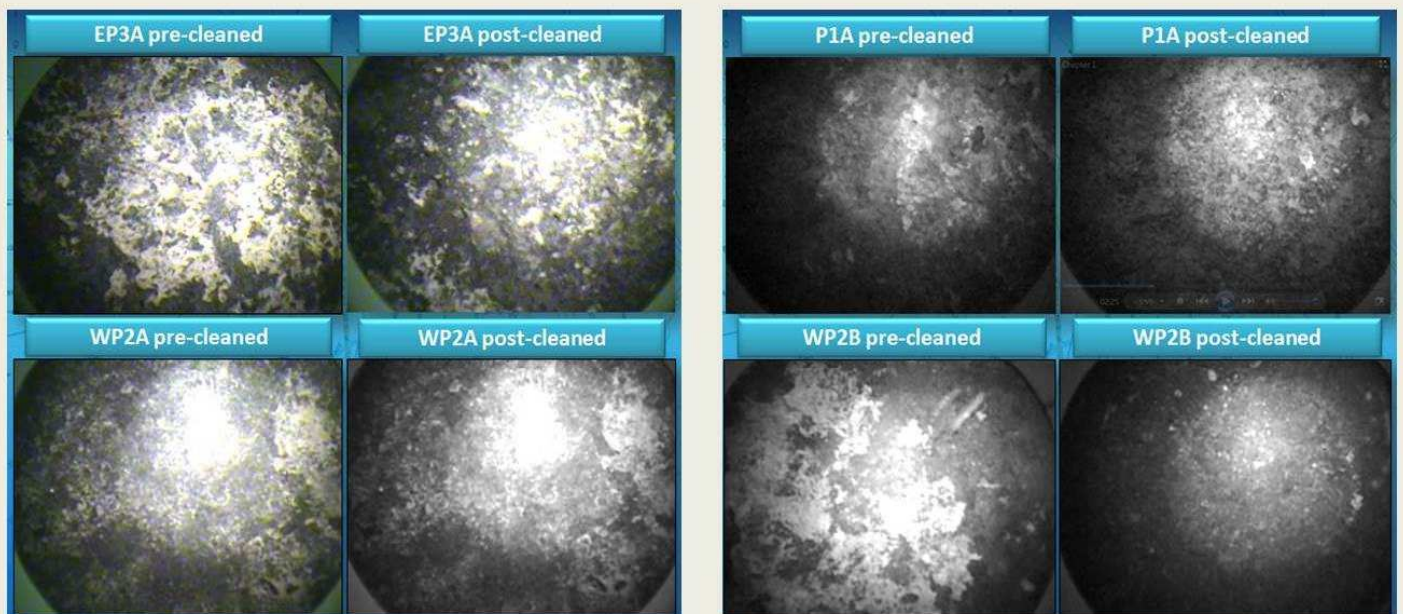
- The atmospheric conditions within this manhole and within the interceptor presented high levels of gases that are hazardous and destructive to sanitary sewer systems.
- The interceptor at this location is near full of debris, (approximately 75%-80%) of the carrying capacity of the interceptor has been lost.
- Immediately following a heavy thunderstorm, the flow in the shaft became violent, surcharging up many feet into the manhole indicating storm water cross connections.

TABLE 4: Clear Box Video Locations from 10 If Penetration Dive

Location : Butler Avenue		
Position Name	Distance to Location	Wall Position of Image
R1A	5 If From Centerline of Manhole	11 O'clock West Wall
WR2A	5 If From Centerline of Manhole	9 O'clock West Wall
ER3A	5 If From Centerline of Manhole	3 O'clock East Wall
R1B	10 If From Centerline of Manhole	11 O'clock West Wall
WR2B	10 If From Centerline of Manhole	9 O'clock West Wall
ER3B	10 If From Centerline of Manhole	3 O'clock East Wall
P1A	5 If From Centerline of Manhole	11 O'clock West Wall
WP2A	5 If From Centerline of Manhole	9 O'clock West Wall
EP3A	5 If From Centerline of Manhole	3 O'clock East Wall
P1B	10 If From Centerline of Manhole	11 O'clock West Wall
EP3A	10 If From Centerline of Manhole	9 O'clock West Wall
EP3B	10 If From Centerline of Manhole	3 O'clock East Wall

