

## Article F: Design Standards

---

### Sec. 14-1-70 General Street Design Standards.

- (a) **Compliance with Statutes.** In laying out a certified survey or subdivision, the owner shall conform to the provisions of Chapter 236, Wis. Stats., and all applicable Village regulations. In all cases where the requirements of this Chapter are different from the requirements of Chapter 236, the more restrictive provision shall apply. [See also Section 14-1-73(f)].
- (b) **Dedication.** The subdivider shall dedicate land and improve streets as provided in this Chapter and Section 14-1-53. Streets shall be located with due regard for topographical conditions, natural features, existing and proposed streets, utilities and land uses and public convenience and safety. Streets shall conform to official maps adopted by the Village Board. The subdivision, certified survey parcel or land division shall be so designed as to provide each lot with satisfactory access to a public street or road. [See also Section 14-1-73(f).]
- (c) **Compliance with Comprehensive Plan and Ordinances.**
  - (1) **Land Division Compliance With Plans.** The arrangement, character, features, and layout of land divisions in the Village of Elmwood shall be designed to comply with the standards of this Chapter, the Comprehensive Plan, the Official Map, and/or any comprehensive utility plans or other planning documents which may pertain to the standards of design for land divisions and which have been adopted by the Village Board. Where no such planning documents have been adopted, subdivisions shall be designed according to engineering and planning standards approved by the Village Engineer and applied so as to properly relate the proposed development with adjacent development, the topography, natural features, public safety and convenience, and the most advantageous development of undeveloped adjacent lands. In the absence of a street being shown on the official map, streets shall be provided in locations determined necessary by the Village Engineer and to the right-of-way widths required in this Article for the classification of street required.
  - (2) **Street Locations to Comply With Plans.** The arrangement, character, extent, width, grade, and location of all streets shall conform to Village master plans, the Official Map, and to this Chapter, and other Village planning documents and shall be considered in their relation to: existing and planned streets, reasonable circulation of traffic, topographical conditions, run-off of storm water, public convenience and safety, and in their appropriate relation to the proposed uses of the land to be served by such streets.
  - (3) **Continuation.** The arrangement of streets in new subdivisions shall make provision for the appropriate continuation at the same or greater width of the existing streets in adjoining areas.

- (d) **Areas Not Covered by Official Map or Plan.** In areas not covered by an Official Map or a Village Comprehensive Plan, the layout of streets shall conform to the plan for the most advantageous development of adjoining areas of the neighborhood. Streets shall be designed and located in relation to existing and officially planned streets, topography and natural terrain, streams and lakes and existing tree growth, public convenience and safety and in their appropriate relation to the proposed use of the land to be served by such streets.
- (e) **Proposed Streets.** Proposed streets shall extend to the boundary lines of the tract being subdivided unless prevented by topography or other physical conditions or unless, in the opinion of the Village Board, such extension is not necessary or desirable for the coordination of the layout of the subdivision or land division or for the advantageous development of the adjacent tracts.
- (f) **Streets Classifications.** Streets shall be required and classified by the Village Engineer in accordance with the Village's Comprehensive Plan and where not identified in said plan, in accordance with sound engineering standards, into the classifications indicated below with the designated minimum widths:
  - (1) **Arterial Streets.** Arterial streets, shall be arranged so as to provide ready access to centers of employment, centers of governmental activity, community shopping areas, community recreation, and points beyond the boundaries of the community. They shall also be properly integrated with and related to the existing and proposed system of major streets and highways and shall be, insofar as practicable, continuous and in alignment with existing or planned streets with which they are to connect.
  - (2) **Collector Streets.** Collector streets, shall be arranged so as to provide ready collection of traffic from residential areas and conveyance of this traffic to the major street and highway system and shall be properly related to the mass transportation system, to special traffic generators such as schools, churches and shopping centers and other concentrations of population and to the major streets to which they connect.
  - (3) **Minor Streets.** Minor streets, shall be arranged to conform to the topography, to discourage use by through traffic to permit the design of efficient storm and sanitary sewerage systems, and to require the minimum street area necessary to provide safe and convenient access to abutting property.
  - (4) **Proposed Streets.** Proposed streets shall extend to the boundary lines of the tract being subdivided unless prevented by topography or other physical conditions or unless, in the opinion of the Village Board, such extension is not necessary or desirable for the coordination of the layout of the subdivision or for the advantageous development of the adjacent tracts.
- (g) **Arterial Street and Highway Protection.** Whenever the proposed subdivision contains or is adjacent to a major street or highway, adequate protection of residential properties, limitation of access and separation of through and local traffic shall be provided by reversed frontage, with screen planting contained in a nonaccess reservation along the rear property line, or by the use of frontage streets.

- (h) **Reserve Strips.** Reserve strips shall not be provided on any plat to control access to streets or alleys, except where control of such strips is placed with the Village under conditions approved by the Village Board.
- (i) **Alleys; Cul-de-Sac Streets.**
- (1) **Commercial and Industrial.** Alleys may be provided in commercial and industrial districts. The width of the right-of-way for residential alleys shall be not less than twenty-four (24) feet and the width of the right-of-way for commercial and industrial alleys shall be not less than thirty-two (32) feet. Alleys shall be constructed according to base and surfacing requirements for streets.
  - (2) **Residential.** Alleys shall not be approved in residential areas unless necessary because of topography or other exceptional circumstances.
  - (3) **Dead End.** Dead-end alleys are prohibited except under very unusual circumstances, and crooked and "T" alleys shall be discouraged. Temporary dead-end streets shall not be over one thousand (1,000) feet in total length, shall provide for an eventual intersection spacing meeting the requirements of this Chapter and shall provide for temporary cul-de-sacs or turnarounds as approved by the Village Engineer. Temporary termination of streets intended to be extended at a later date shall be accomplished with a temporary cul-de-sac in accordance with the standards set forth below, or by construction of a temporary "T" intersection thirty-three (33) feet in width and thirty-three (33) feet in length abutting the right-of-way lines of the access street on each side.
  - (4) **Design of Cul-de-Sac Streets.** Cul-de-sac streets designed to have one (1) end permanently closed shall not exceed seven hundred fifty (750) feet in length. All urban cul-de-sac streets designed to have one (1) end permanently closed shall terminate in a circular or tear-drop turn-around having a minimum right-of-way radius of sixty-six (66) feet and a minimum outside curb radius of one hundred twenty (120) feet. The use of cul-de-sacs shall be held to a minimum and permanently dead ended streets shall be prohibited.
- (j) **Continuation.** Streets shall be laid out to provide for possible continuation wherever topographic and other physical conditions permit. Provisions shall be made so that all proposed streets shall have a direct connection with, or be continuous and in line with, existing, planned or platted streets with which they are to connect. Proposed streets shall be extended to the boundary lines of the tract to be subdivided, unless prevented by topography or other physical conditions, or unless in the opinion of the Plan Commission such extension is not necessary or desirable for the coordination of the layout of the subdivision with existing layout or the most advantageous future development of adjacent tracts.
- (k) **Minor Streets.** Minor streets shall be so laid out so as to discourage their use by through traffic.
- (l) **Frontage Roads.** Where a land division abuts or contains an existing or proposed arterial highway, or railroad right-of-way, the subdivider shall provide a frontage road, platted

access restriction along the property contiguous to such highway, or such other treatment as may be determined necessary by the Village Engineer to ensure safe, efficient traffic flow and adequate protection of residential properties.

