

## 8.0 GRADING CONTROL

### 8.1 General

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context?

Lot grading shall conform to the requirements of the major and minor drainage systems and shall ensure that use of the property is maximized while still providing good and positive drainage.

Lot grading shall be self contained within the subdivision limits, site plans and individual lot where possible. Grading onto adjacent lands shall be permitted only in exceptional cases at the discretion of the Town and with the approval of the abutting owner. The lot grading and resulting drainage shall not adversely affect adjacent lands.

All proposed sodded surfaces on individual dwelling lots to be fine graded with a minimum of 100mm of topsoil and No. 1 nursery sod.

### 8.2 Drawing Requirements

#### 8.2.1 Grading Control Plan(s)

The following information shall be incorporated into the Grading Control Plan(s);

- Drawing scale to be 1:500.
- The grading design shall refer to a Town of New Tecumseth geodetic benchmark.
- Show existing contours at a maximum 0.5m interval within the subdivision and 30m beyond the subdivision limits.
- Show all existing features including buildings, driveways, wells, significant individual trees and bush areas, etc.
- Indicate any trees which are to be preserved, including limits of Tree Preservation fence.
- Show existing and proposed elevations at lot corners and proposed elevations at grade changes.
- Show proposed elevation of the front and rear of the house at the building envelope.
- Show location and grade of swales and direction of overland flow on the roads.
- Show proposed rear yard catchbasin locations including top of grate elevation, outlet pipe invert elevation and underside of footing elevation for affected and adjacent lot.
- Show proposed centreline of road elevations every 20m, every 5m for vertical curves and at all grade changes. Length and slope of road between grades to be labelled.
- Show gutter grading at all intersections, bends and cul-de-sacs.
- Show location of driveways, service connections (at streetline), hydrants, valves, maintenance holes, building envelopes (based on zoning), catchbasins, proposed fencing, community mailbox pads, etc.
- Indicate house type (i.e. standard, deck/lookout units, walkouts).
- Identify lots with engineered fill and limits of engineered fill shall be shown, if required.
- Specify minimum basement slab and/or minimum opening elevation where required for flood protection purposes.
- Show all proposed retaining walls including top and bottom of wall elevations.
- Show Town standard Grading Notes (see Section 1.6) and Tree Preservation Notes (Section 1.7).

#### 8.2.2 House Siting Plan(s)

The following information shall be incorporated into the Individual House Siting Plan(s).

- Drawing scale to be 1:200 or 1:250 for a single lot.
- Indicate house type (i.e. standard, deck/lookout units, walkouts).
- Specify the following house elevations:

Finished First Floor Elevation	FFF
Top of Foundation Wall	TFW
Finished Basement Slab Elevation	FBS
Underside of Footing Elevation	USF
Finished Garage Floor Elevation	FGF
- Show all entrance locations for the building including number of risers.
- Show existing and proposed elevations at lot corners and proposed elevations at grade changes.
- Show location and grade of swales and direction of surface flow.
- Show proposed ground elevations adjacent to the building and at the house corners, including the swale elevations at the lot line. These elevations to be a minimum of 0.15m below the top of foundation wall.
- Show driveway location, gradient and elevation at the centreline of the driveway at the property line.
- Show location of patios, decks and porches.

- Show location of sloped terraces.
- Show downspout locations.
- Show location of proposed rear yard catchbasins and top of grate elevations.
- Show driveway culverts, well and septic system locations, if required (e.g., rural lots).
- Show proposed centreline of road elevations adjacent to the lot at 20m intervals.
- Show location of storm, sanitary and water service connections (including as-recorded invert elevations at the streetline for storm and sanitary service connections) and aboveground features including sidewalks, catchbasins, hydrants, valves, manholes, fencing, community mailbox pads, street lights, transformers, utility pedestals, etc.
- Identify lots with engineered fill.
- Specify underside of footing elevations for footings adjacent to rear yard catchbasins. The footings shall be 150mm below the invert of the catchbasin lead.
- Label streets adjacent to the lot.
- The Individual House Siting Plans to be approved and sealed by Developer's Consulting Engineer and Control Architect, where required, prior to submission to the Town for building permits.
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- All retaining walls shall be shown and include elevations at top and bottom of wall.
- All existing trees & preservation fencing shall be shown.

