

Bowen Island Municipality

DRIVEWAY DESIGN AND CONSTRUCTION GUIDELINES

This information is provided to assist you in the construction of your driveway and help you determine:

- The best location on your property.
- What you need to look for in developing a safe access.
- Construction standards.

Once you've decided on your access location, you will need to consider a few safety issues to ensure it will work well and not create a safety hazard for yourself or other motorists.

There are **five** main issues to consider when developing a safe access:

1) Location

Firstly, you should consider where you are going to position your home and how your driveway will fit into the overall layout. Think about all the seasons. What will it be like in the winter months? Will the location serve as an efficient access to your home?

2) Grade

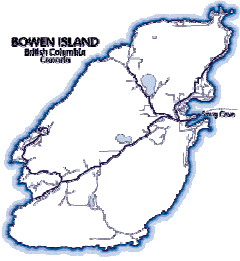
Grade is the change in elevation of land. When you develop an access, the grade of your driveway near the road should be fairly level for at least the length of an average sized car. This is important during icy conditions. You don't want to slide onto the road when you try to stop.

3) Parking

Depending on the Land Use Zoning for your property, you may be required to provide parking for two vehicles. Refer to Bylaw No. 57, Table 5-1 to determine the number of parking spaces required. Remember, parking spaces must be located within your property boundary, not on the Municipal Highway. Furthermore, provision must be made to ensure that you can turn your car around and re-enter the Municipal Highway in a forward direction.

4) Sight Distance

Imagine sitting in your car and you are about to enter the road. You look up and down the road before proceeding. The furthest point at which you can observe the road in each



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direction is the sight distance. This is important because you need to see approaching traffic and they need to see you. Although it is ideal to have clear sight of both lanes, it is crucial to have clear sight along the road lane that runs alongside your point of access.

Remember vegetation may grow back and you will have to clear it from time to time. The Driveway Access Permit provides continual permission to remove vegetation located on the Municipal road allowance. You must get permission from your neighbours to remove vegetation that lies on private property.

Maximum required sight distances are dependent upon posted speed limits. Based on a travelling speed of 40 km/hr, the required sight distances in each direction are listed below:

ROAD TYPE	DESCRIPTION	SIGHT DISTANCE (m)
Trunk	Trans Island feeder routes	45
Main	Intercommunity road	45
Residential	Community road	30
Service	Serves up to 18 homes	20
Byway (single lane)	Serves up to 8 homes	20

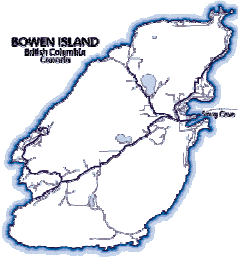
5) Drainage

Drainage refers to the concentration and flow of surface water runoff. There are two main drainage scenarios on Bowen Island:

- I. Surface water that flows adjacent properties toward the road
- II. Surface water that flows from the road toward adjacent properties

Sometimes a roadside ditch may be used to intercept this drainage. Before you construct your access, you need to determine if there is a defined ditch line along your property. If there is an existing ditch, you will need a culvert. We require that you provide a minimum 400-mm (16-inch) diameter pipe. Site specific conditions may require a larger diameter pipe. The culvert should be longer than the width of your driveway to allow for the driveway fill on either side of the driveway.

If your property is higher than the road, you are required to create a small swale or depression to direct surface water from your driveway to the ditch. This will help prevent water from running onto the road and creating black ice when temperatures drop. A combination of a slight grade and the swale will also help keep debris off the road during



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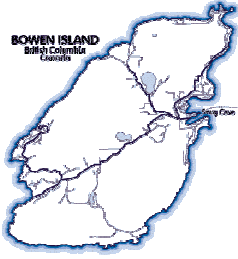
heavy rains. It is the responsibility of the access owner to clean debris from their driveway off the road.

If your property is below the road, you are responsible to manage any drainage that originates from the road.

DRIVEWAY CONSTRUCTION STANDARDS

Now you know where to locate a safe driveway by addressing sight distance and drainage. Here are the standards for constructing your driveway:

- When the property is higher than the road, the grade should not be greater than 2% within the boulevard (that portion of the highway between the curb lines or the lateral lines of the roadway and the adjoining property or roadway). Additionally, there should be a slight swale at the ditch line to ensure water drains into the ditch rather than onto the roadway.
- The driveway slope should not exceed 20% from the property line to the closest parking area (as measured along the direction of travel along the driveway). The parking area should be of a size large enough to accommodate the required number of spaces.
- Driveway width for all single-family residential zones can range between 3.0 - 6.0 metres (10 – 20 feet) as measured at the property line. The driveway width in the boulevard may not exceed 6.0 metres.
- Culverts must be corrugated steel pipes with a minimum size of 400-mm (16 inches). Alternately, a pipe capable of withstanding an H-20 axle loading standard may be used, subject to review.
- The culvert should be placed slightly below the invert or lowest point in the ditch. Consider the implications of ditch maintenance and cleaning by municipal maintenance crews.
- The culvert should be covered with granular material to a depth in accordance with the pipe manufacturer's specifications. This cover is necessary to protect the culvert from collapse.
- Ditches are to be constructed with positive slope and a general maximum depth of 0.6 metres (2 feet) and a minimum depth of 0.15 metres (0.5 feet). Ditch bases should have a width of 0.3 meters (1 foot) and sideslopes of 1.5H to 1.0V.
- Gravels used in the construction of driveways shall conform to Master Municipal Construction Document specifications.
- Structures may not be placed within 2 metres (6.5 feet) of the paved road.
- Except by special permission, residential properties are limited to one driveway access.



