

Memorandum



CITY OF DALLAS

DATE October 31, 2008

TO Members of the Economic Development Committee:
Ron Natinsky (Chair), Tennell Atkins (Vice Chair), Dwaine Caraway, Jerry R. Allen, Sheffie Kadane, Mitchell Rasansky, Linda Koop, and Steve Salazar

SUBJECT Grading and Drainage—Infill Single Family Dwelling

Attached are the briefing materials on the Grading and Drainage for Infill Single Family Dwelling to be presented to the Economic Development Committee on Monday, November 3, 2008.

Please contact me if you need additional information.

A handwritten signature in black ink, appearing to read 'A.C. González'.

A.C. González
Assistant City Manager

C: Honorable Mayor and Members of the City Council
Mary K. Suhm, City Manager
Deborah A. Watkins, City Secretary
Thomas P. Perkins, Jr., City Attorney
Craig D. Kinton, City Auditor
Judge C. Victor Lander, Judiciary
Ryan S. Evans, First Assistant City Manager
Forest Turner, Interim Assistant City Manager
Jill A. Jordan, P.E., Assistant City Manager
Ramon F. Miguez, P.E., Assistant City Manager
David K. Cook, Chief Financial Officer
Jeanne Chipperfield, Interim Budget Director, Office of Financial Services
Zaida Basora, AIA, Director of Building Inspection
Helena Thompson-Stevens, Assistant to the City Manager

Grading and Drainage Infill Single Family Dwelling

Presented to the
Economic Development Committee
November 3, 2008



Purpose

To provide an update on lot-to-lot drainage requirements for infill single family dwellings



Drain Building

Drain Roof

Issue

- **Infill lots** being **redeveloped** in single family neighborhoods often pose negative impacts to adjacent property owners

- Alteration of existing grade to construct a pad site for a **new** house in an **existing** neighborhood may change drainage pattern

- Grade alteration sometimes results in **increased** water runoff for the adjacent lots

