
*Pre-Design Investigation
Work Plan for Removal
Actions for 20s, 30s, and
40s Complexes*

General Electric Company
Pittsfield, Massachusetts

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1. Introduction

1.1 General

In October 1999, the General Electric Company (GE), the United States Environmental Protection Agency (EPA), the Massachusetts Department of Environmental Protection (MDEP), and several other government agencies executed a Consent Decree (CD), which was lodged in the United States District Court for the District of Massachusetts (U.S. District Court) on October 7, 1999. The CD requires (among other things) the performance of response actions to address polychlorinated biphenyls (PCBs) and other hazardous constituents in soils, sediment, and groundwater in several areas at and near Pittsfield, Massachusetts, that collectively comprise the GE-Pittsfield/Housatonic River Site (the Site). This proposed CD was subject to a public comment period, which ended on February 23, 2000. The United States is currently preparing responses to the public comments and will then move the U.S. District Court to enter the CD as a binding judgment of the court. In the meantime, however, GE agreed in the CD, as a contractual matter, to conduct certain activities at the Site prior to entry of the CD by the U.S. District Court. These activities include the development and submission (but not implementation) of a Pre-Design Investigation Work Plan for the Removal Actions to be carried out under the CD at the 20s Complex, 30s Complex, and 40s Complex, all of which are located within the GE Plant Area at the Site.

This *Pre-Design Investigation Work Plan for Removal Actions for 20s, 30s, and 40s Complexes* (Work Plan) describes the investigations proposed by GE for the 20s, 30s, and 40s Complexes to support the subsequent evaluation and design of the soil-related Removal Actions for each of these Removal Action Areas (RAAs). The results of these investigations, in combination with the information available from prior investigations of the 20s, 30s, and 40s Complexes, will be used to develop conceptual and then final Removal Design/Removal Action (RD/RA) Work Plans for the Removal Actions at these RAAs.

GE submitted a prior version of this Work Plan to EPA on January 6, 2000, in accordance with the schedule set forth in Attachment A to the *Statement of Work for Removal Actions Outside the River* (SOW) (which is Volume I of Appendix E to the CD). Thereafter, EPA provided comments on that Work Plan in a letter to GE dated April 19, 2000 (comment letter), and representatives of GE, EPA, and MDEP met on May 3 and 24, 2000, to discuss those comments. At those meetings, EPA clarified and/or modified some of the comments contained in its April 19, 2000 comment letter. In response to EPA's comments and the subsequent discussions, GE has revised this Work Plan. A copy of EPA's comment letter is included as Appendix A, while a summary of GE's responses to EPA's comments is provided in Appendix B.

This Work Plan includes a summary of available information related to soils within the 20s, 30s, and 40s Complexes and an assessment of the need for additional information to support RD/RA activities within these RAAs. Based on this assessment, this Work Plan includes a proposal for additional soil investigations at each of these RAAs. This Work Plan was developed and will be implemented in accordance with the CD and the SOW. Those documents establish Performance Standards for response actions for soil, groundwater and non-aqueous phase liquid (NAPL); however, this Work Plan relates only to the Performance Standards related to soils. Proposed activities related to the groundwater and NAPL will be addressed separately as part of activities for the Plant Site 1 Groundwater Management Area (GMA) pursuant to the CD and the SOW.

It should also be noted that the 20s, 30s, and 40s Complexes are addressed in an agreement known as the Definitive Economic Development Agreement (DEDA) executed by GE, the City of Pittsfield, and the Pittsfield Economic Development Authority (PEDA) relating to the redevelopment of certain areas of GE's Pittsfield facility. Under the DEDA, GE will demolish certain buildings in these complexes and will eventually transfer these areas to PEDA. The building demolition activities themselves are not part of the Removal Actions for these complexes under the

CD and the SOW. However, for those buildings subject to demolition, the soils underlying the former buildings will be addressed by the Removal Actions at the GE Plant Area under the CD and the SOW. Moreover, any disposition of building demolition debris within the On-Plant Consolidation Areas located at the GE facility or within the foundations of the buildings themselves is part of the Removal Actions for these complexes.

In these circumstances, this Work Plan will address the additional soil investigations, including investigations of soil under the buildings to be demolished, (which will be considered as paved areas on the assumption that the building slabs will remain), necessary to design and implement the Removal Actions for the 20s, 30s, and 40s Complexes. GE will submit separate work plans and protocols to EPA to address the following demolition-related activities: (1) the building demolition activities themselves; (2) the disposition of building demolition debris, including any additional sampling necessary to characterize the building materials for appropriate disposition; (3) additional sampling and analysis necessary to reuse remaining building slabs; and (4) if any such slabs will be removed, the additional sampling and analysis necessary to characterize the underlying soils. (The plans and protocols relating to the building demolition activities themselves and relating to off-site disposition of demolition debris will be provided to EPA solely for informational purposes and for any comments or input that EPA may have. The plans and protocols relating to the other above-noted items, including on-site disposition of building demolition debris, will be submitted to EPA for review and approval.) In addition, where on-site disposition of building demolition debris is anticipated, GE will provide the pertinent sampling and analysis results characterizing those materials to EPA prior to the disposition of such materials.

1.2 Format of Document

The remainder of this Work Plan is presented in four sections. Section 2 provides a summary of pertinent background information concerning the 20s, 30s, and 40s Complexes, including a brief description of these areas and a summary of the available soil analytical data. Section 3 provides a summary of the applicable RD/RA Performance Standards for soils within the 20s, 30s, and 40s Complexes and the requirements of the SOW for soil sampling in these areas. Section 4 summarizes the pertinent data needs for developing RD/RA plans to achieve the Performance Standards, and describes the investigations proposed by GE to fill those data needs. Section 5 presents the proposed schedule for completing the proposed pre-design investigations. Finally, Section 6 provides a summary of anticipated Post-Removal Site Control activities for these RAAs following completion of the Removal Actions.

2. Background Information

2.1 General

The 20s, 30s, and 40s Complexes generally comprise the western portion of the GE facility in Pittsfield, Massachusetts (Figure 1). Information concerning the 20s, 30s, and 40s Complexes has been previously summarized in several reports prepared under the Massachusetts Contingency Plan (MCP) and the Resource Conservation and Recovery (RCRA) Corrective Action programs that have been ongoing at the GE facility (and related areas) since the early 1990s. Those documents, listed below, provide discussions concerning past and current site uses, site utilities, and results of soil, groundwater, and ambient air investigations:

- C *East Street Area 2 MCP Phase II Supplemental Data Summary*, Blasland and Bouck Engineers, P.C., May 1990;
- C *East Street Area 2 MCP Phase II Scope of Work*, Blasland and Bouck Engineers, P.C., August 1990;
- C *MCP Interim Phase II Report and Current Assessment Summary for East Street Area 2/USEPA Area 4*, Blasland, Bouck & Lee, Inc. (BBL), August 1994;
- C *MCP Supplemental Phase II Scope of Work and Proposal for RCRA Facility Investigation of East Street Area 2/USEPA Area 4*, BBL, July 1995;
- C *Addendum to MCP Supplemental Phase II Scope of Work and Proposal for RCRA Facility Investigation of East Street Area 2/USEPA Area 4*, Golder Associates, May 1996; and
- C *Revised Addendum to MCP Supplemental Phase II Scope of Work and Proposal for RCRA Facility Investigation of East Street Area 2/USEPA Area 4*, BBL, September 1998.

This section of the Work Plan summarizes the general information concerning the 20s, 30s, and 40s Complexes, with an emphasis on the available soil analytical data. Specifically, Section 2.2 presents a brief description of the areas comprising each of the 20s, 30s, and 40s Complexes. Section 2.3 summarizes the available soil analytical data from these areas, and presents an assessment of the usability of those data to support RD/RA activities for the Removal Actions for these areas. Several tables and figures are presented to supplement the information presented in this section.

2.2 Site Description

2.2.1 20s Complex

The 20s Complex is located immediately east of the 30s Complex within the western portion of the GE facility (Figure 2). This approximately 15-acre area is generally bounded by East Street to the south and other parts of the GE facility to the north and east. This area comprises approximately 10 acres of paved areas, including the area of the former 20s Complex which was razed in the late 1980s (approximately 3 acres). This RAA is also composed of approximately 4 acres of unpaved, open area and two existing buildings. As shown on Figure 2, the main parking lot located in this area covers the existing 20s Complex vault, which was used in the late 1980s to consolidate building debris generated during the demolition of the above-grade portions of several former buildings in this area, as well as some equipment housed within the former buildings. This area was covered with a 1-foot thick layer of bituminous concrete which now serves as the surface of the existing parking area.

2.2.2 30s Complex

The 30s Complex is an approximately 20-acre area located to the south of the 40s Complex. This RAA is bounded by Silver Lake Boulevard to the west (which separates the RAA from Silver Lake), East Street to the south, and other portions of the GE facility to the south and east (Figure 3). The surface of this RAA is composed of paved areas (approximately 8 acres) and unpaved areas (approximately 4 acres); the remainder is occupied by several buildings.

2.2.3 40s Complex

The 40s Complex is an approximately 10-acre area which is generally bounded by Kellogg Street to the north, other portions of the GE facility to the south and east, and non-GE owned commercial/industrial areas to the west (Figure 4). Buildings 42, 43, 43-A, and 44 comprise nearly one-third of this area (eastern portion), while most of the remainder (approximately 5 acres) is paved with asphalt or concrete. Buildings 40-B, 41, and 41-A, which previously comprised most of the western portion of this RAA, were demolished in the early 1990s. Portions of the building subgrades are still present in this area.

2.3 Overview and Evaluation of Available Soil Analytical Data

A substantial amount of analytical data is available as a result of the prior sampling of soil within the 20s, 30s, and 40s Complexes. Several figures and tables have been prepared to summarize this information. Soil sample locations from the prior investigations are illustrated on Figures 2 through 4, while the PCB soil sample results (which constitute the majority of the available data set) are summarized in Tables 1 and 2. Tables 3 through 6 present the analytical soils data for non-PCB constituents listed in Appendix IX of 40 CFR Part 264, plus three additional constituents -- benzidine, 2-chloroethylvinyl ether, and 1,2-diphenylhydrazine (Appendix IX+3).

These existing soil analytical data for the 20s, 30s, and 40s Complexes have been reviewed to assess their usability to support RD/RA activities for the Removal Action for these areas. As provided in Section 2.1 of Attachment D to the SOW, the criteria for determining the usability of existing data to support RD/RA activities include: (1) an evaluation of whether such data reflect the appropriate locations and depth increments necessary to apply the Performance Standards for the Removal Actions and to meet the required soil sampling requirements specified in the SOW; and (2) an assessment of the quality of such data in terms of quality assurance/quality control.

The Performance Standards and soil sampling requirements for the 20s, 30s, and 40s Complexes Removal Actions are described in Section 3 below. In general, these standards and requirements require analytical data for three depth increments -- 0- to 1-foot, 1- to 6-foot, and 6- to 15-foot depths -- with differing sampling and analysis frequencies for paved and unpaved areas. Hence, the existing soil analytical data were first reviewed to determine whether they would meet these requirements. Much of the existing data, including the miscellaneous soil sampling data presented in Table 2, were found not to meet the required depth interval criteria and hence were rejected for use in satisfying the RD/RA investigation requirements, regardless of their quality. Nevertheless, in some cases, such prior data were considered, along with other pertinent factors, in identifying specific locations for the additional sampling proposed in this Work Plan, particularly in paved areas.

Based on this initial data assessment step, analytical data for 13 previous sampling locations were found to meet at least some of the depth requirements for usability in RD/RA activities. Hence, these data were then assessed for overall quality by reviewing the available analytical documentation (e.g., laboratory result forms, chain-of-custody

forms, case narratives, etc.) to the extent possible according to the EPA Region I Data Validation Guidelines.¹ This review revealed that the analytical data from these borings are accompanied by sufficient laboratory documentation to identify any data quality discrepancies that would limit the usability of the data. No such discrepancies were identified and no significant data quality issues were noted by the analytical laboratory. Thus, review of these data and the accompanying laboratory documentation indicated that these data are of acceptable quality for use in satisfying RD/RA requirements for these Removal Actions.

However, EPA has pointed out in its April 19, 2000 comment letter that the existing Appendix IX+3 data from three borings (RF-3, RF-4, and RF-16) do not meet the Appendix IX analyte completeness criteria, because they do not include analyses for certain groups of Appendix IX+3 constituents. Accordingly, EPA stated that these three locations should be resampled for all Appendix IX+3 constituents. In light of this comment, the existing Appendix IX+3 data from these three borings will not be used in support of RD/RA activities at these RAAs. Accordingly, the only existing data that will be utilized in support of RD/RA activities are the data from the remaining 10 previous sampling locations. Those data are further discussed in Section 4.3 and presented in Tables 1 and 3 through 6 and on Figure 5, 6, and 7.

