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February 23, 2009

Mr. Richard Mustico, P.E.  
Project Manager  
Div. of Environmental Remediation  
Remedial Bureau D  
625 Broadway, 12<sup>th</sup> Floor  
Albany, New York 12233-7016

**RE: Onondaga Lake, Supernatant Treatment Plant,  
Town of Geddes and City of Syracuse,  
Onondaga County, NY  
Order on Consent: Index #D7-0002-01-09**

Dear Mr. Mustico:

This letter describes the proposed integrity investigation of the 30-inch and 24-inch force mains that currently convey leachate from the Settling Basins 9-15 retention ponds to the Metropolitan Syracuse Wastewater Treatment plant (Metro) for treatment.

#### **Background**

The 30-inch force main, which is approximately 2 miles in length, was constructed in the late 1970's and the 24-inch force main was constructed in the late 1950's. The 24-inch force main is also approximately 2 miles in length.

The 24-inch and 30-inch force main were constructed of prestressed concrete cylinder pipe (PCCP) as confirmed by the laying schedules provided by Price Brothers, formerly Lock Joint Pipe Co.

The 30-inch and 24-inch force mains currently convey approximately 1.5 MGD from the Settling Basins 9-15 retention ponds to Metro. As part of the planning efforts associated with the Onondaga Lake Supernatant Treatment Plant, we propose to conduct integrity investigations on the 30-inch and 24-inch force mains to evaluate the feasibility of utilizing the force mains to convey 5 to 10 MGD of pre-treated effluent from the proposed Onondaga Lake Supernatant Treatment Plant to Metro.

A plan and profile view of the force mains are presented on Figure 1.

#### **Proposed Investigation**

It should be noted that the methodology described below should be considered an overall approach and certain steps may be adjusted based on field conditions encountered during the investigation. A flow chart showing how the proposed investigation may be modified based on encountered field conditions is included as Attachment 1.

In developing the proposed approach, consideration has been given to the age, location, projected operating pressures, environmental risks, accessibility, and preliminary investigation results (Appendix A).

The 24-inch force main will be investigated prior to the 30-inch force main based on the following:

- The 24-inch force main is approximately 20 years older than the 30-inch force main.
- The slope of the 24-inch force main (in the vicinity of Metro) is relatively flat, resulting in lower flow velocity, and an increased potential for sedimentation and scaling.
- Sedimentation and scaling were documented during the initial investigations ( Appendix A).

The investigation of the 24-inch force main will proceed upstream and into the 30-inch force main until reaching the existing leachate pumping station (the former County pumping station).

The proposed investigation will consist of the following tasks:

- Topographical Survey
- Wetland Delineation
- Temporary Gravel Access Road
- Cleaning & Internal Closed Circuit Television (CCTV) Inspection
- Evaluation of Existing Access
- Force Main Isolation and Dewatering
- Integrity Testing

#### **Topographical Survey of 24-inch and 30-inch Force Main**

A topographical/utility survey of the 24-inch and 30-inch force mains is proposed. This survey is intended to locate property lines, right of ways, easements & utilities. The proposed survey route will be an approximate 60 ft strip centered on the pipe line for the total length of the pipeline (approximately 4 miles).

#### **Wetland Delineation**

In addition to the survey, wetland delineation is also proposed prior to the installation of the proposed access road.

#### **Temporary Gravel Access Road**

A temporary gravel access road is proposed as presented on Figure 2. This road will allow vehicular access to force main structures for maintenance, dewatering activities, cleaning & CCTV efforts, and pressure testing.

#### **Cleaning & Internal CCTV Inspection**

The CCTV rover/crawler unit will view the interior of the force main for debris, scaling, as well as obvious signs of deterioration. Based on preliminary investigation results included in Appendix A, it is anticipated that the 24-inch force main will be hydraulically or mechanically cleaned from Relief Manhole RMH-2 to Metro prior to CCTV efforts as indicated on Figure 3. The remaining portions of the force mains will not be cleaned unless appreciable amounts of sediment/debris are encountered elsewhere in the force main. The water generated from the cleaning will be recycled back into the pipeline while the accumulated debris is removed and disposed of in an appropriate fashion. The CCTV unit is to be equipped with a radar unit (or

equivalent technology) to facilitate locating the force main above grade. CCTV efforts will also be coordinated with other activities, as described below, to facilitate force main access.

The 24-inch force main has one access structure (Metro Monitoring Station) which is located near the Metro facility. As part of the integrity investigation, access structures will be installed where the 24-inch force main crosses over Harbor Brook and at additional locations along the 24-inch force main to allow access for the cleaning & CCTV inspection. These proposed locations are illustrated on Figures 1 and 2(a, b, and c). Figure 1 also includes a table containing the approximate distances between existing and proposed access structures. The installation of these structures will also serve as an opportunity to visually evaluate the condition of the exterior of the pipe.

It is expected that the current structures located on 30-inch force main are sufficient to allow for most of the 30-inch force main to be CCTV'd.

Test pits are proposed to be excavated on the force mains should CCTV results identify areas that would benefit from further evaluation by means of test pits.

#### **Evaluation of Existing Access**

Prior to actual CCTV inspection, the 24-inch and 30-inch force main access structures will be dewatered. As stated previously, the 24-inch force main currently has only one structure, identified as Metro Monitoring Station, which will allow access into the force main for CCTV efforts. This structure does not require dewatering as it is a parshall flume structure that is located on top of a portion of the force main that is open to atmosphere. This structure may require modification to be able handle the additional flow requirements from the supernatant effluent. An air relief manhole does exist, RMH-2, however the structure does not allow access into the force main.

There are 12 structures (air relief, drainage, and special manhole structures) that currently exist on the 30-inch force main that will provide access to the force main to allow for cleaning & CCTV efforts. The existing structures on the 30-inch force main will need to be accessed to perform the proposed CCTV investigation. Based on field observations, these structures are likely to be filled or partially filled with water. This water will be sampled and characterized for proper disposal. A table presenting an estimate of the volume of water to be removed from each structure and a profile view of their approximate location is included on Figure 3.