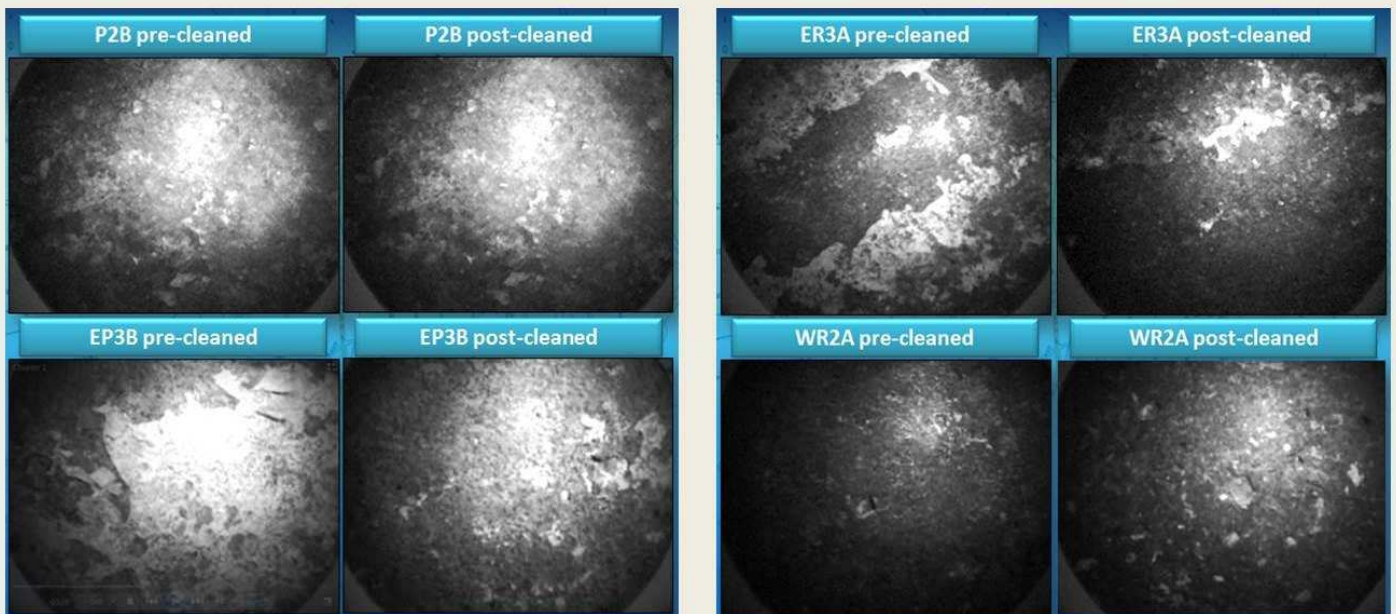


The following are Interceptor Images captured from video assessment. The interceptor at this location is in excellent structural condition. These DVDs can be observed and include diver and dive supervision audio overlays that detail each video location.



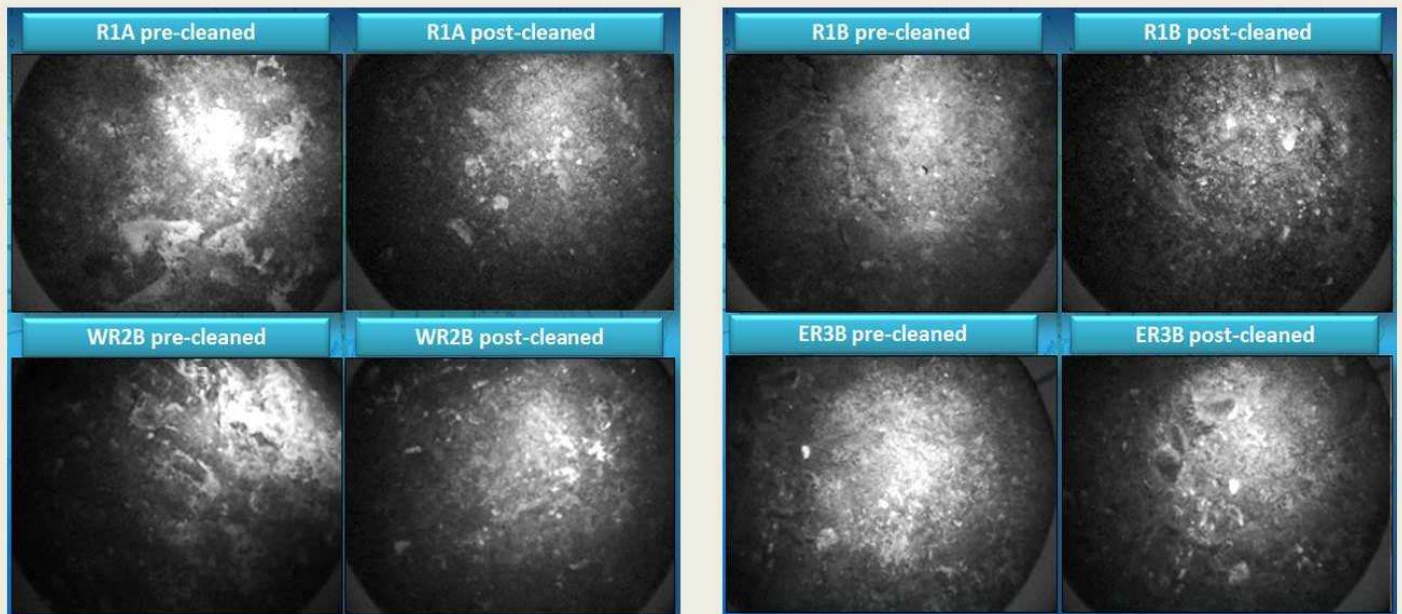
Live images of this assessment are on file (DVD Format)

