



# Residential

## Lot Grading Guidelines

City of Beaumont

## **RESIDENTIAL LOT GRADING OVERVIEW**

### **INTRODUCTION**

The City of Beaumont's lot grading acceptance process applies to all residential lots. All lots must be graded in accordance with Beaumont's **Surface Drainage Bylaw 732-08/732-01-10**, Beaumont's General Design Standards, and the accepted Subdivision Drainage Plan for the area. This document is used to convey information regarding lot grading acceptance process, requirements, procedures, inspection details etc. to assist and guide homeowners, contactors, and home builders.

### **PURPOSE**

The purpose of lot grading is to ensure all residential properties have met the surface drainage requirements set out in the Subdivision Drainage plan to prevent flooding and other water-related damages. Proper lot grading will ensure surface runoff drains away from all structures, control drainage discharge points and the rate of flow entering the public roads and storm sewer system.

### **BYLAW**

Surface Drainage Bylaw (732-08) and its amendment (732-10) regulates Lot Grading and Surface Drainage requirements within private and public lands. The motive of this bylaw is to protect residents and /or minimize the damage to properties from stormwater drainage. The bylaw may be used in case of enforcing the residents and builders to comply with City's surface drainage design and standards.

### **DEFINITIONS**

#### **Residential Lot Grading:**

Residential Lot Grading is shaping and grading the land to direct surface runoff away from buildings and towards the city Right-of-Way (lane or street) according to the accepted Subdivision Drainage plan. Refer to **Appendix I** for lot drainage-type examples.

#### **Subdivision Drainage Plans:**

Subdivision Drainage plans are required for all new developments and show the drainage design for the specified lot and the relationship between adjacent properties. They specify design elevations, drainage slope percentages, lot types, swale locations and other drainage information required for grading.

#### **Lot Grading Certificate:**

The lot grading certificate shows the design and existing elevations on a lot. These certificates are required to determine whether the current elevations meet the requirements and if the grade of a lot will be accepted or refused. The City of Beaumont will accept lot grading certificates signed and certified by a registered Alberta Land Surveyor.

#### **Right of Way:**

A public road, public lane, utility Right-of-Way, transportation Right-of-Way, or an easement where the City is party to an agreement granting the City an interest in the land.

## LOT GRADING ACCEPTANCE PROCEDURE

### INSPECTIONS

There are two stages of inspections for Lot Grading Acceptance which are explained below:

**Rough Grade:** This is the first stage in lot grading process, and it includes backfilling the foundation walls with material native to the site (or equivalent) and establishing the surface grades/elevations on the clay or native material in accordance with Lot Grading Plan. Rough grade must be inspected and accepted prior to starting final grading of a lot.

**Note:** *Failure to obtain Rough Grade acceptance prior to establishment of Final Grade may result in penalties and removal of topsoil/decorative material to perform rough grade inspection.*

**Final Grade:** This stage consists of placing the topsoil/sod and shaping the lot to ensure positive drainage and establishing the surface grades according to Lot Grading Plan within allowable tolerances. It is the homeowner's responsibility to complete final grade unless there is an agreement between the builder and homeowner.

**Note:** *Development of the lot including buildings, concrete driveways, and walkways must be completed before applying for grading acceptance.*

### Rough Grade Inspection Process:

The Rough Grade must be **accepted within 18 months** of the issuance of a final occupancy for a home. The **home builder** is responsible for ensuring that the rough grade is completed and accepted. Homeowners should discuss and confirm the lot grading requirements with the home builder when purchasing a new home. A Damage Agreement Inspection will also take place during the Rough Grade stage. Please review the following steps to learn more about rough grade inspection.

- 1) The lot is pre-graded, and a survey is obtained from an Alberta Land Surveyor who will prepare a plan of as-built grades (lot grading certificate). The certificate must be obtained within the same calendar year of the application submission.
- 2) The lot grading inspection application and certificate are submitted to the City's Lot Grading Department. The City will review the lot grading certificate for compliance. If accepted, the property will be added to the inspection list. If refused, the certificate will be returned to the applicant, who must correct the deficiencies and submit a revised certificate. Once the City receives both the acceptable certificate and a completed application, the property will then be added to the inspection list.
- 3) The City staff will visit the property to conduct an inspection of the rough grade. The City staff will also inspect the CC valve, third pipe, sidewalk, and curbs at the same time if rough grade inspection passes. **(See the Damage Agreement Acceptance section for more information)**. A door hanger will be placed at the property advising the status of inspection.

- 4) The inspection report will be emailed to the builder and the homeowner (if contact information is supplied in the application). The report will outline the rough grade inspection findings, whether the rough grade was accepted, or if deficiencies exist and a re-inspection is required.
- 5) If deficiencies exist on the lot grading report, the home builder must correct them within 60 days (unless otherwise noted on the inspection report) and request a re-inspection from the City. If the City staff has asked for proof of revised elevations, the re-inspection will not occur until a revised lot grading certificate is received. All re-inspections require payment of the inspection fee before being added to the inspection list.
- 6) Once the inspection is accepted, a rough grading acceptance letter and the accepted lot grading certificate will be sent to the homebuilder and homeowner (if contact information is supplied in the application) via email.

