New Tri-Community
Development and Building Permitting System

Prepared in Collaboration with
City of Moncton, City of Dieppe and Town of Riverview

By Greater Moncton Planning District Commission

August 12, 2009

TRI-COMMUNITY DEVELOPMENT AND BUILDING PERMITTING SYSTEM AND PROCEDURE FOR FOUNDATION WALL ELEVATION, FOUNDATION LOCATION, LOT GRADING AND DRAINAGE PLANS FOR NEW SINGLE UNIT, TWO UNIT & SEMI-DETACHED DWELLINGS

SECTION 1.0 PURPOSE

The City of Moncton, City of Dieppe, Town of Riverview and Greater Moncton Planning District Commission have worked together to address a recurring problem in the Tri-Community Area. New buildings have been constructed that do not meet the standards of the relevant by-laws. Specifically, foundations have been placed too low and too high with respect to the surrounding land and /or streets, making them or adjacent properties more likely to flood. Under the current permitting procedure, these problems often go undetected until too late—after the building is completed (making it much more expensive to fix the problem) or sold (passing on the problem to the property buyer).

The purpose of this new procedure is to ensure that every new residential building[1] is constructed according to the Building, Zoning and Subdivision by-laws and the procedure will apply to new residential buildings. Additions, secondary and accessory buildings and structures will not be affected. It is particularly important to make sure that basement floor elevation, foundation location and elevations, driveway slope, lot grading and drainage are adequate. The procedure is intended to prevent or minimize problems as soon as they can reasonably be discovered (eg. once the foundation is placed) but before the entire building is completed and the lot graded. The most appropriate way to do this is by having a Land Surveyor licensed to practice in the Province of New Brunswick (hereafter Land Surveyor) certify the building location and elevations by means of a Surveyor's Report[2].

Confirmation on the proper placement of all new foundations must be provided by a Land Surveyor and be submitted to Building Inspection. This in addition to a pre-backfill inspection by Building Inspection must take place before construction can proceed beyond the foundation.

The purpose of the pre-backfill inspection is to examine the foundation and its components to ensure compliance with the Building Code. At this stage, an inspection will be carried out on components such as drainage tile installation, externally applied thermal insulation, waterproofing or damp-proofing, and

[1] Residential buildings shall refer to new single unit dwelling, two unit dwelling, and semi-detached dwellings. The process will not apply to additions to existing residential buildings and accessory buildings and structures.

[2] A Foundation Report Form will be prepared by a Land Surveyor at the foundation verification stage, certifying that the foundation has been constructed in conformity with the Site Plan. A Surveyor's Real Property Report will be provided upon completion of the foundation and lot grading, and will certify that site development has been completed in accordance with the Site Plan.

verification of the presence of any structural cracks or honeycombing in the foundation"

The following procedure is modelled on procedures already being applied in municipalities such as Fredericton and Halifax, as well as elsewhere in Canada.

SECTION 2.0 FOUNDATION WALL ELEVATION, FOUNDATION LOCATION AND LOT GRADING

To establish the new procedure, amendments to the City of Moncton, City of Dieppe, and Town of Riverview by-laws are required. These amendments will impose requirements for certain elements of a development.

a) Critical Elevation

"C*ritical elevation"* refers to the lowest point on the foundation through which surface water could enter the building. This may be a basement window, a doorway, or the top of the foundation wall. The following definition is proposed for all three of the municipalities' Zoning by-laws:

> **"critical elevation** means the lowest point on a foundation wall where surface water would first enter, and more specifically means the lower of
>
> i) the lowest point of the top of the foundation wall;
>
> ii) the lowest point of any opening or depression in the foundation wall, including basement windows, doorways or other non-watertight openings, but excluding basement windows equipped with window wells in conformity with the National Building Code of Canada."

Specifying and regulating this *critical elevation* will help to ensure that the foundation is compatible with the Lot Grading and Drainage Plan[3] and that the building will not be at undue risk of flooding.

