

LOT GRADING GUIDELINES

COMMERCIAL AND MULTI-FAMILY PROPERTIES

Introduction

The [Drainage Bylaw 16200](#) came into effect on June 1, 2013 (replacing previous versions of the Surface Drainage Bylaw No. 11501). 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 for Commercial and Multi-family properties is the shaping or sloping of the land in such a way that surface drainage is directed away from the buildings and controlled within the property in a manner that eliminates impact on adjacent properties and City right-of-way.



Surface Drainage must slope away from a building



Lot Grading is controlled to drain towards private catch basins

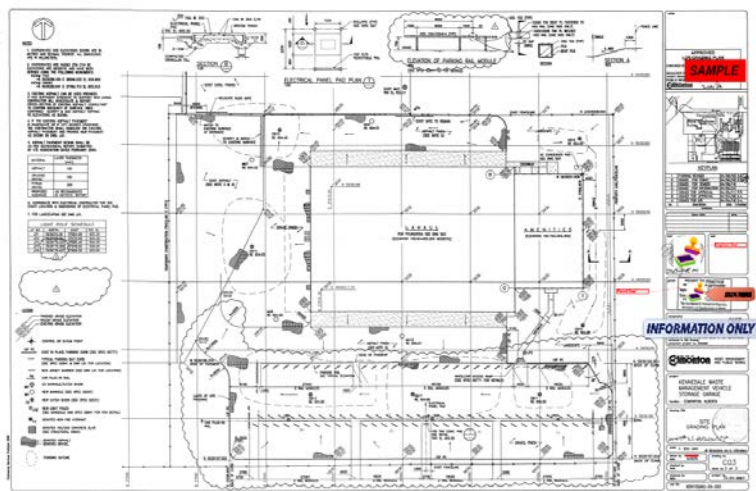
Purpose

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

The purpose of the Drainage Bylaw No. 16200 is to regulate surface drainage on private and public land.

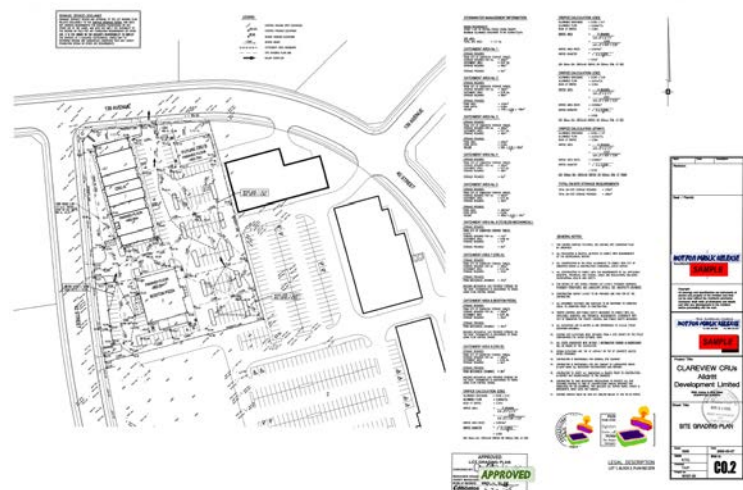
Lot Grading Plan

A [Lot Grading Plan](#) has been part of the approval process for commercial and multi-family properties since 1993. A plan is required for all new developments and is approved by the Drainage Planning and Engineering on behalf of City Council. A Lot Grading Plan specifies design elevations, surface gradients, swale locations, and other drainage information required for lot grading.

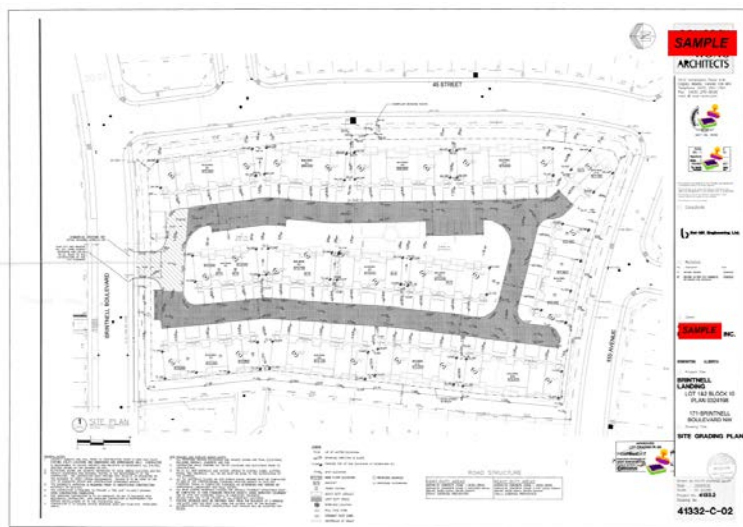


< Example of a commercial Lot Grading Plan

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



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



< Example of a multi-family Lot Grading Plan

Documentation

- [Drainage Bylaw 16200](#)
- [Alberta Building Code](#)
- [City of Edmonton Design and Construction Standards Manual](#)

Lot Grading Plan Approval Process

The owner of a premises shall ensure that a lot grading plan for the premises is approved by the City Manager prior to the construction of any buildings, additions to buildings, or alterations of surface drainage on the premises.

