AECOM
1600 Perimeter Park Drive Suite 400
Morrisville, NC 27560

919-461-1194 tel

January 9, 2019

Mr. Harry D. Warner, P.E.
Regional Hazardous Waste Remediation Engineer
NYSDEC Region 7
Division of Environmental Remediation
615 Erie Blvd. West
Syracuse, New York 13204-2400

Subject: Carrier Corporation, Thompson Road Facility, Syracuse, New York
Corrective Action Order — Index CO 7-20051118-4
Site Registry No.: 734043
Interim Corrective Measure Construction Completion Report
TR-8 Floor Vault Sealing

Dear Mr. Warner:

On behalf of United Technologies Corporation (UTC), AECOM Technical Services, Inc. (AECOM) is hereby submitting the attached Interim Corrective Measure Construction Completion Report for the TR-8 floor vault sealing. This report is being submitted for New York State Department of Environmental Conservations (NYSDEC) and New York State Department of Health (NYSDOH) for review.

Please call if you have any questions (919.461.1194).

Sincerely,

Peter Hollatz
Project Manager

Peter.Hollatz@aecom.com

cc: Michael Belveg, NYSDEC
Julia M. Kenney, NYSDOH (hard copy)
Maureen Schuck, NYSDOH
John Wolski, UTC
Kathleen McFadden, UTC
Joe Basile, Carrier Corporation

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TR-8 Floor Vault Sealing
Interim Corrective Measure
Carrier Corporation Site
ONONDAGO COUNTY, NEW YORK

Construction Completion Report

NYSDEC Site Number: 734043

Prepared for:

United Technologies Corporation

9 Farm Springs Road Farmington, CT 06032

Prepared by:

AECOM Technical Services Incorporated

1600 Perimeter Park Drive, Suite 400, Morrisville, NC 27560

919 461-1194

JANUARY 2019

CERTIFICATIONS

I, Robert E. Murphy, of AECOM Technical Services Incorporated (257 West Genesee Street, Suite 400, Buffalo, New York, 14202), am currently a registered professional engineer licensed by the State of New York. I had responsibility for implementation of the remedial program activities and I certify that the TR-8 Vault Sealing Interim Corrective Measure was implemented in accordance with the New York State Department of Environmental Conservation approval of the recommendations provided in the June 2018 Vapor Intrusion Investigation Report submitted by AECOM Technical Services Incorporated.

065031	January 8, 2019	Robert E Murphy
NYS Professional Engineer #	Date	Signature

TABLE OF CONTENTS

LIST OF ACRONYMS

Acronym	Definition
Carrier	Carrier Corporation
UTC	United Technologies Corporation
NYSDEC	New York State Department of Environmental Conservation
VI	Vapor intrusion
AECOM	AECOM Technical Services, Inc.
ICM	Interim Corrective Measure
CCR	Construction Completion Report
DER	Division of Environmental Remediation
PACM	Presumed Asbestos-containing material

TR-8 FLOOR VAULT SEALING CONSTRUCTION COMPLETION REPORT

1.0 BACKGROUND AND SITE DESCRIPTION

Carrier Corporation (Carrier), a wholly-owned subsidiary of United Technologies Corporation (UTC), entered into a Corrective Action Order on Consent (Order) with the New York State Department of Environmental Conservation (NYSDEC) in January 2006, to investigate and remediate the Carrier Thompson Road Facility (Site) located in Syracuse, Onondaga County, New York (**Figure 1**). The Order requires that Carrier complete an investigation of vapor intrusion and migration at the Site.

As part of this investigation all occupied Site buildings were sampled for sub-slab soil gas (SSSG) and indoor air (IA) (with the exception of Stormwater Treatment Plant which was only sampled for SSSG). The results of this investigation were summarized in the AECOM Technical Services, Inc. (AECOM) Vapor Intrusion Investigation Report (June 2018). One recommendation in the report was to permanently seal (as an Interim Corrective Measure [ICM]) all unused floor drains and vaults located in Site building TR-8. This action was completed soon after SSSG and IA sampling was completed in an effort to help prevent soil gas from entering the building.

The SSSG and IA data collected from TR-8 suggested that soil vapor intrusion may be occurring within this building. Soon after receiving the data, AECOM performed an inspection of TR-8 to determine if there were any floor cracks or other openings to the subsurface soils that may be responsible for this vapor intrusion. During the inspection AECOM discovered numerous vaults within the floor of TR-8. An inspection of several of these vaults revealed that some had openings directly to subsurface soils/soil gas. In addition, a number of the vaults were found to contain steel valves and piping.