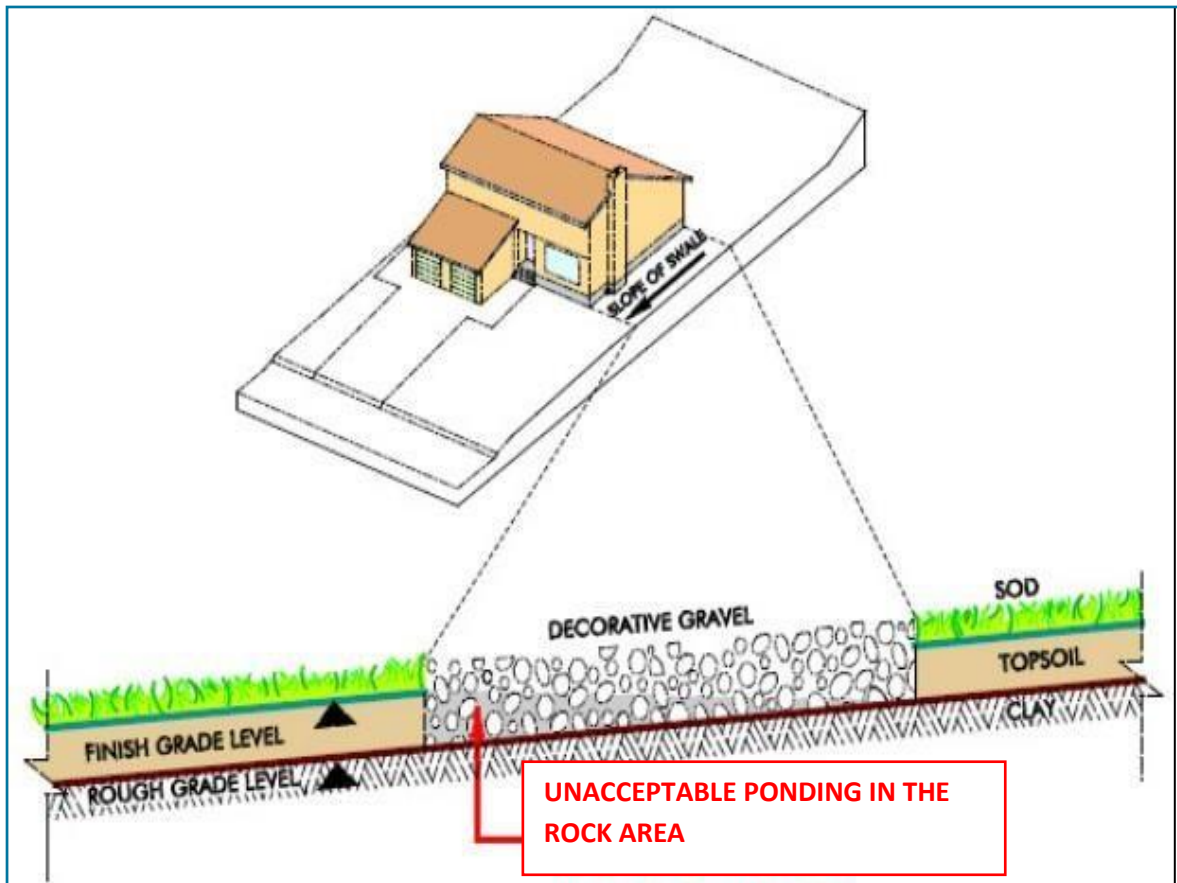
**Note:** Failure to apply for rough grade acceptance within the given deadline may result in a penalty fee as per the City of Beaumont's Surface Drainage Bylaw 732-08.

### Final Grade Inspection Process:

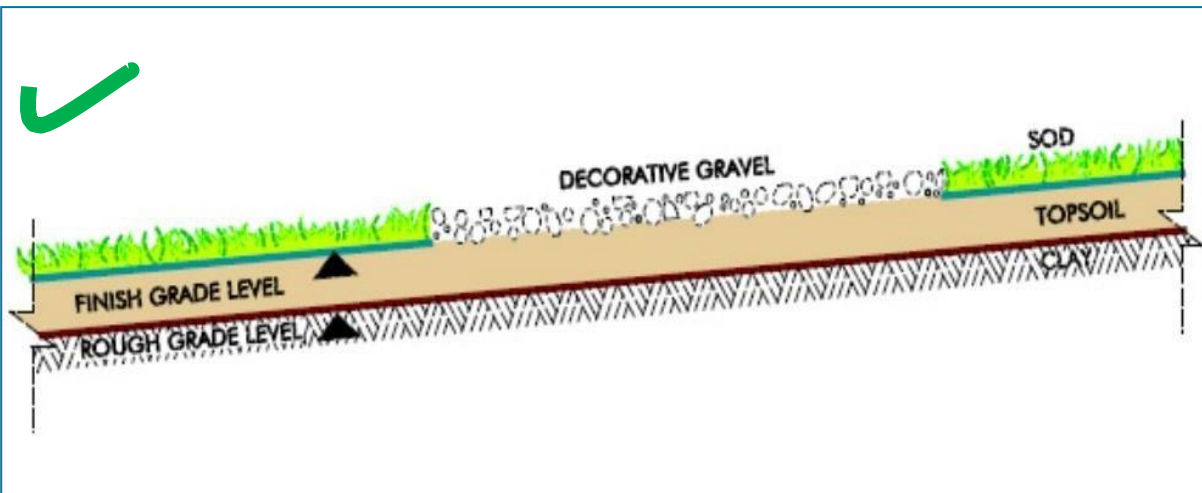
The **homeowner** is responsible for ensuring that Final Grade is completed and accepted. The **home builder** can also finish the final grading if finished landscaping is being provided with the home. Final grade must be completed and accepted within 12 months of Rough Grade Acceptance.