- (m) **Private Streets.** Private streets shall not be approved nor shall public improvements be approved for any private street; all streets shall be dedicated for public use.
- (n) **Tangents.** A tangent at least one hundred (100) feet long shall be required between reverse curves on arterial and collector streets.
- (o) **Visibility.** Streets shall afford maximum visibility and safety for motorist bicycle, and pedestrian use and shall intersect at right angles, where practicable. A minimum sight distance with clear visibility, measured along the centerline, shall be provided of at least five hundred (500) feet on major thoroughfares, two hundred (200) feet on collector-distributor streets, and one hundred fifty (150) feet on all other streets.
- (p) **Half Streets.** Half streets shall not be platted unless necessary to provide the full width of an existing street platted to half width. All newly platted streets shall be platted to the required full width. Where a half street exists adjacent to a proposed land division, the subdivider shall endeavor to acquire and dedicate the remaining half street.
- (q) **Intersections.**
  - (1) **Angle of Intersect.** Streets shall intersect each other at as nearly right angles as topography and other limiting factors of good design permit. The curved street shall intersect another street with not less than fifteen (15) feet of tangent right-of-way between the end of curvature and the right-of-way of the street being intersected.
  - (2) **Number of Streets Converging.** The number of streets converging at one (1) intersection shall be reduced to a minimum, preferably not more than two (2). Cross-type intersections on local streets shall be avoided whenever possible in favor of T-type intersections. Intersections of local streets shall be at least one hundred twenty-five (125) feet from each other.
  - (3) **Number of Intersections — Arterial Streets.** The number of intersections along arterial streets shall be held to a minimum. Wherever practicable, the distance between such intersections shall be not less than one thousand two hundred (1,200) feet, unless otherwise determined by the Village Engineer to provide better safety.
  - (4) **Local Street Spacing.** Local streets and frontage roads intersecting with other local streets or collector streets shall, wherever practicable, be spaced no closer than one hundred fifty (150) feet between right-of-way lines, nor closer than two hundred fifty (250) feet to the right-of-way of an arterial street.
  - (5) **Property Lines at Street Intersections.** Property lines at street intersections shall be rounded with a minimum radius of twenty-five (25) feet or of a greater radius when required by the Village Engineer.
  - (6) **Local Streets.** Local streets shall not necessarily continue across arterial or collector streets, but if the centerlines of such local streets approach the major streets from opposite sides within two hundred fifty (250) feet of each other, measured along the

centerline of the arterial or collector streets, then the location shall be so adjusted that the adjoinment across the major or collector street is continuous and a jog is avoided.

- (7) **Additional Sight Easements.** At any intersection determined by the Village Engineer, restricted development easements or additional street right-of-way shall be platted to provide for adequate sight distances in every direction of travel. At a minimum, the subdivider shall grade, clear or otherwise provide for an unobstructed sight triangle at all intersections incorporating the area within a triangle formed by the intersection of the street right-of-way lines and a point on each right-of-way line being not less than thirty (30) feet from the intersection point.

(r) **Street Names.**

- (1) Duplication of existing street names by similar word, spelling, or sound shall not be permitted.
- (2) Where a street maintains the same general direction except for curvilinear changes for short distances, the same name shall continue for the entire length of the street. House numbering difficulties shall be considered the determining factor in considering whether a change of name is necessary due to curvilinear changes.
- (3) A street name shall be changed when required to conform to the proposed or existing house numbering base.
- (4) A name which is assigned to a street which is not presently a through street, due to intervening land over which the street extension is planned, shall be continued for the separate portions of the planned through street.
- (5) The following designations shall be used only in the situations indicated:
  - a. "Boulevard." A street with a divided pavement, either existing or planned. If the divided pavement ends but the street continues, the same street name and suffix shall continue.
  - b. "Lane." To be limited to a street, one (1) block long, not ending in a cul-de-sac.
  - c. "Circle." To be limited to a cul-de-sac of nine (9) lots or more.
  - d. "Court." To be limited to a cul-de-sac of eight (8) lots or less.
  - e. "Parkway." To be limited to a street abutting a park or greenway or creek.
- (6) The maximum number of street names at one (1) intersection shall be three (3).
- (7) Street names shall be assigned to avoid intersections which have the same exact street names.
- (8) The name of any projection of a street shall remain unchanged even if the projection terminates in a cul-de-sac.
- (9) The changing of a street name that does not duplicate an existing street name shall only be approved where such change will eliminate conflicts with other provisions of this Subsection.
- (10) Service roads and highways served by them shall have the same street name and designation.
- (11) Approval of street names on a preliminary plat will not reserve the names nor shall the Village be required to accept such names at the time of final platting.

- (12) A minimum number of letters is desirable in a street name. The maximum number of letters, not including the prefix or suffix, shall not exceed twelve (12).
- (s) **Limited Access Highway and Railroad Right-of-way Treatment.** Whenever the proposed subdivision contains or is adjacent to a limited access highway, arterial street or railroad right-of-way, the design shall provide the following treatment:
- (1) **Subdivision Lots.** When lots within the proposed subdivision back upon the right-of-way of an existing or proposed limited access highway or a railroad, a planting strip at least thirty (30) feet in depth shall be provided adjacent to the highway or railroad in addition to the normal lot depth. This strip shall be part of the platted lots but shall have the following restriction lettered on the face of the plat: "This strip reserved for the planting of trees and shrubs, the building of structures hereon prohibited."
  - (2) **Commercial and Industrial Districts.** Commercial and industrial districts shall have provided, on each side of the limited access highway, arterial street or railroad, streets approximately parallel to and at a suitable distance from such highway or railroad for the appropriate use of the land between such streets and highway or railroad, but not less than one hundred fifty (150) feet.
  - (3) **Streets Parallel to a Limited Access Highway.** Streets parallel to a limited access highway or railroad right-of-way, when intersecting a major street and highway or collector street which crosses said railroad or highway, shall be located at a minimum distance of two hundred fifty (250) feet from said highway or railroad right-of-way. Such distance, where desirable and practicable, shall be determined with due consideration of the minimum distance required for the future separation of grades by means of appropriate approach gradients.
  - (4) **Minor Streets.** Minor streets immediately adjacent and parallel to railroad rights-of-way shall be avoided, and location of minor streets immediately adjacent to arterial streets and highways and to railroad rights-of-way shall be avoided in residential areas.
- (t) **Street and Pedestrian Way Design Standards.** The minimum right-of-way and roadway width of all proposed streets shall be as specified by the comprehensive plan, comprehensive plan component, official map, neighborhood development study, or jurisdictional highway system plan, or if no width is specified therein, the minimum widths shall be as shown as follows. Street sections are for standard arterial streets only. Cross-sections for freeways, expressways and parkways should be based upon detailed engineering studies. The type of street cross section to be used shall be determined by the Village Board.

(1) **Street Cross Sections - Urban Streets.**

<b>Type of Street or Public Way</b>	<b>Minimum Right-of-Way to be Dedicated</b>	<b>Minimum Dimensions</b>
Arterial Streets (four-lane)	120 feet	*Dual 36-foot pavement (face of curb to face of curb) *24-foot median *7-foot tree banks (curb lawn) *4-foot sidewalks *1-foot outside sidewalks
Arterial Streets (two-lane)	80 feet	*48-foot pavement (face of curb to face of curb) *11-foot tree banks (curb lawn) *4-foot sidewalks *1-foot outside sidewalks
Collector Streets	66 feet	*48-foot pavement (face of curb to face of curb) *11-foot tree banks (curb lawn) *4-foot sidewalks *1-foot outside sidewalks
Minor Streets	66 feet	*36-foot pavement (face of curb to face of curb) *7-foot tree banks (curb lawn) *4-foot sidewalks *1-foot outside sidewalks
Minimum Cul-de-Sac	66 foot radius	*120-foot radius pavement *7-foot tree banks (curb lawn) *4-foot sidewalks *1-foot outside sidewalks

Cul-de-Sac Barrel	60 feet	*32-foot pavement (face to curb to face of curb) *9-foot tree banks (curb lawn) *4-foot sidewalks *1-foot outside sidewalks
-------------------	---------	--

