



STORMWATER
MANAGEMENT DIVISION

North Ridge Storm Drainage Improvements and Stream Stabilization

**Audubon Drive, Knights Way, Rainwood Lane,
and Wagram Court**

**Informational Public Meeting
North Regional Public Library
May 7, 2014**

**Brown AND
Caldwell**



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Project Team

💧 City of Raleigh:

- 💧 **Chris Stanley, PE – Project Manager**
- 💧 **Scott Bryant, PE – Senior Project Engineer**
- 💧 **Carmela Teichman – Stormwater Education Specialist**

💧 Brown and Caldwell:

- 💧 **Ryan Sprowl, PE – Project Manager**
- 💧 **Ben Nash, PLA – Stream Designer**
- 💧 **Brenan Buckley, PE – Project Director**



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Presentation Overview

- 💧 **Update Citizens on Status of North Ridge Drainage Improvements Program**
- 💧 **Project Purpose and Objectives**
- 💧 **What to Expect During Construction**
- 💧 **General Q&A and Breakout**



North Ridge Program Timeline

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- ◆ **Late 2006/Mid-2007 – Preliminary Engineering Report**
 - ◆ **Major Problem Areas for Drainage Identified**

- ◆ **May/June 2009 – Design Contracts Issued for Harps Mill Road, Haymarket Lane, Favorwood Court, Rainwood Lane & Audubon Drive**
 - ◆ **Knights Way Added in November 2010**

- ◆ **December 2010 – Construction Begins for Phase I – Harps Mill Road**
 - ◆ **Completed in June 2011**

- ◆ **January 2013 – Construction Begins for Phases II and III – Haymarket Lane and Favorwood Court**
 - ◆ **Completed in April 2014**

- ◆ **May 2011 – 65% Design Achieved for Rainwood, Audubon & Knights Way**

- ◆ **August 2013 – Wagram Court Drainage Improvements and Stream Stabilization included in Rainwood, Audubon & Knights Way Project and Design Initiated.**



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Purpose and Objectives

- 💧 **Alleviate Structural and Roadway Flooding to City of Raleigh Level of Service (10-year Storm Event)**
- 💧 **Protect Public Infrastructure**
- 💧 **Reduce Sediment Loads due to Streambank Erosion**



Purpose and Objectives

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- 💧 **Audubon Drive**
- 💧 **Knights Way**
- 💧 **Rainwood Lane**
- 💧 **Wagram Court**
- 💧 **Stream Stabilization**



EXHIBIT 1



Audubon Drive, Rainwood Lane, Knights Way, and Wagram Court
Drainage Improvements and Stream Stabilization:
Proposed Conditions and Construction Phasing





May 2013 Storm Event - Audubon Drive and Sadler Court



May 2013 Storm Event - Audubon Drive and Sadler Court



Purpose and Objectives

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- 💧 **Audubon Drive**
- 💧 **Knights Way**
- 💧 **Rainwood Lane**
- 💧 **Wagram Court**
- 💧 **Stream Stabilization**

