**Minimum Requirements Checklist**

**Site Assessment Work Plans and Reports**

NCDEQ Brownfields Redevelopment Section– March 2023

Instructional Page

**All references to Prospective Developers include follow-on owners who may be conducting work in accordance with the Brownfields Property Management Branch**.

To increase predictability and most efficiently assess Brownfields Properties and the redevelopment timing requirements of Prospective Developers or follow-on owners, the Brownfields Redevelopment Section has standardized the format for Site Assessments. This format has been generated in the form of a checklist to allow for ease in submission by the prospective developer’s consultant and for the Brownfields Redevelopment Section’s completeness review. This checklist outlines the minimum requirements and submittal format under the Brownfields Redevelopment Section for Assessment Requirements and Reporting. All Assessment Work Plans and Report submissions to the Brownfields Redevelopment Section *must include this completed checklist* in the outlined format.

These requirements allow DEQ to reduce review time for the Assessment Work Plan and Report and increase process predictability for prospective developers. This checklist will also provide reliable data for risk-based decisions and further expedite the project timeline. Any divergence from these requirements will lengthen the process of assessing risks on the site, may necessitate reprioritization of a project manager’s queue towards projects that meet these requirements. Therefore, delaying production of the brownfields agreement and/or environmental management plan. Any alterations to the checklist on a site-specific basis must be reviewed *and approved* by the Section prior to implementation. However, in order to respect the schedule of all projects in house and keep the Section’s entire project pipeline moving, we strongly recommend against seeking changes to the checklist.

**Based on a review of environmental and risk data from our project inventory, please note there are some new points of emphasis that are included herein:**

1. For ALL residential reuses; sub-slab vapor assessment (full list EPA TO-15) is required, regardless if existing structures will be removed. If no structures or slabs exist on the Brownfields Property, exterior soil gas assessment is required within all proposed structure footprints.
2. ALL properties require groundwater data (VOCs, SVOCs and RCRA Metals) from a minimum of three sample locations, depth to groundwater and a resulting potentiometric map.
3. Soil shall be assessed based on areas of concern and redevelopment plans and across the depth interval of the cut/grading.

**Environmental Site Assessment**

**Work Plan Checklist**

**Reviewed and checked by (Name): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

# Title Page

The title page should include the following information. Letter style reports are acceptable, as long as this information is somewhere on the first page.

Title of Work Plan

Brownfields Project Name (not the development name)

Brownfields Project Number

Date (updated with each revision)

Revision Number

Firm PE/PG License Number

Individual PE/PG seal & signature

# Section 1 – Introduction

Provide the site location, address, and acreage.

Provide a BRIEF summary of the history of the property and its history in the Section. For example: reiterate RECs from a Phase I ESA, indicate if the scope of work was negotiated during a Data Gap Meeting, etc.

Briefly list and describe the data gaps the assessment is attempting to fill

Indicate if the assessment data is for the use of any other DEQ programs in addition to the Brownfields Redevelopment Section (i.e. the site is a regulated UST, IHSB, etc. property)

# Section 2 – Scope of Work

Provide a general description of proposed scope of work covered in this plan (i.e. 2 new monitoring wells, 6 groundwater samples, 5 exterior soil gas sampling points and 6 soil borings)

Discuss samples to be collected by media and source area/location. Generally, the reasoning for the sample locations selected.

Describe depths of samples to be collected (Reference Table 1) or how that decision will be made in the field, if needed.

State for what each sample will be analyzed (briefly). Reference Table 1.

Note: For all residential reuses, sub slab vapor is required, if no slabs exist, exterior soil gas is required within all proposed footprints.

# Section 3 – Sampling Methodology

Reference the guidance documents you intend to use. IHSB, EPA SESD, VI Guidance, Well Construction Rules (NCAC 2C). Note deviations or methodology planned that is not covered by such guidance (e.g., multi-increment sampling, passive air samplers, mobile labs, Hapsite, simultaneous indoor/outdoor radon, high-volume sub-slab vapor testing, PFAS sampling).

Describe what will be installed (soil boring, temporary well, permanent well, sub-slab vapor, exterior soil gas, etc.). Include construction details.

Discuss installation methodology (Hand Auger, DPT, etc.)