Drain Wall

Drain Materials

Drain Components

Drain Openings

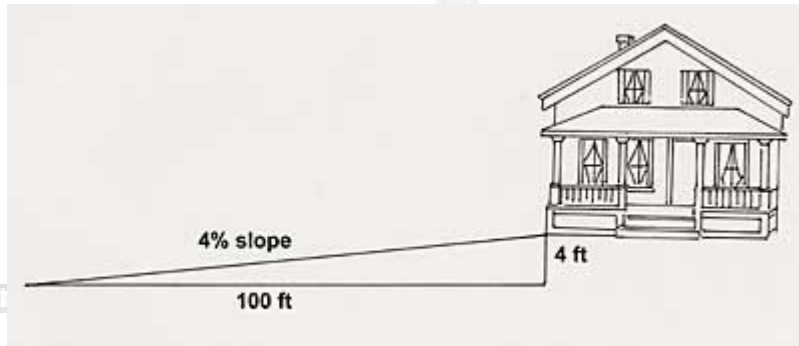
Drain Site

Drain Site

Drain Ground

Drain Ground

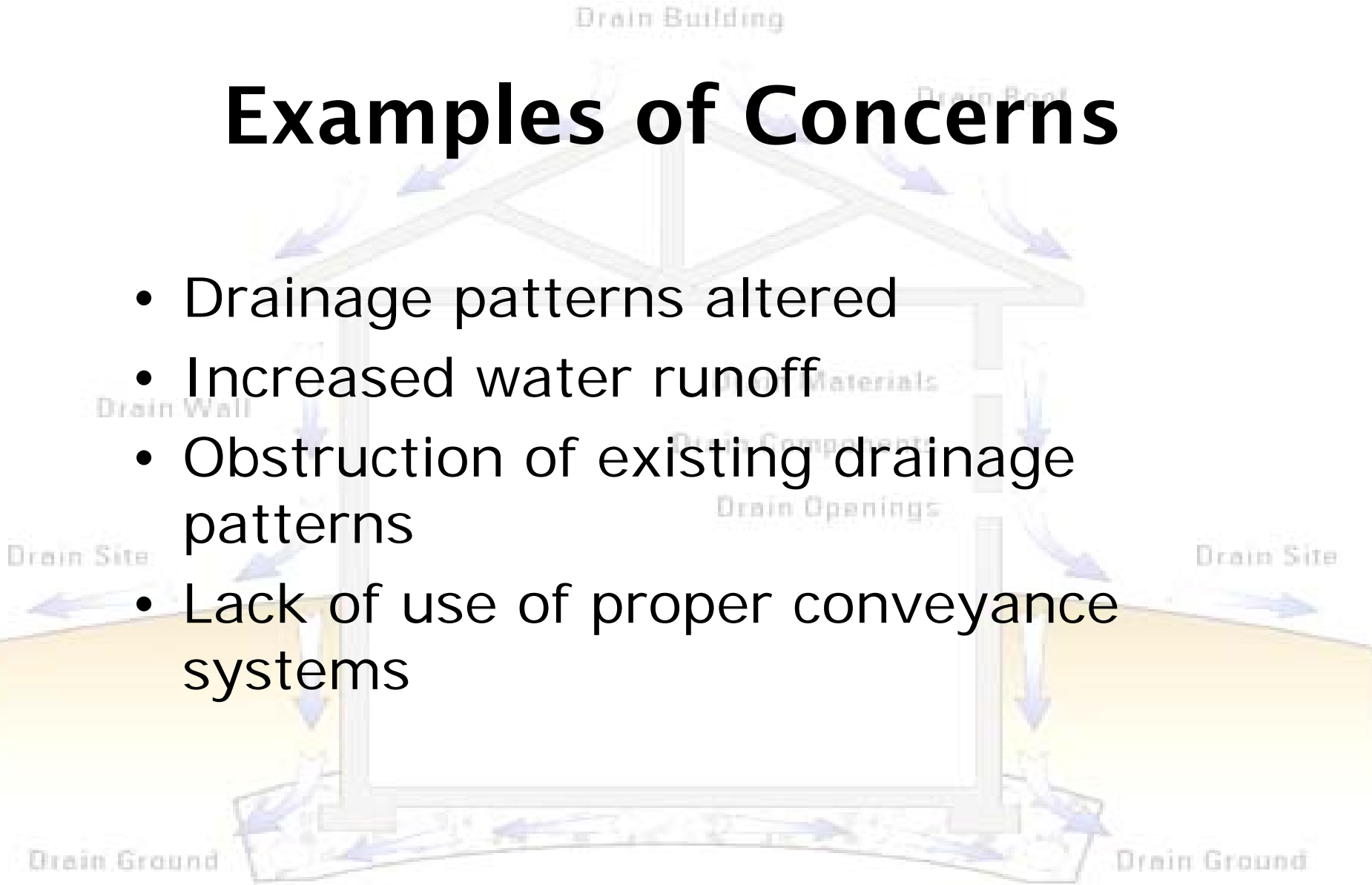
Site Grading Guidelines



- Proper site grading directs surface water away from building foundations and walls
- Grading and landscaping should be planned with a surface grade of at least **4%** around and away from the entire structure.
- The steeper the slope away from the building, the better the water will drain. Driveways, garage slabs, patios, stoops, and walkways should drain away from the structure

Examples of Concerns

- Drainage patterns altered
- Increased water runoff
- Obstruction of existing drainage patterns
- Lack of use of proper conveyance systems



