

## Section 9. Single Family Residential Lot GESC Criteria

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### Overview of Section 9

#### 9.0

This section describes the GESC requirements for the control of erosion and sediment during the building permit process.

Section 9.1, **Scope**, summarizes the type of projects in which the Single Family Residential Lot GESC Criteria apply.

Section 9.2, **Enforcement**, describes the regulations and codes that enforce the Single Family Residential Lot Criteria.

Section 9.3, **Violations**, describes the regulations and codes that violations of the Single Family Residential Lot Criteria are enforced through.

Section 9.4, **New Owners Become Party to Project GESC Permit**, describes the permit requirements when portions of single-family residential projects are sold to new owners.

Section 9.5, **Drawing Requirements**, summarizes the drawing requirements for standard lot plans when individual or groups of lots are sold to a new owner (or Builder).

Section 9.6, **Grading and Drainage Requirements for Finished Grade**, describes the grading and drainage pattern requirements for individual lots. A drainage certificate must be provided and certified by a PE or PLS.

Section 9.7, **Erosion and Sediment Control Requirements**, describes the County's requirements and responsibilities of the Permittee to control the transport of sediment from individual lots during construction.

Section 9.8, **County Inspections**, summarizes the County's inspection process for Single Family Residential Sites.

Section 9.9, **Notification of Violation**, provides a description of the two levels of violations in the County.

Section 9.10, **Single Family Residential Drainage, Erosion, and Sedimentation Control Certification**, summarizes the requirements for a Certification.

Section 9.11, **Homeowner Responsibility**, discusses the requirements of the homeowner once the property is purchased.

**Scope**

**9.1**

The requirements of this Section apply to all entities performing work on Single-family Residential projects as permitted under an Arapahoe County Building Permit. It is a requirement of the Building Permit that the GESC requirements in this Section be implemented throughout the building process. A separate GESC permit is not required with the Building Permit, however most individual lots will typically already be included within an existing GESC permit issued for the subdivision, via the Letter of GESC Permit Compliance (refer to Section 2.19.2).

The following requirements apply to all single-family residential development projects, including:

- New single-family residential construction.
- New construction (i.e. additions, etc.) on existing single family home sites.
- Idle single family lots both permitted and non-permitted (lots owned by the builder or land developer not yet under construction).
- Grading, excavating and stockpiling of earth and landscape materials (not specifically limited to new construction) which results in the transport of any of these materials off site by any means including, but not limited to, wind or water erosion and vehicular tracking.

All builders and land developers must comply with the grading, sediment and erosion control requirements of this chapter.

**Enforcement**

**9.2**

The requirements of this Section are enforced through the requirements of the Arapahoe County Land Development Code and the Arapahoe County Building Code, as adopted and amended by the Arapahoe County Board of County Commissioners, including IBC Section 105.3.1.1 and IRC Section 105.3.2, in which building permit applicants must comply with all applicable County regulations. Acceptance of a permit constitutes the agreement by the property owner and the applicant to continue to comply with the Code, the County's Floodplain Regulations, the conditions set forth on the plat and the development plan for the property, the County's grading, erosion and sediment control requirements, the subdivision, and stormwater management regulations, and all applicable zoning regulations.

**Violations**

**9.3**

Violations of these requirements shall be enforced through the Building Official in accordance with the County adopted amended requirements of IBC Section 105.3.1.1 and IRC Section 105.3.2, which states that the Building Official shall have the power to suspend, revoke or cancel any permit if at any time the Building Official or his/her designee observes or is informed by other County personnel of violations of any of the above regulations (or other applicable regulations, resolutions or laws) on the property or caused by the applicant or owner on or near the property. The Building official may refuse inspections, may refuse to issue certificates of occupancy and may revoke certificates of occupancy.

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### ***New Owners Become Party to Project GESC Permit***

#### **9.4**

When portions of a single-family residential project are sold (typically to Builders), the new property owners must comply with the requirements of the project GESC permit for the development and become a party to the GESC permit for the site. New owners are not required to obtain a new individual GESC permit unless the entire site is sold as a whole to a new owner.

When the property transfers ownership, the new owner shall be required to complete a Letter of GESC Permit Compliance. The Letter of GESC Permit Compliance requires all property owners to comply with the terms and conditions of the GESC Permit. Failure to submit a Letter of GESC Permit Compliance may result in the issuance of a Stop Work Order in accordance with Section 5.9. A copy of the Letter of GESC Permit Compliance is provided in Appendix O. Additional collateral will not be required, as the original GESC permit and collateral shall remain in effect for the project. The original GESC permit may be transferred to the new property owner, with new collateral, only if the transfer occurs for the entire development project, including all common areas. Refer to Section 2.19.2.

#### ***Requirements of Individual Homeowners***

*Individual homeowners, which have purchased homes from builders are not required to submit a Letter of GESC Permit Compliance, but shall comply with Section 9.11.*

### ***Drawing Requirements***

#### **9.5**

Standard Lot Plans, with typical drainage patterns are provided at the end of this Section. If the lot conforms to the general layout and drainage patterns of one of these plans, a separate plan shall not be required. If the lot does not conform to one of the standard types provided at the end of this section, a new plan will be required. If a builder chooses to “lump” several lots into a group and provide perimeter stabilization for the group of lots, a plan shall be provided to show the designated lots, and the GESC controls. The plan must demonstrate adequate controls for all of the lots throughout the build out of the group. Submitted drawings shall be consistent with the format and content of the Standard Lot Plans at the end of this chapter.