In addition, pursuant to an EPA request (contained in its April 19, 2000 comment letter), GE is providing to EPA under separate cover the analytical data packages for the following samples:

- C RF-3 (October 1991) - 9 PCB analyses;
- C RF-4 (October 1991) - 1 Appendix IX+3 analysis;
- C 95-15 (February 1996) - 6 PCB analyses and 1 Appendix IX+3 analysis;
- C 2125 (September 1997) - 1 PCB analysis and 1 Appendix IX+3 analysis;
- C 2135 (September 1997) - 1 PCB analysis; and
- C SB-1 (May 1998) - 8 PCB analyses.

¹ *Region I Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses*, USEPA Region 1, June 13, 1988 (Modified February 1989) and *Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses*, USEPA Region 1, February 1, 1988 (Modified November 1, 1988).

3. **Applicable Performance Standards for Soils and Soil Sampling Requirements**

3.1 **General**

As described in Section 1, the purposes of this Work Plan are to summarize the available site information to support future RD/RA activities at the 20s, 30s, and 40s Complexes, to assess the usability of existing data to support such activities, and to propose the additional investigations necessary to obtain the data required to achieve the non-groundwater-related (soil) Performance Standards for the Removal Actions for these RAAs. As such, it is useful to summarize the applicable Performance Standards that must be achieved for these Removal Actions under the CD and the SOW, as well as the requirements of the CD and the SOW for the soil-related investigations necessary to achieve those Performance Standards. The soil-related Performance Standards relating to the GE Plant Area are set forth in Paragraph 25 of the CD and Section 2.2.2 of the SOW. Those that are relevant to the 20s, 30s, and 40s Complexes Removal Actions are summarized in Section 3.2 below. The pertinent requirements for soil investigations to achieve those Performance Standards are contained in Section 2.2.3 and Attachment D (Section 2.1) of the SOW and are summarized in Section 3.3 of this Work Plan. In the event that there is a discrepancy or inconsistency between the information provided in this section and the Performance Standards set forth in the CD and SOW, the Performance Standards set forth in the CD and the SOW shall control.

The data quality objectives for the proposed investigations consist of obtaining the necessary soil analytical data on PCBs and other Appendix IX+3 constituents to meet those soil sampling requirements and thus to achieve the applicable Performance Standards. The application of the data resulting from the required soil investigations, together with the usable existing data, to achieve the Performance Standards, will be initially presented in the Conceptual RD/RA Work Plan for these Removal Actions, and later presented in final form in the final RD/RA Work Plan.

3.2 **Performance Standards for Removal Actions at the 20s, 30s, and 40s Complexes**

Under the CD and the SOW, the response actions for soils at the 20s, 30s, and 40s Complexes must achieve the soil-related Performance Standards set forth in the CD and the SOW for GE-owned “industrial areas” within the GE Plant Area. Those Performance Standards are as follows:

Response Actions for PCBs in Soils at GE-Owned Industrial Areas

1. The scope of response actions to address PCBs in soils at GE-owned “industrial areas” within the GE Plant Area (which include the 20s, 30s, and 40s Complexes) shall be determined based on spatial average PCB soil concentrations for specific averaging areas identified in Attachment E to the SOW (Protocols for PCB Spatial Averaging). Attachment E to the SOW identifies the 20s Complex, the 30s Complex, and the 40s Complex as separate averaging areas. GE shall utilize these averaging areas for soils deeper than one foot; and it shall utilize these or alternate averaging areas for the top foot of soil in accordance with the following conditions:
 - a. GE may utilize any of these pre-established averaging areas for the top foot of soil provided that it ensures the removal of all soils in the top foot in unpaved portions of such area that contain PCB concentrations in excess of a not-to-exceed (NTE) concentration of 125 ppm; or

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- b. GE may establish alternate averaging areas for the top foot of soil if such areas do not exceed 1.0 acre in size (without the need to achieve an NTE concentration); or
 - c. GE may propose to EPA for approval the use of any of the pre-established averaging areas or an alternate averaging area for the top foot of soil without the need to achieve an NTE concentration, and may utilize such area upon EPA approval (which may be conditioned on the inclusion in the Grant of Environmental Restriction and Easement (ERE) for such area of additional restrictions on construction, as described in Appendix L to the CD).

In addition, as further described in Attachment E to the SOW, the pre-established averaging areas identified in Attachment E to the SOW are subject to modification and/or the addition of new averaging areas, upon EPA approval, in the event that either the predominant use of a particular area changes or there is some other change at the GE Plant Area that creates a distinct exposure area within an identified averaging area prior to the recordation of an ERE covering such area.

2. For each such GE-owned industrial averaging area, GE shall initially calculate a spatial average PCB concentration for the 0- to 1-foot depth increment for the unpaved portion of the averaging area and for the overall averaging area (considering both paved and unpaved areas). In addition, for the overall averaging area, GE shall calculate a spatial average PCB concentration for the 1- to 6-foot depth increment.
3. GE shall conduct the following response actions for the top one foot of soil in each GE-owned industrial averaging area:
 - a. For any unpaved portion of such an averaging area that is located within the 100-year floodplain of the Housatonic River (as generally depicted on Figure 2-1 of the SOW) and where the spatial average PCB concentration in the top foot exceeds 25 ppm, GE shall remove and replace soils as necessary to achieve a spatial average PCB concentration of 25 ppm or below in the top foot. (In addition, if GE selected the option described in Standard #1.a, GE shall remove all soils containing PCB concentrations greater than 125 ppm from the top foot of the unpaved portion of the averaging area.)
 - b. For any unpaved portion of such an averaging area that is located outside the 100-year floodplain and where the spatial average PCB concentration in the top foot exceeds 25 ppm, GE shall either remove and replace soils or install a soil cover in accordance with the specifications for soil covers described in Attachment G to the SOW (Technical Requirements for Capping, Engineered Barriers, and Other Surface Covers) as necessary to achieve a spatial average PCB concentration of 25 ppm or below in the top foot.
 - c. For any averaging area (whether located within or outside the 100-year floodplain) where the spatial average PCB concentration in the top foot exceeds 25 ppm in the entire area (paved and unpaved portions combined), GE shall recalculate the spatial average PCB concentration for the top foot in that entire averaging area after incorporating the anticipated performance of the response actions described in Standard #3.a or #3.b, as applicable. If that recalculated spatial average PCB concentration still exceeds 25 ppm, GE shall maintain and enhance the existing pavement/concrete surfaces in those paved areas determined to cause the exceedence of the 25 ppm spatial average concentration for the top foot in the entire area. Such enhancements will be in accordance with the specifications described for pavement enhancement in Attachment G to the SOW. Where such pavement enhancement is undertaken within the 100-year floodplain of the Housatonic River (as generally depicted on Figure

2-1 of the SOW), GE shall provide Flood Storage Compensation within the same general area, but not necessarily in the specific location of the pavement enhancement.

4. For each GE-owned industrial averaging area where the spatial average PCB concentration in the 1- to 6-foot depth increment exceeds 200 ppm, GE shall perform the following response actions: In any such area located within the 100-year floodplain of the Housatonic River (as generally depicted on Figure 2-1 of the SOW), GE shall remove and replace soils as necessary to achieve a spatial average PCB concentration of 200 ppm or below in the 1- to 6-foot depth increment. In any such area located outside that 100-year floodplain, GE shall undertake a combination of removal and replacement of soils in unpaved areas and/or enhancement of existing pavement/concrete surfaces in paved areas (in accordance with the specifications for pavement enhancement in Attachment G of the SOW) as necessary to ensure that the PCB concentrations causing the spatial average to exceed 200 ppm are removed or covered by enhanced pavement.
5. For any GE-owned industrial averaging areas where utilities potentially subject to emergency repair requirements (e.g., water, gas, sewer, electricity, communication, and stormwater) are present and the spatial average PCB concentration in the corresponding utility corridor exceeds 200 ppm in the 1- to 6-foot depth increment, GE shall evaluate whether any additional response actions are necessary. GE shall submit the results of that evaluation, together with a proposal for such precautions or actions if needed, to EPA for review and approval. In addition, in the event that a new subgrade utility is installed in the future, or if an existing subgrade utility is repaired or replaced in the future, GE shall ensure that the spatial average PCB concentration of the backfill materials is at or below 25 ppm. To provide a general assessment regarding the presence of subgrade utilities in the 20s, 30s, 40s Complexes, several available utility maps have been compiled and are included in Appendix C to this Work Plan.
6. After incorporating the anticipated performance of response actions in accordance with the foregoing Performance Standards, GE shall calculate, for each GE-owned industrial averaging area, the spatial average PCB concentration for the 0- to 15-foot depth increment. For any such averaging area where the spatial average PCB concentration exceeds 100 ppm in the 0- to 15-foot depth increment (after incorporating the anticipated performance of response actions, if any, for other depth increments), GE shall install an engineered barrier either over the soil (in currently unpaved areas) or over the pavement (in currently paved areas) in accordance with the specifications for engineered barriers in Attachment G to the SOW. In such areas within the 100-year floodplain, GE shall provide Flood Storage Compensation within the same general area, but such compensation need not be obtained in the specific locations subject to the barriers.

Response Actions for Non-PCB Constituents in Soils at GE-Owned Industrial Areas

7. To address the presence of Appendix IX+3 constituents other than PCBs in soils at the GE Plant Area, GE shall conduct an evaluation of such constituents for each of the averaging areas at the GE Plant Area identified in Attachment E to the SOW or otherwise specified above. This evaluation shall be conducted in accordance with the protocols described in Attachment F to the SOW (Protocols for the Evaluation of Non-PCB Constituents in Soil) and shall comply with the following process-related Performance Standards:

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- a. First, GE shall review the data qualifiers on the Appendix IX+3 data to eliminate analytical laboratory results that indicate constituent occurrence as a result of laboratory interferences or contamination (as indicated by the laboratory blank data).
 - b. Second, GE shall screen the remaining data to take into account the proposed response actions to address PCBs as specified in the Performance Standards. Specifically, sample results from soil that will be removed to address PCBs will be eliminated from consideration, and it will be assumed that such soil will be replaced with an equal volume of clean soil containing concentrations of organic constituents at one-half the detection limit and concentrations of inorganic constituents consistent with those detected in representative samples of the backfill material. Similar concentrations for organic and inorganic constituents will be assumed to be present in any soil cover used. For areas where an engineered barrier or pavement enhancement will be installed to address PCBs, the Appendix IX+3 sample results from soil underlying such barrier or enhanced pavement will be eliminated from consideration, and averages will be recalculated for the portion(s) of the areas not subject to such barrier or pavement enhancement (subject to potential modification, if necessary, based on the nature and concentration of volatile constituents for which such barriers/pavement may not provide effective containment).
 - c. Third, GE shall further screen the remaining data by making the following comparisons for the sample results that were not eliminated in Step 2:
 - i. For constituents other than dioxins/furans, GE shall compare the maximum concentration of each detected constituent to the EPA Region 9 Preliminary Remediation Goals (PRGs) (set forth in Exhibit F-1 to Attachment F of the SOW) for such constituent in soil, using the industrial PRG for commercial/industrial areas. For polycyclic aromatic hydrocarbons (PAHs) for which Region 9 PRGs do not exist, GE shall use the Region 9 PRGs for benzo(a)pyrene for carcinogenic PAHs and the Region 9 PRGs for naphthalene for noncarcinogenic PAHs. For other constituents for which Region 9 PRGs do not exist, GE may propose screening concentrations based on either the Region 9 PRGs for chemicals with similar characteristics or on other appropriate risk-based calculations, and upon EPA approval, may use such screening concentrations in this step. (The Region 9 PRGs, together with the PRGs specified above for carcinogenic and noncarcinogenic PAHs for which there are no Region 9 PRGs and any additional screening concentrations proposed by GE and approved by EPA, are hereinafter referred to jointly as "Screening PRGs.") Any constituent whose maximum concentration is at or below the applicable Screening PRGs will be eliminated from further consideration. The remaining constituents will be subject to further evaluation.
 - ii. For dioxins/furans, GE shall calculate for each sample a total Toxicity Equivalent (TEQ) concentration, using the consensus Toxicity Equivalency Factors (TEFs) published by the World Health Organization (WHO) (Van den Berg et al., *Environ. Health Perspectives*, vol. 106, no. 12, Dec. 1998). GE shall then compare, for the relevant averaging area and depth increment, either the maximum TEQ concentration or the 95% UCL on the mean of TEQ concentrations, whichever is lower, to the applicable PRG established by EPA for dioxin TEQs. These PRGs are 5 ppb in the top foot and 20 ppb in subsurface soil for commercial/industrial areas. If the maximum or 95% UCL TEQ concentration is less than the applicable PRG, no further response actions will be necessary to address dioxins/furans. If the maximum or 95% UCL TEQ concentration exceeds the applicable PRG, no further evaluation will be made, and GE shall develop response actions for EPA review and approval to achieve the dioxin PRG.