Carrier has always utilized TR-8 for document (paper records) retention. To determine the purpose of the vaults AECOM reviewed a 1945 engineering drawing of the TR-8 building. The drawing identified TR-8 to be constructed for Defense Plant Corporation (General Electric Company) and identified a network of steam, air, and water piping with associated vaults (**Appendix A**). The drawing also references “fuel

supply lines" to be located within the building. Historic records show that General Electric Company had used TR-8 as a turbine test cell building and the vaults and piping network are believed to be "relics" of these former operations.

The purpose of this document is to provide an ICM Construction Completion Report (CCR) in compliance with the NYSDEC Division of Environmental Remediation (DER) 10 Section 5.8.1(a).1 for the sealing of TR-8 floor vaults.

2.0 SUMMARY OF SITE REMEDY

2.1 REMEDIAL ACTION OBJECTIVES

The determination to seal the vaults as an ICM was based on an evaluation of the VI investigation data collected in December 2017 and March 2018. The objective of the work was to seal the vaults to mitigate a potential VI pathway from subsurface soils. The sealing of the vaults was approved by NYSDEC in a letter dated July 26, 2018.

3.0 INTERIM CORRECTIVE MEASURES

In response to the VI investigation results, the TR-8 building concrete floor was inspected to identify potential pathways for VI. Numerous in-floor vaults with steel lids were identified. The vaults included the following:

1. Nineteen approximately 2 feet x 2 feet concrete vaults within the main corridor room that contained inactive steel piping with valves. Deteriorated concrete was observed in the bottom of some of the vaults.
2. One larger vault located near the elevator which did not contain piping/valves.
3. One larger vault in storage bay ST11/22 which did not contain piping/valves.
4. Two larger vaults in storage bays ST07/20 and ST13/23 which contained floor scales.

In addition to the vaults, four floor drains were identified and sealed. The approximate locations of the vaults and floor drains are shown in **Figure 2**.

On April 13, 2018, AECOM visually inspected the vaults and floor drains as well as screened the air inside the vaults and floor drains using a photoionization detector (PID) for those that were accessible. No visual staining or other indications of potential vapor sources (other than general debris) was observed. The PID readings ranged from as low as 0.1 parts per million (ppm) to as high as 90 ppm in the vaults. Fourteen of the readings exceeded 30 ppm with the vault lids closed. The floor drain PID readings ranged from 0.0 – 1.0 ppm. No elevated PID readings were observed outside the vaults (i.e., breathing zone). A field sketch of the PID readings and other observations is provided in **Appendix B**. Based on elevated photoionization detector readings from the vaults, the lids were sealed with adhesive tape along holes/gaps as a temporary mitigation measure on April 13, 2018. Permanent sealing of the vaults by filling with concrete started on June 11, 2018 and was completed on August 22, 2018.

Permanent sealing of the vaults included the following steps:

