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January 16, 2012

To: Harry Warner, NYSDEC, Region 7 (1 bound)
Diane Carlton, NYSDEC, Region 7 (1 PDF)
Holly Sammon, Onondaga County Public Library (1 bound)
Samuel Sage, Atlantic States Legal Foundation (1 bound)
Joseph J. Heath, Esq., Onondaga Nation (cover letter only)
Cara Burton, Solvay Public Library (1 bound)
Mary Ann Coogan, Camillus Town Hall (1 bound)
Stephen Weiter, Moon Library (1 bound)

Re: Letter of Transmittal – Onondaga Lake Repository Addition

The below document has been approved by the New York State Department of Environmental Conservation (NYSDEC) and is enclosed for your document holdings:

- Onondaga Lake, 30-Inch/24-Inch Force Main Rehabilitation Phase 1 Work Plan dated October 26, 2011.

Sincerely,

Handwritten signature of John P. McAuliffe in black ink, followed by the initials "by CCC" in a cursive script.

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

Enc.

cc: Richard Mustico - NYSDEC

**New York State Department of Environmental Conservation
Division of Environmental Remediation**

Remedial Bureau D, 12th Floor

625 Broadway, Albany, New York 12233-7013

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Joe Martens
Commissioner

October 28, 2011

Mr. Alfred J. Labuz
Remediation manager
Honeywell
301 Plainfield Road, Suite 330
Syracuse, NY 13212

Re: 30" and 24" Force Main Rehabilitation Work Plan for the Onondaga Lake Mercury
Sediments Site (Site No. 734030)

Dear Mr. Labuz:

The New York State Department of Environmental Conservation (Department) has reviewed the revised construction work plan submitted via your October 26, 2011 letter. The construction work plan is entitled "Onondaga Lake, 30-Inch/24-Inch Force Main Rehabilitation Phase 1" (Work Plan), and is also dated October 26, 2011. The rehabilitation of this force main from the leachate pumping station (located adjacent to Waste Bed 12) to its discharge into the METRO sewer system will enable the use of this force main to transfer treated water from the SCA Water Treatment Plant to METRO for ammonia polishing.

The Work Plan is hereby approved. Please distribute copies of the document, including this approval letter, as per the distribution list and the document repositories list selected for this site.

Any permitting required by the Onondaga County Department of Water Environment Protection (OCDWEP) to implement this work, and any coordination necessary between Honeywell and OCDWEP for this project is still obligatory.

If you have any questions regarding this letter, please feel free to call me at 518-402-9676.

Sincerely,

Richard A. Mustico, P.E.
Project Manager
Remedial Bureau D
Division of Environmental Remediation



ec: Timothy Larson - NYSDEC
Mary Jane Peachey – NYSDEC, Syracuse
Margaret Sheen, Esq., - NYSDEC, Syracuse
Harry Warner - NYSDEC, Syracuse
Joe Zalewski – NYSDEC, Syracuse
Sandra Lizlovs – NYSDEC, Syracuse
Valarie Stephenson – NYSDEC, Syracuse
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Sandra Tuori-Bell – OCDWEP
Nick Capozza – OCDWEP
Michael Lannon – OCDWEP
Daniel Jean – OCDWEP
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Eric Schultheis - OCDWEP
Joseph Heath, Esq. – Onondaga Nation
Thane Joyal, Esq. – Onondaga Nation
Jeanne Shenandoah – Onondaga Nation
Heidi Kuhl – Onondaga Nation
Curtis Waterman – HETF
Alma Lowry, Esq. – Onondaga Nation
Fred Kirschner – AESE, Inc.
William Hague – Honeywell
John McAuliffe – Honeywell, Syracuse
Brian Israel, Esq. - Arnold & Porter
Jeff Rodgers – OBG
Christopher Calkins – OBG
Brian White – OBG
Marc Dent – OBG
Chris Killoren - OBG
Steve Miller – Parsons
Paul Blue – Parsons
David Babcock – Parsons

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October 26, 2011

Mr. Richard Mustico, P.E.
Project Manager
NYSDEC Div. of Environmental Remediation
Remedial Bureau D - 12th Floor
625 Broadway
Albany, NY 12233-7016

**RE: 30" and 24" Force Main Rehabilitation Work Plan
City of Syracuse, Onondaga County, NY
Site No. 734030**

Dear Mr. Mustico:

O'Brien & Gere is submitting a final copy of the Onondaga Lake 30" and 24" Force Main Rehabilitation Phase 1 Work Plan to New York State Department of Environmental Conservation (NYSDEC) for record.

Should you have any questions, please contact Chris Killoren at O'Brien & Gere (315-956-6894) or me at your earliest convenience.

Sincerely,


Alfred J. Labuz
Remediation Manager

by CCC

Enc. (1 copy, 1 CD)

Cc:	Mr. Robert Nunes	USEPA (4 copies)
	Mr. Donald J. Hesler	NYSDEC, Albany (ltr only)
	Ms. Mary Jane Peachey	NYSDEC, Syracuse (ltr only)
	Mr. Tim Larson	NYSDEC, Albany (1 copy)
	Ms. Sandy Lizlovs	NYSDEC, Syracuse
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	Ms. Tara Blum	NYSDEC, Syracuse
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	Ms. Sandra Tuori-Bell	OCDWEP, Syracuse (ec or CD)
	Mr. Nick Capozza	OCDWEP, Syracuse (ec or CD)
	Mr. Michael Lannon	OCDWEP, Syracuse (ec or CD)
	Mr. Daniel Jean	OCDWEP, Syracuse (ec or CD)
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Mr. Eric Schultheis	OCDWEP, Syracuse (ec or CD)
Joseph J. Heath, Esq.	Onondaga Nation (ec ltr only)
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Mr. Curtis Waterman	Onondaga Nation (ec or CD)
Ms. Alma Lowry	Onondaga Nation (ec ltr only)
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Mr. Steven Bates	NYSDOH (1 copy, 1 CD)
Mr. Geoffrey J. Laccetti	NYSDOH (ec or ec ltr only)
Mr. William Hague	Honeywell (ec or CD)
Mr. Steve Miller	Parsons (CD/ltr only)
Mr. Paul Blue	Parsons (ec ltr only)
Mr. David Babcock	Parsons (ec ltr only)
Mr. Al Labuz	Honeywell (ltr only)
Mr. Christopher Calkins	O'Brien & Gere (ec or ec ltr only)
Mr. Jeffrey Rogers	O'Brien & Gere (ec or ec ltr only)
Mr. Brian White	O'Brien & Gere (ec or ec ltr only)
Mr. Marc Dent	O'Brien & Gere (ec or ec ltr only)
Mr. Chris Killoren	O'Brien & Gere (ec or ec ltr only)

**Onondaga Lake
30-Inch/24-Inch Force Main Rehabilitation Phase 1
Town of Geddes, N.Y. and City of Syracuse**

Honeywell

October 26, 2011

I, Brian White, certify that I am currently a NYS registered professional engineer and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

TABLE OF CONTENTS

1. Introduction	4
1.1 Summary	4
1.2 Project Background	4
2. Project Management Staffing	4
2.1 Project Management Staff	4
3. Health and Safety, Air Quality Monitoring and General Conditions	5
3.1 Health and Safety	5
3.2 Air quality monitoring	6
3.2.1 Community Air Monitoring Plan	6
3.3 General Conditions	6
3.3.1 Mobilization	6
3.3.2 Site Security	7
3.3.3 Clearing and Grubbing	7
3.3.4 Site Restoration	7
4. Material Handling and Disposal Plan	7
4.1 Leak Repairs, SCA and County Force Main/Willis Ave. Gwtp Tie-In Locations, and 24" Harbor Brook Crossing	7
5. Erosion and Sediment Control	8
5.1 Resource Protection	8
5.2 Surface Water Protection	8
5.3 Runoff and Drainage Control	8
5.4 Erosion and Sediment Control	9
5.5 Maintenance and Inspection	9
6. Leak Repairs	9
7. SCA, County force main and Willis Ave. GWTP Tie-In	9
8. 24" Force Main Harbor Brook Crossing	9
9. Construction Water Management	10

LIST OF APPENDICES

- A Project Schedule
- B Community Air Monitoring Plan
- C Design Drawings

1. INTRODUCTION

O'Brien & Gere's (OBG's) Construction Work Plan is provided in the subsections that follow. This Construction Work Plan has been prepared to demonstrate OBG's proposed approach to executing the work activities outside of the Metro property. Work activities on the Metro property will be addressed in an addendum to this Work Plan and will be submitted at a later date.

1.1 SUMMARY

The remaining sections of this Construction Work Plan are organized as follows:

Section 2 – Project Management Staffing

Section 3 – Health and Safety, Air Quality Monitoring and General Conditions

Section 4 – Material Handling and Disposal Plan

Section 5 – Erosion and Sediment Control

Section 6 – Leak Repairs

Section 7 – SCA, County Force Main and Willis Ave. GWTP Tie-In

Section 8 – 24" Force Main Harbor Brook Crossing

Section 9 – Construction Water Management

1.2 PROJECT BACKGROUND

Treated water from the proposed Sediment Consolidation Area (SCA) Water Treatment Plant (WTP) and leachate from Settling Basins 9-15 retention ponds will flow through the 30" and 24" force mains and discharge to the Metropolitan Syracuse Wastewater Treatment Plant (Metro). A 30"/24" Force Main Integrity Investigation that was completed in June 2010 indicated several areas requiring rehabilitation. The design for the rehabilitation work downstream at Metro property is being finalized.

2. PROJECT MANAGEMENT STAFFING

Assignments and responsibilities of the project team are summarized in the descriptions below:

2.1 PROJECT MANAGEMENT STAFF

NYSDEC PROJECT MANAGER – RICHARD A. MUSTICO, P.E.

HONEYWELL DESIGN / CONSTRUCTION MANAGER – STEVE MILLER, P.E.

PROJECT OFFICER – BRIAN WHITE, P.E.

The role of the Project Officer is to see that Honeywell's expectations for project quality, safety, schedule, and performance are met or exceeded. In addition, the Project Officer will periodically attend construction review meetings, and will be available on an as-needed basis to the project team.

PROJECT MANAGER– CHRISTOPHER KILLOREN

The Project Manager will manage the procurement and construction phases of the project on a day-to-day basis, monitor and evaluate project controls throughout all phases of the project, and see that the technical and quality objectives established during the design phase of the project are realized in the construction project. The Project Manger will serve as the primary contact between the Honeywell Project Manager and O'Brien & Gere.

ENGINEERING MANAGER – MARC DENT, P.E.

The primary responsibilities of the Engineering Manager will be to lead engineering activities during the construction phase of this project. The Engineering Manager will attend weekly construction progress update meetings at the request of the Project Manager, and provide shop drawing reviews, respond to request for information, and provide input to value engineering alternatives identified during the construction phase of the project.

HEALTH AND SAFETY MANAGER – STEVEN THOMPSON

The primary responsibilities of the Health and Safety Manager will be to develop, implement and enforce the Site Specific Health and Safety Plan for the project.

3. HEALTH AND SAFETY, AIR QUALITY MONITORING AND GENERAL CONDITIONS

This section summarizes O'Brien & Gere's proposed approach to health and safety, air quality monitoring and general conditions.

3.1 HEALTH AND SAFETY

As with all O'Brien & Gere projects, safety will be a top priority. Health and safety excellence is a core value of both Honeywell and O'Brien & Gere. O'Brien & Gere believes that all injuries and occupational illnesses, as well as safety and environmental incidents are preventable. We will adhere to high standards for the safe operation of this project and the protection of the environment, employees and the people in the community. There cannot be any compromise with the safety and health of our employees, visitors, subcontractors, and any other persons who may come under our supervision.

O'Brien & Gere believes that with effective employee involvement, training, project planning and auditing that all accidents are preventable. Training and planning tools, which will be utilized and implemented by O'Brien & Gere safety staff will include the following:

- Project Health and Safety Plan:

O'Brien & Gere will develop a project site specific Health & Safety Plan (HASP), including job safety analyses (JSA), for the scope of work associated with this project. The HASP will be reviewed as part of the site orientation training and all direct hire personnel/subcontractors will be required to follow the requirements of the HASP. This HASP will be in accordance with Honeywell's Syracuse Portfolio Health and Safety Program (HSP²).

- Subcontractor Safety Pre-Qualifications:

Each potential subcontractor who will be working for O'Brien & Gere on this project will be required to submit a completed Honeywell Safety Questionnaire Form for approval by O'Brien & Gere and Honeywell prior to initiating work onsite. O'Brien & Gere holds subcontractors to the same safety standards to which O'Brien & Gere is held accountable.

- Drug and Alcohol Testing:

O'Brien & Gere believes in a drug and alcohol free workplace. Drug and alcohol testing is a condition for work on Honeywell projects covered by the HSP². All employees will participate in a pre-project drug screening prior to beginning work on the project.

- Pre-Work Health and Safety Kickoff Meeting:

A pre-work Health and Safety kickoff meeting will be scheduled with the project team.

■ Site Orientation Training:

Personnel working on this project will be required to attend a site orientation training session administered by O'Brien & Gere's safety supervisor prior to engaging in any work activities and/or entering the work zone.

■ Daily Pre-Task Planners and Weekly Toolbox Safety Meetings:

Daily safety talks are documented utilizing a Daily Pre-Task Planner form found in the Honeywell Syracuse Portfolio Health and Safety Program HSP2 Document. Pre-Task Planners are prepared on a daily basis and will be reviewed with the work crew focusing on any changes in equipment, tools, work methods or site conditions as well as key hazards and safety controls.

Project personnel must attend a project Weekly Toolbox Safety Meeting. These meetings are an opportunity to conduct field safety training, distribute key safety information, re-enforce safety as a priority and/or review recent inspection results directly to all project personnel.

O'Brien & Gere understands the chemical and physical properties of site contaminants. Based on previous experiences with intrusive work at this particular site, we plan to perform work in modified level D protection. However, we will be prepared to upgrade to Level C protection should conditions warrant. The actual level of protection used will be based on results of our air monitoring program.

Should conditions warrant, a three-zone approach will be used during site operations in order to contain the potential spread of contamination and control the flow of personnel, vehicles, and materials into and out of the work area. The zones include the exclusion zone, the contaminate reduction zone, and the support zone. The exclusion and contaminate reduction zones will be designated using temporary construction fence or hazard tape and be established for all intrusive work. Access to these zones will be limited to authorized individuals.

3.2 AIR QUALITY MONITORING

O'Brien & Gere will implement an employee work zone air monitoring program. This program will be detailed in the site specific health and safety plan.

3.2.1 Community Air Monitoring Plan

The objective of the community air monitoring plan (CAMP) is to describe air monitoring during ground intrusive remedial construction activities during the various phases of the project. Air monitoring will evaluate potential air quality impacts on the surrounding community by real-time perimeter air monitoring for particulate (dust) and total volatile organic compounds (TVOCs). Odors will also be evaluated. The CAMP is provided as **Appendix B**.

3.3 GENERAL CONDITIONS

O'Brien & Gere will provide labor, equipment and coordination necessary to perform the following general work associated with the project.

3.3.1 Mobilization

O'Brien & Gere will mobilize equipment, personnel, materials and supplies as necessary to perform the proposed work. Additional equipment will be mobilized as needed.

We anticipate the mobilization to include the following:

- » Temporary Site Facilities including portable toilets, and equipment and material storage trailer, etc.
- » Excavator
- » Loader
- » Dump Truck
- » Trench Box
- » Frac Tanks and Water Management Equipment

- » Air Monitoring Equipment
- » Safety and Personal Protective Equipment, and
- » Miscellaneous Hand Tools and Portable Equipment

3.3.2 Site Security

The Construction Supervisor will be responsible for site security during working hours. On site personnel and visitors will be required to sign-in and sign-out at the O'Brien & Gere field office trailer located behind the Honeywell Willis Avenue Groundwater Treatment Plant. Vehicular traffic will be permitted in designated parking areas. During non-working hours, portable equipment will be secured in an on-site storage trailer. Excavations will be protected using construction fence and by staging equipment to minimize access.

3.3.3 Clearing and Grubbing

Clearing and grubbing will be performed using standard safe work practices. Trees and vegetation outside the limits of excavation will be maintained and protected to the extent practical. Holes created by clearing and grubbing that are below finish grade will be backfilled with suitable material.

3.3.4 Site Restoration

Once construction activities are complete, disturbed areas at leak and tie-in locations, and Harbor Brook crossing will be restored to existing site conditions. Acceptable excavated native material will be used as backfill to achieve elevation of existing grade.

4. MATERIAL HANDLING AND DISPOSAL PLAN

The Material Handling and Disposal Plan describes procedures for handling materials during execution of the work. The goal of these procedures is to minimize contamination of clean materials or areas, minimize recontamination of cleaned areas, minimize tracking of contaminated material to uncontaminated areas, and minimizing generation of dust.

4.1 LEAK REPAIRS, SCA AND COUNTY FORCE MAIN/WILLIS AVE. GWTP TIE-IN LOCATIONS, AND 24" HARBOR BROOK CROSSING

Excavated material from the repair work at the three leak and the SCA tie-in locations will be staged adjacent to the trench and reused as backfill. Clean fill material is also expected to be imported in these areas.

Excavated material from the County force main and GWTP tie-in installation will be field screened for visual and olfactory characteristics. Visual free product, staining and / or strong odors will be considered indicators that soil may be hazardous. Excavated soils will also be screened using a PID. Elevated PID readings taken at the surface of the excavator bucket will also be considered an indicator that excavated soil may be hazardous. This excavated material will be staged at the existing temporary soil staging areas at the Onondaga lakeshore used during the Phase 1 DNAPL Modifications Project. There are two existing staging areas; one for soils exceeding field screening levels (greater than 10 ppm on the PID and strong odors), and one for material that does not exceed field screening levels (greater than 0 and less than 10 ppm on the PID). The material will be staged in the appropriate staging area on 10-mil polyethylene sheeting and covered with 6-mil polyethylene sheeting. Spilled material onto the access road during transport to the staging area will be cleaned up immediately. Soils that are visually clean with no odor (0 ppm on the PID) will be placed adjacent to the trench and reused as backfill.

Waste characterization samples will be collected on the staged material. One composite sample will be collected and analyzed from each stockpile. Samples will be analyzed for the following:

- » Total and TCLP VOC's by Method 8260B and 1311/8260B, respectively
- » Total and TCLP SVOC's by Method 8270C and 1311/8270C, respectively
- » Total and TCLP Mercury by Method 7471A and 1311/7470A, respectively
- » Total and TCLP Metals by Method 6010A and 1311/6010A, respectively

- » Total PCBs by Method 8082A
- » Ignitability, by EPA Method 1010
- » Reactivity, (Cyanide and Sulfide) by Methods 7.3.3.2 and 7.3.4.1
- » Corrosivity, by Method 9045C, and
- » Percent Moisture, by Method D2216

Excavated non-hazardous soils from the 24" Harbor Brook Crossing work that cannot be used on-site will be transported and staged at Waste Bed B. Materials will be staged on 10-mil polyethylene sheeting and covered with 6-mil polyethylene sheeting. Excavated materials will be transported in a relatively dry condition in a water tight truck to the storage area utilizing Part 364 Permitted dump trucks. Trucks will be loaded cautiously to preclude the need for decontamination. If necessary, the dump end of the haul trucks will be lined with poly to prevent loose or wet material from leaking from the truck. Dry material will be loaded to the back of the truck and wetter material towards the front.

If the soils are hazardous, they will be transported off-site for disposal at a permitted disposal facility.

5. EROSION AND SEDIMENT CONTROL

Erosion and sediment control (ESC) features will be installed in accordance with NYSDEC standards and specifications for Erosion and Sediment Control. ESC activities will include:

- » Resource Protection
- » Surface Water Protection
- » Runoff and Drainage Control
- » Erosion and Sediment Control
- » Maintenance and Inspection

5.1 RESOURCE PROTECTION

Important trees and rooting zones in previously restored areas along the lake shore will be marked prior to construction.

5.2 SURFACE WATER PROTECTION

The main bodies of water immediately adjacent to the County Force Main and Willis Ave. GWTP tie-in location and Harbor Brook Crossing are Onondaga Lake and Harbor Brook.

Construction access roads and entrances have been previously constructed at the Site and are maintained. Storm water will be generated upstream of the construction from the I-690 corridor or generated on-site.

Silt fencing will not be required to be installed since the area is contained from the lake by the existing barrier wall. Surface water will be contained within the barrier and allowed to infiltrate into the light weight fill area, where it will be collected in the existing groundwater collection trench and pumped to the Willis/Semet Groundwater Treatment Plant (GWTP). If necessary, accumulated sediment will be managed in the same manner as that described for excavated spoils in Section 4 of this plan.

5.3 RUNOFF AND DRAINAGE CONTROL

Construction water pumped from excavations or dewatered from the 30"/24" force main will be managed in accordance with Section 9 – Construction Water Management.

There are no outfalls discharging storm water into the working construction area.