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- d. Fourth, for each constituent (other than dioxins/furans) with a maximum concentration that exceeds the applicable Screening PRGs, GE shall compare the data set for that constituent for the particular averaging area (after taking into account the PCB-related response actions specified in Performance Standards #1 through #6) with the background data set for that constituent, using either an appropriate statistical method or summary statistics (as described in the MDEP's *Guidance for Disposal Site Risk Characterization*, 1995). For such comparisons, GE shall utilize site-specific background data sets approved by EPA for use as background, which may include, at a minimum, soil data from Housatonic River floodplain samples collected upstream of releases from the GE Plant Area and soil data from GE's off-site residential property program (excluding samples with detectable PCB concentrations and samples containing visible evidence of non-native fill). GE shall propose separate background data sets for surface soil and subsurface soil, and may propose separate background data sets for commercial/industrial areas and residential/recreational areas. Any constituent for which the averaging area data set is consistent with the background data set will be eliminated from further consideration. Any constituent for which the averaging area data set is not consistent with the background data set will be subject to further evaluation. (Note: This step may be omitted if all constituents remaining after the screening described in Standard #7.c.i can be eliminated through the evaluation described in Standard #7.e below.)
- e. Fifth, for each constituent (other than dioxins/furans) that is not eliminated in the prior steps, GE shall calculate an average concentration for the averaging area (taking into account the PCB-related response actions, as specified in Performance Standards #1 through #6), and shall compare that average concentration to the applicable MCP Method 1 soil standard (S-1, S-2, or S-3). If there is no existing Method 1 soil standard for such a constituent, GE may derive a Method 2 standard, using the MCP procedures for doing so, and compare the average concentration to that standard. In making these comparisons, GE shall calculate separate average concentrations for surface soil and subsurface soil (using depth increments consistent with those evaluated for PCBs), and compare those average concentrations separately to applicable Method 1 (or 2) standards. Further, in determining the applicable set of Method 1 (or 2) standards (i.e., S-1, S-2, or S-3), GE shall follow the MCP criteria for categorizing soil, and may take into account the EREs that will be imposed on the area in question. If all constituents evaluated in this step have average concentrations at or below the applicable Method 1 (or 2) standards, no further response actions will be necessary to address such constituents. If any such constituent(s) have average concentrations exceeding the applicable Method 1 (or 2) standards, then GE shall either:
- i. Develop response actions sufficient to reduce the average concentrations of such constituent(s) to the Method 1 (or 2) standards (or to achieve Performance Standards based on the Screening PRGs or background levels, as described in Standard #8 below); or
 - ii. Conduct an area-specific risk evaluation, as described in Standard #7.f below.
- f. Sixth, if an area-specific risk evaluation will be conducted, GE shall perform that evaluation for all constituents that were retained for evaluation prior to the step described in Standard #7.e above. In such an evaluation, GE shall calculate the cumulative Excess Lifetime Cancer Risk (ELCR) and non-cancer risk for all such constituents (excluding PCBs and dioxins/furans), based on the average concentrations of such constituents and the same uses for the area and depth increment in question (e.g., commercial/industrial worker, utility worker) that were assumed in developing the applicable PCB Performance Standards for such area and depth increment. In such an evaluation, GE shall apply

the same exposure assumptions used in Attachment A to EPA's Action Memorandum for Removal Actions Outside the River (Appendix D to the CD) to support the PCB Performance Standards for such area and depth increment, unless GE proposes and provides an adequate justification for alternate exposure assumptions for the following parameters for the specific area in question and EPA approves such alternate assumptions: (i) exposure frequency (if based on site-specific land conditions for the area in question); (ii) exposed skin surface area (if based on site-specific land conditions for the area in question); (iii) dermal adherence factor; (iv) soil ingestion rate; (v) oral absorption factor; and (vi) dermal absorption factor.

If the resulting cumulative ELCR for the area (excluding PCBs and dioxins/furans) does not exceed 1×10^{-5} (after rounding) and the non-cancer Hazard Index (excluding PCBs and dioxins/furans) does not exceed 1 (after rounding), no further response actions will be necessary to address these residual Appendix IX+3 constituents. Otherwise, further response actions will be necessary.

8. If the evaluation described in Standard #7 indicates the need for further response actions to address non-PCB constituents, GE shall develop, for EPA review and approval, specific Performance Standards for such response actions. Such Performance Standards shall be based on achieving the following, after taking into account the PCB-related response actions specified in the Performance Standards:
 - a. For dioxin/furan TEQs, either maximum or 95% UCL TEQ concentrations that do not exceed the EPA dioxin PRGs described in Standard #7.c.ii; and
 - b. For other constituents, any combination of the following: (i) maximum concentrations of individual constituents that do not exceed the applicable Screening PRGs; (ii) concentrations of individual constituents that are consistent with background levels (using an appropriate statistical technique or summary statistics); or (iii) for the remaining constituents (if any), either (A) average concentrations that do not exceed the applicable Method 1 (or 2) soil standards, or (B) cumulative risk levels that do not exceed (after rounding) an ELCR of 1×10^{-5} and a non-cancer Hazard Index of 1.

GE shall then propose and, upon EPA approval, undertake additional response actions as necessary to achieve those Performance Standards. The specific types of response actions to be taken to achieve such Performance Standards (e.g., soil removal, capping, pavement enhancement) shall be the same as those established by the Performance Standards for PCBs at the area in question, subject to potential modification if necessary based on the nature and concentration of volatile constituents.

In addition to setting forth the above-described Performance Standards for soil-related response actions, the SOW requires that the Pre-Design Investigation Work Plan for a given Removal Action provide information on the Performance Standards for any natural resource restoration/enhancement activities to be conducted at the RAA in question, as well as proposing any necessary associated sampling. However, under the CD and the SOW, no natural resource restoration/enhancement activities will be implemented at the 20s, 30s, or 40s Complexes, and hence no additional investigations to address such activities are necessary.

3.3 Soil Sampling Requirements

In order to achieve the foregoing Performance Standards, Section 2.2.3 and Attachment D of the SOW establish specific requirements for soil sampling at the GE Plant Area. The applicable requirements for industrial/commercial areas within the GE Plant Area include the following:

-
1. For unpaved areas, soil samples must be collected within an approximate 100-foot grid sampling pattern, taking into account the usable existing data. At each such sample location, soil samples must be collected and analyzed, to the extent practicable given the conditions in the area, to represent the 0- to 1-foot, 1- to 6-foot, and 6- to 15-foot depth intervals, except where usable data already exist for the pertinent depth interval at or near the grid node in question. More detailed criteria for determining the adequacy of existing data to satisfy this grid sampling requirement are set forth in Section 2.1.1 of Attachment D to the SOW.
 2. For paved areas, soil sampling and analysis must be conducted with an emphasis on those areas where limited data currently exist and with the objective of collecting additional samples at an approximate frequency representing a ratio of 170 borings for 110 acres of paved area within the GE Plant Area (approximately two locations per paved acre), as specified in Section 2.2.3 and Attachment D (Section 2.1.2) of the SOW. At each of these sampling locations, soil samples are to be collected from the same depth intervals as in unpaved areas, to the extent practicable given the conditions in the area.
 3. All soil samples collected from the three depth intervals identified above must be analyzed for PCBs (except at locations and depths where usable PCB data already exist). In addition, certain soil samples must be analyzed for other Appendix IX+3 constituents (with any exclusions proposed to and approved by EPA) in accordance with the following general criteria:
 - C The number of Appendix IX+3 analyses will be approximately one-third the number of PCB analyses;
 - C To the extent practicable, the Appendix IX+3 sample analyses will be approximately evenly distributed between surface soil samples (from the top foot of soil) and subsurface soil samples (from the 1- to 6-foot and 6- to 15-foot depth intervals); and
 - C The selection of sample locations and depths for Appendix IX+3 analyses will be based on the spatial distribution of the available data and will also take into account field observations at the time of sampling (e.g., photoionization detector readings, evidence of staining, and prior knowledge of data gaps at and surrounding a particular grid note), in accordance with the protocols specified in Appendix D to GE's *Field Sampling Plan/Quality Assurance Project Plan* (FSP/QAPP) (previously submitted in January 2000 and currently under revision based on EPA's comments dated April 11 and April 20, 2000), as such plan is approved by EPA.
 4. Sample collection and analysis procedures must comply with GE's FSP/QAPP, as approved by EPA, and any other applicable requirements of GE's Project Operations Plan (Attachment C to the SOW).
 5. In areas where poor sample recovery is encountered, several boring attempts must be made, to the extent practicable, to recover sufficient representative samples proximate to the associated grid node(s) or designated sampling location(s). Further, for any sample location where NAPL is encountered as part of the soil characterization activities, the need for a new monitoring well must be assessed, with the results presented to the EPA for review and approval.

4. Proposed Pre-Design Investigations

4.1 General

This section of the Work Plan describes the additional data needs to support RD/RA activities to achieve the Performance Standards for the 20s, 30s, and 40s Complexes Removal Actions, and proposes the additional field investigations necessary to fill those data needs.

4.2 Data Needs

Based on review of the applicable Performance Standards (described in Section 3.2) and the existing soil analytical data (described in Section 2.3), it has been determined that the only additional data needs to support RD/RA activities for the 20s, 30s, and 40s Complexes Removal Actions consist of the performance of the additional soil sampling and analysis activities necessary to meet the applicable soil sampling requirements (described in Section 3.3). Further investigations related to groundwater and/or NAPL in these areas will be proposed in connection with the Plant Site 1 GMA (which includes these areas). Additionally, as discussed in Section 1.1, any investigations relating to the building demolition activities that will be conducted in these areas pursuant to the DEDA, as well as to address the appropriate disposition of the building demolition debris and the potential re-use of building slabs, will be described in separate work plans and protocols directed to those activities. However, the appropriate investigations of soil underlying the remaining slabs of buildings to be demolished are addressed in this Work Plan.

4.3 Proposed Soil Sampling Activities

To meet the soil sampling requirements in the SOW, 100-foot sampling grids were established for the unpaved areas at the 20s, 30s, and 40s Complexes, as shown on Figures 5, 6, and 7. Based on review of those grids, together with the soil sampling requirements (for both unpaved and paved areas) and the criteria for use of available data (in terms of both location/depth and data quality and completeness), it was determined that existing subsurface analytical data from 13 sampling locations can be used to satisfy the soil characterization requirements for RD/RA activities (as explained in Section 2.3). These locations are also shown on Figures 5, 6, and 7. At each of these locations, 2-foot depth interval soil PCB data are generally available to depths greater than 15 feet below grade. In addition, at some of these locations, Appendix IX+3 data are available for certain 2-foot depth increments within the depth increments necessary to satisfy RD/RA requirements. GE proposes to utilize the PCB data from the 2- to 6-foot and 6- to 16-foot depth increments at these locations (where available) to satisfy the soil characterization requirements for the 1- to 6-foot and 6- to 15-foot depth intervals at these locations, respectively. Further, where Appendix IX+3 data from these locations are available from within one of the specified RD/RA depth increments, GE will utilize such data to characterize that depth increment in accordance with Attachment D of the SOW and as indicated on Figures 5, 6, and 7.

To complete the required soil characterization, 51 additional sampling locations were selected in unpaved areas, based on the sampling grids and other available information, and further sampling is proposed for certain depth increments at nine existing sampling locations in unpaved areas. For existing paved areas, as well as the slabs of buildings to be demolished pursuant to the DEDA (which, based on discussion with EPA, will be treated as paved areas for purposes of sampling the underlying soil), an additional 42 sampling locations were selected, and further sampling is proposed for certain depth increments at three existing sampling locations. These additional sampling locations, in combination with the usable existing boring data from paved areas, will satisfy the required sampling density specified in the SOW -- i.e., will be consistent with the overall GE Facility sampling density of 170 locations for 110 paved acres (approximately 2 per acre), as described in Section 3.3 above. The proposed sampling locations and associated analysis depths (0 to 1 foot, 1 to 6 feet, and 6 to 15 feet) are shown on Figures 5, 6, and

7. It should be noted that, as shown on Figures 5 and 6, respectively, soil sampling is not proposed for the existing 20s Complex vault or the future Building 31 vault. As mentioned in Section 2.2, the 20s Complex vault was used to consolidate building debris generated during the demolition of the above-grade portions of several former buildings located within the 20s Complex during the late 1980s, as well as some equipment formerly housed within those former buildings. This vault was covered with a 1 foot engineered barrier composed of steel-reinforced concrete. The future Building 31 vault will be used for similar purposes as the existing 20s Complex vault (i.e., consolidation of building debris and equipment), and will also be covered with a suitable engineered barrier (or equivalent).