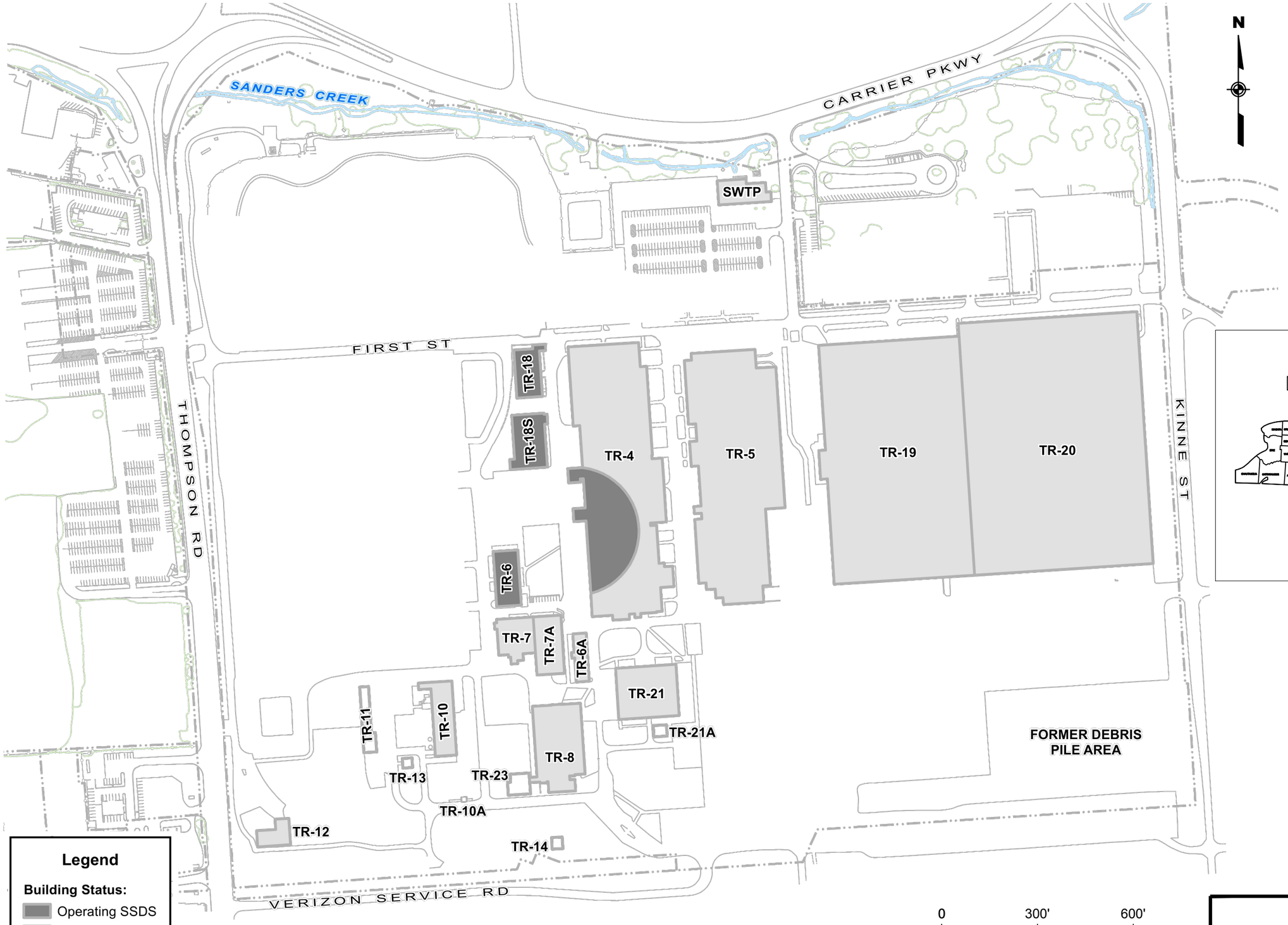
1. The vaults were cleaned of debris and the steel frames/lids were removed (with the exception that the steel frames/lids in storage bays ST07/20 and ST13/23 remained). Presumed Asbestos-containing material (PACM) was encountered in three pits (ST07/20, ST11/12, and ST13/23). PACM abatement (removal and proper offsite disposal) was completed by a licensed abatement contractor.
2. The floor scales (no longer functional) in ST07/20 and ST13/23 remained in-place.
3. The vaults where then filled with concrete via a concrete pump truck.
4. After a 28 day cure time, the new concrete was sealed with an epoxy/paint product. The concrete joints in ST07/20 and ST13/23 were sealed with caulk and

the steel lids reinstalled.

A photograph log of the ICM activities is provided in **Appendix C**.

An additional round of VI investigation sampling at TR-8 (consistent with the NYSDEC-approved Vapor Intrusion Investigation Work Plan [AECOM, October 2017]) will be completed during the 2018/2019 winter season.