5.4 EROSION AND SEDIMENT CONTROL

Soil stockpiles and exposed soil within the materials handling area will be covered with 6-mil poly sheeting to prevent the piles from washing out. Silt fence will be placed around stockpiles to minimize migration of sediment. Additional construction entrances will be added, if needed based on site conditions.

5.5 MAINTENANCE AND INSPECTION

Storm water management and erosion control will be inspected at least once every seven (7) calendar days during construction. Erosion and sediment control practices will be inspected to maintain integrity and effectiveness. Inspection forms will be kept at the O'Brien & Gere field office trailer.

6. LEAK REPAIRS

This section describes the scope of work related to the leak repairs to the force main at the locations identified during the previous investigation Project.

An excavator will be utilized to excavate the area around the force main at a leak location and the force main will be pressurized (hydrostatically) to identify the leak. If a leak is observed during the pressure test, the pressure will be removed from the pipe and the leak repaired per the Typical 30"/24" Ductile Iron Piping Rehabilitation Detail as shown on Contract Drawing G-14 – Rehabilitation Details. The excavation will then be backfilled per the Typical Utility Trench Detail on Contract Drawing G-15 – Rehabilitation Details. Excavated materials will be handled as described in Section 4 of this plan. Construction water will be handled per Section 9 – Construction Water Management of this plan.

Once the repair is made at a leak location, hydrostatic pressure testing in conjunction with leak testing will confirm that the pipe is repaired and additional leaks are not present. Pressure and leak testing will be performed from MH-3 to MH-6, SMH-7 to SMH-13, MH-B to MH-C, and Harbor Brook Interceptor Sewer Connection to Metro Manhole 90+97. The line will be pressure tested to 50psi for two hours in accordance with Specification 02603 – Hydrostatic Pressure Testing/Leak Detection.

With the pressure testing that was conducted in the previous investigation and the pressure testing that will be conducted during this project, the 30"/24" Force Mains will be hydrostatically tested from the Camillus Pump Station to the Metro sewer on Hiawatha Boulevard.

7. SCA, COUNTY FORCE MAIN AND WILLIS AVE. GWTP TIE-IN

Installation of the SCA, County Force Main and Willis Ave. GWTP Tie-ins includes excavation to expose the force main. The existing pipe will be removed to accommodate the installation of the new tie-ins. The SCA Connection Detail is found on Contract Drawing G-15 – Rehabilitation Details, and the County Force Main and Willis Ave. GWTP Tie-in Detail are found on Contract Drawing G-14 – Rehabilitation Details. Excavated materials will be handled per Section 4 – Materials Handling and Disposal of this plan. Construction water will be handled per Section 9 – Construction Water Management of this plan.

8. 24" FORCE MAIN HARBOR BROOK CROSSING

Installation of the 24" Harbor Brook Crossing will include the following:

- » Coordinate pumping down the retention ponds prior to this work so the pumps at the Camillus Pump Station can remain off during this work.
- » Coordinate with the operators at the Willis Ave. GWTP to stop discharging effluent into the 24" force main at the air relief vault MH-2 and start discharging to Outfall 15A from catch basin CB-229 to Onondaga Lake during this Harbor Brook crossing work.
- » Bypass pumping is not anticipated, but appropriately sized pumps and piping will be available during this work. If necessary, the bypass will be from manhole MH-B to MH-C around the Harbor Brook crossing at the lakeshore.

- » Excavation of the underground 24" pre-stressed concrete cylinder pipe (PCCP) force main (upstream and downstream of the crossing) to the first joint.
- » Remove the existing above grade 24" PCCP pipe. The pipe will be removed to the first upstream and downstream joint.
- » Remove the existing pipe support trestle using the appropriate lead and asbestos abatement procedures.
- » Install new trestle and pipe.
- » Restoration

9. CONSTRUCTION WATER MANAGEMENT

Construction and ground water management will be a key component of this project. Trench excavations will be graded as necessary to prevent surface water entry and minimize the need for water control/dewatering to the greatest extent possible. Dewatering will occur during all excavation and backfill operations, and will be accomplished with an appropriately sized pump. The retention ponds at the Camillus Pump Station will be pumped down prior to beginning the rehabilitation work.

Construction water pumped from excavations or dewatered from the 30"/24" force main to facilitate leak repairs will be stored in frac tanks, to provide suspended solids with an opportunity to settle. The water will then be pumped, as necessary, through 25 micron bag filters into the 30"/24" force main. Accumulated sediment in the frac tanks will be handled in the same manner as that described for excavated spoils in Section 4 of this plan. The water pumped back into the pipe will be used for hydrostatic pressure testing.

APPENDIX A PROJECT SCHEDULE

[illegible]

Project: 30and24 Rehab 082911
Date: Thu 9/8/11

Task



Progress



Summary



External Tasks



Deadline



Split

Milestone



Project Summary



External Milestone



APPENDIX B

ONONDAGA LAKE 30-INCH/24-INCH FORCE MAIN REHABILITATION PHASE 1 COMMUNITY AIR MONITORING PLAN

OBJECTIVES AND AIR MONITORING APPROACH

The objective of this community air monitoring plan (CAMP) is to describe proposed air monitoring activities during ground intrusive remedial construction activities for the 30"/24" Force Main Rehabilitation Phase 1 (Project). Project construction work will consist of rehabilitation of the 30"/24" force mains that run from the Camillus Pump Station to Metro. Previous analytical results of soils in Project areas near the Lakeshore have indicated the potential for air emissions of volatile organic compounds during ground-intrusive activities. Project construction involving ground intrusive activities in the lakeshore area is anticipated for a one-month period beginning in October 2011.

Project construction activities for the 30"/24" Force Main Rehabilitation are summarized as follows: 1) leak repairs, 2) SCA Tie-in, 3) County Force Main & Willis Ave. GWTP Tie-In, and 4) Harbor Brook Crossing. Of these four activities, perimeter air monitoring is proposed only for ground intrusive activities associated with the installation of the County Force Main & Willis Ave. GWTP Tie-In. Intrusive work for other Project construction activities will not be in areas of suspected contaminated soil. Therefore, perimeter air monitoring of those Project activities is not proposed.

Perimeter air monitoring is anticipated for a period of approximately one month and will evaluate potential air quality impacts on the surrounding community from volatile organic compounds (VOCs), dust (as PM₁₀) and odors. The air monitoring program described herein is designed using the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan (gCAMP) guidance for evaluation of potential airborne contaminant releases as a direct result of investigative and remedial work activities¹.

COMMUNITY RECEPTORS

The project site is bordered to the southeast and northwest by Honeywell property, to the southwest by Interstate 690 and industrial properties, and to the northeast by Onondaga Lake. The nearest residential receptors to the project site consist of homes approximately 2,300 feet south of the work site. Additional residential receptors are located over a mile away to the west, north and east.

MONITORING LOCATIONS

Air monitoring will be conducted along or within a perimeter boundary (as defined in Figure 1) around the work site as shown on Figure 1. One downwind and one upwind monitoring location will be selected at the beginning of each work day based on the work area and the predicted predominant wind direction for the day. Air monitoring locations may be moved during the day if the work area changes or the predominant wind direction shifts into a different quadrant. Site wind conditions (hourly averages) will be monitored each day using an on-site portable weather station or the existing Honeywell 10-meter weather station located along the east edge of the Semet Ponds.

DUST MONITORING

Dust monitoring will consist of continuous real-time air monitoring of particulate matter less than 10 microns (PM₁₀) upwind and downwind of the work site during daily activities. There will be two monitoring locations - one upwind and one downwind. Measurements at each location will be made using a real-time aerosol monitor

¹ Generic Community Air Monitoring Plan, New York State Department of Health, Revision 1, June 2000.

(such as the ThermoFisher DataRam, Thermo-Fisher ADR-1500 or similar). The aerosol monitor is a photometric light-scattering instrument that continuously measures airborne particulate from 0.1 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to ≥ 100 milligrams per cubic meter (mg/m^3) and records the results in time-averaged concentrations.

Monitoring approach and action criteria will be based on guidance contained in the NYSDOH gCAMP. Dust levels will be expressed as 15-minute time-averaged concentrations. Action criteria and corrective responses will be as follows:

- If the downwind PM_{10} level is $100 \mu\text{g}/\text{m}^3$ above the upwind level for a 15-minute period or if airborne dust is observed leaving the site perimeter, then additional dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM_{10} levels do not exceed $150 \mu\text{g}/\text{m}^3$ above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM_{10} levels are greater than $150 \mu\text{g}/\text{m}^3$ above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM_{10} concentration to within $150 \mu\text{g}/\text{m}^3$ of the upwind level and in preventing visible off-site dust migration.

Each dust monitor will automatically alert the on-site air monitoring technician (either visual or audible alarm, or via radio or cellular-based pager) to indicate high readings that may lead to potential exceedances of action criteria.

VOC MONITORING

VOC monitoring will consist of continuous real-time air monitoring of total VOCs (TVOCs) at one upwind location and one downwind location during daily excavation activities using a real-time TVOC analyzer (RAE Systems MiniRae 3000, or similar). The MiniRae 3000 is a UV-light photo-ionizing detector (PID) that continuously measures TVOCs from 0.1 to 15,000 parts per million (ppm), and records the results in time-averaged concentrations.

The monitoring approach and action criteria will be based on guidance contained in the NYSDOH gCAMP. Additional lower level action criteria have also been incorporated to provide corrective responses prior to reaching gCAMP TVOC guidance limits. TVOC results will be expressed as 15-minute time-averaged concentrations. Action criteria and corrective responses will be as follows:

- If the downwind TVOC level is 2 ppm above the upwind (background) level for a 15-minute period, then the emission sources will be investigated and evaluated.
- If the downwind TVOC level is 3 ppm above the background level for a 15-minute period, controls or countermeasures will be employed on the operation activity(ies) causing the concentration increase. Controls/countermeasures may include use of spray foams to cover the emission source, or modifications to work activities. Work may continue with controls and countermeasures provided that downwind VOC levels do not exceed 5 ppm above the background level.
- If the downwind TVOC level exceeds 5 ppm above the background for the 15-minute period, work activities must be temporarily halted and monitoring continued. If the TVOC level readily decreases (per instantaneous readings) below 5 ppm (above background), work activities can resume with continued monitoring. If the downwind TVOC level persists in excess of 5 ppm (above background), work activities must continue to be halted, the source of vapors identified, controls/countermeasures taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the TVOC at the downwind perimeter site is below 5 ppm (above background) for the 15-minute average.

Background is identified by an upwind fenceline sample for each 15-minute period. Each PID will automatically alert the dedicated on-site air monitoring technician (either visual or audible alarm, or via radio or cellular-based pager) to indicate high readings that may lead to potential exceedances of action criteria. The on-site air monitoring technician will then alert the site supervisor.

ODOR MONITORING

Perimeter odor monitoring will consist of qualitative on-site odor observations downwind of daily work activities. There are no applicable Federal, State or local regulations that provide guidance on the odor levels that result in a significant impact on the public. However, if odors levels at the site are observed to increase noticeably due to site activities and appear to be traveling off-site, then controls and/or countermeasures will be implemented to control project odors.

During remedial construction periods when perimeter air monitoring is not occurring, onsite odors will continue to be observed by the O'Brien & Gere construction manager (CM). If odors are observed to increase noticeably and appear to be traveling off-site, then controls/countermeasures will be implemented to reduce odors.

QUALITY CONTROL AND QUALITY ASSURANCE

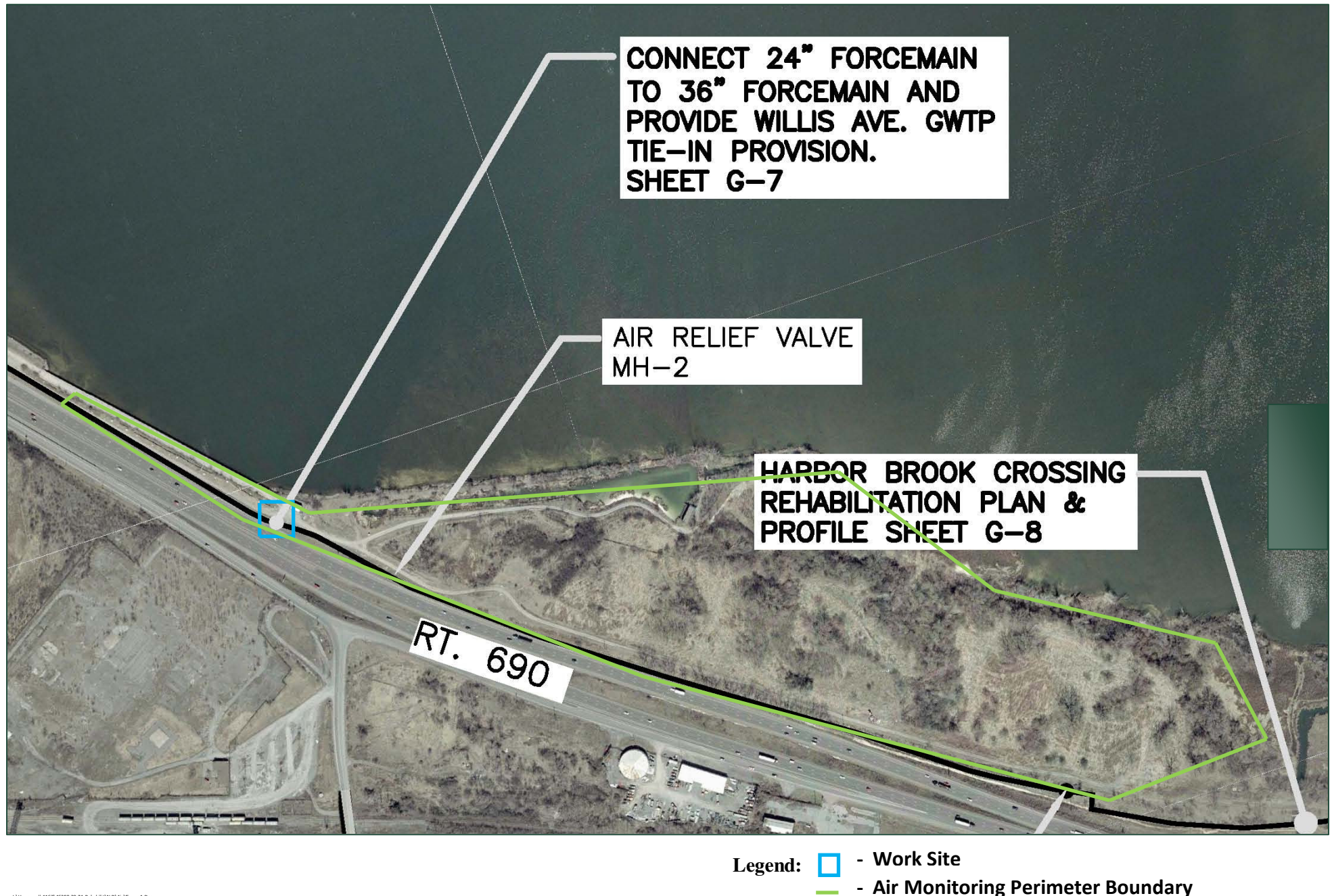
A Project site log and pre-printed daily summary field forms will be used to document site activities related to the air monitoring program. Zero and span calibration checks, and routine maintenance of the dust and VOC analyzers will be conducted at the beginning of each day following applicable manufacturer's calibration guidelines. Records of daily field activities, calibrations and instrument field checks will be documented onto daily field forms and/or in the Project site log.

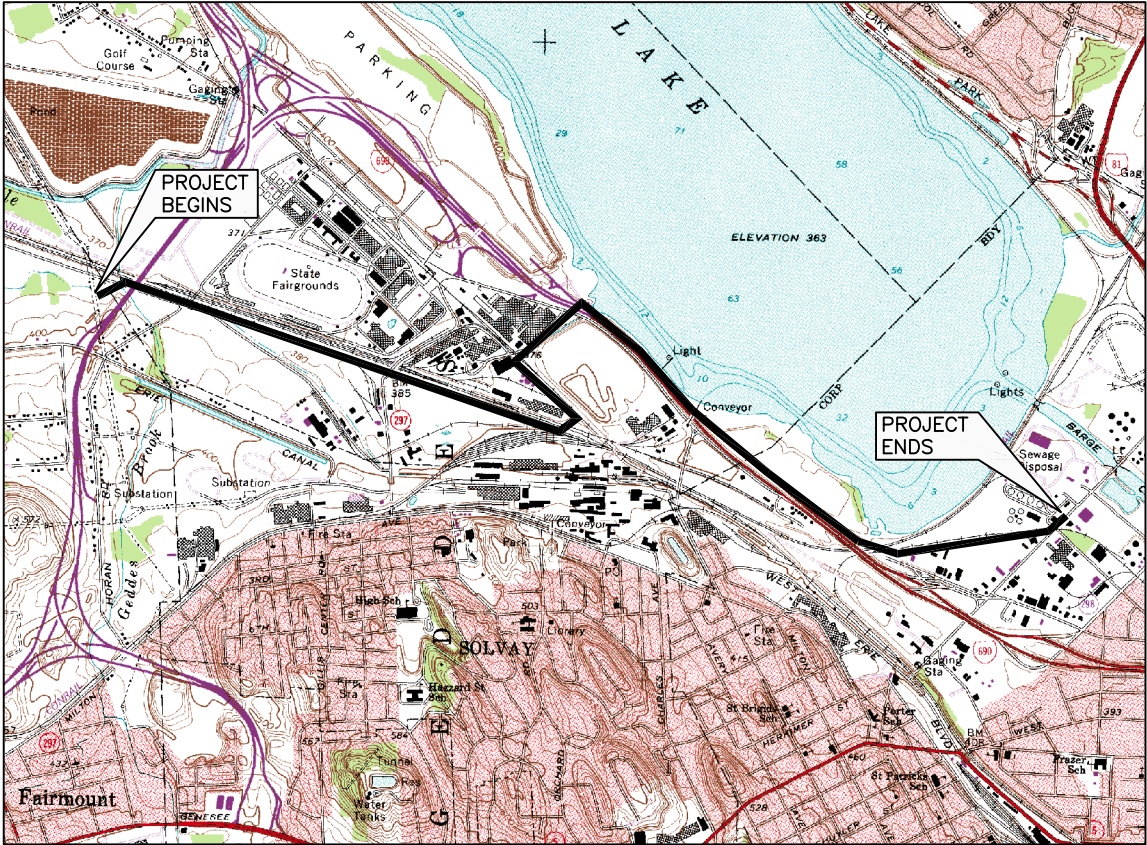
DATA MANAGEMENT AND REPORTING

Data will be manually or automatically downloaded to a computer each day for review and validation. Background levels, any exceedance of action levels or compliance criteria, and a summary of response actions taken will be recorded in daily field logs and/or daily summary field forms. At the conclusion of the study period, final results will be presented in a summary report that will include:

- air monitoring methodologies
- tabulated summaries of results
- assessment of air quality levels versus action criteria, and
- qualitative notation of odors around work areas.