The overall soil sampling effort proposed for the 20s, 30s, and 40s Complexes will involve the collection of 293 new soil samples from 106 new and existing locations. At locations within paved areas (including existing and future building slabs), collection of the 0- to 1-foot sample will begin immediately below the pavement (or slab) and will extend to a depth of one foot below the top of the pavement. Thus, for example, if the pavement is 4 inches thick, the 0- to 1-foot sample will actually consist of an 8-inch soil sample.

All new soil samples will be analyzed for PCBs. In addition, 100 of these samples (approximately one third) will be submitted for analysis of Appendix IX+3 constituents, excluding pesticides and herbicides, as approved by EPA (April 19, 2000 comment letter). Of the samples proposed for such Appendix IX+3 analysis, approximately half will be collected from the top foot and the rest from deeper increments. The locations and depth intervals for which it is currently anticipated that samples will be submitted for Appendix IX+3 analysis are shown on Figures 5, 6, and 7. However, the specific locations/depths of these Appendix IX+3 samples may be modified in the field considering photoionization detector (PID) readings or visual observations (e.g., evidence of staining). The selection of the specific sample(s) from a given boring to be submitted for Appendix IX+3 analysis will be based on the protocols specified in Appendix D to the FSP/QAPP, as approved by EPA.

The following table summarizes the proposed soil sampling and analysis effort:

RAA	Approximate Area (acres)	Number of Boring Locations ⁴	PCB Samples ⁵				Appendix IX+3 Samples ⁵			
			Top 1 ft	1 to 6 ft	6 to 15 ft	Total	Top 1 ft	1 to 6 ft	6 to 15 ft	Total
20s Complex - Paved Area	7.2 ¹	12	12	12	12	36	6	3	3	12
20s Complex - Unpaved Area	3.6	25	24	22	22	68	12	6	5	23
20s Complex - Subtotals		37	36	34	34	104	18	9	8	35
30s Complex - Paved Area	12.7 ²	22	22	19	20	61	10	7	4	21
30s Complex - Unpaved Area	4.2	28	27	24	24	75	10	8	8	26
30s Complex - Subtotals		50	49	43	44	136	20	15	12	47
40s Complex - Paved Area	7.3 ³	12	12	11	11	34	6	3	3	12

RAA	Approximate Area (acres)	Number of Boring Locations ⁴	PCB Samples ⁵				Appendix IX+3 Samples ⁵			
			Top 1 ft	1 to 6 ft	6 to 15 ft	Total	Top 1 ft	1 to 6 ft	6 to 15 ft	Total
40s Complex - Unpaved Area	0.7	7	7	6	6	19	3	2	1	6
40s Complex - Subtotals		19	19	17	17	53	9	5	4	18
Totals:		106	104	94	95	293	47	29	24	100

Notes:

1. Paved area for the 20s Complex includes approximately 6.8 acres of existing and future (Merrill Road reconstruction) pavement (excluding the existing 20s Complex vault) and approximately 0.4 acres of building slabs from future demolition.
2. Paved area for the 30s Complex includes approximately 8.4 acres of existing pavement (excluding the future Building 31 vault) and approximately 4.3 acres of building slabs from future demolition.
3. Paved area for the 40s Complex includes approximately 4.6 acres of existing pavement and approximately 2.7 acres of building slabs from future demolition.
4. Number of borings includes those where all depth increments will be sampled and those where existing data for some depth increments are proposed for use.
5. Number of samples includes only proposed new samples (i.e., excludes existing data).

4.4 Soil Sampling and Analytical Procedures

The collection and analysis of the soil samples at the 20s, 30s, and 40s Complexes will be conducted following the procedures set forth in GE's FSP/QAPP (currently under revision), as such plan is approved by EPA. Specifically, the analytical procedures for the analysis of soil samples will be consistent with the EPA-approved procedures presented in Table 1 of the FSP/QAPP. The field procedures will follow the Standard Operating Procedures (SOPs) presented in Appendices B through X of the FSP/QAPP, and will also comply with any other application requirements of GE's Project Operations Plan (Attachment C to the SOW).

Soil samples collected for the 20s, 30s, and 40s Complexes investigation will utilize EPA Method 8082 for the analysis of Aroclor-specific PCBs. Results for PCBs will be reported on a dry-weight basis with a detection limit of 0.05 ppm for all Aroclors.

Select soil samples will also be analyzed for additional Appendix IX+3 constituents (excluding pesticides and herbicides) following the methods presented in Table 1 of the FSP/QAPP. Sample results will be presented on a dry-weight basis with reporting limits consistent with those presented in Table 3 of the FSP/QAPP. Analysis of samples for dioxins/furans will be performed using EPA Method 8290 for samples collected from the 0- to 1-foot depth increment and Method 8280A for samples collected from depths greater than 1 foot. Dioxin/furan results will be reported on a dry-weight basis for both total homologues and 2,3,7,8-substituted congeners. Reporting limits will be consistent with those presented in Table 3 of the FSP/QAPP.

The rationale for the methods selected for dioxin/furan analyses is based on review of their corresponding method detection limits (MDLs), practical quantitation limits (PQLs), and reporting limits, together with the applicable Performance Standards for dioxin/furan TEQs specified in the SOW and summarized in Section 3.2 above (i.e., 5 ppb for the top foot of soil and 20 ppb for subsurface soil at commercial/industrial areas). As shown in Table 3 of the FSP/QAPP, the MDLs, PQLs, and reporting limits for Method 8280A are higher than those for Method 8290. Due to these higher limits, it is possible that dioxin/furan analyses by Method 8280A could potentially fail to detect a TEQ concentration that in fact exceeds the Performance Standard for the top foot. However, use of this

method would not fail to detect TEQ exceedances of the subsurface soil Performance Standard. Hence, use of Method 8280A is wholly adequate to ensure achievement of the subsurface soil Performance Standard. In comparison, use of Method 8290 for surface soil samples will ensure detection of any TEQ concentrations exceeding the 5 ppb Performance Standard for that depth increment.

Quality control samples (i.e., matrix spike/matrix spike duplicates, field duplicates, and field blanks) will be collected at the frequency specified in Table 4 of the FSP/QAPP for each sample matrix collected. Tables 4 and 5 of the FSP/QAPP present the quality control criteria and corrective action procedures to be followed for each of the analytical procedures listed in Table 1 and for field-generated quality control samples. Overall project quality assurance will be provided by following the procedures for sample collection and analysis, corrective action, and data reporting and validation specified in the FSP/QAPP.

5. *Schedule*

GE proposes to complete the additional investigations described in this Work Plan and to submit a Pre-Design Investigation Report for the 20s, 30s, and 40s Complexes within 150 days of the later of the following: EPA's approval of this Work Plan or entry of the CD by the U.S. District Court. However, it is possible that sample collection in the eastern portion of the 20s Complex may be delayed due to potential interferences related to the reconstruction of Merrill Road. If that should prove to be the case, GE will propose a modified schedule for completing the investigations and submitting a Pre-Design Investigation Report (or a supplemental report) for the 20s Complex. In that event, the following discussion should be read to apply separately to the 20s Complex from the 30s and 40s Complexes.

The Pre-Design Investigation Report will present the results of all investigations conducted pursuant to this Work Plan. It will also consider the sufficiency of the available data to support RD/RA activities for these RAAs; and if it is determined that further data are needed to support RD/RA activities to achieve the soil-related Performance Standards, it will propose supplemental investigations to fill those data needs and a schedule for performing those supplemental investigations and submitting a Supplemental Pre-Design Investigation Report. If GE concludes in the Pre-Design Investigation Report that the available data are sufficient to support RD/RA activities for the Removal Actions at these RAAs, then that report will include a proposed schedule for submission of a Conceptual RD/RA Work Plan for the 20s, 30s, and 40s Complexes Removal Actions.

Following EPA approval of the Pre-Design Investigation Report (and any supplemental report), GE will submit a Conceptual RD/RA Work Plan for the 20s, 30s, and 40s Complexes Removal Actions on the schedule approved by EPA. That Conceptual RD/RA Work Plan will include, at a minimum, the evaluations, plans, and other pertinent items described in Section 3.3 of the SOW. It will also include a proposed schedule for submission of a more detailed RD/RA Work Plan for the 20s, 30s, and 40s Complexes Removal Actions in accordance with Section 3.4 of the SOW.

6. Summary of Anticipated Post-Removal Site Control Activities

Following the completion of construction activities to implement any necessary response actions, GE shall continue to inspect, maintain, and monitor the completed actions and to perform repairs and replacement as needed, so as to ensure that the completed response actions are performing as designed. The specific scope and methodologies for such inspection and maintenance activities (I/M activities) will be detailed in the Post-Removal Site Control Plans for the 20s, 30s, and 40s Complexes Removal Actions. Such activities will include the periodic inspection and maintenance of any surface covers installed (e.g., engineered barriers, enhanced pavement, and soil covers), inspection and maintenance of certain ancillary components of the response actions (e.g., fencing and warning signs), and repair or replacement of response actions at areas exhibiting deficiencies or potential problems. These activities will be conducted in accordance with the pertinent requirements specified in Attachment J (Inspection and Maintenance Activities) to the SOW, except as otherwise proposed in the specific Post-Removal Site Control Plans and approved by EPA. In addition, inspection reports on these activities will be prepared and submitted periodically in accordance with the requirements of Section 4 of Attachment J to the SOW.

Tables

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

TABLE 1

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

PRE-DESIGN INVESTIGATION WORK PLAN FOR THE 20s, 30s, AND 40s COMPLEXES

SUMMARY OF SOIL PCB DATA
(Results presented in dry weight parts per million, ppm)

Sample-ID	Date Sampled	Depth Interval (feet)	Total PCBs
20s Complex			
M-1A1	05/24/99	0-2	0.317
M-1B1	05/24/99	0-2	0.3
M-1C1	05/24/99	0-2	ND
M-2A1	05/24/99	0-2	10.1
M-2A2	05/24/99	2-4	ND
M-2B1	05/24/99	0-2	ND
M-2C1	05/24/99	0-2	2.11
M-2C2	05/24/99	2-4	ND
95-22	09/18/97	0-0.5	0.5
		0-2	4.8 B
213S	09/17/97	0-0.5	0.13
95-10	03/07/96	0-2	0.77
		2-4	0.029 J
		4-6	0.17
		6-8	0.032 J
		8-10	0.058
		10-12	ND
		12-14	ND
95-23	03/07/96	14-16	12
		0-2	3.0
		2-4	0.058
		4-6	0.042
		6-8	0.034 J
		8-10	0.014 J
95-11	03/06/96	10-12	0.075
		12-14	ND
		0-2	38
		2-4	520
		4-6	0.69
		6-8	0.11
		8-10	0.036 J
		10-12	0.084
		12-14	0.38
		14-16	0.037
		16-18	0.057
GEI-207	10/20/94	18-20	31
		20-22	470
GEI-206	10/18/94	22-24	42
		24-26	31 [88]
GEI-205	10/12/94	14-16	0.055
		0-2	1.29
GEI-203	10/11/94	0-2	0.49
		4.5-5	0.73
GEI-201	10/11/94	0-2	0.62
		14-16	ND
GEI-104	05/13/94	0-2	131
GEI-102	05/10/94	2-4	ND
		12-14	ND
GEI-101	05/10/94	16-18	ND
		0-2	6.7
		4-6	2.5
		8-10	0.32

(See Notes on Page 4)

TABLE 1

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

PRE-DESIGN INVESTIGATION WORK PLAN FOR THE 20s, 30s, AND 40s COMPLEXES

SUMMARY OF SOIL PCB DATA
(Results presented in dry weight parts per million, ppm)