The following are Interceptor Images captured from video assessment. The interceptor at this location is in excellent structural condition. These DVDs can be observed and include diver and dive supervision audio overlays that detail each video location.



Live images of this assessment are on file (DVD Format)

The following are Interceptor Images captured from video assessment. The interceptor at this location is in excellent structural condition. These DVDs can be observed and include diver and dive supervision audio overlays that detail each video location.



Live images of this assessment are on file (DVD Format)

TABLE 5: Clear Box Video Locations from 500 lf Penetration Dive

Direction of dive : Towards Huling			
Position Name	Distance to Location	Clock Reference in Interceptor	Debris Depth
P1	100 lf From Centerline of Manhole	11 O'clock West Wall	Approx. 1 ft.
P1A	100 lf From Centerline of Manhole	9 O'clock West Wall	Approx. 1 ft.
P1B	100 lf From Centerline of Manhole	3 O'clock East Wall	Approx. 1 ft.
P2	200 lf From Centerline of Manhole	11 O'clock West Wall	Approx. 1 ft.
P2A	200 lf From Centerline of Manhole	9 O'clock West Wall	Approx. 1 ft.
P2B	200 lf From Centerline of Manhole	3 O'clock East Wall	Approx. 1 ft.
P3	300 lf From Centerline of Manhole	11 O'clock West Wall	Approx. 1 ft.
P3A	300 lf From Centerline of Manhole	9 O'clock West Wall	Approx. 1 ft.
P3B	300 lf From Centerline of Manhole	3 O'clock East Wall	Approx. 1 ft.
P4	400 lf From Centerline of Manhole	11 O'clock West Wall	Approx. 1 ft.
P4A	400 lf From Centerline of Manhole	9 O'clock West Wall	Approx. 1 ft.
P4B	400 lf From Centerline of Manhole	3 O'clock East Wall	Approx. 1 ft.
P5	500 lf From Centerline of Manhole	11 O'clock West Wall	Approx. 1 ft.
P5A	500 lf From Centerline of Manhole	9 O'clock West Wall	Approx. 1 ft.
P5B	500 lf From Centerline of Manhole	3 O'clock East Wall	Approx. 1 ft.