Figure 1. Perimeter Air Quality Monitoring Boundary





LOCATION PLAN
NOT TO SCALE

95% DESIGN DRAWINGS

ONONDAGA LAKE 30-INCH/24-INCH FORCE MAIN REHABILITATION PHASE 1

HONEYWELL INTERNATIONAL INC.
MORRISTOWN, NEW JERSEY

SEPTEMBER 2011



333 WEST WASHINGTON STREET
SYRACUSE, NY 13221-4873
PHONE: 315-956-6100

INDEX TO DRAWINGS

- TITLE SHEET
- G-1 GENERAL NOTES
- G-2 REHABILITATION LOCATIONS
- G-3 24 INCH SCA/30 INCH FORCEMAIN SCA CONNECTION
- G-4 LEAK LOCATION #1 PLAN & PROFILE
- G-5 LEAK LOCATION #2 PLAN & PROFILE
- G-6 LEAK LOCATION #3 PLAN & PROFILE
- G-7 24 INCH/36 INCH FORCEMAIN CONNECTION STA. 37+31
- G-8 HARBOR BROOK CROSSING PLAN & PROFILE
- G-9 24 INCH/36 INCH FORCEMAIN CONNECTION STA. 92+01
- G-10 MANHOLE RETROFIT PLAN & PROFILE
- G-11 EXAGGERATED FORCEMAIN PROFILE W/ REPAIR LOCATIONS
- G-12 METRO MONITORING MANHOLE DEMOLITION PLAN
- G-13 REHABILITATION DETAILS
- G-14 REHABILITATION DETAILS
- G-15 REHABILITATION DETAILS
- S-1 GENERAL NOTES, SYMBOLS & ABBREVIATIONS
- S-2 STEEL BRIDGE DEMOLITION PLAN, ELEVATION & SECTION
- S-3 STEEL BRIDGE FRAMING PLAN, ELEVATION & DETAILS
- S-4 STEEL BRIDGE SECTIONS & DETAILS

GENERAL CONSTRUCTION SEQUENCE

- LEAK REPAIR
 - EXCAVATE UNDERGROUND PIPE AT THE THREE LEAK LOCATIONS, (1, 2, AND 3), AS SHOWN ON CONTRACT DRAWINGS.
 - VERIFY LEAK BY HYDROSTATICALLY PRESSURIZING PIPE.
 - REPAIR PIPE AS SPECIFIED.
 - PERFORM HYDROSTATIC PRESSURE TESTING IN CONJUNCTION WITH LEAK TESTING TO CONFIRM THAT THE PIPE IS REPAIRED AND ADDITIONAL LEAKS ARE NOT PRESENT (SEE GENERAL NOTE 11). PRESSURE AND LEAK TESTING SHALL BE PERFORMED FROM MH-3 TO MH-6, SMH-7 TO SMH-13, MH-B TO MH-C, AND METRO MANHOLE 90+97 TO THE HARBOR BROOK INTERCEPTOR SEWER CONNECTION.
- SCA TIE-IN
 - EXCAVATE UNDERGROUND PIPING AT THE LOCATION SHOWN ON THE CONTRACT DRAWINGS.
 - REMOVE EXISTING PIPE AS APPROPRIATE, TO INSTALL THE SCA TIE-IN.
- COUNTY FORCEMAIN & WILLIS AVE. GWTP TIE-IN
 - EXCAVATE TIE-IN LOCATIONS AT THE EXISTING 36" COUNTY FORCEMAIN TEE AND THE 24" FORCEMAIN WHERE THE BYPASS PIPE AND THE WILLIS AVE. GWTP TIE-IN WILL BE INSTALLED.
 - REMOVE CONCRETE CRADLE THAT ENCAPSULATES THE 24" FORCEMAIN AS REQUIRED.
 - INSTALL THE 24" BYPASS LINE BETWEEN THE EXISTING BLIND FLANGE ON THE COUNTY FORCEMAIN AND THE 24" FORCEMAIN.
 - INSTALL WILLIS AVE. GWTP TIE-IN.
- HARBOR BROOK CROSSING
 - EXCAVATE THE UNDERGROUND PIPING (UPSTREAM AND DOWNSTREAM OF THE CROSSING) TO THE FIRST PCCP PIPE JOINT.
 - REMOVE EXISTING ABOVE GRADE 24" PIPE.
 - REMOVE EXISTING PIPE SUPPORT TRESTLE USING APPROPRIATE LEAD AND ASBESTOS ABATEMENT PROCEDURES.
 - INSTALL NEW PIPE TRESTLE AND PIPE.
- METRO MANHOLE MODIFICATIONS
 - EXCAVATE METRO MANHOLE STA. 90+97, LATERAL AT STA. 94+54.5, METRO MANHOLE STA. 95+20.5, AND METRO MANHOLE 100+42.
 - INSTALL NEW MANHOLES AT METRO MANHOLE STA. 90+97, METRO MANHOLE STA. 95+20.5, AND METRO MANHOLE STA. 100+42.
- COUNTY FORCEMAIN AND 24 INCH FORCEMAIN TIE-IN (STA. 92.01)
 - EXCAVATE METRO MONITORING MANHOLE AND ADJACENT 36 INCH COUNTY FORCEMAIN.
 - REMOVE 24 INCH PIPING (AS NECESSARY) AND FLUME STRUCTURE AT METRO MONITORING MANHOLE.
 - INSTALL NEW 36 INCH TAPPING SLEEVE AND VALVE INTO 36 INCH COUNTY FORCEMAIN.
 - INSTALL NEW 6'x8'x8' VAULT AND 24 INCH DUCTILE IRON TIE-IN PIPING, AND VALVES.

ELECTRICAL NOTES

- EXISTING FLOW, PH MONITORING AND SAMPLING EQUIPMENT TO BE REMOVED.
- REMOVE EXISTING POWER FEED CONDUCTORS BETWEEN PP-1 IN THE SAMPLING BUILDING AND THE 120/240V POWER PANEL IN THE CENTRIFUGE BUILDING.
- REMOVE 2" CONDUIT CONNECTION FROM 120/240 POWER PANEL IN THE CENTRIFUGE BUILDING AND RE-ROUTE TO THE EXISTING MCC IN THE NORTH CORNER.
- INSTALL A 60A/3 POLE CIRCUIT BREAKER IN THE EXISTING CENTRIFUGE BUILDING MCC
- INSTALL A NEW 3-POLE POWER DISTRIBUTION PANEL (PDP) WITH A 60A MAIN BREAKER, 1- 40A/3 POLE AND 2 - 15A/3 POLE BREAKERS). PDP TO BE SQUARE D #NF418LIC OR APPROVED EQUAL.
- INSTALL A NEW 45KVA DRY TYPE TRANSFORMER (T-1) IN THE SAMPLING BUILDING. TRANS FORMER TO FEED EXISTING PP-1 IN THE SAMPLING BUILDING. T-1 TO BE SQUARE D # EE45T3HCU OR APPROVED EQUAL
- INSTALL POWER FEED CIRCUIT FROM T-1 TO PP-1.
- INSTALL 3 - #6AWG, 1 - #6GND FROM NEW 60A/3 POLE BREAKER IN CENTRIFUGE MCC TO NEW PDP.
- INSTALL TWO 3/4" GALVANIZED RIGID CONDUITS FROM THE SAMPLE BUILDING POWER AND CONTROL PANELS TO EACH 24" VALVE ACTUATOR FOR POWER AND CONTROL. EXACT CONDUIT ROUTING TO BE DETERMINED IN THE FIELD.
- EACH ACTUATOR POWER CONDUIT TO CONTAIN 3 - #12AWG AND 1 - #12GND CONDUCTORS.
- EACH ACTUATOR CONTROL CONDUIT TO CONTAIN 10 - #14AWG CONDUCTORS.
- ALL CONDUCTORS TO BE THHN.
- INSTALL ONE 30A LOCAL DISCONNECT AT EACH ACTUATOR. DISCONNECTS TO BE SQUARE D #HU3612AWK OR APPROVED EQUAL.
- ALL WORK TO BE COMPLETED IN A WORKMAN LIKE MANNER AND IN COMPLIANCE WITH ALL APPLICABLE LOCAL AND NATIONAL CODES.

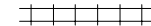
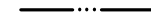
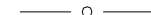

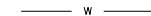
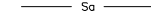











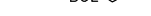





SURVEY NOTES:

- HORIZONTAL DATUM IS NAD83 NEW YORK CENTRAL U.S. FT. AND THE VERTICAL DATUM IS NAVD88.
- SITE PLAN MAPS SHOWN ARE BASED ON SURVEY DATA PROVIDED BY:
 - C.T. MALE ASSOCIATES, P.C. TITLED "TOPOGRAPHIC AND UTILITY SURVEY MAP" FOR HONEYWELL INTERNATIONAL 30"/24" FORCEMAIN INTEGRITY INVESTIGATION" DRAWING NO. 09-0907 DATED SEPTEMBER 24, 2009
- PROFILES SHOWN ARE NOT BASED ON SURVEY DATA. PROFILE DATA OBTAINED FROM:
 - ONONDAGA COUNTY DEPARTMENT OF DRAINAGE AND SANITATION MAP TITLED "ALLIED CHEMICAL CORPORATION FACILITIES 30" FORCE MAIN" DRAWN BY CALOCERINOS & SPINA AND DATED JUNE 12, 1978 FILE NO. 125.111-23 TO 125.111-38
 - ONONDAGA COUNTY PUBLIC WORKS COMMISSION DRAWINGS TITLED "WEST SIDE SANITARY DISTRICT, WEST SIDE FORCE MAIN, WEST SIDE PUMPING STATION TO HIAWATHA BLVD." DRAWN BY O'BRIEN & GERE AND DATED AUGUST 4, 1955 FILE NO. 115.27F-04-F-3 TO 115.27F-10-F-4

GENERAL NOTES:

- EXISTING 30" AND 24" FORCE MAIN PIPING SYSTEMS ARE PRE-STRESSED CONCRETE CYLINDER PIPE UNLESS OTHERWISE NOTED.
- PIPING WITHIN 30" FORCE MAIN MANHOLE STRUCTURES MAY BE DUCTILE IRON PIPING OR PCCP. CONTRACTOR SHALL CONFIRM MATERIALS OF CONSTRUCTION, AS REQUIRED.
- EXACT DIMENSIONS AND LOCATIONS OF ALL STRUCTURES AND UTILITIES ARE CONSIDERED APPROXIMATE. THE CONTRACTOR SHALL DETERMINE THE LOCATION AND ELEVATION OF UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION.
- PROFILE SCALES SHOWN ARE APPROXIMATE ONLY.
- ROADWAYS ARE TO REMAIN OPEN AT ALL TIMES.
- THE CONTRACTOR SHALL LIMIT HIS OPERATIONS TO STAY WITHIN THE EXISTING R.O.W.. PERMANENT AND TEMPORARY R.O.W.'S VARY AND ARE APPROXIMATE.
- THE CONTRACTOR SHALL COORDINATE WITH THE OWNER & ALL PROPERTY OWNERS AND PROVIDE WRITTEN NOTIFICATION TO ALL OWNERS ONE WEEK IN ADVANCE OF ENTERING THEIR PROPERTY, EVEN IF WORK AREA IS WITHIN THE EXISTING R.O.W.
- THE CONTRACTOR SHALL PROVIDE MAINTENANCE AND PROTECTION OF TRAFFIC AS NECESSARY OR AS REQUIRED IN ACCORDANCE WITH ALL STATE, LOCAL, AND FEDERAL LAWS.
- CONSTRUCTION WATER GENERATED AT THE HONEYWELL SITE DURING REHABILITATION EFFORTS SHALL BE CONTAINERIZED AND THE SOLIDS REMOVED PRIOR TO TRANSPORTING AND OFF LOADING THE WATER TO THE WILLIS AVENUE TREATMENT PLANT. ACTIVITIES SHALL BE COORDINATED BY THE CONTRACTOR WITH THE OWNER AND THE OPERATORS AT THE TREATMENT PLANT.
- THE CONTRACTOR SHALL COORDINATE SHUT DOWNS WITH OWNER TO FACILITATE MANAGEMENT OF WATER LEVELS AT RETENTION PONDS.
- THE CONTRACTOR SHALL VERIFY LEAK LOCATION ONCE THE PIPE IS EXPOSED BY HYDROSTATICALLY PRESSURIZING THE LINE AND OBSERVING THE LEAK. ONCE THE LEAK HAS BEEN REPAIRED, THE SECTION OF PIPE SHALL BE ONCE AGAIN HYDROSTATICALLY PRESSURE TESTED AND HAVE LEAK DETECTION PERFORMED. ALL SECTIONS OF 30" AND 24" FORCEMAIN THAT WERE NOT PRESSURE AND LEAK TESTED PRIOR TO THIS SCOPE (DUE TO LEAKS), SHALL BE TESTED UNDER THIS SCOPE AFTER THE LEAKS ARE REPAIRED AND THE PIPING MODIFICATIONS ARE MADE. SEE SHEET G-12 FOR PIPELINE SECTIONS THAT SHALL BE PRESSURE TESTED W/ LEAK DETECTION.
- IF LEAK LOCATION IS AT AN EXISTING PIPE JOINT, THEN PIPE SHALL BE REMOVED AND REPLACED TO THE NEXT PIPE JOINT UPSTREAM AND DOWNSTREAM.

LEGEND

	RAILROAD TRACKS
	STREAM/ EDGE OF WATER
	CHAINLINK FENCE
	UNDERGROUND GAS LINE
	UNDERGROUND WATER LINE
	SANITARY SEWER LINE
	STORM SEWER LINE
	OVERHEAD WIRE
	FORCE MAIN LINE
	FORCE MAIN LINE TO BE REHABILITATED
	NEW FORCE MAIN LINE TO BE INSTALLED
	SIGN
	FIBER OPTIC MARKER
	TRAFFIC SIGNAL BOX
	DRAINAGE MANHOLE
	ELECTRIC MANHOLE
	SANITARY MANHOLE
	BOLLARD
	LIGHT POLE
	ELECTRIC METER
	CATCH BASIN
	UTILITY POLE
	CONIFER, DECIDUOUS TREE

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IN CHARGE OF <u> </u> JRH						HONEYWELL INTERNATIONAL INC. ONONDAGA LAKE 30-INCH/24-INCH FORCEMAIN REHABILITATION PHASE 1 SYRACUSE, NEW YORK	GENERAL GENERAL NOTES	FILE NO.	G-1	
DESIGNED BY <u> NMK </u> CHECKED BY <u> MJD </u>								1163.46358-002		
DRAWN BY <u> </u> SED	C	09/02/2011	REISSUED FOR NYSDEC REVIEW							DATE
	B	02/01/2011	ISSUED FOR NYSDEC REVIEW							
	A	01/10/2011	ISSUED FOR CLIENT REVIEW							
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PLAN
SCALE: 1"=600'

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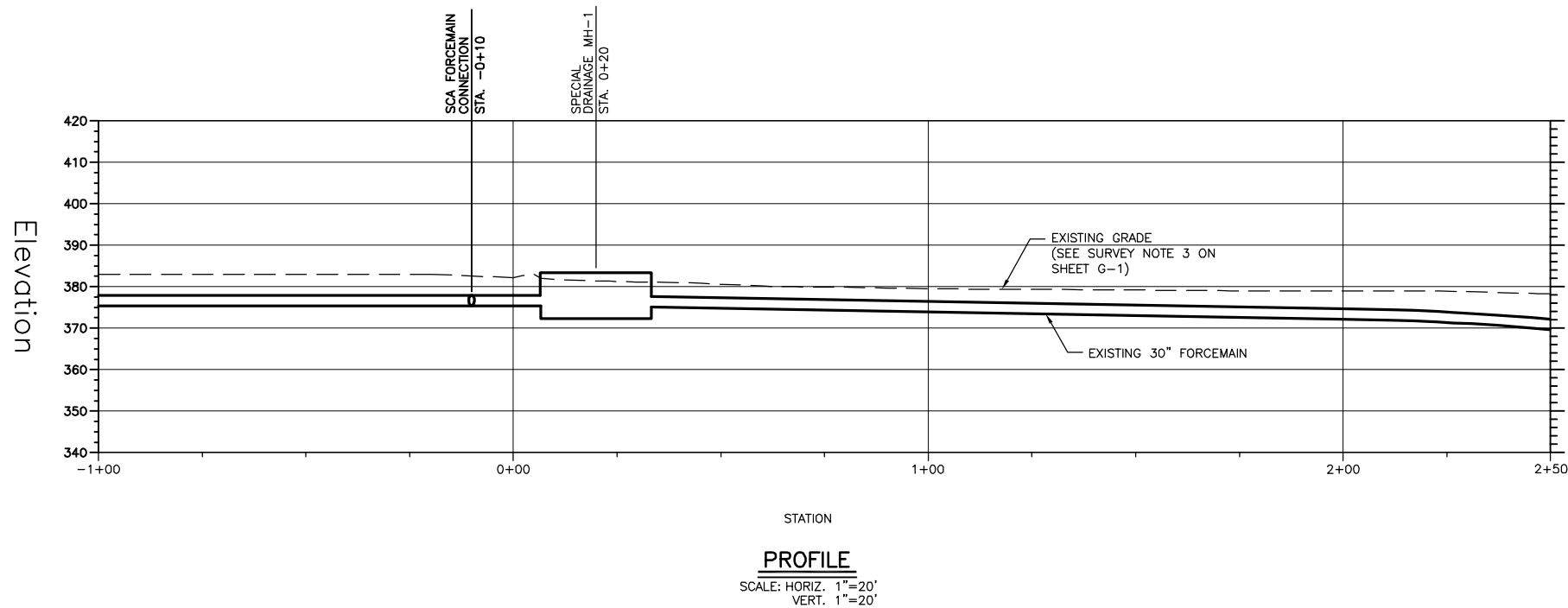
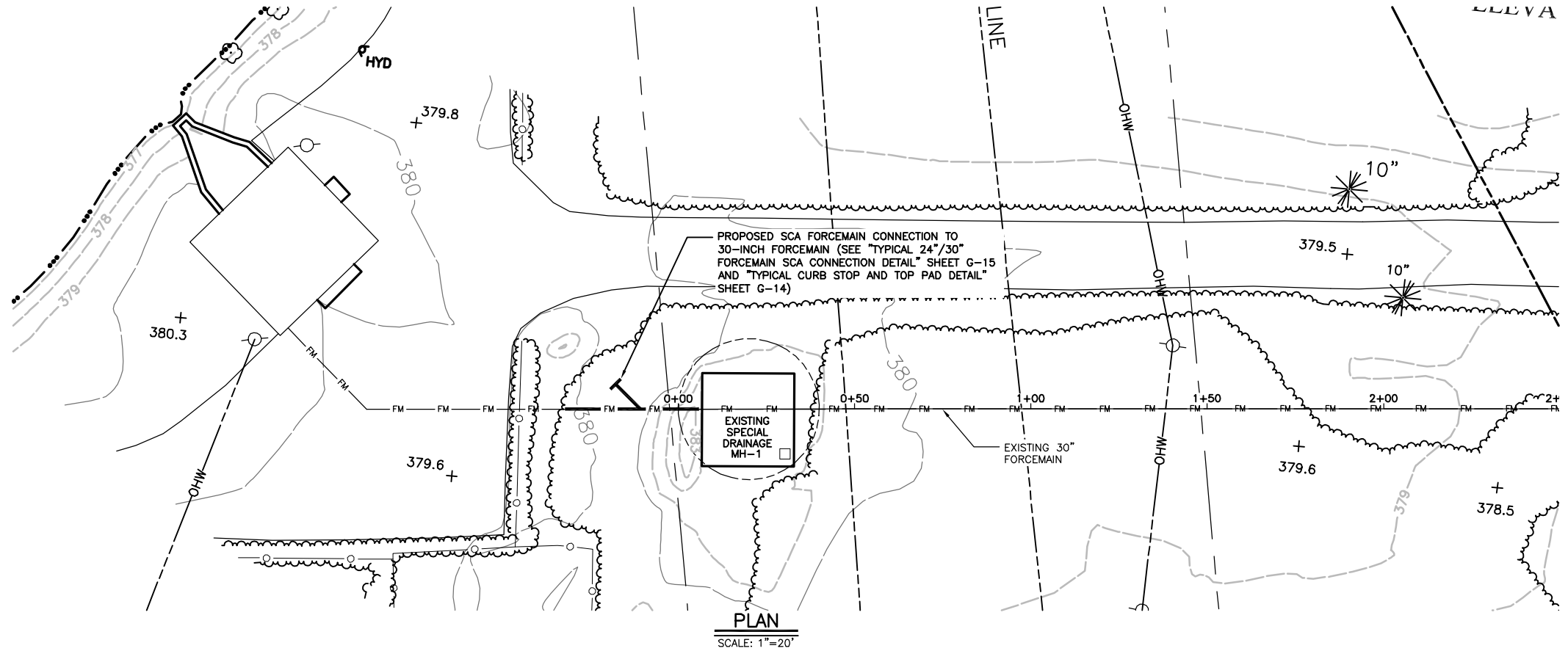
HONEYWELL INTERNATIONAL INC.
ONONDAGA LAKE
30-INCH/24-INCH FORCEMAIN
REHABILITATION PHASE 1
SYRACUSE, NEW YORK

GENERAL
REHABILITATION LOCATIONS

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FILE NO.
1163.46358-003
DATE
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G-2

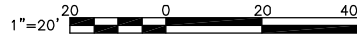


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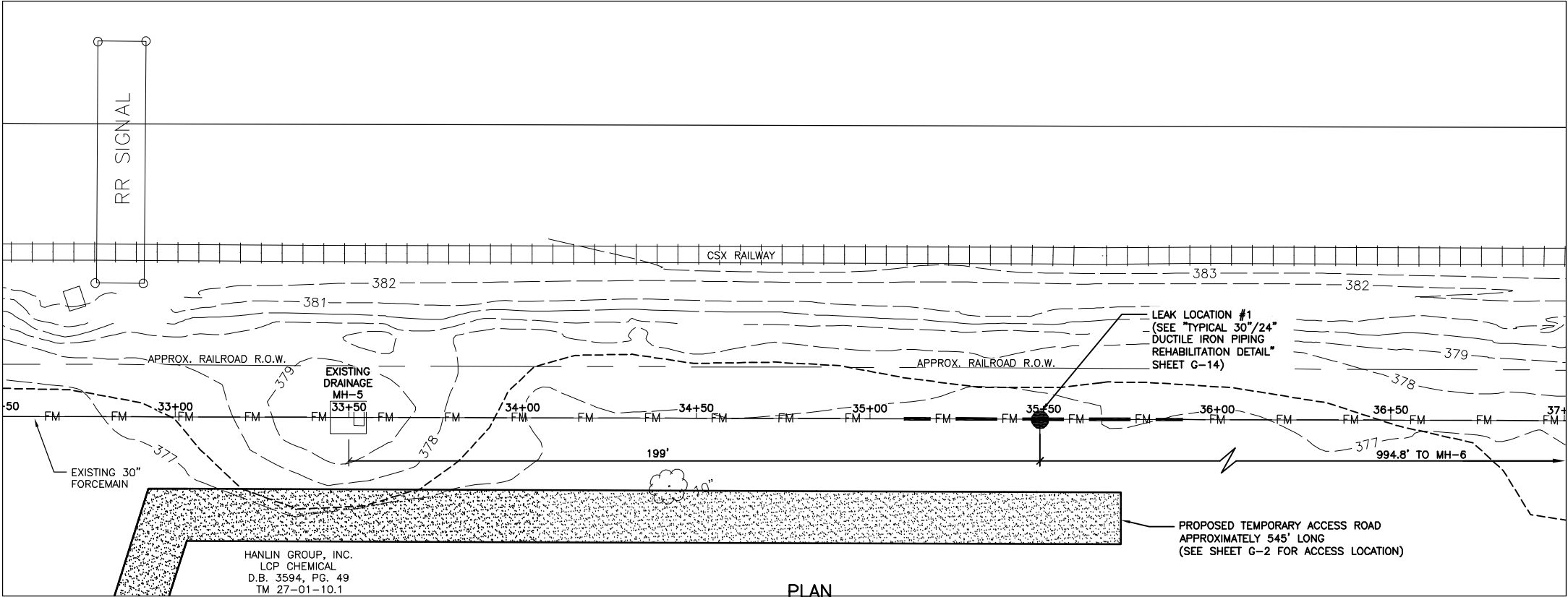


