

Appendix B Driveway Locations and Culverts

1.1 **GENERAL INFORMATION** - An application for a Right of Way Access Permit (driveway) must be obtained from the Planning and Building Inspection Department (P&B), prior to constructing any driveway entrance (temporary or permanent). Driveway location must be approved by the Public Works Department before P&B will approve foundation. Driveway culverts shall be located as per **Drawing 410.04** or as directed by the Public Works Department. Driveway culvert pipe sizes must be approved by a representative of the Public Works Department prior to installation. The minimum pipe size shall be 15 inches in diameter and the minimum pipe length shall be 24 feet. A 12 inch CMP will be authorized only in situations where it is determined to be appropriate by the Public Works Department. Pipe specifications shall meet **Section 260.3.4** of **Appendix A-1**, Construction & Materials Specifications.

Culvert pipes greater than 30 ft. in length shall increase one pipe size in diameter. No pipe longer than 50' shall be installed without prior approval by the Department of Public Works. All driveways shall be constructed in such a manner as to not direct drainage onto the roadway. Culverts not meeting the specifications and/or causing drainage problems will be removed as necessary to correct the drainage problems. Costs of new culvert installations shall be borne entirely by the property owner.

All driveway culverts shall be annular riveted corrugated metal pipes with a minimum of zinc coating.

1.2 **DRIVEWAY LOCATIONS** – Driveway Locations shall be defined as the distance from the point of curvature or end of triangular driveway flare to either the next driveway's point of curvature or end of triangular driveway flare or the point of curvature of an intersecting roadway. The minimum distances for which accesses will be allowed are shown in Standard **Drawings 410.01A** and **410.01B**.

1.3 GEOMETRICS

1.3.1 **ENTRANCE ONTO CURB AND GUTTER STREETS** -

Driveway locations shall meet the geometric requirements as shown on Standard **Drawings 410.01 A , 410.02, 410.03 and 410.05**.

1.3.2 **ENTRANCES ONTO NON-CURB AND GUTTER ROADWAYS** –

Driveway locations shall meet the geometric requirements as shown on Standard **Drawings 410.01B** and **410.04**.

1.4 **INSTALLATION OF DRIVEWAY CULVERTS** - It will be the responsibility of the permit holder to purchase all materials and to install the driveway culvert. The Public Works Department shall determine pipe diameter size, final location of pipe

and determine any other special conditions, that exist which may warrant additional work based upon stopping sight distance and drainage requirements.

A representative from the Public Works Department shall inspect the installation within five (5) business days of notification of completion by the permit holder. When major road improvements (not considered normal maintenance by the Public Works Department) are performed and/or contracted by the County, the County shall be responsible for upgrading driveway entrances and drainage improvements to meet these regulations. Any variance from this policy must follow the procedures as established for a variance as stated in this regulation.

1.5 SIGHT DISTANCE FOR DRIVEWAYS

Preparation for issuing a driveway permit must include a prior inspection of the driveway site to insure that vehicles can enter and exit from the proposed driveway with a minimum hazard and disruption of traffic along the roadway. Sight distance for driveway construction should be considered essential in the design of commercial or industrial type driveways and desirable with respect to residential driveways. If there is a request to construct a driveway at a reasonable location, a traffic study must include an on-site inspection to evaluate the sight distance.

There are two basic concerns of responsibility when considering the sight distance requirements for any driveway. The first concern is to provide maximum safety for the motoring public. The second concern is to provide for access to the adjacent property owners. Vertical and horizontal alignments of many existing roadways are based on 30 mph design speed while the posted speed is often higher.

Fortunately, adjacent property owners who are constructing new driveways to an existing route, are usually anxious to consider the safest location for a driveway.

The following criteria based on the American Association of State Highway and Transportation Officials (AASHTO) guidelines and the Design Manual has been developed in order to establish a uniform method of determining the Minimum Entrance Stopping Sight Distance for a driveway constructed by permit. The sight measurement is based on a 3.5-foot height of eye and a 4.25-foot height of object. The use of the 4.25-foot object is based on fact that typically the only change in the roadway is that there is now an additional entrance to the roadway and a vehicle is the expected object using the driveway and the existing route.