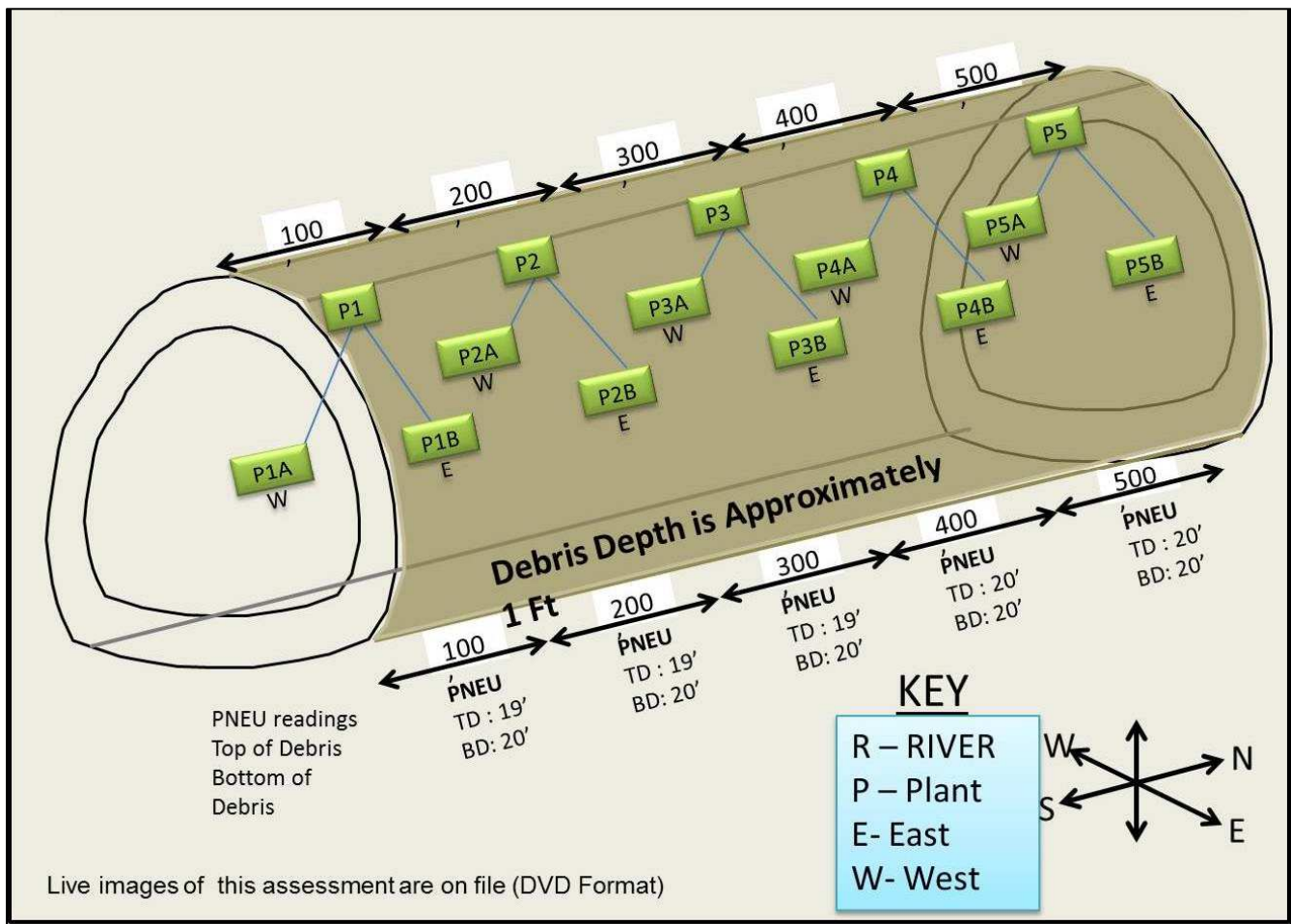


TABLE 6: Clear Box Video Locations from 500 If Penetration Dive

Direction of dive : Towards Calhoun St			
Position Name	Distance to Location	Clock Reference in Intercepto	Debris Depth
R1	100 lf From Centerline of Manhole	11 O'clock West Wall	<= 1 ft.
R1A	100 lf From Centerline of Manhole	9 O'clock West Wall	<= 1 ft.
R1B	100 lf From Centerline of Manhole	3 O'clock East Wall	<= 1 ft.
R2	200 lf From Centerline of Manhole	11 O'clock West Wall	<= 1 ft.
R2A	200 lf From Centerline of Manhole	9 O'clock West Wall	<= 1 ft.
R2B	200 lf From Centerline of Manhole	3 O'clock East Wall	<= 1 ft.
R3	300 lf From Centerline of Manhole	11 O'clock West Wall	<= 1 ft.
R3A	300 lf From Centerline of Manhole	9 O'clock West Wall	<= 1 ft.
R3B	300 lf From Centerline of Manhole	3 O'clock East Wall	<= 1 ft.
R4	400 lf From Centerline of Manhole	11 O'clock West Wall	<= 1 ft.
R4A	400 lf From Centerline of Manhole	9 O'clock West Wall	<= 1 ft.
R4B	400 lf From Centerline of Manhole	3 O'clock East Wall	<= 1 ft.
R5	500 lf From Centerline of Manhole	11 O'clock West Wall	<= 1 ft.
R5A	500 lf From Centerline of Manhole	9 O'clock West Wall	<= 1 ft.
R5B	500 lf From Centerline of Manhole	3 O'clock East Wall	<= 1 ft.