- 1) The homeowner is required to apply topsoil and shape the lot as per the accepted lot grading plan. Once the topsoil is spread and compacted, the homeowner must obtain a lot grading certificate from an Alberta Land Surveyor. The homeowner may hire a landscaping contractor who can provide final grading and landscaping services.
- 2) The certificate is submitted to the City's Lot Grading Department along with a Lot grading inspection application and inspection fees. Inspection fees can be paid at City Hall Reception Desk or call 780-929-8782 **ext.0** to pay with a credit card. The City will review the lot grading certificate for compliance. If accepted, the property will be added to the inspection list. If refused, the certificate will be returned to the applicant, who must correct the deficiencies and submit a revised certificate. Once the City receives both the acceptable lot grade certificate and a completed application, the property will then be added to the inspection list.
- 3) The City staff will visit the property to inspect the Final Grade. A door hanger will be placed at the property advising the next steps. The applicant is not required to schedule an appointment or attend the inspection. Once an accepted application package is submitted to lot grading, inspection will be conducted according to first come first serve basis. Please ensure property is accessible and pets are contained indoor.

- 4) If deficiencies exist on the lot grading report, the property owner/applicant must correct them **within 60 days** (unless otherwise noted on the inspection report) and request a re-inspection from the Lot Grading Department. If the City staff has requested proof of revised elevations, the **re-inspection will not take place** until a revised lot grading certificate has been received. All re-inspections require payment of the inspection fee before being added to the inspection list.
- 5) Final grade inspections are recommended to take place before sod has been laid in case of grading modifications are required. The applicant is responsible for removing sod and revise lot grading if required.
- 6) If rock or wood chips are part of the landscaping plan, the rough grade (clay base) must be raised to the final grade in those areas before laying decorative materials; rock and wood chips should not be laid at the same elevation as topsoil as water will not flow over these materials as compared to the sod, and it may lead to ponding in low areas.



Placing decorative gravel directly on the rough grade level creates a place for unacceptable ponding along the common property drainage swale



[Placing soil to match the finish grade level prior to placing the decorative gravel minimizes or eliminates unacceptable ponding along the common property drainage swale](#)

### **Notes:**

- Failure to apply for final grade acceptance within the given deadline from the City may result in a penalty fee as per the City of Beaumont's Surface Drainage Bylaw 732-08.
- In both rough grade and final grade stages, it is the responsibility for the designated party to ensure that all lot grading requirements are met.

### **APPLICATION TO BYPASS ROUGH GRADING**

The applicant may apply for an application to Bypass Rough Grading Inspection if both rough and final grade are being completed by the same builder/contractor.

As per the Surface Drainage Bylaw Section 5.3 (d) "*The City may waive the requirement for an acceptance of Rough Grading when the establishment of Final Grading of a Lot is conducted by the same Person who is responsible for Rough Grading.*"

Rough Grade Bypass Application must be filled out and submitted for acceptance at least 15 business days before any grading work is undertaken. The Lot Grading Department will review the application and may waive the rough grade inspection requirements; however, the applicant must still obtain a rough grade certificate from an Alberta Land Surveyor displaying all existing elevations within City's allowable tolerance before placing the topsoil (final grading). **Rough grading work must only take place after the occupancy is issued for the home.**

The applicant must submit both rough and final grade certificates for the final grade acceptance process. Failure to submit a rough grade certificate with elevations within allowable tolerance may restrict the home builder from bypassing rough grading in the future and/or result in penalties. It also may require the builder to remove the topsoil to correct any deficiencies and perform rough grade inspection. The bypass process is done at the risk of the home builder, and they are responsible for correcting any deficiencies found at any stage.

## **DAMAGE AGREEMENT ACCEPTANCE PROCESS**

The damage agreement acceptance is a 3-step process:

### **1) Performance/Damage Agreement Form**

- a. Completed with the Building Permit application.

### **2) Damage Deposit (DD) Initial Inspection** (Only completed upon request)

- a. Completed before any construction activity or equipment has mobilized on the property.
- b. The builder must submit a pre-construction damage deposit inspection application to Lot Grading department at least 5 business days before starting construction or mobilizing equipment on-site.
- c. Ensure sidewalks and curbs are free of any debris or obstruction prior to the inspection time. If surface conditions are not visible, the City staff reserves the right to postpone or cancel the inspection. This may delay the inspection process and/or additional inspection fees if required.
- d. If the initial inspection is **not completed** by the permit issuance date or before the start of construction, **the homebuilder/applicant assumes all liability** for any damages and waives their right to City's initial inspection.