It should be noted that during the force main dewatering, a certain degree of rehabilitation (nuts, bolts, gaskets, etc) will be necessary as it is anticipated that the existing hardware will not be in reusable condition.

#### **Force Main Isolation and Dewatering**

Sections of the force main will need to be dewatered to allow for CCTV activities to occur. Dewatering will occur utilizing a "per section" approach. In general, this will involve connecting to the force main in a drainage manhole and bypass pumping above grade to the leachate retention pond, temporary tanks, and/or back into the force main. There are six bypass pumping setups that will be used to dewater the force main. Figure 3 illustrates these systems. For the purpose of this work plan it is assumed that the existing valves in these structures are operational.

### **Integrity Testing**

To assess the structural integrity of the force mains, a hydrostatic pressure will be performed upon completion of CCTV efforts. The pressure test will be performed at 1.5 times the anticipated operating pressure. Prior to pressure testing, non-operational air relief valves will be replaced. The hydrostatic pressure testing will be performed by isolating sections of the pipeline using existing or new valves or plugging, filling with water, and inducing pressure with a pump.

The 24-inch force main does not currently have valves; therefore valves will be installed in the vicinity of the Metro Monitoring station and at the access manhole near Harbor Brook to facilitate the pressure testing.

### **Schedule**

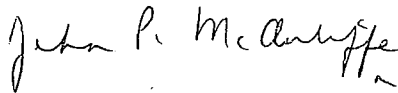
The anticipated schedule for this work is provided in Attachment 2.

### **Report**

Approximately 30 days after completion of the investigation, a report summarizing the results of the investigation and presenting the technical approach and schedule for future actions will be submitted to the NYSDEC.

Should you have any questions regarding the work described in this work plan, please contact Jeff Rogers at O'Brien & Gere or me at your earliest convenience.