The critical elevation of the main dwelling's foundation must be at least 0.5 metres (1.64 ft.) above the finished centreline of the road while the critical elevation for an attached garage door opening must be at least 0.35 metres (1.14

[3] Lot Grading and Drainage Plan (also known as Subdivision Grading and Drainage Plan in Moncton and known as Subdivision Drainage Plan in Riverview) generally prepared during the subdivision approval stage and are registered against the lots or are part of a municipal record. As part of the Building Permit process, builders are required to comply with the Lot Grading and Drainage Plan. In some cases individual lots may not have an existing Lot Grading and Drainage Plan. Under these circumstances, the land owner will need to have a Lot Grading and Drainage Plan prepared and sealed by a Professional Engineer that shows their plan will have no impact on adjacent properties. Similarly, if a builder does not want to follow the existing Lot Grading and Drainage Plan, they will require an engineered solution.

ft.) above the finished centreline of the road. For the purposes of this procedure, the elevation of the finished centerline of the road will be taken from the point where the centerline of any driveway meets the centerline of the road.

b) Engineered Solution

With the exception of window wells where a detailed plan / specification is provided with building plans that meet the latest adopted edition of the National Building Code of Canada (hereafter Building Code), an engineered solution will be required, for instance, where the critical elevation is too low on the Building Permit Site Plan (*hereafter Site Plan)* and lot-grading plan, or where a Lot Grading and Drainage Plan does not exist. The following definition is proposed for all three of the municipalities' Zoning by-laws:

> **"engineered solution** means a drainage plan, stamped by a professional engineer, providing for drainage and surface water management adequate to prevent surface water from entering any main building during any precipitation event up to and including a 100-year return period for a 24-hour duration and consistent with any subdivision agreement in effect for the property in question, and which furthermore will not negatively impact drainage on adjacent properties."

The Professional Engineer will be required to provide supporting documentation (eg. modelling results, design criteria, calculations, etc.).

c) Minimum basement floor elevation

The minimum basement floor elevation as shown on the Lot Grading and Drainage Plan shall be shown on the Site Plan. This is to ensure that basement floors are not placed too low relative to municipal sewer lines. While basement floor elevation can not be lower than the minimum basement floor elevation, the floor elevation may be raised to accommodate different basement wall heights provided it does not impact on the Lot Grading and Drainage Plan.

d) Maximum driveway slope & foundation wall height

As well, the driveway and its slope shall also be shown on the Site Plan. The maximum driveway slope shall not exceed 10% and the maximum foundation wall height shall not exceed 2 metres (6.56 ft.) above the centreline of the road. Plans that exceed the maximum driveway slope and foundation wall heights will require an engineered solution to ensure that there will be no impact on adjacent properties, as well that the lots do not create unsafe conditions.

The new development and building permit process will also ensure that the horizontal location of the new foundation meets the lot setback requirements before the building is completed.

2.1 Documentation at three stages

Documentation will be provided and checked at three points:

Stage 1: Building Permit Site Plan

(i) When a building permit application is applied for a new residential main building with a foundation, in addition to the usual requirements for a building permit, the applicant shall provide a Site Plan at a metric scale of 1:250 with all the information contained on the attached examples of Site Plan for Interior and Corner Lots.

(ii) The Site Plan shall show all the relevant geodetic elevations of the land as it is proposed to be once the building and site development is complete such as the geodetic elevation of basement floor, horizontal placement of the foundation walls, *critical elevation*, and driveway location and slope. It is the responsibility of the builder to obtain the geodetic elevations from their Land Surveyor.

(iii) The Site Plan shall be consistent with the Lot Grading and Drainage Plan approved as part of the original subdivision, if any.

(iv) In the case of lots where no previous Lot Grading and Drainage Plan exists—for instance, on older infill lots—a Lot Grading and Drainage Plan shall be produced by a Professional Engineer and be reviewed and accepted by the municipality's Engineering department as part of the building permit application.

Stage 2: Foundation Verification via Foundation Report Form

(i) Once the foundation has been placed, the applicant shall provide documentation to the municipal Building Inspection department certifying that the foundation has been constructed in conformity with the Site Plan. This documentation shall be provided through a *Foundation Report Form for Foundation Wall Elevations and Foundation Location* (hereafter "Foundation Report Form") prepared by a Land Surveyor as outlined in Section 4.0.

(ii) No further development and construction can proceed beyond the foundation and floor system[4], backfilling and lot grading until the municipal Building Inspection department has confirmed that the Foundation Report Form is consistent with the Site Plan.

[4] Foundation walls to be laterally supported as per the latest edition of the National Building Code of Canada, Part 9, prior to backfilling.

(iii) The builder shall request a pre-backfill inspection from Building Inspection prior to backfilling the foundation in order to verify that the foundation and floor system meets the Building Code.

(iv) Once the foundation location and elevations have been accepted in writing by the municipal Building Inspection department, the builder may proceed with construction. It is also important to note that a pre-backfill foundation inspection must be completed by Building Inspection before the builder backfills the foundation.