Sample-ID	Date Sampled	Depth Interval (feet)	Total PCBs
30s Complex			
212S	09/17/97	0-0.5	2.1
95-15	02/22/96	0-2	2.3
		2-4	1.8
		4-6	1.4
		6-8	4.5 J
		8-10	120
		10-12	33 J
95-16	02/20/96	0-2	27
		2-4	0.15
		4-6	0.17
		6-8	0.019 J
		8-10	0.012 J
		10-12	0.081
		12-14	ND
		14-16	0.0088 J
RF-2	Oct. 1991	0-2	0.29
		2-4	0.29
		4-6	0.08
		6-8	ND
		8-10	ND
		10-12	ND
		12-14	ND
		14-16	ND
RF-3	Oct. 1991	0-2	5.7
		2-4	1.2
		4-6	32
		6-8	ND
		8-10	12
		10-12	8.8
		14-16	3.1
		16-18	2.1
RF-16	Oct. 1991	0-2	15
		2-4	0.92
		4-6	0.93
		6-8	0.77
		8-10	15
		10-12	1.3
		12-14	ND [0.09]
		14-16	6.7
		16-18	ND [0.07] [0.11]
		18-20	0.19
		20-22	ND

(See Notes on Page 4)

TABLE 1

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

PRE-DESIGN INVESTIGATION WORK PLAN FOR THE 20s, 30s, AND 40s COMPLEXES

SUMMARY OF SOIL PCB DATA
(Results presented in dry weight parts per million, ppm)

Sample-ID	Date Sampled	Depth Interval (feet)	Total PCBs
30s Complex (continued)			
SB-1*	05/28/98	0-2	ND
		2-4	ND
		4-6	ND
		6-8	ND
		8-10	ND
		10-12	2.5
		12-14	ND
		14-16	ND
SB-2*	05/28/98	0-2	ND
		2-4	ND
		4-6	ND
		6-8	ND
		8-10	ND
		10-12	ND
		12-14	ND
		14-16	ND
SB-3*	05/28/98	0-2	ND
		2-4	ND
		4-6	ND
		6-8	ND
		8-10	ND
		10-12	ND
		14-16	ND

(See Notes on Page 4)

TABLE 1

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

PRE-DESIGN INVESTIGATION WORK PLAN FOR THE 20s, 30s, AND 40s COMPLEXES

SUMMARY OF SOIL PCB DATA
(Results presented in dry weight parts per million, ppm)

Sample-ID	Date Sampled	Depth Interval (feet)	Total PCBs
40s Complex			
95-17	02/22/96	0-2	2.7 J
		2-4	0.27 J
		4-6	0.03 J
		6-8	0.0049 J
		8-10	0.062 J
		10-12	0.012 J
		12-14	0.024 J
		14-16	ND
		16-18	0.013 JP
		18-20	ND
		20-22	1.2
	22-24	ND	
RF-4	06/11/91	0-2	0.28
		2-4	0.52
		4-6	ND
		6-8	ND
		8-10	ND
		10-12	ND
		10-12 (Split Sample)	0.39 [0.53]
		12-14	ND
		14-16	0.42
		16-18	0.11
		18-20	0.13
		20-22	ND
		22-24	0.06
	24-26	0.05	

Notes:

1. J - Estimated concentration.
2. P - The percent difference in the concentrations from two dissimilar GC columns was greater than 25 percent.
3. ND - Not detected.
4. Duplicate analyses are shown in brackets.
5. * - Samples were collected as part of miscellaneous soils excavations (water curb repair); however, the resulting analytical data are presented in this table (as opposed to Table 2 - Summary of Miscellaneous Soil PCB Investigations), since such data represent in-situ soil samples collected at 2-foot depth intervals.

TABLE 2

**GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS**

PRE-DESIGN INVESTIGATION WORK PLAN FOR THE 20s, 30s, AND 40s COMPLEXES

**SUMMARY OF MISCELLANEOUS SOIL PCB INVESTIGATIONS
(Results presented in dry weight parts per million, ppm)**

Investigation ID	Date Sampled	Number of Samples	PCB Concentration Range	Comments
20s Complex				
I	04/15/96	3	114-144	Manhole Repair under Bridge near Bldg. 25
B	09/28/95	3	<1	Berkshire Gas Excavation East of Bldg. 33
C-42	10/08/91	10	1.8-8.2	Bldg. 33-1 (East Side) Waterline Excav.
29B-RES	10/20/98	3	19-42	Bldg. 29B (Near West Side) Sinkhole Repair
30s Complex				
"J"	NR	1	2.3	Bldg. 31 - Southeast Corner
C-35	8/17-18/93	35	<1-3.9	UST 34-01 Removal Excav.
"D"	03/12/97	3	4-14	Bldg. 33 Gas Line Repair
"A"	11/27/96	9	34-1,500	Pipeline Pre-Exc.
"E"	04/15/96	3	4-7	Manhole Repair
"F"	11/15/95	3	<1	Water Sprinkler Line
"C"	05/02/95	3	8.1-24	Berkshire Gas Excavation outside Bldg. 33
"G"	11/11/94	3	<5	Bldg. 34 Condensation Line
"H"	05/16/94	2	<1-6	36 Yard Manhole
C-22	02/04/93	10	<1-87	Bldg. 31 (Outside) Waterline Close-Off Excav.
C-32	02/03/93	10	<1-2.4	Bldg. 33X Waterline Close-Off
C-20	09/30/92	3	34-86	Bldg. 31J Conduit Trench Excav.
C-31	09/29/92	3	1.8-6	Bldg. 31 Condensation Enclosure Excav.
C-26	09/28/92	5	4.3-200	Bldg. 36V Electrical Line Footing Excav.
C-28	09/28/92	3	<1-10	Bldg. 31 (SE Side) Steam Tunnel Entry Excav.
C-34	06/30/92	5	4.7-20	Bldg. 34 (North Side) Indicator Installation
C-23	02/10/92	3	2.6-5.4	Bldg. 31 (West End Outside) Steam Line Excav.
C-33	02/10/92	4	<1-3.7	Bldg. 33X-1 Water Main Repair
C-21	10/22/91	3	6.4-19	Bldg. 31 Oil/Water Separator Soil Sampling
C-29	11/14/90	3	1.9-2.3	UST 31-01 Removal Excav.
C-24	08/28/90	4	1-4.6	Bldg. 31 Water Curb Sampling
C-36	07/11/90	1	4.4	Bldg. 34 Parking Lot
C-25	09/21/89	7	<5-32	Bldg. 31 Soil Sampling
"K"	10/07/99	3	5.8-54	Bldg. 33X Gas Line Repair
40s Complex				
C-10	11/29/93	10	ND	Bldg. 41A Water Main Shutoff Excav.
C-11	09/17/93	5	<1-11	Bldg. 41-1 Tile Pipe Excav.
C-16	07/28/93	3	<1-1.5	Bldg. 41A UST Location Sampling
C-19	06/30/92	3	1.5-2.6	Bldg. 42 (West Side) Sprinkler Excav.
C-17	09/23/91	11	<1-15	Bldg. 43-1 Waterline Excavation
C-15	07/31/90	1	<2	Bldg. 41-1 Sampling
C-14	07/03/90	3	47-120	Bldg. 41-1 Sampling
C-18	05/22/90	4	<2-6.8	Bldg. 44 Water Main Soil Sampling

**TABLE 3
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS**

PRE-DESIGN INVESTIGATION WORK PLAN FOR THE 20s, 30s, AND 40s COMPLEXES

**SUMMARY OF SOIL VOLATILE ORGANICS DATA
(Concentrations are presented in dry weight parts per million, ppm)**

Sample ID: Sample Depth (feet): Date Collected:	95-10 14-16 03/07/96	95-11 20-22 03/06/96	95-23 0-2 03/07/96	95-23 12-14 03/07/96	213S 0-0.5 09/17/97
	20s Complex				
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND
2-Butanone	ND	ND	ND	ND	0.0050 JB
Acetone	ND	ND	ND	ND	0.028 JB
Carbon Disulfide	ND	ND	ND	ND	ND
Chlorobenzene	0.14	5.2	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND
Methylene Chloride	0.011 JB	0.35 J	0.008 JB	0.023 JB	0.014 JB
Toluene	ND	ND	ND	ND	ND
Xylenes (Total)	ND	ND	ND	ND	ND

Sample ID: Sample Depth (feet): Date Collected:	RF-2 0-2 Oct. 1991	95-15 6-8 02/22/96	95-16 18-20 02/20/96	212S 0-0.5 09/17/97
	30s Complex			
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND
2-Butanone	ND	0.004 J	ND	0.0030 JB
Acetone	0.015	ND	ND	0.032 JB
Carbon Disulfide	ND	0.001 J	ND	ND
Chlorobenzene	ND	ND	0.001 J	ND
Ethylbenzene	ND	ND	ND	ND
Methylene Chloride	0.050 B	ND	ND	0.053 JB
Toluene	ND	0.002 J	ND	ND
Xylenes (Total)	ND	ND	ND	ND

Sample ID: Sample Depth (feet): Date Collected:	95-17 10-12 02/22/96	95-17 16-18 02/22/96
	40s Complex	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ND
1,2-Dibromo-3-chloropropane	ND	ND
2-Butanone	ND	ND
Acetone	ND	ND
Carbon Disulfide	ND	ND
Chlorobenzene	ND	ND
Ethylbenzene	ND	ND
Methylene Chloride	ND	ND
Toluene	ND	ND
Xylenes (Total)	ND	ND

Notes:

1. Samples were analyzed for Appendix IX+3 volatile organic compounds; only those constituents detected in at least one sample are shown.
2. ND - Compound was not detected.
3. J - Indicates an estimated value less than the CLP-required quantitation limit.
4. B - Indicates the analyte was also detected in the associated method blank.

**TABLE 4
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS**

PRE-DESIGN INVESTIGATION WORK PLAN FOR THE 20s, 30s, AND 40s COMPLEXES

SUMMARY OF SOIL SEMIVOLATILE ORGANICS DATA
(Concentrations are presented in dry weight parts per million, ppm)

Sample ID: Sample Depth (feet): Date Collected:	95-10 14-16 03/07/96	95-11 20-22 03/06/96	95-23 0-2 03/07/96	95-23 12-14 03/07/96	213S 0-0.5 09/17/97	RF-2 0-2 Oct. 1991	95-15 6-8 02/22/96	95-16 18-20 02/20/96	212S 0-0.5 09/17/97	95-17 10-12 02/22/96	95-17 16-18 02/22/96
	20s Complex					30s Complex				40s Complex	
1,4-Dichlorobenzene	0.052 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	0.10 J	ND	ND	0.44 J	ND	ND	ND	ND
1-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	0.091 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	0.078 J	ND	ND	0.42	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetophenone	ND	ND	ND	ND	ND	ND	0.53 J	ND	ND	ND	ND
Aniline	ND	ND	ND	ND	ND	ND	2.1 J	ND	0.091 J	ND	ND
Anthracene	ND	ND	0.16 J	ND	ND	0.27 J	ND	ND	0.11 J	ND	ND
Benzo(a)anthracene	ND	ND	0.33 J	ND	0.21 J	3.7	ND	ND	0.62 J	ND	ND
Benzo(a)pyrene	ND	ND	0.30 J	ND	0.21 JB	4.0	ND	ND	0.66 JB	ND	ND
Benzo(b)fluoranthene	ND	ND	0.57 XJ	ND	0.25 J	4.5	ND	ND	0.84 J	ND	ND
Benzo(g,h,i)perylene	ND	ND	0.16 J	ND	0.12 J	1.9	ND	ND	0.40 J	ND	ND
Benzo(k)fluoranthene	ND	ND	0.49 XJ	ND	0.12 JB	2.4	ND	ND	0.40 JB	ND	ND
Benzoic acid	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-ethylhexyl)phthalate	0.10 J	0.050 J	ND	ND	0.13 J	0.11 J	0.98 J	0.14 J	0.20 J	0.13 J	0.094 J
Butylbenzylphthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	0.32 J	ND	0.23 JB	3.6	ND	ND	0.61 JB	ND	ND
Di-n-butylphthalate	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND
Dibenz(a,h)anthracene	ND	ND	ND	ND	ND	0.61	ND	ND	0.085 J	ND	ND
Dibenzofuran	ND	ND	0.048 J	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	0.84 J	ND	0.42 J	5.3	0.52 J	ND	1.2	ND	ND
Fluorene	ND	ND	0.069 J	ND	ND	0.049 J	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	0.16 J	ND	0.11 J	2.0	ND	ND	0.40 J	ND	ND
Naphthalene	0.16 J	ND	0.048 J	ND	ND	0.095 J	ND	ND	0.045 J	ND	ND
Phenanthrene	ND	ND	0.74 J	ND	0.17 J	1.1	ND	ND	0.47 J	ND	ND
Phenol	ND	ND	ND	ND	ND	ND	65	ND	ND	ND	ND
Pyrene	ND	ND	0.67 J	ND	0.38 J	4.9	0.40 J	ND	1.1	ND	ND

Notes:

1. Samples were analyzed for Appendix IX+3 semivolatile organic compounds; only those constituents detected in at least one sample are presented.
2. ND - Compound was not detected.
3. J - Indicates an estimated value less than the CLP-required quantitation limit.
4. B - Indicates the compound was also detected in the associated method blank.
5. X - Indicates a qualifier used by the laboratory to indicate two isomers which cannot be separated on the GC column.
The quantitated value is reported for each isomer at an estimated concentration.