HONEYWELL INTERNATIONAL INC.
ONONDAGA LAKE
30-INCH/24-INCH FORCEMAIN
REHABILITATION PHASE 1
SYRACUSE, NEW YORK

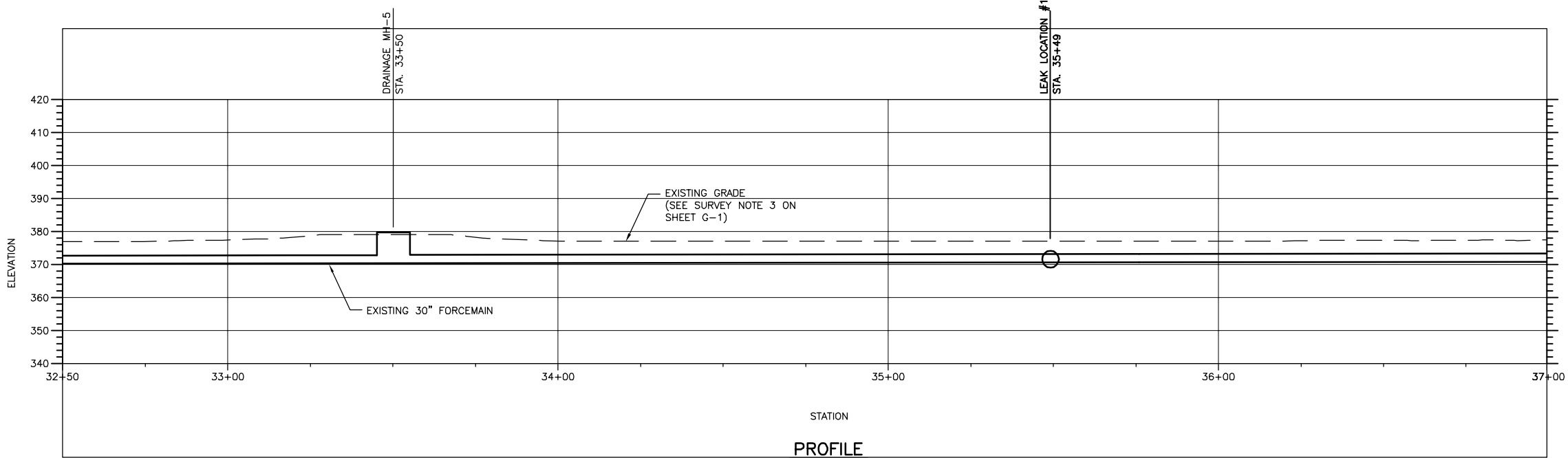
GENERAL
24 INCH/30 INCH FORCEMAIN
SCA CONNECTION

FILE NO.
1163.46358-017
DATE
SEPTEMBER 2011

G-3



PLAN
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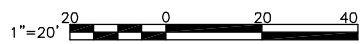
PROFILE
SCALE: HORIZ. 1"=20',
VERT. 1"=20'

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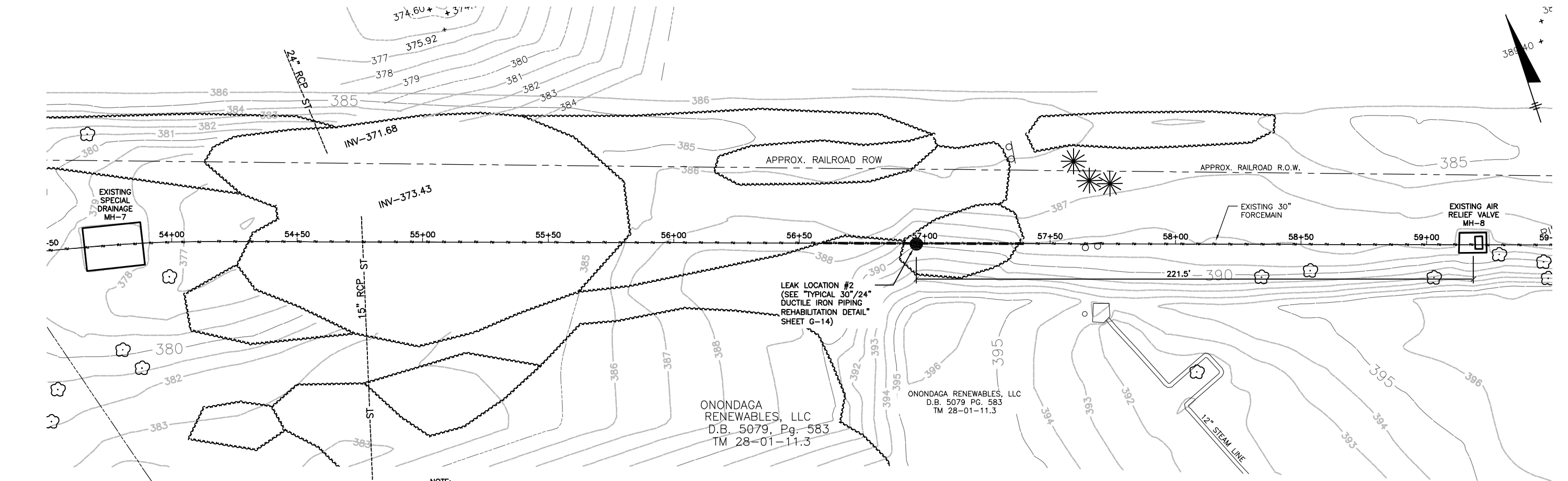


HONEYWELL INTERNATIONAL INC.
ONONDAGA LAKE
30-INCH/24-INCH FORCEMAIN
REHABILITATION PHASE 1
SYRACUSE, NEW YORK

GENERAL
LEAK LOCATION #1
PLAN & PROFILE

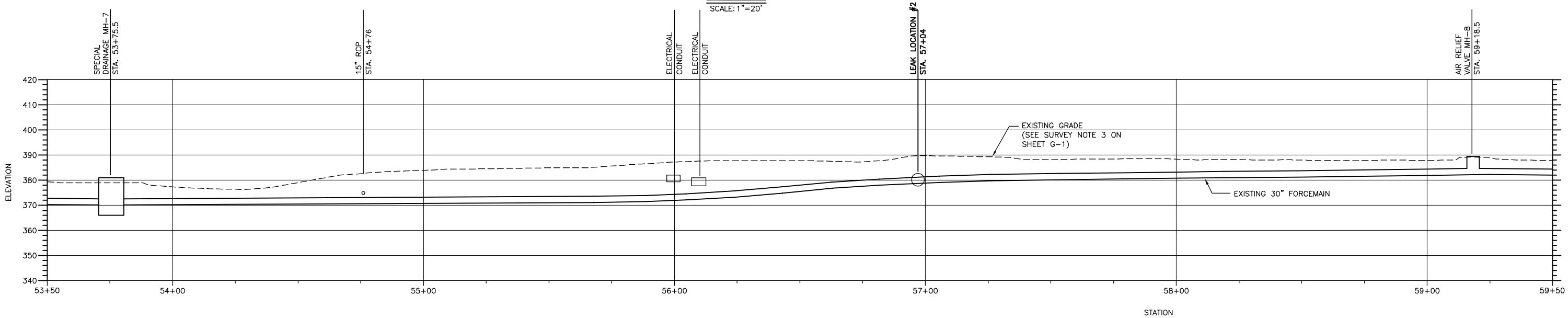
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1163.46358-004
DATE
SEPTEMBER 2011

G-4



NOTE:
1. CLEARING AND GRUBBING WILL BE REQUIRED FOR ACCESS.

PLAN
SCALE: 1"=20'



PROFILE
SCALE: HORIZ. 1"=20'
VERT. 1"=20'

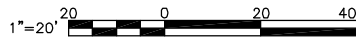
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HONEYWELL INTERNATIONAL INC.
ONONDAGA LAKE
30-INCH/24-INCH FORCEMAIN
REHABILITATION PHASE 1
SYRACUSE, NEW YORK

GENERAL
LEAK LOCATION #2
PLAN & PROFILE

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1163.46358-005

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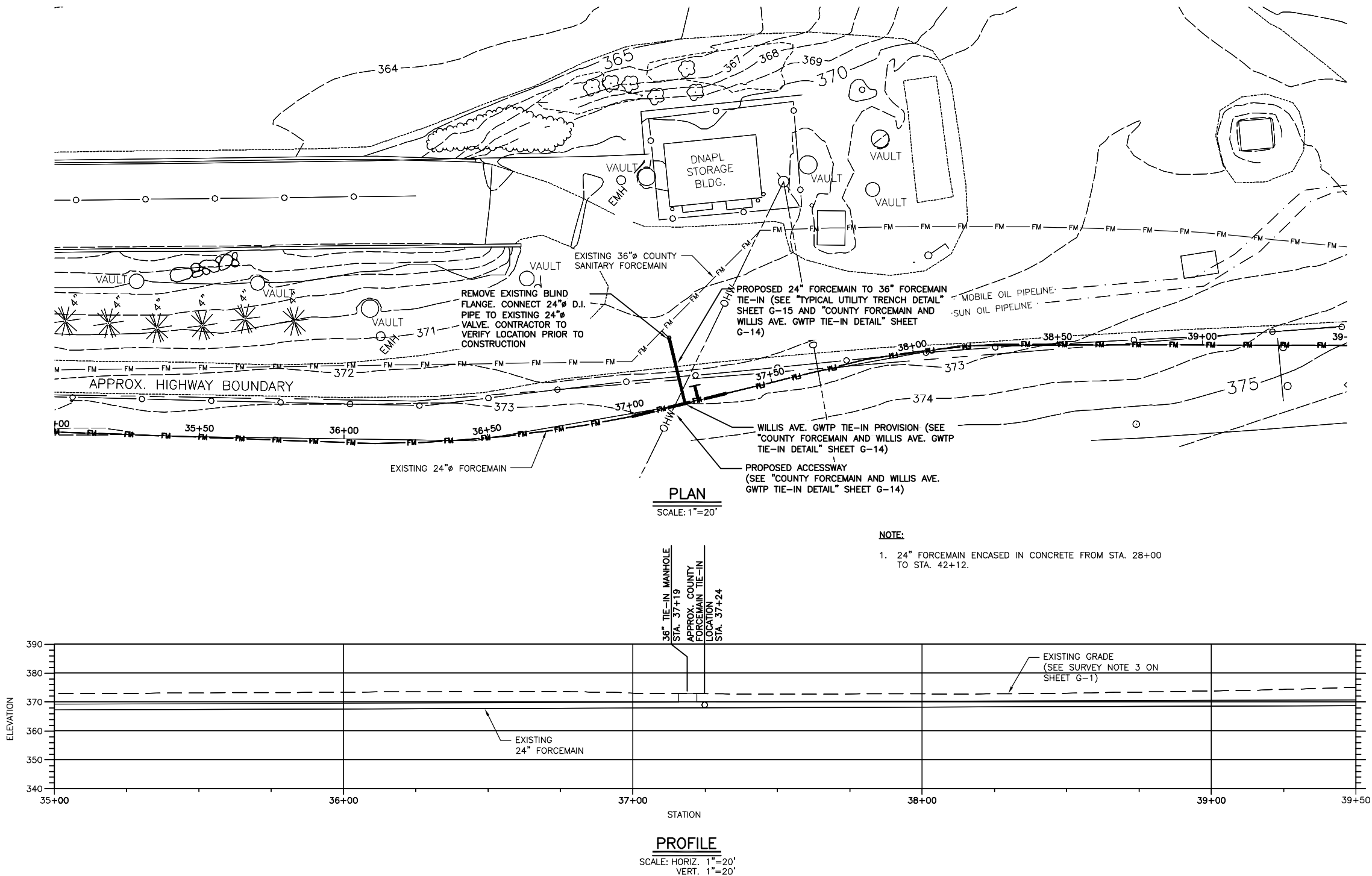
G-5

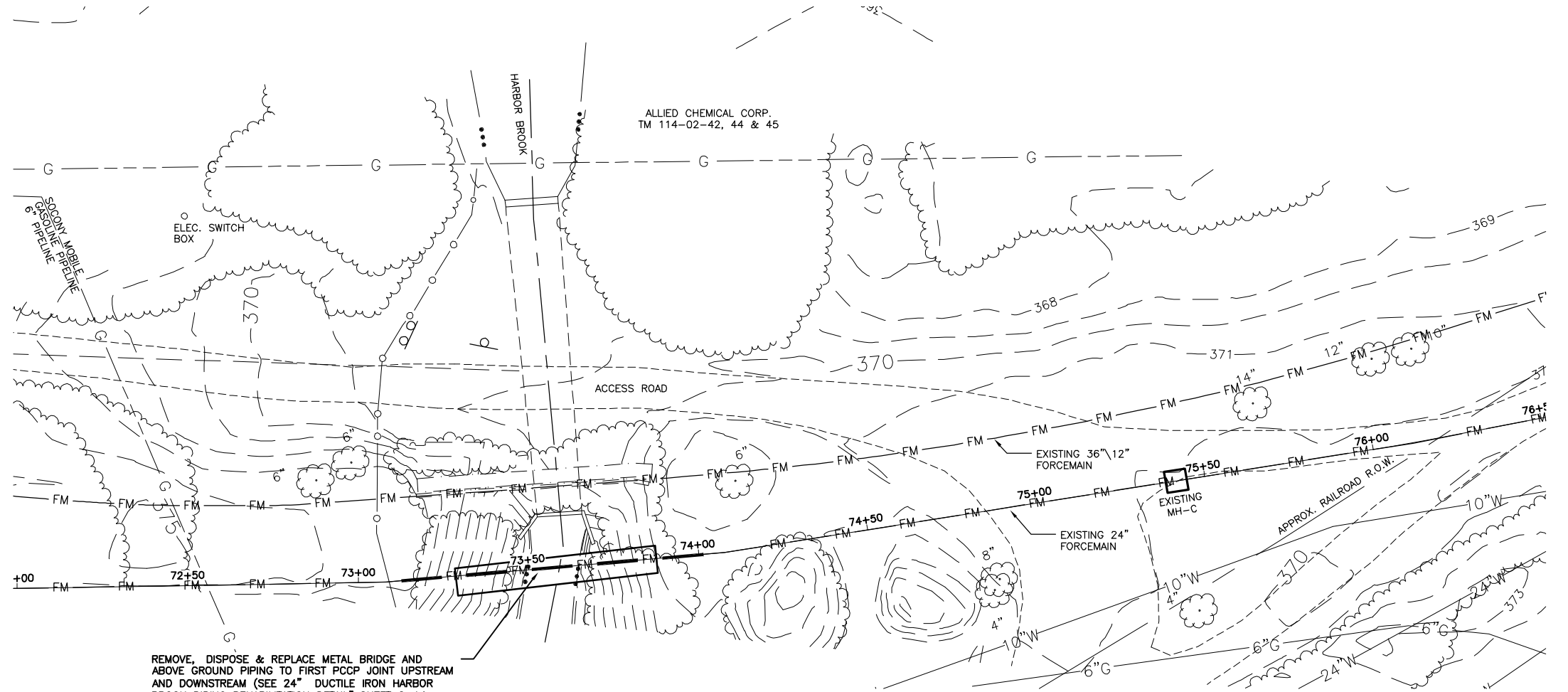


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GENERAL

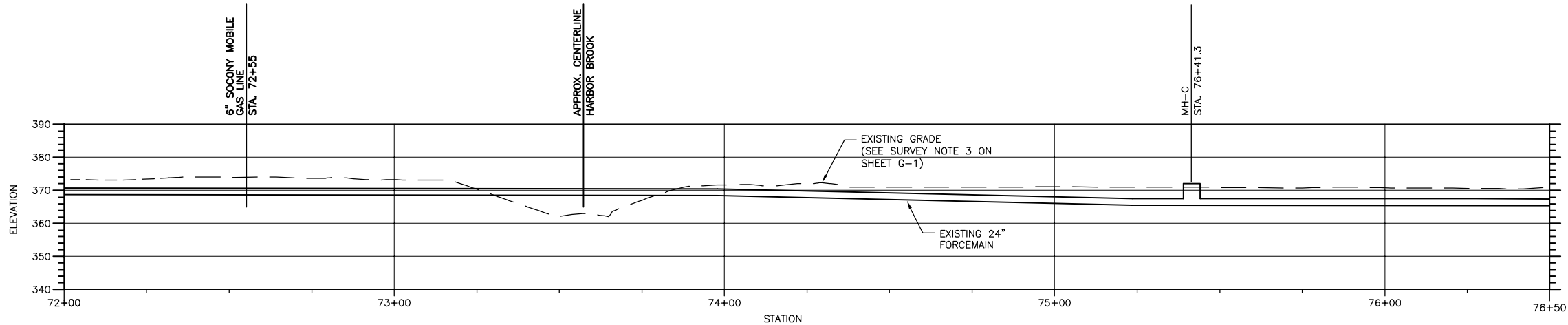
LEAK LOCATION #3
PLAN & PROFILE





REMOVE, DISPOSE & REPLACE METAL BRIDGE AND ABOVE GROUND PIPING TO FIRST PCJP JOINT UPSTREAM AND DOWNSTREAM (SEE 24" DUCTILE IRON HARBOR BROOK PIPING REHABILITATION DETAIL" SHEET G-14, "STEEL BRIDGE DEMOLITION PLAN, ELEVATION & SECTION" SHEET S-2, "STEEL BRIDGE FRAMING PLAN, ELEVATIONS & SECTIONS" SHEET S-3, AND "STEEL BRIDGE SECTIONS & DETAILS" SHEET S-4)

PLAN
SCALE: 1"=20'



PROFILE
SCALE: HORIZ. 1"=20'
VERT. 1"=20'

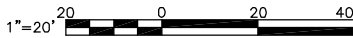
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IN CHARGE OF JRH
DESIGNED BY NMK CHECKED BY MJD
DRAWN BY SED



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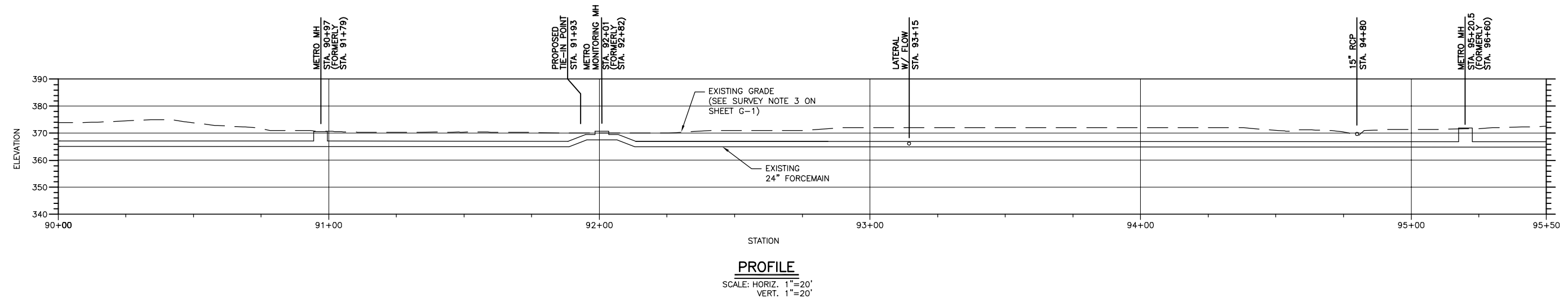
HONEYWELL INTERNATIONAL INC.
ONONDAGA LAKE
30-INCH/24-INCH FORCEMAIN
REHABILITATION PHASE 1
SYRACUSE, NEW YORK

