

LOT GRADING GUIDELINES

COMMERCIAL AND MULTI-FAMILY PROPERTIES

Introduction

The [Surface Drainage Bylaw No. 11501](#) came into effect on July 2, 1997. This Bylaw requires that all land zoned for Commercial, Industrial, Multi-Family, Apartment, Row Housing and Urban Services is graded in accordance with an Approved Lot Grading Plan.

Definition

Lot grading is the reshaping or sloping of the land in such a way that surface drainage from rainstorms, snowmelt or groundwater is directed away from the buildings and is controlled in a manner that eliminates or minimizes the impact on adjacent properties.

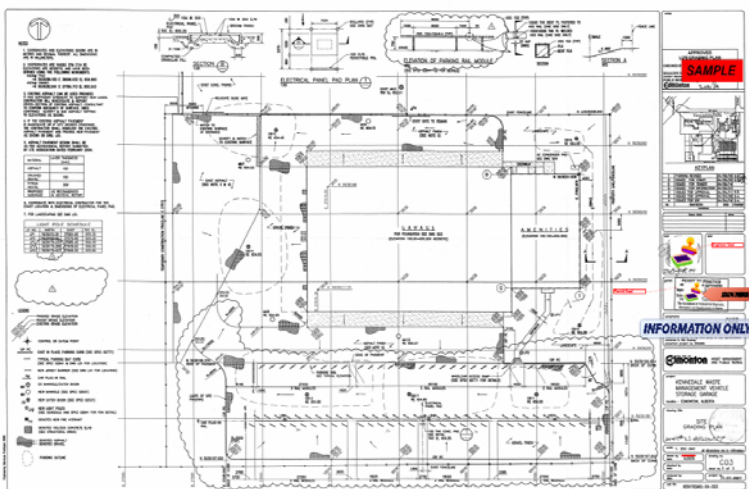
Purpose

The purpose of lot grading is to provide good drainage away from buildings for the benefit of property owners.

The purpose of the Surface Drainage Bylaw is to regulate lot grading and surface drainage requirements within private properties and City right-of-ways.

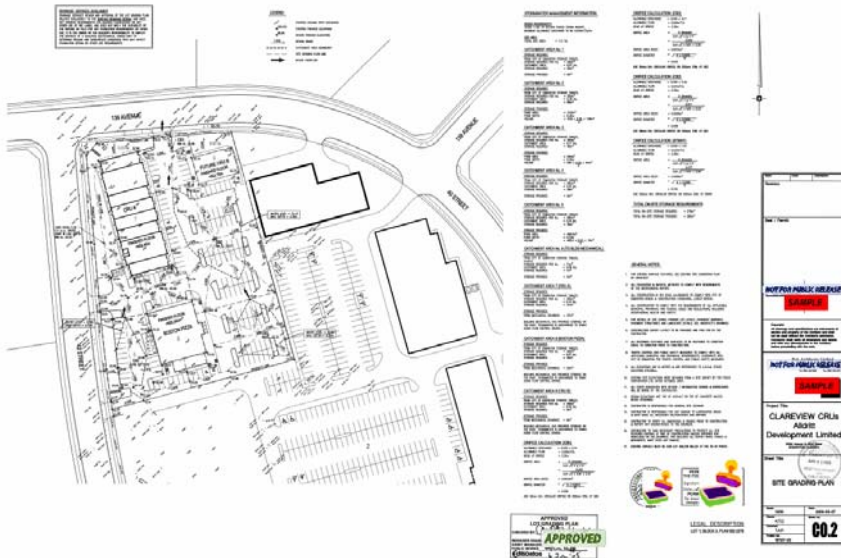
Lot Grading Plans

[Lot Grading Plans](#) have been part of the approval process for commercial and multi-family properties since 1993. The plans are required for all new developments and are approved by the Drainage Services branch on behalf of City Council. Lot Grading Plans specify design elevations, surface gradients, swale locations, and other drainage information required for lot grading.