LIST OF FIGURES



SITE MAP
JANUARY 2019

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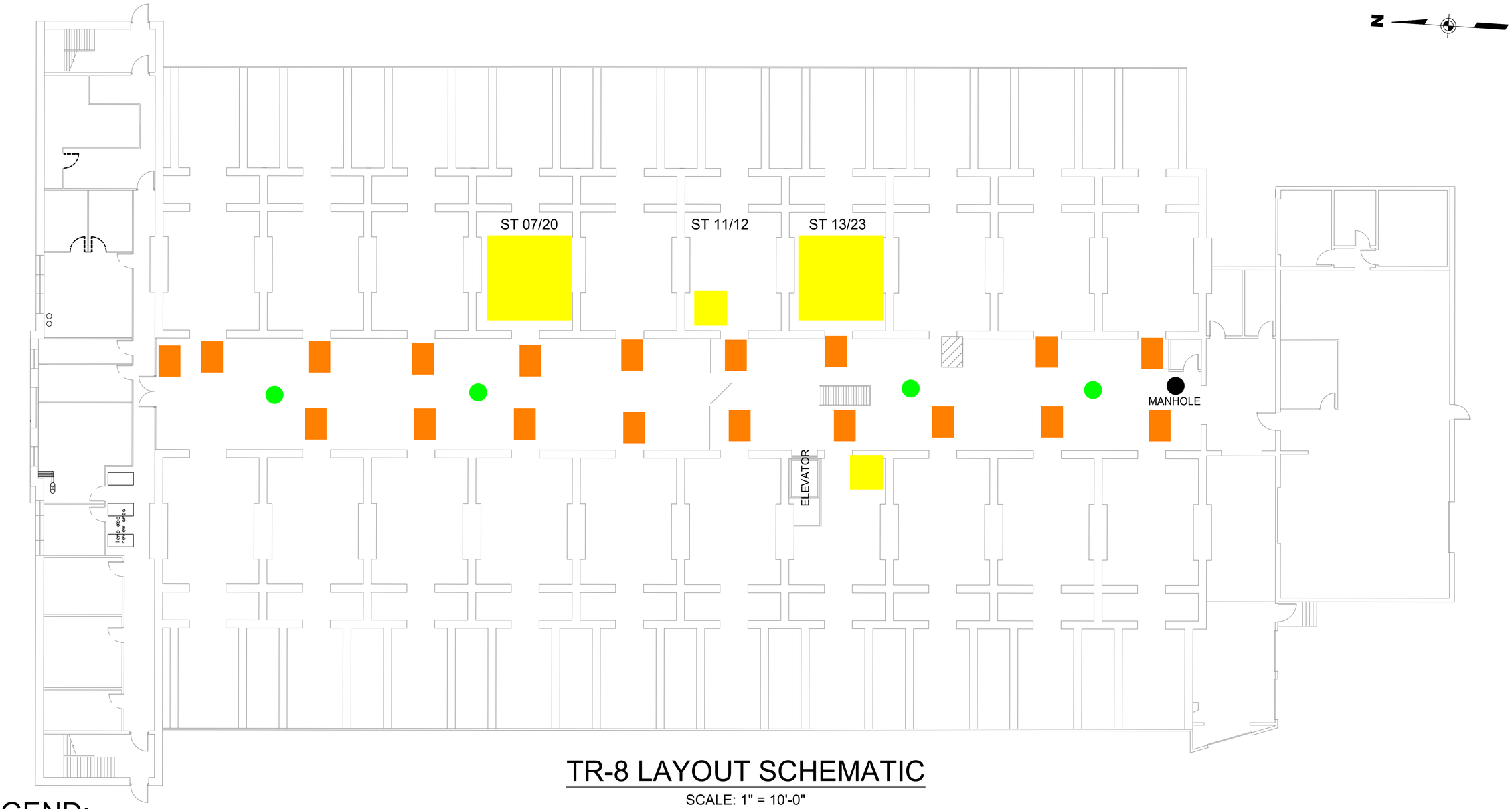
FIGURE 1



TR-8 LAYOUT SCHEMATIC

SCALE: 1" = 10'-0"

LEGEND:

- LARGER FLOOR VAULTS IN STORAGE BAYS SEALED WITH CONCRETE AND EPOXY/PAINT SEAL AT THE FLOOR SURFACE
- FLOOR VAULTS SEALED WITH CONCRETE AND EPOXY/PAINT SEAL AT THE FLOOR SURFACE
- NO ACTION - VAULT PREVIOUSLY SEALED WITH CONCRETE
- FLOOR DRAINS SEALED WITH CONCRETE. EPOXY/PAINT SEAL AT THE FLOOR SURFACE.