**TABLE 5
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS**

PRE-DESIGN INVESTIGATION WORK PLAN FOR THE 20s, 30s, AND 40s COMPLEXES

**SUMMARY OF SOIL POLYCHLORINATED DIBENZOFURANS AND POLYCHLORINATED DIBENZO-P-DIOXINS DATA
(Results are presented in dry-weight parts per million, ppm)**

Sample ID: Sample Depth (feet): Date Collected:	95-10 14-16 03/07/96	95-11 20-22 03/06/96	95-23 0-2 03/07/96	95-23 12-14 03/07/96	213S 0-0.5 09/17/97	95-15 6-8 02/22/96	95-16 18-20 02/20/96	212S 0-0.5 09/17/97	95-17 10-12 02/22/96	95-17 16-18 02/22/96
Furans	20s Complex					30s Complex			40s Complex	
2,3,7,8-TCDF	ND	ND	ND	ND	0.000046	0.000064	ND	0.000089 g	ND	ND
TCDFs (total)	ND	ND	ND	ND	0.000030	0.000078	ND	0.000093	ND	ND
1,2,3,7,8-PeCDF	ND	ND	ND	ND	ND(0.000032)	ND	ND	0.000036	ND	ND
2,3,4,7,8-PeCDF	ND	ND	ND	ND	ND(0.000032)	ND	ND	0.000042	ND	ND
PeCDFs (total)	ND	ND	ND	ND	0.000047	0.000041	ND	0.000084	ND	ND
1,2,3,4,7,8-HxCDF	ND	0.00032	ND	ND	ND(0.000029)	ND	ND	0.000051	ND	ND
1,2,3,6,7,8-HxCDF	ND	ND	ND	ND	ND(0.000027)	ND	ND	0.000037	ND	ND
2,3,4,6,7,8-HxCDF	ND	ND	ND	ND	ND(0.000030)	ND	ND	0.000036	ND	ND
1,2,3,7,8,9-HxCDF	ND	ND	ND	ND	ND(0.000034)	ND	ND	ND(0.000010)	ND	ND
HxCDFs (total)	ND	0.00044	ND	ND	0.000062	0.000027	ND	0.000093	ND	ND
1,2,3,4,6,7,8-HpCDF	ND	0.00037	ND	ND	0.000015	0.000011 J**	ND	0.000012	ND	ND
1,2,3,4,7,8,9-HpCDF	ND	0.00019	ND	ND	ND(0.000024)	ND	ND	0.000014	ND	ND
HpCDFs (total)	ND	0.001	ND	ND	0.000030	0.000035	ND	0.000028	ND	ND
OCDF	ND	0.0015	ND	ND	0.000014	0.000018	ND	0.000014	ND	ND
Total Furans	ND	0.0029	ND	ND	0.00018	0.00020	ND	0.0031	ND	ND
Dioxins										
2,3,7,8-TCDD	ND	ND	ND	ND	ND(0.0000052)	ND	ND	0.0000086 J**	ND	ND
TCDDs (total)	ND	ND	ND	ND	ND(0.0000052)	0.0000083	ND	0.000019	ND	ND
1,2,3,7,8-PeCDD	ND	ND	ND	ND	ND(0.0000011)	ND	ND	ND(0.0000021)	ND	ND
PeCDDs (total)	ND	ND	ND	ND	ND(0.0000011)	ND	ND	ND(0.0000093) v	ND	ND
1,2,3,4,7,8-HxCDD	ND	ND	ND	ND	ND(0.0000016)	ND	ND	ND(0.0000020)	ND	ND
1,2,3,6,7,8-HxCDD	ND	ND	ND	ND	ND(0.0000014)	ND	ND	0.0000049 J**	ND	ND
1,2,3,7,8,9-HxCDD	ND	ND	ND	ND	ND(0.0000014)	ND	ND	0.0000041 J**	ND	ND
HxCDDs (total)	ND	ND	ND	ND	0.0000050	ND	ND	0.000040	ND	ND
1,2,3,4,6,7,8-HpCDD	ND	ND	ND	ND	0.000027	0.000019	ND	0.000067	ND	ND
HpCDDs (total)	ND	ND	ND	ND	0.000053	0.000034	ND	0.00012	ND	ND
OCDD	ND	0.00032	ND	ND	0.00022	0.00025	ND	0.00044	ND	ND
Total Dioxins	ND	0.00032	ND	ND	0.00028	0.00026	ND	0.00062	ND	ND
WHO TEQ	ND	0.000038	ND	ND	0.000011	0.0000012	ND	0.000048	ND	ND

Notes:

1. Samples were analyzed for 2,3,7,8-substituted polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs).
2. ND (0.0000026) - Compound was not detected. The value in parentheses is the associated quantitation limit, when provided in prior documents.
3. J** - Indicates an estimated value lower than the calibration limit, but above the target detection limit.
4. g - 2,3,7,8-TCDF results have been confirmed on a DB-225 column.
5. v - Elevated detection limit due to chemical interference.
6. TEQ values were calculated using Toxic Equivalence Factors (TEFs) derived by the World Health Organization in "Toxic Equivalence Factors (TEFs) for PCBs, PCDDs, PCDFs for Humans and Wildlife", and published by Van den Berg, et. al., in Environmental Health Perspectives 106(2), December 1998.

**TABLE 6
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS**

PRE-DESIGN INVESTIGATION WORK PLAN FOR THE 20s, 30s, AND 40s COMPLEXES

SUMMARY OF SOIL INORGANICS DATA
(Results are presented in dry-weightparts per million, ppm)

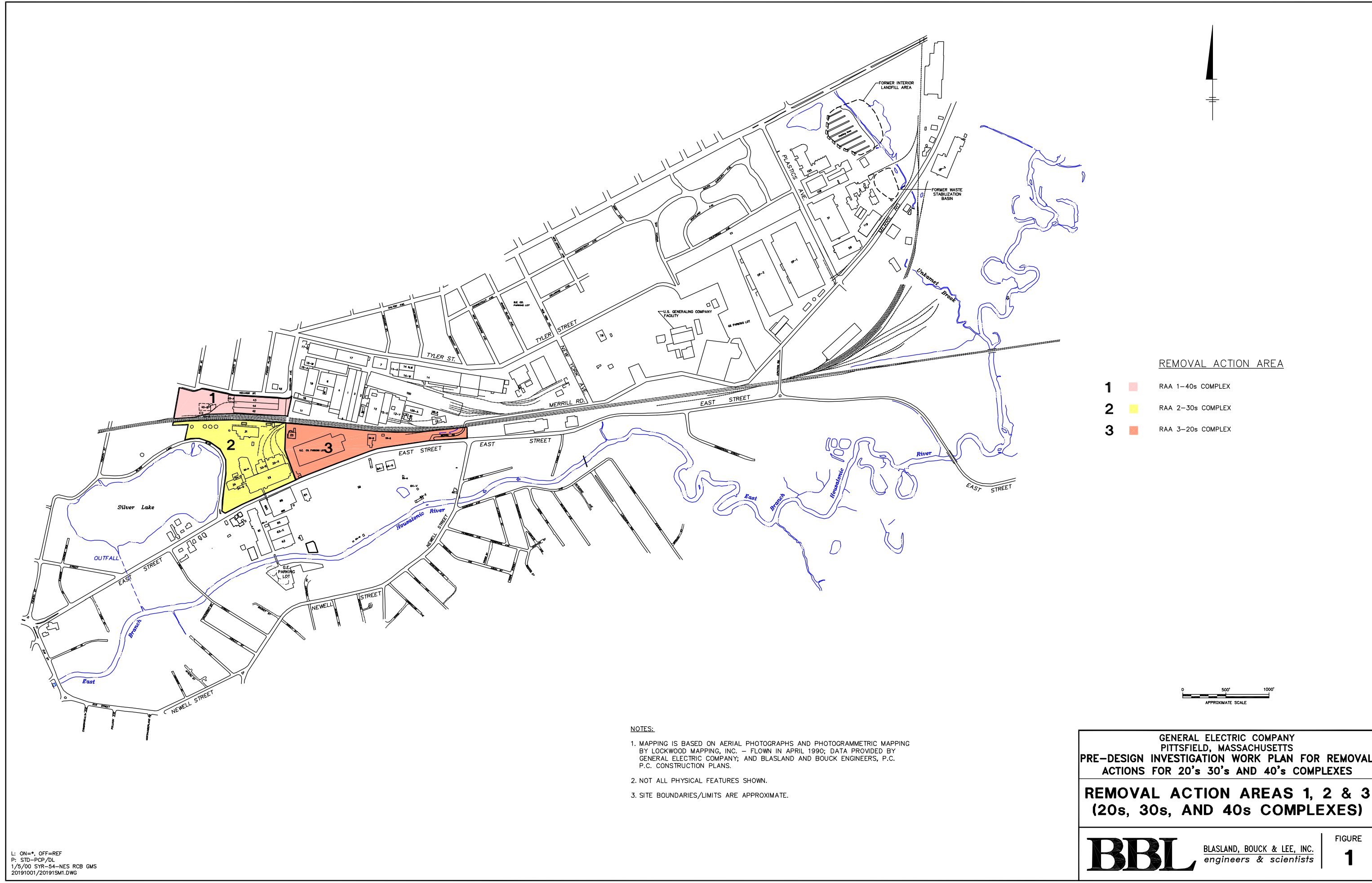
Sample ID:	95-10	95-11	95-23	95-23	213S	95-15	95-16	212S	95-17	95-17
Sample Depth (feet):	14-16	20-22	0-2	12-14	0-0.5	6-8	18-20	0-0.5	10-12	16-18
Date Collected:	03/07/96	03/06/96	03/07/96	03/07/96	09/17/97	02/22/96	02/20/96	09/17/97	02/22/96	02/22/96
	20s Complex					30s Complex			40s Complex	
Antimony	ND	ND	0.26 J*	ND	ND	ND	0.230 J*	1.80 J*N	0.290 J*	0.280 J*
Arsenic	5.90	4.10	6.20	9.90	6.90	10.6 J*	4.60 J*	11.0	4.70 J*	4.90 J*
Barium	17.9 J*	19.1 J*	50.8	20.6 J*	57.3	255 J*	22.5 J*	133	17.5 J*	16.1 J*
Beryllium	ND	0.04 J*	0.21 J*	0.09 J*	0.510 J*	0.340 J*	0.160 J*	0.420 J*	0.110 J*	0.110 J*
Cadmium	ND	ND	0.04 J*	0.17 J*	1.00 J*	ND	ND	0.690 J*	ND	ND
Chromium	10.6	6.90	11.5	10.4	11.9	9.60 J*	6.20 J*	14.4	7.00 J*	7.80 J*
Cobalt	11	7.40	9.60	15.4	ND	2.10 J*	6.50 J*	ND	7.00 J*	8.30 J*
Copper	35.3	20.6	55.1	950	21.4 E	30.5	13.1	62.2 E	25.5	26.6
Lead	22.0	8.70	40.6	10.8	44.2 L	33.5	5.60	132 L	8.90	9.70
Mercury	ND	ND	ND	ND	0.0700 J*	0.320	ND	0.600	ND	ND
Nickel	16.2	12.9	15.9	72.7	19.4	15.0 J*	11.2 J*	23.2	12.0 J*	14.4 J*
Selenium	0.610	0.320 J*	0.490 J*	0.400 J*	2.50	0.460 J*	ND	1.80	0.750 J*	0.670 J*
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tin	0.540 J*	ND	2.10 J*	0.820 J*	ND	2.80 J*	ND	3.60 J*	ND	ND
Vanadium	4.40 J*	4.30 J*	9.50	7.70	15.6	8.20 J*	4.10 J*	25.2	3.50 J*	4.50 J*
Zinc	42.8	35.5	85.5	347	105	85.2 J*	43.4 J*	214	83.3 J*	63.2 J*

Notes:

1. Samples were analyzed for Appendix IX+3 inorganic analytes.
2. ND - Compound was not detected.
3. J* - Indicates the reported value is less than the CLP-required detection limit (CRDL), but greater than the instrument detection limit (IDL).
4. E - Serial dilution result was not within 10 percent of the original sample.
5. L - Laboratory duplicate results outside control limits.