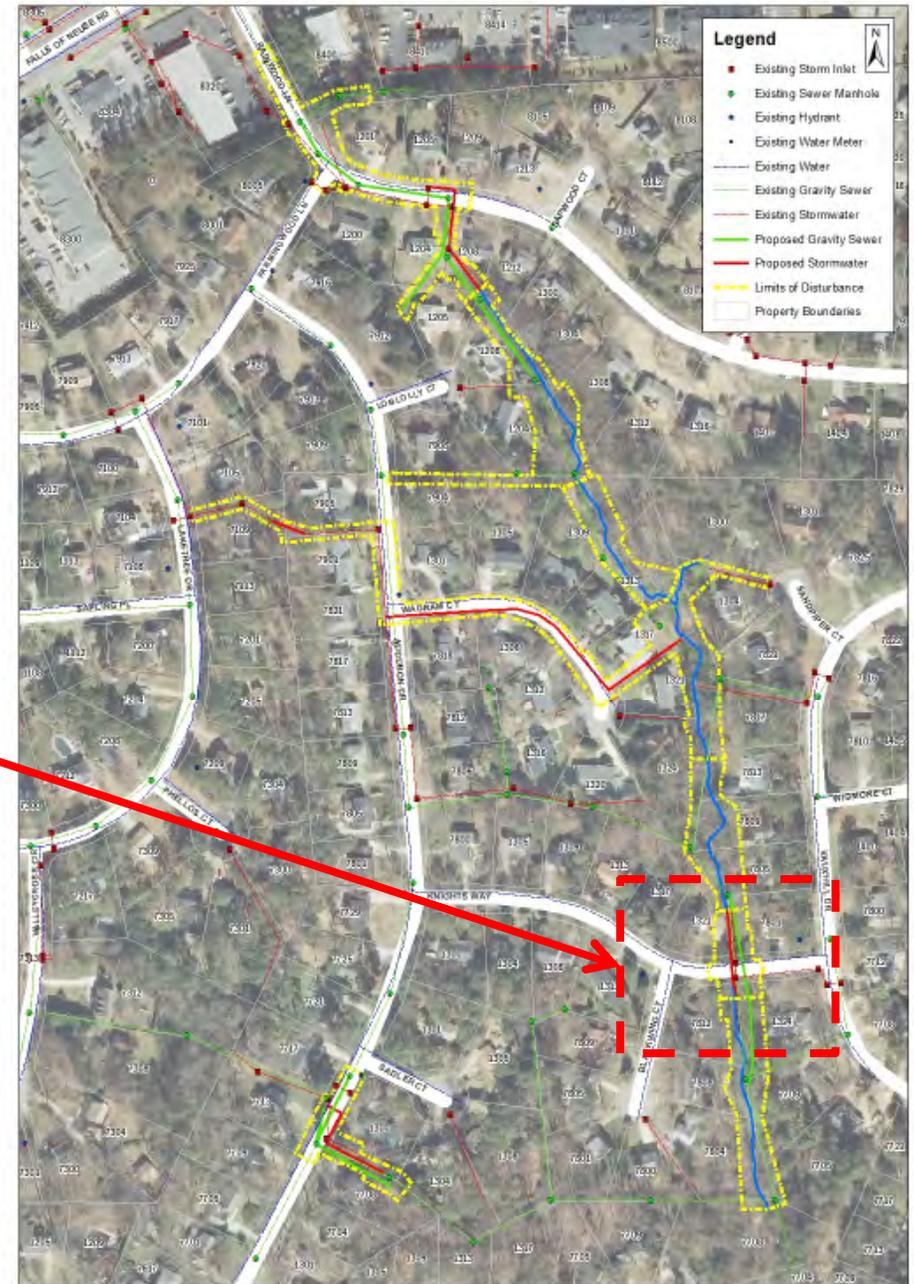


EXHIBIT 1



Audubon Drive, Rainwood Lane, Knights Way, and Wagram Court
Drainage Improvements and Stream Stabilization:
Proposed Conditions and Construction Phasing





Existing Headwall - Upstream of Knights Way



Existing Endwall - Downstream of Knights Way



Purpose and Objectives

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- 💧 **Audubon Drive**
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EXHIBIT 1

Audubon Drive, Rainwood Lane, Knights Way, and Wagram Court
Drainage Improvements and Stream Stabilization:
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Tropical Storm Alberto - Rainwood Lane



Tropical Storm Alberto – Rainwood Lane



Tropical Storm Alberto – Rainwood Lane



Tropical Storm Alberto - Rainwood Lane



Purpose and Objectives

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- 💧 Audubon Drive
- 💧 Knights Way
- 💧 Rainwood Lane
- 💧 **Wagram Court**
- 💧 Stream Stabilization