Sincerely,

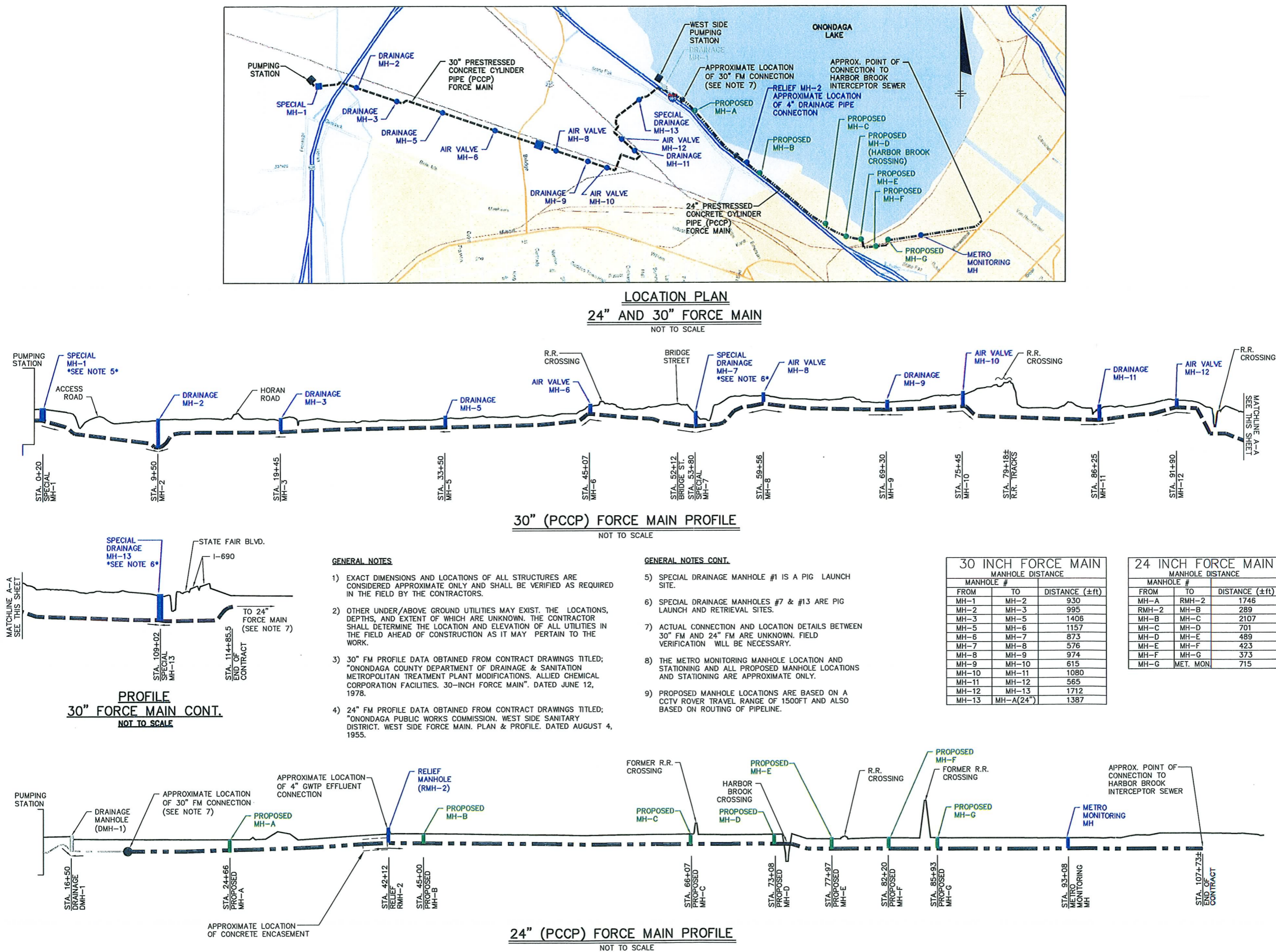


John P. McAuliffe, P.E.  
Program Director, Syracuse

Attachment – Figure 1, 2, and 3, Attachment 1 and 2, Appendix A

cc: Mr. Robert Nunes – USEPA, Region II  
Mr. Robert Edwards – NYSDEC, Albany  
Mr. Donald J. Hesler – NYSDEC, Albany  
Mr. Tim Larson – NYSDEC, Albany  
Ms. Sandy Lizlovs – NYSDEC, Syracuse  
Mr. James Burke – NYSDEC, Syracuse  
Mr. Brian Baker – NYSDEC, Albany  
Mr. Reggie Parker – NYSDEC, Syracuse  
Ms. Patty Pastella – OCDWEP, Syracuse  
Mr. Joe Mastriano – OCDWEP, Syracuse  
Mr. Steve Martin – OCDWEP, Syracuse  
Mr. Joe Heath, Esq. – Syracuse  
Mr. Gerry Jamieson – HETF/Onondaga Nation  
Mr. Brian Israel, Esquire – Arnold & Porter  
Ms. Tara Blum – NYSDEC, Reg 7  
Mr. Steve Miller – Parsons

FIGURE 1



HONEYWELL  
INTERNATIONAL INC.

HONEYWELL  
ONONDAGA LAKE  
SUPERNATANT  
TREATMENT PLANT  
SYRACUSE, NY

30"/24" SCH  
FORCE MAIN  
PLAN & PROFILE

FILE NO. 1163.42505.001  
FEBRUARY 2009



30" FORCE MAIN  
NOT TO SCALE



30" AND 24" (PCCP) FORCE MAIN  
NOT TO SCALE

FIGURE 2A



LEGEND

PROPOSED TEMPORARY  
GRAVEL ACCESS ROAD

HONEYWELL  
INTERNATIONAL INC.

HONEYWELL  
ONONDAGA LAKE  
SUPERNATANT  
TREATMENT PLANT  
SYRACUSE, NY

PROPOSED  
ACCESS ROAD

FILE NO. 1163.42505.007  
FEBRUARY 2009

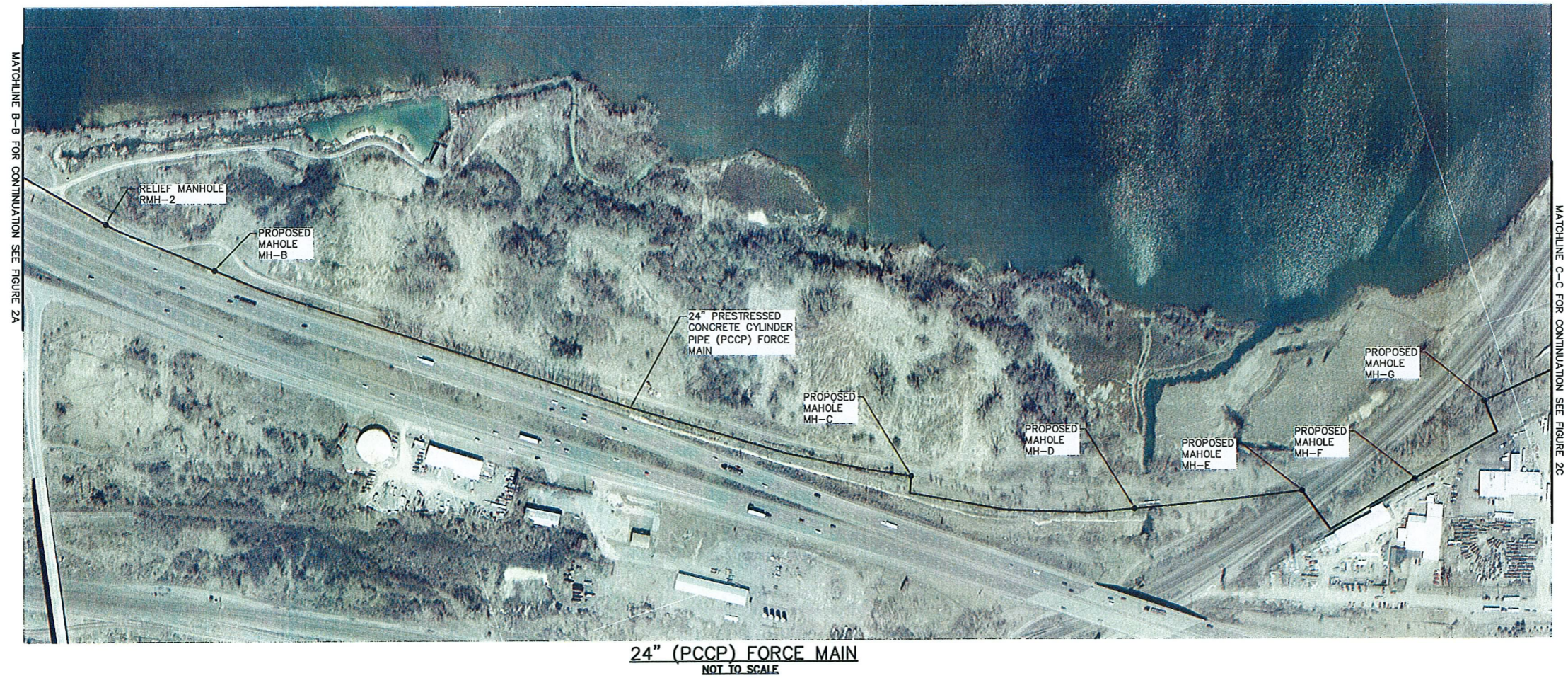



FIGURE 2B



LEGEND

 PROPOSED TEMPORARY GRAVEL ACCESS ROAD

HONEYWELL  
INTERNATIONAL INC.