0 10' 20'

TR-8 FLOOR VAULT SEALING
JANUARY 2019

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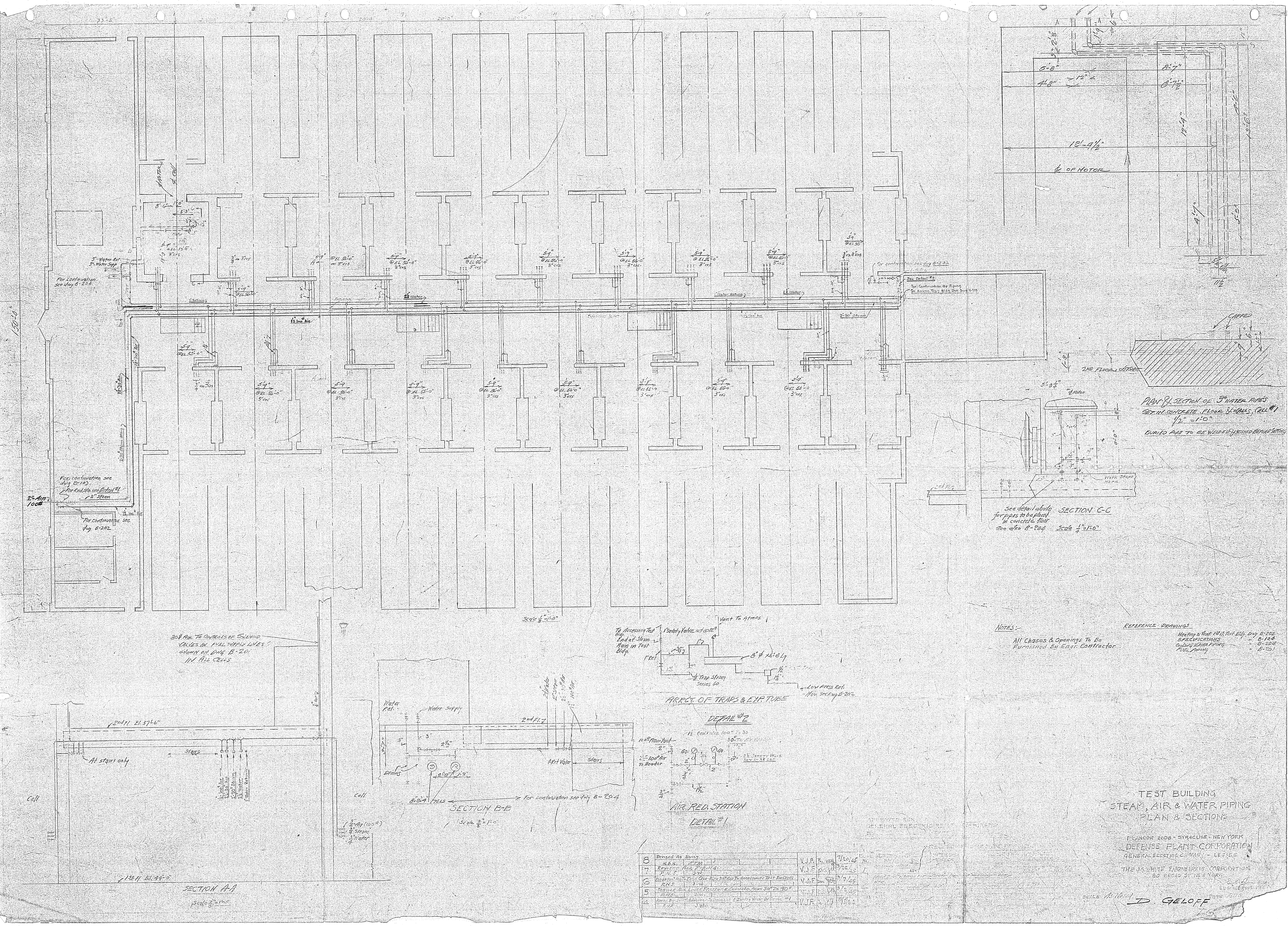
FIGURE 2