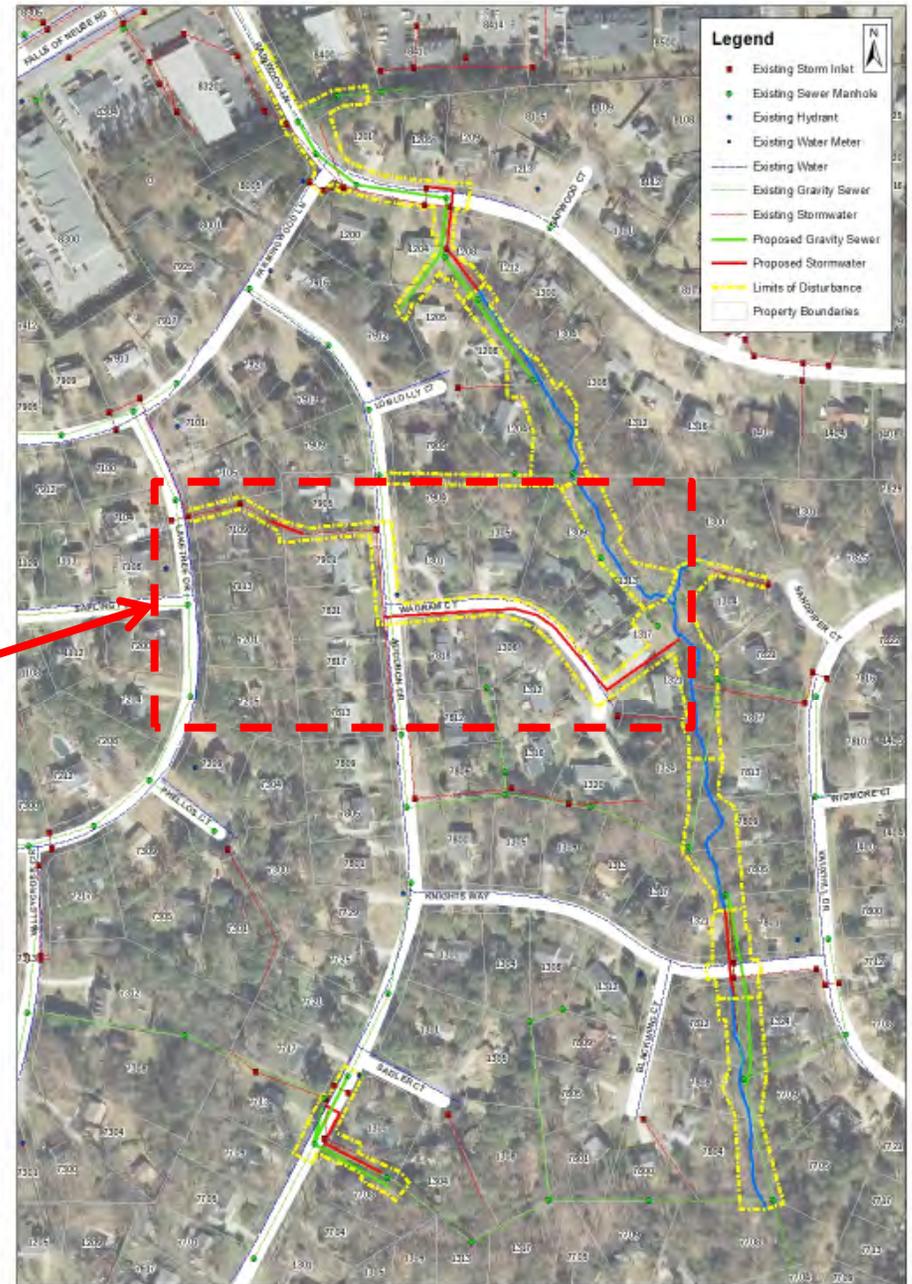


EXHIBIT 1



Audubon Drive, Rainwood Lane, Knights Way, and Wagram Court
Drainage Improvements and Stream Stabilization:
Proposed Conditions and Construction Phasing





Backyards Between Laketree and Audubon



Backyards Between Laketree and Audubon



Purpose and Objectives

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- 💧 **Stream Stabilization**

