

Rain barrels can divert stormwater from combined sewer systems by collecting runoff from roofs and storing it for other uses.



Consent Decree Language Addressing Green for Grey Substitutions

This supplement supports Factsheet 2 in the Green Infrastructure Permitting and Enforcement Series: Combined Sewer Overflows

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Integrating Green Infrastructure Concepts into Permitting, Enforcement, and Water Quality Standards Actions

This supplement is a companion to the U.S. EPA Green Infrastructure Permitting and Enforcement Series (http://water.epa.gov/infrastructure/greeninfrastructure/gi_regulatory.cfm#permittingseries).

This series describes how EPA and state permitting and enforcement professionals can incorporate green infrastructure practices and approaches into National Pollutant Discharge Elimination System (NPDES) wet weather programs, including stormwater permits, Total Maximum Daily Loads (TMDLs), combined sewer overflow (CSO) long-term control plans (LTCPs), and enforcement actions. This series builds upon EPA's continued investment in green infrastructure and low impact development. Existing EPA authority, guidance, and agreements enable EPA Regions and state agencies to work with permittees to include green infrastructure measures as part of control programs.

For additional resources on green infrastructure, go to the EPA Green Infrastructure Web page: <http://water.epa.gov/infrastructure/greeninfrastructure/index.cfm>.

Key green infrastructure guidance issued to date can be found at: http://water.epa.gov/infrastructure/greeninfrastructure/gi_policy.cfm.



Rain gardens along roadways and sidewalks absorb stormwater runoff, reducing the runoff that reaches the combined sewer system.

Introduction

On December 22, 2010, the EPA and the Department of Justice announced a comprehensive Clean Water Act (CWA) settlement with the Northeast Ohio Regional Sewer District (NEORS) to address the flow of untreated sewage into Cleveland waterways and Lake Erie. The settlement significantly advances the use of large scale green infrastructure projects to control wet weather sewer discharges by requiring the sewer district to invest at least \$42 million in green infrastructure projects, and by providing the sewer district with the opportunity to propose larger uses of green infrastructure in exchange for reductions in the scope of traditional infrastructure projects. This supplement provides an excerpt from Appendix 4 of the consent decree documenting the settlement: “Requirements Applicable to the Proposals for Green for Gray Substitutions.”

The Appendix includes six provisions addressing the development, review, implementation, and assessment of green infrastructure alternatives. Here we excerpt the introduction to the Appendix and the first four provisions. These provisions address the development, review, and implementation of green infrastructure proposals.

1. Proposals to Meet Performance Criteria in Appendix 1 by Substituting Green Infrastructure Measure(s) for Grey Infrastructure Control Measure(s)

Upon a determination by the District to incorporate green infrastructure control measures as an alternative to grey infrastructure control measures to achieve the performance criteria set forth in this Consent Decree, the District shall submit to EPA and the State a detailed green infrastructure Project Proposal (“Proposal”). Each such Proposal shall at a minimum include all green infrastructure control measures that the District proposes to substitute for a reduction in a particular grey infrastructure control measure. For example, a Proposal shall include all the green infrastructure control measures that the District intends to substitute for the reduction in the capacity of a given tunnel. This Proposal shall be consistent with this Consent Decree and shall at a minimum include the following:

- a. A detailed description (to include specific technologies to be employed, project dimensions and configurations, material specifications and characteristics, to-scale

project drawings that include the drainage area tributary to the proposed green infrastructure control measures, intended mode(s) of operation, and any other available information that may aid EPA and the State in their assessment of the Proposal) of the green infrastructure control measures, a description of the proposed reductions in grey infrastructure control measures, all tasks required to implement the proposal, a detailed cost estimate, and a schedule for completion of this work and implementation of the Proposal that is consistent with this Consent Decree.

- b. A detailed comparative analysis of the typical year performance expected to be achieved with the implementation of the green infrastructure control measures, and of the grey infrastructure control measures to be replaced or downsized by the green infrastructure control measures. This analysis shall identify: (i) the expected baseline performance of the grey infrastructure control measures to be replaced or

The settlement with NEORS requires that green infrastructure project proposals include the following components:

- Descriptions of specific technologies to be implemented
- To-scale project drawings
- Descriptions of proposed reductions in grey infrastructure control measures
- Cost estimates
- Analysis of expected performance of control measures
- Plans for post-construction monitoring
- Corrective actions that may be taken if goals are not met
- Plans for stakeholder outreach



Comparative analyses of green and grey control measures are required to identify:

