

CITY OF ROCHESTER HILLS
ENGINEERING DESIGN STANDARDS

CHAPTER 8

Driveway Approaches and Drainage Ditches

A. Plans and Specifications – Submittal Procedure

1. The plans and specifications shall be prepared in accordance with *Chapter 1, General Requirements and Submittals*.

B. Requirements for Residential Driveway Approaches

1. Pavement cross-sections shall conform to the following requirements:
 - a. Concrete driveway approaches shall be six inches (6”) 3,500 psi concrete over four inches (4”) 21AA aggregate base course materials (crushed limestone or crushed concrete). Alternate recycled asphalt product (RAP) base course materials may be considered upon approval of the City Engineer. Alternate RAP materials must meet equivalent structural strength of 21AA aggregate (crushed limestone or concrete).
 - b. Asphalt driveway approaches shall be six inches (6”) hot mix asphalt (HMA) over four inches (4”) 21AA aggregate base course materials (crushed limestone or crushed concrete). Alternate recycled asphalt product (RAP) base course materials may be considered upon approval of the City Engineer. Alternate RAP materials must meet equivalent structural strength of 21AA aggregate (crushed limestone or concrete). The cross-section shall consist of two inches (2”) HMA 13A wearing course over four inches (4”) HMA 3C leveling course (two (2) two inch (2”) lifts).
2. Driveway approach dimensions shall conform to the following requirements:

Garage Size	Approach Width At ROW	<u>Local/Collector</u>	Flare Width	<u>Major Street</u>	Radius
		Approach Width at Street		Approach Width at Street	
1 Car	12 Ft	18 Ft	3 Ft	32 Ft	10 Ft
	13 Ft	19 Ft	3 Ft	33 Ft	10 Ft
	14 Ft	20 Ft	3 Ft	34 Ft	10 Ft
	15 Ft	21 Ft	3 Ft	35 Ft	10 Ft
2 or More Cars	16 Ft	22 Ft	3 Ft	36 Ft	5 Ft to 10 Ft
	18 Ft	24 Ft	3 Ft	36 Ft	5 Ft to 10 Ft
	20 Ft	25 Ft	2.5 Ft	36 Ft	5 Ft to 10 Ft
	22 Ft	25 Ft	1.5 Ft	36 Ft	5 Ft to 10 Ft
	24 Ft	25 Ft	0.5 Ft	36 Ft	5 Ft to 10 Ft
	25 Ft	25 Ft	0.0 Ft	36 Ft	5 Ft to 10 Ft

3. Circular Driveways
 - a. The property shall have a minimum of eighty feet (80') of road frontage.
 - b. The minimum spacing between driveway approaches shall be forty-five feet (45') from centerline to centerline.
 - c. Entering driveway approach angle from street shall be ninety degrees (90°).
4. Proposed driveways shall be shown with grades called out at the house and at the street. Driveway slopes shall be shown in percent (%). The minimum allowable slope is two percent (2%) with maximum allowable slopes of eight percent (8%) along roads with posted speed limits of 40 MPH or greater and ten percent (10%) along roads with a posted speed limit of 35 MPH or less. Note: driveway slopes shall not exceed two percent (2%) through the portion of the driveway that is to be utilized for existing and/or proposed pedestrian facilities, i.e., pathways and sidewalks, in order to meet American with Disabilities Act (ADA) requirements.
5. Additional requirements shall be in accordance with the City Standard Details.

C. Requirements for Commercial Driveway Approaches

1. Pavement cross-sections shall conform to the following requirements:
 - a. Concrete driveway approaches shall be eight inches (8") 3,500 psi concrete over four inches (4") 21AA aggregate base course materials (crushed limestone or crushed concrete). Alternate recycled asphalt product (RAP) base course materials may be considered upon approval of the City Engineer. Alternate RAP materials must meet equivalent structural strength of 21AA aggregate (crushed limestone or concrete).
 - b. Asphalt driveway approaches shall be nine inches (9") hot mix asphalt (HMA) over six inches (6") 21AA aggregate base course materials (crushed limestone or crushed concrete). Alternate recycled asphalt product (RAP) base course materials may be considered upon approval of the City Engineer. Alternate RAP materials must meet equivalent structural strength of 21AA aggregate (crushed limestone or concrete). The cross-section shall consist of two inches (2") HMA 13A wearing course over two inches (2") HMA 3C leveling course over five inches (5") HMA base course two (2) two and a half inch (2-1/2") lifts.
2. Driveway locations and geometrics shall at a minimum meet the Road Commission for Oakland County (RCOC) *Permit Rules, Specifications & Guidelines*, Michigan Department of Transportation (MDOT) *Administrative Rules Regulating Driveways Banners & Parades*, and MDOT *Access Management Guidebook*. City requirements may exceed those of RCOC and MDOT.
3. Driveway grades shall not exceed six percent (6%) within the right-of-way. Note: driveway slopes shall not exceed two percent (2%) through the portion of the driveway that is to be utilized for existing and/or proposed pedestrian facilities, i.e., pathways and sidewalks, in order to meet American with Disabilities Act (ADA) requirements.
4. Curb heights must be reduced to 1-inch or less height through a driveway opening.

5. Additional requirements shall be in accordance with the City Standard Details.

D. Drive Culverts and Drainage Ditches

1. Drive culverts shall meet the following requirements:

- a. Minimum of twelve inches (12") in diameter.
- b. Material shall be sixteen (16) Gauge Galvanized Corrugated Metal Pipe (CMP).
- c. A minimum of one foot (1') of cover must be provided between top of culvert pipe and top of driveway pavement.
- d. The culvert shall extend a minimum of three feet (3') beyond driveway width on each side and shall meet the minimum side slopes of 1 on 2 for local streets, and 1 on 3 for major roads.

2. Ditches shall meet the following requirements:

- a. The maximum ditch depth shall be two and a half feet (2.5') from bottom of centerline of ditch to top of road pavement.
- b. The desired maximum roadside ditch slope shall be 1 on 4.
- c. The desired maximum property side ditch slope shall be 1 on 3.

3. The minimum depth required for ditch enclosures is two and a half feet (2.5') from the top of road pavement to bottom of ditch centerline.