

## TITLE ONE - SUBDIVISION AND DEVELOPMENT REGULATIONS

### CHAPTER 1101 - GENERAL PROVISIONS

#### Sections:

#### 1101.01 - PURPOSE.

The purpose of Title One is to establish the procedures and minimum requirements for developing land in the Municipality of Powell, Ohio.

(Ord. No. 86-28, 7-1-1986)

#### 1101.02 - SCOPE.

(a) The criteria and procedures established in these Development Regulations pertain to providing public and/or private streets, sidewalks, parking lots, sewers, street lighting, driveways, and water lines; the grading of land and sighting of structures; and all other site work outside the exterior limits of a structure or structures, including the appurtenances and associated items, all in accordance with the standard drawings and requirements stated herein.

~~(b) Any The addition to an existing building or change the changing of a building's use that may increases the parking needs does requires compliance with these regulations (TITLE ONE).~~

(bc) These Development Regulations cover all improvements or development of land in the City except:

- (1) The construction of a single or two-family dwelling on a platted or subdivided lot; and
- (2) The alteration, modification or other work on or around an existing structure when such work does not change, require a change of, or add to the site improvements. For example, the rearranging of rooms in a building without adding floor space or parking needs does not require compliance with these regulations. However, the addition to an existing building or the changing of a building's use that increases the parking needs does require compliance with these regulations.

(Ord. No. 86-28, 7-1-1986)

#### 1101.03 - GOVERNING REGULATIONS.

- (a) When there appears to be, or there is in fact, a conflict between these Development Regulations and the Zoning Code, the most stringent requirement shall apply.
- (b) In addition to the requirements established herein, all required work shall be performed in the manner required and to the minimums established by Chapter 1113.

(Ord. No. 86-28, 7-1-1986; Ord. No. 87-03, 3-17-1987)

#### 1101.04 - DEFINITIONS.

The definitions of Chapter 1103 shall be used in these Development Regulations unless the context of any section of this Title One specifically indicates that such definitions are not applicable.

(Ord. No. 86-28, 7-1-1986; Ord. No. 87-03, 3-17-1987)

#### 1101.99 - PENALTY.

Whoever violates any provision of this Title One shall be fined not more than \$500.00. A separate offense shall be deemed committed each day during or on which an offense occurs or continues.

(Ord. No. 86-28, 7-1-1986)

#### CHAPTER 1103 - DEFINITIONS<sup>41</sup>

Sections:

Footnotes:

--- (1) ---

**Cross reference**— Zoning definitions, Ch. 1123

#### 1103.01 - PURPOSE.

The purpose of this chapter is to establish the definitions of certain words as they are used in these Development Regulations.

(Ord. No. 86-28, 7-1-1986; Ord. No. 87-03, 3-17-1987)

#### 1103.02 - SCOPE.

The definition of words given in this chapter shall be used in these Development Regulations unless the context of any section of any chapter specifically indicates that such definitions are not applicable.

(Ord. No. 86-28, 7-1-1986)

#### 1103.03 - ACCEPTANCE OR APPROVAL.

*Acceptance or Approval* means the favorable vote by the Planning and Zoning Commission and/or the Council on the plans for development which are submitted for their consideration, and the approval of installed improvements.

- (a) Conditional acceptance means acceptance subject to stated conditions. Public improvements will receive a conditional acceptance subject to the correction of any deficiencies and a minimum one year maintenance period.
- (b) Final acceptance of improvements means that in general the results of the construction work are in accordance with the approved plans.

(Ord. No. 86-28, 7-1-1986; Ord. No. 87-03, 3-17-1987)

#### 1103.04 - BUILDING SETBACK LINE.

*Building setback line* means a line parallel to and at a fixed distance from the street, the purpose of which is to establish the minimum distance from a building to the street right-of-way line.

(Ord. No. 86-28, 7-1-1986)

1103.05 - DEVELOPMENT.

*Development* means the improvement of a tract or parcel of land.

(Ord. No. 86-28, 7-1-1986)

1103.06 - EASEMENT.

*Easement* means a grant by the property owner or owners of the use of a strip of land for a specific purpose or purposes.

(Ord. No. 86-28, 7-1-1986)

1103.07 - IMPROVEMENTS.

*Improvements* mean any addition to the natural state of land which increases its value or utility, including buildings, street pavements with or without curbs and gutters, sidewalks, cross walks, waterlines, sanitary sewers, storm sewers, landscaping, street lighting, public utilities, paved parking areas, and other appropriate items.

- (a) *Site improvements* mean the improvements made to the land outside the exterior limits of a structure or structures.
- (b) *Public improvements* mean all improvements financed entirely or in part by public funds or which have been dedicated to public use by plat, easement or deed of transfer.

(Ord. No. 86-28, 7-1-1986)

1103.08 - LOT.

*Lot* means a measured parcel of land having fixed boundaries and designated on a plat or survey.

(Ord. No. 86-28, 7-1-1986)

1103.09 - PARCEL.

*Parcel* means a specific part of a larger acreage of land.

(Ord. No. 86-28, 7-1-1986)

1103.10 - PLAN.

*Plan* means a drawing showing the proportion and relation of parts of improvements to each other and their surroundings.

(a) *Construction plan* means a plan which gives information required to construct improvements including plan views, sections, profiles, details, quantities, reference specifications, and standard drawings.

(b) *Final Development plan* means a plan which shows the existing ground and the proposed improvements on a tract or parcel of land in enough detail to establish the scope of the improvements, their relationship to the tract and surrounding tracts and to establish the development's compliance with, or to identify the variations from, these regulations.

~~(c) *Final development plan* means~~

Formatted: Highlight

(ed) *Erosion and sediment control plan* means a plan which shows the methods to be used to control the erosion of the site being developed, and to control the sedimentation downstream of the site being developed.

(ed) *Grading plan* means a plan which shows the proposed grades for the development in a manner that reflects the scope of earthwork required and the finished site grades.

(fe) *Landscaping plan* means a plan which shows the landscape improvements for the development in accordance with the requirements of the Zoning Code.

(gf) *Plat* means a plan of a tract or parcel of land made by a surveyor registered in the State of Ohio showing public dedications, property lines, lot lines and such other information as is required herein.

(hg) *Preliminary development plan* means a plan which shows the existing grounds and the concept of the improvements on the tract or parcel of land to provide a basic understanding of the development.

(ih) *Site plan* means a plan which shows information concerning all the site improvements, their relationship to each other, and the final shape and configuration of the site with improvements.

(ji) *Utility plan* means a plan that shows the location of existing and proposed utilities.

(Ord. No. 86-28, 7-1-1986; Ord. No. 87-03, 3-17-1987)

#### 1103.11 - RIGHT-OF-WAY.

*Right-of-way* means the strip of land dedicated or otherwise acquired by the public for public use.

(Ord. No. 86-28, 7-1-1986)

#### 1103.12 - ROADWAY.

*Roadway* means the portion of a street intended for vehicular traffic. Roadways are normally constructed of all-weather, durable material of sufficient strength to adequately support the projected vehicular traffic.

(Ord. No. 86-28, 7-1-1986)

#### 1103.13 - SIDEWALK.

*Sidewalk* means a hard surface portion of street, which lies outside the curb lines or edge of pavement of the roadway. Sidewalks may be constructed of concrete or brick.

(Ord. No. 86-28, 7-1-1986)

1103.14 - STREET.

Commented [JM1]: Updated street definitions

Street means any avenue, boulevard, road, lane, parkway or other way for vehicular and pedestrian traffic, excluding driveways into single family, two family or multi-family dwellings, or access to commercial or business establishments and their parking facilities. Streets shall be classified as follows:

- (a) *Alley* means a public street, less than 25 feet wide, but more than ten feet wide, which affords access to the side and rear of abutting properties, and may include adjacent parking.
- (b) *Cul-de-Sac* means a short, minor street having only one-end open for vehicular traffic and the other end permanently terminated by a vehicular turn-around or back-around.
- (c) *Dead-end street* means a street with only one outlet.
- (d) *Downtown Connector* means a public street providing connectivity between alleys, parking areas, along with residential, business, and mixed uses.
- (de) *Freeway* (limited access highway) means a strip of public land devoted to rapid movement of vehicular traffic, to which the abutting property owners have no direct right of access.
- (ef) *Industrial street* means a street which is intended to carry heavy vehicular traffic primarily serving light or heavy industrial establishments.
- (fg) *Local street* means a street on which the majority of the traffic originates or terminates in the abutting properties.
- (gh) *Primary street or thoroughfare* means an arterial street or highway which serves as an outlet for a group of secondary and local streets.
- (hi) *Private street* means a strip of privately owned land providing access to abutting properties.
- (ij) *Public street* means a strip of land, as dedicated upon a plat, or as otherwise acquired by the City or other governmental agencies, the acquisition of which has been duly approved, filed, and recorded in the office of the County Recorder, for use by the public.
- (jk) *Residential street* means a street which primarily serves dwelling units.
- (kl) *Secondary street* means a street which primarily serves as a collector for local streets.
- (lm) *Service road or access road* means a minor street, parallel to a thoroughfare, to afford abutting property owners access to the thoroughfare at limited points.
- (mn) *Stub road* is a public or private street that abruptly ends at or near a property line with the intent to extend the street when the adjacent property develops. The intent of a stub street is to provide for an interconnected street system as recommended in the Comprehensive Plan.
- (no) *T-turn around* means an arrangement at the end of a dead-end street which permits vehicles to be turned around by heading in, backing and then going forward.

Formatted: Font: Italic

Commented [HEL2]: Not sure I understand the intent of this definition.

Formatted: Strikethrough

Formatted: Strikethrough

Formatted: Strikethrough

Formatted: Strikethrough

Formatted: Strikethrough

Formatted: Strikethrough

Formatted: Strikethrough

Formatted: Strikethrough

Formatted: Strikethrough

Formatted: Strikethrough

Formatted: Font: Italic

Formatted: Highlight

Formatted: Strikethrough

(Ord. No. 86-28, 7-1-1986)

1103.15 - STREET RIGHT-OF-WAY.

Street right-of-way means the line, sometimes referred to as the property line, between a lot and the area dedicated or otherwise acquired for public street purposes, otherwise known as dedicated right-of-way.

(Ord. No. 86-28, 7-1-1986)

1103.16 - SUBDIVISION.

*Subdivision* means:

- (a) The division of any parcel of land shown as a unit or as contiguous units on the last preceding tax roll, into two or more parcels, sites or lots, any one of which is less than five acres for the purpose, whether immediate or future, of the transfer of ownership, provided, however, that the division or partition of land into parcels of more than five acres not involving any new streets or easement of access, and the sale or exchange of parcels between adjoining lot owners, where such sale or exchange does not create additional building sites, shall be exempted or
- (b) The improvement of one or more parcels of land for residential, commercial or industrial structures or groups of structures involving the division or allocation of land for the opening, widening or extension of any street or streets, except private streets serving industrial structures, the division or allocation of land as open spaces for common use by owners, occupants or lease holders or as easements for the extension and maintenance of public sewer, water, storm drainage or other public facilities.

(Ord. No. 86-28, 7-1-1986)

1103.17 - TRACT.

*Tract* means a continuous expanse of land.

(Ord. No. 86-28, 7-1-1986)

1103.18 - WALK-WAY.

*Walk-way* means a dedicated public right-of-way limited to pedestrian traffic.

(Ord. No. 86-28, 7-1-1986)

1103.19 - ZONING.

*Zoning* means City regulations and limitations by districts, of the height, area and use of buildings, the use of lands and the density of population.

(Ord. No. 86-28, 7-1-1986)

1103.20 - ZONING CODE.

*Zoning Code* means the Zoning Ordinance 84-45 including all ordinances or regulations subsequently passed which change, amend, replace or supersede all or any part of the Zoning Ordinance in force on the date submissions are made to the City in accordance with these Development Regulations.

(Ord. No. 87-03, 3-17-1987)

1103.99 - PENALTY.

Whoever violates any provision of Title One shall be fined not more than \$500.00. A separate offense shall be deemed committed each day during or on which an offense occurs or continues.

(Ord. No. 86-28, 7-1-1986)

## CHAPTER 1105 - DEVELOPMENT REGULATIONS AND REQUIRED IMPROVEMENTS<sup>2</sup>

Sections:

Footnotes:

--- (2) ---

**State Law reference**— Cornerstones and permanent markers, O.R.C. §§ 711.03, 711.14

### 1105.01 - PURPOSE.

The purpose of this chapter is to define types of development and establish the requirements for developing property in the City.

(Ord. No. 86-28, 7-1-1986)

### 1105.02 - DEFINITIONS.

The definitions of Chapter 1103 shall be used in this chapter unless the context of any section of this chapter specifically indicates that such definitions are not applicable.

(Ord. No. 86-28, 7-1-1986)

### 1105.03 - TYPES OF DEVELOPMENTS.

For the purpose of establishing requirements and procedures for submission of materials to the City, developments are grouped into two types of development.

(a) Land can be developed as:

- (1) A subdivision, as defined in Section 1103.16, or
- (2) As the development of, or alteration to, an existing lot. This requirement does not pertain to the construction of one or two-family dwellings on platted lots.

(b) When there is a doubt as to the type of development being considered, the final determination will be made by the Planning and Zoning Commission.

(Ord. No. 86-28, 7-1-1986; Ord. No. 87-03, 3-17-1987)

### 1105.04 - APPROVAL OF SUBDIVISION WITHOUT PLAT.

A proposed division of a parcel of land along an existing public street, not involving the opening, widening or extension of any street or road, and involving no more than ~~five~~ <sup>three</sup> lots after the original tract has been completely subdivided, may be submitted to the Planning and Zoning Commission for approval without plat. If the Commission acting through its properly designated representative is satisfied that such proposed division is not contrary to applicable platting, subdividing or zoning regulations, it shall within seven working days after submission approve such proposed division and, on presentation of a conveyance of said parcel, shall stamp the same "Approved by Planning and Zoning Commission; No Subdivision Plat Required" and have it signed by its Clerk, or designated representative. The request for approval of

Formatted: Strikethrough

subdivision without plat shall include a deed map showing the boundaries of tract being subdivided, and the zoning classification of the tract. At such time as the subdivided tract is developed, submissions shall be made as described in Section 1105.09(b).

(Ord. No. 88-19, 8-24-1988)

#### 1105.05 - REQUIRED IMPROVEMENTS.

An owner who desires to develop any land shall provide and pay the entire cost of the following improvements needed to develop such land:

- (a) Streets and parking areas, graded and paved, including drainage structures, bridges, and when required sidewalks and curbing;
- (b) Sanitary sewers, including manholes, services and all appurtenances;
- (c) Water distribution system including lines, services, valves, fire hydrants, and all appurtenances;
- (d) Storm sewers, including manholes, inlets and all the appurtenances;
- (e) Monuments and stakes;
- (f) Street signs designating the name of each street at each intersection within the development and street signs at stub roads noting that a future street will be extended in the future. Street signs shall conform to the standards established by the City;
- (g) Street lighting including poles, underground conduits and appurtenances at intersections and, when curbs and sidewalks are required, along the street;
- (h) Landscaping; and
- (i) Traffic control devices including regulatory, guide and warning signs, including posts and supports, lane line stripping, and directional arrows, to be located as directed by the City;
- (j) All other improvements shown on the plans and as approved by the ~~Village~~City.

(Ord. No. 86-28, 7-1-1986; Ord. No. 87-03, 3-17-1987)

#### 1105.06 - RECREATION FEE.

A Recreation Fee shall be collected in accordance with the Fee Schedule established by the Council and in force on the date the Recreation Fee is due and payable. All monies so collected shall be deposited for use to construct, erect, repair, ~~maintain, operate,~~ purchase or otherwise obtain or upgrade parks and recreational facilities.

Formatted: Strikethrough

(Ord. No. 88-19, 8-24-1988)

#### 1105.07 - DEVELOPMENT FEE.

A Development Fee shall be collected in accordance with the Fee Schedule established by the Council and in force on the date the Development Fee is due and payable. All monies so collected shall be deposited in accounts used to construct, repair, replace or upgrade public streets, storm drainage systems and sanitary sewer systems, or other development needs such as Council deems appropriate; including the legal, administrative and engineering services in support of the work described herein.

(Ord. No. 87-03, 3-17-1987)



#### 1105.08 - PLAN FILING AND REVIEW FEE.

A Plan Filing and Review Fee shall be collected in accordance with the Fee Schedule established by the Council and in force on the date the Plan Filing and Review Fee is due and payable. All monies so collected shall be deposited in accounts used to provide for engineering services to the City.

(Ord. No. 86-28, 7-1-1986)

#### 1105.09 - REQUIRED SUBMISSIONS.

The following submissions are required for each type of development.

- (a) The Subdivision of Land with Plat shall require:
  - (1) A Sketch Plan,
  - (2) A Preliminary Development Plan, except as noted in subsection (d) hereof,
  - (3) A Development Plan,
  - (4) A Landscape Plan,
  - (5) A Plat for each development phase,
  - (6) Construction Plans,
  - (7) A Grading Plan, and
  - (8) An Erosion and Sediment Control Plan.
- (9) As determined by the City Engineer, a ~~Storm Water Pollution Prevention Plan~~ and a post construction storm water operation and maintenance plan.
- (b) The development or alteration to an existing lot or the subdivision of land without plat in conjunction with the development of the land shall require:
  - (1) A Sketch Plan,
  - (2) A Development Plan,
  - (3) A Landscape Plan,
  - (4) A Grading Plan,
  - (5) An Erosion and Sediment Control Plan, and
  - (6) A Site and/or Utility Plan.
- (c) The Preliminary Development Plan shall be submitted for the entire subdivision or development. The remaining ~~Final Development Plan~~ submissions shall only be for the phase being developed.
- (d) In some cases the above listed plans can be combined together to decrease the total sets of plans. The procedure for this is described in Chapters 1107 and 1109.

(Ord. No. 86-28, 7-1-1986)

#### 1105.10 - OBLIGATIONS OF THE OWNER, CONSTRUCTION GUARANTEES, VIOLATIONS OF PROVISIONS.

In consideration of the approval of the Construction Plans, or when there are no public improvements, the Site and/or Utility Plans, the owner of the land being developed shall be subject to the following regulations:

- (a) No lot, parcel or tract shall be transferred ~~from the proposed development nor shall any construction work on such development, including grading, be started until the owner has~~

Commented [CH3]:

Formatted: Strikethrough

Formatted: Strikethrough

obtained the necessary approvals ~~under the subdivision code of and the plans required in Section 1105.09, and,~~ when required, the subdivision plat has been filed with the Delaware County Recorder.