(v) The final lot Grading can be done at the same time as the foundation is being backfilled.

Stage 3: Completion of Foundation and Lot Grading Surveyor's Real Property Report

(i) Once the lot grading[5] is completed, the applicant shall provide, a *Surveyor's Real Property Report* to the municipal Building Inspection department to confirm that the property has been developed in compliance with the Site Plan. To expedite the foundation and lot grading approval process, the builder may undertake the lot grading at the same time as the foundation backfill and provide the Surveyor's Real Property Report at Stage 2 instead of submitting a Foundation Report Form. The final report shall certify that foundation elevations are within 100 millimetres (4 inches) above or below the required elevations and the lot grading shall not be more than 150 millimetres (6 inches) below the proposed finished grade and is consistent with the Site Plan. If seasonal weather conditions do not permit lot grading at the foundation backfill stage, the lot grading and final *Surveyor's Real Property Report* shall be completed within 12 months of the building permit being issued. Failure to do this will result in enforcement procedures and may involve orders being posted against the property on the Service New Brunswick Land Gazette.

(ii) The *Surveyor's Real Property Report* shall show the location of the building, the location and slope of the driveway, and elevation details of the foundation and lot, including the *critical elevation;* and shall confirm that these are consistent with those shown on the Site Plan.

(iii) Once accepted by the municipal Building Inspection department, this documentation will be filed with the property's building permit records.

[5] The actual lot grading shall not be more than 150 millimetres (6 inches) below the proposed finished grade and in no instance shall be above the proposed finished grade.

SECTION 3.0 BUILDING PERMIT SITE PLAN AND CONFORMITY WITH LOT GRADING AND DRAINAGE PLAN

As part of a subdivision process for new developments, the developer's Professional Engineer is required to prepare a Lot Grading and Drainage Plan, which is filed[6] and shows how the drainage for the entire subdivision will function once developed. This is already part of the current procedure.

In some developments the developer will grade the entire area at the start of the subdivision in accordance with the plan. However, in other cases, the land will remain ungraded or even ungrubbed until the lots are sold, whereupon individual lot owners grade their own lot at the time of development and construction. The proposed procedure will ensure that the lot grading is carried out in conformity with the Lot Grading and Drainage Plan.

In the case of older infill lots where no existing Lot Grading and Drainage Plan is in place, the applicant shall submit a Lot Grading and Drainage Plan prepared and sealed by a Professional Engineer to be reviewed and accepted by Municipal Engineering department.

Regardless of when the Lot Grading and Drainage Plan is produced (at the time of original subdivision, or prior to seeking a building permit) the relevant information will have to be shown on the Site Plan:

i. the geodetic elevation of the basement floor, attached garage floor door opening elevation and the top of all the foundation walls;
ii. the horizontal location of each of all the foundation walls (i.e. the front, rear, flankage and side yards);
iii. the foundation's *critical elevation;*
iv. the proposed finished land elevation at each corner of the property and foundation wall and the geodetic elevations of the land where it meets the outer walls of the main building;
v. driveway location and its slope from the property line adjacent to the public street right-of-way;
vi. geodetic elevation of the finished grade of the centreline of the road where it intersects the extended centerline of the driveway;
vii. existing municipal and private service easements, underground electrical, telephone, gas, cable, and all other public utility easements;
viii. any physical feature that may impede drainage such as accessory buildings and structures, and natural vegetation such as large trees or landscape gardens;

[6] Within the City of Moncton and Town of Riverview the drainage agreement (which includes the Lot Grading and Drainage Plan) is registered with Service New Brunswick as an encumbrance on the property. Within the City of Dieppe the Lot Grading and Drainage Plan is filed as a Municipal record with the Engineering Department.

ix. any proposed finished land elevations that indicate the existence and functionality of swales or other drainage elements; as well as
x. any other information required to show conformity of the Site Plan with the Building, Subdivision and Zoning by-laws.

Once the submitted information is in order and accepted, a Building and Development Permit is issued to construct the foundation. However, once the foundation is constructed, its location must be confirmed by means of a Foundation Report Form as outlined in Section 4.0.

SECTION 4.0 FOUNDATION REPORT FORM

In order to expedite the approval of the foundation location and elevations so that construction can proceed beyond the foundation and floor system, a "Foundation Report Form" procedure will be implemented by the municipal Building Inspection department.