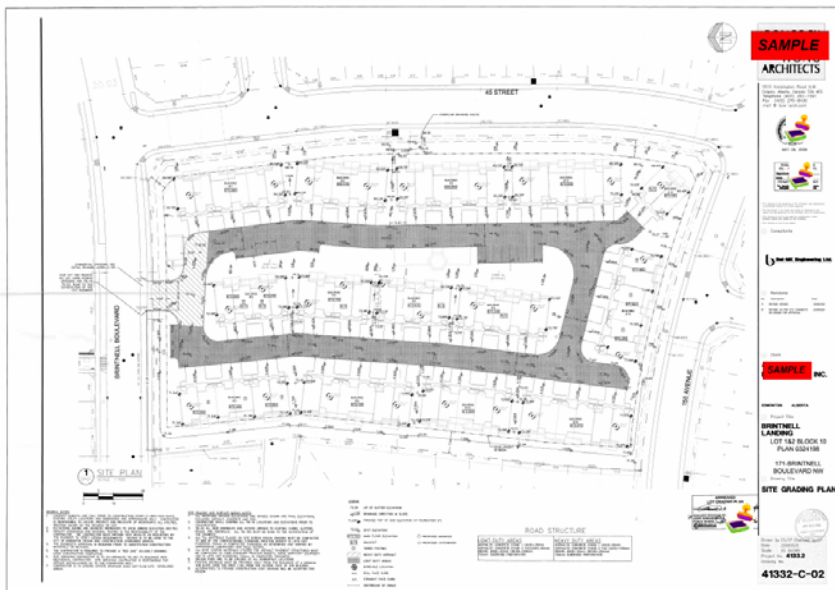


< Example of a commercial Lot Grading Plan

A Lot Grading Plan will establish the drainage relationship between adjacent properties and its approval is an effective basis for the control of lot grading.



< Example of a commercial (Shopping Centre) Lot Grading Plan



< Example of a multi-family Lot Grading Plan

Documentation

- [Surface Drainage Bylaw No. 11501](#)
- [Sewers Use Bylaw No. 9675](#)
- [Sewers Bylaw No. 9425](#)
- [Alberta Building Code](#)
- [City of Edmonton Design and Construction Standards Manual](#)

LOT GRADING APPROVAL PROCEDURE

Lot Grading Plan Approval Process

Upon application for a development permit for any land zoned Commercial, Industrial, Multi-Family, Apartment, Row Housing and Urban Services, the developer will submit a proposed Lot Grading Plan to Drainage Services. The Surface Drainage Plan must be completed within 60 days of the issuance of the building permit.

- Proposed Lot Grading Plan Requirements:
 - ❑ A scale drawing of the property in metric units, designed by an Alberta Land Surveyor, Professional Engineer or Registered Architect.
 - ❑ Existing surface elevations, contours and surface grades of the property based on geodetic datum.
 - ❑ Proposed geodetic surface elevations at the property corners and at intervals around the perimeter of the property.
 - ❑ Proposed geodetic surface elevations adjacent to the foundation walls or concrete slab-on-grade for each proposed building.
 - ❑ Proposed direction of surface drainage flow, indicated by arrows.
 - ❑ Proposed locations and gradients of swales
 - ❑ Cross-section details of proposed swales
 - ❑ Proposed surface conditions. Ex: Sod, Asphalt, Concrete, Gravel.
 - ❑ Provisions for accommodating overland flows from adjacent undeveloped lands.
 - ❑ Private storm drainage system demonstrating compliance with section 7(1) of the Sewers Bylaw No. 9425 and Section 7(3) (c) of the Surface Drainage Bylaw No. 11501 including storm water management locations and depths.
 - ❑ Information referring to Geotechnical Reports produced by a Geotechnical Engineer when unusual or special requirements are needed.
 - ❑ Property Information: Legal description, subdivision or neighbourhood, property address or road names and north arrow.
 - ❑ Project Information: Project Name, applicant information, development boundary, revision box, legend, notes.
 - ❑ Space near the bottom right hand corner of the plan for the Approval Stamp.
- When the proposed Lot Grading Plan has been reviewed, the applicant will be notified if the plan is approved or if revisions are required. If revisions are to be made, a list will be sent to the applicant to address the comments and to re-submit the revised Lot Grading Plan for further review.
- Approved Lot Grading Plans are stamped and signed by Drainage Services and returned to the applicant. This approved plan will then become the Lot Grading Plan for the site.
- If revisions to the approved Lot Grading Plan are required, then a revised drawing (red-line revision) must be sent to Drainage Services along with the written consent of the affected property owners for review and approval. An approved revised Lot Grading Plan will supersede the previously approved Lot Grading Plan.

Lot Grading Inspection Fees

A lot grading inspection fee of \$200.00 per hectare will be assessed for any land use other than single detached or semi-detached properties. For Multi-Family properties, the fee is \$200.00 plus an additional fee of \$50.00 for each dwelling unit on the first level that contains dwelling units.