### 8.3 Design Criteria

#### 8.3.1 Residential Subdivisions

##### 8.3.1.1 Gradients and Slopes

- Grassed surfaces shall have a minimum gradient of 2.0% and a maximum gradient of 5%.
- Grading around houses and buildings shall direct water away from the structure.
- The front yards of all lots shall be graded to drain towards the street.
- Drainage flows adjacent to houses are to be in defined swales located as far from the house as possible.
- At least 75% of the yard shall consist of a "flat" area, which has a gradient between 2% - 5%, except for larger lots, where this requirement can be reduced.
- Slopes outside of the useable "flat" area are not to exceed 3H:1V.
- The maximum slope between houses in any direction shall be 4H:1V.

##### 8.3.1.2 Swales

- Downspouts to discharge to surface onto splash pads and directed to the front of the house, wherever possible.
- Swale grades shall be a minimum of 2.0% and a maximum of 5.0% except on back to front lots, where the minimum grade shall be 2.5%.
- Rear yard swales shall be on the lot line.
- Swales shall have a maximum side slope of 3H:1V, a minimum depth of 0.15m and a maximum depth of 0.3m. Swales along the lot line between houses shall have a maximum depth of 0.2m.
- The grade adjacent to the house shall follow the grade of the swale to maintain a constant depth and shall be a minimum of 0.15m below the brickline.
- Swales shall not drain from one lot to another where the property lines are offset by more than 1.0 metre or drainage swale alignment deviates by more than 45 degrees.
- The maximum flow to a side yard swale shall be that from three (3) rear yards or six (6) townhouse units. Where split-draining lots drain to front-draining lots, roof leaders are to outlet at the front of the split-draining lot and be directed to the street.
- The maximum length of a rear yard swale without an outlet shall be the least of:
  - 60m;
  - 6 lot widths;
  - 8 townhouse lot widths; or

- the maximum length as dictated by the maximum allowable drainage area to a rear-lot catchbasin from the following table:

C	A <sub>RLCB</sub>	A <sub>SW</sub>	C	A <sub>RLCB</sub>	A <sub>SW</sub>
0.05	9.26	4.63	0.55	0.30	0.15
0.10	3.78	1.89	0.60	0.25	0.13
0.15	2.20	1.10	0.65	0.22	0.11
0.20	1.48	0.74	0.70	0.18	0.09
0.25	1.07	0.54	0.75	0.16	0.08
0.30	0.82	0.41	0.80	0.14	0.07
0.35	0.65	0.33	0.85	0.12	0.06
0.40	0.52	0.26	0.90	0.10	0.05
0.45	0.43	0.22	0.95	0.08	0.04
0.50	0.36	0.18	1.00	0.07	0.04

*C = Runoff Coefficient*

*A<sub>RLCB</sub> = Maximum Drainage Area to RLCB (ha)*

*A<sub>SW</sub> = Maximum Drainage Area to rear yard swale (ha)*

- The maximum length of a rear yard swale that may be discharged onto the road allowance is 60m where the drainage does not flow over a sidewalk and 30m if a sidewalk lies within the drainage path.
- Rear yard swales to discharge to rear-lot catchbasins if an acoustical fence lies in the drainage path.

#### 8.3.1.3 Catchbasins

Valdor to provide rationale to support. (Centre Bullet)

- Rear yard catchbasins and leads to be located all on one lot. The catchbasin shall be located 1.0m clear from all lot lines. The lead shall be located 0.5m from the lot line and shall be fully concrete encased within the lot. Rear yard catchbasin to be sumpless.
- Easements shall not be taken over rear yard catchbasins and leads. The Town is not responsible for the maintenance of rear yard catchbasins.
- An overland flow route shall be provided for all rear yard catchbasins to ensure that the maximum depth of ponding at the catchbasin does not exceed 0.3m. The maximum ponding depth shall not be within 0.1m of any adjacent top of foundation or unprotected window opening (window wells are not permitted to achieve this).

#### 8.3.1.4 Driveways

- Driveways grades shall be minimum 2.0% and maximum 7.0%.

#### 8.3.1.5 Retaining Walls

- The use of retaining walls is not acceptable in new developments. Where there are no other viable alternatives, a retaining wall may be considered provided the following conditions are met:
  - No retaining wall shall exceed 1.0m between residential lots and shall be located entirely (including footings) on the higher lot to ensure tiebacks do not cross property boundaries.
  - Retaining walls must be concrete or concrete product; the use of timber will not be permitted.
  - A detail approved by a structural engineer shall be included on the drawing which indicates the location of the weeping tile, the backfill requirements and certifies that the walls have been designed in accordance with accepted engineering principles and

that the wall is suitable for the geotechnical condition of the site and for the type of loading.

