



ITRC PROJECT PROPOSAL

Stormwater Infiltration at Contaminated Properties

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Proposal Contact*

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Proposals Topical Area

Stormwater infiltration on or nearby contaminated properties.

Proposal Summary

The concept of Low Impact Development (LID) include systems and practices that use or mimic natural processes to infiltrate, evapotranspire or reuse stormwater or runoff on the site where it is generated (US EPA 2008). US EPA, state regulatory agencies, watershed districts and municipalities are encouraging the use of LID, including stormwater infiltration as a primary best management practice (BMPs).

Stormwater infiltration galleries, trenches or other conveyance systems are engineered to accomplish the reduction of runoff from paved surfaces but may not be an appropriate design consideration on all properties. These engineered systems are frequently installed on redevelopment sites, from full-scale site redevelopments to small-scale re-pavement projects at active facilities. These sites are often contaminated Brownfields properties and located adjacent to or near plumes of contamination in soil, groundwater and soil vapor. The infiltrated water may migrate to and mobilize the contaminant plumes in their vicinity or change the hydrologic setting of the plumes. The contaminated areas exist in all forms, from those plumes yet undiscovered, to those that have been investigated and remediated to the extent practicable under risk scenarios at a specific point in time. The risk scenario may change by the altered hydrologic conditions in the subsurface upon installation of a nearby stormwater infiltration system. Soil and groundwater impacts must be taken into consideration during the system engineering design phase of redevelopment.

Currently, Brownfields Response Action Plans often present limited or inconsistent design information regarding the stormwater BMPs, including infiltration. A disconnect exists between stormwater engineering design and knowledge of site/surrounding property contamination interaction. Few options exist for re-design of an infiltration

system in the presence of nearby soil and groundwater contamination. A lack of guidance is apparent and a gap exists in remediation industry knowledge of stormwater terminology and design considerations (e.g. system life span, etc.). Likewise, there is a lack of stormwater industry knowledge of below-grade contaminant presence, risk decision-making procedures and policies.

As the "go to solution provider" in the environmental industry, ITRC can provide needed guidance and expertise/training for the needs of the remediation practitioner and stormwater design engineer. These needs may include:

- Modeling of anticipated changes to hydrologic conditions during the design phase;
- Common system designs and their likelihood to impact differing phases of contamination from the physical and temporal perspectives;
- How contaminated areas onsite may be affected by proposed stormwater infiltration systems; and
- How contaminated areas in the vicinity of an infiltration system may be affected by an altered subsurface hydrology.

This project may be achieved through the standard technical and regulatory guidance document development process. One of the goals of the document would be to develop cross-programmatic language/education for both stormwater and remediation professionals. Online training and document resources will provide a conduit of information between these two industries. This process is anticipated to take the standard ITRC timeframe for technical guidance production.

Sources: US EPA, 2008. Design Principles for Stormwater Management on Compacted, Contaminated Soils in Dense Urban Areas

<http://www.epa.gov/brownfields/tools/swdp0408.pdf>

Proposed Personnel

This project will encompass both stormwater and remediation industry expertise from U.S. EPA, federal government representatives, state environmental agencies, academia, watershed district representatives, stormwater and engineering professionals and stakeholders. Specific states with existing guidance on this topic to varying degrees include Minnesota, Texas, Michigan, and California.

Summary of Deliverables (primary project product(s))

An online technical and regulatory guidance document aimed at both remediation and stormwater professionals with an accompanying online training course.

Targeted Users (who will use products generated by this project?)

Remediation and stormwater experts are the primary targeted audience for this project, with academic participants/users considered a secondary audience.

Funding Source

The funding source for this project is to-be-determined, but may be a viable opportunity for the US EPA and DOE.