Formatted: Strikethrough

- (b) No conveyance shall be made of any lot or parcel smaller in frontage or area than indicated on the plat without the approval of the Planning and Zoning Commission.
- (c) All construction work and materials used in connection with site and public improvements shall conform to the requirements of the City, shall be observed as required by the City representative when being installed, and shall be installed at no expense to the City. ~~All proposed eConstruction shall not commence until such time as the plans are approved pursuant to as required in Section 1105.09, and the subdivision plat, if required any, is also signed pursuant to as required by Section 1107.08.~~
- (d) The City Engineer shall be notified in writing three days before any construction is to begin.
- (e) The owner shall hold the City free and harmless from any and all claims which might originate by virtue of the development of the subject premises or the conduct of the owner, its agents or employees relative to said development including, but not limited to, any and all claims for damages of every nature whatsoever or for injunctive relief emanating from the construction and improvements or resulting from the construction and improvements of said developed area; and the Owner shall defend, at his own cost and expense, any suit or action brought against the City by reason thereof excluding, however, any such liability that might result from the sole negligence of the City. The owner acknowledges that owner or its agents or employees are knowledgeable developers who have utilized said knowledge and skill in developing the subject premises and though conforming to local regulations and ordinances of the City, owner is relying solely on his own expertise or the expertise of his developer in developing the subject premises; and the owner is not relying on any skill or expertise of the City, its agents or employees in preparing the developed area in accordance with sound engineering and development practices.
- (f) All improvements and utilities will be satisfactorily installed within one year from the date of approval of the Construction, Site, or Utility Plans, as required herein or within such time schedule as presented and approved by the Planning and Zoning Commission. ~~Extended time limits for satisfactory installation of improvements associated with plans encompassing multiple phases of development may be granted at the discretion of the City Engineer. In such cases, each phase shall be substantially complete at the discretion of the City Engineer prior to the start of construction of the next successive phase, unless it is the intention of the owner to conclude the installation of multiple phases at one time.~~
- (g) ~~Any extension of the time limits set in subsection (f) hereof must may be approved by The City Engineer. Such approval shall be granted only upon a finding of a valid purpose and necessity for such extension and evidences of reasonable and diligent efforts toward accomplishment of the original Construction, Site, or Utility plans within the originally established time limits, and upon finding that such extension is not in conflict with the general health, welfare and safety of the public. No extension of time shall be granted except upon application filed in writing with the City Engineer not later than 30 days before the expiration of the time limits set in subsection (f) hereof.~~
- (gh) At, or prior to, the preconstruction meeting, prior to the beginning of construction of the public improvements, the developer or owner shall guarantee the construction of the public improvements by filing with the City evidence satisfactory to the City Engineer and Law Director of one of the following:
  - (1) A performance bond equal to 120 percent of the estimated construction cost as approved by the City Engineer of the public improvements, with the provision that the bond proceeds shall be used to cover the cost of contractors, subcontractors, material men, laborers, and other costs to the City of Powell to complete the project upon default by the owner. The performance bond shall not expire until such times as the public improvements are complete and receive conditional acceptance by the City and at such time as the maintenance guarantee is posted; or

Commented [JM4]: Revised expiration deadlines for Engineering plans and clarified the process for seeking deadline extensions.

- (2) A certified check equal to 100 percent of the estimated construction cost of the public improvement; or
- (3) Subject to the approval of the Law Director, a certificate of deposit or an irrevocable letter of credit made out to the City, equal to 100 percent of the estimated construction cost, as approved by the City Engineer, of the public improvements. The certificate of deposit or letter of credit shall not expire until such time as the public improvements are complete and receive conditional acceptance by the City and at such time as the maintenance guarantee is posted.

~~(4) For small projects (of less than one acre) which does not have a substantial public improvement, and the improvement is not determined to be a critically important public improvement, at the discretion of the City Engineer, the owner may not be required to submit a performance guarantee as outlined above. However, the owner is still obligated to perform the improvements within the approved plans and the Zoning Administrator may withhold a Certificate of Zoning Compliance (occupancy) if the improvement is not completed prior to the facility them being ready to occupy their development.~~

~~(4) For small projects (of less than one acre) which does not have a substantial public improvement, at the discretion of the City Engineer if the improvement is not a critically important public improvement, the owner is not required to submit a performance guarantee as outlined above. However, the owner is still obligated to perform the improvements within the approved plans and the Zoning Administrator may withhold a Certificate of Zoning Compliance (occupancy) if the improvement is not completed prior to them being ready to occupy their development.~~

- (hi) All permits and approvals shall be obtained and all fees and deposits paid prior to beginning any construction of any improvements.
- (ij) During construction and prior to acceptance of any public improvement, the Owner shall remove or cause to be removed such dirt and debris and foreign matter from all public rights-of-way, improvements and/or easements as were deposited, left or resulted from the construction of improvements of any nature for the development, within 24 hours after being notified by the City that such removal is required. Such removal shall be done to the satisfaction of the City.
- (jk) A development agreement shall be executed in such form and on such terms and conditions as specified by the City Engineer and Solicitor ~~except for small sites under an acre in size.~~
- (kl) No person or owner shall violate any of the regulations established in these Development Regulations and upon violation the City shall have the right to:
  - (1) Stop all work on the project forthwith upon the City having posted a notice to stop work at the development site.
  - (2) Continue any unfinished work or replace any unaccepted work to a point that any public improvements do not appear to create a health or safety hazard or create maintenance or repair expense to the City because of their state of completion by:
    - A. Holding the bonding company responsible for all actual expenses incurred, including engineering, legal and construction expenses, plus interest as defined in subsection (g)(1) hereof, from the date of default by the owner and/or his contractor or representatives, to the date the City receives reimbursement for all expenses incurred, or
    - B. Using the certified check, or proceeds thereof, or proceeds of the certificate of deposit or the letter of credit.

Commented [JM5]: Stricken upon further review.

(Ord. No. 86-28, 7-1-86; Ord. No. 87-03, 3-17-1987; Ord. No. 2005-21, 5-4-2005)

1105.99 - PENALTY.

Whoever violates any provision of this chapter shall be fined not more than \$500.00. A separate offense shall be deemed committed each day during or on which an offense occurs or continues. The enforcement of the fines described herein shall be separate and distinct from the exercising of any City right described in Section 1105.10.

(Ord. No. 86-28, 7-1-1986)

## CHAPTER 1107 - SUBMISSION PROCEDURES FOR DEVELOPMENT<sup>3</sup>

### Sections:

### Footnotes:

--- (3) ---

**State Law reference**— Plat and contents, O.R.C. § 711.01 et seq.; Plat acknowledgement and recording, O.R.C. § 711.06; Approval by Planning Authority, O.R.C. § 711.09

#### 1107.01 - PURPOSE.

The purpose of this chapter is to establish the submission procedures for developing property in the City.

(Ord. No. 86-28, 7-1-1986)

#### 1107.02 - SCOPE.

The following procedures shall be followed from the time the land to be developed is properly zoned for the proposed development through the completion of all improvements. All plans and documents required herein shall be prepared and submitted at no cost to the City.

(Ord. No. 86-28, 7-1-1986)

#### 1107.03 - DEFINITIONS.

The definitions of Chapter 1103 shall be used in this chapter unless the context of any section of this chapter specifically indicates that such definitions are not applicable.

(Ord. No. 86-28, 7-1-1986)

#### 1107.04 - SKETCH PLAN.

- (a) An owner wishing to develop land should submit nine-five copies of a Sketch Plan, and such other information as the owner desires, to the Planning and Zoning Commission ~~ten~~ 15 days prior to the date of the Commission meeting.
- (b) The Commission shall review the Sketch Plan with the owner and provide the owner with comments during the meeting, it being understood that no statement by officials of the City shall be binding upon either. This submission is informal and for the purpose of establishing communication and discussing the concept for developing the tract. No formal action will be taken on the Sketch Plan.

(Ord. No. 86-28, 7-1-1986; Ord. No. 87-03, 3-17-1987)

#### 1107.05 - PRELIMINARY DEVELOPMENT PLAN, NOTICE TO PROPERTY OWNERS.

- (a) Following the discussion of the Sketch Plan for a development, the owner shall submit ~~nine-five~~ copies of a Preliminary Development Plan and such other information as the owner desires, to the Planning and Zoning Commission 15 days prior to the date of the Commission meeting. ~~At the time the owner submits a Preliminary Development Plan, the City shall be furnished a list of names and addresses of all property owners abutting or directly across the street from any part of the development.~~ The Planning and Zoning Commission Clerk shall then, by letter, notify ~~such~~ property owners within 250 feet of the subject property of the pending consideration of a Preliminary Development Plan. This notice shall be mailed not less than seven days prior to the meeting.
- (b) The Commission shall review the Preliminary Development Plan at its next meeting and provide the owner with comments regarding the overall concept of the development. The Commission will approve the Preliminary Development Plan, disapprove the Plan, or take no action subject to the Plan being revised. Upon approval, the Preliminary Development Plan shall be forwarded to Council for their information.
- (c) If the Preliminary Development Plan is disapproved or no action is taken, the notices to the property owners shall be sent out as described above upon the resubmission of the Preliminary Development Plan. The resubmission shall be made 15 days prior to the Commission meeting in which the Preliminary Development Plan is to be reconsidered.
- (d) In the instance of developing or alternating a lot, a Preliminary Development Plan is not required.
- (e) The approval of the Preliminary Development Plan shall be effective for:
- (1) The period of time as set forth in subsection (f) below.
  - (2) The period of time as established in the approval, or
  - (3) The period of time provided by the granting of time extensions or the establishment of a schedule in the approval of a Development Plan for a phase of the development shown on the Preliminary Development Plan.
- (f) The approval of the Planning and Zoning Commission shall be null and void for all undeveloped portions of a development as shown on the Preliminary Development Plan:
- (1) If a Development Plan has not been submitted to the Planning and Zoning Commission for the first phase of development within 12 months of the Preliminary Development Plan approval or on the schedule as established in the approval of the previous Development Plan.
  - (2) If a Development Plan has not been submitted to the Planning and Zoning Commission for the next phase of development within 12 months of the conditional acceptance by the City of a preceding phase of development or on a schedule as established in the approval of the previous Development Plan.
  - (3) If the time limits as stated herein or as stated in Section 1107.06 for the Development Plan have been exceeded and no time extension has been granted by the Planning and Zoning Commission.

(Ord. No. 86-28, 7-1-1986; Ord. No. 87-03, 3-17-1987)

1107.06 - FINAL DEVELOPMENT PLAN.

- (a) Upon receiving approval of the Preliminary Development Plan by the Planning and Zoning Commission, the owner shall submit ~~nine-five~~ copies of a Final Development Plan to the Planning and Zoning Commission, ~~ten-15~~ days prior to the Commission meeting in which it is to be considered. The Final Development Plan may be for one or more phases, or the entire development.
- (b) When the Preliminary Development Plan is not required or is combined with the Final Development Plan, the submission procedures stated in Section 1107.06-5 for the Preliminary Development Plan shall be followed.

**Commented [RK6]:** Should we call this a "Final" Development Plan, do we want to update our application forms or the code?

**Commented [DB7R6]:** This process in the Development Regulations is kind of different than the zoning code process as a subdivision or development plan could happen outside of a "planned district". We can, however, to keep consistent with the Zoning Code, call it a "Final" Development Plan.

**Formatted:** Strikethrough

- (c) The Commission shall examine and take action on the Final Development Plan within 45 days after it has been filed. The owner may withdraw the Final Development Plan from consideration by the Commission any time before the Commission takes action, in which case the 45 day time limit shall start over when the Final Development Plan is resubmitted.
- (d) The approval of the Planning and Zoning Commission shall be effective for:
  - (1) Nine months, or as established on the approved Final Development Plan, unless the plans and specifications as required in Section 1105.09 have been submitted to the City Engineer.
  - (2) Twelve months, or as established on the approved Final Development Plan, unless construction has begun.
- (e) A Landscape Plan shall be submitted as part of or in conjunction with the Final Development Plan. The approval of the Final Development Plan shall include the approval of the Landscape Plan. The approval of the Landscape Plan shall be subject to the same terms and conditions as is the approval of the Final Development Plan.

(Ord. No. 87-03, 3-17-1983; Ord. No. 86-28, 7-1-1986)

#### 1107.07 - DEVELOPER'S AGREEMENT.

Upon the approval of the Final Development Plan and prior to the submission of a plat, when a plat is required, or the Utility and Site Plans, when a plat is not required, a Developer's Agreement in such form and such terms as are required by the City shall be signed.

(Ord. No. 86-28, 7-1-1986)

#### 1107.08 - PLAT.

Upon approval by the Planning and Zoning Commission of the Development Plan, a plat shall be submitted for subdivisions in which land will be dedicated for public use. ~~Nine-Five~~ copies of the plat shall be submitted to the Planning and Zoning Commission ~~ten-15~~ days prior to the date of next Commission meeting. The Commission shall take action on the Plat within ~~45~~ 30 days after it has been filed ~~the Plat has had its first hearing before the Planning and Zoning Commission.~~ Upon approval by the Commission the Plat shall be forwarded to Council for its consideration. Council shall take action on the Plat within 60 days after receiving the Plat from the Planning and Zoning Commission. A two-thirds majority of Council is required for council to reverse a recommendation of the Commission. The owner shall file the Plat with the Delaware County Recorder within ~~six-twelve~~ (12) months of its approval by Council, unless this time is extended by Council, or the approvals of the Planning and Zoning Commission and Council shall be null and void. ~~At such time as the owner desires to file and record the Plat with the County Recorder, the owner shall guarantee the construction of the public improvements in accordance with Section 1105.10.~~

Formatted: Strikethrough

Formatted: Strikethrough

Formatted: Strikethrough

(Ord. No. 86-28, 7-1-1986; Ord. No. 87-03, 3-17-1987)

#### 1107.09 - SUBMISSION OF CONSTRUCTION DATA.

- (a) Following the approval of the Development Plan and Plat, the owner shall submit to the City Engineer two copies of the plans required in Section 1105.09, along with the design calculations and reference data, and an itemized cost for constructing the public and site improvements. ~~The items of the estimate shall be grouped as follows:~~
  - (1) ~~Street and parking area improvements, including curb, pavement and sidewalks;~~
  - (2) ~~Fire hydrant installations;~~
  - (3) ~~Storm sewers, including manholes, Y's, Tee's and cleanout; and~~

Formatted: Strikethrough

~~(4) Site improvements, including seeding and sodding.~~

- (b) ~~Within 30 days of recording the Plat and prior to the beginning of construction, a reproducible digital copy and three 1 prints will be given to the City Engineer of the approved Development Plan and when appropriate, the recorded plat. A reproducible copy shall be defined as ink on linen or a photographic reproduced drawing on mylar which will accept ink, will make clear sharp prints, and will not fade, darken, or become brittle with age.~~
- (c) When a plat is not required or the development does not involve installing any public improvements, the information for the site improvements shall be shown on a Site and Utility Plan.
- (d) The Engineer shall review the plans and construction estimates and, subject to this satisfaction, they shall be approved or returned with comments.
- (e) Upon approval of the construction plans or site and utility plans, reproducible copies meeting the requirements of subsection (b) hereof and three sets of prints shall be given to the City Engineer. The Engineer may permit the developer's engineer to retain the reproducible copies until such time as the "as-built" information is added.

Formatted: Strikethrough

(Ord. No. 86-28, 7-1-1986; Ord. No. 88-19, 8-24-1988)

#### 1107.10 - FEES, GUARANTEES, WRITTEN NOTICE OF CONSTRUCTION.

Prior to the beginning of any construction:

- (a) ~~(a) At such time as the owner desires to begin construction, the owner shall guarantee the construction of the public improvements in accordance with Section 1105.10.~~
- (b) All appropriate fees, deposits, and construction guarantees shall be made, and deposited with the City.
- (b) All requirements listed in this chapter have been completed and the City Engineer has given written approval to begin construction.
- (c) The City Engineer has received written notification 72 hours before construction is to begin.

Formatted: Numbered + Level: 1 + Numbering Style: a, b, c, ... + Start at: 1 + Alignment: Left + Aligned at: 0" + Indent at: 0.25"

(Ord. No. 86-28, 7-1-1986)

#### 1107.11 - OWNERSHIP OF PLANS, AS-BUILT PLANS.

When the proper City officials have affixed their signatures to a set of reproducible drawings of public improvements, such drawings become the property of, and will remain in the custody of, the City, except that the developer will be required to correct the plans to conform to the "as-built" conditions. Public improvements will not be accepted by the City until the "as-built" reproducible drawings are delivered to the Engineer, together with two prints thereof.

(Ord. No. 86-28, 7-1-1986)

#### 1107.99 - PENALTY.

Whoever violates any provision of this chapter shall be fined not more than \$500.00. A separate offense shall be deemed committed each day during or on which an offense occurs or continues.

(Ord. No. 86-28, 7-1-1986)



## CHAPTER 1109 - PLAN CONTENT AND REQUIREMENTS<sup>[4]</sup>

Sections:

Footnotes:

--- (4) ---

**State Law reference**— Plat and contents, O.R.C. § 711.01 et seq.; Engineer to approve plats, O.R.C. §§ 711.08, 711.09

### 1109.01 - PURPOSE.

The purpose of this chapter is to establish the minimum information required for the plans which are required in Section 1105.09.

(Ord. No. 86-28, 7-1-1986; Ord. No. 87-03, 3-17-1987)

### 1109.02 - SCOPE.

The plans shall be submitted as indicated, containing the information required herein. It is recognized that in some cases the requested information does not pertain. For example, deed restrictions may not be proposed for a small development. In these instances, the submission should state which items for that submission are not applicable.

(Ord. No. 86-28, 7-1-1986)

### 1109.03 - DEFINITIONS.

The definitions of Chapter 1103 shall be used in Development Regulations unless the context of any section of this chapter specifically indicates that such definitions are not applicable.