HONEYWELL  
ONONDAGA LAKE  
SUPERNATANT  
TREATMENT PLANT  
SYRACUSE, NY

PROPOSED  
ACCESS ROAD

FILE NO. 1163.42505.007  
FEBRUARY 2009





24" (PCCP) FORCE MAIN CONT.  
NOT TO SCALE

FIGURE 2C



LEGEND

 PROPOSED TEMPORARY GRAVEL ACCESS ROAD

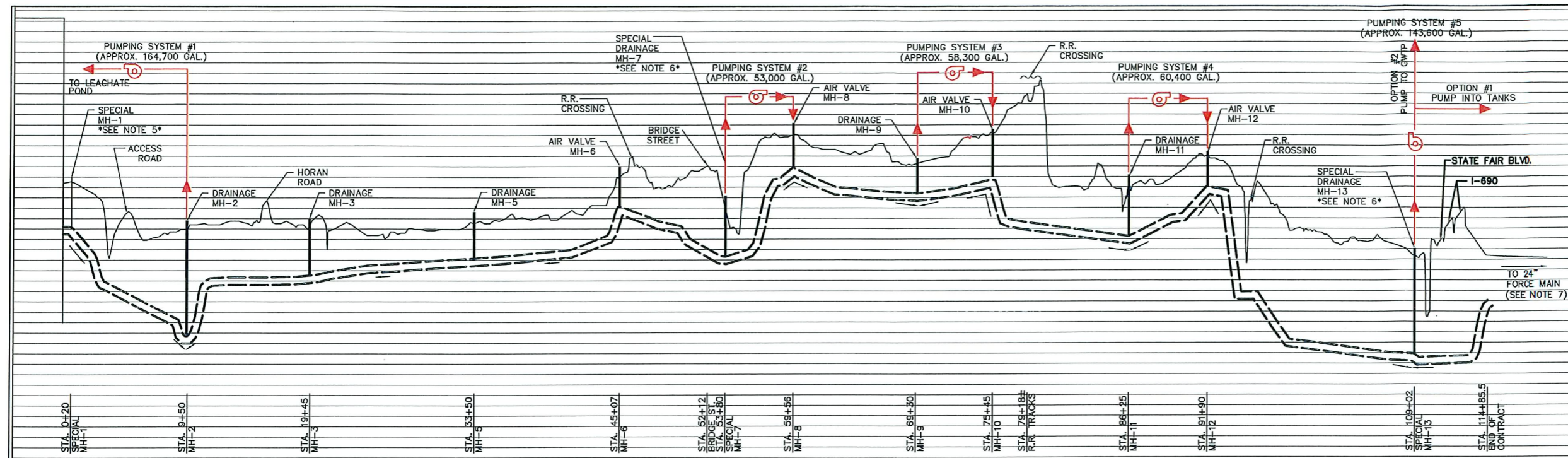
HONEYWELL  
INTERNATIONAL INC.

HONEYWELL  
ONONDAGA LAKE  
SUPERNATANT  
TREATMENT PLANT  
SYRACUSE, NY

PROPOSED  
ACCESS ROAD

FILE NO. 1163.42505.007  
FEBRUARY 2009





30" (PCCP) FORCE MAIN PROFILE  
NOT TO SCALE

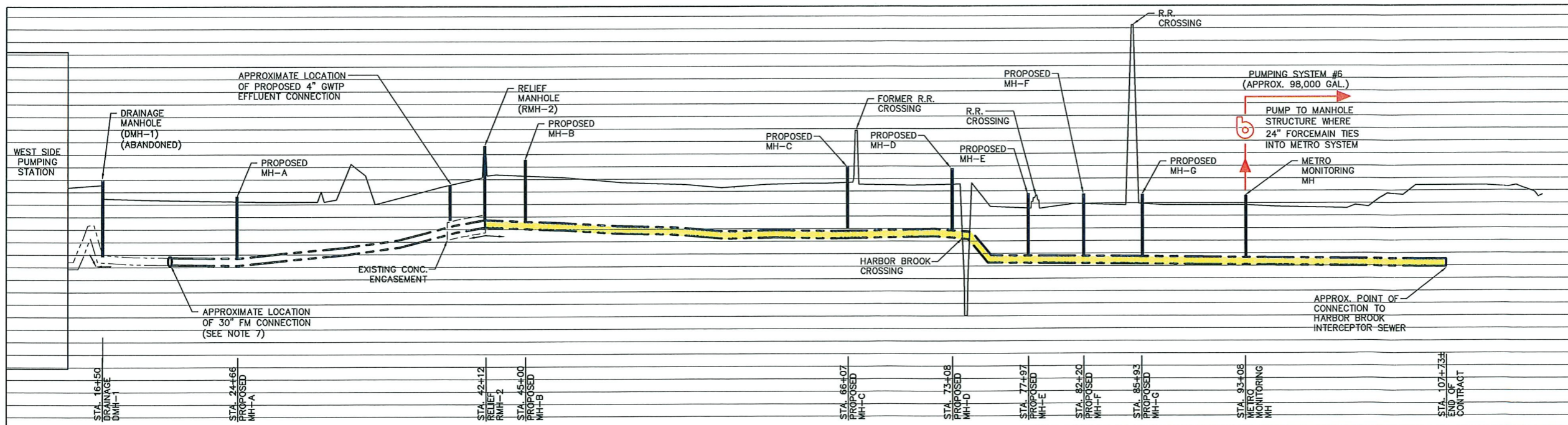
30 INCH FORCE MAIN Allied Chemical Corp. Facilities 30-INCH FORCE MAIN 6/12/1978	
Structure ID	Approx Volume of Infiltrated Water in Structures (gal):
Special MH-1	41,000
Drainage MH-2	9,000
Drainage MH-3	5,000
Drainage MH-5	4,700
Air Valve MH-6	3,800
Special MH-7	22,800
Air Valve MH-8	4,000
Drainage MH-9	4,700
Air Valve MH-10	4,300
Drainage MH-11	5,600
Air Valve MH-12	3,800
Special MH-13	22,800