### **3) Damage Deposit (DD) Final Inspection** (Occurs at the time of rough grade inspection)

- a. The homebuilder must notify the lot grading department that all DD items are ready for inspection at the time of the rough grade inspection request. If rough grade inspection fails, the damage inspection will not be completed. The damage inspection would then be completed at the time of re-inspection. Ensure CC valve cap elevation is flush with the design grade, the valve head should be clear from debris, and the valve is operational. Remove debris from the sidewalk area.
- b. The City staff will inspect the Curb Stop (CC) Valve and its operation, sump pump installation (Third Pipe), sidewalk, and curb conditions.
- c. The final damage inspection report will be sent to the builder via email. If deficiencies exist on the damage inspection report, the builder must correct them and request a re-inspection before the date stated on inspection report. A re-inspection fee will be applied after the first final damage inspection.
- d. The builder must repair the deficiencies outlined by the City administration before the given deadline date on damage inspection report. The full damage deposit amount may be forfeited if the builder fails to meet the deadline.
- e. The City of Beaumont may then undertake the repairs/replacement at its discretion.
  - i. If sufficient funds are not available through the damage deposit, the applicant will be invoiced for the remaining balance.
- f. Damage deposit will automatically be refunded via cheque after deductions (if any) when rough grade and DD inspection have been accepted. Cheque will be mailed to the address provided on Building Permit Application.

### **CURB STOP (CC) VALVE**

Curb Stop (CC) valves are generally located near the property line either in the front yard or in the back alley. CC valves control water supply of the home and installed during subdivision development. These valves can often be damaged during home building construction process.

#### **Ensure following requirements are met before the CC valve inspection:**

- CC valve must be accessible and visible.
- CC valve cap must be free of any debris.
- The valve must be operational at the time of inspection.
- Must be installed at final grade elevation, typically around **15 cm (6 in)** above the accepted rough grade elevation. The cap must be a 5-sided bolt head.
- If the CC Valve is in a landscaped area the green PVC casing must be removed and backfilled around the cap.

### **SUMP PUMP DISCHARGE (THIRD PIPE)**

The sump pump is a part of the building's foundation drainage system. It is meant to provide an escape route for overflow in the case of storm service backup. All new developments involving single-family, duplexes, or townhomes shall have a third pipe (sump pump discharge) for each unit and connected to Storm Service.

#### **The following are the Sump Pump Discharge inspection requirements:**

- The third pipe needs to be attached at a 45° downward angle perpendicular to the foundation of the home.
- The third pipe needs to be installed a minimum of 15 cm (6 in) above the final grade elevation.
- Utilize a splash pad to minimize soil erosion and re-infiltration back in weeping tile system.
- Discharge towards common swale following minimum setbacks implemented by the city.

**Section 3.2.5.2 of the City of Beaumont's General Design Standards states there shall be no roof leaders (downspouts), garage drains, sanitary lines, or other plumbing systems connected to the sump pump/weeping tile system unless otherwise approved.**

### **SIDEWALK AND CURB CONDITIONS**

Sidewalks and curbs can be damaged during the construction of a house. The City staff will document the sidewalk and curb conditions at the time of Initial DD inspection (if requested by the builder) and Final DD inspection. The findings in both reports will be compared to determine the damages prior to processing DD refunds.

The builder will receive an inspection report stating the findings and deduction amount (if any). Damage Deposit refund process will automatically take place upon the completion of DD inspection.

**Note: The builder is NOT allowed to hire a contractor to fix any sidewalk or curb damages that were noted at the time of inspection.**



## LOT GRADING REQUIREMENTS FOR ROUGH AND FINAL GRADE

### DESIGN GRADES AND EXISTING GRADES

The accepted Subdivision Drainage Plan shows the design grades for each lot. These elevations are detailed on the lot grading certificate with the current as-built elevations. The current elevations must be within allowable tolerances as shown below at each respective stage of grading in order to be accepted. For example, if a rough grade certificate displays the design grade at 32.30 and the existing grade is at 32.16, the difference of -0.14m is within the allowable tolerance and therefore would be acceptable. If current elevations are out of City’s allowable tolerance, inspection may fail, and applicant may be asked to apply for re-inspection with a revised lot grading certificate.