(Ord. No. 86-28, 7-1-1986)

### 1109.04 - USGS ELEVATIONS.

The elevations shown on all plans shall be based on the National Geodetic Survey's North American Vertical Datum of 1988 (NAVD 88) USGS datum, appropriate to the location of the property

**Commented [JM8]:** Refer to most recent survey datum

\_(Ord. No. 86-28, 7-1-1986)

### 1109.05 - PLAN SCALE.

The Plan Scale for Sketch Plans and Preliminary Development Plans shall be no smaller than one inch equals 100 feet. The plan scale for all other plans and the plat shall be no smaller than one inch equals 50 feet horizontally and one inch equals five feet vertically.

(Ord. No. 86-28, 7-1-1986)

1109.06 - SKETCH PLAN.

A Sketch Plan shall be submitted as stipulated herein and include:

- (a) Proposed name of development and location;
- (b) Names and addresses of owners and developers;
- (c) Date, north arrow and plan scale;
- (d) Approximate boundary lines of proposed development;
- (e) Major existing features including topography;
- (f) Major proposed improvements and a general layout of development;
- (g) The basic development information such as minimum lot size and dimension, type and size of building, and street and drainage patterns;
- (h) For tracts that contain wooded areas or stands of trees, a statement of the procedure to be used to identify and preserve sound, healthy trees;
- (i) For tracts that contain ravines or natural drainage courses, a statement of the extent of, and procedures for their preservation; and

(j) Such other information as requested by the Director of Development.

~~(k)~~ Such other information as will be necessary to give the Commission the proposed concept.

(Ord. No. 86-28, 7-1-1986)

1109.07 - PRELIMINARY DEVELOPMENT PLAN.

A Preliminary Development Plan shall be submitted as stipulated herein. A Preliminary Development Plan shall include:

- (a) Proposed name of the development and its location;
- (b) Names and addresses of owners and developers;
- (c) Date, north arrow and plan scale;
- (d) Boundary lines of the proposed development and the total approximate acreage encompassed therein;
- (e) Locations, widths, and names of all existing public streets or other public ways, railroad and utility rights-of-way or easements, parks and other public open spaces, permanent structures, and section and corporation lines within or adjacent to the tract;
- (f) Existing sewers, waterlines, culverts, and other underground facilities within the tract, adjacent to the tract or that will be used in developing the tract, indicating pipe sizes, grades, and locations;
- (g) The adjoining lines of adjacent tracts, parcels or lots;
- (h) Existing zoning restrictions;
- (i) Existing ground configurations, drainage channels, wooded areas, watercourses and other significant physical features;
- (j) Identification of the tree preservation procedures and areas;

- (k) Layout with approximate dimensions of proposed streets, including tentative locations for sewers, waterlines, culverts, private utilities, and other major improvement;
- (l) Tentative layout, numbering and the approximate dimensions of lots if more than one;
- (m) The approximate area of the smallest and largest lots, the proposed total number of lots, the lot yield based on total acres and the acres without street right-of-way;
- (n) Tentative layout, location, elevation views, finish materials and colors, and approximate dimensions of proposed buildings, except for single and two family subdivisions;
- (o) Layout of site improvements including parking lots, driveways, landscape areas, trash container lighting, and fencing, except for single and two family subdivisions;
- (p) Parcels of land intended to be dedicated or temporarily reserved for public use or reserved by deed covenant, with the conditions proposed for such covenant, and for the dedications;
- (q) Proposed building setback lines with dimensions;
- (r) Grading concepts of the lots, streets and pavement with explanation of methods for handling off-site drainage, both that which enters the development and that which leaves the development; and also provide feasibility analysis of proposed on-site and/or off-site storm water management concept.
- (s) Proposed deed restrictions and covenants;
- (t) A statement of the tentative schedule of phases of development;
- (u) A statement of the general effect the development will have on schools, public services and traffic patterns;
- (v) A statement of the character and nature of the development including the cost range or rent levels for housing in residential developments and the general types of business for industrial and commercial developments, and
- (w) A listing of any proposed deviations and variances from the Development Regulations or the Zoning Code.

(Ord. No. 86-28, 7-1-1986)

#### 1109.08 - DEVELOPMENT PLAN.

A Development Plan shall be submitted for each phase of a project as stipulated herein and shall include:

- (a) The listed items in Section 1109.07 (a) through (w) for the Preliminary Development Plan, which with such, refinements as may have resulted from the review of the Preliminary Development Plan;
- (b) A response to comments during the review of the Preliminary Development Plan through written comments or changes in the proposed layout and improvements for the development;
- (c) Tentative grading of the streets and lots, with approximate sewer and ditch sizes and slopes;
- (d) Deed restrictions and covenants;
- (e) A statement of the proposed restrictions, if any, on the type and nature of building materials, type of construction and configuration of structures. If architectural controls are to be a part of the development, a statement of how the architectural control will be handled as the property in the development changes ownership;
- (f) A listing of any proposed deviations or variances from these Development Regulations or the Zoning Code; and

**Commented [CH9]:** And

**Commented [RK10]:** 1143.11(i) – Connection to this section

**Commented [RK11]:** Don't include "w" – don't want to include this?

- (g) An updating of the Development Plan for completed phases of the development, revisions to the schedule of completion, revisions to the development phases, and any other changes from previous Development Plans. The updating of the development information may be done on a reproducible copy of the original Preliminary Development Plan if the required information can be clearly shown.

(Ord. No. 86-28, 7-1-1986)

1109.09 - LANDSCAPE PLAN.

A Landscape Plan shall be submitted for each phase of a Development as part of, or in conjunction with, the Development Plan. The Landscape Plan shall follow the requirements of the Zoning Code and shall include:

- (a) The project title, north arrow, location map or description and sheet scale;
- (b) The proposed site improvements;
- (c) Sufficient dimensions to locate the proposed landscaping with respect to the proposed site improvements;
- (d) Names and planting sizes and plants, shrubs and trees;
- (e) Location of the existing major trees and a description of the methods to be used to preserve those which will remain;
- (f) The identification of the existing major trees to be removed, and;
- (g) For these situations in which no new trees are required or are to be installed, an indication of the existing trees to be used to meet the tree planting requirement.

(Ord. No. 86-28, 7-1-1986)

1109.10 - PLAT.

A Plat shall be submitted as stipulated herein and shall include:

- (a) The boundary of the development, based on an accurate transverse with dimensions in feet and hundredths of feet, and bearings in degrees, minutes and seconds;
- (b) The municipal, township, county, section or adjacent property lines accurately tied to the lines of the subdivision by distances and bearings;
- (c) The radii, central angles, points of curvature, tangent bearings and lengths of all chord dimensions;
- (d) All lot lines with accurate dimensions in feet and hundredths of feet, and bearings in degrees, minutes and seconds;
- (e) An accurate location of all monuments and of all iron pins to be set on street right-of-way lines at street intersections and at the beginning and end of curves;
- (f) The exact location, width and name of all existing streets, easements and public lands;
- (g) The name and location of the development;
- (h) The names of owners;
- (i) The date, north arrow and scale of plat;
- (j) The names and deed book references of adjacent property owners;

- (k) An accurate boundary data of any areas to be dedicated or reserved for public use, with the purposes indicated thereon, and of any areas to be reserved by deed covenant for the common use of all property owners;
- (l) A certificate by a land surveyor, registered in the State of Ohio, that the premises covered by the plat have been surveyed, that the plat is correct, and that the monuments shown on the plat will be set in accordance with Section 1111.11;
- (m) A notarized certification by the owner or owners of their adoption of the plat and the dedication of the streets and other public areas to public use as is shown on the plat;
- (n) Proper form for the approval of the Planning and Zoning Commission with space for signatures;
- (o) A space for approval signatures of the City Engineer and Mayor;
- (p) A proper form for approval and acceptance by Council, with space for ordinance number and also space for the signature and certification of the Clerk of Council; and
- (q) The space for notation of transfer by the County Auditor and recording by the County Recorder.

(Ord. No. 86-28, 7-1-1986)

#### 1109.11 - CONSTRUCTION PLANS.

Construction Plans shall be prepared for all public sanitary sewers, water lines, streets, pavements, sidewalks and storm sewers which are proposed for construction.

- (a) The format and information contained on the sanitary sewer plans shall conform to the requirements of the Delaware County Sewer District, and the waterline plans shall conform to the requirements of DelCo Water company.
- (b) All other plans shall be made on ~~linen~~, mylar or other accepted material sizes 24 inches by 36 inches, with a one-inch border on the left and a one-half inch border around the balance of the sheet. The relationship between the proposed work and the existing topography conditions shall be shown. Both the existing conditions and proposed work shall be shown in both plan and profile on the same sheet, and in sufficient detail to clearly show all work to be done. Plans shall contain general notes and a summary of estimated quantities. All drawings shall be made in ink and a title block shall be included in the lower right hand corner of each sheet except on the title sheet. Spaces shall be provided on the first sheet for the approval signatures of the Mayor ~~and City Engineer, and Zoning Administrator~~. It is permissible for the waterline and sanitary improvement to be included in the street and storm drainage plans.
- (c) The general notes shall include a reference to the specifications required in Chapter 1113.
- (d) Supplemental specifications may be submitted as separate documents on eight and one-half by 11 ~~inch typewriter~~ paper or may be added onto the plans. ~~Other electronic means of submittal may be allowed by the City Engineer.~~
- (e) The first sheet for the plans shall include location map, development title, required signature spaces, standard drawing lists and index when required.
- (f) The routing of construction traffic to the development and within the development shall be included.

Formatted: Strikethrough

Formatted: Strikethrough

(Ord. No. 86-28, 7-1-1986)

#### 1109.12 - SITE AND UTILITY PLANS.

Site and/or Utility Plans may be prepared in lieu of Construction Plans for any development that does not require a plat or for any portion of a development that does not involve installing public improvements.

The plans shall accurately show the horizontal and vertical location of the utility and site improvements in sufficient detail to fully describe the improvements. The plans shall also show existing topography and utilities for the land being developed, as well as enough of the adjacent lots or area to show what effect the proposed improvements will have on the existing utilities and adjacent lots or area. The plans shall include a location map, development title, scale, north arrow, and references to the City development standards and requirements. The scale shall be one inch equals 50 feet or a larger scale. All site improvements for any development shall be shown on Construction Plans, Site Plans or Utility Plans.

(Ord. No. 86-28, 7-1-1986)

#### 1109.13 - GRADING PLANS.

A Grading Plan shall be prepared for all developments covered under this regulation. The Grading Plan may be combined with other plans, if such a combination is neat and the information easily read. The Grading Plan shall show:

- (a) The development title, sheet scale, north arrow and location map, unless it is made a part of a set of plans that contains this information;
- (b) The floor elevations for first floor and all floors below grade of proposed structures;
- (c) The proposed elevations, slopes, and grade of the site improvements; and
- (d) All grading and drainage details and specifications not contained in the Construction Plans, Site Plans, or Utility Plans.

(Ord. No. 86-28, 7-1-1986)

#### 1109.14 - EROSION AND SEDIMENT CONTROL PLAN.

An Erosion and Sediment Control Plan shall be prepared for all developments covered by this regulation which require improvements to more than one acre of land.

For subdivided developments where the erosion and sediment control plan does not call for a centralized sediment control capable of controlling multiple individual lots, a detail drawing of a typical individual lot showing standard individual lot erosion and sediment control practices shall be provided to the City Engineer. This does not remove the responsibility to designate specific erosion and sediment control practices in the erosion and sediment control plan for critical areas such as steep slopes, stream banks, drainage ways and riparian zones.

The Erosion and Sediment Control Plan may be combined with other plans, if such a combination is neat and the information easily read. The Erosion and Sediment Control Plan shall not meet the minimum design requirements identified by Chapter 1111. An Erosion and Sediment Control Plan for a proposed development area, with maps drawn to a scale of one inch equals 20 feet, shall be submitted containing the following information:

- (a) The development title, sheet scale, north arrow, and location map, unless it is made a part of the construction plans or the grading plan;
- (b) Location of the area and its relationship to its general surroundings, including but not limited to:
  - (1) Offsite areas susceptible to sediment deposits or to erosion caused by accelerated runoff; and
  - (2) Offsite areas affecting potential accelerated runoff and erosion control;
- (c) Existing topography of the development area and adjacent land within 200 feet of the boundaries. The topographic mapping should contain an appropriate contour interval to clearly portray the confirmation and drainage pattern of the area;

- (d) The location of existing buildings; structures; utilities; water bodies; drainage facilities, vegetative cover; a general description of the predominant soil types and their location; paved areas (streets, roads, driveways, sidewalks, etc.) and other significant natural or man-made features on the development area and adjacent land within 200 feet of the boundaries;
- (e) Name and location of the immediate receiving stream or surface water(s) and the first subsequent named receiving water(s);
- (f) Surface water locations including springs, wetlands, streams, lakes, water wells, etc., on or within 200 feet of the site; including the boundaries of wetlands or stream channels and first subsequent named receiving water(s) the permittee intends to fill or relocate for which the permittee is seeking approval from the Army Corps of Engineers and/or Ohio EPA, if applicable.
- (g) The areal extent and description of wetlands or other special aquatic sites at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project;
- (h) Proposed use of the development area including present development and ultimate utilization with detail on soil cover, both vegetative and impervious (total impervious area in acres and as a percentage of the whole area). The location of unstable or highly erodible soils shall be shown on the plans;
  - (1) Makeup of proposed surface soil (upper six inches) on areas not covered by buildings, structures, or pavement. Description shall be in such terms as: original surface soil, subsoil, sandy, heavy, clay, stony, etc.
  - (2) Proposed kind of cover on areas not covered by buildings, structures, or pavement. Description shall be in such terms as: lawns, turfgrass, shrubbery, trees, forest cover, rip-rap, mulch, etc.
- (i) Delineate areas for the storage or disposal of solid, sanitary and toxic wastes, including dumpster areas, areas designated for cement truck washout, and vehicle refueling, when applicable;
- (j) Identify locations designated for construction entrances and means for controlling sediment at said locations;
- (k) All proposed earth disturbance including:
  - (1) Areas of excavation, grading, and filling.
  - (2) The finished grades.
  - (3) Proposed kind of cover on areas not covered by buildings, structures, or pavement. Description shall be in such terms as: lawn, turfgrass, shrubbery, trees, forest cover, rip-rap, mulch, etc.
  - (4) Proposed, paved and covered area in square feet or to scale on the Plan.
  - (5) Delineation of drainage watersheds expected during and after major grading activities as well as the size of each drainage watershed, in acres.
  - (6) Description of the quality of any discharge from the site (pre-and post-construction).
  - (7) The location of any in-stream activities, including stream crossings;
- (l) Design computations and applicable assumptions for determining soil loss and the erosion and sediment control facilities. Refer to Chapter 1111 for settling requirements. Volume and velocity of flow must be given for all surface water conveyance. This information shall also be provided for surface water outlets.
- (m) The calculation for determination of the runoff coefficients for both the pre- and post-construction site conditions;
- (n) The locations and procedures for maintaining the erosion and sediment control measures and stormwater management facilities during the construction and maintenance periods, which extends through the lifetime of the facility;

- (o) Proposed construction sequence and time schedule for all earth disturbing activities and installation of provisions for erosion and stormwater management;
- (p) The procedures and specifications for temporary and permanent seeding during construction and prior to acceptance of the development by the City;
- (q) Provisions for maintenance of control facilities including easements to insure short as well as long term erosion and sediment pollution control and storm water management;
- (r) Provisions for the management of stormwater, derived both on-site and from upper watershed areas, including the control of accelerated on-site, runoff, to a stable receiving outlet;
- (s) All temporary and permanent drainage facilities, channels, and grassways that will be used to control erosion and retain sediment, debris and waste material;
- (t) The procedures to be followed to correct any erosion and remove any deposits of sediment, debris and waste materials that develop downstream of the development due in part or in total to the improvements in the development;
- (u) Names and address of the person(s) preparing the plan, the owner, and the person responsible for the development area;
- (v) Certification that all earth disturbance, construction, and development will be done pursuant to the plan;
- (w) Estimate of cost of erosion and sediment control and water management structures and features;
- (x) A copy of the Notice of Intent application to use Ohio EPA Permit Number OHC000003-Authorization for Storm Water Discharges Associated with Construction Activity Under the National Pollutant Discharge Elimination System and/or OHCO00001-Authorization for Storm Water Discharges Associated with Construction Activity Located Within Portions of the Olentangy River Watershed Under the National Pollutant Discharge Elimination System, or subsequent issuances of these permits, shall be provided to the City with the Erosion and Sediment Control Plan.

The approving agency may waive specific requirements for plan detail or may require additional information to show that work will conform to basic requirements of the ordinance;

- (y) All proposed utilities and proposed locations of installation;
- (z) Seeding mixtures and rates, lime and fertilizer application rates, and kind and quantity of mulching for both temporary and permanent vegetative control measures.

(Ord. No. 2011-03, 3-15-2011)

#### 1109.99 - PENALTY.

Whoever violates any provision of this chapter shall be fined not more than \$500.00 per offense. A separate offense shall be deemed committed each day during or on which an offense occurs or continues.

(Ord. No. 86-28, 7-1-1986)



## CHAPTER 1111 - MINIMUM DESIGN STANDARDS<sup>[5]</sup>

Sections:

Footnotes:

--- (5) ---

**State Law reference**— Inspection of streets and acceptance, O.R.C. § 711.09; Minimum lot area, O.R.C. § 711.09

### 1111.01 - PURPOSE.

The purpose of this chapter is to establish the minimum requirements for the layout and design of the site improvements for developing land in the Municipality of Powell.

(Ord. No. 92-21, 6-16-1992)

### 1111.02 - DEFINITIONS.

The definitions of Chapter 1103 shall be used in this chapter unless the context of any section of this Chapter specifically indicates that such definitions are not applicable.