GENERAL NOTES

- 1) EXACT DIMENSIONS AND LOCATIONS OF ALL STRUCTURES ARE CONSIDERED APPROXIMATE ONLY AND SHALL BE VERIFIED AS REQUIRED IN THE FIELD BY THE CONTRACTORS.
- 2) OTHER UNDER/ABOVE GROUND UTILITIES MAY EXIST. THE LOCATIONS, DEPTHS, AND EXTENT OF WHICH ARE UNKNOWN. THE CONTRACTOR SHALL DETERMINE THE LOCATION AND ELEVATION OF ALL UTILITIES IN THE FIELD AHEAD OF CONSTRUCTION AS IT MAY PERTAIN TO THE WORK.
- 3) 30" FM PROFILE DATA OBTAINED FROM CONTRACT DRAWINGS TITLED: "ONONDAGA COUNTY DEPARTMENT OF DRAINAGE & SANITATION METROPOLITAN TREATMENT PLANT MODIFICATIONS. ALLIED CHEMICAL CORPORATION FACILITIES. 30-INCH FORCE MAIN". DATED JUNE 12, 1978.
- 4) 24" FM PROFILE DATA OBTAINED FROM CONTRACT DRAWINGS TITLED: "ONONDAGA PUBLIC WORKS COMMISSION. WEST SIDE SANITARY DISTRICT. WEST SIDE FORCE MAIN. PLAN & PROFILE. DATED AUGUST 4, 1955.

GENERAL NOTES CONT.

- 5) SPECIAL DRAINAGE MANHOLE #1 IS A PIG LAUNCH SITE.
- 6) SPECIAL DRAINAGE MANHOLES #7 & #13 ARE PIG LAUNCH AND RETRIEVAL SITES.
- 7) ACTUAL CONNECTION AND LOCATION DETAILS BETWEEN 30" FM AND 24" FM ARE UNKNOWN. FIELD VERIFICATION WILL BE NECESSARY.
- 8) THE METRO MONITORING MANHOLE LOCATION AND STATIONING AND ALL PROPOSED MANHOLE LOCATIONS AND STATIONING ARE APPROXIMATE ONLY.



24" (PCCP) FORCE MAIN PROFILE  
NOT TO SCALE

FIGURE 3

LEGEND

- 24" FORCE MAIN
- 30" FORCE MAIN
- 24" FORCE MAIN OUT OF SERVICE
- DRAINAGE DIRECTION
- PROPOSED EXTENTS OF CLEANING

HONEYWELL  
INTERNATIONAL INC.