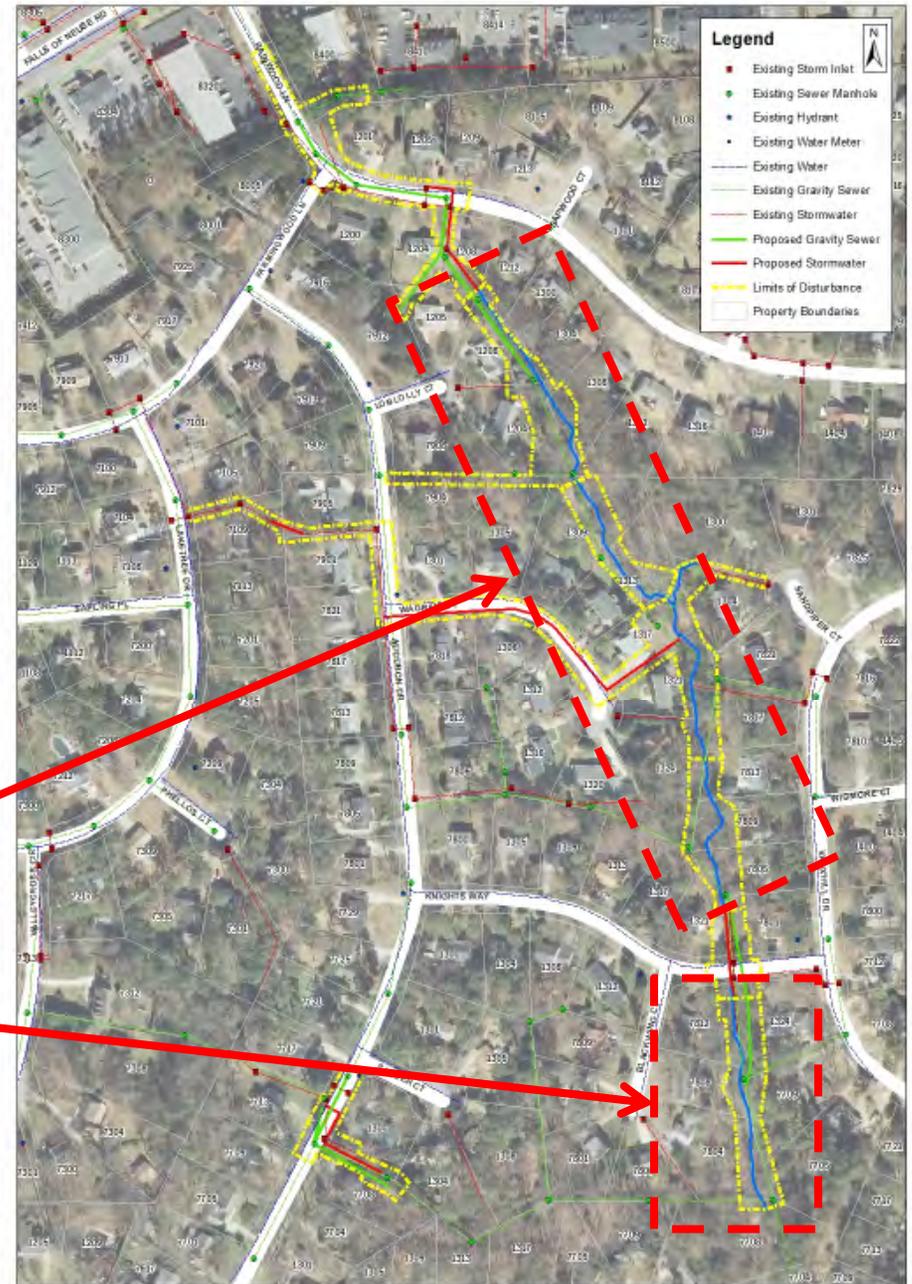


EXHIBIT 1

Audubon Drive, Rainwood Lane, Knights Way, and Wagram Court
Drainage Improvements and Stream Stabilization:
Proposed Conditions and Construction Phasing





Between Wagram and Sandpiper



Between Wagram and Vauxhill



Downstream of Knights Way



Downstream of Knights Way



What to Expect During Construction

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- 💧 **Notifications**
- 💧 **Work Hours**
- 💧 **Traffic Control**
- 💧 **Access to Your Property**
- 💧 **Utility Service Connections**
- 💧 **Site Safety/Security**
- 💧 **Site Restoration**