### ***Grading and Drainage Requirements for Finished Grade***

#### **9.6**

**9.6.1 Lot Grading and Drainage.** Grading and drainage for individual lots shall be consistent with the requirements of the approved Phase III Drainage Report, the Final Development Plan (FDP) for the project, and in accordance with the County’s Building Code. On small projects, such as additions or expansions, where a drainage report is not available, the Builder will be required to verify that the improvements on the site are consistent with the historic drainage patterns of the property, and do not adversely impact other properties.

**9.6.2 Drainage Certificate.** To ensure proper site drainage, adequate drainage away from the foundation and off the lot shall be certified by a PE or Professional Land Surveyor (PLS) prior to issuance of the Certificate of Occupancy (CO). A copy of the Drainage Certificate is provided in Appendix S.

### ***Erosion and Sediment Control Requirements***

#### **9.7**

**9.7.1 Stabilization of Individual Lots.** Lot specific structural and/or nonstructural BMPs shall be provided on all active lots to reduce erosion and sediment transport on construction sites. Active lots include any lot that is not permanently stabilized with landscaping or established vegetation.

**9.7.2 Single Family Lot Erosion Control Plan.** The Standard Lot Plans provided at the end of this Section are the minimum requirements by the County to control sediment transport from individual lots during construction. The standard plan is provided to establish the County's minimum requirements, and to avoid the need for a plan review and approval process on each individual lot. If alternate methods are going to be used on a site, a new plan depicting the BMPs for the lot may be submitted and reviewed on a case by case basis.

The following list summarizes the responsibilities and requirements of the Builder in order to achieve adequate erosion and sediment controls on single family lots:

- ◆ It is the builder's responsibility to ensure that adequate controls are provided on their site to eliminate sediment transport. It may be necessary to provide additional BMPs above and beyond what is shown on the provided single family lot erosion control plan. If drainage, erosion or sediment problems become apparent during construction, such as when off-site sedimentation occurs, the BMPs shall be re-evaluated and re-implemented in an effective manner.



*The Builder is responsible for ensuring that adequate sediment control measures are in place to prevent sediment transport.*

- ◆ BMPs are required throughout the life of the project, including prior to the excavation of the foundation, through building, landscaping, issuance of a C.O., and until the lot specific BMPs designed to last 90 days are installed.
- ◆ The builder is responsible for the on-going maintenance of all lot specific erosion and sediment control devices.
- ◆ Builders are required to provide periodic inspections. Periodic inspections shall be whatever is deemed necessary to ensure that erosion control measures are functioning as designed. As a minimum, erosion control measures should be inspected every two weeks, and after each significant precipitation event that causes surface erosion.

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### ***Erosion and Sediment Control Requirements, continued***



*The Builder is responsible for the maintenance of all sediment control measures to prevent sediment from entering the storm sewer system.*

- ◆ Once construction has commenced, the Builder is responsible for the maintenance of erosion and sediment control measures protecting area inlets on their lots, as well as curb inlets along the street frontage. It is critical that sediment not be allowed to invade the storm sewer system.

- ◆ Vehicle access and parking should be limited to paved surfaces as much as possible. A temporary construction entrance may be needed to provide a place for parking vehicles and a spot where material can be off-loaded.

- ◆ During the construction process, the Builder is responsible to ensure that mud, dirt, rocks, and other debris are not allowed to erode or be tracked onto streets and sidewalks by construction vehicles. The Builder is responsible for removal of any mud, or debris on adjacent streets and sidewalks, and shall be required to clean it up immediately.

- ◆ When cleaning streets, they shall be scraped and swept. Street sweeping shall be conducted in a manner that prevents the formation of dust. Street washing with water is NOT allowed.

- ◆ Earth materials and landscape materials, such as sod, rock, and mulch shall not be stockpiled, placed or stored on streets, sidewalks or stormwater flowlines (refer to Section 432-5-310, C.R.S.).

- ◆ Construction supplies (trusses and lumber), roll-off containers, dumpsters, portable toilets, trailers, etc. shall not be stored on streets or sidewalks. These items shall be stored on the construction site or staging area(s). (Refer to Section 43-5-301, C.R.S.),

- ◆ During the construction process the Builder is responsible to ensure that all erosion control measures are maintained on the site, regardless of the entity creating the land disturbance. If utilities are installed after the BMPs are installed, including seed and mulching, silt fence, erosion control blankets, etc., it shall be the Builder's responsibility to ensure that the BMPs are re-installed appropriately.



*Sediment fence shall be properly maintained throughout the life of the project.*

- ◆ The Builder is responsible for the maintenance of silt fence, including but not limited to:
  1. Inspect sediment fences at least once a week and after any pre-

**Erosion and Sediment Control Requirements, continued**

**County Inspections**

**Notification of Violation**

precipitation snowmelt or runoff event that causes surface erosion, sediment transport, or tracking.

2. Should the fabric of the sediment fence collapse, tear, decompose or become ineffective, replace immediately.
3. Remove the sediment deposits as necessary to provide adequate storage volume for the next rain event and to reduce pressure on the fence. Take care to avoid damaging or undermining the fence during cleanup.

