Name and Location of Site

Environmental Gap Analysis

Prepared for (Name of Entity)

Technical Assistance for Brownfields Program - EPA Region 1

Date, 2023

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***This template is only a suggested guide. Feel free to modify the format and to add sections or subsections, tables, figures, glossaries, reference lists, and appendices that will best accomplish your objectives and provide the greatest value to your municipal client.***

## SECTION 1 INTRODUCTION & OBJECTIVES

1. *Identify the municipal entity that requested this Gap Analysis*
2. *Identify the subject property/properties*
3. *Identify the Objectives of the Gap Analysis: this should have been provided by the municipality. Such purposes may include preparing to apply for a brownfield assessment or cleanup grant, collecting information to be used to help the municipality decide whether to acquire the property, preparing to solicit proposals from prospective buyers/developers, etc.*
4. *Describe the procedures and limitations of the Data Gap Analysis: This should clearly state what information sources were used. It should also include a disclaimer:*

***This report was prepared as a tool to help [name the municipal entity] to organize existing environmental information regarding the site, to identify important data gaps, and to plan the next steps in the assessment of site environmental conditions. This report does not fulfill any state or federal rules or regulations. Should any party undertake investigations suggested herein, a qualified environmental professional should be retained to plan and execute such investigations.***

# SECTION 2 SITE INFORMATION

*If there are previous environmental assessment reports, most will contain a good description of the site that you can adapt for your purposes. Note that a report more than a few months old may contain outdated information. Businesses on the site may have changed, buildings may have been demolished or built, cleanup may have occurred, etc. Cite references for all information.*

## 2.1. Property Description & Existing Conditions

* *Identify the Site by address(es) and municipal tax identifications (tax assessor’s parcel I.D. or Map/Block/Lot number(s), and latitude and longitude. Include a property boundary map, ideally from a GIS system, showing parcel boundaries, parcel identifications, and background layers that help to show the site’s physical layout. Aerial/satellite images are often useful backgrounds.*
* *Describe the development on the property – the number, types, sizes, ages of all buildings and structures, site utilties, access to roads/railroads/navigable waters*
* *List ownership, past and present, with dates of occupancy*
* *Describe the site’s applicable zoning*
* *Provide a brief summary of the operational history of the property. (Details regarding operational history should be presented in the Section on Historical Records Review – Section 3.1 in this suggested format)*

## 2.2. Environmental Setting

* *Describe the site’s physical setting – topography, geology, hydrology, wetlands, floodplains. Also describe the surrounding area – is it rural, suburban, or urban; residential, commercial, industrial, mixed.*

## 2.3. Materials Handling and Permitting History

* *List known or likely materials managed currently and in the past, and describe the use, storage, handling and disposal of hazardous substances, hazardous and non-hazardous wastes, petroleum, etc.*
* *Describe any environmental permit history, and the history of any violations of environmental rules, regulations, or permit conditions*
* *Other pertinent information*

Insert a site location map, preferably based on USGS topographic mapping or orthographic images. If the site is large enough, show and label its boundaries. Be sure to include enough of the surrounding area to allow the reader to know the precise location

*Figure 1: Site location map*

Insert a site plan (or more than one site plan). This can be adapted from existing site plans available from previous reports, if such plans are of good quality, or drawn using a base map or aerial/satellite imagery. Label property boundaries and major features such as buildings and other features that are referenced in your report.

*Figure 2: Site location map*

# SECTION 3 SUMMARY OF PREVIOUS INVESTIGATIONS/REMEDIATION ACTIVITIES

*This is easily accomplished and most useful in a table format, see suggested format below. List documents in chronological order. Each row should be for one document. If your Gap Analysis involves more than one property, keep the information separate and use more than one table to present this information.*

| ***Document Title/Description and Date*** | ***Summary of Procedures and Main Findings, Conclusions and Recommendations*** |
| --- | --- |
| *Include Complete Title and Date, Identify “Prepared For…” and “Prepared By”*  *Note the purpose of the document. For example, was it prepared as part of a regulatory submittal or approval? Note the specific agency(ies) involved and any regulatory outcome, such as approvals issued.*  *Also identify how this report was obtained (i.e., was it provided to TAB by the municipality, or , and whether it was a complete document, or if it was missing any sections/appendices* | *If the document is from a regulatory agency (such as EPA or Dept of Environmental Protection, be sure to note whether the agency has ordered additional work. If a document is available from an online repository, include a web link.*  *Prepare a brief “executive summary.” If the Report already has an Executive Summary section, then this section should be easy to prepare. If not, then write short descriptions and use bulleted or numbered lists as much as possible.*  *Your executive summary of the previous report should describe “areas of concern” (AOCs) or “recognized environmental conditions” (RECs) or release areas that the authors identified, and should describe the procedures, findings, and conclusions of investigations of the AOCs/RECs/release areas. Don’t be redundant: if any such AOC/REC/release area is addressed more fully in later reports, you do not need extensive detail; instead, just briefly mention the work that was done under this particular report and refer the reader to your summary of the later report(s).Pay particular attention to the conclusions and recommendations of previous reports, as these will be useful in determining data gaps.* |

# SECTION 4 DATA GAPS AND SUGGESTED NEXT STEPS

*You may wish to write this section as a narrative, breaking it into two subsections. However, you may find it more useful to address the data gaps and suggest next steps within a single matrix that describes the significant data gaps on the left and then suggested next steps on the right. We provide a suggested template with some examples of possible data gaps in Section 4.3.*