Lot Used for	Lot Grading Inspection Fee
Multi-Family housing	\$200.00* plus \$50.00 for each dwelling unit on the first level that contains dwelling units**
Any other land use	\$200.00 per hectare, subject to a minimum of \$200.00

* The indicated lot grading inspection fee is payable for each separate Building Permit application

** The fee for each dwelling unit shall be charged only for the number of units being developed.

The fee will be collected, on application for the building permit, at the City of Edmonton Planning and Development Department. The inspection fees are outlined in Schedule A of the Surface Drainage Bylaw No. 11501.

Grading Approval Process

The Grading Approval Process (Final Grade) should occur within 18 months of the Approval of the Lot Grading Plan and applied for by the owner, developer or contractor (applicant). The following steps are required to obtain Final Grade Approval:



Final Grading in progress at a condominium / multi-family site



Grading in progress at an apartment / multi-family project

1. The lot has to be surveyed (on sod or topsoil) and certified by an Alberta Land Surveyor, Professional Engineer or Registered Architect who prepares a Plan of Certification of As-built Grade (Lot Grading Certificate). The as-built information **MUST BE** displayed on the Lot Grading Plan.
2. The applicant sends the certified As-built Plan (Lot Grading Certificate) to the Drainage Services Branch of the Infrastructure Services Department.
3. Drainage Services will send a Lot Grading Inspector within 5 working days (depending on workload and weather conditions) to conduct an inspection to ensure that the property is graded in accordance with the approved Lot Grading Plan.

4. Drainage Services will send Lot Grading Inspection Report to the applicant, indicating that the lot grading has received Final Grade Approval (Passed) or deficiencies exist (Failed).
5. If deficiencies exist, the applicant must correct the deficiencies within 60 days and notify Drainage Services for a re-inspection. When the lot grading meets our requirements, Final Grade Approval will be issued.
6. Deficiency items are labeled “left”, “right”, “front”, and “back”. Orientation of these labels is determined by facing the front entrance of the home from the street.
7. When the Final Grade is approved, Drainage Services will send an approval report and a copy of the Lot Grading certificate to the applicant.

LOT GRADING REQUIREMENTS

All properties, under Section 7(1) of the Sewers Bylaw No. 9425 and Section 7(3) (c) of the Surface Drainage Bylaw No. 11501, shall provide private drainage systems for stormwater runoff from roofs, parking areas, paved areas, courtyards and side-lots. All surface drainages for commercial and multi-family properties must be controlled within the site.



Example of asphalt grading on a condominium parking lot



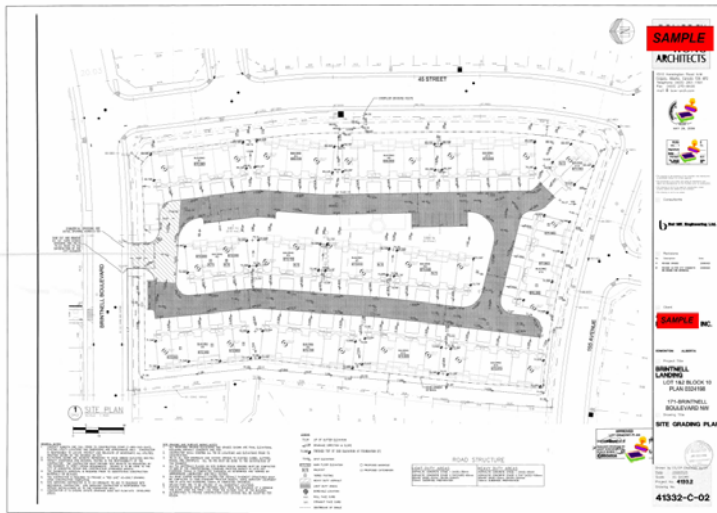
Example of concrete grading on a condominium parking lot