- Lot Grading Plan Requirements:
 - ❑ A scale drawing of the property in metric units, designed and certified by a Professional acceptable to the City Manager eg. [Professional Engineer](#) or [Registered Architect](#) or [Professional Technologist](#).
 - ❑ 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 sections 7(1) and 7(2) of Part II of the [Drainage Bylaw 16200](#) 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 a 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 Planning and Engineering and returned to the applicant. This approved plan then becomes 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 Planning and Engineering along with the written consent of any 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 \$220 per hectare will be assessed for any land use other than single detached or semi-detached properties. For Multi-Family properties, the fee is \$220 plus an additional fee of \$55 for each dwelling unit on the first level that contains dwelling units.

Lot Used for	Lot Grading Inspection Fee
Multi-Family housing	\$220* plus \$55 for each dwelling unit on the first level that contains dwelling units**
Any other land use	\$220 per hectare, subject to a minimum of \$220

* 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, Sustainable Development Department. The inspection fees are outlined in Schedule D of the [Drainage Bylaw 16200](#).

LOT GRADING APPROVAL PROCEDURE

Grading Approval Process

Within 18 months of the issuance of the building permit, the development should be graded to conform to the approved Lot Grading Plan. 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) by a professional acceptable to the City Manager who prepares a certified Plan of as-built grades ([Lot Grading Certificate](#)). As-built information **MUST BE** displayed on the approved Lot Grading Plan.
2. The applicant sends the certified as-built plan to the Lot Grading section of Drainage Planning and Engineering.
3. Drainage Planning and Engineering 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 Planning and Engineering will send a 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 Planning and Engineering for a re-inspection. When the lot grading meets the 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 building.
7. When the Final Grade is approved, Drainage Planning and Engineering will send an approval report and a copy of the Lot Grading Certificate to the applicant.

LOT GRADING REQUIREMENTS

All properties, under Sections 7(1) and 7(2) of Part II of the [Drainage Bylaw 16200](#), shall provide private drainage systems for stormwater runoff from roofs, parking areas, paved areas, courtyards and side-lots. All surface drainage for commercial and multi-family properties must be controlled within the site.



Example of asphalt grading on a condominium parking lot



Stormwater Management Area on private property

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 Buildings

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 m – Minimum 20 cm drop for final grade on soft 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 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 property lines.



Downspouts at an apartment connected to storm service



Downspout at a commercial property connected to storm service



Downspouts with extensions at condominium



Downspout with an extension at an apartment

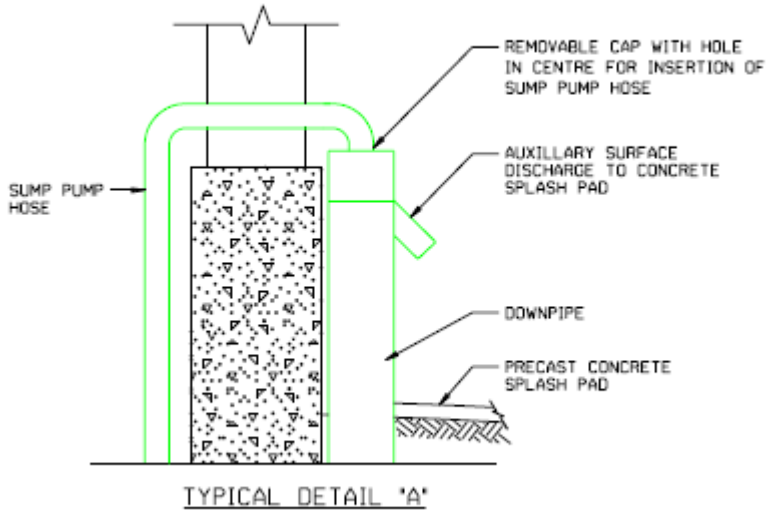


Downspout at a commercial building

Foundation Drainage

The sump pump is part of a building's foundation drainage system and it has been a requirement since 1988. The sump pump discharges subsurface water from the weeping tile directly to the on-site storm sewer system.

Since 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 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.

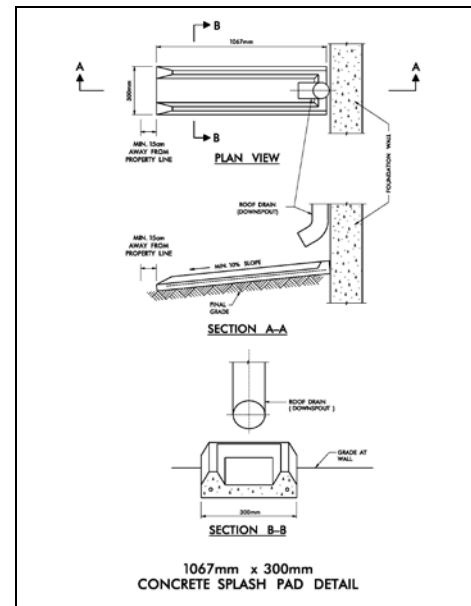
- Where direct connections to the storm sewer are not available, splash pads are to be placed:
 - underneath all downspouts draining onto soft landscaping (sod, topsoil and/or gravel).