Following the placement of the foundation, the applicant's Land Surveyor reports the constructed geodetic elevation of the basement floor and the lowest points of the top of all the sides of the foundation walls, the foundation's *critical elevation,* the building's location on the property (eg. the front, rear, flankage and side yards), and the geodetic elevation of the finished grade of the centreline of the road at its lowest point along the frontage of the proposed building. The Land Surveyor sends confirmation of their findings to the municipal Building Inspection Department by means of the Foundation Report Form, which includes the following declaration:

With respect to the main building on the property at _____ (civic number and street address), _____(PID number), I _____(name of Land Surveyor),_____(New Brunswick Land Surveyor #) hereby certify:

(a) that the geodetic elevation of the lowest point on the top of the front foundation wall is _____ metres;
(b) that the geodetic elevation of the lowest point on the top of the side foundation walls are _____ metres and _____ metres ;
(c) that the geodetic elevation of the lowest point on the top of the rear foundation wall is _____ metres;
(d) that the geodetic elevation of the attached garage floor door opening elevation *is _____ metres;*
(e) that the critical elevation of the foundation is _____ metres;
(f) that the minimum geodetic basement floor elevation is _____ metres;
(g) that the front yard setback, being the shortest distance between the front lot line and the main building, is _____ metres;

(h) that the side yard setbacks, being the shortest distance between each side lot line and the main building, is/are _____ metres and (if applicable) _____ metres;

(i) that the flankage yard setback (i.e. the side yard facing a street in the case of a corner lot, being the shortest distance between the flankage lot line and the main building, is _____ metres (if applicable);

(j) that the rear yard setback, being the shortest distance between the rear lot line and the main building, is _____ metres; and

(k) that the geodetic elevation of the finished grade of the centreline of the road meets the centerline of any driveway is _____ metres.

I _____ (name of Land Surveyor) further certify that these elevations and setbacks are consistent with the Site Plan to a tolerance of +/- 100 mm (4 inches).

The completed Foundation Report Form must be certified by a Land Surveyor when it is submitted to the municipal Building Inspection department for acceptance.

4.1 Conformity – Foundation Wall Elevation & Building Foundation Location

When the Foundation Report conforms to the requirements as noted above, the municipal Building Inspection department will notify the applicant so they can proceed with construction. If the foundation is accepted, confirmation in writing will be provided to the applicant and the builder may proceed with construction beyond the foundation and floor.

4.2 Non-Conformity of Foundation Wall Elevation

In the event the foundation wall elevation does not conform to the requirements noted above,

4.2.1 The municipal Building Inspection department notifies the Engineering department of the non-conforming situation;

4.2.2 The municipal Building Inspection department then officially notifies the property owner that the foundation wall does not meet the lot grading and/or foundation elevation requirements, and that an *engineered solution* is now required.

4.2.3 The property owner must then provide an *engineered solution* as defined in Section 2.0 (b).

4.2.4 The municipal Engineering department reviews the engineered solution. If

it is satisfactory, the municipal Engineering department notifies the municipal Building Inspection department of the positive assessment so that acceptance can be provided to the Building Inspector to proceed with the pre-backfill foundation inspection. The Engineered Solution will be filed with the property's building permit records.

4.3 Non-Conformity of Building Foundation Location (Horizontal)

4.3.1 If the foundation encroaches into a required front yard, flankage, side yard or rear yard setback, the property owner is required to make application for a variance with the Greater Moncton Planning District Commission (hereby known as the Planning Commission).

4.3.2 The application is processed by the Planning Commission and the property owner is notified in writing as to whether the variance is approved with copies of the decision being communicated to the municipal Building Inspection and Engineering departments.

4.3.3 If the variance request is denied, the property owner may be required to remove the foundation structure.

SECTION 5.0 COMPLETION OF FOUNDATION AND LOT GRADING SURVEYOR'S REAL PROPERTY REPORT

5.1 After completion of the foundation and lot grading, the property owner submits a copy of the *Surveyor's Real Property Report* to the municipal Building Inspection department for acceptance.