As-built Plan (Lot Grading Certificate) Requirements

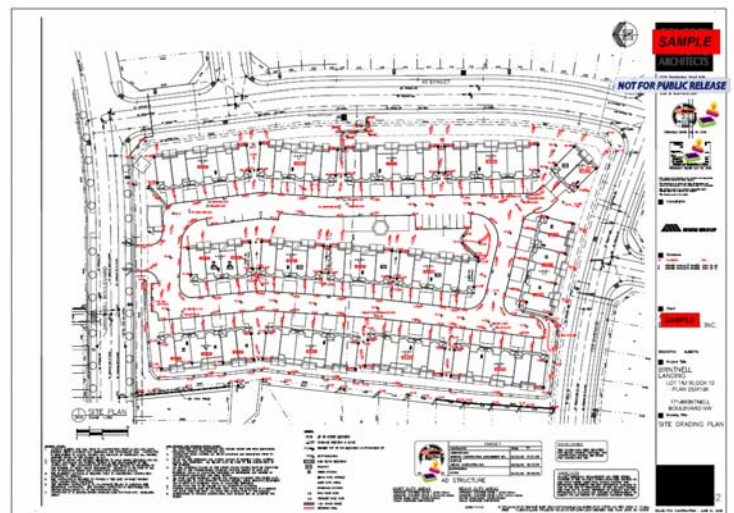
The developer must have the property surveyed and certified by an [Engineer](#), [Alberta Land Surveyor](#) (ALS), or [Architect](#) who prepares an As-built Plan. The As-built Plan has to include the following:

- Scale drawing of the property in metric units.
- As-built information **MUST BE** presented on the Approved Lot Grading Plan.
- All proposed surface elevations and surface grades (conditions) shown on the approved Surface Drainage Plan.
- Existing surface elevations, measured from geodetic datum, and surface grades at the same points and locations as the proposed surface elevations and surface grades.

- Existing surface elevations adjacent to the foundation walls and/or top of concrete slab on grade for each proposed building.
- As-built provisions for accommodating overland flows from adjacent undeveloped lands.
- Private storm drainage system demonstrating compliance with section 7(1) of the [Sewers Bylaw](#), and Section 7(3)(c) of the [Surface Drainage Bylaw](#).
- Project name, applicant information, development boundary, revision box, legend, notes (if applicable), and north arrow.
- Property address, legal description, subdivision and/or neighbourhood, road names and applicant information must be on the As-built Plan.



Example of an Approved Lot Grading Plan for a multi-family site



Example of an As-built Plan displayed on the approved Lot Grading Plan for a multi-family site

Surface Elevations (Design Grades)

- Acceptable as-built tolerances from the approved grades (provided minimum slopes are achieved):
 - ❑ **Between 0 cm and –10 cm below final grade for topsoil (black dirt).** Note: “0” is at approved design grade.
Example: Design Grade 682.25 m, Existing Grade 682.20 m = 5 cm below design grade.
 - ❑ **Between –10 cm and +10 cm below or above final grade for finished landscaping (sod or concrete).**
Example: Design Grade 682.25 m, Existing Grade 682.30 m = 5 cm above design grade.

Note: For decorative rock, washed rock or wood chips, the surface elevation below that material should be within the tolerance.

- The Lot Grading Inspector has the discretion to accept elevations that are not within tolerance when the following conditions occur:

- ❑ The landscaping is graded to match an existing fence, walkway, lake, park, curb, sidewalk, road or lane and there is no impact on the surface drainage.
- ❑ The landscaping is graded to match an adjacent property and it appears to the Lot Grading Inspector that there is positive on-site surface drainage.
- ❑ A proposal is submitted to revise the design elevations on the approved Lot Grading Plan to existing elevations, providing that there is no negative impact on surface drainage and any affected property owners agree to the red-line revision.

Minimum Grade from Foundation Walls and Concrete Slab-on-Grade

A sloped surface is required to effectively drain water away from all foundation walls and concrete slab-on-grade buildings. This includes areas underneath steps and decks. (See the [Lot Grading Detail Drawings](#) for more information).

- Minimum grade requirements:

- ❑ 10% for the first 2.0 m – Minimum 20 cm drop for final landscaping.
- ❑ 0.75% for concrete, asphalt or other impervious surface treatment.



Positive slope away from building



Grading away from the wall on a row housing project



Insufficient grade away from a multi-family project

Drainage Swales

Drainage swales are shallow sided, sloped ditches intended for the conveyance of surface runoff. They are located between or around buildings and are graded to intercept and convey surface runoff to the nearest on-site catch basin, thus preventing lot-to-lot drainage (See the Lot Grading Detail drawings for more information).

- Minimum swale slope requirements:

- ❑ 1.5% for a grass drainage swale
- ❑ 0.75% for a concrete drainage swale



Typical grading of a commercial parking lot with a catch basin



Drainage into a catch basin during a storm



Apartment parking lot with a catch basin



Internal drainage swale in between the building and property line at a commercial site



A concrete drainage swale at the back of condominium units on a multi-family site



A concrete swale within a parking lot



Grass swale into a catch basin at an apartment site



Condominium site with a concrete drainage swale that drains into a catch basin

Downspouts

Downspouts (roof leaders) convey roof water to the on-site storm sewer service by direct connection or overland via on-site drainage swales. If the downspout is discharging to the ground, then the downspout must have an elbow and a hinged extension or concrete splash pad. The downspout elbows should be directed away from the foundation walls towards the drainage swales. Downspout extensions or splash pads must not project past the property line. Hinged extensions are acceptable provided they do not extend on to adjacent property.