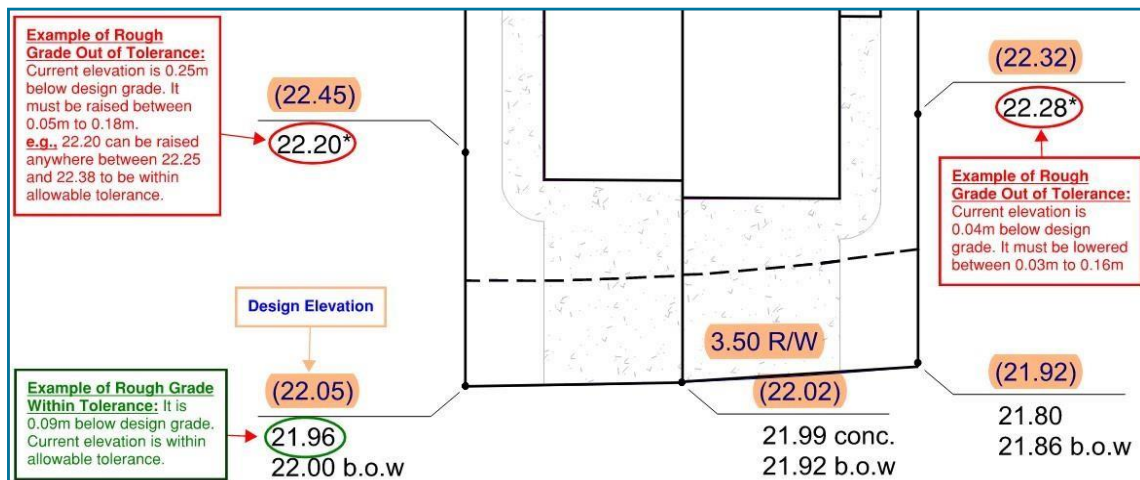
### ACCEPTABLE AS-BUILT TOLERANCES

GRADE	TOLERANCE (metric)*	EXPLANATION
Rough Grade	(-0.07m) to (-0.20m)	Between 0.07m and 0.20m <u>below</u> design grade for Clay
Final Grade (on topsoil)	(-0.01m) to (-0.10m)	Between 0.01m and 0.10m <u>below</u> design grade for Topsoil
Final Grade (on landscaping)	(-0.05m) to (+0.05m)	Between 0.05m <u>below</u> to 0.05m <u>above</u> design grade for landscaping

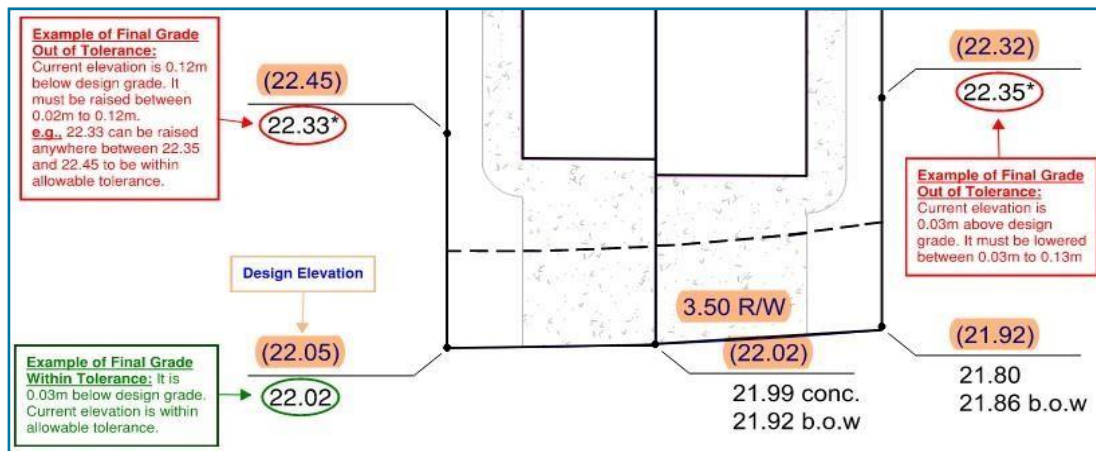
\*The City administration has the discretion to accept elevations that are outside of tolerance.

\*Any proposed changes to lot grading certificate must be approved by the City of Beaumont before the applicant undertakes any changes.

\*Variance may be granted if a lot is graded to match the existing walkway, lake, park, curb, sidewalk, road, or lane while maintaining a positive surface runoff.



Tolerance Example at Rough Grade Stage

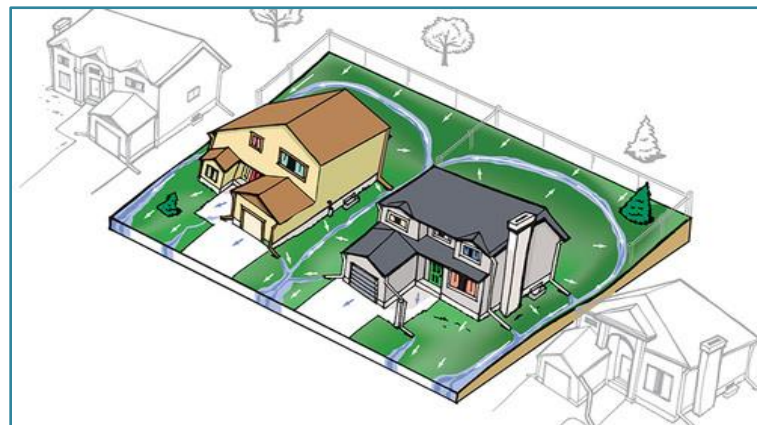


Tolerance Example at Final Grade Stage

## LOT DRAINAGE TYPES

There are typically three types of drainage patterns found within City of Beaumont. Applicants must ensure to grade the lot in the same drainage pattern as displayed on subdivision Lot Grading Plan accepted by the city. Lot grading plans display swale/easement locations, drainage slopes/patterns, grading relationship between adjacent properties and other drainage information. More details regarding lot drainage patterns are explained below:

- i. **Lot Type A, B (Back to Front)** – Surface runoff will drain from back of the lot to the front then travel towards the road/lane/City’s storm system.



Lot Type: A, B

- ii. **Lot Type D, W (Split or Walkout)** – This type of lot contains a high point typically along the side of a house which forces some of surface runoff to the front and remaining surface runoff travels to the back of the lot.



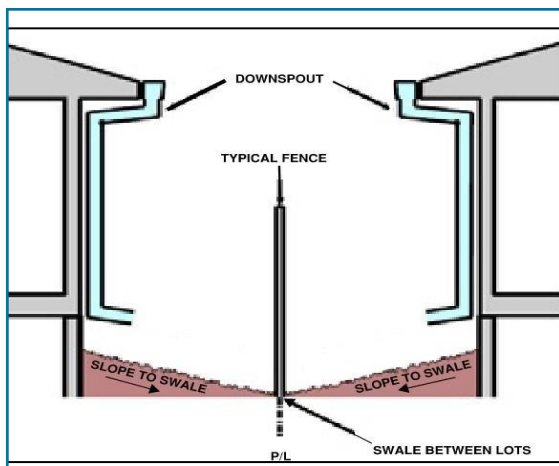
Lot Type: D, W

- iii. **Transitional Lot Type:** In this case, one side of the property drains as a Type A or B and the other side drains as Type D or W.