Discuss Equilibration Times

* Monitoring wells (equilibration time prior to development and equilibration post well development should be 24 hours, per EPA standard protocols).
* Vapor:

a. Sub slab vapor with minimally invasive points (e.g. Vapor Pins): Manufacturer’s guidelines generally suggest 20 minutes may be sufficient with an airtight cap installed; or

b. Sub slab vapor points (other than minimally invasive points) or exterior soil gas points: at least 24 hours (to be purged at installation and at time of sampling with an air-tight cap in place in the interim).

Discuss sample collection procedures. Include the following, at a minimum:

* Equipment to be used
* Purging methods and volumes
* Stabilization parameters for groundwater sampling
* Field screening methods
* Leak check procedures for sub-slab vapor and exterior soil gas samples (Note this is **required**)
* Discuss how and when vacuum readings will be collected (for summa cans)
* Submission of the samples to the laboratory within 48 hours of collection and/or written documentation of temperature maintenance if the situation requires extension beyond 48 hours prior to lab submittal

Discuss sample point abandonment

# Section 4 – Laboratory Analyses

Discuss the proposed analyses (include method number, preparation method, if there are concerns with short hold times, etc).

Discuss any proposed limitations on the contaminants of concern, if any, and the reason for such limitation (sufficient previous data, indoor air interferences, etc).

Discuss laboratory certifications. Please note, NC does not certify labs for air samples. Please specify what certification the proposed air lab holds.

Indicate that the Reporting Limits/Method Detection Limits will meet applicable screening criteria (to the extent feasible). Include reporting of J-Flags to meet criteria.

Indicate what Level QA/QC will be reported by the laboratory. Level II QA/QC is typically acceptable.

# Section 5 – QA/QC

Specify the duplicate sample frequency. Minimum requirement: 1 duplicate per 20 samples, per media, per method.

Discuss Trip Blank. 1 Trip Blank per cooler/shipment of groundwater VOC analyses is required.

Discuss how the lab will have sufficient sample volume for MS/MSD analyses.

Discuss chain of custody and shipping.

# Section 6 – Investigation Derived Waste (IDW) Management

Discuss what IDW will be generated and how it is proposed to be managed. Management recommendations should be in accordance with 15A NCAC 02T.1503 and 15A NCAC 02H. 0106. Generally, if the Brownfields Property has not previously been assessed, then all IDW must be containerized and characterized prior to management. Previous assessment data that indicate no Hazardous Waste (listed or characteristic) is likely to be encountered in the area of proposed assessment will be required before thin spreading of IDW on-site is permitted.

# Section 7 – Reporting

This section should discuss the components of the assessment report which will be prepared as a result of the above sample collection. At a minimum, the report shall include:

Title Page that is consistent with the requirements listed above.

Reporting/summary of site work conducted for all sections outlined above in this checklist;

Summary of findings and possible recommendations;

All applicable tables and figures (shall include at a minimum the items below)

Tables for tabulated analytical data per media sampled and analyzed, compared against applicable screening levels, sample depths and depth to groundwater;

Figure depicting actual sample locations collected, with each media depicted in the legend, graphic scale and north arrow; and

Groundwater potentiometric map, with graphic scale and north arrow.

Appendices shall include (as applicable):

Copies of field notes

Boring logs for all soil borings, newly constructed monitoring wells, and exterior soil gas locations

Well construction and abandonment records

# Work Plan Approval Signature Page (see Attachment 1). The Consultant shall complete and submit the Approval Signature Page with the work plan submittal for DEQ signature.

# Attachments

Attachment 1 – Work Plan Approval Signature Page

Table 1 – Proposed Sample Locations and Analyses on a Summary Table that includes:

Sample ID

Sample Objective

Proposed Depth(s)

Analytical Method(s)

QA/QC Samples

Background Samples

Figure 1 – Site Location Map

Site location on a topographic map base

Graphic scale and north arrow

Figure 2 – Site Map should include the following

Buildings

Historical sample locations

RECs or other areas of concern

Proposed sample locations

Sample identification labels

Background samples

QA/QC samples

Graphic scale and north arrow

High quality aerial suggested as the base map

Figure 3 – Site Potentiometric Map that includes the following

Buildings

Groundwater sample identification labels

Arrow noting direction of groundwater flow

Graphic scale and north arrow

Figure 4 – Site Plume Maps (groundwater, soil vapor, etc.)

Figure 5 – Proposed Development (if available)

Overlay of historical and proposed sample locations

Graphic scale and north arrow

Appendix – Summary of Historical Analytical Data (if needed) – to include tables and figures only.