(2) **Street Cross Sections - Rural Streets.**

Type of Street or Public Way	Minimum Right-of-Way to be Dedicated	Minimum Dimensions
Arterial Streets (four-lane)	130 feet	*Dual 24-foot pavement *18-foot median *10-foot outside shoulders *6-foot inside shoulder *16-foot roadside ditches
Arterial Streets (two-lane)	100 feet	*24-foot pavement *10-foot shoulders *28-foot roadside ditches
Collector Streets	None	None
Minor Streets	66 feet	*22-foot pavement *6-foot shoulders *16-foot roadside ditches
Minimum Cul-de-Sac	66 foot radius	*45-foot radius pavement *5-foot shoulders *16-foot roadside ditches
Cul-de-Sac Barrel	66 feet	*22-foot pavement *6-foot shoulders *16-foot roadside ditches

- (3) **Street Grades.** Street grades shall be established wherever practicable so as to avoid excessive grading, the promiscuous removal of ground cover and tree growth, and general leveling of the topography. All changes in street grades shall be connected



by vertical curves of a minimum length equivalent in feet to fifteen (15) times the algebraic difference in the rates of grade for arterial streets, and one-half (1/2) this minimum for all other streets:

- a. Arterial streets: Six percent (6%).
  - b. Collector streets: Eight percent (8%).
  - c. Minor streets, alleys, frontage streets: Twelve percent (12%).
  - d. Pedestrian ways: Twelve percent (12%) unless steps or stairs of acceptable design are provided.
  - e. The grade of any street shall in no case exceed twelve percent (12%) or be less than one-half of one percent (0.5%).
- (4) **Radial of Curvature.** When a continuous street centerline deflects at any one point by more than ten degrees (10°), a circular curve shall be introduced having a radius of curvature on said centerline of not less than the following:
- a. Arterial street and highways: Five hundred (500) feet.
  - b. Collector streets: Three hundred (300) feet.
  - c. Minor Streets: One hundred fifty (150) feet.

## **Sec. 14-1-71 Specifications for Preparation, Construction and Dedication of Streets and Roads.**

(a) **General Requirements.**

- (1) **Construction Standards.** All roadway construction and materials used shall be performed in accordance with the construction methods as listed in the appropriate sections of the "State of Wisconsin Department of Transportation Standard Specifications for Road and Bridge Construction" and its supplements, the Village of Elmwood's Engineering Guidelines, and this Chapter, whichever is more restrictive. The design requirements of this Section and Section 14-1-70 shall be applicable to all streets and roads that are to be dedicated to the Village, regardless of whether such streets or roads are part of a new subdivision or land division. Design requirements for the pavement shall be adequate for the zoning classification of the area served by the subject street. A street which divides areas with different zoning classifications shall be constructed in accordance with the requirements of the area requiring the higher quality pavement. Any variation of this must have prior approval of the Village Engineer. Combination concrete curb and gutter is required on all streets. (Refer to the Section describing requirements for curbs and gutters.) A copy of all design assumptions and computations on which the proposed design is based shall be submitted to the Village Engineer.
- (2) **Project Costs.** All roadway surveys, dedications, plans and specifications and construction will be at the expense of the applicant or applicants. This includes any expense incurred by the Village in the preparation of plans and review and inspection of plans and construction.

- (3) **Preliminary Consultation.** Prior to the design, preparation and construction of any roadway to be dedicated to the Village of Elmwood, the applicant shall notify the Village Engineer. An on-site meeting will then be arranged to be attended by the Village Engineer and the applicant. Plans must be provided in order for the Village Engineer to check the design and the drainage.
  - (4) **Material Slips.** Copies of material slips for all materials furnished for the road construction projects shall be delivered to the Village before the Village approves the final construction.
  - (5) **Required Inspections.** Prior to the commencement of any street construction, the subdivider shall notify the Village Engineer, at least one (1) workday in advance, as to the nature of the work being done. The Village Engineer shall be contacted for required inspections after the following phases of construction:
    - a. Subbase grading;
    - b. Crushed aggregate base course;
    - c. Concrete gutters, curbs and sidewalks;
    - d. Bituminous surface course; and
    - e. Shouldering.Any deficiencies found by the Village Engineer shall be corrected before proceeding to the next phase of construction.
  - (6) **Tests of Materials.** The Village reserves the right to obtain a sample of the roadway base material prior to placement on the roadway for purposes of determining whether the material meets gradation and soundness requirements.
  - (7) **Pavement Samples.** Samples of bituminous concrete may be taken by the Village during pavement construction operations for purposes of determining that the material meets specifications.
- (b) **Construction Standards.** All streets and highways constructed in the Village or to be dedicated to the Village shall fully comply with the following construction standards, and shall be adequate for the zoning classification or projected use of the area served by the street:
- (1) **General.** After completion of the underground utilities and approval thereof, the streets shall be constructed. Unless phasing of construction of improvements is approved by the Village Board or its designee, building permits shall not be issued prior to the installation of the street improvements and the approval of an individual lot grading plan that conforms to the guidelines of the master site grading plan, as determined by the Village Engineer, or his/her designee.
  - (2) **Street Right-of-Ways.** Streets shall have a right-of-way width as established on the Official Map or as designated in Section 14-1-71(t), provided, however, that a greater or lesser roadway width may be required by the Village Engineer where necessary to assure uniformity along the entire length of any street.
  - (3) **Temporary Streets.** Construction of temporary streets shall require authorization of the Village Board.

**(4) Standard Street Improvements.**

- a. Standard street improvements shall include street lights, concrete curb and gutter, bituminous base course, bituminous surface course and, when required, walkways.
- b. The construction of standard street improvements can begin only when either:
  1. The underground utilities were installed in the previous construction season; or
  2. The construction of underground utilities included mechanical compaction and compaction tests have been approved by the Village Engineer.
- c. Upon obtaining the written approval of the Village Engineer the subdivider can proceed with the construction of the standard street improvements. Standard street improvements shall be installed to the boundary line of the subdivision unless the street culminates in a cul-de-sac, the topography or other physical conditions make it impossible to do so, or unless this requirement is waived, in writing, by the Village Engineer.
- d. Where he/she deems appropriate, the Village Engineer may require that pavement construction take place over a two (2) year period, with the lower coat being placed in the same year as the underground utilities are constructed and with the upper coat being placed in the following year, after thorough cleaning and application of a tack coat to the first coat.

**(5) Roadway Base Standards.**

- a. After the installation of temporary block corners monuments by the subdivider and approval of street grades by the Village Engineer, the subdivider shall grade the full width of the right-of-way of all streets proposed to be dedicated in accordance with plans and standard specifications approved by the Village Board, upon the recommendation of the Village Engineer.
- b. Cut and filled lands shall be graded to a maximum slope of one (1) on four (4) or the soils angle of repose, whichever is the lesser and covered with permanent vegetation.
- c. Residential streets shall have a minimum eight (8) inch thick, compacted in-place, crushed limestone aggregate base, gradation No. 2, conforming to requirements of Section 304 — Crushed Aggregate Base Course of "State of Wisconsin, Standard Specifications For Road and Bridge Construction," latest edition, which conforms to following gradation specifications:

Sieve Size	Percentage Passing by Weight
3-inch	100
2-1/2-inch	90-100
2-inch	35-70
1-1/2-inch	0-15
3/4-inch	0-5