- Expected baseline performance of grey infrastructure control measures to be replaced or downsized
- Expected performance of downsized grey infrastructure control measures
- Expected performance of green infrastructure control measures
- Expected performance of the combination of downsized grey infrastructure control measures and green infrastructure controls

downsized in terms of activation frequency, gallons of combined sewage controlled, and remaining gallons of CSO discharge; (ii) the expected performance of the downsized grey infrastructure control measures in terms of activation frequency, gallons of combined sewage controlled, and remaining gallons of CSO discharge; (iii) the expected performance of the green infrastructure control measures in terms of activation frequency, gallons of combined sewage controlled, and remaining gallons of CSO discharge; and (iv) the expected performance of the combination of the downsized grey infrastructure control measures and the green infrastructure control measures in terms of activation frequency, gallons of combined sewage controlled, and remaining gallons of CSO discharge. These analyses shall be carried out using the information and models used to develop the District's LTCP, appropriate available performance data for the proposed green infrastructure control measures, and all monitoring information and data used in formulating the Proposal. The Proposal shall include detailed documentation of the District's analyses, including detailed modeling results, engineering calculations, summaries of underlying assumptions and the bases for those assumptions, and detailed summaries of all data relied upon. The Proposal shall also include a detailed analysis and discussion of the long term effectiveness and performance expected to be achieved with implementation of the Proposal.

- c. A description of the green infrastructure control measure operation and maintenance activities to be carried out, including schedules for maintenance.

- d. A description of how the District shall ensure it will be able to retain permanent access and sufficient control over the land devoted to the green infrastructure control measures set forth in the Proposal. For example, the District may provide this demonstration by showing how it will acquire ownership of land parcels, or obtain legally-binding agreements with the pertinent governing authority or landowner, to retain permanent access and sufficient control of the parcels.
- e. A description of post-construction monitoring and modeling to be performed to determine whether the Performance criteria set forth in this Consent Decree upon completion and implementation of the grey infrastructure and green infrastructure control measures outlined in the Proposal.
- f. A description of the type of corrective action measures that can be undertaken if post-construction monitoring and modeling of the green infrastructure control measures do not demonstrate that the performance criteria for the proposal are being met.
- g. A description of stakeholder outreach and public participation, implemented and planned, associated with the proposed green infrastructure control measures. The public participation for proposed green-for-grey substitutions shall include, but will not be limited to, people, households, and neighborhoods in the service area that have low household incomes or concentrated minority populations.”

2. Provisions Applicable to Proposals to Substitute Green Infrastructure Control Measures for Tunnel Capacity

The following additional provisions apply where a green for gray substitution proposal involves a reduction in the effective storage volume of any of the tunnels planned for under this Consent Decree.

a. The District shall submit to EPA and the State a Green for Gray substitution Proposal for review and approval. The Proposal shall contain all the information identified in 1.a. – 1.g., above. In addition, the Proposal shall identify a date for the 30% design submittal for the pertinent tunnel, and shall include specific identification of an appropriate number of demonstration sites/projects. The identified demonstration sites and types of green infrastructure control measures shall be characteristic of the proposal's total green infrastructure type, scale, and scope, and shall meet the following criteria:

1. Unless otherwise approved by the State and EPA, the identified demonstration sites and types of green infrastructure control measures shall be within the drainage area(s) to be impacted by the proposal;
2. The identified demonstration sites and types of green infrastructure control measures shall implement the types of green infrastructure technology proposed by the District in the Proposal;
3. The identified demonstration sites and types of green infrastructure control measures shall be of sufficient number and size, so as to provide an adequate understanding of the performance range likely to be realized by those technologies when implemented as per the District's Proposal; and
4. The identified demonstration sites and types of green infrastructure control measures shall be located in locations where soils, topography, and infiltration and drainage characteristics are characteristic of those to be encountered across the sites and green infrastructure control measures included in the Proposal.

The identified demonstration sites and types of green infrastructure control measures shall be planned so as to provide an adequate understanding of the performance range likely to be realized by those technologies when implemented pursuant to the District's Proposal.

b. If EPA and the State approve the Proposal, the District shall construct and implement the identified demonstration sites and types of green infrastructure control measures described in the Proposal.