5.2 The *Surveyor's Real Property Report* shows:

i. the actual building setbacks (i.e. distances from the outer walls of the foundation to the property boundary lines);
ii. the geodetic elevation of the four corners of the property;
iii. the geodetic elevations of the land where it meets the outer walls of the main building;
iv. the geodetic elevations of the lowest point on the top of each of the foundation walls;
v. the critical elevation*;*
vi. the basement floor elevation;
vii. where applicable, attached garage floor door opening elevation;
viii. driveway location and its slope;
ix. geodetic elevation of the finished grade of the centreline of the road at the point where it meets the extended centreline of any driveway;
x. existing municipal and private service easements, underground electrical, telephone, gas, cable, and all other public utility easements;

xi. any physical features such as accessory buildings and structures, and natural vegetation such as large trees or landscape gardens;
xii. the location and geodetic elevation of any swales; and
xiii. in the case of a development where an *engineered solution* is required, any and all data points required to confirm that the engineered solution has been fully complied with.

5.3 Furthermore, in the case of a development where no *engineered solution* is required, the Land Surveyor certifies on the *Surveyor's Real Property Report* that the foundation wall elevations and critical elevation are consistent with those shown on the Site Plan. In the case of a development where an *engineered solution* is required, the Professional Engineer certifies that the *engineered solution* has in fact been implemented.

5.4 The *Surveyor's Real Property Report* will be reviewed for compliance with the Zoning by-law and lot grading requirements (including any variances that may have been granted by the Planning Commission).

MONCTON

Foundation Report Form

NEW BRUNSWICK LAND SURVEYOR (NBLS)

SURVEYOR INFORMATION

Company Name

Surveyor Name

Address

Tel Fax

E-mail

SURVEYOR CERTIFICATION

I certify that the as-built elevations are within +/- 50mm on this *Foundation Report Form*.

NBLS Signature

NBLS License No.

Date

PROPERTY INFORMATION

Civic No. Lot No. Street

Land Surveyor Benchmark Reference

ELEVATION	AS BUILT *(metres)*	SITE PLAN *(metres)*	DIFFERENCE *(should be + / - 100 mm)*
Geodetic elevation of the lowest point on the top of the front foundation wall			
Geodetic elevation of the lowest point on the top of the side foundation walls	side 1 side 2	side 1 side 2	side 1 side 2
Geodetic elevation of the lowest point on the top of the rear foundation wall			
Geodetic elevation of the attached garage floor door opening elevation			
Critical elevation of the foundation			
Minimum geodetic basement floor elevation			
Geodetic elevation of the finished grade of the centerline of the road where it meets the centerline of any driveway			

SETBACKS	AS BUILT *(metres)*	SITE PLAN *(metres)*	DIFFERENCE
Front yard setback – being the shortest distance between the front lot line and the foundation			
Side yard setbacks – being the shortest distance between each side lot line and the foundation	side 1 side 2	side 1 side 2	side 1 side 2
Flankage yard setback – being the side yard of a corner lot, facing the street where the side yard abuts a street – distance between the flankage lot line and the foundation			
Rear yard setback – being the shortest distance between the rear lot line and the foundation			

MONCTON

RETURN COMPLETED FORM:

City of Moncton
Building Inspection
City Hall
655 Main Street, 2nd Floor
Moncton, NB E1C1E8

tel: 506 856-4375
fax: 506 856-4357
e-mail: info.inspection@moncton.ca

moncton.ca

OFFICE USE ONLY

Greater Moncton Planning District Commission

GMPDC REVIEW

ELEVATIONS

Are the as-built elevations noted above consistent with the site plan to a tolerance of +/- 100 mm (4 inches)?

YES ◯ NO ◯

FOLLOW-UP REQUIRED

SETBACKS

Are the setbacks noted above consistent with the site plan ?