Drain Building

Drain Roof

Examples



Built up pad with drainage toward street

Drain Ground

Drain Ground

Drain Building

Drain Roof

Examples



Built up pad with drainage toward street or property line swale

Drain Ground

Drain Ground

Drain Building

Drain Roof

Examples



Drainage toward street, alley or sidewalk

Drain Ground

Drain Ground

Drain Building

Drain Roof

Examples



Wrong approach: no provision for drainage away from adjacent property

Drain Ground

Drain Ground

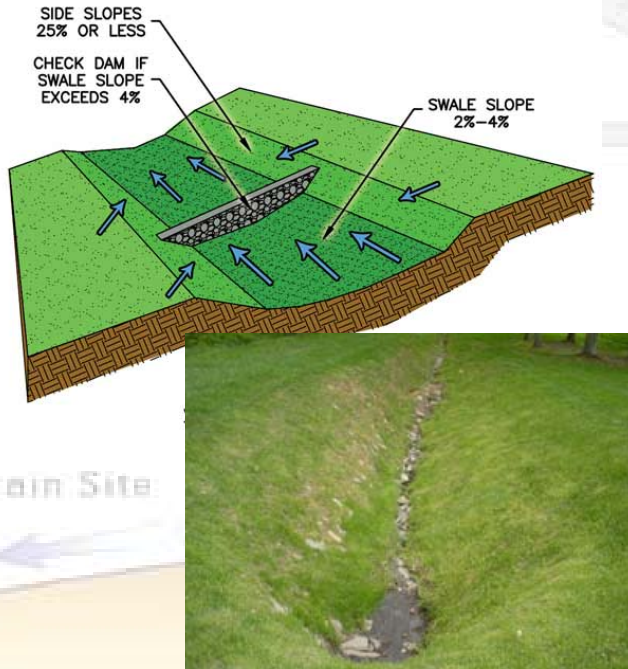
Current Regulations

- Dallas currently regulates site drainage through
 - Dallas Development Code, Chapter 51A
 - Dallas City Code, Chapter 52



Dallas Requirements

Dallas Development Code, 51A-8.611(e)



- **Lot-to-lot drainage**

- Each lot **must** be drained to an abutting street or alley unless drainage to a street or alley is infeasible.