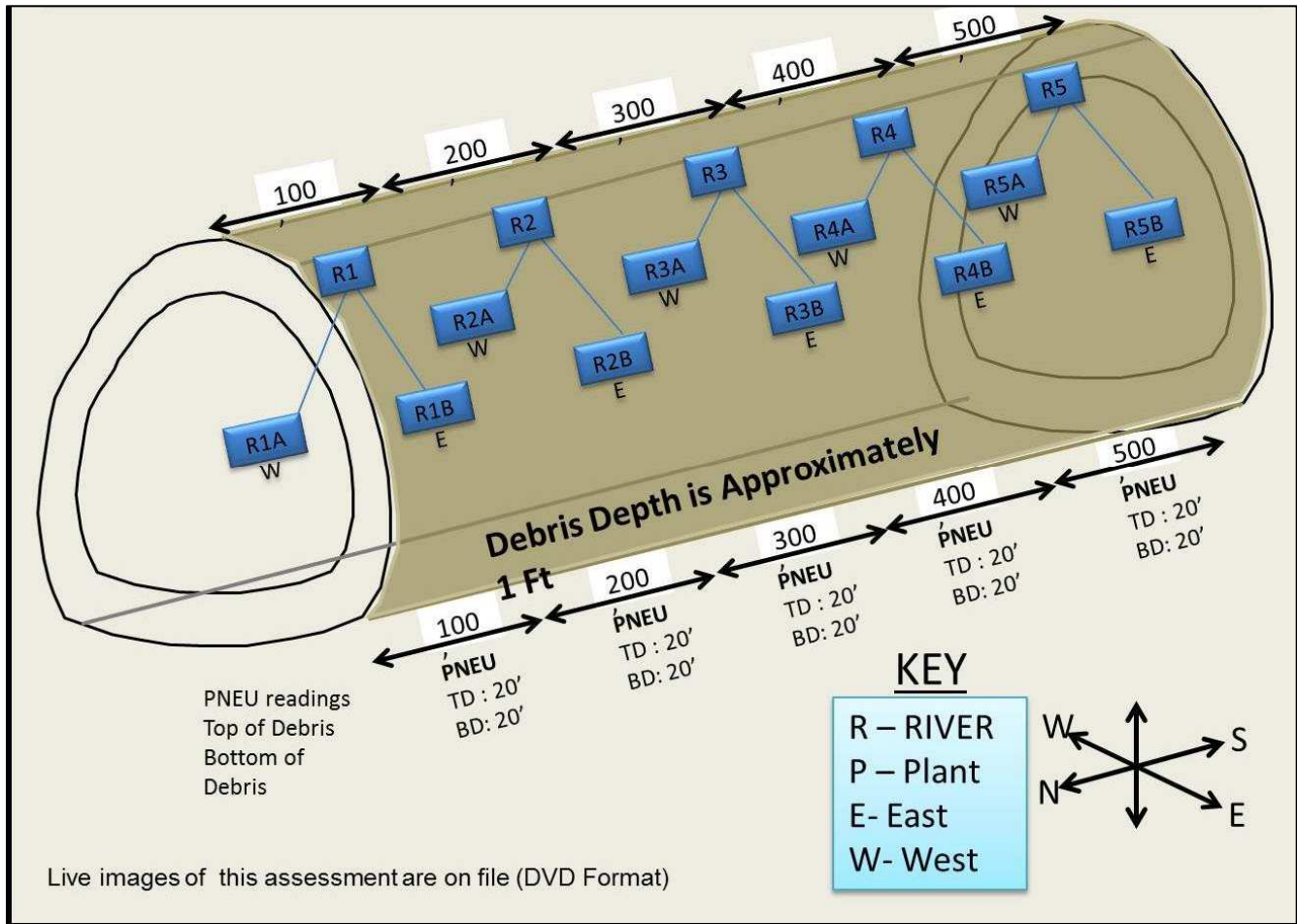
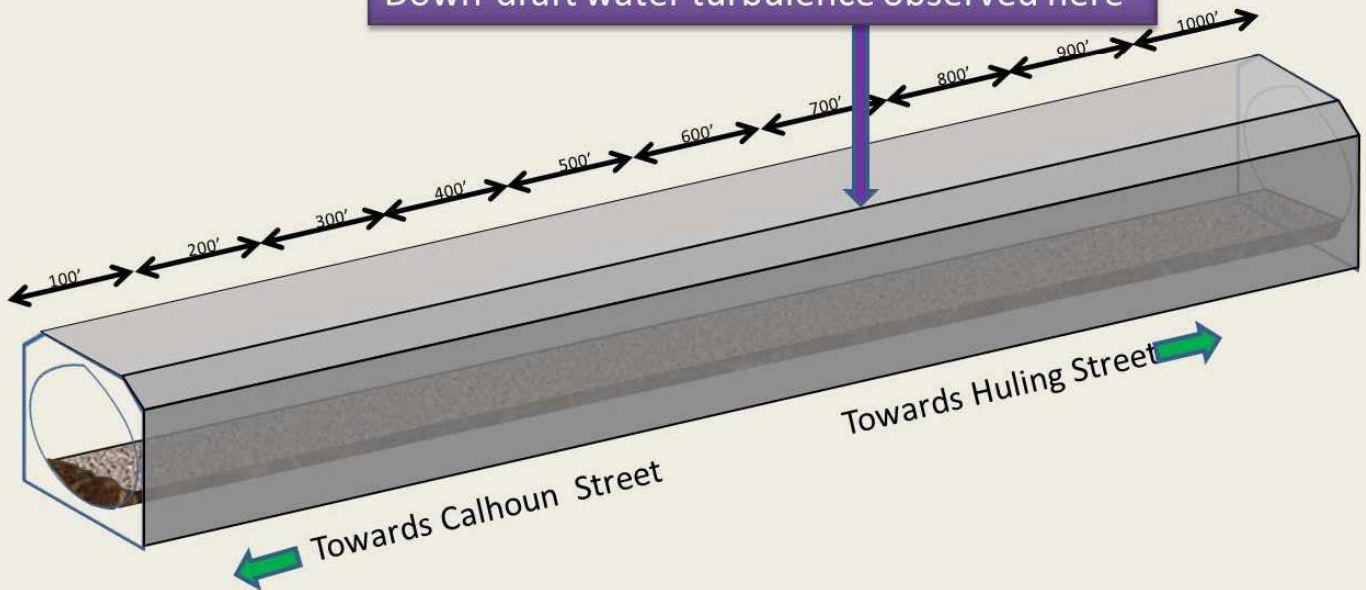