(Ord. No. 92-21, 6-16-1992)

### 1111.03 - GENERAL PROVISIONS.

- (a) Any deviation from these Minimum Design Standards must be approved by the Planning and Zoning Commission and the City Engineer.
- (b) All development plans shall have provisions for the future development of adjoining land, including such utility and street extensions as are necessary to serve the adjoining land.
- (c) Every lot should abut a public street, but shall not border more than one public street except at intersections, when one border is an alley, or when one such border is on a controlled access thoroughfare. At the intersection of two streets, property line corners shall be rounded by an arc of a minimum of a ten-foot radius. Side lines of lots shall be approximately at right angles with or radial to the street line. Lots shall be of adequate size and shape to accommodate the off-street parking requirements and to meet front, side and rear yard requirements of the Zoning Code.
- (d) The maximum length of a block should not exceed 1,200 feet and the minimum width of a block should be sufficient to allow two tiers of lots of appropriate depth.
- (e) Sites as required by the Municipality for parks, playgrounds, schools or other public use shall be reserved for a period of one year after building permits have been issued for 50 percent of the lots in the last phase of the development. If the developer or owner wishes to develop the site or sites which have not been purchased or secured by option within the one-year period, the developer or owner shall notify the Municipality that the one-year period has expired. If the Municipality has not purchased or secured by option the site or sites within 90 days of receipt by the Municipality of such notice, the developer or owner is free to dispose of or use the reserved site or sites.

- (f) Sidewalks shall be a minimum of five feet wide on residential streets. Widths on other streets will be subject to approval of the Planning and Zoning Commission.
- (g) All easements granted to or reserved by the Municipality shall be at least 20 feet wide except that an easement may be less when:
- (1) It is for the purpose of installing and maintaining Municipality-owned underground electrical conduit, or similar utility; or
  - (2) An easement borders another easement or a public right-of-way, part of which can be used for the purpose of the easement.
- Notwithstanding the above, all easements and easement/right-of-way combinations shall be wide enough to insure that the easement limit is five feet away from the utility within the easement.
- (h) All disturbed surface areas not covered by structures or a hard surface improvement shall be covered with stone or shall be seeded or sodded, and sloped to drain. All grass or stone areas shall have a minimum slope or grade of eight-tenths percent; except that the ground next to buildings shall slope away from the building at a five percent grade for a minimum of ten feet.
- (i) All residential lots of one acre or less shall have a length no longer than three times the width at the building line.

(Ord. No. 92-21, 6-16-1992)

#### 1111.04 - STREETS.

Streets shall be designed in accordance with the requirements of this chapter. The pavement details and sections shall be at least equivalent to those set forth in the Powell Standard Drawings in force on the date the construction plans are submitted for approval.

- (a) Roadway pavement and right-of-way standards shall be as follows:

| Type Street               | Pavement width (feet) |                                    | Right-of-Way Width (feet) Without Curb |             |            | Max Grade % | Min Center Line Radius |
|---------------------------|-----------------------|------------------------------------|--|-------------|------------|-------------|------------------------|
|                           | Back To Back of Curbs | Edge To Edge of Pavement (no curb) | With Curbs                             | Ditch Sect. | Yard Sect. |             |                        |
| Primary or Thoroughfare   | 64'                   | 48'                                | 100'                                   | 104'        | 100'       | 5%          | 350'                   |
| Secondary                 | 44'                   | 36'                                | 80'                                    | 88'         | 80'        | 5%          | 250'                   |
| Local (public)            | 29'                   | 24'                                | 60'                                    | 76'         | 68'        | 8%          | 120'                   |
| <u>Downtown connector</u> | <u>27'-28'</u>        | <u>22'-24'</u>                     | <u>50'</u>                             | <u>45'</u>  | <u>*</u>   | <u>8%</u>   | <u>120'</u>            |

**Commented [JM12]:** New Streets per Keep Powell Moving

|   |                |                      |            |                      |                      |           |                      |
|---|----------------|----------------------|------------|----------------------|----------------------|-----------|----------------------|
| <u>Downtown connector w/ parallel parking</u> | <u>27'-28'</u> | <u>*</u><br><u>-</u> | <u>50'</u> | <u>*</u><br><u>-</u> | <u>*</u><br><u>-</u> | <u>8%</u> | <u>120'</u>          |
| <u>Alley w/ 90 degree parking</u>             | <u>varies</u>  | <u>varies</u>        | <u>50'</u> | <u>*</u><br><u>-</u> | <u>*</u><br><u>-</u> | <u>8%</u> | <u>*</u><br><u>-</u> |
| <u>Alley</u>                                  | <u>24'</u>     | <u>16'-20'</u>       | <u>30'</u> | <u>20-25'</u>        | <u>*</u><br><u>-</u> | <u>8%</u> | <u>*</u><br><u>-</u> |

\* Standard shall be established on a case by case basis upon review of the street alignment by the City Engineer.

**Formatted:** Font: (Default) Arial, 10 pt

**Formatted:** Font: (Default) Arial, 10 pt

- (b) The minimum grade for any street at the gutter shall be five-tenths percent.
- (c) Streets shall be laid out so that their intersections with other streets are at least 200 feet apart.
- (d) The angle of the intersections of any two streets shall vary no more than five degrees from being perpendicular or radial.
- (e) The names of new streets shall not duplicate names of existing dedicated streets, except that new streets which are extensions of existing streets shall bear the names of such existing streets. All other new streets shall be designated in the following manner:

| General Direction | Over 1,000<br>ft. in length | Under 1,000<br>ft. in length |
|-------------------|-----------------------------|------------------------------|
| North and South   | Streets                     | Places                       |
| East and West     | Avenues                     | Courts                       |
| Diagonal          | Roads                       | Ways                         |
| Curving           | Drives                      | Circles                      |

- (f) When the developer desires to improve only a portion of the streets in a development, tentative street grades and the sizing of drainage facilities shall be submitted for enough of the surrounding area to show that the proposed grades and sizes are compatible with the information shown on the Development Plan. A street improvement shall be constructed in front of and along the side line of all corner lots in the portion of the development being developed.
- (g) All streets shall have curbs except as stated herein:
  - (1) Streets in residential developments with minimum one-half acre lots that have an average lot frontage width at the building setback line of 125 feet or more may use the yard section.
  - (2) Commercial and industrial developments with minimum lot sizes larger than one acre and minimum lot frontage wider than 200 feet may use the yard section or the ditch section.
- (h) Thoroughfares (primary streets), shall be located as shown on the approved Municipal Thoroughfare Plan. The specific location of thoroughfares in undeveloped areas may be altered, with the approval

of the Planning and Zoning Commission, from the Thoroughfare Plan's general location in order to improve the compatibility of the thoroughfare with the proposed development.

- (i) On-street parking is prohibited for all streets that do not have curbing or curb and gutter.

(Ord. No. 92-21, 6-16-1992)

#### 1111.05 - STORMWATER MANAGEMENT.

It is the intent of these minimum requirements to provide for the increased stormwater runoff from the development of land so as to minimize the impact on existing and natural drainage systems. While the requirements set forth herein will not stop flooding or the damage caused by flooding, they do establish a basis for design which will:

- (a) Minimize the damage and inconvenience of floodings;
- (b) Provide drainage systems which continue to benefit their tributary area over the long term;
- (c) Minimize the adverse effects of new drainage systems on existing systems; and
- (d) Minimize the expense of maintaining the drainage facilities within the Municipality.

(Ord. No. 92-21, 6-16-1992)

#### 1111.051 - DRAINAGE POLICY.

- (a) The drainage policy, control guidelines and criteria do not provide solutions to all drainage problems, nor is the engineer restricted to these designs or procedures exclusively. Although the policies as stated will hold true for most development work, the Municipality realizes that there may be individual projects involving special or unusual drainage design problems that should be reviewed prior to completing the development Master Drainage Plan. Exceptions may be granted to the policies and criteria in such cases when engineering studies show justify modifications.
- (b) Experience has shown that most of the more serious flooding situations are "created." Development can lead to ever increasing flooding problems unless well-conceived, cooperative stormwater drainage and flood control programs are undertaken throughout the entire watershed. For this reason, the general policy of Powell shall be:
  - (1) All information necessary shall be submitted to the Municipality to determine if the stormwater rate of runoff should be controlled within the development prior to its release to downstream properties. The tributary area and the upstream watersheds should be determined using natural land divides unless man-made alterations are approved by the ~~Municipal Engineer~~City Engineer as the basis for watershed delineations.
  - (2) All stormwater drainage facilities within a development shall be designed to have capacity and depth, including sufficient invert elevations to permit future connections, to serve that total tributary area at the design storm frequency, and based on the rate of single family, residential runoff except as noted in subsection (3) below. The system for the upstream tributary area must be extended through the development. Upstream watersheds should be determined using natural divides unless manmade alternatives are approved by the ~~Municipal Engineer~~City Engineer as the basis for watershed delineations.
  - (3) All proposed development with a runoff rate greater than that which the downstream system has capacity for, or will be designed for, will be required to control the rate of stormwater discharge.
  - (4) All developments having existing controls located downstream from the site will be required to control the flow rate of stormwater discharge to that rate which existed prior to development.

- (5) It is the responsibility of the property owner to not change or alter any drainage course, ditch or drainage system on his property that will damage or cause flooding to adjacent, upstream or downstream property owners.

(Ord. No. 92-21, 6-16-1992)

1111.052 - DRAINAGE REQUIREMENTS.

- (a) *Purpose.* These design standards and specifications shall serve as the minimum requirements for the handling of surface water and drainage. These procedures and standards shall govern the development of all new or modified drainage systems. The development of such drainage systems shall include the conveyance of surface water to an adequate outlet which is capable of carrying the flow. The engineer's highest design priority shall be to eliminate the possibility of any major loss of property or any loss of life.
- (b) *Adequate Drainage Outlet.* Surface water runoff from a development shall be drained off site to an adequate drainage outlet. The location of the outlet shall be approved by the ~~Municipal Engineer~~City Engineer and may consist of a ditch, stream, storm sewer, or approved detention basin having sufficient capacity to accommodate the surface water runoff in an engineered manner.
- (c) *Drainage Easement.*
- (1) An adequate easement may be required along any tile, detention basin, drainage way, ditch, watercourse, natural stream, man-made stream, storm sewer or any other watercourse deemed necessary by either the City Engineer, or the Public Service Director (hereinafter "Public Service Director" or "Director") which is not already within the street right-of-way. The easement shall be of sufficient width to allow cleaning, widening, deepening, replacing or other general maintenance of such drainage course.
- (2) When it is necessary to convey stormwater outside the property lines of a proposed improved area in order to discharge into an adequate outlet, the Developer (i) shall be responsible to obtain easements and/or maintenance agreements, in a form and substance satisfactory to the Public Service Director, from abutting property owners, and (ii) shall remain responsible for maintenance of such drainage course unless the easements and/or maintenance agreements require the abutting property owners to repair and maintain the drainage course satisfactorily.
- (3) Any required drainage easements shall be shown on the final plat and the "final engineering and construction plan." Such drainage easements shall be recorded for public use relating to stormwater conveyance. With the exception of City maintained publicly accepted storm sewers and appurtenances, maintenance of such drainage easements shall be undertaken in the manner set forth in subsection (c)(4) below.
- (4) In addition to any applicable provisions of Sections 906.02 and 906.03, the Public Service Director is hereby authorized to inspect such drainage easement drainage courses and if the Director determines that maintenance is needed, the Director shall notify the property owner on which the maintenance is required and/or any other parties who, in the sole determination of the Director, directly benefit from such easement, that such maintenance is required as follows:
- A. The Director shall cause written notice to be served on the property owner and/or any other parties benefiting from the easement notifying such parties that maintenance of the drainage course is necessary and that a contract with a contractor acceptable to the Director for such repair and maintenance should be delivered to the Director within 14 days of the notice. The notice shall be served upon the property owner and/or benefited parties at the tax billing address for such premises reflected upon the records of the Delaware County Auditor. Service shall be accomplished by any means permitted for service of Summons under the Ohio Rules of Civil Procedure. Each property affected by such notice shall also be posted with such notice by the Director.

**Commented [JM13]:** Provided the City Engineer power to require drainage easements.

- B. In those instances where the address of the owner is unknown, it shall be sufficient to publish a notice once a week in a newspaper of general circulation in Delaware County, Ohio setting forth the substance of the notice and time frame for compliance. The time frame for compliance shall be no less than 14 days after the publication.
- C. If the property owner and/or benefiting parties fail to comply with the notice, the City shall cause such repairs, replacement, maintenance and abatement procedures to be implemented as determined appropriate by the Director. The cost of such repair, replacement, abatement and other procedures deemed appropriate by the Director shall be immediately due and payable to the City in the amounts and in the proportions determined by the Director. Additionally, the Director may assess an administrative fee as the Director deems appropriate against each property owner or benefiting party in an amount not to exceed \$500.00 per property owner and/or benefited party for each instance where a notice is served under this section. The cost and administrative fee shall be due and payable within 30 days after the same are assessed.
- D. If any fees or costs remain unpaid for a period in excess of 30 days, in addition to any other remedy available to the City, the City may authorize placement of a lien on the real estate to be certified to the Delaware County Auditor in the amount assessed together with interest thereon from the date of such certification at the then existing rate for payment of judgments in the State of Ohio. Such interest shall continue on an annualized basis until paid.
- E. Any owner or benefiting party aggrieved by an action(s) of the Director under this section may take an appeal to the Board of Zoning Appeals within 30 days of the date service of notice of such action upon the property owner and/or benefiting party.

(Ord. No. 2011-03, 3-15-2011)

#### 1111.053 - GENERAL DESIGN CRITERIA.

- (a) *Acceptable Methods of Calculation.* The methods of calculation as listed in Table A shall be used unless otherwise approved by the ~~City Municipal Engineer~~ City Engineer.
- (b) *Design Storm.*
  - (1) Refer to NOAA's Atlas 14 Point Precipitation Frequency Estimates ~~Table B~~ for rainfall depths and runoff depths for City of Powell ~~Delaware County~~. The appropriate "CN" factor may be determined by using Technical Release No. 55 (S.C.S.) or its Ohio Supplement.
  - (2) The Major Storm must be based on a return period of not less than 100 years. A return period of 200 years may be required ~~if conditions warrant as directed by the City Engineer.~~
- (c) *Drainage Area Determination.* The drainage area shall be determined from any of the following sources:
  - (1) U.S. Geological Survey quadrangle (7.5 minute series) contour maps,
  - (2) Municipality of Powell—Topographic contour maps;
  - (3) Delaware County Auditor GIS Topographic Information, and/or
  - ~~(3) Soil Survey of Delaware County, Ohio, U.S.D.A.; or~~
  - (4) Actual field investigation.
- (d) *Routing Path.*
  - (1) *Capacity.* The routing path or the major drainage system is that part of the storm drainage system which carries the runoff which exceeds the capacity of the designed drainage facilities. The major drainage system shall have the capacity to carry runoff from a storm with a return period of not less than 100 years without causing significant threat to property or public safety. A return period of 200 years may be required if conditions warrant.

Formatted: Strikethrough

Formatted: Strikethrough

Formatted: Strikethrough

Formatted: Strikethrough

Formatted: Strikethrough

Formatted: Strikethrough

- (2) *Surface routing paths.* Generally, it is not economically feasible to size a storm sewer system to collect and convey more than the frequent storm runoff. Essentially, the complete drainage system of an urban area contains two separate drainage elements. While the storm sewers are the primary element, the storm drainageways must be provided for the emergency flow from more intense storms.
- (3) *Intent in providing routing paths.* The intent of planning for the major drainage element or emergency flow is to insure that stormwater runoff in excess of the capacity of the primary drainage system has a route to follow which will not cause a major loss of property or any loss of life. It should be remembered that the major drainage system exists even when it is not planned for and whether or not development exists.
- (4) *Street right-of-way paths.* Street rights-of-way are a common choice for conveying major drainage flows. Again, such use must be anticipated when the street layout is established. Side and rear lot lines offer one alternative to the street. The problem with this alternative is the possibility of individual property owners encroaching on the major drainage easement. Rarely is the problem recognized until the infrequent rainstorm occurs and the major system fails to operate properly. Where the street is designated as the major drainageway, the depth of flow shall not exceed 12 inches at the gutter line for local and collector streets and shall not exceed the crown for arterial streets. The same maximum depth criteria will apply where a major drainageway crosses the street. Where a major drainageway is located outside a street right-of-way, easements shall be provided. All major storm routing easements shall be shown on the grading and/or drainage plan. Also, include elevation control points at the terminals of elements of the routing paths. These are to be proof surveyed for "as built" conformance.
- (5) *Multi-purpose routing paths.* In order to protect the integrity of the non-street drainage rights-of-way, the engineer is encouraged to design routing paths for multi-purpose functions. Pedestrian and bicycle paths lend themselves naturally to this application. Linear parks aligned along the major drainage corridor are also very effective, but usually require greater width than would normally be necessary for drainage purposes.
- (6) *Major storm runoff.* The major storm runoff is routed through the drainage system to determine if the combined capacity of the routing path and storm sewer system is sufficient. The capacity of the storm sewer system at any given point is assumed to be the same for the major storm as for the five year storm frequency. That is, storm sewer system will be considered as conveying the flow (Q) of a five year storm, with the remainder of the 100-year flow rate safely conveyed in the emergency storm route known as the "Routing Path." Submit calculations showing conveyance of the Routing Path with details of critical segments such as near building structures.

(Ord. No.92-21, 6-16-1992)

#### 1111.054 - SPECIFIC DESIGN SPECIFICATIONS.

##### (a) *Roadway Culverts.*

- (1) *General specifications.* The size and shape of the culvert should be such that it will carry a predetermined design peak discharge without the depth of water at the entrance or the velocity at the outlet exceeding allowable limits.
- (2) *Design procedure.* The culvert design procedure recommended for use is ~~Hydraulic Engineering Circular No. 5, U.S. Government Printing Office, as required in The Ohio Department of Transportation Location and Design Manual (current edition).~~
- (3) *Preferred construction.* Single span culverts, including concrete box and slab top are preferred. Multiple cell pipe culverts, when they are the only structures that will meet the physical requirements introduced by rigid headwater controls, will be acceptable.

