

## **CHAPTER 21: EARTHWORK STANDARDS**

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## 21.00 INTRODUCTION AND GOALS

The purpose of this chapter is to provide information on earthwork design and construction other than for road subgrades or underground utility backfill, which are covered in Chapter 10 and Chapter 18 respectively. Earthwork design and construction shall conform also to the Standards in the City of Peoria Stormwater Ordinance .

## 21.01 ADMINISTRATION

- A. This chapter applies to earthwork design and construction within the City limits and the 1-1/2 mile extra territorial jurisdiction.
- B. Earthwork design shall be reviewed by the City of Peoria through any of the following:
  - 1. Subdivision plan review
  - 2. Grading and drainage plan review
  - 3. Alternate construction plan review (typically public improvements)
  - 4. Single family/duplex lot grading plan, proposed and as-built

## 21.02 STANDARDS

The following standards apply to earthwork:

- A. **Referenced Standards:** Standards for earthwork shall comply with the provisions of the IDOT Standard Specifications for Road and Bridge Construction, and the City of Peoria Stormwater Ordinance, latest editions, unless otherwise stated by this Manual.
- B. **All Projects:**
  - 1. Coordinate project haul routes with the City Engineer.
  - 2. General grading slope limits are 1% minimum, 2% preferred minimum and 3H:1V maximum, 4H:1V preferred maximum.
  - 3. Overall historical drainage patterns shall be maintained.
  - 4. All drainage facilities and sewer lines which are broken or damaged during construction shall be restored as nearly as possible to their original state by the contractor, except that all field tiles shall be connected to a manhole in the storm sewer system where necessary for protection of improvements or prevention of upstream flood damage.
  - 5. Embankment shall comply with the provisions of IDOT Standard Specifications.
- C. **Underground Utilities:**
  - 1. Prior to acceptance of the right of way trenches shall be compacted per IDOT Standard Specifications, After acceptance of the right of way, trenches shall be backfilled with controlled low strength material when any portion of the trench is within two feet of existing or planned paved surfaces. Any settlement that does occur shall be repaired immediately.
  - 2. Topsoil minimum thickness shall be 6 in.

**D. Detention Basins:**

1. Berms and basin slopes shall be constructed per IDOT embankment standards.
2. Topsoil minimum thickness shall be 6 in.

**E. All Projects with a Disturbed Area of over 5000 sq. ft., except New Single Family Dwellings:**

1. Topsoil minimum thickness shall be 1 ft
2. Minimum subgrade densities specified in the plans shall not be less than 95% of standard proctor density under pavement or 85% of standard Proctor density under topsoil.
3. Each building pad elevation shall be a minimum of 1.5ft. and not more than 3 ft. above the highest back of the curb elevation as measured at the property lines. Each building pad elevation shall not exceed 1/2 ft. above or below the adjacent building pad elevation differential to the highest back of curb elevation as measured at the property line.. The grade or slope away from a building pad shall be 10% for the first 5 ft. The grade may continue between a minimum of 1%, 2% preferred, and a maximum of 10% thereafter.
5. Topsoil, organic material, frozen material, and debris shall be removed from under proposed pavement or building locations.
6. A detailed site grading plan shall be submitted to and approved by the City prior to construction, including the following requirement:
  - A. North arrow/scale (minimum scale 1"=50').
  - B. Civil Engineer's seal and signature.
  - C. Project boundary with dimensions.
  - D. Lot lines and numbers with dimensions.
  - E. All adjacent property lines.
  - F. Existing contours and details of terrain. Extend existing contours at least 50' beyond the limits of the site.
  - G. Plot location of all existing structures, buildings, walls, fences, trees, curb & gutters, driveways and sidewalks, etc., to within 25 feet of site.
  - H. Plot all easements within the project site.
    - I. Plot all underground facilities (existing & proposed).
    - J. Show pad and finish floor elevations of all existing and proposed buildings.
    - K. Show details of all surface and subsurface drainage devices.
    - L. Show proposed drainage devices and swales.
    - M. Show proposed curb & gutter, sidewalks, parking, planter areas, etc. Check that grading plan matches site plan.
    - N. Check all edge conditions for offsite grading and cross lot drainage.
    - O. Check all edge conditions for offsite grading and cross lot drainage.
    - P. 3:1 maximum slope allowed
    - Q. Show stations and elevations along adjacent and internal existing and proposed streets.
    - R. Construction notes as applicable.
    - S. Details of non-standard drainage devices, etc.
    - T. Cross-section details as needed
    - U. Proposed contours, dimensions, street widths, existing utilities, proposed structures, buildings, parking lots, walls, drainage facilities, etc.
    - V. No surface drainage allowed over public ROW for commercial sites.

- W. Show flowline grades for all drainage swales and devices.
  - X. Show existing and proposed elevations at each lot corner and any high or low points
  - Y. Existing and proposed retaining walls with elevations. Proposed retaining walls with 3' or more height from grade to top of wall require a separate building permit.
  - Z. Minimum grade for earth swale is 1%; proposed permanent erosion control when slope exceeds 5%.
  - AA. The sides of common swales between houses shall be a minimum of 2% and maximum of 20% grade
  - BB. Flowlines of swales for rear yards of residences shall be a minimum of ten feet (10') from the house; side yard shall be a minimum of a three feet (3'); swales shall have a minimum depth of 3" below pad elevation.CC.
  - DD. Check the designated handicapped access route for pedestrian traffic through site (must meet ADA standards).
- F. New Single Family Dwellings
1. A Lot Grading Plan shall be submitted to and approved by the City prior to construction including the following requirements:
    - A. Site plans showing lot grading must be submitted with the building permit application. This plan must be in accordance with the overall drainage plan described in E. above and approved by Public Works. In the event that previously approved drainage plans do not exist, plans shall be prepared in accordance with lot grading standards described above.
    - B. Construction plans shall provide sufficient grades, ridge lines and directional arrows to define the proposed drainage pattern of the entire lot. A minimum of seven proposed lot grades shall be provided: four at the corners: two at the side yard midpoints; and one grade located at the center of the lot (rear of typical structure location). Intermediate grades will be defined by linear interpolation of lot grades provided.
    - C. Storm water runoff should be directed to adequate drainage structures or large natural drainage features.
    - D. For larger parcels, the entire lot may not require a topographic survey (large wooded areas, agricultural fields, wetlands, etc...). Adequate drainage around the proposed residence, yard, driveways, and other structures must be demonstrated.
    - E. Lots shall be graded to within 0.1 feet of the final grade prior to issuance of a Certificate of Occupancy (CO). In addition, a minimum grade of 1.0% minimum slope must also be provided. A lot grading certification must be submitted by the owner prior to issuance of a Certificate of Occupancy.
    - F. Lot grading which requires considerable fill (greater than 4.0 feet) shall be clearly delineated (shaded, cross-hatched, etc.) on the plan and is the responsibility of the developer.
    - G. Overland flow onto adjacent offsite property is generally unacceptable. When a natural slope of 5.0% or greater exists or more than four feet of fill is required, an area may drain in its natural direction. Easements may be required to drain water across adjacent property when runoff is increased or the direction of flow is altered.
    - H. The size of the plan shall be no larger than legal size paper.
    - I. A Right of Way Permit is required for any construction within the associated Right of Way including installation of driveway, sidewalks, trails, and culverts. A minimum 15-inch pipe diameter is required for driveway culverts.