- d. On commercial, arterial or other heavy-use streets, as determined by the Village Engineer, a ten (10) inch minimum depth crushed limestone aggregate base course, gradation No. 2, shall be constructed upon an inspected and approved subgrade conforming to the specifications in Subsection (b)(5)c above.
  - e. In the case of commercial, arterial or other heavy-use roads, the Village Board may, in the alternative to the above standards, have the Village Engineer provide specifications for such roads after researching the site(s) and conducting a soil analysis for separate pavement design analysis.
  - f. In any case, the Village Board shall have the sole discretion in determining the use and construction classification to be adhered to.
  - g. In all cases, the base course shall be compacted to the extent necessary to produce a condition so that there will be no appreciable displacement of material laterally and longitudinally under traffic and shall conform to line, grades and shape shown on the approved plans, profiles and cross sections.
  - h. The subdivider shall furnish drawings which indicate the proposed grades of streets shown on the plat and, after approval of those grades by the Village Engineer and adoption by the Village Board, the streets shall be graded to full width of the right-of-way of the proposed street to the subgrade elevations shown on the typical cross-section. All stumps and trees which cannot be saved, boulders and other similar items shall be removed by the subdivider.
- (6) **Roadway Subgrade Quality.** If deemed necessary by the Village Engineer, CBR tests may be required according to the following standards:
- a. All subgrade material shall have a minimum California Bearing Ratio (CBR) of three (3). Subgrade material having a CBR less than three (3) shall be removed and replaced with a suitable fill material, or the pavement must be designed to compensate for the soil conditions. The soil support CBR values selected for use by the designer should represent a minimum value for the soil to be used.
  - b. Stable and nonorganic sub-base material is required. All topsoil shall be first removed. In addition, all subsoils which have a high shrink-swell potential, low-bearing capacity when wet, or are highly elastic shall be removed to a minimum depth of fifteen (15) inches below the top of the subgrade and used outside of the right-of-way. Where both subsoil and substratum have a high shrink-swell potential and low-bearing capacity when wet, an underdrain system shall be installed to remove water from the sub-base. Unstable and organic material must be subcut, removed and replaced with a suitable granular material placed over a geotextile fabric laid on top of the subgrade. Granular material shall be approved by Village Engineer. Geotextile material shall meet requirements of Section 645 — Geotextile Fabrics of "State of Wisconsin, Standard Specifications for Road and Bridge Construction," latest edition, for type SR material.
- (7) **Roadway Grading; Ditches.** Roads shall be graded to their full width in accordance with approved plans, plus an additional distance necessary to establish a four-to-one (4:1) backslope where ditches are allowed. The roadway shall be compacted and graded

to a subgrade using, where necessary, approved fill material in accordance with Wisconsin Department of Transportation standards. Roadside ditches, where allowed by the Village, shall be a minimum of twenty-six (26) inches below the finished roadway centerline elevation, or as approved by the Village Engineer. Debris may not be buried in the designated road right-of-way. Roadway ditches shall have a normal slope ratio of three-to-one (3:1) ditch from the edge of the shoulder to the bottom of the ditch and two-to-one (2:1) on the back slope.

(8) **Pavement Thickness.**

- a. Residential and rural-type roads shall have a minimum of three (3) inches thick compacted hot-mix asphalt concrete pavement, placed in two (2) layers — a binder course of one and one-half (1-1/2) inches thick and a surface course of one-half (1/2) inch.
- b. On commercial, arterial or other heavy-use roads, there shall be a minimum of three and one-half (3-1/2) inches of bituminous concrete pavement, placed in two (2) layers — a binder course of two (2) inches thick and a surface course of one and one-half (1-1/2) inches thick.
- c. The binder course being placed initially upon completion of the utilities, and the surface course being placed within one (1) year after the date the binder course was placed. Said surfacing shall be done in accordance with plans and standard specifications approved by the Village Board, upon the recommendation of the Village Engineer.
- d. In the case of commercial, arterial or other heavy-use roads, the Village Board may, in the alternative to the above standards, have the Village Engineer provide specifications for paving such roads with a greater thickness after researching the site(s) and conducting a soil analysis. In any case, the Village Board shall have the sole discretion in determining the use and construction classification to be adhered to. In no event shall paving occur later than eighteen (18) months from the Village's approval of the final or official plat. All subsequent shouldering where ditches are allowed shall be brought to even grade with bituminous mat.
- e. Contraction joints shall be tooled, saw cut, or formed by insertion of a metal plate in the concrete at intervals not exceeding twelve (12) feet and on each side of any structures located in the concrete (i.e. inlets).

(9) **Shoulder Width — Rural Profile Streets.**

- a. A shoulder a minimum of four (4) feet wide on each side of the road is required where curb and gutter is not used, and wider when required by the "Town Road Standards" as noted in Sec. 86.26, Wis. Stats.
- b. Where ditches are allowed, road shoulders shall have a minimum thickness of two and one-half (2-1/2) inches of compacted in-place crushed state-approved aggregate base course, over a minimum six (6) inches of compacted in-place crushed state-

approved aggregate base course, except that shoulder thickness shall match the thickness of the pavement, provided that there is a minimum shoulder thickness of six (6) inches.

- (10) **Roadway Culverts and Bridges.** Roadway culverts and bridges shall be constructed as directed by the Village Engineer and sized utilizing the methods listed in Chapter 13, entitled "Drainage," of the "Facilities Development Manual" of the Wisconsin Department of Transportation. All roadway culverts shall be provided with concrete or metal apron endwalls. The developer shall provide adequate facilities to provide surface water drainage as well as free flow outlets for subsurface drain tile where they are required. Where drainage facilities will aid in road construction and the stabilization of the road's subgrade, drainage facilities shall be installed before road construction is started. Existing condition status shall be based on a maximum of a Curve 70.
- (11) **Driveways.**
  - a. Curbs shall not be interrupted by openings for driveways or other accessways to private property unless the number and location of such interruptions have been approved pursuant to Title 6, Chapter 3 of this Code of Ordinances.
  - b. Driveway specifications shall be as prescribed in Title 6, Chapter 3 of this Code of Ordinances.
  - c. Driveway culverts shall be sized by the Village Engineer (if appropriate). The culverts shall be placed in the ditch line at elevations that will assure proper drainage, and they shall be provided with concrete, metal or landscape timber endwalls. Driveway culverts shall be installed as prescribed in Title 6, Chapter 3 of this Code of Ordinances.
- (12) **Topsoil, Grass, Seed, Fertilizer and Mulch.** All disturbed areas (ditches, backslopes) within the road right-of-way not provided with pavement and shouldering material shall be restored utilizing four (4) inches of topsoil and good quality grass seed, fertilizer and mulch. Ditches along the roadway shall be protected by erosion control materials such as hay bales, sod, erosion control mats, etc.
- (13) **Drainage Improvements.** In the case of all new roads and streets, the Village Engineer may require that storm water retention areas and storm sewers be constructed in order to provide for proper drainage.
- (14) **Continuity and Transitions.**
  - a. All street pavement widths on streets continued from previously developed or platted streets shall, wherever practical, provide for the greater of either the existing or required pavement type, width, grade and cross slope.
  - b. Where it is necessary to provide for a transition of pavement width and/or type between new and existing streets, the transition shall occur in a safe manner at an intersection. In the event a transition in pavement width cannot safely occur at an intersection, it shall not occur closer than two hundred fifty (250) feet to the intersection of right-of-way lines. In width transitions, the ratio of the transition

length to width shall not be less than fifteen to one (15:1) unless the Village Engineer determines that special circumstances prevent use of such ratio, in which case the minimum transition ratio shall be ten to one (10:1).