Formatted: Strikethrough

- (4) *Drainage area.* The drainage area in acres, [and headwater elevation](#) and the estimated runoff or design discharge in cubic feet per second, and the storm frequency in years shall be shown on the plan for each culvert.
- (5) *Inlet elevation.* The flowline elevation at the culvert inlet should be set deep enough to provide an adequate outlet for future storm sewer improvements upstream.
- (6) *Design storm frequency (roadway culverts).* The minimum frequency used shall be [as guided by the Ohio Department of Transportation Location and Design Manual, or as directed by the City Engineer on a case by case basis](#). ~~25-year storm frequency.~~
- (7) *Design flow.* For method of calculation, refer to Table A.
- (8) *Maximum allowable headwater.* The maximum allowable headwater shall not exceed or cause any of the following:
- A. Eighteen inches below the top of curb;
  - B. Twelve inches below the edge of pavement;
  - C. One-half times the diameter of culvert; or
  - D. Diameter or rise plus two feet, in deep ravines.
- (9) *Manning's roughness coefficient (n).* (See Table B) ~~Manning's Roughness Coefficient (n) shall be as given in Table B unless an alternate value is approved by the City Engineer.~~
- (10) *Entrance loss coefficient (Ke).* (See Table B) ~~The Entrance Loss Coefficient (Ke) shall be as given in Table B based upon the headwall configuration unless an alternative value is approved by the City Engineer.~~
- (11) *Minimum cover to subgrade.* ~~Nine inches from top of pipe to bottom of subgrade shall be minimum cover.~~
- (12) *Maximum allowable outlet velocity.*

|                                 |   |
|---------------------------------|---|
| <a href="#">Earthen Channel</a> | <a href="#">2.5 f.p.s.</a>              |
| <a href="#">Turf Channel</a>    | <a href="#">5 f.p.s.</a>                |
| <a href="#">Rock Protection</a> | <a href="#">Per ODOT L&amp;D Manual</a> |

Formatted: Strikethrough

Commented [JM14]: Added earthen channel criteria, updated standard for rock protection.

Notes:

- A. When the outlet velocity exceeds 18 f.p.s., a stilling basin must be used.
  - B. The downstream channel must have the ability to handle the flow satisfactorily.
- (13) Structural design criteria. The structural design criteria for culverts will be the same as that required by the Ohio Department of Transportation (ODOT).
- (14) Emergency flow routing. Also show how emergency flow passes the structure. Additional scour protection may be needed for this.
- (b) *Storm Sewers.* The more important criteria to consider in designing storm sewer systems are listed below.
- (1) The sewer must be deep enough to receive the flow from all of its sources within the watershed.



- (2) The size of the storm sewer must be adequate for flowing full based on the design storm. If the sewer is designed for surcharging, explain and justify.
- (3) All storm sewer systems are to be designed using the Manning's equation:

|   |   |                                  |
|---|---|----------------------------------|
| V | = | $\frac{1.49 r^{2/3} s^{1/2}}{n}$ |
|   |   | n                                |

$$Q = AV$$

where: Q = Rate of discharge (c.f.s.)

A = Area of cross-section of flow (sq.ft.)

V = Mean velocity of flow (f.p.s.)

n = Manning's roughness coefficient

r = A/wp = Hydraulic radius (ft.)

s = Slope of channel or hydraulic grade line if surcharged (ft./ft.) wp = Wetted perimeter (ft.)

- (4) The storm sewer material shall be concrete or approved plastics.
- (5) The flowline of the storm sewer pipes should be set so that the crown of the pipes, at the junctions, are at the same elevation. However, the crown of the outlet pipe may be lower.
- (6) Minimum design storm frequency for public storm sewers shall be designed to a five year storm flowing full capacity. Minimum design storm frequency for private storm sewers shall be a two year flowing full capacity.
- (7) Hydraulic gradient for public storm sewers shall be based on a ten year storm and a five year storm for private storm sewers. The hydraulic gradient shall not exceed the window or grate elevation for an inlet or catch basin. Grade line shall be based on the tailwater or eight-tenths of the diameter at the outlet or other critical points within the system.
- (8) Design flow.

For method of calculation, refer to Table A.

Minimum time of concentration:

|            |            |
|------------|------------|
| Curb Inlet | 10 minutes |
| Ditch C.B. | 15 minutes |

- (9) Minimum diameter of storm sewer pipe: 10 inches.
- (10) Manning's roughness coefficient (n).
- For all storm sewers: n = 0.012
- (11) Minimum cover to subgrade:

Commented [CH15]:

Commented [CH16]:

|   |           |
|---|-----------|
| Reinforced or<br>Extra Strength Pipe<br>(Top of pipe to Bottom of Subgrade) | 9 inches  |
| Standard Strength Pipe<br>(Beyond pavement and<br>paved shoulders)          | 18 inches |

(12) Maximum cover. The support strength of the conduit, as installed, must be in accordance with current ODOT specifications. The design procedure recommended for use in structural design of storm sewers is found in Concrete Pipe Design Manual, prepared by American Concrete Pipe Association, 1501 Wilson Boulevard, Arlington, Virginia 22209.

(13) Maximum length between access structures.

|                          |          |
|--------------------------|----------|
| Pipes under 60 inches    | 300 Feet |
| Pipes 60 inches and over | 500 Feet |

(14) Minimum velocity for design flow. 3 f.p.s.

- (c) *Open Water Courses.* ~~All open channels (natural or man-made) will be enclosed with a storm sewer when an area is developed. This policy will apply even when the open watercourse is located on a property line.~~

~~Exemptions may be for individual developments which, based on a five year design storm, would require a pipe 60 inches in diameter or larger. Exemptions may also be made for areas of heavily wooded ravines with large diameter trees and with depth sufficient to receive the flow from storm sewers without disturbing the natural state. Exemptions may also be made for environmental reasons when there are areas with existing natural scenic drainage courses with depth and grade sufficient to receive flow from storm sewers. If exemptions are made on any project,~~

**Commented [JM17]:** Stricken. This policy conflicts with numerous Federal, State, and Local regulations and policies.

Where open water courses are utilized for conveyance of runoff computations will be made and adequate protection be installed to prevent erosion at times of peak flow. The computations shall also insure good flow characteristics at time of low flow. Access to storm drainage ditches and channels shall be by means of maintenance easements. Such maintenance easements shall be not less than 25 feet in width, measured horizontally from the top of the bank, exclusive of the width of the ditch, or channel, and a maintenance easement of this type shall be provided on each side of a flood control or storm drainage ditch channel or similar type facility. Maintenance easements are to be kept free of obstructions. A request for an exemption must be in writing at the time of submission of "preliminary engineering plan". Additionally, per chapter 1147.16(g) of Powell city code streams and riparian corridors may be further protected by a Stream Corridor Protection Zone.

**Commented [JM18]:** See above

**Formatted:** Indent: First line: 0"

(1) *Minimum design storm frequency (open watercourses).*

Ten year storm 0.8 full depth when man-made watercourse  
bank full depth when natural watercourse

- (2) *Design flow.* For method of calculation, refer to Table A.
- (3) *Allowable velocities in new ditches.* For allowable velocities, refer to "Erosion and Sediment Control" requirements of these Standards.
- (4) *Allowable velocities in existing channels.* The channel must have the ability to handle the flow satisfactorily.
- (5) *Manning's roughness coefficient (n) (open watercourses).*

|                                       |        |
|---------------------------------------|--------|
| Sod or jute mat lining:               | 0.05   |
| Paved lining:                         | 0.015  |
| Rock protection:                      | 0.08   |
| Existing channel:                     | varies |
| Downstream from the Development Area: | 0.25   |

Commented [JM19]: Existing channel "n" will vary.

- (6) *Minimum slope.*  
For New Channels:

|             |   |
|-------------|---|
| (Desirable) | 0.40%                                     |
| (Absolute)  | 0.24% with a minimum velocity of 2 f.p.s. |

- (7) *Side slopes (desirable):* 1:4—One foot vertical for each four feet of horizontal width.

(d) *Curb Inlet.*

- (1) *General.* The satisfactory removal of surface water from curbed pavement is as important as any other phase of stormwater control. The spread of water on the pavement for the design storm is considered as the best control for pavement drainage. The design procedure recommended for use is Hydraulic Engineering Circular No. 12, available from the Superintendent of Documents, U.S. Government Printing Office. On combined runs of over 600 feet contributing to a snag curve, an additional inlet may be required near the low point, plus or minus two-tenths foot above the inlet at the sag.
- (2) Design storm (curb inlets). The following shall be used:
- Two year storm frequency.
  - Rational method of calculation.
  - Ten minutes for minimum time of concentration.

- D. 0.015 for roughness coefficient.
- E. Maximum width of spread of flow:

| <u>Street Width</u> | <u>Width of Spread</u> |
|---------------------|------------------------|
| < 26 ft.            | 8 ft.                  |
| > 26 ft.            | 9 ft.                  |

(e) *Detention Facilities.*

- (1) *General.* The location, construction, ownership and maintenance of the detention or retention facility, whether public or private, shall be resolved prior to recording the final subdivision plat and the acceptance of the "final engineering and construction plan." No lot sales will be permitted until this is done.
- (2) *Types of facilities.* In development and developing urban and suburban areas, several means for controlling stormwater runoff could be used. This usually involves storing runoff on or below the ground surface. The following types of storage facilities are suggested for detention:
  - A. *Parking lot storage.* Parking lot storage is surface storage where shallow ponding is designing to flood specifically graded areas of the parking lot. Controlled release features are incorporated into the surface drainage system of the parking lot. Parking lot storage is a convenient multi-use structural control method where impervious parking lots are planned. Design features include small ponding areas with slotted controlled release structures and/or pipe-size reduction, and increased curb heights. This method can easily be incorporated into a site development at approximately the same cost as that of a conventional parking lot. The major disadvantage is the inconvenience to users during the ponding function. This inconvenience can be minimized with proper design consideration. Clogging of the flow control device and icy conditions during cold weather are maintenance problems. Parking lot design and construction grades are critical factors. For these reasons, the functional effectiveness of parking lot storage is questionable. This method is intended to control the runoff directly from the parking area, and is usually not appropriate for storing large runoff volumes.
  - B. *Dry basins or detention basins.* Dry basins are surface storage areas created by constructing a typical excavated or embankment basin. There is no normal pool level and a specific controlled release feature is included to control the rate of discharge. The detention flow control structure is usually a multi-stage device, and the retention flow control structure is usually a single-stage device. Dry basins are the most widely used structural method of stormwater management. The soil permeability and water storage potential are not as important with dry basins as with wet basins; therefore, dry basins have the greatest potential for broad applications. They can be utilized in small developments because they can be designed and constructed as small structures.  
  
Dry basins are often less costly than wet ponds because they do not require extensive design and construction considerations. They can be designed for multi-use purposes such as recreation and parks.
  - C. *Wet ponds or basins.* Wet basins.

(3) *Design criteria.*

A. *Acceptable methods of calculation.*

1. See Table A.
2. Ohio EPA Permit Number OHC000003-Authorization for Storm Water Discharges Associated with Construction Activity Under the National Pollutant Discharge Elimination System - Part III.G.2.e. or any pertinent section of subsequent issuances of this permit and/or OHCO00001-Authorization for Storm Water Discharges Associated with Construction Activity Located Within Portions of the Olentangy River Watershed Under the National Pollutant Discharge Elimination System- Part III.G.2.g, or any pertinent section of subsequent issuances of this permit.
3. Whichever acceptable method results in a larger detention volume shall prevail.

B. *Release rates.*

1. Under post development conditions the peak rate of runoff from a 100 year frequency, 24 [hour] storm shall not be greater than the peak runoff rate from a one-year frequency, 24-hour storm.
2. Release rates as defined for post construction stormwater management Ohio EPA Permit Number OHC000003-Authorization for Storm Water Discharges Associated with Construction Activity Under the National Pollutant Discharge Elimination System- Part III.G.2.e, or any pertinent section of subsequent issuances of this permit and/or OHCO00001-Authorization for Storm Water Discharges Associated with Construction Activity Located Within Portions of the Olentangy River Watershed Under the National Pollutant Discharge Elimination System- Part III.G.2.g, or any pertinent section of subsequent issuances of this permit.

C. *Specifications.*

1. The surface of a detention area should be constructed with sufficient slopes (minimum of: 2% - grassed surfaces, 1% - paved surfaces, and 0.5% - paved channels) to drain properly so that all the runoff is removed following a storm.
2. A ditch(es) shall be paved and constructed from the pipe(s) outletting into the basin, to the outlet structure.
3. Seeding and other erosion control methods will be used to protect all slopes: sod, jute matting, rock protection or concrete.
4. The side slopes for a detention facility shall be no steeper than 4:1 (horizontal or vertical).

D. *Debris-control structures.* Debris-control structures may be required in some of the detention methods and should be considered as an essential part of the design. The procedure recommended for use is Hydraulic Engineering Circular No. 9, available from the Superintendent of Documents, U.S. Government Printing Office, Washington D.C. For dams and levies over ten feet in height, refer to O.R.C. § 1521.062.

E. *Proof surveys.* Proof Surveys when required shall be performed by the Developer, Contractor, or other entity constructing the stormwater drainage facilities, or order to demonstrate conclusively that the facilities are constructed to the elevations, slopes, grades, and sizes shown on the reviewed plans on file with the Municipality. Such surveys shall be conducted by a registered Professional Surveyor, shall employ standard survey techniques, and shall produce original field notes which shall be furnished to the City for review and record purposes. Reduction of notes, and any plotting necessary to make the notes interpretable, shall be by the surveyor performing separate from, other construction surveys which may be conducted by the City or its agents. All discrepancies revealed in the as-construction facilities by the proof survey shall be rectified by the Developer, Contractor, or other entity constructing the stormwater drainage facilities, and the proof survey re-performed, in order to demonstrate conformance.

F. *Access and maintenance easements.* Specific, dedicated easement rights shall be required, in order to provide for the necessary maintenance of all stormwater facilities. Generally, a maintenance easement of 20 foot minimum width, in addition to the size of the stormwater facility when flooded, is required. A specifically located, 20 foot minimum width access easement shall also be required, from the easement at, alongside, or around the stormwater facility, to the nearest public right-of-way. Maintenance responsibilities will be determined and so stated in the easement. The 20 minimum outside the flooded facility must be on a slope of 10:1 maximum.

(f) *Post Construction Best Management Practices.*

- (1) *General.* Developments disturbing land in excess of 1 acre are required to follow Ohio EPA Permit Number OHC000003-Authorization for Storm Water Discharges Associated with Construction Activity Under the National Pollutant Discharge Elimination System- Part III.G.2.e, or any pertinent section of subsequent issuances of this permit and/or OHCO00001-Authorization for Storm Water Discharges Associated with Construction Activity Located Within Portions of the Olentangy River Watershed Under the National Pollutant Discharge Elimination System- Part III.G.2.g, or any pertinent section of subsequent issuances of this permit for best management practices in providing for post construction run off.
- (2) *Acceptable post construction best management practices.* Although the Ohio EPA Permit Numbers OHC000003 and OHCO00001 provides several best management practices that are acceptable to the State, the City Engineer shall determine whether certain of these practices are acceptable in relation to the site and type of development proposed.

(Ord. No. 2011-03, 3-15-2011)

**TABLE A**  
**ACCEPTABLE METHODS OF CALCULATION**

| DRAINAGE<br>AREA (ACRES) | STORMWATER QUANTITY           |   |                               |                           |                           |
|--------------------------|-------------------------------|---|-------------------------------|---------------------------|---------------------------|
|                          | PEAK<br>DISCHARGE ONLY        | PEAK DISCHARGE and<br>TOTAL RUNOFF VOLUME |                               | STORAGE VOLUME            |                           |
|                          |                               | HOMOGEN.<br>LAND USE                      | NON-<br>HOMOGEN.              | HOMOGEN.                  | NON-<br>HOMOGEN.          |
| LESS THAN 200            | RATIONAL OR<br>PEAK DISCHARGE | PEAK<br>DISCHARGE                         | (*)<br>TABULAR<br>HYDRO-GRAPH | GRAPHICAL                 | (*) STORAGE<br>INDICATION |
| 200 TO 640               | PEAK DISCHARGE                |   |                               |                           |                           |
| GREATER THAN<br>640      | (*)<br>TABULAR HYDROGRAPH     |   |                               | (*)<br>STORAGE INDICATION |                           |

\* Note: The "Tabular Hydrograph" and "Storage-indication" methods are preferred and are normally used to check drainage calculations submitted to the ~~Municipal Engineer~~ City Engineer.