### **MINIMUM SLOPE FROM FOUNDATION WALLS**

In order to efficiently reduce the risk of water entering basements during periods of heavy precipitation, a sloped surface is required to effectively drain water away from foundation walls; these areas also include beneath decks and steps. There should be no clay chunks or voids under decks, steps, or concrete walkways / driveway to avoid surface runoff seeping near foundation walls.

<b>SURFACE TYPE</b>	<b>MINIMUM SLOPE FROM BUILDING</b>	<b>MINIMUM DROP FROM BUILDING TO DRAINAGE SWALE</b>
Soft Surface/ Landscaping – Foundation Walls	5.0% Slope for 2m	15 cm Drop
Soft Surface/Landscaping – Slab on Grade (i.e. Detached Garages and Parking Pads)	5.0% Slope for 2m	10 cm Drop
Hard/Impermeable Surface	1.0% Slope	15 cm Drop



Common Property Drainage Swales



Slope Away From The Foundation Wall

## **DRAINAGE SWALES**

Drainage swales are shallow-sided sloped ditches intended to transport surface runoff and are usually located along common property lines. **Swales on a common property line should provide a minimum of 30 cm (12in) of unobstructed width within each property.** Provide minimum slopes of 2% for a grass and topsoil swale drainage or 0.75% for a concrete drainage swale.

**Zero Lot Line (ZLL)** properties have a designated drainage swale between the homes within a **1.5m Easement registered** on the title and design elevations are to be as per Subdivision Drainage Plan. Due to the topography of some neighborhoods, accepted lot-to-lot drainage may occur, and, on some lots, an easement or Right-of-Way is registered to allow for the construction of a concrete or grass drainage swale. Easements are shown on the accepted Subdivision Drainage Plan and must be displayed on the lot grading certificate. Drainage swales located in the backyard must be free of debris at all times to ensure surface runoff travels without any obstruction.



This rough grade base has been raised to match the final grade before placing decorative rocks. Ponding will potentially be minimized.



[String-line guides used to create consistent minimum 2% slope for drainage swale](#)

In order to convey surface runoff to the nearest street, lane, dry pond or storm water management facility, grading of swales is required to be in accordance with the overall drainage plan for the area.

### **FENCES**

The height of the bottom of a fence rail is to be 5cm (2.0 in) above final grade elevation. The gap allows room for the drainage swale to function adequately. Closing the gap between a fence and surface may result in fence acting as a barrier and lead to ponding in low areas or settlement.

### **EXTREME GRADE DIFFERENTIAL**

Substantial grade differences can occur in some cases especially when grading homes with walk-out basements or an uneven overall landscape. Grading on these types of homes may require a retaining wall or other form of stabilization. Retaining structures are required on areas with slopes of 25% or more. At the time when a plot plan is submitted, slopes greater than 20% are marked for possible retaining walls and are confirmed at the time of home completion. Where a retaining wall exceeds 1.2 meter in height, an engineer's stamped drawing, including a proposed lot drainage plan, shall be submitted.

### **WINDOW WELLS**

Depending on the location, window wells may be required on some basement windows. The following requirements shall be followed to confirm the conditions of a window well and requirements if window wells exist:

- If there is a gap of 15 cm (6 in) or greater between the bottom of the window and the top of final grade, a window well is **not** required.
- If the gap measures under 15 cm (6 in) between the bottom of the window and the top of final grade, a window well is required.

- The bottom of the window well must be completely in the clay (no daylighting out).
- The top of the window well must be a minimum 25-30 cm (10-13 in) higher than rough grade and 15 cm (6 in) higher than final grade. If these distances cannot be met, a window well extension will be required.
- **Washed rocks are required and must be added** uniformly 5-10 cm (2-4 in) to the entire window well.