LIST OF APPENDICES

Appendix A – 1945 General Electric Corporation Drawing


150'-0"
3"-Water Ret
3"-Water Supp
For continuation see dwg B-204
For continuation see dwg B-103
For Red. Sta. see Detail #1
2" Steam
2" Air 100#
1½" 100# Air
For continuation see dwg B-202
2-90# Steam Main
1½" 100# Air
1" Return
2½" Water
Water Return
Expansion Joint
2-90# Steam
5'-9" @ EL 56'-0" 3" crs
5'-9" @ EL 55'-0" 3" crs
¾" on 3" crs
For continuation see dwg B-202
See Detail #2
For Continuation Of Piping In Access. Test Bldg. See Dwg B-213
Scale ⅛" = 1'-0"
5'-8"
4'-8"
12"
8'-7"
8'-7½"
12'-4"
13'-9½"
℄ OF MOTOR
CAPPED
2ND FLOOR OUTSIDE
PLAN & SECTION OF 3" WATER PIPES SET IN CONCRETE FLOOR & WALLS, CELL #1
½" = 1'-0"
BURIED PIPE TO BE WELDED & TESTED BEFORE SETTING
Work Stops Here
See detail above for pipes to be placed in concrete floor See also B-204
SECTION C-C
Scale ¼" = 1'-0"
30# Air To Controls Of Solenoid Valves In Fuel Supply Lines Shown On Dwg B-201 In All Cells
2nd Fl El. 57'-6"
At stairs only
Stairs
1½" 100# Air
1½" 30# Air
2" 90# Steam
2½" Water
1" Water Return
Cell
¾" Air (100#)
¾" Steam
¾" Water
1st Fl El. 44'-0"
SECTION A-A
Scale ⅜" = 1'-0"
Water Ret.
Water Supply
2nd Fl.
Drains
1" Ret Water
8"x8"x4" TEES
For continuation see dwg B-204
SECTION B-B
Scale ⅜" = 1'-0"
Vent To Atmos
To Accessory Test Bldg. End of Steam Main In Test Bldg.
1" Safety Valve set @ 12#
1" Ret
½" Trap Strom Series 60
8" ϕ x 6'-6 Lg
Low Press Ret. Main See Dwg B-202
ARRGT. OF TRAPS & EXP. TUBE
DETAIL #2
1½" Red Valve 100# To 30
30# To Air Header
100# From Yard
2½" 100# Air To Header
2½" Safety Valve Set @ 35 Lbs
AIR RED. STATION
DETAIL #1
8 Revised As Built N.S.K. V.J.F. 7/20/45
7 Revised Air Piping R.N.S. J.W. V.J.F. 3/25/45
6 Feeder 100# Air To Each Cell - Also 30# Air To Accessories Test Building R.N.S. J.W. V.J.F. 3/7/45
5 Service Air Lines Pressure Changed From 30# To 90# R.N.S. J.W. V.J.F.
4 R.H.S. J.W. V.J.F.
NOTES:-
All Chases & Openings To Be Furnished By Engr. Contractor
REFERENCE DRAWINGS
Heating & Vent. 1st Fl. Test Bldg. Dwg B-202
SPECIFICATIONS B-104
Cooling Water Piping B-203
Fuel Piping B-201
TEST BUILDING
STEAM, AIR & WATER PIPING
PLAN & SECTIONS
PLANCOR 2108 - SYRACUSE - NEW YORK
DEFENSE PLANT CORPORATION
GENERAL ELECTRIC COMPANY - LESSEE
THE J.G. WHITE ENGINEERING CORPORATION
80 BROAD ST. NEW YORK
D. GELOFF