If the Minimum Entrance Stopping Sight Distance is not met, the permit will not be approved. An appeal may be made to the Road and Bridge Advisory Committee

Both vertical and horizontal alignment can limit sight distance. In order to measure actual sight distance limited by vertical alignment (**See Appendix B-1, Drawing 410.01C**), place a sighting target 4.25 feet above the edge of pavement at a point 12 feet from the edge of pavement (approximate location of a driver approaching the

roadway) at the proposed driveway location. Sighting from a height of 3.5 feet, move along the roadway away from the proposed driveway site to a point beyond where the target disappears. Now move toward the target until it can first be seen and place a mark on the pavement. Measure the distance along the roadway between the mark and the target. Measurement may be made with an accurate measuring device mounted on an automobile. This measured distance is the sight distance.

Horizontal Sight Distance (**See Appendix B-1, Drawing 410.01C**) is determined by placing a target 4.25 feet above the edge of pavement and 12 feet from the edge of pavement at the proposed driveway location. Move away from the target along the roadway and around the horizontal curve until the target is out of sight or the line of sight is beyond the right of way limits. The line of sight must stay within the limits of the right of way. Consideration may also be given to vegetation both on the right of way and adjacent to the right of way as it may impede vision more at one time of the year than another. Sighting from a height of 3.5 feet, move along the roadway toward the target until it can first be seen and place a mark on the pavement. Measure the distance to the driveway target along the roadway. This measured distance is the sight distance.

Posted speed at horizontal curves may be used to determine required sight distance for driveways within the limits of a horizontal curve.

Even when the applicant is present, sight distance measurements in terms of feet may be difficult for an applicant to understand when it comes to getting on and off the roadway. A measurement of time lapse may help the applicant get a better understanding of critical nature of the situation.

A sight distance visibility time for the driver exiting a driveway to see an approaching vehicle can be used. A value of 7 seconds enables a stopped passenger car to cross a 2-lane highway. A value of 10 seconds allows vehicles exiting the driveway to turn left or right onto 2-lane roads without interference (slowing down) of through traffic at speeds up to 30 mph. At speeds greater than 30 mph, the value of 10 seconds will require some slowing of through traffic.

Trucks require greater sight distance than needed for passenger cars, however, the greater driver eye height, typically over 6 feet, provides an allowance for vertical curve conditions. If the obstruction to a sight is a horizontal curve or other lateral blockage, a 50% increase in visibility is recommended.

Grading of the right of way to improve sight distance should be considered by the applicant.

SIGHT DISTANCE REQUIREMENTS

Posted Speed (MPH)	Minimum Entrance Stopping Sight Distance
30	200
35	225
40	275
45	325
50	375
55	425
60	525
65	600
70	700

The above distances are based on Table III-1 and Figure IX-41 of the AASHTO Green Book 1994 edition.

1.6 CULVERT POLICY PROCEDURE

- A. An application for a driveway permit shall be applied for at the Boone County Planning and Building Inspections Department.
- B. A copy of the application will be forwarded to the Public Works Department for processing.
- C. The applicant shall contact the Public Works Department at 573-449-8515 to schedule an appointment for review of the proposed installation site.
- D. A Boone County Public Works representative shall, upon meeting with the applicant and reviewing the location, issue a permit with written requirements for culvert installation. The requirements shall include pipe diameter, length of pipe, flow line direction, minimum depth of cover and any other special circumstances that may need to be addressed.
- E. The permit holder shall install the culvert pipe as per **Appendix B-1, Drawing 410.04**. Upon completion, the permit holder shall notify the Public Works Department for a final inspection.
- F. Within five (5) Business days after notification of completion, a representative shall inspect the installation and record his/her findings on the permit. If the installation is found to be deficient, the representative shall supply the permit holder with a list of the deficiencies. When corrected, the permit holder will notify the Public Works Department to prompt a re-inspection. If the installation is found to be satisfactory, the representative shall forward a copy of the closed permit to the Planning and Building Inspections Department.
- G. The Planning and Building Inspections Department will note that the driveway permit requirements have been satisfied.
- H. Driveway location must be approved by Boone County Public Works before Planning and Building Inspections will allow footings to be poured.