- If drainage is infeasible there are **two** options:
 1. If no more than the rear 15 ft of the lot drains toward the rear lot line—A well pronounced swale must be provided, or
 2. If more than the rear 15 ft of the lot drains toward the rear lot line—A paved invert in a common area or a drainage easement is required



Dallas Requirements

Dallas City Code, Administrative Procedures for the Construction Codes 52-608

- **Site drainage**

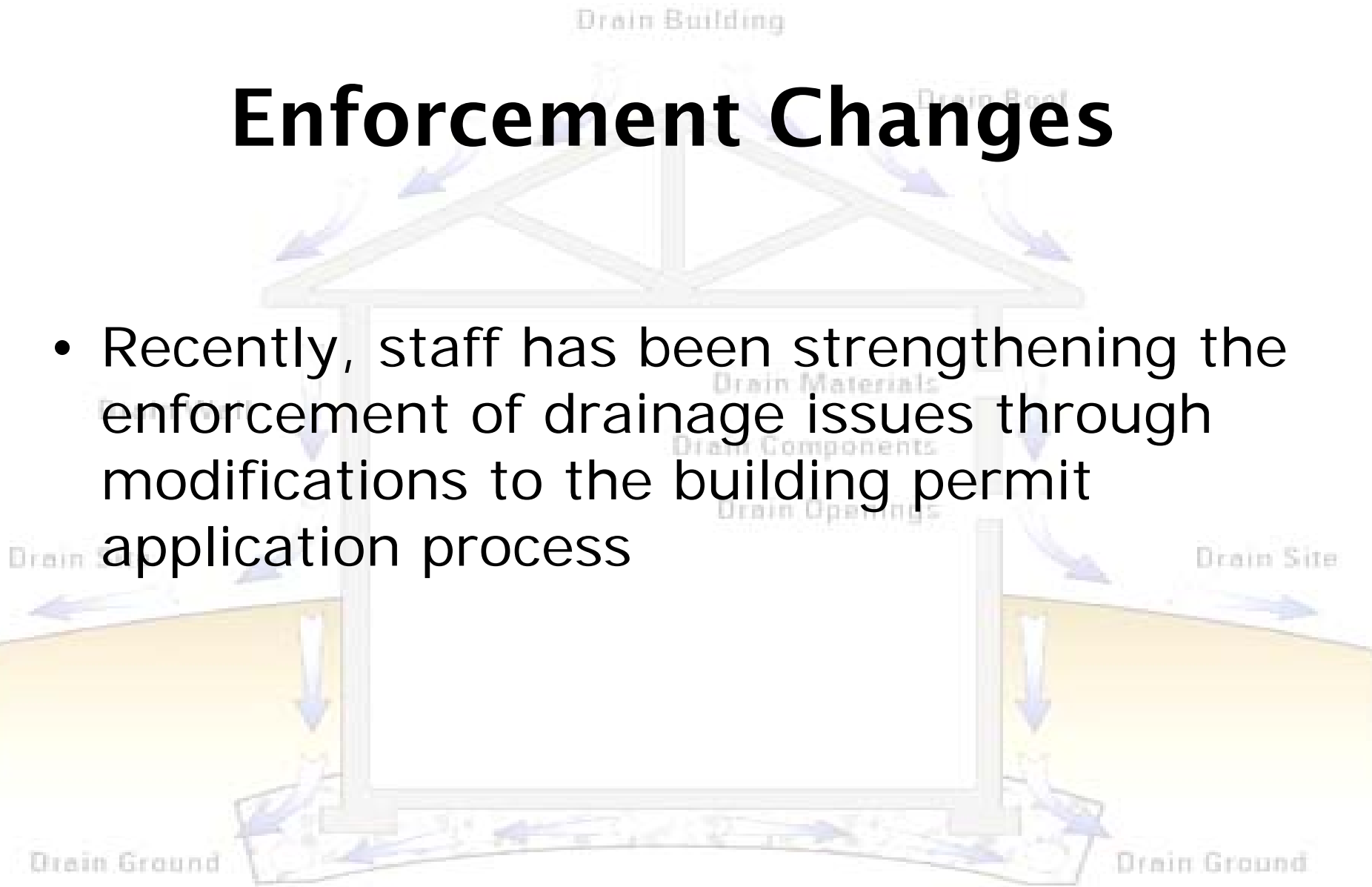
- Adjoining property—A contractor shall **not**:
 1. **Obstruct the existing** natural drainage pattern of adjacent public or private property; or
 2. **Redirect or increase** the existing quantity or velocity of water draining onto adjoining private property
- A contractor shall submit detailed drainage plans and engineering calculations **if** required by the building official