- (15) **Curb and Gutter.** Combination concrete curb and gutter is required on all streets. Curb and gutter in residential areas shall be either barrier type or mountable type. Barrier type curb and gutter shall have a six (6) inch barrier curb with a twenty-four (24) inch flag; except at driveway aprons where a depressed curb shall be constructed. Mountable type curb and gutter shall have been thirty (30) inches wide with an eighteen (18) inch flag. The top of the back of the mountable curb shall be three (3) inches above the gutter flowline. Depress curb shall be constructed at all handicap ramps for sidewalks and bikeways. Said curb and gutter shall be constructed of concrete, 3500 PSI strength at twenty-eight (28) days. Expansion joints one-half (1/2) inch thick shall be placed in the curb at each starting and ending of a radius and at intervals not exceeding three hundred (300) feet and where otherwise directed by the Village Engineer. Tie bars shall be provided where curb and gutter is adjacent to rigid pavements. The standards of Section 14-1-54 shall also be complied with.
  - (16) **Post-Construction Traffic Limited.** No vehicular traffic shall be permitted on the pavement for a minimum period of between twenty-four (24) and seventy-two (72) hours following paving, as determined necessary by the Village Engineer to protect the new pavement.
- (c) **Selection of Alternative Design.** The Village Engineer shall select a pavement structure to be used after reviewing equivalent alternative pavement designs with the subdivider. The Village Engineer shall require one or more of the pavement designs of the subdivider based on the following criteria:
- (1) Life cycle cost.
  - (2) History of similar pavements in the area.
  - (3) Adjacent existing pavements.
  - (4) Staging of construction.
  - (5) Construction season.
  - (6) Friction requirements.
  - (7) Depressed, surface, or elevated design.
  - (8) Higher governmental preference (e.g. if State Highway).
  - (9) Stimulation of competition.
  - (10) Conservation of materials.
  - (11) Construction considerations.
  - (12) Recognition of local industry.
  - (13) Availability of materials and methods locally.
- (d) **Final Inspection.** Upon completion of proposed streets, the Village Engineer will proceed to make a final inspection, accepting or rejecting the street as the case may be. After all of the provisions of this Chapter have been complied with, the street will be inspected by Village officials and, at that time, proof will be made by the presenting of waivers of liens

or receipted bills that all work that has been done has been paid for, or arrangements have been made for the payment through written instrument by the subdivider. If the street is rejected, corrections shall be made as required by the Village Board, upon the Village Engineer's recommendation, before final inspection can then be made again. If final acceptance is then made, the owner or owners shall dedicate to the Village all land necessary for streets. The subdivider shall warranty the fitness of street improvements for one (1) year after construction.

### **Sec. 14-1-72 Block Design Standards.**

- (a) **Length; Arrangement.** The lengths, widths and shapes of blocks shall be appropriate for the topography and the type of development contemplated, but block length (measured in the long dimension from street centerline to street centerline) shall not be less than six hundred (600) feet nor exceed one thousand five hundred (1,500) feet nor have less than sufficient width to provide for two (2) tiers of lots of appropriate depth between street lines. Blocks shall be so designated as to provide two (2) tiers of lots, unless it adjoins a railroad, major thoroughfare, river or park where it may have a single tier of lots. Cul-de-sacs may be used where the interblock spacing of adjacent streets exceeds the appropriate depth of two (2) tiers of lots.
- (b) **Pedestrian Pathways.** Pedestrian pathway easements not less than ten (10) feet wide, may be required by the Village Board through the center of a block more than nine hundred (900) feet long, where deemed essential to provide circulation or access to schools, playgrounds, shopping centers, transportation and other community facilities.
- (c) **Sidewalks.** Sidewalks shall be constructed according to the standards in Section 6-2-2 of this Code of Ordinances. In areas where sidewalks and bikeways are to be laid to the established grade of the street, the street edge of the sidewalk or bikeway pavement shall be at an elevation above the top of the curb determined by a slope of one-half (1/2) inch per foot times the distance between the curb and the street sidewalk or bikeway edge. The sidewalk or bikeway pavement shall be sloped at a minimum of one-fourth (1/4) inch per foot and a maximum of three-fourths (3/4) inch per foot toward the street — unless public drainage is available behind the sidewalk or bikeway.
- (d) **Bikeways.** Bikeways shall be constructed of bituminous pavement, at least eight (8) feet in width, in accordance with standard Village specifications.



## Sec. 14-1-73 Lot Design Standards.

- (a) **Lot Dimension.** Area and dimensions of all lots shall conform to the requirements of the Village of Elmwood Zoning Code for the subdivisions within the Village and to the County Zoning Code for lands within the Village's extraterritorial jurisdictional limits. Those building sites not served by a public sanitary sewerage system or other approved system shall be sufficient to permit the use of an onsite soil absorption sewage disposal system designed in accordance with Ch. H83, Wis. Adm. Code. The width and area of lots located on soils suitable for the use of an onsite soil absorption sewage disposal system shall not be less than one hundred fifty (150) feet in width and forty thousand (40,000) square feet in area.
- (b) **Depth of Lots.** Excessive depth in relation to width shall be avoided and a proportion of three to two (3:2) shall be considered a desirable ratio under normal conditions. Depth of lots or parcels reserved or laid out for commercial or industrial use shall be adequate to provide for off-street service and parking required by the use contemplated.
- (c) **Width of Lots.** Width of lots shall conform to the requirements of the Village Zoning Ordinance, or other applicable ordinance, and in no case shall a lot be less than one hundred (100) feet in width at the building setback line.
- (d) **Lands Lying Between Meander Line.** Lands lying between the meander line and the water's edge and any otherwise unplattable lands which lie between a proposed subdivision and the water's edge shall be included as part of lots, outlots or public dedications in any plat abutting a lake or stream.
- (e) **Commercial or Industrial Lots.** Depth and width of properties reserved or laid out for commercial or industrial purposes shall be adequate to provide for the off-street service and parking facilities required by the type of use and development contemplated, as required by the Village Zoning Code.
- (f) **Minimum Lot Frontage.** In addition to the standards in Subsection (c) above, all lots on curved streets or cul-de-sacs shall have a minimum of forty (40) feet of platted frontage on a public street [(100) feet at the building setback line] to allow access by emergency and service motor vehicles unless part of a Planned Unit Development approved by the Village Board. Alley frontage (public or private) shall not constitute meeting this minimum frontage requirement.
- (g) **Lots Where Abutting Arterial Highway.** Residential lots adjacent to major and minor arterial streets and highways and/or railroads shall be platted with an extra fifteen (15) feet of lot and an extra fifteen (15) feet of minimum yard setback and shall otherwise be designed to alleviate the adverse effects on residential adjacent lots platted to the major street, highway, railroad or other such features.
- (h) **Corner Lots.** Corner lots for residential use shall have extra width of fifteen (15) feet to permit full building setback from both streets, or as required by applicable zoning regulations.
- (i) **Access to Public Street.** Every lot shall front or abut on a public street. Every lot shall front or abut on a public street for a distance of at least forty (40) feet.

- (j) **Side Lots.** Side lot lines shall be substantially at right angles to or radial to abutting street center lines. Lot lines shall follow Village boundary lines.
- (k) **Double and Reversed Frontage Lots.** Double frontage and reversed frontage lots shall be avoided except where necessary to provide separation of residential development from traffic arteries or to overcome specific disadvantages of topography and orientation.
- (l) **Natural Features.** In the dividing of any land, regard shall be shown for all natural features, such as tree growth, water courses, historic spots or similar conditions which, if preserved, will add attractiveness and stability to the proposed development.
- (m) **Land Remnants.** All remnants of lots below minimum size left over after dividing of a larger tract must be added to adjacent lots, or a plan shown as to future use rather than allowed to remain as unusable parcels.
- (n) **Large Lots.** In case a tract is divided and results in parcels of more than twice the minimum lot size provided for by the Village Zoning Code for the zoning district in which the land is located, such parcels shall be so arranged to permit redividing into parcels in accordance with this Chapter and with the Zoning Code.
- (o) **Trunk Highway Proximity.** All lots adjacent to state trunk and federal highways shall be platted with additional depth necessary to provide for a building setback line not less than fifty (50) feet from the nearer right-of-way line or one hundred ten (110) feet from the centerline, whichever is more restrictive (Ref. Wis. Adm. Code HY 33). The subdivider may appeal this requirement to the Village Engineer. Upon written request of the Village Engineer; the Wisconsin Department of Transportation is hereby authorized to then determine building setback requirements equal to or less than those required above in all land divisions (including certified surveys) adjacent to state and federal highways in accordance with the authority granted in the Administrative Code. The required building setback line and additional lot depth shall be platted so as to accommodate such required building setbacks.
- (p) **Easement Allowance.** Lots containing pedestrian or drainage easements shall be platted to include additional width in allowance for the easement.
- (q) **Drainage Way and Watercourses.** Lots abutting upon water course, drainage way, channel or stream shall have such additional depth or width as required by the Village Engineer to obtain building sites that are not subject to flooding from a post development one hundred (100) year storm.