Downspout at an apartment connected to storm service



Downspouts with extensions at condominium



Downspout with an extension at an apartment



Roof drainage violation from a condominium property onto a City right-of-way. Roof drainage must drain on-site towards catch basins.



Roof drainage of an apartment violation. Roof drainage must not Drain towards City or adjacent lots.



Downspout at a commercial building

Sump Pump Discharge

The sump pump is part of the building's foundation drainage system and it has been a requirement since 1988. The sump pump discharges groundwater from the weeping tile to the drainage swales or directly to the on-site storm sewer service. If the sump pump discharges to the ground, then it is important to provide a splash pad or a flexible hose at the discharge point. This minimizes soil erosion at the foundation wall and the re-circulation of the groundwater back to the weeping tile. The flexible hose or splash pad should be directed to the drainage swales and not onto an adjacent property. The sump pump discharge hose should be disconnected during the winter months to prevent freezing in the hose.

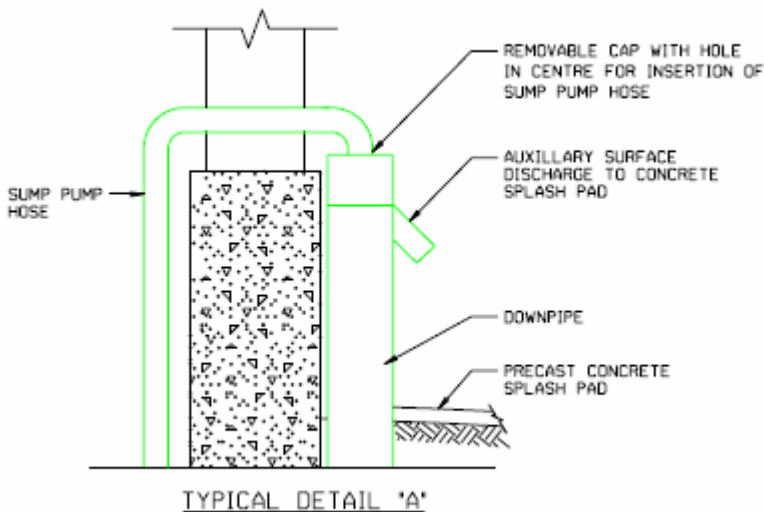


Sump Pump discharge at a condominium in winter



Sump Pump discharge hoses at a multi-family site with discharge to common private road

Beginning in 2006, all new developments involving single detached, semi-detached or duplex houses must provide “foundation drain discharge collection systems”. These properties must connect the sump discharge outlet to the foundation service.



Typical detail of Sump Pump Discharge to storm service



Sump Pump to storm service multi-family site

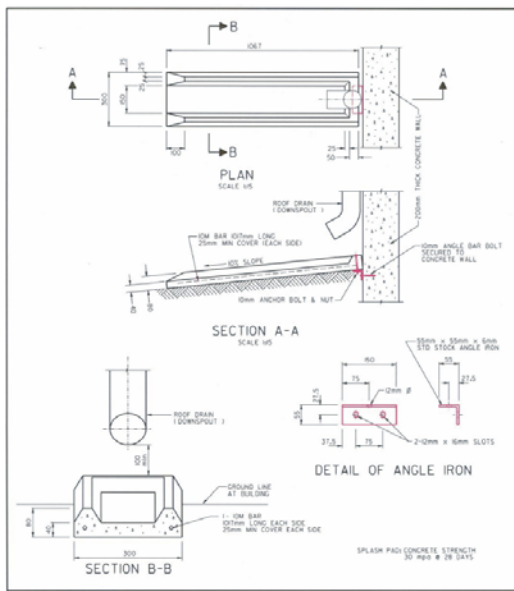
Splash Pads

Splash pads convey roof water and groundwater away from foundation walls and concrete slab-on-grade buildings. They minimize soil erosion and recycling of water through the foundation drainage system. The recommended standard concrete splash pad is 30 cm x 107 cm. Please refer to the splash pad detail below and at the end of these guidelines.