GENERAL
HARBOR BROOK CROSSING
PLAN & PROFILE

FILE NO.
1163.46358-007

DATE
SEPTEMBER 2011

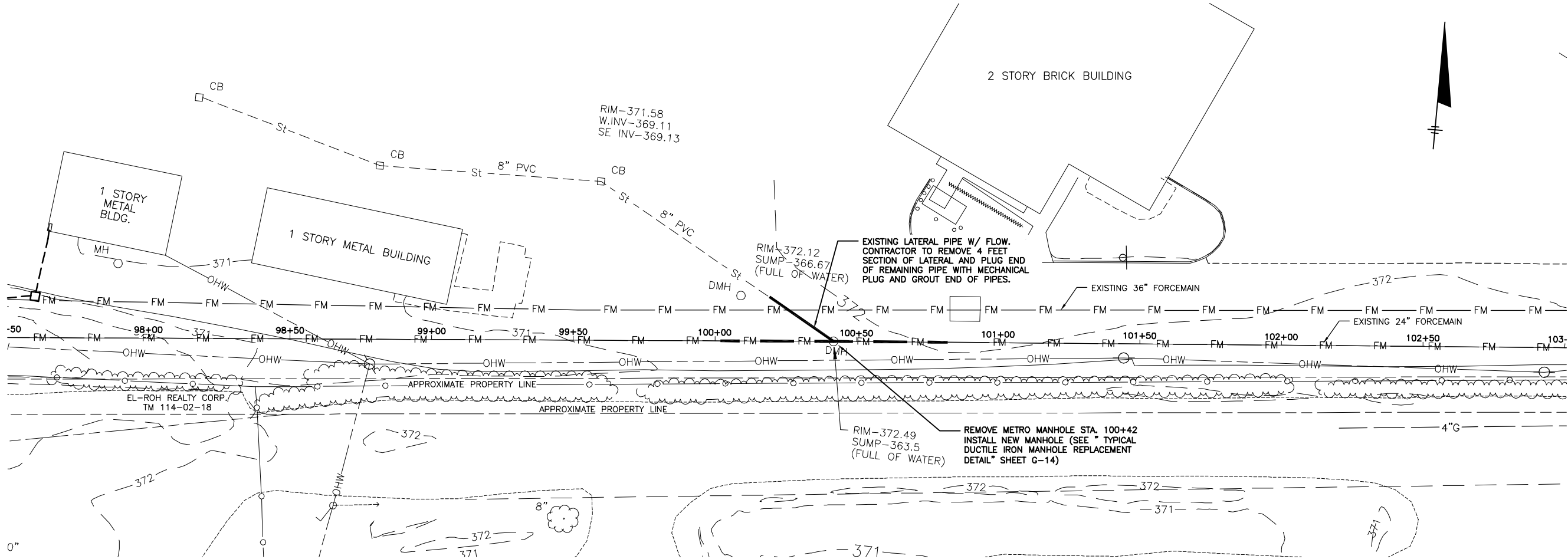
G-8



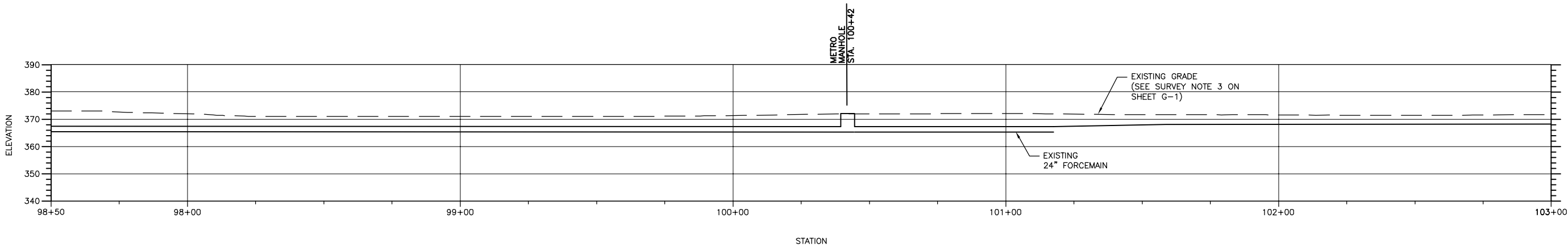
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IN CHARGE OF <u>JRH</u>					HONEYWELL INTERNATIONAL INC. ONONDAGA LAKE 30-INCH/24-INCH FORCEMAIN REHABILITATION PHASE 1 SYRACUSE, NEW YORK	GENERAL 24-INCH/36-INCH FORCEMAIN CONNECTION STA. 92+01	FILE NO. 1163.46358-008	G-9
DESIGNED BY <u>NMK</u> CHECKED BY <u>MJD</u>		C 09/02/2011 REISSUED FOR NYSDEC REVIEW					DATE	
DRAWN BY <u>SED</u>		B 02/01/2011 ISSUED FOR NYSDEC REVIEW					SEPTEMBER 2011	
		A 01/10/2011 ISSUED FOR CLIENT REVIEW						
		NO. DATE REVISION INIT.						



PLAN
SCALE: 1"=20'



PROFILE
SCALE: HORIZ. 1"=20'
VERT. 1"=20'

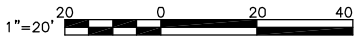
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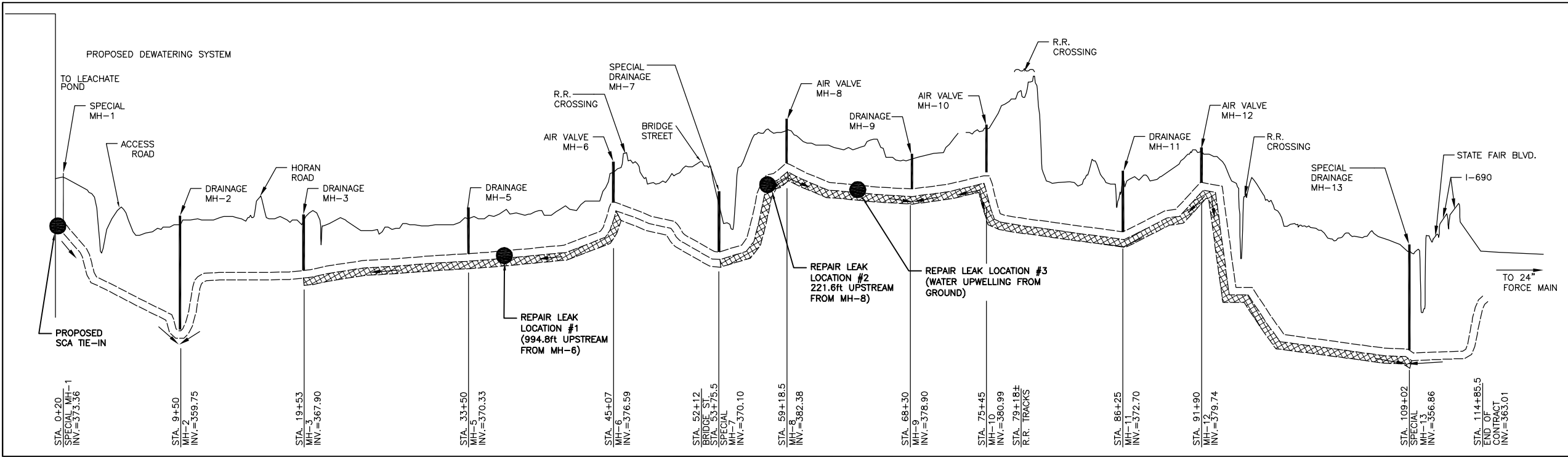
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ONONDAGA LAKE
30-INCH/24-INCH FORCEMAIN
REHABILITATION PHASE 1
SYRACUSE, NEW YORK

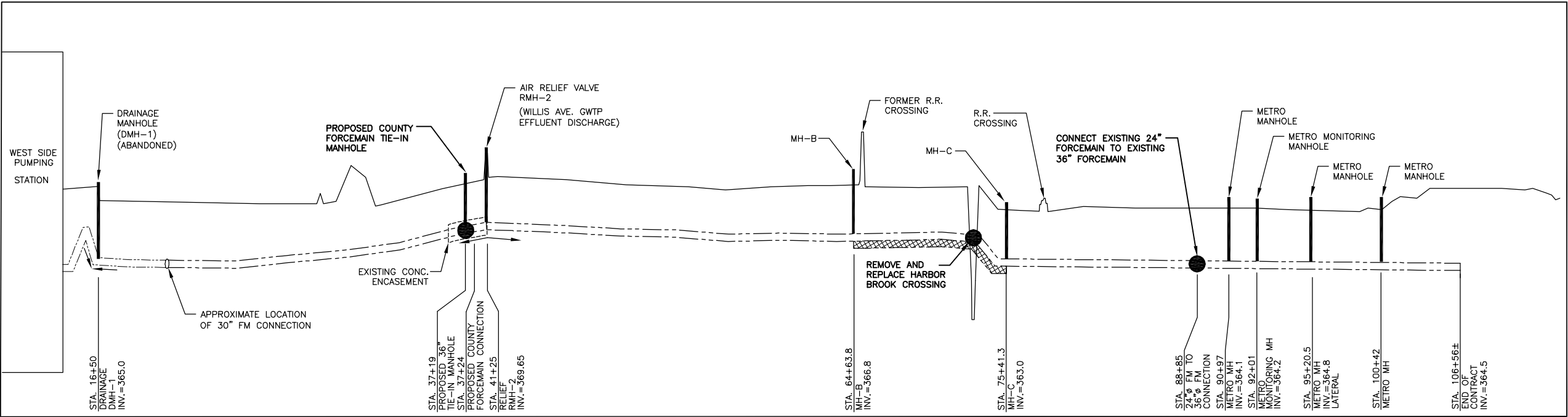
GENERAL
MANHOLE RETROFIT
PLAN & PROFILE

FILE NO.
1163.46358-
DATE
SEPTEMBER 2011

G-10



30" (PCCP) FORCE MAIN PROFILE
NOT TO SCALE



24" (PCCP) FORCE MAIN PROFILE
NOT TO SCALE

NOTE:
1. PROFILE INFORMATION WAS OBTAINED FROM
SCANNED MAPS AND SCALED RANDOMLY FOR
ILLUSTRATION PURPOSES ONLY. DISTANCES
AND ELEVATIONS ARE DISTORTED AND NOT TO
SCALE.

30 INCH FORCE MAIN		
MANHOLE DISTANCE		
FROM	TO	DISTANCE (±ft)
MH-1	MH-2	930
MH-2	MH-3	995
MH-3	MH-5	1406
MH-5	MH-6	1157
MH-6	MH-7	873
MH-7	MH-8	576
MH-8	MH-9	974
MH-9	MH-10	615
MH-10	MH-11	1080
MH-11	MH-12	565
MH-12	MH-13	1712
MH-13	RMH-2(24")	3349

24 INCH FORCE MAIN		
MANHOLE DISTANCE		
FROM	TO	DISTANCE (±ft)
RMH-2	MH-B	2334
MH-B	MH-C	1078
MH-C	MET. MH (90+97)	1556
MET. MH (90+97)	MET. MON. (92+01)	104
MET. MON. (92+01)	MET. MH (95+20.5)	320
MET. MH (95+20.5)	MET. MH (100+42)	522
MET. MH. (100+42)	HBI MH	538±

LEGEND
(THIS SHEET)

----- 24" FORCE MAIN

----- 30" FORCE MAIN

----- 24" FORCE MAIN OUT OF SERVICE

→ DRAINAGE DIRECTION

▨ FORCEMAIN TO BE PRESSURE AND LEAK TESTED THIS CONTRACT

● REPAIR/REHAB LOCATION

PRELIMINARY
NOT FOR
CONSTRUCTION

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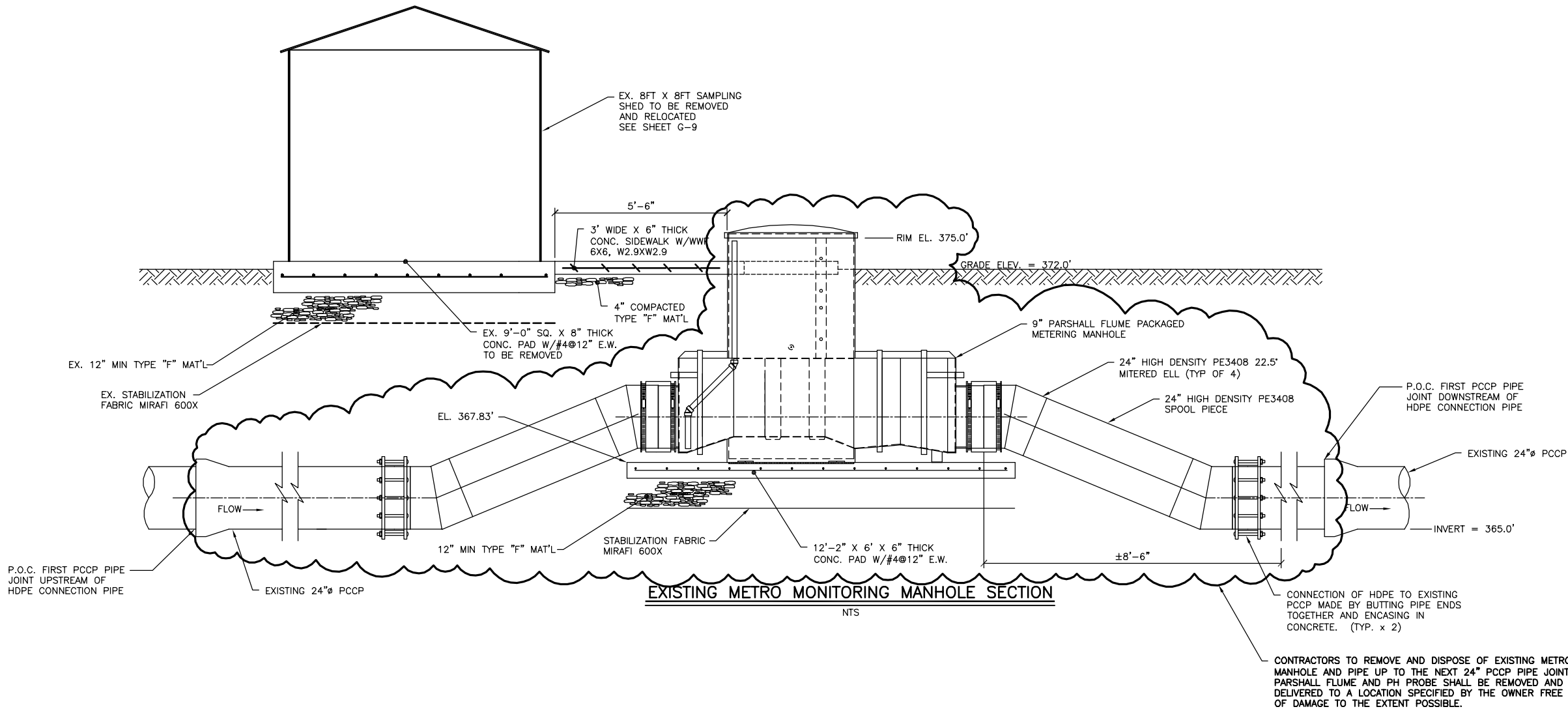
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ONONDAGA LAKE
30-INCH/24-INCH FORCEMAIN
REHABILITATION PHASE 1
SYRACUSE, NEW YORK

GENERAL
EXAGGERATED FORCEMAIN PROFILE
W/ REPAIR LOCATIONS

FILE NO.
1163.46358-011
DATE
SEPTEMBER 2011

G-11



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ONONDAGA LAKE
30-INCH/24-INCH FORCEMAIN
REHABILITATION PHASE 1
SYRACUSE, NEW YORK

GENERAL

METRO MONITORING MANHOLE
DEMOLITION PLAN

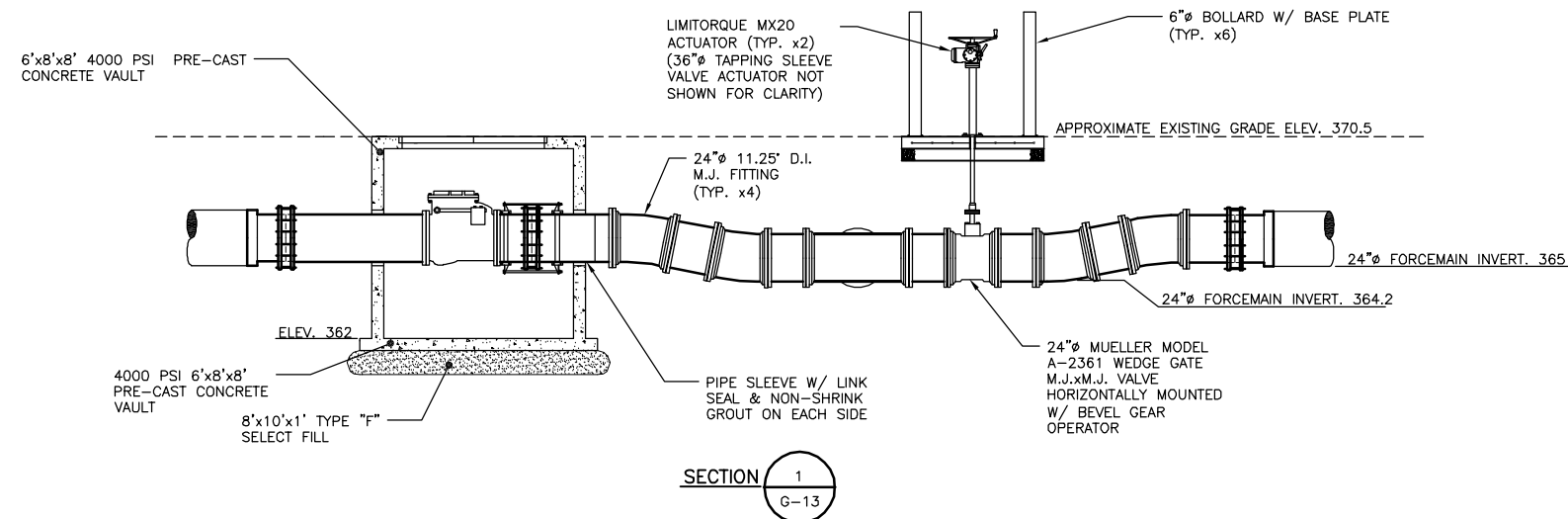
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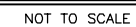
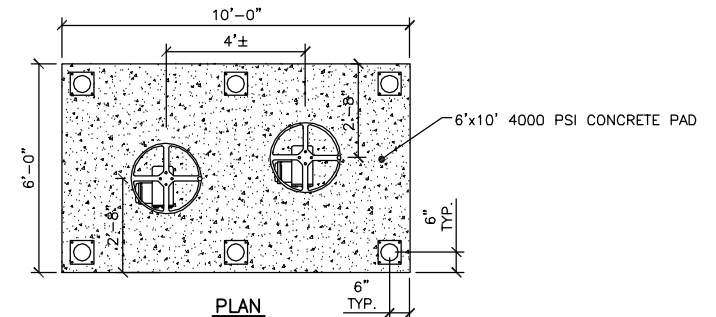
SEPTEMBER 2011

G-12



NOT TO SCALE

- 24"Ø MUELLER MODEL A-2361
WEDGE GATE D.I. M.J.xM.J.
VALVE HORIZONTALLY MOUNTED
W/ BEVEL GEAR OPERATOR



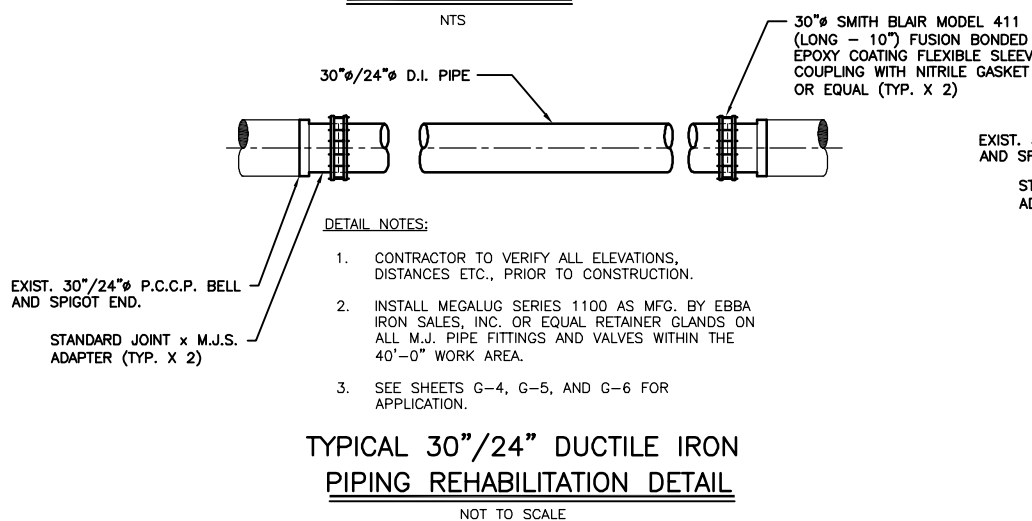
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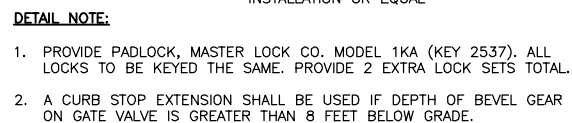
G-13 |