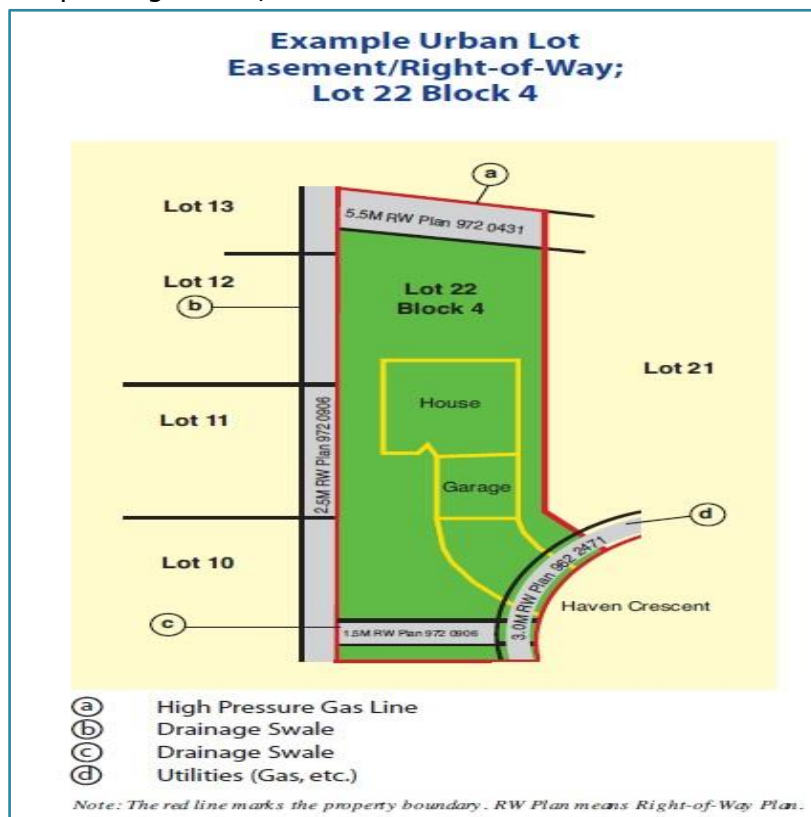
## RIGHT OF WAYS, EASEMENTS AND RESTRICTIVE COVENANTS

Most of the residential properties have Right-of-Ways, easements or restrictive covenants registered on their property Title. It is common to find a registered Right-of-Way at the front of a property. Zero Lot Line properties typically have a 1.5m drainage easement registered on the side yards. Right-of-Ways or easements are implemented on a lot for the purpose of access and safety. Title documents can be obtained from Alberta Land Registry if required.

Right-of-Ways include some development restrictions which partially restrict the homeowner's use of the affected portions of land. Homeowners are responsible to maintain ROWs free of any obstruction before and after lot grading inspections have been accepted.

Some of the ROW restrictions (but not limited to) are listed below:

- Prohibiting the placement of landscaping/decorative material such as rocks, wood, mulch etc. on concrete/grass swales.
- Prohibiting to build hard surface structure such as concrete sidewalk, storage shed etc.
- Prohibiting downspout/sump pump discharge directly onto ROW surface
- Prohibiting the planting of tree, shrubs etc.



[Example of Right-of-Ways Registered on a lot](#)

## DOWNSPOUTS/SPLASH PADS

Downspouts help convey roof leader discharge away from the foundation walls to help prevent infiltration and erosion. The downspouts outlet is to be a minimum 1m away from the foundation wall and directed towards the drainage swale along the common property line. The outlet must also be a minimum of **1.5 m** away from the property line of adjacent lots and **3 m** away from Beaumont's Right-of-Way (ROW). Downspouts must discharge on top of the final grade.

Downspout extensions need to be installed at 45 degrees angle directing away from the foundation wall to avoid infiltration back in weeping tile system. Downspouts are not permitted to connect to sump pump discharge pipe due to the risk of discharge overflow and may lead to flooding in basement.



[Downspout incorrectly connected to sump pump discharge](#)

Where downspouts are not installed (or setback requirements cannot be achieved), splash pads are recommended and are an acceptable substitution. Splash pads minimize soil erosion and water recycling through the foundation drainage system.

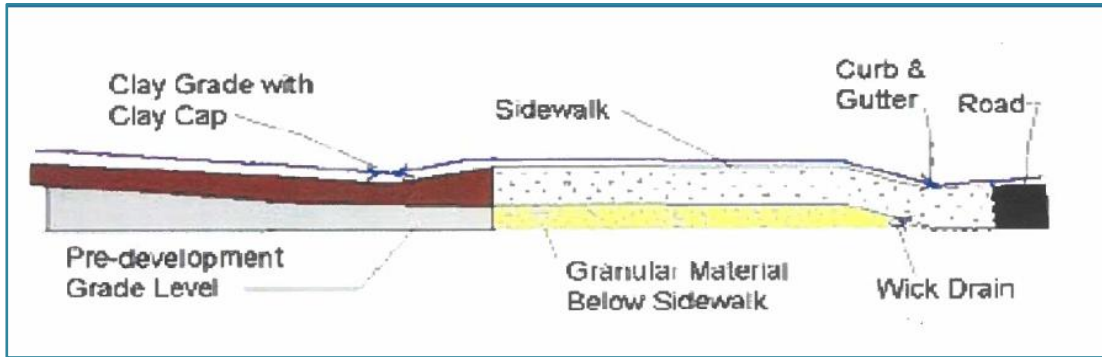
**Note:** All Zero lot line properties require Rainwater Leaders (RWL) to be connected to storm services.

**Section 15(a)** of Beaumont's Surface Drainage Bylaw 732-08 states *No Owner shall permit roof drainage or pumped subsurface Drainage from a Building to be discharged directly onto a pervious ground surface within one (1) meter of the building for all buildings that have a basement or a level below the finished ground surfaces.*