Appendix B – Field Sketch of PID Readings – April 13, 2018

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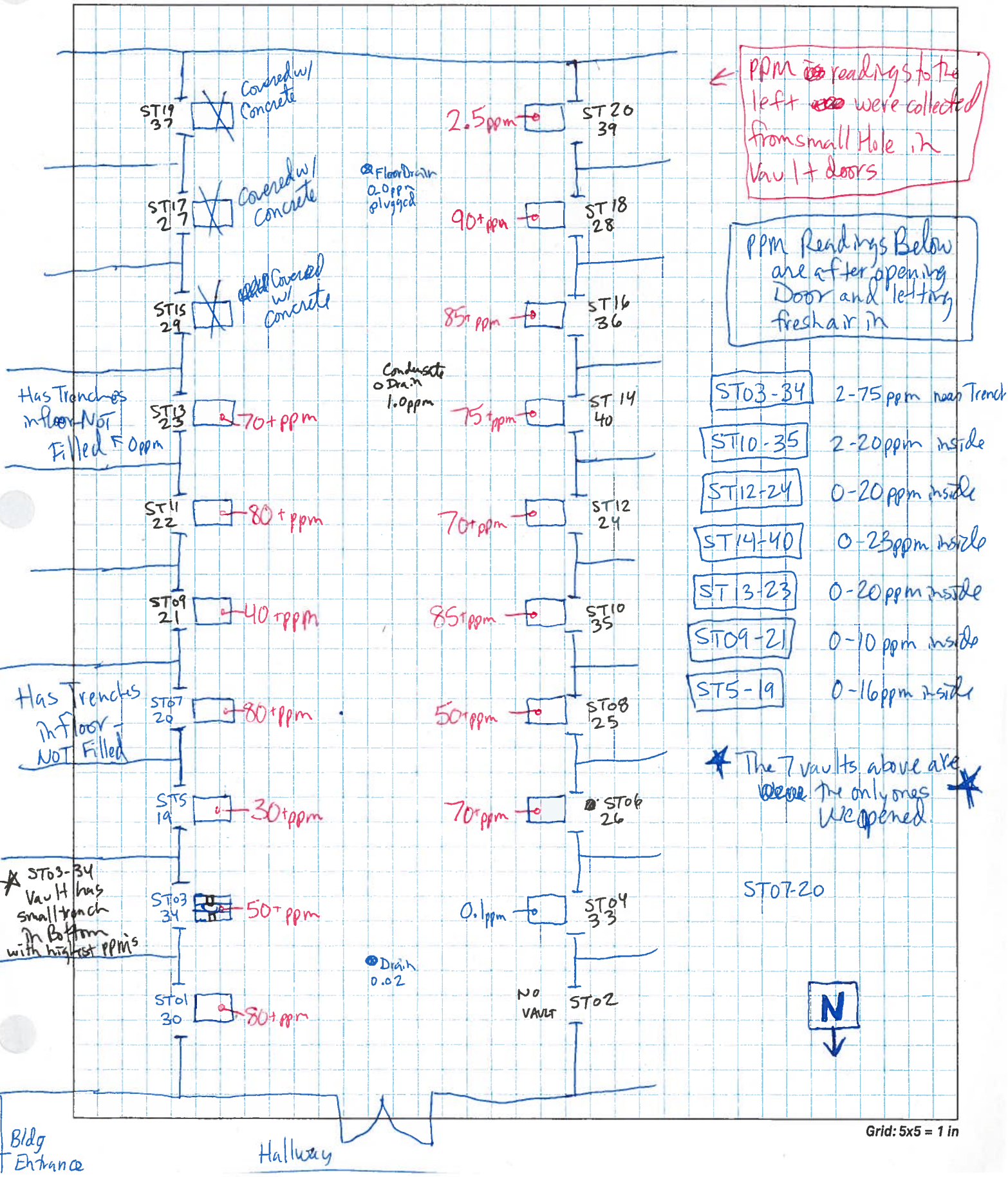
JOB TITLE TR8 Notes 4-13-18

JOB NO. _____ CALCULATION NO. _____

ORIGINATOR JR DATE _____

REVIEWER _____ DATE _____

SCALE _____ SHEET NO. 1 OF 1



Grid: 5x5 = 1 in

Appendix C – Photograph Log

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:
TR-8

Date:
4/13/18

Description:

Typical vault with valve/piping and non-competent concrete at bottom.

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	4/13/18

Description:

Temporary mitigation measure of sealing vault lid joints/holes with adhesive tape.

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	6/11/18

Description:

Typical vault with valve/piping and steel frame.

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	6/29/18

Description:

Typical debris found inside vaults prior to cleaning.

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	6/30/18

Description:

Typical setup for asbestos abatement.

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	6/11/18

Description:

Typical temporary cover of vault when lid was removed.

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	6/18/18

Description:

Typical filling of vault with concrete.

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	6/19/18

Description:

Typical vault filled with concrete after allowing the concrete to cure.