Other Cities

City	Lot-to-lot drainage	Grading Plan Requirement for Residential Infill Development
Austin	Permitted	Required, must be sealed by a registered surveyor
San Antonio	Permitted, maximum 2 lots	Not required
Houston	Not permitted	Not required
Fort Worth	Permitted	Not required
Arlington	Permitted, maximum 3 lots	Not required
Plano	Not permitted	Not required
Richardson	Not permitted	Required, but seal is not required
Frisco	Not permitted	Required, but seal is not required
Irving	Permitted	Required, must be sealed by a registered engineer or surveyor

Enforcement Changes

- Recently, staff has been strengthening the enforcement of drainage issues through modifications to the building permit application process





2006

Background

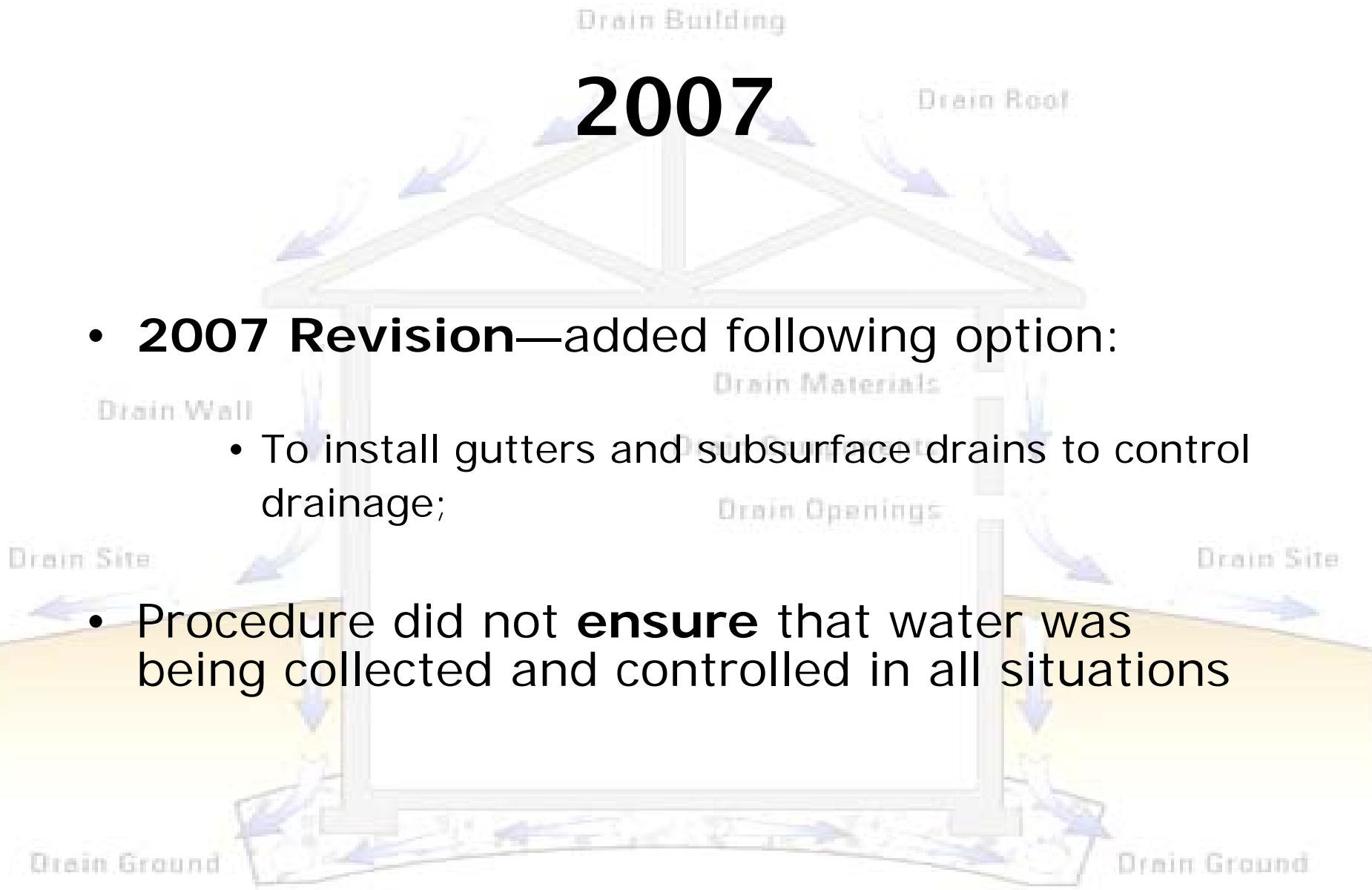
- Dallas implemented drainage procedures for infill developments in **2006**
 - Excessive rains resulted in complaints related to lot-to-lot drainage
 - Infill development has increased since 2000
 - Forward Dallas planning process in 2005 included citizen input on infill development
- **2006 Procedure**—Implemented a checklist and waiver form where applicant had the following **options**:
 - To sign waiver stating the conditions of the proposed site would not be changed significantly; **OR**
 - To submit signed and sealed engineering drainage plans

2007

- **2007 Revision**—added following option:

- To install gutters and subsurface drains to control drainage;

- Procedure did not **ensure** that water was being collected and controlled in all situations



2008

- **2008** Initiated process to revise procedure **to strengthen code compliance**

- Worked in collaboration with the Home Builders Association (HBA)

- Considered requiring grading and drainage plans, but:

- Less than **3%** of the projects annually result in inadequate drainage
- Average cost of sealed engineered plans is approx. \$1600

2008

A faint background diagram of a house with various parts labeled: Drain Building (top), Drain Roof (top right), Drain Wall (left), Drain Materials (center), Drain Site (left and right), and Drain Ground (bottom). Blue arrows indicate the flow of water from the roof and walls down to the ground.

- **2008 Procedure**—Implemented a checklist and waiver form that:

- Requires applicant to sign an **affidavit** stating the conditions of the proposed site (new or replacement structure, same or altered grade); **AND**
- Gives the Building Official the **right** to require a sealed engineering plan for a site that has been determined to cause an adverse impact on abutting property; **AND**
- Requires applicant to correct the drainage problem per the engineer's plan up to one year after completion of house, unless modifications were made by the homeowner after the sale of the house

Summary

- The new procedure went into effect on July 16, 2008
 - Changes are very recent and evaluation is still ongoing
- Building Inspection will monitor the results of the new procedure and:
 - Report findings to this committee
 - Modify requirements as necessary