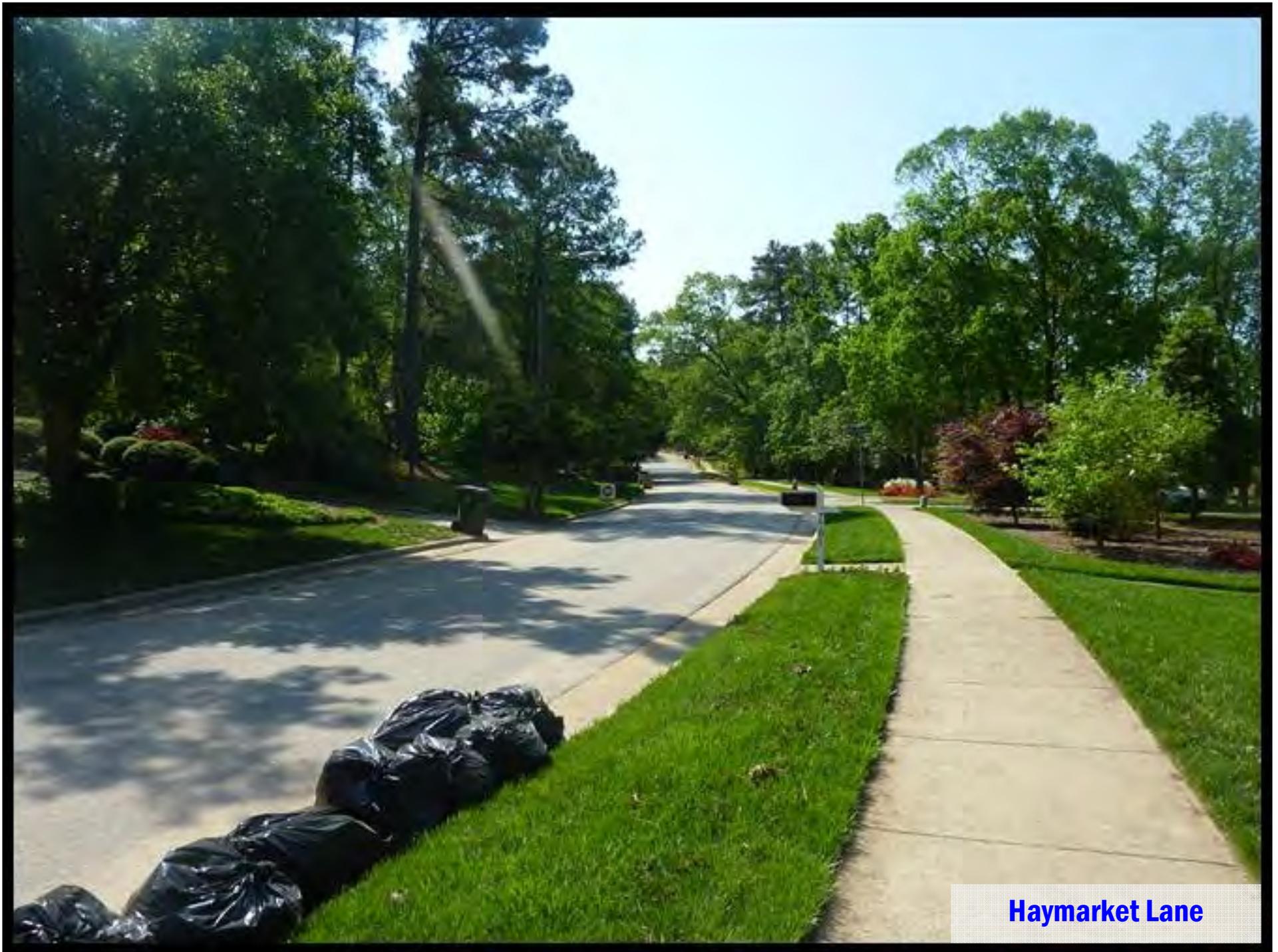


What to Expect During Construction

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 **Drainage Improvements**

 **Stream Stabilization**



Haymarket Lane



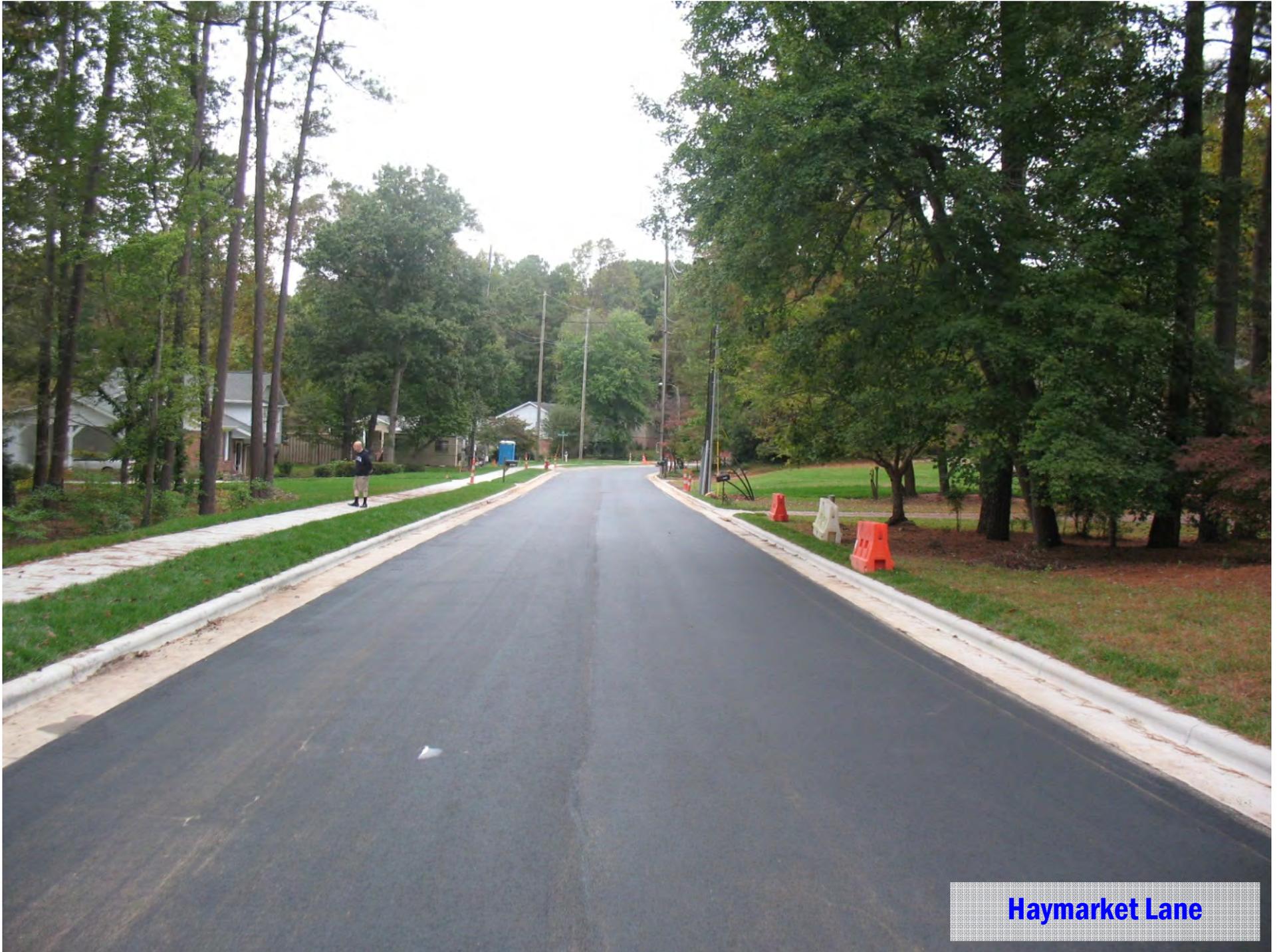
Haymarket Lane



Haymarket Lane



Haymarket Lane



Haymarket Lane



Old Headwall - Haymarket Lane



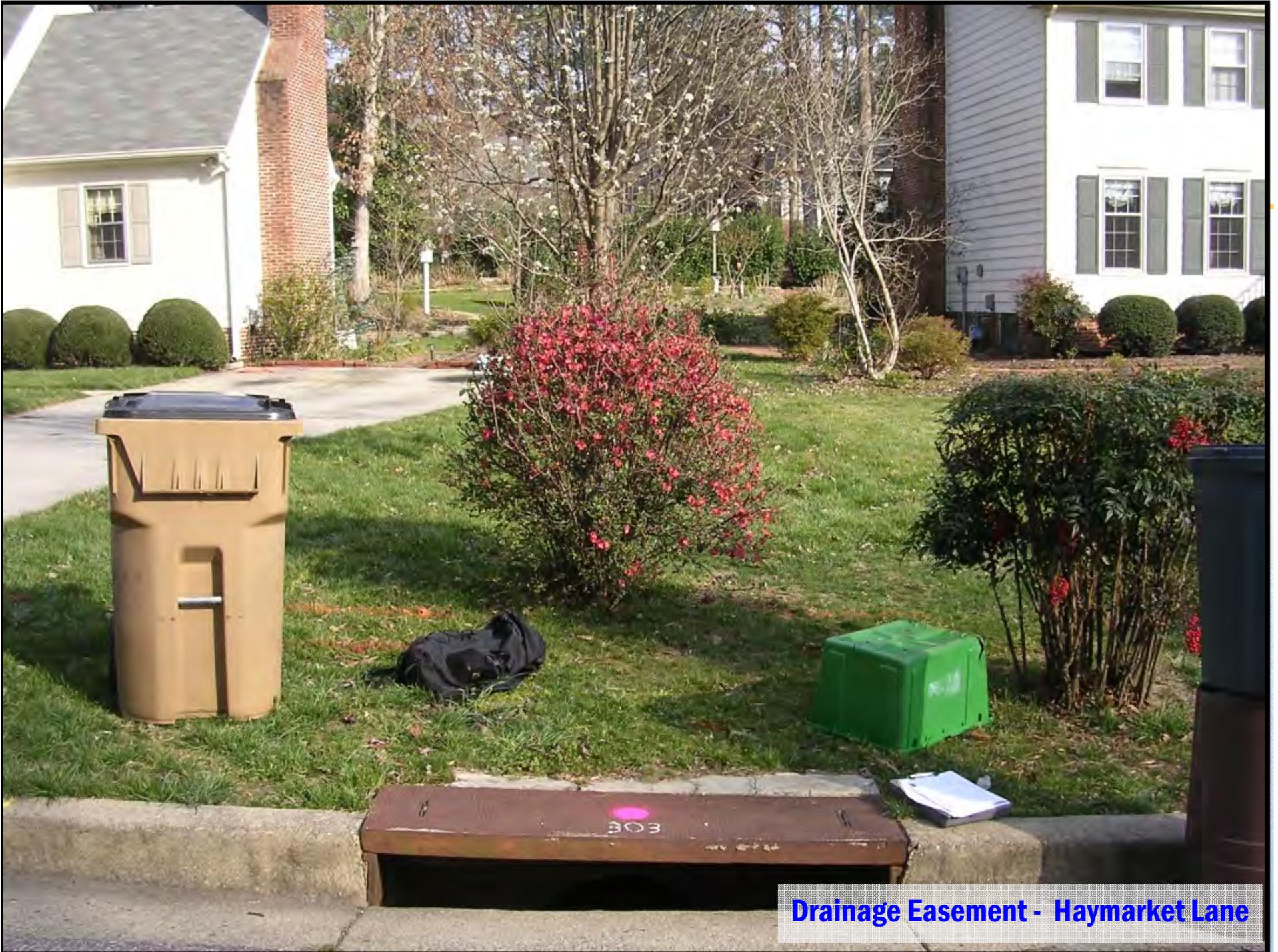
New Headwall - Haymarket Lane



New Headwall - Haymarket Lane



New Headwall - Haymarket Lane



Drainage Easement - Haymarket Lane



Drainage Easement - Haymarket Lane



Drainage Easement - Haymarket Lane



Drainage Easement - Haymarket Lane



**Drainage Easement - Between
Favorwood Court and Haymarket Lane**



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What to Expect During Construction