HONEYWELL  
ONONDAGA LAKE  
SUPERNATANT  
TREATMENT PLANT  
SYRACUSE, NY

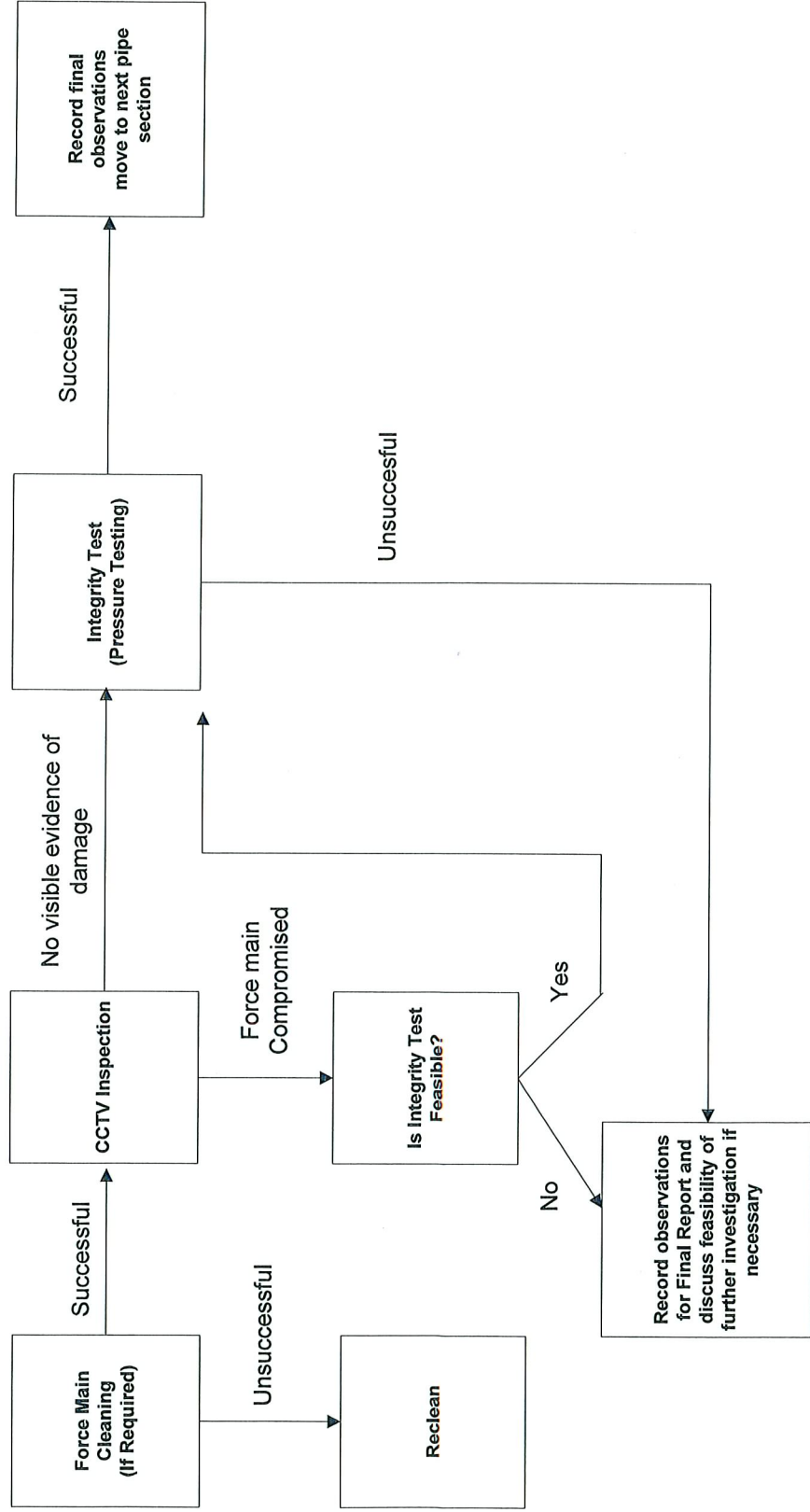
PROPOSED BYPASS  
PUMPING  
CONFIGURATION FOR  
FORCEMAIN  
DEWATERING

FILE NO. 1163.42505.010  
FEBRUARY 2009

**30/24-Inch Force Main Integrity  
Investigation Flow Diagram**

Onondaga Lake Supernatant Treatment Plant  
Syracuse, NY

30/24-Inch Force Main Integrity Investigation Flow Diagram



## **ATTACHMENT 2**

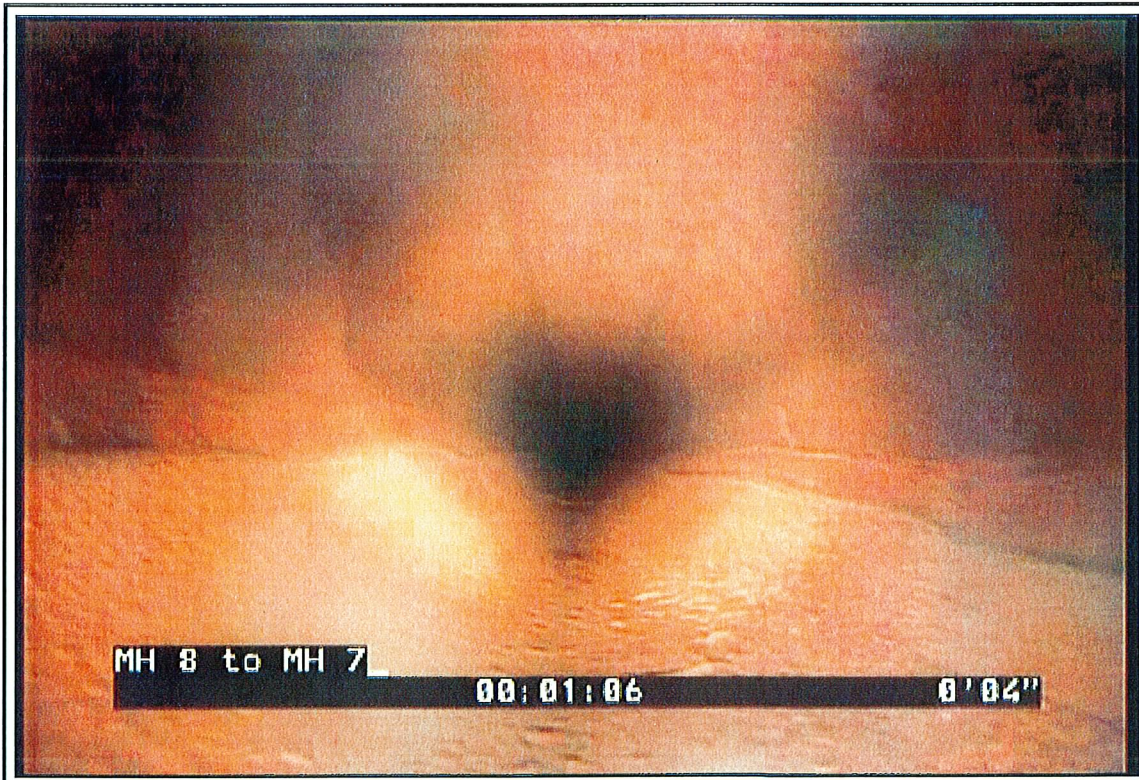
### **Schedule**

37676 Onondaga Lake		Data Date: 02-Feb-09		Print Version: 19-Feb-09 13:34	
Activity ID	Activity Name	Original Duration	Start	Finish	
37676 Onondaga Lake		590	03-Nov-08 A	13-Apr-11	
<b>DREDGING / SCA / WATER TREATMENT PLANT OPERATIONS</b>					
<b>WTP Design and Construction</b>					
<b>30" / 24" Force Main Upgrade</b>					
<b>Force Main Scoping</b>					
FM 1020	Prepare Force Main Inspection Work Plan	590	03-Nov-08 A	13-Apr-11	
FM 1030	Honeywell Review Force Main Inspection Work Plan	590	03-Nov-08 A	13-Apr-11	
FM 1040	Incorporate HON comments into Force Main Inspection Work Plan	590	03-Nov-08 A	13-Apr-11	
FM 1050	Submit Force Main Inspection Work Plan to NYSDEC	138	03-Nov-08 A	30-Jun-09	
FM 1060	DEC Review of Force Main Inspection Work Plan	10	03-Nov-08 A	03-Feb-09	
FM 1070	Incorporate DEC Comments into Force Main Inspection Work Plan	5	04-Feb-09	10-Feb-09	
FM 1080	Submit Final Force Main Inspection Work Plan to NYSDEC	5	11-Feb-09	17-Feb-09	
FM 1090	DEC Final Review of Force Main Work Plan / Issue Approval	0	18-Feb-09	18-Feb-09	
FM 1100	Bid Phase Services for Force Main Inspection	29	19-Feb-09	31-Mar-09	
FM 1110	Award Contract for Force Main Inspection	20	01-Apr-09	28-Apr-09	
<b>Force Main Rehabilitation</b>					
FM 2010	Contractor Mobilization for Force Main Inspection	0	29-Apr-09	05-May-09	
FM 2020	Clean / Televis / Pressure Test Force Mains	39	06-May-09	30-Jun-09	
FM 3010	Develop Rehabilitation Plan	0	30-Jun-09	30-Jun-09	
FM 3020	Honeywell Review Rehabilitation Plan	73	01-Jul-09	13-Oct-09	
FM 3030	Incorporate Honeywell Comments into Rehabilitation Plan	10	01-Jul-09	15-Jul-09	
FM 3040	Submit Rehabilitation Plan to NYSDEC	63	16-Jul-09	13-Oct-09	
FM 3050	NYSDEC Review Rehabilitation Plan	379	14-Oct-09	13-Apr-11	
FM 3060	Incorporate NYSDEC Comments into Rehabilitation Plan	75	14-Oct-09	02-Feb-10	
FM 3070	Submit Final Rehabilitation Plan to NYSDEC	5	03-Feb-10	09-Feb-10	
FM 3080	NYSDEC Review of Rehabilitation Plan / Issue Approval	10	10-Feb-10	23-Feb-10	
FM 3090	Bid Phase Services for Rehabilitation of 30" / 24" Force Mains	0	24-Feb-10	06-Apr-10	
FM 3100	Award Contract for Rehabilitation of 30" / 24" Force Mains	10	07-Apr-10	20-Apr-10	
FM 3110	Mobilization for Rehabilitation of 30" / 24" Force Mains	5	21-Apr-10	27-Apr-10	
FM 3120	Rehabilitation of 30" / 24" Force Mains	44	28-Apr-10	29-Jun-10	
FM 3130	Prepare Completion Report for Rehabilitation of 30" / 24" Force Mains	0	29-Jun-10	29-Jun-10	
		9	30-Jun-10	13-Jul-10	
		130	14-Jul-10	18-Jan-11	
		61	19-Jan-11	13-Apr-11	