Method References:

Rational: (Q=CIA), M.O.R.P.C., Stormwater Design Manual, 1977

Graphical: Ibid. , Pg. 143

Storage-Indication: Ibid. , Pg. 143

Peak Discharge: U.S. Department of Agriculture, Soil Conservation Service, Urban Hydrology for Small Watersheds, Technical Release No. 55 , 1986

Tabular Hydrography: Ibid. , Chap. 5

**Commented [JM20]:** MORPC no longer recommends the use of their Stormwater Design Manual

**TABLE B**  
**RUNOFF DEPTH ("Q") FOR DELAWARE COUNTY**  
(Use with S.C.S. Technical Release No. 55 Methods)

| RUNOFF CURVE NUMBER (CN)* | 24 HOUR STORM FREQUENCY (Years) |             |             |             |             |             |             |
|---------------------------|---------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                           | <u>1</u>                        | <u>2</u>    | <u>5</u>    | <u>10</u>   | <u>25</u>   | <u>50</u>   | <u>100</u>  |
|                           | RAINFALL DEPTH "P" (Inches)     |             |             |             |             |             |             |
|                           | <u>2.3</u>                      | <u>2.5</u>  | <u>3.3</u>  | <u>3.7</u>  | <u>4.2</u>  | <u>4.7</u>  | <u>4.9</u>  |
| <u>61</u>                 | <u>0.14</u>                     | <u>0.20</u> | <u>0.49</u> | <u>0.67</u> | <u>0.92</u> | <u>1.19</u> | <u>1.31</u> |
| <u>62</u>                 | <u>0.16</u>                     | <u>0.22</u> | <u>0.52</u> | <u>0.71</u> | <u>0.97</u> | <u>1.26</u> | <u>1.38</u> |
| <u>63</u>                 | <u>0.18</u>                     | <u>0.24</u> | <u>0.56</u> | <u>0.76</u> | <u>1.03</u> | <u>1.32</u> | <u>1.45</u> |
| <u>64</u>                 | <u>0.20</u>                     | <u>0.27</u> | <u>0.61</u> | <u>0.81</u> | <u>1.09</u> | <u>1.39</u> | <u>1.52</u> |
| <u>65</u>                 | <u>0.23</u>                     | <u>0.30</u> | <u>0.65</u> | <u>0.86</u> | <u>1.15</u> | <u>1.46</u> | <u>1.59</u> |
| <u>66</u>                 | <u>0.25</u>                     | <u>0.33</u> | <u>0.69</u> | <u>0.91</u> | <u>1.21</u> | <u>1.53</u> | <u>1.66</u> |
| <u>67</u>                 | <u>0.28</u>                     | <u>0.36</u> | <u>0.74</u> | <u>0.96</u> | <u>1.27</u> | <u>1.60</u> | <u>1.73</u> |
| <u>68</u>                 | <u>0.30</u>                     | <u>0.39</u> | <u>0.79</u> | <u>1.02</u> | <u>1.33</u> | <u>1.67</u> | <u>1.81</u> |
| <u>69</u>                 | <u>0.33</u>                     | <u>0.42</u> | <u>0.84</u> | <u>1.08</u> | <u>1.40</u> | <u>1.74</u> | <u>1.89</u> |
| <u>70</u>                 | <u>0.36</u>                     | <u>0.46</u> | <u>0.89</u> | <u>1.13</u> | <u>1.46</u> | <u>1.82</u> | <u>1.96</u> |
| <u>71</u>                 | <u>0.40</u>                     | <u>0.49</u> | <u>0.94</u> | <u>1.19</u> | <u>1.53</u> | <u>1.89</u> | <u>2.04</u> |
| <u>72</u>                 | <u>0.43</u>                     | <u>0.53</u> | <u>0.99</u> | <u>1.25</u> | <u>1.60</u> | <u>1.97</u> | <u>2.12</u> |
| <u>73</u>                 | <u>0.43</u>                     | <u>0.57</u> | <u>1.05</u> | <u>1.32</u> | <u>1.67</u> | <u>2.05</u> | <u>2.20</u> |
| <u>74</u>                 | <u>0.50</u>                     | <u>0.61</u> | <u>1.10</u> | <u>1.38</u> | <u>1.74</u> | <u>2.13</u> | <u>2.28</u> |
| <u>75</u>                 | <u>0.54</u>                     | <u>0.65</u> | <u>1.16</u> | <u>1.45</u> | <u>1.82</u> | <u>2.21</u> | <u>2.37</u> |

|           |             |             |             |             |             |             |             |
|-----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <u>76</u> | <u>0.58</u> | <u>0.69</u> | <u>1.22</u> | <u>1.51</u> | <u>1.89</u> | <u>2.29</u> | <u>2.45</u> |
| <u>77</u> | <u>0.62</u> | <u>0.74</u> | <u>1.28</u> | <u>1.58</u> | <u>1.97</u> | <u>2.37</u> | <u>2.54</u> |
| <u>78</u> | <u>0.66</u> | <u>0.79</u> | <u>1.35</u> | <u>1.65</u> | <u>2.05</u> | <u>2.46</u> | <u>2.63</u> |
| <u>79</u> | <u>0.71</u> | <u>0.84</u> | <u>1.41</u> | <u>1.72</u> | <u>2.13</u> | <u>2.55</u> | <u>2.72</u> |
| <u>80</u> | <u>0.75</u> | <u>0.89</u> | <u>1.48</u> | <u>1.80</u> | <u>2.21</u> | <u>2.63</u> | <u>2.81</u> |
| <u>81</u> | <u>0.80</u> | <u>0.94</u> | <u>1.55</u> | <u>1.87</u> | <u>2.29</u> | <u>2.72</u> | <u>2.90</u> |
| <u>82</u> | <u>0.85</u> | <u>1.00</u> | <u>1.62</u> | <u>1.95</u> | <u>2.37</u> | <u>2.81</u> | <u>2.99</u> |
| <u>83</u> | <u>0.91</u> | <u>1.06</u> | <u>1.69</u> | <u>2.03</u> | <u>2.46</u> | <u>2.90</u> | <u>3.08</u> |
| <u>84</u> | <u>0.96</u> | <u>1.12</u> | <u>1.77</u> | <u>2.11</u> | <u>2.55</u> | <u>3.00</u> | <u>3.18</u> |
| <u>85</u> | <u>1.02</u> | <u>1.18</u> | <u>1.84</u> | <u>2.19</u> | <u>2.64</u> | <u>3.09</u> | <u>3.28</u> |
| <u>86</u> | <u>1.08</u> | <u>1.24</u> | <u>1.92</u> | <u>2.28</u> | <u>2.73</u> | <u>3.19</u> | <u>3.37</u> |
| <u>87</u> | <u>1.15</u> | <u>1.31</u> | <u>2.00</u> | <u>2.36</u> | <u>2.82</u> | <u>3.29</u> | <u>3.47</u> |
| <u>88</u> | <u>1.21</u> | <u>1.38</u> | <u>2.09</u> | <u>2.45</u> | <u>2.92</u> | <u>3.38</u> | <u>3.57</u> |
| <u>89</u> | <u>1.28</u> | <u>1.45</u> | <u>2.17</u> | <u>2.54</u> | <u>3.01</u> | <u>3.49</u> | <u>3.68</u> |
| <u>90</u> | <u>1.35</u> | <u>1.53</u> | <u>2.26</u> | <u>2.64</u> | <u>3.11</u> | <u>3.59</u> | <u>3.78</u> |
| <u>91</u> | <u>1.43</u> | <u>1.61</u> | <u>2.35</u> | <u>2.75</u> | <u>3.21</u> | <u>3.69</u> | <u>3.89</u> |
| <u>92</u> | <u>1.51</u> | <u>1.69</u> | <u>2.45</u> | <u>2.83</u> | <u>3.31</u> | <u>3.80</u> | <u>3.99</u> |
| <u>93</u> | <u>1.59</u> | <u>1.78</u> | <u>2.54</u> | <u>2.93</u> | <u>3.41</u> | <u>3.90</u> | <u>4.10</u> |
| <u>94</u> | <u>1.68</u> | <u>1.87</u> | <u>2.64</u> | <u>3.03</u> | <u>3.52</u> | <u>4.01</u> | <u>4.21</u> |
| <u>95</u> | <u>1.77</u> | <u>1.96</u> | <u>2.74</u> | <u>3.14</u> | <u>3.63</u> | <u>4.12</u> | <u>4.32</u> |
| <u>96</u> | <u>1.87</u> | <u>2.06</u> | <u>2.85</u> | <u>3.24</u> | <u>3.74</u> | <u>4.23</u> | <u>4.43</u> |
| <u>97</u> | <u>1.97</u> | <u>2.16</u> | <u>2.96</u> | <u>3.35</u> | <u>3.85</u> | <u>4.35</u> | <u>4.55</u> |
| <u>98</u> | <u>2.07</u> | <u>2.27</u> | <u>3.07</u> | <u>3.47</u> | <u>3.96</u> | <u>4.46</u> | <u>4.66</u> |

For intermediate CN values use equation below or linear interpolate

$$Q = \frac{[P - 0.2(1000/CN - 10)]^2}{[P + 0.8(1000/CN - 10)]}$$

\* The runoff curve number [CN] is found in Technical Release No. 55 or its Ohio Supplement. This factor is not the same as the "runoff coefficient" which is used with the Rational Method.

**TABLE B**  
**DESIGN COEFFICIENTS FOR ROADWAY CULVERTS**

| TYPE STRUCTURE | MANNING'S ROUGHNESS COEFFICIENT (N) | ENTRANCE LOSS COEFFICIENT (K <sub>e</sub> )* |
|----------------|-------------------------------------|--|
|----------------|-------------------------------------|--|

Commented [JM21]: Strike this Section. Values out of Date.

Commented [JM22]: Updated reference to Table B.



|                         |                     |                   |
|-------------------------|---------------------|-------------------|
| <u>CONCRETE PIPE</u>    | <u>0.013</u>        | <u>0.2</u>        |
| <u>BOX</u>              | <u>0.013</u>        | <u>0.2 TO 0.5</u> |
| <u>SLAB TOP</u>         | <u>0.03 TO 0.05</u> | <u>0.2 TO 0.5</u> |
| <u>CORRUGATED METAL</u> | <u>0.021</u>        | <u>0.2 TO 0.9</u> |

-

\* As a function of the headwall configuration

#### 1111.06 - SEEDING AND MULCHING.

All ditches, right-of-way areas, disturbed during construction are to be seeded and mulched. The specifications in Table C on the following page, developed in cooperation with the Soil Conservation Service, outline the minimum requirements that shall be followed for both the rate of application and the time table for seeding.

- Anchor mulch with liquid asphalt (RC 70, 250, 800), apply at four hundredths gallon per square yard or 200 gallons per acre.
- Emulsified asphalt—Rapid setting (RS 1 or RS 2), apply at three hundredths gallon per square yard or 160 gallons per acre.
- Mulch nettings—Jute, cotton or plastic nettings stapled to soil surface according to manufacturer's recommendations.
- Seeding shall be made within two days after final grading or following seedbed preparation with a disk or other suitable equipment. On sloping land, the final operation shall be done on the contour.
- Mulch shall be applied immediately after seeding and spread evenly over the entire seeding area.
- Seed shall be applied uniformly with a cyclone seeder, drill, cultipacker seeder or hydro-seeder.

(Ord. No. 92-21, 6-16-1992)

**TABLE ~~DC~~**  
**SPECIFICATIONS FOR SEEDING AND MULCHING**

| SEED TYPE (8)        | SEEDING DATES | PER 1000 SQ. FT. | PER ACRE  |
|----------------------|---------------|------------------|-----------|
| TALL FESCUE          | March 1       | 2 Pounds         | 80 Pounds |
| TALL Annual Ryegrass |               | ½ Pounds         | 20 Pounds |

|                         |                               |   |  |
|-------------------------|-------------------------------|---|--|
| Small grain straw mulch | to<br><br>September 15        | 100 Pounds<br>2 to 3 Bales                    | 2 Tons or<br>50 Bales                        |
| Fertilizer              |                               | 25 Pounds of<br>12-12-12 or the<br>equivalent | 1000 Pounds of<br>12-12-12 or the equivalent |
| Temporary Seeding       |                               |   |  |
| Rye or Wheat            | September 15<br>to October 30 | 3 Pounds                                      | 2 Bushels                                    |
| Soil Protection         |                               |   |  |
| Small Grain Straw Mulch | October 30<br>to<br>March 1   | 2 to 3 Bales                                  | 2 Tons                                       |

\* Other mixtures may be considered by the ~~Municipal Engineer~~City Engineer.

(Ord. No. 92-21, 6-26-1992)

#### 1111.07 - EROSION AND SEDIMENT CONTROL.

- (a) *Requirements.* No person shall cause or allow earth-disturbing activities on a development area except in compliance with the standards and criteria set out in subsection (c) hereof and the applicable subsection (a)(1) or (2) hereof:
- (1) When a proposed development area consists of one or more acres and earth-disturbing activities are proposed for the whole area or any part thereof, the responsible person shall develop and submit for approval a sediment control plan prior to any earth-disturbing activity. Such a plan must contain sediment pollution control practices so that compliance with other provisions of this chapter will be achieved during and after development. Such a plan shall include specific requirements established by the approving agency and be filled with approving agency.
  - (2) When a proposed development area involves less than one acre, it is not necessary to submit a sediment control plan; however, the responsible person must comply with the other provisions of this chapter. All earth- disturbing activities shall be subject to surveillance and site investigation by the approving agency to determine compliance with the standards and regulations.
- (b) *Exceptions.* No sediment control plan shall be required for public road, highway, other transportation, or drainage improvement, or maintenance thereof, undertaken by a government agency or entity if

such agency or entity plans to follow a statement of sediment control policy which has been submitted by the sponsoring agency or entity and approved by the approving agency.

- (c) *Standards and Criteria During and Through the End of Construction.* In order to control sediment pollution of water resources the owner or person responsible for the development area shall use conservation planning and practices to maintain the level of conservation established by the following standards:

- (1) *Timing of sediment-trapping practices.* Sediment control practices shall be functional throughout earth-disturbing activity. Settling facilities, perimeter controls, and other practices intended to trap sediment shall be implemented as the first step of grading including the start of clearing and grubbing. They shall continue to function until the upslope development area is restabilized.
- (2) *Stabilization of denuded areas.* Denuded areas shall have temporary and permanent soil stabilization applied according to the following tables:

| Area Requiring Temporary Stabilization  | Time Frame to Apply Temporary Stabilization   |
|---|---|
| Any disturbed areas within 50 feet of a stream and not a final grade  | Within two days of the most recent disturbance if the area will remain idle for more than 21 days |
| For all construction activities, any disturbed areas that will be dormant for more than 21 days but less than one year and not within 50 feet of a stream | Within seven days of the most recent disturbance in the area                                      |
| Disturbed areas that will be idle over winter   | Prior to the onset of winter weather  |

| Area Requiring Permanent Stabilization               | Time Frame to Apply Permanent Stabilization                  |
|--|--|
| Any areas that will lie dormant for one year or more | Within seven days of the most recent disturbance in the area |

| Area Requiring Permanent Stabilization                  | Time Frame to Apply Permanent Stabilization |
|---|---|
| Any areas within 50 feet of a stream and at final grade | Within 2 days of reaching final grade       |

|                                |  |
|--------------------------------|--|
| Any other areas at final grade | Within seven days of reaching final grade within that area |
|--------------------------------|--|

Where vegetative stabilization techniques may cause structural instability or are otherwise unobtainable, alternative stabilization techniques must be employed.

- (3) *Settling facilities.* Concentrated stormwater runoff from denuded areas shall pass through a sediment-settling facility.  
The facility's storage capacity shall be sixty-seven cubic yards per acre of drainage area.
- (4) *Sediment barriers.*
  - A. Sheet flow runoff from denuded areas shall be filtered or diverted to a settling facility.
  - B. Sediment barriers such as sediment fence or diversions to settling facilities shall protect adjacent properties and water resources from sediment transported by sheet flow.
- (5) *Storm sewer inlet protection.* All storm sewer inlets which accept water runoff from the development area shall be protected so that sediment-laden water will not enter the storm sewer system without first being filtered or otherwise treated to remove sediment.
- (6) *Working in or crossing streams.*
  - A. Streams including bed and banks shall be restabilized immediately after in-channel work is completed, interrupted, or stopped.  
To the extent practicable, construction vehicles shall be kept out of streams. Where in-channel work is necessary, precautions shall be taken to stabilize the work area during construction to minimize erosion.
  - B. If a live (wet) stream must be crossed by construction vehicles regularly during construction, a temporary stream crossing shall be provided.
- (7) *Construction access routes.* Measures shall be taken to prevent soil transport onto surfaces where runoff is not checked by sediment controls, or onto public roads.
- (8) *Sloughing and dumping.*
  - A. No soil, rock, debris, or any other material shall be dumped or placed into a water resource or into such proximity that it may readily slough, slip, or erode into a water resource unless such dumping or placing is authorized by the approving agency, and when applicable, the U.S. Army Corps of Engineers, for such purposes as, but not limited to, constructing bridges, culverts, mitigating wetlands, and erosion control structures.
  - B. Unstable soils prone to slipping or landsliding shall not be graded, excavated, filled or have load imposed upon them unless the work is done in accordance with a qualified professional engineer's recommendation to correct, eliminate, or adequately address the problems.
- (9) *Cut and fill slopes.* Cut and fill slopes shall be designed and constructed in a manner which will minimize erosion. Consideration shall be given to the length and steepness of the slopes, soil type, upslope drainage area, groundwater conditions, and slope stabilization.
- (10) *Stabilization of outfalls and channels.* Outfalls and constructed or modified channels shall be designed and constructed to withstand the expected velocity of flow from a post-development, ten-year frequency storm to minimize erosion.

- (11) *Establishment of permanent vegetation.* A permanent vegetation shall not be considered established until ground cover is achieved which, in the opinion of the approving agency, provides adequate cover and is mature enough to control soil erosion satisfactorily and to survive adverse weather conditions.
  - (12) *Disposition of temporary practices.* All temporary erosion and sediment control practices shall be disposed of within 30 days after final site stabilization is achieved or after the temporary practices are no longer needed, unless otherwise authorized by the approving agency. Trapped sediment shall be permanently stabilized to prevent further erosion.
  - (13) *Maintenance.* All temporary erosion and sediment control practices shall be designed and constructed to minimize maintenance requirements. They shall be maintained and repaired as needed to assure continued performance of their intended function.
- (d) *Additional Requirements.*
- (1) The standards are general guidelines and shall not limit the right of the approving agency to impose additional, more stringent requirements, nor shall the standards limit the right of the approving agency to waive individual requirements.
  - (2) Erosion and sediment control practices used to satisfy standards shall meet the specifications in the current edition of Water Management and Sediment Control For Urbanizing Areas (Soil Conservation Service, Ohio).
  - (3) Erosion and sediment control practices used shall satisfy the requirements set forth in Ohio EPA Permit Number OHC000003-Authorization for Storm Water Discharges Associated with Construction Activity Under the National Pollutant Discharge Elimination System and/or. OHCO000001-Authorization for Storm Water Discharges Associated with Construction Activity Located Within Portions of the Olentangy River Watershed Under the National Pollutant Discharge Elimination System, or subsequent issuances of these permits.
- (e) *Post-construction Storm Water Management Requirements.* Post-construction storm water quality management design shall satisfy the requirements set forth in Ohio EPA Permit Number OHC000003-Authorization for Storm Water Discharges Associated with Construction Activity Under the National Pollutant Discharge Elimination System and/or. OHCO000001-Authorization for Storm Water Discharges Associated with Construction Activity Located Within Portions of the Olentangy River Watershed Under the National Pollutant Discharge Elimination System, or subsequent issuances of these permits.
- (f) *Stream Channel and Flood Plain Erosion.*
- (1) To control pollution of public waters by soil sediment from accelerated stream channel erosion and to control flood plain erosion caused by accelerated stormwater runoff from development areas, the increased peak rates and volumes of runoff shall be controlled such that:
    - A. The peak rate of runoff from the 100-year storm (unless the City Engineer requires more stringent criteria) and all more frequent storms occurring on the development area does not exceed the peak rate of runoff from a one-year frequency, 24 hour storm occurring on the same area under predevelopment conditions.
    - B. The peak rate of runoff for the water quality volume shall not exceed those release rates calculated as part of the Ohio EPA Permit Number OHC000003-Authorization for Storm Water Discharges Associated with Construction Activity Under the National Pollutant Discharge Elimination System and/or. OHCO000001-Authorization for Storm Water Discharges Associated with Construction Activity Located Within Portions of the Olentangy River Watershed Under the National Pollutant Discharge Elimination System, or subsequent issuances of these permits.
  - (2) Methods for controlling increases in stormwater runoff peaks and volumes may include but are not limited to:

- A. Retarding flow velocities by increasing friction; for example, grassed road ditches rather than paved street gutters where practical (low density development areas, access roads, etc.); discharging roof water to vegetated areas; or grass and rock lined drainage channels;
- B. Grading and construction of terraces and diversions to slow runoff and use of grade control structures to provide a level of control in flow paths and stream gradients;
- C. Induced infiltration of increased stormwater runoff into the soil where practical; for example, constructing special infiltration areas where soils are suitable; retaining topsoil for all areas to be revegetated; or providing good infiltration areas with proper emergency overflow facilities; and,
- D. Provisions for detention and retention; for example, permanent ponds and lakes with stormwater basins provided with proper drainage, multiple use areas for stormwater detention and recreation, wildlife, transportation, fire protection, aesthetics, or subsurface storage areas.