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

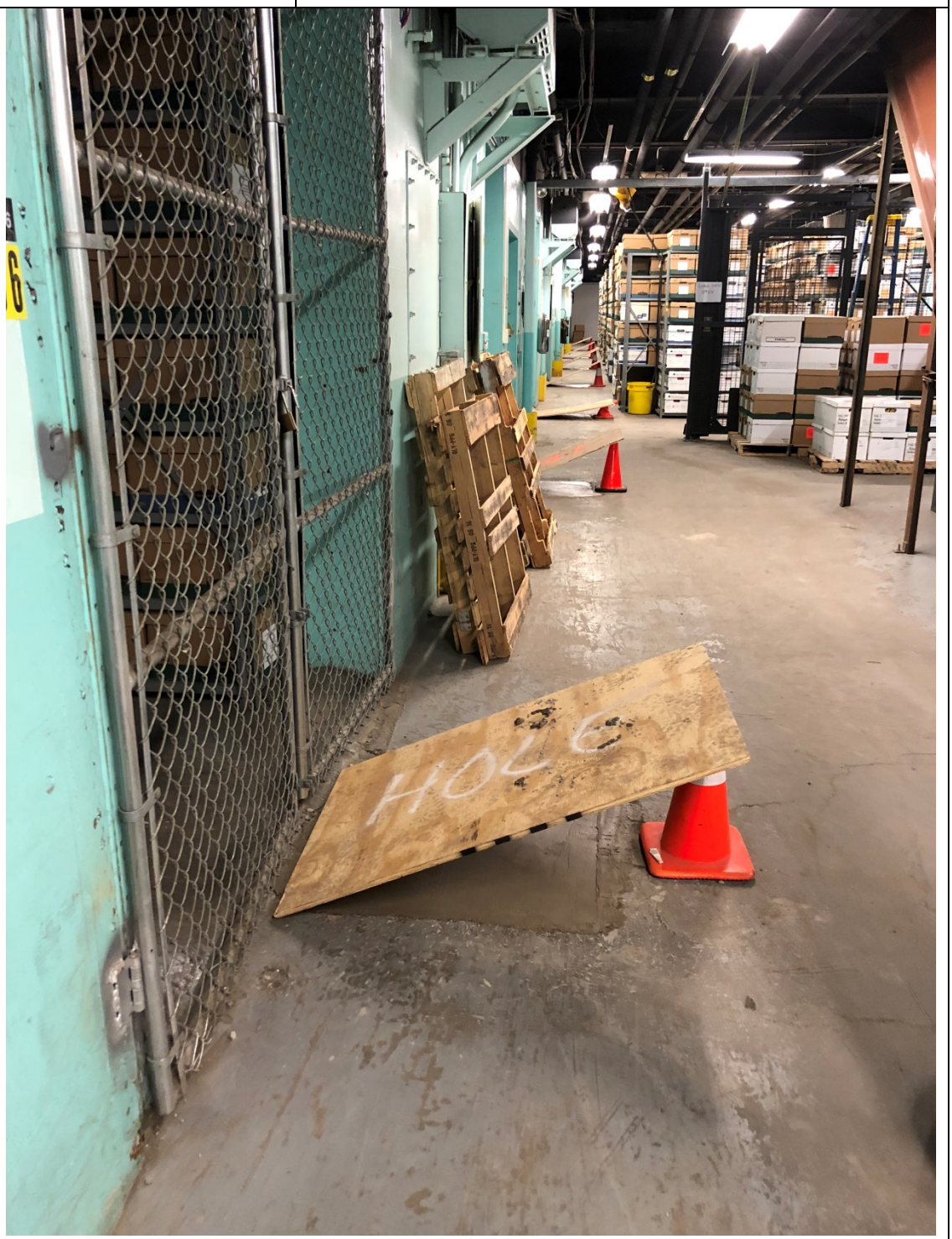
Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	6/18/18

Description:

Vaults in the main corridor after being filled with concrete.



AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	8/7/18

Description:

Temporary ventilation system when applying epoxy and paint over the concrete.

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	8/7/18

Description:

Vaults after being sealed at the surface with epoxy/paint.

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	8/8/18

Description:

Vault after being sealed at the surface with epoxy/paint.

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PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	8/9/18

Description:

Vaults after being sealed at the surface with epoxy/paint.

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PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	8/9/18

Description:

Vault after being sealed at the surface with epoxy/paint.

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PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	8/8/18

Description:

Floor drains after being seal at the floor surface with epoxy/paint.

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	6/21/18

Description:

Larger vault in bay ST13/23 prior to cleaning out the vault. Floor scale is visible.

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PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	6/25/18

Description:

Larger vault in bay ST13/23. Floor scale is visible.

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	6/30/18

Description:

Larger vault in bay ST13/23 after cleaning.

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:	**Site Location:**
United Technologies Corporation	Thompson Road Campus Syracuse, New York

Location:	**Date:**
TR-8	6/26/18

Description:

Larger vault in bay ST13/23 after filling with concrete.

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PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	8/14/18

Description:

Larger vault in bay ST13/23 after allowing concrete to setup.

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	8/14/18

Description:

Larger vault in bay ST13/23 with steel plates back in place.

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	8/15/18

Description:

Larger vault in bay ST13/23 with steel plates back in place and surface sealed with epoxy/paint.

AECOM Imagine it. Delivered.

PHOTOGRAPH LOG

Client Name:
United Technologies Corporation

Site Location:
Thompson Road Campus
Syracuse, New York

Location:	**Date:**
TR-8	6/18/18

Description:

Typical hosing used to convey the concrete to the vaults.