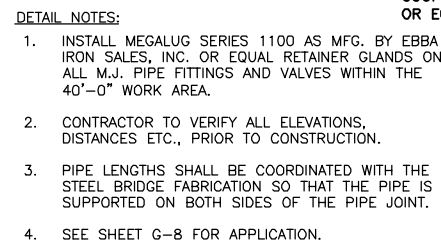
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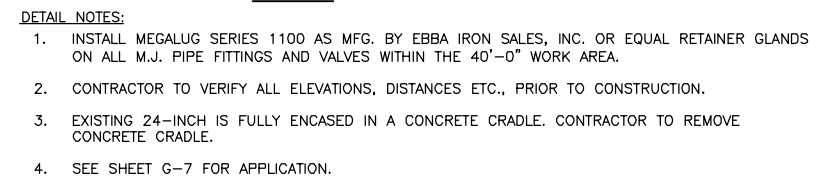
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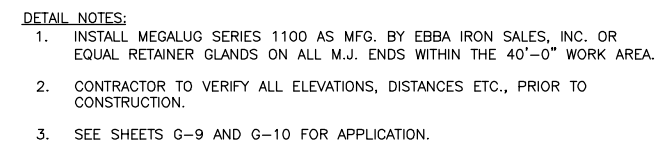
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NOT TO SCALE



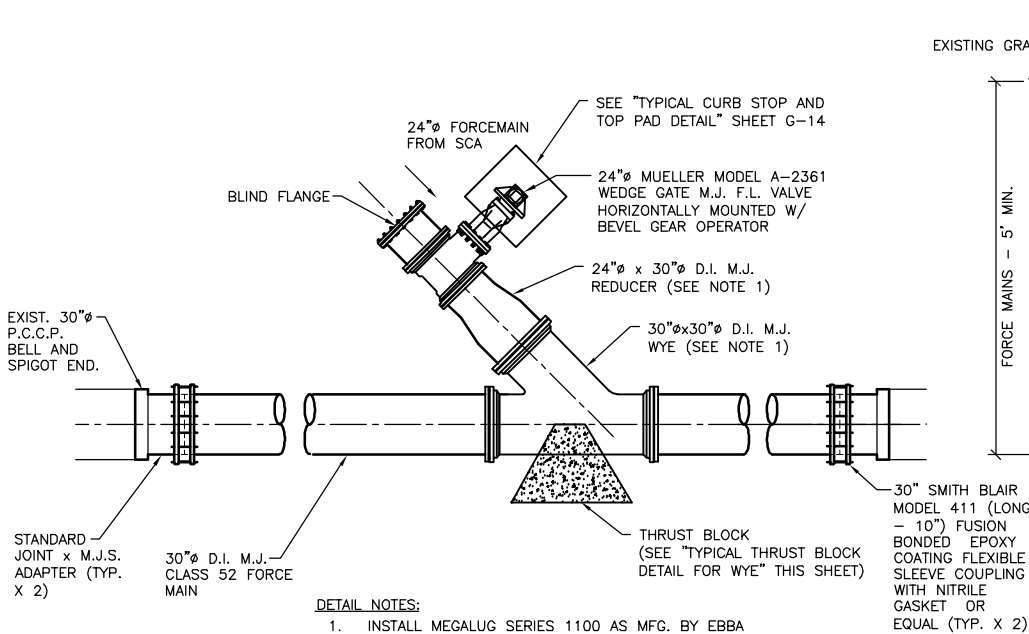
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NOT TO SCALE

DATE: 09/02/2011

G-14 |



DETAIL NOTES:

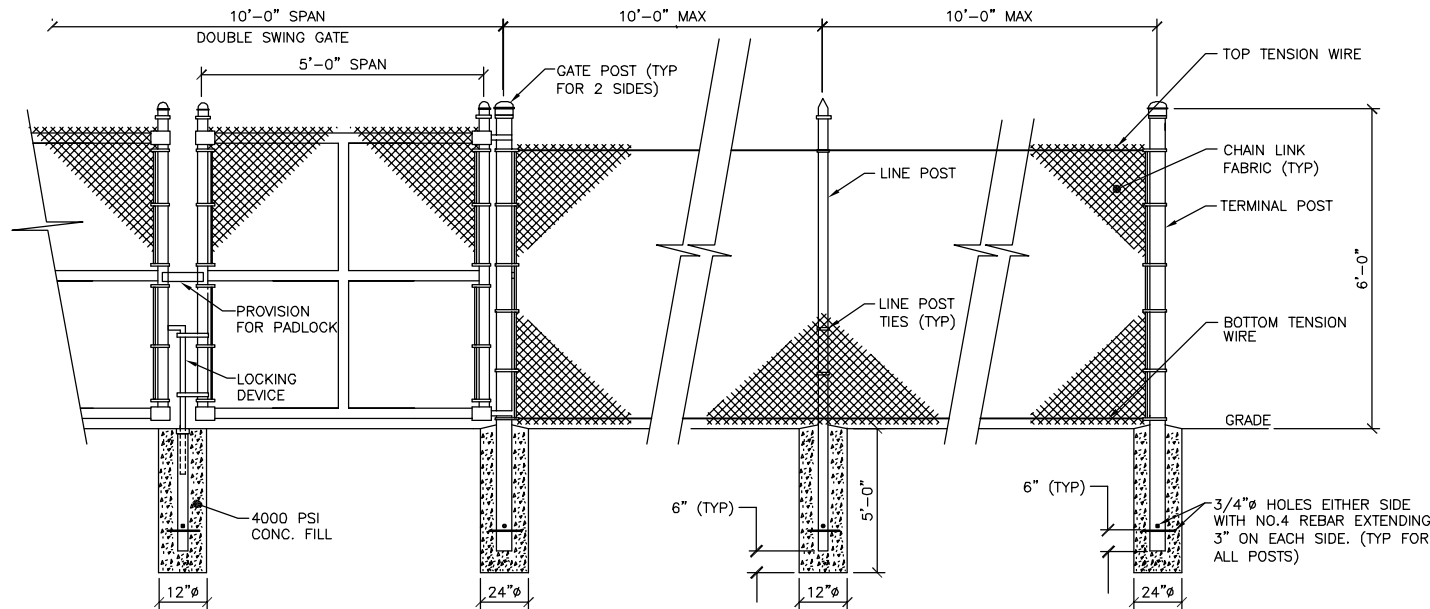
1. INSTALL MEGALUG SERIES 1100 AS MFG. BY EBBA IRON SALES, INC. OR EQUAL RETAINER GLANDS ON ALL M.J. PIPE AND VALVES WITHIN THE 40'-0" WORK AREA.
2. CONTRACTOR TO VERIFY ALL ELEVATIONS, DISTANCES ETC., PRIOR TO CONSTRUCTION.
3. SEE SHEET G-3 FOR APPLICATION.

SCA CONNECTION DETAIL

NOT TO SCALE

TYPICAL UTILITY TRENCH DETAIL

NOT TO SCALE



DETAIL NOTES:

1. PROVIDE TERMINAL POST AT EACH TERMINATION AND CHANGE IN HORIZONTAL OR VERTICAL DIRECTION 30' OR MORE. TERMINAL POST SHALL BE PLUMB WITH TOPS PROPERLY ALIGNED.
2. ALL CHAIN LINK FENCING AND GATES TO BE INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS.
3. PROVIDE HARDENED SECURITY PAD LOCKS, MASTER LOCK CO. PRO SERIES MODEL 6121 W/ LONG THICK SHANK OR EQUAL. ALL LOCKS TO BE THE SAME. PROVIDE 2 EXTRA LOCK SETS IN TOTAL, KEYED THE SAME AS THE OTHERS AND (10) KEYS.

CHAIN LINK FENCE AND GATE DETAIL

NOT TO SCALE

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ONONDAGA LAKE
30-INCH/24-INCH FORCEMAIN
REHABILITATION PHASE 1
SYRACUSE, NEW YORK

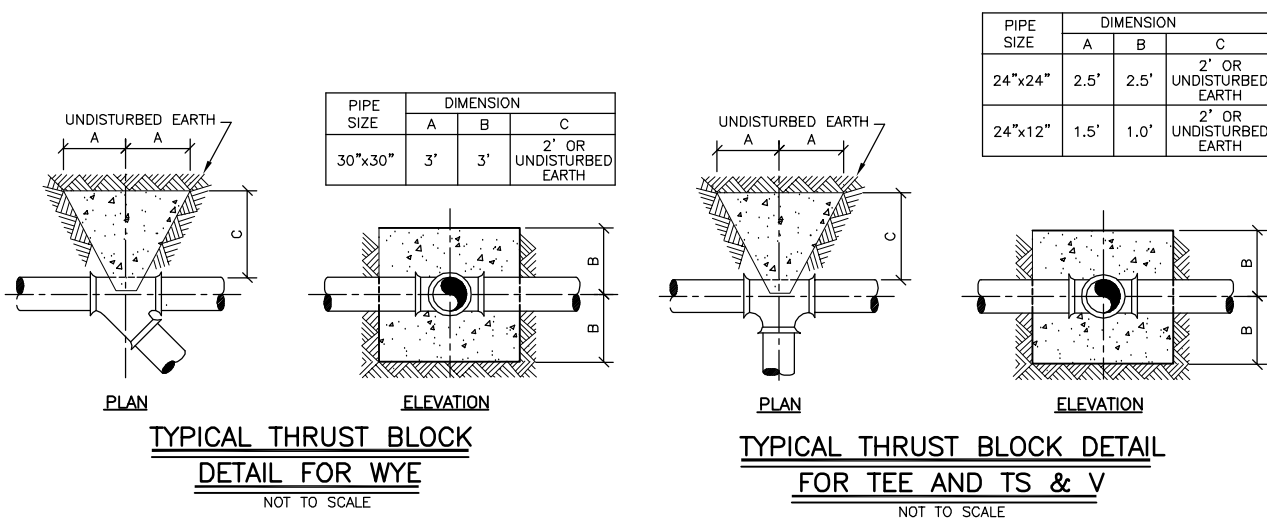
GENERAL
REHABILITATION
DETAILS

PRELIMINARY
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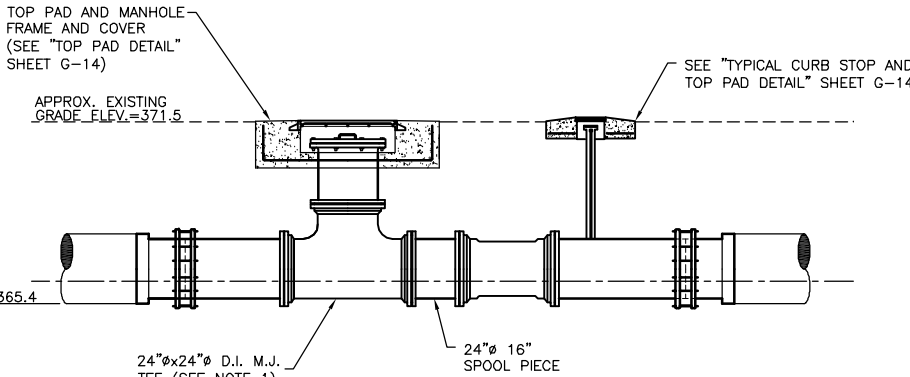
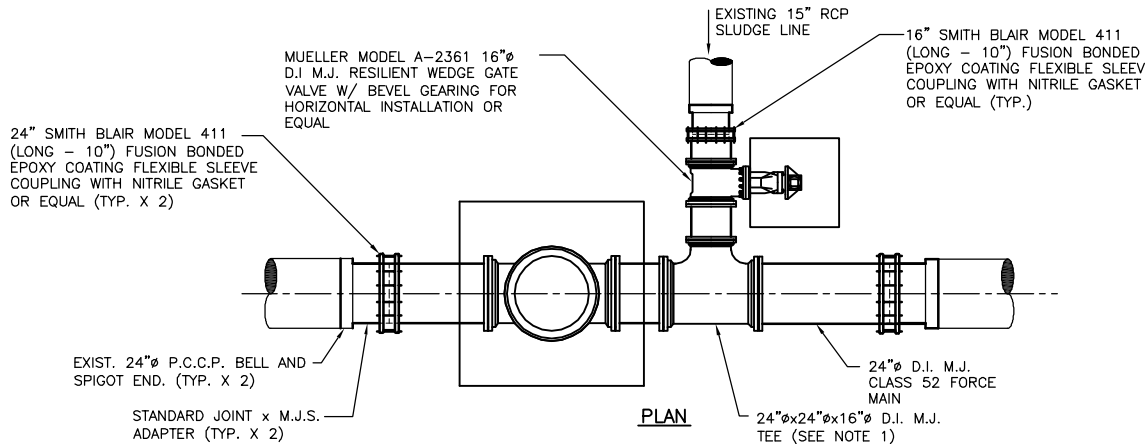
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G-15



TYPICAL THRUST BLOCK
DETAIL FOR WYE

NOT TO SCALE



15" SLUDGE LINE CONNECTION
DETAIL (24" FM STA. 95+20.5)

NOT TO SCALE

DETAIL NOTES:

1. INSTALL MEGALUG SERIES 1100 AS MFG. BY EBBA IRON SALES, INC. OR EQUAL RETAINER GLANDS ON ALL M.J. PIPE FITTINGS AND VALVES WITHIN THE 40'-0" WORK AREA.
2. CONTRACTOR TO VERIFY ALL ELEVATIONS, DISTANCES ETC., PRIOR TO CONSTRUCTION.
3. EXISTING 24-INCH IS FULLY ENCASED IN A CONCRETE CRADLE. CONTRACTOR TO REMOVE CONCRETE CRADLE.
4. SEE SHEET G-7 FOR APPLICATION.

A. STRUCTURAL GENERAL NOTES

1. WORK SHALL COMPLY WITH THE BUILDING CODE OF NEW YORK STATE (BCNYS) 2010 EDITION.
2. SECTIONS AND DETAILS SHOWN ON DRAWINGS ARE TYPICAL. USE SIMILAR CONSTRUCTION AT LOCATIONS NOT SPECIFICALLY DETAILED.
3. EXAMINE AND COMPARE STRUCTURAL DRAWINGS WITH ARCHITECTURAL, MECHANICAL, PLUMBING, SITE, ELECTRICAL AND PROCESS DRAWINGS. VERIFY LOCATIONS AND DIMENSIONS OF CHASES, INSERTS, OPENINGS, SLEEVES, DEPRESSIONS, AND OTHER PROJECT REQUIREMENTS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
4. VERIFY LOCATION OF EXISTING UNDERGROUND SITE UTILITIES PRIOR TO THE START OF WORK AND COORDINATE LOCATION WITH STRUCTURAL DRAWINGS. NOTIFY THE ENGINEER OF ANY CONFLICTS IN WRITING. DO NOT PROCEED WITH AFFECTED WORK UNTIL CONFLICTS HAVE BEEN RESOLVED.
5. ADEQUATE TEMPORARY BRACING OF CONSTRUCTION ELEMENTS SHALL BE PROVIDED FOR FOUNDATIONS, ABOVE GRADE WALLS, STRUCTURAL STEEL AND OTHER STRUCTURAL SYSTEMS, FOR WIND AND/OR CONSTRUCTION LOADS. BRACING SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION OPERATIONS PRIOR TO STRUCTURAL ELEMENTS REACHING THEIR SPECIFIED DESIGN STRENGTH AND/OR REACHING THEIR COMPLETED FORM AS SHOWN ON THE CONTRACT DRAWINGS. DESIGN AND MAINTENANCE OF SAID BRACING SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
6. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS & DIMENSIONS PRIOR TO THE START OF WORK.

B. STRUCTURAL CONCRETE NOTES

1. CONCRETE WORK SHALL CONFORM TO REQUIREMENTS OF THE AMERICAN CONCRETE INSTITUTE (A.C.I.) 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE", A.C.I. 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", AND A.C.I. 350, "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES".
2. CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH AS SHOWN: UNIT WEIGHT MIN. STRENGTH @ 28 DAYS (P.S.I.)

ITEM	MIN. STRENGTH @ 28 DAYS (P.S.I.)	UNIT WEIGHT(P.C.F.)
a. CONCRETE EXPOSED TO FLUID	4500	145
b. WALLS, PIERS, FOOTINGS, MATS, & RETAINING WALLS	4000	145
c. SLAB ON GRADE	4000	145

3. PORTLAND CEMENT USED FOR CONCRETE WORK SHALL COMPLY WITH A.S.T.M. C-150 FOR TYPE I/II CEMENT.
4. NORMAL WEIGHT CONCRETE SHALL CONTAIN FINE AND COARSE AGGREGATES COMPLYING WITH A.S.T.M. C-33. THE MAXIMUM SIZE OF COARSE AGGREGATES SHALL BE OF SIZES SUITABLE FOR PLACEMENT IN STRUCTURAL ELEMENTS CONSIDERING THEIR SIZE AND REINFORCEMENT CONFIGURATION.
5. CONCRETE PLACED UNDER COLD WEATHER CONDITIONS THAT MAY BE EXPOSED TO SUBSEQUENT MOISTURE AND FREEZING CONDITIONS PRIOR TO REACHING DESIGN COMPRESSIVE STRENGTH OR EXTERIOR CONCRETE WORK EXPOSED TO FREEZE / THAW CYCLING SHALL BE AIR-ENTRAINED TO 5-7% AIR CONTENT. HOWEVER, SLAB FLATWORK TO RECEIVE A HARD-TROWEL FINISH SHALL NOT BE AIR ENTRAINED.
6. CONSTRUCTION JOINTS SHOWN ON THE DRAWINGS ARE MANDATORY. OMISSIONS, ADDITIONS OR CHANGES SHALL NOT BE MADE EXCEPT WITH THE SUBMITTAL OF A WRITTEN REQUEST, TOGETHER WITH DRAWINGS OF THE PROPOSED JOINT LOCATIONS, FOR APPROVAL BY THE ENGINEER.
7. WHERE CONSTRUCTION JOINTS ARE NOT SHOWN, OR WHEN ALTERNATE LOCATIONS ARE PROPOSED, DRAWINGS SHOWING LOCATION OF CONSTRUCTION AND CONTROL JOINTS AND CONCRETE PLACING SEQUENCE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO THE PREPARATION OF THE REINFORCEMENT SHOP DRAWINGS.
8. CONCRETE SHALL BE PLACED WITHOUT HORIZONTAL CONSTRUCTION JOINTS EXCEPT WHERE SHOWN OR NOTED. VERTICAL CONSTRUCTION JOINTS AND STOPS IN CONCRETE WORK SHALL NOT BE MADE AT MID-SPAN OR AT POINTS OF MAX. SHEAR.
9. CONCRETE SLABS ON GRADE, INCLUDING CONCRETE PLACED ON STEEL DECK, SHALL BE PLACED SO THAT THE SLAB THICKNESS IS AT NO POINT LESS THAN THAT INDICATED ON THE CONTRACT DRAWINGS. ADJUST SUBGRADE ELEVATIONS TO ACCOUNT FOR SLOPED SLAB ON GRADE SURFACES.
10. CHAMFER EXPOSED CORNERS OF CONCRETE 3/4 INCH.
11. CONCRETE WALLS SHALL HAVE POCKETS FOR BEAMS & SHELVES FOR STRUCTURAL SLABS NOT MONOLITHIC WITH WALL. PROVIDE 8" MINIMUM BEARING FOR BEAMS AND 4" MINIMUM BEARING FOR SLABS U.O.N.
12. CONCRETE BEAMS SHALL BE MONOLITHIC WITH SLABS. HORIZONTAL JOINTS IN STRUCTURAL SLABS AND BEAMS ARE NOT ALLOWED.
13. PIPES AND CONDUITS RUNNING HORIZONTALLY IN SLABS:
 - a. PLACEMENT: CENTERED IN DEPTH OF SLAB
 - b. MAXIMUM OUTSIDE DIAMETER: 1/3 SLAB THICKNESS
 - c. SPACING: AT LEAST THREE DIAMETERS ON CENTER. COVER SHALL BE MAINTAINED & EMBEDMENTS SHALL NOT CONTACT REINFORCEMENT.