YES ◯ NO ◯

FOLLOW-UP REQUIRED

GMPDC CDAGM

GMPDC APPROVAL

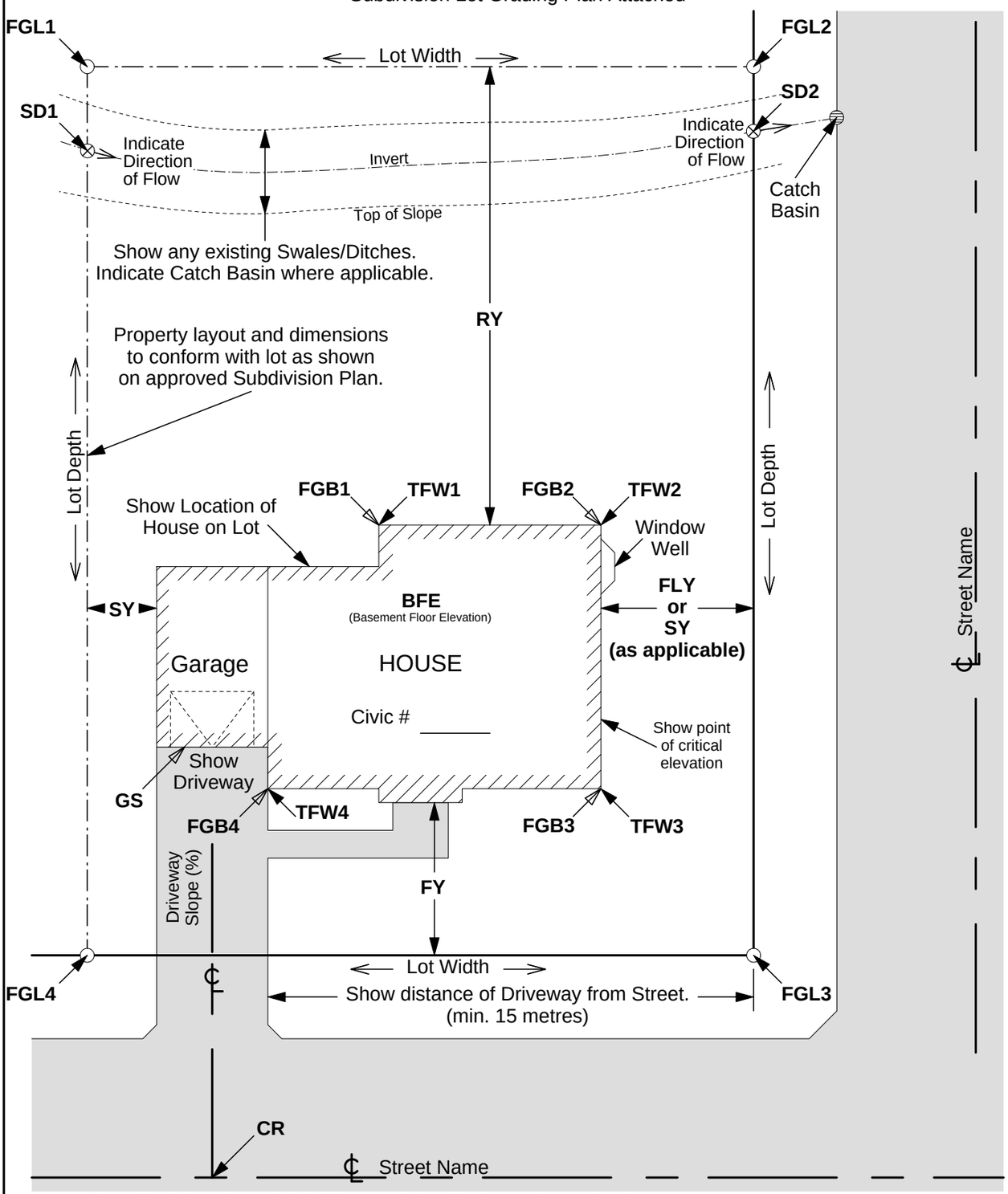
PROCEED TO STAGE 2 – BUILDING PERMIT

Approved by _____ Date _____

Sample Building Permit Site Plan (TYPICAL*)

PID#_____Lot #_____ Plan #_____

Subdivision Lot Grading Plan Attached



The critical elevation of this building as defined by the Zoning By-law is _____ metres

Name of Owner/Agent (Please Print) _____

We certify and acknowledge responsibility for maintaining lot drainage in compliance with the Subdivision Grading Plan and this Site Plan.

Signature Owner/Agent X _____ Dated _____

LEGEND

FY = Front Yard SY = Side Yard

RY = Rear Yard FLY = Flankage Yard (if a corner lot; otherwise it's a second side yard)

FGL1, 2... = Proposed Finished Grade, each corner of lot (minimum 4 points)

FGB1, 2... = Proposed Finished Grade, land at each corner of main building (excluding garage) (minimum 4 points)

TFW1, 2.... = Top of Foundation Wall, each corner (minimum 4 points)

SD1, 2... = Elevation of swale/ditch (minimum 2 points)

GS = Lowest point of edge of garage slab (if applicable)

CR = Elevation of the crown of the road at the point where it intersects the extended centerline of the driveway.

BFE = Basement Floor Elevation

* This schematic represents a generalized site plan. Actual site plans shall be drawn to a scale of 1:250 and shall accurately represent the specific lot and building to be built. All elevations to be Geodetic.