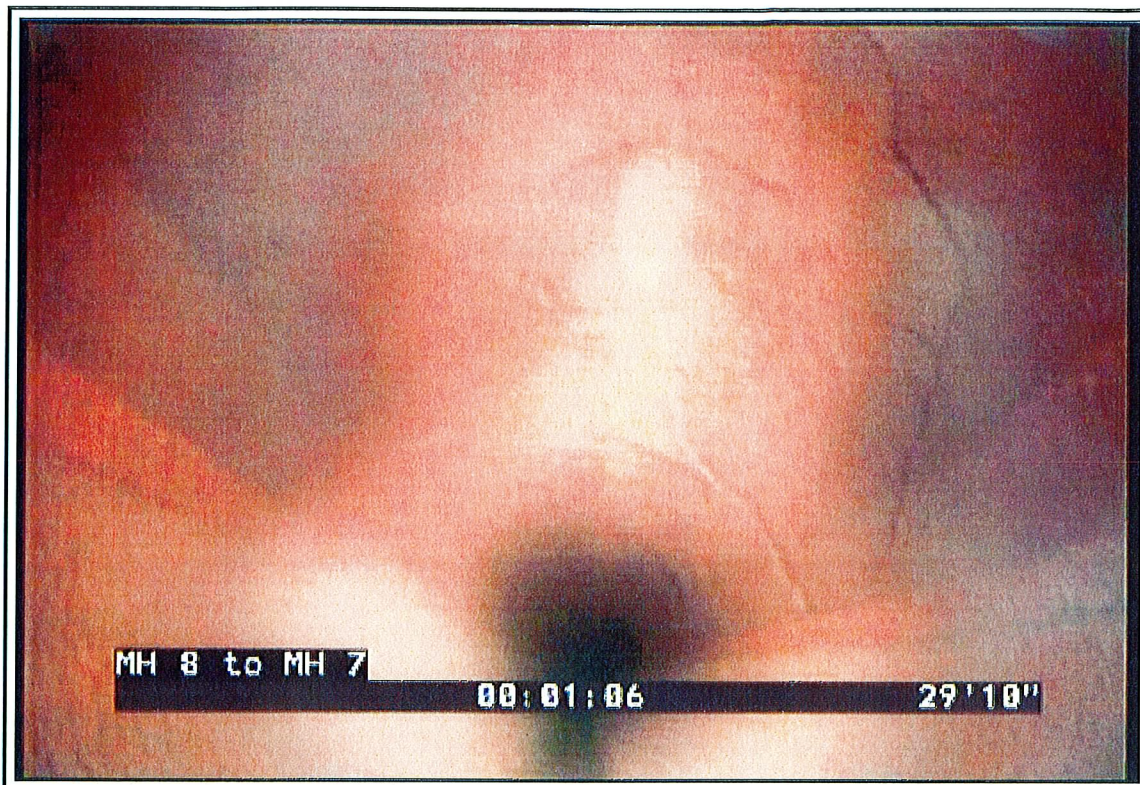
**Preliminary CCTV Inspection  
Photographs**