## **Sec. 14-1-74 Drainage and Stormwater Management System.**

- (a) **Purpose.**
  - (1) The subdivider shall construct storm water drainage facilities, adequate to serve the subdivision which may include curbs and gutters, catch basins and inlets, storm sewers, road ditches, open channels, water retention structures and settling basins. All such facilities shall be of adequate size and grade to hydraulically accommodate the

maximum potential volumes of flow and shall be so designed as to prevent and control soil erosion and sedimentation and to present no hazards to life or property.

- (2) Shoreland drainage facilities shall, if required, include water retention structures and settling basins so as to prevent erosion and sedimentation where such facilities discharge into streams or lakes. The design criteria, the size, type, grades and installation of all storm water drains and sewers and other cross-section, invert and erosion control paving check dams, flumes or other energy dissipating structures and seeding and/or sodding of open channels and unpaved road ditches proposed to be constructed shall be in accordance with the plans and standard specifications approved by the Village Engineer.
- (3) The subdivider shall assume the cost of installing all storm sewers within the proposed subdivision, except for the added cost of installing storm sewers greater than those which are necessary to serve tributary drainage areas lying outside of the proposed subdivision. In addition, the subdivider shall pay to the Village, a storm sewer trunk line connection fee based on the added cost of installing larger sewers in the total tributary drainage area which shall be prorated in proportion to the ratio which the total area of the proposed plat is to the total drainage area to be served by such larger sewers.
- (4) The following provisions in this Section are established to preserve and provide properly located public sites and facilities for drainage and stormwater management as the community develops, and to insure that the costs of providing and developing such public sites are equitably apportioned on the basis of serving the need for the management of increased stormwater quantities resulting from land development.

(b) **Drainage System Required.**

- (1) As required by Section 14-1-58, a drainage system shall be designed and constructed by the subdivider to provide for the proper drainage of the surface water of the land division and the drainage area of which it is a part. Post-development peak runoff rates shall be limited to pre-development levels, up to and including twenty-five (25) year return period storms. A Final Plat shall not be approved until the subdivider shall submit plans, profiles and specifications as specified in this Section, which have been prepared by a registered professional engineer and approved or modified by the Village Board, upon the recommendations of the Plan Commission and Village Engineer.
- (2) Lots shall be laid out so as to provide positive drainage away from all buildings, and individual lot drainage shall be coordinated with the general storm drainage pattern for the area. Drainage shall be designed so as to avoid concentration of storm drainage water from each lot to adjacent lots.
- (3) The Plan Commission shall not recommend for approval any subdivision plat which does not provide adequate means for stormwater or floodwater runoff. Any stormwater drainage system will be separate and independent of any sanitary sewer system. Storm sewers, where necessary, shall be designed in accordance with all

governmental regulations, and a copy of design computations for engineering capacities shall accompany plans submitted by the planning engineer for the final plat. When calculations indicate that curb capacities are exceeded at a point, no further allowance shall be made for flow beyond that point, and basins shall be used to intercept flow at that point.

(c) **Drainage System Plans.**

- (1) The subdivider shall submit to the Village at the time of filing a Final Plat a drainage plan or engineering report on the ability of existing watercourse channels, storm sewers, culverts and other improvements pertaining to drainage or flood control within the subdivision to handle the additional runoff which would be generated by the development of the land within the subdivision. Additional information shall be submitted to adequately indicate that provision has been made for disposal of surface water without any damage to the developed or undeveloped land downstream or below the proposed subdivision. The report shall also include:
  - a. Estimates of the quantity of storm water entering the subdivision naturally from areas outside the subdivision.
  - b. Quantities of flow at each inlet or culvert.
  - c. Location, sizes and grades of required culverts, storm drainage sewers and other required appurtenances.
- (2) A grading plan for the streets, blocks and lots shall be submitted by the subdivider for the area within the subdivision.
- (3) The design criteria for storm drainage systems shall be based upon information provided by the Village Engineer.
- (4) Material and construction specifications for all drainage projects (i.e., pipe, culverts, seed, sod, etc.) shall be in compliance with specifications provided by the Village Engineer.

(d) **Drainage System Requirements.** The subdivider shall install all the storm drainage facilities indicated on the plans required in Subsection (a) of this Section necessary to serve, and resulting from, the phase of the land division under development:

- (1) **Street Drainage.** All streets shall be provided with an adequate storm drainage system. The street storm system shall serve as the minor drainage system and shall be designed to carry street, adjacent land and building storm water drainage. Storm water shall not be permitted to be run into the sanitary sewer system within the proposed subdivision.
- (2) **Off-Street Drainage.** The design of the off-street major drainage system shall include the entire watershed affecting the land division and shall be extended to a watercourse or ditch adequate to receive the storm drainage. When the drainage system is outside of the street right-of-way, the subdivider shall make provisions for dedicating an easement pursuant to Subsection (e) of the Village to provide for the future maintenance of said system.

- (e) **Protection of Drainage Systems.** The subdivider shall adequately protect all ditches to the satisfaction of the Village Engineer. Ditches and open channels shall be seeded, sodded or paved depending upon grades and soil types. (Generally ditches or channels with grades up to one percent [1%] shall be seeded; those with grades up to four percent [4%] shall be sodded and those with grades over four percent [4%] shall be paved.)
- (f) **Drainage Easements.** Where a land division is traversed by a watercourse, drainageway, channel or stream:
- (1) There shall be provided a storm water easement or drainage right-of-way conforming substantially to the lines of such watercourse and such further width or construction, or both, as will be adequate for the purpose and as may be necessary to comply with this Section; or
  - (2) The watercourse, drainageway, channel or stream may be relocated in such a manner that the maintenance of adequate drainage will be assured and the same provided with a storm water easement or drainage right-of-way conforming to the lines of the relocated watercourse, and such further width or construction, or both, as will be adequate for the purpose and may be necessary to comply with this Section; or
  - (3) Wherever possible, drainage shall be maintained in an easement by an open channel with landscaped banks and adequate width for maximum potential volume flow. In all cases, such easements shall be of a minimum width established at the high water mark or, in the absence of such specification, not less than thirty (30) feet.
- (g) **Dedication of Drainageways.** Whenever a parcel is to be subdivided or consolidated and embraces any part of a drainageway identified on a Village Comprehensive Storm Water Management Plan, master plan and/or official map or any portion thereof, such part of said existing or proposed public drainageway shall be platted and dedicated by the subdivider as an easement or right-of-way in the location and at the size indicated along with all other streets and public ways in the land division. Whenever any parcel is to be subdivided or consolidated and is part of a drainage district established under the authority of Chapter 88, Wis. Stats., the subdivider shall petition the Circuit Court to transfer the jurisdiction of that portion of the drainage district being subdivided or consolidated to the Village in accordance with Chapter 88.83, Wis. Stats.
- (h) **Dedication/Preservation of Storm Water Management Facilities.** The subdivider shall dedicate sufficient land area for the storage of storm water to meet the needs to be created by the proposed land development and in accordance with the standards for on-site detention and as determined by the Village Engineer. Whenever a proposed storm water management facility (e.g., detention or retention basin) shown on the Comprehensive Storm Water Management Plan, master plan and/or official map is located, in whole or in part, within the proposed land division, ground areas for providing the required storage capacity in such proposed public facility shall be dedicated to the public to the requirements of the master plan and/or official map. Storage areas necessary to serve areas outside the land division shall be held in reserve for a period of five (5) years from the date of final plat approval for future dedication to the Village or other appropriate agency.