ILLUSTRATION 2: Schematic of 1000 linear ft. penetration dive with diver observations

Tactile observations by diver during this penetration dive:

- The structural condition of the interceptor is “excellent”
- Visibility within the interceptor is very good to excellent
- Water temperatures are very cold for sanitary sewerage
- A water sample was taken within the interceptor
- Debris level was around 1 foot deep throughout the inspection
- Some material was observed leaching at some joints

Down-draft water turbulence observed here



Assessment Observations Notes from the dive team evaluation of the Front Street interceptor at Butler Ave.

- The atmospheric conditions within this manhole are atypical from deep sanitary sewers. This anomaly should be further explored to determine the lack of H₂S, normal O₂ levels, and no combustible gasses.
- The interceptor at this location contains very little debris. A debris level of approximate 1 foot is present in the interceptor for several hundred feet in each direction. This anomaly should be further explored to determine the location of the debris field.
- The water temperature at this location is well below that of sanitary sewerage. This anomaly should be investigated to determine the source of this cold water.
- The visibility within the interceptor is atypical for a sanitary sewer system. This anomaly should be investigated to determine the source of this clear water.

Section 4: Comments and Recommendations

The dive team made several assessment dives into the interceptor from two manholes located on Front Street. The dives disclosed two extreme conditions within the interceptor. The first dive at the Peabody manhole revealed dangerous levels of sewer and combustion gasses. The interceptor at this location has lost most of its carrying capacity. A debris field at this location occupies approximately 75-80% of the interceptor. The second set of assessment dives were from the manhole located on Butler Avenue. The conditions here revealed little or no debris and atmospheric conditions that are atypical of a deep sanitary sewer with little or no scouring velocity. With each dive operation new details about the condition of the interceptor were revealed. The dive operations gave a snapshot into the actual overall condition of the interceptor. With each dive additional valuable data was collected and with each dive new questions were raised by the evaluation team. In order to fully evaluate the Front Street Interceptor, we recommend the next Tasks of where we go next.

TASK 8: Evaluation of the sluice gate at located in the manhole on Front St and Kansas Street.

TASK 9: Conduct double 1000 lf penetration dives from the manholes located at Huling, Peabody, and Poplar Streets to determine structural conditions and debris levels. Sonar assets will be deployed during this step where application is feasible.

TASK 10: Conduct heaving cleaning operations to reclaim the lost capacity of the interceptor. These areas requiring cleaning will be located by the dive team, and utilization of sonar technologies.