**Photo 1:** Image of lateral connections and plug valve at MH-7 in 30-Inch Force Main.



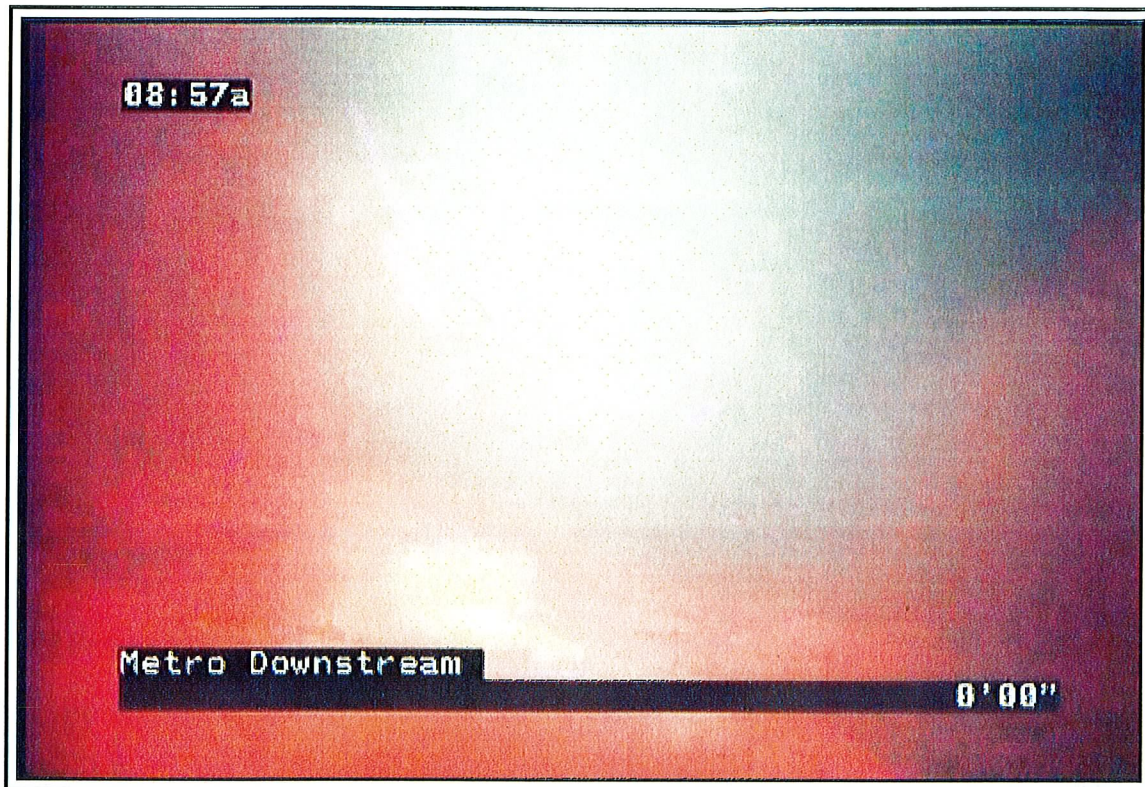
**Photo 2:** Section of the 30-Inch Force Main in the direction of MH-7 taken at MH-8. The section shown is a high point in the Force Main, and water does not routinely sit in this location.



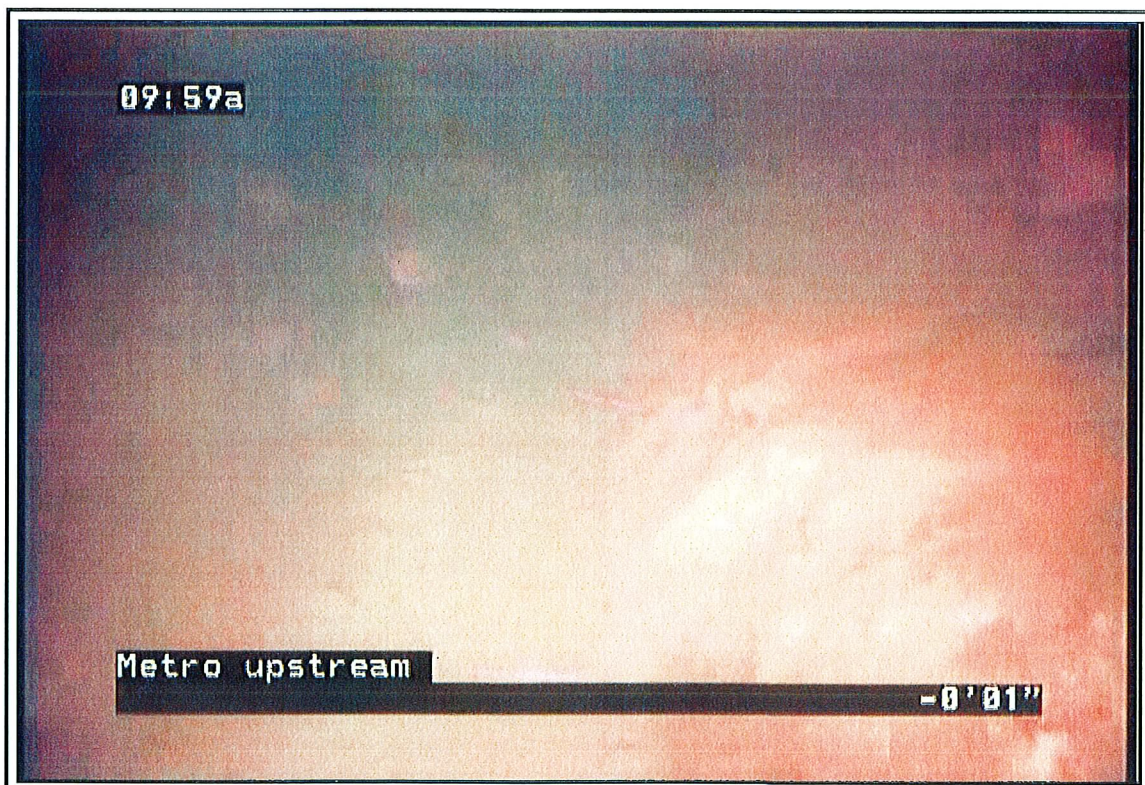
**Photo 3:** Section of the 30-Inch Force Main in the direction of MH-7 taken 29'-10" from MH-8.



**Photo 4:** Section of the 30-Inch Force Main in the direction of MH-7 taken 240'-11" from MH-8. This section has standing water after pumps were shut off.



**Photo 5:** Section of the 24-Inch Force Main in the direction of METRO from the monitoring station. The distance shown on the photo is incorrect, and the actual distance is approximately 250 ft. Sediment accumulation can be seen at the bottom of the pipe, and scaling appears to have caused relatively square sides in this section of the Force Main.



**Photo 6:** Section of the 24-Inch force main upstream of the monitoring station. Note that the distance shown on the photo is incorrect, and the actual distance is approximately 100 ft.