(i) **Storm Drainage Facilities.**

- (1) The subdivider, at his/her cost, shall install all drainage facilities identified in the Erosion Control Plan or determined by the Village Engineer as being necessary for the management of all lands and roadways within the development. In addition, drainage capacity through the development from other areas shall be provided in accordance with a Comprehensive Surface Water Management Study, if applicable. All required storm drainage facilities shall be constructed and operational prior to acceptance of any dedications and/or public improvements served by the storm drainage facilities.
- (2) The subdivider shall submit to the Village Engineer for his/her review and approval a report on the ability of existing watercourse channels, storm sewers, culverts and other improvements pertaining to drainage or flood control within the land division to handle the additional runoff which would be generated by the development of the land within the land division. Additional information shall be submitted to adequately indicate that provision has been made for disposal of surface water without any damage to the developed or undeveloped land downstream or below the proposed land division. The report shall also include:
  - a. Estimates of the quantity of storm water entering the land division naturally from areas outside the land division.
  - b. Quantities of flow at each inlet or culvert.
  - c. Location, sizes and grades of required culverts, storm drainage sewers and other required appurtenances.
- (3) A grading plan for the streets, blocks and lots shall be submitted by the subdivider for the area within the land division.
- (4) The design criteria for storm drainage systems shall be reviewed by the Village Engineer and approved or modified.
- (5) Material and construction specifications for all drainage projects (i.e., pipe, culverts, seed, code, etc.) shall be in compliance with standards and specifications provided by Village ordinance and/or the Village Engineer.

- (j) **Minor Drainage System.** The subdivider shall install all minor drainage system components necessary to reduce inconvenience and damages from frequent storms. Minor drainage components shall include all inlets, piping, gutters, channels, ditching, pumping and other facilities designed to accommodate the post-development runoff resulting from a five (5) year, twenty-four (24) hour rainfall [ten (10) year, twenty-four (24) hour rainfall for commercial zoning district] event as determined in the most current edition of the Soils Conservation Service Technical Release 55 (TR 55). Temporary accumulations of storm runoff from ponding or flowing water, in or near minor system components, shall be permitted providing such accumulations do not allow the water to flow across the crown of the street from one side to the other. For arterial streets and streets located in commercial districts, ponding within normal traffic lanes [ten (10) feet on each side of the centerline of the street] is prohibited. In drainageways and drainageway easements,

accumulations of water shall not inundate beyond the limits of the drainageway or drainageway easement. Cross-street drainage channels (valley gutters) shall not be permitted except on cul-de-sac or permanent dead-end streets serving less than ten (10) dwelling units and where the minimum grade in the valley gutter and street gutter between the valley gutter and the next downstream drainage inlet is not less than one percent (1.00%).

- (k) **Major Drainage System.** The subdivider shall install all major drainage system components necessary to reduce inconvenience and damages from infrequent storms. Major system components shall include large channels and drainageways, streets, easements and other paths and shall be capable of accommodating post-development runoff in excess of that accommodated by minor system components resulting from twenty-four (24) hour rainfall events for storms with return frequencies greater than two (2) years up to and including the one hundred (100) year return event (as identified in TR 55). Runoff resulting from a one hundred (100) year, twenty-four (24) hour rainfall event shall be contained within the street right-of-way or designated storm drainage easement or detention facility.
- (l) **Drainage Piping Systems.**
- (1) Unless otherwise approved by the Village Engineer, all drainage piping of twelve (12) inches diameter and greater in street rights-of-way shall be constructed of Class Three reinforced concrete or PVC pipe. Piping materials outside of rights-of-way shall be subject to approval of the Village Engineer. All storm sewer outlets shall be equipped with steel bar or iron pipe debris gates.
  - (2) Agricultural drain tiles which are disturbed during construction shall be restored, reconnected or connected to public storm drainage facilities.
- (m) **Open Channel Systems.**
- (1) Unpaved road ditches and street gutters shall be permitted only within the Village's extraterritorial plat approved jurisdictional area and shall be shaped and seeded and/or sodded as grassed waterways. Where the velocity of flow is in excess of four (4) feet per second on soils having a severe or very severe erosion hazard and in excess of six (6) feet per second on soils having moderate, slight, or very slight erosion hazard, the subdivider shall install a paved invert or check dams, flumes, or other energy dissipating devices.
  - (2) Where open channels are utilized in either the minor or major drainage system, they shall be designed so as to minimize maintenance requirements and maximize safety. Drainage easements (in lieu of dedications) shall be utilized to accommodate open channels provided adequate access by the Village for maintenance of drainage capacity. Side slopes shall not exceed a four-to-one (4:1) slope. Drainageways where subject to high ground water, continuous flows, or other conditions as determined by the Village Engineer that would hamper maintenance operations due to consistently wet conditions, shall have a paved concrete invert of not less than eight (8) feet wide and side slopes to a point one (1) foot above the channel invert.

- (3) In areas where invert paving is not required, the drainageway bottom shall be grass. If the drainageway has a bare soil bottom or the natural grasses in the drainageway are disturbed due to development operations, the drainageway bottom shall be sodded and securely staked to one (1) foot above the elevation of inundation resulting from a predevelopment five (5) year, twenty-four (24) hour storm event. Other disturbed areas shall be seeded and prepared in accordance with the Village's Erosion Control requirements. Velocities for grass-lined channels shall not exceed those presented in the Village's Surface Water Management Study, if one is adopted.
- (n) **Standards for On-Site Detention Storage.** When the subdivider employs on-site detention to control erosion and sedimentation, reduce the post-development peak runoff rate or temporarily store storm water runoff due to inadequate downstream drainage facilities. The detention (storage) facilities shall be subject to regulation in accordance with the following standards:
- (1) Where on-site detention is temporarily employed for erosion and sedimentation control, the detention facilities shall safety contain the predevelopment runoff from a five (5) year storm event of twenty-four (24) hour duration.
  - (2) Where on-site detention is permanently employed to reduce the post-development peak runoff, the detention facility shall safety contain the post-development runoff from a twenty-five (25) year storm event of twenty-four (24) hour duration within the limits of the facility.
  - (3) Post-development peak runoff rates shall be limited to pre-development levels, up to and including twenty-five (25) year return period storms.
  - (4) All detention facilities shall safety contain or pass the runoff from any storm of any duration which exceeds the maximum storm required to be contained up to the one hundred (100) year storm event of twenty-four (24) hour duration.
  - (5) All permanent detention facilities shall safety contain the runoff from the one hundred (100) year storm event of twenty-four (24) hour duration on both public and, if necessary, private properties without inundating any building at the ground elevation, the travel lanes of any arterial street, the center ten (10) feet of any collector street or the top of the curb on any local street.
  - (6) Determination of on-site detention volumes shall be computed by procedures established by the United States Soil Conservation Service in the most current edition of its technical publication entitled "Urban Hydrology for Small Watersheds, TR-55 or TR-20," and as accepted and approved by the Village Engineer.
  - (7) The storage of storm water runoff shall not encroach on any public park (except parks designed with detention facilities) or any private lands outside the land division unless an easement providing for such storage has been approved and recorded for said lands.
  - (8) All detention facilities shall be designed with the safety of the general public and any considerations for ease of maintenance as top proprietaries.



