

North Carolina Brownfields Program
Minimum Requirements for Townhome Developments

May 2020

The Brownfields Program recognizes that townhomes are becoming a more desirable redevelopment option in many cities and towns, to the point that they are desired by planners and other local government entities. However, townhomes pose major challenges to the Brownfields Program because separate units are sold to individuals and each has a footprint on ground that may be subject to contaminant vapor intrusion in the long term, as well as the possibility of individually owned yards, for which compliance by LUR certification becomes inherently more difficult. History has shown that each of these possibilities holds its own unique challenges for the program to meet its statutory mandate for suitable and safe use because of the increased complexity of monitoring and enforcing Land Use Restrictions that protect public health at townhomes. Therefore, the Brownfields Program has used its past experience to develop a set of minimum requirements for townhome developments in order to meet these challenges. These requirements apply at all townhome developments, with the potential for limited exceptions in certain areas only, for example certain rural areas, where it has been demonstrated to DEQ's satisfaction that there is no present or future threat from contaminant vapor intrusion. These requirements may be updated periodically based on Program experience.

- 1) Townhome proposed sites require more comprehensive assessment data which will include, at a minimum, the following:
 - a. Sufficient site groundwater assessment to understand the sources and/or nature of potential vapor intrusion.
 - b. Soil shall be assessed to include both surficial and at depth if any Recognized Environmental Conditions pertain to sources of Volatile Organic Compounds (VOCs).
 - c. Baseline soil gas in the footprint of proposed townhome(s), to include methane and hydrogen sulfide assessment and/or monitoring if applicable.
 - d. Risk assessment based on current data to determine appropriate next steps, including if townhomes are still a suitable use.
 - e. No offsite uncontrolled VOC source of significance impacting the proposed Brownfields Property.
 - f. Townhome uses directly on or over methane (or other contaminant vapor) generating landfills/waste cells/dumps, permitted or otherwise, will not be allowed.

- 2) Brownfields Agreement will include a final grade sampling requirement for surficial soils.
 - a. This will be included as a work to be performed item that the Prospective Developer must conduct prior to transfer of property to individual owners.
 - b. Final grade sampling will be from 0-2 ft depth after final grade is achieved.
 - c. Include final grade sampling as item under Environmental Management Plan (EMP) Land Use Restriction, for future redevelopments.
 - d. Preference for the property around townhomes to be owned by the Home Owners Association (HOA), if at all possible.
 - e. Land Use Restriction (LUR) prohibiting soil disturbance beyond 2 ft depth below ground surface after initial development.

- 3) HOA Declaration of Covenants – Prospective Developer must use DEQ-Prepared HOA declarations rider for attachment to their Declaration of Covenants. These declarations must include, at a minimum, the following:
 - a. HOA must be provided the Obligation, Authority, and Resources to enforce the Brownfield Agreement LURs.
 - b. HOA will be obligated to submit annual Land Use Restriction Update.
 - c. HOA will be obligated to maintain the Brownfields Property’s Vapor Intrusion Mitigation System(s) (VIMS)
 - d. A minimum financial assurance reserve for HOA to conduct environmental and or legal work will be negotiated into the Brownfields Agreement. More specific financial assurance mechanisms are currently being evaluated and may be incorporated in a future revision of this document. At a minimum, the financial assurance reserve will consider the following:
 - i. Site specific amount, to be approved by DEQ.
 - ii. Amount is based on cost proposal from consultant for additional fees plus standard amount for legal enforcement of LURs.
 - iii. The HOA will manage the account and have the to be increase the fund as needed to fulfil its obligations.
 - iv. This financial assurance account must be maintained at the level specified. Can be used, but must be replenished annually.
 - v. Cannot be decreased without prior written DEQ approval.
- 4) Comprehensive Purchaser Notification Provisions as a LUR
 - a. Require notification fact sheet about the Brownfields Property, including Vapor Intrusion (issue, the VIMS system, and the LURs regarding the VIMS system operation and maintenance.)
 - b. DEQ must approve Notification Fact Sheet prior to distribution.
 - c. Seller must collect and submit to DEQ signatures of purchasers on Notification Sheet
- 5) Vapor Mitigation
 - a. Design must be one that is, at the minimum, passive with option to operate as an active system on all units.
 - b. DEQ-reviewed VIMP and compliance review letter received prior to construction. Must be developed in accordance with the DEQ Vapor Intrusion Mitigation System (VIMS) Design Submittal, New Construction Minimum Requirements Checklist and the additional components outlined in this document.
 - i. Selected product components should be rated for the contaminant of concern, based on manufacturer documentation.
 - ii. Fans and ducts for active systems shall be on the exterior of the building, preferably on the roof, but at a minimum above the breathing zone.
 - iii. Low vacuum alarms will be required for active systems.
 - iv. Notification requirement to DEQ within 48 hours of identified system failure including low vacuum alarm or pressure monitoring not meeting requirements.

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- c. Air sampling prior to occupancy will be required for every building slab, at a minimum.
 - i. Sub-slab sampling from pre-installed vapor points may be permitted. If sub-slab data indicates a risk (unless DEQ concurs it is likely due to construction materials that are not contaminants of concern).
 - ii. If PCE, TCE and/or select daughter products are present at the Brownfields Property, indoor air sampling will be required.
 - d. If an active system, pressures outlined in the VIMP shall be maintained and be measured monthly for the first year, with quarterly submittals to DEQ Brownfields. A request to reduce monitoring may be made after the first year to semi-annual monitoring with an annual submittal with the LURU.
- 6) On-Going Monitoring
- a. Sentry point monitoring, if applicable, will be conducted in accordance with the DEQ approved monitoring plan.
 - b. Annual monitoring of sub-slab for 3 years. If stable after 3rd annual sampling event, monitoring can be reduced to once every 5 years, at the discretion of DEQ. If contaminant concentrations continue to increase, additional indoor air sampling may be required.
 - c. Pre-occupancy sampling can be considered the first of the annual sampling events.
 - d. Indoor air sampling may be required dependent upon results of occupancy and on-going monitoring.
- 7) DEQ Reviewed & Approved Operations & Maintenance (O&M) Plan. Vapor mitigation systems will be evaluated for proper function in accordance with an approved Operations and Maintenance Plan (OMP). Inspection report(s) shall be signed/sealed by a North Carolina Licensed Professional Engineer for purposes of protection of the public. The OMP shall include, at a minimum, the following:
- a. All VIMS shall be inspected at least annually by a third party.
 - b. All slabs and perimeter/footer edges shall be inspected for cracks or damage
 - c. Wherever installed, passive wind turbines shall be checked for rust and the ability to spin.
 - d. Pressure measurements shall be collected as defined above by an environmental professional under the direct supervision of a NC-licensed PE, if an active system.
 - e. DEQ Brownfields shall be notified within 7 days of any non-compliance with the approved OMP.
 - f. Annual certification by a NC-licensed PE indicating that the VIMS is functional as intended in the approved VIMP shall be submitted with the annual LURU. This submittal shall include all pressure monitoring reports and inspection report(s).
 - g. All reports shall be signed and sealed for purposes of protection of the public by a North Carolina Licensed Professional Engineer.