Splash pad at an apartment



Splash pad at a commercial property



Splash pad detail

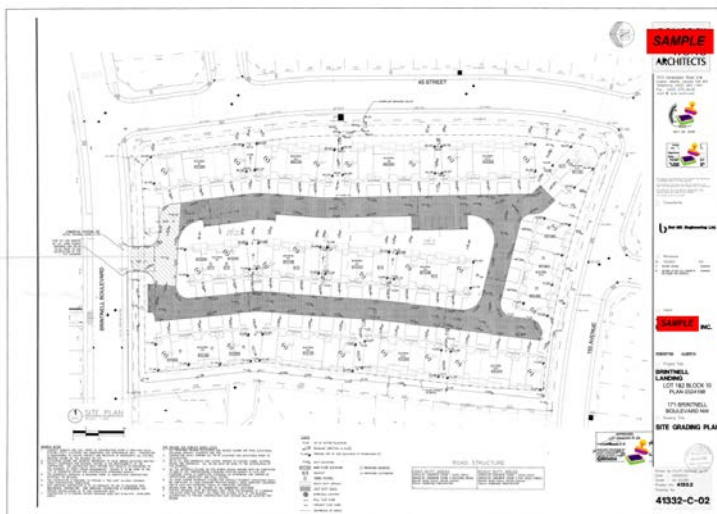
Irrigation and Sprinkler Systems Restrictions

No person shall install or permit to be installed any irrigation system on any slope unless the installation has been approved by the City Manager.

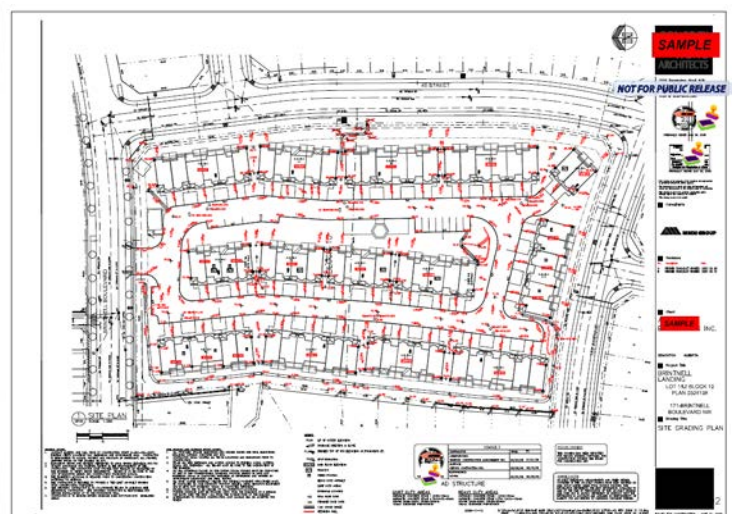
As-built Plan (Lot Grading Certificate) Requirements

A Lot Grading Certificate is required for Grade approvals for all developments and **MUST** display the following information:

- Certification by a Professional acceptable to the City Manager (eg. [Alberta Land Surveyor](#), [Professional Engineer](#), [Registered Architect](#) or [Professional Technologist](#)).
- As-built information **MUST BE** presented on the Approved Lot Grading 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 on the approved Lot Grading Plan.
- Existing surface elevations adjacent to the foundation walls and/or top of concrete slab on grade for each building.
- As-built provisions for accommodating overland flows from adjacent undeveloped lands.
- Private storm drainage system demonstrating compliance with sections 7(1) and 7(2) of the [Drainage Bylaw 16200](#).
- 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.



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

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 [Drainage Bylaw 16200](#).



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 or Notices to Comply will be utilized to notify property owners of non-compliant grading and impending enforcement. Subsequently, bylaw penalties may then be imposed for those properties where grading does not comply with the [Drainage Bylaw 16200](#) and Lot Grading Guidelines by the deadline date specified in a non-compliance notice.

In consideration of enforcing the bylaw, the City takes into account damaging impact on properties related to non-compliant surface drainage.

The City does not provide any funding for repairing surface grading.

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

CONTACT INFORMATION

Telephone Numbers

- ❑ Sustainable Development Department, Drainage Planning and Engineering
780-496-5576 – Lot Grading - 8:00am - 4:30pm Monday to Friday
780-496-2865 – Lot Grading Fax
780-496-5444 – [Water and Sewer Servicing Information](#) - 8:00am - 4:30pm Monday to Friday
311 – Drainage and Sewer Trouble, Re-Inspection Request, General Inquires - 24 Hours

Mailing Address

City of Edmonton, Sustainable Development
Drainage Planning and Engineering, Lot Grading
5th Floor, Century Place
9803 – 102A Avenue NW
Edmonton, Alberta, Canada
T5J 3A3

Internet Addresses

- ❑ http://edmonton.ca/business_economy/lot-grading-commercial.aspx
- ❑ www.edmonton.ca/lotgrading

Email Addresses

- ❑ lot.grading@edmonton.ca
- ❑ wass.drainage@edmonton.ca