**9.8**

The County will not conduct routine formal inspections for the GESC requirements, but shall monitor the sites for compliance in conjunction with other inspections being performed on the site. If problems are noted, the Builder will be contacted. If problems persist on the site, a more formalized inspection program may be required.

**9.9**

Failure to meet the GESC requirements described herein shall result in the issuance of a Notice of Violation. The County classifies violations in one of two categories, depending upon the severity of the violation. Each violation category has different enforcement actions.

**9.9.1 Level I Violations.** Level I Violations are viewed by the County to pose an immediate serious risk to the health, safety or welfare of people and/or the environment.

Level I Violations include, but shall not be limited to the following:

- ***Disturbing land or filling within a floodplain or sensitive area without proper approvals.***
- ***Failure to correct Level II Violations per the directives of the County Inspector within the specified amount of time.***
- ***Failure to pay reinspection fees.***



Level I Violations may result in the immediate issuance of a Stop Work Order or a Notice of Violation (NOV), depending upon the impact and severity of the violation. If a Stop Work Order is issued, all work on site must stop until the violations are remedied and approved by the County.

**9.9.2 Level II Violations.** Level II Violations are viewed by the County to pose a moderate risk to health, safety or welfare or people and/or the environment; however if not immediately corrected, will pose a serious risk.

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### **Notification of Violation, continued**

Level II Violations include, but shall not be limited to the following:

- *Tracking of material onto roadways and adjacent properties.*
- *Failure to make required plan revisions.*
- *Failure to perform BMP maintenance as directed by the County Inspector.*
- *Failure to provide routine maintenance for erosion and sediment controls*
- *Installation of non-County approved BMPs.*
- *Failure to provide inlet protection.*
- *Failure to provide protection of drainageways.*
- *Failure to provide sediment pond maintenance.*
- *Staging of equipment outside of stabilized staging area.*
- *Failure to address inspection concerns within allotted time frame.*

Remediation for Level II Violations shall commence immediately after the Builder is notified of the violation. Notification can either be verbal instruction from the County Inspector to the Builder, or included on an inspection report as a deficiency. Level II Violations shall be corrected within 48 hours of notification, unless otherwise specified in writing by the County Inspector. A re-inspection will be completed by the County following the allotted 48 hour time frame. If corrections have not been completed satisfactorily within the 48 hour time frame, and additional inspections are needed, reinspection fees will be applied for subsequent inspections. Corrections not made in full after additional inspections and subsequent inspections fees will result in the issuance of a Notice of Violation (NOV) and possible Stop Work Order.

### **Single Family Residential Drainage, Erosion, and Sedimentation Control Certification**

#### **9.10**

Under an active building permit, the Builder shall be responsible for all grading, erosion and sediment control related to the permitted site. Prior to issuance of the Certificate of Occupancy (CO), the Builder shall be required to provide either permanent erosion control (landscaping, established vegetation), or adequate temporary erosion control designed to remain effective for 90 days, or until the homeowner installs permanent erosion control, whichever comes first. For lots that are grouped during construction, individual lot protection is required prior to issuance of the CO. The Builder retains responsibility for the erosion and sediment control until the property is sold to a homeowner. When the property is sold to a homeowner, the Builder must inform the purchaser of the need to maintain established drainage patterns as shown on the Drainage Certificate, and the need to provide permanent erosion controls or maintain temporary erosion and sedimentation controls on the property. Prior to issuance of the CO, the Builder must provide a Certification to the County regarding the above requirements. A copy of the Single-Family Lot Erosion Control Certificate is provided in Appendix S.

**Homeowner  
Responsibility**

**9.11**

Once the property is sold to a homeowner, the homeowner shall be responsible for the erosion and sediment control of the property. The County requires through the Land Development Codes that homeowners prevent the erosion and transfer of sediment from their property.

Homeowners are required to provide permanent stabilization of their lot, through such measures as sod, established seeded vegetation, rock, landscaping or other permanent measures of stabilization.

Homeowners are required to maintain temporary erosion control measures on their property, until permanent measures can be implemented, up to a maximum of one year.



*Homeowners are responsible for maintaining temporary erosion control measures on their property until permanent measures are implemented.*

# EROSION CONTROL FOR SINGLE FAMILY RESIDENTIAL CONSTRUCTION

## Scope

The following requirements apply to all single-family residential projects, including:

- New single-family residential construction.
- New construction (i.e. additions, etc.) on existing single-family home sites.
- Idle single family lots both permitted and non-permitted (lots owned by the builder or land developer not yet under construction).
- Grading, excavating and stockpiling of earth and landscape materials (not specifically limited to new construction) which results in the transport of any of these materials off site by any means including, but not limited to, wind or water erosion and vehicular tracking.

## Enforcement

The requirements herein are enforced through the requirements of the Arapahoe County Land Development Code and the Arapahoe County Building Code. Failure to comply may result in the refusal of inspections, refusal of Certificates of Occupancy, and the suspension, revocation, or cancellation of Building Permits. Refer to Section 9.2 of the GESC Manual.