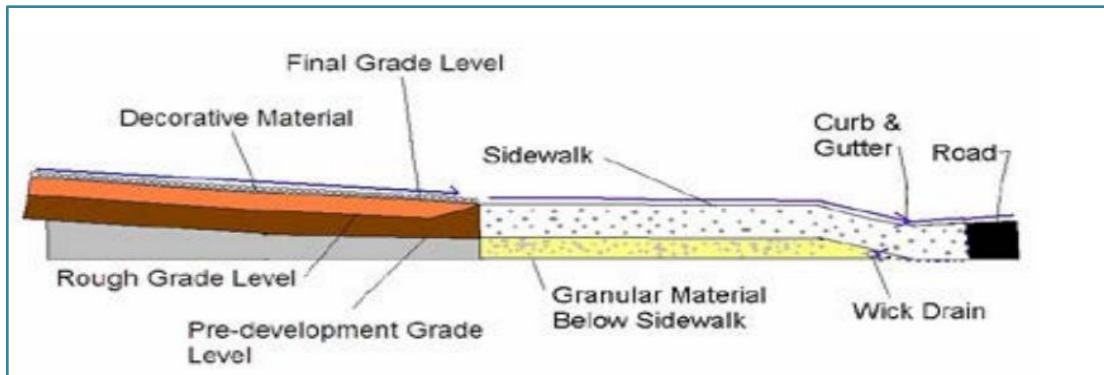
**Section 15(b)** of Beaumont's Surface Drainage Bylaw 732-001-10 states *No Owner shall permit roof drainage or pumped subsurface Drainage from a Building to be discharged within 1500mm of an adjacent lot or within 3000mm of Beaumont's Right-of-Way.*

## CLAY CAP AT SIDEWALK AND PAVED LANES

Ensure sidewalk/granular base is capped with clay to avoid infiltration underneath the concrete/asphalt structure. Surface runoff seeping into the base may damage the structure. Lot Grading may ask the applicant to improve site conditions if sidewalks are not properly capped.



[Sidewalk Cap at Rough Grade](#)



[Sidewalk Cap at Final Grade](#)

## INSPECTION TIMELINES & FEES

### INSPECTION TIMELINES

Typically, the inspection season runs from June 1 to October 15. These dates are weather and condition dependent. Any application received after October 1 may not get an inspection before the season closes.

- Rough grade inspections are typically completed within **15** business days once an application and the rough grade certificate have been received.
- Final grade inspections are typically done within **10** business days once an application and the final grade certificate have been received.
- Inspection timelines are weather and volume dependent and can vary from season to season. All times are given as estimates only, and the completion period may get extended due to the high volume of requests.
- Inspections (properties) are typically inspected in the order that they are received.

### INSPECTION FEES

All applicable fees must be paid before any inspections can take place. Inspection fees are subject to change yearly. Please refer to the City's 2024 Fee and Charges Bylaw 1043-24.

Please be advised that the Initial Lot Grading Inspection fee is collected at time of Building Permit application.



The initial fee only covers **ONE** Rough Grade Inspection and **ONE** set of Damage Deposit Inspection (Pre & Post Inspection). All subsequent inspections will require a re-inspection payment fees.

Payment is to be made at City Hall reception. **Proof of Payments/Receipts** should be attached to the **Lot Grading Inspection Application** and emailed to [lotgrading@beaumont.ab.ca](mailto:lotgrading@beaumont.ab.ca).

### **CONTACT INFORMATION**

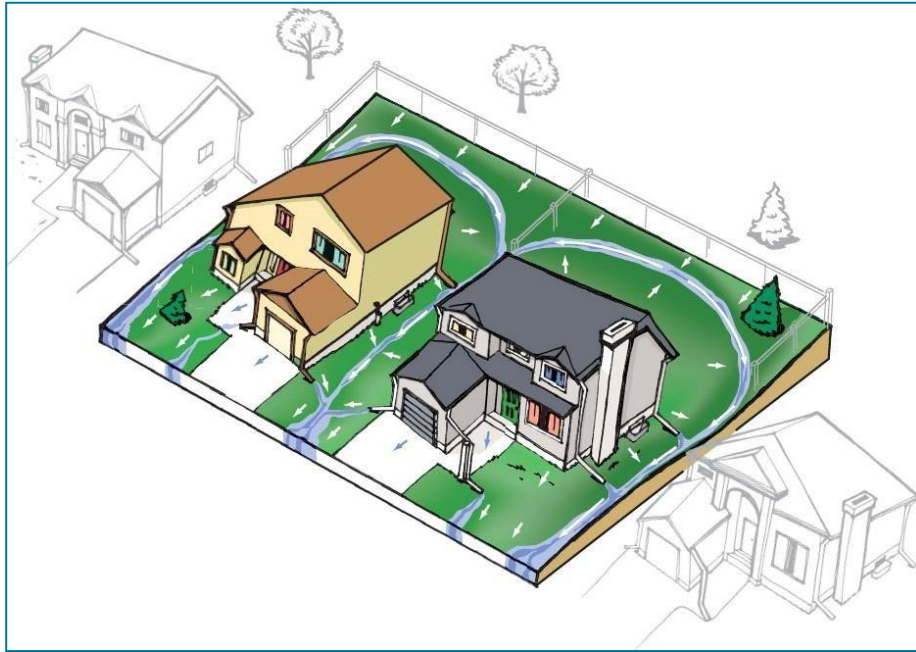
Any questions can be directed to the Lot Grading email. Please note the phone line is not regularly monitored outside the lot grading season.

**E-mail:** [lotgrading@beaumont.ab.ca](mailto:lotgrading@beaumont.ab.ca)

**Phone:** (780) 929-4314

**Web Address:** <https://www.beaumont.ab.ca/172/Lot-Grading>

## APPENDIX I



Example of "Back to Front" Lot Drainage



Example of "Split Lot" Drainage