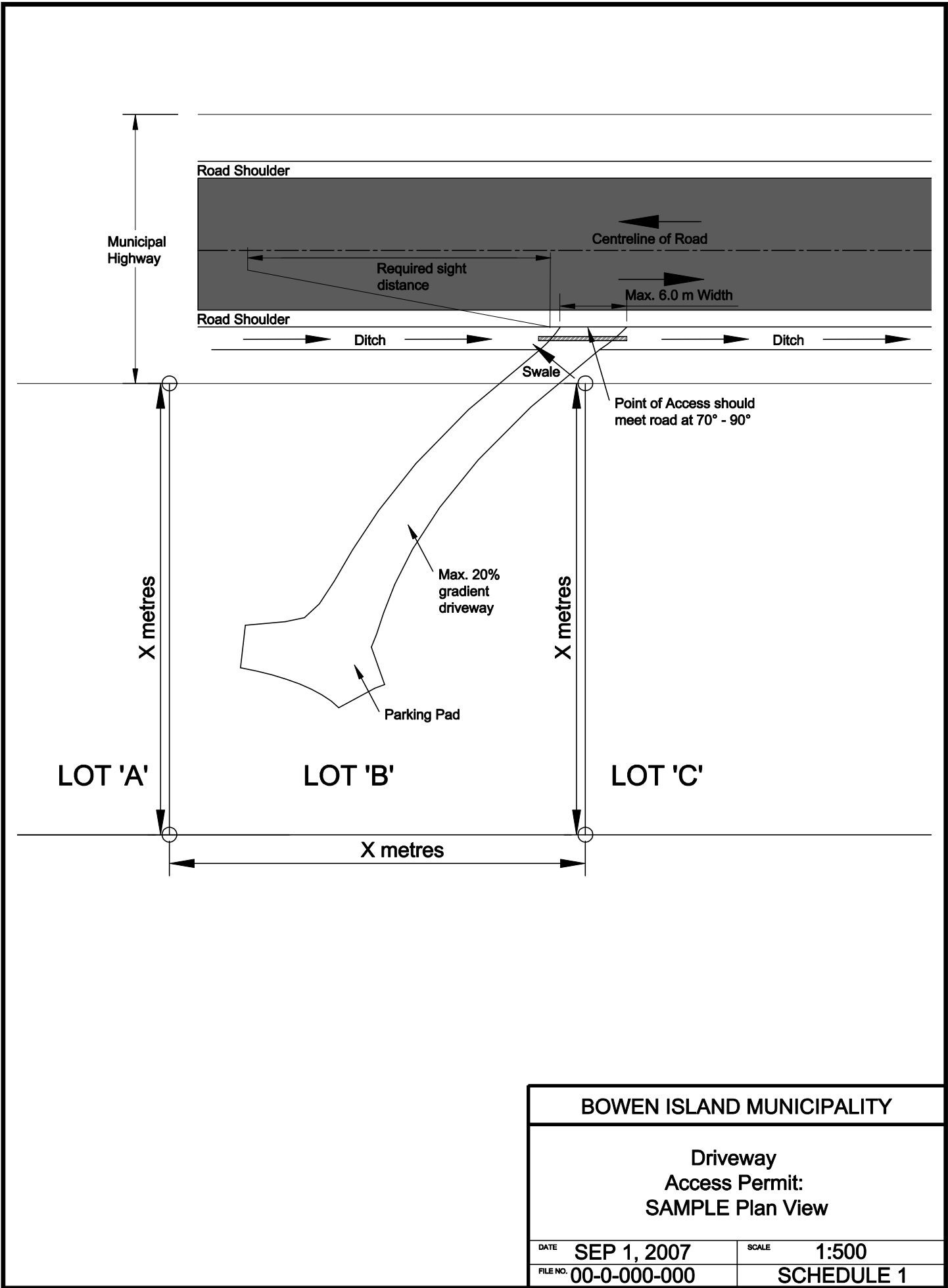
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- All retaining structures over 1.5 metres (5 feet) shall be certified by a geotechnical and/or structural engineer in accordance with Bylaw No. 65.
- The Permittee shall apply for all permits from other levels of government as are required to complete the works, and provide copies of approved permits to the Municipality prior to commencing portions of the work affected by the permits. The conformance to the conditions of the permits shall be the sole responsibility of the Permittee, including the responsibility to provide environmental monitoring.