(g) *Administration.*

- (1) *Plan review.* The approving agency shall within 90 days of receipt of a sediment control plan, indicate its approval or disapproval to the person who filed the plan. Indication of disapproval shall include the plan deficiencies and the procedures for filing a revised plan. Pending preparation and approval of a revised plan, earth-disturbing activities shall proceed only in accordance with conditions outlined by the approving agency.
- (2) *Inspection to ensure compliance.* The Municipality or its representative may inspect development areas to determine compliance with these regulations. If it is determined that a violation of these regulations exists, the responsible person will be notified of the deficiencies or noncompliance. After a reasonable time for voluntary compliance, the inspector or inspecting agency shall report that deficiency or noncompliance to the Municipality. The Municipality upon determination that a person is not complying with these regulations may issue, an order to cease all construction activity until the development is in compliance. The order shall describe the problem and the work needed, and specify a date whereby the work must be completed.
- (3) *Appeals.* Any person aggrieved by any order, requirement, determination, or any other action or inaction in relation to this regulation may appeal to the court of common pleas. Such an appeal shall be made within 20 days of the date of an order or decision and shall specify the grounds for appeal.
- (4) *Maintenance.* The Municipality shall assume overriding responsibility for permanent maintenance of structures and other facilities designed to control erosion and manage stormwater runoff when the benefiting area involves two or more property owners unless otherwise determined by agreement. The Municipality may require structures and facilities to be designed to reduce maintenance costs and/or allow individual or group property owners' maintenance, with ultimate responsibilities remaining with the Municipality.

- (h) *Penalties for Violations.* Violation of the provisions of this chapter or failure to comply with any of its requirements shall constitute a minor misdemeanor. Any person who violates this chapter or fails to comply with any of its requirements shall upon conviction thereof be fined not more than \$100.00 for each offense, and in addition pay all costs and expenses involved in the case. Each day such violation continues shall be considered a separate offense. Nothing herein contained shall prevent the municipality from taking such other lawful action as is necessary to prevent or remedy any violation.

(i) *Definitions.* For the purpose of this chapter certain rules or word usage apply to the text as follows:

- (1) Words used in the present tense include the future tense; and the singular includes the plural, unless the context clearly indicates the contrary.
- (2) The term *shall* is always mandatory and not discretionary; the word *may* is permissive.
- (3) The word or term not interpreted or defined by this article shall be used with a meaning of common or standard utilization, so as to give this ordinance its most responsible application.

- (4) *Approving agency* means the governing body of the Municipality or its duly designated representative.
- (5) *Channel* means a natural stream that conveys water; a ditch or channel excavated for the flow of water.
- (6) *Development area* means any contiguous (abutting) area owned by one person or operated as one development unit and used or being developed for non-farm commercial, industrial, residential, or other non-farm purposes upon which earth-disturbing activities are planned or underway.
- (7) *District* means a soil and water conservation district, organized under Chapter 1515 of the Ohio Revised Code.
- (8) *Ditch* means an excavation either dug or natural for the purpose of drainage or irrigation with intermittent flow.
- (9) *Drainageway* means an area of concentrated water flow other than a river, stream, ditch, or grassed waterway.
- (10) *Dumping* means grading, pushing, piling, throwing, unloading, or placing.
- (11) *Earth-disturbing activity* means any grading, excavating, filling or other alteration of the earth's surface where natural or man-made ground cover is destroyed and which may result in or contribute to erosion and sediment pollution.
- (12) *Earth material* means soil, sediment, rock, sand, gravel, and organic material or residue associated with or attached to the soil.
- (13) *Erosion* means:
  - A. The wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep.
  - B. Detachment and movement of soil or rock fragments by wind, water, ice, or gravity.
  - C. Erosion includes:
    - 1. *Accelerated erosion*: Erosion much more rapid than normal, natural or geologic erosion, primarily as a result of the influence of the activities or man.
    - 2. *Floodplain erosion*: Abrading and wearing away of the nearly level land situated on either side of the channel due to overflow flooding.
    - 3. *Gully erosion*: The erosion process whereby water accumulates in narrow channels during and immediately after rainfall or snow or ice melt and actively removes the soil from this narrow area to considerable depths such that the channel would not be obliterated by normal smoothing or tillage operations.
    - 4. *Natural erosion (geologic erosion)*: Wearing away of the earth's surface by water, ice or other natural environmental conditions of climate, vegetation, etc., undisturbed by man.
    - 5. *Normal erosion*: The gradual erosion of land used by man which does not greatly exceed natural erosion.
    - 6. *Rill erosion*: An erosion process in which numerous small channels only several inches deep are formed; occurs mainly on recently disturbed soils.
    - 7. *Sheet erosion*: The removal of a fairly uniform layer of soil from the land surface by wind or runoff water.
- (14) *Grassed waterway* means a broad or shallow natural course or constructed channel covered with erosion-resistant grasses or similar vegetative cover and used to conduct surface water.

- (15) *Landslide* means the rapid downward and outward movement of large rock material and/or soil mass under the influence of gravity in which the movement of the soil mass occurs along an interior surface of sliding.
- (16) *Person* means any individual, corporation, partnership, joint venture, agency, unincorporated association, municipal corporation, county or state agency, the federal government, or any combination thereof.
- (17) *Sediment* means solid material both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by wind, water, gravity, or ice, and has come to rest on the earth's surface above or below sea level.
- (18) *Sediment basin* means a barrier, dam, or other suitable detention facility built across an area of waterflow to settle and retain sediment carried by the runoff waters.
- (19) *Sediment control plan* means a written description, acceptable to the approving agency, of methods for controlling sediment pollution from accelerated erosion on a development area of five or more contiguous acres or from erosion caused by accelerated runoff from a development area of five or more contiguous acres.
- (20) *Sediment pollution* means failure to use management or conservation practices to abate wind or water erosion of the soil or to abate the degradation of the waters of the state by soil sediment in conjunction with land grading excavating, filling or other soil-disturbing activities on land used or being developed for non-farm commercial, industrial, residential, or other non-farm purposes.
- (21) *Slip* means landslide as defined above.
- (22) *Sloughing* means a slip or downward movement of an extended layer of soil resulting from the undermining action of water or the earth-disturbing activity of man.
- (23) *Soil loss* means soil relocated on or removed from a given site by the forces of erosion and the redeposit of the soil at another site on land or in a body of water.
- (24) *Stabilization* means such practices as temporary seeding, permanent seeding, mulching, matting, sod stabilization, vegetative buffer strips, phasing of construction operations, use of construction entrances and the use of alternative ground cover.
- (25) *Storm frequency* means the average period of time within which a storm of a given duration and intensity can be expected to be equaled or exceeded.
- (26) *Stream* means a body of water running or flowing on the earth's surface or channel in which such flow occurs. Flow may be seasonally intermittent.
- (27) *Topsoil* means surface and upper surface soils which presumably are darker colored, fertile soil materials, ordinarily rich in organic matter or humus debris.

(Ord. No. 2011-03, 3-15-2011)

**APPENDIX A:  
TABLE OF PERMISSIBLE VELOCITIES FOR FLOWING WATER**

**TABLE ~~FD~~  
MAXIMUM VELOCITIES FOR GRASSED WATERWAYS**

|                             |
|-----------------------------|
| Slope Permissible Velocity* |
|-----------------------------|



| COVER                   | Range**<br>(percent) | Erosion Resistant<br>Soil (Ft. Per. Sec) | Easily Eroded Soil<br>(Ft. Per.Sec) |
|-------------------------|----------------------|--|-------------------------------------|
| Kentucky Bluegrass      | 0—5                  | 7  | 5                                   |
| Tall Fescue             | 5—10                 | 6  | 4                                   |
| Smooth Brome            | over—10              | 5  | 3                                   |
| Grass Mixtures**        | 0—5                  | 5  | 4                                   |
| Reed canary             | 5—10                 | 6  | 3                                   |
| Redtop***<br>Red Fescue | 0—5                  | 3.5                                      | 2.5                                 |

\* Use velocities exceeding five feet per second only where good cover and proper maintenance can be obtained.

\*\* Do not use slopes steeper than ten percent except for vegetated side slopes in combination with a stone, concrete, or highly resistant vegetative center section.

\*\*\* Do not use on slopes steeper than five percent except for vegetated side slopes in combination with a stone, concrete, or highly resistant vegetative center section.

#### DRAINAGE FIELD DITCHES

Drainage field ditches are shallow graded ditches with flat side slopes which do not interfere with tillage operations. Generally, the side slopes range from 8:1 to 15:1. The purpose of drainage field ditches is to collect water from depressional or nearly flat areas within a field and remove it to a stable outlet.

Generally, erosive velocities will not be a problem because of the low gradient of fields in which drainage field ditches are used and because of the shallow side slopes. Maximum velocities shall be limited to 2.5 feet/second unless on-site studies show that higher velocities will not result in erosive conditions.

#### MAXIMUM VELOCITIES FOR VEGETATED ~~STREAM~~ CHANNELS

##### Drainage Areas Less Than One Square Mile:

The maximum permissible design velocity shall be based on site conditions and shall be such as to result in stability of the ditch bottoms and side slopes. Maximum permissible velocities will be computed using bank-full stage of ten-year frequency stage whichever is lower. The following table will be used as maximum velocity for all drainage main or lateral designs. Vegetation will be established immediately after construction.

**Commented [JM23]:** Table is suitable for all channels, not specific to streams.

| SUBSOIL TEXTURE                                    | MAXIMUM VELOCITY*<br>(Ft. Per. Sec.) |
|--|--------------------------------------|
| Sand and sandy loam (non colloidal)                | 2.5                                  |
| Silt loam (also high lime clay)                    | 3.0                                  |
| Sandy clay loam                                    | 3.5                                  |
| Clay loam  | 4.0                                  |
| Stiff clay, fine gravel and graded loam to gravels | 5.0                                  |
| Graded silt to cobbles (colloidal)                 | 5.5                                  |
| Shale, hardpan, coarse gravel                      | 6.0                                  |

Drainage Areas Greater Than One Square Mile:

Channel velocities for newly constructed channels with drainage area in excess of one square mile shall meet special stability requirements contained in U.S. Soil Conservation Service Technical Guide (Technical Release 25, Planning and Design of Open Channels).

\* Channels that cannot be designed to meet the maximum velocity limitation must be stabilized with materials other than vegetation. Such materials include crushed rock, concrete, gabions, etc.

(Ord. No. 92-21, 6-16-1992)

1111.08 - NATURAL RESERVE.

There shall be preserved a natural area at least 120 feet wide along both sides of all streams designated as a state scenic river. This area shall be measured horizontally, perpendicular to the river, from the point on the river bank where the terrestrial and aquatic vegetation meet. No structures or improvement shall be permitted in the natural area except for those associated with storm drainage systems and underground utilities. Damaged or diseased trees or those in imminent danger of being uprooted or falling in or along the stream may be removed. The stump and root structure of trees on the stream bank shall be left in place to retard bank erosion.

(Ord. No. 92-21, 6-16-1992)

1111.09 - SANITARY SEWERAGE SYSTEM.

Sanitary sewerage systems shall meet the requirements of the Delaware County Sanitary Sewer District. All Sanitary Sewer Designs shall be submitted to the ~~Municipal Engineer~~City Engineer for approval prior to final submission to the Sewer District.

(Ord. No. 92-21, 6-16-1992)

#### 1111.10 - WATER SYSTEM.

- (a) The water lines and appurtenances shall meet the requirements of the DelCo Water Company.
- (b) The minimum size water line serving one fire hydrant shall be six inch diameter. When two or more fire hydrants will draw water through the same waterline the minimum diameter shall be eight inches. Fire hydrants shall be spaced so that any point of an inhabited building can be reached by using less than 500 feet of fire hose from two fire hydrants. All fire hydrants shall conform to and be installed in accordance with the Municipality of Powell Standard Drawings.

(Ord. No. 92-21, 6-16-1992)

#### 1111.11 - MONUMENTS, LOT PINS.

- (a) (1) Monuments shall be placed at each change of direction of a subdivision or development boundary, at the point of intersection of the centerlines of all streets, at the beginning and ending of each street centerline curve, and at the center of each cul-de-sac.
- (2) Monuments in the street centerlines shall be placed upon the completion of paving. Monuments outside of the street pavement shall be placed or their existence verified upon the completion of work in the immediate area of the monument's location. Monuments on the street centerline shall be railroad spikes not less than six inches long or one inch by 30 inches solid iron bars with the exact point marked with a center punch or "X". Then tops of monuments on the street centerline shall be set at least one-quarter inch below the pavement surface. Monuments outside the paved area shall be one-half inch by 36 inch iron bar.
- (b) Prior to conditional acceptance of public improvements, all lot corners, all lot line angle points, and the beginning and ending points of curves in all lot lines shall be marked by the use of hubs or pins with witness stakes or reference points in the pavement, curb or other features. A plan showing the references shall be filed with the ~~Municipal Engineer~~City Engineer when referencing is used.
- (c) After the completion of site grading and prior to the issuance of a certificate of occupancy for any lot, iron pins shall be set or their existence verified at all lot corners, at all lot line angle points, and at the beginning and ending of curves in all lot lines. Iron pins shall be one-half inch by 36 inch solid iron bars driven flush with the ground. If the point to be marked falls in a blacktop drive, a railroad spike not less than six inches long may be used. If the point to be marked falls in a concrete drive, a P.K. nail may be set.
- (d) All monuments and lot pins or references shall be set by a surveyor who is registered in the State of Ohio. All pins shall have a cap identifying the surveyor and registration number.

(Ord. No. 92-21, 6-16-1992)

#### 1111.99 - PENALTY.

Whoever violates any provision of this chapter shall be fined not more than \$500.00 per offense. A separate offense shall be deemed committed each day during or on which an offense occurs or continues.

(Ord. No. 92-21, 6-16-1992)

CHAPTER 1113 - MINIMUM STANDARDS FOR CONSTRUCTION IMPROVEMENTS<sup>[6]</sup>

Sections:

Footnotes:

--- (6) ---

**Cross reference**— Minimum design standards, Ch. 1111

1113.01 - PURPOSE.

The purpose of this chapter is to establish minimum standards for constructing sanitary sewers, waterlines, pavements, storm sewers and other site improvements within the corporate limits of the Municipality.

(Ord. No. 86-28, 7-1-1986)

1113.02 - DEFINITIONS.

The definitions of Chapter 1103 shall be used in this chapter unless the context of any section of this chapter specifically indicates that such definitions are not applicable.

(Ord. No. 86-28, 7-1-1986)

1113.03 - REFERENCE SPECIFICATIONS.

All work shall be performed in accordance with the standards for materials, workmanship and procedures established in the latest edition of the specifications and standard drawings adopted in Table 107-I hereof, except as such standards are added to or modified herein, or in the approved Construction Plans and Contract Documents. The reference to sections or items of the specifications in Table 107-I, shall include all work covered by that section or item. Therefore, the reference to Section 200, EARTHWORK of the ODOTS, also refers to ITEM 201, Clearing and Grubbing, or ITEM 203, Roadway Excavation and Embankment, as well as 203.13, Subgrade.

- (a) Where used in this chapter, the abbreviations set forth in the left hand column immediately below stand for the published standards or governmental units described immediately to the right of the abbreviation.

|     |               |   |             |   |
|-----|---------------|---|-------------|---|
| (1) | <u>DCSD</u>   | <u>= Delaware County Sewer District</u> | <u>DCSD</u> | <u>= Delaware County Sewer District</u> |
| (2) | <u>DCWC</u>   | <u>= DelCo Water Company</u>            |             |   |
| (3) | <u>POWELL</u> | <u>= City of Powell</u>                 |             |   |

Formatted Table

|     |              |  |               |  |
|-----|--------------|--|---------------|--|
| (4) | <u>ODOT</u>  | <u>= State of Ohio Department of Transportation</u>  |               |  |
| (5) | <u>ODOTS</u> | <u>= State of Ohio Department of Transportation Construction and Material Specifications</u> |               |  |
| (6) | <u>COC</u>   | <u>= City of Columbus Construction and Material Specifications</u>                           |               |  |
|     |              | <del>(4)</del>   |               |  |
|     |              | <del>(2)</del>   | <u>DCWC</u>   | <u>= DelCo Water Company</u>   |
|     |              | <del>(3)</del>   | <u>POWELL</u> | <u>= City of Powell</u>  |
|     |              | <del>(4)</del>   | <u>ODT</u>    | <u>= State of Ohio Department of Transportation</u>  |
|     |              | <del>(5)</del>   | <u>ODTS</u>   | <u>= State of Ohio Department of Transportation Construction and Material Specifications</u> |

|     |               |  |
|-----|---------------|--|
| (1) | <u>DCSD</u>   | <u>= Delaware County Sewer District</u>  |
| (2) | <u>DCWC</u>   | <u>= DelCo Water Company</u>   |
| (3) | <u>POWELL</u> | <u>= City of Powell</u>  |
| (4) | <u>ODOT</u>   | <u>= State of Ohio Department of Transportation</u>  |
| (5) | <u>ODOTS</u>  | <u>= State of Ohio Department of Transportation Construction and Material Specifications</u> |
| (6) | <u>COC</u>    | <u>= City of Columbus Construction and Material Specifications</u>                           |

(b) Table 107-I REFERENCE STANDARDS.

| Type of Work                  | Reference Specifications  | Standard Construction Drawings                              |
|-------------------------------|---|---|
| Earthwork                     | Section "200 EARTHWORK," <del>ODTS</del> <u>ODOTS</u>                                       | <del>POWELL &amp; ODOT</del> <u>OR COC</u>                  |
| Roadway Bases                 | Section "300 BASES," <del>ODTS</del> <u>ODOTS</u>   | <del>POWELL</del> <u>ODOT OR COC</u>                        |
| Roadway Pavement              | Section "400 FLEXIBLE PAVEMENT" & Section "450 RIGID PAVEMENT" <del>ODTS</del> <u>ODOTS</u> | <del>POWELL</del> <u>ODOT OR COC</u>                        |
| Structures                    | Section "500 STRUCTURES," <del>ODTS</del> <u>ODOTS</u>                                      | <del>ODT &amp; POWELL</del> <u>ODOT OR COC</u>              |
| Incidentals<br>(See Note # 1) | Section "600 INCIDENTALS," <del>ODTS</del> <u>ODOTS</u>                                     | <del>ODT &amp; POWELL</del> <u>ODOT OR COC</u>              |
| Roadside & Unpaved Areas      | Section "650 ROADSIDE," <del>ODTS</del> <u>ODOTS</u>  | <del>ODT &amp; POWELL</del> <u>ODOT OR COC</u>              |
| Waterline System              | <del>DCWC</del> <u>DELCO</u>  | <del>DCWC &amp; POWELL</del> <u>DELCO</u><br>(See Note # 2) |
| Sanitary Sewer System         | <del>DCRSD</del>  | (See Note # 2) <u>DCRSD</u>                                 |

**Commented [JM24]:** FORMATTED TABLE. UPDATED REFERENCE DRAWING AND SPECIFICATIONS

NOTE 1. All work and material pertaining to sanitary sewer construction shall be governed by the Delaware County Sanitary District, unless modified by the approved Construction Plans and documents.