14. CAST INTO CONCRETE ACCESSORIES REQUIRED BY ARCHITECTURAL FINISHES AND MECHANICAL EQUIPMENT. COORDINATE LOCATION AND QUANTITY WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
15. AT CONSTRUCTION JOINTS, PROVIDE A SHEAR KEY 1 1/2 IN. DEEP x 1/3-JOINT-WIDTH. ALSO PROVIDE A TENSION CLASS "B" LAP OF REINFORCING. USE ROUGHENED JOINT WHERE INDICATED ON THE DRAWINGS.
16. SLAB, BEAM, AND JOIST TOP REINFORCING CONTINUOUS OVER A SUPPORT SHALL EXTEND TO THE 1/3-POINT OF THE CLEAR SPAN UNLESS INDICATED OTHERWISE ON THE DRAWINGS. SLAB, BEAM, AND JOIST TOP REINFORCING AT A DISCONTINUOUS END SHALL TERMINATE IN A STANDARD 90 DEGREE HOOK INTO SUPPORTING BEAMS AND WALLS.
17. LOCATE CONSTRUCTION JOINTS IN BEAMS AND STRUCTURAL SLABS IN THE CENTER-1/3 OF SPAN, AND NOT CLOSER THAN 3 FT. FROM AN INTERSECTING BEAM.

C. STRUCTURAL REINFORCEMENT NOTES

1. REINFORCEMENT WORK OF DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (A.C.I. 318)", "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES (A.C.I. 350)", "A.C.I. DETAILING MANUAL - 1988 (SP-86)", "CRSI MANUAL OF STANDARD PRACTICE (MSP I)" AND "STRUCTURAL WELDING CODE - REINFORCING STEEL (A.W.S. D1.4)".
2. STEEL REINFORCEMENT, UNLESS NOTED OTHERWISE, SHALL CONFORM TO THE FOLLOWING:
 - a. BARS, TIES AND STIRRUPS A.S.T.M. A615 GRADE (Fy = 60,000 P.S.I.)
 - b. REINFORCING TO BE WELDED SHALL CONFORM TO A.S.T.M. A706 (Fy = 60,000 P.S.I.) OR MILL TEST REPORTS SHALL BE SUBMITTED SHOWING CARBON EQUIVALENT.
3. MINIMUM CONCRETE PROTECTIVE COVER FOR REINFORCEMENT OF NON-ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES SHALL BE AS FOLLOWS U.O.N.:
 - a. UNFORMED SURFACES CAST AGAINST AND PERMANENTLY IN CONTACT WITH EARTH . . . 3.0"
 - b. BUILDING SURFACES FORMED IN CONTACT WITH EARTH OR EXPOSED TO WEATHER, #6 THROUGH #18 BARS 2.0"
#5 BARS AND SMALLER 1.5"
 - c. BUILDING SURFACES NOT IN CONTACT WITH OR EXPOSED TO WEATHER (WALLS AND SLABS) #14 AND #18 BARS 1.5"
#11 BARS AND SMALLER 0.75"
 - d. BUILDING BEAMS, GIRDERS AND COLUMNS - PRINCIPAL REINFORCEMENT, TIES, STIRRUPS AND SPIRALS 1.5"
4. MINIMUM CONCRETE PROTECTIVE COVER FOR LIQUID CONTAINING STRUCTURES SHALL CONFORM TO "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES (A.C.I. 350)".
5. WHERE CONTINUOUS REINFORCEMENT IS CALLED FOR, IT SHALL BE EXTENDED CONTINUOUSLY AROUND CORNERS AND LAPPED AT NECESSARY SPLICES OR HOOKED AT DISCONTINUOUS ENDS.
6. LAPS SHALL BE CLASS B TENSION LAP SPLICES, UNLESS NOTED OTHERWISE.
7. WHERE REINFORCEMENT IS NOT SHOWN ON THE CONTRACT DRAWINGS, PROVIDE REINFORCEMENT IN ACCORDANCE WITH APPLICABLE DETAILS AS DETERMINED BY THE ENGINEER. IN NO CASE SHALL REINFORCEMENT BE LESS THAN THE MINIMUM REINFORCEMENT PERMITTED BY THE APPLICABLE CODES NOR LESS THAN THE FOLLOWING:
 - a. BEAM STIRRUPS: #4 @ 12" O.C.
 - b. BEAM STIRRUP SUPPORTS: 1-#5 @ EACH STIRRUP BEND
 - c. FACE REINFORCEMENT IN BEAMS OR PORTIONS OF BEAMS: #4 @ 12" O.C.
 - d. STRUCTURAL SLABS: 0.0018 x GROSS CONCRETE AREA IN EACH DIRECTION
 - e. STRUCTURAL COLUMNS: 0.01 x GROSS CONCRETE CROSS SECTIONAL AREA
 - f. STRUCTURAL BEAMS: 0.0033 x GROSS CONCRETE CROSS SECTIONAL AREA
 - g. DOWELS FROM TOP OF CONCRETE WALLS TO CONCRETE SLABS: MAIN SLAB REINFORCING: #4@12"
TEMPERATURE & SHRINKAGE: #4@12"
8. EXTEND DOWELS TO THE 1/4-POINT OF SLAB SPAN.
9. WHERE REINFORCEMENT IS SHOWN IN SECTION, REINFORCEMENT IS CONSIDERED TYPICAL WHEREVER THE SECTION APPLIES.
10. WHERE THERE IS A CONFLICT BETWEEN LOCATION OF COLUMN VERTICAL BARS AND BEAM HORIZONTAL BARS, THE COLUMN BARS SHALL REMAIN IN THEIR DESIGNATED POSITIONS AND BEAM BARS LOCATIONS SHALL BE ADJUSTED.
11. REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS UNLESS OTHERWISE SHOWN.
12. COLUMN DOWELS SHALL BE SET AND POSITIONED SO AS TO BE ENCLOSED BY THE COLUMN TIES.
13. PROVIDE DOWELS FROM FOUNDATION TO MATCH BAR SIZE AND NUMBER OF REINFORCING IN THE SUPPORTED ELEMENT, UNLESS NOTED OTHERWISE.
14. REINFORCEMENT SHALL NOT BE TACK WELDED OR HEATED FOR BENDING.
15. INSTALLATION OF REINFORCEMENT SHALL BE COMPLETED AT LEAST 24 HOURS PRIOR TO THE SCHEDULED CONCRETE PLACEMENT. NOTIFY ENGINEER OF COMPLETION AT LEAST 24 HOURS PRIOR TO THE SCHEDULED COMPLETION OF THE INSTALLATION OF REINFORCEMENT.
16. WELDING OF REINFORCEMENT SHALL CONFORM TO A.W.S. D1.4 (INCLUDING PREHEAT REQUIREMENTS). ONLY BARS INDICATED ON DRAWINGS TO BE WELDED SHALL BE WELDED.

D. NEOPRENE ELASTOMERIC PAD

1. ELOSTOMERIC MATERIAL PROPERTIES:

ITEM	ASTM METHOD	REQUIREMENT
HARDNESS, DUROMETER, A	D2240-81	45 - 75
TENSILE STRENGTH, PSI	D412-80	2500 (MIN.)
LOW TEMPERATURE, -40°F	D746-79	NO FAILURE

E. STRUCTURAL STEEL NOTES

1. FABRICATE AND ERECT STRUCTURAL STEEL SYSTEMS IN ACCORDANCE WITH "A.I.S.C. SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (A.S.I.C. 360-05)".
2. STEEL MEMBERS HAVE BEEN PROPORTIONED UTILIZING ALLOWABLE FLEXURAL STRENGTH (ASD) METHODS AS PRESCRIBED BY A.I.S.C.
3. STRUCTURAL STEEL SHALL BE DETAILED IN ACCORDANCE WITH "DETAILING FOR STEEL CONSTRUCTION (A.I.S.C.)" AND WHERE REQUIRED, DESIGNED IN ACCORDANCE WITH CITED REFERENCES.
4. STRUCTURAL STEEL SHALL BE NEW AND CONFORM TO:
 - a. UNLESS OTHERWISE NOTED (W SHAPES) A.S.T.M. A992 (Fy=50 K.S.I.)
 - b. HOLLOW STRUCTURAL SECTIONS
 - a. ROUND A.S.T.M. A500 GRADE B (Fy=42 K.S.I.)
 - b. SQUARE OR RECTANGULAR A.S.T.M. A500 GRADE B (Fy=46 K.S.I.)
 - c. MISC. STRUCTURAL SHAPES & CONNECTIONS (C SHAPES, ANGLES, PLATES) A.S.T.M. A36 (Fy=36 K.S.I.)
 - d. ANCHOR BOLTS A.S.T.M. A36 OR F1554
 - e. HIGH STRENGTH BOLTS A.S.T.M. A325-N
5. WELDING SHALL CONFORM TO THE REQUIREMENTS OF A.W.S. D1.1, AND SHALL BE PERFORMED BY APPROVED, CERTIFIED PERSONS.
6. WELDED CONNECTIONS SHALL UTILIZE E70XX ELECTRODES.
7. WELDS SHALL DEVELOP THE FULL STRENGTH OF THE MATERIALS BEING WELDED, UNLESS NOTED OTHERWISE, EXCEPT THAT FILLET WELDS SHALL BE A MINIMUM OF 3/16" U.O.N.
8. ANCHOR BOLTS, LEVELING PLATES OR BEARING PLATES SHALL BE LOCATED AND BUILT INTO CONNECTING WORK, PRESET BY TEMPLATES, AND SET IN FULL BEDS OF NON-SHRINK GROUT.
9. PRINCIPAL STRUCTURAL BOLTED CONNECTIONS (BEAM-BEAM, BEAM-GIRDER, BEAM OR GIRDER TO COLUMN) SHALL BE MADE USING 3/4" DIAMETER MINIMUM A.S.T.M. A325 BOLTS IN BEARING CONNECTIONS.
10. BEAM CONNECTIONS SHALL PROVIDE CONNECTION CAPACITY BY ALLOWABLE STRESS DESIGN (ASD) METHODS. WHERE BEAM REACTIONS ARE NOT INDICATED ON THE PLANS, CONNECTION CAPACITY SHALL BE DETERMINED AS FOLLOWS:
 - a. NON-COMPOSITE BEAMS: SUPPORT A REACTION "R" EQUAL TO 1/2 THE TOTAL UNIFORM LOAD CAPACITY OF THE BEAM FOR A GIVEN SHAPE, SPAN, AND GRADE OF STEEL PER "ALLOWABLE LOADS ON BEAMS" PART 3, A.I.S.C. "STEEL CONSTRUCTION MANUAL, 13TH EDITION.
 - b. ADD TO "R" THE LOADS OR REACTIONS OF MEMBERS SUPPORTED BY THE BEAM NEAR SUPPORTS AND/OR THE VERTICAL COMPONENTS OF FORCE IN DIAGONAL BRACING MEMBERS FRAMING INTO THE BEAM.

11. A MINIMUM OF TWO (2) BOLTS SHALL BE UTILIZED AT CONNECTIONS.
12. ENDS OF COLUMNS AT SPLICES AND AT OTHER BEARING CONNECTIONS SHALL BE "FINISHED TO BEAR" TO COMPLETE TRUE BEARING.
13. PROVIDE STIFFENERS "FINISHED TO BEAR" UNDER LOAD CONCENTRATIONS ON SUPPORTING MEMBERS, OVER COLUMNS AND WHERE SHOWN ON THE DRAWINGS.
14. PROVIDE TEMPORARY ERECTION BRACING AND SUPPORTS TO HOLD STRUCTURAL STEEL FRAMING SECURELY IN POSITION. SUCH TEMPORARY BRACING AND SUPPORTS SHALL NOT BE REMOVED UNTIL PERMANENT BRACING HAS BEEN INSTALLED AND CONCRETE FLOOR SLABS HAVE ATTAINED 75% OF SPECIFIED CONCRETE STRENGTH.
15. STRUCTURAL FRAMING SHALL BE TRUE AND PLUMB BEFORE CONNECTIONS ARE FINALLY BOLTED OR WELDED. WHERE STEEL SHELF ANGLES FOR FACADE SUPPORT ARE PRESENT, TOP OF SHELF ANGLE ON SUCCESSIVE FLOORS WILL BE SET IN SAME VERTICAL PLANE.
16. FIELD CUTTING OF STRUCTURAL FRAMING AND/OR FIELD MODIFICATIONS OF STRUCTURAL FRAMING SHALL NOT BE MADE WITHOUT PRIOR WRITTEN APPROVAL BY ENGINEER FOR EACH SPECIFIC CASE.
17. UNLESS OTHERWISE SHOWN, COLUMNS SHALL BE EXTENDED TO TOPS OF BEAMS AND FRAMED CONNECTIONS.
18. THE CONTRACTOR SHALL FURNISH & INSTALL ALL PLATES, CLIP ANGLES, CONNECTION MATERIALS, ETC. AS REQUIRED FOR COMPLETION OF THE STRUCTURE, EVEN IF SUCH ITEMS ARE NOT SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS.
19. WHERE STRUCTURAL FRAMING OR MISCELLANEOUS LINTELS ARE INDICATED BY ARCHITECTURAL, HVAC, ELECTRICAL OR PLUMBING DOCUMENTS AND (1) NO CORRESPONDING MEMBER APPEARS ON STRUCTURAL DOCUMENTS AND (2) NO OTHER TRADES ARE NOTED TO PROVIDE AND INSTALL SUCH COMPONENTS, THESE ITEMS SHALL BE FURNISHED AND/OR INSTALLED IN THE WORK BY THE FABRICATOR. WHERE NO SIZES ARE INDICATED ON ARCHITECTURAL, HVAC, ELECTRICAL OR PLUMBING DOCUMENTS, THE CONTRACTOR SHALL INCLUDE THE COST TO FURNISH, AND INSTALL WHERE APPLICABLE, 30 POUNDS PER LINEAR FOOT OF STEEL MEMBER, WITH REQUIRED FINISH IN HIS BID.

DESIGN CRITERIA

LIVE LOAD:
STAIRS & EXITS: 100 P.S.F. OR 0.3 KIPS CONCENTRATED
WALKWAYS & ELEVATED PLATFORMS: 60 P.S.F.

SNOW LOAD:
GROUND SNOW (Pg): 50 P.S.F.
FLAT ROOF SNOW (Pf): 46.2 P.S.F.
SNOW EXPOSURE (Ce): 1.0
SNOW THERMAL (Ct): 1.2
SNOW IMPORTANCE (Is): 1.1

WIND LOAD:
BASIC WIND SPEED: 90 M.P.H.
WIND IMPORTANCE: 1.15
WIND EXPOSURE: "C"

EARTHQUAKE:
SEISMIC USE GROUP: II
SEISMIC IMPORTANCE: 1.25
Ss = 0.194g Sds = 0.207g
S1 = 0.078g Sd1 = 0.125g
SITE CLASS: "D"

BASIC SEISMIC FORCE RESISTING SYSTEM: ORDINARY STEEL MOMENT FRAME,
ORDINARY CONCENTRICALLY BRACED STEEL FRAME

SEISMIC DESIGN CATEGORY (SDC): "B"
DESIGN BASE SHEAR: VARIES BY STRUCTURE (ASCE 7, EQ.9.5.2-1)
ANALYSIS: EQUIVALENT LATERAL FORCE PROCEDURE

STRUCTURAL SYMBOLS:

	—	—	COMPACTED GRANULAR BASE
	—	—	COMPACTED STONE FILL
	—	—	CONCRETE
	—	—	DECK SPAN
	—	—	DEMOLITION
	—	—	FINAL GRADE
	—	—	GRATING
	—	—	GROUT
	—	—	REINFORCING STEEL IN CONCRETE
	—	—	SLOPE
	—	—	STEEL
	—	—	UNDISTURBED EARTH
	—	—	UNDISTURBED ROCK

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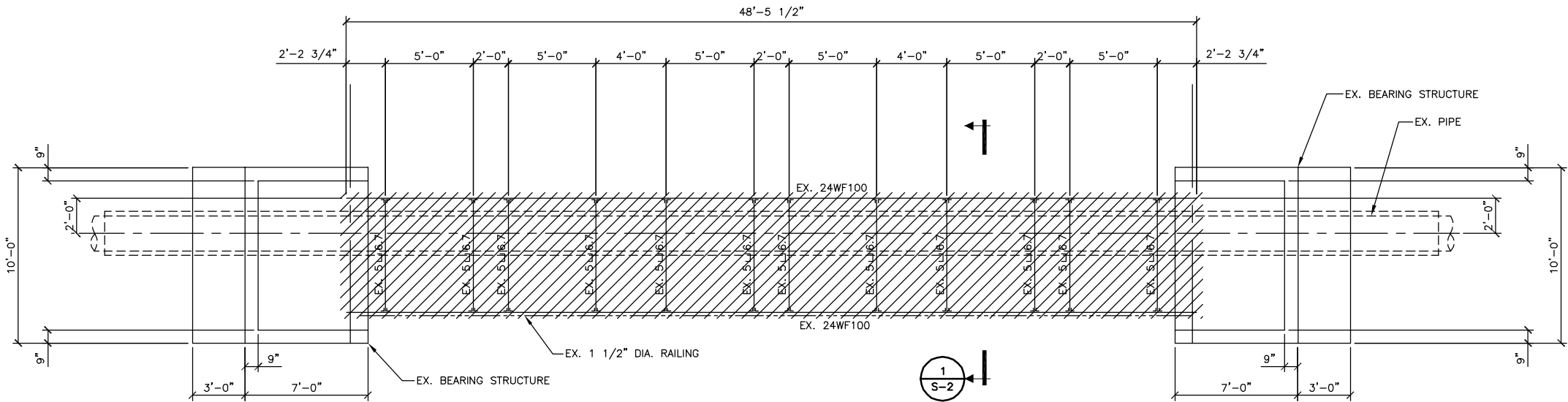
HONEYWELL INTERNATIONAL INC.
ONONDAGA LAKE
30-INCH/24-INCH FORCEMAIN
REHABILITATION PHASE 1
SYRACUSE, NEW YORK

STRUCTURAL

FILE NO.
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S-1

GENERAL NOTES,
SYMBOLS & ABBREVIATIONS

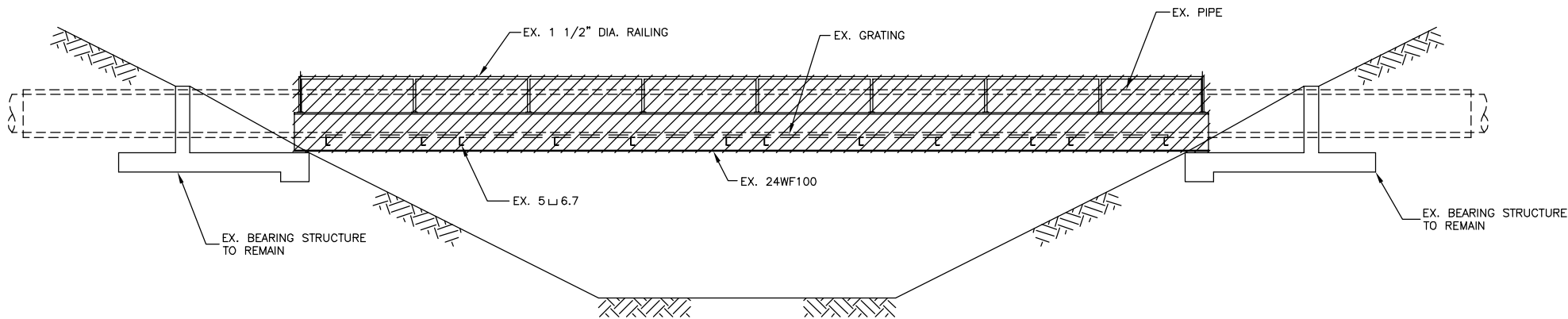


EX. STEEL BRIDGE DEMOLITION PLAN

SCALE: 1/4" = 1'-0"

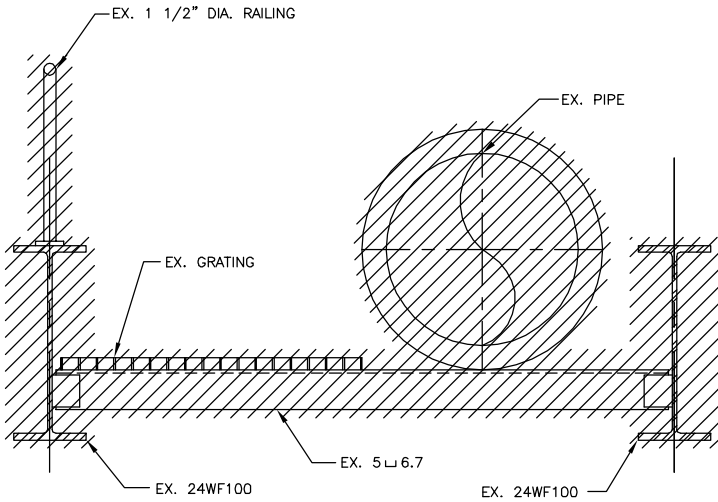
NOTE:

1. CONTRACTOR SHALL DISPOSE OF BRIDGE AND PIPING IN COMPLIANCE WITH THE APPROPRIATE LEAD & ASBESTOS ABATEMENT PROCEDURES.