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 **Drainage Improvements**

 **Stream Stabilization**



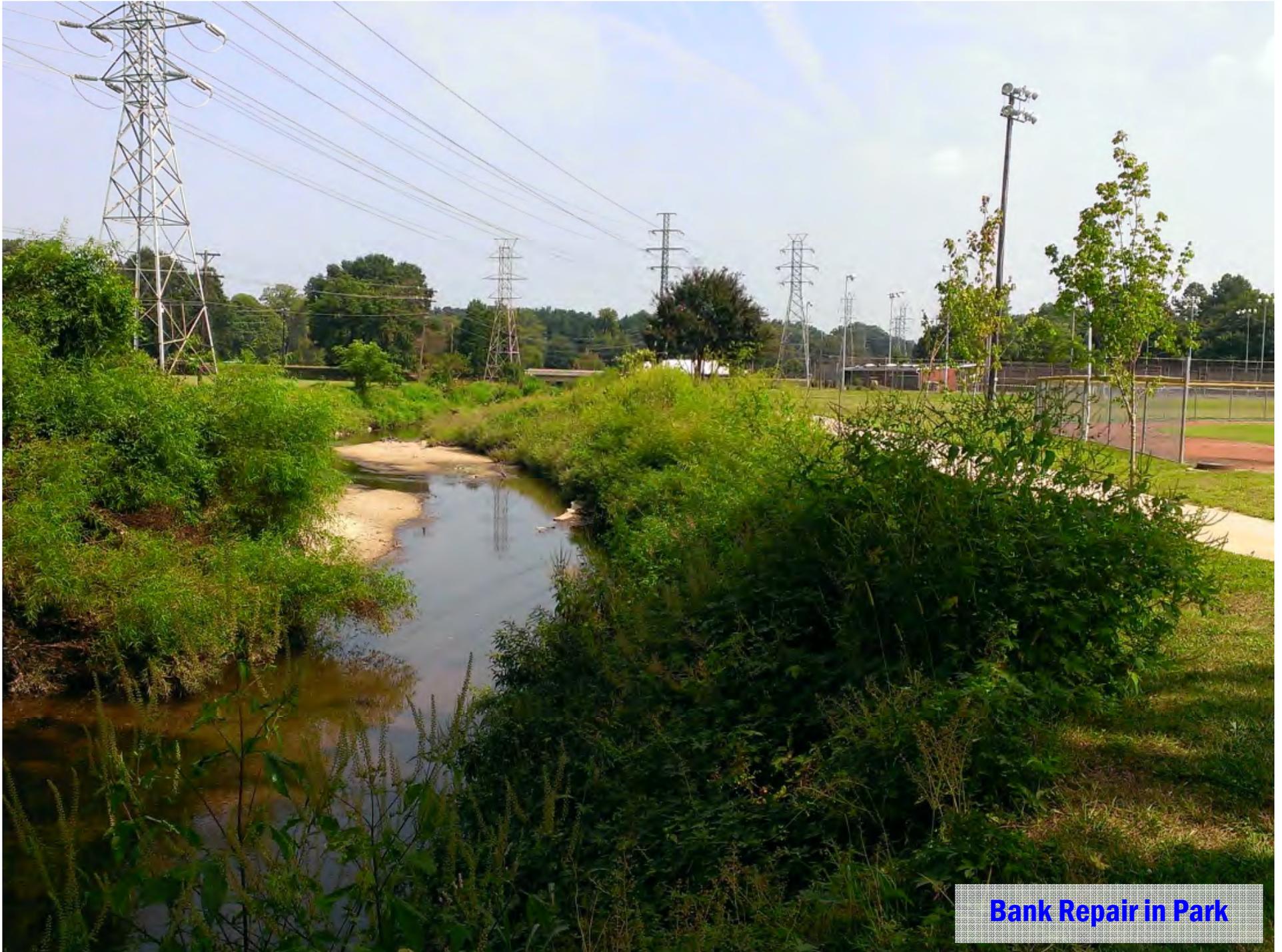
Bank Repair in Park



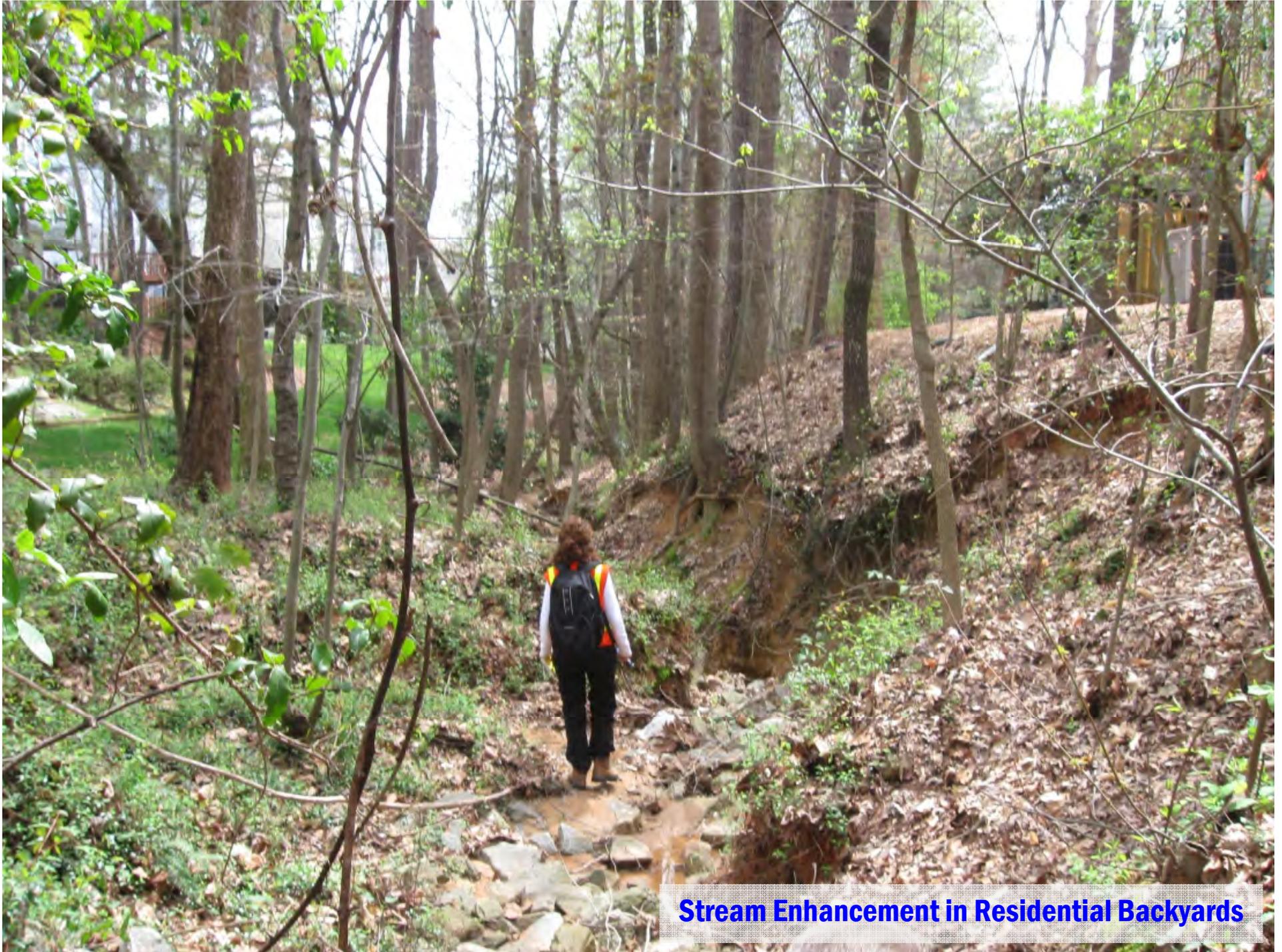
Bank Repair in Park



Bank Repair in Park



Bank Repair in Park



Stream Enhancement in Residential Backyards



Stream Enhancement in Residential Backyards



Stream Enhancement in Residential Backyards



Stream Enhancement in Residential Backyards



Stream Restoration in Park



Stream Restoration in Park



Stream Restoration in Park



Stream Restoration in Park



Exposed Sanitary Pipe



Exposed Sanitary Pipe - Protected



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Anticipated Schedule

- Design and Permitting** Fall 2013 to Fall 2014
- Easement Acquisition** Fall 2014 to Winter 2015
- Bidding** Winter 2015
- Private Utility Relocation** Winter 2015 to Spring 2015
- Construction of Improvements** Spring 2015 to Summer 2016



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Questions or Comments?

City of Raleigh:

Chris Stanley, PE – Senior
Project Engineer

919-996-4003

chris.stanley@raleighnc.gov

Scott Bryant, PE – Senior Project
Engineer

919-996-4014

scott.bryant@raleighnc.gov

Sheila Thomas-Ambat – Project
Manager

919-996-3940

sheila.thomas-ambat@raleighnc.gov

Brown and Caldwell:

Ryan Sprowl, PE – Project
Manager

919-233-9178

RSprowl@brwnncald.com

ADDITIONAL STORMWATER PROJECT AND CIP INFORMATION:

<http://www.raleighnc.gov/projects/content/PWksStormwater/Articles/StormwaterUtilityCIP.html>

Email Address:

StormwaterUtilityhelpingu@raleighnc.gov

Office Phone:

919-996-3940

Address:

222 West Hargett Street
PO Box 590 , Room #301
Raleigh, NC 27602

**Brown AND
Caldwell**