~~NOTE 2. The Powell Standard Drawings for the Fire Hydrants and incidental work thereto will govern all work unless some other standard drawing or detail is specified on the Construction Plans or the DelCo Water Company requirements are more stringent.~~

(c) The following are modifications to the reference specification of Table 107-I.

- (1) Sidewalks: ~~ODTS~~ ODOTS 608.03(c) is changed by deleting the next to last sentence that pertains to construction joints around manholes, etc. The last sentence is changed to read: "Premolded expansion joint material ½ inch thick shall be installed to the full depth and across the full width of the walk at intervals of thirty feet (30') minimum, when the sidewalk thickness changes such as at driveway entrances, and between the walk and any fixed structures or object such as buildings, manholes, curbing, sign posts, existing sidewalks or structures, or utility poles." ~~ODTS~~ ODOTS 608.03(d) is changed to read: "transverse slope of 3/8 inch per foot."

**Formatted:** Strikethrough

**Formatted:** Strikethrough

**Formatted:** Strikethrough

**Formatted:** Strikethrough

**Formatted:** Strikethrough

- (2) Curbing: The requirement for joint sealer in ~~ODTS~~ ODOTS 609.04(a) is deleted. ~~ODTS~~ ODOTS 609.04(f) is added as follows: "When mountable curb is not used, curb drops for driveways shall be constructed at the same time curbing or curb and gutter is constructed. When the curbing is in place at the time driveway drops are required, such curb or curb and gutter shall be removed and replaced in five-foot increments, as required to install the driveways."
- (3) Item 609.05, ~~ODTS~~ ODOTS is deleted.
- (4) Storm Sewer System: The materials permitted shall be governed by those identified in the general notes or detail sheets of the approved construction plans and/or contract documents.
- (5) ~~The seed mixture and application rates contained in Item 659 are deleted and replaced with those shown on the Powell Standard Drawings or as approved by the City Engineer. When seeding and mulching is performed using the hydro seeding method, the contractor shall insure that there will be sufficient moisture during the seed germination period and 30 days thereafter to support the growth of a healthy stand of grass.~~

Formatted: Strikethrough

Formatted: Strikethrough

Formatted: Strikethrough

Formatted: Strikethrough

(Ord. No.86-28, 7-1-1986; Ord. No. 87-03, 3-17-1987; Ord. 88-19, 8-24-1988)

#### 1113.04 - STREET LIGHTING REQUIREMENTS.

The developer shall install a street lighting system as described herein:

- (a) Street lights shall be installed with electrical material and equipment so that each is ready for service and in conformity with City Standard Construction Drawings.
- (b) Unless otherwise shown on the Standard Construction Drawings or modified by these specifications, all material and workmanship shall conform to Item 625, ~~ODTS~~ ODOTS.
- (c) The developer for the particular area under development shall obtain all permits required by the ~~Columbus and Southern Ohio Electrical Company~~ American Electric Power Company.
- (d) Prior to acceptance and following the installation of the electric and gas lines excluding the service entrances or lines, the Contractor shall operate, the lighting system, including automatic control equipment and other apparatus, from sunset to sunrise for ten consecutive days without interruption or failure. If a cable is broken or damaged the cable shall be repaired and the burn test resumed for the remainder of the test period of five days whichever is longer. If a lamp or a ballast should fail during any of the burn test period, it shall be immediately replaced and the ten day burn test shall be required to be restarted.
- (e) All electric lines leading to the light poles shall be underground, unless otherwise permitted by the City Engineer in previously developed areas. Except as described below, all underground cable shall be installed in PVC plastic conduit meeting the requirements of Item 725.05 ODOTS, sized in accordance with the National Electric Code requirements. Unless approved by the engineer, the energy lines shall be one continuous cable between poles. When a connection is approved in the underground cable, this connection shall be installed in a plastic pull box meeting the requirements of 713.08 ODOTS.
- (f) All cable shall meet the requirements of Item 625.17 and 725.02 ODOTS, as modified herein. All cable shall be #6 AWG stranded copper wire with 600 volt insulation. The insulation for all cable, except the cable in the aluminum pole, shall be suitable for direct burial.
- (g) All cable runs in excess of 200 feet shall have a three percent (3%) voltage drop derating factor applied. No cable runs shall be smaller than #6 AWG copper conductors, and all cable shall be for direct burial.
- (h) Unless otherwise shown, trenches shall conform to Item 625.13 ODOTS. Plastic tape marked "electric wire" or "electric cable" shall be laid one foot above the conduit during the trench backfill operation.

Formatted: Strikethrough

Formatted: Strikethrough

Commented [JM25]: Updated specification

Commented [JM26]: Deleted reference to aluminum conductor

- (i) A PVC, schedule 80 conduit sleeve sized in accordance with the requirements of the National Electric Code shall be installed under all public roadways, and existing driveway and sidewalks in excess of five feet in width.
- (j) All cable lighting structures and appurtenances shall be located within a public right-of-way or easement. The design of the system will be coordinated with the American Electric Power Company.
- (k) All connections shall meet the requirements of Item 625.18 and 725.15 ODOTS as modified herein. In light pole bases, provide fused, quick disconnect Y connector kits and unfused, quick disconnect Y connector kits as required.
- (l) No street shall be accepted before the street lighting system has been completely installed, tested and is ready for use.
- (m) All street lighting design shall be approved by the CompanyAmerican Electric Power Company. Two drawings of the "as-built" street lighting layout shall be presented to the American Electric Power Company for record purposes.

(Ord. No. 86-28, 7-1-1986; Ord. No. 88-19, 8-24-1988)

#### 1113.05 - STREET CONSTRUCTION REQUIREMENTS.

In addition to the requirements of Table 107-I, street construction shall be in accordance with the following:

- (a) With the exception of that portion which is under and behind the curbs, the subgrade shall be shaped and compacted after the placement of curbs, sewers and underdrains.
- (b) Before any base course is laid, the contractor shall stockpile granular material, or agree to use base material, and have the necessary equipment available to repair areas of failed subgrade. All areas of subgrade failure, as determined by the City, shall have the failed material removed at least six inches deep and replaced with clean granular material, compacted granular material or the base course material. Areas of minor rutting shall be shaped to grade and rolled prior to placing the base material.
- (c) Regardless of the type of pavement section being used, all residential streets, except as provided below, shall have:
  - (1) Five inches of 6½ bay mix concrete base with sawed joints, or
  - (2) Six inches of 5½ bay mix concrete base with sawed joints, or
  - (3) Eight and one-half inches of asphaltic base, or
  - (4) Twenty percent thicker stone base than is required for a local residential street, or
  - (5) When concrete pavement is used without any base material, seven inches of concrete surface course.
- (d) The additional thickness as stated above are not required for any residential street which:
  - (1) Is a cul-de-sac, or
  - (2) Is less than 1,000 feet long, or
  - (3) Does not serve as an outlet or collector for more than 20 lots.
- (e) No reduction of the surface course or intermediate course shall be allowed because of the increased thickness of the base course.

(Ord. No. 86-28, 7-1-1986; Ord. No. 87-03, 3-17-1987)



#### 1113.06 - CONSTRUCTION TRAFFIC.

Construction traffic shall be confined within a development as described herein and routed through the City as directed by the City Engineer. During the construction of, and prior to the final acceptance of streets which are to become public, construction traffic shall be controlled as follows:

- (a) The trucks used to deliver base and surface paving materials shall be routed to minimize the length of travel on the prepared and accepted subgrade and base material, respectively.
- (b) All traffic shall stay off the concrete base for seven days, the asphaltic base for two days, the asphaltic surface course for two days, and the concrete surface course for 14 days after placement. After this time the base course and surface courses can be used for construction traffic.
- (c) The developer shall post signs at entry points of a major development, directing construction traffic in accordance with this section.

(Ord. No. 86-28, 7-1-1986)

#### 1113.07 - GENERAL REQUIREMENTS.

- (a) No downspouts, surface inlets, foundation drains, subsurface drains or any other source of ground or surface water shall be connected, either directly or indirectly, to or discharge into any part of the sanitary sewage system. Such drains, inlets and downspouts shall be so constructed as to drain or be pumped into the street, gutter, ditch or storm sewers.
- (b) Where utilities are under or within five feet of proposed streets, roads or drives, the trench backfill shall be compacted granular material to within six inches of the proposed finished grade or to the subgrade in accordance with Item 310 ODOTS.
- (c) All utilities shall be installed under existing paved streets by boring or jacking, unless open cutting is specifically approved by the City Engineer.
- (d) All streets and storm sewers shall be thoroughly cleaned prior to final acceptance.

(Ord. No. 86-28, 7-1-1986)

#### 1113.08 - CONSTRUCTION LAYOUT.

All construction layout shall be performed by an engineer or surveyor, registered in the State of Ohio, at no cost to the City. Cut sheets shall be prepared for all sewers and waterlines following the format established by the City. At least one copy of all cut sheets shall be delivered to the City Engineer two working days prior to beginning any work.

(Ord. No. 86-28, 7-1-1986)

#### 1113.99 - PENALTY.

- (a) Any person who violates any provision of this chapter shall be served by the City with written notice stating the nature of the violation and providing a reasonable time limit for the satisfactory correction thereof. The offender shall, within the period of time stated in such notice, permanently cease all violations. Any person who continues any violation beyond the time limit provided for herein shall be fined not more than \$500.00 for each offense. A separate offense shall be deemed committed each day during or on which an offense occurs or continues.

- (b) Any person who violates any of the provisions of this chapter shall become liable to the City of Powell for any expense, loss or damage occasioned by the City by reason of such violation.

(Ord. No. 86-28, 7-1-1986)

#### CHAPTER 1115 - INSPECTION GUARANTEES AND ACCEPTANCE<sup>17</sup>

Sections:

Footnotes:

--- (7) ---

**State Law reference**— Engineer to approve plats; inspection of streets and acceptance, O.R.C. §§ 711.08, 711.09; Plat approval, O.R.C. § 711.09

##### 1115.01 - PURPOSE.

The purpose of this chapter is to establish the City inspection and acceptance procedures for any public improvements that will become the responsibility of the City.

(Ord. No. 2005-21, 5-4-2005)

##### 1115.02 - DEFINITIONS.

The definitions of Chapter 1103 shall be used in this chapter unless the context of any section of this chapter specifically indicates that such definitions are not applicable.

(Ord. No. 2005-21, 5-4-2005)

##### 1115.03 - INSPECTION AND RECORDING SITE IMPROVEMENTS.

The materials, equipment and procedures used for the construction of all site improvements and public improvements, including but not necessarily limited to streets, sidewalks, storm sewers, and the portion of the sanitary sewers and waterlines which lay within the public right-of-way, will be observed and tested. The location of the public improvements shall be entered into the records of the City by the City Engineer. The cost of such field observation, testing and recording shall be paid by the developer or owner. The estimated cost of this shall be deposited with the City at, or prior to, the pre-construction meeting prior to the beginning of construction. Upon written application by the depositor to the City Engineer within six months from the date of completion of the site improvements as evidenced by a Certificate of Occupancy or the date of final acceptance of the public improvements as required by Section 1115.07, whichever occurs later, all unused monies so deposited shall be refunded to the depositor. If the depositor fails to make such written application for refund, the excess funds so deposited shall be forfeited to the City and credited to the General Fund.

(Ord. No. 2008-17, 6-3-2008)

##### 1115.04 - CONSTRUCTION GUARANTEE.

The developer or owner shall guarantee construction, as required in Section 1105.10(g) for the public improvements that will become the responsibility of the City, as required by the Delaware County Sewer District for public sanitary sewers and as required by Del-Co Water Company for the waterlines.

(Ord. No. 2005-21, 5-4-2005)

#### 1115.05 - CONDITIONAL ACCEPTANCE.

Upon substantial completion of the construction as shown on the approved construction plans and documents as required by Section 1109, and at the written request by the developer or owner to the City Engineer, the City may grant conditional acceptance, by adopted resolution of City Council, of the public construction that will become the responsibility of the City. This acceptance shall be conditioned upon:

- (a) The posting of a maintenance guarantee as required in Section 1115.06;
- (b) The submission of a mylar set computer files, with format as required by the City Engineer, or "as-built" drawings of all public improvements that will become the responsibility of the City;
- (c) All major components of the public construction of the development being completed to the extent that does not present undue health, safety and welfare hazards to the citizens;
- (d) A guarantee being made that is satisfactory to the City Engineer and Law Director for the completion of the unfinished work. This guarantee is in addition to the maintenance guarantee as identified in Section 1115.05(a);
- (e) The City shall not issue any zoning certificates for building construction related to the development of the public improvements until such time as the conditional acceptance resolution required by this section is adopted by City Council. The City may issue zoning certificates for building construction related to the development following the adoption of the conditional acceptance resolution by City Council as required by this section;
- (f) The developer or owner shall complete, within one year from the date of approval of the conditional acceptance resolution by City Council, all unfinished work and deficient items as identified within the City Engineer's punch list at the time of conditional acceptance. Prior to the end of this one-year period, the developer or owner shall request, in writing to the City Engineer, a formal inspection of the improvements to ensure that all unfinished work and deficient items have been completed by the end of the one-year period. Shall the developer or owner fail to meet this requirement, the City may not issue additional zoning certificates for building construction and the City may impose a fee as approved by City Council in the official fee schedule. The City may also utilize the maintenance guarantee to complete any portion of the unfinished work or City Engineer's punch list of deficient items.

(Ord. No. 2005-21, 5-4-2005)

#### 1115.06 - MAINTENANCE GUARANTEE FOR IMPROVEMENTS; BOND.

- (a) The developer or owner shall guarantee all public improvements for a period of at least two years from the date such improvements receive conditional acceptance by the City as required by Section 1115.05, plus the time it takes to correct all defects and deficiencies found during the two year period. This guarantee shall include, but not necessarily be limited to, any and all defects and deficiencies in workmanship, materials, and damage caused by others. The cost of all labor, materials, equipment and other incidentals required to maintain, repair and replace any or all of such improvements and to maintain them in good and proper condition, to the satisfaction of the City Engineer during the two year guarantee period shall be assumed by such developer or owner. In the event the developer or owner fails to make such maintenance, repairs or replacements prior to the expiration of the minimum two year maintenance period, or in the event of an emergency which may endanger life or property, the City may make or cause to be made, such repairs or replacement at the expense of such developer

or owner. In order to indemnify the City for the expense of any such repairs or replacements made by or at the direction of the City, a maintenance guarantee shall be made by filing with the City evidence satisfactory to the City Engineer and Law Director of one of the following:

- (1) A maintenance bond equal to ten percent of the estimated construction cost, as approved by the City Engineer, for the public improvements, the maintenance bond shall not expire until such time as the public improvements receive final acceptance by adoption of an ordinance by the City Council as required by Section 1115.07.
  - (2) A certified check equal to ten percent of the estimated construction cost as approved by the City Engineer for public improvements, or
  - (3) Subject to the approval of the Law Director, a certificate of deposit or an irrevocable letter of credit made out to the City, equal to ten percent of the estimated construction cost as approved by the City Engineer of the public improvements. The certificate of deposit or letter of credit shall not expire until such time as the public improvements receive final acceptance by adoption of an ordinance by the city council as required by Section 1115.07.
- (b) At the written request of the developer or owner to the City Engineer, the maintenance guarantee will be released upon final acceptance of the improvements by the City.

(Ord. No. 2005-21, 5-4-2005)

#### 1115.07 - FINAL ACCEPTANCE.

The developer or owner shall request, in writing to the City Engineer, final acceptance and release of the maintenance guarantee. Final acceptance and release of the maintenance guarantee shall be given after all the public improvements have been satisfactorily maintained, all defects or deficiencies have been corrected and all expenses incurred by the City pursuant to the development have been paid in full.

(Ord. No. 2005-21, 5-4-2005)

#### 1115.99 - PENALTY.

- (a) Any person who violates any provision of this chapter shall be served by the City with written notice stating the nature of the violation and providing a reasonable time limit for the satisfactory correction thereof. The offender shall, within the period of time stated in such notice, permanently cease all violations. Any person who continues any violation beyond the time limit provided for herein shall be fined not more than \$500.00 for each offense. A separate offense shall be deemed committed each day during or on which an offense occurs or continues.
- (b) Any person who violates any of the provisions of this chapter shall become liable to the City of Powell for any expense, loss or damage occasioned by the City by reason of such violation.

(Ord. No. 2005-21, 5-4-2005)