- Where direct connections to the storm sewer are not available, splash pads are to be placed:
 - Underneath all downspouts draining onto soft landscaping (sod, topsoil and/or gravel).
 - Underneath the sump pump discharge outlet where it is draining onto soft landscaping (sod, topsoil and/or gravel).



Splash Pad at an apartment



Splash pad detail



Sump Pump discharge at a condominium site

Sprinkler Systems

Irrigation systems, consisting of a permanent system of pipes and sprinklers or drip hoses, are prohibited on any slope.

Lot Grading Maintenance

After Final Grade Approval has been issued it becomes the owner's responsibility to maintain the surface grades, to the standards established at the time of Final Grade Approval, in perpetuity. The City of Edmonton may, at any time, require maintenance on the surface grading if alterations or settlements result in surface drainage problems. This requirement is enforceable under the provisions of the Surface Drainage Bylaw No. 11501.



Asphalt repair around the catch basin



Pooling on an internal swale at a commercial property



Settlement on private roadway near and around the catch basin at a multi-family property

Enforcement

Reports, Letters or Notices will be utilized to convey notification of impending enforcement to an owner, builder, or developer. Subsequent fines may then be imposed for those properties that do not comply with the Lot Grading Guidelines or the provisions of the Surface Drainage Bylaw No. 11501. In most cases, notification is sent to the current registered property owner.

This bylaw is enforceable for all properties. However, in deciding whether to enforce this bylaw, the City may take into account practical concerns, existing conditions, and complaints or inquiries. Each property owner in the City is responsible for their own lot grading.

The City of Edmonton does not provide any funding for repairs to surface grading. See “[Surface Drainage Problems](#)” for information on how to deal with drainage problems in areas developed prior to 1993.

FOR MORE INFORMATION

[Lot Grading Details and Drawings](#)

- ❑ [Commercial - Lot Types A & B](#)
- ❑ [Multi-Family - Lot Types A, B, C, D, F & W](#)

Pamphlet Series

- ❑ “[Lot Grading Inspections](#)”
Residential Properties
- ❑ “[Lot Grading Inspections](#)”
Final Grade Stage
- ❑ “[Lot Grading Maintenance](#)”
After Final Grade Stage
- ❑ “[Sump Pumps](#)”
An Information Guide

- ❑ [“**Lot Grading In-fill Housing Development**”](#)
An Information Guide
- ❑ [“**Lot Grading Lake Lots and Top of Bank Lots**”](#)
An Information Guide
- ❑ [“**Flood Proof – Flood Prevention Program**”](#)
The Homeowner’s Guide to Flood Prevention
- ❑ [“**Clearing the Air**”](#)
Odour Control at the Gold Bar Wastewater Treatment Plant
- ❑ [“**Edmonton’s Sewer Odour Control**”](#)
An Information Guide
- ❑ [“**Drainage Inspections**”](#)
Industrial, Commercial and Institutional
- ❑ [“**Living Near Urban Lakes**”](#)
An Information Guide
- ❑ [“**Treat it Right Storm Water – Grade 5**”](#)
Teachers Guide
- ❑ [“**Treat it Right Storm Water – Grade 8**”](#)
Teachers Guide
- ❑ [“**Treat it Right Wastewater – Grade 4**”](#)
Teachers Guide
- ❑ [“**Treat it Right Wastewater – Grade 8**”](#)
Teachers Guide

CONTACT INFORMATION

Telephone Numbers

- ❑ Infrastructure Services Department, Drainage Services
780-496-5576 – Lot Grading (8:00 am - 4:30 pm Monday to Friday)
780-496-5663 – Reception
780-496-2865 – Lot Grading Fax
780-496-5444 – [Water and Sewer Servicing Information](#)
780-496-5591 – [Flood Prevention Program](#)
780-944-7777 – [Flood Prevention Home Check-up Program](#)
311 – Drainage and Sewer Trouble, Re-Inspection Request, and General Inquires (24 Hours)

Mailing Address

- ❑ City of Edmonton
Infrastructure Services
Drainage Services, Development Services
Public Services, Lot Grading
Main Floor, Century Place
9803 – 102A Avenue NW
Edmonton, Alberta, Canada
T5J 3A3

Internet Addresses

- ❑ www.edmonton.ca/business/commercial-lot-grading.aspx
- ❑ www.edmonton.ca/lotgrading
- ❑ www.edmonton.ca/floodprevention

Email Address

- ❑ Lot.Grading@edmonton.ca



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