Figures

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REMOVAL ACTION AREA

- 1 RAA 1-40s COMPLEX
- 2 RAA 2-30s COMPLEX
- 3 RAA 3-20s COMPLEX

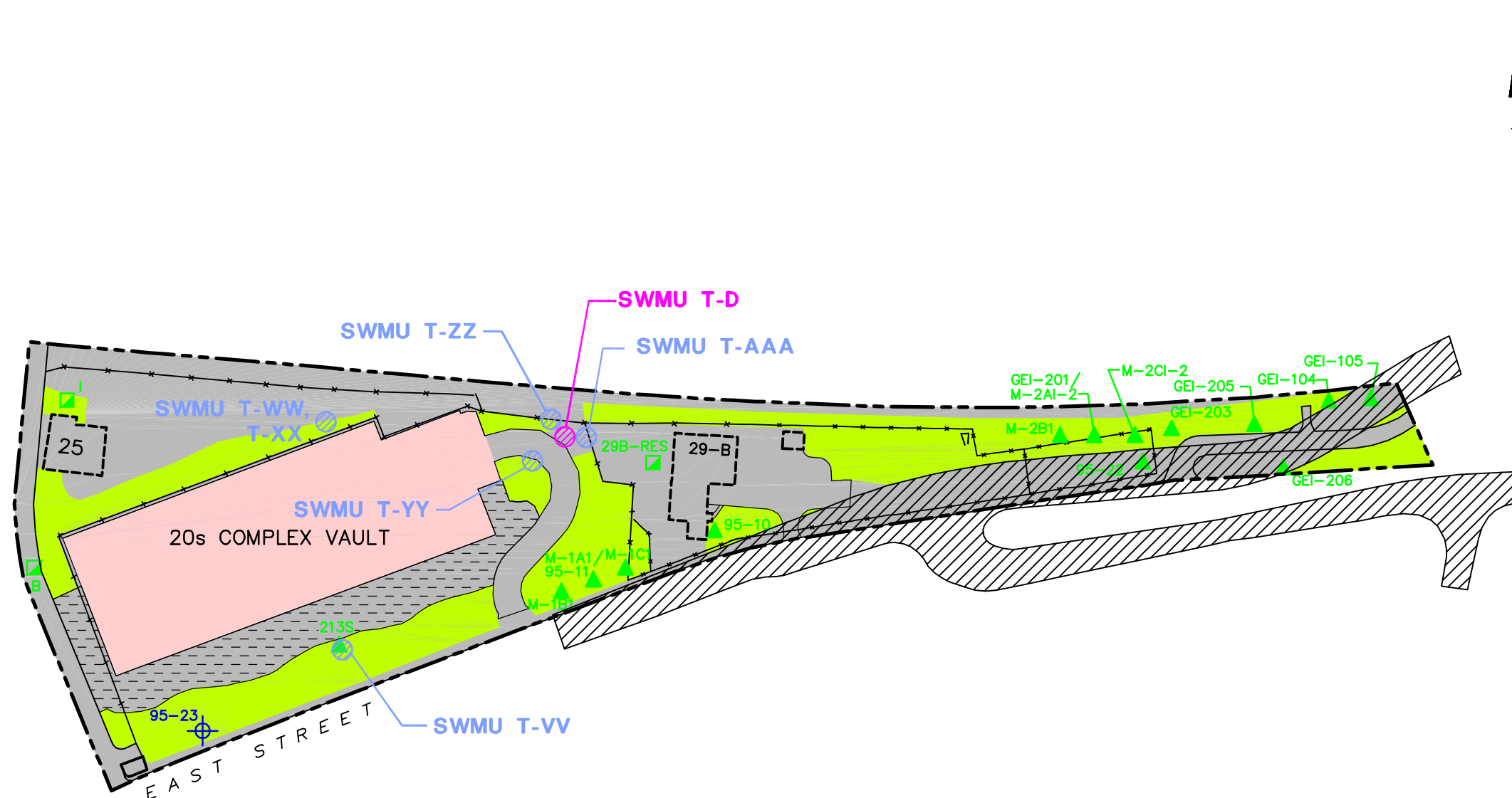
NOTES:

1. MAPPING IS BASED ON AERIAL PHOTOGRAPHS AND PHOTOGRAMMETRIC MAPPING BY LOCKWOOD MAPPING, INC. - FLOWN IN APRIL 1990; DATA PROVIDED BY GENERAL ELECTRIC COMPANY; AND BLASLAND AND BOUCK ENGINEERS, P.C. CONSTRUCTION PLANS.
2. NOT ALL PHYSICAL FEATURES SHOWN.
3. SITE BOUNDARIES/LIMITS ARE APPROXIMATE.

GENERAL ELECTRIC COMPANY
 PITTSFIELD, MASSACHUSETTS
 PRE-DESIGN INVESTIGATION WORK PLAN FOR REMOVAL
 ACTIONS FOR 20's 30's AND 40's COMPLEXES

**REMOVAL ACTION AREAS 1, 2 & 3
 (20s, 30s, AND 40s COMPLEXES)**

L: ON=*, OFF=REF
 P: STD-PCP/DL
 1/5/00 SYR-54-NES RCB GMS
 20191001/20191SM1.DWG



LEGEND:

- FENCE LINE
- - - - - APPROXIMATE LIMITS OF 20'S COMPLEX
- UNPAVED (GRASS/DIRT/GRAVEL)
- PAVED (ASPHALT/CONCRETE)
- RIP-RAP
- FUTURE MERRILL ROAD ALIGNMENT/ EAST STREET ALIGNMENT (APPROXIMATE)
- Vault area containing demolition debris and former equipment resulting from building demolition performed in late 1980's.
- APPROXIMATE SWMU LOCATION
- APPROXIMATE UST SWMU LOCATION
- EXISTING SOIL BORING
- EXISTING MONITORING WELL
- EXISTING MISCELLANEOUS SOIL SAMPLING LOCATION
- BUILDING TO BE DEMOLISHED

- NOTES:**
1. MAPPING IS BASED ON AERIAL PHOTOGRAPHS AND PHOTOGRAMMETRIC MAPPING BY LOCKWOOD MAPPING, INC. - FLOWN IN APRIL 1990; DATA PROVIDED BY GENERAL ELECTRIC COMPANY, AND BLASLAND AND BOUCK ENGINEERS, P.C. CONSTRUCTION PLANS.
 2. NOT ALL PHYSICAL FEATURES SHOWN.
 3. SITE BOUNDARY IS APPROXIMATE.
 4. ALL SAMPLING LOCATIONS ARE APPROXIMATE.
 5. EXTENT OF VARIOUS SURFACE COVERS IS APPROXIMATE.
 6. LIMITS OF FUTURE MERRILL ROAD/EAST STREET ALIGNMENT ARE BASED ON BASE MAPPING PREPARED BY J.H. MAXYMILIAN, INC. ("JHM FURTHER DELINEATION SAMPLING" DATED 6/15/99).



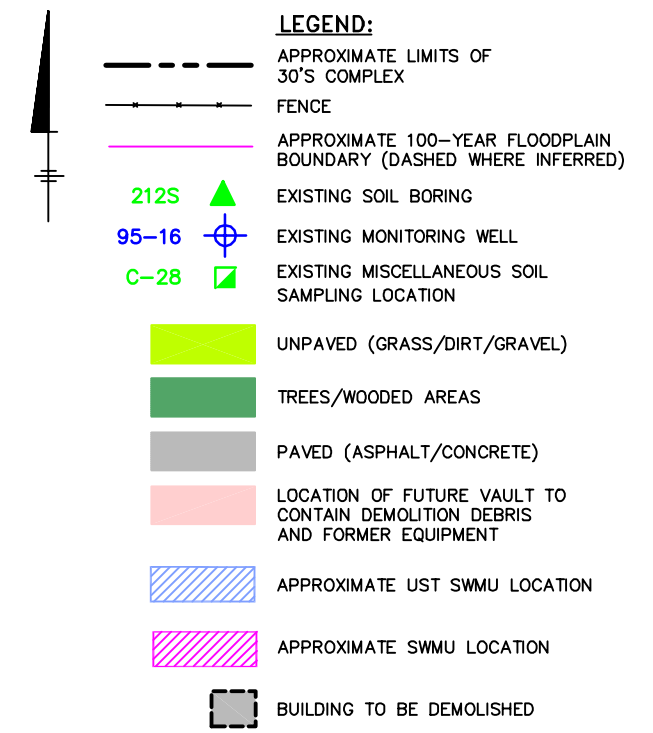
GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
PRE-DESIGN INVESTIGATION WORK PLAN FOR REMOVAL
ACTIONS FOR 20's 30's AND 40's COMPLEXES

20s COMPLEX

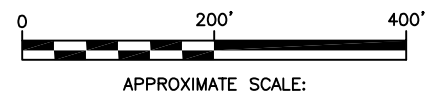
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FIGURE
2

L: ON=*, OFF=*REF*
P: DJB,PCP
5/5/00 SYR-54-RCA GMS JER
20191001/20191815.DWG



- NOTES:**
- MAPPING IS BASED ON AERIAL PHOTOGRAPHS AND PHOTOGRAMMETRIC MAPPING BY LOCKWOOD MAPPING, INC. - FLOWN IN APRIL 1990; DATA PROVIDED BY GENERAL ELECTRIC COMPANY, AND BLASLAND AND BOUCK ENGINEERS, P.C. CONSTRUCTION PLANS.
 - NOT ALL PHYSICAL FEATURES SHOWN.
 - SITE BOUNDARY IS APPROXIMATE.
 - ALL SAMPLING LOCATIONS ARE APPROXIMATE.
 - EXTENT OF VARIOUS SURFACE COVERS IS APPROXIMATE.
 - 100-YEAR FLOODPLAIN BOUNDARY IS BASED ON ELEVATIONS PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY: "FLOOD INSURANCE STUDY" - CITY OF PITTSFIELD, MASSACHUSETTS" JANUARY 16, 1987; AND "FLOOD INSURANCE RATE MAP - CITY OF PITTSFIELD, MASSACHUSETTS" (PANELS 250037 0010C AND 25037 0020C), FEBRUARY 19, 1982, AND TWO-FOOT CONTOUR TOPOGRAPHIC MAPPING GENERATED PHOTOGRAMMETRICALLY IN 1990 AT A BASE SCALE OF 1:2,400.



GENERAL ELECTRIC COMPANY
 PITTSFIELD, MASSACHUSETTS
 PRE-DESIGN INVESTIGATION WORK PLAN FOR REMOVAL
 ACTIONS FOR 20's 30's AND 40's COMPLEXES

30s COMPLEX

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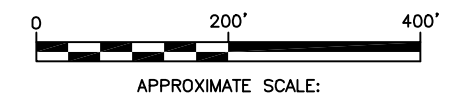
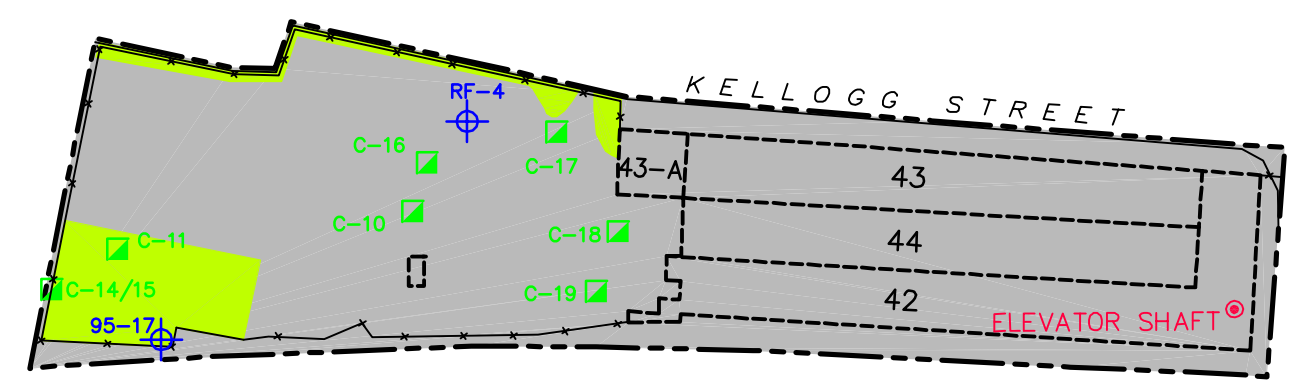
FIGURE **3**

X: NONE
 L: ON=*, OFF=REF
 P: DUB.PCP
 5/10/00 SYR-54-RCA KMD JER
 20191001/20191B19.DWG

LEGEND:

- FENCE LINE
- - - - - APPROXIMATE LIMITS OF 40'S COMPLEX
- UNPAVED (GRASS/DIRT/GRAVEL)
- PAVED (ASPHALT/CONCRETE)
- RF-4 EXISTING MONITORING WELL
- C-11 EXISTING MISCELLANEOUS SOIL SAMPLING LOCATION
- BUILDING TO BE DEMOLISHED

- NOTES:**
1. MAPPING IS BASED ON AERIAL PHOTOGRAPHS AND PHOTOGRAMMETRIC MAPPING BY LOCKWOOD MAPPING, INC. - FLOWN IN APRIL 1990; DATA PROVIDED BY GENERAL ELECTRIC COMPANY, AND BLASLAND AND BOUCK ENGINEERS, P.C. CONSTRUCTION PLANS.
 2. NOT ALL PHYSICAL FEATURES SHOWN.
 3. SITE BOUNDARY IS APPROXIMATE.
 4. ALL SAMPLING LOCATIONS ARE APPROXIMATE.
 5. EXTENT OF VARIOUS SURFACE COVERS IS APPROXIMATE.



GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
PRE-DESIGN INVESTIGATION WORK PLAN FOR REMOVAL
ACTIONS FOR 20's 30's AND 40's COMPLEXES

40s COMPLEX

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FIGURE 4

L: ON=*, OFF=REF
P: STD-PCP/BL OR DJB.PCP
6/8/00 SYR-54-RCA KMD RCB
20191001/20191B13.DWG

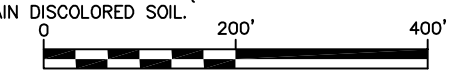


SAMPLE I.D.	SAMPLE DEPTH (Feet)		
	0-1	1-6	6-15
RAA2-1	A	P	P
RAA2-2	P	A	P
RAA2-3	A	P	P
RAA2-4	P	P	A
RAA2-5	A	P	P
RAA2-6	P	A	P
RAA2-7	A	P	P
RAA2-8	P	P	A
RAA2-9	P	P	A
RAA2-10	P	P	A
RAA2-11	A	P	P
RAA2-12	P	A	P
RAA2-13	P	A	P
RAA2-14	A	P	P
RAA2-15	A	P	P
RAA2-16	A	P	P
RAA2-17	A	P	P
RAA2-18	P	A	P
RAA2-19	A	P	P
RAA2-20	A	P	P
RAA2-21	P	P	A
RAA2-22	P	P	A
RAA2-23	P	A	P
RAA2-24	A	P	P
RAA2-25	P	A	P
RAA2-26	A	P	P
RAA2-27	A	P	P
RAA2-28	P	P	A
RAA2-29	A	P	P
RAA2-30	A	P	P
RAA2-31	P	A	P
RAA2-32	P	A	P
RAA2-33	P	P	A
RAA2-34	A	P	P
RAA2-35	P	P	A
RAA2-36	P	A	P
RAA2-37	P	P	A
RAA2-38	P	A	P
RAA2-39	P	P	A
RAA2-40	P	A	P
RAA2-41	P	A	P
RAA2-42	P	A	P
RAA2-43	P	-	Ae
RF-2	A	P*	P*
RF-3	-	P*	P*
RF-16	P	P*Ae	P*
95-15	P	P*	Ae*P
95-16	A	P*	P*
212S	A*	P	P
SB-1, -2, -3	A	P*	P*

LEGEND:

- APPROXIMATE LIMITS OF 30'S COMPLEX
- FENCE
- - - APPROXIMATE 100-YEAR FLOODPLAIN BOUNDARY (DASHED WHERE INFERRED)
- 95-16 [Symbol] EXISTING MONITORING WELL
- 212S [Symbol] EXISTING SOIL BORING
- [Green Box] UNPAVED (GRASS/DIRT/GRAVEL)
- [Dark Green Box] TREES/WOODED AREAS
- [Grey Box] PAVED (ASPHALT/CONCRETE)
- [Pink Box] LOCATION OF FUTURE VAULT TO CONTAIN DEMOLITION DEBRIS AND FORMER EQUIPMENT
- [Pink Hatched Box] APPROXIMATE SWMU LOCATION
- [Blue Hatched Box] APPROXIMATE UST SWMU LOCATION
- [Grey Box] BUILDING TO BE DEMOLISHED
- RAA3-1 [Symbol] PROPOSED SOIL SAMPLING LOCATION (PAVED AREAS)
- RAA3-4 [Symbol] PROPOSED SOIL SAMPLING LOCATION (UNPAVED AREAS)
- [Grid Box] 100 FOOT GRID

- NOTES:**
- MAPPING IS BASED ON AERIAL PHOTOGRAPHS AND PHOTOGRAMMETRIC MAPPING BY LOCKWOOD MAPPING, INC. - FLOWN IN APRIL 1990; DATA PROVIDED BY GENERAL ELECTRIC COMPANY, AND BLASLAND AND BOUCK ENGINEERS, P.C. CONSTRUCTION PLANS.
 - NOT ALL PHYSICAL FEATURES SHOWN.
 - SITE BOUNDARY IS APPROXIMATE.
 - ALL SAMPLING LOCATIONS ARE APPROXIMATE.
 - EXTENT OF VARIOUS SURFACE COVERS IS APPROXIMATE.
 - 100-YEAR FLOODPLAIN BOUNDARY IS BASED ON ELEVATIONS PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY: "FLOOD INSURANCE STUDY" - CITY OF PITTSFIELD, MASSACHUSETTS" JANUARY 16, 1987; AND "FLOOD INSURANCE RATE MAP - CITY OF PITTSFIELD, MASSACHUSETTS" (PANELS 250037 0010C AND 25037 0020C), FEBRUARY 19, 1982, AND TWO-FOOT CONTOUR TOPOGRAPHIC MAPPING GENERATED PHOTOGRAMMETRICALLY IN 1990 AT A BASE SCALE OF 1:2,400.
 - ALL PROPOSED SAMPLING LOCATION IDENTIFICATION NUMBERS WILL BE DESIGNATED BY A PREFIX WHICH REFERS TO REMOVAL ACTION AREA 2 - 30s COMPLEX. THIS PREFIX ("RAA2-") IS NOT ILLUSTRATED ON THE FIGURE FOR CLARITY PURPOSES.
 - PROPOSED BORING LOCATIONS RAA2-2 AND -3 HAVE BEEN REPOSITIONED SLIGHTLY SOUTH OF THE GRID NODES ASSOCIATED WITH THESE POINTS IN ORDER TO CHARACTERIZE AN AREA WHICH WAS RECENTLY OBSERVED (DURING DEMOLITION ACTIVITIES) TO CONTAIN DISCOLORED SOIL.



- NOTES:**
- P- Soil sample proposed for PCB analysis.
 - A- Soil sample proposed for PCB and Appendix IX+3 analysis.
 - Ae- Soil sample proposed for Appendix IV+3 analysis (excluding PCBs).
 - P*- Existing PCB analytical data to be utilized.
 - A*- Existing PCB and Appendix IX+3 analytical data to be utilized.
 - Ae*- Existing Appendix IX+3 (excluding PCBs) analytical data to be utilized.

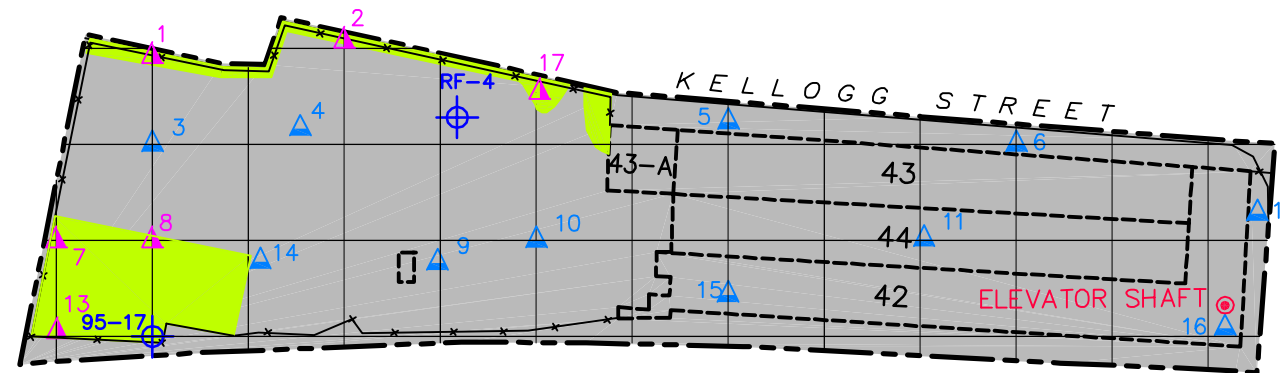
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 P: DUB,PCP
 6/28/00 SYR-54-RCA GMS RCB
 20191001/20191818.DWG

GENERAL ELECTRIC COMPANY
 PITTSFIELD, MASSACHUSETTS
 PRE-DESIGN INVESTIGATION WORK PLAN FOR REMOVAL
 ACTIONS FOR 20's 30's AND 40's COMPLEXES

**PROPOSED SOIL SAMPLE
 LOCATIONS - 30s COMPLEX**

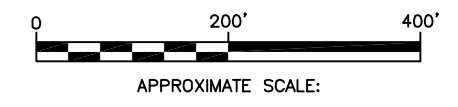
LEGEND:

- FENCE LINE
- - - - - APPROXIMATE LIMITS OF 40'S COMPLEX
- UNPAVED (GRASS/DIRT/GRAVEL)
- PAVED (ASPHALT/CONCRETE)
- RF-4 EXISTING MONITORING WELL
- BUILDING TO BE DEMOLISHED
- RAA3-1 PROPOSED SOIL SAMPLING LOCATION (PAVED AREAS)
- RAA3-4 PROPOSED SOIL SAMPLING LOCATION (UNPAVED AREAS)
- 100 FOOT GRID



- NOTES:**
- MAPPING IS BASED ON AERIAL PHOTOGRAPHS AND PHOTOGRAMMETRIC MAPPING BY LOCKWOOD MAPPING, INC. - FLOWN IN APRIL 1990; DATA PROVIDED BY GENERAL ELECTRIC COMPANY, AND BLASLAND AND BOUCK ENGINEERS, P.C. CONSTRUCTION PLANS.
 - NOT ALL PHYSICAL FEATURES SHOWN.
 - SITE BOUNDARY IS APPROXIMATE.
 - ALL SAMPLING LOCATIONS ARE APPROXIMATE.
 - EXTENT OF VARIOUS SURFACE COVERS IS APPROXIMATE.
 - ALL PROPOSED SAMPLING LOCATION IDENTIFICATION NUMBERS WILL BE DESIGNATED BY A PREFIX WHICH REFERS TO REMOVAL ACTION AREA 1 - 40s COMPLEX. THIS PREFIX ("RAA1-") IS NOT ILLUSTRATED ON THE FIGURE FOR CLARITY PURPOSES.

SAMPLE I.D.	SAMPLE DEPTH (Feet)		
	0-1	1-6	6-15
RAA1-1	A	P	P
RAA1-2	P	P	A
RAA1-3	A	P	P
RAA1-4	A	P	P
RAA1-5	A	P	P
RAA1-6	P	P	A
RAA1-7	A	P	P
RAA1-8	P	A	P
RAA1-9	P	A	P
RAA1-10	A	P	P
RAA1-11	P	P	A
RAA1-12	A	P	P
RAA1-13	A	P	P
RAA1-14	P	A	P
RAA1-15	P	A	P
RAA1-16	A	P	P
RAA1-17	P	A	P
RF-4	P	P*	P*Ae
95-17	P	P*	A*



- NOTES:**
- P- Soil sample proposed for PCB analysis.
 - A- Soil sample proposed for PCB and Appendix IX+3 analysis.
 - Ae- Soil sample proposed for Appendix IV+3 analysis (excluding PCBs).
 - P*- Existing PCB analytical data to be utilized.
 - A*- Existing PCB and Appendix IX+3 analytical data to be utilized.

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
PRE-DESIGN INVESTIGATION WORK PLAN FOR REMOVAL
ACTIONS FOR 20's 30's AND 40's COMPLEXES

**PROPOSED SOIL SAMPLE
LOCATIONS - 40s COMPLEX**

BBL BLASLAND, BOUCK & LEE, INC.
engineers & scientists

FIGURE 7