## Excavations for basements

When lots are ready for basement excavations and / or additional grading, the BMPs that are protecting the lot shall not be compromised during this operation. BMPs may be temporarily removed to allow for access and promptly reinstalled at the end of the basement excavation and / or grading operations, or at the end of the day- whichever is sooner. At no time shall the lot specific BMPs be removed over night or during precipitation events.

Basement excavations / grading shall not be performed on a lot(s) if excessive tracking of sediment onto streets will occur. This is often the case after recent precipitation events, which cause the lot to be "muddy."

Material from basement excavations shall be contained behind silt fence or other approved BMPs. The excavated material shall comply with all stockpile criteria outlined in the County GESC Manual.

If the excavated material is to be moved, and sediment is tracked onto streets, all sediment shall be removed immediately. The streets shall be scraped and swept periodically throughout the day and at no time shall the material be allowed to remain on the street overnight. All BMPs shall be reinstalled at the end of each day.

## Downspouts / Sumps Protection

As soon as downspouts / sumps are installed, they must be protected. The downspout / sump shall not discharge directly onto unprotected soil. The downspouts / sump shall be extended to the sidewalk using a temporary pipe as shown in the details that follow. If the downspouts / sump can be conveyed to a common swale (so that the flow is contained within the swale) then the swale can be protected with an erosion control blanket and check dams to convey the flow to the sidewalk; see details. If the downspout / sump is located some distance from the common swale between the houses than the swale leading to the common swale shall be protected in a similar fashion to the common swale.

## Common Drainage Swale (Between houses)

If the flow from a downspout is conveyed to a common drainage swale (between houses) then the swale shall be protected with erosion control blankets and check dams. The check dams shall be rock and/or sediment control logs depending on the flow that will be conveyed to the swale. At least two check dams shall be installed as shown on the detail.

## Erosion Control Blanket

The Erosion Control Blanket shall meet the specifications, installation, and maintenance requirements stated in the GESC Manual.

## Silt Fence

The Silt Fence shall meet the specifications, installation, and maintenance requirements stated in the GESC Manual.

## Sediment Control Log

The Sediment Control Log shall meet the specifications, installation, and maintenance requirements stated in the GESC Manual.

## Inlet Protection

Inlet Protection shall be installed & maintained per County GESC requirements at all times.

## Street Sweeping

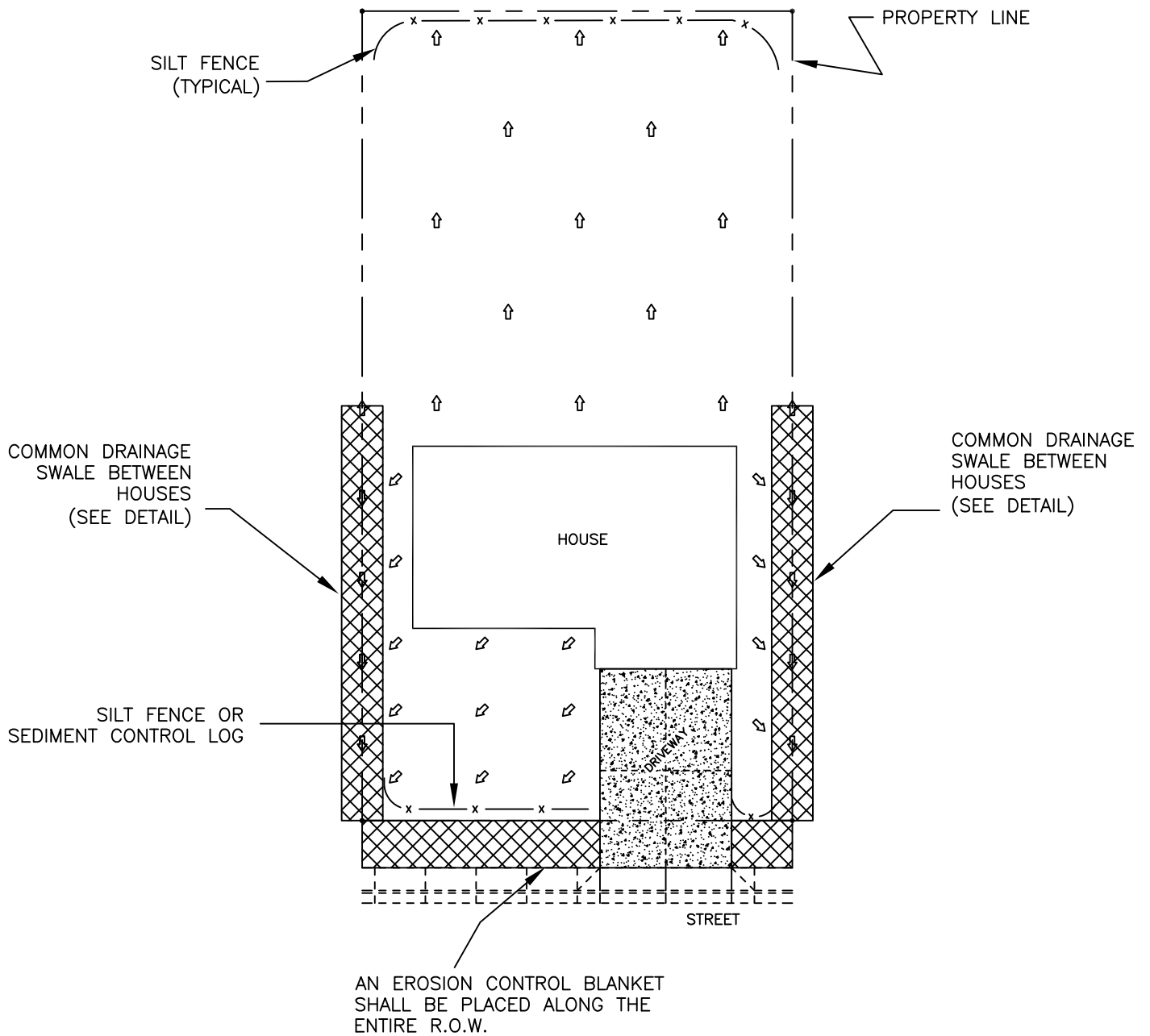
Street sweeping shall be performed on a regular basis. The frequency of sweeping will depend on construction activity, the amount of deliveries, the overall effectiveness / maintenance of the BMPs, as well as "good housekeeping" practices. The County may request additional sweeping if material is tracked onto streets. The street sweeping shall be completed within 24 hours of the request.