- c. The District shall conduct at least 1 year of post-construction monitoring of the identified demonstration sites and types of green infrastructure control measures described in the Proposal in accordance with the schedule in the approved Proposal.
- d. The District shall submit a report on the post-construction monitoring of the identified demonstration sites and types of green infrastructure control measures. The report will include all data collected and an analysis of the data indicating whether the data demonstrates that the identified demonstration sites and types of green infrastructure control measures meet the performance criteria set forth in the Proposal. If the data does not demonstrate that the green infrastructure control measures meet the performance criteria, the District shall include with the report a Modified Proposal. The Modified Proposal shall replace the initial Proposal and describe what additional measures are needed, including additional green infrastructure and/or grey infrastructure control measures to be constructed and implemented to meet the performance criteria in this Consent Decree. The Modified Proposal shall highlight changes from the initial Proposal. The Modified Proposal could include implementation of a greater amount of green infrastructure control measures than what was planned in the original Proposal or a resizing of the pertinent tunnel or grey infrastructure control measures in order to achieve the performance standards set forth in this Consent Decree. The report and Modified Proposal will describe the level of control actually being provided by the identified demonstration sites and types of green infrastructure control measures and include the volume reductions measured in the assessment along with what further control measures are needed to meet the performance criteria for the tunnel service area as specified in this Consent Decree.
- e. The report on the post-construction monitoring of the identified demonstration sites and types of green infrastructure control measures, including a Modified Proposal if necessary, shall be submitted no later than 30 days prior to the date of the 30% design submittal for the tunnel. If the District fails to submit the report 30 days or more prior to the date of the 30% design submittal, the green for grey substitution shall be considered disapproved and the design of the tunnel(s) and the development of detailed plans and specifications shall proceed based on the design and performance criteria specified in this Consent Decree."

3. Reviews/Approvals of Green for Gray Substitution Proposals

EPA and the State shall review each green for grey substitution Proposal submitted by the District, each report on the performance of green infrastructure demonstration sites and green infrastructure control measures, and each Modified Proposal, where needed. The Agencies may request clarifications or supplemental information to make informed decisions on each Proposal. Upon the conclusion of reviews of Proposals or Modified Proposals the Agencies will approve the Proposal, approve with conditions, or disapprove the Proposal.

Following a review of a report on the performance of Green infrastructure demonstration sites and green infrastructure control measures, the Agencies shall concur or non-concur on report findings, including the Report's findings on

compliance with the performance criteria in this Consent Decree and the finding that a Modified Proposal is or is not necessary. If the Agencies non-concur on a finding in a report that a Modified Proposal is not necessary, the District shall submit a Modified Proposal to meet the performance criteria in this Consent Decree and to fully address the substance of any comment the Agencies make with respect to the non-concurrence within 45 days of the date of the written non-concurrence notification. Design may not proceed past the 30% design point on the proposed downsized tunnel(s) until the Modified Proposal is submitted, reviewed, and concurred upon by the agencies."



Rain gardens are planted with vegetation that absorbs, uses, and evaporates rainwater. These features provide community amenities while reducing and treating stormwater discharges.



Green infrastructure can reduce combined sewer overflows and thereby prevent pollution and bacterial contamination of waterways.

4. Provisions Applicable to Approved Green Infrastructure Control Measures

Upon approval of a green for grey substitution Proposal or Modified Proposal, the District is authorized to implement green infrastructure control measures in conformance with the approved Proposal or Modified Proposal. The following additional provisions apply to implementation of green infrastructure control measures.

- a. The District shall ensure permanent access and sufficient control over the land devoted to the green infrastructure control measures.
- b. The District shall carry out the public participation activities described in the Proposal.
- c. The District shall carry out the operation and maintenance activities described and scheduled in the approved Proposal.
- d. The District shall track its implementation, operation, and maintenance of the green infrastructure control measures, and report on such activities and

accomplishments as part of the semi-annual reporting required under this Consent Decree.

- e. The post-construction monitoring and modeling provisions of the Proposal shall be implemented to verify if the performance criteria for the green infrastructure control measures have been met.

If, following full completion of construction and implementation of the approved green infrastructure control measures, the post-construction monitoring of those measures fails to demonstrate that the green infrastructure control measures have met the performance criteria on which the substitution was based, the District shall submit to EPA and the State a Corrective Action Plan laying out the steps to be taken and a schedule for meeting the performance criteria defined in this Consent Decree.”



By taking up rainwater, green roofs reduce the volume of water that reaches combined sewer systems.

Green Infrastructure Permitting and Enforcement Series

This series on integrating green infrastructure concepts into permitting, enforcement, and water quality standards actions contains six factsheets plus four supplemental materials that can be found at http://water.epa.gov/infrastructure/greeninfrastructure/gi_regulatory.cfm#permittingseries.

Factsheets

1. Potential Challenges and Accountability Considerations
2. Combined Sewer Overflows
3. Sanitary Sewer Overflows
4. Stormwater
5. Total Maximum Daily Loads
6. Water Quality Standards

Supplemental Materials

1. Consent Decrees that Include Green Infrastructure Provisions
2. Consent Decree Language Addressing Green for Grey Substitutions
3. Green Infrastructure Models and Calculators
4. Green Infrastructure in Total Maximum Daily Loads (TMDLs)



For additional resources on green infrastructure, go to the EPA Green Infrastructure Web page: <http://www.epa.gov/greeninfrastructure/>.