## 4.1 Data Gaps

*Brownfield investigations involve the scientific method of inquiry – an iterative approach by which a site is fully characterized by developing and refining a detailed “conceptual site model”. The completed, validated conceptual site model describes, explains, and provides an understanding of the nature and distribution of contaminants necessary to evaluate potential risks to human health and the environment. A validated conceptual site model tells a complete story so that the information can be used to effectively and efficiently plan for the next phases of investigation, cleanup, or redevelopment of a brownfield site.*

*A Data Gap is defined as a significant missing piece of the complete story, and this missing piece of information may occur at any stage of the investigation. For example, if a Phase I ESA was unable to determine the historical activities conducted or chemical substances used by a former occupant of the site, then this would be a significant data gap. If the report of a previous Phase II investigation recommended additional testing in a particular area, but later reports did not address this recommendation, then this would also define a significant data gap. Another example: if a regulatory agency issues a notice of violation or order requiring the owner/operator of a property to take a specific action to abate pollution, but there is no evidence that such action was completed, this is a significant data gap. You should describe the data gap completely so that any reader can fully understand why the data gap exists, and its significance to understanding site conditions.*

*Note that numerous state and federal regulations may require cleanup or your site, but understanding these is beyond the scope of your Data Gap analysis. Nonetheless, if previous reports indicate that the site is subject to environmental cleanup requirements pursuant to a state or federal regulation, you should summarize these requirements.*

## 4.2 Suggested Next Steps

*This is your chance to provide real value to your municipal client. Suggested next steps will be tasks that will fill the identified data gaps. Sometimes these data gaps are easy to identify because they have been described in previous reports, and often, the next steps to address such data gaps may have been included in the conclusions and recommendations of previous reports. But be careful here, because some previous reports may not have been intended to provide recommendations.*

*Addressing some data gaps may require that you suggest more targeted investigations, and suggested next steps may depend, at least in part, on the municipality’s plans for reuse or redevelopment. For example, if the plan is to remediate and redevelop a site’s former industrial building for residential apartments, then suggested next steps may be different than if the plan would be to demolish the building to make way for a new park or parking lot.*

## 4.3 Alternative to Narrative Approach – Combining Data Gaps and Suggested Next Steps

*The table below is a suggested matrix format for identifying significant data gaps and suggested next steps. You should include as many rows as needed and provide as much detail as possible to guide future plans. For example, describe the data gap completely, and if a data gap is the lack of sufficient soil data to characterize a suspected contaminant release area, then your suggested next steps should describe the level of effort to address such a data gap. Recognize that testing soil around a sump in the floor of a building will require less effort than a search for suspected buried wastes across a 3-acre lot. Note that the example scenarios are offered only to give you a sense of the types of data gaps you may encounter and some possible next steps; a significant data gap is any lack of information that would prevent the cleanup and/or redevelopment or reuse of a property.*

| ***Examples of Significant Data Gaps*** | ***Suggested Next Steps to Address Data Gaps*** |
| --- | --- |
| *Lack of information about historical processes or chemicals used by a particular business or industry on the site.* | *Phase I Environmental Site Assessment, and/or supplemental investigations to better understand historical operations* |
| *Claims made in previous reports cannot be substantiated; for example, a previous report suggests a contaminant release has been remediated, but there is no documentation available to substantiate such cleanup has occurred, or the documentation is too vague or incomplete.* | *Perform supplemental record reviews, interviews with knowledgeable persons, or other research to attempt to confirm this information.*  *If such reviews cannot substantiate the claims made in another report, suggest additional environmental testing.* |
| *Previous reports indicate likely historical presence of USTs, but there is no information indicating the USTs were ever removed or that proper testing of soil and groundwater had been performed* | *Phase II Investigations to look for USTs and associated buried piping, such as geophysical surveys (like ground penetrating radar (GPR), electromagnetic induction (EMI), or other non-invasive surveys. Also recommend soil testing around any suspected UST systems identified using GPR, EMI, etc.* |
| *Environmental testing data are incomplete. For example, soil testing data has identified the presence of subsurface contamination by petroleum or hazardous substances, but the degree and extent of this contaminant release has not been determined for all potential environmental media. Another example: testing did not include all necessary laboratory parameters that are capable of detecting a particular release* | *Phase II Investigations, including soil borings, soil sampling, groundwater monitoring well installation, and laboratory analysis for all suspected pollutants.* |
| *Previous reports suggest that a portion of the site may have been used historically for the burial of wastes, such as a solid waste dumping area.* | *Detailed reviews of historical aerial photographs; interviews with additional persons who may add some important information; geophysical surveys, soil test pits, and/or soil borings to search for subsurface wastes.* |
| *Previous reports indicate the presence of floor drains or sumps in areas where chemicals may have been used and released, but there is no information regarding the possible locations of discharge points for these drains or sumps* | *Geophysical surveys to trace subsurface piping and identify discharge points. Soil and groundwater testing in areas likely to have been impacted by a release from such structures.* |
| *Lack of documentation of any surveys of hazardous building materials (e.g., asbestos, lead, PCBs) or mold* | *HBM surveys to support future renovation/reuse or demolition of the building(s)* |