## Maintenance of lot BMPs

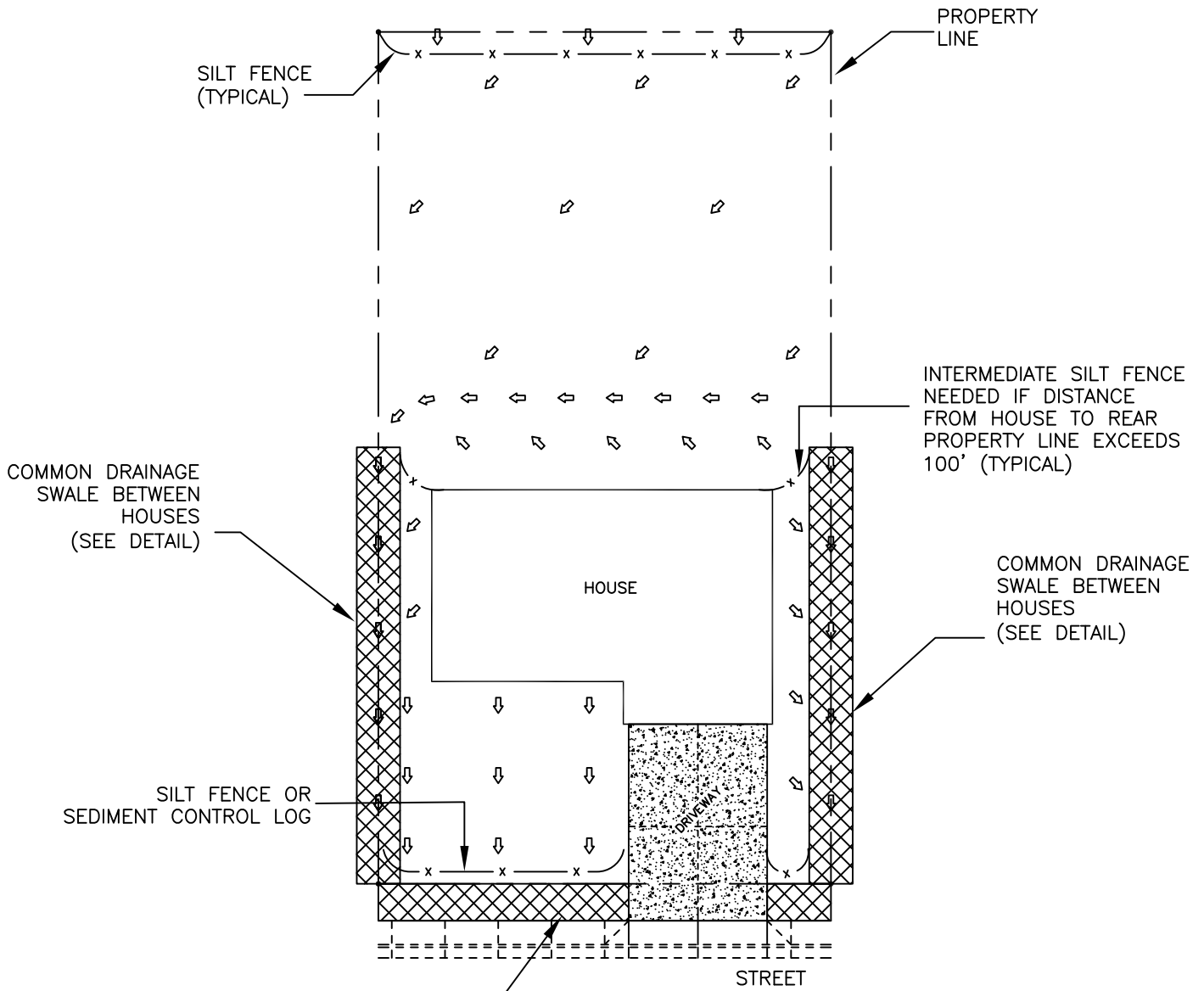
Maintenance shall be performed on all lot BMPs on a routine basis and after all precipitation events that cause surface erosion. See the County GESC Manual (field section) for additional information.