Attachments:

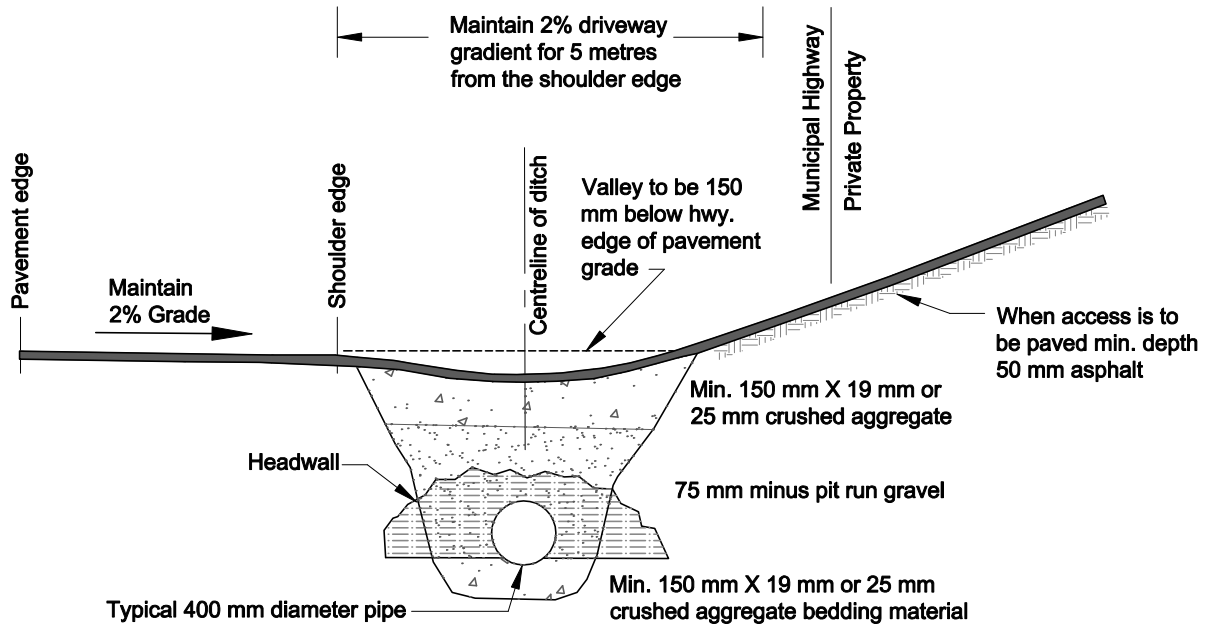
Schedule 1: Location, Design and Construction / Residential Driveways

Schedule 2: Culvert Specifications/Driveway Cross Section

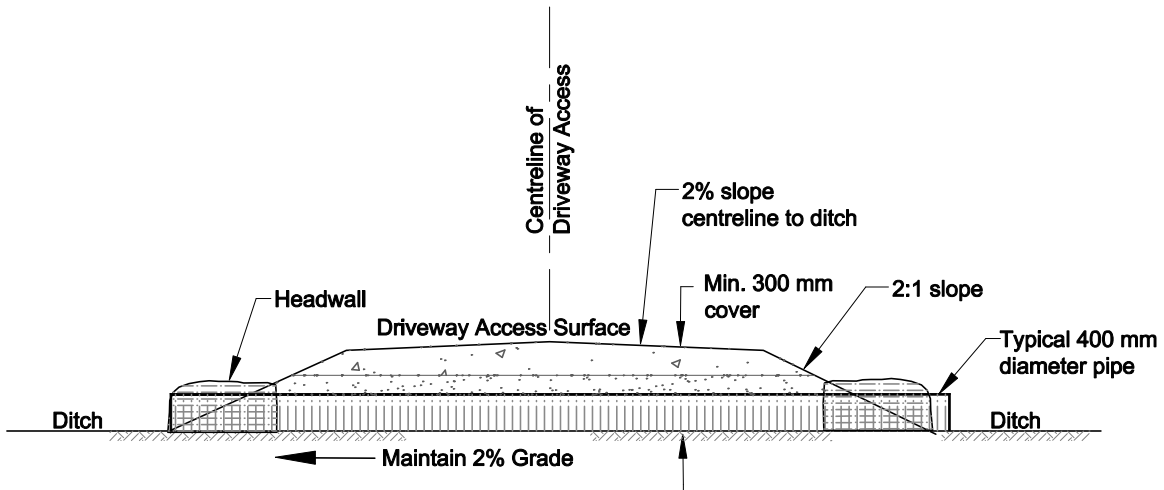


BOWEN ISLAND MUNICIPALITY	
Driveway Access Permit: SAMPLE Plan View	
DATE	SEP 1, 2007
SCALE	1:500
FILE NO.	00-0-000-000
SCHEDULE 1	

Driveway Access Profile



Ditch Profile



Note:

Effective immediately, acceptable materials for Municipal Highways, including driveway culverts will no longer include pipes with internal corrugations or ribs, including Big-O type pipe.

BOWEN ISLAND MUNICIPALITY

Driveway Access Permit: Culvert Detail

DATE **SEP 1, 2007**

SCALE **N.T.S.**

FILE NO. **00-0-000-000**

SCHEDULE 2