- (9) Any wet detention facilities shall include riprap to not less than two (2) feet above the normal pool elevation for protection from wave action, or other slope stabilization methods approved by the Village Engineer, for protection from wave action.
- (10) The sides of all detention facilities shall have a maximum slope ratio of four to one (4:1) (horizontal to vertical), with flatter slopes being required where determined practical by the Village Engineer.
- (11) The Village Board, upon recommendation by the Village Engineer, may require the installation of fencing or other such security measures in detention facilities with excessively long down times or permanent water features, or other features requiring additional security for safety reasons.

### **Sec. 14-1-75 Non-Residential Subdivisions.**

(a) **General.**

- (1) If a proposed subdivision includes land that is zoned for commercial or industrial purposes, the layout of the subdivision with respect to such land shall make such provisions as the Village may require.
- (2) A non-residential subdivision shall also be subject to all the requirements of site plan approval set forth in the Village Building Code. A non-residential subdivision shall be subject to all the requirements of this Chapter, as well as such additional standards required by the Village and shall conform to the proposed land use standards established by any Village Comprehensive Plan or Official Map and the Village Zoning Code.

(b) **Standards.** In addition to the principles and standards in this Chapter, which are appropriate to the planning of all subdivisions, the applicant shall demonstrate to the satisfaction of the Village Board that the street, parcel and block pattern proposed is specifically adapted to the uses anticipated and takes into account other uses in the vicinity. The following principles and standards shall be observed:

- (1) Proposed industrial parcels shall be suitable in area and dimensions to the types of industrial development anticipated.
- (2) Street rights-of-way and pavement shall be adequate to accommodate the type and volume of traffic anticipated to be generated thereupon.
- (3) Special requirements may be imposed by the Village Board, upon the recommendation of the Village Engineer, with respect to street, curb, gutter and sidewalk design and construction.
- (4) Special requirements may be imposed by the Village Board, upon the recommendation of the Village Engineer, with respect to the installation of public utilities, including water, sewer and storm water drainage.

- (5) Every effort shall be made to protect adjacent residential areas from potential nuisance from a proposed commercial or industrial subdivision, including the provision of extra depth in parcels backing up on existing or potential residential development and provisions for permanently landscaped buffer strips when necessary.
- (6) Streets carrying non-residential traffic, especially truck traffic, shall not normally be extended to the boundaries of adjacent existing or potential residential areas.

## **Sec. 14-1-76 Grading.**

The subdivider shall grade each land division in order to establish street, block and lot grades in proper relation to each other and to topography as follows:

(a) **Master Site-Grading Plan.**

- (1) A master site-grading plan shall be prepared by the subdivider for all new subdivisions. This plan shall be prepared in accordance with the requirements and standards of the Village.
- (2) The master site-grading plan shall show existing and proposed elevations of all lot corners, control points and building locations. The plan shall also indicate all overland storm drainage in and adjacent to the subdivision. The cost of the preparation of such a plan shall be paid for by the subdivider.
- (3) After approval or modification of these plans by the Village Engineer, the full width of the right-of-way of the proposed streets within the subdivision and the entire subdivision lot area shall be graded in accordance with the master site-grade plan. The owners of the subdivision lots shall adhere to those plans.
- (4) Upon completion of all street and subdivision grading, the grades shall be checked and certified by the Village Engineer to determine that the completed grading work is in accordance with the master site-grading plan.
- (5) The cost of all required grading work, supervision, certification, inspection and engineering fees shall be paid for by the subdivider.

(b) **Right-of-Way Grading.** The subdivider shall grade the full width of the right-of-way of all proposed streets in accordance with the approved plans, including the grading of site triangles at each intersection.

(c) **Block Grading.** Block grading shall be completed by one (1) or more of the following methods:

- (1) Regrading along the side or rear lot lines which provides for drainage to the public drainage facilities, provided any ditches or swales are in public drainage easements, provided that a deed restriction is adopted which prohibits alteration of the grades within five (5) feet of any property line from the grades shown on the master site grading plan.
- (2) Parts of all lots may be graded to provide for drainage to a ditch or to a swale.

(d) **Miscellaneous Grading Requirements.**

- (1) Lot grading shall be completed so that water drains away from each building site toward public drainage facilities at a grade approved by the Village Engineer and provisions shall be made to prevent drainage onto properties adjacent to the land division unless to a public drainage facility.
- (2) Grading activities shall not result in slopes greater than three to one (3:1) on public lands or lands subject to public access.
- (3) The topsoil stripped for grading shall not be removed from the site unless identified in the Erosion Control Plan approved by the Village Engineer as not being necessary for erosion control or site landscaping purposes. Topsoil shall be uniformly returned to the lots when rough grading is finished. Topsoil piles shall be leveled and seeded for erosion control prior to the Village releasing the one (1) year guarantee provision on public improvements in the streets adjacent to the lots on which the topsoil is stockpiled.
- (4) Such grading shall not result in detriment to any existing developed lands, either within or outside of the corporate limits.
- (5) The Village Board shall require the subdivider to provide or install certain protection and rehabilitation measures, such as fencing, sloping, seeding, riprap, revetments, jetties, clearing, dredging, snagging, drop structures, brush mats, willow poles and grade stabilization structures. Seeding of the site shall occur within thirty (30) days of rough grading.
- (6) Tree cutting and shrubbery clearing shall not exceed fifty percent (50%) of the lot or tract and shall be so conducted as to prevent erosion and sedimentation; preserve and improve scenic qualities; and, during foliage, substantially screen any development from stream or lake users.
- (7) Paths and trails in wooded and wetland areas shall not exceed ten (10) feet in width unless otherwise approved by the Village Board, and shall be so designed and constructed as to result in the least removal and disruption of trees and shrubs, and the minimum impairment of natural beauty.
- (8) Earth moving, such as grading, topsoil removal, mineral extraction, stream course changing, road cutting, waterway construction or enlargement, removal of stream or lake bed materials, excavation, channel, clearing, ditching, drain tile laying, dredging, and lagooning, shall be so conducted as to prevent erosion and sedimentation and to least disturb the natural fauna, flora, watercourse, water regimen, and topography.
- (9) Review of the conduct of such cutting, clearing, and moving may be requested of the County Soil and Water Conservation District Supervisors, the State District Fish and Game Managers, and the State District Forester by the Village Engineer or Plan Commission as they deem appropriate.

- (e) **Drainage Flows.** The subdivider shall cause to be set upon the master grading plan arrows indicating the directions of drainage flows for each property line not fronting on a street on all parcels and along each street as will result from the grading of the site, the

construction of the required public improvements, or which are existing drainage flows and will remain. The arrows indicating the directions of flows shall be appropriately weighted so as to differentiate between the minor and major [one hundred (100) year event] drainage components. The arrows shall be accompanied on the master grading plan with the following note:

Arrows indicate the direction of drainage flows in various components resulting from site grading and the construction of required public improvements. The drainage flow components located in easements shall be maintained and preserved by the property owner unless approved by the Village Engineer.

### **Sec. 14-1-77 Erosion Control.**

The Village finds that urbanizing land uses have accelerated the process of soil erosion, runoff and sediment deposition in the waters of the Village. Therefore, it is declared to be the purpose of this Section to control and prevent soil erosion and minimize storm water runoff increases and thereby to preserve the natural resources, control floods and prevent impairment of dams and reservoirs, protect the quality of public waters, protect wildlife, protect the tax base, and protect and promote the health, safety and general welfare of the people of the Village. All land disturbing activities shall be subject to the provisions of the Village's Construction Site Erosion Control Ordinance (Title 15).

*Cross-Reference:* Title 15, Chapter 2, "Construction Site Erosion Control".

### **Sec. 14-1-78 through Sec. 14-1-79 Reserved for Future Use.**