\*Lots that are in sensitive areas, or conditions are such that the lot(s) cannot be permanently stabilized for an extended period of time, may require the entire lot to be covered with erosion control blankets. This will be determined on an individual lot basis.





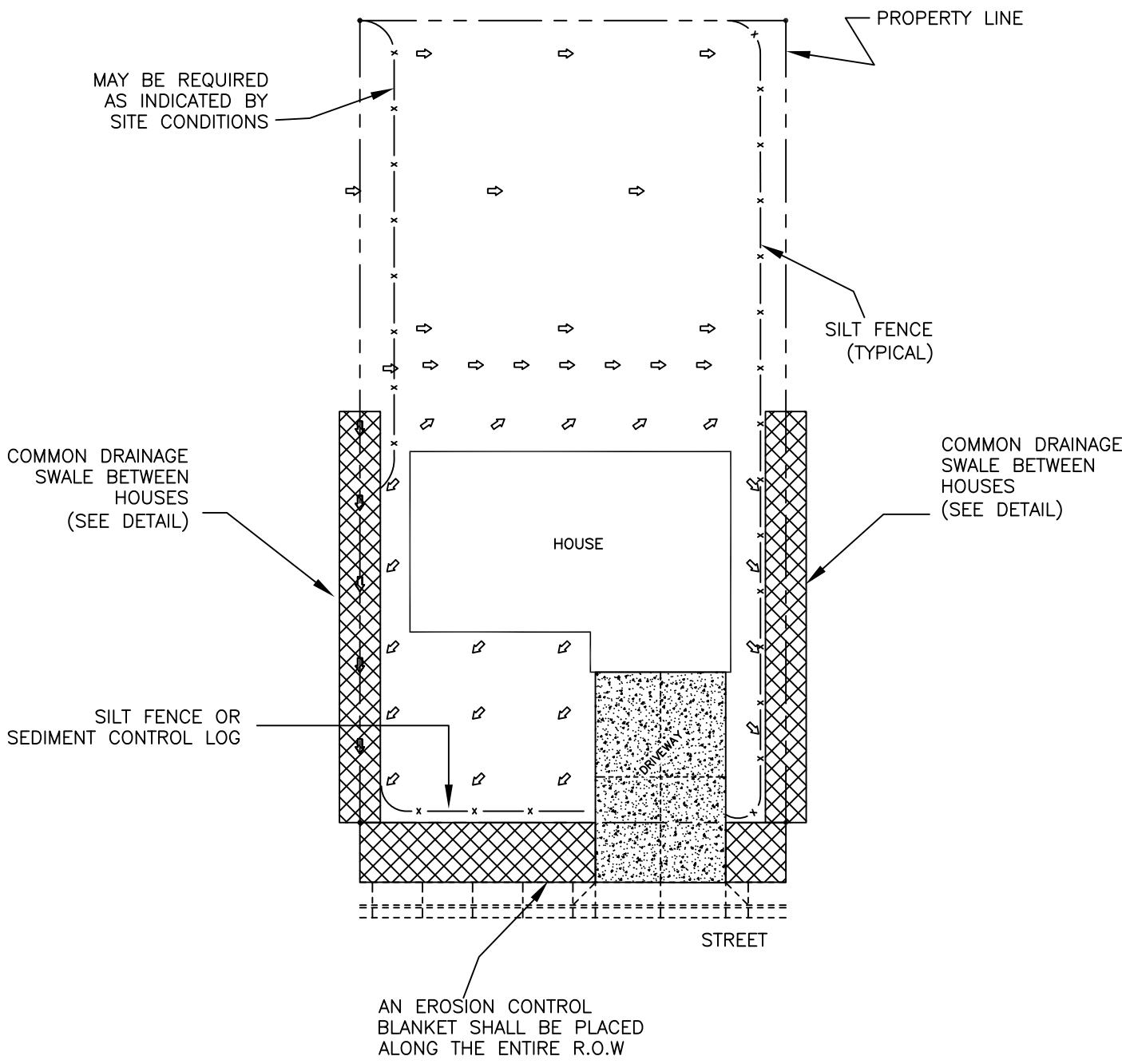
- x — SILT FENCE / SEDIMENT CONTROL LOG
- ← DIRECTION OF SURFACE WATER RUNOFF
- ▨ EROSION CONTROL BLANKET



INTERMEDIATE SILT FENCE  
NEEDED IF DISTANCE  
FROM HOUSE TO REAR  
PROPERTY LINE EXCEEDS  
100' (TYPICAL)

AN EROSION CONTROL  
BLANKET SHALL BE PLACED  
ALONG THE ENTIRE R.O.W

- x — SILT FENCE / SEDIMENT CONTROL LOG
- ← DIRECTION OF SURFACE WATER RUNOFF
- ▨ EROSION CONTROL BLANKET



SILT FENCE OR  
SEDIMENT CONTROL LOG

COMMON DRAINAGE  
SWALE BETWEEN  
HOUSES  
(SEE DETAIL)

SILT FENCE  
(TYPICAL)

COMMON DRAINAGE  
SWALE BETWEEN  
HOUSES  
(SEE DETAIL)