ELEVATION

SCALE: 1/4" = 1'-0"



SECTION
SCALE: 1" = 1'-0"

1
S-2

ITEMS TO BE REMOVED
& DISPOSED OF BY
CONTRACTOR

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1/4"=1'-0"

0

2

4

6

8

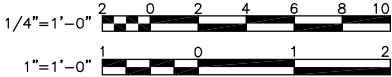
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1"=1'-0"

0

1

2



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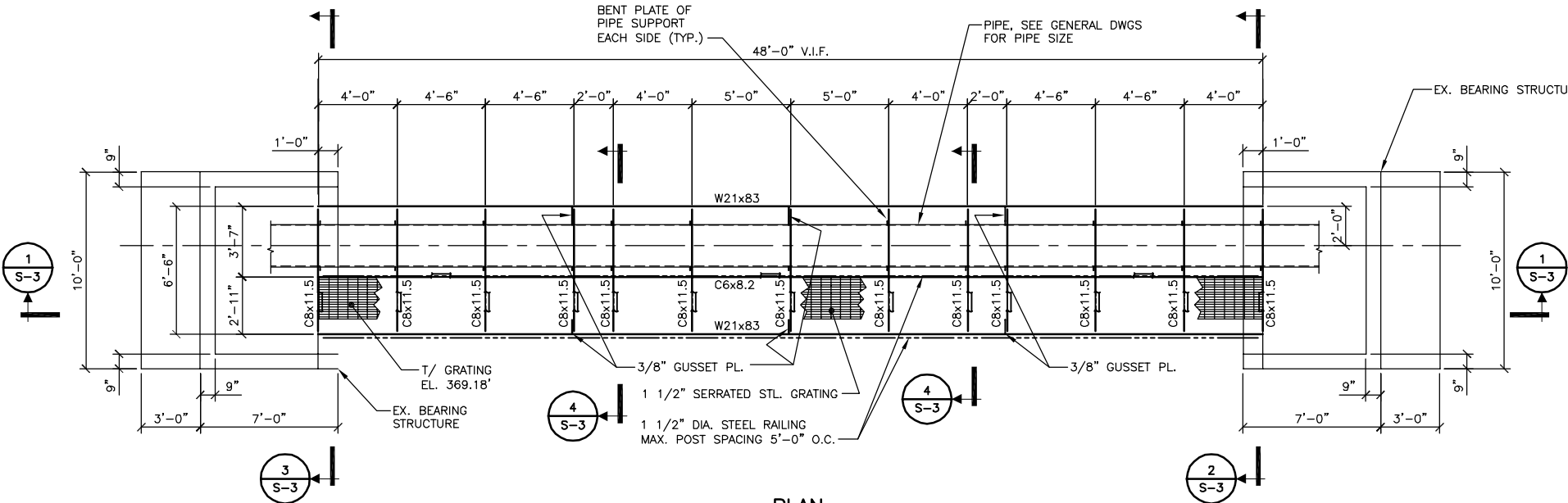
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ONONDAGA LAKE
30-INCH/24-INCH FORCEMAIN
REHABILITATION PHASE 1
SYRACUSE, NEW YORK

STRUCTURAL

**STEEL BRIDGE DEMOLITION
PLAN, ELEVATION & SECTION**

FILE NO.
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S-2

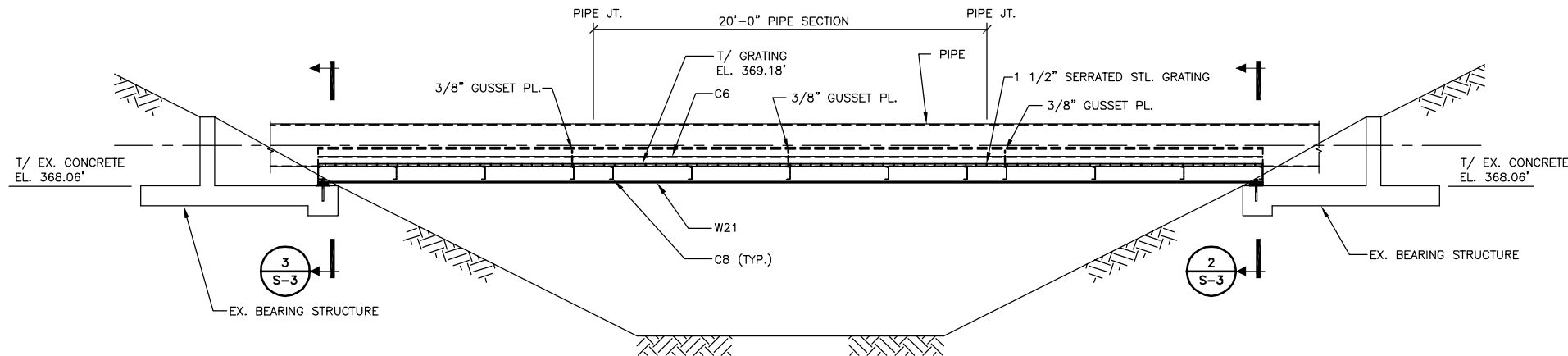


PLAN

SCALE: 1/4" = 1'-0"

PLAN NOTES:

1. C8 MEMBER LOCATIONS HAVE BEEN SPECIFIED FOR DUCTILE IRON PIPE SECTIONS WITH LENGTH = 20'.

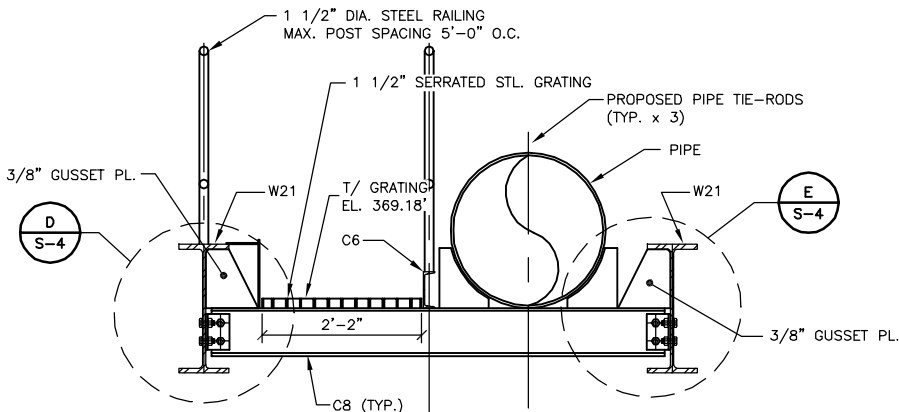


SECTION 1

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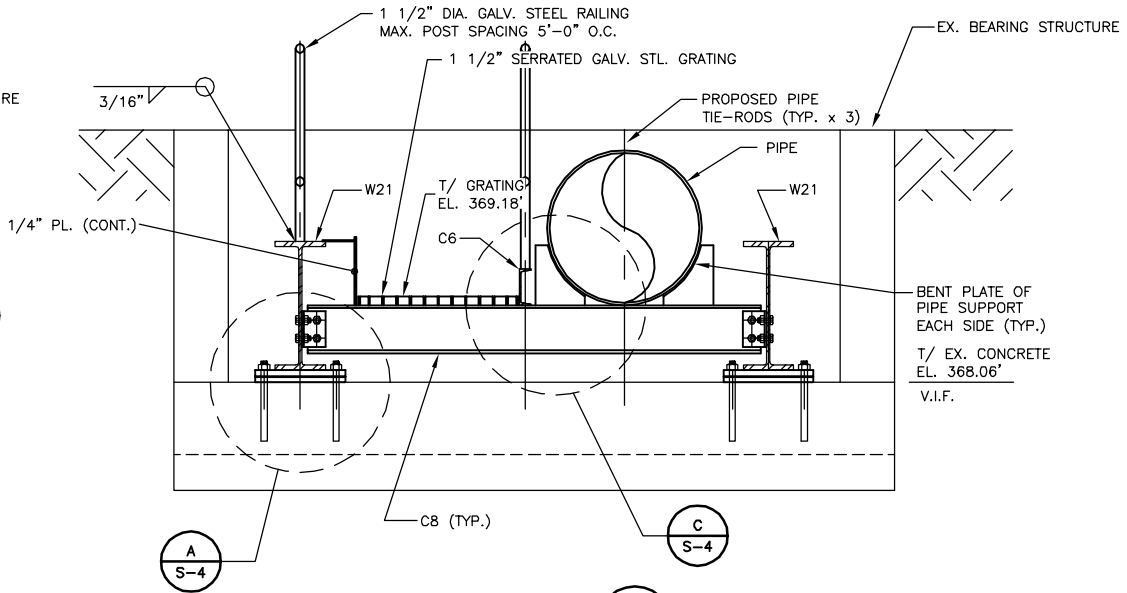
SECTION NOTES:

1. PROVIDE TWO SUPPORTS (C8 W/ BENT PLATE) AT EACH PIPE JOINT LOCATION.
2. ALL STEEL SHOULD BE GALVANIZED.
3. AVOID FIELD WELDS ON GALVANIZED STEEL.



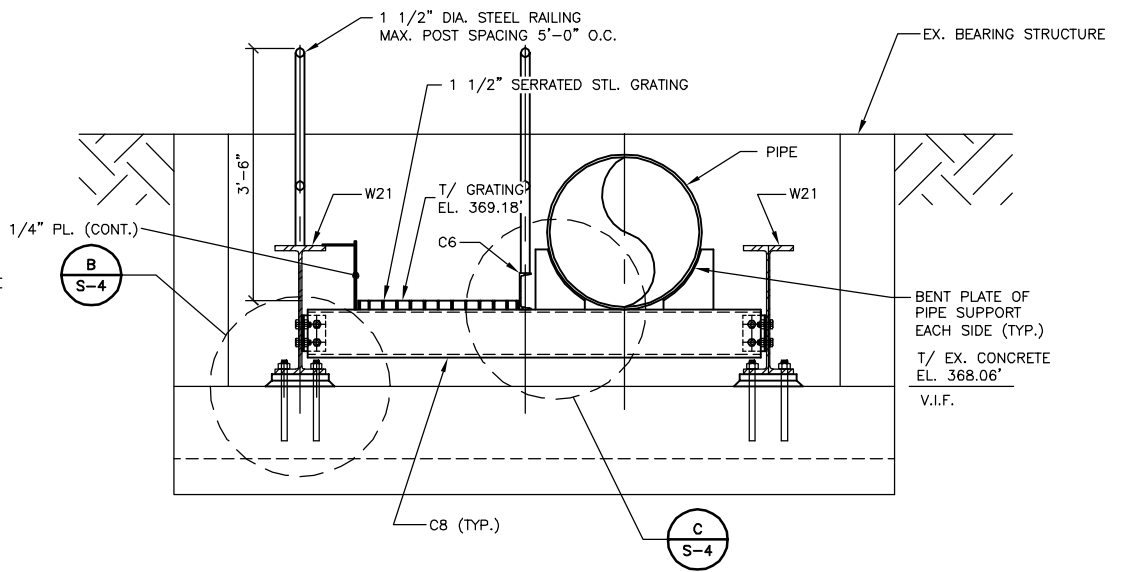
SECTION 2

SCALE: 3/4" = 1'-0"



SECTION 3

SCALE: 3/4" = 1'-0"



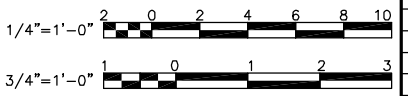
SECTION 4

SCALE: 3/4" = 1'-0"

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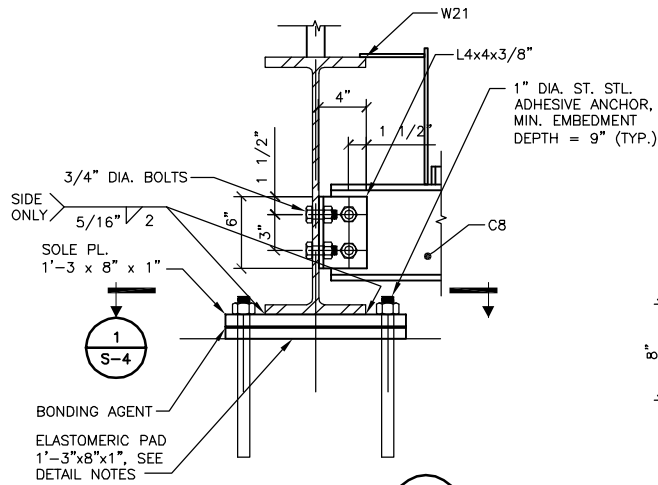


HONEYWELL INTERNATIONAL INC.
ONONDAGA LAKE
30-INCH/24-INCH FORCEMAIN
REHABILITATION PHASE 1
SYRACUSE, NEW YORK

STRUCTURAL
STEEL BRIDGE FRAMING PLAN,
SECTIONS & DETAILS

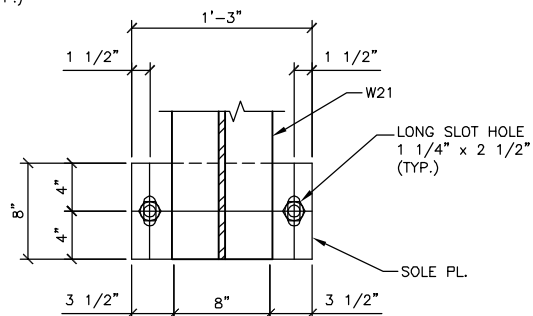
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S-3

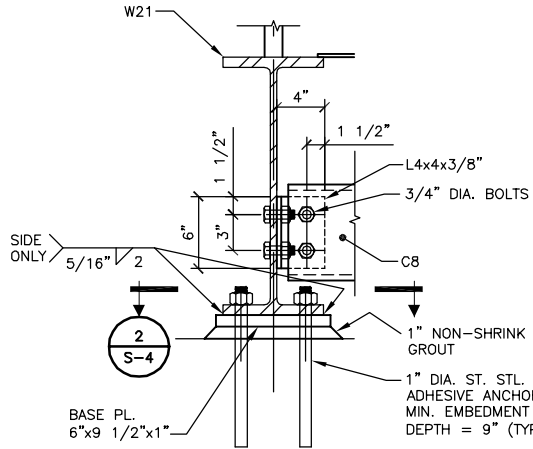


DETAIL A
SCALE: 1 1/2" = 1'-0"

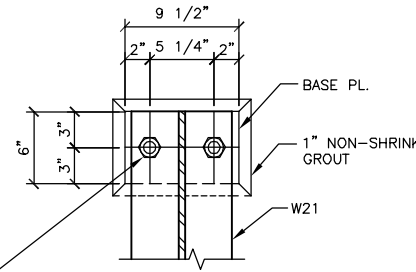
- DETAIL NOTES:
1. DURING SHOP OR FIELD WELDING, THE TEMPERATURE OF STEEL IS NOT TO EXCEED 250 DEGREES FAHRENHEIT FOR ANY STEEL IN DIRECT CONTACT WITH THE ELASTOMERIC PAD.
 2. USE TEMPERATURE-CRAYONS TO MONITOR STEEL DURING WELDING.



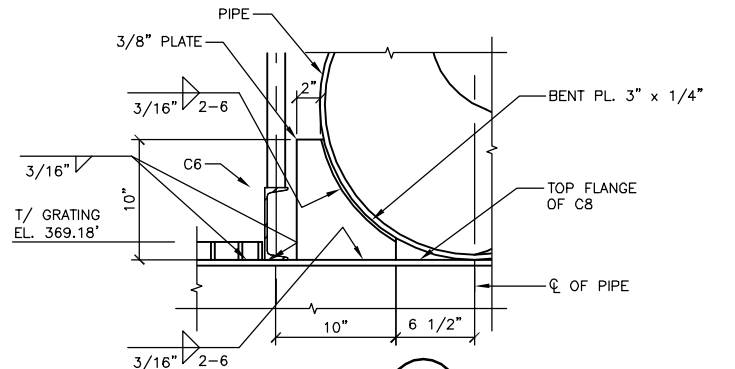
SECTION 1
SCALE: 1 1/2" = 1'-0"



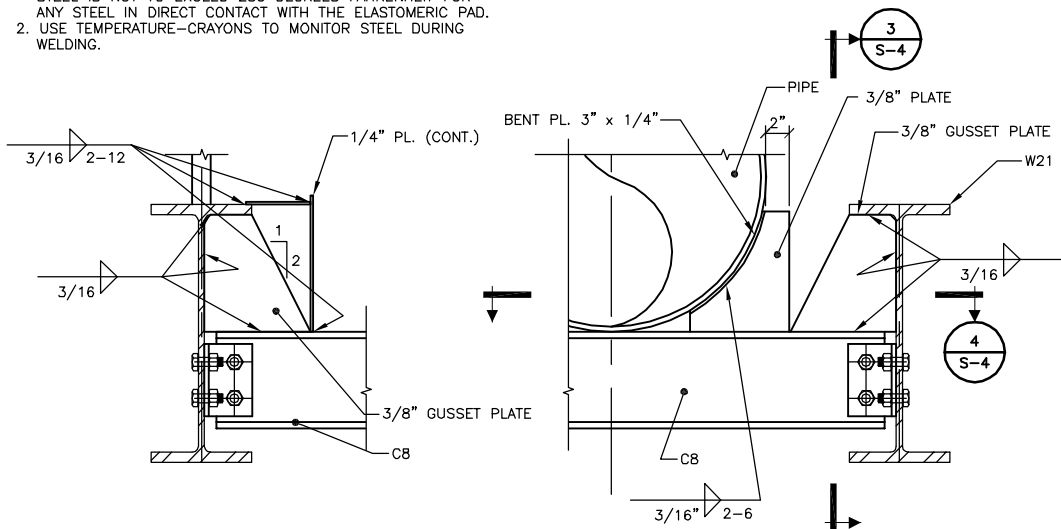
DETAIL B
SCALE: 1 1/2" = 1'-0"



SECTION 2
SCALE: 1 1/2" = 1'-0"

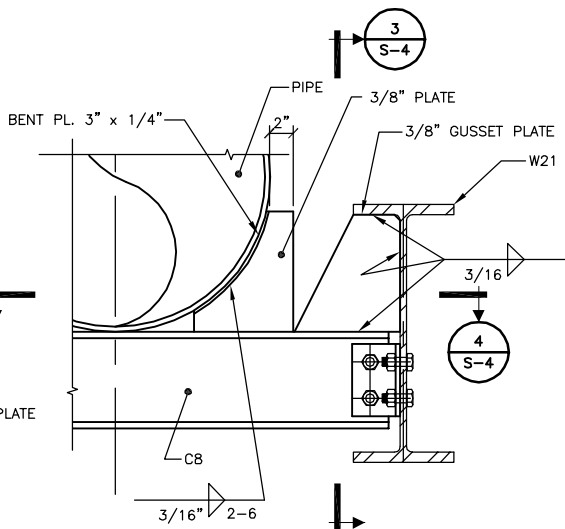


DETAIL C
SCALE: 1 1/2" = 1'-0"

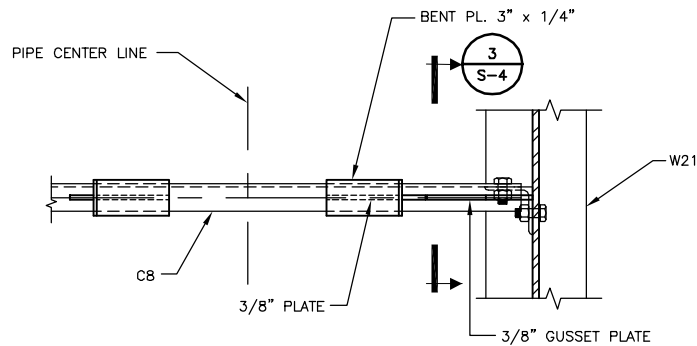


DETAIL D
SCALE: 1 1/2" = 1'-0"

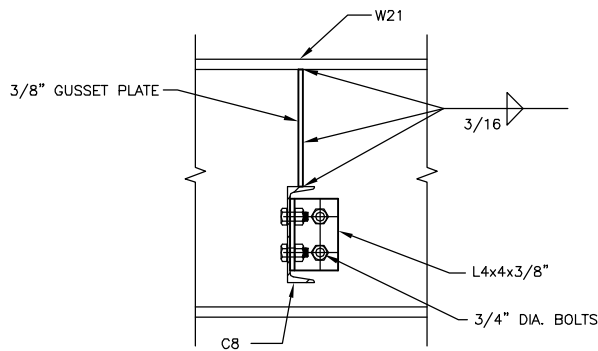
- DEATIL NOTES:
1. 1 1/2" SERRATED STEEL GRATING NOT SHOWN FOR CLARITY.



DETAIL E
SCALE: 1 1/2" = 1'-0"



SECTION 4
SCALE: 1 1/2" = 1'-0"



SECTION 3
SCALE: 1 1/2" = 1'-0"

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ONONDAGA LAKE
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SYRACUSE, NEW YORK

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STEEL BRIDGE SECTIONS
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