- Where the exposed wall height exceeds 0.6m, a minimum 1.2m high protective fence or handrail is required at the top of the wall.
- Profile of wall & cross-sections are required to clearly identify the extent of the proposed retaining wall.

#### 8.3.1.6 Existing Elevations

- All existing perimeter drainage entering the site from adjacent lands shall be accommodated by the proposed grading.
- An undisturbed strip of 0.5m shall be maintained at the property limits adjacent to other properties to maintain the existing elevations at the boundary limits. No grading, cut or fill, will be permitted on private lands unless written permission is obtained from the adjacent owner. The proposed grading shall match the existing grades at the boundaries.

#### 8.3.2 Industrial Subdivisions

- All lot surfaces are to be rough graded and generally flat.
- Provide positive drainage to a suitable outlet.
- Grading shall adhere to Section 1.6.

#### 8.3.3 Park, School and Commercial Blocks

All park, school and commercial blocks must be graded such that they are generally flat and are to have positive drainage to a suitable outlet on public lands. Drainage from these blocks to private land will not be permitted.

Drainage of private land to these sites will not be permitted.

Park blocks and School blocks shall be dressed with a minimum 150mm topsoil and seeded. Commercial blocks shall be dressed with a minimum 100mm topsoil and seeded.

Where fill is required to meet grading/drainage requirements, it shall be engineered to 95% SPMD and certified by a soils engineer.

#### 8.3.4 Infill Housing

Grading for infill housing shall be in accordance with the design criteria for residential subdivisions outlined in Section 8.3.1. The site shall be graded to ensure that water will not accumulate at or near the building and will not adversely affect adjacent properties. The existing drainage pattern shall be maintained wherever possible, and an adequate survey should be completed to establish the existing drainage.

### 8.4 Construction Requirements and Certification

#### 8.4.1 General

Prior to commencing topsoil striping and rough grading on the site, the Developer must implement and enforce, to the satisfaction of the Town and Conservation Authority, an erosion and sediment control program to reduce on-site erosion and minimize the transport of silt off-site, into treed or environmentally sensitive areas or into the municipal storm sewer system.

#### 8.4.2 As-Built Foundation Certificate

Prior to proceeding with framing of structures on registered lots, the builders shall provide the Town and Developer's Consulting Engineer with an OLS certificate identifying As-Built underside of footing, top of foundation wall (all levels – i.e. walkouts, deck units, etc.) and garage door sill elevations as well as actual setback distances. If elevations differ from the approved plans, the Consulting Engineer shall provide details of the variance and recommendations for rectification of the problem.

8.4.3 Engineered Fill Certificate

Where the proposed Grading Control Plan identifies "engineered fill" for lots, the fill shall be placed under the full-time supervision of a qualified Geotechnical Engineer, who shall certify the fill's stability and load bearing capacity. The Geotechnical Engineer shall inspect the founding soil for each house on engineered fill and make recommendations (e.g., reinforcement) prior to pouring of concrete and provide a certificate to the Town.

8.4.4 Lot Grading Certificate

Prior to sodding, the Consulting Engineer, jointly with the Builder(s), shall complete a visual inspection of the lots to confirm that the grading functions in accordance with the approved individual house siting plans. Any rectifications shall be repaired prior to the builder placing sod. A final inspection will be completed once the lots are sodded and the Consulting Engineer shall issue a Lot Grading Certificate (see standard form included at the end of this section).

**SAMPLE LOT GRADING CERTIFICATE TO BY TYPED ON CONSULTANT'S LETTERHEAD**

Date

**Town of New Tecumseth**  
10 Wellington Street East  
Alliston, Ontario  
L9R 1A1

**Attention: Manager of Engineering**

Dear Sir/Madam:

RE: CERTIFICATION OF FINAL LOT GRADING  
LOT OR BLOCK, REGISTERED PLAN  
NAME OF SUBDIVISION

I have inspected the completed lot grading on the above lot, and hereby certify that:

1. The lot grading is:  
  
\_\_\_\_\_ in conformity with the approved grading and site plans.  
  
\_\_\_\_\_ not in conformity with the approved plan, but have been constructed in accordance with sound engineering principles and vary from the approved plan as shown on the attached as-built plan, signed and stamped by the undersigned.
2. The water service curb stop is located in the:  
  
\_\_\_\_\_ grassed portion of the front yard.  
  
\_\_\_\_\_ driveway and has been fitted with a frost collar.

Yours very truly,

Name of Engineering Firm

Stamp and Signature of Engineer

c: Chief Building Official