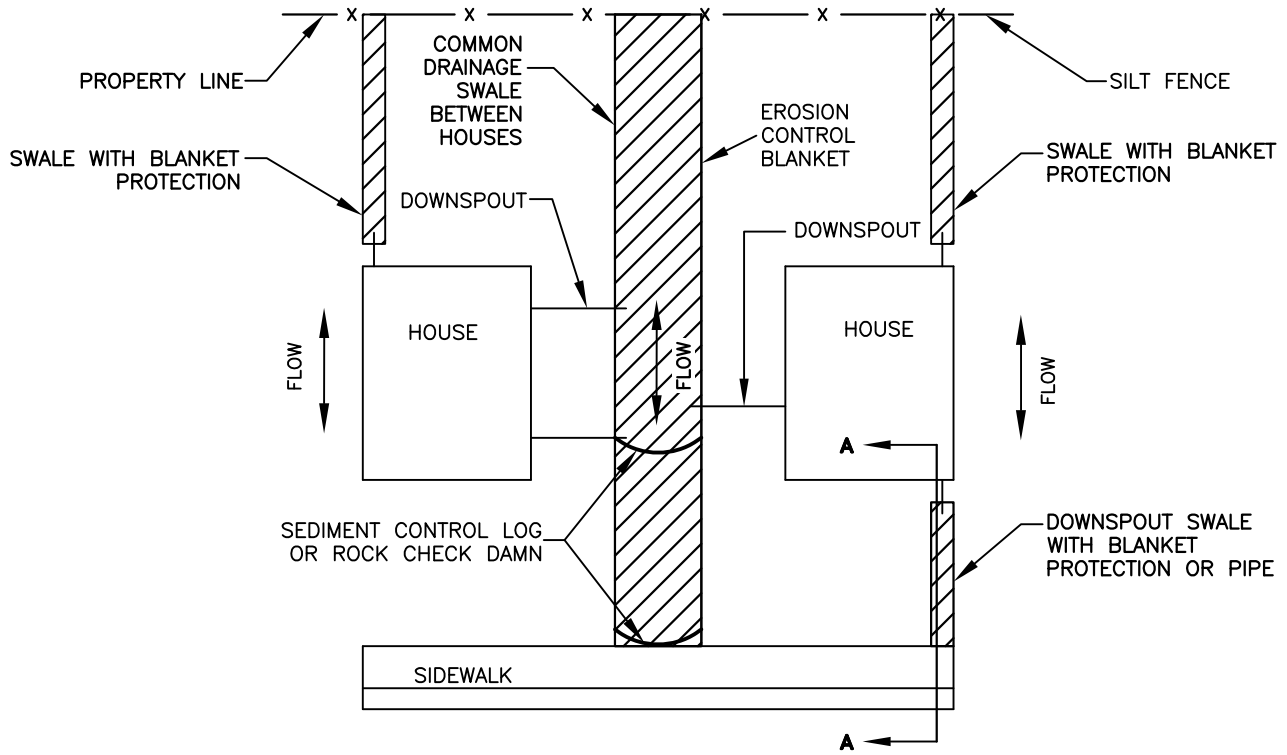
AN EROSION CONTROL  
BLANKET SHALL BE PLACED  
ALONG THE ENTIRE R.O.W

— x — SILT FENCE / SEDIMENT CONTROL LOG

← DIRECTION OF SURFACE  
WATER RUNOFF

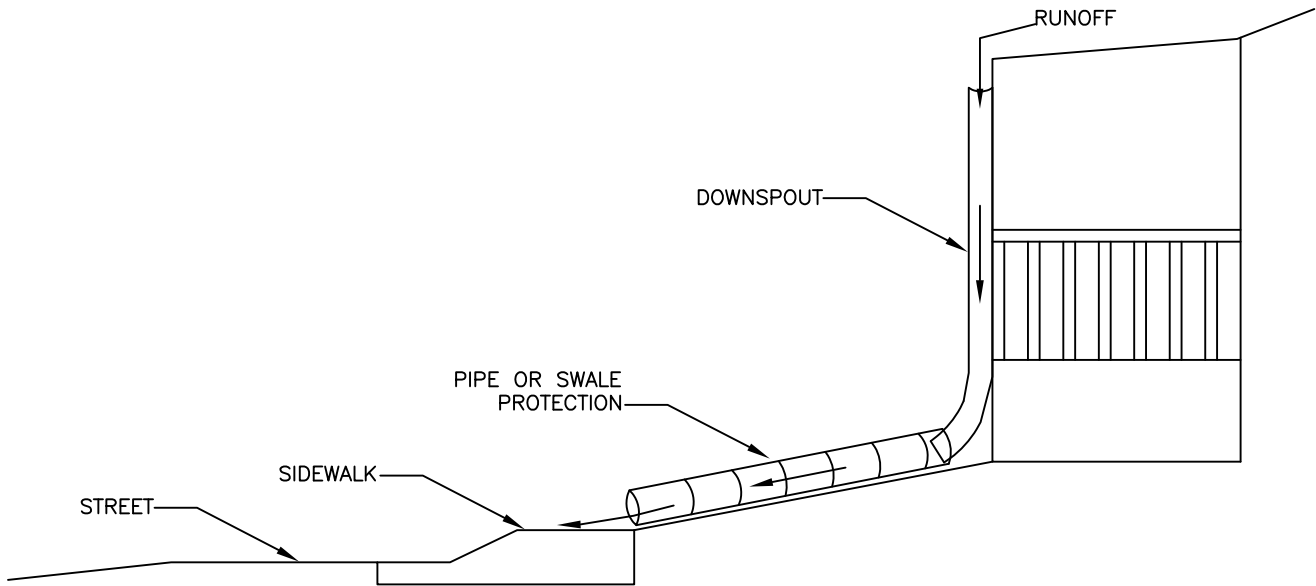
▨ EROSION CONTROL BLANKET

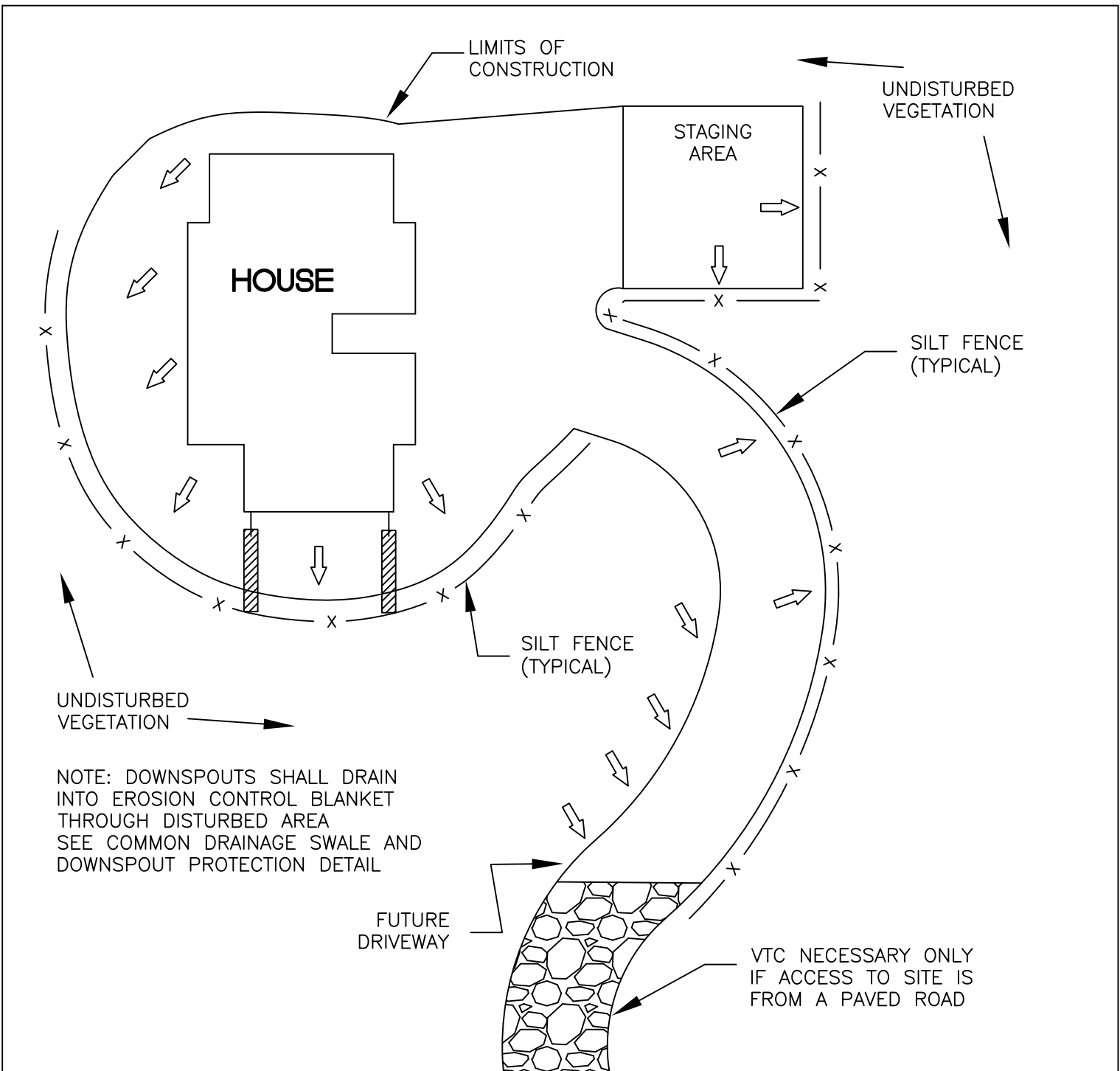
**COMMON DRAINAGE SWALE AND DOWNSPOUT PROTECTION DETAIL  
(BETWEEN HOUSES)**



NOTE: DETAIL MUST BE IMPLEMENTED WHEN DOWNSPOUTS ARE INSTALLED ON HOUSE

**SECTION A-A**





NOTE: DOWNSPOUTS SHALL DRAIN INTO EROSION CONTROL BLANKET THROUGH DISTURBED AREA SEE COMMON DRAINAGE SWALE AND DOWNSPOUT PROTECTION DETAIL

PAVED ROAD

NOTE: THIS PLAN MAY BE USED WHEN ONLY A PART OF THE LOT IS DISTURBED.

- x — SILT FENCE / SEDIMENT CONTROL LOG
- ← DIRECTION OF SURFACE WATER RUNOFF